Remedial Investigation Work Plan
Blaine Marina, Inc. Site
Blaine, Washington

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Prepared for

Port of Bellingham
Bellingham, Washington

LANDAU ASSOCIATES
130 2nd Avenue South
Edmonds, WA 98020
(425) 778-0907

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LIST OF ABBREVIATIONS AND ACRONYMS

µg/L	Microgram per Liter
ARAR	Applicable or Relevant and Appropriate Requirements
AST	Aboveground Storage Tank
BEHP	Bis(2-ethylhexyl)phthalate
BGS	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CFR	Code of Federal Regulations
cm	Centimeter
COPC	Constituent of Potential Concern
CSL	Cleanup Screening Level
DCA	Disproportionate Cost Analysis
Development Plan	Port of Bellingham 2007 Blaine Wharf District Master Plan
DNR	Washington State Department of Natural Resources
DO	Dissolved Oxygen
Ecology	Washington State Department of Ecology
EDB	Ethylene Dibromide
EDC	Ethylene Dichloride
EDR	Environmental Data Resources Inc.
EPA	U.S. Environmental Protection Agency
Farallon	Farallon Consulting
FS	Feasibility Study
ft	Feet
ft^2	Square Feet
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
MTBE	Methyl Tert-Butyl Ether
MTCA	Model Toxics Control Act
NAPL	Non-Aqueous Phase Liquid
OC	Organic Carbon
ORP	Oxidation Reduction Potential
PAHs	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyl
PID	Photoionization Detector
Port	Port of Bellingham
PQL	Practical Quantitation Limit
PSL	Preliminary Screening Level
RAO	Remedial Action Objective
RCW	Revised Code of Washington
RI	Remedial Investigation
SAP	Sampling and Analysis Plan
SMS	Sediment Management Standards
SMU	Sediment Management Unit
SQS	Sediment Quality Standards
SVOC	Semivolatile Organic Compound
TOC	Total Organic Carbon
TPH	Total Petroleum Hydrocarbon
TPH-D	Diesel-Range Total Petroleum Hydrocarbon

LIST OF ABBREVIATIONS AND ACRONYMS

TPH-G	Gasoline-Range Total Petroleum Hydrocarbon
TPH-O	Oil-Range Total Petroleum Hydrocarbon
VOC	Volatile Organic Compound
WAC	Washington Administrative Code

1.0 INTRODUCTION

This document presents a work plan to conduct a Remedial Investigation (RI) for the Blaine Marina Inc. Site (Site) in Blaine, Washington (Figure 1). The purpose of this RI work plan is to provide a detailed approach to evaluating the nature and extent of the contamination at the Site for the purpose of developing and evaluating various cleanup alternatives, and to enable the selection of the final cleanup action.

The Site is owned by the Port of Bellingham (Port) and the Washington State Department of Natural Resources (DNR), and is a part of a larger area referred to as the Blaine Harbor Industrial Area (Figure 2) that is being redeveloped by the Port. A number of previous environmental investigations identified petroleum hydrocarbons in Site soil and groundwater, resulting in the Site being listed on the Washington State Department of Ecology (Ecology) Hazardous Sites List (FSID 2888) with a priority rank of 3 out of 5 for cleanup, with a ranking of 1 being the highest priority for cleanup. The RI will be performed under Agreed Order No. DE 9000 between the Port and Ecology. This work plan was prepared to meet the general requirements of an RI/FS as defined by the Washington State Model Toxics Control Act (MTCA) Cleanup Regulation (WAC 173-340-350), and describes the RI activities to be performed. A description of the FS activities, project reporting, and the planned schedule are also provided.

2.0 BACKGROUND

The Blaine Marina, Inc. site (Site; FSID 2888) is located in Blaine, Washington within Blaine Harbor. Blaine Harbor is at the north end of Drayton Harbor, in the Willamette Meridian northwest quarter of Section 1, Township 40 North, Range 1 West. Blaine Marina Inc. (Blaine Marina) has leased approximately 39,000 square feet (ft^2) of property at 214 Sigurdson Avenue from the Port since the 1950s. Blaine Marina operates a bulk fuel storage and transfer facility that has resulted in the release of petroleum hydrocarbons to soil and groundwater at the Site.

The Site, as described in Agreed Order DE-9000, is defined by the extent of contamination caused by the release of hazardous substances at the Site, and is not limited to lease area or property area boundaries. The Site includes areas where hazardous substances have been deposited, stored, disposed of, placed, or otherwise have come to be located. The preliminary boundaries of the Site are shown on Figure 2. As noted on Figure 2, the actual boundaries of the Site will be determined during the RI process. With the exception of Figure 1 and Figure 7, the figures in this report are oriented to the northwest. Descriptions of direction in this report will be in reference to *map north*, which is toward Marine Drive.

2.1 HISTORICAL SITE DEVELOPMENT AND OPERATIONS

The history of Site development and operations presented in this section is based on a review of existing environmental reports related to previous Site investigations and a review of historical aerial photographs taken between 1949 and 2011, which are provided in Appendix A.

Blaine Harbor was originally created in the late 1930s by dredging 2 acres of tideflats to create a small boat harbor. An access road was constructed and adjacent tidelands were filled to create uplands and provide shore support for the area. In the late 1940s, 4 additional acres were dredged, additional tidelands were filled, and a breakwater, bulkheads, floats, and ramps were constructed, as shown in the 1949 aerial photograph (Appendix A). The upland area created at the Site generally consists of hydraulic fill with timber bulkheads along the shoreline. In some areas, riprap was used instead of, or in conjunction with, the bulkheads to establish the shoreline. An additional 15-acre area of tideflats was dredged and an extension of the breakwater was completed in the mid-1950s (TEC 2001). The 1956 aerial photograph (Appendix A) shows the breakwater extending farther east and improvements to upland facilities including additional buildings and aboveground storage tanks (ASTs) to support the storage of fuel dispensed at the fuel dock. The harbor and marina have been upgraded over the years to meet the demand for services. Despite the upgrades, most of the infrastructure supporting the harbor is from the original construction and the footprint of the upland industrial area has remained largely unchanged from

that shown in the aerial photograph from 1949. In 2001, the Port completed an expansion project at Blaine Harbor that included enlarging the moorage basin and the addition of more than 300 slips. The 2010 aerial photograph of the Site (Appendix A) generally depicts the current layout of the Site and surrounding facilities.

Business activity has historically been focused in the area along the western end of Blaine Harbor referred to herein as the Blaine Harbor Industrial Area, which comprises all of the upland area shown on Figure 2. A portion of the southwestern end of the harbor includes state-owned lands that are managed by the Port under a Port Management Agreement with DNR. The Inner Harbor Line shown on Figure 2 defines the boundary between property owned by the Port (east of the Inner Harbor Line), and property that is owned by the State and managed by the Port under contract to DNR (west of the Inner Harbor Line).

2.1.1 BLAINE MARINA INC. HISTORICAL OPERATIONS

Blaine Marina is a family-owned retail business that sells furniture, appliances, and fuel products. The company has leased the property at 214 Sigurdson Avenue from the Port since the mid-1950s. The furniture and appliance retailing portion of the business is presumed not to have contributed to releases observed at the Site. Blaine Marina has continuously operated the tank farm at the Site to support the fuel retailing portion of its business from the mid-1950s to the present. This activity is suspected to have resulted in the contamination of soil and groundwater at the Site. The tank farm includes three 8,500-gallon fuel ASTs that store diesel and gasoline to support Blaine Marina's onsite fueling facility. A 4,000-gallon, horizontally oriented AST was formerly located at the tank farm; this AST stored home heating oil that was transferred to tanker trucks for offsite delivery. Because the horizontally oriented AST was supported above the ground surface, leaks would have been noticed and likely remedied quickly. It is not considered a likely source of significant contamination at the Site. This horizontally oriented AST is no longer present at the Site, although it is not clear from the documents reviewed for this work plan when it was removed from service.

Fuel from the three vertically oriented 8,500-gallon ASTs was historically transferred through steel pipes buried underground from the ASTs to the fuel dock. In recent years, the use of the steel pipes was discontinued and fuel is now transferred through flexible hose from the ASTs to the dock. Underneath Sigurdson Avenue, the flexible hose is run inside of the older steel pipe.

The three 8,500-gallon vertically oriented steel tanks were installed in contact with the ground surface (or more accurately, slightly below ground surface) approximately 56 years ago, in about 1956. Because the facility stores more than 1,320 gallons, it is subject to the federal requirements for a Spill Prevention Control and Countermeasures plan (40 CFR Part 112). Tank and piping integrity testing are

requirements under the applicable federal regulation and WAC 173-180. On August 16, 2010, Ecology personnel visited the Site to evaluate compliance with these requirements and determined that Blaine Marina had not conducted annual inspections or tests of the pipelines that supplied fuel to the fuel dock. Ecology issued a Notice of Violation (Docket #8900) on December 1, 2011 and Blaine Marina subsequently completed an inspection of the pipelines. Although the pipelines passed inspection, Blaine Marina replaced the remaining metallic pipes with nonmetallic hose in December 2011 (Blaine Marina Inc. 2012). No documentation of tank integrity testing was reviewed for this work plan. Blaine Marina reports that no fuel losses are apparent based on its records of fuel purchases and sales.

2.1.2 DOCUMENTED RELEASES OF CONTAMINATION

Two releases of petroleum hydrocarbons are reported to have occurred at the Site. There are discrepancies in the release dates and volumes of the releases. The two releases described below were reported in the Environmental Data Resources Inc. (EDR) report (Appendix B) and a previous investigation report by RETEC in 1996:

1. A leaky piping elbow was discovered and replaced in about 1986 according to Mike Dodd, of Blaine Marina Inc. No record regarding the type of fuel released or the volume of fuel released was available for review (RETEC 1996a).
2. A spill of approximately 500 to 700 gallons of No. 2 diesel was reported to have occurred at the Site on May 2, 1990 due to a valve that connects two of the ASTs being accidentally left open during a fuel transfer. The spill was reportedly contained on site and cleaned up by a vactor truck (RETEC 1996a). According to the EDR report for this Site, an accidental release of 8,200 gallons of diesel occurred on May 4, 1990 due to an open valve (Appendix B). The Blaine Fire Department's Incident report (No. 90-002875-000), dated May 3, indicates that approximately 500 gallons of fuel was recovered during the incident response effort on that day. It is unclear from these reports whether one or more incidents occurred on May 2, 3, or (least likely) May 4. Also unclear is the actual volume released. For the purposes of this work plan and to guide our conceptual site model and upcoming investigations, we assume these reports, although with a minor discrepancy regarding the release date, describe one release of contamination in early May 1990 of approximately 500 to 8,200 gallons of diesel fuel.

2.2 SITE FEATURES AND USES

Blaine Marina continues to operate at the Site selling furniture, appliances, and fuel products. The significant surface features and subsurface utilities are shown on Figure 5. The surface features include a fueling dock and supporting office, the Blaine Marina retail building, smaller buildings that are used for storage, and the ASTs and equipment associated with the storage and dispensing of fuel products.

A secondary containment area with concrete walls to contain accidental spills was constructed in the immediate vicinity of the ASTs. The secondary containment area is large enough to hold approximately 25,000 gallons of fuel, although because it has a gravel unlined floor, it is unlikely to

effectively contain a fuel spill. Additionally, the walls of the secondary containment area are constructed of cinder blocks and only some portions of the inner surfaces of the wall have been sealed. Although the secondary containment may prevent a catastrophic release near the ASTs from immediately flowing over the ground surface and into the surface waters of Blaine Harbor, it is likely that if spilled fuel is not immediately removed from the secondary containment area, it would seep through the walls and/or infiltrate into the subsurface.

It appears that stormwater runoff generated at the Site generally flows west into Blaine Harbor, although this assumption will be further evaluated during the RI. Except for the area in the immediate vicinity of the ASTs, the surface of the Site is covered by buildings or asphalt pavement. In the immediate vicinity of the ASTs, both inside and outside the secondary containment area, the surface of the Site consists of soil and gravel. Stormwater collected on building rooftops is routed to the ground surface with gutters and downspouts. Downspouts on buildings in the vicinity of the ASTs generally discharge to soil and gravel surfaces just outside of the secondary containment area, where the collected stormwater runoff likely infiltrates. Stormwater that falls within the boundaries of the secondary containment area presumably infiltrates through the soil surface. Although onsite stormwater infiltration is typically a preferred method for stormwater management, stormwater should not infiltrate freely within a secondary containment area.

Four buildings are currently located at the Site:

1. The Blaine Marina Furniture and Appliance Retail building near the center of the Site covers approximately 5,400 ft^2 of area. The western half of the building is single-story, and the eastern half has two stories. Blaine Marina sells furniture and appliances on the ground level of the building with a public entrance on the south side of the building. This building is just south of the ASTs.
2. The fuel office building is located on the west side of Sigurdson Avenue and occupies approximately 1,200 ft^2 on the dock adjacent to the fuel dock. The ground surface on the east side of the fuel office building (upland of the bulkhead) contains sinkholes and collapsed pavement that extend horizontally 3 to 4 feet (ft) behind (east of) the bulkhead due to a failing section of bulkhead that underlies the eastern side of the building. A concrete block and wire-rope barricade directs vehicular and pedestrian traffic around the area of collapsing pavement. Under the Agreed Order with Ecology to conduct an RI/FS for the Site, the Port is in the process of implementing an interim action to repair the failing section of bulkhead, as described in more detail in Section 4.0. The building will be deconstructed down to the floor to facilitate implementation of the interim action.
3. An approximately 1,000 ft^2 storage building is located just east of the ASTs and is used by Blaine Marina for storage.
4. An approximately 1,350 ft^2 storage building is located approximately 50 ft east of the ASTs (10 ft east of the smaller storage building) and is used by Blaine Marina for storage.

