



Remedial Investigation Report

Glenn Springs Holdings
1913 Marine View Drive
Tacoma, Washington

Facility No.: 1213

Cleanup Site ID: 3671

A handwritten signature in black ink, appearing to read "Rob Harris", written over a horizontal line.

Rob Harris

A handwritten signature in black ink, appearing to read "Rick Bieber", written over a horizontal line.

Rick Bieber, LG

Glenn Springs Holdings

August 24, 2015

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009973 | Report No 14

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Glossary of Terms

1,1-DCE	1,1-dichloroethene
4,4'-DDE	4,4'-dichlorodiphenyldichloroethane
a-BHC	alpha-hexachlorocyclohexane
AMSL	above mean sea level
B2EP	bis(2-ethylhexyl)phthalate or (DEHP)
c.y.	cubic yards
CAP	Cleanup Action Plan
CLARC	Cleanup Levels and Risk Calculation
COCs	constituents of concern
CRA	Conestoga-Rovers & Associates
d-BHC	delta-hexachlorocyclohexane
Ecology	Washington Department of Ecology
FSP	Field Sampling Plan
ft bgs	feet below ground surface
g-BHC	gamma-hexachlorocyclohexane (Lindane)
General Metals	General Metals of Tacoma
mg/kg	milligrams per kilogram
µg/L	micrograms per liter
MTCA	Model Toxics Control Act
OCC	Occidental Chemical Corporation
PCE	tetrachloroethene
PLPs	Potentially Liable Parties
Property	1913 Marine View Drive
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
s.y.	square yards
SCSL	Sediment Cleanup Screening Level
SMS	Sediment Management Standard
SQS	Sediment Quality Standard
SRS	SRS Properties
SVOCs	semi-volatile organic compounds
TCE	trichloroethene
TCL/TAL	Target Compound List/Target Analyte List
TCLP	Toxicity Characteristic Leaching Procedure
VC	vinyl chloride
VOCs	volatile organic compounds
WAC	Washington Administrative Code

1. Introduction

1.1 Site Information

Site Name:	1913 Marine View Drive
Property Address:	1913 Marine View Drive, Tacoma, Washington
Project Consultant:	Conestoga-Rovers & Associates
Project Consultant Contact Information:	Rick Bieber 732 Broadway, Tacoma, Washington 98036 Office: (253) 573-1218
Current Owner/Operator:	SRS Properties

1.2 Purpose and Report Organization

The State of Washington Department of Ecology (Ecology) has determined that SRS Properties (SRS), Occidental Chemical Corporation (OCC), General Metals of Tacoma (General Metals), and Don Oline are Potentially Liable Parties (PLPs) for fill in the southern portion of the 1913 Marine View Drive Property located in Tacoma, Washington (Site). Ecology and the PLPs entered into Agreed Order No. 1679 dated July 6, 2007 that requires the PLPs to complete a Remedial Investigation (RI) at the Site, conduct a Feasibility Study (FS) to determine a preferred cleanup action, and develop a draft Cleanup Action Plan (CAP). The RI presented herein, prepared by GHD on behalf of the PLPs, presents the results of the data collected to date for the Site. A list of all documents reviewed in the preparation of this RI report is included in Appendix A.

The RI is organized as follows:

- Section 1.0 - Introduction: Presents an overview of the administrative background of the project.
- Section 2.0 - Site Description and Background: Presents summary descriptions of the location, land use, and ownership of the Site as well as previous environmental investigations.
- Section 3.0 - Natural Conditions: Presents natural conditions at the Site.
- Section 4.0 - Contaminant Occurrence and Movement: Presents both historical and recent data collected related to the Site.
- Section 5.0 - Conceptual Site Model: Presents a detail discussion of physical and chemical conceptual site model and potential exposure pathways.
- Section 6.0 - Cleanup Levels: Presents a detail discussion of applicable cleanup levels for all media determined based on the conceptual site model and used to compare to data collected related to the Site.
- Section 7.0 - Areas Requiring Future Management: Presents the Site area not meeting cleanup standards and requiring cleanup action(s) in the future.
- Section 8.0 - RI Conclusions: Presents conclusions based on the discussions in the above sections and proposed recommended cleanup actions.
- Section 9.0 - References: Presents the references used in the development of this report.

2. Site Description and Background

2.1 Site Discovery and Regulatory Status

The Property on which the Site is located was deeded to Don E. Oline and Alba Oline in 1971 by Dillingham Corporation. The Property was subsequently purchased from Don E. Oline and Alba Oline under a real estate contract in 1975 by Leslie P. Sussman, Paula Rose, and Alan Sussman, a partnership, d/b/a Sussman, Rose and Sussman (referred to as SRS Properties) and later deeded to SRS Properties in 1982 following payment in full of the contract. The Property is currently recorded by the Pierce County Assessors' office as Parcel #0321362051.

At the request of Ecology, investigations of the Site were conducted between 1984 and 1988. The investigations were conducted voluntarily by an affiliate of OCC Tacoma, Inc. (OCCT) to evaluate the environmental impact of lime sludge fill, which was placed at the Site. The results of the investigations were reported in "TACOMA Off-Plant Disposal Site Investigation, Marine View Drive", Conestoga-Rovers and Associates Limited, December 1984, and "1988 Sampling Report", Oxychem Special Environmental Programs, November 1988. Data for samples collected from soil and groundwater indicated elevated concentrations of halogenated organics, metals, non-halogenated solvents, and polychlorinated biphenyls (PCB). Some of these elevated concentrations were related to other fill (e.g., sand and shredder residue, cobbles, and construction/demolition debris) placed at the Site. The site was listed in Ecology's Cleanup Site Information database and assigned ID number 3671 under the Toxics Cleanup Program in 1990. The current status of the site with Ecology is "Cleanup Started."

In 1998, Ecology requested that the Site investigation data and current Site condition be reviewed to determine whether additional work should be considered to complete the evaluation. A data review and work plan entitled "Review of Site Conditions and Proposed Additional Work" (Work Plan) was prepared and submitted to Ecology for review and comment in September 1998. The Work Plan presented the results of the previous investigations as well as a review of the data with recommendations for appropriate further investigative activities. The activities proposed in the Work Plan were designed to confirm the results of the earlier investigations and to determine whether there are any sources or volumes of impacted materials which were not previously identified. Comments dated September 23, 1998 were received from Ecology and responses were submitted on October 29, 1998. OCCT and Ecology were in agreement on the responses to the comments and the field activities were conducted between November 18, 1998 and January 12, 1999.

Results of the Site investigation were reported in March 1999 and confirmed the conclusions from the previous investigations with some modification of the limits of the fill.

Ecology issued potentially liable person status letters dated September 29, 2003, to Occidental, General Metals, SRS Properties, and Don Oline, pursuant to RCW 70 105D 040, 020(16) and WAC 173-340-500. Subsequently, Ecology issued determinations that Occidental, General Metals, SRS Properties, and Don Oline are potentially liable persons (PLPs) under RCW 70 105D 040 and notified each PLP of this determination by separate letters dated February 2, 2004.

In July 2007, an Agreed Order was executed between the PLPs and Ecology to complete remedial investigation of the facility, develop a Remedial Investigation/Feasibility Study (RI/FS) to determine a preferred cleanup strategy, and develop a draft Cleanup Action Plan.

2.2 Summary of Preliminary Cleanup Levels

Preliminary cleanup levels for soil and groundwater that were used for purposes of a comparative discussion of the investigation results are presented in Table 2.1. Cleanup levels are more fully developed and discussed in Section 6.0. Descriptions of the basis for the preliminary cleanup levels are below.

Soil: The southern portion of the Property on which the fill is located is zoned M-2 Industrial. Adjacent properties are also zoned M-2 Industrial or PMI Port Industrial. Considering the historical land use and zoning of the Site and the likely potential future use as an industrial property, preliminary cleanup levels for soil have been established consistent with Model Toxics Control Act (MTCA) Method C cleanup levels for industrial land use.

Groundwater and Surface Water: The PLPs are progressing the project under the assumption that a determination will be made that groundwater at the Site is classified as non-potable and eventually discharges into the Hylebos Waterway (Hylebos). This assumption is predicated on discussions with Ecology and a March 17, 2015 email from Ecology. Consequently, groundwater cleanup levels may be based on protection of surface water. The surface water near the Property is designated marine water in the Hylebos. Accordingly, the preliminary cleanup levels for groundwater and surface water at the Site have been established consistent with MTCA surface water cleanup levels for marine receptors. The preliminary cleanup levels were obtained from Ecology's Cleanup Levels and Risk Calculation (CLARC) database or calculated using MTCA equations 730-1 and 730-2. Using the surface water cleanup levels for direct comparison to groundwater concentrations is considered conservative because the values do not take into consideration attenuation.

Sediment: Sediment chemical criteria established by WAC 173-204-562(2). According to WAC 173-204-562(2), two chemical criteria are established, including sediment cleanup objectives and cleanup screening levels. These two criteria are further described in Section 4.1.2.2.

2.3 Site and Property Location/Definition

The Site is an area containing fill of approximate 2.46 acres within the southern portion of a 6.25-acre property located at 1913 Marine View Drive in Tacoma, Washington (Property). A Site Plan showing the Property boundaries, sampling locations, and estimated fill boundaries is presented on Figure 2.1. A Property legal description (from Exhibit B of the Agreed Order) is provided in Appendix B.

The Site is vacant without structures and is located on the north side of Marine View Drive. A soil/gravel access road runs north-south through the Site from Marine View Drive. The Property is bound along its entire southern boundary by a thin parcel owned by Manke Timber Company running parallel to Marine View Drive.

In general, the Property surface cover varies from sparse grass to thick brush and trees. The southwest portion of the Property is sparsely covered with grass and/or small standing brush. Two small wetland areas/ponds are present along the southern boundary of the Site. A majority of the

wetlands are located on the Manke Lumber Company parcel between the Site and Marine View Drive. Two streams run from the base of the hill on the north side of the Property, the streams run along the western and eastern flanks of the fill. The streams and a majority of the Property are densely vegetated with brush and trees. The streams both flow to the south to a small pond between the Site and Marine View Drive further to the south. A third stream enters the wetland areas/ponds from the east, off the southeastern corner of the Site. All of the surface water discharges through a culvert off the southwestern edge of the Property, ultimately discharging to the Hylebos further to the southwest.

2.4 Neighborhood Setting

The Property is primarily zoned as M2-Heavy Industrial with a part of the northern portion of the Property zoned as R2-One Family Dwelling. Land use in the vicinity of the Property is zoned primarily industrial (west, east, and south). The Property is bound to the north by steep bluffs. On top of the Bluffs the properties are predominantly residential dwellings. The remainder of the Property is bound by mixed use industrial properties. The adjacent properties to the north, west, and east are all at higher elevations than the Property and Site.

2.5 Past and Current Property Uses and Facilities

An area in the southern portion of the Site was used for the placement of fill, comprised of lime sludge, shredder residue, sand, cobbles, and construction/demolition debris. The lime sludge is a by-product of the production of chlorinated solvents such as trichloroethene (TCE) and tetrachloroethene (PCE).

Shredder residue consists of by-products of scrap metal and automobile recycling, such as rubber, metal, and wire.

The Site was also used for the storage of automobile scrap parts and other metal items. Fifty-five gallon steel drums have also been observed on the Site.

The Site is not currently in use and nearly all scrap materials and other surface debris have been removed.

2.6 Utilities and Water Supply

No Subsurface utilities are present beneath the Site. All known utilities run parallel to Marine View Drive south of the Property.

Based on Ecology's database, there are no water supply wells within a 0.5-mile radius of the Site.

2.7 Potential Sources of Contamination from Neighboring Properties

There are several properties identified as Facilities and/or Sites in Ecology's Facility/Site Database. However, all of the properties identified are located down- to cross-gradient or at a distance greater than 0.25 mile. The closest property is the Oline Storage Yard site located to the west at 1915 Marine View Drive that is cross-gradient to the Site based on the Site groundwater contours (see Section 3.2) and at a significantly higher elevation (see Section 3.1). The Oline Storage Yard site is scheduled to be removed from the Ecology Hazardous Sites List after receiving a no Further Action

Letter in January 2015. Therefore, there does not appear to be a potential for contaminant migration to the Site from neighboring properties.

3. Natural Conditions

3.1 Geology

Regionally, the Site and Property, Puyallup River Valley, and surrounding area are part of the Puget Sound Lowlands, which are surrounded by the Puget Sound Bluffs (Bluffs). The Bluffs extend along the sides of the Puyallup River Valley, and correspond to the north side of the Property. The slope of the southern half of the Site rises from an approximate elevation of 11 feet (ft) above mean sea level (AMSL) along Marine View Drive to an approximate elevation of 27 ft AMSL at the northernmost monitoring well, GM-B-3R. The northern half of the Property (north of GM-B-3R) rises more steeply to a bluff. The properties to the east and west of the Site are at higher elevations. The property to the east is approximately 160 ft AMSL and the property to the west is approximately 120 ft AMSL.

The shallow subsurface geology of the Site has been defined using data collected during the installation of 37 test pits, 15 drilled boreholes, 7 hand-augered boreholes, and 9 monitoring wells (7 existing and 2 abandoned). The logs of the monitoring wells, test pits, and boreholes are presented in Appendix C (monitoring wells) and Appendix D (test pits and boreholes).

The shallow soils at the Site are divided into three stratigraphic units; topsoil, fill material [sand and shredder residue, construction/demolition debris and lime sludge], and native sediments. The alignments of stratigraphic cross-sections through the Site are shown on Figure 3.1. Stratigraphic cross-sections are presented on Figures 3.2 and 3.3.

The topsoil unit is brown, clayey silt having low plasticity. The thickness of the topsoil ranges from 0 to 0.7 ft, but generally is not more than 0.5 ft thick.

Below the top soil, the Site consists of imported fill made up primarily of sand and shredder residue with varying amounts of silt, gravel, cobbles, lime sludge, and construction debris. The imported fill covers approximately 40 percent of the Property and extends from land surface to a depth of as great as 20 ft below ground surface (bgs). At some locations along the flanks of the Property in close proximity to the stream channels the shredder residue is observed at or just below the surface. The lime sludge, as encountered during the investigations, is a gray to beige fine-grained material with medium to high plasticity and is typically present as a defined single layer at depth within the sand and shredder residue. A portion of the lime sludge fill to the west, between GM-B-6A and TP-34, is overlain by the sand and shredder residue fill and underlain by native sand, silty sand with peat. The thickness of the lime sludge ranges from approximately 1.0 to 5.0 ft and is typically greater than 7.5 ft below the ground surface. The estimated areal limits of sand and shredder residue fill, and lime sludge fill are shown on Figure 3.1.

The upper native sediments below the imported fill are brown, intermixed, silty sands, clayey silts, and peat, with plasticity ranging from low to high.

3.2 Groundwater

Hydrographs from the 1998 hydraulic monitoring program indicate that there is no response in the monitoring wells to the tidal fluctuations in the Hylebos indicating a lack of hydraulic connection.

Water levels measured on August 12, 2014, during the groundwater sampling program, were used to prepare groundwater contour maps to determine groundwater flow direction within and below the imported fill. The groundwater contours presented on Figures 3.4 and 3.5 show that the groundwater flow direction at both depths is from northeast to southwest, the same direction that the ground surface slopes.

The horizontal flow gradient of the shallow groundwater ranged from 0.03 foot/foot (ft/ft) to 0.04 ft/ft. Horizontal flow gradients of the groundwater beneath the depth of the imported fill ranged from 0.03 ft/ft to 0.05 ft/ft.

Water level data between the shallow and deeper well pairs indicates an upward vertical gradient that ranged from 0.18 ft/ft to 0.86 ft/ft. The average vertical gradient was calculated as 0.45 ft/ft upward.

Groundwater springs emerge from the base of the hill slope at the north side of the Property. The springs feed two small streams which flow along the eastern and western flanks of the Property. Recent field efforts throughout 2014 observed regular flow within the streams.

3.3 Surface Water

Surface runoff on the Property is either directed into the two streams running along the eastern and western flanks of the Property and to a lesser extent across the Site as sheet flow, discharging to two wetland areas situated at the southern boundary of the Property. A small surface water stream enters the wetlands from the east, presumably consisting of surface runoff and/or spring water from properties to the east. The wetlands drain through a culvert off the southwestern corner of the Property and ultimately discharge to the Hylebos.

Two nearby surface water bodies, both marine waters, include Hylebos Waterway located approximately 700 ft southwest, and Commencement Bay located approximately 2.2 miles northwest.

3.4 Natural Resources and Ecological Receptors

A simplified Terrestrial Ecological Evaluation (TEE) was completed for the Site. According to WAC 173-340-7492(2), a simplified TEE screening procedure includes exposure analysis, pathway analysis, and contaminants analysis. The simplified TEE screening steps are presented in the following documents that are included in Appendix E:

- Aerial Map showing a 500-foot radius surrounding the Site.
- TEE exposure analysis per Table 749-1 in WAC 173-340-900.
- TEE contaminants analysis per Table 749-2 in WAC 173-340-900.
- TEE simplified evaluation documentation form.

The exposure analysis per Table 749-1 did not exclude the Site from further evaluation because of the impacted fill and undeveloped lands on and surrounding the Site. The contaminants analysis

identified multiple concentrations on Site exceeding the hazardous substance concentrations listed in Table 749-2. Pathway analysis indicated that no physical barrier covering the imported sand and shredder residue fill is currently present on Site and therefore the terrestrial ecological protection pathway is currently complete. However, if a physical barrier were to be placed within a time frame acceptable to the Ecology as part of a remedy, this pathway can be considered incomplete according to WAC 173-340-7492(2)(b).

Natural resources were not identified at the Site.

4. Contaminant Occurrence and Movement

4.1 Summary of Previous and Recent Investigations

4.1.1 Investigations Prior to 2014

Four investigations were performed at the Site from 1984 to 2004 prior to the recent investigation performed in 2014. The 1984 to 2004 investigations include:

- **September 1984 Investigation:** This investigation included the installation of eight boreholes for geologic sampling, installation of four shallow groundwater monitoring wells to total depths ranging from 10 to 12 ft bgs and groundwater sampling, and the collection and analyses of two surface water samples. The sampling and well locations are shown on Figure 2.1. The results of this investigation were previously reported in the Tacoma Off-Plant Disposal Site Investigation – Marine View Drive (CRA, 1984).
- **September 1988 Investigation:** This investigation included sampling groundwater from the four previously installed groundwater monitoring wells. The sampling and well locations are shown on Figure 2.1. The results of this investigation were previously reported in the 1988 Sampling Memorandum, General Metals Site (OCC, 1988).
- **November 1998 to January 1999 Investigation:** In 1998, Ecology requested that OCC review the existing Site investigation data and current Site conditions to determine whether additional work should be considered to complete the Site evaluation. Pursuant to Ecology's request, a data review and work plan entitled, Review of Site Conditions and Proposed Additional Work (CRA, 1998) was prepared and submitted to Ecology for review and comment in September 1998. The work plan presented the results of the previous investigations as well as a review of the data with recommendations for appropriate further investigative activities. The activities proposed in the work plan were designed to confirm the results of the earlier investigations and to determine whether there are any sources or volumes of impacted materials that were not previously identified. Comments dated September 23, 1998 were received from Ecology and responses were submitted on October 29, 1998. OCC and Ecology were in agreement on the responses to the comments and field activities were conducted between November 18, 1998 and January 12, 1999. The sampling locations are shown on Figure 2.1. The results of this investigation were previously reported in March 1999 in the Site Characterization Report, Marine View Drive Site (CRA, 1999). The report confirmed the conclusions from the previous investigations with some modification of the limits of the fill.
- **October 2004 Investigation:** This investigation included collecting four samples of the lime sludge from four separate boreholes at the Site to characterize the lime sludge for potential off-Site disposal purposes in anticipation of evaluating remedial alternatives for the Site. The

sampling locations are shown on Figure 2.1. The analytical results from this investigation were presented in Section 4.3 of the 2013 Remedial Investigation/Feasibility Study Work Plan, (2013 RI/FS Work Plan).

A summary of previous investigations conducted on Site is present in Appendix F. The logs of the monitoring wells, test pits, and boreholes are presented in Appendix C (monitoring wells) and Appendix D (test pits and boreholes).

CRA preformed an investigation between August and December 2014 based on CRA's 2013 RI/FS Work Plan. The investigation activities and results are discussed in Section 4.1.2.

4.1.2 2014 Investigation

4.1.2.1 Site Activities

In order to determine the horizontal and vertical limits of the fill materials, delineate the horizontal and vertical extent of elevated concentrations in soil and groundwater, determine the physical properties of the soils and fill materials, and establish representative background concentrations for metals, the following field activities were performed in 2014:

- On July 18, 2014, CRA inspected all existing groundwater monitoring wells GM-B-1, GM-B-1A, GM-B-2, GM-B-2A, GM-B-3R, GM-B-6R, and GM-B-6A, and identified that well GM-B-6R had approximately 2 ft of sediments accumulated at the bottom.
- On August 8, 2014, CRA redeveloped well GM-B-6R to ensure hydraulic connection between the monitoring well and surrounding groundwater.
- On August 12 and 13, 2014, CRA sampled all existing groundwater monitoring wells using low-flow methods.
- On August 21, 2014, CRA advanced seven soil borings, GP-1 through GP-7, to depths ranging from 20 to 30 ft bgs via direct push drilling technique, and collected three to four soil samples from each soil boring at depths ranging from 4 to 25 ft bgs.
- On August 26 through 28, 2014, CRA excavated 14 test pits, TP-24 through TP-38 (TP-37 was not completed during this mobilization due to access limitations), to depths ranging from 8 to 16 ft bgs, and collected soil samples from test pits TP-24, TP-28, and TP-38 at depths ranging from 2.5 to 11 ft bgs.
- On September 15, 2014, CRA completed a borehole using a hand auger at location TP-37 to a depth of 8.0 ft bgs and collected three soil samples at 2, 5, and 7.5 ft bgs.
- On September 15, 2014, CRA collected eight sediment samples, SD-05 through SD-12, and five surface water samples, SW-01 through SW-05.
- On December 18, 2014, CRA completed six hand auger boreholes at locations HA-01 through HA-05B to a maximum depth of 8.0 ft bgs, to further delineate the lateral extent of the sand and shredder residue fill.
- On December 19 and 22, 2014, CRA performed slug tests in all existing monitoring wells.

4.1.2.2 Investigation Results

The soil boring and test pit locations are depicted on Figure 2.1. Selected samples from the soil borings and test pits were analyzed for the TCL/TAL parameters. These parameters include volatile

organic compounds (VOCs,) semi-volatile organic compounds (SVOCs), pesticides, PCBs, and metals. The laboratory analytical reports are provided in Appendix G.

Soil Analytical Results

CRA collected 21 soil samples from the seven soil borings GP-1 through GP-7, at depths ranging from 4 and 25 ft bgs in 2014. These soil samples include soil below or within the fill material and native soil samples. CRA also collected seven soil samples from two test pits TP-24 and TP-38 and one hand-auger borehole TP-37 in 2014. Among these, TP-24 is located on the north end of the sand and shredder residue fill; TP-37 and TP-38 are located outside the fill and serve as background data points. All soil samples were analyzed for TCL/TAL parameters. The soil analytical results from this investigation along with historical soil analytical data are included in Table 4.1. The 2014 soil samples collected from the sand and shredder residue material at 11 ft bgs from soil borings GP-1 and GP-2 and at 5 ft bgs from soil boring GP-4 contained elevated concentrations of lead ranging from 1,230 milligrams per kilogram (mg/kg) in GP-1 to 2,310 mg/kg in GP-2, which exceeds Ecology's MTCA Method C cleanup levels for industrial land. The 2014 lead concentration in a sample from the background test pit TP-38 (within native soil) at the same depth was 3.6 mg/kg.

Separate from the other imported fill materials, sand, and shredder residue is a layer of lime sludge. During the 2014 field effort the lime sludge was encountered in borings GP-1 and GP-2 between approximately 9 and 10 ft bgs, and in test pit TP-28 between approximately 7.5 and 8.5 ft bgs. Lime sludge was not encountered in other soil borings and test pits.

CRA collected soil/lime sludge samples at 10 ft bgs from GP-1, 9 ft bgs from GP-2, and 8 ft bgs from TP-28 for Toxicity Characteristic Leaching Procedure (TCLP) analyses of VOCs, SVOCs and metals in 2014. The analytical results are presented in Table 4.1. TCE and PCE are the only two VOCs, lead the only metal and 4-methylphenol and hexachlorobutadiene the only two SVOCs with detectable TCLP concentrations. These concentrations are all below US Environmental Protection Agency's (EPA) TCLP regulatory levels.

Groundwater Analytical Results

CRA collected groundwater samples from all existing monitoring wells GM-B-1, GM-B-1A, GM-B-2, GM-B-2A, GM-B-3R, GM-B-6R, and GM-B-6A in 2014. All 2014 groundwater samples were analyzed for TCL/TAL parameters. The analytical results from this investigation along with historical groundwater sampling data are included in Table 4.2. During the 2014 investigation, concentrations were detected above MTCA surface water cleanup levels for marine receptors (Refer to Section 2.1) for the following parameters:

- Concentrations of arsenic, copper, lead, manganese, mercury, nickel, zinc, PCB-1254, PCB-1260, and total cyanide in well GM-B-1.
- Concentrations of arsenic, copper, and manganese in well GM-B-1A.
- Concentrations of arsenic, copper, lead, manganese, nickel, zinc, PCB-1254, and PCB-1260 in well GM-B-2.
- Concentrations of bis(2-ethylhexyl)phthalate (B2EP or DEHP), arsenic, copper, manganese, and PCB-1260 in well GM-B-2A.
- Concentrations of arsenic, copper, manganese, and PCB-1260 in well GM-B-3R.

- Concentrations of B2EP, arsenic, copper, lead, manganese, mercury, nickel, PCE, TCE, vinyl chloride, and hexachlorobenzene in well GM-B-6R.
- Concentrations of arsenic and PCB-1260 in well GM-B-6A.

Note that the above comparison does not take into account attenuation related to the groundwater to surface water pathway.

Surface Water Analytical Results

CRA collected five surface water samples, SW-01 through SW-05, from each of the stream swales at the locations shown on Figure 2.1 in 2014. Sample SW-01, SW-03, and SW-05 were collected in the upstream, downstream, and middle-stream of the southern stream, respectively. Sample SW-01 represents the quality of surface water upstream of the Site or the background condition. Sample SW-03 and SW-05, when compared to sample SW-01, represents the potential influence of surface water discharged from the Site. Sample location SW-02 was collected from the east stream swale representing the quality of the water discharged from the eastern portion of the Site. Sample SW-04 was collected from the west stream swale representing the quality of the water discharged from the western portion of the Site. All 2014 surface water samples were analyzed for TCL/TAL parameters. The 2014 surface water analytical results from this investigation along with historical surface water analytical data are included in Table 4.3. As shown in Table 4.3, the 2014 data indicate three metals (arsenic, copper, and manganese), one PCB (PCB-1260), and one pesticide (hexachlorobenzene) were detected above the surface water cleanup levels for marine receptors. The data and exceedances are shown on Figures 4.5 (metals) and 4.6 (PCBs and pesticides) along with historical data.

Arsenic was detected at concentrations exceeding the surface water cleanup level for marine receptors in all 2014 surface water samples collected, including the background sample, ranging from 1.34 micrograms per liter ($\mu\text{g/L}$) (SW-03) to 6.13 $\mu\text{g/L}$ (SW-05). The 2014 background arsenic concentration in sample SW-01 was 3.41 $\mu\text{g/L}$. The 2014 arsenic concentrations in sample SW-03 and SW-04 were below the background concentration. The 2014 arsenic concentrations in samples SW-02 and sample SW-05 were marginally above the background concentration, but similar. These concentrations decrease to below the background concentration after merging with the west runoff and the final outflow from the Property contained arsenic concentration below the background concentration.

Copper was detected at a concentration of 2.77 $\mu\text{g/L}$ in 2014 marginally exceeding surface water cleanup level for marine receptors in the middle of the southern stream (SW-05). However, the downstream 2014 sample SW-03 contained a copper concentration of 1.11 $\mu\text{g/L}$, which was lower than the 2014 background concentration of 1.43 $\mu\text{g/L}$ (SW-01).

Manganese was detected at concentrations exceeding the surface water cleanup level for marine receptors in the 2014 samples collected from west stream swale (SW-04) and downstream of the Site (SW-03), ranging from 265 $\mu\text{g/L}$ (SW-04) to 276 $\mu\text{g/L}$ (SW-03). The 2014 background manganese concentration in sample SW-01 was 62.4 $\mu\text{g/L}$.

PCB-1260 was detected at concentrations exceeding surface water cleanup level for marine receptors in all 2014 surface water samples, including the background sample. The 2014 concentrations of PCB-1260 ranged from 0.0015 $\mu\text{g/L}$ in the downstream sample SW-03 to 0.0095 $\mu\text{g/L}$ in the east stream sample SW-02. The 2014 upstream (background) sample SW-01

contained a PCB-1260 concentration of 0.0020 µg/L. As such, the 2014 PCB concentration in the downstream sample is below the background concentration.

Hexachlorobenzene was only detected in the 2014 sample from the middle of the southern stream SW-05 at a concentration of 0.0003 J µg/L (estimated), which is marginally above the surface water cleanup level of 0.00029 µg/L. This concentration is an estimated value according to the laboratory reports, and the hexachlorobenzene in the 2014 upstream (background) sample SW-01 was 0.00028 µg/L, which is similar to the 2014 concentration in sample SW-05.

Note that the above comparison does not take into account attenuation related surface water discharging to the Hylebos.

Sediment Analytical Results

CRA collected eight sediment samples, SD-05 through SD-12, at the locations shown on Figure 2.1 in 2014. The 2014 samples were analyzed for TCL/TAL parameters. Samples SD-05 and SD-06 were collected from the east stream swale and samples SD-09 and SD-10 were collected from the west stream swale. Samples SD-07 and SD-08 were collected from the southern stream. Sample SD-11 was collected on north end of the Site upstream of the east and west streams. Sample SD-12 was collected upstream of the southern stream representing the quality of sediments upstream of the Site or the background condition.

All 2014 analytical results were compared to the sediment chemical criteria established by WAC 173-204-562(2). According to WAC 173-204-562(2), two chemical criteria are established, including sediment cleanup objectives and cleanup screening levels. The sediment cleanup objectives establish a no adverse effects level; chemical concentrations at or below the sediment cleanup objectives correspond to sediment quality that results in no adverse effects to the benthic community. The sediment cleanup screening levels establish a minor adverse effects level; chemical concentrations at or below the cleanup screening levels but greater than the sediment cleanup objectives correspond to sediment quality that results in minor adverse effects to the benthic community. The 2014 sediment analytical results from this investigation and historical investigation along with two chemical criteria are included in Table 4.4.

Concentrations of VOCs, SVOCs, PCBs, pesticides, and most metals reported in 2014 were detected below the corresponding sediment cleanup objectives, meaning these concentrations would not cause adverse effects. Two metals were detected above the corresponding sediment cleanup objectives: zinc in SD-05 from east stream and SD-07 and SD-08 from southern stream at concentrations ranging from 570 mg/kg (SD-05) to 947 mg/kg (SD-07); and arsenic in SD-08 from southern stream at concentration of 66.3 mg/kg. These concentrations are below the corresponding cleanup screening levels, and could potentially result in a minor adverse effects level. Mercury, a third metal, was detected at 0.846 mg/kg in sample SD-07 to 3.03 mg/kg in sample SD-06. These concentrations are above the corresponding cleanup screening levels and could potentially result in greater adverse effect. Sample SD-06 was collected from east stream and SD-07 was collected from the east portion of the southern stream, indicating the mercury impact is present in the sediment on the eastern portion of the Site.

Note that the above comparison does not take into account attenuation related potential sediment migration to the Hylebos.

Slug Test Results

CRA performed slug tests to collect data for determining hydraulic conductivity at the Site for potential future use. The slug tests were performed on all existing monitoring wells, GM-B-1, GM-B-1A, GM-B-2, GM-B-2A, GM-B-3R, GM-B-6R, and GM-B-6A, on December 19 and 22, 2014. All test exhibit exponential-decay (over-damped) slug test response behavior indicative of low to intermediate permeability conditions. The calculated estimated average hydraulic conductivities (Ks) range between 0.0000257 centimeter per seconds (cm/s) to 0.000254 cm/s, or 0.073 to 0.72 ft per day. Based on the hydraulic conductivity values, the perched water unit on Site is semi-pervious and has low permeability. The slug test results are presented in Appendix H.

4.2 Soil

During the investigations performed on Site between 1984 and 2014:

- A total of 37 test pits were excavated, including TP-1 through TP-23 in 1998 and TP-24 through TP-36 and TP-38 in 2014.
- A total of 17 soil borings were advanced, including BH-1 through BH-4 in 2004 and GP-1 through GP-7, HA-1 through HA-5B, and TP-37 in 2014.
- A total of 45 soil or fill material (lime sludge, shredder residue, sand, etc.) samples were collected from these soil borings and test pits and submitted for laboratory analyses.
- One surficial soil sample was collected in 1998 representing background.

4.2.1 Sand and Shredder Residue, and Lime Sludge Fill Delineation

Delineation of Sand and Shredder Residue Fill

Delineation of sand and shredder residue fill materials (including gravel, sand, cobbles, and various debris) is well defined immediately surrounding the lime sludge fill as shown by the cross-sections depicted on Figures 3.2 and 3.3 as a result of previous investigations prior to 2014 that were focused on delineation of the lime sludge fill. However, the lateral extent of the sand and shredder residue within the Property was not as well defined. Consequently, fourteen additional test pits (TP-24 through TP-36 and TP-38) were completed in 2014 focused along the periphery of the known sand and shredder residue fill to better define the limits. Test pit location TP-37 was completed with a hand auger due to limited access and permit restrictions. Thirteen test pits (TP-24 through TP-36) encountered sand and shredder residue fill. The limits of the sand and shredder residue fill extend across nearly all of the flat land between the hill slopes along the western and eastern flanks of the Property.

Locations TP-37 and TP-38 were completed on the north side of the stream headwaters at locations of expected native material. The material observed was consistent with native soils and not fill. Soil samples from locations TP-37 and TP-38 are considered background soil conditions for the site. Limited access and steep terrain prevented the continuation of test pitting beyond the streams on either the western or eastern sides of the Property. To confirm the lateral extent of the sand and shredder residue fill, a series of six hand-auger boreholes were advanced as depicted on Figure 2.1. No sand and shredder residue fill was observed in the six hand-auger boreholes except at HA-05B. A review of the local topography and hand auger data (HA-01 to HA-05B) suggest portions of the streams are flowing across sand and shredder residue fill. Figure 3.1 depicts an estimated limit of fill material.

Delineation of Lime Sludge Fill

Delineation of the lime sludge fill was conducted through a combination of test pit excavations for horizontal delineation and borehole drilling for vertical delineation. Test pits were excavated on a grid pattern with a spacing of approximately 25 ft in order to delineate the horizontal extent of lime sludge fill. Boreholes were then advanced to delineate the vertical extent of the lime sludge fill. The defined areal extent of the lime sludge fill is shown on Figure 3.1 and is well defined. The vertical extent is shown on the cross-sections presented on Figures 3.2 and 3.3 and also is well defined. As shown on the figures, the lime sludge fill is located at depth and typically within the sand and shredder residue fill. A portion of the lime sludge fill to the west, between GM-B-6A and TP-34, is overlain by the sand and shredder residue fill and underlain by native sand, silty sand with peat.

4.2.2 Investigation Data

Table 4.1 presents a summary of the parameters detected in the soils related to various fill materials along with the analyte concentrations of these parameters. The soil exceedances and sample locations are shown on Figure 4.1.

Lime Sludge Fill Investigation Data

Samples collected from or immediately beneath the Lime sludge fill layer include: one 1998 composite sample from test pits TP1-98/TP3-98/TP-4-98/TP5-98/TP8-98; three 2004 discrete samples from boreholes BH-1, BH-2, and BH-4; two soil samples from 2014 soil borings GP-1 and GP-2; and one soil sample from 2014 test pit TP-28. The 1998 and 2004 samples were analyzed for the TCL/TAL parameters to determine their analyte composition. The four samples from boreholes BH-1 through BH-4 and three samples from soil boring GP-1, soil boring GP-2, and test pit TP-27 were analyzed by TCLP to characterize the material. The lime sludge fill analytical data are presented in Table 4.1.

As shown in Table 4.1, there were no parameters detected in the lime sludge fill at concentrations that exceed MTCA Method C industrial soil cleanup levels. The results from the TCLP analyses indicate only one concentration (PCE in the sample from BH-4) exceeded EPA's TCLP regulatory level.

Sand and Shredder Residue Fill Investigation Data

A total of 15 soil samples collected to date are associated with the sand and shredder residue fill. These samples were analyzed for TCL/TAL parameters. Five samples containing concentrations of lead exceeding the MTCA Method C industrial soil cleanup level include 1,230 mg/kg from GP-1 (11 to 11.5 ft bgs), 2,310 mg/kg from GP-2 (11 to 11.5 ft bgs), 1,280 mg/kg from GP-4 (5 to 5.5 ft bgs), 2,470 and 2,690 mg/kg from TP comp(A2) (1 to 8.5 ft bgs). As stated in Section 4.1.2, soil samples from TP-37 and TP-38 provide background data. The background lead concentrations are 6.6 mg/kg from 5 to 5.5 ft bgs (TP-37), 3.6 mg/kg from 11 to 11.5 ft bgs (TP-38), and 1.8 mg/kg from 7.5 to 8 ft bgs (TP-37).

No other metal concentrations were above MTCA Method C industrial soil cleanup levels in the sand and shredder residue fill samples. No concentrations of VOCs, SVOCs, PCBs, or pesticides were detected above MTCA Method C industrial soil cleanup levels in these samples.

Other Fill Material Investigation Data

Surficial and subsurface soil samples were collected in the fill within or immediately below other types of fill material encountered such as sand fill, debris, and "cobbles."

One composite subsurface soil sample was collected from sand fill between the depths of 0.5 and 8.5 ft bgs and analyzed for TCL/TAL parameters. No concentrations were detected above MTCA Method C industrial soil cleanup levels in this sand fill sample.

Porous orange to black rock-like fragments were encountered in test pits TP-17 and TP-23. These fragments are referred to in the test pit logs and this report as "cobbles." Since the source of the cobbles could not be determined from their appearance, one soil sample was collected underlying the cobbles from TP-17 between 3 and 3.5 ft bgs and analyzed for TCL/TAL parameters to determine whether the cobbles may have contributed to elevated concentrations in soil. The sample below the cobbles contained a concentration of arsenic of 422 mg/kg that exceeds the MTCA Method C industrial soil cleanup level. The background arsenic concentration at the site is 4.3 mg/kg from 2.5 to 3 ft bgs (TP-38).

Surficial soil sample SL-1 collected on the west side of the Site from another fill material containing debris, not consistent with sand and shredder residue fill, at depths between 0.5 and 1 ft bgs contained concentration of arsenic of 1,180 mg/kg exceeding the MTCA Method C industrial soil cleanup level. Surficial soil sample TP-21 collected on the northern part of the Site from another fill material, not consistent with sand and shredder residue fill, at depths between 0 and 0.5 ft bgs contained concentrations of arsenic and lead of 103 mg/kg and 6,030 mg/kg, respectively, exceeding MTCA Method C industrial soil cleanup levels. The lead and arsenic concentrations in shallow soil from 2 to 2.5 ft bgs in background test pit TP-7 are 6.4 and 2.9 mg/kg, respectively.

A composite surficial soil sample was also collected from the fill material within the foot print of and above the lime sludge fill at depths between 0 and 0.5 ft bgs. No concentrations were detected above MTCA Method C industrial soil cleanup levels in this surficial soil sample.

The site is located within the Tacoma Smelter Plume area. According to Ecology's data in October 2011, arsenic concentrations in the background soils in this area range from non-detect to 20 mg/kg. The lead concentrations range from non-detect to 250 mg/kg. Arsenic and lead were detected on the Site at concentrations above these values.

Subsurface Native Soil Investigation Data

A total of 14 native soil samples were collected within the foot print of the fill materials between depths of 14 and 25.5 ft bgs. Additionally, six native soil samples were collected outside of fill between depths of 2 and 11.5 ft bgs. All these native soil samples were analyzed for TCL/TAL parameters. No concentrations were detected above MTCA Method C industrial soil cleanup levels in these samples.

4.3 Groundwater

A total of nine groundwater monitoring wells were installed on Site. Wells GM-B-1, GM-B-2, GM-B-3, and GM-B-6 were installed in 1984. Wells GM-B-3R, GM-B-6R, GM-B-1A, GM-B-2A, and GM-B-6A were installed in 1998. Wells GM-B-3R and GM-B-6R were installed to replace decommissioned wells GM-B-3 and GM-B-6, respectively.

Therefore, currently a total of 7 monitoring wells are present on Site that include GM-B-1, GM-B-1A, GM-B-2, GM-B-2A, GM-B-3R, GM-B-6R, and GM-B-6A. Wells GM-B-1, GM-B-2, and GM-B-3R, are located within the imported fill materials, but outside the areal limits of the lime sludge fill. However, the screened intervals of these wells are at depths comparable to elevations of the lime sludge fill layer. Wells GM-B-6R and GM-B-6A are both located within the areal limits of the lime sludge. Well GM-B-6R is screened within the lime sludge fill and well GM-B-6A is screened within the other fill materials below the lime sludge fill. Wells GM-B-1A and GM-B-2A are screened within the other fill materials at depths below elevations comparable to the lime sludge fill layer and outside the areal limits of the lime sludge fill. The construction details for these groundwater monitoring wells are presented in Table 4.5.

Five rounds of groundwater sampling were conducted in 1984, 1988, 1998, 1999, and 2014. Groundwater samples from monitoring wells were analyzed for TCL/TAL parameters to determine groundwater quality at the Site. Table 4.2 presents a summary of parameters detected in the groundwater samples and the concentrations of these parameters at each well. As shown in the table, 21 of the parameters detected in the groundwater over time were detected at concentrations that exceeded the surface water cleanup levels for marine receptors. The parameters include four VOCs (1,1-dichloroethene [1,1-DCE], PCE, TCE, and vinyl chloride [VC]), two SVOCs (B2EP and hexachlorobutadiene), eight metals (arsenic, chromium, copper, lead, manganese, mercury, nickel, and zinc), two PCBs (PCB-1254 and PCB-1260), four pesticides [4,4'-dichlorodiphenyldichloroethane (4,4'-DDE), alpha-hexachlorocyclohexane (a-BHC), delta-hexachlorocyclohexane (d-BHC), and gamma-hexachlorocyclohexane (g-BHC or Lindane)], and one general chemistry parameter (total cyanide). The most recent data from 2014 does not include exceedances for 1,1-DCE, hexachlorobutadiene, and all four pesticides. The 2014 data indicate that concentrations of VOCs that exceeded the surface water cleanup levels for marine receptors were only found in the lime sludge fill. The exceedances and sample locations are shown on Figure 4.2 for VOCs and SVOCs, Figure 4.3 for metals, and Figure 4.4 for PCBs, pesticides, and general chemistry.

Well GM-B-3R is located within the defined extent of sand and shredder residue fill and upgradient of the horizontal limits of the lime sludge fill on Site. Parameters that were detected in well GM-B-3R at concentrations exceeding the cleanup levels included seven metals (arsenic, copper, lead, manganese, mercury, nickel, and zinc) and one PCB (PCB-1260). The 2014 data indicated exceedances for arsenic, copper, manganese, and PCB-1260. Other parameters including VOCs, SVOCs, chromium, PCB-1254, and pesticides have not been detected at concentrations above the cleanup levels in upgradient well GM-B-3R.

Wells GM-B-1, GM-B-2, and GM-B-6R are located within the limits of the fill. Wells GM-B-1 and GM-B-2 are screened at depths comparable to the depth of the lime sludge fill, but outside of the areal extent of the lime sludge fill and within the sand and shredder residue fill. Well GM-B-6R is located within the lime sludge fill. Parameters that were detected at concentrations exceeding the cleanup levels included the following.

- Four VOCs (1,1-DCE, PCE, TCE, VC). The VOC concentrations were above the cleanup levels in well GM-B-6R that is located within the lime sludge fill. The VOC 1,1-DCE 2014 concentration is below the cleanup level.
- Two SVOCs (B2EP and hexachlorobutadiene). B2EP concentrations were above the cleanup level in all three wells, but only in well GM-B-6R for 2014 data. Hexachlorobutadiene

concentrations were detected above the cleanup level in well GM-B-6R located within lime sludge fill in 1998 and 1999, but below the cleanup level in 2014.

- Seven metals (arsenic, copper, lead, manganese, mercury, nickel, and zinc). Six to seven of the metals were detected in all three wells at concentrations exceeding the cleanup levels in 2014. The parameter arsenic, copper, and manganese were also detected exceeding the cleanup levels in upgradient well GM-B-3R.
- Two PCBs (PCB-1254 and PCB-1260). PCB-1254 and PCB-1260 concentrations from 2014 were above the cleanup level in wells GM-B-1 and GM-B-2 located within the sand and shredder residue fill and outside the areal extent of the lime sludge fill. PCB-1260 was detected in upgradient well GM-B-3R, exceeding the cleanup level for 2014 data.
- One pesticide (4,4'-DDE). 4,4'-DDE was detected at a concentration exceeding the cleanup level once in 1999 in well GM-B-1 located within the sand and shredder residue fill. 4,4'-DDE was not detected above laboratory reporting limits in 1998 and 2014.
- One general chemistry parameter (total cyanide). A total cyanide concentration of 4.5 J was above the cleanup level in well GM-B-1 located within the sand and shredder residue fill. This value was J flagged by the laboratory indicating the value is estimated.

Well GM-B-1A, GM-B-2A, and GM-B-6A were located within the limits of the fill. All three wells are screened within the sand and shredder residue fill. Well GM-B-6A is screened beneath the lime sludge fill. Parameters that were detected at concentrations exceeding the cleanup levels included the following:

- One VOC (PCE). PCE concentration was above the cleanup level once in 1998 in well GM-B-6A located beneath the lime sludge fill. PCE concentrations were not detected above laboratory reporting limits in 1999 and 2014.
- One SVOC (B2EP). B2EP was detected in all three wells at concentrations exceeding the cleanup level, but only in well GM-B-2A for 2014 data.
- Eight metals (arsenic, chromium, copper, lead, manganese, mercury, nickel, and zinc). Four to eight of the metals were detected in all three wells at concentrations exceeding the cleanup levels, but only arsenic, copper, and manganese for 2014 data. These three parameters were also detected exceeding the cleanup levels in upgradient well GM-B-3R.
- One PCB (PCB-1260). PCB-1260 was detected in wells GM-B-2A and GM-B-6A, and also detected in upgradient well GM-B-3R, exceeding the cleanup level for 2014 data.
- Three pesticides (a-BHC, d-BHC, and g-BHC). Pesticide a-BHC was detected once in 1998 in well GM-B-6A located beneath lime sludge fill. Pesticides d-BHC and g-BHC were both detected once in 1998 in wells GM-B-2A and GM-B-6A. All of these pesticides, a-BHC, d-BHC, and g-BHC, were not detected above laboratory reporting limits in 1999 and 2014.

Note that the above comparison does not take into account attenuation related to the groundwater to surface water pathway.

4.4 Surface Water

A total of 11 surface water samples were collected to date; two samples at locations SWS-1 and SWS-2 in 1984, four samples at locations SW-01 through SW-04 in 1998, and five samples at locations SW-01 through SW-05 in 2014. These surface water samples were collected from the

stream swales at the edge or immediately east, west, and south of the mapped areal extent of the fill. Table 4.3 presents a summary of parameters detected in the surface water samples and the concentrations of these parameters. As shown in Table 4.3, eight of the parameters detected in the surface water were present at concentrations that exceed the surface water cleanup levels for marine receptors, including one VOC (carbon tetrachloride), seven metals (arsenic, copper, lead, manganese, mercury, nickel, and zinc), one PCB (PCB-1260), and one pesticide (hexachlorobenzene). No other concentrations were detected in surface water samples above surface water cleanup levels for marine receptors.

Carbon tetrachloride was the only VOC detected above the surface water cleanup level for marine receptors. Carbon tetrachloride was detected at an estimated concentration of 2.8 µg/L in the 1998 sample from SW-01 and not detected in the 2014 sample from SW-01, which is located upstream of the Site providing background data. Carbon tetrachloride was below laboratory reporting limits in all other surface samples.

Hexachlorobenzene was the only pesticide detected above the surface water cleanup level for marine receptors. Hexachlorobenzene was detected at an estimated concentration of 0.0003 µg/L in the 2014 sample from SW-05 from the middle-stream of the southern stream.

Hexachlorobenzene concentration from the upstream of the southern stream (SW-01) was 0.00028 µg/L in the 2014 sample, which is marginally lower than the middle-stream concentration. Hexachlorobenzene concentration decreased below laboratory reporting limits in the 2014 downstream sample SW-03. The results indicate hexachlorobenzene did not exceed surface water cleanup level in the final outflow from the Manke Lumber Company property parcel. The hexachlorobenzene exceedance and sample locations are shown on Figure 4.6.

Seven metals were detected above the surface water cleanup levels for marine receptors, including arsenic, copper, lead, manganese, mercury, nickel, and zinc. Among these, four metals (arsenic, copper, mercury, and nickel) were detected in background (upstream) sample location SW-01 at concentrations above surface water cleanup levels. Arsenic and mercury concentrations at other sample locations were either below or similar to the concentration in sample SW-01, indicating the arsenic and mercury concentrations in surface water are likely background. Nickel concentrations in west stream and downstream (west) of the southern stream were greater than the concentration in background sample SW-01. Copper concentrations in both east and west streams and downstream of the southern stream were greater than the concentration in background sample SW-01. In addition, zinc concentration in east stream, manganese concentration in west stream, and lead concentration in both east and west streams, were above the cleanup levels for surface water and background concentrations. The zinc, manganese, and lead concentrations in the downstream of the southern stream were also above the surface water cleanup levels and background concentrations. The results indicate the surface water from the site contained elevated nickel, copper, zinc, manganese, and lead concentrations which are greater than the background levels and surface water cleanup levels. The metals exceedances and sample locations are shown on Figure 4.5.

PCB-1260 was detected at concentrations above surface water cleanup levels in all five surface water sampling locations SW-01 through SW-05 in 2014, including the background sample. PCB-1260 concentration in the downstream sample SW-03 was marginally lower than that in the upstream (background) sample SW-01. The PCB exceedances and sample locations are shown on Figure 4.6.

Note that the above comparison does not take into account attenuation related surface water discharging to the Hylebos.

4.5 Sediment

A total of 12 sediment samples were collected to date; four samples at locations SD-01 through SD-04 in 1998, and nine samples at locations SD-04 through SD-12 in 2014. These sediment samples were collected from the stream swales at the edge or immediately east, west, and south of the mapped areal extent of the fill. Table 4.4 presents a summary of parameters detected in the sediment samples and the concentrations of these parameters compared to chemical criteria established by WAC 173-204-562(2). As stated in Section 4.1.2.2, two chemical criteria are established per WAC 173-204-562(2), including sediment cleanup objectives ("no adverse effects" level) and cleanup screening levels ("minor adverse effects" level).

As shown in Table 4.4, four of the parameters detected in the sediments were present at concentrations that exceed the sediment cleanup objectives, including one SVOC (4-methylphenol) and three metals (arsenic, mercury, and zinc).

4-Methylphenol was detected in sediment at a concentration that marginally exceeds the sediment cleanup objective and cleanup screening level of 0.67 mg/kg at location SD-03 (1.1 mg/kg; estimated; 0 to 0.5 ft bgs), south of the Site.

Arsenic was detected in sediments at concentrations that marginally exceed the sediment cleanup objective of 57 mg/kg but not the sediment cleanup screening level of 93 mg/kg at locations SD-02 (59.9 mg/kg; estimated; 0 to 0.5 ft bgs) upstream of the Site, and SD-08 (66.3 mg/kg) within southern stream swale. Zinc was detected in sediments at concentrations that marginally exceed the sediment cleanup objective of 410 mg/kg but not the sediment cleanup screening level of 960 mg/kg at locations SD-03 (705 mg/kg; estimated; 0 to 0.5 ft bgs), SD-05 (570 mg/kg), SD-07 (947 mg/kg), and SD-08 (690 mg/kg), all within the southern stream swale. Mercury was detected in sediments at concentrations that exceed the sediment cleanup screening level of 0.59 mg/kg at locations SD-06 (3.03 mg/kg) in the east stream swale and SD-07 (0.846 mg/kg) in the southern stream swale, which is downstream of the east stream swale. The exceedances and sample locations for metals are shown on Figure 4.7.

Note that the above comparison does not take into account attenuation related potential sediment migration to the Hylebos.

4.6 Air/Soil Vapor

Vapor assessment, for the purpose of human health risk, has not been conducted at the Site. Based on current Property use, the vapor intrusion pathway is incomplete because there are no occupants and therefore no vapor intrusion receptors on Property.

5. Conceptual Site Model

An area in the southern portion of the Site was used for the placement of fill, comprised of lime sludge, shredder residue, sand, cobbles, and construction/demolition debris. The lime sludge is a by-product of the production of chlorinated solvents such as trichloroethene (TCE) and tetrachloroethene (PCE). Shredder residue consists of by-products of scrap metal and automobile

recycling, such as rubber, metal, and wire. The Site was also used for the storage of automobile scrap parts and other metal items. Fifty-five gallon steel drums have also been observed on the Site. The Site is not currently in use and nearly all scrap materials and other surface debris have been removed.

The Site consists primarily of sand with varying amounts of silt, gravel, lime sludge, shredder residue, and other refuse. Previous investigations observed the lime sludge typically present as a single layer and always within the other fill, typically greater than 7.5 ft bgs. Imported fill has been observed from land surface extending to a depth of 20 ft. Observations during the 2014 investigation activities support the findings from previous investigations. Recent subsurface work conducted in 2014 resulted in adjustments to the previously mapped boundaries of fill. The fill extends across the central portion of the Property from the base of the eastern and western hillsides. The entirety of the lime sludge observed is at depth and within the southern portion of this footprint. At some locations along the flanks of the Property in close proximity to the stream channels the sand and shredder residue is observed at or just below the surface.

The lime sludge is a gray to beige, fine-grained material with medium to high plasticity. The thickness of the lime sludge ranges from 1.0 to approximately 5.0 ft. The estimated horizontal limits of sand and shredder residue fill and lime sludge fill are shown on Figure 3.1. The upper native sediments are brown, intermixed silty sands, clayey silts, and peat, with plasticity ranging from low to high. Cross sections presented on Figures 3.2 through 3.3 depict the estimated depth of the observed fill materials.

The surficial and subsurface samples collected within the mapped areal extent of the sand and shredder residue fill contained elevated concentrations of lead and arsenic exceeding MTCA Method C industrial cleanup levels between ground surface (0 ft bgs) and 11.5 ft bgs. Groundwater beneath the Site is observed within the mixed fill in two distinct zones, a shallow zone at a depth consistent with the sand and shredder residue fill and lime sludge fill layers and a deeper zone below the depth comparable to the lime sludge layers. Therefore groundwater within the wells is in direct contact with the fill materials within the two distinct zones. Groundwater generally flows towards the south-southwest in both zones based on the recent data collected in 2014, aligning with the slope of the land and in the direction of Hylebos waterway. Figures 3.4 and 3.5 depict the groundwater contours in the shallow zone and deeper zone, respectively.

As discussed in Section 4.3, based on the historical and recent groundwater analytical data, the groundwater at the site historically contained elevated concentrations of VOCs, SVOCs, metals, PCBs, and pesticides. Pesticides (4,4'-DDE, a-BHC, d-BHC, and g-BHC) concentrations were historically elevated in the fill (wells GM-B-1 and GM-B-6A), but have attenuated based on the recent data collected in 2014 that did not indicate the presence of elevated concentrations of pesticide in groundwater. Elevated VOCs (1,1-DCE, PCE, TCE, and VC) concentrations appear to be confined within the shallow groundwater zone within the lime sludge fill (well GM-B-6R). Historically, PCE concentrations appear to have migrated downward to deeper groundwater in well GM-B-6A; however, have attenuated over time based on the more recent data. The elevated SVOC (B2EP), PCBs, and metals (arsenic, copper, lead, manganese, mercury, nickel, and zinc), concentrations appear to be dispersed within the sand and shredder residue and lime sludge fills in both groundwater zones, including PCBs and metals in upgradient well GM-B-3R.

Surface runoff on the Property is either directed into the two streams running along the eastern and western flanks of the Property or across the Site as sheet flow, discharging to two wetland areas

situated at the southern boundary of the Property. A small surface water stream enters the wetlands from the east. Surface water samples collected from the two streams and southern stream entering the wetland indicate the presence of metals (arsenic, copper, lead, manganese, mercury, nickel, and zinc) concentrations exceeding surface water cleanup levels for marine receptors. Metals (arsenic, mercury, and zinc) were detected above sediment cleanup objectives in the sediment samples collected from the east and southern streams.

The Site is currently zoned for industrial use, and future zoning is not anticipated to change. In accordance with MTCA, potential exposure pathways for human and environmental receptors that may need to be addressed include the following:

- Human health protection from soil to groundwater (drinking water).
- Human health protection from direct soil contact and fugitive dust.
- Human health protection from groundwater (direct contact).
- Human health protection from soil and groundwater vapor inhalation.
- Human health protection from soil to sediment/surface water.
- Human health protection from groundwater to surface water.
- Terrestrial ecological protection.

Based on information acquired during the Remedial Investigation and based on the current and planned land use identified, the following conclusions can be made:

- Human health protection from soil and groundwater vapor inhalation is an incomplete exposure pathway due to lack of receptors based on the current and future Site use at the site and the lack of VOC concentrations in surface soils.
- Human health protection from soil to groundwater (drinking water) and groundwater direct contact are incomplete exposure pathways due to a current lack of receptors and future expected non-use of groundwater based on the assumption that a determination will be made that groundwater at the Site is classified as non-potable.

Per MTCA, potential exposure pathways requiring additional evaluation and management include the following:

- Human health protection from direct soil contact.
- Human health protection from soil to sediment/surface water.
- Human health protection from groundwater to surface water.
- Terrestrial ecological protection.

Figure 6.1 presents the human health conceptual site model for potential exposure pathways. Cleanup standards addressing the aforementioned pathways are presented below.

6. Cleanup Levels

According to the Model Toxics Control Act (MTCA), "The purpose of a remedial investigation/feasibility study (RI/FS) is to collect, develop and evaluate sufficient information

regarding a site to select a cleanup action under WAC 173-340-360 through 173-340-390." In order to evaluate data from the previous investigations and determine the need for additional remedial investigation, preliminary groundwater and soil cleanup levels have been identified for the Site as described in Section 2.1.

6.1 Groundwater Cleanup Levels

As noted in Section 2.2, The PLPs are progressing the project under the assumption that a determination will be made that groundwater at the Site is classified as non-potable. Therefore, the groundwater is not expected to be used as a drinking water source and the groundwater cleanup level will be driven by the next stringent pathway, which is groundwater to surface water pathway. The groundwater at the Site eventually discharges into the Hylebos Waterway which is marine water. As such, groundwater cleanup levels should be based on protection of applicable marine surface water beneficial uses. Accordingly, the preliminary cleanup levels for groundwater at the Site have been established consistent with MTCA Method B surface water cleanup levels for marine receptors.

6.2 Soil Cleanup Levels

As stated above, the groundwater is not expected to be used as a drinking water source. Therefore, the soil to groundwater (drinking water) pathway is incomplete. As stated in Section 3.4, exposure to terrestrial ecological receptors pathway can be considered incomplete if a physical barrier were to be placed within a time frame acceptable to the Ecology per WAC 173-340-7492(2)(b). The PLPs will propose remedial actions to eliminate the terrestrial ecological pathway as well as the surficial soil to surface water pathway. The remedial actions will be further discussed in Section 7.2. As such, the surficial soil to surface water and the terrestrial ecological pathway will be incomplete, should the proposed remedial actions be implemented. Therefore, the soil cleanup levels will be driven by soil direct contact pathway. The portion of the Property on which the fill is located is zoned M-2 Industrial. Adjacent properties are also zoned M-2 Industrial or PMI Port Industrial. Considering the historical land use and zoning of the Site, MTCA Method C industrial soil cleanup levels will be used as soil cleanup levels for direct contact. Depending on the selected cleanup action, institutional controls may be required to restrict the future land use of the Site to "industrial." As such, MTCA Method C industrial soil cleanup levels will be used as preliminary cleanup levels for soil.

The preliminary cleanup levels for are presented for reference in Table 2.1. These cleanup levels for the Site may be refined during the feasibility study and will be presented in the Feasibility Study Report.

6.3 Surface Water Cleanup Levels

Surface water from the Site eventually discharges into Hylebos Waterway, which is marine water. Therefore, MTCA Method B cleanup levels for marine receptors are used as surface water cleanup levels for the Site.

6.4 Sediment Cleanup Levels

According to WAC 173-204-562(2), two chemical criteria are established: sediment cleanup objectives, which establish a no adverse effects level; and sediment cleanup screening levels, which establish a minor adverse effects level. To ensure Site sediment quality resulting in no

adverse effects to the benthic community in the Hylebos, sediment cleanup objectives could be used as sediment cleanup level for the Site. Alternatively, if it can be shown that the sediment cleanup screening levels would not likely cause an adverse effect in the Hylebos; these values may be used as sediment cleanup levels.

7. Areas Requiring Future Management

7.1 Constituents of Concern

The potential constituents of concern (COCs) based on current and past site activities include VOCs, SVOCs, pesticides, PCBs, and metals. Based on the investigation results for all media, the current COCs exceeding the cleanup levels include four VOCs (1,1-DCE, PCE, TCE, and VC), three SVOCs (B2EP, hexachlorobutadiene, and 4-Methylphenol), eight metals (arsenic, chromium, copper, lead, manganese, mercury, nickel, and zinc), one PCB (PCB-1260), four pesticides (4,4'-DDE, a-BHC, d-BHC, and g-BHC), and one general chemistry parameter (total cyanide).

7.2 Soil

As discussed in this report, lead and arsenic concentrations exceeding MTCA Method C industrial cleanup levels are currently present in shallow soil from surface to 11.5 ft bgs within the sand and shredder residue fill. As discussed in Section 5.0, potential exposure pathways for human and environmental receptors that need to be addressed include the following:

- Human health protection from direct soil contact
- Human health protection from soil to surface water
- Terrestrial ecological protection

Potential exposure to COCs may occur via trespassers coming into direct contact with surface soils and/or surface water impacted by runoff over surface soils containing elevated concentrations of COCs. Similarly, potential exposure to COCs of land-based plants and animals may occur, including subsurface soils within shallow root and burrowing depths. Human health protection and terrestrial ecological protection from incidental direct soil contact with respect to near-surface fill is proposed by means of cover with clean imported fill and a vegetated layer to eliminate the exposure pathways. The cover would be sufficiently thick to prevent both human and terrestrial ecological receptors from incidental contact, promote stable plant growth, while limiting deeper precipitation infiltration into underlying fill materials. The cover would also eliminate the soil to surface water exposure pathway by preventing runoff over soils containing elevated concentrations of COCs. Additionally, implementing institutional controls is proposed to restrict human activity that could potentially access impacted material near-surface and at depth.

7.3 Sediments

As discussed in this report, arsenic, mercury, and zinc concentrations exceeding WAC sediment cleanup objectives and cleanup screening levels are currently present in sediments on the Property. As discussed in Section 5.0, potential exposure pathways for human and environmental receptors that need to be addressed include the following:

- Human health protection from direct sediment contact

- Human health protection from sediment to surface water
- Terrestrial ecological protection

Potential exposure to COCs may occur via trespassers coming into direct contact with sediments and/or surface water impacted by runoff over sediments containing elevated concentrations of COCs. Similarly, potential exposure to COCs of land-based animals may occur. Protection of human health and terrestrial ecological potential receptors to sediments (and impacted surface water) is proposed to be achieved through consolidation under the proposed cover (see Section 7.2) of near-surface impacted soil and sediments at the flanks of the fill areas and near-surface fill from the streams (sediment). This would eliminate the exposure pathway by removing near-surface impacted material. Material from the flanks would be graded to allow clean fill to be imported to provide adequate habitat for terrestrial ecological activity near and within the two streams. The removed material will be placed in the center of the Site and covered with a layer of clean fill and vegetative cover as described in Section 7.2.

7.4 Groundwater

As discussed in this report, groundwater at the Site contained concentrations of twenty-one parameters exceeding MTCA Method C cleanup levels for surface water for marine receptors. The parameters include four VOCs (1,1-DCE, PCE, TCE, VC), two SVOCs (B2EP and hexachlorobutadiene), eight metals (arsenic, chromium, copper, lead, manganese, mercury, nickel, and zinc), two PCBs (PCB-1254 and PCB-1260), four pesticides (4,4'-DDE, a-BHC, d-BHC, and g-BHC), and one general chemistry parameter (total cyanide). As discussed in Section 5.0, potential exposure pathways for human and environmental receptors that need to be addressed or maintained include the following:

- Human health protection from groundwater to surface water
- Human health protection from groundwater (direct contact)

Potential exposure to COCs may occur via trespasser incidental contact with surface water that has been potentially impacted by groundwater containing elevated concentrations of COCs. Although direct exposure to groundwater is not a complete pathway currently, it could potentially occur if direct access to groundwater is not restricted. The data from the Site has shown that concentrations in groundwater and surface water are attenuating and this is expected to continue. Elimination or management of the above two pathways is proposed to be achieved through institutional controls and monitoring. The Site is zoned industrial and future plans for the Site do not include any changes from that use. Therefore, institutional controls would be an effective way to restrict the future land use of the Site to "industrial" and mitigate the potential human health exposure pathways. In addition, monitoring wells on the Site would be decommissioned since the groundwater is assumed to be non-potable and direct contact with the groundwater would be restricted. Additionally, surface water sampling to monitor the groundwater to surface water pathway would be conducted to monitor attenuation until the concentrations in the surface water are consistently below the proposed cleanup levels. It should be noted that direct comparison to the surface water cleanup levels for marine receptors does not take into account attenuation related surface water discharging to the Hylebos, which would result in lower concentrations in surface water in the Hylebos.

Additionally, the proposed cover discussed in Section 7.2 above, would reduce infiltration into the impacted soils and reduce the potential for contaminate migration.

8. RI Conclusions

As discussed in this report, soil with metals (arsenic and lead) concentrations exceeding MTCA Method C industrial cleanup levels is present at shallow depths in the sand and shredder residue fill from surface to 11.5 ft bgs. Groundwater with VOCs, SVOCs, metals, PCBs, and pesticides concentrations exceeding MTCA Method B cleanup levels for surface water for marine receptors was present in the two groundwater zones with in the fill materials. Surface water contained metals and PCB concentrations exceeding MTCA Method B cleanup levels for surface water for marine receptors likely from elevated concentrations in the shallow fill by runoff and in groundwater. Sediment in the east and southern streams had elevated concentrations of metals.

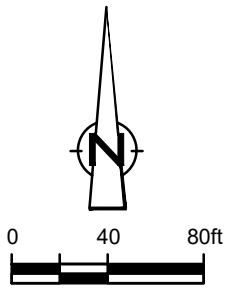
The following remedial action is warranted to address the potential exposure pathways. First, protection of soil to surface water and terrestrial ecological protection is proposed to be achieved through excavation and removal of near-surface fill from the streams (sediment) and at the surface along the flanks of the mapped areal extent of the fill. The remaining flanks of the mapped areal extents of the fill will be graded to allow clean fill and cover material to be imported to provide adequate habitat near and within the two streams. The removed fill will be placed in the center of the Site. Second, on-Site containment of the removed material, lime sludge, shredder residue, and other fill materials is proposed to be achieved through the installation of a cover layer of clean fill and vegetative cover to prevent incidental direct contact to potential human and terrestrial ecological receptors, limit infiltration to reduce potential contaminate migration, and promote stable plant growth. The proposed cover would also serve to prevent re-contamination of sediments and surface water in the future.

Lastly, the combination of institutional controls through the placement of deed restrictions along with surface water monitoring is also proposed to ensure adequate attenuation of potential surface water runoff from the Site.

The potential remediation alternative above has been provided to guide collaborative discussion between involved parties. A thorough evaluation and comparative analysis of this proposed alternative with other potentially applicable alternatives will be completed in a FS scheduled to be started following review of comments on the RI from Ecology.

9. References

- Gregory L. Glass, *Pierce County Footprint Study: Soil Arsenic and Lead Contamination In Western Pierce County*, April 2004.
- Washington State Department of Ecology. *Terrestrial Ecological Evaluation*.
<http://www.ecy.wa.gov/programs/tcp/policies/terrestrial/TEEHome.htm>. Accessed on June 16, 2014.
- Washington State Department of Ecology. *Washington State Well Log Viewer*. Accessed on June 13, 2014.
- Washington State Department of Ecology. *Facility Site Database Search*. Accessed on August 13, 2012.
- Washington State Department of Ecology. *Model Toxics Control Act*, Publication No. 94-06, Revised November 2007.