2.2.1 ENVIRONMENTAL SETTING

The upland portion of the Site was created in the 1940s by dredging and filling over what previously existed as tideflat. General geologic information for the Site was obtained from the *Geologic Map of the Bellingham 1:100,000 Quadrangle, Washington* (Lapen 2000). According to Lapen, the fill present at the Site overlies glaciomarine drift. Glaciomarine drift can have various distributions of gravel, sand, silt, and clay, although finer sediments (silt, and clay with fine sand) are most typical, with coarse sand and gravel occurring as "dropstones." Glaciomarine drift in the area is typically soft or loose, although where exposed to drying or other consolidation after deposition, it can form a hardened crust several feet in thickness. Geotechnical borings were advanced near the Site in 1998 as part of breakwater improvements. Logs of these borings indicate that glaciomarine drift is present to a considerable depth in the area.

Additional information regarding subsurface conditions was collected in 2012 during a geotechnical exploration for the interim action design to repair the failing bulkhead. Subsurface conditions along the proposed replacement bulkhead alignment were explored by advancing three exploratory borings (Figure 3; identified as borings B-1-12, B-2-12, and B-3-12). The exploratory borings were advanced and sampled to depths ranging from about 16½ to 46½ ft below ground surface (BGS). Subsurface geologic conditions observed during the investigation consisted of up to 15 ft of dredge fill material consisting of sandy, silty clay and lenses of silty sand. Below the fill, silty fine sand and fine sandy silt were present to a depth of about 25 ft BGS. Below a depth of about 25 ft BGS, the glaciomarine drift consisted of very soft to medium stiff, silty clay and pockets of sandy clay that were present to the maximum depth of the explorations. Boring logs for these explorations are provided in Appendix C.

Hydrogeology at the Site has not been well characterized to date, and will be evaluated during the RI process. Groundwater levels near the shoreline are likely to be significantly influenced by changing tides, but during the exploration in January 2012, were generally about 7.5 ft BGS. Surface water infiltrating at the Site appears to be the only source of groundwater recharge, which likely results in a general groundwater flow from the center of the upland area toward the surrounding shoreline.

Groundwater at or potentially affected by the Site is not currently used for drinking water. It is not considered to be a reasonable future source of drinking water due to its to proximity to marine surface water, its limited productivity, and the high probability that it would have a high salinity content following extended periods of groundwater extraction that would make it unsuitable as a domestic water supply. In accordance with WAC 173-340-720(2)(b), groundwater containing total dissolved solids at concentrations greater than 10,000 milligrams per liter (mg/L) shall not be classified as potable.

2.2.2 TERRESTRIAL ECOLOGICAL SETTING AND WATER USES

The upland portion of the Site is less than 1 acre in area and has been used since the 1950s for commercial and industrial purposes, after its creation in the 1940s by filling former tideflat. The quality of the habitat for wildlife is considered low (WAC 173-340-900, Table 749-1). The upland portion of the Site is considered unlikely to attract wildlife because most of the Site is covered with pavement or buildings, lacks vegetation or standing water, and has a relatively high level of industrial and commercial activity. The nearest terrestrial habitat is the Blaine Marina Park, approximately 1,000 ft northeast of the Site. The terrestrial ecological setting of the Site is not expected to change in the future during site redevelopment. Based on the terrestrial ecological setting, the Site is exempt from the requirement of conducting a terrestrial ecological evaluation in accordance with WAC 173-340-7491.

2.3 FUTURE SITE USE

The Port is in the planning phase for redevelopment of the entire Blaine Harbor Industrial Area, including the Site. Redevelopment will be guided by the Port's 2007 Blaine Wharf District Master Plan (Development Plan; Port of Bellingham 2007), development regulations in the City of Blaine's Land Use Code (BMC 17.23), and Design Standards, BMC 17.121 for the Wharf District. The Development Plan is intended to provide for a variety of recreational, commercial, marine, industrial, and residential activities. The Site is located in the Wharf District Planning Area 6, referred to in the Development Plan as the Shipyard Industrial Park. This area will be preserved for marine-related commercial and industrial use, serving primarily the commercial fishing, boat building, and boat-repair and service industry. Redevelopment of this area was scheduled in 2007 to begin between 2010 and 2015.

3.0 PREVIOUS INVESTIGATIONS

Several investigations have been conducted at the Site since 1990 to investigate soil and groundwater quality for impacts from releases of petroleum hydrocarbons from facility operations after the releases described in Section 2.1.2. The following sections provide a summary of these investigations. The analytical results of these investigations are presented in Tables 1, 2, and 3 and sampling locations are shown on Figures 3 and 4. The logs of subsurface explorations available at the time of work plan preparation are provided in Appendix C.

Analyses of samples collected during the previous investigations indicate the presence of diesel-range and gasoline-range total petroleum hydrocarbons (TPH-D and TPH-G) in soil and groundwater at concentrations that exceed the preliminary screening levels (PSLs) for the Site, which are developed in Section 6. Additionally, oily sheen and non-aqueous phase liquid (NAPL) have been observed on the surface of soil samples and accumulating on top of groundwater in the vicinity of the ASTs.

3.1 SEACOR INVESTIGATION – 1990

In June 1990 (approximately 1 month after the reported release of 500 to 8,200 gallons of diesel; see Section 2.1.2), SEACOR advanced 12 hand-auger borings from the ground surface to various depths between 3.0 and 9.5 ft BGS (SEACOR 1990). The purpose of the investigation was to evaluate potential Site impacts from the release of petroleum hydrocarbons in May 1990. Soil samples were collected from the hand-auger borings and were analyzed for total petroleum hydrocarbons (TPH). Sample locations are shown on Figure 3, and the results of the analyses are provided in Table 1. The results of this investigation were not consistently reported and sometimes not differentiated between the individual petroleum fractions (gasoline-, diesel-, or oil-range fractions; TPH-G, TPH-D, or TPH-O respectively). For hand-auger locations HA-1 to HA-6, the results are reported as TPH and not differentiated. Results for HA-7 and HA-8 are reported as TPH-G, HA-9 to HA-11 are reported as combined TPH-G and TPH-D, and HA-12 is reported as TPH-D.

The results of the SEACOR investigation are presented in Table 1 with a comparison to PSLs. As indicated in the table, the concentration of TPH exceeds the preliminary screening level at 5 of the 12 sampling locations.

3.2 RETEC INVESTIGATIONS – 1996

In 1996, RETEC conducted a compliance audit for the fuel tank farm at the Site, which was followed by a supplemental site investigation. This section describes investigations RETEC conducted at the Site and conclusions from their reports.

During the supplemental investigation, RETEC evaluated for the presence of NAPL in groundwater monitoring wells at the Site. According to a letter report from RETEC to the Port dated April 2, 1996 (RETEC 1996a), three monitoring wells (MW-1 through MW-3) were installed at the Site prior to February 1996 near the ASTs (Figure 3). Initial gauging of apparent NAPL thickness indicated 3.9 ft of NAPL at MW-2 and 4.3 ft of NAPL at MW-3. No NAPL was reported present in MW-1. Apparent NAPL thickness as gauged in a well is often 2 to 10 times greater than the thickness that is present outside of the well casing (Newell 1995). On February 7, 1996, RETEC conducted recovery testing at MW-2 and MW-3 to evaluate the recoverability and actual thickness of the NAPL. After pumping 6.5 quarts of NAPL from MW-2 and 8.8 quarts of NAPL from MW-3, RETEC gauged NAPL thickness in the wells as it recovered over a period of 210 minutes. A NAPL thickness of 3 inches at MW-2 and 7 inches at MW-3 was recorded after several minutes of recovery and reported as the actual NAPL thickness. Although other methodologies to estimate actual NAPL thickness might provide greater accuracy, the reported values appear reasonable based on the apparent NAPL thickness within the well casing. Based on these estimates of actual product thickness, an estimated impacted area of 2,500 ft^2, and a typical value for soil porosity of 0.3, RETEC estimated approximately 1,400 to 3,300 gallons of pooled NAPL was present in the Site subsurface in 1996.

RETEC submitted a sample of the NAPL from monitoring well MW-2 to International Lubrication and Fuel Consultants to conduct a forensic analysis. The forensic analysis concluded that the sample contained primarily No. 2 diesel with 1 to 2 percent gasoline. The analysis concluded that the diesel was refined between the mid-1970s and the late 1980s and the gasoline between 1978 and 1980. These results led to RETEC's conclusion that the source of subsurface TPH contamination at the Site was attributable to operations at the Site rather than off Site. Prior to this forensic work, there was speculation that contamination could have migrated on Site from the former Standard Oil property to the north, which is now an asphalt-paved parking lot. Standard Oil operated a bulk petroleum distribution center at that location from May 7, 1945 to October 31, 1974. Based on these dates of operation, the Standard Oil facility would not have accepted fuel beyond the mid-1970s and, therefore, is not likely associated with the contamination observed at the Site. RETEC also advanced borings along the northern Site boundary between the Site and the former Standard Oil property, and one boring on the former Standard Oil property to evaluate the potential for contamination to have migrated on Site from that property. The sampling locations are shown on Figure 4 and the results are provided in Table 2. The results were interpreted to indicate that contamination did not migrate to the Site from the Standard Oil property. RETEC concluded that Blaine Marina Inc. was solely responsible for the observed petroleum contamination (RETEC 1996a).

In July 1996, RETEC conducted a soil and groundwater investigation at the Site to further investigate the extent of contamination, the results of which are summarized in a letter report from RETEC to the Port dated August 28, 1996 (RETEC1996b). During this investigation, soil and groundwater samples were collected from 13 direct-push borings (GP-1 through GP-13) advanced at the Site. The boring locations are shown on Figure 4. At each location, soil samples were collected near the water table (between approximately 8 and 10 ft BGS) and groundwater samples were collected with the well screen located between 8.5 and 10.5 ft BGS. Soil was evaluated for the presence of sheen and not submitted for laboratory analysis. Twelve of the 13 groundwater samples were analyzed for TPH-D, and the results are provided in Table 2. RETEC reported that the groundwater sample collected from boring GP-12 was estimated to be 90 percent free-phase hydrocarbons and was therefore not submitted to the laboratory for analytical testing. RETEC noted in the report that NAPL was present in existing monitoring wells MW-2 and MW-3 and some NAPL was present in groundwater samples collected from GP-6 and GP-10.

TPH-D was detected in groundwater samples at concentrations ranging from below the reporting limit (GP-5 and GP-7) to 251 mg/L (GP-10). Although TPH-D was not detected in GP-5 or GP-7, a light sheen was observed in GP-5, and a heavy sheen to a thin NAPL layer was observed in GP-7. The inconsistency between the observed sheen and the lack of detected hydrocarbons in the groundwater samples collected from these locations could result from the samples not being tested for gasoline-range hydrocarbons, or the groundwater sample may have been collected from below the water surface so the sheen was not contained in the sample. Regardless of the cause of the inconsistency, we assumed that petroleum hydrocarbon contamination was present in groundwater at GP-5 and GP-7 during the time of this study during development of the RI scope of work.

Based on the available data, RETEC concluded that the extent of impacted groundwater appeared to extend beyond the boundaries of its investigation to the southwest, northwest, and northeast.

RETEC conducted sheen tests on all 13 soil samples and noted the following:

- Droplets of NAPL were observed in soil samples GP-4 and GP-10.
- A heavy sheen to a thin NAPL layer was observed in soil samples GP-6, GP-7, GP-12, and GP-13.
- A light sheen was observed in samples GP-5, GP-8, GP-9, and GP-11.
- No sheen was observed in soil samples GP-1 and GP-2.
- RETEC noted that hydrocarbons observed in GP-4 and GP-10 had a light brown color, which differed from the clear hydrocarbons observed in other samples. RETEC speculated that there may have been two separate contaminants, or that the apparently different contaminants were from separate releases, with the older contaminant showing signs of weathering.

3.3 ACCORD ENVIRONMENTAL –1997 TO 2011

Accord Environmental visited the Site, generally on a monthly basis, from February 1997 to at least February 2011. During the Site visits, a field representative used a bailer to remove the recoverable NAPL from monitoring wells MW-1, MW-2, and MW-3. Based on a review of field notes by Accord Environmental (2011), approximately 350 to 400 gallons of NAPL has been removed over the years from the wells. NAPL removal has decreased from an initial range of 3 to 5 gallons per month in the late 1990s to a range of 1 to 2 gallons per month in 2011. The notes indicate that NAPL is not present in MW-1, and is generally present and recoverable at much greater volumes at MW-3 compared to MW-2.

3.4 LANDAU ASSOCIATES INVESTIGATION –2001

Landau Associates conducted a sediment quality investigation in Blaine Harbor on behalf of the Port in 2001 (Landau Associates 2002). The purpose of the investigation was to evaluate compliance with the Washington State Sediment Management Standards (SMS) for surface sediments within Blaine Harbor that may have been affected by harbor activities. Surface sediment samples were collected from 16 locations within Blaine Harbor. Three of the 16 samples (BH-01, BH-09, BH-10; Figure 3) were collected from surface sediments [0 to 10 centimeters (cm)] that are near the Site, to the west and southwest.

The surface sediment sample collected from BH-01 was analyzed for SMS chemicals including metals, semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), organotins, and conventional parameters [total organic carbon (TOC), total solids, total sulfides, ammonia, and grain size], and fecal coliform. The surface sediment sample collected from BH-09 was analyzed for SVOCs, PAHs, TOC, and total solids. The surface sediment sample collected from BH-10 was analyzed for organotins. Table 3 presents the sediment sample analytical results.

The analytical results indicated that the concentration of bis(2-ethylhexyl)phthalate (BEHP) [81.3 milligrams per kilogram, normalized based on organic carbon content (mg/kg OC)] at BH-01 was above the current SMS sediment quality standard (SQS) of 47 mg/kg OC and the SMS cleanup screening level (CSL) of 78 mg/kg OC. Concentrations of other SMS chemicals at BH-01 were either below the reporting limit or below the current SQS and CSL standards. Additionally, concentrations of SMS chemicals sampled for at BH-09 (PAHs and SVOCs) and BH-10 (organotins) were either below their reporting limit or below the SQS and CSL standards for those chemicals. Because BEHP is not commonly associated with petroleum hydrocarbons, and BH-01 is located a distance from the shoreline closest to the Site, the presence of elevated BEHP at BH-01 does not appear to be associated with a Site release.

3.5 FARALLON INVESTIGATION – 2008

Farallon Consulting (Farallon) conducted subsurface investigations around the larger Blaine Harbor Industrial Area in January 2008 (Farallon Consulting 2008). For that investigation, 11 direct-push Geoprobe borings (SIG-B1 through SIG-B11) were advanced around the Blaine Harbor Industrial Area to depths ranging between 12 and 16 ft BGS. Eight of the borings (SIG-B1 through SIG-B8) were near or on the Site (Figure 3), although most of these eight were not in the immediate vicinity of the ASTs, and only one appears to have been located hydraulically downgradient of the ASTs. Three of the 11 borings (SIG-B9 through SIG-B11) were advanced on the property to the west-northwest of the Site to further investigate the extent of hydraulic oil and petroleum-contaminated soil associated with the former operations of T&M Protein and/or former underground storage tanks previously removed from the Sea K Fish Co. property at 225 Sigurdson Avenue, and are not relevant to conditions at this Site.

Soil samples were collected and screened continuously during advancement of the borings. Based on photoionization detector (PID) readings, selected samples (one from each boring) were sent to the laboratory and analyzed for TPH-D, TPH-O, TPH-G, and benzene, toluene, ethylbenzene, and xylenes (BTEX). The results are included in Table 1.

TPH was detected in four of the eight soil samples collected at the Site. Samples from SIG-B-1, SIG-B-3, and SIG-B7 had detections of TPH-O (68, 70, and 210 mg/kg, respectively), and SIG-B2 had a detection of 3,300 mg/kg of TPH-D, which is above the screening level.

3.6 LANDAU ASSOCIATES GEOTECHNICAL INVESTIGATION – 2012

In January 2012, Landau Associates advanced three borings at the Site using a truck-mounted, hollow-stem auger drill rig. Although conducted for geotechnical purposes, environmental samples were collected when odor, sheen, and high PID readings indicated the potential presence of TPH contamination at a depth of between about 7 ft and 9 ft BGS. The sampling locations are shown on Figure 3, and the analytical results of soil samples are provided in Table 1. Soil samples collected during this investigation indicate the presence of gasoline-range TPH at concentrations well above the PSL for gasoline at each of the three boring locations and above the PSL for ethylbenzene at B-2-12 and B-3-12. The concentrations of TPH-D and TPH-O were below preliminary cleanup levels.

4.0 BULKHEAD INTERIM ACTION

A section of bulkhead has been progressively failing in an area on the east side of the fuel office, as shown on Figure 5. Repairing this section of bulkhead is critical to preventing the release of contaminated upland soil and groundwater to marine surface water and sediment in Blaine Harbor. The Port is in the process of implementing an interim action to repair the failing bulkhead that should be completed by late summer 2012. The interim action is being conducted by the Port under Agreed Order No. DE 9000 between the Port and Ecology under an Ecology-approved interim action plan (Landau Associates 2012). Because the interim action will be implemented in advance of selection of the final cleanup action for the Site, it has been designed to not prevent the implementation of other reasonable alternatives for the final cleanup action [WAC 173-340-430(3)(b)].

The purpose of the interim action is to repair approximately 60 linear feet of existing timber bulkhead at the Site that is progressively failing. This section of bulkhead is located along the western side of Sigurdson Avenue, and consists of timber piling and timber lagging, with riprap placed along the toe of the structure. Most of the bulkhead in this area, including the piling and lagging, is damaged. It has shifted and bowed, and the top of the bulkhead is rotated outward toward the water. The interim action will include implementing a permanent repair of the bulkhead in the location shown on Figure 5 that will ultimately be integrated with broader bulkhead repair and replacement, which will occur during redevelopment of the Blaine Harbor Industrial Area.

The Port and Ecology considered several alternative designs during the selection process and ultimately selected driving steel sheetpiles into the ground on the upland side of the existing bulkhead, along a distance of approximately 60 ft, as shown on Figure 6. The sheetpiles would be driven into the subsurface using a vibratory hammer until the final tip elevation is achieved. This new wall will be constructed directly adjacent to the existing bulkhead and a concrete pile cap would be formed across the top of the sheetpiles at the head of the fuel pier to create a closure between the upland and the pier to maintain access. A cross-sectional view of the planned repair is inset on Figure 6.

Implementation of the interim action will consist primarily of the installation of interlocking steel sheetpiles, which is a standard construction technique for marine bulkheads. The sheetpile bulkhead will be installed about 2 to 3 ft behind the existing timber bulkhead. Because of the generally soft and loose soils at the Site, it is anticipated that a vibratory hammer can be used to install the sheetpiling. This is also based on the successful installation of 16-inch pipe piles using a vibratory hammer in similar soils around the wave barrier at the harbor entrance.

Installation of the sheetpiles will require the excavation of a shallow key trench along the alignment of the wall. The key trench should extend only 1 to 2 ft BGS and, as such, should not encounter any

TPH-impacted soil. However, soil quality will be monitored during excavation for any indications of contamination (i.e., discoloration, odor, elevated PID readings) and any soil identified as potentially contaminated will be segregated for chemical analysis, as discussed in the Interim Action Plan (Landau Associates 2012).

5.0 PRELIMINARY CONCEPTUAL SITE MODEL

This section presents a preliminary conceptual Site model of contaminant distribution related to releases of gasoline and diesel fuel at the Site. This preliminary model will be used to guide investigation efforts during the RI and will be refined during the RI process as additional data are collected. The refined model will be presented in the RI report. In the sections below, we preliminarily identify contaminants of concern and their likely source, potentially affected media, migration pathways, and contaminant exposure routes to human or ecological receptors. A schematic of the preliminary conceptual site model is presented on Figure 7.

5.1 POTENTIAL CONTAMINANT SOURCES, MIGRATION PATHWAYS, AND MEDIA OF POTENTIAL CONCERN

The potential primary sources of contamination at the Site are related to the storage and dispensing of fuel products. The reported contaminant release in 1990 during a fuel transfer operation from delivery trucks to the ASTs is a confirmed primary source of contamination. Additionally, based on the age of the ASTs and associated infrastructure, the current distribution of petroleum hydrocarbons in soil and groundwater, and because system components (the ASTs and fuel transfer piping) were installed in direct contact with soil, the ASTs and piping system are also considered potential primary sources of contamination that will be investigated.

Releases from these confirmed or potential sources would have entered the soil as NAPL. The NAPL most likely migrated downward through soil until reaching groundwater or a hydrogeologic confining layer. At this Site, it is unlikely that the emplacement of fill material to create the uplands would have resulted in a continuous confining layer that could significantly impede downward migration or cause significant lateral migration away from the primary source areas above groundwater.

Upon reaching groundwater, which has a greater density than gasoline or diesel NAPL, the NAPL likely pooled and spread laterally. NAPL migration on top of the groundwater generally follows the groundwater flow direction, although NAPL tends to spread laterally along shorelines that are tidally influenced. Residual NAPL generally remains in soil along the path of downward migration from the ground surface to the groundwater, and is typically distributed vertically within the upper portion of water table aquifers in a "smear zone" caused by groundwater level fluctuations.

Figure 5 indicates where NAPL has been observed during historical investigations. The NAPL (both residual and free-phase) acts as a secondary source of contamination that can migrate to other media by dissolution, convection, diffusion, or volatilization.

Based on groundwater at the Site being relatively shallow (approximately 7.5 ft BGS) and the close proximity of the Site to marine surface water, the potential pathways for contaminant migration at the Site include:

- Leaching of contaminants from NAPL or soil to groundwater
- Volatilization of contaminants from NAPL, soil, and groundwater to indoor or outdoor air
- Transport of contaminants adsorbed to soil to outdoor air via wind or fugitive dust
- Transport of contaminants in groundwater to adjacent marine surface water and sediment.

Based on our preliminary understanding of Site conditions and migration pathways, the media of potential concern consist of:

- Soil
- Groundwater
- Surface water
- Sediment
- Air.

5.2 POTENTIAL RECEPTORS AND EXPOSURE PATHWAYS

This section identifies potential receptors and the potential exposure pathways for the receptors based on the current and future land uses expected for the Site.

5.2.1 POTENTIAL RECEPTORS

Potential receptors of Site contaminants could be humans, terrestrial ecological receptors (i.e., wildlife, soil biota, and plants), or benthic and aquatic biota. Each of these was evaluated based on the current and anticipated future land use of the Site, as follows:

- **Humans**: Because the Site is used for marine industrial purposes (commercial and light industrial use), employees working at the Site, construction workers conducting intrusive activities, and visitors or patrons of the local businesses are considered potential human receptors.
- **Terrestrial Ecological Receptors**: The Site is currently almost entirely covered with buildings and pavement, and will remain similarly covered under anticipated future Site uses. Most Site landscaping will be contained in planters or otherwise isolated from the underlying existing soil surface; therefore, terrestrial ecological receptors (wildlife, soil biota, and plants) are not considered to be potential receptors. Also, in accordance with WAC 173-340-7491(1)(c)(i), sites that contain less than 1.5 acres of contiguous undeveloped area are excluded from having to conduct a terrestrial ecological evaluation. Because the Site will be mostly covered with buildings and pavement following redevelopment, the Site meets the exclusion for a terrestrial ecological evaluation and terrestrial biota are not considered potential Site receptors.

- **Benthic and Aquatic Organisms**: Due to the Site's proximity to marine surface water, benthic and aquatic organisms in Blaine Harbor are considered to be potential receptors, as well as humans that ingest benthic or aquatic organisms affected by Site releases.

Based on this evaluation, potential receptors for Site contaminants consist of:

- Humans
- Benthic and aquatic organisms

5.2.2 POTENTIAL EXPOSURE PATHWAYS

Potential exposure pathways may be present that would allow Site releases to affect human health or aquatic ecological receptors. These potential exposure pathways are presented by medium below. It has not yet been determined whether these exposure pathways are complete.

Soil:

- Direct contact (including incidental ingestion) by Site workers or visitors. Currently, direct contact with affected soil is considered unlikely since most of the Site is paved or covered with buildings. During construction or intrusive activities, workers could dig into affected soil and could be exposed to affected soil or soil vapor. Intrusive work at the Site including investigative work, construction, or Site cleanup activities that occur before remediation of the Site is complete should be conducted in accordance with a health and safety plan that provides adequate worker protection for this exposure route.
- Leaching to groundwater and subsequent migration to marine surface waters and/or sediment where benthic or aquatic biota could be exposed.
- Erosion into the adjacent marine surface waters. The interim action implemented by the Port to repair the failing bulkhead should effectively eliminate this potential exposure pathway.
- Inhalation of indoor or outdoor air that has been affected by volatilization and subsequent migration of gasoline-range TPH from contaminated soil.

Groundwater:

- Direct contact (including incidental ingestion) by Site workers or visitors.
  - Currently, direct contact with groundwater at the Site is unlikely. During construction or other intrusive activities that could encounter groundwater (at approximately 7.5 ft BGS), Site workers could be exposed to affected groundwater or vapors released from groundwater. Intrusive work at the Site including investigative work, construction, or cleanup activities that occur before remediation of the Site is complete should be conducted in accordance with a health and safety plan that provides adequate worker protection for this exposure route.
  - Based on its close proximity to marine surface water, groundwater at the Site is likely highly saline and is not considered a potable source of drinking water. As a result, exposure through groundwater ingestion is not considered a potential pathway.
- Migration of groundwater to the adjacent marine surface water and/or sediment where benthic and aquatic biota could be exposed.