- LEGEND**
- PROPERTY LINE
 - .-.- STREAM SWALE
 - MONITORING WELL LOCATION
 - TEST PIT LOCATION
 - ▣ BOREHOLE LOCATION
 - ⊠ SURFACE SEDIMENT SAMPLE LOCATION
 - ⊞ SURFACE WATER SAMPLE LOCATION
 - HAND AUGER LOCATION
 - ▲ SHALLOW SOIL SAMPLE LOCATION
 - ESTIMATED LIMIT OF SAND AND SHREDDER RESIDUE FILL
 - ESTIMATED LIMIT OF LIME SLUDGE FILL

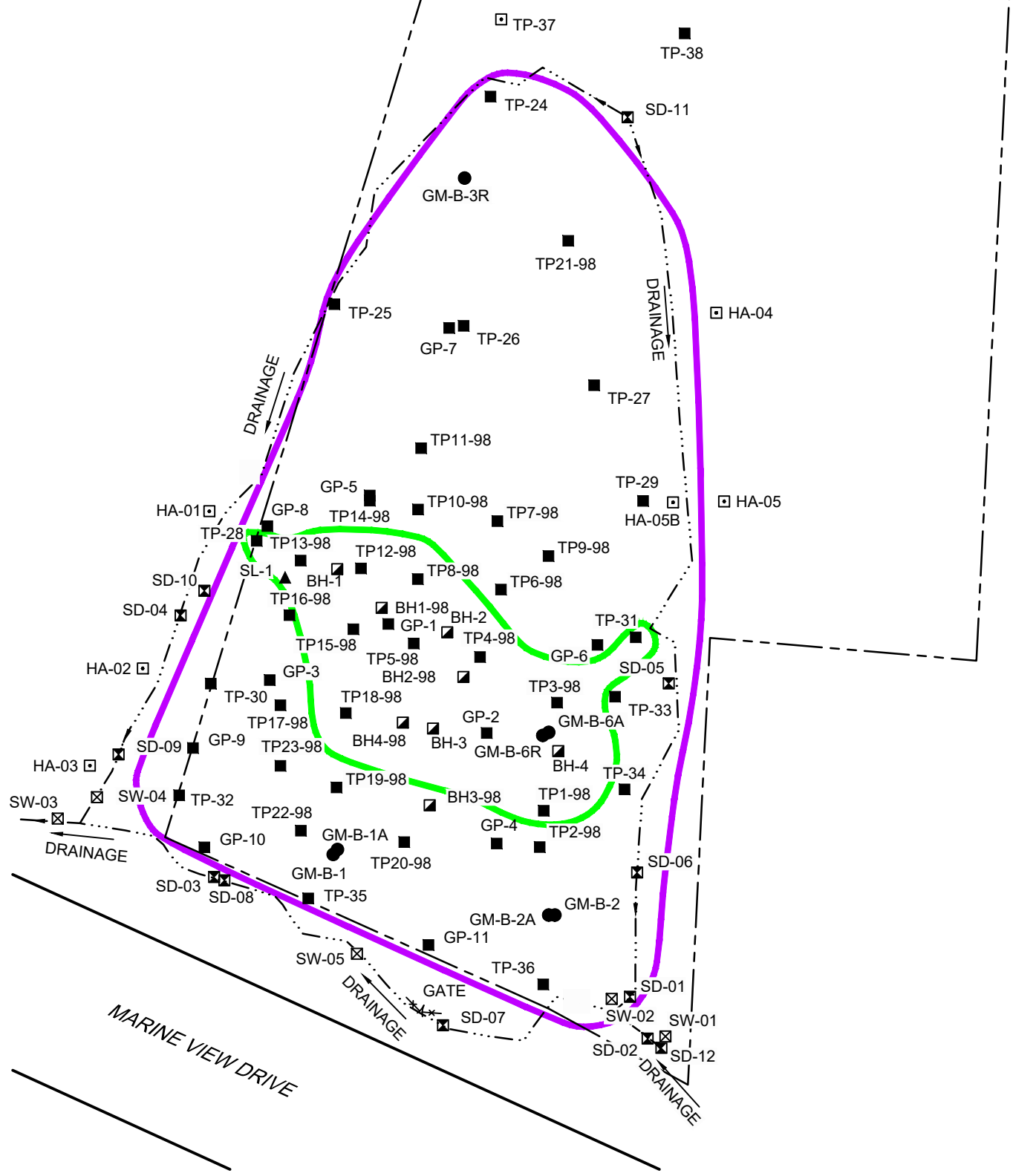
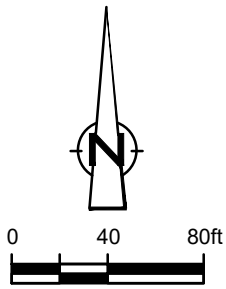


figure 2.1
SITE PLAN
1913 MARINE VIEW DRIVE SITE
Tacoma, Washington





- LEGEND**
- PROPERTY LINE
 - .-.- STREAM SWALE
 - MONITORING WELL LOCATION
 - TEST PIT LOCATION
 - ▣ BOREHOLE LOCATION
 - ⊠ SURFACE SEDIMENT SAMPLE LOCATION
 - ⊞ SURFACE WATER SAMPLE LOCATION
 - HAND AUGER LOCATION
 - ▲ SHALLOW SOIL SAMPLE LOCATION
 - CROSS-SECTION LOCATION
 - ESTIMATED LIMIT OF SAND AND SHREDDER RESIDUE FILL
 - ESTIMATED LIMIT OF LIME SLUDGE FILL

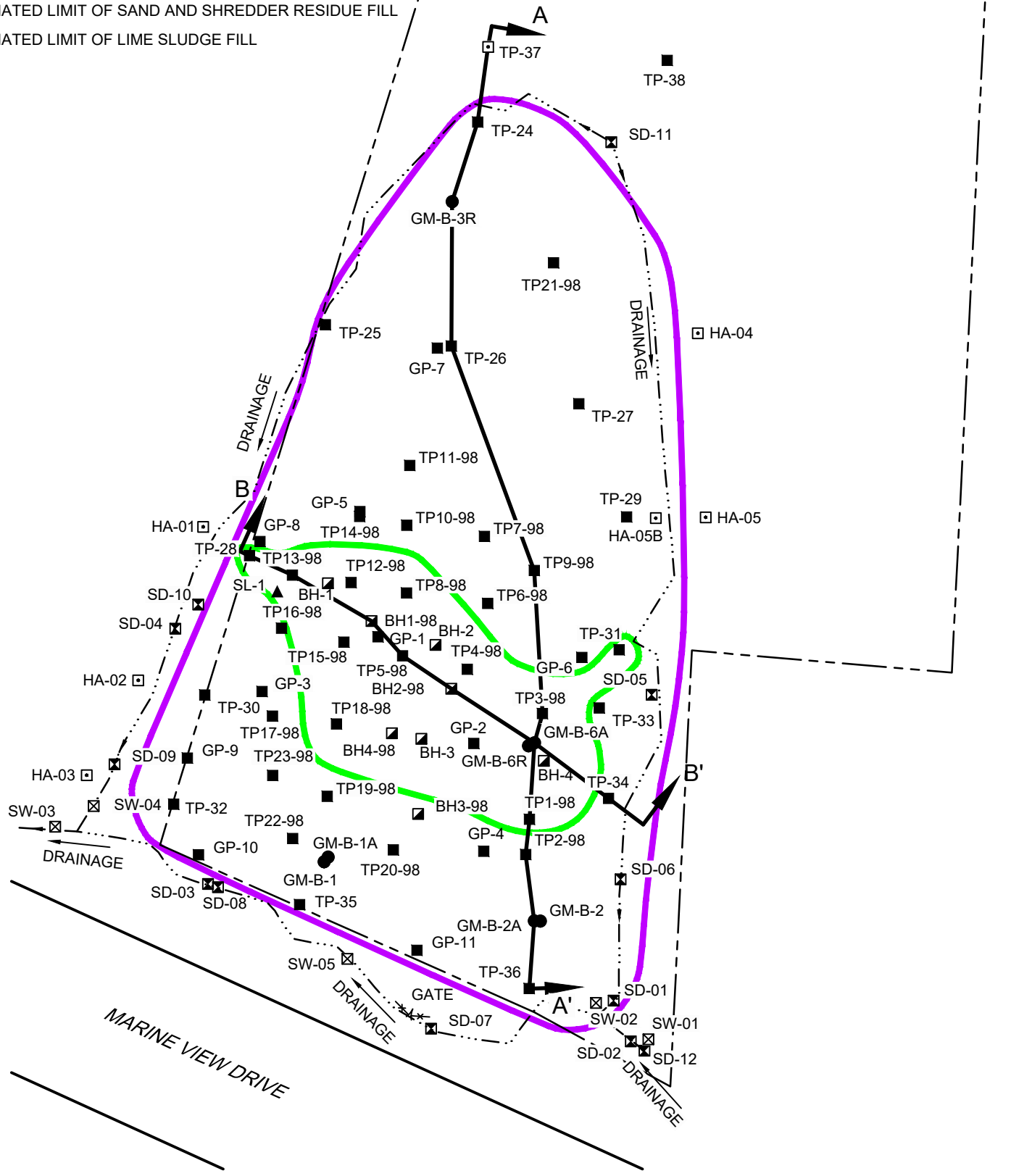
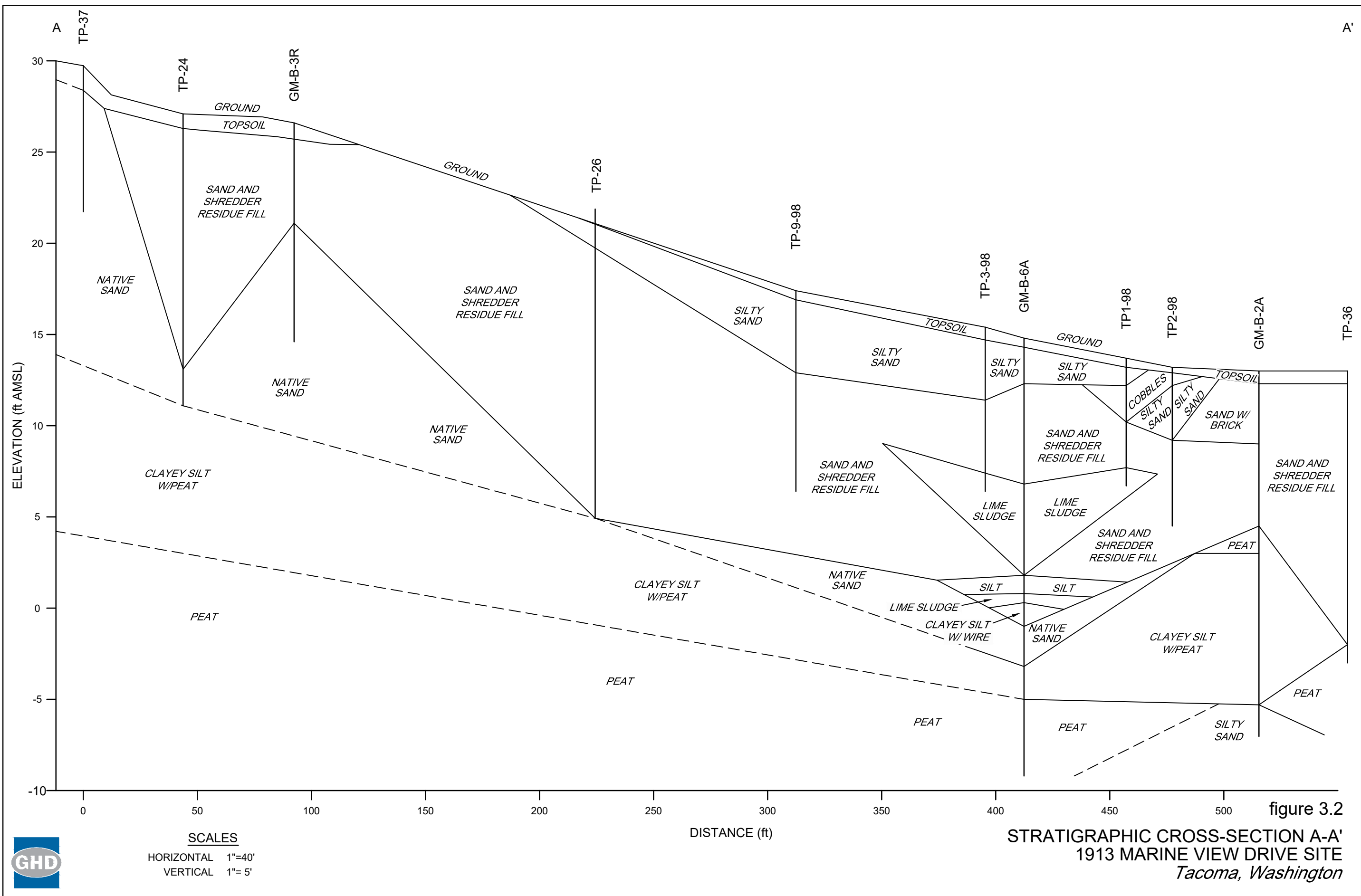
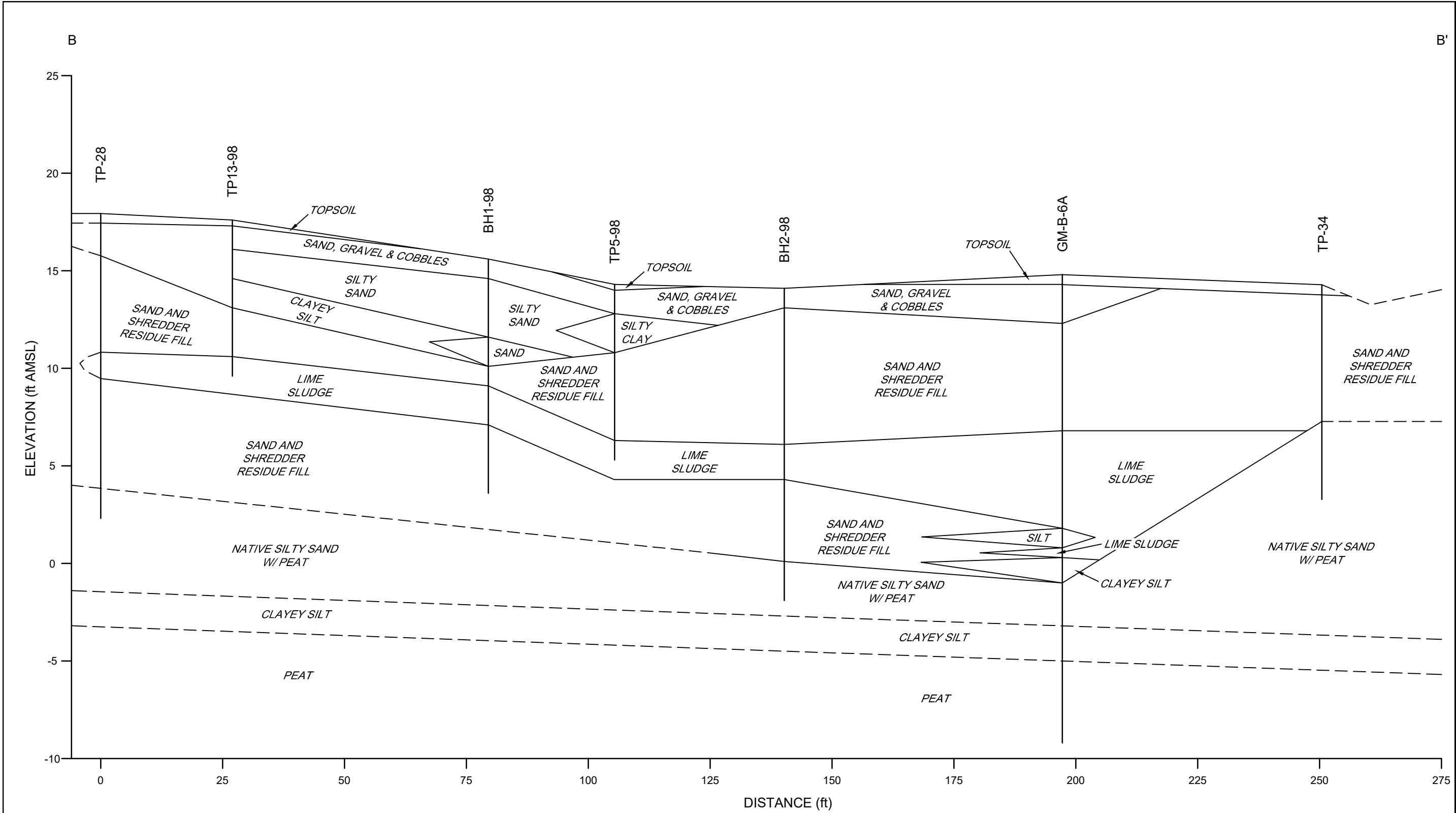


figure 3.1
STRATIGRAPHIC CROSS-SECTIONS - PLAN
1913 MARINE VIEW DRIVE SITE
Tacoma, Washington







SCALES

HORIZONTAL 1"=20'
VERTICAL 1"= 5'



figure 3.3
STRATIGRAPHIC CROSS-SECTION B-B'
1913 MARINE VIEW DRIVE SITE
Tacoma, Washington

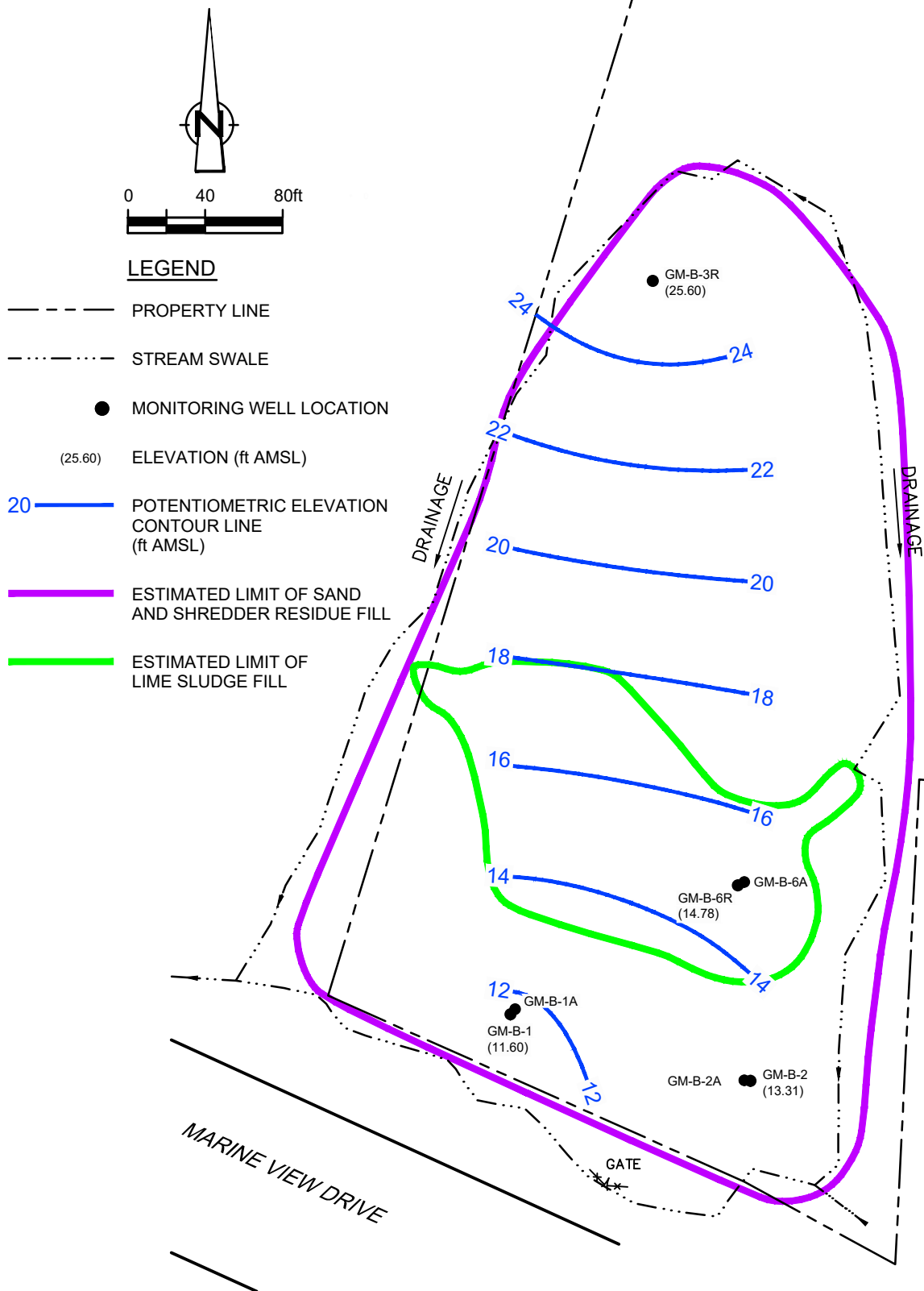
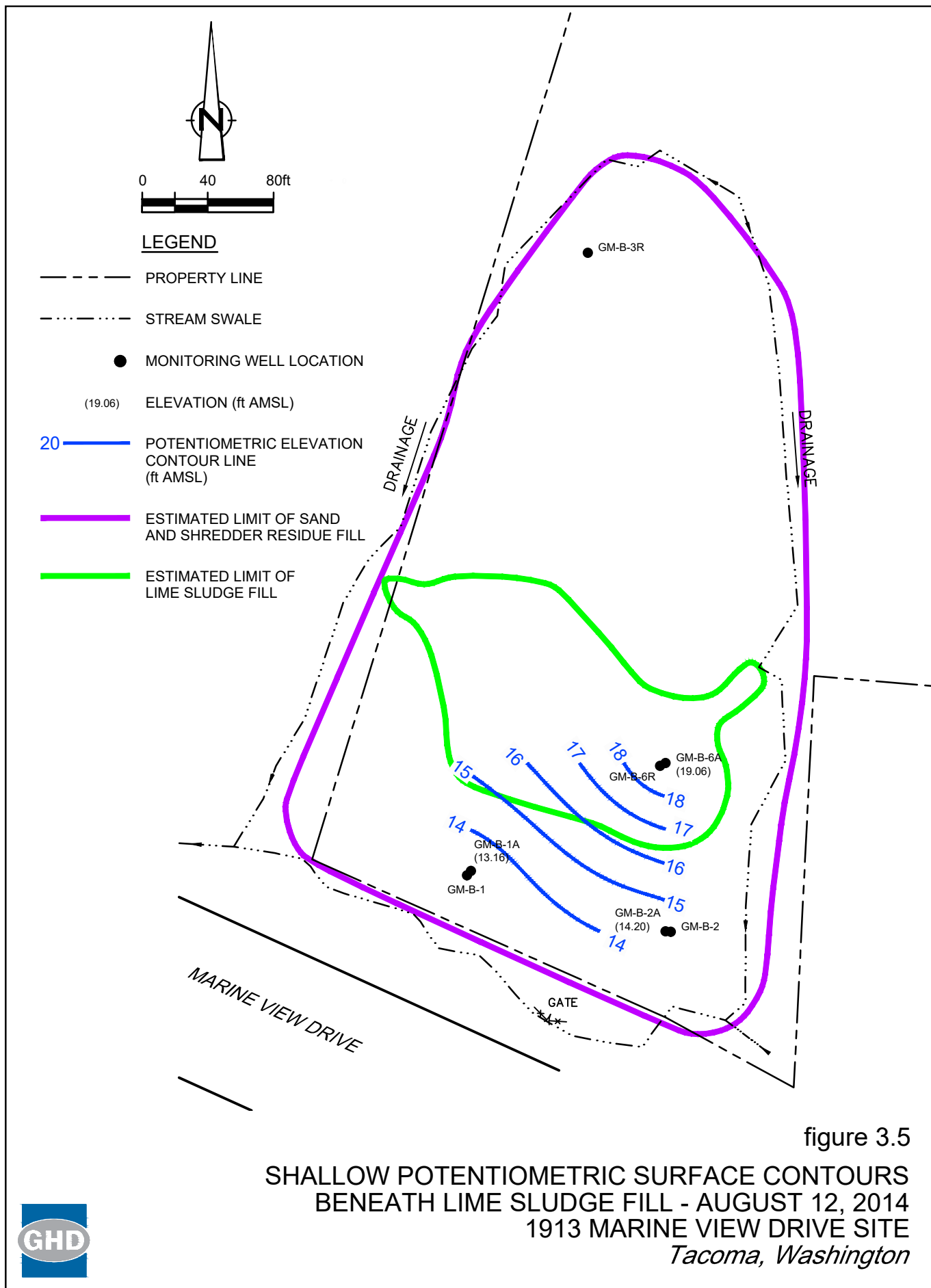


figure 3.4

SHALLOW POTENTIOMETRIC SURFACE CONTOURS
AUGUST 12, 2014
1913 MARINE VIEW DRIVE SITE
Tacoma, Washington





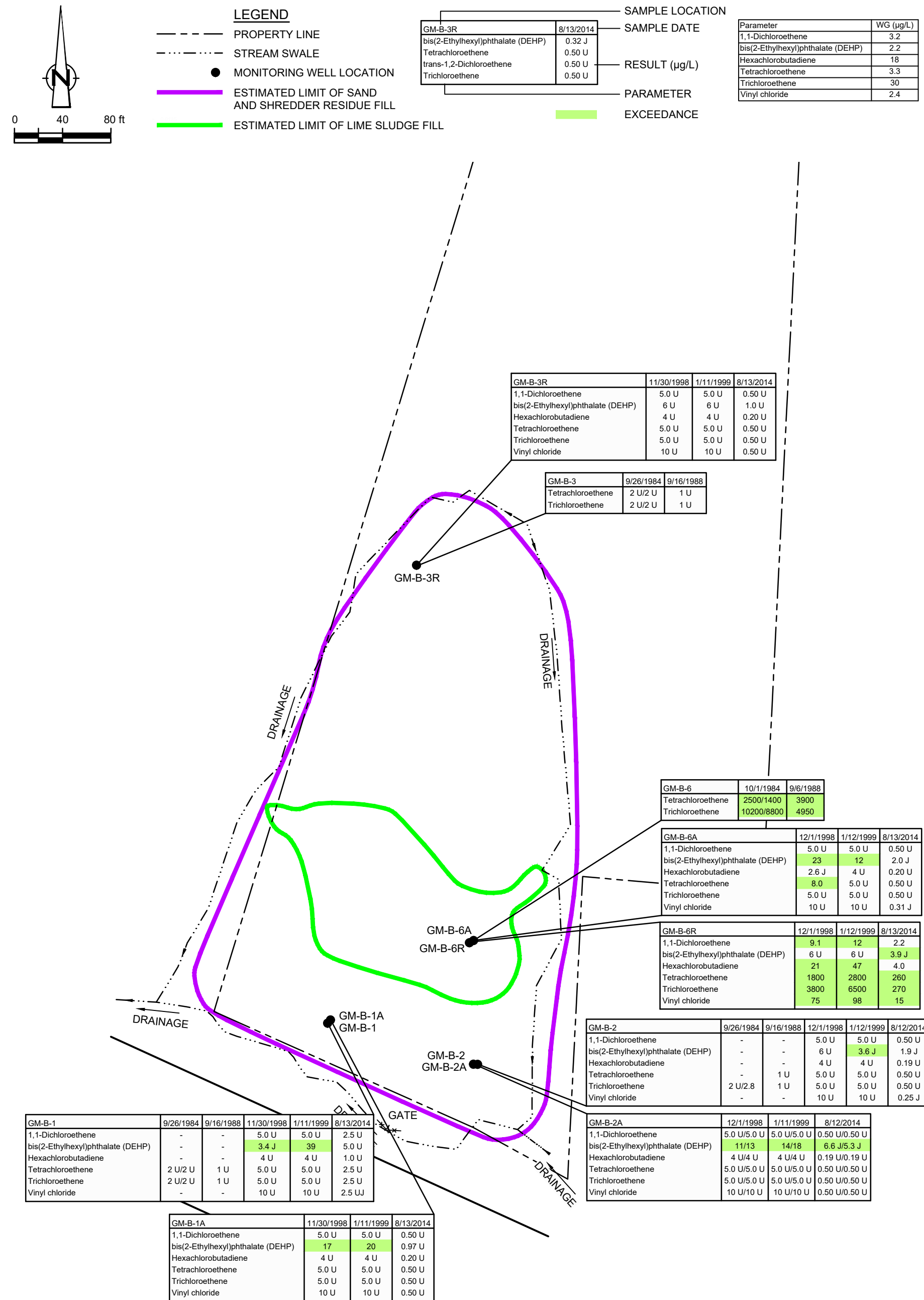
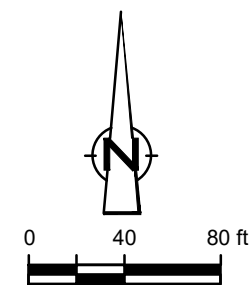


figure 4.2
GROUNDWATER RESULTS - VOCs/SVOCs
1913 MARINE VIEW DRIVE SITE
Tacoma, Washington





- LEGEND**
- PROPERTY LINE
 - - - - - STREAM SWALE
 - MONITORING WELL LOCATION
 - ESTIMATED LIMIT OF SAND AND SHREDDER RESIDUE FILL
 - ESTIMATED LIMIT OF LIME SLUDGE FILL

SAMPLE LOCATION		SAMPLE DATE	
GM-B-3R		8/13/2014	
Arsenic	4.7	RESULT (µg/L)	
Copper	5.06		
Lead	3.15		
Manganese	2010		
Mercury	0.0101		
Nickel	3.62		
Zinc	21.7		
PARAMETER		EXCEEDANCE	

Parameter	WG (µg/L)
Arsenic	0.14
Copper	2.4
Lead	8.1
Manganese	100
Mercury	0.025
Nickel	8.2
Zinc	81

GM-B-3R	11/30/1998	1/11/1999	8/13/2014
Arsenic	8.2	5 U	4.7
Copper	18.0	17.9	5.06
Lead	16.0 U	19.0	3.15
Manganese	6070	6310	2010
Mercury	0.2	0.2	0.0101
Nickel	10.0	6.7	3.62
Zinc	112	109	21.7

GM-B-6A	12/1/1998	1/12/1999	8/13/2014
Arsenic	10.0	5 U	0.4 J
Copper	70.0	15.6	2.12
Lead	105	27.6	2.46
Manganese	331	183	77.6
Mercury	0.4	0.2 U	0.00243
Nickel	36.0	8.7	1.48
Zinc	308	93.8	14.8

GM-B-6R	12/1/1998	1/12/1999	8/13/2014
Arsenic	8.2	10.9	9.3 J
Copper	5 U	5 U	3.57 J
Lead	23.0 U	23.5	70.0 J
Manganese	11.0	14.6	102 J
Mercury	0.2 U	0.2 U	0.0267 J
Nickel	48.0	54.8	20.1 J
Zinc	61.0	50 U	23.3 J

GM-B-2	12/1/1998	1/12/1999	8/12/2014
Arsenic	5 U	17.4	9.5
Copper	5 U	8.2	6.17
Lead	3 U	62.7	42.8
Manganese	5 U	143	228
Mercury	0.2 U	0.2 U	0.0166
Nickel	5 U	51.7	43.5
Zinc	50 U	333	348

GM-B-2A	12/1/1998	1/11/1999	8/12/2014
Arsenic	12.0/14.0	5 U/5 U	3.4/3.5
Copper	66.0/59.0	13.3/13.0	6.35/6.64
Lead	96.0/92.0	24.2/24.4	7.42/8.10
Manganese	636/606	417/416	366/375
Mercury	0.2/0.3	0.2 U/0.2 U	0.00407/0.00326
Nickel	34.0/33.0	8.7/8.7	4.04/4.45
Zinc	251/249	74.1/81.7	42.1/46.7

GM-B-1	11/30/1998	1/11/1999	8/13/2014
Arsenic	37.0	38.8	50.7 J
Copper	15.0	50.8	33.7 J
Lead	63.0	421	253 J
Manganese	128	198	164 J
Mercury	0.2 U	0.3	0.0894 J
Nickel	92.0	110	119 J
Zinc	120	670	441 J

GM-B-1A	11/30/1998	1/11/1999	8/13/2014
Arsenic	5 U	5 U	0.4 J
Copper	54.0	14.0	5.77
Lead	19.0 U	7.6 U	0.744
Manganese	398	296	219
Mercury	0.2 U	0.2 U	0.00162
Nickel	17.0	7.7	3.49
Zinc	69.0	50 U	20.4



figure 4.3
GROUNDWATER RESULTS - METALS
1913 MARINE VIEW DRIVE SITE
Tacoma, Washington

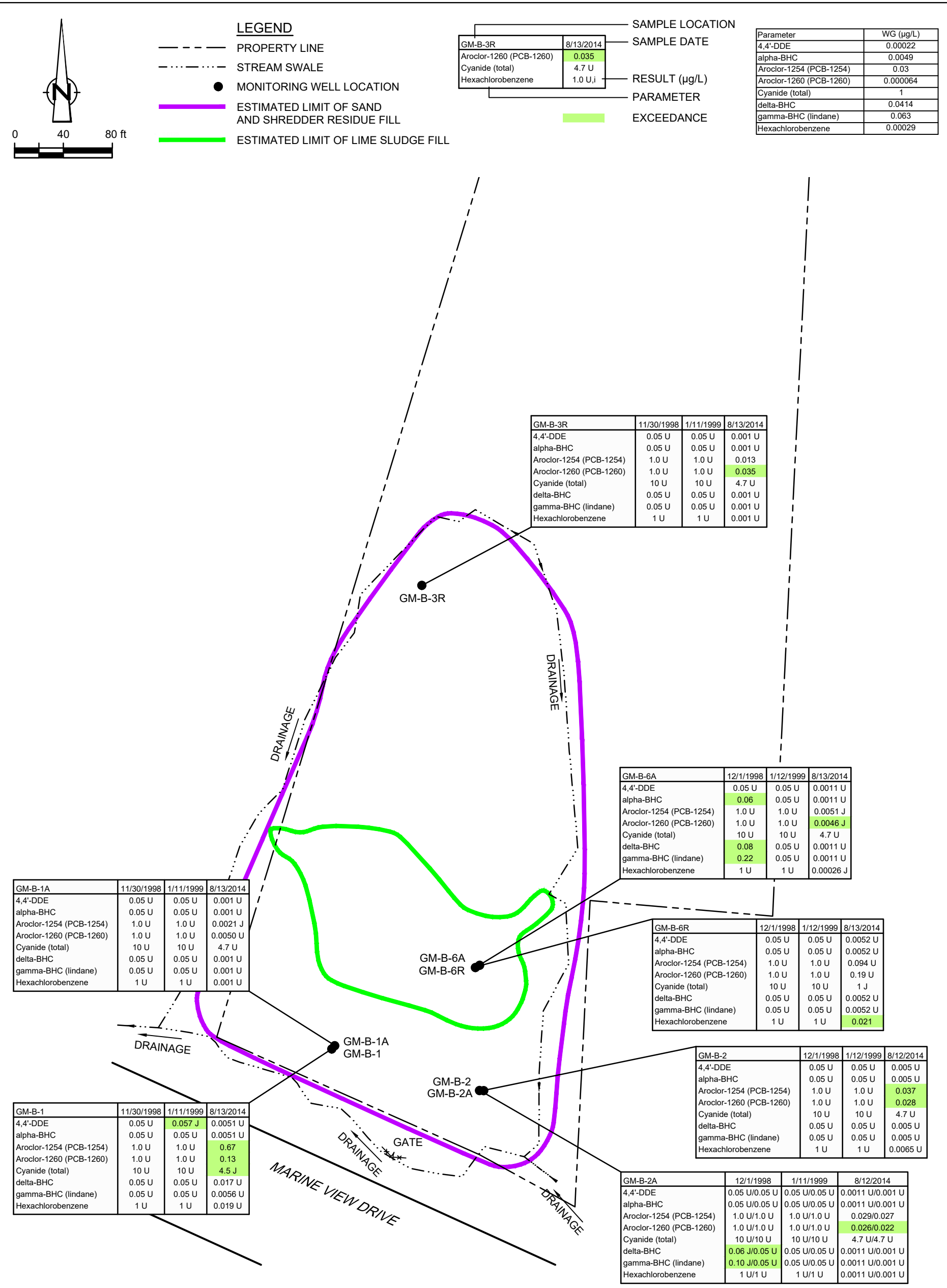


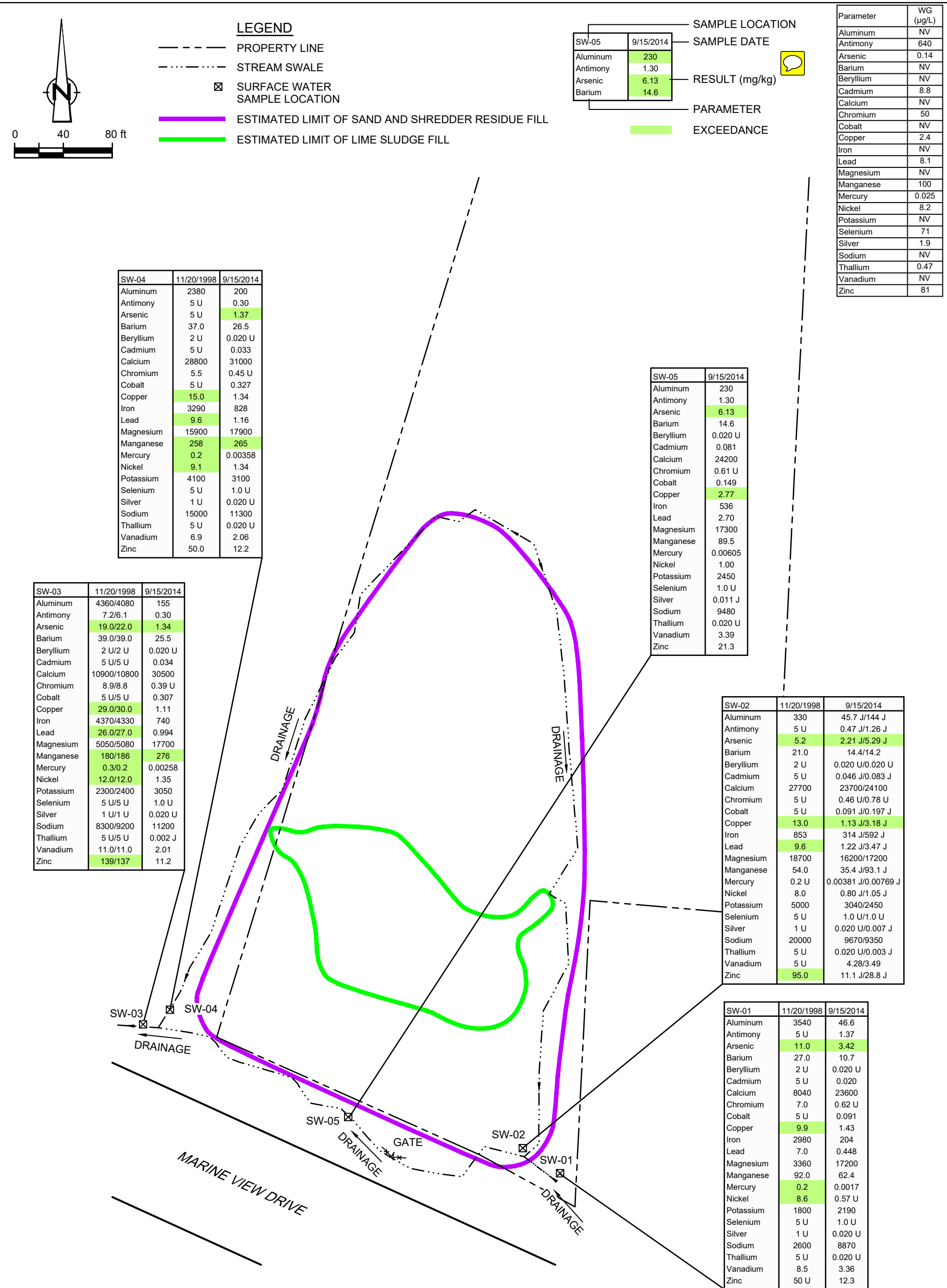
figure 4.4

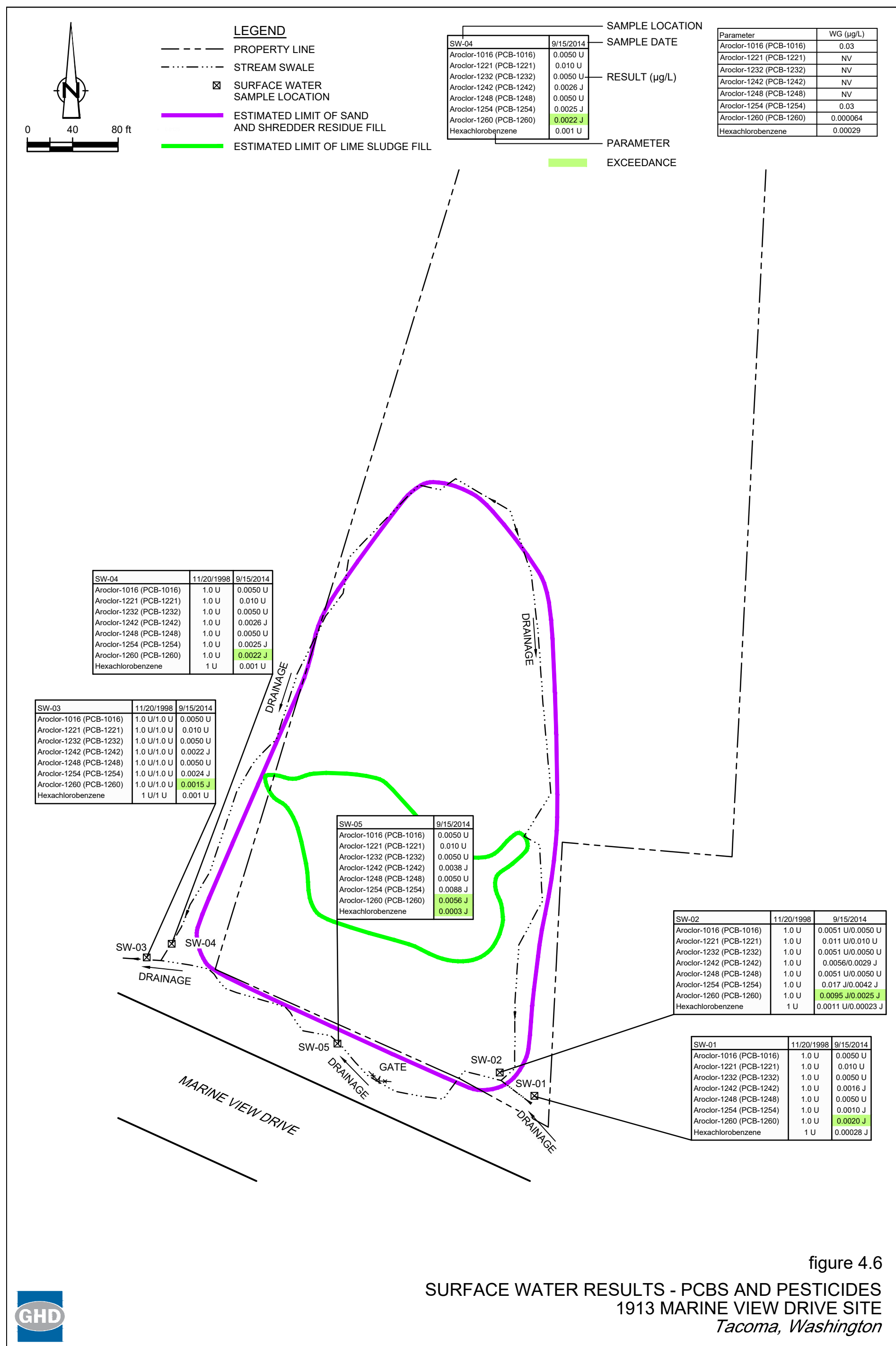
GROUNDWATER RESULTS - PCBs, PESTICIDES AND GENERAL CHEMISTRY

1913 MARINE VIEW DRIVE SITE

Tacoma, Washington







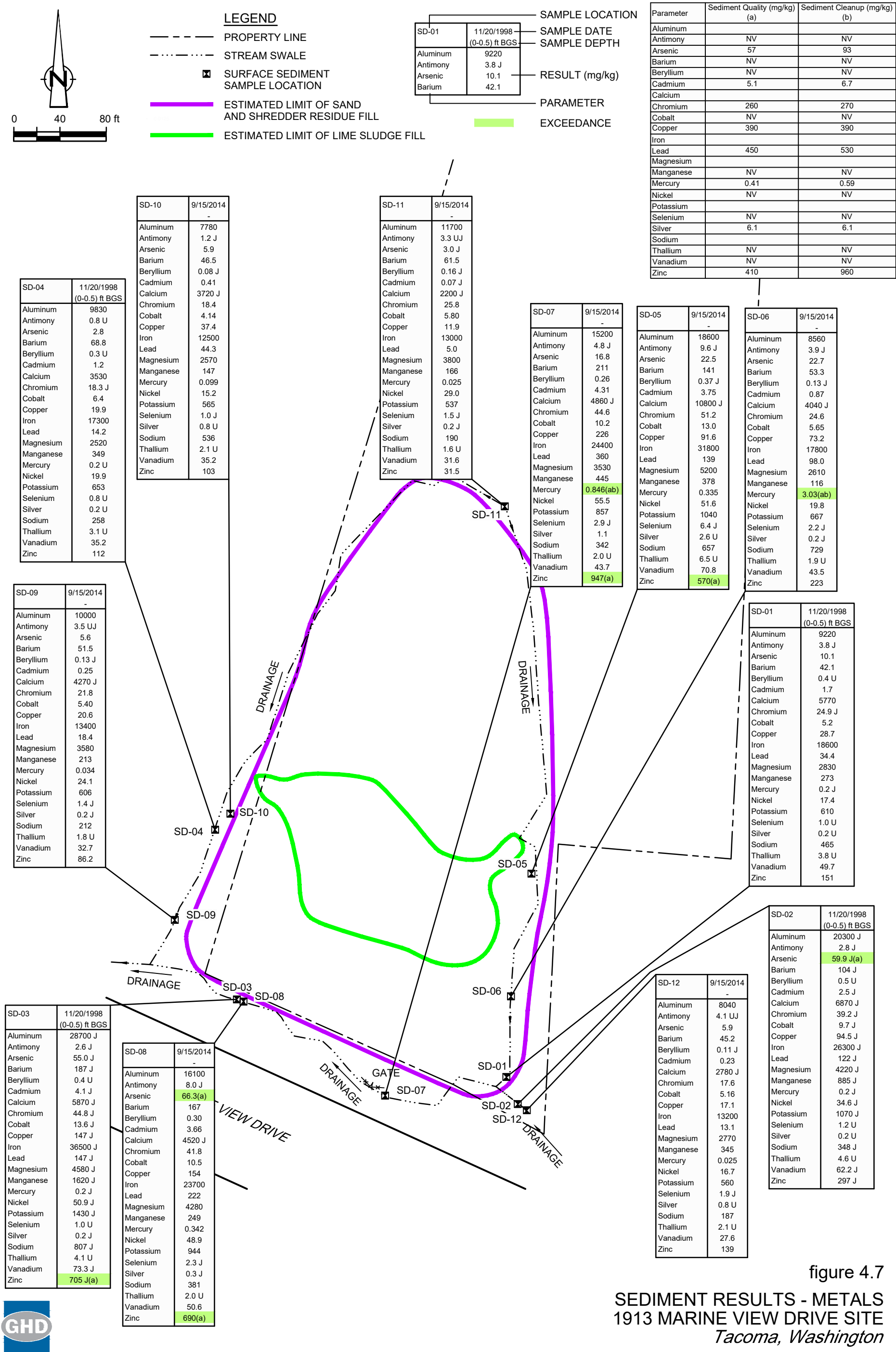


figure 4.7
SEDIMENT RESULTS - METALS
1913 MARINE VIEW DRIVE SITE
Tacoma, Washington



figure 6.1

HUMAN HEALTH CONCEPTUAL SITE MODEL
1913 MARINE VIEW DRIVE SITE
Tacoma, Washington

Table 2.1

**Preliminary Cleanup Levels For Detected Parameters
1913 Marine View Drive Site
Tacoma, Washington**

Parameter	CASRN	Preliminary Cleanup	Sediment Management Standards (b)		Preliminary Cleanup	
		Levels for Soil (a)	Sediment Cleanup Objectives (mg/kg)	Sediment Cleanup Screening Levels (mg/kg)	Levels for Surface Water and Groundwater (c)	
		(Industrial) Value (mg/kg)			Value (µg/L)	Source
Volatile Organic Compounds						
Acetone	67-64-1	3.15E+06	NV	NV	NV	--
Benzene	71-43-2	2.39E+03	NV	NV	51	bb; cc
Bromoform	75-25-2	1.66E+04	NV	NV	140	bb; cc
2-Butanone	78-93-3	2.10E+06	NV	NV	NV	--
Carbon disulfide	75-15-0	3.50E+05	NV	NV	NV	--
Carbon tetrachloride	56-23-5	1.88E+03	NV	NV	1.6	bb; cc
Chloromethane	74-87-3	NV	NV	NV	133	ee
Dibromochloromethane	124-48-1	1.56E+03	NV	NV	13	bb; cc
1,1-Dichloroethene	75-35-4	1.75E+05	NV	NV	3.2	dd
cis-1,2-Dichloroethene	156-59-2	7.00E+03	NV	NV	NV	--
trans-1,2-Dichloroethene	156-60-5	7.00E+04	NV	NV	10000	bb; cc
Ethylbenzene	100-41-4	3.50E+05	NV	NV	2100	bb; cc
2-Hexanone	591-78-6	NV	NV	NV	NV	--
4-Methyl-2-pentanone	108-10-1	2.80E+05	NV	NV	NV	--
Methylene chloride	75-09-2	1.75E+04	NV	NV	590	bb; cc
Styrene	100-42-5	7.00E+05	NV	NV	NV	--
Tetrachloroethene	127-18-4	2.10E+04	NV	NV	3.3	bb; cc
Toluene	108-88-3	2.80E+05	NV	NV	15000	bb; cc
1,2,4-Trichlorobenzene	120-82-1	4.53E+03	0.81	1.8	70	bb; cc
Trichloroethene	79-01-6	1.75E+03	NV	NV	30	bb; cc
Vinyl chloride	75-01-4	1.05E+04	NV	NV	2.4	bb; cc
Xylenes	1330-20-7	7.00E+05	NV	NV	NV	--
Semi-Volatile Organic Compounds						
Butyl benzyl phthalate	85-68-7	6.91E+04	4.9	64	1900	bb; cc
Chrysene	218-01-9	1.80E+04	110	460	0.018	bb; cc
Diethyl phthalate	84-66-2	2.80E+06	61	110	44000	bb; cc
2,4-Dimethylphenol	105-67-9	7.00E+04	0.029	0.029	850	bb; cc
Di-n-octyl phthalate	117-84-0	NV	58	4500	NV	--
4,6-Dinitro-2-methylphenol	534-52-1	NV	NV	NV	280	bb
bis(2-ethylhexyl)phthalate	117-81-7	9.38E+03	47	78	2.2	bb; cc
Fluoranthene	206-44-0	1.40E+05	160	1200	140	bb; cc
Hexachlorobenzene	118-74-1	8.20E+01	0.38	2.3	0.00029	bb; cc
Hexachlorobutadiene	87-68-3	1.68E+03	3.9	6.2	18	bb; cc
2-Methylphenol	95-48-7	1.75E+05	0.063	0.063	NV	--
4-Methylphenol	106-44-5	1.75E+04	0.67	0.67	NV	--
Phenol	108-95-2	1.05E+06	0.42	1.2	860000	bb
Pyrene	129-00-0	1.05E+05	1000	1400	4000	bb; cc
Pesticides						
a-BHC	319-84-6	2.08E+01	NV	NV	0.0049	bb; cc
b-BHC	319-85-7	7.29E+01	NV	NV	0.017	bb; cc
d-BHC	319-86-8	NV	NV	NV	0.0414	cc
gamma-BHC	58-89-9	1.05E+03	NV	NV	0.063	dd
4,4'-DDD	72-54-8	5.47E+02	NV	NV	0.00031	bb; cc
4,4'-DDE	72-55-9	3.86E+02	NV	NV	0.00022	bb; cc
4,4'-DDT	50-29-3	3.86E+02	NV	NV	0.00022	bb; cc
Endrin aldehyde	7421-93-4	NV	NV	NV	0.3	bb
Heptachlor	76-44-8	2.92E+01	NV	NV	0.000079	bb; cc
Aroclor-1254	11097-69-1	6.56E+01	12*	65*	0.03	cc
Aroclor-1260	11096-82-5	6.56E+01	12*	65*	0.000064	bb

Table 2.1

**Preliminary Cleanup Levels For Detected Parameters
1913 Marine View Drive Site
Tacoma, Washington**

Parameter	CASRN	Preliminary Cleanup	Sediment Management Standards (b)		Preliminary Cleanup	
		Levels for Soil (a)	Sediment Cleanup	Sediment Cleanup	Levels for Surface Water	
		(Industrial)	Objectives	Screening Levels	and Groundwater (c)	
		Value (mg/kg)	(mg/kg)	(mg/kg)	Value (µg/L)	Source
Metals						
Antimony	7440-36-0	1.40E+03	NV	NV	640	bb; cc
Arsenic	7440-38-2	8.75E+01	57	93	0.14	bb; cc; dd
Barium	7440-39-3	7.00E+05	NV	NV	NV	--
Beryllium	7440-41-7	7.00E+03	NV	NV	NV	--
Cadmium	7440-43-9	3.50E+03	5.1	6.7	8.8	bb
Chromium	18540-29-9	1.05E+04	260	270	50	aa; bb; cc; dd
Cobalt	7440-48-4	NV	NV	NV	NV	--
Copper	7440-50-8	1.40E+05	390	390	2.4	dd
Cyanide	57-12-5	7.00E+04	NV	NV	1	aa; cc; dd
Lead	7439-92-1	1.00E+03 (d)	450	530	8.1	aa; bb; cc; dd
Manganese	7439-96-5	4.90E+05	NV	NV	100	bb; cc
Mercury	7439-97-6	1.05E+03	0.41	0.59	0.025	aa; dd
Nickel	7440-02-0	7.00E+04	NV	NV	8.2	aa; bb; cc; dd
Selenium	7782-49-2	1.75E+04	NV	NV	71	aa; bb; cc; dd
Silver	7440-22-4	1.75E+04	6.1	6.1	1.9	aa; bb; cc; dd
Thallium	7440-28-0	NV	NV	NV	0.47	bb; cc
Vanadium	7440-62-2	2.45E+02	NV	NV	NV	--
Zinc	7440-66-6	1.05E+06	410	960	81	aa; bb; cc; dd

Notes:

(a) Preliminary Cleanup Level for soil established consistent with MTCA Method C industrial soil cleanup levels.

(b) WAC 173-204-562(2) Marine sediment - Chemical criteria.

(c) Preliminary Cleanup Level for groundwater established consistent with MTCA Method B surface water cleanup levels.

(d) MTCA Method A (default) industrial value shown because no value is available for MTCA Method C.

NV No published value.

aa WAC 173201 Table 240(3) Acute or Chronic Marine Water.

bb National Recommended Water Quality Criteria November 2002. Acute Aquatic, Chronic Aquatic or Human Health, consumption of organisms only.

cc CLARC 2012 Surface Water ARAR USEPA Clean Water Act §304 Marine Acute Aquatic, Chronic Aquatic or Human Health, consumption of organisms only.

dd CLARC 2012 Surface Water ARAR National Toxics Rule 40 CFR 131 Marine Acute Aquatic, Chronic Aquatic or Human Health, consumption of organisms only.

ee MTCA Method B Surface water calculated from MTCA equations 730-1 and 730-2.

CLARC Summary: <https://fortress.wa.gov/ecy/clarc/Reporting/CLARCReporting.aspx>

* Total PCB

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

			Lime Sludge Fill								Sand and Shredder Fill
Sample Location:		Ecology	BH-1	BH-2	BH-4	BH-4	TP comp(B)	GP-1	GP-2	TP-28	BH-3
Sample ID:		OXYREDS	SL-101804-1	SL-101804-2	SL-101804-4	SL-101804-5	S-9973-111798-GS01	S-082114-NH-GP1-10	S-082114-NH-GP2-9	S-082614-RB-TP28-8	SL-101804-3
Sample Date:		12/2/2002	10/18/2004	10/18/2004	10/18/2004	10/18/2004	11/17/1998	8/21/2014	8/21/2014	8/26/2014	10/18/2004
Sample Depth:		-	(8-11) ft BGS	(7-9) ft BGS	(8-11) ft BGS	(8-11) ft BGS	(6-9) ft BGS	(10-10.5) ft BGS	(9-9.5) ft BGS	(8-8.5) ft BGS	(7-9) ft BGS
Parameters	Units										
Soil MTCA Method C Industrial Cleanup Level ¹											
Volatile Organic Compounds											
1,1,1,2-Tetrachloroethane	mg/kg	0.18 U	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	mg/kg	0.18 U	-	-	-	-	-	-	-	-	0.01 U
1,1,2,2-Tetrachloroethane	mg/kg	0.18 U	0.01 U	0.01 U	0.01 U	0.01 U	ND (0.012)	-	-	-	0.01 U
1,1,2-Trichloroethane	mg/kg	0.18 U	0.01 U	0.01 U	0.01 U	0.01 U	ND (0.012)	-	-	-	0.01 U
1,1-Dichloroethane	mg/kg	0.18 U	0.01 U	0.01 U	0.01 U	0.01 U	ND (0.012)	-	-	-	0.01 U
1,1-Dichloroethene	mg/kg	175000	0.01 U	0.01 U	0.01 U	0.0056 J	ND (0.012)	-	-	-	0.01 U
1,1-Dichloropropene	mg/kg	0.18 U	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	mg/kg	0.92 U	-	-	-	-	-	-	-	-	-
1,2,3-Trichloropropene	mg/kg	0.18 U	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	4530	0.01 U	0.01 U	0.005 J	0.0064 J	-	-	-	-	0.01 U
1,2,4-Trimethylbenzene	mg/kg	0.18 U	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	0.18 U	0.01 U	0.01 U	0.01 U	0.01 U	-	-	-	-	0.01 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.18 U	0.01 U	0.01 U	0.01 U	0.01 U	-	-	-	-	0.01 U
1,2-Dichlorobenzene	mg/kg	0.18 U	0.01 U	0.01 U	0.01 UJ	0.01 U	-	-	-	-	0.01 U
1,2-Dichloroethane	mg/kg	0.18 U	0.01 U	0.01 U	0.01 U	0.01 U	ND (0.012)	-	-	-	0.01 U
1,2-Dichloropropane	mg/kg	0.18 U	0.01 U	0.01 U	0.01 U	0.01 U	ND (0.012)	-	-	-	0.01 U
1,3,5-Trimethylbenzene	mg/kg	0.18 U	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.18 U	0.01 U	0.01 U	0.01 UJ	0.01 U	-	-	-	-	0.01 U
1,3-Dichloropropane	mg/kg	0.18 U	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.18 U	0.01 U	0.01 U	0.01 UJ	0.01 U	-	-	-	-	0.01 U
2,2-Dichloropropane	mg/kg	0.18 U	-	-	-	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	2100000	0.37 U	0.01 U	0.036 J	0.047	0.2 J	-	-	-	0.048
2-Chlorotoluene	mg/kg	0.18 U	-	-	-	-	-	-	-	-	-
2-Hexanone	mg/kg	NV	0.37 U	0.01 U	0.01 U	0.01 U	ND (0.012)	-	-	-	0.01 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg	0.18 U	-	-	-	-	-	-	-	-	-
4-Chlorotoluene	mg/kg	0.18 U	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	280000	0.37 U	0.01 U	0.01 U	0.018	0.035 J	-	-	-	0.011
Acetone	mg/kg	3150000	2.4 J	0.05	0.036	1.8	0.8 J	-	-	-	1.4
Benzene	mg/kg	2390	0.18 U	0.01 U	0.0097 J	0.0089 J	0.0085 J	-	-	-	0.021
Bromobenzene	mg/kg	0.18 U	-	-	-	-	-	-	-	-	-
Bromodichloromethane	mg/kg	0.18 U	0.01 U	0.01 U	0.01 U	0.01 U	ND (0.012)	-	-	-	0.01 U
Bromoform	mg/kg	16600	0.18 U	0.009 J	0.0073 J	0.007 J	ND (0.012)	-	-	-	0.0067 J
Bromomethane (Methyl bromide)	mg/kg	0.18 U	0.01 U	0.01 U	0.01 U	0.01 U	ND (0.025)	-	-	-	0.01 U
Carbon disulfide	mg/kg	350000	0.37 U	0.066	0.076	0.062	0.065	0.04 J	-	-	0.05
Carbon tetrachloride	mg/kg	1880	0.18 U	0.01 U	0.01 U	0.01 U	0.01 U	ND (0.012)	-	-	0.01 U
Chlorobenzene	mg/kg	0.18 U	0.01 U	0.01 U	0.01 U	0.01 U	ND (0.012)	-	-	-	0.01 U
Chlorobromomethane	mg/kg	0.18 U	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	0.18 U	0.01 U	0.01 U	0.01 U	0.01 U	ND (0.025)	-	-	-	0.01 U
Chloroform (Trichloromethane)	mg/kg	0.18 U	0.01 U	0.01 U	0.01 U	0.01 U	ND (0.012)	-	-	-	0.01 U
Chloromethane (Methyl chloride)	mg/kg	NV	0.18 U	0.01 U	0.01 U	0.01 U	ND (0.025)	-	-	-	0.01 U
cis-1,2-Dichloroethene	mg/kg	7000	0.03 J	0.023	0.0081 J	0.4 J	0.33 J	ND (0.012)	-	-	0.071
cis-1,3-Dichloropropene	mg/kg	0.18 U	0.01 U	0.01 U	0.01 U	0.01 U	ND (0.012)	-	-	-	0.01 U
Cyclohexane		-	0.01 U	0.01 U	0.01 UJ	0.01 U	-	-	-	-	0.01 U
Cymene (p-Isopropyltoluene)	mg/kg	0.18 U	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	1560	0.01 U	0.01 U	0.01 U	0.01 U	ND (0.012)	-	-	-	0.01 U
Dibromomethane	mg/kg	0.18 U	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane (CFC-12)	mg/kg	0.18 U	0.01 U	0.01 U	0.01 U	0.01 U	-	-	-	-	0.01 U
Ethyl ether	mg/kg	0.18 U	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	350000	0.18 U	-	-	-	-	-	-	-	-
Hexachlorobutadiene	mg/kg	1680	0.18 U	-	-	-	-	-	-	-	-
Hexachloroethane	mg/kg	0.18 U	-	-	-	-	-	-	-	-	-
Iodomethane	mg/kg	0.18 U	-	-	-	-	-	-	-	-	-
Isopropyl benzene	mg/kg	0.18 U	0.01 U	0.01 U	0.01 UJ	0.01 U	-	-	-	-	0.01 U
m&p-Xylenes	mg/kg	0.37 U	0.01 U	0.01 U	0.01 UJ	0.01 U	-	-	-	-	0.01 U
Methyl acetate		-	0.01 U	0.01 U	0.01 U	0.01 U	-	-	-	-	0.01 U
Methyl cyclohexane		-	0.01 U	0.01 U	0.01 UJ	0.01 U	-	-	-	-	0.01 U
Methyl tert butyl ether (MTBE)	mg/kg	1.1 J	0.01 U	0.01 U	0.01 U	0.01 U	-	-	-	-	0.01 U
Methylene chloride	mg/kg	17500	0.51 UJ	0.0051 J	0.0055 J	0.014 J	0.0061 J	0.019 J	-	-	0.01 U
Naphthalene	mg/kg	0.92 U	-	-	-	-	-	-	-	-	-
N-Butylbenzene A	mg/kg	0.18 U	-	-	-	-	-	-	-	-	-
N-Propylbenzene	mg/kg	0.18 U	-	-	-	-	-	-	-	-	-

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

		Lime Sludge Fill									Sand and Shredder Fill
Sample Location:		Ecology	BH-1	BH-2	BH-4	BH-4	TP comp(B)	GP-1	GP-2	TP-28	BH-3
Sample ID:		OXYREDS	SL-101804-1	SL-101804-2	SL-101804-4	SL-101804-5	S-9973-111798-GS01	S-082114-NH-GP1-10	S-082114-NH-GP2-9	S-082614-RB-TP28-8	SL-101804-3
Sample Date:		12/2/2002	10/18/2004	10/18/2004	10/18/2004	10/18/2004	11/17/1998	8/21/2014	8/21/2014	8/26/2014	10/18/2004
Sample Depth:		-	(8-11) ft BGS	(7-9) ft BGS	(8-11) ft BGS	(8-11) ft BGS	(6-9) ft BGS	(10-10.5) ft BGS	(9-9.5) ft BGS	(8-8.5) ft BGS	(7-9) ft BGS
Parameters		Units									
o-Xylene		mg/kg	0.18 U	0.01 U	0.01 U	0.01 U	-	-	-	-	0.01 U
Pentachloroethane		mg/kg	0.18 U	-	-	-	-	-	-	-	-
Styrene	700000	mg/kg	0.23 UJ	0.01 U	0.01 UJ	0.0076 J	0.038 J	-	-	-	0.01 U
tert-Butylbenzene		mg/kg	0.18 U	-	-	-	-	-	-	-	-
Tetrachloroethene	21000	mg/kg	0.18 U	24	5.8	30	6 J	-	-	-	3.1
Tetrahydrofuran		mg/kg	0.26	-	-	-	-	-	-	-	-
Toluene	280000	mg/kg	0.21	0.01 U	0.01 U	0.0095 J	0.014 J	-	-	-	-
trans-1,2-Dichloroethene	70000	mg/kg	0.18 U	0.006 J	0.01 U	0.068 J	0.28 J	-	-	-	0.012
trans-1,3-Dichloropropene		mg/kg	0.18 U	0.01 U	0.01 U	0.01 U	ND (0.012)	-	-	-	0.01 U
trans-1,4-Dichloro-2-butene		mg/kg	0.18 U	-	-	-	-	-	-	-	-
Trichloroethene	1750	mg/kg	0.18 U	0.049	0.041	6.2	0.28 J	-	-	-	0.083
Trichlorofluoromethane (CFC-11)			-	0.01 U	0.01 U	0.01 U	-	-	-	-	0.01 U
Trichlorofluoroethane		mg/kg	0.18 U	-	-	-	-	-	-	-	-
Trifluorotrichloroethane (Freon 113)		mg/kg	0.18 UJ	0.01 U	0.01 UJ	0.01 U	-	-	-	-	0.01 U
Vinyl chloride	10500	mg/kg	0.18 U	0.0072 J	0.01 U	0.035	0.052	ND (0.025)	-	-	0.026
Xylenes (total)	700000	mg/kg	-	-	-	-	0.018 J	-	-	-	-
Volatile Organic Compounds - TCLP		TCLP Regulatory Levels ²	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	µg/L	700	-	0.5 U	0.5 UJ	0.5 U	-	200 U	200 U	200 U	0.5 UJ
1,2-Dichloroethane	µg/L	500	-	0.5 U	0.5 UJ	0.5 U	-	200 U	200 U	200 U	0.5 UJ
1,4-Dichlorobenzene	µg/L	7500	-	-	-	-	-	200 U	200 U	200 U	-
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	200000	-	5 U	5 UJ	5 U	-	8000 U	8000 U	8000 U	5 UJ
Benzene	µg/L	500	-	0.41 J	0.96 J	0.76	-	200 U	200 U	200 U	0.5 UJ
Carbon tetrachloride	µg/L	500	-	0.5 U	0.5 UJ	0.5 U	-	200 U	200 U	200 U	0.5 UJ
Chlorobenzene	µg/L	100000	-	0.5 U	0.5 UJ	0.29 J	-	200 U	200 U	200 U	0.5 UJ
Chloroform (Trichloromethane)	µg/L	6000	-	0.5 U	0.5 UJ	0.5 U	-	200 U	200 U	200 U	0.5 UJ
Tetrachloroethene	µg/L	700	-	250	470 J	2700	-	320	200 U	64 J	5.4 J
Trichloroethene	µg/L	500	-	6.8	19 J	320	-	64 J	200 U	200 U	0.32 J
Vinyl chloride	µg/L	200	-	1 U	1 UJ	1 U	-	80 U	80 U	80 U	1 UJ
Semi-volatile Organic Compounds		Soil MTCA Method C Industrial Cleanup Level ¹									
1,2,4-Trichlorobenzene	mg/kg	4530	0.026	-	-	-	-	ND (0.82)	-	-	-
1,2-Dichlorobenzene	mg/kg		0.013 U	-	-	-	-	ND (0.82)	-	-	-
1,2-Diphenylhydrazine	mg/kg		0.013 U	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg		0.013 U	-	-	-	-	ND (0.82)	-	-	-
1,4-Dichlorobenzene	mg/kg		0.013 U	-	-	-	-	ND (0.82)	-	-	-
1-Methyl-7-isopropylphenanthrene	mg/kg		0.155	-	-	-	-	-	-	-	-
1-Methylnaphthalene	mg/kg		0.054	-	-	-	-	-	-	-	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg		0.026 U	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	1.65 U
2,4,5-Trichlorophenol	mg/kg		0.026 U	R	R	R	R	R	-	-	R
2,4,6-Trichlorophenol	mg/kg		0.026 U	R	R	R	R	R	-	-	R
2,4-Dichlorophenol	mg/kg		0.026 U	R	R	R	R	R	-	-	R
2,4-Dimethylphenol	mg/kg	70000	0.16 J	R	R	R	R	R	-	-	R
2,4-Dinitrophenol	mg/kg		1.04 U	R	R	R	R	R	-	-	R
2,4-Dinitrotoluene	mg/kg		0.026 U	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	1.65 U
2,6-Dinitrotoluene	mg/kg		0.026 U	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	1.65 U
2-Chloronaphthalene	mg/kg		0.013 U	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	1.65 U
2-Chlorophenol	mg/kg		0.013 U	R	R	R	R	R	-	-	R
2-Methylnaphthalene	mg/kg		0.111	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	1.65 U
2-Methylphenol	mg/kg	175000	0.013 U	R	R	R	R	R	-	-	R
2-Nitroaniline	mg/kg		0.026 U	0.83 U	0.83 U	0.83 U	4.15 U	ND (2)	-	-	4.15 U
2-Nitrophenol	mg/kg		0.052 U	R	R	R	R	R	-	-	R
3,3'-Dichlorobenzidine	mg/kg		0.518 U	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	1.65 U
3B-Coprostanol	mg/kg		0.259 U	-	-	-	-	-	-	-	-
3-Nitroaniline	mg/kg		0.052 UJ	0.83 U	0.83 U	0.83 U	4.15 U	ND (2)	-	-	4.15 U
4,6-Dinitro-2-methylphenol	mg/kg	NV	0.259 U	R	R	0.28 J	R	R	-	-	R
4-Bromophenyl phenyl ether	mg/kg		0.013 U	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	1.65 U
4-Chloro-3-methylphenol	mg/kg		0.013 U	R	R	R	R	R	-	-	R
4-Chloroaniline	mg/kg		0.013 UJ	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	1.65 U
4-Chlorophenyl phenyl ether	mg/kg		0.013 U	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	1.65 U
4-Methylphenol	mg/kg	17500	0.773	R	R	R	R	0.6 J	-	-	R
4-Nitroaniline	mg/kg		0.052 UJ	0.83 U	0.83 U	0.83 U	4.15 U	ND (2)	-	-	4.15 U
4-Nitrophenol	mg/kg		0.052 U	R	R	R	R	R	-	-	R

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1913 Marine View Drive
Tacoma, Washington

		Lime Sludge Fill									Sand and Shredder Fill
Sample Location:		Ecology	BH-1	BH-2	BH-4	BH-4	TP comp(B)	GP-1	GP-2	TP-28	BH-3
Sample ID:		OXYREDS	SL-101804-1	SL-101804-2	SL-101804-4	SL-101804-5	S-9973-111798-GS01	S-082114-NH-GP1-10	S-082114-NH-GP2-9	S-082614-RB-TP28-8	SL-101804-3
Sample Date:		12/2/2002	10/18/2004	10/18/2004	10/18/2004	10/18/2004	11/17/1998	8/21/2014	8/21/2014	8/26/2014	10/18/2004
Sample Depth:		-	(8-11) ft BGS	(7-9) ft BGS	(8-11) ft BGS	(8-11) ft BGS	(6-9) ft BGS	(10-10.5) ft BGS	(9-9.5) ft BGS	(8-8.5) ft BGS	(7-9) ft BGS
Parameters	Units										
Acenaphthene	mg/kg	0.022	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Acenaphthylene	mg/kg	0.015	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Acetophenone		-	0.33 U	0.33 U	R	1.65 U	-	-	-	-	1.65 U
Aniline	mg/kg	0.026 U	-	-	-	-	-	-	-	-	-
Anthracene	mg/kg	0.044	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Atrazine		-	0.33 U	0.33 U	0.33 U	1.65 U	-	-	-	-	1.65 U
Benzidine	mg/kg	2.59 U	-	-	-	-	-	-	-	-	-
Benzaldehyde		-	0.33 U	0.33 U	0.33 U	0.33 U	-	-	-	-	0.33 U
Benzo(a)anthracene	mg/kg	0.28	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Benzo(a)pyrene	mg/kg	0.827	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Benzo(b)fluoranthene	mg/kg	0.925	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Benzo(g,h,i)perylene	mg/kg	0.55	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Benzo(k)fluoranthene	mg/kg	0.546	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Biphenyl (1,1-Biphenyl)			0.33 U	0.33 U	0.33 U	1.65 U	-	-	-	-	1.65 U
Benzoic acid	mg/kg	0.821	-	-	-	-	-	-	-	-	-
Benzyl alcohol	mg/kg	0.026 U	-	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	mg/kg	0.013 U	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
bis(2-Chloroethyl)ether	mg/kg	0.013 U	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	9375	2 J	0.89 J	1.3 J	17 J	ND (0.82)	-	-	-	4.6 J
Butyl benzylphthalate (BBP)	mg/kg	69100	0.77	0.19 J	0.3 J	6.4 J	ND (0.82)	-	-	-	1.1 J
Caffeine	mg/kg	0.013 U	-	-	-	-	-	-	-	-	-
Caprolactam		-	0.33 U	0.33 U	0.33 U	1.65 U	-	-	-	-	1.65 U
Carbazole	mg/kg	0.05	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Chrysene	mg/kg	18000	0.788	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Dibenz(a,h)anthracene	mg/kg	0.183	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Dibenzofuran	mg/kg	0.024	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Diethyl phthalate	mg/kg	2800000	0.017	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Dimethyl phthalate	mg/kg	0.044	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Di-n-butylphthalate (DBP)	mg/kg	0.978	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Di-n-octyl phthalate (DnOP)	mg/kg	NV	0.236	0.33 U	0.33 UJ	0.84 J	ND (0.82)	-	-	-	1.65 U
Fluoranthene	mg/kg	140000	0.559	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Fluorene	mg/kg	0.031	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Hexachlorobenzene	mg/kg	82.0	0.013 U	0.71 J	1.1 J	0.97 J	1.5 J	-	-	-	1.1 J
Hexachlorobutadiene	mg/kg	1680	0.013 U	43 J	40 J	31 J	49 J	30 J	-	-	30 J
Hexachlorocyclopentadiene	mg/kg	0.026 UJ	0.33 U	0.33 U	R	1.65 U	ND (0.82)	-	-	-	1.65 U
Hexachloroethane	mg/kg	0.013 U	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Indeno(1,2,3-cd)pyrene	mg/kg	0.363	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Isophorone	mg/kg	0.013 U	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Naphthalene	mg/kg	0.097	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Nitrobenzene	mg/kg	0.013 U	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
N-Nitrosodimethylamine	mg/kg	0.129 U	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	mg/kg	0.013 U	0.33 U	0.33 U	0.33 UJ	1.65 U	ND (0.82)	-	-	-	1.65 U
N-Nitrosodiphenylamine	mg/kg	0.044 J	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Pentachlorophenol	mg/kg	0.183	R	R	R	R	R	-	-	-	R
Phenanthrene	mg/kg	0.348	0.33 U	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Phenol	mg/kg	1050000	0.364	R	R	R	R	-	-	-	R
Pyrene	mg/kg	105000	0.695	0.33 U	0.33 U	1.65 U	ND (0.82)	-	-	-	1.65 U
Pyridine	mg/kg	0.518 U	-	-	-	-	-	-	-	-	-

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

			Lime Sludge Fill								Sand and Shredder Fill
Sample Location:	Ecology		BH-1	BH-2	BH-4	BH-4	TP comp(B)	GP-1	GP-2	TP-28	BH-3
Sample ID:	OXYREDS		SL-101804-1	SL-101804-2	SL-101804-4	SL-101804-5	S-9973-111798-GS01	S-082114-NH-GP1-10	S-082114-NH-GP2-9	S-082614-RB-TP28-8	SL-101804-3
Sample Date:	12/2/2002		10/18/2004	10/18/2004	10/18/2004	10/18/2004	11/17/1998	8/21/2014	8/21/2014	8/26/2014	10/18/2004
Sample Depth:	-		(8-11) ft BGS	(7-9) ft BGS	(8-11) ft BGS	(8-11) ft BGS	(6-9) ft BGS	(10-10.5) ft BGS	(9-9.5) ft BGS	(8-8.5) ft BGS	(7-9) ft BGS
Parameters	Units										
Semi-volatile Organic Compounds - TCLP			TCLP Regulatory Levels ²								
1,4-Dichlorobenzene	µg/L	7500	10 U	10 U	10 U	-	-	-	-	-	10 U
2,4,5-Trichlorophenol	µg/L	400000	-	10 U	10 U	-	-	100 U	100 U	100 U	10 U
2,4,6-Trichlorophenol	µg/L	2000	-	10 U	10 U	-	-	100 U	100 U	100 U	10 U
2,4-Dinitrotoluene	µg/L	130	-	10 U	10 U	-	-	100 U	100 U	100 U	10 U
2-Methylphenol	µg/L	200000	-	10 U	10 U	-	-	100 U	100 U	100 U	10 U
4-Methylphenol	µg/L	200000	-	10 U	10 U	-	-	17 J	110	100 U	10 U
Hexachlorobenzene	µg/L	130	-	10 U	10 U	-	-	100 U	100 U	100 U	10 U
Hexachlorobutadiene	µg/L	500	-	200	53	59	-	23 J	100 U	290	27
Hexachloroethane	µg/L	3000	-	10 U	10 U	-	-	100 U	100 U	100 U	10 U
Nitrobenzene	µg/L	2000	-	10 U	10 U	-	-	100 U	100 U	100 U	10 U
Pentachlorophenol	µg/L	100000	-	50 U	50 U	50 U	-	250 U	250 U	250 U	50 U
Pyridine	µg/L	5000	-	10 U	10 U	10 U	-	500 U	500 U	500 U	10 U
			Soil MTCA Method C								
Metals			Industrial Cleanup Level ¹								
Aluminum	mg/kg	3500000	-	3150	2490	2150	2270	5850 J	-	-	2090
Antimony	mg/kg	1400	6.98	13.4 J	13.6 J	14.7 J	14.7 J	1.5 J	-	-	15.6 J
Arsenic	mg/kg	87.5	33.7	2.1	9.3	2.3	4.0	5.3 J	-	-	2.1
Barium	mg/kg	700000	-	20 U	75.7	27.6	126	103 J	-	-	43.3
Beryllium	mg/kg	7000	0.26	0.5 U	0.5 U	0.5 U	0.5 U	0.5 J	-	-	0.5 U
Cadmium	mg/kg	3500	12.8	0.5 U	1.3	0.56	2.3	ND (1.3)	-	-	0.67
Calcium	mg/kg	NV	-	153000	142000	145000	152000	340000 J	-	-	164000
Chromium	mg/kg	10500	168	4.8	6.5	5.4	11.2	10.8 J	-	-	5.6
Cobalt	mg/kg	NV	-	5 U	5 U	5 U	5 U	11.0 J	-	-	5 U
Copper	mg/kg	140000	353	4.6	16.2	6.1	29.8	20.8 J	-	-	35.6
Flash point (closed cup)	Deg C		-	-	-	-	-	-	-	-	-
Iron	mg/kg	2450000	-	1680	2530	1480	4670	3780 J	-	-	1950
Lead	mg/kg	1000	672	59.5	141	61.3	191	333 J	-	-	122
Magnesium	mg/kg	NV	-	2300	2470	1430	2450	8030 J	-	-	2010
Manganese	mg/kg	490000	-	16.2	31.3	19.6	43.0	67.5 J	-	-	23.1
Mercury	mg/kg	1050	0.621	0.1 U	0.21	0.1 U	0.15	ND (0.3)	-	-	0.1 U
Nickel	mg/kg	70000	86.6	28.2	45.6	30.5	39.3	92.5 J	-	-	33.8
Potassium	mg/kg	NV	-	500 U	500 U	500 U	500 U	133 J	-	-	500 U
Selenium	mg/kg	17500	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	ND (1.3)	-	-	0.5 U
Silver	mg/kg	17500	0.43	1.1	1 U	1 U	1 U	ND (0.3)	-	-	1.1
Sodium	mg/kg	NV	-	500 U	500 U	679	715	1400 J	-	-	500 U
Thallium	mg/kg	NV	0.1 U	1 U	1 U	1 U	1 U	ND (5.0)	-	-	1 U
Vanadium	mg/kg	245	-	27.6	39.5	28.8	28.1	65.0 J	-	-	32.9
Zinc	mg/kg	1050000	2800	33.9	117	63.3	560	97.5 J	-	-	95.9
Metals - TCLP			TCLP Regulatory Levels ²								
Arsenic	µg/L	5000	-	5 U	5 U	5 U	-	-	50 U	50 U	5 U
Barium	µg/L	100000	-	490	700	630	-	-	920 J	540 J	590
Cadmium	µg/L	1000	-	5 U	5 U	5 U	-	-	50 U	50 U	5 U
Chromium	µg/L	5000	-	10	10	11	-	-	50 U	50 U	11
Lead	µg/L	5000	-	210	240	210	-	-	130	90	350
Mercury	µg/L	200	-	2 U	2 U	2 U	-	-	1 U	1 U	2 U
Selenium	µg/L	1000	-	5 U	5 U	5 U	-	-	200 U	200 U	5 U
Silver	µg/L	5000	-	15	14	16	-	-	100 U	100 U	15
			Soil MTCA Method C								
PCBs			Industrial Cleanup Level ¹								
Aroclor-1016 (PCB-1016)	mg/kg		-	1.6 U	1.6 U	1.6 U	1.6 U	ND (1.2)	-	-	1.6 U
Aroclor-1221 (PCB-1221)	mg/kg		-	1.6 U	1.6 U	1.6 U	1.6 U	ND (1.2)	-	-	1.6 U
Aroclor-1232 (PCB-1232)	mg/kg		-	1.6 U	1.6 U	1.6 U	1.6 U	ND (1.2)	-	-	1.6 U
Aroclor-1242 (PCB-1242)	mg/kg		-	1.6 U	1.6 U	1.6 U	1.6 U	ND (1.2)	-	-	1.6 U
Aroclor-1248 (PCB-1248)	mg/kg		-	1.6 U	1.6 U	1.6 U	1.6 U	ND (0.2)	-	-	1.6 U
Aroclor-1254 (PCB-1254)	mg/kg	65.6	-	1.6 U	1.6 U	1.6 U	1.6 U	ND (0.2)	-	-	1.6 U
Aroclor-1260 (PCB-1260)	mg/kg	65.6	-	0.8 U	0.8 U	0.8 U	0.8 U	ND (0.2)	-	-	0.8 U