- Inhalation of indoor or outdoor air that has been affected by volatilization and subsequent migration of gasoline-range TPH from contaminated groundwater.

Sediment:

- Exposure of benthic organisms to contaminants released from the Site via groundwater discharge through the biologically active zone of sediment (the upper 10 cm below the mudline). This may result in the uptake of contaminants in these organisms.
- Human ingestion of marine organisms that were impacted by releases from the Site.

Surface Water:

- Exposure of aquatic organisms to contaminants released from the Site to surface water. This may result in the uptake of contaminants in these organisms.
- Human ingestion of marine organisms that were impacted by releases from the Site.

6.0 PRELIMINARY SCREENING LEVELS

PSLs have been developed for media of potential concern identified in Section 5.1 (i.e., soil, groundwater, surface water, indoor and outdoor air, and sediment). Constituents of potential concern (COPCs) are discussed in Section 6.1 and summarized in Tables 4 and 5. Previous investigations at the Site have tested for a limited range of analytical parameters. As a result, the preliminary COPCs developed for the RI work plan are based on current data, supplemented by other COPCs commonly associated with gasoline- and diesel-range petroleum hydrocarbons.

After additional characterization during the RI, Site screening levels will be developed consistent with the approach detailed in the Harris Avenue Shipyard RI/FS Screening Level Workbook. Figure 8 provides an example flowchart from the Harris Avenue Shipyard that will be followed and presented in the RI report as sufficient data are generated.

PSLs for media of potential concern that are adequately protective of the potential receptors and exposure pathways identified herein were developed in accordance with Model Toxics Control Act (MTCA) requirements, and are generally consistent with the approach presented in the Harris Avenue RI/FS Screening Level Workbook, subject to the limitations of the currently available data. PSLs for soil, groundwater, and sediment are presented in Tables 6, 7, and 8, respectively. Although surface water is a potentially affected medium, it is addressed through the development of groundwater PSLs that are protective of surface water rather than developing surface water PSLs directly. Groundwater PSLs address the protection of indoor air quality, and soil vapor PSLs will be developed in the RI for all volatile organic compounds (VOCs) that are detected in soil vapor monitoring samples.

MTCA provides three approaches for establishing cleanup levels for soil and groundwater: Method A, Method B, and Method C. The Method A approach is appropriate for sites that have few hazardous constituents. The Method B approach is applicable to all sites. The Method C approach is applicable for specific site uses and conditions. The Method B and Method C approaches use applicable state and federal laws and risk equations to establish cleanup levels. However, the Method B approach establishes cleanup levels using exposure assumptions and risk levels for unrestricted land uses, whereas the Method C approach uses exposure assumptions and risk levels for restricted land uses such as industrial properties. For practical purposes, MTCA requires cleanup levels developed using MTCA Method B and Method C approaches to be set at the practical quantitation limit (PQL) or natural background if these are above the calculated cleanup levels.

In general, the Method B approach was used for the development of the proposed soil and groundwater PSLs for the Site. However, Method A cleanup levels were applied to certain constituents for which Method B cleanup levels have not been established in MTCA, such as lead and petroleum

hydrocarbons. Depending on the results of the RI sediment investigation, it may be necessary to revise the soil and groundwater Method B cleanup levels for lead and TPH to provide additional protection against sediment recontamination, as described in Sections 6.2 and 6.3.

Sediment PSLs were developed based on site-specific COPCs and application of MTCA and SMS requirements. Two SMS criteria are promulgated by Ecology as follows:

- The marine sediment quality standards (SQS; WAC 173-204-320), the concentration above which adverse effects to benthic organisms may occur.
- The sediment cleanup screening levels [CSL; WAC 173-204-520)], the concentration above which adverse effects to benthic organisms are likely to occur.

SMS also provides for the use of toxicity testing using bioassays to evaluate whether sediment quality is adequately protective of benthic organisms. A combination of chemical criteria and toxicity testing were used to establish sediment PSLs, as discussed in Section 6.4.

6.1 CONSTITUENTS OF POTENTIAL CONCERN

An evaluation of the prior investigation results was conducted to identify a list of COPCs for soil and groundwater. Existing sediment quality data do not indicate the presence of any COPCs related to Site releases. The data used for the evaluation are summarized in Tables 4 and 5 for soil and groundwater, respectively. The tables include the analyte tested, the number of detections, and the number of samples that exceed the PSLs.

Based on reported releases of fuel from operations at the Site, gasoline- and diesel-range petroleum hydrocarbons, and associated compounds are the identified COPCs. Historical investigations to date have sufficiently confirmed the presence of these hazardous substances, although the nature and extent of contamination is not yet fully characterized. In accordance with WAC 173-340-350, some additional constituents were selected to be included as COPCs based on historical operations and the confirmed presence of TPH-G in the subsurface.

Additional COPCs that were not previously evaluated at the Site include compounds associated with TPH-G and TPH-D including lead, ethylene dibromide (EDB), ethylene dichloride (EDC; also known as 1,2-dichloroethane or 1-2-DCA), methyl tert-butyl ether (MTBE), and naphthalenes (sum of the concentrations of naphthalene, 1-methyl-naphthalene, and 2-methyl-naphthelene), as described below.

- Lead was present in gasoline mixtures from the 1920s to the late 1980s or early 1990s (in Washington State, leaded gasoline was available until 1991). Because the reported release occurred in the early 1990s, there is a potential that leaded gasoline was released at the Site. EDB and EDC are additives that prevent lead oxide buildup after fuel combustion and were added to leaded gasoline fuel mixtures and so were generally phased-out of use along with leaded gasoline by the early 1990s.

- MTBE has been used in gasoline mixtures since 1979, making up a much larger part of that mix since 1992 as it replaced lead as an octane enhancer and prevents engine "knock."

As noted in the summary below, some of these additional COPCs will be evaluated in groundwater and, if not found at concentrations above PSLs, will not be evaluated in soil samples.

Although there have been only limited detections of BTEX in the historical record, the presence of these compounds has not been sufficiently evaluated and BTEX compounds will be retained as COPCs for further evaluation during the RI.

The following list summarizes COPCs by media type:

Groundwater:

- TPH:
  - TPH-G and TPH-Dx
- Metals:
  - Lead (total, dissolved)
- VOCs:
  - BTEX, EDB, EDC, MTBE
- PAHs:
  - Naphthalenes

Soil:

- TPH:
  - TPH-G and TPH-Dx
- Metals:
  - Lead
- VOCs:
  - BTEX, EDB*, EDC*, MTBE*
- PAHs:
  - Naphthalenes*

* Will be evaluated in soil if determined to be present in groundwater above PSLs.

Sediment:

- TPH:
  - TPH-G and TPH-Dx
- Metals:
  - Lead

Surface Water:

- TPH:
  - TPH-G and TPH-Dx
- Metals:
  - Lead
- VOCs:
  - BTEX, EDB, EDC, MTBE
- PAHs:
  - Naphthalenes

Air:

- VOCs
  - BTEX, EDB, EDC, MTBE.

6.2 PRELIMINARY SOIL SCREENING LEVELS

Soil PSLs were developed for the COPCs discussed in Section 6.1. The soil PSLs are intended to be protective of human health and groundwater and are provided in Table 7. For human health, PSLs were developed using applicable risk assessment procedures specified in WAC 173-340-708 based on the reasonable maximum exposure to occur at the Site. Although Site use is generally anticipated to be commercial or light-industrial, Site visitors or public patrons of the facilities are not prohibited from these areas. Therefore, soil PSLs protective of human health were developed based on the requirements under WAC 173-340-740 for unrestricted land use, which specifies that Method B soil cleanup levels must be as stringent as:

- Concentrations established under applicable state and federal laws
- Concentrations protective of direct human contact with soil
- Concentrations protective of groundwater, marine surface water, and sediment in accordance with MTCA 173-340-740(1)(D).

Except for TPH and lead, standard MTCA Method B soil PSLs protective of direct human contact were determined in accordance with WAC 173-340-740(3) using Ecology's Cleanup Levels and Risk Calculations (CLARC) database (Ecology website 2012). The MTCA Method A soil cleanup levels for unrestricted site use were used to address TPH, lead, and total naphthalenes in soil. A TPH PSL protective of marine sediment will be developed if TPH is determined to be present in sediment during the RI. The PSL will be developed based on TPH concentrations protective of benthic organisms (described in Section 6.3) and using the U.S. Environmental Protection Agency (EPA) Equilibrium Partitioning Model for sediment.

Soil PSLs protective of groundwater were determined using the fixed parameter, three-phase partitioning model in accordance with WAC 173-340-747(4). The three-phase model provides a conservative estimate of the concentration of a contaminant in soil that is protective of the groundwater PSLs discussed in Section 6.1. No adjustments to PSLs were necessary based on PQL or naturally occurring background considerations.

If sediment is determined to be affected by Site releases, soil cleanup levels protective of marine sediment will be developed for those constituents that exceed the preliminary sediment screening levels. Because no direct pathway from Site soil to marine sediment will exist following completion of the interim action, soil screening levels protective of marine sediment would be developed based on protection of Site groundwater against sediment recontamination.

6.3 PRELIMINARY GROUNDWATER SCREENING LEVELS

Groundwater PSLs were developed for the COPCs previously detected in groundwater or otherwise associated with similar fuel releases (e.g., fuel additives). Because human ingestion of constituents in groundwater is not a potential exposure pathway, potable groundwater cleanup levels were not developed for Site groundwater. PSLs for groundwater were developed to be protective of marine surface water, marine sediment recontamination, and human health in accordance with WAC 173-340-730, and the vapor intrusion pathway.

In the absence of applicable criteria protective of these three exposure pathways, MTCA Method A cleanup levels were used for TPH PSLs. A TPH PSL protective of marine sediment will be developed if TPH is determined to be present in sediment at concentrations of concern during the RI. The PSL will be developed based on sediment TPH concentrations protective of benthic organisms (described in Section 6.3) and using the EPA Equilibrium Partitioning Model for sediment. For lead, a PSL was developed based on protection of marine surface water, in accordance with WAC 173-340-201A, 40 CFR 131, and marine surface water criteria from the Clean Water Act, which were all equivalent [8.1 micrograms per liter (µg/L)] and more protective than the MTCA Method A cleanup level (15 µg/L). Except for TPH and lead, PSLs for groundwater were developed based on surface water standards protective of human health or by a Tier 1 evaluation from Ecology's *Guidance for Evaluating Soil Vapor Intrusion in Washington State* (Ecology 2009).

The PSL for EDB was adjusted to be no less than the PQL in accordance with WAC 173-340-730(5)(c). Reporting limits from ALS Laboratories in Kelso, Washington and Analytical Resources, Inc., in Tukwila, Washington for the groundwater analytical methods were used as PQLs.

If marine sediment is determined to be affected by Site releases, groundwater cleanup levels protective of marine sediment recontamination will be developed for those constituents that exceed the preliminary sediment screening levels.

6.4 PRELIMINARY SEDIMENT SCREENING LEVELS

The PSL for lead was developed based on the SMS SQS and CSL values. SQS and CSL values are not available for other sediment COPCs (i.e., TPH-D and TPH-G). The SQS are the most stringent SMS numeric criteria and represent the goal for sediment cleanups. The SQS and CSL for lead are listed in Table 8. For TPH-D and TPH-G, concentrations protective of benthic organisms will be evaluated using toxicity tests (bioassays). Sediment samples collected during the RI will be analyzed for TPH-Dx and TPH-G. A bioassay test will be conducted using the sediment sample(s) with the highest concentrations of these constituents, if either TPH-G or TPH-D, or TPH-O is detected at concentrations that indicate a release from the Site may have occurred.

If the sediment is subjected to toxicity testing and passes the bioassay tests, the sediment quality will be considered protective of biological resources. If the bioassay results show toxicity to benthic organisms related to lead and/or TPH, then additional testing will be conducted in consultation with Ecology. The additional testing may use the other sediment sample results to identify the range of TPH concentrations in sediment at the Site if the samples provide an adequate range of concentrations, or additional sediment samples will be collected, if necessary. Additional toxicity testing will focus on identification of TPH levels that do not pose adverse effects to benthic organisms. If applicable, groundwater cleanup levels will be calculated based on protection of sediment, after sediment cleanup levels have been established for TPH, as discussed in Sections 6.1 and 6.2.

Sediment PSLs developed as described above are based on the protection of biological resources. Although the SMS states that the SQS and CSL values are also intended to be protective of human health, it is recognized that the SMS cleanup standards may not be protective of human health for bioaccumulative constituents such as polychlorinated biphenyls (PCBs) or carcinogenic PAHs (cPAHs). As a result, it may be necessary to develop sediment cleanup levels protective of human health if bioaccumulative constituents are present in Site sediment. Based on the lack of bioaccumulative compounds present in the Site COPCs, it is not anticipated that Site-specific sediment cleanup levels based on the protection of human health will need to be developed. However, the need for such criteria will be re-evaluated if RI data indicate that bioaccumulative compounds resulting from Site releases are present.