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

			Lime Sludge Fill								Sand and Shredder Fill
Sample Location:			BH-1	BH-2	BH-4	BH-4	TP comp(B)	GP-1	GP-2	TP-28	BH-3
Sample ID:			SL-101804-1	SL-101804-2	SL-101804-4	SL-101804-5	S-9973-111798-GS01	S-082114-NH-GP1-10	S-082114-NH-GP2-9	S-082614-RB-TP28-8	SL-101804-3
Sample Date:			10/18/2004	10/18/2004	10/18/2004	10/18/2004	11/17/1998	8/21/2014	8/21/2014	8/26/2014	10/18/2004
Sample Depth:			(8-11) ft BGS	(7-9) ft BGS	(8-11) ft BGS	(8-11) ft BGS	(6-9) ft BGS	(10-10.5) ft BGS	(9-9.5) ft BGS	(8-8.5) ft BGS	(7-9) ft BGS
Ecology											
OXYREDS											
12/2/2002											
-											
Parameters	Units										
Soil MTCA Method C											
Industrial Cleanup Level ¹											
Pesticides											
4,4'-DDD	mg/kg	550	-	-	-	-	ND (0.04)	-	-	-	-
4,4'-DDE	mg/kg	390	-	-	-	-	ND (0.04)	-	-	-	-
4,4'-DDE/DDD	mg/kg		-	-	-	-	-	-	-	-	-
4,4'-DDT	mg/kg	390	-	-	-	-	ND (0.04)	-	-	-	-
Aldrin	mg/kg		-	-	-	-	ND (0.02)	-	-	-	-
alpha-BHC	mg/kg	20.8	-	-	-	-	ND (0.02)	-	-	-	-
alpha-Chlordane	mg/kg		-	-	-	-	ND (0.04)	-	-	-	-
beta-BHC	mg/kg	72.9	-	-	-	-	ND (0.02)	-	-	-	-
delta-BHC	mg/kg	NV	-	-	-	-	ND (0.02)	-	-	-	-
Dieldrin	mg/kg		-	-	-	-	ND (0.04)	-	-	-	-
Endosulfan I	mg/kg		-	-	-	-	ND (0.02)	-	-	-	-
Endosulfan II	mg/kg		-	-	-	-	ND (0.04)	-	-	-	-
Endosulfan sulfate	mg/kg		-	-	-	-	ND (0.04)	-	-	-	-
Endrin	mg/kg		-	-	-	-	ND (0.04)	-	-	-	-
Endrin aldehyde	mg/kg	NV	-	-	-	-	ND (0.04)	-	-	-	-
gamma-BHC (lindane)	mg/kg	1050	-	-	-	-	ND (0.02)	-	-	-	-
gamma-Chlordane	mg/kg		-	-	-	-	ND (0.04)	-	-	-	-
Heptachlor	mg/kg	29.2	-	-	-	-	ND (0.02)	-	-	-	-
Heptachlor epoxide	mg/kg		-	-	-	-	ND (0.02)	-	-	-	-
Methoxychlor	mg/kg		-	-	-	-	ND (0.2)	-	-	-	-
Toxaphene	mg/kg		-	-	-	-	ND (0.4)	-	-	-	-
Pesticides - TCLP			-								
alpha-Chlordane	µg/L	30	-	15 U	15 U	15 U	-	-	-	-	15 U
Endrin	µg/L	20	-	10 U	10 U	10 U	-	-	-	-	10 U
gamma-BHC (lindane)	µg/L	400	-	200 U	200 U	200 U	-	-	-	-	200 U
gamma-Chlordane	µg/L	30	-	15 U	15 U	15 U	-	-	-	-	15 U
Heptachlor	µg/L	8	-	4.0 U	4.0 U	4.0 U	-	-	-	-	4.0 U
Heptachlor epoxide	µg/L	8	-	4.0 U	4.0 U	4.0 U	-	-	-	-	4.0 U
Methoxychlor	µg/L	10000	-	5000 U	5000 U	5000 U	-	-	-	-	5000 U
Toxaphene	µg/L	500	-	250 U	250 U	250 U	-	-	-	-	250 U
Herbicides - TCLP			-	-	-	-	-	-	-	-	-
2,4,5-TP (Silvex)	µg/L	10000	-	500 U	500 U	500 U	-	-	-	-	500 U
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	10000	-	5000 U	5000 U	5000 U	-	-	-	-	5000 U
Misc											
Asbestos				U	U	TR	-	-	-	-	TR
Soil MTCA Method C											
Industrial Cleanup Level ¹											
General Chemistry											
Cyanide (total)	mg/kg	70000	-	1.0 U	1.0 U	1.0 U	-	4.5 J	-	-	1.0 U
Flash point (closed cup)	Deg C		-	-	-	-	-	110 >	110 >	-	
pH, lab	s.u.		-	12.4	12.1	12.0	-	12.4	12.3	12.5	12.0
Reactive sulfide			-	10 U	10 U	10 U	-	-	-	-	10 U
Ignitability			-	0 U	0 U	0 U	-	-	-	-	0 U

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

		Sand and Shredder Fill									
Sample Location:		GP-1	GP-1	GP-2	GP-3	GP-4	GP-5	GP-5	GP-5	GP-6	GP-7
Sample ID:		S-082114-NH-GP1-11	S-082114-NH-GP1-FD1	S-082114-NH-GP2-11	S-082114-NH-GP3-7	S-082114-NH-GP4-5	S-082214-NH-GP5-4	S-082214-NH-GP5-10	S-082214-NH-GP5-FD1	S-082114-NH-GP6-5	S-082214-NH-GP7-4
Sample Date:		8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/22/2014	8/21/2014	8/22/2014
Sample Depth:		(11-11.5) ft BGS	(11-11.5) ft BGS (Duplicate)	(11-11.5) ft BGS	(7-7.5) ft BGS	(5-5.5) ft BGS	(4-4.5) ft BGS	(10-10.5) ft BGS	(10-10.5) ft BGS (Duplicate)	(5-5.5) ft BGS	(4-4.5) ft BGS
Parameters	Units										
Soil MTCA Method C Industrial Cleanup Level ¹											
Volatile Organic Compounds											
1,1,1,2-Tetrachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	mg/kg	175000	0.00054 J	0.071 U	0.0019 J	0.0053 U	0.0061 U	0.0072 U	0.071 U	0.067 U	0.0051 U
1,1-Dichloropropene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichloropropane	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	4530	0.034 UJ	0.034 J	0.003 J	0.022 U	0.00058 J	0.029 U	0.024 J	0.015 J	0.021 U
1,2,4-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	mg/kg	-	-	-	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,3-Dichloropropane	mg/kg	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
2,2-Dichloropropane	mg/kg	-	-	-	-	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	2100000	0.041 J	2.9 UJ	0.12	0.022 U	0.054	0.029 U	2.9 U	2.7 U	0.021 U
2-Chlorotoluene	mg/kg	-	-	-	-	-	-	-	-	-	-
2-Hexanone	mg/kg	NV	0.0036 J	2.9 UJ	0.025 U	0.022 U	0.025 U	0.029 U	2.9 U	2.7 U	0.021 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg	-	-	-	-	-	-	-	-	-	-
4-Chlorotoluene	mg/kg	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	280000	0.0044 J	2.9 UJ	0.042	0.022 U	0.015 J	0.029 U	2.9 U	2.7 U	0.021 U
Acetone	mg/kg	3150000	0.19 J	2.9 UJ	0.46	0.061	0.25	0.053	2.9 U	2.7 U	0.043
Benzene	mg/kg	2390	0.0073 J	0.037 J	0.03	0.0016 J	0.0068	0.00068 J	0.028 J	0.067 U	0.00043 J
Bromobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Bromoform	mg/kg	16600	0.0085 UJ	0.071 UJ	0.0061 U	0.0053 U	0.0061 U	0.0072 U	0.071 UJ	0.067 UJ	0.0051 U
Bromomethane (Methyl bromide)	mg/kg	-	-	-	-	-	-	-	-	-	-
Carbon disulfide	mg/kg	350000	0.028 J	0.071 UJ	0.017	0.0002 J	0.0066	0.0035 J	0.071 U	0.067 U	0.011
Carbon tetrachloride	mg/kg	1880	0.0085 UJ	0.071 UJ	0.0061 U	0.0053 U	0.0061 U	0.0072 U	0.071 U	0.067 U	0.0051 U
Chlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
Chlorobromomethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Chloroform (Trichloromethane)	mg/kg	-	-	-	-	-	-	-	-	-	-
Chloromethane (Methyl chloride)	mg/kg	NV	0.00034 J	0.071 UJ	0.00098 J	0.0053 U	0.0061 U	0.00041 J	0.071 U	0.067 U	0.0051 U
cis-1,2-Dichloroethene	mg/kg	7000	0.034 J	0.17 J	0.17	0.0053 U	0.00062 J	0.0072 U	0.071 U	0.067 U	0.0051 U
cis-1,3-Dichloropropene	mg/kg	-	-	-	-	-	-	-	-	-	-
Cyclohexane											
Cymene (p-Isopropyltoluene)	mg/kg	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	1560	0.0085 UJ	0.071 UJ	0.0061 U	0.0053 U	0.0061 U	0.0072 U	0.071 U	0.067 U	0.0051 U
Dibromomethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane (CFC-12)	mg/kg	-	-	-	-	-	-	-	-	-	-
Ethyl ether	mg/kg	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	350000	0.0056 J	0.11 J	0.037	0.0021 J	0.028	0.0072 U	0.17 J	0.035 J	0.0051 U
Hexachlorobutadiene	mg/kg	1680	-	-	-	-	-	-	-	-	-
Hexachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Iodomethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Isopropyl benzene	mg/kg	-	-	-	-	-	-	-	-	-	-
m&p-Xylenes	mg/kg	-	0.0035 J	0.046 J	0.028	0.001 J	0.024	0.00021 J	0.14 J	0.016 J	0.0051 U
Methyl acetate											
Methyl cyclohexane											
Methyl tert butyl ether (MTBE)	mg/kg	-	-	-	-	-	-	-	-	-	-
Methylene chloride	mg/kg	17500	0.017 UJ	0.29 UJ	0.013 U	0.011 U	0.013 U	0.015 U	0.29 U	0.27 U	0.011 U
Naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-
N-Butylbenzene A	mg/kg	-	-	-	-	-	-	-	-	-	-
N-Propylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

		Sand and Shredder Fill									
Sample Location:		GP-1	GP-1	GP-2	GP-3	GP-4	GP-5	GP-5	GP-5	GP-6	GP-7
Sample ID:		S-082114-NH-GP1-11	S-082114-NH-GP1-FD1	S-082114-NH-GP2-11	S-082114-NH-GP3-7	S-082114-NH-GP4-5	S-082214-NH-GP5-4	S-082214-NH-GP5-10	S-082214-NH-GP5-FD1	S-082114-NH-GP6-5	S-082214-NH-GP7-4
Sample Date:		8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/22/2014	8/22/2014	8/22/2014	8/21/2014	8/22/2014
Sample Depth:		(11-11.5) ft BGS	(11-11.5) ft BGS (Duplicate)	(11-11.5) ft BGS	(7-7.5) ft BGS	(5-5.5) ft BGS	(4-4.5) ft BGS	(10-10.5) ft BGS	(10-10.5) ft BGS (Duplicate)	(5-5.5) ft BGS	(4-4.5) ft BGS
Parameters	Units										
o-Xylene	mg/kg	0.002 J	0.027 J	0.018	0.00069 J	0.014	0.0072 U	0.062 J	0.015 J	0.0051 U	0.0054 U
Pentachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	700000	0.00037 J	0.060 J	0.032	0.0053 U	0.013	0.0072 U	0.025 J	0.0051 U	0.0054 U
tert-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	21000	0.12 J	0.44 J	1.8	0.0053 U	0.0061 U	0.0072 U	0.071 U	0.0051 U	0.0054 U
Tetrahydrofuran	mg/kg	-	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	280000	0.0082 J	0.12 J	0.048	0.00051 J	0.052	0.00045 J	0.12 J	0.00034 J	0.00028 J
trans-1,2-Dichloroethene	mg/kg	70000	0.0093 J	0.14 J	0.05	0.0053 U	0.0061 U	0.0072 U	0.071 U	0.0051 U	0.0054 U
trans-1,3-Dichloropropene	mg/kg	-	-	-	-	-	-	-	-	-	-
trans-1,4-Dichloro-2-butene	mg/kg	-	-	-	-	-	-	-	-	-	-
Trichloroethene	mg/kg	1750	0.23 J	0.49 J	2.7	0.0053 U	0.0006 J	0.0072 U	0.071 U	0.0051 U	0.0054 U
Trichlorofluoromethane (CFC-11)		-	-	-	-	-	-	-	-	-	-
Trichlorofluoroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Trifluorotrichloroethane (Freon 113)	mg/kg	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	mg/kg	10500	0.0042 J	0.071 UJ	0.024	0.0053 U	0.0061 U	0.0072 U	0.071 U	0.0051 U	0.0054 U
Xylenes (total)	mg/kg	700000	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds - TCLP		TCLP Regulatory Levels ²									
1,1-Dichloroethene	µg/L	700	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	µg/L	500	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	µg/L	7500	-	-	-	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	200000	-	-	-	-	-	-	-	-	-
Benzene	µg/L	500	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	µg/L	500	-	-	-	-	-	-	-	-	-
Chlorobenzene	µg/L	100000	-	-	-	-	-	-	-	-	-
Chloroform (Trichloromethane)	µg/L	6000	-	-	-	-	-	-	-	-	-
Tetrachloroethene	µg/L	700	-	-	-	-	-	-	-	-	-
Trichloroethene	µg/L	500	-	-	-	-	-	-	-	-	-
Vinyl chloride	µg/L	200	-	-	-	-	-	-	-	-	-
Semi-volatile Organic Compounds		Soil MTCA Method C Industrial Cleanup Level ¹									
1,2,4-Trichlorobenzene	mg/kg	4530	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg		-	-	-	-	-	-	-	-	-
1,2-Diphenylhydrazine	mg/kg		-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg		-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg		-	-	-	-	-	-	-	-	-
1-Methyl-7-isopropylphenanthrene	mg/kg		-	-	-	-	-	-	-	-	-
1-Methylnaphthalene	mg/kg		-	-	-	-	-	-	-	-	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg		-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg		-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg		-	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	mg/kg		-	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	70000	4.1 U	3.6 U	R	0.28 U	3.4 U	0.37 U	3.1 U	0.045 J	0.30 U
2,4-Dinitrophenol	mg/kg		-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg		-	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg		-	-	-	-	-	-	-	-	-
2-Chloronaphthalene	mg/kg		-	-	-	-	-	-	-	-	-
2-Chlorophenol	mg/kg		-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	mg/kg		-	-	-	-	-	-	-	-	-
2-Methylphenol	mg/kg	175000	4.1 U	3.6 U	R	0.28 U	3.4 U	0.37 U	3.1 U	0.33 U	0.30 U
2-Nitroaniline	mg/kg		-	-	-	-	-	-	-	-	-
2-Nitrophenol	mg/kg		-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg		-	-	-	-	-	-	-	-	-
3B-Coprostanol	mg/kg		-	-	-	-	-	-	-	-	-
3-Nitroaniline	mg/kg		-	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	mg/kg	NV	25 U	22 U	R	1.7 U	21 U	2.3 U	19 U	2.0 U	1.8 U
4-Bromophenyl phenyl ether	mg/kg		-	-	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg		-	-	-	-	-	-	-	-	-
4-Chloroaniline	mg/kg		-	-	-	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg		-	-	-	-	-	-	-	-	-
4-Methylphenol	mg/kg	17500	4.1 U	3.6 U	0.28 J	0.28 U	3.4 U	0.37 U	3.1 U	0.061 J	0.30 U
4-Nitroaniline	mg/kg		-	-	-	-	-	-	-	-	-
4-Nitrophenol	mg/kg		-	-	-	-	-	-	-	-	-

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

			Sand and Shredder Fill									
Sample Location:			GP-1	GP-1	GP-2	GP-3	GP-4	GP-5	GP-5	GP-5	GP-6	GP-7
Sample ID:			S-082114-NH-GP1-11	S-082114-NH-GP1-FD1	S-082114-NH-GP2-11	S-082114-NH-GP3-7	S-082114-NH-GP4-5	S-082214-NH-GP5-4	S-082214-NH-GP5-10	S-082214-NH-GP5-FD1	S-082114-NH-GP6-5	S-082214-NH-GP7-4
Sample Date:			8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/22/2014	8/21/2014	8/22/2014	8/21/2014	8/22/2014
Sample Depth:			(11-11.5) ft BGS	(11-11.5) ft BGS (Duplicate)	(11-11.5) ft BGS	(7-7.5) ft BGS	(5-5.5) ft BGS	(4-4.5) ft BGS	(10-10.5) ft BGS	(10-10.5) ft BGS (Duplicate)	(5-5.5) ft BGS	(4-4.5) ft BGS
Parameters	Units											
Acenaphthene	mg/kg		-	-	-	-	-	-	-	-	-	-
Acenaphthylene	mg/kg		-	-	-	-	-	-	-	-	-	-
Acetophenone			-	-	-	-	-	-	-	-	-	-
Aniline	mg/kg		-	-	-	-	-	-	-	-	-	-
Anthracene	mg/kg		-	-	-	-	-	-	-	-	-	-
Atrazine			-	-	-	-	-	-	-	-	-	-
Benzidine	mg/kg		-	-	-	-	-	-	-	-	-	-
Benzaldehyde			-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	mg/kg		-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg		-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg		-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	mg/kg		-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg		-	-	-	-	-	-	-	-	-	-
Biphenyl (1,1-Biphenyl)			-	-	-	-	-	-	-	-	-	-
Benzoic acid	mg/kg		-	-	-	-	-	-	-	-	-	-
Benzyl alcohol	mg/kg		-	-	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	mg/kg		-	-	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	mg/kg		-	-	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	9375	71	79	130	0.28 U	38	0.37 U	75	59	5.2	0.30 U
Butyl benzylphthalate (BBP)	mg/kg	69100	19 J	48 J	46	0.28 U	16	0.37 U	44 J	4.1 J	3.2 U	0.30 U
Caffeine	mg/kg		-	-	-	-	-	-	-	-	-	-
Caprolactam			-	-	-	-	-	-	-	-	-	-
Carbazole	mg/kg		-	-	-	-	-	-	-	-	-	-
Chrysene	mg/kg	18000	0.98 J	0.99 J	1.7 J	0.28 U	11	0.031 J	0.95 J	0.57	0.14 J	0.087 J
Dibenz(a,h)anthracene	mg/kg		-	-	-	-	-	-	-	-	-	-
Dibenzofuran	mg/kg		-	-	-	-	-	-	-	-	-	-
Diethyl phthalate	mg/kg	2800000	4.1 U	3.6 U	3.9 U	0.28 U	3.4 U	0.37 U	3.1 U	0.33 U	3.2 U	0.30 U
Dimethyl phthalate	mg/kg		-	-	-	-	-	-	-	-	-	-
Di-n-butylphthalate (DBP)	mg/kg		-	-	-	-	-	-	-	-	-	-
Di-n-octyl phthalate (DnOP)	mg/kg	NV	4.1 U	3.3 J	10	0.28 U	6.0	0.37 U	3.1 U	0.33 U	3.2 U	0.30 U
Fluoranthene	mg/kg	140000	0.75 J	0.63 J	1.2 J	0.28 U	5.9	0.057 J	0.53 J	0.52	0.16 J	0.071 J
Fluorene	mg/kg		-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	mg/kg	82.0	4.1 U	3.6 U	3.9 U	0.28 U	3.4 U	0.37 U	3.1 U	0.33 U	3.2 U	0.30 U
Hexachlorobutadiene	mg/kg	1680	0.49 J	0.41 J	1.2 J	0.28 U	3.4 U	0.37 U	3.1 U	0.33 U	3.2 U	0.30 U
Hexachlorocyclopentadiene	mg/kg		-	-	-	-	-	-	-	-	-	-
Hexachloroethane	mg/kg		-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg		-	-	-	-	-	-	-	-	-	-
Isophorone	mg/kg		-	-	-	-	-	-	-	-	-	-
Naphthalene	mg/kg		-	-	-	-	-	-	-	-	-	-
Nitrobenzene	mg/kg		-	-	-	-	-	-	-	-	-	-
N-Nitrosodimethylamine	mg/kg		-	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	mg/kg		-	-	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	mg/kg		-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	mg/kg		-	-	-	-	-	-	-	-	-	-
Phenanthrene	mg/kg		-	-	-	-	-	-	-	-	-	-
Phenol	mg/kg	1050000	4.1 U	3.6 U	0.30 J	0.28 U	3.4 U	0.37 U	3.1 U	0.33 U	3.2 U	0.30 U
Pyrene	mg/kg	105000	1.6 J	1.3 J	1.8 J	0.28 U	6.4	0.051 J	0.91 J	0.70	0.25 J	0.092 J
Pyridine	mg/kg		-	-	-	-	-	-	-	-	-	-

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

			Sand and Shredder Fill									
Sample Location:			GP-1	GP-1	GP-2	GP-3	GP-4	GP-5	GP-5	GP-5	GP-6	GP-7
Sample ID:			S-082114-NH-GP1-11	S-082114-NH-GP1-FD1	S-082114-NH-GP2-11	S-082114-NH-GP3-7	S-082114-NH-GP4-5	S-082214-NH-GP5-4	S-082214-NH-GP5-10	S-082214-NH-GP5-FD1	S-082114-NH-GP6-5	S-082214-NH-GP7-4
Sample Date:			8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/22/2014	8/21/2014	8/22/2014	8/21/2014	8/22/2014
Sample Depth:			(11-11.5) ft BGS	(11-11.5) ft BGS (Duplicate)	(11-11.5) ft BGS	(7-7.5) ft BGS	(5-5.5) ft BGS	(4-4.5) ft BGS	(10-10.5) ft BGS	(10-10.5) ft BGS (Duplicate)	(5-5.5) ft BGS	(4-4.5) ft BGS
Parameters												
Units												
Semi-volatile Organic Compounds - TCLP			TCLP Regulatory Levels ²									
1,4-Dichlorobenzene	µg/L	7500	-	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	µg/L	400000	-	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	µg/L	2000	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	µg/L	130	-	-	-	-	-	-	-	-	-	-
2-Methylphenol	µg/L	200000	-	-	-	-	-	-	-	-	-	-
4-Methylphenol	µg/L	200000	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	µg/L	130	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	µg/L	500	-	-	-	-	-	-	-	-	-	-
Hexachloroethane	µg/L	3000	-	-	-	-	-	-	-	-	-	-
Nitrobenzene	µg/L	2000	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	µg/L	100000	-	-	-	-	-	-	-	-	-	-
Pyridine	µg/L	5000	-	-	-	-	-	-	-	-	-	-
			Soil MTCA Method C									
Metals			Industrial Cleanup Level ¹									
Aluminum	mg/kg	3500000	8530 J	13200 J	9840	10800	10200	11800	8040	7130	9580	8670
Antimony	mg/kg	1400	14.8 J	12.5 J	61.3 J	3.9 UJ	20.8 J	0.6 J	9.2 J	4.0 J	4.3 UJ	10.6 J
Arsenic	mg/kg	87.5	13.5	17.7	37.9	3.3 J	16.2	7.9 J	8.8	10.0	2.5 J	4.6 J
Barium	mg/kg	700000	764 J	691	2430	74.0	898	66.5	437	382	207	29.8
Beryllium	mg/kg	7000	0.05 J	0.23 U	0.22 U	0.20 U	0.17 J	0.24 J	0.21 U	0.07 J	0.22 U	0.22 U
Cadmium	mg/kg	3500	28.9 J	42.3 J	54.4	0.20 U	32.0	1.58	14.8	15.3	4.57	0.34
Calcium	mg/kg	NV	14900	14300	42000	2230	10500	6030	5480 J	17300 J	3860	3680
Chromium	mg/kg	10500	60.0 J	112 J	198	22.4	98.0	26.5	44.3	31.9	35.9	19.5
Cobalt	mg/kg	NV	13.6	13.6	36.3	6.87	18.3	9.91	11.0	10.1	8.99	6.89
Copper	mg/kg	140000	286 J	311 J	1180 J	11.7 J	249 J	85.4 J	450 J	171 J	309 J	32.1 J
Flash point (closed cup)	Deg C		-	-	-	-	-	-	-	-	-	-
Iron	mg/kg	2450000	43300	44600	82600	16000	57100	27500	29300	31000	21600	15500
Lead	mg/kg	1000	1230	1610	2310	5.6	1280	102	680	624	175	77.4
Magnesium	mg/kg	NV	4280 J	4710 J	8850 J	3490 J	6570 J	4710 J	3960 J	9900 J	5080 J	3380 J
Manganese	mg/kg	490000	313	398	970	389	589	222	393 J	873 J	276	222
Mercury	mg/kg	1050	0.609 J	4.63 J	3.09	0.112	0.949	0.140	0.377 J	0.263 J	0.104	0.207
Nickel	mg/kg	70000	67.5 J	85.7	1580	25.8	142	45.5	108	122	65.6	15.4
Potassium	mg/kg	NV	725	619	1000	672	860	1100	680	605	753	835
Selenium	mg/kg	17500	2.8 J	1.5 J	1.1 J	3.9 U	4.3 U	5.4 U	4.3 U	4.4 U	4.3 U	4.3 U
Silver	mg/kg	17500	0.6 J	0.8 J	1.5	0.8 U	0.7 J	1.1 U	0.2 J	0.2 J	1.2	0.9 U
Sodium	mg/kg	NV	1100	1130	1450	270	1510	1650	508	656	195	1380
Thallium	mg/kg	NV	5.3 U	4.5 U	4.4 U	3.9 U	4.3 U	5.4 U	4.3 U	4.4 U	4.3 U	4.3 U
Vanadium	mg/kg	245	47.0	41.2	47.6	36.4	41.2	59.0	30.0	26.3	35.3	48.8
Zinc	mg/kg	1050000	3240	2880	7060	36.0	3840	433	4180 J	5150	1120	132
			TCLP Regulatory Levels ²									
Arsenic	µg/L	5000	-	-	-	-	-	-	-	-	-	-
Barium	µg/L	100000	-	-	-	-	-	-	-	-	-	-
Cadmium	µg/L	1000	-	-	-	-	-	-	-	-	-	-
Chromium	µg/L	5000	-	-	-	-	-	-	-	-	-	-
Lead	µg/L	5000	-	-	-	-	-	-	-	-	-	-
Mercury	µg/L	200	-	-	-	-	-	-	-	-	-	-
Selenium	µg/L	1000	-	-	-	-	-	-	-	-	-	-
Silver	µg/L	5000	-	-	-	-	-	-	-	-	-	-
			Soil MTCA Method C									
PCBs			Industrial Cleanup Level ¹									
Aroclor-1016 (PCB-1016)	mg/kg		0.21 U	0.18 U	0.20 U	0.014 U	0.17 U	0.019 U	0.016 U	0.017 U	0.016 U	0.015 U
Aroclor-1221 (PCB-1221)	mg/kg		0.41 U	0.36 U	0.39 U	0.028 U	0.34 U	0.037 U	0.031 U	0.033 U	0.032 U	0.030 U
Aroclor-1232 (PCB-1232)	mg/kg		0.21 U	0.18 U	0.20 U	0.014 U	0.17 U	0.019 U	0.016 U	0.017 U	0.016 U	0.015 U
Aroclor-1242 (PCB-1242)	mg/kg		10	7.9	4.0	0.014 U	2.2	0.035	0.69	0.95 J	0.22	0.025
Aroclor-1248 (PCB-1248)	mg/kg		0.21 U	0.18 U	0.20 U	0.014 U	0.17 U	0.019 U	0.016 U	0.017 U	0.016 U	0.015 U
Aroclor-1254 (PCB-1254)	mg/kg	65.6	5.0 J	3.4 J	4.7	0.014 U	3.6	0.18	1.3	1.3	0.95	0.091
Aroclor-1260 (PCB-1260)	mg/kg	65.6	2.0 U	1.4 U	2.6 J	0.014 U	1.8	0.16	0.50	0.45	0.40 J	0.033

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

			Sand and Shredder Fill									
Sample Location:			GP-1	GP-1	GP-2	GP-3	GP-4	GP-5	GP-5	GP-5	GP-6	GP-7
Sample ID:			S-082114-NH-GP1-11	S-082114-NH-GP1-FD1	S-082114-NH-GP2-11	S-082114-NH-GP3-7	S-082114-NH-GP4-5	S-082214-NH-GP5-4	S-082214-NH-GP5-10	S-082214-NH-GP5-FD1	S-082114-NH-GP6-5	S-082214-NH-GP7-4
Sample Date:			8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/22/2014	8/22/2014	8/22/2014	8/21/2014	8/22/2014
Sample Depth:			(11-11.5) ft BGS	(11-11.5) ft BGS (Duplicate)	(11-11.5) ft BGS	(7-7.5) ft BGS	(5-5.5) ft BGS	(4-4.5) ft BGS	(10-10.5) ft BGS	(10-10.5) ft BGS (Duplicate)	(5-5.5) ft BGS	(4-4.5) ft BGS
Parameters	Units											
			Soil MTCA Method C Industrial Cleanup Level ¹									
Pesticides												
4,4'-DDD	mg/kg	550	0.067 J	0.045 J	0.066	0.0014 U	0.041	0.0014 J	0.061 J	0.8 J	0.018	0.0015 U
4,4'-DDE	mg/kg	390	0.031 U	0.026 U	0.037 U	0.0016 U	0.031 U	0.0019 U	0.02 UJ	0.11 J	0.0049 U	0.0016 U
4,4'-DDE/DDD	mg/kg		-	-	-	-	-	-	-	-	-	-
4,4'-DDT	mg/kg	390	0.16 U	0.15 U	0.2 U	0.0014 U	0.14 U	0.024 U	0.15 U	0.14 U	0.075 U	0.0081 U
Aldrin	mg/kg		-	-	-	-	-	-	-	-	-	-
alpha-BHC	mg/kg	20.8	0.0021 U	0.009 U	0.0097 U	0.0014 U	0.0028 U	0.0019 U	0.0031 U	0.0081 U	0.0016 U	0.0015 U
alpha-Chlordane	mg/kg		-	-	-	-	-	-	-	-	-	-
beta-BHC	mg/kg	72.9	0.065 U	0.061 U	0.066 U	0.0025 U	0.027 U	0.0025 U	0.012 U	0.037 U	0.0065 U	0.0025 U
delta-BHC	mg/kg	NV	0.036 U	0.042 U	0.018 U	0.0014 U	0.036 U	0.0019 U	0.026 U	0.0081 U	0.0016 U	0.0015 U
Dieldrin	mg/kg		-	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg		-	-	-	-	-	-	-	-	-	-
Endosulfan II	mg/kg		-	-	-	-	-	-	-	-	-	-
Endosulfan sulfate	mg/kg		-	-	-	-	-	-	-	-	-	-
Endrin	mg/kg		-	-	-	-	-	-	-	-	-	-
Endrin aldehyde	mg/kg	NV	0.015 U	0.013 U	0.02 U	0.0025 U	0.007 U	0.0025 U	0.0037 U	0.011 U	0.0025 U	0.0025 U
gamma-BHC (lindane)	mg/kg	1050	0.016 U	0.015 U	0.0097 U	0.0014 U	0.0075 U	0.0019 U	0.0051 U	0.0081 U	0.0016 U	0.0015 U
gamma-Chlordane	mg/kg		-	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	29.2	0.031 UJ	0.035 UJ	0.035 UJ	0.0014 UJ	0.0018 UJ	0.0019 UJ	0.0031 UJ	0.0081 UJ	0.0016 UJ	0.0015 UJ
Heptachlor epoxide	mg/kg		-	-	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg		-	-	-	-	-	-	-	-	-	-
Toxaphene	mg/kg		-	-	-	-	-	-	-	-	-	-
Pesticides - TCLP												
alpha-Chlordane	µg/L	30	-	-	-	-	-	-	-	-	-	-
Endrin	µg/L	20	-	-	-	-	-	-	-	-	-	-
gamma-BHC (lindane)	µg/L	400	-	-	-	-	-	-	-	-	-	-
gamma-Chlordane	µg/L	30	-	-	-	-	-	-	-	-	-	-
Heptachlor	µg/L	8	-	-	-	-	-	-	-	-	-	-
Heptachlor epoxide	µg/L	8	-	-	-	-	-	-	-	-	-	-
Methoxychlor	µg/L	10000	-	-	-	-	-	-	-	-	-	-
Toxaphene	µg/L	500	-	-	-	-	-	-	-	-	-	-
Herbicides - TCLP												
2,4,5-TP (Silvex)	µg/L	10000	-	-	-	-	-	-	-	-	-	-
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	10000	-	-	-	-	-	-	-	-	-	-
Misc												
Asbestos			-	-	-	-	-	-	-	-	-	-
			Soil MTCA Method C Industrial Cleanup Level ¹									
General Chemistry												
Cyanide (total)	mg/kg	70000	1.02	0.75	0.96	0.19 U	0.29	0.29 U	0.19 J	0.13 J	0.09 J	0.23 U
Flash point (closed cup)	Deg C		-	-	-	-	-	-	-	-	-	-
pH, lab	s.u.		-	-	-	-	-	-	-	-	-	-
Reactive sulfide			-	-	-	-	-	-	-	-	-	-
Ignitability			-	-	-	-	-	-	-	-	-	-

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

		Sand and Shredder Fill				Native Soil					
Sample Location:		TP comp(A2)	TP comp(A2)	TP21	TP-24	GP-1	GP-2	GP-2	GP-3	GP-3	GP-4
Sample ID:		S-9973-111798-GS02	S-9973-111898-GS07	S-9973-111898-GS06	S-082714-NH-TP24-8.5	S-082114-NH-GP1-23	S-082114-NH-GP2-14	S-082114-NH-GP2-20	S-082114-NH-GP3-16	S-082114-NH-GP3-19	S-082114-NH-GP4-14
Sample Date:		11/17/1998	11/18/1998	11/18/1998	8/27/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014
Sample Depth:		(1-8.5) ft BGS	(1-8.5) ft BGS	(0.5-2) ft BGS	(8.5-9) ft BGS	(23-23.5) ft BGS	(14-14.5) ft BGS	(20-20.5) ft BGS	(16-16.5) ft BGS	(19-19.5) ft BGS	(14-14.5) ft BGS
Parameters	Units										
Volatile Organic Compounds		Soil MTCA Method C Industrial Cleanup Level ¹									
1,1,1,2-Tetrachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	mg/kg	0.0065 U	0.0064 U	0.0058 U	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	0.0065 U	R	0.0058 U	-	-	-	-	-	-	-
1,1,2-Trichloroethane	mg/kg	0.0065 U	0.0064 U	0.0058 U	-	-	-	-	-	-	-
1,1-Dichloroethane	mg/kg	0.0065 U	0.0064 U	0.0058 U	-	-	-	-	-	-	-
1,1-Dichloroethene	mg/kg	175000	0.0065 U	0.0058 U	0.070 U	0.045 UJ	0.015 UJ	0.0066 U	0.0048 UJ	0.027 UJ	0.0091 U
1,1-Dichloropropene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichloropropene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	4530	-	-	0.034 J	0.18 UJ	0.058 UJ	0.027 U	0.0006 J	0.11 UJ	0.037 U
1,2,4-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropene (DBCP)	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/kg	0.0065 U	0.0064 U	0.0058 U	-	-	-	-	-	-	-
1,2-Dichloropropene	mg/kg	0.0065 U	0.0064 U	0.0058 U	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,3-Dichloropropene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
2,2-Dichloropropene	mg/kg	-	-	-	-	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	2100000	0.044 J	0.0058 U	2.8 U	0.25 J	0.07 J	0.027 U	0.017 J	0.13 J	0.037 U
2-Chlorotoluene	mg/kg	-	-	-	-	-	-	-	-	-	-
2-Hexanone	mg/kg	NV	0.0065 U	0.0058 U	2.8 U	0.18 UJ	0.058 UJ	0.027 U	0.019 UJ	0.11 UJ	0.037 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg	-	-	-	-	-	-	-	-	-	-
4-Chlorotoluene	mg/kg	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	280000	0.0065 U	0.0058 U	2.8 U	0.18 UJ	0.058 UJ	0.027 U	0.019 UJ	0.11 UJ	0.037 U
Acetone	mg/kg	3150000	0.2	0.35 J	2.8 U	1.9 J	0.23 J	0.047	0.089 J	0.88 J	0.13
Benzene	mg/kg	2390	0.0046 J	0.0064 U	0.0058 U	0.045 UJ	0.015 UJ	0.0066 U	0.0077 J	0.0011 J	0.0091 U
Bromobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Bromoform	mg/kg	16600	0.0065 U	0.0064 U	0.0058 U	0.045 UJ	0.015 UJ	0.0066 U	0.0048 UJ	0.027 UJ	0.0091 U
Bromomethane (Methyl bromide)	mg/kg	-	-	-	-	-	-	-	-	-	-
Carbon disulfide	mg/kg	350000	0.0065 U	0.0036 J	0.0058 U	0.015 J	0.14 J	0.00085 J	0.015 J	0.01 J	0.047
Carbon tetrachloride	mg/kg	1880	0.0065 U	0.0064 U	0.0058 U	0.070 U	0.045 UJ	0.015 UJ	0.0066 U	0.0048 UJ	0.0091 U
Chlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
Chlorobromomethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Chloroform (Trichloromethane)	mg/kg	-	-	-	-	-	-	-	-	-	-
Chloromethane (Methyl chloride)	mg/kg	NV	0.013 U	0.013 U	0.070 U	0.045 UJ	0.015 UJ	0.0066 U	0.0048 UJ	0.027 UJ	0.0091 U
cis-1,2-Dichloroethene	mg/kg	7000	0.0065 U	0.0064 U	0.0058 U	0.045 UJ	0.00066 J	0.0066 U	0.0048 UJ	0.027 UJ	0.0091 U
cis-1,3-Dichloropropene	mg/kg	-	-	-	-	-	-	-	-	-	-
Cyclohexane	mg/kg	-	-	-	-	-	-	-	-	-	-
Cymene (p-Isopropyltoluene)	mg/kg	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	1560	0.0065 U	0.0058 U	0.070 U	0.045 UJ	0.015 UJ	0.0066 U	0.0048 UJ	0.027 UJ	0.0091 U
Dibromomethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane (CFC-12)	mg/kg	-	-	-	-	-	-	-	-	-	-
Ethyl ether	mg/kg	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	350000	0.0087 J	0.058 J	0.0058 U	0.045 UJ	0.0046 J	0.0066 U	0.079 J	0.027 UJ	0.00081 J
Hexachlorobutadiene	mg/kg	1680	-	-	-	-	-	-	-	-	-
Hexachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Iodomethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Isopropyl benzene	mg/kg	-	-	-	-	-	-	-	-	-	-
m&p-Xylenes	mg/kg	-	-	-	0.070 U	0.045 UJ	0.002 J	0.0066 U	0.03 J	0.00089 J	0.00049 J
Methyl acetate	mg/kg	-	-	-	-	-	-	-	-	-	-
Methyl cyclohexane	mg/kg	-	-	-	-	-	-	-	-	-	-
Methyl tert butyl ether (MTBE)	mg/kg	-	-	-	-	-	-	-	-	-	-
Methylene chloride	mg/kg	17500	0.0096 J	0.02 J	0.012 U	0.089 UJ	0.029 UJ	0.014 U	0.0095 UJ	0.053 UJ	0.019 U
Naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-
N-Butylbenzene A	mg/kg	-	-	-	-	-	-	-	-	-	-
N-Propylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location: Sample ID: Sample Date: Sample Depth:			Sand and Shredder Fill				Native Soil					
			TP comp(A2)	TP comp(A2)	TP21	TP-24	GP-1	GP-2	GP-2	GP-3	GP-3	GP-4
			S-9973-111798-GS02	S-9973-111898-GS07	S-9973-111898-GS06	S-082714-NH-TP24-8.5	S-082114-NH-GP1-23	S-082114-NH-GP2-14	S-082114-NH-GP2-20	S-082114-NH-GP3-16	S-082114-NH-GP3-19	S-082114-NH-GP4-14
			11/17/1998	11/18/1998	11/18/1998	8/27/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014
(1-8.5) ft BGS			(1-8.5) ft BGS	(0.5-2) ft BGS	(8.5-9) ft BGS	(23-23.5) ft BGS	(14-14.5) ft BGS	(20-20.5) ft BGS	(16-16.5) ft BGS	(19-19.5) ft BGS	(14-14.5) ft BGS	
Parameters	Units											
o-Xylene	mg/kg	-	-	-	0.070 U	0.045 UJ	0.0024 J	0.0066 U	0.016 J	0.027 UJ	0.00022 J	
Pentachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	
Styrene	mg/kg	700000	0.016 J	0.051 J	0.0058 U	0.070 U	0.045 UJ	0.015 UJ	0.0066 U	0.00055 J	0.027 UJ	
tert-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	
Tetrachloroethene	mg/kg	21000	0.0066 J	0.017 J	0.0058 U	0.070 U	0.045 UJ	0.0022 J	0.00051 J	0.0048 UJ	0.027 UJ	
Tetrahydrofuran	mg/kg	-	-	-	-	-	-	-	-	-	-	
Toluene	mg/kg	280000	-	-	-	-	0.005 J	0.00089 J	0.0066 U	0.0092 J	0.0021 J	
trans-1,2-Dichloroethene	mg/kg	70000	0.013 J	0.027 J	0.0058 U	0.011 J	0.045 UJ	0.015 UJ	0.0066 U	0.0048 UJ	0.027 UJ	
trans-1,3-Dichloropropene	mg/kg	-	0.0065 U	0.0064 U	0.0058 U	0.070 U	-	-	-	-	-	
trans-1,4-Dichloro-2-butene	mg/kg	-	-	-	-	-	-	-	-	-	-	
Trichloroethene	mg/kg	1750	0.0035 J	0.045 J	0.0058 U	0.070 U	0.045 UJ	0.002 J	0.00041 J	0.0048 UJ	0.027 UJ	
Trichlorofluoromethane (CFC-11)	-	-	-	-	-	-	-	-	-	-	-	
Trichlorofluoroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	
Trifluorotrichloroethane (Freon 113)	mg/kg	-	-	-	-	-	-	-	-	-	-	
Vinyl chloride	mg/kg	10500	0.013 U	0.013 U	0.012 U	0.070 U	0.045 UJ	0.015 UJ	0.0066 U	0.0048 UJ	0.027 UJ	
Xylenes (total)	mg/kg	700000	0.017 J	0.033 J	0.0058 U	-	-	-	-	-	-	
Volatile Organic Compounds - TCLP		TCLP Regulatory Levels ²										
1,1-Dichloroethene	µg/L	700	-	-	-	-	-	-	-	-	-	
1,2-Dichloroethane	µg/L	500	-	-	-	-	-	-	-	-	-	
1,4-Dichlorobenzene	µg/L	7500	-	-	-	-	-	-	-	-	-	
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	200000	-	-	-	-	-	-	-	-	-	
Benzene	µg/L	500	-	-	-	-	-	-	-	-	-	
Carbon tetrachloride	µg/L	500	-	-	-	-	-	-	-	-	-	
Chlorobenzene	µg/L	100000	-	-	-	-	-	-	-	-	-	
Chloroform (Trichloromethane)	µg/L	6000	-	-	-	-	-	-	-	-	-	
Tetrachloroethene	µg/L	700	-	-	-	-	-	-	-	-	-	
Trichloroethene	µg/L	500	-	-	-	-	-	-	-	-	-	
Vinyl chloride	µg/L	200	-	-	-	-	-	-	-	-	-	
Semi-volatile Organic Compounds		Soil MTCA Method C Industrial Cleanup Level ¹										
1,2,4-Trichlorobenzene	mg/kg	4530	8.6 U	22 U	0.38 U	-	-	-	-	-	-	
1,2-Dichlorobenzene	mg/kg	-	8.6 U	22 U	0.38 U	-	-	-	-	-	-	
1,2-Diphenylhydrazine	mg/kg	-	-	-	-	-	-	-	-	-	-	
1,3-Dichlorobenzene	mg/kg	-	8.6 U	22 U	0.38 U	-	-	-	-	-	-	
1,4-Dichlorobenzene	mg/kg	-	8.6 U	22 U	0.38 U	-	-	-	-	-	-	
1-Methyl-7-isopropylphenanthrene	mg/kg	-	-	-	-	-	-	-	-	-	-	
1-Methylnaphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-	
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	-	8.6 U	22 U	0.38 U	-	-	-	-	-	-	
2,4,5-Trichlorophenol	mg/kg	-	21 U	51 U	0.93 U	-	-	-	-	-	-	
2,4,6-Trichlorophenol	mg/kg	-	8.6 U	22 U	0.38 U	-	-	-	-	-	-	
2,4-Dichlorophenol	mg/kg	-	8.6 U	22 U	0.38 U	-	-	-	-	-	-	
2,4-Dimethylphenol	mg/kg	70000	8.6 U	22 U	0.38 U	0.31 U	0.17 J	0.59 UJ	0.40 U	3.1 U	0.85 UJ	
2,4-Dinitrophenol	mg/kg	-	21 U	51 U	0.93 U	-	-	-	-	-	-	
2,4-Dinitrotoluene	mg/kg	-	8.6 U	22 U	0.38 U	-	-	-	-	-	-	
2,6-Dinitrotoluene	mg/kg	-	8.6 U	22 U	0.38 U	-	-	-	-	-	-	
2-Chloronaphthalene	mg/kg	-	8.6 U	22 U	0.38 U	-	-	-	-	-	-	
2-Chlorophenol	mg/kg	-	8.6 U	22 U	0.38 U	-	-	-	-	-	-	
2-Methylnaphthalene	mg/kg	-	8.6 U	22 U	0.38 U	-	-	-	-	-	-	
2-Methylphenol	mg/kg	175000	8.6 U	22 U	0.38 U	0.31 U	1.5 UJ	0.59 UJ	0.40 U	3.1 U	0.85 UJ	
2-Nitroaniline	mg/kg	-	21 U	51 U	0.93 U	-	-	-	-	-	-	
2-Nitrophenol	mg/kg	-	8.6 U	22 U	0.38 U	-	-	-	-	-	-	
3,3'-Dichlorobenzidine	mg/kg	-	8.6 U	22 U	0.38 U	-	-	-	-	-	-	
3B-Coprostanol	mg/kg	-	-	-	-	-	-	-	-	-	-	
3-Nitroaniline	mg/kg	-	21 U	51 U	0.93 U	-	-	-	-	-	-	
4,6-Dinitro-2-methylphenol	mg/kg	NV	21 U	51 U	0.93 U	1.9 U	8.8 UJ	3.6 UJ	2.4 U	19 U	5.2 UJ	
4-Bromophenyl phenyl ether	mg/kg	-	8.6 U	22 U	0.38 U	-	-	-	-	-	-	
4-Chloro-3-methylphenol	mg/kg	-	8.6 U	22 U	0.38 U	-	-	-	-	-	-	
4-Chloroaniline	mg/kg	-	8.6 U	22 U	0.38 U	-	-	-	-	-	-	
4-Chlorophenyl phenyl ether	mg/kg	-	8.6 U	22 U	0.38 U	-	-	-	-	-	-	
4-Methylphenol	mg/kg	17500	8.6 U	22 U	0.38 U	0.31 U	1.5 UJ	0.59 UJ	0.40 U	3.1 U	0.85 UJ	
4-Nitroaniline	mg/kg	-	21 U	51 U	0.93 U	-	-	-	-	-	-	
4-Nitrophenol	mg/kg	-	21 U	51 U	0.93 U	-	-	-	-	-	-	

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

		Sand and Shredder Fill				Native Soil					
Sample Location:		TP comp(A2)	TP comp(A2)	TP21	TP-24	GP-1	GP-2	GP-2	GP-3	GP-3	GP-4
Sample ID:		S-9973-111798-GS02	S-9973-111898-GS07	S-9973-111898-GS06	S-082714-NH-TP24-8.5	S-082114-NH-GP1-23	S-082114-NH-GP2-14	S-082114-NH-GP2-20	S-082114-NH-GP3-16	S-082114-NH-GP3-19	S-082114-NH-GP4-14
Sample Date:		11/17/1998	11/18/1998	11/18/1998	8/27/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014
Sample Depth:		(1-8.5) ft BGS	(1-8.5) ft BGS	(0.5-2) ft BGS	(8.5-9) ft BGS	(23-23.5) ft BGS	(14-14.5) ft BGS	(20-20.5) ft BGS	(16-16.5) ft BGS	(19-19.5) ft BGS	(14-14.5) ft BGS
Parameters	Units										
Acenaphthene	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Acenaphthylene	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Acetophenone		-	-	-	-	-	-	-	-	-	-
Aniline	mg/kg	-	-	-	-	-	-	-	-	-	-
Anthracene	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Atrazine		-	-	-	-	-	-	-	-	-	-
Benzidine	mg/kg	-	-	-	-	-	-	-	-	-	-
Benzaldehyde		-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Biphenyl (1,1-Biphenyl)		-	-	-	-	-	-	-	-	-	-
Benzoic acid	mg/kg	-	-	-	-	-	-	-	-	-	-
Benzyl alcohol	mg/kg	-	-	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	9375	240	0.38 U	1.4	92 J	2.8 J	1.2	11	0.85 UJ	1.7
Butyl benzylphthalate (BBP)	mg/kg	69100	60	0.38 U	0.17 J	1.9 J	1.4 J	0.40 U	3.1 U	0.85 UJ	0.84
Caffeine	mg/kg	-	-	-	-	-	-	-	-	-	-
Caprolactam		-	-	-	-	-	-	-	-	-	-
Carbazole	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Chrysene	mg/kg	18000	22 U	0.38 U	0.13 J	0.25 J	0.033 J	0.025 J	0.13 J	0.85 UJ	0.026 J
Dibenz(a,h)anthracene	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Dibenzofuran	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Diethyl phthalate	mg/kg	2800000	22 U	0.38 U	0.31 U	1.5 UJ	0.59 UJ	0.40 U	3.1 U	0.85 UJ	0.49 U
Dimethyl phthalate	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Di-n-butylphthalate (DBP)	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Di-n-octyl phthalate (DnOP)	mg/kg	NV	22 U	0.38 U	0.044 J	0.96 J	0.59 UJ	0.40 U	0.33 J	0.85 UJ	0.49 U
Fluoranthene	mg/kg	140000	22 U	0.38 U	0.19 J	0.18 J	0.031 J	0.40 U	0.12 J	0.85 UJ	0.022 J
Fluorene	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Hexachlorobenzene	mg/kg	82.0	22 U	0.38 U	0.31 U	1.5 UJ	0.59 UJ	0.40 U	3.1 U	0.85 UJ	0.49 U
Hexachlorobutadiene	mg/kg	1680	22 U	0.38 U	0.31 U	0.11 J	0.59 UJ	0.40 U	3.1 U	0.85 UJ	0.49 U
Hexachlorocyclopentadiene	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Hexachloroethane	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Isophorone	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Naphthalene	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Nitrobenzene	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
N-Nitrosodimethylamine	mg/kg	-	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Pentachlorophenol	mg/kg	21 U	51 U	0.93 U	-	-	-	-	-	-	-
Phenanthrene	mg/kg	8.6 U	22 U	0.38 U	-	-	-	-	-	-	-
Phenol	mg/kg	1050000	22 U	0.38 U	0.31 U	1.5 UJ	0.59 UJ	0.40 U	3.1 U	0.85 UJ	0.49 U
Pyrene	mg/kg	105000	22 U	0.38 U	0.29 J	0.37 J	0.037 J	0.020 J	0.18 J	0.85 UJ	0.041 J
Pyridine	mg/kg	-	-	-	-	-	-	-	-	-	-

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

		Sand and Shredder Fill				Native Soil						
Sample Location:		TP comp(A2)	TP comp(A2)	TP21	TP-24	GP-1	GP-2	GP-2	GP-3	GP-3	GP-4	
Sample ID:		S-9973-111798-GS02	S-9973-111898-GS07	S-9973-111898-GS06	S-082714-NH-TP24-8.5	S-082114-NH-GP1-23	S-082114-NH-GP2-14	S-082114-NH-GP2-20	S-082114-NH-GP3-16	S-082114-NH-GP3-19	S-082114-NH-GP4-14	
Sample Date:		11/17/1998	11/18/1998	11/18/1998	8/27/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014	
Sample Depth:		(1-8.5) ft BGS	(1-8.5) ft BGS	(0.5-2) ft BGS	(8.5-9) ft BGS	(23-23.5) ft BGS	(14-14.5) ft BGS	(20-20.5) ft BGS	(16-16.5) ft BGS	(19-19.5) ft BGS	(14-14.5) ft BGS	
Parameters		Units										
Semi-volatile Organic Compounds - TCLP		TCLP Regulatory Levels ²										
1,4-Dichlorobenzene	µg/L	7500	-	-	-	-	-	-	-	-	-	
2,4,5-Trichlorophenol	µg/L	400000	-	-	-	-	-	-	-	-	-	
2,4,6-Trichlorophenol	µg/L	2000	-	-	-	-	-	-	-	-	-	
2,4-Dinitrotoluene	µg/L	130	-	-	-	-	-	-	-	-	-	
2-Methylphenol	µg/L	200000	-	-	-	-	-	-	-	-	-	
4-Methylphenol	µg/L	200000	-	-	-	-	-	-	-	-	-	
Hexachlorobenzene	µg/L	130	-	-	-	-	-	-	-	-	-	
Hexachlorobutadiene	µg/L	500	-	-	-	-	-	-	-	-	-	
Hexachloroethane	µg/L	3000	-	-	-	-	-	-	-	-	-	
Nitrobenzene	µg/L	2000	-	-	-	-	-	-	-	-	-	
Pentachlorophenol	µg/L	100000	-	-	-	-	-	-	-	-	-	
Pyridine	µg/L	5000	-	-	-	-	-	-	-	-	-	
Metals		Soil MTCA Method C Industrial Cleanup Level ¹										
Aluminum	mg/kg	3500000	9510	8270	12800	8080	5060 J	10400 J	6910	9220	13200 J	11300
Antimony	mg/kg	1400	41.6 J	53.7 J	7.2 J	1.6 J	5.1 UJ	0.7 J	0.6 J	1.9 J	3.7 UJ	4.0 UJ
Arsenic	mg/kg	87.5	24.7	30.7	4.9	6.8	17.0 J	16.8 J	2.7 J	23.4	12.1 J	9.9
Barium	mg/kg	700000	1530	2400	45.3	51.6	53.8 J	37.1 J	104	87.0	34.7 J	24.2
Beryllium	mg/kg	7000	0.3 U	0.3 U	0.2	0.12 J	0.25 UJ	0.23 UJ	0.20 U	0.19 UJ	0.20 U	0.20 U
Cadmium	mg/kg	3500	44.2	57.5	1.2	0.95	0.76 J	0.87 J	1.62	2.03	0.19 UJ	0.40
Calcium	mg/kg	NV	18300	19200	3810	2790	19600 J	6300 J	4730	4800	9880 J	5100
Chromium	mg/kg	10500	94.9 J	137 J	25.6 J	18.6	10.3 J	15.4 J	25.5	21.3	31.2 J	17.1
Cobalt	mg/kg	NV	15.6	23.0	6.5	6.74	4.33 J	8.29 J	3.51	6.85	5.22 J	7.68
Copper	mg/kg	140000	515 J	10000 J	39.5	53.1	20.5 J	45.8 J	22.2 J	54.8 J	19.6 J	26.2 J
Flash point (closed cup)	Deg C	-	-	-	-	-	-	-	-	-	-	-
Iron	mg/kg	2450000	57300	71100	20400	14900	10100 J	15200 J	11000	21200	13600 J	14800
Lead	mg/kg	1000	2470	2690	34.8	69.9	46.7 J	69.9 J	68.1	135	12.9 J	16.2
Magnesium	mg/kg	NV	5790	7510	3220	3300	4360 J	4990 J	2800 J	3530 J	5840 J	4730 J
Manganese	mg/kg	490000	460	514	301	244	94.1 J	93.5 J	98.2	201	118 J	95.2
Mercury	mg/kg	1050	1.4 J	1.7 J	0.2 J	0.164	0.075 J	0.088 J	0.114	1.78	0.053 J	0.098
Nickel	mg/kg	70000	159	143	17.4	18.1	12.9 J	17.1 J	12.0	19.6	18.0 J	13.4
Potassium	mg/kg	NV	598	673	1040	960	227 J	982 J	381	756	697 J	1110
Selenium	mg/kg	17500	0.7 U	1.9	0.6 U	1.2 J	1.8 J	2.4 J	1.4 J	4.0 U	1.2 J	1.3 J
Silver	mg/kg	17500	1.0	0.9	0.1 U	0.7 U	1.0 UJ	0.9 UJ	0.9 U	0.4 J	0.7 UJ	0.8 U
Sodium	mg/kg	NV	737	896	650	546	265 J	2690 J	510	573	418 J	1660
Thallium	mg/kg	NV	2.6 U	2.6 U	2.3 U	3.6 U	5.1 UJ	4.6 UJ	4.6 U	4.0 U	3.7 UJ	4.0 U
Vanadium	mg/kg	245	37.7	39.6	54.6	37.3	39.6 J	95.3 J	37.4	48.8	89.6 J	66.0
Zinc	mg/kg	1050000	7200	7770	116	248	232 J	103 J	149	397	36.0 J	48.0
Metals - TCLP		TCLP Regulatory Levels ²										
Arsenic	µg/L	5000	-	-	-	-	-	-	-	-	-	-
Barium	µg/L	100000	-	-	-	-	-	-	-	-	-	-
Cadmium	µg/L	1000	-	-	-	-	-	-	-	-	-	-
Chromium	µg/L	5000	-	-	-	-	-	-	-	-	-	-
Lead	µg/L	5000	-	-	-	-	-	-	-	-	-	-
Mercury	µg/L	200	-	-	-	-	-	-	-	-	-	-
Selenium	µg/L	1000	-	-	-	-	-	-	-	-	-	-
Silver	µg/L	5000	-	-	-	-	-	-	-	-	-	-
PCBs		Soil MTCA Method C Industrial Cleanup Level ¹										
Aroclor-1016 (PCB-1016)	mg/kg		0.91 U	0.51 U	0.093 U	0.016 U	0.074 UJ	0.030 UJ	0.020 U	0.016 U	0.043 UJ	0.025 U
Aroclor-1221 (PCB-1221)	mg/kg		0.91 U	0.51 U	0.093 U	0.031 U	0.15 UJ	0.060 UJ	0.040 U	0.032 U	0.085 UJ	0.049 U
Aroclor-1232 (PCB-1232)	mg/kg		0.91 U	0.51 U	0.093 U	0.016 U	0.074 UJ	0.030 UJ	0.020 U	0.016 U	0.043 UJ	0.025 U
Aroclor-1242 (PCB-1242)	mg/kg		0.91 U	0.51 U	0.093 U	0.19	0.069 J	0.061 J	0.33	0.33	0.043 UJ	0.015 J
Aroclor-1248 (PCB-1248)	mg/kg		0.91 U	0.51 U	0.093 U	0.016 U	0.074 UJ	0.030 UJ	0.020 U	0.016 U	0.043 UJ	0.025 U
Aroclor-1254 (PCB-1254)	mg/kg	65.6	*	*	*	0.30 J	0.054 J	0.048 J	0.25	0.57	0.043 UJ	0.035
Aroclor-1260 (PCB-1260)	mg/kg	65.6	3.9 J*	4.2 J*	0.098 *	0.15 J	0.030 J	0.025 J	0.14	0.36 J	0.043 UJ	0.015 J

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location: Sample ID: Sample Date: Sample Depth:			Sand and Shredder Fill				Native Soil					
			TP comp(A2)	TP comp(A2)	TP21	TP-24	GP-1	GP-2	GP-2	GP-3	GP-3	GP-4
			S-9973-111798-GS02	S-9973-111898-GS07	S-9973-111898-GS06	S-082714-NH-TP24-8.5	S-082114-NH-GP1-23	S-082114-NH-GP2-14	S-082114-NH-GP2-20	S-082114-NH-GP3-16	S-082114-NH-GP3-19	S-082114-NH-GP4-14
			11/17/1998 (1-8.5) ft BGS	11/18/1998 (1-8.5) ft BGS	11/18/1998 (0.5-2) ft BGS	8/27/2014 (8.5-9) ft BGS	8/21/2014 (23-23.5) ft BGS	8/21/2014 (14-14.5) ft BGS	8/21/2014 (20-20.5) ft BGS	8/21/2014 (16-16.5) ft BGS	8/21/2014 (19-19.5) ft BGS	8/21/2014 (14-14.5) ft BGS
Parameters		Units										
			Soil MTCA Method C Industrial Cleanup Level ¹									
Pesticides												
4,4'-DDD	mg/kg	550	-	-	-	0.0021	0.014 UJ	0.003 UJ	0.0049	0.011	0.014 UJ	0.0025 U
4,4'-DDE	mg/kg	390	0.088 J	0.19 J	0.019 U	0.0016 U	0.0074 UJ	0.003 UJ	0.002 U	0.0039 U	0.0043 UJ	0.0025 U
4,4'-DDE/DDD	mg/kg		0.066 J	0.1 J	0.019 U	-	-	-	-	-	-	-
4,4'-DDT	mg/kg	390	0.09 J	0.086 J	0.019 U	0.036 U	0.0074 UJ	0.003 UJ	0.012 U	0.033 U	0.0043 UJ	0.0025 U
Aldrin	mg/kg		0.052 U	0.02 U	0.0093 U	-	-	-	-	-	-	-
alpha-BHC	mg/kg	20.8	0.052 U	0.02 U	0.0093 U	0.0016 U	0.0074 UJ	0.003 UJ	0.002 U	0.0032 U	0.0043 UJ	0.0025 U
alpha-Chlordane	mg/kg		0.052 U	0.02 U	0.019 U	-	-	-	-	-	-	-
beta-BHC	mg/kg	72.9	0.052 U	0.02 U	0.0093 U	0.0026 U	0.0074 UJ	0.003 UJ	0.0031 U	0.0052 U	0.0043 UJ	0.0025 U
delta-BHC	mg/kg	NV	0.052 U	0.02 U	0.0093 U	0.0016 U	0.0074 UJ	0.003 UJ	0.002 U	0.0032 U	0.0043 UJ	0.0025 U
Dieldrin	mg/kg		0.052 U	0.02 U	0.019 U	-	-	-	-	-	-	-
Endosulfan I	mg/kg		0.052 U	0.02 U	0.0093 U	-	-	-	-	-	-	-
Endosulfan II	mg/kg		0.052 U	0.02 U	0.019 U	-	-	-	-	-	-	-
Endosulfan sulfate	mg/kg		0.052 U	0.02 U	0.019 U	-	-	-	-	-	-	-
Endrin	mg/kg		0.052 U	0.02 U	0.019 U	-	-	-	-	-	-	-
Endrin aldehyde	mg/kg	NV	0.052 U	0.02 U	0.019 U	0.0025 U	0.0074 UJ	0.003 UJ	0.0025 U	0.005 U	0.0043 UJ	0.0025 U
gamma-BHC (lindane)	mg/kg	1050	0.052 U	0.02 U	0.0093 U	0.0016 U	0.0074 UJ	0.003 UJ	0.002 U	0.0032 U	0.0043 UJ	0.0025 U
gamma-Chlordane	mg/kg		0.052 U	0.02 U	0.019 U	-	-	-	-	-	-	-
Heptachlor	mg/kg	29.2	0.052 U	0.02 U	0.0093 U	0.0016 UJ	0.0033 J	0.003 UJ	0.002 UJ	0.0032 UJ	0.0043 UJ	0.0025 UJ
Heptachlor epoxide	mg/kg		0.052 U	0.02 U	0.0093 U	-	-	-	-	-	-	-
Methoxychlor	mg/kg		0.052 U	0.1 U	0.093 U	-	-	-	-	-	-	-
Toxaphene	mg/kg		0.91 U	0.51 U	0.19 U	-	-	-	-	-	-	-
Pesticides - TCLP												
alpha-Chlordane	µg/L	30	-	-	-	-	-	-	-	-	-	-
Endrin	µg/L	20	-	-	-	-	-	-	-	-	-	-
gamma-BHC (lindane)	µg/L	400	-	-	-	-	-	-	-	-	-	-
gamma-Chlordane	µg/L	30	-	-	-	-	-	-	-	-	-	-
Heptachlor	µg/L	8	-	-	-	-	-	-	-	-	-	-
Heptachlor epoxide	µg/L	8	-	-	-	-	-	-	-	-	-	-
Methoxychlor	µg/L	10000	-	-	-	-	-	-	-	-	-	-
Toxaphene	µg/L	500	-	-	-	-	-	-	-	-	-	-
Herbicides - TCLP												
2,4,5-TP (Silvex)	µg/L	10000	-	-	-	-	-	-	-	-	-	-
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	10000	-	-	-	-	-	-	-	-	-	-
Misc												
Asbestos			-	-	-	-	-	-	-	-	-	-
			Soil MTCA Method C Industrial Cleanup Level ¹									
General Chemistry												
Cyanide (total)	mg/kg	70000	1.1 J	1.2	0.58 U	0.23 U	1.2 UJ	0.46 UJ	0.14 J	0.08 J	0.64 UJ	0.39 U
Flash point (closed cup)	Deg C		-	-	-	-	-	-	-	-	-	-
pH, lab	s.u.		-	-	-	-	-	-	-	-	-	-
Reactive sulfide			-	-	-	-	-	-	-	-	-	-
Ignitability			-	-	-	-	-	-	-	-	-	-

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

		Native Soil									
Sample Location:		GP-4	GP-5	GP-5	GP-6	GP-6	GP-7	GP-7	GP-7	TP-37	TP-37
Sample ID:		S-082114-NH-GP4-20	S-082214-NH-GP5-19	S-082214-NH-GP5-23	S-082114-NH-GP6-16	S-082114-NH-GP6-18	S-082214-NH-GP7-9	S-082214-NH-GP7-14	S-082214-NH-GP7-25	SO-091514-RB-TP37-2	SO-091514-RB-TP37-5
Sample Date:		8/21/2014	8/22/2014	8/22/2014	8/21/2014	8/21/2014	8/22/2014	8/22/2014	8/22/2014	9/15/2014	9/15/2014
Sample Depth:		(20-20.5) ft BGS	(19-19.5) ft BGS	(23-23.5) ft BGS	(16-16.5) ft BGS	(18-18.5) ft BGS	(9-9.5) ft BGS	(14-14.5) ft BGS	(25-25.5) ft BGS	(2-2.5) ft BGS	(5-5.5) ft BGS
Parameters	Units										
Soil MTCA Method C Industrial Cleanup Level ¹											
Volatile Organic Compounds											
1,1,1,2-Tetrachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	mg/kg	175000	0.027 UJ	0.046 UJ	0.014 UJ	0.011 UJ	0.0076 U	0.0072 U	0.0052 U	-	-
1,1-Dichloropropene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichloropropane	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	4530	0.11 UJ	0.19 UJ	0.056 UJ	0.041 UJ	0.031 U	0.029 U	0.021 U	-	-
1,2,4-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	mg/kg	-	-	-	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,3-Dichloropropane	mg/kg	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
2,2-Dichloropropane	mg/kg	-	-	-	-	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	2100000	0.24 J	0.056 UJ	0.054 J	0.031 U	0.029 U	0.021 U	-	-	-
2-Chlorotoluene	mg/kg	-	-	-	-	-	-	-	-	-	-
2-Hexanone	mg/kg	NV	0.11 UJ	0.19 UJ	0.056 UJ	0.041 UJ	0.031 U	0.029 U	0.021 U	-	-
2-Phenylbutane (sec-Butylbenzene)	mg/kg	-	-	-	-	-	-	-	-	-	-
4-Chlorotoluene	mg/kg	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	280000	0.11 UJ	0.19 UJ	0.056 UJ	0.041 UJ	0.031 U	0.029 U	0.021 U	-	-
Acetone	mg/kg	3150000	1.4 J	1.6 J	0.35 J	0.29 J	0.053	0.047	0.032	-	-
Benzene	mg/kg	2390	0.027 UJ	0.0027 J	0.0007 J	0.011 UJ	0.0076 U	0.00033 J	0.00091 J	-	-
Bromobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Bromoform	mg/kg	16600	0.027 UJ	0.046 UJ	0.014 UJ	0.011 UJ	0.0076 U	0.0072 U	0.0052 U	-	-
Bromomethane (Methyl bromide)	mg/kg	-	-	-	-	-	-	-	-	-	-
Carbon disulfide	mg/kg	350000	0.015 J	0.091 J	0.001 J	0.033 J	0.011	0.0063 J	0.0006 J	-	-
Carbon tetrachloride	mg/kg	1880	0.027 UJ	0.046 UJ	0.014 UJ	0.011 UJ	0.0076 U	0.0072 U	0.0052 U	-	-
Chlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
Chlorobromomethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Chloroform (Trichloromethane)	mg/kg	-	-	-	-	-	-	-	-	-	-
Chloromethane (Methyl chloride)	mg/kg	NV	0.027 UJ	0.0018 J	0.014 UJ	0.011 UJ	0.0076 U	0.0072 U	0.0052 U	-	-
cis-1,2-Dichloroethene	mg/kg	7000	0.027 UJ	0.16 J	0.014 UJ	0.022 J	0.0076 U	0.0072 U	0.0052 U	-	-
cis-1,3-Dichloropropene	mg/kg	-	-	-	-	-	-	-	-	-	-
Cyclohexane											
Cymene (p-Isopropyltoluene)	mg/kg	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	1560	0.027 UJ	0.046 UJ	0.014 UJ	0.011 UJ	0.0076 U	0.0072 U	0.0052 U	-	-
Dibromomethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane (CFC-12)	mg/kg	-	-	-	-	-	-	-	-	-	-
Ethyl ether	mg/kg	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	350000	0.027 UJ	0.046 UJ	0.014 UJ	0.011 UJ	0.0076 U	0.0072 U	0.0052 U	-	-
Hexachlorobutadiene	mg/kg	1680	-	-	-	-	-	-	-	-	-
Hexachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Iodomethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Isopropyl benzene	mg/kg	-	-	-	-	-	-	-	-	-	-
m&p-Xylenes	mg/kg	-	0.027 UJ	0.046 UJ	0.014 UJ	0.011 UJ	0.0076 U	0.0072 U	0.00021 J	-	-
Methyl acetate											
Methyl cyclohexane											
Methyl tert butyl ether (MTBE)	mg/kg	-	-	-	-	-	-	-	-	-	-
Methylene chloride	mg/kg	17500	0.053 UJ	0.091 UJ	0.049 J	0.021 UJ	0.016 U	0.015 U	0.011 U	-	-
Naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-
N-Butylbenzene A	mg/kg	-	-	-	-	-	-	-	-	-	-
N-Propylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

		Native Soil									
Sample Location:		GP-4	GP-5	GP-5	GP-6	GP-6	GP-7	GP-7	GP-7	TP-37	TP-37
Sample ID:		S-082114-NH-GP4-20	S-082214-NH-GP5-19	S-082214-NH-GP5-23	S-082114-NH-GP6-16	S-082114-NH-GP6-18	S-082214-NH-GP7-9	S-082214-NH-GP7-14	S-082214-NH-GP7-25	SO-091514-RB-TP37-2	SO-091514-RB-TP37-5
Sample Date:		8/21/2014	8/22/2014	8/22/2014	8/21/2014	8/21/2014	8/22/2014	8/22/2014	8/22/2014	9/15/2014	9/15/2014
Sample Depth:		(20-20.5) ft BGS	(19-19.5) ft BGS	(23-23.5) ft BGS	(16-16.5) ft BGS	(18-18.5) ft BGS	(9-9.5) ft BGS	(14-14.5) ft BGS	(25-25.5) ft BGS	(2-2.5) ft BGS	(5-5.5) ft BGS
Parameters	Units										
o-Xylene	mg/kg	0.027 UJ	0.046 UJ	0.014 UJ	0.011 UJ	0.0076 U	0.0072 U	0.00016 J	-	-	-
Pentachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	700000	0.027 UJ	0.046 UJ	0.014 UJ	0.011 UJ	0.0076 U	0.0072 U	0.0052 U	-	-
tert-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	21000	0.027 UJ	0.083 J	0.0088 J	0.011 UJ	0.0076 U	0.0072 U	0.0052 U	-	-
Tetrahydrofuran	mg/kg	-	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	280000	0.0032 J	0.0085 J	0.0011 J	0.00082 J	0.0076 U	0.00031 J	0.00041 J	-	-
trans-1,2-Dichloroethene	mg/kg	70000	0.027 UJ	0.22 J	0.014 UJ	0.068 J	0.00041 J	0.0072 U	0.0052 U	-	-
trans-1,3-Dichloropropene	mg/kg	-	-	-	-	-	-	-	-	-	-
trans-1,4-Dichloro-2-butene	mg/kg	-	-	-	-	-	-	-	-	-	-
Trichloroethene	mg/kg	1750	0.027 UJ	0.0085 J	0.014 UJ	0.011 UJ	0.0076 U	0.0072 U	0.0052 U	-	-
Trichlorofluoromethane (CFC-11)		-	-	-	-	-	-	-	-	-	-
Trichlorofluoroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Trifluorotrichloroethane (Freon 113)	mg/kg	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	mg/kg	10500	0.027 UJ	0.0057 J	0.014 UJ	0.011 UJ	0.0076 U	0.0072 U	0.0052 U	-	-
Xylenes (total)	mg/kg	700000	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds - TCLP		TCLP Regulatory Levels ²									
1,1-Dichloroethene	µg/L	700	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	µg/L	500	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	µg/L	7500	-	-	-	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	200000	-	-	-	-	-	-	-	-	-
Benzene	µg/L	500	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	µg/L	500	-	-	-	-	-	-	-	-	-
Chlorobenzene	µg/L	100000	-	-	-	-	-	-	-	-	-
Chloroform (Trichloromethane)	µg/L	6000	-	-	-	-	-	-	-	-	-
Tetrachloroethene	µg/L	700	-	-	-	-	-	-	-	-	-
Trichloroethene	µg/L	500	-	-	-	-	-	-	-	-	-
Vinyl chloride	µg/L	200	-	-	-	-	-	-	-	-	-
Semi-volatile Organic Compounds		Soil MTCA Method C Industrial Cleanup Level ¹									
1,2,4-Trichlorobenzene	mg/kg	4530	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,2-Diphenylhydrazine	mg/kg	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
1-Methyl-7-isopropylphenanthrene	mg/kg	-	-	-	-	-	-	-	-	-	-
1-Methylnaphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	-	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	-	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	-	-	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	-	-	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	70000	1.3 UJ	1.1 UJ	0.60 UJ	0.51 UJ	0.36 U	0.37 U	0.018 J	0.30 U	-
2,4-Dinitrophenol	mg/kg	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	-	-	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	-	-	-	-	-	-	-	-	-	-
2-Chloronaphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-
2-Chlorophenol	mg/kg	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-
2-Methylphenol	mg/kg	175000	1.3 UJ	1.1 UJ	0.60 UJ	0.51 UJ	0.36 U	0.37 U	0.29 U	0.30 U	-
2-Nitroaniline	mg/kg	-	-	-	-	-	-	-	-	-	-
2-Nitrophenol	mg/kg	-	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg	-	-	-	-	-	-	-	-	-	-
3B-Coprostanol	mg/kg	-	-	-	-	-	-	-	-	-	-
3-Nitroaniline	mg/kg	-	-	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	mg/kg	NV	7.3 UJ	6.5 UJ	3.6 UJ	3.1 UJ	2.2 U	2.3 U	1.8 U	1.8 U	-
4-Bromophenyl phenyl ether	mg/kg	-	-	-	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	-	-	-	-	-	-	-	-	-	-
4-Chloroaniline	mg/kg	-	-	-	-	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	-	-	-	-	-	-	-	-	-	-
4-Methylphenol	mg/kg	17500	1.3 UJ	1.1 UJ	0.60 UJ	0.51 UJ	0.36 U	0.37 U	0.044 J	0.30 U	-
4-Nitroaniline	mg/kg	-	-	-	-	-	-	-	-	-	-
4-Nitrophenol	mg/kg	-	-	-	-	-	-	-	-	-	-

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

		Native Soil									
Sample Location:		GP-4	GP-5	GP-5	GP-6	GP-6	GP-7	GP-7	GP-7	TP-37	TP-37
Sample ID:		S-082114-NH-GP4-20	S-082214-NH-GP5-19	S-082214-NH-GP5-23	S-082114-NH-GP6-16	S-082114-NH-GP6-18	S-082214-NH-GP7-9	S-082214-NH-GP7-14	S-082214-NH-GP7-25	SO-091514-RB-TP37-2	SO-091514-RB-TP37-5
Sample Date:		8/21/2014	8/22/2014	8/22/2014	8/21/2014	8/21/2014	8/22/2014	8/21/2014	8/22/2014	9/15/2014	9/15/2014
Sample Depth:		(20-20.5) ft BGS	(19-19.5) ft BGS	(23-23.5) ft BGS	(16-16.5) ft BGS	(18-18.5) ft BGS	(9-9.5) ft BGS	(14-14.5) ft BGS	(25-25.5) ft BGS	(2-2.5) ft BGS	(5-5.5) ft BGS
Parameters	Units										
Acenaphthene	mg/kg	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	mg/kg	-	-	-	-	-	-	-	-	-	-
Acetophenone		-	-	-	-	-	-	-	-	-	-
Aniline	mg/kg	-	-	-	-	-	-	-	-	-	-
Anthracene	mg/kg	-	-	-	-	-	-	-	-	-	-
Atrazine		-	-	-	-	-	-	-	-	-	-
Benzidine	mg/kg	-	-	-	-	-	-	-	-	-	-
Benzaldehyde		-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	mg/kg	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	mg/kg	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	-	-	-	-	-	-	-	-	-	-
Biphenyl (1,1-Biphenyl)		-	-	-	-	-	-	-	-	-	-
Benzoic acid	mg/kg	-	-	-	-	-	-	-	-	-	-
Benzyl alcohol	mg/kg	-	-	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	mg/kg	-	-	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	mg/kg	-	-	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	9375	1.3 UJ	0.60 UJ	0.51 UJ	0.36 U	0.37 U	0.29 U	0.30 U	-	-
Butyl benzylphthalate (BBP)	mg/kg	69100	1.3 UJ	0.60 UJ	0.51 UJ	0.36 U	0.37 U	0.29 U	0.30 U	-	-
Caffeine	mg/kg	-	-	-	-	-	-	-	-	-	-
Caprolactam		-	-	-	-	-	-	-	-	-	-
Carbazole	mg/kg	-	-	-	-	-	-	-	-	-	-
Chrysene	mg/kg	18000	0.061 J	0.60 UJ	0.51 UJ	0.36 U	0.11 J	0.16 J	0.30 U	-	-
Dibenz(a,h)anthracene	mg/kg	-	-	-	-	-	-	-	-	-	-
Dibenzofuran	mg/kg	-	-	-	-	-	-	-	-	-	-
Diethyl phthalate	mg/kg	2800000	1.3 UJ	0.60 UJ	0.51 UJ	0.36 U	0.37 U	0.29 U	0.30 U	-	-
Dimethyl phthalate	mg/kg	-	-	-	-	-	-	-	-	-	-
Di-n-butylphthalate (DBP)	mg/kg	-	-	-	-	-	-	-	-	-	-
Di-n-octyl phthalate (DnOP)	mg/kg	NV	1.3 UJ	0.60 UJ	0.51 UJ	0.36 U	0.37 U	0.29 U	0.30 U	-	-
Fluoranthene	mg/kg	140000	1.3 UJ	0.60 UJ	0.51 UJ	0.36 U	0.38	0.36	0.30 U	-	-
Fluorene	mg/kg	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	mg/kg	82.0	1.3 UJ	0.60 UJ	0.51 UJ	0.36 U	0.37 U	0.29 U	0.30 U	-	-
Hexachlorobutadiene	mg/kg	1680	1.3 UJ	0.60 UJ	0.51 UJ	0.36 U	0.37 U	0.29 U	0.30 U	-	-
Hexachlorocyclopentadiene	mg/kg	-	-	-	-	-	-	-	-	-	-
Hexachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	-	-	-	-	-	-	-	-	-	-
Isophorone	mg/kg	-	-	-	-	-	-	-	-	-	-
Naphthalene	mg/kg	-	-	-	-	-	-	-	-	-	-
Nitrobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-
N-Nitrosodimethylamine	mg/kg	-	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	mg/kg	-	-	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	mg/kg	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	mg/kg	-	-	-	-	-	-	-	-	-	-
Phenanthrene	mg/kg	-	-	-	-	-	-	-	-	-	-
Phenol	mg/kg	1050000	1.3 UJ	0.60 UJ	0.51 UJ	0.36 U	0.37 U	0.29 U	0.30 U	-	-
Pyrene	mg/kg	105000	1.3 UJ	0.60 UJ	0.51 UJ	0.36 U	0.26 J	0.37	0.30 U	-	-
Pyridine	mg/kg	-	-	-	-	-	-	-	-	-	-

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

			Native Soil									
Sample Location:			GP-4	GP-5	GP-5	GP-6	GP-6	GP-7	GP-7	GP-7	TP-37	TP-37
Sample ID:			S-082114-NH-GP4-20	S-082214-NH-GP5-19	S-082214-NH-GP5-23	S-082114-NH-GP6-16	S-082114-NH-GP6-18	S-082214-NH-GP7-9	S-082214-NH-GP7-14	S-082214-NH-GP7-25	SO-091514-RB-TP37-2	SO-091514-RB-TP37-5
Sample Date:			8/21/2014	8/22/2014	8/22/2014	8/21/2014	8/21/2014	8/22/2014	8/21/2014	8/22/2014	9/15/2014	9/15/2014
Sample Depth:			(20-20.5) ft BGS	(19-19.5) ft BGS	(23-23.5) ft BGS	(16-16.5) ft BGS	(18-18.5) ft BGS	(9-9.5) ft BGS	(14-14.5) ft BGS	(25-25.5) ft BGS	(2-2.5) ft BGS	(5-5.5) ft BGS
Parameters												
Units												
Semi-volatile Organic Compounds - TCLP			TCLP Regulatory Levels ²									
1,4-Dichlorobenzene	µg/L	7500	-	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	µg/L	400000	-	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	µg/L	2000	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	µg/L	130	-	-	-	-	-	-	-	-	-	-
2-Methylphenol	µg/L	200000	-	-	-	-	-	-	-	-	-	-
4-Methylphenol	µg/L	200000	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	µg/L	130	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	µg/L	500	-	-	-	-	-	-	-	-	-	-
Hexachloroethane	µg/L	3000	-	-	-	-	-	-	-	-	-	-
Nitrobenzene	µg/L	2000	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	µg/L	100000	-	-	-	-	-	-	-	-	-	-
Pyridine	µg/L	5000	-	-	-	-	-	-	-	-	-	-
Metals			Soil MTCA Method C Industrial Cleanup Level ¹									
Aluminum	mg/kg	3500000	36100 J	7270 J	11400 J	12300 J	11000	12900	9250	8400	10900	10700
Antimony	mg/kg	1400	3.9 UJ	4.3 UJ	4.2 UJ	4.2 UJ	4.6 UJ	3.4 UJ	4.2 J	4.5 UJ	3.2 UJ	3.6 UJ
Arsenic	mg/kg	87.5	18.0 J	16.5 J	3.1 J	12.2 J	7.3 J	6.3 J	4.6 J	9.0 U	2.9 J	3.7
Barium	mg/kg	700000	102 J	7.52 J	57.0 J	33.8 J	33.0	20.6	86.3	49.1	52.6	56.8
Beryllium	mg/kg	7000	0.81 J	0.17 J	0.31 J	0.23 J	0.23 U	0.22	0.37	0.22 U	0.18	0.18 J
Cadmium	mg/kg	3500	0.20 UJ	0.22 UJ	0.21 UJ	0.64 J	0.23 U	0.17 U	0.52	0.22 U	0.08 J	0.07 J
Calcium	mg/kg	NV	14400 J	7580 J	6670 J	6250 J	2740	5020	3860	1830	2420 J	2430 J
Chromium	mg/kg	10500	55.8 J	21.5 J	28.6 J	22.9 J	21.8	27.6	22.2	21.2	23.5	25.1
Cobalt	mg/kg	NV	16.1 J	13.2 J	3.32 J	8.08 J	4.80	6.59	8.48	4.52	5.00	4.88
Copper	mg/kg	140000	74.2 J	16.6 J	14.6 J	34.3 J	12.0 J	28.0 J	56.8 J	10.0 J	12.0	11.8
Flash point (closed cup)	Deg C		-	-	-	-	-	-	-	-	-	-
Iron	mg/kg	2450000	33700 J	12600 J	9210 J	16500 J	13600	16800	21700	8820	13100	13100
Lead	mg/kg	1000	11.9 J	2.4 J	3.3 J	27.5 J	4.1	7.9	82.8	2.8	6.4	6.6
Magnesium	mg/kg	NV	12300 J	6740 J	3250 J	6250 J	2870 J	4800 J	3420 J	2650 J	3260	3170
Manganese	mg/kg	490000	272 J	115 J	85.9 J	137 J	104	124	376	94.7	189	263
Mercury	mg/kg	1050	0.080 J	0.036 J	0.041 J	0.033 J	0.013 J	0.027	0.183	0.010 J	0.026	0.026
Nickel	mg/kg	70000	38.3 J	11.5 J	11.0 J	16.6 J	10.2	14.7	25.5	15.4	22.4	22.3
Potassium	mg/kg	NV	1560 J	699 J	588 J	1150 J	715	1220	1050	516	516	606
Selenium	mg/kg	17500	3.9 UJ	2.5 J	1.8 J	1.8 J	4.6 U	3.4 U	4.3 U	4.5 U	1.2 J	1.7 J
Silver	mg/kg	17500	0.8 UJ	0.9 UJ	0.8 UJ	0.8 UJ	0.9 U	0.9 U	0.9 U	0.9 U	0.2 J	0.7 U
Sodium	mg/kg	NV	2250 J	3110 J	373 J	1790 J	354	2950	285	87.3	162	167
Thallium	mg/kg	NV	3.9 UJ	4.3 UJ	4.2 UJ	4.2 UJ	4.6 U	3.4 U	4.3 U	4.5 U	1.6 U	1.8 U
Vanadium	mg/kg	245	161 J	171 J	60.7 J	82.5 J	49.9	52.8	37.2	34.6	32.8	30.9
Zinc	mg/kg	1050000	75.4 J	35.1 J	22.0 J	110 J	21.8	46.4	242	24.4	30.7	30.9
Metals - TCLP			TCLP Regulatory Levels ²									
Arsenic	µg/L	5000	-	-	-	-	-	-	-	-	-	-
Barium	µg/L	100000	-	-	-	-	-	-	-	-	-	-
Cadmium	µg/L	1000	-	-	-	-	-	-	-	-	-	-
Chromium	µg/L	5000	-	-	-	-	-	-	-	-	-	-
Lead	µg/L	5000	-	-	-	-	-	-	-	-	-	-
Mercury	µg/L	200	-	-	-	-	-	-	-	-	-	-
Selenium	µg/L	1000	-	-	-	-	-	-	-	-	-	-
Silver	µg/L	5000	-	-	-	-	-	-	-	-	-	-
PCBs			Soil MTCA Method C Industrial Cleanup Level ¹									
Aroclor-1016 (PCB-1016)	mg/kg		0.060 UJ	0.054 UJ	0.030 UJ	0.026 UJ	0.018 U	0.019 U	0.015 U	0.015 U	-	-
Aroclor-1221 (PCB-1221)	mg/kg		0.12 UJ	0.11 UJ	0.059 UJ	0.052 UJ	0.036 U	0.038 U	0.030 U	0.030 U	-	-
Aroclor-1232 (PCB-1232)	mg/kg		0.060 UJ	0.054 UJ	0.030 UJ	0.026 UJ	0.018 U	0.019 U	0.015 U	0.015 U	-	-
Aroclor-1242 (PCB-1242)	mg/kg		0.060 UJ	0.054 UJ	0.030 UJ	0.026 UJ	0.018 U	0.019 U	0.016	0.015 U	-	-
Aroclor-1248 (PCB-1248)	mg/kg		0.060 UJ	0.054 UJ	0.030 UJ	0.026 UJ	0.018 U	0.019 U	0.015 U	0.015 U	-	-
Aroclor-1254 (PCB-1254)	mg/kg	65.6	0.027 J	0.054 UJ	0.030 UJ	0.014 J	0.018 U	0.038	0.18	0.015 U	-	-
Aroclor-1260 (PCB-1260)	mg/kg	65.6	0.060 UJ	0.054 UJ	0.030 UJ	0.026 UJ	0.018 U	0.016 J	0.12 J	0.015 U	-	-

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

			Native Soil									
Sample Location:			GP-4	GP-5	GP-5	GP-6	GP-6	GP-7	GP-7	GP-7	TP-37	TP-37
Sample ID:			S-082114-NH-GP4-20	S-082214-NH-GP5-19	S-082214-NH-GP5-23	S-082114-NH-GP6-16	S-082114-NH-GP6-18	S-082214-NH-GP7-9	S-082214-NH-GP7-14	S-082214-NH-GP7-25	SO-091514-RB-TP37-2	SO-091514-RB-TP37-5
Sample Date:			8/21/2014	8/22/2014	8/22/2014	8/21/2014	8/21/2014	8/22/2014	8/22/2014	8/22/2014	9/15/2014	9/15/2014
Sample Depth:			(20-20.5) ft BGS	(19-19.5) ft BGS	(23-23.5) ft BGS	(16-16.5) ft BGS	(18-18.5) ft BGS	(9-9.5) ft BGS	(14-14.5) ft BGS	(25-25.5) ft BGS	(2-2.5) ft BGS	(5-5.5) ft BGS
Parameters	Units											
			Soil MTCA Method C									
			Industrial Cleanup Level ¹									
Pesticides												
4,4'-DDD	mg/kg	550	0.006 UJ	0.0054 UJ	0.0032 UJ	0.0026 UJ	0.0018 U	0.0019 U	0.0014 J	0.0015 U	-	-
4,4'-DDE	mg/kg	390	0.006 UJ	0.0054 UJ	0.003 UJ	0.0026 UJ	0.0018 U	0.0019 U	0.0016 U	0.0016 U	-	-
4,4'-DDE/DDD	mg/kg		-	-	-	-	-	-	-	-	-	-
4,4'-DDT	mg/kg	390	0.006 UJ	0.0054 UJ	0.003 UJ	0.0026 UJ	0.0018 U	0.004 U	0.02 U	0.0015 U	-	-
Aldrin	mg/kg		-	-	-	-	-	-	-	-	-	-
alpha-BHC	mg/kg	20.8	0.006 UJ	0.0054 UJ	0.003 UJ	0.0026 UJ	0.0018 U	0.0019 U	0.0015 U	0.0015 U	-	-
alpha-Chlordane	mg/kg		-	-	-	-	-	-	-	-	-	-
beta-BHC	mg/kg	72.9	0.006 UJ	0.0054 UJ	0.003 UJ	0.0026 UJ	0.0025 U	0.0025 U	0.0025 U	0.0025 U	-	-
delta-BHC	mg/kg	NV	0.006 UJ	0.0054 UJ	0.003 UJ	0.0026 UJ	0.0018 U	0.0019 U	0.0015 U	0.0015 U	-	-
Dieldrin	mg/kg		-	-	-	-	-	-	-	-	-	-
Endosulfan I	mg/kg		-	-	-	-	-	-	-	-	-	-
Endosulfan II	mg/kg		-	-	-	-	-	-	-	-	-	-
Endosulfan sulfate	mg/kg		-	-	-	-	-	-	-	-	-	-
Endrin	mg/kg		-	-	-	-	-	-	-	-	-	-
Endrin aldehyde	mg/kg	NV	0.006 UJ	0.0054 UJ	0.003 UJ	0.0026 UJ	0.0025 U	0.0025 U	0.0025 U	0.0025 U	-	-
gamma-BHC (lindane)	mg/kg	1050	0.006 UJ	0.0054 UJ	0.003 UJ	0.0026 UJ	0.0018 U	0.0019 U	0.0015 U	0.0015 U	-	-
gamma-Chlordane	mg/kg		-	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	29.2	0.006 UJ	0.0054 UJ	0.003 UJ	0.0026 UJ	0.0018 UJ	0.0019 UJ	0.0015 UJ	0.0015 UJ	-	-
Heptachlor epoxide	mg/kg		-	-	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg		-	-	-	-	-	-	-	-	-	-
Toxaphene	mg/kg		-	-	-	-	-	-	-	-	-	-
Pesticides - TCLP												
alpha-Chlordane	µg/L	30	-	-	-	-	-	-	-	-	-	-
Endrin	µg/L	20	-	-	-	-	-	-	-	-	-	-
gamma-BHC (lindane)	µg/L	400	-	-	-	-	-	-	-	-	-	-
gamma-Chlordane	µg/L	30	-	-	-	-	-	-	-	-	-	-
Heptachlor	µg/L	8	-	-	-	-	-	-	-	-	-	-
Heptachlor epoxide	µg/L	8	-	-	-	-	-	-	-	-	-	-
Methoxychlor	µg/L	10000	-	-	-	-	-	-	-	-	-	-
Toxaphene	µg/L	500	-	-	-	-	-	-	-	-	-	-
Herbicides - TCLP												
2,4,5-TP (Silvex)	µg/L	10000										
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	10000										
Misc												
Asbestos												
			Soil MTCA Method C									
			Industrial Cleanup Level ¹									
General Chemistry												
Cyanide (total)	mg/kg	70000	0.83 UJ	0.80 UJ	0.47 UJ	0.37 UJ	0.28 U	0.30 U	0.22 U	0.22 U	0.25 U	0.24 U
Flash point (closed cup)	Deg C		-	-	-	-	-	-	-	-	-	-
pH, lab	s.u.		-	-	-	-	-	-	-	-	-	-
Reactive sulfide			-	-	-	-	-	-	-	-	-	-
Ignitability			-	-	-	-	-	-	-	-	-	-

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

		Native Soil				Soil (Fill)	Surficial Soil (FILL)	Surficial Soil Above Sand and Shredder Residue Fill	Sand Fill	Soil (Fill)
		TP-37	TP-38	TP-38	TP-38	Below Debris	Above Lime Sludge Fill			
		SO-091514-RB-TP37-7.5	S-082814-RB-TP38-2.5	S-082814-RB-TP38-4.5	S-082814-RB-TP38-11.0	SL-1	TP comp(A1)	TP21	TP 1,3,8	TP17
Sample Location:		9/15/2014	8/28/2014	8/28/2014	8/28/2014	11/19/1998	11/19/1998	11/18/1998	11/18/1998	11/18/1998
Sample ID:										
Sample Date:										
Sample Depth:		(7.5-8) ft BGS	(2.5-3) ft BGS	(4.5-5) ft BGS	(11-11.5) ft BGS	(0.5-1) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS	(0.5-8.5) ft BGS	(3-3.5) ft BGS
Parameters		Units								
		Soil MTCA Method C								
		Industrial Cleanup Level ¹								
Volatile Organic Compounds										
1,1,1,2-Tetrachloroethane	mg/kg	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	mg/kg	-	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
1,1,2,2-Tetrachloroethane	mg/kg	-	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
1,1,2-Trichloroethane	mg/kg	-	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
1,1-Dichloroethane	mg/kg	-	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
1,1-Dichloroethene	mg/kg	175000	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
1,1-Dichloropropene	mg/kg	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-
1,2,3-Trichloropropane	mg/kg	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	4530	-	-	-	-	-	-	-	-
1,2,4-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	-	-	-	-	-	-	-	-	-
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/kg	-	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
1,2-Dichloropropane	mg/kg	-	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
1,3,5-Trimethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-
1,3-Dichloropropane	mg/kg	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-
2,2-Dichloropropane	mg/kg	-	-	-	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	2100000	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.022
2-Chlorotoluene	mg/kg	-	-	-	-	-	-	-	-	-
2-Hexanone	mg/kg	NV	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
2-Phenylbutane (sec-Butylbenzene)	mg/kg	-	-	-	-	-	-	-	-	-
4-Chlorotoluene	mg/kg	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	280000	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
Acetone	mg/kg	3150000	-	-	-	0.026 U	0.026 U	0.025 U	0.04	0.1
Benzene	mg/kg	2390	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
Bromobenzene	mg/kg	-	-	-	-	-	-	-	-	-
Bromodichloromethane	mg/kg	-	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
Bromoform	mg/kg	16600	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
Bromomethane (Methyl bromide)	mg/kg	-	-	-	-	0.013 U	0.013 U	0.013 U	0.012 U	0.012 U
Carbon disulfide	mg/kg	350000	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
Carbon tetrachloride	mg/kg	1880	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
Chlorobenzene	mg/kg	-	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
Chlorobromomethane	mg/kg	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	-	-	-	-	0.013 U	0.013 U	0.013 U	0.012 U	0.012 U
Chloroform (Trichloromethane)	mg/kg	-	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
Chloromethane (Methyl chloride)	mg/kg	NV	-	-	-	0.013 U	0.013 U	0.013 U	0.012 U	0.012 U
cis-1,2-Dichloroethene	mg/kg	7000	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
cis-1,3-Dichloropropene	mg/kg	-	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
Cyclohexane										
Cymene (p-Isopropyltoluene)	mg/kg	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	1560	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
Dibromomethane	mg/kg	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane (CFC-12)	mg/kg	-	-	-	-	-	-	-	-	-
Ethyl ether	mg/kg	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	350000	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0038 J	0.0061 U
Hexachlorobutadiene	mg/kg	1680	-	-	-	-	-	-	-	-
Hexachloroethane	mg/kg	-	-	-	-	-	-	-	-	-
Iodomethane	mg/kg	-	-	-	-	-	-	-	-	-
Isopropyl benzene	mg/kg	-	-	-	-	-	-	-	-	-
m&p-Xylenes	mg/kg	-	-	-	-	-	-	-	-	-
Methyl acetate										
Methyl cyclohexane										
Methyl tert butyl ether (MTBE)	mg/kg	-	-	-	-	-	-	-	-	-
Methylene chloride	mg/kg	17500	-	-	-	0.013 U	0.013 U	0.014 J	0.009 J	0.017
Naphthalene	mg/kg	-	-	-	-	-	-	-	-	-
N-Butylbenzene A	mg/kg	-	-	-	-	-	-	-	-	-
N-Propylbenzene	mg/kg	-	-	-	-	-	-	-	-	-

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

		Native Soil				Soil (Fill) Below Debris	Surficial Soil (FILL) Above Lime Sludge Fill	Surficial Soil Above Sand and Shredder Residue Fill	Sand Fill	Soil (Fill) Below Cobbles
Sample Location:		TP-37	TP-38	TP-38	TP-38	SL-1	TP comp(A1)	TP21	TP 1,3,8	TP17
Sample ID:		SO-091514-RB-TP37-7.5	S-082814-RB-TP38-2.5	S-082814-RB-TP38-4.5	S-082814-RB-TP38-11.0	S-9973-111998-GS08	S-9973-111998-GS09	S-9973-111898-GS05	S-9973-111898-GS03	S-9973-111898-GS04
Sample Date:		9/15/2014	8/28/2014	8/28/2014	8/28/2014	11/19/1998	11/19/1998	11/18/1998	11/18/1998	11/18/1998
Sample Depth:		(7.5-8) ft BGS	(2.5-3) ft BGS	(4.5-5) ft BGS	(11-11.5) ft BGS	(0.5-1) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS	(0.5-8.5) ft BGS	(3-3.5) ft BGS
Parameters	Units									
o-Xylene	mg/kg	-	-	-	-	-	-	-	-	-
Pentachloroethane	mg/kg	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	700000	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
tert-Butylbenzene	mg/kg	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	21000	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
Tetrahydrofuran	mg/kg	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	280000	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0029 J	0.0061 U
trans-1,2-Dichloroethene	mg/kg	70000	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
trans-1,3-Dichloropropene	mg/kg	-	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
trans-1,4-Dichloro-2-butene	mg/kg	-	-	-	-	-	-	-	-	-
Trichloroethene	mg/kg	1750	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
Trichlorofluoromethane (CFC-11)		-	-	-	-					
Trichlorofluoroethane	mg/kg	-	-	-	-	-	-	-	-	-
Trifluorotrichloroethane (Freon 113)	mg/kg	-	-	-	-	-	-	-	-	-
Vinyl chloride	mg/kg	10500	-	-	-	0.013 U	0.013 U	0.013 U	0.012 U	0.012 U
Xylenes (total)	mg/kg	700000	-	-	-	0.0065 U	0.0065 U	0.0063 U	0.0058 U	0.0061 U
Volatile Organic Compounds - TCLP		TCLP Regulatory Levels ²								
1,1-Dichloroethene	µg/L	700	-	-	-	-	-	-	-	-
1,2-Dichloroethane	µg/L	500	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	µg/L	7500	-	-	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	200000	-	-	-	-	-	-	-	-
Benzene	µg/L	500	-	-	-	-	-	-	-	-
Carbon tetrachloride	µg/L	500	-	-	-	-	-	-	-	-
Chlorobenzene	µg/L	100000	-	-	-	-	-	-	-	-
Chloroform (Trichloromethane)	µg/L	6000	-	-	-	-	-	-	-	-
Tetrachloroethene	µg/L	700	-	-	-	-	-	-	-	-
Trichloroethene	µg/L	500	-	-	-	-	-	-	-	-
Vinyl chloride	µg/L	200	-	-	-	-	-	-	-	-
Semi-volatile Organic Compounds		Soil MTCA Method C Industrial Cleanup Level ¹								
1,2,4-Trichlorobenzene	mg/kg	4530	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
1,2-Dichlorobenzene	mg/kg		-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
1,2-Diphenylhydrazine	mg/kg		-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg		-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
1,4-Dichlorobenzene	mg/kg		-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
1-Methyl-7-isopropylphenanthrene	mg/kg		-	-	-	-	-	-	-	-
1-Methylnaphthalene	mg/kg		-	-	-	-	-	-	-	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg		-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
2,4,5-Trichlorophenol	mg/kg		-	-	-	1 U	1 U	10 U	9.2 U	0.97 U
2,4,6-Trichlorophenol	mg/kg		-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
2,4-Dichlorophenol	mg/kg		-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
2,4-Dimethylphenol	mg/kg	70000	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
2,4-Dinitrophenol	mg/kg		-	-	-	1 U	1 U	10 U	9.2 U	0.97 U
2,4-Dinitrotoluene	mg/kg		-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
2,6-Dinitrotoluene	mg/kg		-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
2-Chloronaphthalene	mg/kg		-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
2-Chlorophenol	mg/kg		-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
2-Methylnaphthalene	mg/kg		-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
2-Methylphenol	mg/kg	175000	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
2-Nitroaniline	mg/kg		-	-	-	1 U	1 U	10 U	9.2 U	0.97 U
2-Nitrophenol	mg/kg		-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
3,3'-Dichlorobenzidine	mg/kg		-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
3B-Coprostanol	mg/kg		-	-	-	-	-	-	-	-
3-Nitroaniline	mg/kg		-	-	-	1 U	1 U	10 U	9.2 U	0.97 U
4,6-Dinitro-2-methylphenol	mg/kg	NV	-	-	-	1 U	1 U	10 U	9.2 U	0.97 U
4-Bromophenyl phenyl ether	mg/kg		-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
4-Chloro-3-methylphenol	mg/kg		-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
4-Chloroaniline	mg/kg		-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
4-Chlorophenyl phenyl ether	mg/kg		-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
4-Methylphenol	mg/kg	17500	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
4-Nitroaniline	mg/kg		-	-	-	1 U	1 U	10 U	9.2 U	0.97 U
4-Nitrophenol	mg/kg		-	-	-	1 U	1 U	10 U	9.2 U	0.97 U

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

		Native Soil				Soil (Fill) Below Debris	Surficial Soil (FILL) Above Lime Sludge Fill	Surficial Soil Above Sand and Shredder Residue Fill	Sand Fill	Soil (Fill) Below Cobbles
Sample Location:		TP-37	TP-38	TP-38	TP-38	SL-1	TP comp(A1)	TP21	TP 1,3,8	TP17
Sample ID:		SO-091514-RB-TP37-7.5	S-082814-RB-TP38-2.5	S-082814-RB-TP38-4.5	S-082814-RB-TP38-11.0	S-9973-111998-GS08	S-9973-111998-GS09	S-9973-111898-GS05	S-9973-111898-GS03	S-9973-111898-GS04
Sample Date:		9/15/2014	8/28/2014	8/28/2014	8/28/2014	11/19/1998	11/19/1998	11/18/1998	11/18/1998	11/18/1998
Sample Depth:		(7.5-8) ft BGS	(2.5-3) ft BGS	(4.5-5) ft BGS	(11-11.5) ft BGS	(0.5-1) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS	(0.5-8.5) ft BGS	(3-3.5) ft BGS
Parameters	Units									
Acenaphthene	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Acenaphthylene	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Acetophenone		-	-	-	-					
Aniline	mg/kg	-	-	-	-	-	-	-	-	-
Anthracene	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Atrazine		-	-	-	-					
Benzidine	mg/kg	-	-	-	-	-	-	-	-	-
Benzaldehyde		-	-	-	-					
Benzo(a)anthracene	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Benzo(a)pyrene	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Benzo(b)fluoranthene	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Benzo(g,h,i)perylene	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Benzo(k)fluoranthene	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Biphenyl (1,1-Biphenyl)		-	-	-	-					
Benzoic acid	mg/kg	-	-	-	-	-	-	-	-	-
Benzyl alcohol	mg/kg	-	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
bis(2-Chloroethyl)ether	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	9375	-	-	-	0.43 U	0.52	89	10	3.2
Butyl benzylphthalate (BBP)	mg/kg	69100	-	-	-	0.43 U	0.43 U	4.2 U	5.2	1.2
Caffeine	mg/kg	-	-	-	-	-	-	-	-	-
Caprolactam		-	-	-	-					
Carbazole	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Chrysene	mg/kg	18000	-	-	-	0.43 U	0.22 J	4.2 U	3.8 U	0.45
Dibenz(a,h)anthracene	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Dibenzofuran	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Diethyl phthalate	mg/kg	28000000	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Dimethyl phthalate	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Di-n-butylphthalate (DBP)	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Di-n-octyl phthalate (DnOP)	mg/kg	NV	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Fluoranthene	mg/kg	140000	-	-	-	0.43 U	0.43 U	2.3 J	3.8 U	0.46
Fluorene	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Hexachlorobenzene	mg/kg	82.0	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Hexachlorobutadiene	mg/kg	1680	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Hexachlorocyclopentadiene	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Hexachloroethane	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Indeno(1,2,3-cd)pyrene	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Isophorone	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Naphthalene	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Nitrobenzene	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
N-Nitrosodimethylamine	mg/kg	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
N-Nitrosodiphenylamine	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Pentachlorophenol	mg/kg	-	-	-	-	1 U	1 U	10 U	9.2 U	0.97 U
Phenanthrene	mg/kg	-	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Phenol	mg/kg	1050000	-	-	-	0.43 U	0.43 U	4.2 U	3.8 U	0.4 U
Pyrene	mg/kg	105000	-	-	-	0.43 U	0.43 U	2.1 J	3.8 U	0.56
Pyridine	mg/kg	-	-	-	-	-	-	-	-	-

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

		Native Soil				Soil (Fill) Below Debris	Surficial Soil (FILL) Above Lime Sludge Fill	Surficial Soil Above Sand and Shredder Residue Fill	Sand Fill	Soil (Fill) Below Cobbles
Sample Location:		TP-37	TP-38	TP-38	TP-38	SL-1	TP comp(A1)	TP21	TP 1,3,8	TP17
Sample ID:		SO-091514-RB-TP37-7.5	S-082814-RB-TP38-2.5	S-082814-RB-TP38-4.5	S-082814-RB-TP38-11.0	S-9973-111998-GS08	S-9973-111998-GS09	S-9973-111898-GS05	S-9973-111898-GS03	S-9973-111898-GS04
Sample Date:		9/15/2014	8/28/2014	8/28/2014	8/28/2014	11/19/1998	11/19/1998	11/18/1998	11/18/1998	11/18/1998
Sample Depth:		(7.5-8) ft BGS	(2.5-3) ft BGS	(4.5-5) ft BGS	(11-11.5) ft BGS	(0.5-1) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS	(0.5-8.5) ft BGS	(3-3.5) ft BGS
Parameters		Units								
Semi-volatile Organic Compounds - TCLP		TCLP Regulatory Levels ²								
1,4-Dichlorobenzene	µg/L	7500	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	µg/L	400000	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	µg/L	2000	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	µg/L	130	-	-	-	-	-	-	-	-
2-Methylphenol	µg/L	200000	-	-	-	-	-	-	-	-
4-Methylphenol	µg/L	200000	-	-	-	-	-	-	-	-
Hexachlorobenzene	µg/L	130	-	-	-	-	-	-	-	-
Hexachlorobutadiene	µg/L	500	-	-	-	-	-	-	-	-
Hexachloroethane	µg/L	3000	-	-	-	-	-	-	-	-
Nitrobenzene	µg/L	2000	-	-	-	-	-	-	-	-
Pentachlorophenol	µg/L	100000	-	-	-	-	-	-	-	-
Pyridine	µg/L	5000	-	-	-	-	-	-	-	-
		Soil MTCA Method C								
Metals		Industrial Cleanup Level ¹								
Aluminum	mg/kg	3500000	9930	9810	12100	11000	18200	16100	9770	10200
Antimony	mg/kg	1400	3.5 UJ	3.6 UJ	3.7 UJ	3.5 UJ	129 J	7.9 J	329 J	4.5 J
Arsenic	mg/kg	87.5	0.9 J	4.3	3.2 J	4.0	1180	28.8	103	5.5
Barium	mg/kg	700000	45.8	52.2	50.5	50.2	94.4	238	496	361
Beryllium	mg/kg	7000	0.20	0.14 J	0.16 J	0.16 J	0.6	0.3 U	0.3	0.2 U
Cadmium	mg/kg	3500	0.04 J	0.18 U	0.18 U	0.17 U	4.1	4.5	63.0	9.3
Calcium	mg/kg	NV	2250 J	2010	1970	4800	4800	5450	7720	6110
Chromium	mg/kg	10500	40.7	19.4	25.2	22.7	56.9 J	51.0 J	849 J	39.1 J
Cobalt	mg/kg	NV	3.89	5.25	7.22	5.21	40.1	13.1	37.8	8.7
Copper	mg/kg	140000	8.6	12.0	15.0	11.4	1170	144	1660	122
Flash point (closed cup)	Deg C	-	-	-	-	-	-	-	-	-
Iron	mg/kg	2450000	9990	13000	14600	12900	38300	41000	387000	27300
Lead	mg/kg	1000	1.8	5.5	6.6	3.6	375	152	6030	353
Magnesium	mg/kg	NV	2840	3640	4770	3620	4230	3680	2520	4050
Manganese	mg/kg	490000	91.7	258	175	201	1280	2950	3070	352
Mercury	mg/kg	1050	0.009 J	0.016 J	0.026	0.015 J	0.1 J	0.5 J	17.6 J	0.3 J
Nickel	mg/kg	70000	19.1	24.4	32.5	20.7	49.2	45.8	622	64.4
Potassium	mg/kg	NV	687	455	501	602	1820	1360	542	825
Selenium	mg/kg	17500	1.6 J	3.6 U	1.2 J	1.1 J	0.6 U	0.7 U	0.6 U	0.6 U
Silver	mg/kg	17500	0.7 U	0.7 U	0.7 U	0.7 U	1.4	0.7 U	4.7	0.1
Sodium	mg/kg	NV	141	81.1	99.0	101	461	598	651	524
Thallium	mg/kg	NV	1.8 U	3.6 U	3.7 U	3.5 U	2.6 U	2.6 U	4.7	2.3 U
Vanadium	mg/kg	245	45.6	31.9	35.2	36.3	66.0	61.5	71.8	36.8
Zinc	mg/kg	1050000	23.9	29.1	35.8	23.7	3320	671	13900	1170
Metals - TCLP		TCLP Regulatory Levels ²								
Arsenic	µg/L	5000	-	-	-	-	-	-	-	-
Barium	µg/L	100000	-	-	-	-	-	-	-	-
Cadmium	µg/L	1000	-	-	-	-	-	-	-	-
Chromium	µg/L	5000	-	-	-	-	-	-	-	-
Lead	µg/L	5000	-	-	-	-	-	-	-	-
Mercury	µg/L	200	-	-	-	-	-	-	-	-
Selenium	µg/L	1000	-	-	-	-	-	-	-	-
Silver	µg/L	5000	-	-	-	-	-	-	-	-
		Soil MTCA Method C								
PCBs		Industrial Cleanup Level ¹								
Aroclor-1016 (PCB-1016)	mg/kg	-	-	-	-	0.1 U	0.1 U	0.88 U	0.46 U	0.097 U
Aroclor-1221 (PCB-1221)	mg/kg	-	-	-	-	0.1 U	0.1 U	0.88 U	0.46 U	0.097 U
Aroclor-1232 (PCB-1232)	mg/kg	-	-	-	-	0.1 U	0.1 U	0.88 U	0.46 U	0.097 U
Aroclor-1242 (PCB-1242)	mg/kg	-	-	-	-	0.1 U	0.1 U	0.88 U	0.46 U	0.097 U
Aroclor-1248 (PCB-1248)	mg/kg	-	-	-	-	0.1 U	0.1 U	0.88 U	0.46 U	0.097 U
Aroclor-1254 (PCB-1254)	mg/kg	65.6	-	-	-	*	*	*	*	*
Aroclor-1260 (PCB-1260)	mg/kg	65.6	-	-	-	0.22 J*	0.37 *	7.6 J*	1 J*	0.33 *

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1913 Marine View Drive
Tacoma, Washington

			Native Soil				Soil (Fill) Below Debris	Surficial Soil (FILL) Above Lime Sludge Fill	Surficial Soil Above Sand and Shredder Residue Fill	Sand Fill	Soil (Fill) Below Cobbles
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Sample ID:			SO-091514-RB-TP37-7.5	S-082814-RB-TP38-2.5	S-082814-RB-TP38-4.5	S-082814-RB-TP38-11.0	S-9973-111998-GS08	S-9973-111998-GS09	S-9973-111898-GS05	S-9973-111898-GS03	S-9973-111898-GS04
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Sample Depth:			(7.5-8) ft BGS	(2.5-3) ft BGS	(4.5-5) ft BGS	(11-11.5) ft BGS	(0.5-1) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS	(0.5-8.5) ft BGS	(3-3.5) ft BGS
Parameters	Units										
			Soil MTCA Method C Industrial Cleanup Level ¹								
Pesticides											
4,4'-DDD	mg/kg	550	-	-	-	-	-	-	-	-	-
4,4'-DDE	mg/kg	390	-	-	-	-	0.021 U	0.021 U	0.2 J	0.029 J	0.0081 J
4,4'-DDE/DDD	mg/kg		-	-	-	-	0.021 U	0.021 U	0.14 J	0.025 J	0.0094 J
4,4'-DDT	mg/kg	390	-	-	-	-	0.021 U	0.021 U	0.19 J	0.018 U	0.019 U
Aldrin	mg/kg		-	-	-	-	0.01 U	0.01 U	0.05 U	0.018 U	0.0097 U
alpha-BHC	mg/kg	20.8	-	-	-	-	0.01 U	0.01 U	0.05 U	0.018 U	0.0097 U
alpha-Chlordane	mg/kg		-	-	-	-	0.021 U	0.021 U	0.05 U	0.018 U	0.019 U
beta-BHC	mg/kg	72.9	-	-	-	-	0.01 U	0.01 U	0.033 J	0.018 U	0.0097 U
delta-BHC	mg/kg	NV	-	-	-	-	0.01 U	0.01 U	0.05 U	0.018 U	0.0097 U
Dieldrin	mg/kg		-	-	-	-	0.021 U	0.021 U	0.05 U	0.018 U	0.019 U
Endosulfan I	mg/kg		-	-	-	-	0.01 U	0.01 U	0.05 U	0.018 U	0.0097 U
Endosulfan II	mg/kg		-	-	-	-	0.021 U	0.021 U	0.05 U	0.018 U	0.019 U
Endosulfan sulfate	mg/kg		-	-	-	-	0.021 U	0.021 U	0.05 U	0.018 U	0.019 U
Endrin	mg/kg		-	-	-	-	0.021 U	0.021 U	0.05 U	0.018 U	0.019 U
Endrin aldehyde	mg/kg	NV	-	-	-	-	0.021 U	0.021 U	0.05 U	0.018 U	0.019 U
gamma-BHC (lindane)	mg/kg	1050	-	-	-	-	0.01 U	0.01 U	0.05 U	0.018 U	0.0097 U
gamma-Chlordane	mg/kg		-	-	-	-	0.021 U	0.021 U	0.05 U	0.018 U	0.019 U
Heptachlor	mg/kg	29.2	-	-	-	-	0.01 U	0.01 U	0.05 U	0.021 J	0.0097 U
Heptachlor epoxide	mg/kg		-	-	-	-	0.01 U	0.01 U	0.05 U	0.018 U	0.0097 U
Methoxychlor	mg/kg		-	-	-	-	0.1 U	0.1 U	0.1 U	0.092 U	0.097 U
Toxaphene	mg/kg		-	-	-	-	0.21 U	0.21 U	0.88 U	0.46 U	0.19 U
Pesticides - TCLP											
alpha-Chlordane	µg/L	30	-	-	-	-					
Endrin	µg/L	20	-	-	-	-					
gamma-BHC (lindane)	µg/L	400	-	-	-	-					
gamma-Chlordane	µg/L	30	-	-	-	-					
Heptachlor	µg/L	8	-	-	-	-					
Heptachlor epoxide	µg/L	8	-	-	-	-					
Methoxychlor	µg/L	10000	-	-	-	-					
Toxaphene	µg/L	500	-	-	-	-					
Herbicides - TCLP											
2,4,5-TP (Silvex)	µg/L	10000									
2,4-Dichlorophenoxyacetic acid (2,4-D)	µg/L	10000									
Misc											
Asbestos											
			Soil MTCA Method C Industrial Cleanup Level ¹								
General Chemistry											
Cyanide (total)	mg/kg	70000	0.24 U	0.21 U	0.21 U	0.22 U	0.65 U	0.65 U	2.3	0.58 U	0.61 U
Flash point (closed cup)	Deg C		-	-	-	-	-	-	-	-	-
pH, lab	s.u.		-	-	-	-	-	-	-	-	-
Reactive sulfide			-	-	-	-					
Ignitability			-	-	-	-					

Table 4.1
Summary of Soil Analytical Data
1913 Marine View Drive
Tacoma, Washington

Notes:

- ¹
- MTCA Method C Cleanup Levels for Industrial Land are from Washington State Department of Ecology, Cleanup Levels and Risk Calculation (CLARC) database, (detected parameters)
- ²
- TCLP regulatory levels are from 40 CFR 261, *Identification and Listing of Hazardous Waste*, Appendix II, 1993 ed., as amended by 58 FR 46040, August 31, 1993.
- 39
- Concentration exceeds level
- J
- Estimated.
- ND or U
- Non-detect at associated value.
- UJ
- Estimated reporting limit.
- R
- Rejected.
-
- Not applicable.
- NV
- No value.
- *
- Aroclor-1254 and Aroclor-1260

Table 4.2

Summary of Groundwater Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:			GM-B-1	GM-B-1	GM-B-1	GM-B-1	GM-B-1	GM-B-1	GM-B-1A	GM-B-1A	GM-B-1A
Sample ID:			GM-B-1	GM-B-1 (Duplicate)	GM-B-1	GW-9973-113098-GS03	GW-9973-011199-GS03	G-081314-RB-GMB1-005	GW-9973-113098-GS02	GW-9973-011199-GS02	G-081314-RB-GMB1A-006
Sample Date:			9/26/1984	9/26/1984 (Duplicate)	9/16/1988	11/30/1998	1/11/1999	8/13/2014	11/30/1998	1/11/1999	8/13/2014
Parameters	Units	Criteria									
Volatile Organic Compounds											
1,1,1-Trichloroethane	µg/L	926000	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
1,1,2,2-Tetrachloroethane	µg/L	4.00	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
1,1,2-Trichloroethane	µg/L	16.0	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
1,1-Dichloroethane	µg/L	NV	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
1,1-Dichloroethene	µg/L	3.20	-	-	-	5.0 U	5.0 U	2.5 U	5.0 U	5.0 U	0.50 U
1,2,4-Trichlorobenzene	µg/L	70.0	-	-	-	-	-	10 U	-	-	2.0 U
1,2-Dichloroethane	µg/L	3.70	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
1,2-Dichloropropane	µg/L	1.50	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	NV	-	-	-	5.0 U	5.0 U	100 U	5.0 U	5.0 U	20 U
2-Hexanone	µg/L	NV	-	-	-	5.0 U	5.0 U	100 U	5.0 U	5.0 U	20 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	NV	-	-	-	5.0 U	5.0 U	100 U	5.0 U	5.0 U	20 U
Acetone	µg/L	NV	-	-	-	20 U	50 U	100 U	20 U	5.0 U	20 U
Benzene	µg/L	51.0	-	-	-	5.6	5.0	5.5	5.0 U	5.0 U	0.50 U
Bromodichloromethane	µg/L	17.0	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
Bromoform	µg/L	140	-	-	-	5.0 U	5.0 U	2.5 U	5.0 U	5.0 U	0.50 U
Bromomethane (Methyl bromide)	µg/L	1500	-	-	-	10 U	10 U	-	10 U	10 U	-
Carbon disulfide	µg/L	NV	-	-	-	5.0 U	5.0 U	2.5 U	5.0 U	5.0 U	0.50 U
Carbon tetrachloride	µg/L	1.60	-	-	-	5.0 U	5.0 U	2.5 U	5.0 U	5.0 U	0.50 U
Chlorobenzene	µg/L	1600	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
Chloroethane	µg/L	NV	-	-	-	10 U	10 U	-	10 U	10 U	-
Chloroform (Trichloromethane)	µg/L	470	2 U	2 U	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
Chloromethane (Methyl chloride)	µg/L	133 ¹	-	-	-	10 U	10 U	2.5 U	10 U	10 U	0.50 U
cis-1,2-Dichloroethene	µg/L	NV	-	-	-	5.0 U	5.0 U	2.5 U	5.0 U	5.0 U	0.50 U
cis-1,3-Dichloropropene	µg/L	NV	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
Dibromochloromethane	µg/L	13.0	-	-	-	5.0 U	5.0 U	2.5 U	5.0 U	5.0 U	0.50 U
Ethylbenzene	µg/L	2100	-	-	-	5.0 U	5.0 U	0.25 J	5.0 U	5.0 U	0.50 U
`	µg/L	NV	-	-	-	-	-	2.6	-	-	0.50 U
Methylene chloride	µg/L	590	-	-	-	10 U	10 U	10 U	10 U	10 U	2.0 U
o-Xylene	µg/L	NV	-	-	-	-	-	3.5	-	-	0.50 U
Styrene	µg/L	NV	-	-	-	5.0 U	5.0 U	2.5 U	5.0 U	5.0 U	0.50 U
Tetrachloroethene	µg/L	3.30	2 U	2 U	1 U	5.0 U	5.0 U	2.5 U	5.0 U	5.0 U	0.50 U
Toluene	µg/L	15000	-	-	-	5.0 U	5.0 U	0.85 J	5.0 U	5.0 U	0.50 U
trans-1,2-Dichloroethene	µg/L	10000	-	-	-	5.0 U	5.0 U	2.5 U	5.0 U	5.0 U	0.50 U
trans-1,3-Dichloropropene	µg/L	NV	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
Trichloroethene	µg/L	30.0	2 U	2 U	1 U	5.0 U	5.0 U	2.5 U	5.0 U	5.0 U	0.50 U
Vinyl chloride	µg/L	2.40	-	-	-	10 U	10 U	2.5 UJ	10 U	10 U	0.50 U
Xylenes (total)	µg/L	NV	-	-	-	10	7.2	-	5.0 U	5.0 U	-

Table 4.2

Summary of Groundwater Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:			GM-B-1	GM-B-1	GM-B-1	GM-B-1	GM-B-1	GM-B-1	GM-B-1A	GM-B-1A	GM-B-1A
Sample ID:			GM-B-1	GM-B-1 (Duplicate)	GM-B-1	GW-9973-113098-GS03	GW-9973-011199-GS03	G-081314-RB-GMB1-005	GW-9973-113098-GS02	GW-9973-011199-GS02	G-081314-RB-GMB1A-006
Sample Date:			9/26/1984	9/26/1984 (Duplicate)	9/16/1988	11/30/1998	1/11/1999	8/13/2014	11/30/1998	1/11/1999	8/13/2014
Parameters	Units	Criteria									
Semi-volatile Organic Compounds											
1,2,4-Trichlorobenzene	µg/L	70	-	-	-	10 U	10 U	-	10 U	10 U	-
1,2-Dichlorobenzene	µg/L	1300	-	-	-	6 U	6 U	-	6 U	6 U	-
1,3-Dichlorobenzene	µg/L	960	-	-	-	6 U	6 U	-	6 U	6 U	-
1,4-Dichlorobenzene	µg/L	190	-	-	-	10 U	10 U	-	10 U	10 U	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	µg/L	65000	-	-	-	10 U	10 U	-	10 U	10 U	-
2,4,5-Trichlorophenol	µg/L	3600	-	-	-	25 U	25 U	-	25 U	25 U	-
2,4,6-Trichlorophenol	µg/L	2.40	-	-	-	10 U	10 U	-	10 U	10 U	-
2,4-Dichlorophenol	µg/L	10000	-	-	-	10 U	10 U	-	10 U	10 U	-
2,4-Dimethylphenol	µg/L	850	-	-	-	7.3 J	6.0 J	20 U	10 U	10 U	3.9 U
2,4-Dinitrophenol	µg/L	5300	-	-	-	25 U	25 U	-	25 U	25 U	-
2,4-Dinitrotoluene	µg/L	3.40	-	-	-	10 U	10 U	-	10 U	10 U	-
2,6-Dinitrotoluene	µg/L	NV	-	-	-	10 U	10 U	-	10 U	10 U	-
2-Chloronaphthalene	µg/L	NV	-	-	-	10 U	10 U	-	10 U	10 U	-
2-Chlorophenol	µg/L	99.7	-	-	-	10 U	10 U	-	10 U	10 U	-
2-Methylnaphthalene	µg/L	NV	-	-	-	10 U	10 U	-	10 U	10 U	-
2-Methylphenol	µg/L	NV	-	-	-	10 U	10 U	2.5 U	10 U	10 U	0.49 U
2-Nitroaniline	µg/L	NV	-	-	-	25 U	25 U	-	25 U	25 U	-
2-Nitrophenol	µg/L	NV	-	-	-	10 U	10 U	-	10 U	10 U	-
3,3'-Dichlorobenzidine	µg/L	0.028	-	-	-	20 U	20 U	-	20 U	20 U	-
3-Nitroaniline	µg/L	NV	-	-	-	25 U	25 U	-	25 U	25 U	-
4,6-Dinitro-2-methylphenol	µg/L	NV	-	-	-	25 U	25 U	10 U	25 U	25 U	2.0 U
4-Bromophenyl phenyl ether	µg/L	NV	-	-	-	10 U	10 U	-	10 U	10 U	-
4-Chloro-3-methylphenol	µg/L	NV	-	-	-	10 U	10 U	-	10 U	10 U	-
4-Chloroaniline	µg/L	NV	-	-	-	10 U	10 U	-	10 U	10 U	-
4-Chlorophenyl phenyl ether	µg/L	NV	-	-	-	10 U	10 U	-	10 U	10 U	-
4-Methylphenol	µg/L	NV	-	-	-	10 U	10 U	1.4 J	10 U	10 U	0.49 U
4-Nitroaniline	µg/L	NV	-	-	-	25 U	25 U	-	25 U	25 U	-
4-Nitrophenol	µg/L	NV	-	-	-	25 U	25 U	-	25 U	25 U	-
Acenaphthene	µg/L	648	-	-	-	10 U	10 U	-	10 U	10 U	-
Acenaphthylene	µg/L	NV	-	-	-	10 U	10 U	-	10 U	10 U	-
Anthracene	µg/L	40000	-	-	-	10 U	10 U	-	10 U	10 U	-
Benzo(a)anthracene	µg/L	0.018	-	-	-	10 U	10 U	-	10 U	10 U	-
Benzo(a)pyrene	µg/L	0.018	-	-	-	1 U	1 U	-	1 U	1 U	-
Benzo(b)fluoranthene	µg/L	0.018	-	-	-	10 U	10 U	-	10 U	10 U	-
Benzo(g,h,i)perylene	µg/L	NV	-	-	-	10 U	10 U	-	10 U	10 U	-
Benzo(k)fluoranthene	µg/L	0.018	-	-	-	10 U	10 U	-	10 U	10 U	-
bis(2-Chloroethoxy)methane	µg/L	NV	-	-	-	10 U	10 U	-	10 U	10 U	-
bis(2-Chloroethyl)ether	µg/L	0.530	-	-	-	10 U	10 U	-	10 U	10 U	-
bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	2.20	-	-	-	3.4 J	39	5.0 U	17	20	0.97 U
Butyl benzylphthalate (BBP)	µg/L	1900	-	-	-	10 U	10 U	1.0 U	10 U	10 U	0.20 U
Carbazole	µg/L	NV	-	-	-	10 U	10 U	-	10 U	10 U	-
Chrysene	µg/L	0.018	-	-	-	10 U	10 U	1.0 U	10 U	10 U	0.20 U
Dibenz(a,h)anthracene	µg/L	0.018	-	-	-	10 U	10 U	-	10 U	10 U	-
Dibenzofuran	µg/L	NV	-	-	-	10 U	10 U	-	10 U	10 U	-
Diethyl phthalate	µg/L	44000	-	-	-	23	17	1.8	10 U	10 U	0.20 U
Dimethyl phthalate	µg/L	1100000	-	-	-	10 U	10 U	-	10 U	10 U	-
Di-n-butylphthalate (DBP)	µg/L	NV	-	-	-	10 U	10 U	-	10 U	10 U	-
Di-n-octyl phthalate (DnOP)	µg/L	NV	-	-	-	10 U	10 U	1.0 U	10 U	10 U	0.20 U
Fluoranthene	µg/L	140	-	-	-	10 U	10 U	0.14 J	10 U	10 U	0.20 U
Fluorene	µg/L	5300	-	-	-	10 U	10 U	-	10 U	10 U	-

Table 4.2

Summary of Groundwater Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:			GM-B-1	GM-B-1	GM-B-1	GM-B-1	GM-B-1	GM-B-1	GM-B-1A	GM-B-1A	GM-B-1A
Sample ID:			GM-B-1	GM-B-1 (Duplicate)	GM-B-1	GW-9973-113098-GS03	GW-9973-011199-GS03	G-081314-RB-GMB1-005	GW-9973-113098-GS02	GW-9973-011199-GS02	G-081314-RB-GMB1A-006
Sample Date:			9/26/1984	9/26/1984 (Duplicate)	9/16/1988	11/30/1998	1/11/1999	8/13/2014	11/30/1998	1/11/1999	8/13/2014
Parameters	Units	Criteria									
Hexachlorobenzene	µg/L	0.00029	-	-	-	1 U	1 U	-	1 U	1 U	-
Hexachlorobutadiene	µg/L	18.0	-	-	-	4 U	4 U	1.0 U	4 U	4 U	0.20 U
Hexachlorocyclopentadiene	µg/L	1100	-	-	-	10 U	10 U	-	10 U	10 U	-
Hexachloroethane	µg/L	3.30	-	-	-	10 U	10 U	-	10 U	10 U	-
Indeno(1,2,3-cd)pyrene	µg/L	0.018	-	-	-	10 U	10 U	-	10 U	10 U	-
Isophorone	µg/L	600	-	-	-	10 U	10 U	-	10 U	10 U	-
Naphthalene	µg/L	4710	-	-	-	10 U	10 U	-	10 U	10 U	-
Nitrobenzene	µg/L	690	-	-	-	10 U	10 U	-	10 U	10 U	-
N-Nitrosodi-n-propylamine	µg/L	0.510	-	-	-	10 U	10 U	-	10 U	10 U	-
N-Nitrosodiphenylamine	µg/L	6.00	-	-	-	10 U	10 U	-	10 U	10 U	-
Pentachlorophenol	µg/L	3.00	-	-	-	20 U	20 U	-	20 U	20 U	-
Phenanthrene	µg/L	NV	-	-	-	10 U	10 U	-	10 U	10 U	-
Phenol	µg/L	1700000	-	-	-	10 U	10 U	2.5 U	10 U	10 U	0.49 U
Pyrene	µg/L	4000	-	-	-	10 U	10 U	0.32 J	10 U	10 U	0.20 U
Metals											
Aluminum	µg/L	NV	-	-	-	643	2280	2130 J	26200	3780	2000
Antimony	µg/L	640	-	-	-	5 U	5 U	3.03 J	5 U	5 U	0.050 U
Arsenic	µg/L	0.14	-	-	-	37.0	38.8	50.7 J	5 U	5 U	0.4 J
Barium	µg/L	NV	-	-	-	1640	1660	1530 J	126	44.4	33.9
Beryllium	µg/L	1600	-	-	-	2 U	2 U	0.226 J	2 U	2 U	0.058
Cadmium	µg/L	8.8	-	-	-	5 U	7.6	4.85 J	5 U	5 U	0.016 J
Calcium	µg/L	NV	-	-	-	26400	29700	28000 J	50700	40700	42900
Chromium	µg/L	50 ²	-	-	-	12.0	19.5	19.5 J	22.0	11.2	2.91
Cobalt	µg/L	NV	-	-	-	5 U	7.2	6.05 J	5.0	5 U	1.15
Copper	µg/L	2.4	-	-	-	15.0	50.8	33.7 J	54.0	14.0	5.77
Iron	µg/L	NV	-	-	-	16000	26400	39000 J	25000	29900	18200
Lead	µg/L	8.1	-	-	-	63.0	421	253 J	19.0 U	7.6 U	0.744
Magnesium	µg/L	NV	-	-	-	50600	55600	53900 J	15000	12000	13900
Manganese	µg/L	100	-	-	-	128	198	164 J	398	296	219
Mercury	µg/L	0.025	-	-	-	0.2 U	0.3	0.0894 J	0.2 U	0.2 U	0.00162
Nickel	µg/L	8.2	-	-	-	92.0	110	119 J	17.0	7.7	3.49
Potassium	µg/L	NV	-	-	-	46000	44000	38000 J	6600	5100	5050
Selenium	µg/L	71	-	-	-	5 U	5 U	16.4 J	5 U	5 U	1.0 U
Silver	µg/L	1.9	-	-	-	1 U	1 U	0.051 UJ	1 U	1 U	0.020 U
Sodium	µg/L	NV	-	-	-	399000	414000	401000 J	215000	15000	14300
Thallium	µg/L	0.47	-	-	-	5 U	5 U	0.026 J	5 U	5 U	0.007 J
Vanadium	µg/L	NV	-	-	-	9.6	13.5	45.2 J	63.0	15.4	7.57
Zinc	µg/L	81	-	-	-	120	670	441 J	69.0	50 U	20.4

Table 4.2

Summary of Groundwater Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:			GM-B-1	GM-B-1	GM-B-1	GM-B-1	GM-B-1	GM-B-1	GM-B-1A	GM-B-1A	GM-B-1A
Sample ID:			GM-B-1	GM-B-1 (Duplicate)	GM-B-1	GW-9973-113098-GS03	GW-9973-011199-GS03	G-081314-RB-GMB1-005	GW-9973-113098-GS02	GW-9973-011199-GS02	G-081314-RB-GMB1A-006
Sample Date:			9/26/1984	9/26/1984	9/16/1988	11/30/1998	1/11/1999	8/13/2014	11/30/1998	1/11/1999	8/13/2014
				(Duplicate)							
Parameters	Units	Criteria									
PCBs											
Aroclor-1016 (PCB-1016)	µg/L	0.03	-	-	-	1.0 U	1.0 U	0.026 UJ	1.0 U	1.0 U	0.0050 UJ
Aroclor-1221 (PCB-1221)	µg/L	NV	-	-	-	1.0 U	1.0 U	0.051 UJ	1.0 U	1.0 U	0.010 UJ
Aroclor-1232 (PCB-1232)	µg/L	NV	-	-	-	1.0 U	1.0 U	0.026 UJ	1.0 U	1.0 U	0.0050 UJ
Aroclor-1242 (PCB-1242)	µg/L	NV	-	-	-	1.0 U	1.0 U	0.080 J	1.0 U	1.0 U	0.0017 J
Aroclor-1248 (PCB-1248)	µg/L	NV	-	-	-	1.0 U	1.0 U	0.026 UJ	1.0 U	1.0 U	0.0050 UJ
Aroclor-1254 (PCB-1254)	µg/L	0.03	-	-	-	1.0 U	1.0 U	0.67	1.0 U	1.0 U	0.0021 J
Aroclor-1260 (PCB-1260)	µg/L	0.000064	-	-	-	1.0 U	1.0 U	0.13	1.0 U	1.0 U	0.0050 U
Pesticides											
4,4'-DDD	µg/L	0.00031	-	-	-	-	-	0.0094 U	-	-	0.001 U
4,4'-DDE	µg/L	0.00022	-	-	-	0.05 U	0.057 J	0.0051 U	0.05 U	0.05 U	0.001 U
4,4'-DDE/DDD	µg/L	NV	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
4,4'-DDT	µg/L	0.00022	-	-	-	0.05 U	0.05 U	0.0051 U	0.05 U	0.05 U	0.001 U
Aldrin	µg/L	0.00005	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
alpha-BHC	µg/L	0.0049	-	-	-	0.05 U	0.05 U	0.0051 U	0.05 U	0.05 U	0.001 U
beta-BHC	µg/L	0.017	-	-	-	0.05 U	0.05 U	0.0051 U	0.05 U	0.05 U	0.001 U
Chlordane	µg/L	0.00059	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
delta-BHC	µg/L	0.0414	-	-	-	0.05 U	0.05 U	0.017 U	0.05 U	0.05 U	0.001 U
Dieldrin	µg/L	0.000054	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
Endosulfan I	µg/L	0.0087 ³	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
Endosulfan II	µg/L	0.0087 ³	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
Endosulfan sulfate	µg/L	NV	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
Endrin	µg/L	0.00230	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
Endrin aldehyde	µg/L	NV	-	-	-	0.05 U	0.21 J	0.0092 U	0.05 U	0.05 U	0.001 U
Endrin ketone	µg/L	NV	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
gamma-BHC (lindane)	µg/L	0.063	-	-	-	0.05 U	0.05 U	0.0056 U	0.05 U	0.05 U	0.001 U
Heptachlor	µg/L	0.000079	-	-	-	0.05 U	0.05 U	0.016 U	0.05 U	0.05 U	0.001 U
Heptachlor epoxide	µg/L	0.00029	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
Hexachlorobenzene	µg/L	0.00029	-	-	-	-	-	0.019 U	-	-	0.001 U
Methoxychlor	µg/L	0.03	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
Toxaphene	µg/L	0.0002	-	-	-	1.0 U	1.0 U	-	1.0 U	1.0 U	-
General Chemistry											
Cyanide (total)	µg/L	1	-	-	-	10 U	10 U	4.5 J	10 U	10 U	4.7 U

Table 4.2

Summary of Groundwater Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:	GM-B-2	GM-B-2	GM-B-2	GM-B-2	GM-B-2	GM-B-2	GM-B-2A	GM-B-2A	GM-B-2A	
Sample ID:	GM-B-2	GM-B-2 (Duplicate)	GM-B-2	GW-9973-120198-GS06	GW-9973-011299-GS06	G-081214-RB-GMB2-003	GW-9973-120198-GS05	GW-9973-120198-GS07	GW-9973-011199-GS05	
Sample Date:	9/26/1984	9/26/1984 (Duplicate)	9/16/1988	12/1/1998	1/12/1999	8/12/2014	12/1/1998	12/1/1998 (Duplicate)	1/11/1999	
Parameters	Units									
Volatile Organic Compounds										
1,1,1-Trichloroethane	µg/L	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	µg/L	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	µg/L	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	µg/L	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	5.0 U
1,1-Dichloroethene	µg/L	-	-	-	5.0 U	5.0 U	0.50 U	5.0 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	µg/L	-	-	-	-	-	2.0 U	-	-	-
1,2-Dichloroethane	µg/L	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	5.0 U
1,2-Dichloropropane	µg/L	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	5.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	-	-	-	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U
2-Hexanone	µg/L	-	-	-	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	-	-	-	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U
Acetone	µg/L	-	-	-	20 U	5.0 U	20 U	18 J	20 U	5.0 U
Benzene	µg/L	-	-	-	7.1	7.2	2.1	5.0 U	5.0 U	5.0 U
Bromodichloromethane	µg/L	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	5.0 U
Bromoform	µg/L	-	-	-	5.0 U	5.0 U	0.50 U	5.0 U	5.0 U	5.0 U
Bromomethane (Methyl bromide)	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
Carbon disulfide	µg/L	-	-	-	5.0 U	5.0 U	0.50 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	µg/L	-	-	-	5.0 U	5.0 U	0.50 U	5.0 U	5.0 U	5.0 U
Chlorobenzene	µg/L	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	5.0 U
Chloroethane	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
Chloroform (Trichloromethane)	µg/L	2 U	2 U	-	5.0 U	5.0 U	-	5.0 U	5.0 U	5.0 U
Chloromethane (Methyl chloride)	µg/L	-	-	-	10 U	10	0.50 U	10 U	10 U	10 U
cis-1,2-Dichloroethene	µg/L	-	-	-	5.0 U	5.0 U	0.20 J	5.0 U	5.0 U	5.0 U
cis-1,3-Dichloropropene	µg/L	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	5.0 U
Dibromochloromethane	µg/L	-	-	-	5.0 U	5.0 U	0.50 U	5.0 U	5.0 U	5.0 U
Ethylbenzene	µg/L	-	-	-	11	11	3.1	5.0 U	5.0 U	5.0 U
`	µg/L	-	-	-	-	-	1.3	-	-	-
Methylene chloride	µg/L	-	-	-	10 U	10 U	2.0 U	10 U	10 U	10 U
o-Xylene	µg/L	-	-	-	-	-	0.83	-	-	-
Styrene	µg/L	-	-	-	6.7	4.7 J	0.67	5.0 U	5.0 U	5.0 U
Tetrachloroethene	µg/L	-	-	1 U	5.0 U	5.0 U	0.50 U	5.0 U	5.0 U	5.0 U
Toluene	µg/L	-	-	-	38	38	9.8	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	µg/L	-	-	-	5.0 U	5.0 U	0.50 U	5.0 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	µg/L	-	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	5.0 U
Trichloroethene	µg/L	2 U	2.8	1 U	5.0 U	5.0 U	0.50 U	5.0 U	5.0 U	5.0 U
Vinyl chloride	µg/L	-	-	-	10 U	10 U	0.25 J	10 U	10 U	10 U
Xylenes (total)	µg/L	-	-	-	6.5	6.8	-	5.0 U	5.0 U	5.0 U

Table 4.2

Summary of Groundwater Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:		GM-B-2	GM-B-2	GM-B-2	GM-B-2	GM-B-2	GM-B-2	GM-B-2A	GM-B-2A	GM-B-2A
Sample ID:		GM-B-2	GM-B-2 (Duplicate)	GM-B-2	GW-9973-120198-GS06	GW-9973-011299-GS06	G-081214-RB-GMB2-003	GW-9973-120198-GS05	GW-9973-120198-GS07	GW-9973-011199-GS05
Sample Date:		9/26/1984	9/26/1984 (Duplicate)	9/16/1988	12/1/1998	1/12/1999	8/12/2014	12/1/1998	12/1/1998 (Duplicate)	1/11/1999
Parameters	Units									
Semi-volatile Organic Compounds										
1,2,4-Trichlorobenzene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
1,2-Dichlorobenzene	µg/L	-	-	-	6 U	6 U	-	6 U	6 U	6 U
1,3-Dichlorobenzene	µg/L	-	-	-	6 U	6 U	-	6 U	6 U	6 U
1,4-Dichlorobenzene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
2,4,5-Trichlorophenol	µg/L	-	-	-	25 U	25 U	-	25 U	25 U	25 U
2,4,6-Trichlorophenol	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
2,4-Dichlorophenol	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
2,4-Dimethylphenol	µg/L	-	-	-	36	38	12	10 U	10 U	10 U
2,4-Dinitrophenol	µg/L	-	-	-	25 U	25 U	-	25 U	25 U	25 U
2,4-Dinitrotoluene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
2,6-Dinitrotoluene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
2-Chloronaphthalene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
2-Chlorophenol	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
2-Methylnaphthalene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
2-Methylphenol	µg/L	-	-	-	10 U	10 U	0.60	10 U	10 U	10 U
2-Nitroaniline	µg/L	-	-	-	25 U	25 U	-	25 U	25 U	25 U
2-Nitrophenol	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
3,3'-Dichlorobenzidine	µg/L	-	-	-	20 U	20 U	-	20 U	20 U	20 U
3-Nitroaniline	µg/L	-	-	-	25 U	25 U	-	25 U	25 U	25 U
4,6-Dinitro-2-methylphenol	µg/L	-	-	-	25 U	25 U	9.5 U	25 U	25 U	25 U
4-Bromophenyl phenyl ether	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
4-Chloro-3-methylphenol	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
4-Chloroaniline	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
4-Methylphenol	µg/L	-	-	-	10 U	10 U	0.48 U	10 U	10 U	10 U
4-Nitroaniline	µg/L	-	-	-	25 U	25 U	-	25 U	25 U	25 U
4-Nitrophenol	µg/L	-	-	-	25 U	25 U	-	25 U	25 U	25 U
Acenaphthene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
Acenaphthylene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
Anthracene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	-	-	-	1 U	1 U	-	1 U	1 U	1 U
Benzo(b)fluoranthene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
bis(2-Chloroethyl)ether	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	-	-	-	6 U	3.6 J	1.9 J	11	13	14
Butyl benzylphthalate (BBP)	µg/L	-	-	-	10 U	10 U	0.19 U	10 U	10 U	10 U
Carbazole	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
Chrysene	µg/L	-	-	-	10 U	10 U	0.19 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
Dibenzofuran	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
Diethyl phthalate	µg/L	-	-	-	15	33	0.95 U	10 U	10 U	10 U
Dimethyl phthalate	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
Di-n-butylphthalate (DBP)	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U
Di-n-octyl phthalate (DnOP)	µg/L	-	-	-	10 U	10 U	0.19 U	10 U	10 U	10 U
Fluoranthene	µg/L	-	-	-	10 U	10 U	0.16 J	10 U	10 U	10 U
Fluorene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U	10 U

Table 4.2

Summary of Groundwater Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:	GM-B-2	GM-B-2	GM-B-2	GM-B-2	GM-B-2	GM-B-2	GM-B-2A	GM-B-2A	GM-B-2A
Sample ID:	GM-B-2	GM-B-2 (Duplicate)	GM-B-2	GW-9973-120198-GS06	GW-9973-011299-GS06	G-081214-RB-GMB2-003	GW-9973-120198-GS05	GW-9973-120198-GS07	GW-9973-011199-GS05
Sample Date:	9/26/1984	9/26/1984 (Duplicate)	9/16/1988	12/1/1998	1/12/1999	8/12/2014	12/1/1998	12/1/1998 (Duplicate)	1/11/1999
Parameters	Units								
Hexachlorobenzene	µg/L	-	-	-	1 U	1 U	-	1 U	1 U
Hexachlorobutadiene	µg/L	-	-	-	4 U	4 U	0.19 U	4 U	4 U
Hexachlorocyclopentadiene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U
Hexachloroethane	µg/L	-	-	-	10 U	10 U	-	10 U	10 U
Indeno(1,2,3-cd)pyrene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U
Isophorone	µg/L	-	-	-	10 U	10 U	-	10 U	10 U
Naphthalene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U
Nitrobenzene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U
N-Nitrosodi-n-propylamine	µg/L	-	-	-	10 U	10 U	-	10 U	10 U
N-Nitrosodiphenylamine	µg/L	-	-	-	10 U	10 U	-	10 U	10 U
Pentachlorophenol	µg/L	-	-	-	20 U	20 U	-	20 U	20 U
Phenanthrene	µg/L	-	-	-	10 U	10 U	-	10 U	10 U
Phenol	µg/L	-	-	-	10 U	10 U	0.48 U	10 U	10 U
Pyrene	µg/L	-	-	-	10 U	10 U	0.19 J	10 U	10 U
Metals									
Aluminum	µg/L	-	-	-	100 U	161	148	22100	22700
Antimony	µg/L	-	-	-	5 U	5 U	0.374	5 U	5 U
Arsenic	µg/L	-	-	-	5 U	17.4	9.5	12.0	14.0
Barium	µg/L	-	-	-	49.0 U	4290	2430	130	131
Beryllium	µg/L	-	-	-	2 U	2 U	0.028	2 U	2 U
Cadmium	µg/L	-	-	-	5 U	5 U	0.724	5 U	5 U
Calcium	µg/L	-	-	-	26200	129000	81300	20400	19800
Chromium	µg/L	-	-	-	5 U	5 U	2.38	113	108
Cobalt	µg/L	-	-	-	5 U	6.9	5.64	7.6	7.1
Copper	µg/L	-	-	-	5 U	8.2	6.17	66.0	59.0
Iron	µg/L	-	-	-	50 U	24800	44900	42400	39400
Lead	µg/L	-	-	-	3 U	62.7	42.8	96.0	92.0
Magnesium	µg/L	-	-	-	2450	23200	28300	15000	14300
Manganese	µg/L	-	-	-	5 U	143	228	636	606
Mercury	µg/L	-	-	-	0.2 U	0.2 U	0.0166	0.2	0.3
Nickel	µg/L	-	-	-	5 U	51.7	43.5	34.0	33.0
Potassium	µg/L	-	-	-	1400	14000	17300	4300	4100
Selenium	µg/L	-	-	-	5 U	5 U	4.5	5 U	5 U
Silver	µg/L	-	-	-	1 U	1 U	0.026 U	1 U	1 U
Sodium	µg/L	-	-	-	42000	166000	185000	12000	12000
Thallium	µg/L	-	-	-	5 U	5 U	0.020 U	5 U	5 U
Vanadium	µg/L	-	-	-	5 U	5 U	1.37	96.0	92.0
Zinc	µg/L	-	-	-	50 U	333	348	251	249