7.0 CURRENT ENVIRONMENTAL SITE CONDITIONS

Current environmental conditions for the Site are evaluated in this section using the analytical results and field observations from the investigations conducted to date at the Site, which are described in Section 3. The investigations conducted have been somewhat limited in scope, and much of the data for the Site were collected 15 to 22 years ago. The soil, groundwater, and sediment analytical data from previous investigations are provided in Tables 1 through 3, and the associated sampling locations are shown on Figures 3 and 4. The results from past investigations indicate that TPH contamination is present in soil and groundwater at the Site at concentrations above PSLs and likely originates near the ASTs. Figure 5 indicates where NAPL was observed in soil or groundwater samples.

7.1 GROUNDWATER CONDITIONS

The comparison of analytical results for groundwater to the PSLs in Section 6.1 indicates that groundwater at the Site is impacted to a degree that could negatively impact human health or benthic and aquatic organisms. Table 2 presents data for 16 groundwater samples at the Site. Groundwater samples have been analyzed only for TPH-D to date. At three of the sampling locations, groundwater samples were not submitted to the laboratory due to the presence of NAPL, and are thus assumed to exceed PSLs for TPH-G or TPH-D. At 10 of the remaining 13 locations, concentrations of TPH-D in groundwater were above PSLs. TPH-D concentrations in groundwater samples collected from GP-5, GP-7, and MW-1 were below the reporting limits. Sheen and NAPL were noted as present in GP-5 and GP-7, although TPH-D was not detected by the laboratory. Based on its close proximity to observed NAPL, and the fact that a significant amount of time has passed since collecting these samples in 1996, it is reasonable to conclude that groundwater is impacted at these locations. As such, it is evident that the limits of TPH impacts to groundwater have not been delineated, and that groundwater sampling has been sufficient to conclude only that concentrations of Site COPCs once existed above the PSLs in the northern half of the Site.

7.2 SOIL CONDITIONS

To evaluate soil conditions, analytical results were compared to the PSLs developed in Section 6.2. TPH constituents have been detected in 9 of the 24 soil samples collected to date at the Site at concentrations that exceed PSLs. In general, the soil samples collected at a greater distance from the ASTs by Farallon in 2008 may provide a lateral extent of soil contamination above PSLs to the northwest (SIG-B8), to the north (SIG-B7), to the northeast (SIG-B6), to the southwest (SIG-B4), and to the southeast (SIG-B3 and SIG-B1). Based on the results for SIG-B2, soil contamination may extend to the

east beyond the areal extent of previous sampling. Because this direction is upgradient of the assumed groundwater flow direction, it is not likely that contamination extends much beyond this location. Based on the soil samples collected by Landau Associates along the shoreline in 2012 (B1-12, B-2-12, and B-3-12), on contamination in groundwater samples in excess of PSLs, and on the distribution of NAPL observations, we assume soil contains concentrations of COPCs above PSLs in the vicinity of the ASTs and generally west and southwest toward Blaine Harbor.

7.3 SEDIMENT CONDITIONS

Available sediment quality data in the Site vicinity do not indicate that Site releases have impacted sediment quality. However, the sediment samples were collected too far from the shoreline to definitively demonstrate that marine sediment is not impacted by Site releases, and because the data are more than 10 years old they may not represent current conditions. At sample location BH-01, the detected concentration of bis(2-ethylhexyl)phthalate (BEHP) exceeded both the SQS and the CSL established in the SMS (WAC 173-304). However, BEHP is not associated with known Site releases or activities, and is a common laboratory contaminant. If present, BEHP is not likely related to the Site releases.

7.4 DATA GAPS

This section identifies the areas and media type within the Site that require further investigation to adequately delineate the nature and extent of contamination. Primary data gaps identified for the Site include the following:

- **Site-wide groundwater quality:**
  - The areal extent of impacted groundwater is unknown.
- **Site-wide groundwater flow:**
  - The hydrology of the Site has not yet been evaluated.
- **Nature of contamination:**
  - Soil and groundwater have not been evaluated for the full list of COPCs identified in this work plan. Groundwater has been analyzed only for TPH-D; soil has been analyzed for various combinations of TPH, TPH-D, TPH-G, and BTEX components. Soil and groundwater have not been analyzed for PAHs, lead, EDB, EDC, or MTBE, and TPH-O has not been adequately evaluated at the Site.
- **Soil vapor quality:**
  - Soil vapor has not been analyzed for VOCs associated with TPH-G to evaluate the vapor exposure pathway.

- **Sediment quality:**
  - Surface sediments near the shoreline in Blaine Harbor have not been analyzed for site-specific COPCs to evaluate potential impacts from groundwater at the Site.
  - Previously collected surface sediment samples may not have been collected close enough to the shoreline to adequately evaluate the Site's potential impact on marine sediment quality.
- **Surface hydrology:**
  - Surface hydrology related to controlled outfalls or overland flow has not been evaluated.

In general, the age of the existing data becomes a quality issue due to the significant migration or natural attenuation that may have occurred over the years. Additional quality issues with the existing data set include soil sample collection depths that appear to be too shallow and above the zone of impacted soil (HA-9, HA-3, HA-6); and many samples were not analyzed for TPH-G, which the most recent investigation has identified as being potentially of greater concern than TPH-D. These data gaps will be evaluated during the RI, as described in Section 8.0.

8.0 REMEDIAL INVESTIGATION SCOPE OF WORK

As described in Section 7.4, further investigation of the uplands and marine sediment is needed to determine the nature and extent of Site contamination to evaluate potential remedial actions. Results from previous soil and groundwater investigations conducted at the Site provide some information regarding environmental conditions, but data gaps exist that need to be filled to fully delineate the nature and extent of contamination. The RI scope of work described in the following sections will be implemented to fill these data gaps. Detailed procedures for sample collection, sample analyses, and quality assurance are provided in the Upland and Sediment sampling and analysis plans (SAPs) provided in Appendices D and E.

8.1 UPLAND SOIL INVESTIGATION

The upland soil investigation includes characterizing soil conditions and collecting soil samples for NAPL screening and laboratory analysis at 20 boring locations, as shown on Figure 9. The intent of the investigation is to provide additional characterization of the source area, and to determine the lateral boundaries of significant contamination. The investigation will be extended as necessary to bound the limits of contamination by advancing borings progressively farther from the source area until field screening indicates the soil encountered is not contaminated. For the purpose of this portion of the investigation, significant contamination will be determined by field screening for VOCs with a PID and visual observation for the presence of sheen or NAPL. Visual observation for the presence of sheen or NAPL may, if necessary, be aided by conducting shaker tests or using hydrophobic dye, as summarized below and described in the upland SAP (Appendix D). If significant contamination is present in a boring at the outward boundary of the proposed investigations presented on Figure 9, additional borings will be advanced farther from the assumed source until the boundary is reached. The arrows on the transect lines on Figure 9 present the likely direction where additional borings may be advanced although the actual direction and placement will be decided based on findings in the field.

The transect approach will provide valuable data in cross sections across the impacted area and parallel to Site boundaries to delineate the extent of contamination in three dimensions. This approach also provides a structured methodology for advancing additional borings based on findings at the time of the investigation. It should be noted that the proposed boring locations are approximate, and may be adjusted based on observed Site conditions, available access, and the location of utilities.

Each boring will extend from the ground surface to at least 3 ft below the groundwater table, or deeper at some locations, to obtain the sample interval depths described in Table 9. Groundwater levels near the shoreline are likely to be significantly influenced by changing tides. During the recent

exploration in January 2012, groundwater was encountered at about 7.5 ft BGS at the time of drilling. In 2008, groundwater was reportedly encountered at about 10 ft BGS at the time of drilling (Farallon Consulting 2008). Most boring depths are anticipated to be approximately 12 ft BGS. At BMI-GP-5, the boring depth will extend to 16 ft BGS based on observations of petroleum hydrocarbon odors noted while advancing a previous exploration at a nearby location (SIG-B6) at this depth. Boring depths will extend deeper if field screening results indicate contamination extends deeper into the soil. Borings will be advanced using a truck-mounted, direct-push boring rig. Soil will be classified and recorded using the Unified Soil Classification System, and screened for observable signs of contamination by physical inspection. Field screening will include:

- Visible examination for discoloration of soil and the presence of sheen or NAPL
  - Shaker tests will be conducted on samples if the field determination is inconclusive regarding the presence of NAPL. Shaker testing includes placing a portion of the soil sample into a 4-oz glass jar with water, shaking the jar to break up the sample and mix it with water, and observing for the presence of NAPL. If the test results remain inconclusive, hydrophobic dye testing may be conducted at the discretion of the field personnel.
- Screening for VOCs by PID
- Olfactory indication of contamination
  - The presence of any odor that is observed during processing will be documented. Soil classification and field-screening results will be recorded on a log of exploration form.

The sampling objective is to characterize the vertical extent of contamination by collecting a soil sample from (1) above the zone of contamination in apparently "clean" soil; (2) within the zone of the most apparently contaminated soil; and (3) below the zone of contamination in apparently "clean" soil. The sampling approach is summarized in Table 9 and in the upland SAP. In addition to submitting the three samples described above for immediate laboratory analyses, at least one sample will be collected from above and below these intervals and archived at the laboratory for potential follow-up analyses. If there is no field-indication of contamination, one sample will collected for laboratory analyses at the groundwater table and samples collected from above and below this location will be archived for potential follow-up analyses.

If significant contamination is apparent based on field-screening results in the lowest sampling interval for a boring, the exploration will be extended deeper in 2-ft increments to adequately delineate the depth of contamination.

8.1.1 SOIL ANALYSES

Based on the field screening results, one to three soil samples from each of the 20 borings will be submitted for laboratory analyses as described in Table 9. Samples will be analyzed for TPH-G by

Method NWTPH-G, diesel-range total petroleum hydrocarbons (TPH-D) and oil-range total petroleum hydrocarbons (TPH-O) by Method NWTPH-Dx, lead by EPA Method 6020, naphthalenes by EPA Method 8270D, and VOCs by EPA 8260C. If there is no indication of the presence of contamination based on the field-screening results, one sample will be collected from near the groundwater table and submitted for the analyses listed above, and soil samples from above and below the water table sample will be collected and archived at the laboratory for follow-up analyses, if required.

8.1.2 SOIL VAPOR

At the four locations shown on Figure 7, soil vapor samples will be collected to evaluate the potential risks of volatile COPCs impacting human health in indoor ambient air. Three samples will be collected from boreholes advanced using a direct-push drilling rig (BMI-GP-9, BMI-GP-13, and BMI-GP-14). These soil vapor samples will be collected by advancing the probe rod to the target depth (approximately 5 ft BGS) and inserting dedicated polyethylene vapor sampling tubing and an adapter into the rod bore and connecting to a peristaltic pump at the surface. A seal of hydrated bentonite will be placed around the top of the drill rods at the soil surface to prevent intrusion of atmospheric air. Soil vapor sample BMI-SVSS will be collected from beneath the floor slab of the Blaine Marina furniture and appliance retail building. Field personnel will drill through the concrete slab, pass the sample collection tubing into the penetration beneath the slab, and seal the penetration. Soil vapor samples will be collected from the tubing into evacuated Summa canisters. The Summa canisters will then be submitted to a laboratory for VOC analysis by U.S. Environmental Protection Agency (EPA) Method TO-15 (including BTEX, MTBE, naphthalene, EDB, and EDC). Detailed sample collection procedures are provided in the Upland SAP (Appendix D).

8.2 UPLAND GROUNDWATER INVESTIGATION

The RI groundwater investigation will address Site-wide groundwater impacts identified by previous investigations, and provide general characterization of Site hydrogeology. The proposed scope for the RI groundwater investigation is discussed below. In summary, the groundwater investigation will be conducted in two phases:

- **Phase I:** Collect and analyze groundwater grab samples from nine direct-push borings as indicated on Figure 9.
- **Phase II:** Install groundwater monitoring wells at up to eight locations yet to be determined.. Collect and analyze groundwater samples to evaluate groundwater conditions at points of compliance and to evaluate the effectiveness of remedial efforts. *The locations for groundwater monitoring wells will be decided in coordination with Ecology based on the results from the first phase of the groundwater investigation.*

8.2.1 DIRECT-PUSH GROUNDWATER SAMPLES

Proposed groundwater sampling locations for the first phase of the groundwater investigation are shown on Figure 9. It should be noted that proposed groundwater sampling locations are approximate and may be revised, as necessary, due to conditions in the field. Direct-push borings used for groundwater grab sample collection will be advanced a minimum of 4 ft into the groundwater table. Each sample will be collected using a groundwater sampler consisting of a 4-ft-long, wire-wrapped, stainless steel screen (0.010-inch slot size) with a retractable protective steel sheath. The groundwater sampler will be advanced to the sample depth and the protective sheath will be retracted to expose the stainless steel screen to the formation. Low-flow purging will be performed for 10 minutes or until the purge water is clear using a peristaltic pump. During purging, pH, conductivity, and temperature will be measured using a flow-through cell. Groundwater samples will be collected into the appropriate sample containers using disposable polyethylene tubing and a peristaltic pump. To prevent degassing during sampling for VOCs, a pumping rate will be maintained below about 100 milliliters per minute. Groundwater samples will be collected last for both total and dissolved lead analyses. Unfiltered groundwater samples will be analyzed for total lead initially, as discussed in Section 8.2.4. Groundwater for dissolved lead analyses will be field-filtered through a 0.45 micron, in-line disposable filter and will be tested only if lead exceeds its screening level in the unfiltered sample. Groundwater grab samples from BMI-GP-9, BMI-GP-11, and BMI-GP-12, along the shoreline, will be collected during low tide, as practicable, to minimize potential impacts from marine water.