Table 4.2
Summary of Groundwater Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:		GM-B-2	GM-B-2	GM-B-2	GM-B-2	GM-B-2	GM-B-2	GM-B-2A	GM-B-2A	GM-B-2A
Sample ID:		GM-B-2	GM-B-2 (Duplicate)	GM-B-2	GW-9973-120198-GS06	GW-9973-011299-GS06	G-081214-RB-GMB2-003	GW-9973-120198-GS05	GW-9973-120198-GS07	GW-9973-011199-GS05
Sample Date:		9/26/1984	9/26/1984 (Duplicate)	9/16/1988	12/1/1998	1/12/1999	8/12/2014	12/1/1998	12/1/1998 (Duplicate)	1/11/1999
Parameters	Units									
PCBs										
Aroclor-1016 (PCB-1016)	µg/L	-	-	-	1.0 U	1.0 U	0.0050 UJ	1.0 U	1.0 U	1.0 U
Aroclor-1221 (PCB-1221)	µg/L	-	-	-	1.0 U	1.0 U	0.010 UJ	1.0 U	1.0 U	1.0 U
Aroclor-1232 (PCB-1232)	µg/L	-	-	-	1.0 U	1.0 U	0.0050 UJ	1.0 U	1.0 U	1.0 U
Aroclor-1242 (PCB-1242)	µg/L	-	-	-	1.0 U	1.0 U	0.029 J	1.0 U	1.0 U	1.0 U
Aroclor-1248 (PCB-1248)	µg/L	-	-	-	1.0 U	1.0 U	0.0050 UJ	1.0 U	1.0 U	1.0 U
Aroclor-1254 (PCB-1254)	µg/L	-	-	-	1.0 U	1.0 U	0.037	1.0 U	1.0 U	1.0 U
Aroclor-1260 (PCB-1260)	µg/L	-	-	-	1.0 U	1.0 U	0.028	1.0 U	1.0 U	1.0 U
Pesticides										
4,4'-DDD	µg/L	-	-	-	-	-	0.005 U	-	-	-
4,4'-DDE	µg/L	-	-	-	0.05 U	0.05 U	0.005 U	0.05 U	0.05 U	0.05 U
4,4'-DDE/DDD	µg/L	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	0.05 U
4,4'-DDT	µg/L	-	-	-	0.05 U	0.05 U	0.005 U	0.05 U	0.05 U	0.05 U
Aldrin	µg/L	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	0.05 U
alpha-BHC	µg/L	-	-	-	0.05 U	0.05 U	0.005 U	0.05 U	0.05 U	0.05 U
beta-BHC	µg/L	-	-	-	0.05 U	0.05 U	0.005 U	0.05 U	0.05 U	0.05 U
Chlordane	µg/L	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	0.05 U
delta-BHC	µg/L	-	-	-	0.05 U	0.05 U	0.005 U	0.06 J	0.05 U	0.05 U
Dieldrin	µg/L	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	0.05 U
Endosulfan I	µg/L	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	0.05 U
Endosulfan II	µg/L	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	0.05 U
Endosulfan sulfate	µg/L	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	0.05 U
Endrin	µg/L	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	0.05 U
Endrin aldehyde	µg/L	-	-	-	0.05 U	0.05 U	0.005 U	0.05 U	0.05 U	0.05 U
Endrin ketone	µg/L	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	0.05 U
gamma-BHC (lindane)	µg/L	-	-	-	0.05 U	0.05 U	0.005 U	0.10 J	0.05 U	0.05 U
Heptachlor	µg/L	-	-	-	0.05 U	0.05 U	0.005 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	µg/L	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	0.05 U
Hexachlorobenzene	µg/L	-	-	-	-	-	0.0065 U	-	-	-
Methoxychlor	µg/L	-	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	0.05 U
Toxaphene	µg/L	-	-	-	1.0 U	1.0 U	-	1.0 U	1.0 U	1.0 U
General Chemistry										
Cyanide (total)	µg/L	-	-	-	10 U	10 U	4.7 U	10 U	10 U	10 U

Table 4.2

Summary of Groundwater Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:	GM-B-2A	GM-B-2A	GM-B-2A	GM-B-3	GM-B-3	GM-B-3	GM-B-3R	GM-B-3R	GM-B-3R	GM-B-6
Sample ID:	GW-9973-011199-GS07	G-081214-RB-GMB2A-001	G-081214-RB-FD-002	GM-B-3	GM-B-3 (Duplicate)	GM-B-3	GW-9973-113098-GS01	GW-9973-011199-GS01	G-081314-RB-GMB3R-004	GM-B-6
Sample Date:	1/11/1999 (Duplicate)	8/12/2014	8/12/2014 (Duplicate)	9/26/1984	9/26/1984 (Duplicate)	9/16/1988	11/30/1998	1/11/1999	8/13/2014	10/1/1984
Parameters	Units									
Volatile Organic Compounds										
1,1,1-Trichloroethane	µg/L	5.0 U	-	-	-	-	5.0 U	5.0 U	-	-
1,1,2,2-Tetrachloroethane	µg/L	5.0 U	-	-	-	-	5.0 U	5.0 U	-	-A1
1,1,2-Trichloroethane	µg/L	5.0 U	-	-	-	-	5.0 U	5.0 U	-	-
1,1-Dichloroethane	µg/L	5.0 U	-	-	-	-	5.0 U	5.0 U	-	-
1,1-Dichloroethene	µg/L	5.0 U	0.50 U	0.50 U	-	-	5.0 U	5.0 U	0.50 U	-
1,2,4-Trichlorobenzene	µg/L	-	2.0 U	2.0 U	-	-	-	-	2.0 U	-
1,2-Dichloroethane	µg/L	5.0 U	-	-	-	-	5.0 U	5.0 U	-	-
1,2-Dichloropropane	µg/L	5.0 U	-	-	-	-	5.0 U	5.0 U	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	5.0 U	20 U	20 U	-	-	5.0 U	5.0 U	20 U	-
2-Hexanone	µg/L	5.0 U	20 U	20 U	-	-	5.0 U	5.0 U	20 U	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	5.0 U	20 U	20 U	-	-	5.0 U	5.0 U	20 U	-
Acetone	µg/L	5.0 U	20 U	20 U	-	-	14 J	9.8 U	20 U	-
Benzene	µg/L	5.0 U	0.50 U	0.50 U	-	-	5.0 U	5.0 U	0.50 U	-
Bromodichloromethane	µg/L	5.0 U	-	-	-	-	5.0 U	5.0 U	-	-
Bromoform	µg/L	5.0 U	0.50 U	0.50 U	-	-	5.0 U	5.0 U	0.50 U	-
Bromomethane (Methyl bromide)	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
Carbon disulfide	µg/L	5.0 U	0.50 U	0.50 U	-	-	5.0 U	5.0 U	0.50 U	-
Carbon tetrachloride	µg/L	5.0 U	0.50 U	0.50 U	-	-	5.0 U	5.0 U	0.50 U	-
Chlorobenzene	µg/L	5.0 U	-	-	-	-	5.0 U	5.0 U	-	-
Chloroethane	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
Chloroform (Trichloromethane)	µg/L	5.0 U	-	-	2 U	2 U	5.0 U	5.0 U	-	1500 U
Chloromethane (Methyl chloride)	µg/L	10 U	0.50 U	0.50 U	-	-	10 U	10 U	0.50 U	-
cis-1,2-Dichloroethene	µg/L	5.0 U	0.50 U	0.50 U	-	-	5.0 U	5.0 U	0.50 U	-
cis-1,3-Dichloropropene	µg/L	5.0 U	-	-	-	-	5.0 U	5.0 U	-	-
Dibromochloromethane	µg/L	5.0 U	0.50 U	0.50 U	-	-	5.0 U	5.0 U	0.50 U	-
Ethylbenzene	µg/L	5.0 U	0.50 U	0.50 U	-	-	5.0 U	5.0 U	0.50 U	-
`	µg/L	-	0.50 U	0.50 U	-	-	-	-	0.50 U	-
Methylene chloride	µg/L	10 U	2.0 U	2.0 U	-	-	10 U	10 U	2.0 U	-
o-Xylene	µg/L	-	0.50 U	0.50 U	-	-	-	-	0.50 U	-
Styrene	µg/L	5.0 U	0.50 U	0.50 U	-	-	5.0 U	5.0 U	0.50 U	-
Tetrachloroethene	µg/L	5.0 U	0.50 U	0.50 U	2 U	2 U	1 U	5.0 U	5.0 U	0.50 U
Toluene	µg/L	5.0 U	0.50 U	0.50 U	-	-	-	5.0 U	5.0 U	0.50 U
trans-1,2-Dichloroethene	µg/L	5.0 U	0.50 U	0.50 U	-	-	-	5.0 U	5.0 U	0.50 U
trans-1,3-Dichloropropene	µg/L	5.0 U	-	-	-	-	-	5.0 U	5.0 U	-
Trichloroethene	µg/L	5.0 U	0.50 U	0.50 U	2 U	2 U	1 U	5.0 U	5.0 U	0.50 U
Vinyl chloride	µg/L	10 U	0.50 U	0.50 U	-	-	-	10 U	10 U	0.50 U
Xylenes (total)	µg/L	5.0 U	-	-	-	-	-	5.0 U	5.0 U	-

Table 4.2

Summary of Groundwater Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:	GM-B-2A	GM-B-2A	GM-B-2A	GM-B-3	GM-B-3	GM-B-3	GM-B-3R	GM-B-3R	GM-B-3R	GM-B-6
Sample ID:	GW-9973-011199-GS07	G-081214-RB-GMB2A-001	G-081214-RB-FD-002	GM-B-3	GM-B-3 (Duplicate)	GM-B-3	GW-9973-113098-GS01	GW-9973-011199-GS01	G-081314-RB-GMB3R-004	GM-B-6
Sample Date:	1/11/1999 (Duplicate)	8/12/2014	8/12/2014 (Duplicate)	9/26/1984	9/26/1984 (Duplicate)	9/16/1988	11/30/1998	1/11/1999	8/13/2014	10/1/1984
Parameters	Units									
Semi-volatile Organic Compounds										
1,2,4-Trichlorobenzene	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
1,2-Dichlorobenzene	µg/L	6 U	-	-	-	-	6 U	6 U	-	-
1,3-Dichlorobenzene	µg/L	6 U	-	-	-	-	6 U	6 U	-	-
1,4-Dichlorobenzene	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
2,4,5-Trichlorophenol	µg/L	25 U	-	-	-	-	25 U	25 U	-	-
2,4,6-Trichlorophenol	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
2,4-Dichlorophenol	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
2,4-Dimethylphenol	µg/L	10 U	3.8 U	3.8 U	-	-	10 U	10 U	4.0 U	-
2,4-Dinitrophenol	µg/L	25 U	-	-	-	-	25 U	25 U	-	-
2,4-Dinitrotoluene	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
2,6-Dinitrotoluene	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
2-Chloronaphthalene	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
2-Chlorophenol	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
2-Methylnaphthalene	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
2-Methylphenol	µg/L	10 U	0.48 U	0.48 U	-	-	10 U	10 U	0.50 U	-
2-Nitroaniline	µg/L	25 U	-	-	-	-	25 U	25 U	-	-
2-Nitrophenol	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
3,3'-Dichlorobenzidine	µg/L	20 U	-	-	-	-	20 U	20 U	-	-
3-Nitroaniline	µg/L	25 U	-	-	-	-	25 U	25 U	-	-
4,6-Dinitro-2-methylphenol	µg/L	25 U	1.9 U	1.9 U	-	-	25 U	25 U	2.0 U	-
4-Bromophenyl phenyl ether	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
4-Chloro-3-methylphenol	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
4-Chloroaniline	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
4-Chlorophenyl phenyl ether	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
4-Methylphenol	µg/L	10 U	0.48 U	0.48 U	-	-	10 U	10 U	0.50 U	-
4-Nitroaniline	µg/L	25 U	-	-	-	-	25 U	25 U	-	-
4-Nitrophenol	µg/L	25 U	-	-	-	-	25 U	25 U	-	-
Acenaphthene	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
Acenaphthylene	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
Anthracene	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
Benzo(a)anthracene	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
Benzo(a)pyrene	µg/L	1 U	-	-	-	-	1 U	1 U	-	-
Benzo(b)fluoranthene	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
Benzo(g,h,i)perylene	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
Benzo(k)fluoranthene	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
bis(2-Chloroethoxy)methane	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
bis(2-Chloroethyl)ether	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	18	6.6 J	5.3 J	-	-	6 U	6 U	1.0 U	-
Butyl benzylphthalate (BBP)	µg/L	10 U	0.19 U	0.19 U	-	-	10 U	10 U	0.20 U	-
Carbazole	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
Chrysene	µg/L	10 U	0.19 U	0.19 U	-	-	10 U	10 U	0.20 U	-
Dibenz(a,h)anthracene	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
Dibenzofuran	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
Diethyl phthalate	µg/L	10 U	0.19 U	0.19 U	-	-	10 U	10 U	0.20 U	-
Dimethyl phthalate	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
Di-n-butylphthalate (DBP)	µg/L	10 U	-	-	-	-	10 U	10 U	-	-
Di-n-octyl phthalate (DnOP)	µg/L	10 U	0.19 U	0.19 U	-	-	10 U	10 U	0.20 U	-
Fluoranthene	µg/L	10 U	0.039 J	0.028 J	-	-	10 U	10 U	0.20 U	-
Fluorene	µg/L	10 U	-	-	-	-	10 U	10 U	-	-

Table 4.2

Summary of Groundwater Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:		GM-B-2A	GM-B-2A	GM-B-2A	GM-B-3	GM-B-3	GM-B-3	GM-B-3R	GM-B-3R	GM-B-3R	GM-B-6
Sample ID:		GW-9973-011199-GS07	G-081214-RB-GMB2A-001	G-081214-RB-FD-002	GM-B-3	GM-B-3 (Duplicate)	GM-B-3	GW-9973-113098-GS01	GW-9973-011199-GS01	G-081314-RB-GMB3R-004	GM-B-6
Sample Date:		1/11/1999 (Duplicate)	8/12/2014	8/12/2014 (Duplicate)	9/26/1984	9/26/1984 (Duplicate)	9/16/1988	11/30/1998	1/11/1999	8/13/2014	10/1/1984
Parameters	Units										
Hexachlorobenzene	µg/L	1 U	-	-	-	-	-	1 U	1 U	-	-
Hexachlorobutadiene	µg/L	4 U	0.19 U	0.19 U	-	-	-	4 U	4 U	0.20 U	-
Hexachlorocyclopentadiene	µg/L	10 U	-	-	-	-	-	10 U	10 U	-	-
Hexachloroethane	µg/L	10 U	-	-	-	-	-	10 U	10 U	-	-
Indeno(1,2,3-cd)pyrene	µg/L	10 U	-	-	-	-	-	10 U	10 U	-	-
Isophorone	µg/L	10 U	-	-	-	-	-	10 U	10 U	-	-
Naphthalene	µg/L	10 U	-	-	-	-	-	10 U	10 U	-	-
Nitrobenzene	µg/L	10 U	-	-	-	-	-	10 U	10 U	-	-
N-Nitrosodi-n-propylamine	µg/L	10 U	-	-	-	-	-	10 U	10 U	-	-
N-Nitrosodiphenylamine	µg/L	10 U	-	-	-	-	-	10 U	10 U	-	-
Pentachlorophenol	µg/L	20 U	-	-	-	-	-	20 U	20 U	-	-
Phenanthrene	µg/L	10 U	-	-	-	-	-	10 U	10 U	-	-
Phenol	µg/L	10 U	0.48 U	0.48 U	-	-	-	10 U	10 U	0.50 U	-
Pyrene	µg/L	10 U	0.19 U	0.029 J	-	-	-	10 U	10 U	0.20 U	-
Metals											
Aluminum	µg/L	4620	1330	1370	-	-	-	4130	3420	730	-
Antimony	µg/L	5 U	0.116	0.120	-	-	-	5 U	5 U	0.402	-
Arsenic	µg/L	5 U	3.4	3.5	-	-	-	8.2	5 U	4.7	-
Barium	µg/L	49.3	17.9	18.4	-	-	-	120	93.5	79.3	-
Beryllium	µg/L	2 U	0.055	0.058	-	-	-	2 U	2 U	0.034	-
Cadmium	µg/L	5 U	0.142	0.168	-	-	-	5 U	5 U	0.068	-
Calcium	µg/L	15400	13800	13900	-	-	-	42200	41200	45100	-
Chromium	µg/L	21.9	7.22	7.83	-	-	-	6.6	10.0	2.82	-
Cobalt	µg/L	5 U	0.895	0.957	-	-	-	5 U	5 U	0.998	-
Copper	µg/L	13.0	6.35	6.64	-	-	-	18.0	17.9	5.06	-
Iron	µg/L	19900	16800	17300	-	-	-	38100	72700	32700	-
Lead	µg/L	24.4	7.42	8.10	-	-	-	16.0 U	19.0	3.15	-
Magnesium	µg/L	11400	11300	11400	-	-	-	50300	49500	32900	-
Manganese	µg/L	416	366	375	-	-	-	6070	6310	2010	-
Mercury	µg/L	0.2 U	0.00407	0.00326	-	-	-	0.2	0.2	0.0101	-
Nickel	µg/L	8.7	4.04	4.45	-	-	-	10.0	6.7	3.62	-
Potassium	µg/L	3200	3110	3190	-	-	-	33000	27000	11400	-
Selenium	µg/L	5 U	0.4 J	1.0 U	-	-	-	5 U	5 U	1.1	-
Silver	µg/L	1 U	0.020 U	0.020 U	-	-	-	1 U	1 U	0.022 U	-
Sodium	µg/L	11000	9420	9520	-	-	-	391000	264000	98300	-
Thallium	µg/L	5 U	0.007 J	0.008 J	-	-	-	5 U	5 U	0.020 U	-
Vanadium	µg/L	17.3	6.51	7.08	-	-	-	14.0	13.9	3.10	-
Zinc	µg/L	81.7	42.1	46.7	-	-	-	112	109	21.7	-

Table 4.2

Summary of Groundwater Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:		GM-B-2A	GM-B-2A	GM-B-2A	GM-B-3	GM-B-3	GM-B-3	GM-B-3R	GM-B-3R	GM-B-3R	GM-B-6
Sample ID:		GW-9973-011199-GS07	G-081214-RB-GMB2A-001	G-081214-RB-FD-002	GM-B-3	GM-B-3 (Duplicate)	GM-B-3	GW-9973-113098-GS01	GW-9973-011199-GS01	G-081314-RB-GMB3R-004	GM-B-6
Sample Date:		1/11/1999 (Duplicate)	8/12/2014	8/12/2014 (Duplicate)	9/26/1984	9/26/1984 (Duplicate)	9/16/1988	11/30/1998	1/11/1999	8/13/2014	10/1/1984
Parameters	Units										
PCBs											
Aroclor-1016 (PCB-1016)	µg/L	1.0 U	0.0051 UJ	0.0050 UJ	-	-	-	1.0 U	1.0 U	0.0050 UJ	-
Aroclor-1221 (PCB-1221)	µg/L	1.0 U	0.011 UJ	0.010 UJ	-	-	-	1.0 U	1.0 U	0.010 UJ	-
Aroclor-1232 (PCB-1232)	µg/L	1.0 U	0.0051 UJ	0.0050 UJ	-	-	-	1.0 U	1.0 U	0.0050 UJ	-
Aroclor-1242 (PCB-1242)	µg/L	1.0 U	0.0052 J	0.0045 J	-	-	-	1.0 U	1.0 U	0.0019 J	-
Aroclor-1248 (PCB-1248)	µg/L	1.0 U	0.0051 UJ	0.0050 UJ	-	-	-	1.0 U	1.0 U	0.0050 UJ	-
Aroclor-1254 (PCB-1254)	µg/L	1.0 U	0.029	0.027	-	-	-	1.0 U	1.0 U	0.013	-
Aroclor-1260 (PCB-1260)	µg/L	1.0 U	0.026	0.022	-	-	-	1.0 U	1.0 U	0.035	-
Pesticides											
4,4'-DDD	µg/L	-	0.003 U	0.0028 U	-	-	-	-	-	0.001 U	-
4,4'-DDE	µg/L	0.05 U	0.0011 U	0.001 U	-	-	-	0.05 U	0.05 U	0.001 U	-
4,4'-DDE/DDD	µg/L	0.05 U	-	-	-	-	-	0.05 U	0.05 U	-	-
4,4'-DDT	µg/L	0.05 U	0.0011 U	0.001 U	-	-	-	0.05 U	0.05 U	0.001 U	-
Aldrin	µg/L	0.05 U	-	-	-	-	-	0.05 U	0.05 U	-	-
alpha-BHC	µg/L	0.05 U	0.0011 U	0.001 U	-	-	-	0.05 U	0.05 U	0.001 U	-
beta-BHC	µg/L	0.05 U	0.0011 U	0.001 U	-	-	-	0.05 U	0.05 U	0.001 U	-
Chlordane	µg/L	0.05 U	-	-	-	-	-	0.05 U	0.05 U	-	-
delta-BHC	µg/L	0.05 U	0.0011 U	0.001 U	-	-	-	0.05 U	0.05 U	0.001 U	-
Dieldrin	µg/L	0.05 U	-	-	-	-	-	0.05 U	0.05 U	-	-
Endosulfan I	µg/L	0.05 U	-	-	-	-	-	0.05 U	0.05 U	-	-
Endosulfan II	µg/L	0.05 U	-	-	-	-	-	0.05 U	0.05 U	-	-
Endosulfan sulfate	µg/L	0.05 U	-	-	-	-	-	0.05 U	0.05 U	-	-
Endrin	µg/L	0.05 U	-	-	-	-	-	0.05 U	0.05 U	-	-
Endrin aldehyde	µg/L	0.05 U	0.0022 U	0.0018 U	-	-	-	0.05 U	0.05 U	-	-
Endrin ketone	µg/L	0.05 U	-	-	-	-	-	0.05 U	0.05 U	-	-
gamma-BHC (lindane)	µg/L	0.05 U	0.0011 U	0.001 U	-	-	-	0.05 U	0.05 U	0.001 U	-
Heptachlor	µg/L	0.05 U	0.0011 U	0.001 U	-	-	-	0.05 U	0.05 U	0.001 U	-
Heptachlor epoxide	µg/L	0.05 U	-	-	-	-	-	0.05 U	0.05 U	-	-
Hexachlorobenzene	µg/L	-	0.0011 U	0.001 U	-	-	-	-	-	0.001 U	-
Methoxychlor	µg/L	0.05 U	-	-	-	-	-	0.05 U	0.05 U	-	-
Toxaphene	µg/L	1.0 U	-	-	-	-	-	1.0 U	1.0 U	-	-
General Chemistry											
Cyanide (total)	µg/L	10 U	4.7 U	4.7 U	-	-	-	10 U	10 U	4.7 U	-

Table 4.2

Summary of Groundwater Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:		GM-B-6	GM-B-6	GM-B-6A	GM-B-6A	GM-B-6A	GM-B-6R	GM-B-6R	GM-B-6R
Sample ID:		GM-B-6 (Duplicate)	GM-B-6	GW-9973-120198-GS08	GW-9973-011299-GS08	G-081314-RB-GMB6A-007	GW-9973-120198-GS09	GW-9973-011299-GS09	G-081314-RB-GMB6R-008
Sample Date:		10/1/1984	9/6/1988	12/1/1998	1/12/1999	8/13/2014	12/1/1998	1/12/1999	8/13/2014
		(Duplicate)							
Parameters	Units								
Volatile Organic Compounds									
1,1,1-Trichloroethane	µg/L	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
1,1,2,2-Tetrachloroethane	µg/L	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
1,1,2-Trichloroethane	µg/L	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
1,1-Dichloroethane	µg/L	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
1,1-Dichloroethene	µg/L	-	-	5.0 U	5.0 U	0.50 U	9.1	12	2.2
1,2,4-Trichlorobenzene	µg/L	-	-	-	-	2.0 U	-	-	2.0 U
1,2-Dichloroethane	µg/L	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
1,2-Dichloropropane	µg/L	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	-	-	5.0 U	5.0 U	20 U	48 U	52	22
2-Hexanone	µg/L	-	-	5.0 U	5.0 U	20 U	5.0 U	5.0 U	20 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	-	-	5.0 U	5.0 U	20 U	9.1	11	20 U
Acetone	µg/L	-	-	20 U	5.0 U	20 U	430	420	28
Benzene	µg/L	-	-	5.0 U	5.0 U	0.50 U	11	12	4.4
Bromodichloromethane	µg/L	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
Bromoform	µg/L	-	-	5.0 U	5.0 U	0.50 U	5.0 U	5.0 U	0.50 U
Bromomethane (Methyl bromide)	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Carbon disulfide	µg/L	-	-	5.0 U	5.0 U	0.50 U	9.0	10	0.19 J
Carbon tetrachloride	µg/L	-	-	5.0 U	5.0 U	0.50 U	5.0 U	5.0 U	0.50 U
Chlorobenzene	µg/L	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
Chloroethane	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Chloroform (Trichloromethane)	µg/L	1500 U	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
Chloromethane (Methyl chloride)	µg/L	-	-	10 U	10 U	0.50 U	10 U	5.2 J	0.50 U
cis-1,2-Dichloroethene	µg/L	-	-	5.0 U	5.0 U	0.50 U	450	570	100
cis-1,3-Dichloropropene	µg/L	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
Dibromochloromethane	µg/L	-	-	5.0 U	5.0 U	0.50 U	5.0 U	5.0 U	0.50 U
Ethylbenzene	µg/L	-	-	5.0 U	5.0 U	0.50 U	6.4	5.6	2.7
`	µg/L	-	-	-	-	0.50 U	-	-	3.0
Methylene chloride	µg/L	-	-	10 U	10 U	2.0 U	10 U	10 U	2.0 U
o-Xylene	µg/L	-	-	-	-	0.50 U	-	-	1.9
Styrene	µg/L	-	-	5.0 U	5.0 U	0.50 U	17	14	4.0
Tetrachloroethene	µg/L	1400	3900	8.0	5.0 U	0.50 U	1800	2800	260
Toluene	µg/L	-	-	5.0 U	5.0 U	0.50 U	15	18	8.2
trans-1,2-Dichloroethene	µg/L	-	-	5.0 U	5.0 U	0.25 J	160	190	57
trans-1,3-Dichloropropene	µg/L	-	-	5.0 U	5.0 U	-	5.0 U	5.0 U	-
Trichloroethene	µg/L	8800	4950	5.0 U	5.0 U	0.50 U	3800	6500	270
Vinyl chloride	µg/L	-	-	10 U	10 U	0.31 J	75	98	15
Xylenes (total)	µg/L	-	-	5.0 U	5.0 U	-	16	14	-

Table 4.2

Summary of Groundwater Analytical Data 1913 Marine View Drive Tacoma, Washington									
Sample Location:	GM-B-6	GM-B-6	GM-B-6A	GM-B-6A	GM-B-6A	GM-B-6R	GM-B-6R	GM-B-6R	
Sample ID:	GM-B-6 (Duplicate)	GM-B-6	GW-9973-120198-GS08	GW-9973-011299-GS08	G-081314-RB-GMB6A-007	GW-9973-120198-GS09	GW-9973-011299-GS09	G-081314-RB-GMB6R-008	
Sample Date:	10/1/1984	9/6/1988	12/1/1998	1/12/1999	8/13/2014	12/1/1998	1/12/1999	8/13/2014	
Parameters	Units	(Duplicate)							
Semi-volatile Organic Compounds									
1,2,4-Trichlorobenzene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
1,2-Dichlorobenzene	µg/L	-	-	6 U	6 U	-	6 U	6 U	-
1,3-Dichlorobenzene	µg/L	-	-	6 U	6 U	-	6 U	6 U	-
1,4-Dichlorobenzene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
2,4,5-Trichlorophenol	µg/L	-	-	25 U	25 U	-	25 U	25 U	-
2,4,6-Trichlorophenol	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
2,4-Dichlorophenol	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
2,4-Dimethylphenol	µg/L	-	-	10 U	10 U	3.9 U	280	380	7.7
2,4-Dinitrophenol	µg/L	-	-	25 U	25 U	-	25 U	25 U	-
2,4-Dinitrotoluene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
2,6-Dinitrotoluene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
2-Chloronaphthalene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
2-Chlorophenol	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
2-Methylnaphthalene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
2-Methylphenol	µg/L	-	-	10 U	10 U	0.49 U	20	25	2.3
2-Nitroaniline	µg/L	-	-	25 U	25 U	-	25 U	25 U	-
2-Nitrophenol	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
3,3'-Dichlorobenzidine	µg/L	-	-	20 U	20 U	-	20 U	20 U	-
3-Nitroaniline	µg/L	-	-	25 U	25 U	-	25 U	25 U	-
4,6-Dinitro-2-methylphenol	µg/L	-	-	25 U	25 U	2.0 U	25 U	25 U	2.0 U
4-Bromophenyl phenyl ether	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
4-Chloro-3-methylphenol	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
4-Chloroaniline	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
4-Chlorophenyl phenyl ether	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
4-Methylphenol	µg/L	-	-	10 U	10 U	0.49 U	520	640	16
4-Nitroaniline	µg/L	-	-	25 U	25 U	-	25 U	25 U	-
4-Nitrophenol	µg/L	-	-	25 U	25 U	-	25 U	25 U	-
Acenaphthene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Acenaphthylene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Anthracene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Benzo(a)anthracene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Benzo(a)pyrene	µg/L	-	-	1 U	1 U	-	1 U	1 U	-
Benzo(b)fluoranthene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Benzo(g,h,i)perylene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Benzo(k)fluoranthene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
bis(2-Chloroethoxy)methane	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
bis(2-Chloroethyl)ether	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	-	-	23	12	2.0 J	6 U	6 U	3.9 J
Butyl benzylphthalate (BBP)	µg/L	-	-	10 U	10 U	0.20 U	10 U	10 U	0.20 U
Carbazole	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Chrysene	µg/L	-	-	10 U	10 U	0.20 U	10 U	10 U	0.20 U
Dibenz(a,h)anthracene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Dibenzofuran	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Diethyl phthalate	µg/L	-	-	10 U	10 U	0.20 U	10 U	10 U	2.0
Dimethyl phthalate	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Di-n-butylphthalate (DBP)	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Di-n-octyl phthalate (DnOP)	µg/L	-	-	10 U	10 U	0.20 U	10 U	10 U	0.17 J
Fluoranthene	µg/L	-	-	10 U	10 U	0.023 J	10 U	10 U	0.062 J
Fluorene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-

Table 4.2

Summary of Groundwater Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:		GM-B-6	GM-B-6	GM-B-6A	GM-B-6A	GM-B-6A	GM-B-6R	GM-B-6R	GM-B-6R
Sample ID:		GM-B-6 (Duplicate)	GM-B-6	GW-9973-120198-GS08	GW-9973-011299-GS08	G-081314-RB-GMB6A-007	GW-9973-120198-GS09	GW-9973-011299-GS09	G-081314-RB-GMB6R-008
Sample Date:		10/1/1984	9/6/1988	12/1/1998	1/12/1999	8/13/2014	12/1/1998	1/12/1999	8/13/2014
Parameters	Units	(Duplicate)							
Hexachlorobenzene	µg/L	-	-	1 U	1 U	-	1 U	1 U	-
Hexachlorobutadiene	µg/L	-	-	2.6 J	4 U	0.20 U	21	47	4.0
Hexachlorocyclopentadiene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Hexachloroethane	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Indeno(1,2,3-cd)pyrene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Isophorone	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Naphthalene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Nitrobenzene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
N-Nitrosodi-n-propylamine	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
N-Nitrosodiphenylamine	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Pentachlorophenol	µg/L	-	-	20 U	20 U	-	20 U	20 U	-
Phenanthrene	µg/L	-	-	10 U	10 U	-	10 U	10 U	-
Phenol	µg/L	-	-	10 U	10 U	0.49 U	160	170	6.0
Pyrene	µg/L	-	-	10 U	10 U	0.20 U	10 U	10 U	0.061 J
Metals									
Aluminum	µg/L	-	-	25800	4670	585	390	232	34.5 J
Antimony	µg/L	-	-	5 U	5 U	0.062	17.0	17.9	2.37 J
Arsenic	µg/L	-	-	10.0	5 U	0.4 J	8.2	10.9	9.3 J
Barium	µg/L	-	-	134	51.0	10.1	4170	4200	711 J
Beryllium	µg/L	-	-	2 U	2 U	0.019 J	2 U	2 U	0.013 J
Cadmium	µg/L	-	-	5 U	5 U	0.050	5 U	5 U	1.07 J
Calcium	µg/L	-	-	57600	32500	19300	1450000	1510000	86700 J
Chromium	µg/L	-	-	73.0	15.2	2.19	5 U	5 U	1.21 J
Cobalt	µg/L	-	-	6.6	5 U	0.316	5 U	5 U	1.22 J
Copper	µg/L	-	-	70.0	15.6	2.12	5 U	5 U	3.57 J
Iron	µg/L	-	-	26300	10100	4040	777	1810	2840 J
Lead	µg/L	-	-	105	27.6	2.46	23.0 U	23.5	70.0 J
Magnesium	µg/L	-	-	18800	17100	12600	2250	3850	38400 J
Manganese	µg/L	-	-	331	183	77.6	11.0	14.6	102 J
Mercury	µg/L	-	-	0.4	0.2 U	0.00243	0.2 U	0.2 U	0.0267 J
Nickel	µg/L	-	-	36.0	8.7	1.48	48.0	54.8	20.1 J
Potassium	µg/L	-	-	5700	4900	4150	35000	34000	22900 J
Selenium	µg/L	-	-	5 U	5 U	1.0 U	5 U	5 U	2.3 J
Silver	µg/L	-	-	1 U	1 U	0.020 U	1 U	1 U	0.020 UJ
Sodium	µg/L	-	-	15000	16000	14200	395000	342000	199000 J
Thallium	µg/L	-	-	5 U	5 U	0.020 U	5 U	5 U	0.020 UJ
Vanadium	µg/L	-	-	103	18.8	2.73	6.0	8.5	1.59 J
Zinc	µg/L	-	-	308	93.8	14.8	61.0	50 U	23.3 J

Table 4.2

Summary of Groundwater Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:		GM-B-6	GM-B-6	GM-B-6A	GM-B-6A	GM-B-6A	GM-B-6R	GM-B-6R	GM-B-6R
Sample ID:		GM-B-6 (Duplicate)	GM-B-6	GW-9973-120198-GS08	GW-9973-011299-GS08	G-081314-RB-GMB6A-007	GW-9973-120198-GS09	GW-9973-011299-GS09	G-081314-RB-GMB6R-008
Sample Date:		10/1/1984	9/6/1988	12/1/1998	1/12/1999	8/13/2014	12/1/1998	1/12/1999	8/13/2014
Parameters	Units	(Duplicate)							
PCBs									
Aroclor-1016 (PCB-1016)	µg/L	-	-	1.0 U	1.0 U	0.0051 UJ	1.0 U	1.0 U	0.040 UJ
Aroclor-1221 (PCB-1221)	µg/L	-	-	1.0 U	1.0 U	0.011 UJ	1.0 U	1.0 U	0.16 UJ
Aroclor-1232 (PCB-1232)	µg/L	-	-	1.0 U	1.0 U	0.0051 UJ	1.0 U	1.0 U	0.11 UJ
Aroclor-1242 (PCB-1242)	µg/L	-	-	1.0 U	1.0 U	0.0013 J	1.0 U	1.0 U	0.050 UJ
Aroclor-1248 (PCB-1248)	µg/L	-	-	1.0 U	1.0 U	0.0051 UJ	1.0 U	1.0 U	0.049 UJ
Aroclor-1254 (PCB-1254)	µg/L	-	-	1.0 U	1.0 U	0.0051 J	1.0 U	1.0 U	0.094 U
Aroclor-1260 (PCB-1260)	µg/L	-	-	1.0 U	1.0 U	0.0046 J	1.0 U	1.0 U	0.19 U
Pesticides									
4,4'-DDD	µg/L	-	-	-	-	0.0011 U	-	-	0.0052 U
4,4'-DDE	µg/L	-	-	0.05 U	0.05 U	0.0011 U	0.05 U	0.05 U	0.0052 U
4,4'-DDE/DDD	µg/L	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
4,4'-DDT	µg/L	-	-	0.05 U	0.05 U	0.0011 U	0.05 U	0.05 U	0.0052 U
Aldrin	µg/L	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
alpha-BHC	µg/L	-	-	0.06	0.05 U	0.0011 U	0.05 U	0.05 U	0.0052 U
beta-BHC	µg/L	-	-	0.05 U	0.05 U	0.0011 U	0.05 U	0.05 U	0.0052 U
Chlordane	µg/L	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
delta-BHC	µg/L	-	-	0.08	0.05 U	0.0011 U	0.05 U	0.05 U	0.0052 U
Dieldrin	µg/L	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
Endosulfan I	µg/L	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
Endosulfan II	µg/L	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
Endosulfan sulfate	µg/L	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
Endrin	µg/L	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
Endrin aldehyde	µg/L	-	-	0.05 U	0.05 U	0.0011 U	0.05 U	0.05 U	0.032 U
Endrin ketone	µg/L	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
gamma-BHC (lindane)	µg/L	-	-	0.22	0.05 U	0.0011 U	0.05 U	0.05 U	0.0052 U
Heptachlor	µg/L	-	-	0.05 U	0.05 U	0.0011 U	0.05 U	0.05 U	0.0052 U
Heptachlor epoxide	µg/L	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
Hexachlorobenzene	µg/L	-	-	-	-	0.00026 J	-	-	0.021
Methoxychlor	µg/L	-	-	0.05 U	0.05 U	-	0.05 U	0.05 U	-
Toxaphene	µg/L	-	-	1.0 U	1.0 U	-	1.0 U	1.0 U	-
General Chemistry									
Cyanide (total)	µg/L	-	-	10 U	10 U	4.7 U	10 U	10 U	1 J

Summary of Groundwater Analytical Data
1913 Marine View Drive
Tacoma, Washington

Notes:

Surface water cleanup levels are obtained from Ecology's Cleanup Levels and Risk Calculation (CLARC) database. The surface cleanup levels are established by using lowest value for Applicable or Relevant and Appropriate Requirements (ARAR) for marine water. In a situation where no ARAR criteria are available, surface water cleanup levels were set to MTCA Method B surface water cleanup levels.

39	Concentration exceeds level
J	Estimated.
U	Non-detect at associated value.
UJ	Estimated reporting limit.
-	Not applicable.
NV	No value.
1	MTCA Method B Surface water calculated from MTCA equations 730-1 and 730-2.
2	For Chromium VI
3	For Total Endosulfan

Table 4.3

Summary of Surface Water Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:			SW-01	SW-01	SW-02	SW-02	SW-02	SW-03	SW-03	SW-03
Sample ID:			SW-9973-112098-DG01	WS-091514-RB-SW01	SW-9973-112098-DG02	WS-091514-RB-SW02	WS-091514-RB-FD10	SW-9973-112098-DG03	SW-9973-112098-DG05	WS-091514-RB-SW03
Sample Date:			11/20/1998	9/15/2014	11/20/1998	9/15/2014	9/15/2014 (Duplicate)	11/20/1998	11/20/1998 (Duplicate)	9/15/2014
Parameters	Units	Criteria								
Volatile Organic Compounds										
1,1,1-Trichloroethane	µg/L	926000	5.0 U	-	5.0 U	-	-	5.0 U	5.0 U	-
1,1,2,2-Tetrachloroethane	µg/L	4.00	5.0 U	-	5.0 U	-	-	5.0 U	5.0 U	-
1,1,2-Trichloroethane	µg/L	16.0	5.0 U	-	5.0 U	-	-	5.0 U	5.0 U	-
1,1-Dichloroethane	µg/L	NV	5.0 U	-	5.0 U	-	-	5.0 U	5.0 U	-
1,1-Dichloroethene	µg/L	3.20	5.0 U	0.50 U	5.0 U	0.50 U	0.50 U	5.0 U	5.0 U	0.50 U
1,2,4-Trichlorobenzene	µg/L	70.0	-	2.0 U	-	2.0 U	2.0 U	-	-	2.0 U
1,2-Dichloroethane	µg/L	3.70	5.0 U	-	5.0 U	-	-	5.0 U	5.0 U	-
1,2-Dichloropropane	µg/L	1.50	5.0 U	-	5.0 U	-	-	5.0 U	5.0 U	-
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	NV	5.0 U	20 U	5.0 U	20 U	20 U	5.0 U	5.0 U	20 U
2-Hexanone	µg/L	NV	5.0 U	20 U	5.0 U	20 U	20 U	5.0 U	5.0 U	20 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	NV	5.0 U	20 U	5.0 U	20 U	20 U	5.0 U	5.0 U	20 U
Acetone	µg/L	NV	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzene	µg/L	51.0	5.0 U	0.50 U	5.0 U	0.50 U	0.50 U	5.0 U	5.0 U	0.50 U
Bromodichloromethane	µg/L	17.0	5.0 U	-	5.0 U	-	-	5.0 U	5.0 U	-
Bromoform	µg/L	140	5.0 U	0.50 U	5.0 U	0.50 U	0.50 U	5.0 U	5.0 U	0.50 U
Bromomethane (Methyl bromide)	µg/L	1500	10 U	-	10 U	-	-	10 U	10 U	-
Carbon disulfide	µg/L	NV	5.0 U	0.50 U	5.0 U	0.50 U	0.50 U	5.0 U	5.0 U	0.50 U
Carbon tetrachloride	µg/L	1.60	2.8 J	0.50 U	5.0 U	0.50 U	0.50 U	5.0 U	5.0 U	0.50 U
Chlorobenzene	µg/L	1600	5.0 U	-	5.0 U	-	-	5.0 U	5.0 U	-
Chloroethane	µg/L	NV	10 U	-	10 U	-	-	10 U	10 U	-
Chloroform (Trichloromethane)	µg/L	470	5.0 U	-	5.0 U	-	-	5.0 U	5.0 U	-
Chloromethane (Methyl chloride)	µg/L	133 ¹	10 U	0.50 U	10 U	0.50 U	0.50 U	10 U	10 U	0.50 U
cis-1,2-Dichloroethene	µg/L	NV	5.0 U	0.50 U	5.0 U	0.50 U	0.50 U	5.0 U	5.0 U	0.50 U
cis-1,3-Dichloropropene	µg/L	NV	5.0 U	-	5.0 U	-	-	5.0 U	5.0 U	-
Dibromochloromethane	µg/L	13.0	5.0 U	0.50 U	5.0 U	0.50 U	0.50 U	5.0 U	5.0 U	0.50 U
Ethylbenzene	µg/L	2100	5.0 U	0.50 U	5.0 U	0.50 U	0.50 U	5.0 U	5.0 U	0.50 U
m&p-Xylenes	µg/L	NV	-	0.50 U	-	0.50 U	0.50 U	-	-	0.50 U
Methylene chloride	µg/L	590	10 U	2.0 U	10 U	2.0 U	2.0 U	6.2 J	10 U	2.0 U
o-Xylene	µg/L	NV	-	0.50 U	-	0.50 U	0.50 U	-	-	0.50 U
Styrene	µg/L	NV	5.0 U	0.50 U	5.0 U	0.50 U	0.50 U	5.0 U	5.0 U	0.50 U
Tetrachloroethene	µg/L	3.30	5.0 U	0.50 U	5.0 U	0.50 U	0.50 U	5.0 U	5.0 U	0.50 U
Toluene	µg/L	15000	5.0 U	0.50 U	5.0 U	0.50 U	0.060 J	5.0 U	5.0 U	0.50 U
trans-1,2-Dichloroethene	µg/L	10000	5.0 U	0.50 U	5.0 U	0.50 U	0.50 U	5.0 U	5.0 U	0.50 U
trans-1,3-Dichloropropene	µg/L	NV	5.0 U	-	5.0 U	-	-	5.0 U	5.0 U	-
Trichloroethene	µg/L	30.0	5.0 U	0.50 U	5.0 U	0.50 U	0.50 U	5.0 U	5.0 U	0.50 U
Vinyl chloride	µg/L	2.40	10 U	0.50 U	10 U	0.50 U	0.50 U	10 U	10 U	0.50 U
Xylenes (total)	µg/L	NV	5.0 U	-	5.0 U	-	-	5.0 U	5.0 U	-

Table 4.3

Summary of Surface Water Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:			SW-01	SW-01	SW-02	SW-02	SW-02	SW-03	SW-03	SW-03
Sample ID:			SW-9973-112098-DG01	WS-091514-RB-SW01	SW-9973-112098-DG02	WS-091514-RB-SW02	WS-091514-RB-FD10	SW-9973-112098-DG03	SW-9973-112098-DG05	WS-091514-RB-SW03
Sample Date:			11/20/1998	9/15/2014	11/20/1998	9/15/2014	9/15/2014 (Duplicate)	11/20/1998	11/20/1998 (Duplicate)	9/15/2014
Parameters	Units	Criteria								
Semi-volatile Organic Compounds										
1,2,4-Trichlorobenzene	µg/L	70	10 U	-	10 U	-	-	10 U	10 U	-
1,2-Dichlorobenzene	µg/L	1300	6 U	-	6 U	-	-	6 U	6 U	-
1,3-Dichlorobenzene	µg/L	960	6 U	-	6 U	-	-	6 U	6 U	-
1,4-Dichlorobenzene	µg/L	190	10 U	-	10 U	-	-	10 U	10 U	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	µg/L	65000	10 U	-	10 U	-	-	10 U	10 U	-
2,4,5-Trichlorophenol	µg/L	3600	25 U	-	25 U	-	-	25 U	25 U	-
2,4,6-Trichlorophenol	µg/L	2.40	10 U	-	10 U	-	-	10 U	10 U	-
2,4-Dichlorophenol	µg/L	10000	10 U	-	10 U	-	-	10 U	10 U	-
2,4-Dimethylphenol	µg/L	850	10 U	3.8 U	10 U	3.8 U	4.1 U	10 U	10 U	3.8 U
2,4-Dinitrophenol	µg/L	5300	25 U	-	25 U	-	-	25 U	25 U	-
2,4-Dinitrotoluene	µg/L	3.40	10 U	-	10 U	-	-	10 U	10 U	-
2,6-Dinitrotoluene	µg/L	NV	10 U	-	10 U	-	-	10 U	10 U	-
2-Chloronaphthalene	µg/L	NV	10 U	-	10 U	-	-	10 U	10 U	-
2-Chlorophenol	µg/L	99.7	10 U	-	10 U	-	-	10 U	10 U	-
2-Methylnaphthalene	µg/L	NV	10 U	-	10 U	-	-	10 U	10 U	-
2-Methylphenol	µg/L	NV	10 U	0.48 UJ	10 U	0.48 UJ	0.52 UJ	10 U	10 U	0.48 UJ
2-Nitroaniline	µg/L	NV	25 U	-	25 U	-	-	25 U	25 U	-
2-Nitrophenol	µg/L	NV	10 U	-	10 U	-	-	10 U	10 U	-
3,3'-Dichlorobenzidine	µg/L	0.028	20 U	-	20 U	-	-	20 U	20 U	-
3-Nitroaniline	µg/L	NV	25 U	-	25 U	-	-	25 U	25 U	-
4,6-Dinitro-2-methylphenol	µg/L	NV	25 U	1.9 U	25 U	1.9 U	2.1 U	25 U	25 U	1.9 U
4-Bromophenyl phenyl ether	µg/L	NV	10 U	-	10 U	-	-	10 U	10 U	-
4-Chloro-3-methylphenol	µg/L	NV	10 U	-	10 U	-	-	10 U	10 U	-
4-Chloroaniline	µg/L	NV	10 U	-	10 U	-	-	10 U	10 U	-
4-Chlorophenyl phenyl ether	µg/L	NV	10 U	-	10 U	-	-	10 U	10 U	-
4-Methylphenol	µg/L	NV	10 U	0.48 UJ	10 U	0.48 UJ	0.52 UJ	10 U	10 U	0.48 UJ
4-Nitroaniline	µg/L	NV	25 U	-	25 U	-	-	25 U	25 U	-
4-Nitrophenol	µg/L	NV	25 U	-	25 U	-	-	25 U	25 U	-
Acenaphthene	µg/L	648	10 U	-	10 U	-	-	10 U	10 U	-
Acenaphthylene	µg/L	NV	10 U	-	10 U	-	-	10 U	10 U	-
Anthracene	µg/L	40000	10 U	-	10 U	-	-	10 U	10 U	-
Benzo(a)anthracene	µg/L	0.018	10 U	-	10 U	-	-	10 U	10 U	-
Benzo(a)pyrene	µg/L	0.018	1 U	-	1 U	-	-	1 U	1 U	-
Benzo(b)fluoranthene	µg/L	0.018	10 U	-	10 U	-	-	10 U	10 U	-
Benzo(g,h,i)perylene	µg/L	NV	10 U	-	10 U	-	-	10 U	10 U	-
Benzo(k)fluoranthene	µg/L	0.018	10 U	-	10 U	-	-	10 U	10 U	-
bis(2-Chloroethoxy)methane	µg/L	NV	10 U	-	10 U	-	-	10 U	10 U	-
bis(2-Chloroethyl)ether	µg/L	0.530	10 U	-	10 U	-	-	10 U	10 U	-
bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	2.20	6 U	0.95 U	6 U	0.95 U	1.1 U	6 U	6 U	0.95 U
Butyl benzylphthalate (BBP)	µg/L	1900	10 U	0.19 U	10 U	0.19 U	0.21 U	10 U	10 U	0.19 U
Carbazole	µg/L	NV	10 U	-	10 U	-	-	10 U	10 U	-
Chrysene	µg/L	0.018	10 U	0.19 U	10 U	0.19 U	0.21 U	10 U	10 U	0.19 U
Dibenz(a,h)anthracene	µg/L	0.018	10 U	-	10 U	-	-	10 U	10 U	-
Dibenzofuran	µg/L	NV	10 U	-	10 U	-	-	10 U	10 U	-
Diethyl phthalate	µg/L	44000	10 U	0.19 U	10 U	0.19 U	0.21 U	10 U	10 U	0.19 U
Dimethyl phthalate	µg/L	1100000	10 U	-	10 U	-	-	10 U	10 U	-
Di-n-butylphthalate (DBP)	µg/L	NV	10 U	-	10 U	-	-	10 U	10 U	-
Di-n-octyl phthalate (DnOP)	µg/L	NV	10 U	0.19 U	10 U	0.19 U	0.21 U	10 U	10 U	0.19 U
Fluoranthene	µg/L	140	10 U	0.19 U	10 U	0.19 U	0.21 U	10 U	10 U	0.19 U
Fluorene	µg/L	5300	10 U	-	10 U	-	-	10 U	10 U	-
Hexachlorobenzene	µg/L	0.00029	1 U	-	1 U	-	-	1 U	1 U	-
Hexachlorobutadiene	µg/L	18.0	4 U	0.19 U	4 U	0.19 U	0.21 U	4 U	4 U	0.19 U
Hexachlorocyclopentadiene	µg/L	1100	10 U	-	10 U	-	-	10 U	10 U	-
Hexachloroethane	µg/L	3.30	10 U	-	10 U	-	-	10 U	10 U	-
Indeno(1,2,3-cd)pyrene	µg/L	0.018	10 U	-	10 U	-	-	10 U	10 U	-

Table 4.3

Summary of Surface Water Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:			SW-01	SW-01	SW-02	SW-02	SW-02	SW-03	SW-03	SW-03
Sample ID:			SW-9973-112098-DG01	WS-091514-RB-SW01	SW-9973-112098-DG02	WS-091514-RB-SW02	WS-091514-RB-FD10	SW-9973-112098-DG03	SW-9973-112098-DG05	WS-091514-RB-SW03
Sample Date:			11/20/1998	9/15/2014	11/20/1998	9/15/2014	9/15/2014 (Duplicate)	11/20/1998	11/20/1998 (Duplicate)	9/15/2014
Parameters	Units	Criteria								
Isophorone	µg/L	600	10 U	-	10 U	-	-	10 U	10 U	-
Naphthalene	µg/L	4710	10 U	-	10 U	-	-	10 U	10 U	-
Nitrobenzene	µg/L	690	10 U	-	10 U	-	-	10 U	10 U	-
N-Nitrosodi-n-propylamine	µg/L	0.510	10 U	-	10 U	-	-	10 U	10 U	-
N-Nitrosodiphenylamine	µg/L	6.00	10 U	-	10 U	-	-	10 U	10 U	-
Pentachlorophenol	µg/L	3.00	20 U	-	20 U	-	-	20 U	20 U	-
Phenanthrene	µg/L	NV	10 U	-	10 U	-	-	10 U	10 U	-
Phenol	µg/L	1700000	10 U	0.48 U	10 U	0.48 U	0.52 U	10 U	10 U	0.48 U
Pyrene	µg/L	4000	10 U	0.19 U	10 U	0.19 U	0.21 U	10 U	10 U	0.19 U
Metals										
Aluminum	µg/L	NV	3540	46.6	330	45.7 J	144 J	4360	4080	155
Antimony	µg/L	640	5 U	1.37	5 U	0.47 J	1.26 J	7.2	6.1	0.30
Arsenic	µg/L	0.14	11.0	3.42	5.2	2.21 J	5.29 J	19.0	22.0	1.34
Barium	µg/L	NV	27.0	10.7	21.0	14.4	14.2	39.0	39.0	25.5
Beryllium	µg/L	1600	2 U	0.020 U	2 U	0.020 U	0.020 U	2 U	2 U	0.020 U
Cadmium	µg/L	8.8	5 U	0.020	5 U	0.046 J	0.083 J	5 U	5 U	0.034
Calcium	µg/L	NV	8040	23600	27700	23700	24100	10900	10800	30500
Chromium	µg/L	50 ²	7.0	0.62 U	5 U	0.46 U	0.78 U	8.9	8.8	0.39 U
Cobalt	µg/L	NV	5 U	0.091	5 U	0.091 J	0.197 J	5 U	5 U	0.307
Copper	µg/L	2.4	9.9	1.43	13.0	1.13 J	3.18 J	29.0	30.0	1.11
Iron	µg/L	NV	2980	204	853	314 J	592 J	4370	4330	740
Lead	µg/L	8.1	7.0	0.448	9.6	1.22 J	3.47 J	26.0	27.0	0.994
Magnesium	µg/L	NV	3360	17200	18700	16200	17200	5050	5080	17700
Manganese	µg/L	100	92.0	62.4	54.0	35.4 J	93.1 J	180	186	276
Mercury	µg/L	0.025	0.2	0.0017	0.2 U	0.00381 J	0.00769 J	0.3	0.2	0.00258
Nickel	µg/L	8.2	8.6	0.57 U	8.0	0.80 J	1.05 J	12.0	12.0	1.35
Potassium	µg/L	NV	1800	2190	5000	3040	2450	2300	2400	3050
Selenium	µg/L	71	5 U	1.0 U	5 U	1.0 U	1.0 U	5 U	5 U	1.0 U
Silver	µg/L	1.9	1 U	0.020 U	1 U	0.020 U	0.007 J	1 U	1 U	0.020 U
Sodium	µg/L	NV	2600	8870	20000	9670	9350	8300	9200	11200
Thallium	µg/L	0.47	5 U	0.020 U	5 U	0.020 U	0.003 J	5 U	5 U	0.002 J
Vanadium	µg/L	NV	8.5	3.36	5 U	4.28	3.49	11.0	11.0	2.01
Zinc	µg/L	81	50 U	12.3	95.0	11.1 J	28.8 J	139	137	11.2
PCBs										
Aroclor-1016 (PCB-1016)	µg/L	0.03	1.0 U	0.0050 U	1.0 U	0.0051 U	0.0050 U	1.0 U	1.0 U	0.0050 U
Aroclor-1221 (PCB-1221)	µg/L	NV	1.0 U	0.010 U	1.0 U	0.011 U	0.010 U	1.0 U	1.0 U	0.010 U
Aroclor-1232 (PCB-1232)	µg/L	NV	1.0 U	0.0050 U	1.0 U	0.0051 U	0.0050 U	1.0 U	1.0 U	0.0050 U
Aroclor-1242 (PCB-1242)	µg/L	NV	1.0 U	0.0016 J	1.0 U	0.0056	0.0029 J	1.0 U	1.0 U	0.0022 J
Aroclor-1248 (PCB-1248)	µg/L	NV	1.0 U	0.0050 U	1.0 U	0.0051 U	0.0050 U	1.0 U	1.0 U	0.0050 U
Aroclor-1254 (PCB-1254)	µg/L	0.03	1.0 U	0.0010 J	1.0 U	0.017 J	0.0042 J	1.0 U	1.0 U	0.0024 J
Aroclor-1260 (PCB-1260)	µg/L	0.000064	1.0 U	0.0020 J	1.0 U	0.0095 J	0.0025 J	1.0 U	1.0 U	0.0015 J

Table 4.3

Summary of Surface Water Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:			SW-01		SW-01		SW-02		SW-02		SW-02		SW-03		SW-03		SW-03	
Sample ID:			SW-9973-112098-DG01		WS-091514-RB-SW01		SW-9973-112098-DG02		WS-091514-RB-SW02		WS-091514-RB-FD10		SW-9973-112098-DG03		SW-9973-112098-DG05		WS-091514-RB-SW03	
Sample Date:			11/20/1998		9/15/2014		11/20/1998		9/15/2014		9/15/2014		11/20/1998		11/20/1998		9/15/2014	
Parameters			Units	Criteria														
Pesticides																		
4,4'-DDD	µg/L	0.00031	-	0.00099 U	-	0.0011 U	0.001 U	-	-	0.001 U	0.001 U	0.001 U	-	-	0.001 U	0.001 U	0.001 U	0.001 U
4,4'-DDE	µg/L	0.00022	0.05 U	0.00099 U	0.05 U	0.0011 U	0.001 U	0.05 U	0.05 U	0.001 U	0.001 U	0.001 U	0.05 U	0.05 U	0.05 U	0.001 U	0.001 U	0.001 U
4,4'-DDE/DDD	µg/L	NV	0.05 U	-	0.05 U	-	-	0.05 U	0.05 U	-	-	-	0.05 U	0.05 U	0.05 U	-	-	-
4,4'-DDT	µg/L	0.00022	0.05 U	0.00099 U	0.05 U	0.0011 U	0.001 U	0.05 U	0.05 U	0.001 U	0.001 U	0.001 U	0.05 U	0.05 U	0.05 U	0.001 U	0.001 U	0.001 U
Aldrin	µg/L	0.00005	0.05 U	-	0.05 U	-	-	0.05 U	0.05 U	-	-	-	0.05 U	0.05 U	0.05 U	-	-	-
alpha-BHC	µg/L	0.0049	0.05 U	0.00099 U	0.05 U	0.0011 U	0.001 U	0.05 U	0.05 U	0.001 U	0.001 U	0.001 U	0.05 U	0.05 U	0.05 U	0.001 U	0.001 U	0.001 U
beta-BHC	µg/L	0.017	0.05 U	0.00099 UJ	0.05 U	0.0011 UJ	0.001 UJ	0.05 U	0.05 U	0.001 UJ	0.001 UJ	0.001 UJ	0.05 U	0.05 U	0.05 U	0.001 UJ	0.001 UJ	0.001 UJ
Chlordane	µg/L	0.00059	0.05 U	-	0.05 U	-	-	0.05 U	0.05 U	-	-	-	0.05 U	0.05 U	0.05 U	-	-	-
delta-BHC	µg/L	0.0414	0.05 U	0.00099 U	0.05 U	0.0011 U	0.001 U	0.05 U	0.05 U	0.001 U	0.001 U	0.001 U	0.05 U	0.05 U	0.05 U	0.001 U	0.001 U	0.001 U
Dieldrin	µg/L	0.000054	0.05 U	-	0.05 U	-	-	0.05 U	0.05 U	-	-	-	0.05 U	0.05 U	0.05 U	-	-	-
Endosulfan I	µg/L	0.0087 ³	0.05 U	-	0.05 U	-	-	0.05 U	0.05 U	-	-	-	0.05 U	0.05 U	0.05 U	-	-	-
Endosulfan II	µg/L	0.0087 ³	0.05 U	-	0.05 U	-	-	0.05 U	0.05 U	-	-	-	0.05 U	0.05 U	0.05 U	-	-	-
Endosulfan sulfate	µg/L	NV	0.05 U	-	0.05 U	-	-	0.05 U	0.05 U	-	-	-	0.05 U	0.05 U	0.05 U	-	-	-
Endrin	µg/L	0.00230	0.05 U	-	0.05 U	-	-	0.05 U	0.05 U	-	-	-	0.05 U	0.05 U	0.05 U	-	-	-
Endrin aldehyde	µg/L	NV	0.05 U	0.00099 UJ	0.05 U	0.0011 UJ	0.001 UJ	0.05 U	0.05 U	0.001 UJ	0.001 UJ	0.001 UJ	0.05 U	0.05 U	0.05 U	0.001 UJ	0.001 UJ	0.001 UJ
Endrin ketone	µg/L	NV	0.05 U	-	0.05 U	-	-	0.05 U	0.05 U	-	-	-	0.05 U	0.05 U	0.05 U	-	-	-
gamma-BHC (lindane)	µg/L	0.063	0.05 U	0.00099 U	0.05 U	0.0011 U	0.001 U	0.05 U	0.05 U	0.001 U	0.001 U	0.001 U	0.05 U	0.05 U	0.05 U	0.001 U	0.001 U	0.001 U
Heptachlor	µg/L	0.000079	0.05 U	0.00099 U	0.05 U	0.0011 U	0.001 U	0.05 U	0.05 U	0.001 U	0.001 U	0.001 U	0.05 U	0.05 U	0.05 U	0.001 U	0.001 U	0.001 U
Heptachlor epoxide	µg/L	0.00029	0.05 U	-	0.05 U	-	-	0.05 U	0.05 U	-	-	-	0.05 U	0.05 U	0.05 U	-	-	-
Hexachlorobenzene	µg/L	0.00029	-	0.00028 J	-	0.0011 U	0.00023 J	-	-	0.0011 U	0.00023 J	0.00023 J	-	-	-	0.001 U	0.001 U	0.001 U
Methoxychlor	µg/L	0.03	0.05 U	-	0.05 U	-	-	0.05 U	0.05 U	-	-	-	0.05 U	0.05 U	0.05 U	-	-	-
Toxaphene	µg/L	0.0002	1.0 U	-	1.0 U	-	-	1.0 U	1.0 U	-	-	-	1.0 U	1.0 U	1.0 U	-	-	-
General Chemistry																		
Cyanide (total)	µg/L	1	10 U	4.7 U	10 U	4.7 U	4.7 U	10 U	10 U	4.7 U	4.7 U	4.7 U	10 U	10 U	10 U	4.7 U	4.7 U	4.7 U

Table 4.3

Summary of Surface Water Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:
Sample ID:
Sample Date:

			SW-04	SW-04	SW-05	SWS-1	SWS-1	SWS-2	SWS-2
			SW-9973-112098-DG04	WS-091514-RB-SW04	WS-091514-RB-SW05	SWS-1 North	SWS-1 North (Duplicate)	SWS-2 South	SWS-2 South (Duplicate)
			11/20/1998	9/15/2014	9/15/2014	9/26/1984	9/26/1984 (Duplicate)	9/26/1984	9/26/1984 (Duplicate)
Parameters	Units	Criteria							
Volatile Organic Compounds									
1,1,1-Trichloroethane	µg/L	926000	5.0 U	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/L	4.00	5.0 U	-	-	-	-	-	-
1,1,2-Trichloroethane	µg/L	16.0	5.0 U	-	-	-	-	-	-
1,1-Dichloroethane	µg/L	NV	5.0 U	-	-	-	-	-	-
1,1-Dichloroethene	µg/L	3.20	5.0 U	0.50 U	0.50 U	-	-	-	-
1,2,4-Trichlorobenzene	µg/L	70.0	-	2.0 U	2.0 U	-	-	-	-
1,2-Dichloroethane	µg/L	3.70	5.0 U	-	-	-	-	-	-
1,2-Dichloropropane	µg/L	1.50	5.0 U	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	NV	5.0 U	20 U	20 U	-	-	-	-
2-Hexanone	µg/L	NV	5.0 U	20 U	20 U	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	NV	5.0 U	20 U	20 U	-	-	-	-
Acetone	µg/L	NV	20 U	20 U	20 U	-	-	-	-
Benzene	µg/L	51.0	5.0 U	0.50 U	0.50 U	-	-	-	-
Bromodichloromethane	µg/L	17.0	5.0 U	-	-	-	-	-	-
Bromoform	µg/L	140	5.0 U	0.50 U	0.50 U	-	-	-	-
Bromomethane (Methyl bromide)	µg/L	1500	10 U	-	-	-	-	-	-
Carbon disulfide	µg/L	NV	5.0 U	0.50 U	0.50 U	-	-	-	-
Carbon tetrachloride	µg/L	1.60	5.0 U	0.50 U	0.50 U	-	-	-	-
Chlorobenzene	µg/L	1600	5.0 U	-	-	-	-	-	-
Chloroethane	µg/L	NV	10 U	-	-	-	-	-	-
Chloroform (Trichloromethane)	µg/L	470	5.0 U	-	-	2 U	2 U	2 U	2 U
Chloromethane (Methyl chloride)	µg/L	133 ¹	10 U	0.50 U	0.50 U	-	-	-	-
cis-1,2-Dichloroethene	µg/L	NV	5.0 U	0.50 U	0.50 U	-	-	-	-
cis-1,3-Dichloropropene	µg/L	NV	5.0 U	-	-	-	-	-	-
Dibromochloromethane	µg/L	13.0	5.0 U	0.50 U	0.50 U	-	-	-	-
Ethylbenzene	µg/L	2100	5.0 U	0.50 U	0.50 U	-	-	-	-
m&p-Xylenes	µg/L	NV	-	0.50 U	0.50 U	-	-	-	-
Methylene chloride	µg/L	590	10 U	2.0 U	2.0 U	-	-	-	-
o-Xylene	µg/L	NV	-	0.50 U	0.50 U	-	-	-	-
Styrene	µg/L	NV	5.0 U	0.50 U	0.50 U	-	-	-	-
Tetrachloroethene	µg/L	3.30	5.0 U	0.50 U	0.50 U	2 U	2 U	2 U	2 U
Toluene	µg/L	15000	5.0 U	0.50 U	0.070 J	-	-	-	-
trans-1,2-Dichloroethene	µg/L	10000	5.0 U	0.50 U	0.50 U	-	-	-	-
trans-1,3-Dichloropropene	µg/L	NV	5.0 U	-	-	-	-	-	-
Trichloroethene	µg/L	30.0	5.0 U	0.50 U	0.50 U	2 U	2 U	2 U	2 U
Vinyl chloride	µg/L	2.40	10 U	0.50 U	0.50 U	-	-	-	-
Xylenes (total)	µg/L	NV	5.0 U	-	-	-	-	-	-

Table 4.3

Summary of Surface Water Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:
Sample ID:
Sample Date:

			SW-04 SW-9973-112098-DG04 11/20/1998	SW-04 WS-091514-RB-SW04 9/15/2014	SW-05 WS-091514-RB-SW05 9/15/2014	SWS-1 SWS-1 North 9/26/1984	SWS-1 SWS-1 North (Duplicate) 9/26/1984 (Duplicate)	SWS-2 SWS-2 South 9/26/1984	SWS-2 SWS-2 South (Duplicate) 9/26/1984 (Duplicate)
Parameters	Units	Criteria							
Semi-volatile Organic Compounds									
1,2,4-Trichlorobenzene	µg/L	70	10 U	-	-	-	-	-	-
1,2-Dichlorobenzene	µg/L	1300	6 U	-	-	-	-	-	-
1,3-Dichlorobenzene	µg/L	960	6 U	-	-	-	-	-	-
1,4-Dichlorobenzene	µg/L	190	10 U	-	-	-	-	-	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	µg/L	65000	10 U	-	-	-	-	-	-
2,4,5-Trichlorophenol	µg/L	3600	25 U	-	-	-	-	-	-
2,4,6-Trichlorophenol	µg/L	2.40	10 U	-	-	-	-	-	-
2,4-Dichlorophenol	µg/L	10000	10 U	-	-	-	-	-	-
2,4-Dimethylphenol	µg/L	850	10 U	3.8 U	4.0 U	-	-	-	-
2,4-Dinitrophenol	µg/L	5300	25 U	-	-	-	-	-	-
2,4-Dinitrotoluene	µg/L	3.40	10 U	-	-	-	-	-	-
2,6-Dinitrotoluene	µg/L	NV	10 U	-	-	-	-	-	-
2-Chloronaphthalene	µg/L	NV	10 U	-	-	-	-	-	-
2-Chlorophenol	µg/L	99.7	10 U	-	-	-	-	-	-
2-Methylnaphthalene	µg/L	NV	10 U	-	-	-	-	-	-
2-Methylphenol	µg/L	NV	10 U	0.48 UJ	0.50 UJ	-	-	-	-
2-Nitroaniline	µg/L	NV	25 U	-	-	-	-	-	-
2-Nitrophenol	µg/L	NV	10 U	-	-	-	-	-	-
3,3'-Dichlorobenzidine	µg/L	0.028	20 U	-	-	-	-	-	-
3-Nitroaniline	µg/L	NV	25 U	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	µg/L	NV	25 U	1.9 U	2.0 U	-	-	-	-
4-Bromophenyl phenyl ether	µg/L	NV	10 U	-	-	-	-	-	-
4-Chloro-3-methylphenol	µg/L	NV	10 U	-	-	-	-	-	-
4-Chloroaniline	µg/L	NV	10 U	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	µg/L	NV	10 U	-	-	-	-	-	-
4-Methylphenol	µg/L	NV	10 U	0.48 UJ	0.50 UJ	-	-	-	-
4-Nitroaniline	µg/L	NV	25 U	-	-	-	-	-	-
4-Nitrophenol	µg/L	NV	25 U	-	-	-	-	-	-
Acenaphthene	µg/L	648	10 U	-	-	-	-	-	-
Acenaphthylene	µg/L	NV	10 U	-	-	-	-	-	-
Anthracene	µg/L	40000	10 U	-	-	-	-	-	-
Benzo(a)anthracene	µg/L	0.018	10 U	-	-	-	-	-	-
Benzo(a)pyrene	µg/L	0.018	1 U	-	-	-	-	-	-
Benzo(b)fluoranthene	µg/L	0.018	10 U	-	-	-	-	-	-
Benzo(g,h,i)perylene	µg/L	NV	10 U	-	-	-	-	-	-
Benzo(k)fluoranthene	µg/L	0.018	10 U	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	µg/L	NV	10 U	-	-	-	-	-	-
bis(2-Chloroethyl)ether	µg/L	0.530	10 U	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	2.20	6 U	0.95 U	1.0 U	-	-	-	-
Butyl benzylphthalate (BBP)	µg/L	1900	10 U	0.19 U	0.20 U	-	-	-	-
Carbazole	µg/L	NV	10 U	-	-	-	-	-	-
Chrysene	µg/L	0.018	10 U	0.19 U	0.20 U	-	-	-	-
Dibenz(a,h)anthracene	µg/L	0.018	10 U	-	-	-	-	-	-
Dibenzofuran	µg/L	NV	10 U	-	-	-	-	-	-
Diethyl phthalate	µg/L	44000	10 U	0.19 U	0.20 U	-	-	-	-
Dimethyl phthalate	µg/L	1100000	10 U	-	-	-	-	-	-
Di-n-butylphthalate (DBP)	µg/L	NV	10 U	-	-	-	-	-	-
Di-n-octyl phthalate (DnOP)	µg/L	NV	10 U	0.19 U	0.20 U	-	-	-	-
Fluoranthene	µg/L	140	10 U	0.19 U	0.20 U	-	-	-	-
Fluorene	µg/L	5300	10 U	-	-	-	-	-	-
Hexachlorobenzene	µg/L	0.00029	1 U	-	-	-	-	-	-
Hexachlorobutadiene	µg/L	18.0	4 U	0.19 U	0.20 U	-	-	-	-
Hexachlorocyclopentadiene	µg/L	1100	10 U	-	-	-	-	-	-
Hexachloroethane	µg/L	3.30	10 U	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	µg/L	0.018	10 U	-	-	-	-	-	-

Table 4.3

Summary of Surface Water Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:
Sample ID:
Sample Date:

			SW-04 SW-9973-112098-DG04 11/20/1998	SW-04 WS-091514-RB-SW04 9/15/2014	SW-05 WS-091514-RB-SW05 9/15/2014	SWS-1 SWS-1 North 9/26/1984	SWS-1 SWS-1 North (Duplicate) 9/26/1984 (Duplicate)	SWS-2 SWS-2 South 9/26/1984	SWS-2 SWS-2 South (Duplicate) 9/26/1984 (Duplicate)
Parameters	Units	Criteria							
Isophorone	µg/L	600	10 U	-	-	-	-	-	-
Naphthalene	µg/L	4710	10 U	-	-	-	-	-	-
Nitrobenzene	µg/L	690	10 U	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	µg/L	0.510	10 U	-	-	-	-	-	-
N-Nitrosodiphenylamine	µg/L	6.00	10 U	-	-	-	-	-	-
Pentachlorophenol	µg/L	3.00	20 U	-	-	-	-	-	-
Phenanthrene	µg/L	NV	10 U	-	-	-	-	-	-
Phenol	µg/L	1700000	10 U	0.48 U	0.50 U	-	-	-	-
Pyrene	µg/L	4000	10 U	0.19 U	0.20 U	-	-	-	-
Metals									
Aluminum	µg/L	NV	2380	200	230	-	-	-	-
Antimony	µg/L	640	5 U	0.30	1.30	-	-	-	-
Arsenic	µg/L	0.14	5 U	1.37	6.13	-	-	-	-
Barium	µg/L	NV	37.0	26.5	14.6	-	-	-	-
Beryllium	µg/L	1600	2 U	0.020 U	0.020 U	-	-	-	-
Cadmium	µg/L	8.8	5 U	0.033	0.081	-	-	-	-
Calcium	µg/L	NV	28800	31000	24200	-	-	-	-
Chromium	µg/L	50 ²	5.5	0.45 U	0.61 U	-	-	-	-
Cobalt	µg/L	NV	5 U	0.327	0.149	-	-	-	-
Copper	µg/L	2.4	15.0	1.34	2.77	-	-	-	-
Iron	µg/L	NV	3290	828	536	-	-	-	-
Lead	µg/L	8.1	9.6	1.16	2.70	-	-	-	-
Magnesium	µg/L	NV	15900	17900	17300	-	-	-	-
Manganese	µg/L	100	258	265	89.5	-	-	-	-
Mercury	µg/L	0.025	0.2	0.00358	0.00605	-	-	-	-
Nickel	µg/L	8.2	9.1	1.34	1.00	-	-	-	-
Potassium	µg/L	NV	4100	3100	2450	-	-	-	-
Selenium	µg/L	71	5 U	1.0 U	1.0 U	-	-	-	-
Silver	µg/L	1.9	1 U	0.020 U	0.011 J	-	-	-	-
Sodium	µg/L	NV	15000	11300	9480	-	-	-	-
Thallium	µg/L	0.47	5 U	0.020 U	0.020 U	-	-	-	-
Vanadium	µg/L	NV	6.9	2.06	3.39	-	-	-	-
Zinc	µg/L	81	50.0	12.2	21.3	-	-	-	-
PCBs									
Aroclor-1016 (PCB-1016)	µg/L	0.03	1.0 U	0.0050 U	0.0050 U	-	-	-	-
Aroclor-1221 (PCB-1221)	µg/L	NV	1.0 U	0.010 U	0.010 U	-	-	-	-
Aroclor-1232 (PCB-1232)	µg/L	NV	1.0 U	0.0050 U	0.0050 U	-	-	-	-
Aroclor-1242 (PCB-1242)	µg/L	NV	1.0 U	0.0026 J	0.0038 J	-	-	-	-
Aroclor-1248 (PCB-1248)	µg/L	NV	1.0 U	0.0050 U	0.0050 U	-	-	-	-
Aroclor-1254 (PCB-1254)	µg/L	0.03	1.0 U	0.0025 J	0.0088 J	-	-	-	-
Aroclor-1260 (PCB-1260)	µg/L	0.000064	1.0 U	0.0022 J	0.0056 J	-	-	-	-

Table 4.3
Summary of Surface Water Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:
Sample ID:
Sample Date:

			SW-04	SW-04	SW-05	SWS-1	SWS-1	SWS-2	SWS-2
			SW-9973-112098-DG04	WS-091514-RB-SW04	WS-091514-RB-SW05	SWS-1 North	SWS-1 North (Duplicate)	SWS-2 South	SWS-2 South (Duplicate)
			11/20/1998	9/15/2014	9/15/2014	9/26/1984	9/26/1984 (Duplicate)	9/26/1984	9/26/1984 (Duplicate)
Parameters	Units	Criteria							
Pesticides									
4,4'-DDD	µg/L	0.00031	-	0.001 U	0.001 U	-	-	-	-
4,4'-DDE	µg/L	0.00022	0.05 U	0.001 U	0.001 U	-	-	-	-
4,4'-DDE/DDD	µg/L	NV	0.05 U	-	-	-	-	-	-
4,4'-DDT	µg/L	0.00022	0.05 U	0.001 U	0.001 U	-	-	-	-
Aldrin	µg/L	0.00005	0.05 U	-	-	-	-	-	-
alpha-BHC	µg/L	0.0049	0.05 U	0.001 U	0.001 U	-	-	-	-
beta-BHC	µg/L	0.017	0.05 U	0.001 UJ	0.001 UJ	-	-	-	-
Chlordane	µg/L	0.00059	0.05 U	-	-	-	-	-	-
delta-BHC	µg/L	0.0414	0.05 U	0.001 U	0.001 U	-	-	-	-
Dieldrin	µg/L	0.000054	0.05 U	-	-	-	-	-	-
Endosulfan I	µg/L	0.0087 ³	0.05 U	-	-	-	-	-	-
Endosulfan II	µg/L	0.0087 ³	0.05 U	-	-	-	-	-	-
Endosulfan sulfate	µg/L	NV	0.05 U	-	-	-	-	-	-
Endrin	µg/L	0.00230	0.05 U	-	-	-	-	-	-
Endrin aldehyde	µg/L	NV	0.05 U	0.001 UJ	0.001 UJ	-	-	-	-
Endrin ketone	µg/L	NV	0.05 U	-	-	-	-	-	-
gamma-BHC (lindane)	µg/L	0.063	0.05 U	0.001 U	0.001 U	-	-	-	-
Heptachlor	µg/L	0.000079	0.05 U	0.001 U	0.001 U	-	-	-	-
Heptachlor epoxide	µg/L	0.00029	0.05 U	-	-	-	-	-	-
Hexachlorobenzene	µg/L	0.00029	-	0.001 U	0.0003 J	-	-	-	-
Methoxychlor	µg/L	0.03	0.05 U	-	-	-	-	-	-
Toxaphene	µg/L	0.0002	1.0 U	-	-	-	-	-	-
General Chemistry									
Cyanide (total)	µg/L	1	10 U	4.7 U	4.7 U	-	-	-	-

Table 4.3
Summary of Surface Water Analytical Data
1913 Marine View Drive
Tacoma, Washington

Notes:

Surface water cleanup levels are obtained from Ecology's Cleanup Levels and Risk Calculation (CLARC) database. The surface cleanup levels are established by using lowest value for Applicable or Relevant and Appropriate Requirements (ARAR) for marine water. In a situation where no ARAR criteria are available, surface water cleanup levels were set to MTCA Method B surface water cleanup levels.

11.0	Concentration exceeds level
J	Estimated.
U	Non-detect at associated value.
UJ	Estimated reporting limit.
-	Not applicable.
NV	No value.
¹	MTCA Method B Surface water calculated from MTCA equations 730-1 and 730-2.
²	For Chromium VI
³	For Total Endosulfan

Table 4.4
Summary of Sediment Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:				SD-01	SD-02	SD-03	SD-04	SD-05	SD-06
Sample ID:				SED-9973-112098-DG01	SED-9973-112098-DG02	SED-9973-112098-DG03	SED-9973-112098-DG04	SE-091514-RB-SD05	SE-091514-RB-SD06
Sample Date:				11/20/1998	11/20/1998	11/20/1998	11/20/1998	9/15/2014	9/15/2014
Sample Depth:				(0-0.5) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS	-	-
				Sediment Chemical Criteria					
Parameters	Units	Cleanup							
		Objective	Screening Level						
				a	b				
Volatile Organic Compounds									
1,1,1-Trichloroethane	mg/kg			0.0096 U	0.012 U	0.01 U	0.0076 U	-	-
1,1,2,2-Tetrachloroethane	mg/kg			0.0096 U	0.012 U	0.01 U	0.0076 U	-	-
1,1,2-Trichloroethane	mg/kg			0.0096 U	0.012 U	0.01 U	0.0076 U	-	-
1,1-Dichloroethane	mg/kg			0.0096 U	0.012 U	0.01 U	0.0076 U	-	-
1,1-Dichloroethene	mg/kg	NV	NV	0.0096 U	0.012 U	0.01 U	0.0076 U	0.033 UJ	0.0063 U
1,2,4-Trichlorobenzene	mg/kg	0.81	1.8	-	-	-	-	0.13 UJ	0.026 U
1,2-Dichloroethane	mg/kg			0.0096 U	0.012 U	0.01 U	0.0076 U	-	-
1,2-Dichloropropane	mg/kg			0.005 U	0.012 U	0.01 U	0.0076 U	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	NV	NV	0.014 J	0.012 U	0.01 U	0.0076 U	0.081 J	0.0042 J
2-Hexanone	mg/kg	NV	NV	0.0096 U	0.012 U	0.01 U	0.0076 U	0.13 UJ	0.026 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	NV	NV	0.0096 U	0.012 U	0.01 U	0.0076 U	0.13 UJ	0.026 U
Acetone	mg/kg	NV	NV	0.025 J	0.046 U	0.041 U	0.031 U	0.55 J	0.038
Benzene	mg/kg	NV	NV	0.0096 U	0.012 U	0.01 U	0.0076 U	0.0017 J	0.00026 J
Bromodichloromethane	mg/kg			0.0096 U	0.012 U	0.01 U	0.0076 U	-	-
Bromoform	mg/kg	NV	NV	0.0096 U	0.012 U	0.01 U	0.0076 U	0.033 UJ	0.0063 UJ
Bromomethane (Methyl bromide)	mg/kg			0.019 U	0.023 U	0.02 U	0.015 U	-	-
Carbon disulfide	mg/kg	NV	NV	0.0096 U	0.012 U	0.01 U	0.0076 U	0.063 J	0.0063 U
Carbon tetrachloride	mg/kg	NV	NV	0.0096 U	0.012 U	0.01 U	0.0076 U	0.033 UJ	0.0063 U
Chlorobenzene	mg/kg			0.0096 U	0.012 U	0.01 U	0.0076 U	-	-
Chloroethane	mg/kg			0.019 U	0.023 U	0.02 U	0.015 U	-	-
Chloroform (Trichloromethane)	mg/kg			0.0096 U	0.012 U	0.01 U	0.0076 U	-	-
Chloromethane (Methyl chloride)	mg/kg	NV	NV	0.019 U	0.023 U	0.02 U	0.015 U	0.033 UJ	0.0063 U
cis-1,2-Dichloroethene	mg/kg	NV	NV	0.0096 U	0.012 U	0.01 U	0.0076 U	0.033 UJ	0.0063 U
cis-1,3-Dichloropropene	mg/kg			0.0096 U	0.012 U	0.01 U	0.0076 U	-	-
Dibromochloromethane	mg/kg	NV	NV	0.0096 U	0.012 U	0.01 U	0.0076 U	0.033 UJ	0.0063 U
Ethylbenzene	mg/kg	NV	NV	0.0096 U	0.012 U	0.01 U	0.0076 U	0.033 UJ	0.0013 J
m&p-Xylenes	mg/kg			-	-	-	-	0.033 UJ	0.0063 U
Methylene chloride	mg/kg	NV	NV	0.019 U	0.023 U	0.02 U	0.015 U	0.065 UJ	0.013 U
o-Xylene	mg/kg			-	-	-	-	0.033 UJ	0.0063 U
Styrene	mg/kg	NV	NV	0.0096 U	0.012 U	0.01 U	0.0076 U	0.033 UJ	0.0063 U
Tetrachloroethene	mg/kg	NV	NV	0.0096 U	0.012 U	0.01 U	0.0076 U	0.033 UJ	0.0063 U
Toluene	mg/kg	NV	NV	0.0096 U	0.012 U	0.01 U	0.0076 U	0.0035 J	0.00038 J
trans-1,2-Dichloroethene	mg/kg	NV	NV	0.0096 U	0.012 U	0.01 U	0.0076 U	0.033 UJ	0.0063 U
trans-1,3-Dichloropropene	mg/kg			0.0096 U	0.012 U	0.01 U	0.0076 U	-	-
Trichloroethene	mg/kg	NV	NV	0.0096 U	0.012 U	0.01 U	0.0076 U	0.033 UJ	0.0063 U
Vinyl chloride	mg/kg	NV	NV	0.019 U	0.023 U	0.02 U	0.015 U	0.033 UJ	0.0063 U
Xylenes (total)	mg/kg	NV	NV	0.0096 U	0.012 U	0.01 U	0.0076 U	-	-

Table 4.4
Summary of Sediment Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:				SD-01	SD-02	SD-03	SD-04	SD-05	SD-06
Sample ID:				SED-9973-112098-DG01	SED-9973-112098-DG02	SED-9973-112098-DG03	SED-9973-112098-DG04	SE-091514-RB-SD05	SE-091514-RB-SD06
Sample Date:				11/20/1998	11/20/1998	11/20/1998	11/20/1998	9/15/2014	9/15/2014
Sample Depth:				(0-0.5) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS	-	-
				Sediment Chemical Criteria					
Parameters	Units	Cleanup	Cleanup						
		Objective	Screening Level						
				a	b				
Semi-volatile Organic Compounds									
1,2,4-Trichlorobenzene	mg/kg	0.81	1.8	0.63 U	0.76 U	0.67 U	0.5 U	-	-
1,2-Dichlorobenzene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
1,3-Dichlorobenzene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
1,4-Dichlorobenzene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
2,4,5-Trichlorophenol	mg/kg			1.5 U	1.8 U	1.6 U	1.2 U	-	-
2,4,6-Trichlorophenol	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
2,4-Dichlorophenol	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
2,4-Dimethylphenol	mg/kg	0.029	0.029	0.63 U	0.76 U	0.67 U	0.5 U	1.1 U	0.36 U
2,4-Dinitrophenol	mg/kg			1.5 U	1.8 U	1.6 U	1.2 U	-	-
2,4-Dinitrotoluene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
2,6-Dinitrotoluene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
2-Chloronaphthalene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
2-Chlorophenol	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
2-Methylnaphthalene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
2-Methylphenol	mg/kg	0.063	0.063	0.63 U	0.76 U	0.67 U	0.5 U	1.1 U	0.36 U
2-Nitroaniline	mg/kg			1.5 U	1.8 U	1.6 U	1.2 U	-	-
2-Nitrophenol	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
3,3'-Dichlorobenzidine	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
3-Nitroaniline	mg/kg			1.5 U	1.8 U	1.6 U	1.2 U	-	-
4,6-Dinitro-2-methylphenol	mg/kg	NV	NV	1.5 U	1.8 U	1.6 U	1.2 U	6.4 U	2.2 U
4-Bromophenyl phenyl ether	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
4-Chloro-3-methylphenol	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
4-Chloroaniline	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
4-Chlorophenyl phenyl ether	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
4-Methylphenol	mg/kg	0.67	0.67	0.63 U	0.76 U	1.1 J ^{ab}	0.5 U	0.082 J	0.36 U
4-Nitroaniline	mg/kg			1.5 U	1.8 U	1.6 U	1.2 U	-	-
4-Nitrophenol	mg/kg			1.5 U	1.8 U	1.6 U	1.2 U	-	-
Acenaphthene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
Acenaphthylene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
Anthracene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
Benzo(a)anthracene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
Benzo(a)pyrene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
Benzo(b)fluoranthene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
Benzo(g,h,i)perylene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
Benzo(k)fluoranthene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
bis(2-Chloroethoxy)methane	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
bis(2-Chloroethyl)ether	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	47	78	0.63 U	0.46 J	0.61 J	0.5 U	1.1 U	0.36 U
Butyl benzylphthalate (BBP)	mg/kg	4.9	64	0.63 U	0.76 U	0.67 U	0.5 U	0.34 J	0.44
Carbazole	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
Chrysene	mg/kg	110	460	0.63 U	0.76 U	0.67 U	0.5 U	0.40 J	0.40
Dibenz(a,h)anthracene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
Dibenzofuran	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
Diethyl phthalate	mg/kg	61	110	0.63 U	0.76 U	0.67 U	0.5 U	1.1 U	0.36 U
Dimethyl phthalate	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
Di-n-butylphthalate (DBP)	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
Di-n-octyl phthalate (DnOP)	mg/kg	58	4500	0.63 U	0.76 U	0.67 U	0.5 U	0.087 J	0.36 U
Fluoranthene	mg/kg	160	1200	0.63 U	0.76 U	0.67 U	0.5 U	0.30 J	0.28 J
Fluorene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-

Table 4.4
Summary of Sediment Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location: Sample ID: Sample Date: Sample Depth:				SD-01	SD-02	SD-03	SD-04	SD-05	SD-06
				SED-9973-112098-DG01	SED-9973-112098-DG02	SED-9973-112098-DG03	SED-9973-112098-DG04	SE-091514-RB-SD05	SE-091514-RB-SD06
				11/20/1998	11/20/1998	11/20/1998	11/20/1998	9/15/2014	9/15/2014
				(0-0.5) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS	-	-
Parameters	Units	Sediment Chemical Criteria							
		Cleanup Objective a	Cleanup Screening Level b						
Hexachlorobenzene	mg/kg	0.38	2.3	0.63 U	0.76 U	0.67 U	0.5 U	1.1 U	0.36 U
Hexachlorobutadiene	mg/kg	3.9	6.2	0.63 U	0.76 U	0.67 U	0.5 U	1.1 U	0.36 U
Hexachlorocyclopentadiene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
Hexachloroethane	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
Indeno(1,2,3-cd)pyrene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
Isophorone	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
Naphthalene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
Nitrobenzene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
N-Nitrosodi-n-propylamine	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
N-Nitrosodiphenylamine	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
Pentachlorophenol	mg/kg			1.5 U	1.8 U	1.6 U	1.2 U	-	-
Phenanthrene	mg/kg			0.63 U	0.76 U	0.67 U	0.5 U	-	-
Phenol	mg/kg	0.42	1.2	0.63 U	0.76 U	0.67 U	0.5 U	1.1 U	0.36 U
Pyrene	mg/kg	1000	1400	0.63 U	0.76 U	0.67 U	0.5 U	0.20 J	0.24 J
Metals									
Aluminum	mg/kg			9220	20300 J	28700 J	9830	18600	8560
Antimony	mg/kg	NV	NV	3.8 J	2.8 J	2.6 J	0.8 U	9.6 J	3.9 J
Arsenic	mg/kg	57	93	10.1	59.9 J ^a	55.0 J	2.8	22.5	22.7
Barium	mg/kg	NV	NV	42.1	104 J	187 J	68.8	141	53.3
Beryllium	mg/kg	NV	NV	0.4 U	0.5 U	0.4 U	0.3 U	0.37 J	0.13 J
Cadmium	mg/kg	5.1	6.7	1.7	2.5 J	4.1 J	1.2	3.75	0.87
Calcium	mg/kg			5770	6870 J	5870 J	3530	10800 J	4040 J
Chromium	mg/kg	260	270	24.9 J	39.2 J	44.8 J	18.3 J	51.2	24.6
Cobalt	mg/kg	NV	NV	5.2	9.7 J	13.6 J	6.4	13.0	5.65
Copper	mg/kg	390	390	28.7	94.5 J	147 J	19.9	91.6	73.2
Iron	mg/kg			18600	26300 J	36500 J	17300	31800	17800
Lead	mg/kg	450	530	34.4	122 J	147 J	14.2	139	98.0
Magnesium	mg/kg			2830	4220 J	4580 J	2520	5200	2610
Manganese	mg/kg	NV	NV	273	885 J	1620 J	349	378	116
Mercury	mg/kg	0.41	0.59	0.2 J	0.2 J	0.2 J	0.2 U	0.335	3.03 ^{ab}
Nickel	mg/kg	NV	NV	17.4	34.6 J	50.9 J	19.9	51.6	19.8
Potassium	mg/kg			610	1070 J	1430 J	653	1040	667
Selenium	mg/kg	NV	NV	1.0 U	1.2 U	1.0 U	0.8 U	6.4 J	2.2 J
Silver	mg/kg	6.1	6.1	0.2 U	0.2 U	0.2 J	0.2 U	2.6 U	0.2 J
Sodium	mg/kg			465	348 J	807 J	258	657	729
Thallium	mg/kg	NV	NV	3.8 U	4.6 U	4.1 U	3.1 U	6.5 U	1.9 U
Vanadium	mg/kg	NV	NV	49.7	62.2 J	73.3 J	35.2	70.8	43.5
Zinc	mg/kg	410	960	151	297 J	705 J ^a	112	570 ^a	223
PCBs									
Aroclor-1016 (PCB-1016)	mg/kg	12 ¹	65 ¹	0.15 U	0.18 U	0.16 U	0.12 U	0.053 U	0.041 U
Aroclor-1221 (PCB-1221)	mg/kg	12 ¹	65 ¹	0.15 U	0.18 U	0.16 U	0.12 U	0.11 U	0.054 U
Aroclor-1232 (PCB-1232)	mg/kg	12 ¹	65 ¹	0.15 U	0.18 U	0.16 U	0.12 U	0.053 U	0.045 U
Aroclor-1242 (PCB-1242)	mg/kg	12 ¹	65 ¹	0.15 U	0.18 U	0.16 U	0.12 U	0.065	0.041 U
Aroclor-1248 (PCB-1248)	mg/kg	12 ¹	65 ¹	0.15 U	0.18 U	0.16 U	0.12 U	0.053 U	0.049 U
Aroclor-1254 (PCB-1254)	mg/kg	12 ¹	65 ¹	0.15 U	*	*	0.12 U	0.25	0.56
Aroclor-1260 (PCB-1260)	mg/kg	12 ¹	65 ¹	0.15 U	0.23 J*	0.39 J*	0.12 U	0.12	0.19

Table 4.4
Summary of Sediment Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:				SD-01	SD-02	SD-03	SD-04	SD-05	SD-06
Sample ID:				SED-9973-112098-DG01	SED-9973-112098-DG02	SED-9973-112098-DG03	SED-9973-112098-DG04	SE-091514-RB-SD05	SE-091514-RB-SD06
Sample Date:				11/20/1998	11/20/1998	11/20/1998	11/20/1998	9/15/2014	9/15/2014
Sample Depth:				(0-0.5) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS	(0-0.5) ft BGS	-	-
Parameters	Sediment Chemical Criteria								
	Units	Cleanup Objective a	Cleanup Screening Level b						
Pesticides									
4,4'-DDD	mg/kg	NV	NV	-	-	-	-	0.0025 J	0.0021 J
4,4'-DDE	mg/kg	NV	NV	0.031 U	0.037 U	0.033 U	0.024 U	0.0053 U	0.0018 U
4,4'-DDE/DDD	mg/kg			0.031 U	0.037 U	0.033 U	0.024 U	-	-
4,4'-DDT	mg/kg	NV	NV	0.031 U	0.037 U	0.033 U	0.024 U	0.018 U	0.055 U
Aldrin	mg/kg			0.015 U	0.018 U	0.016 U	0.012 U	-	-
alpha-BHC	mg/kg	NV	NV	0.015 U	0.018 U	0.016 U	0.012 U	0.0053 U	0.0018 U
alpha-Chlordane	mg/kg			0.015 U	0.018 U	0.016 U	0.012 U	-	-
beta-BHC	mg/kg	NV	NV	0.015 U	0.018 U	0.016 U	0.012 U	0.0053 U	0.0025 U
delta-BHC	mg/kg	NV	NV	0.015 U	0.018 U	0.016 U	0.012 U	0.0053 U	0.0018 U
Dieldrin	mg/kg			0.031 U	0.037 U	0.033 U	0.024 U	-	-
Endosulfan I	mg/kg			0.015 U	0.018 U	0.016 U	0.012 U	-	-
Endosulfan II	mg/kg			0.031 U	0.037 U	0.033 U	0.024 U	-	-
Endosulfan sulfate	mg/kg			0.031 U	0.037 U	0.033 U	0.024 U	-	-
Endrin	mg/kg			0.031 U	0.037 U	0.033 U	0.024 U	-	-
Endrin aldehyde	mg/kg	NV	NV	0.031 U	0.037 U	0.033 U	0.024 U	0.0053 U	0.0041 U
gamma-BHC (lindane)	mg/kg	NV	NV	0.015 U	0.018 U	0.016 U	0.012 U	0.0013 J	0.0018 U
gamma-Chlordane	mg/kg			0.015 U	0.018 U	0.016 U	0.012 U	-	-
Heptachlor	mg/kg	NV	NV	0.015 U	0.018 U	0.016 U	0.012 U	0.0053 U	0.0018 U
Heptachlor epoxide	mg/kg			0.015 U	0.018 U	0.016 U	0.012 U	-	-
Methoxychlor	mg/kg			0.15 U	0.18 U	0.16 U	0.12 U	-	-
Toxaphene	mg/kg			0.31 U	0.37 U	0.33 U	0.24 U	-	-
General Chemistry									
Cyanide (total)	mg/kg	NV	NV	0.96 U	1.2 U	1.0 U	0.76 U	0.82 U	0.27 U

Table 4.4
Summary of Sediment Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:				SD-07	SD-08	SD-09	SD-10	SD-11	SD-12
Sample ID:				SE-091514-RB-SD07	SE-091514-RB-SD08	SE-091514-RB-SD09	SE-091514-RB-SD10	SE-091514-RB-SD11	SE-091514-RB-SD12
Sample Date:				9/15/2014	9/15/2014	9/15/2014	9/15/2014	9/15/2014	9/15/2014
Sample Depth:				-	-	-	-	-	-
Parameters	Sediment Chemical Criteria								
	Units	Cleanup	Cleanup						
		Objective	Screening						
		a	b						
Volatile Organic Compounds									
1,1,1-Trichloroethane	mg/kg			-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg			-	-	-	-	-	-
1,1,2-Trichloroethane	mg/kg			-	-	-	-	-	-
1,1-Dichloroethane	mg/kg			-	-	-	-	-	-
1,1-Dichloroethene	mg/kg	NV	NV	0.012 UJ	0.0085 U	0.0075 U	0.0079 U	0.0048 U	0.0057 U
1,2,4-Trichlorobenzene	mg/kg	0.81	1.8	0.045 UJ	0.034 U	0.03 U	0.032 U	0.019 U	0.023 U
1,2-Dichloroethane	mg/kg			-	-	-	-	-	-
1,2-Dichloropropane	mg/kg			-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	NV	NV	0.018 J	0.011 J	0.01 J	0.033	0.0028 J	0.0062 J
2-Hexanone	mg/kg	NV	NV	0.045 UJ	0.034 U	0.03 U	0.032 U	0.019 U	0.023 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	NV	NV	0.045 UJ	0.034 U	0.03 U	0.032 U	0.019 U	0.023 U
Acetone	mg/kg	NV	NV	0.15 J	0.09	0.13	0.15	0.036	0.045
Benzene	mg/kg	NV	NV	0.0052 J	0.0012 J	0.0004 J	0.00019 J	0.00057 J	0.0039 J
Bromodichloromethane	mg/kg			-	-	-	-	-	-
Bromoform	mg/kg	NV	NV	0.012 UJ	0.0085 UJ	0.0075 UJ	0.0079 UJ	0.0048 UJ	0.0057 UJ
Bromomethane (Methyl bromide)	mg/kg			-	-	-	-	-	-
Carbon disulfide	mg/kg	NV	NV	0.012 UJ	0.0085 U	0.0075 U	0.02	0.0048 U	0.039
Carbon tetrachloride	mg/kg	NV	NV	0.012 UJ	0.0085 U	0.0075 U	0.0079 U	0.0048 U	0.0057 U
Chlorobenzene	mg/kg			-	-	-	-	-	-
Chloroethane	mg/kg			-	-	-	-	-	-
Chloroform (Trichloromethane)	mg/kg			-	-	-	-	-	-
Chloromethane (Methyl chloride)	mg/kg	NV	NV	0.012 UJ	0.0085 U	0.0075 U	0.0079 U	0.0048 U	0.0057 U
cis-1,2-Dichloroethene	mg/kg	NV	NV	0.012 UJ	0.0085 U	0.0075 U	0.0079 U	0.0048 U	0.0057 U
cis-1,3-Dichloropropene	mg/kg			-	-	-	-	-	-
Dibromochloromethane	mg/kg	NV	NV	0.012 UJ	0.0085 U	0.0075 U	0.0079 U	0.0048 U	0.0057 U
Ethylbenzene	mg/kg	NV	NV	0.00078 J	0.0013 J	0.0075 U	0.0022 J	0.0048 U	0.0057 U
m&p-Xylenes	mg/kg			0.0015 J	0.00036 J	0.0075 U	0.0079 U	0.0048 U	0.0057 U
Methylene chloride	mg/kg	NV	NV	0.023 UJ	0.017 U	0.015 U	0.016 U	0.0095 U	0.012 U
o-Xylene	mg/kg			0.0006 J	0.0085 U	0.0075 U	0.0079 U	0.0048 U	0.0057 U
Styrene	mg/kg	NV	NV	0.012 UJ	0.0085 U	0.0075 U	0.0079 U	0.0048 U	0.0057 U
Tetrachloroethene	mg/kg	NV	NV	0.012 UJ	0.0085 U	0.0075 U	0.0079 U	0.0048 U	0.0057 U
Toluene	mg/kg	NV	NV	0.011 J	0.017	0.0006 J	0.013	0.00088 J	0.0008 J
trans-1,2-Dichloroethene	mg/kg	NV	NV	0.012 UJ	0.0085 U	0.0075 U	0.0079 U	0.0048 U	0.0057 U
trans-1,3-Dichloropropene	mg/kg			-	-	-	-	-	-
Trichloroethene	mg/kg	NV	NV	0.0012 J	0.0085 U	0.0075 U	0.0079 U	0.0048 U	0.00064 J
Vinyl chloride	mg/kg	NV	NV	0.012 UJ	0.0085 U	0.0075 U	0.0079 U	0.0048 U	0.0057 U
Xylenes (total)	mg/kg	NV	NV	-	-	-	-	-	-

Table 4.4
Summary of Sediment Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:
Sample ID:
Sample Date:
Sample Depth:

Sample Location:				SD-07	SD-08	SD-09	SD-10	SD-11	SD-12
Sample ID:				SE-091514-RB-SD07	SE-091514-RB-SD08	SE-091514-RB-SD09	SE-091514-RB-SD10	SE-091514-RB-SD11	SE-091514-RB-SD12
Sample Date:				9/15/2014	9/15/2014	9/15/2014	9/15/2014	9/15/2014	9/15/2014
Sample Depth:				-	-	-	-	-	-
Parameters	Sediment Chemical Criteria								
	Units	Cleanup	Cleanup						
		Objective a	Screening Level b						
Semi-volatile Organic Compounds									
1,2,4-Trichlorobenzene	mg/kg	0.81	1.8	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg			-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg			-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg			-	-	-	-	-	-
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg			-	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg			-	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg			-	-	-	-	-	-
2,4-Dichlorophenol	mg/kg			-	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.029	0.029	0.39 U	0.40 U	0.33 U	0.39 U	0.32 U	0.32 U
2,4-Dinitrophenol	mg/kg			-	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg			-	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg			-	-	-	-	-	-
2-Chloronaphthalene	mg/kg			-	-	-	-	-	-
2-Chlorophenol	mg/kg			-	-	-	-	-	-
2-Methylnaphthalene	mg/kg			-	-	-	-	-	-
2-Methylphenol	mg/kg	0.063	0.063	0.39 U	0.40 U	0.33 U	0.39 U	0.32 U	0.32 U
2-Nitroaniline	mg/kg			-	-	-	-	-	-
2-Nitrophenol	mg/kg			-	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg			-	-	-	-	-	-
3-Nitroaniline	mg/kg			-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	mg/kg	NV	NV	2.4 U	2.4 U	2.0 U	2.4 U	1.9 U	2.0 U
4-Bromophenyl phenyl ether	mg/kg			-	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg			-	-	-	-	-	-
4-Chloroaniline	mg/kg			-	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg			-	-	-	-	-	-
4-Methylphenol	mg/kg	0.67	0.67	0.022 J	0.027 J	0.33 U	0.39 U	0.32 U	0.32 U
4-Nitroaniline	mg/kg			-	-	-	-	-	-
4-Nitrophenol	mg/kg			-	-	-	-	-	-
Acenaphthene	mg/kg			-	-	-	-	-	-
Acenaphthylene	mg/kg			-	-	-	-	-	-
Anthracene	mg/kg			-	-	-	-	-	-
Benzo(a)anthracene	mg/kg			-	-	-	-	-	-
Benzo(a)pyrene	mg/kg			-	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg			-	-	-	-	-	-
Benzo(g,h,i)perylene	mg/kg			-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg			-	-	-	-	-	-
bis(2-Chloroethoxy)methane	mg/kg			-	-	-	-	-	-
bis(2-Chloroethyl)ether	mg/kg			-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	47	78	1.2 U	14	0.33 U	0.39 U	0.32 U	0.32 U
Butyl benzylphthalate (BBP)	mg/kg	4.9	64	0.41	0.47	0.33 U	0.11 J	0.32 U	0.046 J
Carbazole	mg/kg			-	-	-	-	-	-
Chrysene	mg/kg	110	460	0.93	1.2	0.018 J	0.11 J	0.32 U	0.022 J
Dibenz(a,h)anthracene	mg/kg			-	-	-	-	-	-
Dibenzofuran	mg/kg			-	-	-	-	-	-
Diethyl phthalate	mg/kg	61	110	0.39 U	0.40 U	0.33 U	0.39 U	0.32 U	0.32 U
Dimethyl phthalate	mg/kg			-	-	-	-	-	-
Di-n-butylphthalate (DBP)	mg/kg			-	-	-	-	-	-
Di-n-octyl phthalate (DnOP)	mg/kg	58	4500	0.069 J	0.40 U	0.33 U	0.39 U	0.32 U	0.32 U
Fluoranthene	mg/kg	160	1200	0.59	0.25 J	0.031 J	0.063 J	0.32 U	0.018 J
Fluorene	mg/kg			-	-	-	-	-	-

Table 4.4
Summary of Sediment Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:
Sample ID:
Sample Date:
Sample Depth:

				SD-07 SE-091514-RB-SD07 9/15/2014 -	SD-08 SE-091514-RB-SD08 9/15/2014 -	SD-09 SE-091514-RB-SD09 9/15/2014 -	SD-10 SE-091514-RB-SD10 9/15/2014 -	SD-11 SE-091514-RB-SD11 9/15/2014 -	SD-12 SE-091514-RB-SD12 9/15/2014 -
Parameters	Sediment Chemical Criteria								
	Units	Cleanup Objective	Cleanup Screening Level						
		a	b						
Hexachlorobenzene	mg/kg	0.38	2.3	0.39 U	0.40 U	0.33 U	0.39 U	0.32 U	0.32 U
Hexachlorobutadiene	mg/kg	3.9	6.2	0.39 U	0.40 U	0.33 U	0.39 U	0.32 U	0.32 U
Hexachlorocyclopentadiene	mg/kg			-	-	-	-	-	-
Hexachloroethane	mg/kg			-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg			-	-	-	-	-	-
Isophorone	mg/kg			-	-	-	-	-	-
Naphthalene	mg/kg			-	-	-	-	-	-
Nitrobenzene	mg/kg			-	-	-	-	-	-
N-Nitrosodi-n-propylamine	mg/kg			-	-	-	-	-	-
N-Nitrosodiphenylamine	mg/kg			-	-	-	-	-	-
Pentachlorophenol	mg/kg			-	-	-	-	-	-
Phenanthrene	mg/kg			-	-	-	-	-	-
Phenol	mg/kg	0.42	1.2	0.39 U	0.40 U	0.33 U	0.39 U	0.32 U	0.32 U
Pyrene	mg/kg	1000	1400	0.62	0.29 J	0.026 J	0.050 J	0.32 U	0.018 J
Metals									
Aluminum	mg/kg			15200	16100	10000	7780	11700	8040
Antimony	mg/kg	NV	NV	4.8 J	8.0 J	3.5 UJ	1.2 J	3.3 UJ	4.1 UJ
Arsenic	mg/kg	57	93	16.8	66.3 ^a	5.6	5.9	3.0 J	5.9
Barium	mg/kg	NV	NV	211	167	51.5	46.5	61.5	45.2
Beryllium	mg/kg	NV	NV	0.26	0.30	0.13 J	0.08 J	0.16 J	0.11 J
Cadmium	mg/kg	5.1	6.7	4.31	3.66	0.25	0.41	0.07 J	0.23
Calcium	mg/kg			4860 J	4520 J	4270 J	3720 J	2200 J	2780 J
Chromium	mg/kg	260	270	44.6	41.8	21.8	18.4	25.8	17.6
Cobalt	mg/kg	NV	NV	10.2	10.5	5.40	4.14	5.80	5.16
Copper	mg/kg	390	390	226	154	20.6	37.4	11.9	17.1
Iron	mg/kg			24400	23700	13400	12500	13000	13200
Lead	mg/kg	450	530	360	222	18.4	44.3	5.0	13.1
Magnesium	mg/kg			3530	4280	3580	2570	3800	2770
Manganese	mg/kg	NV	NV	445	249	213	147	166	345
Mercury	mg/kg	0.41	0.59	0.846 ^{ab}	0.342	0.034	0.099	0.025	0.025
Nickel	mg/kg	NV	NV	55.5	48.9	24.1	15.2	29.0	16.7
Potassium	mg/kg			857	944	606	565	537	560
Selenium	mg/kg	NV	NV	2.9 J	2.3 J	1.4 J	1.0 J	1.5 J	1.9 J
Silver	mg/kg	6.1	6.1	1.1	0.3 J	0.2 J	0.8 U	0.2 J	0.8 U
Sodium	mg/kg			342	381	212	536	190	187
Thallium	mg/kg	NV	NV	2.0 U	2.0 U	1.8 U	2.1 U	1.6 U	2.1 U
Vanadium	mg/kg	NV	NV	43.7	50.6	32.7	35.2	31.6	27.6
Zinc	mg/kg	410	960	947 ^a	690 ^a	86.2	103	31.5	139
PCBs									
Aroclor-1016 (PCB-1016)	mg/kg	12 ¹	65 ¹	0.020 U	0.020 U	0.017 U	0.020 U	0.016 U	0.016 U
Aroclor-1221 (PCB-1221)	mg/kg	12 ¹	65 ¹	0.040 U	0.040 U	0.034 U	0.040 U	0.032 U	0.032 U
Aroclor-1232 (PCB-1232)	mg/kg	12 ¹	65 ¹	0.020 U	0.020 U	0.017 U	0.020 U	0.016 U	0.016 U
Aroclor-1242 (PCB-1242)	mg/kg	12 ¹	65 ¹	0.051 J	0.013 J	0.017 U	0.0092 J	0.016 U	0.016 U
Aroclor-1248 (PCB-1248)	mg/kg	12 ¹	65 ¹	0.020 U	0.020 U	0.017 U	0.020 U	0.016 U	0.016 U
Aroclor-1254 (PCB-1254)	mg/kg	12 ¹	65 ¹	0.54	0.18	0.017 U	0.041	0.016 U	0.016 U
Aroclor-1260 (PCB-1260)	mg/kg	12 ¹	65 ¹	0.37	0.13	0.017 U	0.025	0.016 U	0.016 U

Table 4.4
Summary of Sediment Analytical Data
1913 Marine View Drive
Tacoma, Washington

Sample Location:
Sample ID:
Sample Date:
Sample Depth:

Sample Location:				SD-07	SD-08	SD-09	SD-10	SD-11	SD-12
Sample ID:				SE-091514-RB-SD07	SE-091514-RB-SD08	SE-091514-RB-SD09	SE-091514-RB-SD10	SE-091514-RB-SD11	SE-091514-RB-SD12
Sample Date:				9/15/2014	9/15/2014	9/15/2014	9/15/2014	9/15/2014	9/15/2014
Sample Depth:				-	-	-	-	-	-
Parameters	Sediment Chemical Criteria								
	Units	Cleanup	Cleanup						
		Objective	Screening						
		a	b						
Pesticides									
4,4'-DDD	mg/kg	NV	NV	0.0085	0.0017 J	0.0017 U	0.002 U	0.0016 U	0.0016 U
4,4'-DDE	mg/kg	NV	NV	0.0029 U	0.002 U	0.0017 U	0.002 U	0.0016 U	0.0016 U
4,4'-DDE/DDD	mg/kg			-	-	-	-	-	-
4,4'-DDT	mg/kg	NV	NV	0.062 U	0.025 U	0.0017 U	0.0028 U	0.0016 U	0.0016 U
Aldrin	mg/kg			-	-	-	-	-	-
alpha-BHC	mg/kg	NV	NV	0.002 U	0.002 U	0.0017 U	0.002 U	0.0016 U	0.0016 U
alpha-Chlordane	mg/kg			-	-	-	-	-	-
beta-BHC	mg/kg	NV	NV	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U
delta-BHC	mg/kg	NV	NV	0.002 U	0.002 U	0.0017 U	0.002 U	0.0016 U	0.0016 U
Dieldrin	mg/kg			-	-	-	-	-	-
Endosulfan I	mg/kg			-	-	-	-	-	-
Endosulfan II	mg/kg			-	-	-	-	-	-
Endosulfan sulfate	mg/kg			-	-	-	-	-	-
Endrin	mg/kg			-	-	-	-	-	-
Endrin aldehyde	mg/kg	NV	NV	0.0041 U	0.002 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U
gamma-BHC (lindane)	mg/kg	NV	NV	0.002 U	0.002 U	0.0017 U	0.002 U	0.0016 U	0.0016 U
gamma-Chlordane	mg/kg			-	-	-	-	-	-
Heptachlor	mg/kg	NV	NV	0.002 U	0.002 U	0.0017 U	0.002 U	0.0016 U	0.0016 U
Heptachlor epoxide	mg/kg			-	-	-	-	-	-
Methoxychlor	mg/kg			-	-	-	-	-	-
Toxaphene	mg/kg			-	-	-	-	-	-
General Chemistry									
Cyanide (total)	mg/kg	NV	NV	0.24 J	0.32 U	0.24 U	0.31 U	0.25 U	0.25 U

Table 4.4
Summary of Sediment Analytical Data
1913 Marine View Drive
Tacoma, Washington

Notes:

The sediment cleanup criteria are from WAC 173-204-562(2) Table III Marine Sediment, Sediment Cleanup Objectives and Cleanup Screening Levels, Chemical Criteria

- (a)Cleanup Objective.
The sediment cleanup objectives establish a no adverse effects level, including no acute or chronic adverse effects, to the benthic community.
Chemical concentrations at or below the sediment cleanup objectives correspond to sediment quality that results in no adverse effects to the benthic community.
- (b)Cleanup Screening Level.
The cleanup screening levels establish a minor adverse effects level, including acute or chronic effects, to the benthic community.
Chemical concentrations at or below the cleanup screening level but greater than the sediment cleanup objective correspond to sediment quality that could result in minor adverse effects to the benthic community.
- ¹Criteria is for total PCBs.
- NVNo value.
- 1.1 J^{ab}

Concentration exceeds level identified in superscript.
- JEstimated.
- UNon-detect at associated value.
- UJEstimated reporting limit.

Table 4.5

**Groundwater Monitoring Wells Construction Details
1913 Marine View Drive
Tacoma, Washington**

Shallow Groundwater			
Well ID	Year of Install	Total depth	Screen Interval
GM-B-1	1984	14	8-13
GM-B-2	1984	11	5-10
GM-B-3R	1998	12	7-12
GM-B-6R	1998	12	7-12
Deeper Groundwater			
Well ID	Year of Install	Total depth	Screen Interval
GM-B-1A	1998	22	15-20
BM-B-2A	1998	22	15-20
GM-B-6A	1998	24	19-24

Appendices

Appendix A

Environmental Document List

Environmental Document List: 1913 Marine View Drive, Tacoma, Washington

Title	Author	Date
Tacoma Off Plant Disposal Site Investigation	Conestoga-Rovers & Associates	Dec-84
1988 Sampling Memorandum, General Metals Site	Occidental Chemical Corporation	Nov-88
Review of Site Conditions and Proposed Additional Work	Conestoga-Rovers & Associates	Sep-98
Site Characterization Report,	Conestoga-Rovers & Associates	Apr-99
QA/QC Review Lime Sludge Samples,	Conestoga-Rovers & Associates	Nov-04
Remedial Investigation/Feasibility Study Work Plan	Conestoga-Rovers & Associates	Sep-13

Appendix B

Property Legal Description

Exhibit B

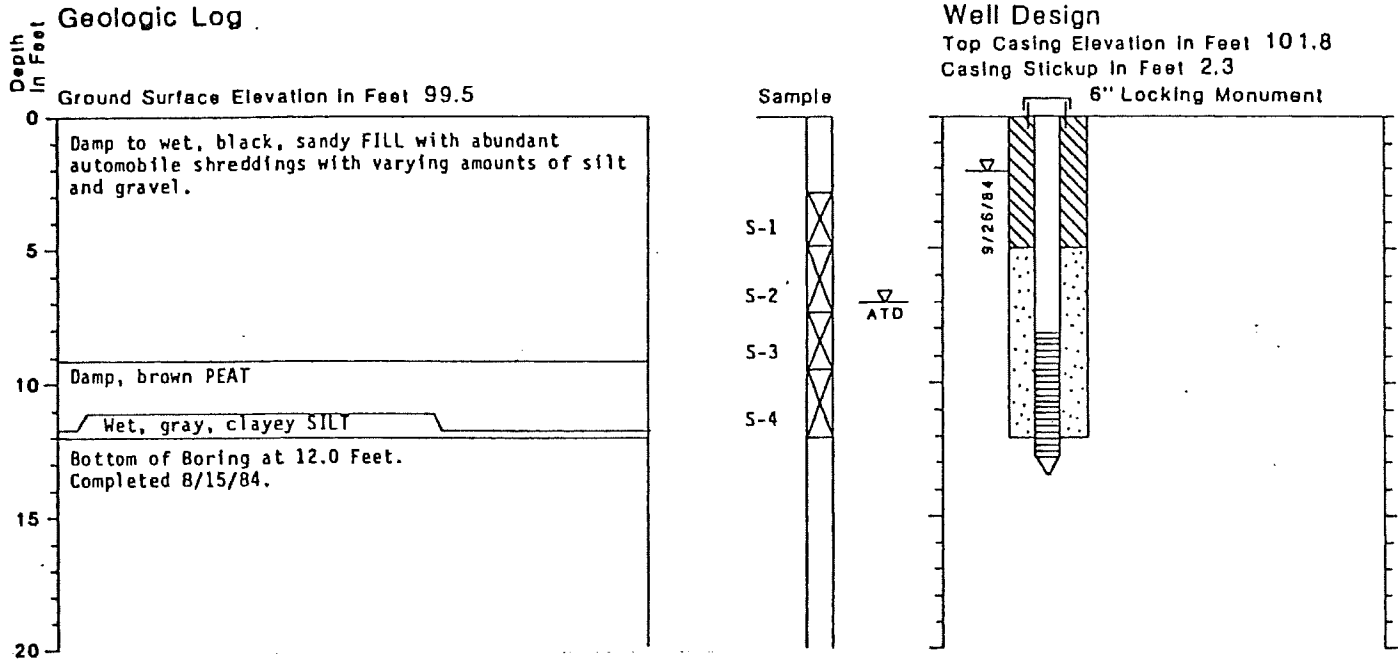
LEGAL DESCRIPTION

Section 36 Township 21 Range 03 Quarter 21 : BEG AT NE COR OF GOVT LOT 1 TH S ALG E LI SD GOVT LOT 1 660 FT TO NE COR OF S 1/2 OF NE OF NW TH N 88 DEG 14 MIN 00 SEC W ALG N LI OF SD SUBD 150 FT TH S 00 DEG 16 MIN 35 SEC E PAR/W E LI OF SD SUBD 251.08 FT TH N 64 DEG 25 MIN 55 SEC W 89.19 FT TH N 69 DEG 01 MIN 10 SEC W 235.81 FT TH NELY TO A PT ON N LI OF SD GOVT LOT 1 SD PT BEING 250 FT W OF NE COR OF SD GOVT LOT 1 TH E ALG N LI OF SD LOT 250 FT TO POB EASE OF RECORD OUT OF 2/050 SEG H 2352 BG

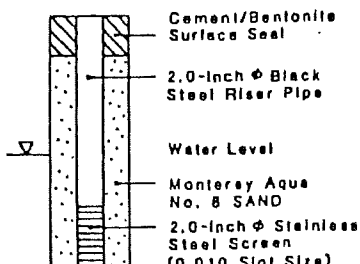
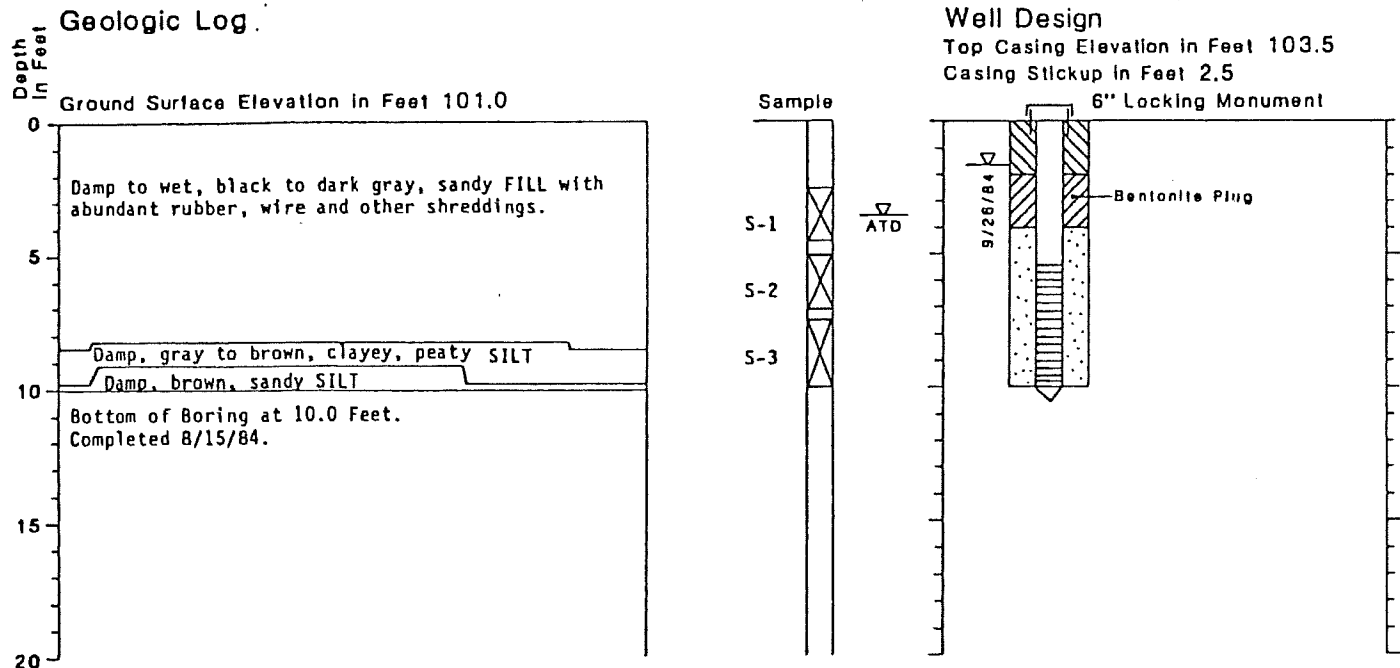
Appendix C

Monitoring Well Stratigraphic and Instrumentation Logs

Boring Log and Construction Data for Well GM-B-1



Boring Log and Construction Data for Well GM-B-2



- $\boxtimes$ 2-inch O.D. Split Spoon Sample
- * No Sample Recovery
- N Standard Penetration Resistance, Blows per foot
- GS Grain Size Analysis
- K Permeability Test

NOTES:

1. Soil descriptions are interpretive and actual changes may be gradual.
2. Water Level is for date indicated and may vary with time of year. ATD: At Time of Drilling

J-1336-01 September 1984
HART-CROWSER & associates, inc.

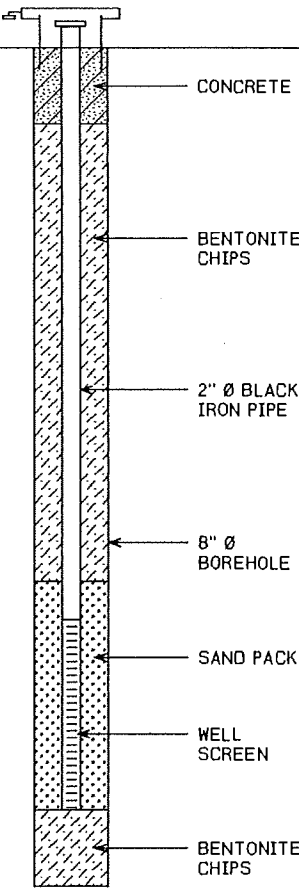
Figure 3

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(VL-28)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

HOLE DESIGNATION: GM-B-1A
DATE COMPLETED: NOVEMBER 19, 1998
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. GRAY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	13.260 11.13					
	ML-SILT (TOPSOIL), with fine sand, trace gravel, trace clay, firm, low plasticity, brown, moist, rootlets	10.63		1SS	X	43	
-2.5	SM-SAND (FILL), with silt, trace to with gravel, dense, fine to coarse grained, well graded, brown, moist, rootlets	9.63 9.13		2SS	X	>50	
-5.0	SM-SAND (FILL), with to and silt, trace gravel, dense, fine to coarse grained, well graded, gray with black staining, moist, slight odour, steel and wood fragments	5.13		3SS	X	>50	
-7.5	SW-SAND (FILL), trace silt, trace gravel, very dense, fine to coarse grained, well graded, gray, moist, slight odour			4SS	X	>50	
-10.0	SM-SILTY SAND (FILL), with refuse, very dense, fine to coarse grained, well graded, gray, very moist, slightly dilatant, steel, rubber, wood and wire fragments	1.13		5SS	X	>50	
-12.5	- and silt, trace clay, extremely dense, wet, dilatant @ 8.00 ft BGS	-0.87		6SS	X	17	
	ML-SANDY SILT, trace clay, trace gravel, stiff, medium plasticity, gray, very moist to wet, random areas of fibrous peat			7SS	X	8	
-15.0	ML-CLAYEY SILT, with peat, trace fine sand, firm, medium plasticity, fibrous, brown, very moist, slightly dilatant			8SS	X	11	
-17.5	- moist to very moist @ 14.00 ft BGS - moist @ 16.00 ft BGS - very stiff, wet @ 18.00 ft BGS			9SS	X	10	
-20.0	ML-SANDY SILT, trace clay, trace gravel, very stiff, low plasticity, gray, moist	-8.70		10SS	X	22	
-22.5	- with clay, with peat, firm, medium plasticity, black, moist @ 20.00 ft BGS END OF HOLE @ 22.00 ft BGS	-10.87		11SS	X	11	
-25.0	NOTE: 1. Original GM-B-2 is installed to 12.00 ft BGS.						
-27.5							
-30.0							
-32.5							

SCREEN DETAILS
Screened Interval:
15.00 to 20.00 ft BGS
Length: 5.00 ft
Diameter: 2"
Slot Size: #10
Material: STAINLESS STEEL
Sand Pack:
14.00 to 20.00 ft BGS
Material: No. 10x20 Silica Sand

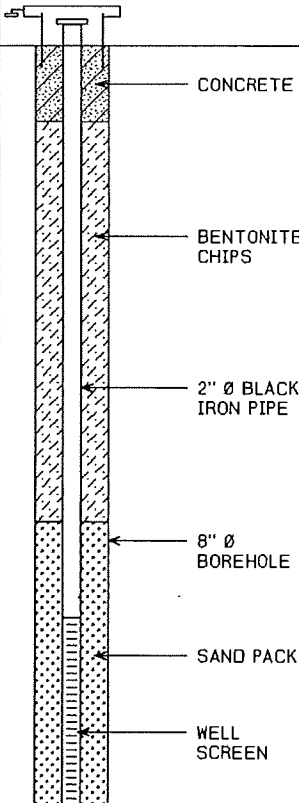
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(VL-29)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

HOLE DESIGNATION: GM-B-2A
DATE COMPLETED: NOVEMBER 19, 1998
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. GRAY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	15.150 12.96	 CONCRETE BENTONITE CHIPS 2" Ø BLACK IRON PIPE 8" Ø BOREHOLE SAND PACK WELL SCREEN				
2.5	ML-SILT (TOPSOIL), with fine sand, trace gravel, trace clay, stiff, low plasticity, dark brown, moist, rootlets	12.30		1SS	X	58	
	SM-SILTY SAND (FILL), trace gravel, very dense, fine to coarse grained, well graded, brown, moist, brick fragments			2SS	X	23	
5.0	- compact, gray, very moist, slightly dilatant @ 2.00 ft BGS	8.96		3SS	X	16	
	- with silt, black @ 3.00 ft BGS			4SS	X	24	
7.5	ML-SILT (FILL), with sand, trace gravel, trace clay, stiff, low plasticity, dark gray, wet, dilatant, steel, rubber and wood fragments			5SS	X	15	
10.0	- and sand, very stiff, fine to medium grained, poorly graded, black, wet, wire fragments @ 6.00 ft BGS	4.46		6SS	X	13	
	PT-PEAT, with silt, with clay, trace fine sand, stiff, fibrous, light brown, moist to very moist	2.96		7SS	X	13	
12.5	ML-CLAYEY SILT, trace fine sand, stiff, medium plasticity, brown, wet, large amounts of fibrous peat			8SS	X	40	
15.0	- and peat, firm to stiff, medium plasticity, fibrous, very moist to wet, dilatant @ 12.00 ft BGS			9SS	X	40	
17.5	- with to trace fine sand, hard, frequent small 1/8" thick SM-SAND (SEAM), with silt, fine to coarse grained, well graded, gray, wet @ 14.00 ft BGS			10SS	X	37	
20.0	- trace gravel, very wet, slurry like, fluid like @ 16.00 ft BGS	-5.29					
22.5	SM-SILTY SAND, trace gravel, dense, fine to medium grained, poorly graded, gray, moist to very moist	-7.04					
25.0	END OF HOLE @ 20.00 ft BGS						
27.5							
30.0							
32.5							

SCREEN DETAILS
Screened Interval:
15.00 to 20.00 ft BGS
Length: 5.00 ft
Diameter: 2"
Slot Size: #10
Material: STAINLESS STEEL
Sand Pack:
12.50 to 20.00 ft BGS
Material: No. 10x20 Silica Sand

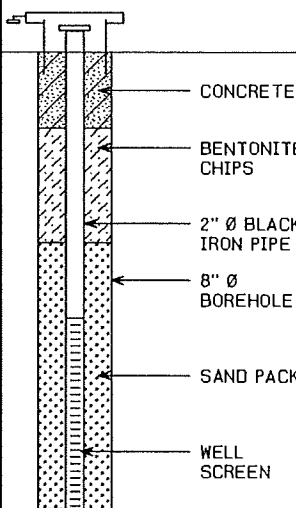
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ♀ STATIC WATER LEVEL ♀

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(VL-30)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

HOLE DESIGNATION: GM-B-3R
DATE COMPLETED: NOVEMBER 19, 1998
DRILLING METHOD: 4 1/2" ID HSA
CRA SUPERVISOR: D. GRAY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	28.460 26.60	 CONCRETE BENTONITE CHIPS 2" Ø BLACK IRON PIPE 8" Ø BOREHOLE SAND PACK WELL SCREEN				
	ML-SANDY SILT (TOPSOIL), trace gravel, trace clay, very stiff, low plasticity, brown, moist, rootlets	26.35		1SS	X	27	
-2.5	ML-SILT (FILL), with fine sand, trace clay, trace gravel, very stiff, low plasticity, dark brown, moist, steel and rubber fragments, rootlets	24.60		2SS	X	24	
-5.0	SM-SILTY SAND (FILL), trace gravel, compact, fine to coarse grained, well graded, gray, moist, steel and rubber fragments	21.10		3SS	X	16	
-7.5	- very moist to wet, dilatant @ 4.00 ft BGS			4SS	X	7	
-10.0	ML/PT-CLAYEY SILT and PEAT, trace fine sand, stiff, medium plasticity, fibrous, brown, moist			5SS	X	8	
-12.5	- numerous thin 1/8" thick SM-SAND (SEAM), with silt, fine to medium grained, poorly graded, gray, wet @ 6.00 ft BGS	14.60		6SS	X	22	
-15.0	- wet, a lot of water into borehole @ 8.00 ft BGS						
-17.5	- very stiff, low plasticity, brown, moist @ 10.00 ft BGS						
-20.0	END OF HOLE @ 12.00 ft BGS						
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

SCREEN DETAILS
Screened interval:
7.00 to 12.00 ft BGS
Length: 5.00 ft
Diameter: 2"
Slot Size: #10
Material: STAINLESS STEEL
Sand Pack:
5.00 to 12.00 ft BGS
Material: No. 10x20 Silica Sand

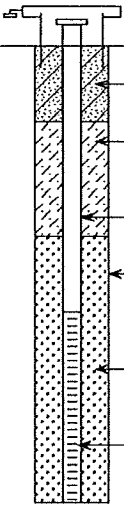
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(VL-32)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLEN SPRINGS HOLDINGS
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

HOLE DESIGNATION: GM-B-6R
DATE COMPLETED: NOVEMBER 18, 1998
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. GRAY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	16.200 14.68	 CONCRETE BENTONITE CHIPS 2" Ø BLACK IRON PIPE 8" Ø BOREHOLE SAND PACK WELL SCREEN				
	ML-SANDY SILT (TOPSOIL), trace gravel, trace clay, very stiff, low plasticity, brown, moist, rootlets	14.43		1SS		27	
2.5	ML-SILT (FILL), with fine sand, trace clay, trace gravel, very stiff, low plasticity, dark brown, moist, steel and rubber fragments, rootlets	12.68		2SS		24	
5.0	SM-SILTY SAND (FILL), trace gravel, compact, fine to coarse grained, well graded, gray, moist, steel and rubber fragments - very moist to wet, dilatant @ 4.00 ft BGS	9.18		3SS		16	
7.5	ML/PT-CLAYEY SILT and PEAT, trace fine sand, stiff, medium plasticity, fibrous, brown, moist			4SS		7	
10.0	- numerous thin 1/8" thick SM-SAND (SEAM), with silt, fine to medium grained, poorly graded, gray, wet @ 6.00 ft BGS - wet, a lot of water into borehole @ 8.00 ft BGS			5SS		8	
12.5	- very stiff, low plasticity, brown, moist @ 10.00 ft BGS	2.68		6SS		22	
15.0	END OF HOLE @ 12.00 ft BGS						
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

SCREEN DETAILS

Screened interval:

7.00 to 12.00 ft BGS

Length: 5.00 ft

Diameter: 2"

Slot Size: #10

Material: STAINLESS STEEL

Sand Pack:

4.00 to 12.00 ft BGS

Material: No. 10x20 Silica Sand

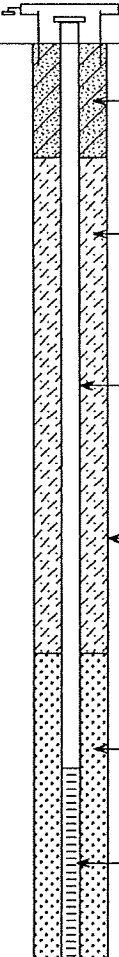
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(VL-31)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

HOLE DESIGNATION: GM-B-6A
DATE COMPLETED: NOVEMBER 18, 1998
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. GRAY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	16.710 14.84	 CONCRETE BENTONITE CHIPS 2" Ø BLACK IRON PIPE 8" Ø BOREHOLE SAND PACK WELL SCREEN				
	ML-SILT (TOPSOIL), with fine sand, trace clay, firm, low plasticity, brown, very moist	14.34		1SS		15	
-2.5	SW-SAND (FILL), trace gravel, trace silt, compact, fine to coarse grained, well graded, gray, very moist to wet, slight odour	12.34		2SS		>64	
-5.0	SM-SILTY SAND (FILL), with gravel, dense, fine to coarse grained, well graded, gray, very moist to wet, dilatant, random pieces of steel, rubber and wood			3SS		39	
-7.5	- dense, wet @ 4.00 ft BGS - loose, wet @ 6.00 ft BGS			4SS		6	
	CL/ML-CLAYEY SILT (DISPOSAL SLUDGE) (FILL), trace very fine sand, very soft, medium plasticity, white with gray and beige staining, moist, strong odour	6.84		5SS		2	
-10.0	- firm, very wet @ 10.00 ft BGS - moist @ 11.00 ft BGS - wet @ 12.00 BGS			6SS		6	
-12.5	ML-SILT (FILL), with clay, trace fine sand, firm, medium plasticity, brown, moist, strong odour, rootlets	1.84		7SS		5	
-15.0	CL/ML-CLAYEY SILT (DISPOSAL SLUDGE) (FILL), trace very fine sand, stiff, medium to high plasticity, light gray with brown staining, wet	.84 .34		8SS		10	
-17.5	ML-CLAYEY SILT, trace very fine sand, stiff, medium plasticity, brown, moist, slight odour, rootlets, pieces of wire	-.99		9SS		9	
-20.0	SW-SAND, trace silt, fine to coarse grained, well graded, gray, very moist - frequent 1/8" thick sand seams, frequent wood fragments, rootlets @ 16.00 ft BGS	-3.16 -4.91		10SS		6	
-22.5	ML-CLAYEY SILT, trace very fine sand, firm, medium to high plasticity, dark brown, very moist, dilatant, intermixed with frequent PT-PEAT (SEAM), fibrous, reddish-brown, moist	-9.16		11SS		12	
-25.0	PT-PEAT, with silt, with clay, firm, low plasticity, fibrous, reddish-brown, moist - to trace fine sand, trace fibrous material, wet @ 20.00 ft BGS - very stiff, moist @ 22.00 ft BGS			12SS		21	
-30.0	END OF HOLE @ 24.00 ft BGS						
-32.5							

SCREEN DETAILS

Screened Interval:
19.00 to 24.00 ft BGS
Length: 5.00 ft
Diameter: 2"
Slot Size: #10
Material: STAINLESS STEEL
Sand Pack:
16.00 to 24.00 ft BGS
Material: No. 10x20 Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

Appendix D

Test Pit and Borehole Logs

TEST PIT STRATIGRAPHIC LOG

(VL-01)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP1-98
DATE COMPLETED: NOVEMBER 17, 1998
TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR
CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft.AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	13.65						
	ML-SANDY SILT (TOPSOIL), trace clay, low plasticity, brown, moist	13.15						
-2.5	SM-SAND (FILL), with silt, fine to coarse grained, well graded, black, moist	12.15		GS1	0.5 - 3.5			
	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, black, wet	10.15						
-5.0	SM-SAND (FILL), with refuse, with silt, fine to coarse grained, well graded, black, moist, rubber fragments	7.65		GS2	3.5 - 6.0			
-7.5	ML-SILT (LIME DISPOSAL SLUDGE) (FILL), with clay, low plasticity, beige/gray, moist, dilatant	6.65		GS3	6.0 - 7.0			
	BOTTOM OF TEST PIT @ 7.00 ft BGS							
-10.0	NOTE: 1. SEEPAGE @ 1.50 ft BGS. 2. SLIGHT UNDETERMINED ODOUR IN TEST PIT.							
-12.5								
-15.0								
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

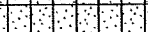
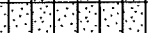
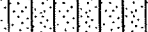
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇

TEST PIT STRATIGRAPHIC LOG

(VL-02)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP2-98
DATE COMPLETED: NOVEMBER 17, 1998
TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR
CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft.AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	13.16						
	ML-SILT (TOPSOIL), with clay, low plasticity, brown, moist	12.91						
	SM/GM-SAND and GRAVEL (FILL), with silt, with cobbles, fine to coarse grained, well graded, brown, moist	12.16						
-2.5								
	SM-SAND (FILL), with silt, fine to coarse grained, well graded, black, moist	9.16						
-5.0								
	SM-SAND (FILL), with refuse, with silt, fine to coarse grained, well graded, black, moist, rubber, brick, metal and wood fragments							
-7.5								
	BOTTOM OF TEST PIT @ 8.66 ft BGS	4.50						
-10.0	NOTE: 1. SEEPAGE @ 8.00 ft BGS. 2. HEAVY UNDETERMINED ODOUR IN TEST PIT.							
-12.5								
-15.0								
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇

TEST PIT STRATIGRAPHIC LOG

(VL-03)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP3-98
DATE COMPLETED: NOVEMBER 17, 1998
TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR
CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft.AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	15.41						
-2.5	ML-SILT (TOPSOIL), with clay, low plasticity, brown, moist SM-SAND (FILL), with silt, fine to coarse grained, well graded, black, moist	14.75		GS1	0.7 - 4.0			
-5.0	SM-SAND (FILL), with refuse, fine to coarse grained, well graded, black, moist, rubber, wood and paper fragments	11.41		GS2	4.0 - 8.0			
-7.5	ML-SILT (LIME DISPOSAL SLUDGE) (FILL), with clay, low plasticity, beige/gray, moist	7.41		GS3	8.0 - 9.0			
-10.0	BOTTOM OF TEST PIT @ 9.00 ft BGS	6.41						
-12.5	NOTE: 1. SEEPAGE @ 1.50 ft BGS. 2. SLIGHT UNDETERMINED ODOUR IN TEST PIT.							
-15.0								
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

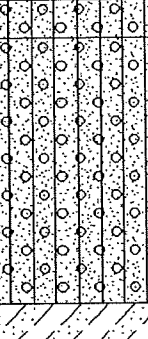
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇

TEST PIT STRATIGRAPHIC LOG

(VL-04)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP4-98
DATE COMPLETED: NOVEMBER 17, 1998
TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR
CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft. AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	14.51						
2.5	SM/GM-SAND and GRAVEL (FILL), fine to coarse grained, well graded, brown, moist, trace rootlets	13.51						
5.0	SM/GM-SAND and GRAVEL (FILL), random cobbles, trace refuse, fine to coarse grained, well graded, black, wet, scrap metal, rubber, paper and wood fragments - percentage of fill material is greater than soil @ 5.00 ft BGS			GS2	1.0 - 8.0			
7.5	ML-SILT (LIME DISPOSAL SLUDGE) (FILL), with clay, low plasticity, beige/gray, moist	6.51		GS3	8.0 - 9.0			
10.0	BOTTOM OF TEST PIT @ 9.00 ft BGS	5.51						
12.5	NOTE: 1. SEEPAGE @ 1.00 ft BGS. 2. SLIGHT UNDETERMINED ODOUR IN TEST PIT.							
15.0								
17.5								
20.0								
22.5								
25.0								
27.5								
30.0								
32.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇

TEST PIT STRATIGRAPHIC LOG

(VL-05)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE

PROJECT NUMBER: 09973

CLIENT: GLENN SPRINGS HOLDINGS, INC.

LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP5-98

DATE COMPLETED: NOVEMBER 17, 1998

TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR

CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft.AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	14.32						
	ML-SILT (TOPSOIL), with clay, low plasticity, brown, moist	14.07						
-2.5	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, brownish gray, moist, trace oxidation	12.82						
	CL-SILTY CLAY (FILL), medium plasticity, dark gray	10.82						
-5.0	SM-SAND and REFUSE (FILL), with silt, fine to coarse grained, well graded, moist, rubber, metal and paper fragments			GS2	3.5 - 8.0			
-7.5		6.32						
	ML-SILT (LIME DISPOSAL SLUDGE) (FILL), with clay, low plasticity, beige/white, moist	5.32		GS3	8.0 - 9.0			
-10.0	BOTTOM OF TEST PIT @ 9.00 ft BGS							
-12.5								
-15.0								
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

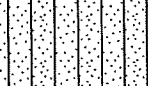
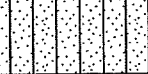
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND √

TEST PIT STRATIGRAPHIC LOG

(VL-06)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP6-98
DATE COMPLETED: NOVEMBER 17, 1998
TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR
CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft. AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	16.17						
	ML-SILT (TOPSOIL), with clay, low plasticity, brown, moist, and rootlets	15.92 15.51						
-2.5	SM/GM-SAND and GRAVEL (FILL), with silt, fine to coarse grained, well graded, brown, moist							
-5.0	SM-SAND (FILL), with silt, trace refuse, fine to coarse grained, well graded, black, very moist, wood and rubber fragments - bricks, water pouring into test pit @ 4.00 ft BGS	12.17						
-7.5	SM-SAND (FILL), with silt, fine to coarse grained, well graded, dark gray to olive green, wet, twigs and branches	8.42						
-10.0	BOTTOM OF TEST PIT @ 7.75 ft BGS							
-12.5								
-15.0								
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇

TEST PIT STRATIGRAPHIC LOG

(VL-07)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP7-98
DATE COMPLETED: NOVEMBER 17, 1998
TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR
CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft.AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	18.20						
2.5	ML-SILT (TOPSOIL), with clay, low plasticity, brown, moist, rootlets SM-SAND (FILL), with silt, with gravel, random cobbles, fine to coarse grained, well graded, dark gray, trace rootlets and twigs - bricks @ 2.00 ft BGS	17.87						
5.0	SM-SAND (FILL), with silt, fine to coarse grained, well graded, olive green, moist	13.70						
7.5		9.70						
10.0	BOTTOM OF TEST PIT @ 8.50 ft BGS NOTE: 1. UNDETERMINED ODOUR IN TEST PIT.							
12.5								
15.0								
17.5								
20.0								
22.5								
25.0								
27.5								
30.0								
32.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇

TEST PIT STRATIGRAPHIC LOG

(VL-08)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP8-98
DATE COMPLETED: NOVEMBER 17, 1998
TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR
CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft.AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	15.90						
	ML-SILT (TOPSOIL), with clay, trace gravel, low plasticity, brown, moist	15.65						
-2.5	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, brown, moist	14.90		GS2	1.0 - 4.5			
-5.0	SM-SAND (FILL), with silt, with refuse, random cobbles, fine to coarse grained, well graded, dark gray, moist, metal, rubber, wire and wood fragments	11.40		GS1	4.5 - 8.5			
-7.5	SM-SAND (FILL), with silt, trace refuse, fine to coarse grained, well graded, olive green, moist, rubber and wire fragments	7.40		GS3	8.5 - 9.0			
-10.0	ML-SILT (LIME DISPOSAL SLUDGE) (FILL), with clay, low plasticity, beige/light gray, moist BOTTOM OF TEST PIT @ 9.00 ft BGS	6.90						
-12.5	NOTE: 1. UNDETERMINED ODOUR IN TEST PIT.							
-15.0								
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND √

TEST PIT STRATIGRAPHIC LOG

(VL-09)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP9-98
DATE COMPLETED: NOVEMBER 17, 1998
TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR
CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft.AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	17.43						
-2.5	ML-SILT (TOPSOIL), with clay, low plasticity, brown, moist, rootlets	16.93						
	SM-SAND (FILL), with silt, fine to coarse grained, well graded, brown, moist	15.93						
	SM-SAND (FILL), with silt, fine to coarse grained, well graded, olive green, moist	15.43						
-5.0	SM-SAND (FILL), with silt, fine to coarse grained, well graded, black, moist	12.93						
	SM-SAND (FILL), with silt, trace refuse, fine to coarse grained, well graded, olive green, moist, twigs, branches, rubber and wood fragments							
-7.5								
-10.0								
	BOTTOM OF TEST PIT @ 11.00 ft BGS	6.43						
-12.5	NOTE: 1. SEEPAGE @ 4.00 ft BGS.							
-15.0								
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇

TEST PIT STRATIGRAPHIC LOG

(VL-10)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP10-98
DATE COMPLETED: NOVEMBER 18, 1998
TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR
CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft. AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	18.06						
	ML-SILT (TOPSOIL), with clay, low plasticity, brown, moist, rootlets	17.81 17.56						
-2.5	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, brown, moist							
-5.0	SM-SAND (FILL), with silt, trace refuse, fine to coarse grained, well graded, dark gray, moist, scrap metal, rubber and wood fragments	13.56						
-7.5	SM-SAND (FILL), with silt, trace refuse, fine to coarse grained, well graded, olive green, moist, rubber and wood fragments							
-10.0	ML-SILT (FILL), with clay, medium plasticity, light brown, moist	9.56 8.56						
	BOTTOM OF TEST PIT @ 9.50 ft BGS							
-12.5	NOTE: 1. HEAVY UNDETERMINED ODOUR IN TEST PIT.							
-15.0								
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND √

TEST PIT STRATIGRAPHIC LOG

(VL-11)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE

PROJECT NUMBER: 09973

CLIENT: GLENN SPRINGS HOLDINGS, INC.

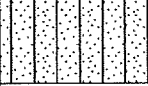
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP11-98

DATE COMPLETED: NOVEMBER 18, 1998

TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR

CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft.AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	20.02						
	ML-SILT (TOPSOIL), with clay, low plasticity, brown, moist, rootlets	19.86 19.60						
-2.5	SM/GM-SAND and GRAVEL (FILL), random cobbles, fine to coarse grained, well graded, brown, moist							
-5.0	SM-SAND (FILL), with silt, trace refuse, fine to coarse grained, well graded, dark gray, moist, metal, wire and rubber fragments	15.02						
-7.5	ML-SANDY SILT (SEAM), with clay, low plasticity, brown, moist, rootlets	14.02						
-10.0	SM-SAND (FILL), with silt, trace refuse, fine to coarse grained, well graded, olive green, moist, rubber fragments	11.02						
-12.5	BOTTOM OF TEST PIT @ 9.00 ft BGS							
-15.0	NOTE: 1. SEEPAGE @ 0.42 ft BGS. 2. SEEPAGE @ 5.00 ft BGS WHERE SEAM OF SANDY SILT DOES NOT EXIST.							
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇

TEST PIT STRATIGRAPHIC LOG

(VL-12)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP12-98
DATE COMPLETED: NOVEMBER 18, 1998
TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR
CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft.AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	16.73						
	ML-SILT (TOPSOIL), with clay, low plasticity, brown, moist, rootlets	16.57		GS2	4.2 - 7.0			
-2.5	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, brown, moist	15.73 15.48						
-5.0	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, light green, moist	12.57						
-7.5	SM-SAND (FILL), with silt, fine to coarse grained, well graded, dark gray to black, moist	9.73						
-7.5	SM-SAND and REFUSE (FILL), with silt, fine to coarse grained, well graded, dark gray to black, moist, wire, rubber, metal and paper fragments	8.73						
-10.0	ML-SILT (LIME DISPOSAL SLUDGE) (FILL), with clay, low plasticity, beige/light gray, moist							
	BOTTOM OF TEST PIT @ 8.00 ft BGS							
-12.5	NOTE: 1. SEEPAGE @ 3.00 ft BGS.							
-15.0								
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇

TEST PIT STRATIGRAPHIC LOG

(VL-13)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP13-98
DATE COMPLETED: NOVEMBER 18, 1998
TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR
CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft.AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	17.58						
	ML-SILT (TOPSOIL), with clay, low plasticity, brown, moist, rootlets	17.33						
		16.83						
	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, brown, moist	16.08						
-2.5								
	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, green, moist	14.58						
-5.0								
	SM-SAND (FILL), with silt, fine to coarse grained, well graded, dark gray, moist, log	13.08						
-7.5								
	ML-SILT (FILL), with clay, low plasticity, light gray, moist	10.58						
		9.58						
-10.0	SM-SAND and REFUSE (FILL), with silt, fine to coarse grained, well graded, dark gray, moist, wood, metal, rubber and wire fragments							
	ML-SILT (LIME DISPOSAL SLUDGE) (FILL), with clay, low plasticity, beige/light gray, moist							
-12.5	BOTTOM OF TEST PIT @ 8.00 ft BGS							
	NOTE: 1. SEEPAGE @ 6.00 ft BGS.							
-15.0								
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇

TEST PIT STRATIGRAPHIC LOG

(VL-14)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE

TEST PIT DESIGNATION: TP14-98

PROJECT NUMBER: 09973

DATE COMPLETED: NOVEMBER 18, 1998

CLIENT: GLENN SPRINGS HOLDINGS, INC.

TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR

LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft. AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	18.26						
	ML-SILT (TOPSOIL), with clay, low plasticity, brown, moist	18.01						
		17.26						
	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, brown, moist	16.60						
-2.5								
	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, green, moist	14.26						
-5.0								
	SM-SAND (FILL), with silt, trace refuse, fine to coarse grained, well graded, black, moist, metal fragments							
-7.5								
	SM-SAND (FILL), with silt, trace refuse, fine to coarse grained, well graded, olive green, moist, wood, twigs and rubber fragments							
-10.0		8.76						
	BOTTOM OF TEST PIT @ 9.50 ft BGS							
-12.5								
	NOTE: 1. UNDETERMINED ODOUR IN TEST PIT.							
-15.0								
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇

TEST PIT STRATIGRAPHIC LOG

(VL-15)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP15-98
DATE COMPLETED: NOVEMBER 18, 1998
TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR
CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft.AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	15.08						
	ML-SILT (TOPSOIL), with clay, low plasticity, brown, moist, rootlets	14.75		GS2	3.5 - 6.0			
	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, brown, moist	14.42						
-2.5	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, green, moist	13.58						
	SM-SILTY SAND (FILL), trace refuse, fine to coarse grained, well graded, dark gray, moist, wood fragments	11.58						
-5.0	SM-SAND and REFUSE (FILL), with silt, fine to coarse grained, well graded, dark gray to black, moist, wire, rubber, wood and metal fragments	9.08						
-7.5	ML-SILT (LIME DISPOSAL SLUDGE) (FILL), with clay, low plasticity, beige/light gray, moist	8.08						
-10.0	BOTTOM OF TEST PIT @ 7.00 ft BGS							
-12.5	NOTE: 1. SEEPAGE @ 1.50 ft BGS. 2. SEEPAGE @ 6.00 ft BGS. 3. UNDETERMINED ODOUR IN TEST PIT.							
-15.0								
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇

TEST PIT STRATIGRAPHIC LOG

(VL-16)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP16-98
DATE COMPLETED: NOVEMBER 18, 1998
TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR
CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft.AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	15.95						
	ML-SILT (TOPSOIL), with clay, low plasticity, brown, moist, rootlets	15.70						
	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, brown, moist	14.45 13.95						
-2.5	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, green, moist	11.45						
-5.0	SM-SILTY SAND (FILL), fine to coarse grained, well graded, dark gray, moist	9.95						
-7.5	SM-SAND and REFUSE (FILL), with silt, fine to coarse grained, well graded, dark gray to black, moist, wire, rubber, wood and metal fragments	8.45						
-10.0	SM-SAND (FILL), with silt, fine to coarse grained, well graded, olive green, moist	6.45						
-12.5	SM-SAND and REFUSE (FILL), with silt, fine to coarse grained, well graded, dark gray to black, moist, rubber, metal, wire and wood fragments							
	BOTTOM OF TEST PIT @ 9.50 ft BGS							
-15.0								
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼

TEST PIT STRATIGRAPHIC LOG

(VL-17)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP17-98
DATE COMPLETED: NOVEMBER 18, 1998
TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR
CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft.AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	14.04						
	ML-SILT (TOPSOIL), with clay, low plasticity, brown, moist, rootlets	13.79						
		13.29						
		12.54						
-2.5	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, brown, moist - see note 2			GS5	3.0 - 3.5			
		10.04						
-5.0	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, green, moist	8.54						
-7.5	SM-SILTY SAND (FILL), fine to coarse grained, well graded, dark gray to black, moist							
-10.0	SM-SAND (FILL), with silt, fine to coarse grained, well graded, olive green, moist - SM/GM-SAND and GRAVEL @ 4.50 ft BGS TO 5.00 ft BGS	3.54						
-12.5	SM-SAND and REFUSE (FILL), with silt, fine to coarse grained, well graded, dark gray, moist, metal, wire, rubber and paper fragments BOTTOM OF TEST PIT @ 10.50 ft BGS							
-15.0	NOTE: 1. SEEPAGE @ 3.00 ft BGS UNDER COBBLES. 2. UNDETERMINED SOURCE OF COBBLE LIKE, POROUS, ORANGE TO BLACK FRAGMENTS ENCOUNTERED FROM 0.33 ft BGS TO 3.00 ft BGS ALONG EASTERN EDGE OF NORTHERN FACE. ALSO ENCOUNTERED WITHIN THIS ZONE, ENGINE AND CEMENT BLOCKS FROM A FORMER CURB (PAINTED YELLOW).							
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇

TEST PIT STRATIGRAPHIC LOG

(VL-18)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP18-98
DATE COMPLETED: NOVEMBER 18, 1998
TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR
CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft.AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	13.25						
	ML-SILT (TOPSOIL), with clay, low plasticity, brown, moist, rootlets	13.00						
	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, green, moist	11.75						
-2.5		10.75						
	SM-SILT SAND (FILL), fine to coarse grained, well graded, black, moist	9.75						
-5.0		8.75						
	SM-SAND, with silt (FILL), fine to coarse grained, well graded, olive green, moist	7.75						
-7.5	SM-SAND and REFUSE (FILL), with silt, fine to coarse grained, well graded, black, moist, wire, rubber and paper fragments							
-10.0	ML-SILT (LIME DISPOSAL SLUDGE) (FILL), with clay, low plasticity, beige/light gray, moist							
	BOTTOM OF TEST PIT @ 5.50 ft BGS							
-12.5	NOTE: 1. HEAVY UNDETERMINED ODOUR IN TEST PIT.							
-15.0								
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

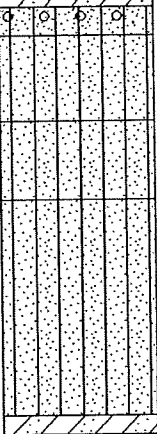
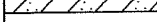
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇

TEST PIT STRATIGRAPHIC LOG

(VL-19)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP19-98
DATE COMPLETED: NOVEMBER 18, 1998
TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR
CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft. AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	12.33						
	ML-SILT (TOPSOIL), with clay, low plasticity, brown, moist	12.08						
		11.33						
2.5	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, green, moist							
		9.08						
	SM-SILTY SAND (FILL), fine to coarse grained, well graded, black, moist							
5.0	SM-SAND (FILL), with silt, fine to coarse grained, well graded, olive green, moist	7.00						
	SM-SAND and REFUSE (FILL), with silt, fine to coarse grained, well graded, black, moist, metal, wire, rubber and paper fragments							
7.5								
10.0								
	ML-SILT (PEAT), with clay, medium plasticity, brown, moist, with rootlets	11.33						
12.5		.83						
	BOTTOM OF TEST PIT @ 11.50 ft BGS							
	NOTE: 1. SEEPAGE @ 3.25 ft BGS. 2. SEEPAGE @ 7.00 ft BGS. 3. LARGE > 4.00 ft LONG SCRAP METAL PIECE AND ENGINE BLOCK ENCOUNTERED WITHIN TOP 3.00 ft. 4. HEAVY UNDETERMINED ODOUR IN TEST PIT.							
15.0								
17.5								
20.0								
22.5								
25.0								
27.5								
30.0								
32.5								

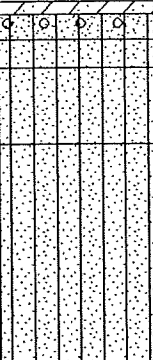
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇

TEST PIT STRATIGRAPHIC LOG

(VL-20)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP20-98
DATE COMPLETED: NOVEMBER 18, 1998
TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR
CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft.AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	11.02						
	ML-SILT (TOPSOIL), with clay, low plasticity, brown, moist	10.69						
		10.02						
	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, greenish brown, moist	9.27						
-2.5								
	SM-SILTY SAND (FILL), fine to coarse grained, well graded, black, moist	7.27						
-5.0								
	SM-SAND (FILL), with silt, fine to coarse grained, well graded, olive green, moist							
-7.5								
	SM-SAND and REFUSE (FILL), with silt, fine to coarse grained, well graded, black, moist, metal, wire, rubber and paper fragments							
-10.0		1.52						
	BOTTOM OF TEST PIT @ 9.50 ft BGS							
-12.5	NOTE: 1. SEEPAGE @ 7.00 ft BGS. 2. UNDETERMINED ODOUR IN TEST PIT.							
-15.0								
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇

TEST PIT STRATIGRAPHIC LOG

(VL-21)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE

PROJECT NUMBER: 09973

CLIENT: GLENN SPRINGS HOLDINGS, INC.

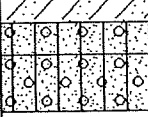
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP21-98

DATE COMPLETED: NOVEMBER 18, 1998

TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR

CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft.AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	24.81						
	ML-SILT (TOPSOIL), with clay, trace refuse, low plasticity, brown, moist, rootlets, metal fragments	24.15		GS6	0.0 - 0.5			
		23.31		GS7	0.5 - 2.0			
		21.81						
-2.5	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, brown, moist							
-5.0	SM/GM-SAND and GRAVEL (FILL), with silt, fine to coarse grained, well graded, light green, moist							
	BOTTOM OF TEST PIT @ 3.00 ft BGS							
-7.5	NOTE: 1. SEEPAGE @ 1.16 ft BGS.							
-10.0								
-12.5								
-15.0								
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇

TEST PIT STRATIGRAPHIC LOG

(VL-22)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP22-98
DATE COMPLETED: NOVEMBER 19, 1998
TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR
CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft.AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	10.92						
	ML-SILT (TOPSOIL), with clay, low plasticity, brown, moist, rootlets	10.42						
		9.59						
-2.5	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, brown, moist	8.42						
	SM-SAND (FILL), with silt, fine to coarse grained, well graded, dark grey, moist							
-5.0	SM-SAND (FILL), with silt, fine to coarse grained, well graded, olive green, moist	5.76						
-7.5	SM-SAND and REFUSE (FILL), with silt, fine to coarse grained, well graded, black, moist, metal, wire, rubber and paper fragments							
-10.0	BOTTOM OF TEST PIT @ 9.50 ft BGS	1.42						
	NOTE: 1. HEAVY UNDETERMINED ODOUR IN TEST PIT.							
-12.5								
-15.0								
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ☒

TEST PIT STRATIGRAPHIC LOG

(VL-23)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE

PROJECT NUMBER: 09973

CLIENT: GLENN SPRINGS HOLDINGS, INC.

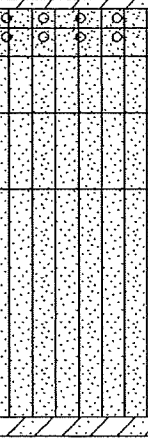
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

TEST PIT DESIGNATION: TP23-98

DATE COMPLETED: NOVEMBER 19, 1998

TEST PIT METHOD: 490E JOHN DEERE EXCAVATOR

CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	SAMPLE DESCRIPTION	ELEV. ft. AMSL	GRAPHIC LOG	SAMPLE			ANALYSIS	
				NUMBER	SAMPLE INTERVAL	PID (ppm)	GRAIN SIZE	CHEMICAL
	GROUND SURFACE	12.25						
	ML-SILT (TOPSOIL), with clay, low plasticity, brown, moist, rootlets	12.00						
		11.50						
	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, brown, moist	10.75						
-2.5		9.25						
	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, fine to coarse grained, well graded, green, moist							
-5.0	- see note 4	7.25						
	SM-SILTY SAND (FILL), fine to coarse grained, well graded, dark gray, moist							
-7.5	SM-SAND (FILL), with silt, fine to coarse grained, well graded, olive green, moist							
	SM-SAND and REFUSE (FILL), with silt, fine to coarse grained, well graded, black, moist, metal, wire, rubber and paper fragments							
-10.0								
	ML-SILT (PEAT), with clay, medium plasticity, brown, moist, with rootlets	1.25						
-12.5		.75						
	BOTTOM OF TEST PIT @ 11.50 ft BGS							
-15.0	NOTE: 1. SEEPAGE @ 3.50 ft BGS. 2. SEEPAGE @ 8.00 ft BGS. 3. STRONG UNDETERMINED ODOUR IN TEST PIT. 4. UNDETERMINED SOURCE OF COBBLE LIKE, POROUS, ORANGE TO BLACK FRAGMENTS ENCOUNTERED FROM 0.75 ft BGS TO 3.50 ft BGS ALONG EASTERN EDGE OF NORTHERN FACE (SAME UNIT AS OBSERVED IN TP17-98).							
-17.5								
-20.0								
-22.5								
-25.0								
-27.5								
-30.0								
-32.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇



TEST PIT STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MVD

HOLE DESIGNATION: TP-24

PROJECT NUMBER: 009973

DATE COMPLETED: August 27, 2014

CLIENT: GSHI

TEST PIT METHOD: Excavator

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Nate Hinsperger

Contractor: IO Environmental

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
2	ML-SANDY SILT (TOPSOIL), low plasticity, light brown, moist, loose, with rootlets.	1.00	1				
4	SM-SILTY SAND (FILL), trace clay, fine grained, poorly graded, gray, moist, loose, with debris fragment of telephone pole, slight hydrocarbon odor.						
6							
8							
10							
12							
14	SM-SILTY SAND, trace clay, fine to medium grained, poorly graded, gray, wet, loose.	14.00					
16	END OF BOREHOLE @ 16.0ft BGS	16.00					
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15



TEST PIT STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MVD

HOLE DESIGNATION: TP-25

PROJECT NUMBER: 009973

DATE COMPLETED: August 27, 2014

CLIENT: GSHI

TEST PIT METHOD: Excavator

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Rick Bieber

Contractor: IO Environmental

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
0.70	GM (TOPSOIL), trace cobble, gravel, sand and silt, brown, loose, some metal debris.	0.70					
2	GM-SILTY GRAVEL (FILL), with sand, occasional cobbles, metal debris, some silty clayey layers.						
4							
6	- Wood debris. at 6.0ft BGS						
8	- Metal debris axile. at 8.5ft BGS						
9.50	OL-SILTY SAND WITH PEAT (ORGANICS), native, loose, low plasticity, moist, dark gray.	9.50					
10.50	ML-SANDY SILT, low plasticity, soft, moist, dark gray.	10.50					
12							
14							
15.50	SM-SILTY SAND, wet, light gray.	15.50					
16.00	END OF BOREHOLE @ 16.0ft BGS	16.00					
18	Notes: Location - Large downed tree adjacent to test pit. Vegetation - Brush, and weed covered, some black berry, small trees, and ferns.						
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15



TEST PIT STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MVD

HOLE DESIGNATION: TP-26

PROJECT NUMBER: 009973

DATE COMPLETED: August 26, 2014

CLIENT: GSHI

TEST PIT METHOD: Excavator

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Rick Bieber

Contractor: IO Environmental

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
0	GM (TOPSOIL), gravels, sands, silts, clays, brown, dry, roots. GC (FILL), cobbles, wood, metal debris, dark gray.	0.50					
2							
4							
6	- Peat and clay, light gray/blue, moist. at 6.0ft BGS						
8	- Sand lense, water entry. at 8.0ft BGS						
10							
12							
14	- Large metal debris. at 13.0ft BGS						
16	- Loose metal and wood debris. at 15.0ft BGS						
16	END OF BOREHOLE @ 16.0ft BGS	16.00					
18	Notes: No lime sludge. Bottom of fill not observed. Maximum depth of excavator 16'. GP-7 noted sand and shell fragments at 20'. Location - Adjacent to GP-7.						
20	Vegetation: Sparse vegetation cover, black berry, bushes, weeds, and grasses.						
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15



TEST PIT STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MVD

HOLE DESIGNATION: TP-27

PROJECT NUMBER: 009973

DATE COMPLETED: August 26, 2014

CLIENT: GSHI

TEST PIT METHOD: Excavator

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Rick Bieber

Contractor: IO Environmental

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
2	GM (FILL), metal debris, cobbles, gravel, sand, silt, roots, dry, brown.	2.00					
4	SM (FILL), occasional gravel, dark gray/black.						
6	- Saw blade. at 5.0ft BGS						
8	- Chrome bar and glass debris, tire. at 7.0ft BGS						
10							
12	GC, metal debris, coarse, poorly graded, dark gray, wet, decomposition odor. - Plastic like visqueen or house wrap. at 11.5ft BGS	11.00					
14							
16	- Hole filling with water at slough. Still in fill material. at 15.0ft BGS END OF BOREHOLE @ 15.0ft BGS	15.00					
18	Notes: Location - 15' east of mark still in clearance area. Vegetation - small trees, brush, and blackberry bushes.						
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15



TEST PIT STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MVD

HOLE DESIGNATION: TP-28

PROJECT NUMBER: 009973

DATE COMPLETED: August 26, 2014

CLIENT: GSHI

TEST PIT METHOD: Excavator

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Rick Bieber

Contractor: IO Environmental

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
0.80	GC-CLAYEY GRAVELS (TOPSOIL), gravel, sand, clay, silt, roots, dry, brown, metal debris.	0.80	1				
2	SM-SILTY SAND (FILL), low plasticity, occasional gravel, grey, limited metal debris.						
4							
5.00	- Wood debris. at 5.1ft BGS	5.00					
6	SM-SILTY SAND (FILL), occasional gravel, low plasticity, dark gray.						
7.00	- Metal debris. at 7.0ft BGS						
7.50	Lime sludge.	7.50					
8.50	GC (FILL), gravel, sand, silt, clay, metal, rubber, plastics, drak gray.	8.50					
14.50	OL-ORGANIC SILTY SAND, with peat, roots, native sand, light gray.	14.50					
15.50	END OF BOREHOLE @ 15.5ft BGS	15.50					
18	Notes: Vegetation - small trees, brush, blackberries, and small ferns adjacent to location.						
20	Water entry at 12'.						
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15



TEST PIT STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MVD

HOLE DESIGNATION: TP-29

PROJECT NUMBER: 009973

DATE COMPLETED: August 28, 2014

CLIENT: GSHI

TEST PIT METHOD: Excavator

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Rick Bieber

Contractor: IO Environmental

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
2	SM-SILTY SAND (TOPSOIL), occasional gravel, dry, loose, metal debris, brown.						
4	SM-SILTY SAND (FILL), occasional gravel, dry, very compact, metal and wood debris, black.	4.00					
6	- Wood layer. at 4.5ft BGS - Silty clayey layer. at 5.0ft BGS	6.00					
8	ML-SANDY SILT (FILL), occasional gravel, clay, medium dense, metal debris, layered, gray/black.						
10							
12	ML-SANDY SILT (FILL), plastic wrap garbage, black, saturated.	11.00					
14	END OF BOREHOLE @ 13.0ft BGS	13.00					
16	Notes: Vegetation - small trees and some brush. Remove blackberry bushes to gain access. Ground cover removed by trespassers.						
18	Water entry at 12'. Water coming into ~16'.						
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15



TEST PIT STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MVD

HOLE DESIGNATION: TP-30

PROJECT NUMBER: 009973

DATE COMPLETED: August 27, 2014

CLIENT: GSHI

TEST PIT METHOD: Excavator

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Nate Hinsperger

Contractor: IO Environmental

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
0	ML-SANDY SILT (TOPSOIL), low plasticity, dark brown, moist, with rootlets.	0.80					
2	SM-SILTY SAND (FILL), trace medium gravel, fine to medium grained, poorly graded, brown to gray, moist, loose, with metal debris.						
4							
6							
8	- Wet. at 7.0ft BGS						
10	- Rubber debris, with gravel. at 8.5ft BGS						
12	END OF BOREHOLE @ 8.5ft BGS						
14							
16		16.00					
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15



TEST PIT STRATIGRAPHIC LOG (OVERBURDEN)

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PROJECT NAME: MVD

HOLE DESIGNATION: TP-31

PROJECT NUMBER: 009973

DATE COMPLETED: August 28, 2014

CLIENT: GSHI

TEST PIT METHOD: Excavator

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Rick Bieber

Contractor: IO Environmental

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
2	GM-SILTY GRAVELS & SAND (TOPSOIL), metal debris (Fill), loose, dry, brown.	3.00					
4	GC-SILTY CLAYEY GRAVELS & SAND (FILL), saturated below 6', metal and wood debris.						
6							
8							
10	- Hole collapsing. at 10.0ft BGS						
12							
14	Lime sludge, very soft.	13.00					
16	END OF BOREHOLE @ 16.0ft BGS	16.00					
18	Notes: Depth estimated wit bucket pushed into soft lime sludge. When pulled back sludge remained stuck to bucket. Unable to clear hole of water and soil from caving.						
20	Vegetation - many small 8" to 2" diameter Alders. Some ground cover. Remove (1) 6 inch tree.						
22	*Used wetland mats for access road.						
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15



TEST PIT STRATIGRAPHIC LOG (OVERBURDEN)

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PROJECT NAME: MVD

HOLE DESIGNATION: TP-32

PROJECT NUMBER: 009973

DATE COMPLETED: August 27, 2014

CLIENT: GSHI

TEST PIT METHOD: Excavator

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Nate Hinsperger

Contractor: IO Environmental

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
0.80	SM-SILTY SAND (TOPSOIL), fine grained, poorly graded, light brown, moist, loose.	0.80					
2	SM-SILTY SAND (FILL), trace clay, fine to medium grained, poorly graded, dark brown to black, moist to wet, loose.						
4							
6	- Rubber and metal debris. at 6.0ft BGS						
8							
10							
12							
14	ML-CLAYEY SILT, trace fine sand, low to medium plasticity, light brown, moist, with fibrous peat.	14.00					
15.00	END OF BOREHOLE @ 15.0ft BGS	15.00					
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15



TEST PIT STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MVD

HOLE DESIGNATION: TP-33

PROJECT NUMBER: 009973

DATE COMPLETED: August 28, 2014

CLIENT: GSHI

TEST PIT METHOD: Excavator

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Rick Bieber

Contractor: IO Environmental

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
2	GM-SILTY SAND AND GRAVEL (TOPSOIL), metal debris, dry, brown.						
4	GM-SILTY GRAVEL AND SAND (FILL), some clayey layers, metal debris.	3.00					
6	- Water entry, hole caving in. at 6.0ft BGS						
8							
10							
12	- Refusal, large obstruction, can't go deeper, to big for excavation. at 12.0ft BGS	12.00					
14	END OF BOREHOLE @ 12.0ft BGS						
16	Notes: Use access road to TP-31.						
18	Vegetation - small Alders, some ground cover, and ferns. No tree removed.						
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE



TEST PIT STRATIGRAPHIC LOG (OVERBURDEN)

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PROJECT NAME: MVD

HOLE DESIGNATION: TP-34

PROJECT NUMBER: 009973

DATE COMPLETED: August 28, 2014

CLIENT: GSHI

TEST PIT METHOD: Excavator

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Rick Bieber

Contractor: IO Environmental

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
	TOPSOIL (FILL), metal debris.						
2	GM-GRAVEL, SANDS, AND SILT with metal debris (FILL), grey black, wet.	0.80					
4							
6							
8	OL-ORGANIC PEAT AND SILTY CLAY, some rootlets, native.	7.00					
10	SM-SILTY SAND, occasional gravel, saturated, gray, native.	8.50					
12	END OF BOREHOLE @ 11.0ft BGS	11.00					
14	Notes: Near stream setup silt fencing to prevent runoff to stream.						
16	Vegetation - some ferns and Alders.						
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15



TEST PIT STRATIGRAPHIC LOG (OVERBURDEN)

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PROJECT NAME: MVD

HOLE DESIGNATION: TP-35

PROJECT NUMBER: 009973

DATE COMPLETED: August 27, 2014

CLIENT: GSHI

TEST PIT METHOD: Excavator

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Nate Hinsperger

Contractor: IO Environmental

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
0	ML-SANDY SILT (TOPSOIL), low plasticity, brown to dark brown, moist, loose.	0.90					
2	SP-GRAVELLY SAND WITH SILT (FILL), fine to medium grained, poorly graded, gray, moist to wet, loose, with metal/wood/rubber debris.						
4							
6	- Wet. at 6.0ft BGS						
8							
10							
12	ML-CLAYEY SILT, trace fine sand, with fibrous peat, low to medium plasticity, brown, moist to wet, soft.	12.00					
14							
16	END OF BOREHOLE @ 16.0ft BGS	16.00					
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15



TEST PIT STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MVD

HOLE DESIGNATION: TP-36

PROJECT NUMBER: 009973

DATE COMPLETED: August 27, 2014

CLIENT: GSHI

TEST PIT METHOD: Excavator

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Nate Hinsperger

Contractor: IO Environmental

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
2	ML-SANDY SILT, trace clay, low plasticity, light brown, moist, loose, wit rootlets.	0.90					
4	SM-SILTY SAND (FILL), trace clay, fine to medium grained, poorly graded, gray, moist to wet, loose, wit rubber/metal/wood debris.						
6							
8							
10							
12							
14							
16	ML-CLAYEY SILT, trace fine sand, low to medium plasticity, brown, moist, with fibrous peat material.	15.00					
18	END OF BOREHOLE @ 16.0ft BGS	16.00					
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15



TEST PIT STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MVD

HOLE DESIGNATION: TP-37

PROJECT NUMBER: 009973

DATE COMPLETED: September 15, 2014

CLIENT: GSHI

TEST PIT METHOD: Hand Auger

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Rick Bieber

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
	ML-SANDY SILT (TOPSOIL), low plasticity, light brown/gray, moist, loose.						
2	SM-SILTY SAND, fine grained, poorly graded, gray, moist, loose.	1.00					
4	SP-SAND, trace silt, occasional gravel, poorly graded, gray, saturated, loose.	4.00					
8	END OF BOREHOLE @ 8.0ft BGS	8.00					
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE



TEST PIT STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MVD

HOLE DESIGNATION: TP-38

PROJECT NUMBER: 009973

DATE COMPLETED: August 28, 2014

CLIENT: GSHI

TEST PIT METHOD: Excavator

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Rick Bieber

Contractor: IO Environmental

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
	GC-SAND AND GRAVEL, dirty wit silts and some clay, brown, dry.	0.30					
2	GM-SAND AND GRAVEL, some silt, gray, water entry at 4', some wood.		1				
4							
6	GC-SAND AND GRAVEL WITH SILT AND CLAY, brown, wet, loose, home caving in.	4.00	2				
8	- Some lenses of sands and gravels. at 8.0ft BGS						
10							
12			3				
12	END OF BOREHOLE @ 12.0ft BGS	12.00					
14	Notes:						
16	North side of marsh area.						
18	Set up wetland mats.						
20	Vegetation - wetland vegetation, brush, weeds, and grasses.						
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

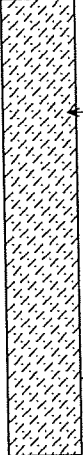
OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(VL-24)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

HOLE DESIGNATION: BH1-98
DATE COMPLETED: NOVEMBER 19, 1998
DRILLING METHOD: 4 X" ID HSA
CRA SUPERVISOR: D. GRAY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
	GROUND SURFACE	15.60					
	SM/GM-SAND and GRAVEL (FILL), with silt, extremely dense, fine to coarse grained, well graded, brown, very moist, dilatant	14.60	 CEMENT/ BENTONITE GROUT 8" Ø BOREHOLE	1SS	X	>50	
-2.5	SM-SAND (FILL), with to and silt, trace gravel, dense, fine to coarse grained, well graded, gray, very moist, slightly dilatant	11.60		2SS	X	34	
-5.0	- occasional steel and rubber fragments @ 2.00 ft BGS	10.10		3SS	X	47	
	SW-SAND (FILL), trace silt, dense, fine to coarse grained, well graded, gray, moist	9.10		4SS	X	3	
-7.5	SM-SILTY SAND (FILL), with refuse, trace gravel, dense, fine to coarse grained, well graded, gray, wet, steel and rubber fragments	7.10		5SS	X	12	
-10.0	ML-CLAYEY SILT (LIME DISPOSAL SLUDGE) (FILL), trace fine sand, soft, high plasticity, light gray with gray and brown staining, moist	3.60		6SS	X	53	
-12.5	ML-SILT (FILL), with fine sand, trace gravel, trace peat, stiff, low plasticity, black, wet, wire and steel fragments						
	- very dense, wire, steel and wood fragments from 10.00 ft BGS to 12.00 ft BGS						
-15.0	END OF HOLE @ 12.00 ft BGS						
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

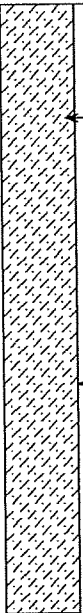
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(VL-25)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

HOLE DESIGNATION: BH2-98
DATE COMPLETED: NOVEMBER 20, 1998
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. GRAY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft.AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
	GROUND SURFACE	14.08					
-2.5	SM/GM-SAND and GRAVEL (FILL), with silt, extremely dense, fine to coarse grained, well graded, brown, very moist, dilatant, rootlets	13.08		1SS	X	>80	
-5.0	SM-SILTY SAND (FILL), with to trace gravel, extremely dense, fine to coarse grained, well graded, dark gray, very moist, dilatant, slight odour, steel, wire and rubber fragments - wet, more refuse @ 2.00 ft BGS - moist @ 4.00 ft BGS - compact, decrease in steel, frequent wood fragments @ 6.00 ft BGS	6.08		2SS	X	>50	
-7.5		4.33		3SS	X	>50	
-10.0	ML-CLAYEY SILT (LIME DISPOSAL SLUDGE) (FILL), trace fine sand, stiff, medium plasticity, light gray with brown and beige staining, moist, strong odour			4SS	X	27	
-12.5	SM-SILTY SAND (FILL), with to trace gravel, compact, fine to medium grained, poorly graded, black, very moist to wet, slight odour, steel and wood fragments - very wet, slurry like, no recovery in spoon @ 12.00 ft BGS	.08		5SS	X	13	
-15.0	SM-SILTY SAND, with peat, trace gravel, loose, fine to medium grained, poorly graded, black, wet, dilatant, slight odour	-1.92		6SS	X	>50	
-17.5	END OF HOLE @ 16.00 ft BGS			7SS	X	9	
-20.0				8SS	X	8	
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(VL-26)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

HOLE DESIGNATION: BH3-98
DATE COMPLETED: NOVEMBER 20, 1998
DRILLING METHOD: 4 1/2" ID HSA
CRA SUPERVISOR: G. SINNETT

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
	GROUND SURFACE	11.72					
		11.56		1SS	X	>50	
-2.5	ML-SILT (TOPSOIL), with clay, hard, low plasticity, brown, moist, rootlets SM/GM-SAND and GRAVEL (FILL), with silt, very dense, fine to coarse grained, well graded, black, moist - silty sand, with gravel @ 2.33 ft BGS	7.72		2SS	X	>50	
-5.0	SM-SAND (FILL), with silt, dense, fine to coarse grained, well graded, black, moist, strong odour, wire and rubber fragments - very dense, wet, plastic and wood fragments @ 6.00 ft BGS			3SS	X	44	
-7.5	- dense, wet @ 8.00 ft BGS			4SS	X	>50	
-10.0	ML-SILT, with clay, firm, medium plasticity, brown, moist - soft @ 12.00 ft BGS	1.72		5SS	X	40	
-12.5				6SS	X	7	
-15.0	END OF HOLE @ 14.00 ft BGS	-2.28		7SS	X	4	
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ STATIC WATER LEVEL ∇

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(VL-27)
Page 1 of 1

PROJECT NAME: MARINE VIEW DRIVE
PROJECT NUMBER: 09973
CLIENT: GLENN SPRINGS HOLDINGS, INC.
LOCATION: MARINE VIEW DRIVE, TACOMA, WASHINGTON

HOLE DESIGNATION: BH4-98
DATE COMPLETED: NOVEMBER 20, 1998
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: D. GRAY / G. SINNETT

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
	GROUND SURFACE	13.44					
	ML-SILT (TOPSOIL), with clay, hard, low plasticity, brown, moist	13.28		1SS	X	>50	
2.5	SM/GM-SAND and GRAVEL (FILL), with silt, random cobbles, very dense, fine to coarse grained, well graded, brown, moist	11.11		2SS	X	40	
	SM-SILTY SAND (FILL), dense, fine to coarse grained, well graded, dark gray, moist	10.11		3SS	X	>50	
5.0	SM-SAND (FILL), with silt, dense, fine to coarse grained, well graded, black, very moist, slight odour, wire and rubber fragments	7.44		4SS	X	9	
7.5	ML-SILT (LIME DISPOSAL SLUDGE), with clay, stiff, low plasticity, beige/light gray, moist, strong odour	5.44		5SS	X	>50	
10.0	SM-SAND (FILL), with silt, dense, fine to coarse grained, well graded, black, moist, slight odour, wire and rubber fragments			6SS	X	22	
12.5	- compact @ 12.00 ft BGS END OF HOLE @ 12.00 ft BGS	1.44					
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ STATIC WATER LEVEL ∇



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MVD

HOLE DESIGNATION: GP-1

PROJECT NUMBER: 009973

DATE COMPLETED: August 21, 2014

CLIENT: GSHI

DRILLING METHOD: Direct Push

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Nate Hinsperger

Driller: HOLT Drilling, Inc.

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
2	SM-SILTY SAND (TOPSOIL), trace medium to coarse gravel, trace cobble, fine grained, poorly graded, light brown, moist, loose.	0.50						
4	SM-SAND (FILL), trace silt, fine grained, light brown, poorly graded, brown, moist, loose.			1DP		50		0.1
6	- Medium grained, compact pH = 11.5 at 4.0ft BGS							
8				2DP		60		9.1
10	GP-1 9.1' lime sludge, pH = 13.5.	9.10						
12	SP-SAND (FILL), trace silt, fine to medium grained, poorly, graded, dark brown, moist to wet, loose, with metal/rubber debris.	10.50		3DP		40		0.2
14								
16	ML-SILT, trace fine sand, low plasticity, brown, moist, soft, trace rootlets.	14.60 15.00						
18	SP-SAND, trace silt, fine to medium grained, poorly graded, brown, wet, loose.	15.70						
20	ML-CLAYEY SILT, with peat, low plasticity, brown, moist, hard.			4DP		60		
22								
24	SP-SAND, fine to medium grained, poorly graded, brown to black, wet.	20.00 20.80						
26	OL-ORGANIC PEAT, low plasticity, black, moist, soft.			5DP		50		
28								
30	END OF BOREHOLE @ 25.0ft BGS	25.00						
32	NOTE: SECOND BOREHOLE WAS ADVANCED TO COLLECT ENOUGH MATERIAL FOR LIME SLUDGE SAMPLE							
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS



GRAIN SIZE ANALYSIS



OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MVD

HOLE DESIGNATION: GP-2

PROJECT NUMBER: 009973

DATE COMPLETED: August 21, 2014

CLIENT: GSHI

DRILLING METHOD: Direct Push

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Nate Hinsperger

Driller: HOLT Drilling, Inc.

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
2	SM-SILTY SAND (TOPSOIL), trace coarse gravel, trace cobble, fine grained, poorly graded, brown, moist, loose.	0.50						
4	SM-SAND (FILL), with silt, trace medium grained, brown, moist, loose, with brick, with rootlets, with metal. pH = 8.5.			1DP		60		0.8
6								
8				2DP		33		9.1
10	GP-2 9' TCLP- taken for lime sludge.	9.00						
12	SM-SAND (FILL), trace silt, fine to medium grained, poorly graded, dark brown, moist to wet, loose, with wire/debris. pH = 11.65	10.00						
14	ML-CLAYEY SILT, with peat, trace fine sand, low plasticity, dark brown, moist, stiff, with wood fragments.	11.40		3DP		60		5.4
16								0.2
18				4DP		40		
20	OL-ORGANIC PEAT, trace fine sand, low plasticity, black, moist to wet, soft, with wood fragments.	18.50						
22	No recovery.	20.00						
24								
26	END OF BOREHOLE @ 25.0ft BGS	25.00						
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS



OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MVD

HOLE DESIGNATION: GP-3

PROJECT NUMBER: 009973

DATE COMPLETED: August 21, 2014

CLIENT: GSHI

DRILLING METHOD: Direct Push

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Nate Hinsperger

Driller: HOLT Drilling, Inc.

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
0.50	SM-SILTY SAND (TOPSOIL), trace medium gravel, poorly graded, dark brown, moist, loose.	0.50						
2	SP-SAND (FILL), with silt, fine gravel, trace cobble, fine grained, poorly graded, light brown to gray, moist, loose.			1DP		33		0.0
4								
6	- Wet at 5.0ft BGS							
8	- With silt, trace rubber/wire/glass at 8.0ft BGS			2DP		50		9.1
10								
12								
14				3DP		33		5.4
14.60	ML-CLAYEY SILT, trace fine sand, low plasticity, light brown, moist, soft, with wood fragments.	14.60						
15.00		15.00						
16	SP-SAND, trace silt, trace fine gravel, fine grained, poorly graded, brown to gray, moist, loose.	16.60		4DP		45		
18								
20	OL-ORGANIC PEAT, low plasticity, brown, moist, soft, with wood fragments.							
20.00	END OF BOREHOLE @ 20.0ft BGS	20.00						
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS



OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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PROJECT NAME: MVD

HOLE DESIGNATION: GP-4

PROJECT NUMBER: 009973

DATE COMPLETED: August 21, 2014

CLIENT: GSHI

DRILLING METHOD: Direct Push

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Nate Hinsperger

Driller: HOLT Drilling, Inc.

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
2	SM-SILTY SAND (TOPSOIL), trace coarse gravel, trace cobble, fine grained, poorly graded, light brown, moist, trace rootlets, loose.	0.70		1DP		35		0.7
4	SM-SAND (FILL), trace silt, fine grained, poorly graded, dark brown, moist, loose, trace plastic, trace glass, trace wood fragments.							
6								
8				2DP		30		0.3
10	- Medium grained at 10.2ft BGS							
12	ML-SILT (ORGANIC), trace fine sand, low plasticity, light brown, moist, soft, with wood fragments.	10.70		3DP		35		0.1
14								
16	SM-SAND (FILL), trace silt, fine grained, poorly graded, brown, moist, trace plastic, loose.	15.00 15.40 15.90 16.60		4DP		60		0.0
18	ML-SILT, trace fine sand, low plasticity, light brown, moist, soft.							
20	SM-SAND, trace silt, fine grained, poorly graded, brown, moist, loose.							
22	OL-ORGANIC PEAT, low plasticity, dark brown to orange, moist, soft, with wood fragments.	20.00						
24	No recovery.			5DP		0		
26	END OF BOREHOLE @ 25.0ft BGS	25.00						
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS



OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MVD

HOLE DESIGNATION: GP-5

PROJECT NUMBER: 009973

DATE COMPLETED: August 22, 2014

CLIENT: GSHI

DRILLING METHOD: Direct Push

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Nate Hinsperger

Driller: HOLT Drilling, Inc.

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
2	SM-SILTY SAND (TOPSOIL), trace cobble, trace coarse gravel, fine grained, poorly graded, light brown, moist, with rootlets.	0.90		1DP		75		0.1
4	ML-SILT, trace fine sand, low plasticity, light brown, moist, soft.							
6	SP-SAND (FILL), trace silt, fine to medium grained, poorly graded, black, wet, loose, trace metal. pH = 7.50.	4.60		2DP		60		0.0
8	- Metal fragments at 7.0ft BGS							
10				3DP		75		0.2
12								
14	GP-5 7' lime sludge, pH = 11.50.	14.20						
16	- Wood fragments at 14.8ft BGS	15.00		4DP		80		12.4
18	SP-SAND (FILL), trace coarse gravel, trace silt, fine to medium grained, poorly graded, dark brown, moist, loose, with plastic fragments. pH = 10.	16.50						
20	ML-CLAYEY SILT, with peat, low plasticity, brown, moist, with wood fragments.			5DP		90		0.0
22	SP-SAND, trace silt, medium to coarse grained, poorly graded, brown, moist, loose.	20.40						
24	OL-ORGANIC PEAT, low plasticity, dark brown, moist, soft, with wood fragments.	22.20						
26	SM-SAND, with silt, fine grained, poorly graded, brown, moist, wet, loose.	24.30						
28	END OF BOREHOLE @ 25.0ft BGS	25.00						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS



OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MVD

HOLE DESIGNATION: GP-6

PROJECT NUMBER: 009973

DATE COMPLETED: August 21, 2014

CLIENT: GSHI

DRILLING METHOD: Direct Push

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Nate Hinsperger

Driller: HOLT Drilling, Inc.

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
2	ML-SILTY SAND (TOPSOIL), trace rootlets, fine grained, poorly graded, dark brown to black, moist to wet, loose.	0.40						
4	ML-SILT, trace fine sand, low plasticity, brown to light brown, moist, soft.	0.70		1DP		50		0.0
6	SM-SAND (FILL), trace silt, trace fine gravel, poorly graded, dark brown, moist, loose.							
8	- Wood fragments at 6.0ft BGS			2DP		50		0.0
10								
12	- Trace wire at 11.0ft BGS			3DP		50		0.2
14		14.40						
16	ML-CLAYEY SILT, with peat, low plasticity, dark brown, moist to wet, soft.	15.30						
18	SP-SAND, trace silt, fine grained, poorly graded, brown, moist, soft.	15.70						
20	OL-ORGANIC PEAT, low plasticity, dark brown to black, moist, soft.	16.80		4DP		75		0.0
22	SM-SILTY SAND, trace fine gravel, fine grained, poorly graded, brown, moist, loose.							
24	END OF BOREHOLE @ 20.0ft BGS	20.00						
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS



OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MVD

HOLE DESIGNATION: GP-7

PROJECT NUMBER: 009973

DATE COMPLETED: August 22, 2014

CLIENT: GSHI

DRILLING METHOD: Direct Push

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Nate Hinsperger

Driller: HOLT Drilling, Inc.

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
2	SM-SILTY SAND (TOPSOIL), trace medium gravel, trace cobble, fine grained, poorly graded, brown, moist, trace rootlets.	0.40		1DP		75		0.1
	ML-SILT, with sand, low plasticity, brown, moist, soft.	2.20						
4	SP-SAND (FILL), with silt, fine grained, poorly graded, dark brown, moist, loose.			2DP		50		0.0
6	ML-SILT, trace fine sand, low plasticity, brown, moist, soft.	5.00 5.40						
	SP-SAND, trace silt, fine grained, poorly graded, brown, moist, loose.	6.80						
8	ML-CLAYEY SILT, with peat, trace fine sand, low plasticity, dark brown, moist to wet, soft, with rootlets.							
10	- With sand at 9.5ft BGS - With rootlets at 10.0ft BGS			3DP				0.0
12	SP-SAND, with silt, fine grained, poorly graded, brown to black, moist to wet, loose, trace shell material.	10.60						
14	- With wood fragments at 11.0ft BGS - Trace gravel at 14.0ft BGS							
16	OL-ORGANIC PEAT, trace fine sand, low plasticity, brown, moist, with shell fragments.	16.10 16.50		4DP		50		0.1
18	SP-SAND, trace silt, fine to medium grained, poorly graded, brown, moist, loose, trace shell material.							
20	SM-SILTY SAND, with cobble, trace coarse gravel, brown, wet, loose.	20.00		5DP		33		
22								
24								
26	- With cobble, with fine to coarse gravel at 25.0ft BGS			6DP		75		0.0
28	- Gray to light brown at 28.0ft BGS							
30	END OF BOREHOLE @ 30.0ft BGS	30.00						
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS



OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.GDT 7/13/15



STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MVD

HOLE DESIGNATION: HA-01

PROJECT NUMBER: 009973

DATE COMPLETED: December 18, 2014

CLIENT: GSHI

DRILLING METHOD: Hand Auger

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Rick Bieber

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
2	SM-SILTY SAND, fine grained, poorly graded, grey, moist, occasional wood, native.						
4							
6							
8							
10							
12							
14	END OF BOREHOLE @ 7.0ft BGS Notes: No evidence of fill material.	7.00					
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.CDT 8/6/15



STRATIGRAPHIC LOG (OVERBURDEN)

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PROJECT NAME: MVD

HOLE DESIGNATION: HA-02

PROJECT NUMBER: 009973

DATE COMPLETED: December 18, 2014

CLIENT: GSHI

DRILLING METHOD: Hand Auger

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Rick Bieber

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
2	SM-SILTY SAND, fine grained, poorly graded, moist, grey.						
4							
6	SP-SAND, with silt, occasional wood, grey/green, moist, native.	5.00					
8	END OF BOREHOLE @ 6.0ft BGS	6.00					
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.CDT 8/6/15



STRATIGRAPHIC LOG (OVERBURDEN)

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PROJECT NAME: MVD

HOLE DESIGNATION: HA-03

PROJECT NUMBER: 009973

DATE COMPLETED: December 18, 2014

CLIENT: GSHI

DRILLING METHOD: Hand Auger

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Rick Bieber

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
2	SM-SILTY SAND, fine grained, poorly graded, grey, moist, native.						
4	- Peat. at 4.0ft BGS END OF BOREHOLE @ 4.0ft BGS	4.00					
6	Notes: No evidence of fill material.						
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.CDT 8/6/15



STRATIGRAPHIC LOG (OVERBURDEN)

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PROJECT NAME: MVD

HOLE DESIGNATION: HA-04

PROJECT NUMBER: 009973

DATE COMPLETED: December 18, 2014

CLIENT: GSHI

DRILLING METHOD: Hand Auger

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Rick Bieber

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
2	SM-SILTY SAND, fine grained, poorly graded, some clay, wood, grey, moist, native.						
4							
6							
8							
10							
12	END OF BOREHOLE @ 6.0ft BGS Notes: No evidence of fill material.	6.00					
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.CDT 8/6/15



STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: MVD

HOLE DESIGNATION: HA-05

PROJECT NUMBER: 009973

DATE COMPLETED: December 18, 2014

CLIENT: GSHI

DRILLING METHOD: Hand Auger

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Rick Bieber

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
2	SM-SILTY SAND, some clay, fine grained, grey, moist.						
4							
6	SM-SILTY SAND, with grave and clay, fine grained, poorly graded, grey, moist, ice contact material, native. - Cobble. at 5.5ft BGS	5.00 5.50					
8	END OF BOREHOLE @ 5.5ft BGS						
10	Notes: No evidence of fill material.						
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.CDT 8/6/15



STRATIGRAPHIC LOG (OVERBURDEN)

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PROJECT NAME: MVD

HOLE DESIGNATION: HA-05B

PROJECT NUMBER: 009973

DATE COMPLETED: December 18, 2014

CLIENT: GSHI

DRILLING METHOD: Hand Auger

LOCATION: 1913 MARINE VIEW DRIVE, TACOMA, WASHINGTON

FIELD PERSONNEL: Rick Bieber

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			NUMBER	INTERVAL	REC (%)	'N' VALUE	
2	SM-SILTY SAND, with organics and plastics, poorly graded, dark grey, moist, likely fill.						
4	END OF BOREHOLE @ 4.0ft BGS	4.00					
6	Notes: Evidence of fill material, plastic and rubber.						
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 009973-WI.GPJ CRA_CORP.CDT 8/6/15

Appendix E

Terrestrial Ecological Evaluation Form



N47°16'17.76"

500 ft

1913 Marine View Dr

W122°21'54"

Table 749-1

Simplified Terrestrial Ecological Evaluation-Exposure Analysis Procedure

Estimate the area of contiguous (connected) <u>undeveloped land</u> 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.																						
	<table border="1"> <thead> <tr> <th>Area (acres)</th> <th>Points</th> </tr> </thead> <tbody> <tr> <td>0.25 or less</td> <td>4</td> </tr> <tr> <td>0.5</td> <td>5</td> </tr> <tr> <td>1.0</td> <td>6</td> </tr> <tr> <td>1.5</td> <td>7</td> </tr> <tr> <td>2.0</td> <td>8</td> </tr> <tr> <td>2.5</td> <td>9</td> </tr> <tr> <td>3.0</td> <td>10</td> </tr> <tr> <td>3.5</td> <td>11</td> </tr> <tr> <td>4.0 or more</td> <td>12</td> </tr> </tbody> </table>	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	12
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																					
2) Is this an <u>industrial</u> or <u>commercial</u> 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		1																				
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		1																				
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.		1																				
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.		6																				

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.

[\[Area Calculation Aid\]](#) [\[Aerial Photo with Area Designations\]](#) [\[TEE Table 749-1\]](#) [\[Index of Tables\]](#)

[\[Exclusions Main\]](#) [\[TEE Definitions\]](#) [\[Simplified or Site-Specific?\]](#) [\[Simplified Ecological Evaluation\]](#) [\[Site-Specific Ecological Evaluation\]](#) [\[WAC 173-340-7493\]](#)

[\[TEE Home\]](#)

009973 (14) - APPE TEE Contaminant Analysis

<i>Priority Contaminant</i>	<i>Maximum Dected Concentration</i>	<i>Protective TEE Concentration for Industrial or Commercial Use*</i>
	<i>(mg/kg)</i>	<i>(mg/kg)</i>
Arsenic	1,180	20
Barium	1,530	1,320
Cadmium	94.9	36
Chromium	137	135
Copper	10,000	550
Lead	6,030	220
Manganese	3,070	23,500
Mercury	4.63	9/0.7 a
Nickel	1,580	1,850
Selenium	2.8	0.8
Zinc	13,900	570
Benzo(a)pyrene	22	300
heptachlor/heptachlor epoxide(tota	29.2	0.6
Hexachlorobenzene	<22	31
Pentachlorophenol	0.183	11
PCB mitures (total)	13.6	2
4,4'-DDD	0.067	1

Notes/Abbreviations

* Protective TEE Concentration is obtained from Table 749-2 for Industrial or Commercial Site,
Model Toxics Control Act Cleanup Regulation, chapter 173-340 WAC, revised November 2007.

mg/kg = milligrams per kilogram

Bold indicate the concentration is above the protective TEE concentration for industrial or commerical use.

a = the first value is for inorganic mercury and the second value is for organic mercury.



Voluntary Cleanup Program

Washington State Department of Ecology Toxics Cleanup Program

TERRESTRIAL ECOLOGICAL EVALUATION FORM

Under the Model Toxics Control Act (MTCA), a terrestrial ecological evaluation is necessary if hazardous substances are released into the soils at a Site. In the event of such a release, you must take one of the following three actions as part of your investigation and cleanup of the Site:

1. Document an exclusion from further evaluation using the criteria in WAC 173-340-7491.
2. Conduct a simplified evaluation as set forth in WAC 173-340-7492.
3. Conduct a site-specific evaluation as set forth in WAC 173-340-7493.

When requesting a written opinion under the Voluntary Cleanup Program (VCP), you must complete this form and submit it to the Department of Ecology (Ecology). The form documents the type and results of your evaluation.

Completion of this form is not sufficient to document your evaluation. You still need to document your analysis and the basis for your conclusion in your cleanup plan or report.

If you have questions about how to conduct a terrestrial ecological evaluation, please contact the Ecology site manager assigned to your Site. For additional guidance, please refer to www.ecy.wa.gov/programs/tcp/policies/terrestrial/TEEHome.htm.

Step 1: IDENTIFY HAZARDOUS WASTE SITE

Please identify below the hazardous waste site for which you are documenting an evaluation.

Facility/Site Name: 1913 Marine View Drive

Facility/Site Address: 1913 Marine View Drive, Tacoma, Washington

Facility/Site No: 1213

VCP Project No.:

Step 2: IDENTIFY EVALUATOR

Please identify below the person who conducted the evaluation and their contact information.

Name: Rick Bieber

Title: Project Manager

Organization: Conestoga-Rovers & Associates

Mailing address: 732 Broadway

City: Tacoma

State: WA

Zip code: 98036

Phone: 253-573-1218

Fax: 253-573-1663

E-mail: rbieber@craworld.com

Step 3: DOCUMENT EVALUATION TYPE AND RESULTS

A. Exclusion from further evaluation.

1. Does the Site qualify for an exclusion from further evaluation?

- ☐ Yes *If you answered "YES," then answer **Question 2**.*
- ☒ No or Unknown *If you answered "NO" or "UNKNOWN," then skip to **Step 3B** of this form.*

2. What is the basis for the exclusion? Check all that apply. Then skip to **Step 4** of this form.

Point of Compliance: WAC 173-340-7491(1)(a)

- ☐ All soil contamination is, or will be,* at least 15 feet below the surface.
- ☐ All soil contamination is, or will be,* at least 6 feet below the surface (or alternative depth if approved by Ecology), and institutional controls are used to manage remaining contamination.

Barriers to Exposure: WAC 173-340-7491(1)(b)

- ☐ All contaminated soil, is or will be,* covered by physical barriers (such as buildings or paved roads) that prevent exposure to plants and wildlife, and institutional controls are used to manage remaining contamination.

Undeveloped Land: WAC 173-340-7491(1)(c)

- ☐ There is less than 0.25 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site and any of the following chemicals is present: chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene.
- ☐ For sites not containing any of the chemicals mentioned above, there is less than 1.5 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site.

Background Concentrations: WAC 173-340-7491(1)(d)

- ☐ Concentrations of hazardous substances in soil do not exceed natural background levels as described in WAC 173-340-200 and 173-340-709.

* An exclusion based on future land use must have a completion date for future development that is acceptable to Ecology.

[±] "Undeveloped land" is land that is not covered by building, roads, paved areas, or other barriers that would prevent wildlife from feeding on plants, earthworms, insects, or other food in or on the soil.

[#] "Contiguous" undeveloped land is an area of undeveloped land that is not divided into smaller areas of highways, extensive paving, or similar structures that are likely to reduce the potential use of the overall area by wildlife.

B. Simplified evaluation.

1. Does the Site qualify for a simplified evaluation?

- ☒ Yes *If you answered "YES," then answer **Question 2** below.*
- ☐ No or Unknown *If you answered "NO" or "UNKNOWN," then skip to **Step 3C** of this form.*

2. Did you conduct a simplified evaluation?

- ☒ Yes *If you answered "YES," then answer **Question 3** below.*
- ☐ No *If you answered "NO," then skip to **Step 3C** of this form.*

3. Was further evaluation necessary?

- ☒ Yes *If you answered "YES," then answer **Question 4** below.*
- ☐ No *If you answered "NO," then answer **Question 5** below.*

4. If further evaluation was necessary, what did you do?

- ☒ Used the concentrations listed in Table 749-2 as cleanup levels. *If so, then skip to **Step 4** of this form.*
- ☐ Conducted a site-specific evaluation. *If so, then skip to **Step 3C** of this form.*

5. If no further evaluation was necessary, what was the reason? Check all that apply. Then skip to **Step 4** of this form.

Exposure Analysis: WAC 173-340-7492(2)(a)

- ☐ Area of soil contamination at the Site is not more than 350 square feet.
- ☐ Current or planned land use makes wildlife exposure unlikely. Used Table 749-1.

Pathway Analysis: WAC 173-340-7492(2)(b)

- ☐ No potential exposure pathways from soil contamination to ecological receptors.

Contaminant Analysis: WAC 173-340-7492(2)(c)

- ☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations that exceed the values listed in Table 749-2.
- ☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations that exceed the values listed in Table 749-2, and institutional controls are used to manage remaining contamination.
- ☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays.
- ☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays, and institutional controls are used to manage remaining contamination.

C. Site-specific evaluation. A site-specific evaluation process consists of two parts: (1) formulating the problem, and (2) selecting the methods for addressing the identified problem. Both steps require consultation with and approval by Ecology. See WAC 173-340-7493(1)(c).

1. Was there a problem? See WAC 173-340-7493(2).

- ☐ Yes *If you answered "YES," then answer **Question 2** below.*
- ☐ No *If you answered "NO," then identify the reason here and then skip to **Question 5** below:*
- ☐ No issues were identified during the problem formulation step.
- ☐ While issues were identified, those issues were addressed by the cleanup actions for protecting human health.

2. What did you do to resolve the problem? See WAC 173-340-7493(3).

- ☐ Used the concentrations listed in Table 749-3 as cleanup levels. *If so, then skip to **Question 5** below.*
- ☐ Used one or more of the methods listed in WAC 173-340-7493(3) to evaluate and address the identified problem. *If so, then answer **Questions 3 and 4** below.*

3. If you conducted further site-specific evaluations, what methods did you use?

Check all that apply. See WAC 173-340-7493(3).

- ☐ Literature surveys.
- ☐ Soil bioassays.
- ☐ Wildlife exposure model.
- ☐ Biomarkers.
- ☐ Site-specific field studies.
- ☐ Weight of evidence.
- ☐ Other methods approved by Ecology. If so, please specify:

4. What was the result of those evaluations?

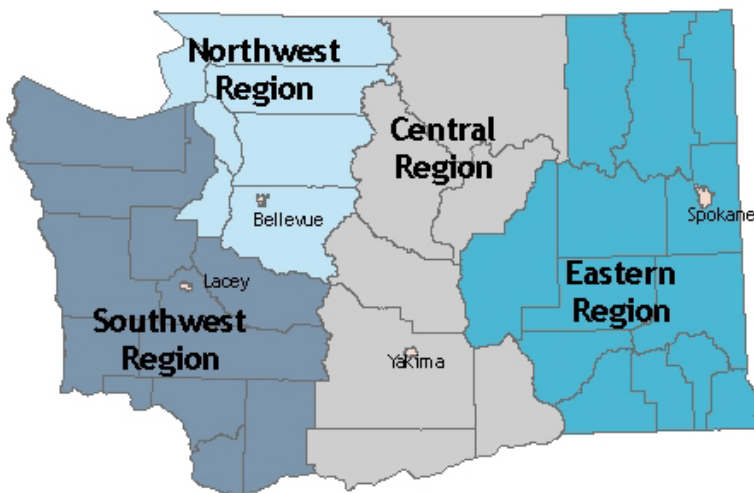
- ☐ Confirmed there was no problem.
- ☐ Confirmed there was a problem and established site-specific cleanup levels.

5. Have you already obtained Ecology's approval of both your problem formulation and problem resolution steps?

- ☐ Yes If so, please identify the Ecology staff who approved those steps:
- ☒ No

Step 4: SUBMITTAL

Please mail your completed form to the Ecology site manager assigned to your Site. If a site manager has not yet been assigned, please mail your completed form to the Ecology regional office for the County in which your Site is located.



Northwest Region: Attn: VCP Coordinator 3190 160 th Ave. SE Bellevue, WA 98008-5452	Central Region: Attn: VCP Coordinator 15 W. Yakima Ave., Suite 200 Yakima, WA 98902
Southwest Region: Attn: VCP Coordinator P.O. Box 47775 Olympia, WA 98504-7775	Eastern Region: Attn: VCP Coordinator N. 4601 Monroe Spokane WA 99205-1295

If you need this publication in an alternate format, please call the Toxics Cleanup Program at 360-407-7170. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

Appendix F

Summary of Previous Investigations

Appendix F Summary of Previous Investigations

September 1984 Investigation: Conestoga-Rovers & Associates (CRA) conducted an investigation in September 1984. CRA advanced eight boreholes for geologic sampling. CRA also installed four shallow groundwater monitoring wells, namely GM-B-1, GM-B-2, GM-B-3, and GM-B-6, to total depths ranging from 10 to 12 feet below ground surface (bgs). CRA collected groundwater samples from the monitoring wells as well as two surface water samples for laboratory analysis of the Target Compound List/Target Analyte List (TCL/TAL) parameters. These parameters include volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), and metals. The investigation results indicated that no VOCs were present in the groundwater monitoring wells located outside the areal extent of the lime sludge fill, lateral discharge of shallow groundwater is controlled by the surface water drainage system, and detectable concentrations of parameters associated with the lime sludge fill were not being discharged into the surface drainage system. The results of this investigation were reported in CRA's *Tacoma Off-Plant Disposal Site Investigation* report, dated December 1984.

September 1988 Investigation: Occidental Chemical Corporation (OCC) conducted an investigation in September 1988. OCC collected groundwater samples from the four previously installed groundwater monitoring wells and submitted the samples for laboratory analysis. Concentrations of tetrachloroethene (PCE) and trichloroethene (TCE) were detected above Ecology's Model Toxics Control Act (MTCA) Method B cleanup levels. The results of this investigation were reported in OCC's *Sampling Memorandum*, Dated November 1988.

1998 and 1999 Investigation: In 1998, Ecology requested that OCC review the existing Site investigation data and current Site conditions to determine whether additional work should be considered to complete the Site evaluation. Pursuant to Ecology's request, a data review and work plan entitled, *Review of Site Conditions and Proposed Additional Work* was prepared and submitted to Ecology for review and comment in September 1998. The work plan presented the results of the previous investigations as well as a review of the data with recommendations for appropriate further investigative activities. The activities proposed in the work plan were designed to confirm the results of the earlier investigations and to determine whether there are any sources or volumes of impacted materials that were not previously identified. Comments dated September 23, 1998 were received from Ecology and responses were submitted on October 29, 1998. OCC and Ecology were in agreement on the responses to the comments and the field activities were conducted by CRA between November 18, 1998 and January 12, 1999. The results of this investigation were previously reported in March 1999 in the Site Characterization Report, Marine View Drive Site (CRA, 1999). The report confirmed the conclusions from the previous investigations with some modification of the limits of the fill. More details of the results are discussed below.

CRA inspected previous installed monitoring wells GM-B-1, GM-B-2, GM-B-3, and GM-B-6. Monitoring well GM-B-3 was not found and monitoring well GM-B-6 was damaged beyond repair. CRA therefore decommissioned monitoring well GM-B-6. CRA redeveloped the other two previous installed monitoring wells GM-B-1, GM-B-2 to ensure hydraulic communication between the monitoring wells and the aquifer.

CRA installed five new monitoring wells. Two monitoring wells GM-B-3R and GM-B-6R were installed as replacement wells for GM-B-3 and GM-B-6, respectively. Three monitoring wells GM-B-1A, GM-B-2A, and GM-B-6A were installed within approximately 5 feet of wells GM-B-1, GM-B-2, and GM-B-6R, respectively, and deeper. The Site monitoring wells were sampled during two separate events between November 30

and December 1, 1998, and January 11 and 12, 1999. All groundwater samples were analyzed for the TCL/TAL parameters.

Four surface water samples were collected from each of the drainage swales and analyzed for TCL/TAL parameters. One sediment sample composited from four sediment samples collected from each of the four swales and one discrete sediment sample collected from the southern ditch upstream of the Site were analyzed for the TCL/TAL parameters.

Seven soil samples were collected from test pits excavated across the southern portion of the Site. Test pits were excavated from approximately 9 feet bgs to a maximum depth of 11.5 feet bgs. The seven soil samples were collected at various depths. All samples were analyzed for the TCL/TAL parameters.

In addition, a composite sample of the lime sludge fill was collected and analyzed for the TCL/TAL parameters. The analytical results indicated the lime sludge fill contained primarily VOCs and various metals analytes (calcium and magnesium, etc.).

A specific analytical parameter list for lime sludge fill was developed from review of an analytical database compiled during investigations of other sites where lime sludge fill from the Tacoma Plant was present. This Specific Parameter List (SPL) was approved by Washington State Department of Ecology (Ecology) and United States Environmental Protection Agency (USEPA). The SPL includes VOCs such as PCE, TCE, trans-1,2-dichloroethene (trans-1,2-DCE), cis-1,2-dichloroethene (cis-1,2-DCE), 1,1-dichloroethene (1,1-DCE), vinyl chloride, and methylene chloride, etc.

No lime sludge fill specific parameters were detected in the surficial soils (fill) overlying the lime sludge fill. Four of the lime sludge fill specific parameters (trans-1,2-DCE, methylene chloride, PCE and TCE) were detected in the subsurface soils (fill) within the areal extents of the lime sludge fill. These detections occurred in the soils associated with the sand and shredder residue fill and the concentrations were lower than MTCA Method B cleanup levels.

Two lime sludge fill specific parameters (methylene chloride and carbon tetrachloride) were detected in surface water. Carbon tetrachloride was detected only in the background sample and, therefore, is not due to the presence of lime sludge fill on Site. Methylene chloride was detected only in one duplicate sample at a low concentration suggesting that it is a potential laboratory artifact.

Only two monitoring wells GM-B-6A and GM-B-6R contained lime sludge fill specific parameters. Well GM-B-6R is a shallow well screened in the lime sludge fill and contained elevated concentrations of trans-1,2-DCE, cis-1,2-DCE, 1,1-DCE, PCE, TCE, and vinyl chloride. Well GM-B-6A is a deep well screened over the five-foot interval in fill above the lower permeability soils and below the lime sludge fill. The sample from well GM-B-6A contained significant lower concentrations of PCE (three orders of magnitude lower) and no detectable concentrations of other lime sludge fill specific parameters. The significant decrease in the concentration of PCE between GM-B-6R and GM-B-6A and the absence of the other lime sludge fill specific parameters in GM-B-6A demonstrates that there is very little vertical transport of chemicals out of the lime sludge fill. Well GM-B-1, GM-B-1A, GM-B-2, and GM-B-2A are all located down-gradient from the lime sludge fill, and did not contain detectable lime sludge fill specific parameters, demonstrating that there is no detectable lateral migration of chemicals in groundwater from the lime sludge fill towards the southwest. Additionally, the concentrations of PCE and TCE at GM-B-6/GM-B-6R from 1998/1999 investigation decreased significantly from 1984/1988 investigation, indicating that natural attenuation of the lime sludge fill specific parameters occurred at the Site.

October 2004 Investigation: CRA conducted an investigation in October 2004, which consisted of collecting four samples of the lime sludge fill from four separate boreholes BH-1 through BH-4 to characterize the lime sludge fill for waste disposal purposes in anticipation of evaluating remedial alternatives for the Site. The samples were analyzed for TCL/TAL parameters. There were no parameters detected in the lime sludge fill at concentrations that exceeded MTCA Method C industrial soil cleanup levels. Additionally, the four samples were analyzed by the Toxicity Characteristic Leaching Procedure (TCLP) to characterize the lime sludge fill for potential waste disposal purposes. The results indicated the concentration of PCE in the sample from BH-4 exceeded the corresponding TCLP regulatory limit. The remaining concentrations in the sample from BH-4 and concentrations in the three samples from BH-1, BH-2, and BH-3 were below the corresponding TCLP regulatory limits. The results of this investigation were reported in CRA's *Remedial Investigation/Feasibility Study Work Plan*, dated September 2013.

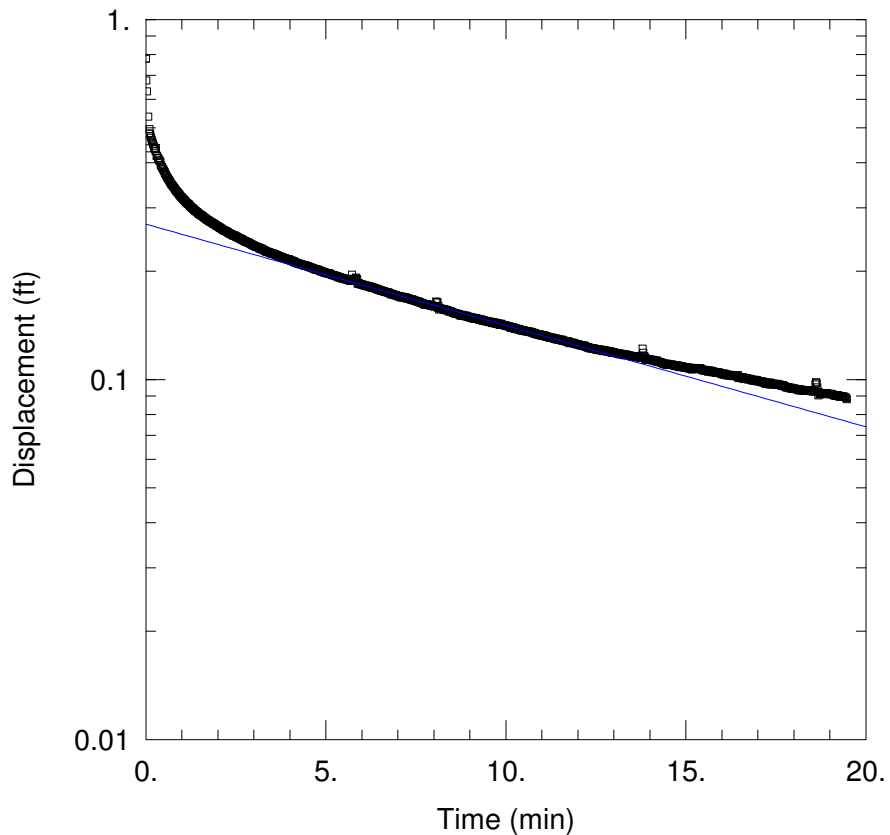
2014 Investigation: CRA conducted an investigation between August and December 2014. The investigation activities included redevelopment of well GM-B-6R, collection of low-flow groundwater samples from all existing monitoring wells, advancement of seven direct-push soil borings, GP-1 through GP-7, to depths ranging from 20 to 30 feet bgs with soil sampling, excavation of 14 test pits, TP-24 through TP-36 and TP-38, and hand auger of 1 test pit, TP-37, to depths ranging from 8 to 16 feet bgs with soil sampling, collection of eight sediment samples SD-05 through SD-12, collection of five surface water samples, SW-01 through SW-05, completion of six hand auger boreholes at locations HA-01 through HA-05B to further delineate the lateral extent of the sand and shredder residue fill, and completions of slug tests in all existing monitoring wells. The results of this investigation are presented in this report.

Appendix G consists of laboratory reports and raw data. As it is very large (3000+pages), it has been removed from this main report to make it more manageable for downloads. The lab reports are available by request in Ecology's electronic project files at the Southwest Regional Office.