Particulates captured in groundwater samples can impact analytical results. This is particularly a concern for groundwater samples that are collected from temporary wells installed in direct-push borings because turbidity is typically elevated in groundwater samples collected in this manner. Some organic compounds such as oil-range petroleum hydrocarbons and to a lesser extent, naphthalenes, can partition heavily to particles in groundwater samples, which can result in a high bias of the analytical results. As a result, analytical results for oil-range petroleum hydrocarbons or naphthalenes collected from direct-push borings will be used for screening purposes, and any exceedance of the screening levels will be further evaluated using monitoring wells to obtain more representative groundwater samples.

Groundwater grab samples will be analyzed for each of the groundwater COPCs identified in Section 5.1. More detailed procedures for groundwater sample collection and quality assurance are provided in the Upland SAP (Appendix D).

8.2.2 MONITORING WELL INSTALLATION PROCEDURES

Up to eight groundwater monitoring wells will be installed at the Site to provide groundwater characterization data. The monitoring wells will be constructed in accordance with Washington State

Minimum Standards for Construction and Maintenance of Wells (WAC 173-160; Ecology 2006). The monitoring wells will be drilled using conventional hollow-stem auger techniques with 4.25-inch inside diameter (ID) augers. Landau Associates field personnel familiar with environmental sampling and construction of resource protection wells will oversee the drilling and well installation activities, and maintain a detailed record of the well construction. Soil samples will be collected from the saturated zone at the time of drilling, and at least three samples from the Site will be submitted for mechanical grain size analyses to aid in the hydrogeologic characterization discussed in Section 8.2.3.

The monitoring wells will be constructed with 2-inch-diameter, flush-threaded, Schedule 40 PVC pipe and 10-ft screens. Wells installed in the source area will be constructed using 0.020-inch machine-slotted casings and filter pack material consisting of pre-washed, pre-sized, number 10/20 silica sand to promote the entry of free product into the well, if present. Wells outside the source area will be constructed using 0.010-inch machine-slotted casings and filter pack material consisting of pre-washed, pre-sized, number 20/40 silica sand to minimize sample turbidity.

The well screens will be placed from 5 to 15 ft BGS to intersect the water table. The filter pack will be placed from the bottom of the well to approximately 1 ft above the top of the screen. Filter pack material will be placed slowly and carefully to avoid bridging of material. A bentonite seal will be placed above the filter pack material to within about 3 ft of the ground surface. Grout will be used to backfill the boring to the subgrade for placement of the protective cover. A flush-mounted monument will be cemented in place for each monitoring well.

All new and existing monitoring wells will be developed, and samples will be collected at least 24 hours after installation to remove particulates entrained during the well construction process and improve hydraulic communication with the surrounding aquifer. If NAPL is observed in the existing wells, which is likely at MW-2 and MW-3, they will not be redeveloped. Development will be accomplished by repeatedly surging the well with a surge block and purging the well until the water runs clear, but no less than five well casing volumes. During development, the purged groundwater will be monitored for the following field parameters:

- pH
- Conductivity
- Temperature
- Turbidity
- Oxidation reduction potential (ORP)
- Dissolved oxygen (DO).

The wells will be developed until the turbidity of the purged groundwater decreases to 5 nephelometric turbidity units (NTUs), if practicable and until the stabilization criteria are met. If the

well dewaters during the initial surging and purging effort, one final well casing volume will be removed after the well has fully recharged, if practicable.

8.2.3 HYDROGEOLOGIC CHARACTERIZATION

A hydrogeologic evaluation will be conducted to characterize the groundwater flow direction and migration rate. The elevation of all monitoring wells will be determined at the top of casing by land-surveying to the nearest 0.01 ft. All wells will be gauged at the time of groundwater sampling to evaluate groundwater flow direction. At least three soil samples from the Site will be collected from the saturated zone at the time of drilling. The samples will be submitted for mechanical grain size analyses to allow estimation of the hydraulic conductivity for the uppermost hydrostratigraphic unit. The hydraulic conductivity data in conjunction with the average hydraulic gradient determined from monitoring well gauging will be used to estimate Site groundwater velocities. Existing monitoring wells MW-1, MW-2, and MW-3 will also be gauged to assist in evaluating Site hydrogeologic conditions.

8.2.4 GROUNDWATER ANALYSES

During Phase I of the groundwater investigation, groundwater grab samples will be analyzed for each of the groundwater COPCs identified in Section 5.1, including TPH-G using Method NWTPH-G; TPH-D and TPH-O by Method NWTPH-Dx (with acid/silica gel cleanup procedures); VOCs (including BTEX, EDB, EDC, and MTBE) by EPA Method 8260C, naphthalenes by EPA Method 8270D, and lead by EPA Method 6020. Both filtered and unfiltered samples will be collected for lead analyses. Unfiltered groundwater samples will be tested for lead initially, and filtered groundwater samples will be tested for dissolved lead only if lead exceeds its screening level in the unfiltered sample. In addition to the laboratory analyses described above, pH, specific conductance, temperature, DO, ORP, and turbidity will be measured in the field during sample collection.

In Phase II of the groundwater investigation, groundwater samples collected from the groundwater monitoring wells will be analyzed for COPCs detected in groundwater grab samples at concentrations above PSLs. This analytical list will be developed in coordination with Ecology based on the preliminary findings of the RI. Groundwater monitoring during this second phase of groundwater investigation will include monitoring for natural attenuation parameters. These will include groundwater quality parameters that are typical monitored in the field (specific conductance, pH, and DO concentrations) as well as laboratory analysis for natural attenuation parameters such as ferrous iron, nitrate, and sulfate.

8.3 SEDIMENT INVESTIGATION

As discussed in Section 5.2, there is a potential for contaminants to migrate from the uplands portion of the Site to sediment via groundwater. Additionally, upland soil may have directly migrated to marine sediment in the vicinity of the failed bulkhead section currently under repair that underlies the fuel office building. Based on these considerations, a limited sediment characterization will be conducted that focuses on shallow sediment near the shoreline.

The sediment investigation will consist of collecting three surface sediment samples at the locations shown on Figure 10. Subsurface (core) sediment sampling is not planned because no dredging for either harbor maintenance or redevelopment of the uplands is anticipated in this area. As a result, the point of compliance for marine sediment will remain the upper 10 cm of the current sediment surface over the long term.

It should be noted that riprap located along much of this shoreline may influence the final sampling locations and could result in difficulty with sample recovery. BMI-SS-1 and BMI-SS-3 are located in areas anticipated to be beyond the limits of the shoreline riprap but will be adjusted in the field to be as close to the shoreline as possible.

It is possible that sloughing of soil from behind the failed section of bulkhead has resulted in sufficient accumulation of sediment in the interstices of the riprap underlying the former fuel office building to allow for surface sediment sampling closer to the shoreline in this area. Field personnel will conduct a reconnaissance of this area during low tide and if sufficient sediment is present, the BMI-SS-2 sampling location will be moved as close as possible to the bulkhead beneath the former fuel office building.

A reference sample will be collected from an approved offsite location and used for the bioassay testing, if needed.

The surface sediment samples will undergo analysis of selected SMS constituents of concern, including lead and TPH, grain size and total organic carbon (TOC). The TPH fractions will be determined using volatile petroleum hydrocarbon (VPH), extractable petroleum hydrocarbon (EPH), NWTPH-Dx, and NWTPH-G methodologies. A bioassay test will be conducted using the sediment sample with the highest concentrations of these constituents, if TPH constituents are detected in sediment at concentrations that indicate a release from the Site may have occurred.

If the sediment is submitted for bioassay testing and passes, the sediment quality will be considered protective of biological resources. If the sediment sample fails the bioassay tests, additional sediment bioassay testing will be conducted using samples representative of the range of TPH in sediment, using either archived samples or newly collected samples. Additional bioassay testing will be identified and completed in consultation with Ecology.

8.4 SURFACE WATER

A surface water sample will be collected during the ebbing tide, within 2 hours of low tide, from the shoreline at the approximate location shown on Figure 10. Because the Site is located within an active harbor with recreational and commercial vessels, there are many potential sources of petroleum hydrocarbons to surface water that are unrelated to Site releases. As a result, if a sheen is observed on the water surface that does not appear to be emanating from the Site uplands, a sample will not be collected at that time, or the sampling location will be moved to avoid collecting a surface water sample that may be affected by non-Site releases.

The surface water sample will be submitted to the laboratory for analysis of TPH-G using Method NWTPH-G; TPH-D and TPH-O by Method NWTPH-Dx (with acid/silica gel cleanup procedures); VOCs (including BTEX, EDB, EDC, and MTBE) by EPA Method 8260C, PAHs (naphthalenes) by EPA Method 8270D, and lead by EPA Method 6020.

8.5 SAMPLING AND ANALYSIS PLANS

To guide field investigations, two SAPs were prepared to specify the type, quality, and quantity of data necessary to support selection of a cleanup action. The upland SAP (Appendix D) was prepared in accordance with WAC 173-340-820, and Ecology's Guidance on Sampling and Data Analysis Methods (Ecology Publication 94-49; Ecology 1995). The marine sediment SAP (Appendix E) was prepared in accordance with WAC 173-340-820, Ecology Publication 94-49, and with the Puget Sound SMS and Ecology Publication 03-03-043. The SAPs are intended to provide consistent field and laboratory analytical procedures to guide the collection of data that are accurate, defensible, and of adequate quality to meet the objectives of the project. To this end, the SAPs provide procedures for the collection of representative samples from the Site, accurate documentation of field observations, decontamination to prevent cross-contamination, and proper management and disposal for investigation-derived wastes.

In addition to following the procedures outlined in the SAPs, field personnel will follow personal protection standards and mandatory safety procedures outlined in the Health and Safety Plan (Appendix F).

9.0 REPORTING

As specified in the Agreed Order, reporting will include submittal of separate RI and FS reports. Although prepared as separate documents, the RI and FS reports will be issued as a single package for public review once Ecology has approved the revised FS report.

The Agreed Order also requires the submittal of an RI data summary technical memorandum following completion of the RI to provide a basis for determining whether any additional RI activities are needed to fill data gaps prior to preparing the RI report. In addition to these documents, the Port will submit a Phase I groundwater monitoring technical memorandum that summarizes the results of the Geoprobe groundwater quality monitoring and presents proposed groundwater monitoring well locations to Ecology for review.

The RI and FS reports will be prepared consistent with the RI/FS Annotated Outline developed by the Port and Ecology for Bellingham Bay MTCA sites. The following sections briefly describe the organization for the RI and FS reports.

9.1 REMEDIAL INVESTIGATION REPORT

The RI report will be prepared consistent with the requirements of WAC 173-340-350, and Annotated Outline, and will include, at a minimum, the sections listed below:

1. Introduction
    a. Site Description and Background
    b. Document Organization
2. Project Background
    a. Site History
    b. Objective of the RI
3. Environmental Setting
    a. Physical Conditions
    b. Geology and Hydrogeology
    c. Natural Resources
    d. Historic and Cultural Resources
    e. Land and Navigation Uses
4. Site Screening Levels
    a. Exposure Pathways and Receptors
    b. Screening Levels

5. Nature and Extent of Contamination
    a. Constituents of Concern
    b. Nature and Extent
6. Contaminant Fate and Transport
    a. Source Control
    b. Attenuation/Transport Processes
7. Conceptual Site Model
    a. Contaminants and Sources
    b. Nature and Extent of Contamination
    c. Fate and Transport Processes
    d. Exposure Pathways and Receptors
8. RI Conclusions.

9.2 FEASIBILITY STUDY REPORT

The FS report will identify and evaluate various remedial alternatives and recommend a cleanup action consistent with the requirements of WAC 173-340-360 through WAC 173-340-390 and WAC 173-340-840. The report will include, at a minimum, the sections listed below:

1. Introduction
    a. Site Description and Background
    b. Document Organization
2. Cleanup Requirements
    a. Proposed Cleanup Levels
    b. Remedial Action Objectives
    c. Potentially Applicable Laws
3. Screening of Remedial Technologies
4. Description of Remedial Alternatives
5. Detailed Evaluation of Alternatives
    a. MTCA (and SMS) Evaluation Criteria
    b. Evaluation of Alternatives
    c. MTCA Disproportionate Cost Analysis
        i. Comparative Evaluation of Alternatives
        ii. MTCA Disproportionate Cost Analysis
6. Summary and Conclusions
    a. Description of the Preferred Alternative

b. Basis for Selection

c. Implementation of Site Cleanup.

10.0 SCHEDULE

The Agreed Order establishes the RI/FS schedule, which is summarized below. The schedule requirements of the Agreed Order are in parentheses.