Appendix G Laboratory Analytical Reports

Appendix H

Slug Test Results



GM-B-1 FALLING HEAD TEST 1

Data Set: I:\...\GM-B-1 FH1.aqt

Date: 08/05/15

Time: 18:36:26

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 6.268E-5$ cm/sec

$y_0 = 0.27$ ft

AQUIFER DATA

Saturated Thickness: 12.49 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-1)

Initial Displacement: 0.78 ft

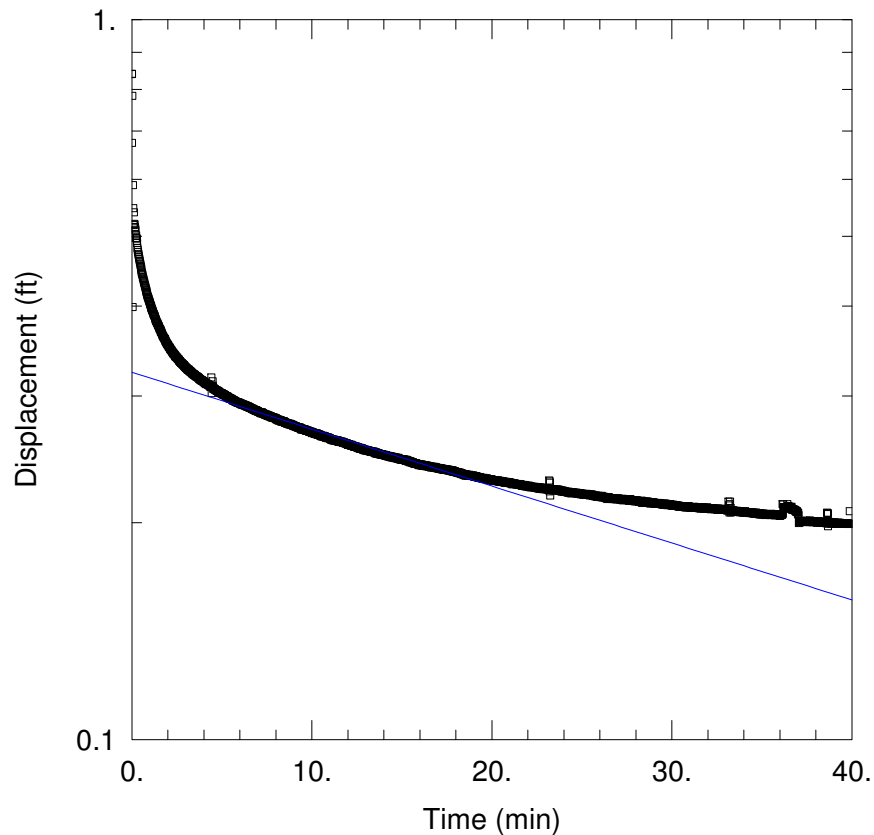
Total Well Penetration Depth: 12.49 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 12.49 ft

Screen Length: 5 ft

Well Radius: 0.354 ft



GM-B-1 FALLING HEAD TEST 2

Data Set: I:\...\GM-B-1 FH2.aqt

Date: 08/05/15

Time: 18:35:57

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 1.76E-5$ cm/sec

$y_0 = 0.3237$ ft

AQUIFER DATA

Saturated Thickness: 12.49 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-1)

Initial Displacement: 0.84 ft

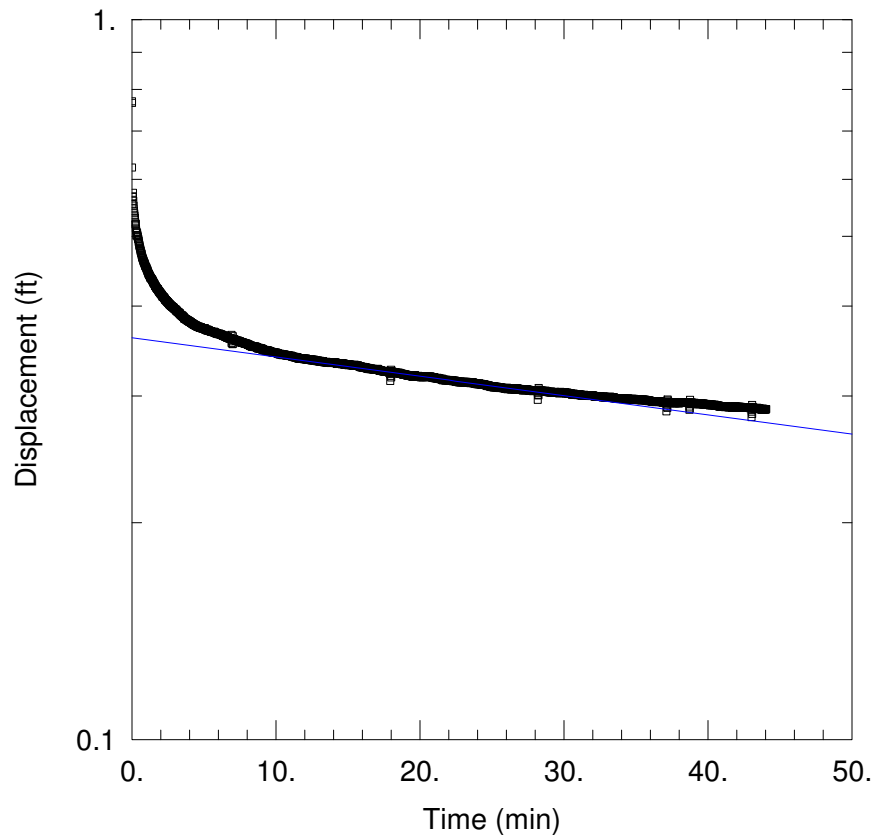
Total Well Penetration Depth: 12.49 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 12.49 ft

Screen Length: 5 ft

Well Radius: 0.354 ft



GM-B-1 RISING HEAD TEST 1

Data Set: I:\...\GM-B-1 RH1.aqt

Date: 08/05/15

Time: 18:35:11

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 5.963E-6$ cm/sec

$y_0 = 0.3614$ ft

AQUIFER DATA

Saturated Thickness: 12.49 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-1)

Initial Displacement: 0.77 ft

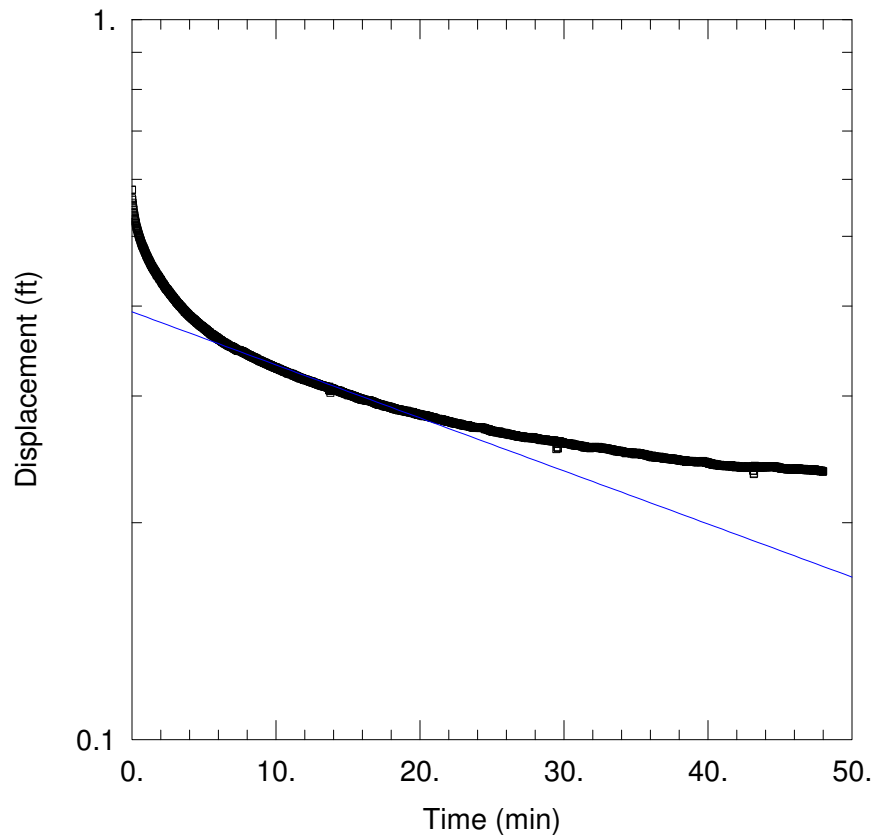
Total Well Penetration Depth: 12.49 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 12.49 ft

Screen Length: 5 ft

Well Radius: 0.354 ft



GM-B-1 RISING HEAD TEST 2

Data Set: I:\...\GM-B-1 RH2.aqt

Date: 08/05/15

Time: 18:37:10

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 1.641E-5$ cm/sec

$y_0 = 0.3927$ ft

AQUIFER DATA

Saturated Thickness: 12.49 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-1)

Initial Displacement: 0.58 ft

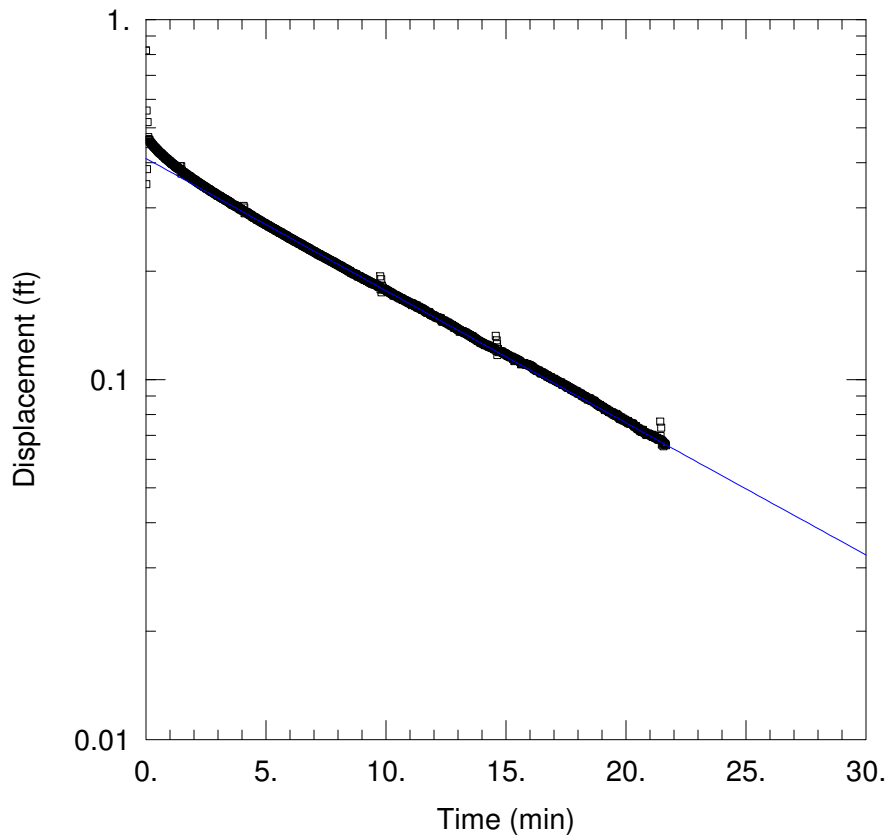
Total Well Penetration Depth: 12.49 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 12.49 ft

Screen Length: 5 ft

Well Radius: 0.354 ft



GM-B-1A FALLING HEAD TEST 1

Data Set: I:\...\GM-B-1A FH1.aqt

Date: 08/05/15

Time: 18:41:52

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 9.083E-5$ cm/sec

$y_0 = 0.4112$ ft

AQUIFER DATA

Saturated Thickness: 22.34 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-1A)

Initial Displacement: 0.82 ft

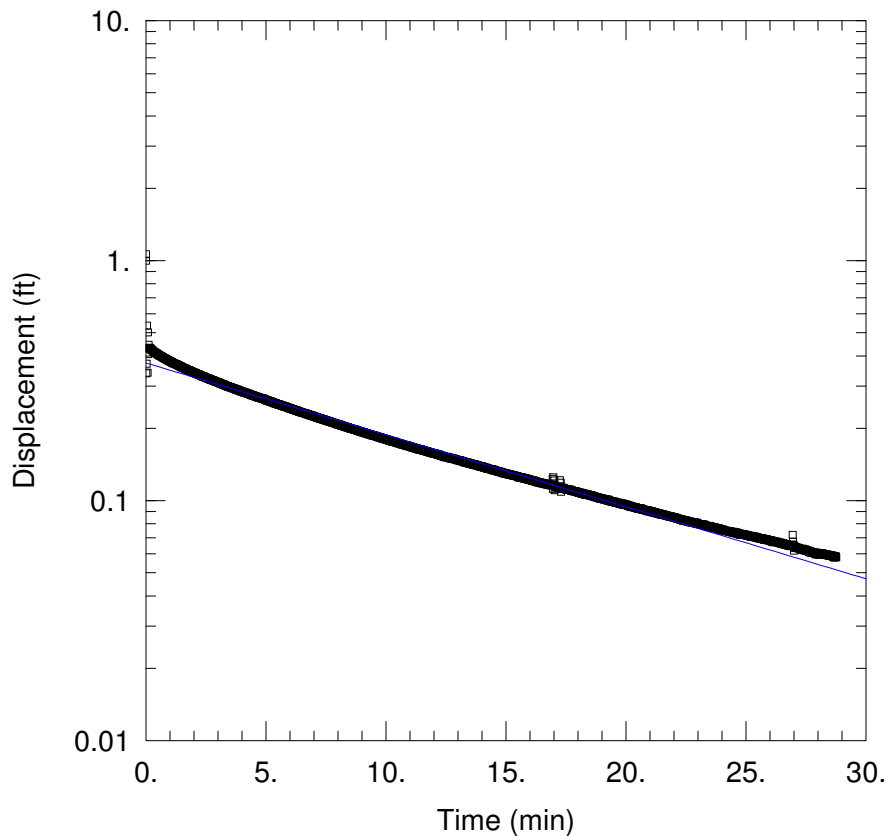
Total Well Penetration Depth: 22.34 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 22.34 ft

Screen Length: 5 ft

Well Radius: 0.354 ft



GM-B-1A FALLING HEAD TEST 2

Data Set: I:\...\GM-B-1A FH2.aqt

Date: 08/05/15

Time: 18:41:07

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 7.419E-5$ cm/sec

$y_0 = 0.3744$ ft

AQUIFER DATA

Saturated Thickness: 22.34 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-1A)

Initial Displacement: 1. ft

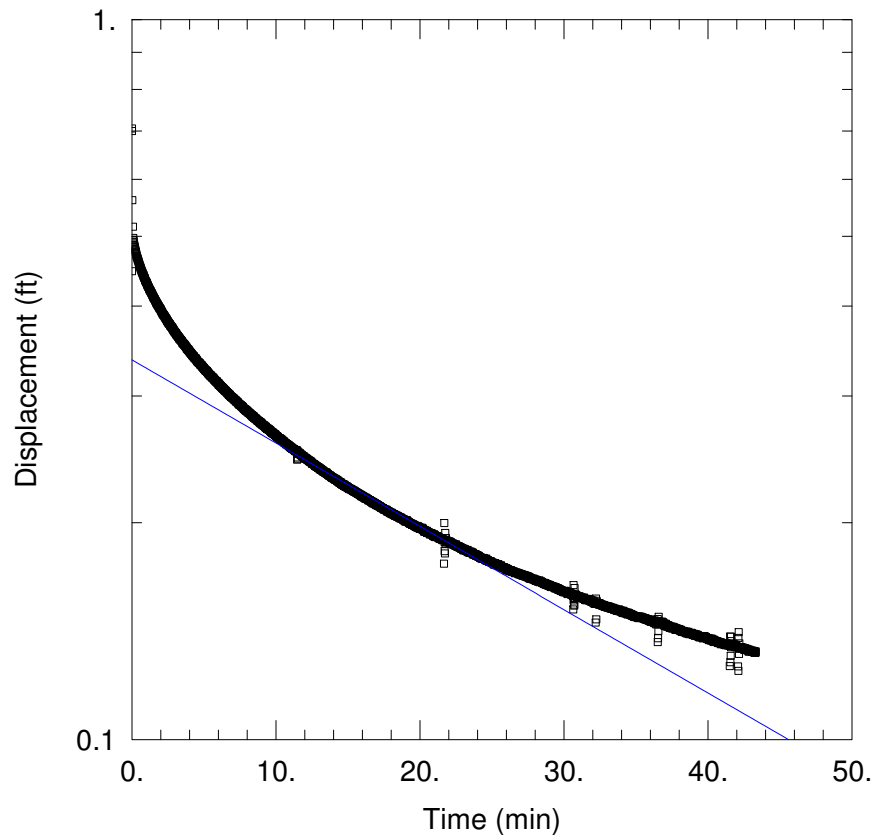
Total Well Penetration Depth: 22.34 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 22.34 ft

Screen Length: 5. ft

Well Radius: 0.354 ft



GM-B-1A RISING HEAD TEST 1

Data Set: I:\...\GM-B-1A RH1.aqt

Date: 08/05/15

Time: 18:40:35

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 2.863E-5$ cm/sec

$y_0 = 0.3369$ ft

AQUIFER DATA

Saturated Thickness: 22.34 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-1A)

Initial Displacement: 0.7 ft

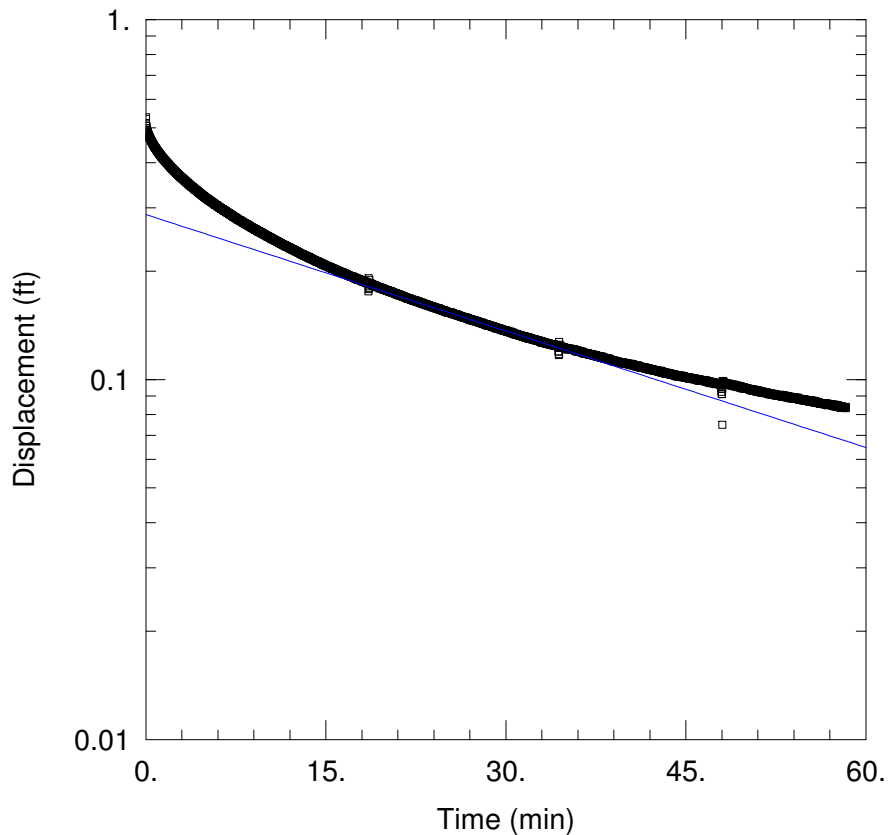
Total Well Penetration Depth: 22.34 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 22.34 ft

Screen Length: 5 ft

Well Radius: 0.354 ft



GM-B-1A RISING HEAD TEST 2

Data Set: I:\...\GM-B-1A RH2.aqt

Date: 08/05/15

Time: 18:42:28

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 2.668E-5$ cm/sec

$y_0 = 0.2871$ ft

AQUIFER DATA

Saturated Thickness: 22.34 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-1A)

Initial Displacement: 0.53 ft

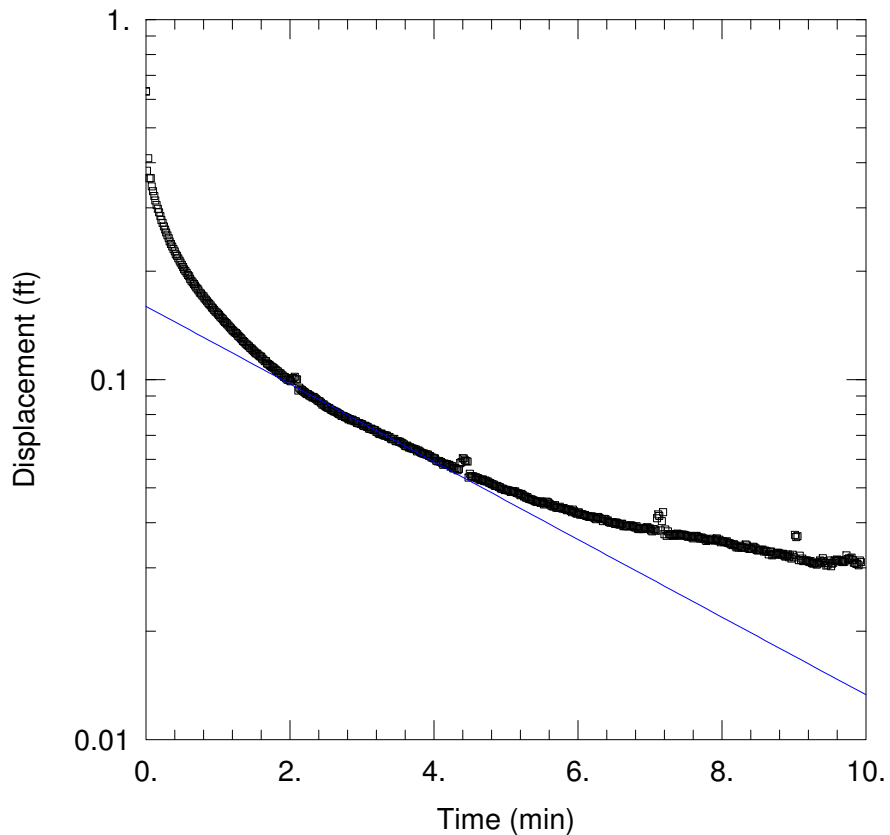
Total Well Penetration Depth: 22.34 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 22.34 ft

Screen Length: 5 ft

Well Radius: 0.354 ft



GM-B-2 FALLING HEAD TEST 1

Data Set: I:\...\GM-B-2 FH1.aqt

Date: 08/05/15

Time: 18:46:19

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 0.0002293$ cm/sec

$y_0 = 0.1597$ ft

AQUIFER DATA

Saturated Thickness: 10. ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-2)

Initial Displacement: 0.63 ft

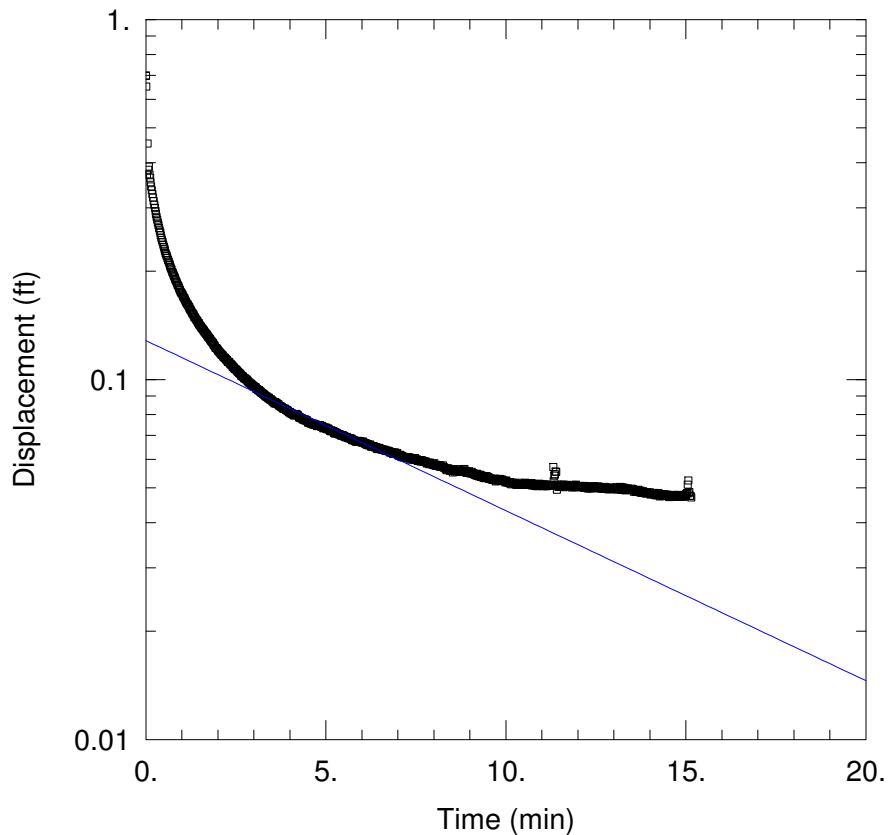
Total Well Penetration Depth: 9.3 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 10. ft

Screen Length: 4.3 ft

Well Radius: 0.354 ft



GM-B-2 FALLING HEAD TEST 2

Data Set: I:\...\GM-B-2 FH2.aqt

Date: 08/05/15

Time: 18:45:50

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 0.0001004$ cm/sec

$y_0 = 0.1283$ ft

AQUIFER DATA

Saturated Thickness: 10. ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-2)

Initial Displacement: 0.7 ft

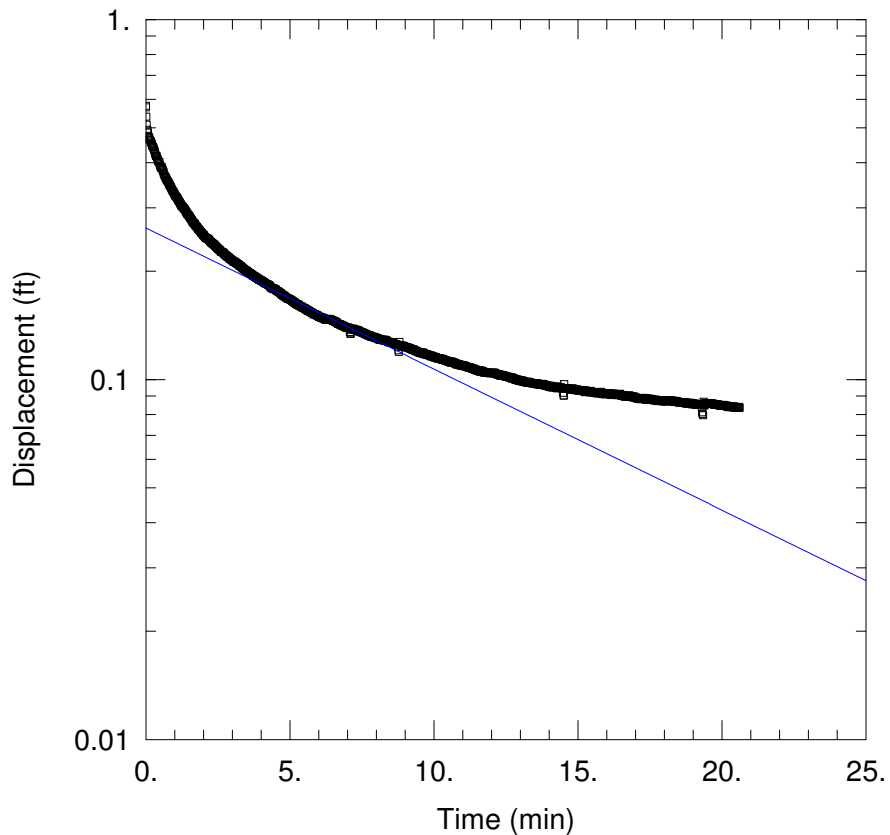
Total Well Penetration Depth: 9.3 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 10. ft

Screen Length: 4.3 ft

Well Radius: 0.354 ft



GM-B-2 RISING HEAD TEST 1

Data Set: I:\...\GM-B-2 RH1.aqt

Date: 08/05/15

Time: 18:45:24

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 8.33E-5$ cm/sec

$y_0 = 0.2638$ ft

AQUIFER DATA

Saturated Thickness: 10. ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-2)

Initial Displacement: 0.57 ft

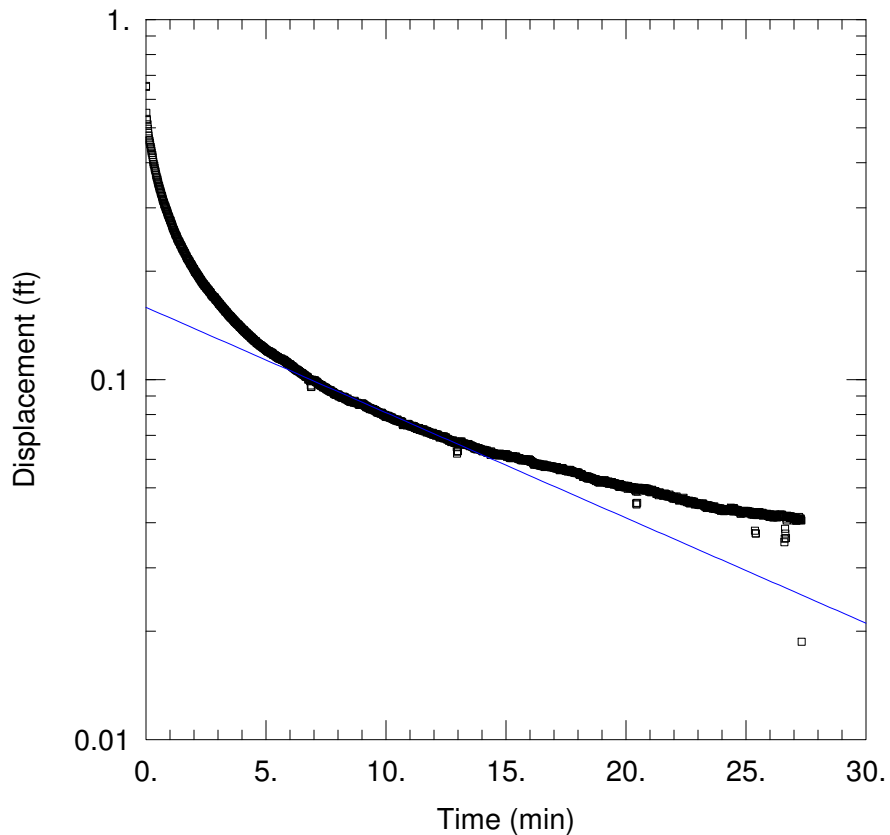
Total Well Penetration Depth: 9.3 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 10. ft

Screen Length: 4.3 ft

Well Radius: 0.354 ft



GM-B-2 RISING HEAD TEST 2

Data Set: I:\...\GM-B-2 RH2.aqt

Date: 08/05/15

Time: 18:46:46

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 6.215E-5$ cm/sec

$y_0 = 0.1587$ ft

AQUIFER DATA

Saturated Thickness: 10. ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-2)

Initial Displacement: 0.65 ft

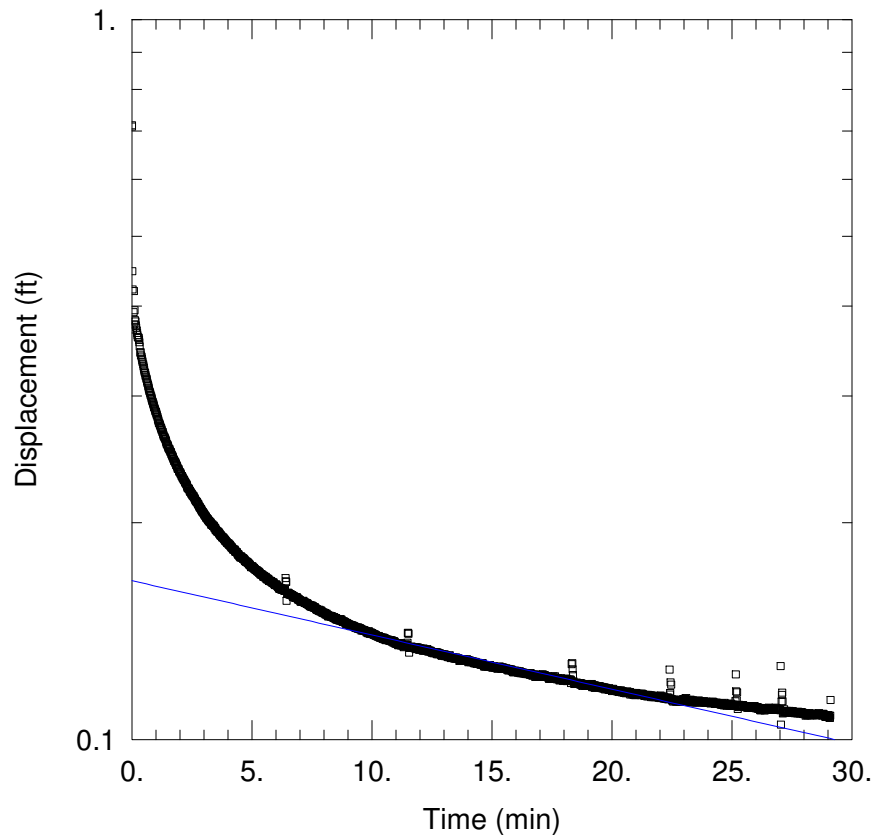
Total Well Penetration Depth: 9.3 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 10. ft

Screen Length: 4.3 ft

Well Radius: 0.354 ft



GM-B-2A FALLING HEAD TEST 1

Data Set: I:\...\GM-B-2A FH1.aqt

Date: 08/05/15

Time: 18:49:08

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 1.864E-5$ cm/sec

$y_0 = 0.1662$ ft

AQUIFER DATA

Saturated Thickness: 22.37 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-2A)

Initial Displacement: 0.71 ft

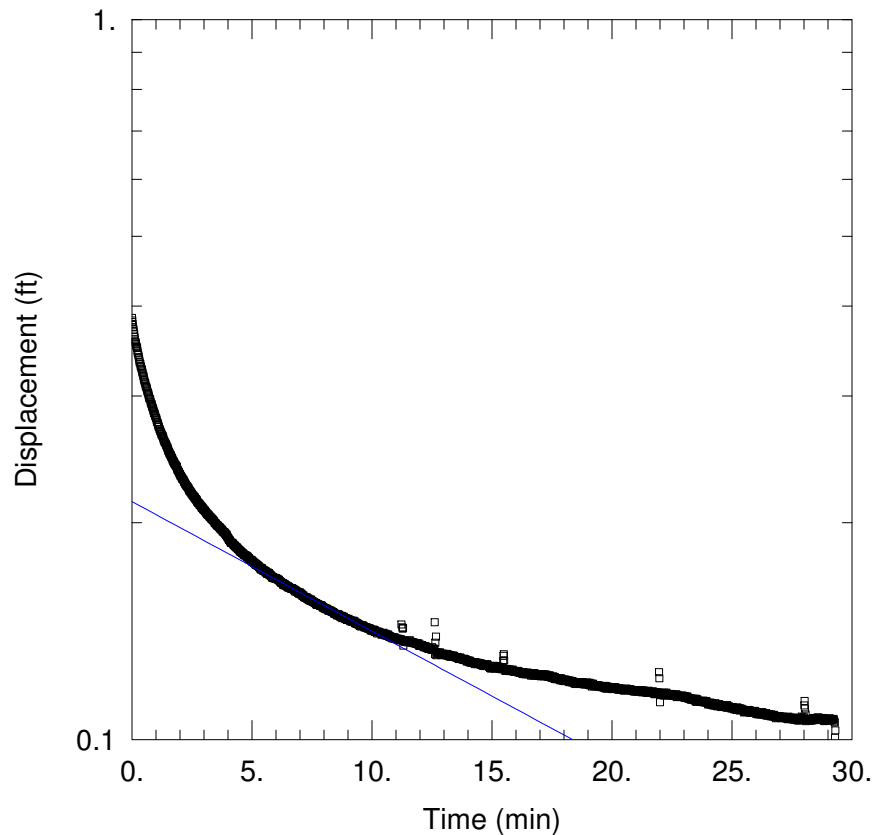
Total Well Penetration Depth: 22.37 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 22.37 ft

Screen Length: 5 ft

Well Radius: 0.354 ft



GM-B-2A FALLING HEAD TEST 2

Data Set: I:\...\GM-B-2A FH2.aqt

Date: 08/05/15

Time: 18:48:35

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 4.456E-5$ cm/sec

$y_0 = 0.214$ ft

AQUIFER DATA

Saturated Thickness: 22.37 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-2A)

Initial Displacement: 0.38 ft

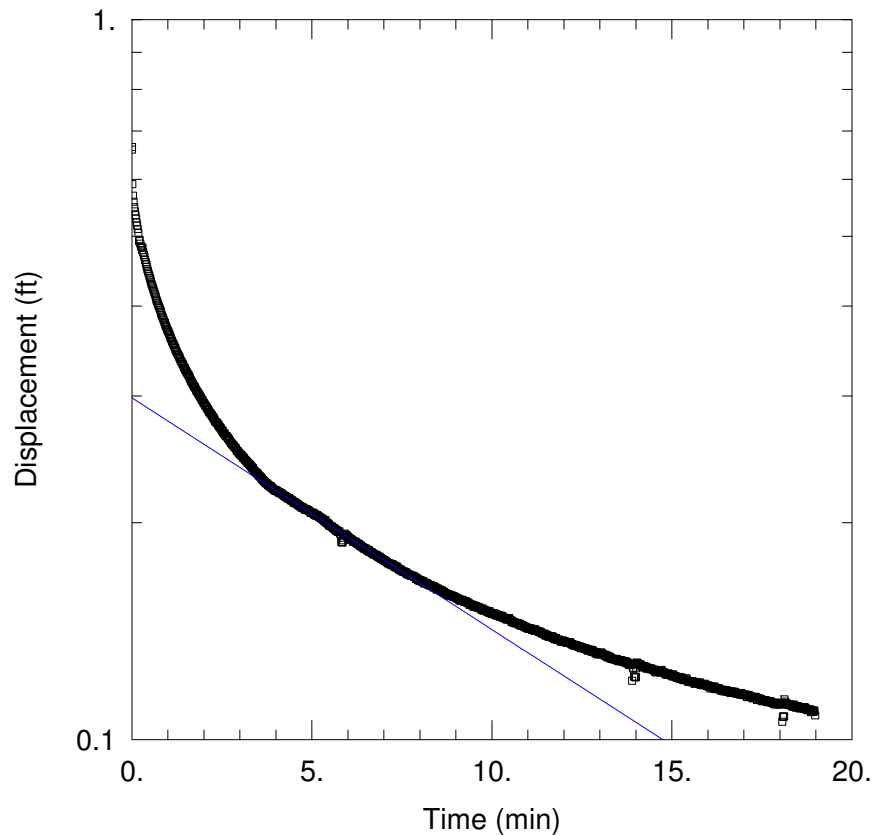
Total Well Penetration Depth: 22.37 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 22.37 ft

Screen Length: 5 ft

Well Radius: 0.354 ft



GM-B-2A RISING HEAD TEST 1

Data Set: I:\...\GM-B-2A RH1.aqt

Date: 08/05/15

Time: 18:48:05

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 7.961E-5$ cm/sec

$y_0 = 0.2982$ ft

AQUIFER DATA

Saturated Thickness: 22.37 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-2A)

Initial Displacement: 0.66 ft

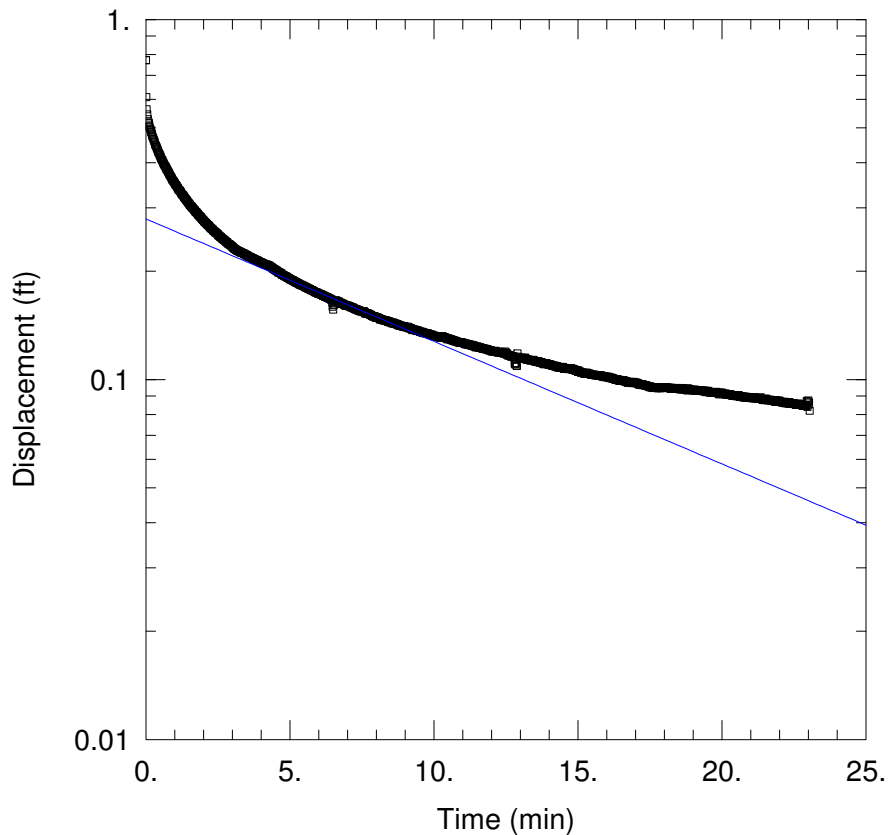
Total Well Penetration Depth: 22.37 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 22.37 ft

Screen Length: 5 ft

Well Radius: 0.354 ft



GM-B-2A RISING HEAD TEST 2

Data Set: I:\...\GM-B-2A RH2.aqt

Date: 08/05/15

Time: 18:49:36

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 8.421E-5$ cm/sec

$y_0 = 0.2793$ ft

AQUIFER DATA

Saturated Thickness: 22.37 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-2A)

Initial Displacement: 0.77 ft

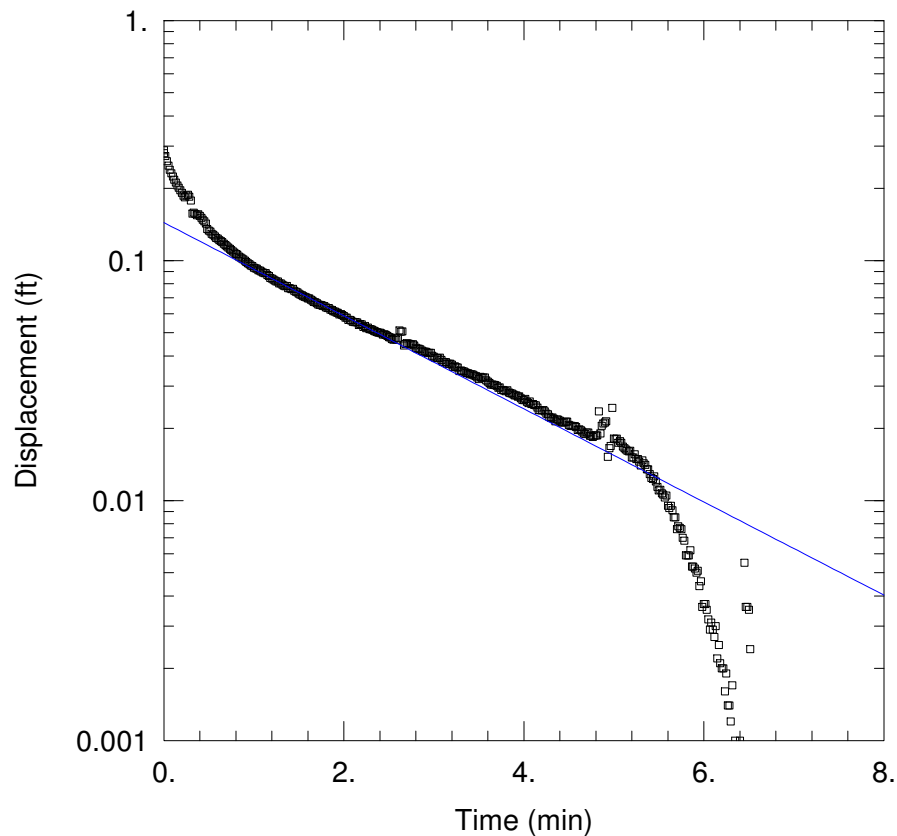
Total Well Penetration Depth: 22.37 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 22.37 ft

Screen Length: 5 ft

Well Radius: 0.354 ft



GM-B-3R FALLING HEAD TEST 1

Data Set: I:\...\GM-B-3R FH1.aqt

Date: 08/05/15

Time: 18:52:57

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 0.0005391$ cm/sec

$y_0 = 0.1438$ ft

AQUIFER DATA

Saturated Thickness: 10.94 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-3R)

Initial Displacement: 0.28 ft

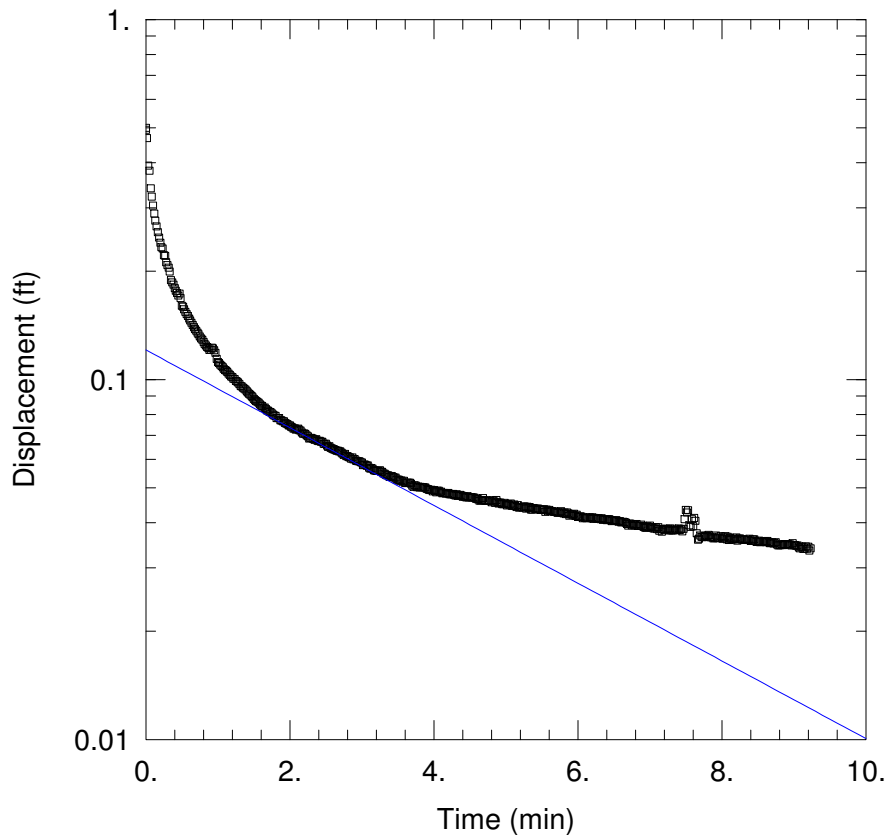
Total Well Penetration Depth: 10.94 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 10.94 ft

Screen Length: 3.73 ft

Well Radius: 0.354 ft



GM-B-3R FALLING HEAD TEST 2

Data Set: I:\...\GM-B-3R FH2.aqt

Date: 08/05/15

Time: 18:53:14

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 0.0002999$ cm/sec

$y_0 = 0.1208$ ft

AQUIFER DATA

Saturated Thickness: 10.94 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-3R)

Initial Displacement: 0.5 ft

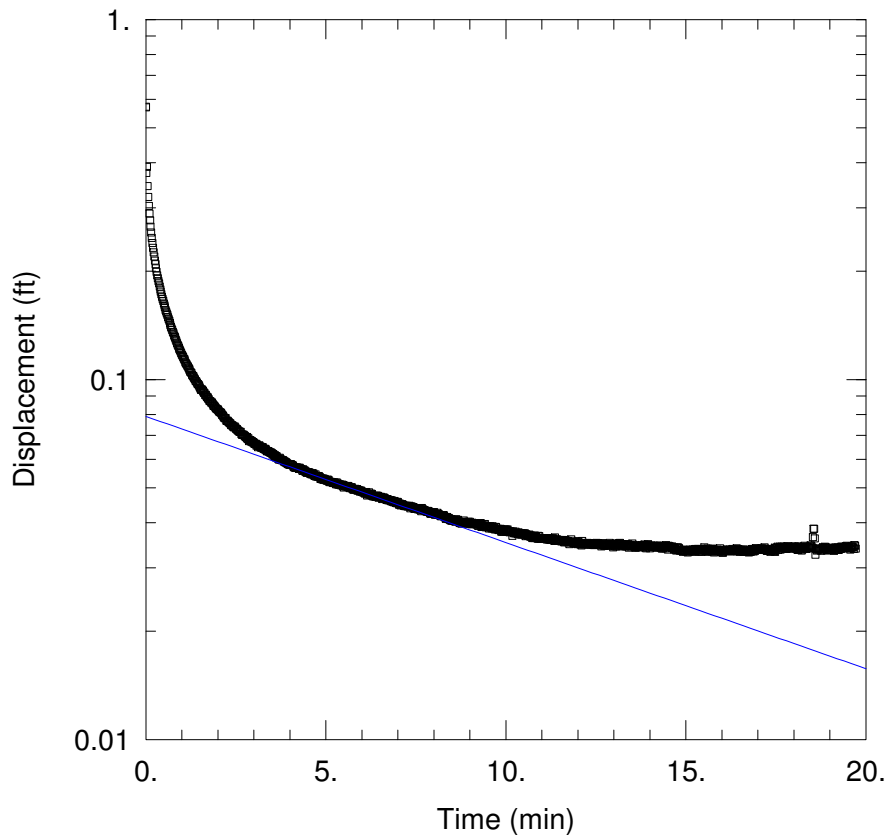
Total Well Penetration Depth: 10.94 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 10.94 ft

Screen Length: 3.73 ft

Well Radius: 0.354 ft



GM-B-3R FALLING HEAD TEST 3

Data Set: I:\...\GM-B-3R FH3.aqt

Date: 08/05/15

Time: 18:52:21

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 9.737E-5$ cm/sec

$y_0 = 0.07898$ ft

AQUIFER DATA

Saturated Thickness: 10.94 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-3R)

Initial Displacement: 0.57 ft

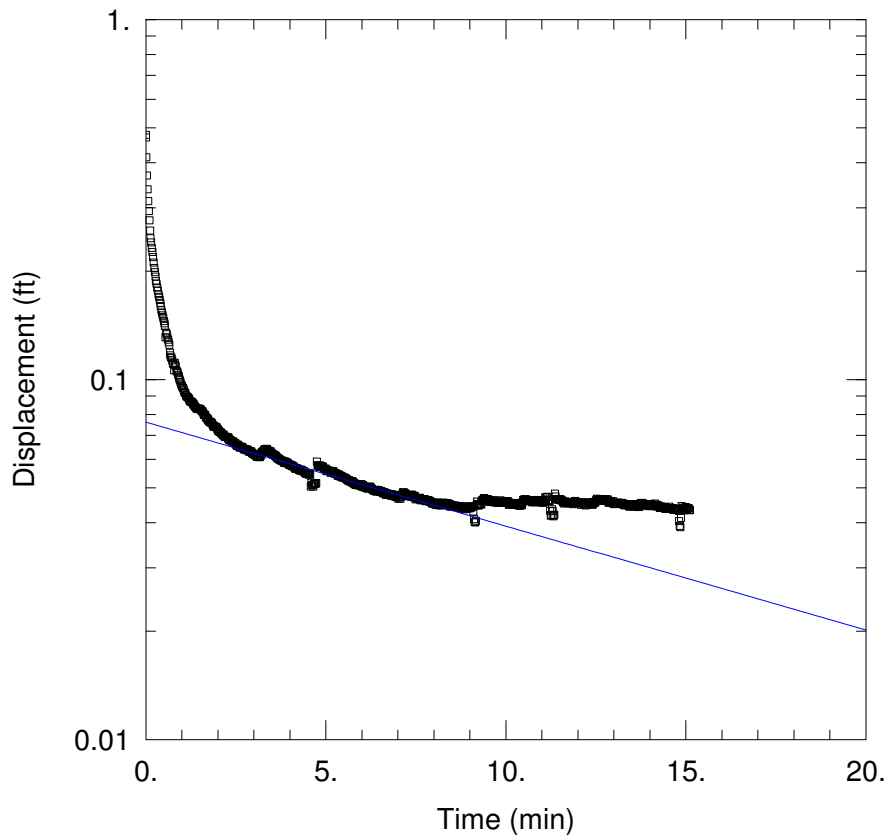
Total Well Penetration Depth: 10.94 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 10.94 ft

Screen Length: 3.73 ft

Well Radius: 0.354 ft



GM-B-3R RISING HEAD TEST 1

Data Set: I:\...\GM-B-3R RH1.aqt

Date: 08/05/15

Time: 18:54:54

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 8.024E-5$ cm/sec

$y_0 = 0.07614$ ft

AQUIFER DATA

Saturated Thickness: 10.94 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-3R)

Initial Displacement: 0.47 ft

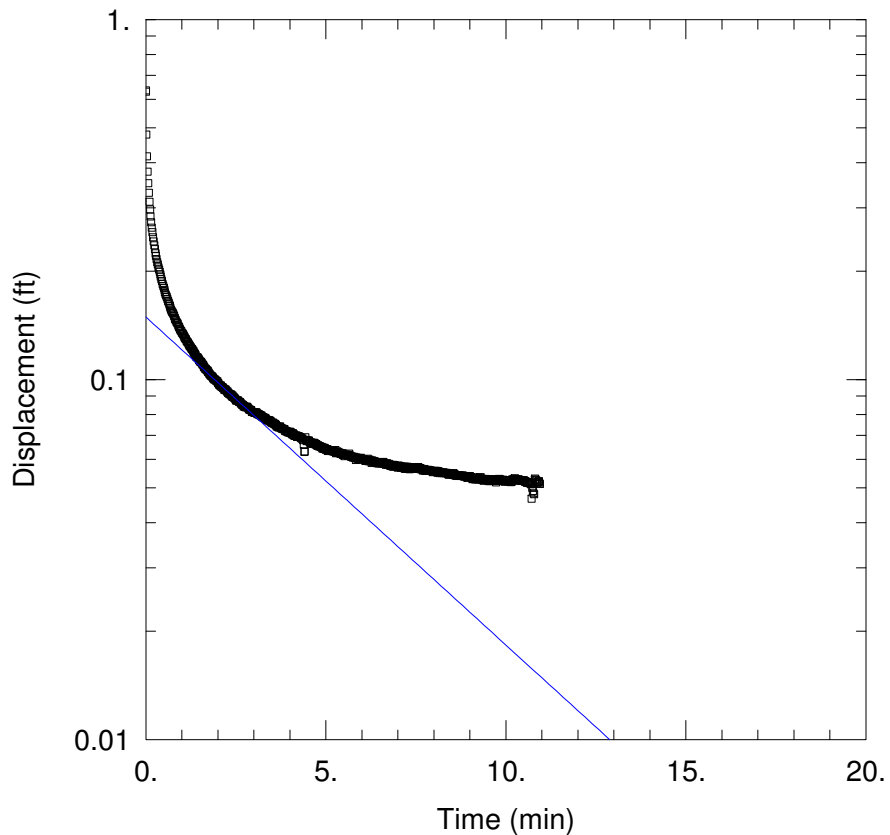
Total Well Penetration Depth: 10.94 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 10.94 ft

Screen Length: 3.73 ft

Well Radius: 0.354 ft



GM-B-3R RISING HEAD TEST 2

Data Set: I:\...\GM-B-3R RH2.aqt

Date: 08/05/15

Time: 18:54:27

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 0.0002532$ cm/sec

$y_0 = 0.1492$ ft

AQUIFER DATA

Saturated Thickness: 10.94 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-3R)

Initial Displacement: 0.63 ft

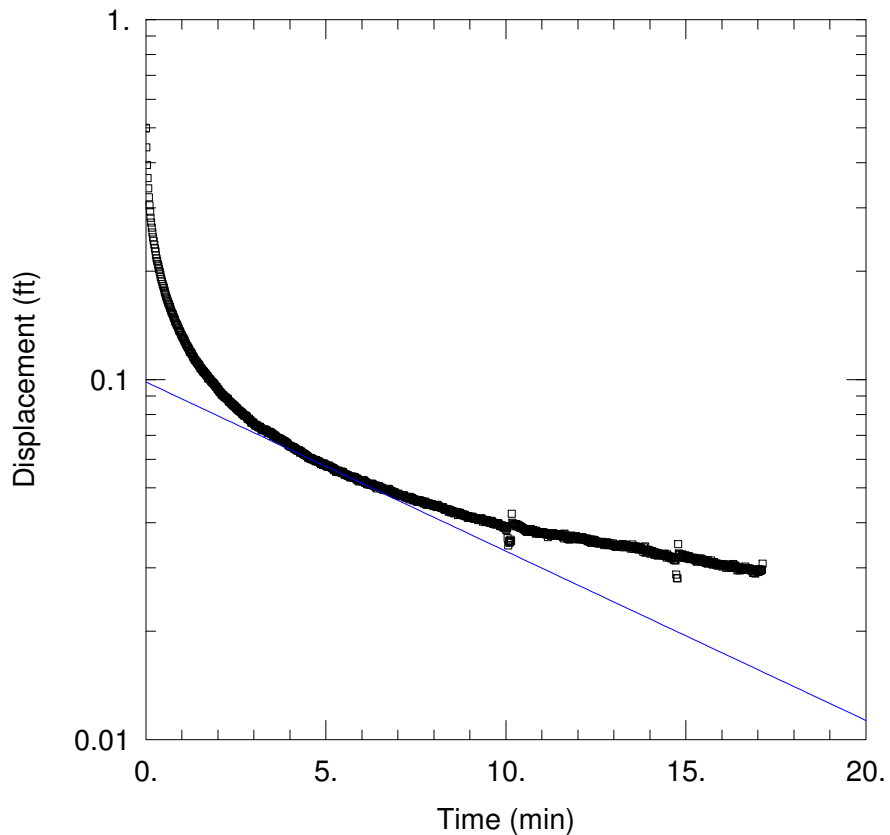
Total Well Penetration Depth: 10.94 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 10.94 ft

Screen Length: 3.73 ft

Well Radius: 0.354 ft



GM-B-3R RISING HEAD TEST 3

Data Set: I:\...\GM-B-3R RH3.aqt

Date: 08/05/15

Time: 18:55:18

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 0.0001306$ cm/sec

$y_0 = 0.09842$ ft

AQUIFER DATA

Saturated Thickness: 10.94 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-3R)

Initial Displacement: 0.5 ft

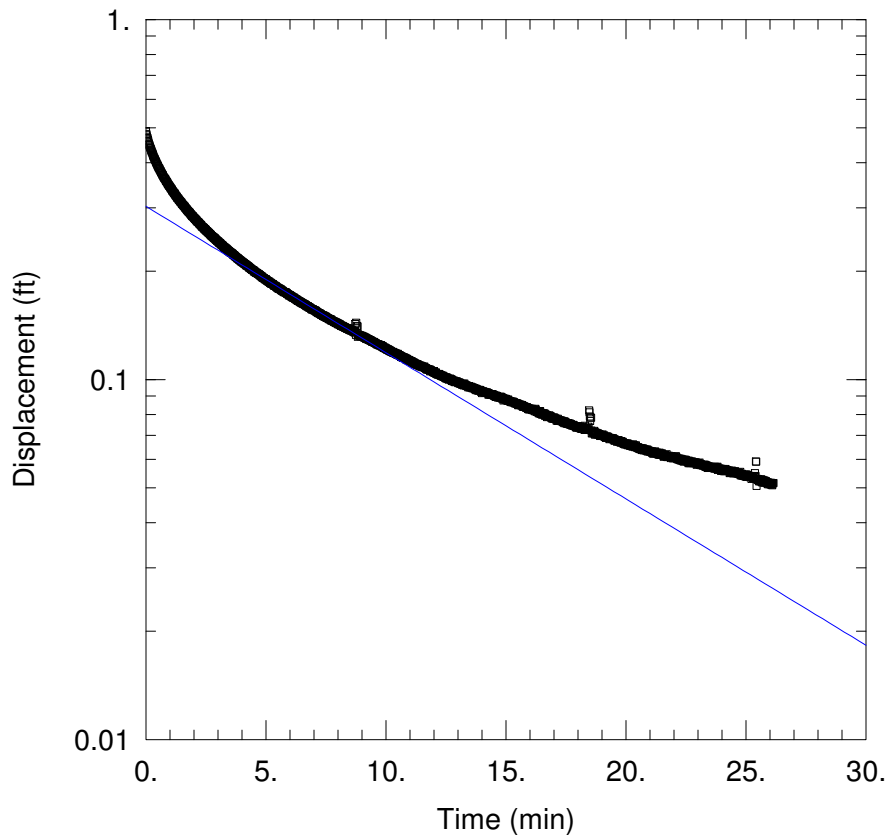
Total Well Penetration Depth: 10.94 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 10.94 ft

Screen Length: 3.73 ft

Well Radius: 0.354 ft



GM-B-6A FALLING HEAD TEST 1

Data Set: I:\...\GM-B-6A FH1.aqt

Date: 08/05/15

Time: 18:57:21

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 0.0001051$ cm/sec

$y_0 = 0.3027$ ft

AQUIFER DATA

Saturated Thickness: 29.53 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-6A)

Initial Displacement: 0.49 ft

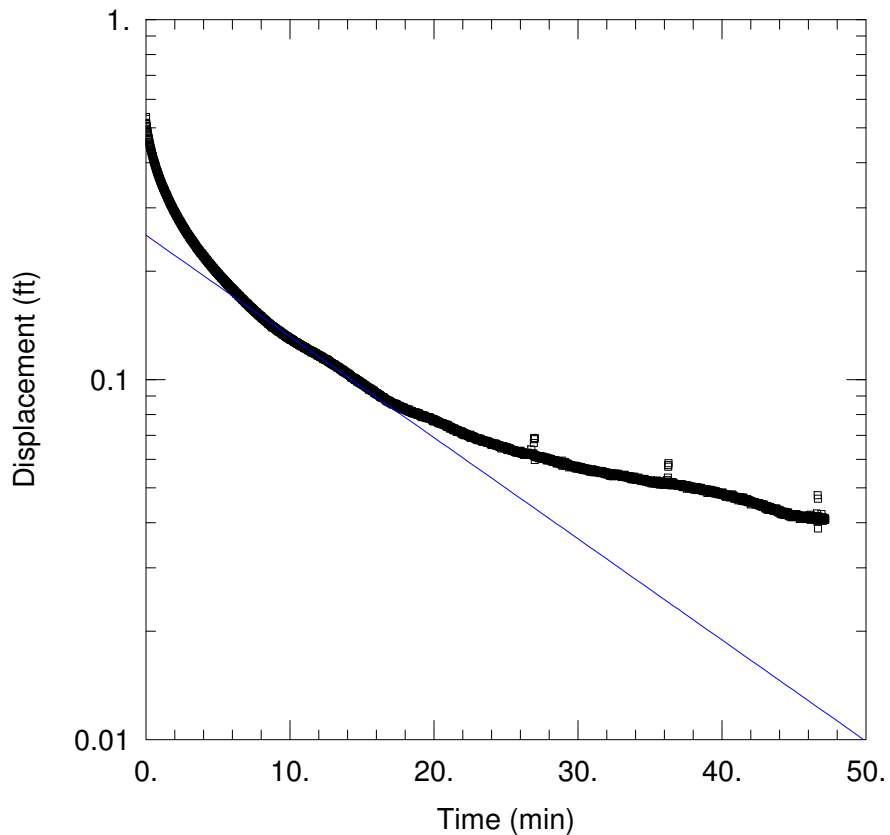
Total Well Penetration Depth: 29.53 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 29.53 ft

Screen Length: 5 ft

Well Radius: 0.354 ft



GM-B-6A FALLING HEAD TEST 2

Data Set: I:\...\GM-B-6A FH2.aqt

Date: 08/05/15

Time: 18:56:57

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 7.274E-5$ cm/sec

$y_0 = 0.2518$ ft

AQUIFER DATA

Saturated Thickness: 29.53 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-6A)

Initial Displacement: 0.53 ft

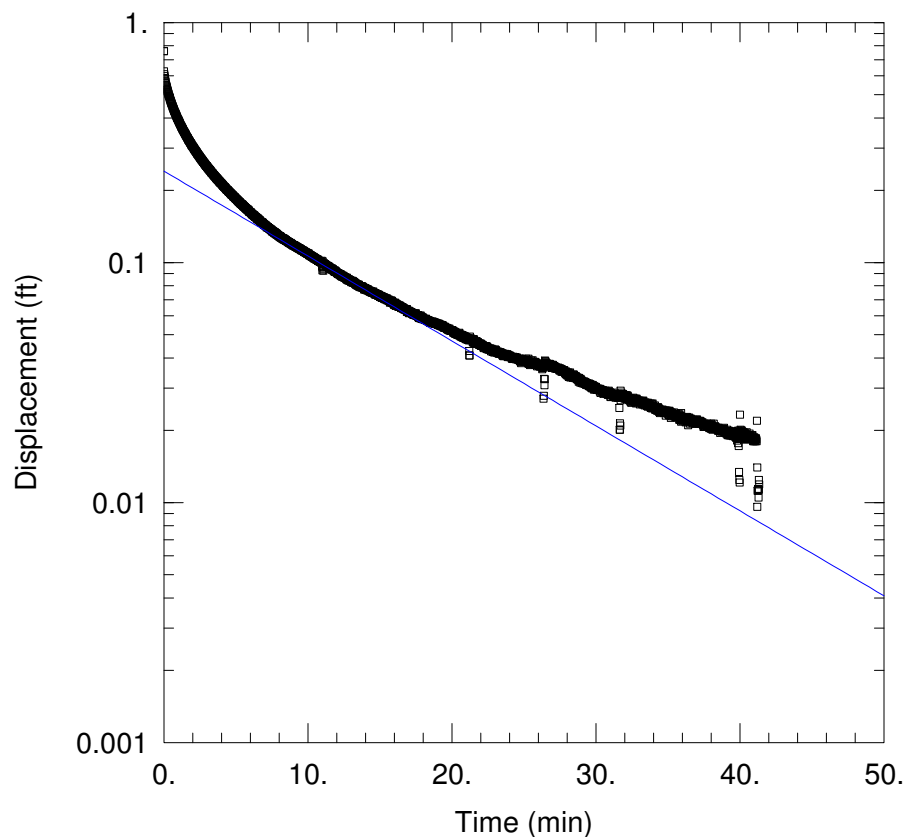
Total Well Penetration Depth: 29.53 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 29.53 ft

Screen Length: 5 ft

Well Radius: 0.354 ft



GM-B-6A RISING HEAD TEST 1

Data Set: I:\...\GM-B-6A RH1.aqt

Date: 08/05/15

Time: 18:56:31

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 9.157E-5$ cm/sec

$y_0 = 0.2405$ ft

AQUIFER DATA

Saturated Thickness: 29.53 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-6A)

Initial Displacement: 0.76 ft

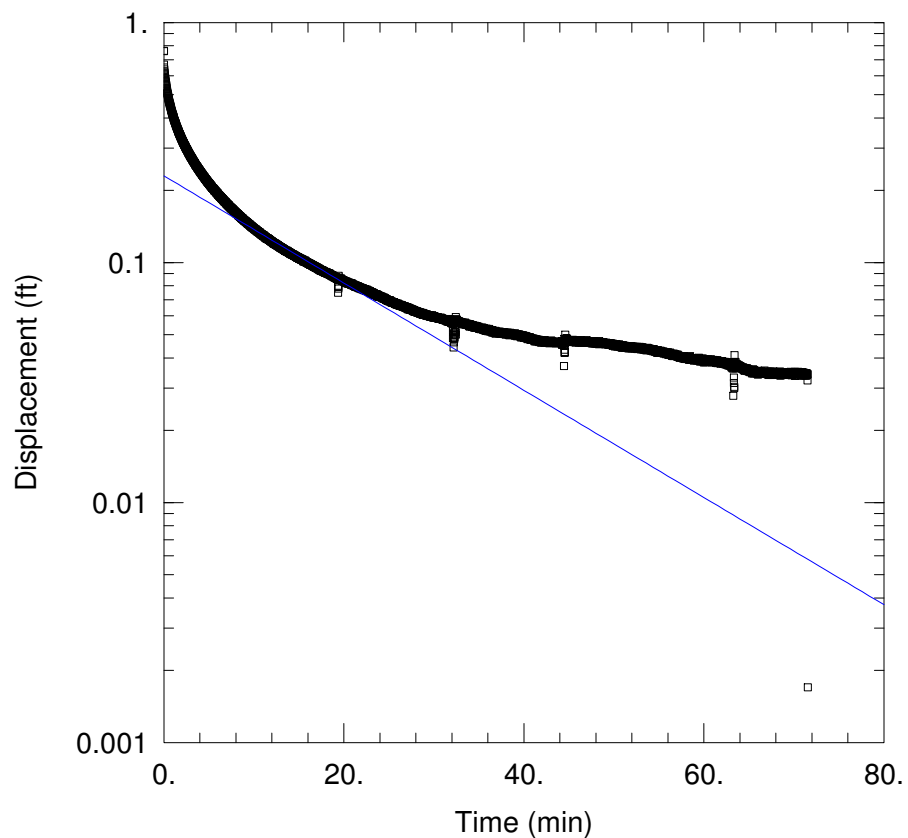
Total Well Penetration Depth: 29.53 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 29.53 ft

Screen Length: 5 ft

Well Radius: 0.354 ft



GM-B-6A RISING HEAD TEST 2

Data Set: I:\...\GM-B-6A RH2.aqt

Date: 08/05/15

Time: 18:57:47

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 5.778E-5$ cm/sec

$y_0 = 0.2297$ ft

AQUIFER DATA

Saturated Thickness: 29.53 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-6A)

Initial Displacement: 0.76 ft

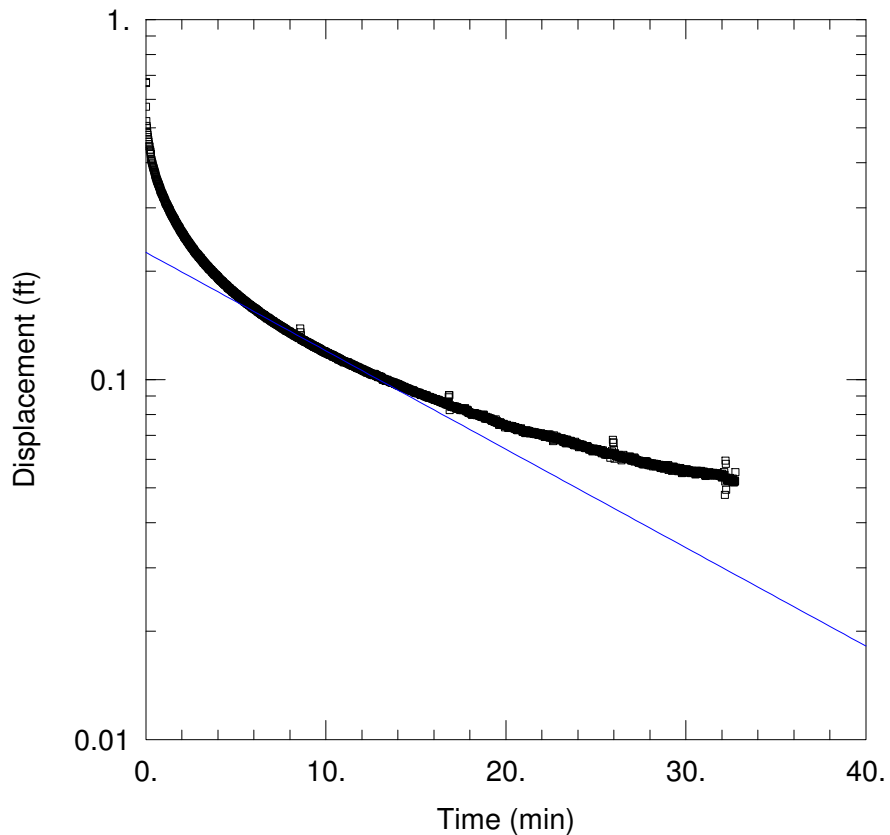
Total Well Penetration Depth: 29.53 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 29.53 ft

Screen Length: 5 ft

Well Radius: 0.354 ft



GM-B-6R FALLING HEAD TEST 1

Data Set: I:\...\GM-B-6R FH1.aqt

Date: 08/06/15

Time: 10:39:01

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

K = 0.0001086 cm/sec

y0 = 0.2255 ft

AQUIFER DATA

Saturated Thickness: 10.14 ft

Anisotropy Ratio (Kz/Kr): 0.5

WELL DATA (GM-B-6R)

Initial Displacement: 0.67 ft

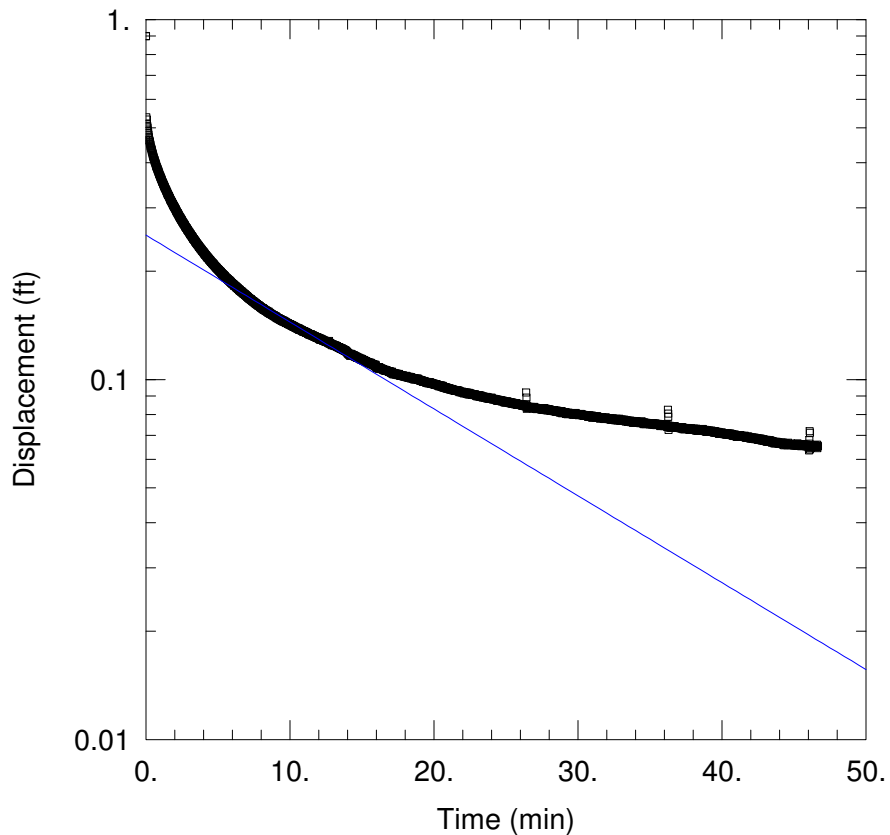
Total Well Penetration Depth: 10.14 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 10.14 ft

Screen Length: 2.38 ft

Well Radius: 0.354 ft



GM-B-6R FALLING HEAD TEST 2

Data Set: I:\...\GM-B-6R FH2.aqt

Date: 08/06/15

Time: 10:38:41

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 9.589E-5$ cm/sec

$y_0 = 0.2518$ ft

AQUIFER DATA

Saturated Thickness: 10.14 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-6R)

Initial Displacement: 0.9 ft

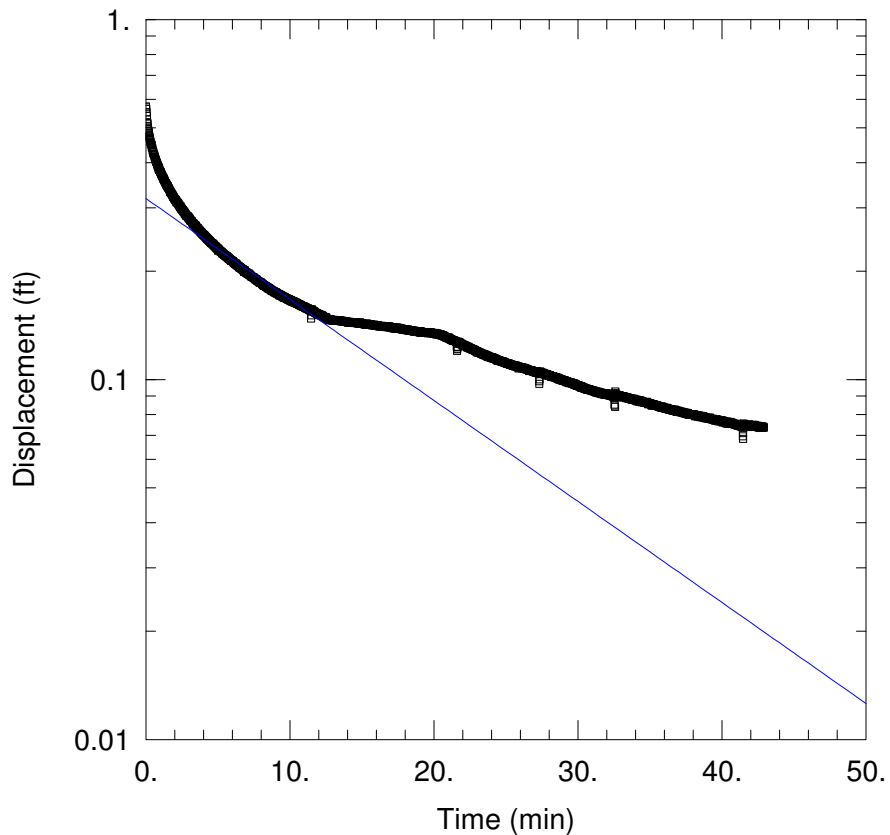
Total Well Penetration Depth: 10.14 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 10.14 ft

Screen Length: 2.38 ft

Well Radius: 0.354 ft



GM-B-6R RISING HEAD TEST 1

Data Set: I:\...\GM-B-6R RH1.aqt

Date: 08/06/15

Time: 10:38:18

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 0.0001115$ cm/sec

$y_0 = 0.3183$ ft

AQUIFER DATA

Saturated Thickness: 10.14 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-6R)

Initial Displacement: 0.57 ft

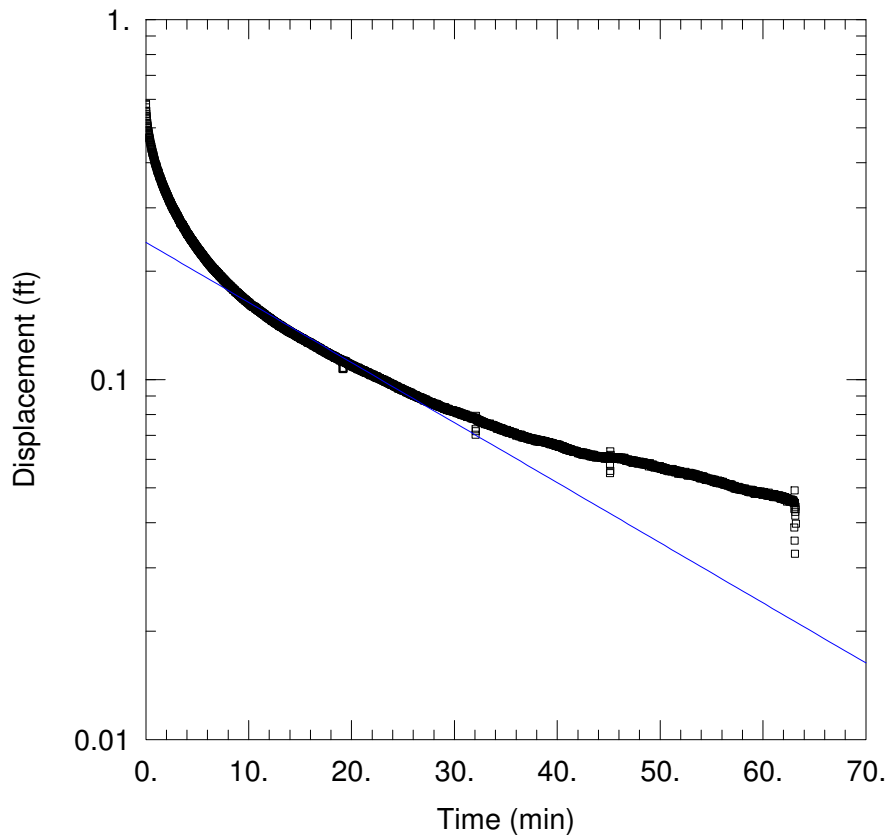
Total Well Penetration Depth: 10.14 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 10.14 ft

Screen Length: 2.38 ft

Well Radius: 0.354 ft



GM-B-6R RISING HEAD TEST 2

Data Set: I:\...\GM-B-6R RH2.aqt

Date: 08/06/15

Time: 10:40:04

PROJECT INFORMATION

Company: Conestoga-Rovers & Associates

Client: GSHI

Project: 009973

Location: 1913 Marine View Drive

Test Date: 12/19/14

SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 6.634E-5$ cm/sec

$y_0 = 0.2405$ ft

AQUIFER DATA

Saturated Thickness: 10.14 ft

Anisotropy Ratio (K_z/K_r): 0.5

WELL DATA (GM-B-6R)

Initial Displacement: 0.58 ft

Total Well Penetration Depth: 10.14 ft

Casing Radius: 0.0833 ft

Static Water Column Height: 10.14 ft

Screen Length: 2.38 ft

Well Radius: 0.354 ft