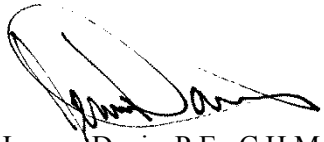
- **Draft RI work plan** (*submit to Ecology within 60 days of the Agreed Order*).
  - Agreed Order No. DE 9000 was effective May 25, 2012.
  - The draft RI work plan to be submitted to Ecology by July 24, 2012.
- **Revised RI work plan** (*submit to Ecology within 45 days of receiving Ecology's comments*)
- **RI field activities** (complete within 180 days following Ecology's approval of the final RI work plan)
- **RI Phase I groundwater monitoring technical memorandum** (*not an Agreed Order requirement – to be submitted within 30 days of validation of Geoprobe groundwater quality data*)
- **RI data summary technical memorandum** (*submit to Ecology within 60 days following validation of all RI data*)
- **Draft RI report** (*submit to Ecology within 150 days following completion of the RI work*)
- **Revised draft RI report** (*submit to Ecology within 60 days following receipt of Ecology's comments on the draft RI report*)
- **Draft FS report** (*submit to Ecology within 60 days following Ecology's approval of the RI report*)
- **Revised draft FS report** (*submit to Ecology within 45 days of receiving Ecology's comments*)
- **Final RI and FS reports** (*incorporate changes based on public comment; submit to Ecology within 45 days of completion of the public comment period*)
- **Draft Cleanup Action Plan** (*submit to Ecology within 60 days following Ecology's approval of the final RI and FS reports*)

11.0 USE OF THIS REPORT

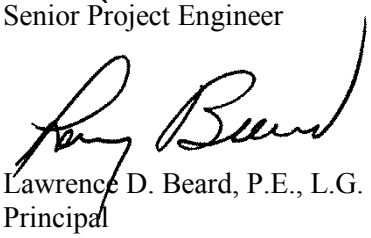
This work plan will become an integral and enforceable part of the Agreed Order No. DE 9000 between the Port of Bellingham and the Washington State Department of Ecology. This document has been prepared for the use of the Port of Bellingham and the Washington State Department of Ecology for specific application to the Blaine Marina Inc. Site. None of the information, conclusions, and recommendations included in this document can be used for any other project without the express written consent of Landau Associates. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau Associates, shall be at the user's sole risk. Landau Associates warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in Pacific Northwest under similar conditions as this project. We make no other warranty, either express or implied.

This document has been prepared under the supervision and direction of the following key staff.

LANDAU ASSOCIATES, INC.



Jeremy Davis, P.E., C.H.M.M.
Senior Project Engineer



Lawrence D. Beard, P.E., L.G.
Principal

LDB/JMD/ccy

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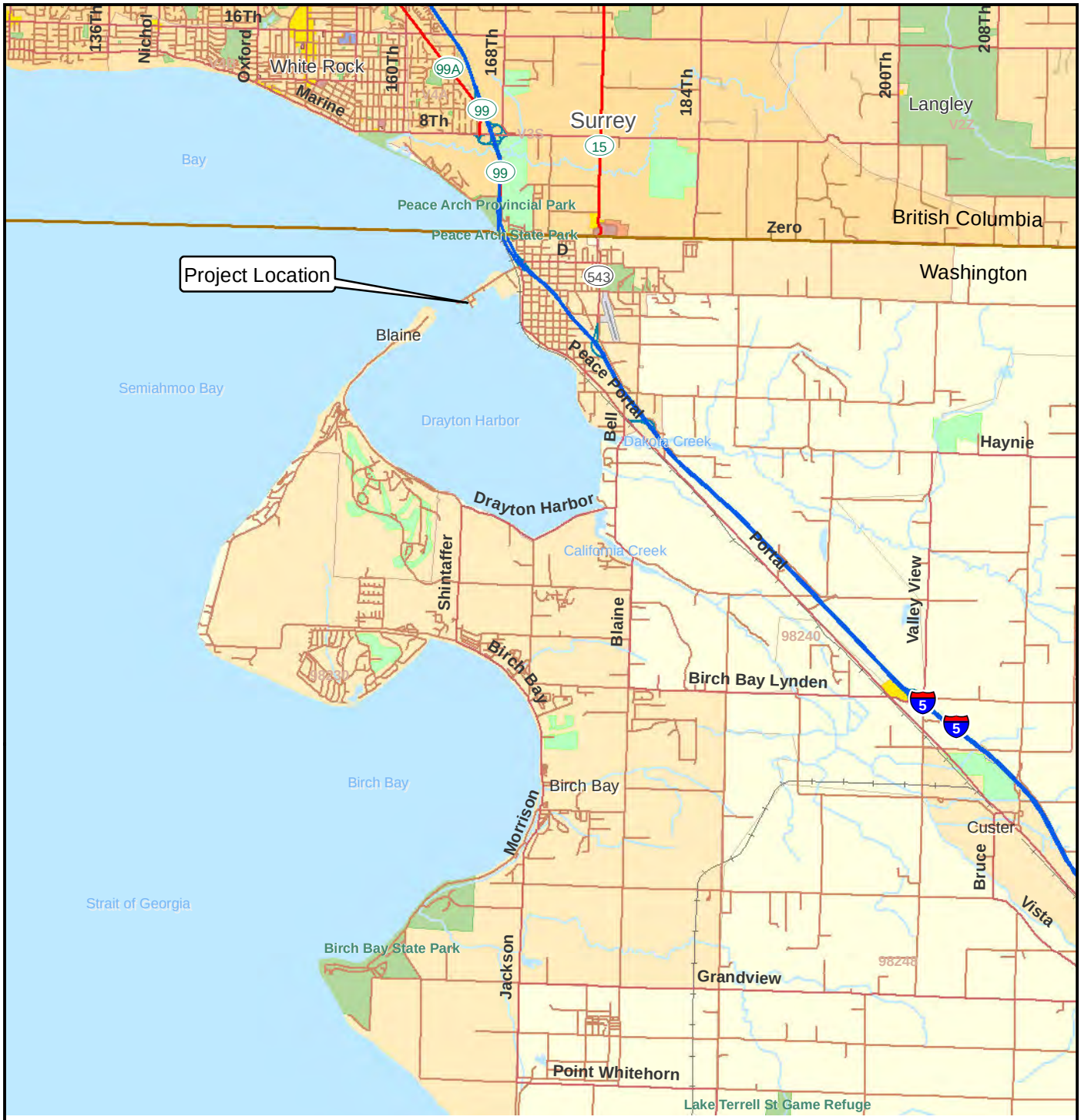

Data Source: ESRI 2008

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Blaine Marina Inc. Site Blaine Harbor Blaine, Washington	**Vicinity Map**	Figure 1

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Legend

- Historical Building Location
- Existing Building Location
- MHHW - 9.5ft
- Approximate Site Boundary; Site Boundaries to be Determined in the RI/FS

0 140 280

Scale in Feet

Data Sources: Wilson Engineering 2011; Port of Blaine 2011; Walker and Associates, Inc; Google Earth Professional 2011

Note

Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

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Blaine Marina Inc. Site
Blaine Harbor
Blaine, Washington

Site Plan

Figure 2

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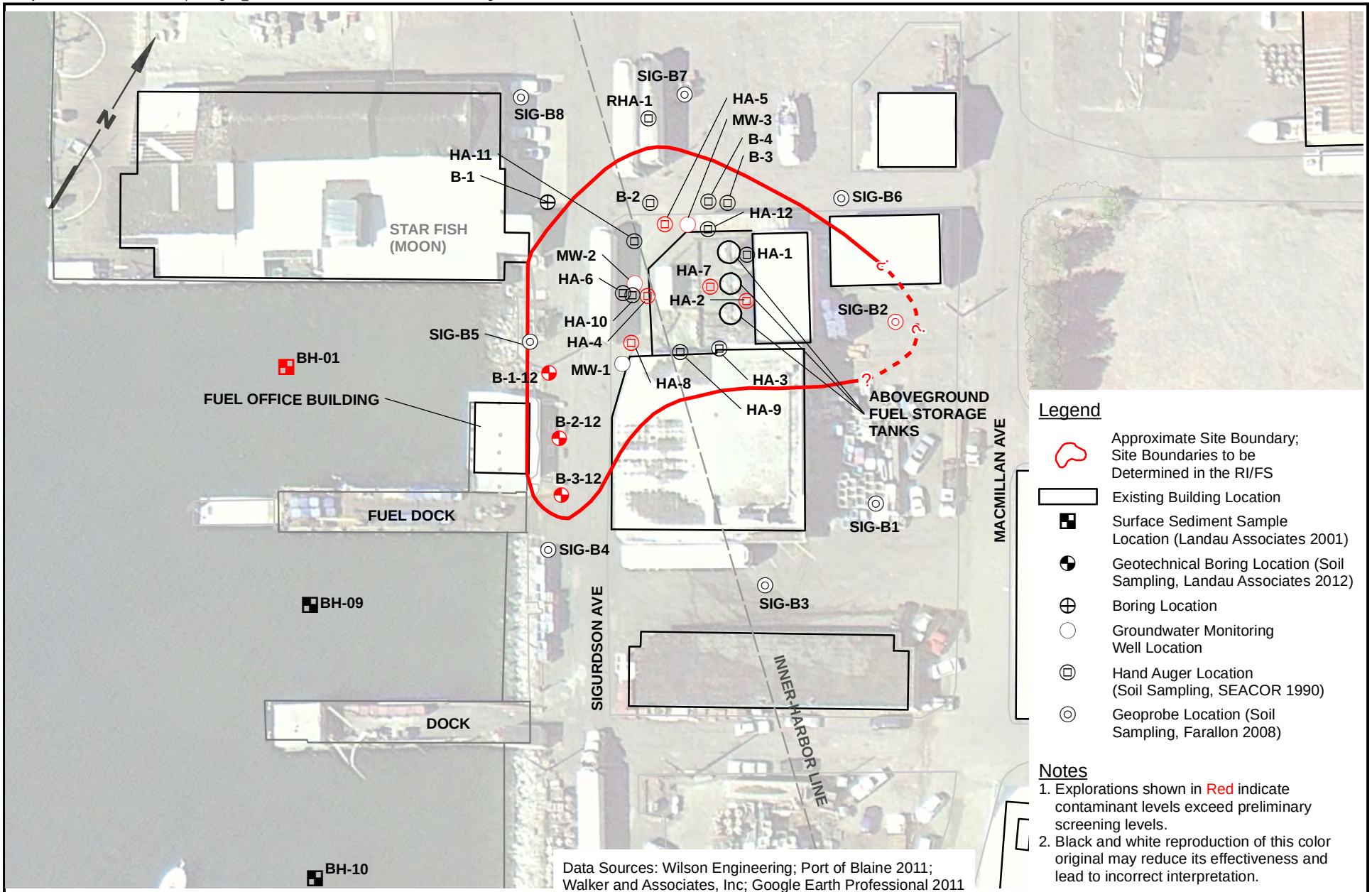

Legend

- Approximate Site Boundary; Site Boundaries to be Determined in the RI/FS
- Existing Building Location
- Surface Sediment Sample Location (Landau Associates 2001)
- Geotechnical Boring Location (Soil Sampling, Landau Associates 2012)
- Boring Location
- Groundwater Monitoring Well Location
- Hand Auger Location (Soil Sampling, SEACOR 1990)
- Geoprobe Location (Soil Sampling, Farallon 2008)

Notes

1. Explorations shown in Red indicate contaminant levels exceed preliminary screening levels.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Data Sources: Wilson Engineering; Port of Blaine 2011; Walker and Associates, Inc; Google Earth Professional 2011

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0 60 120

Scale in Feet

Blaine Marina Inc. Site
Blaine Harbor
Blaine, Washington

Previous Soil and Sediment Exploration Locations

Figure 3

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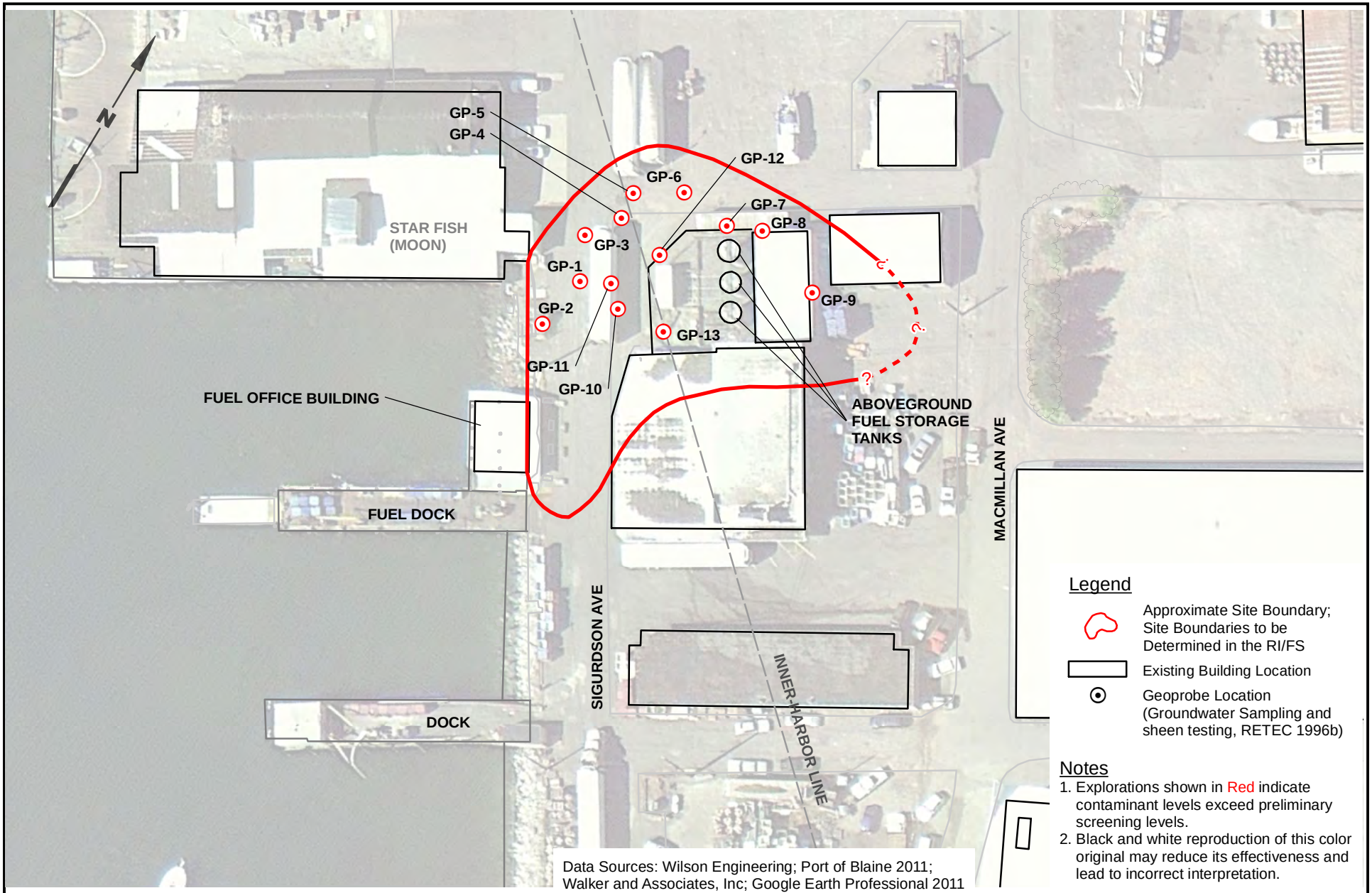

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Blaine Marina Inc. Site
Blaine Harbor
Blaine, Washington

Previous Groundwater Exploration Locations

Figure
4

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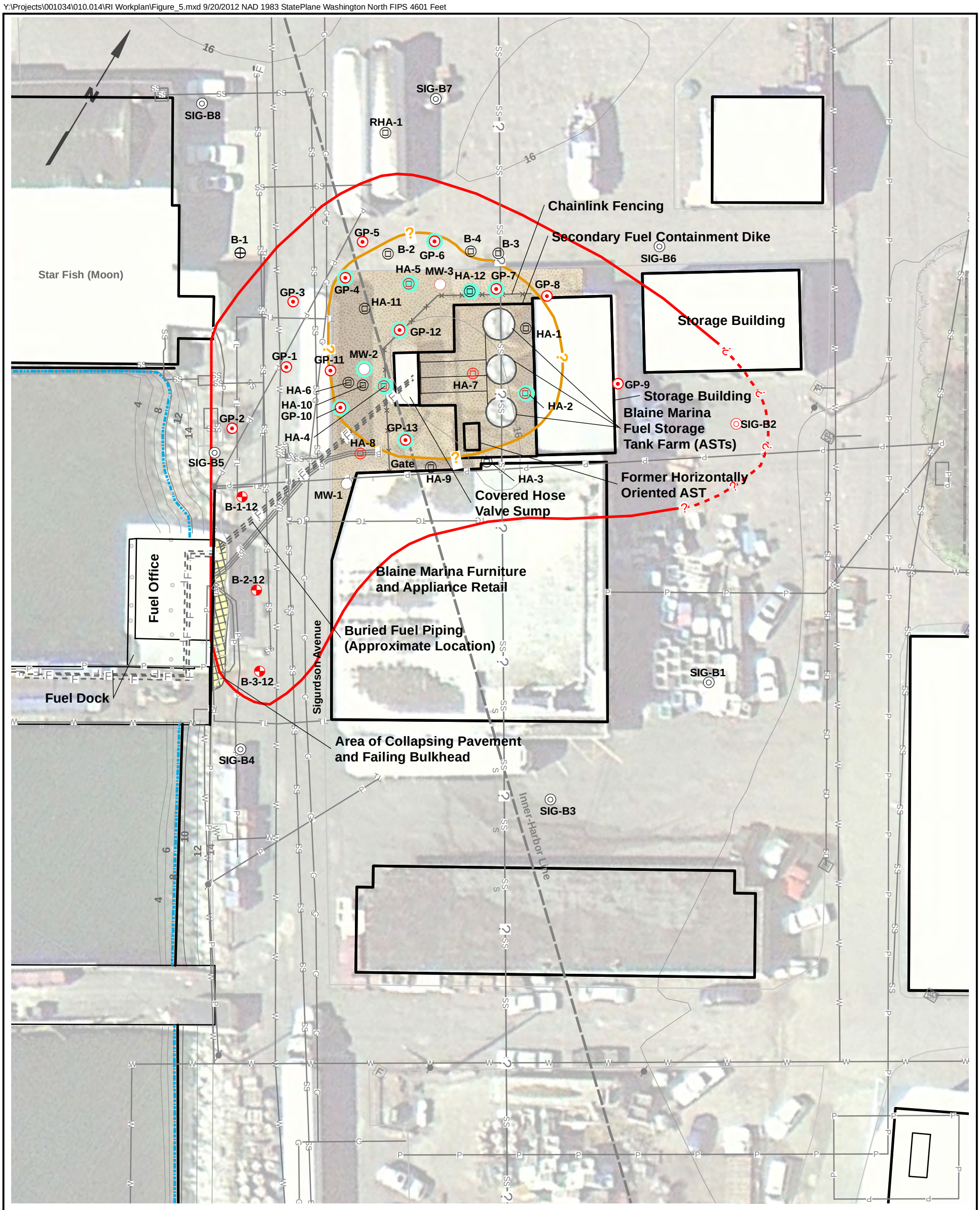


Legend

- Geotechnical Boring Location (Soil Sampling, Landau Associates 2012b)
- Boring Location
- Groundwater Monitoring Well Location
- Hand Auger Location (Soil Sampling, SEACOR 1990)
- Geoprobe Location (Groundwater Sampling and Sheen Testing, RETEC 1996b)
- Geoprobe Location (Soil Sampling Farallon 2008)
- NAPL Observed at this Location
- MHHW - 9.5 ft
- Gas Line
- Sanitary Sewer Line
- Vault Line
- Water
- Power Line
- Fire Booster Line
- HTCI
- Irrigation Line
- Telephone Line
- Fuel Line
- Estimated Extent of NAPL
- Gravel Surface
- Approximate Site Boundary; Site Boundaries to be Determined in the RI/FS

Note

1. Explorations shown in Red indicate contaminant levels exceed preliminary screening levels.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

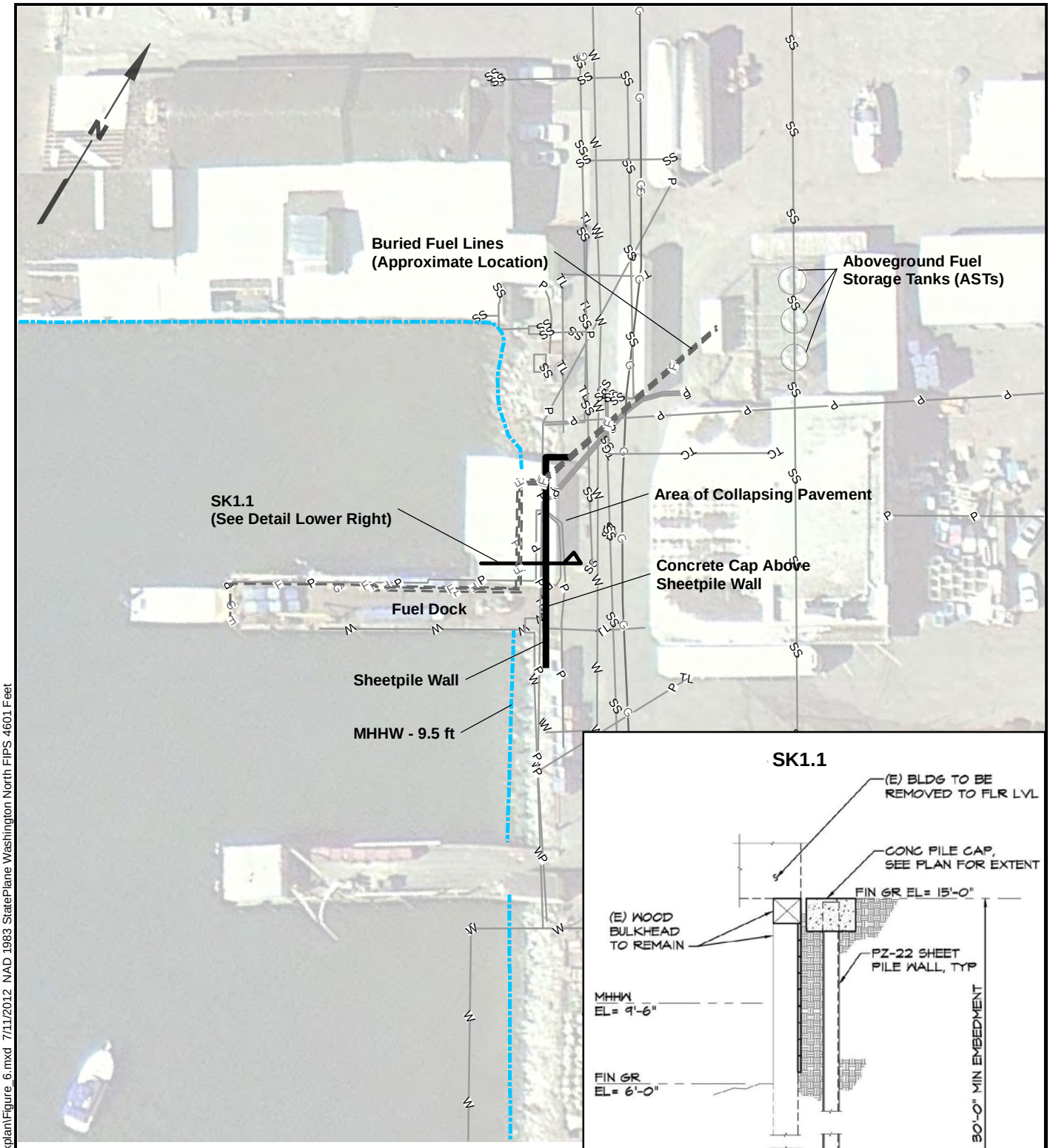
Source: Wilson Engineering 2011, Port of Bellingham 2011, Walker and Associates, Inc.

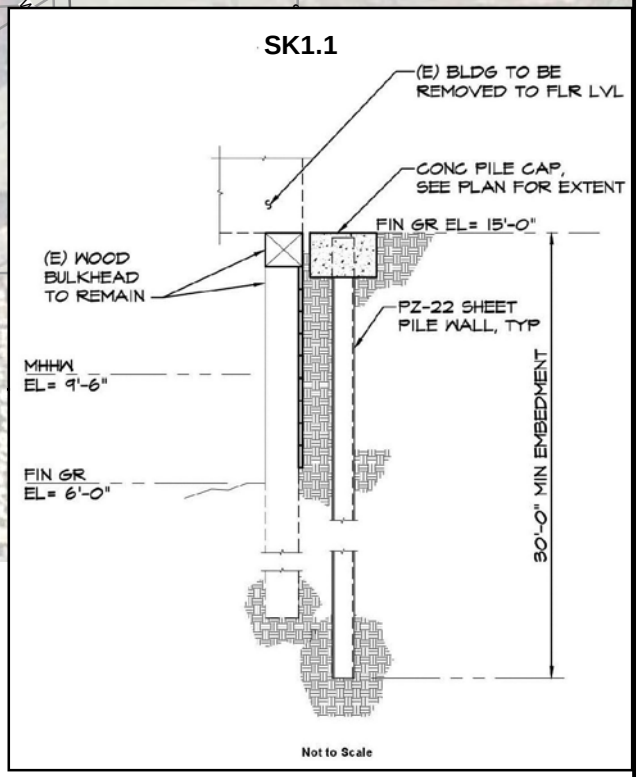
0 30 60

Scale in Feet

LANDAU ASSOCIATES

Blaine Marina Inc. Site Blaine Harbor Blaine, Washington	**Current Site Conditions**	Figure 5





Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 50 100

Scale in Feet

Source: Preliminary Design Details by Reid Middleton (02/08/12), Google Earth Pro 2010

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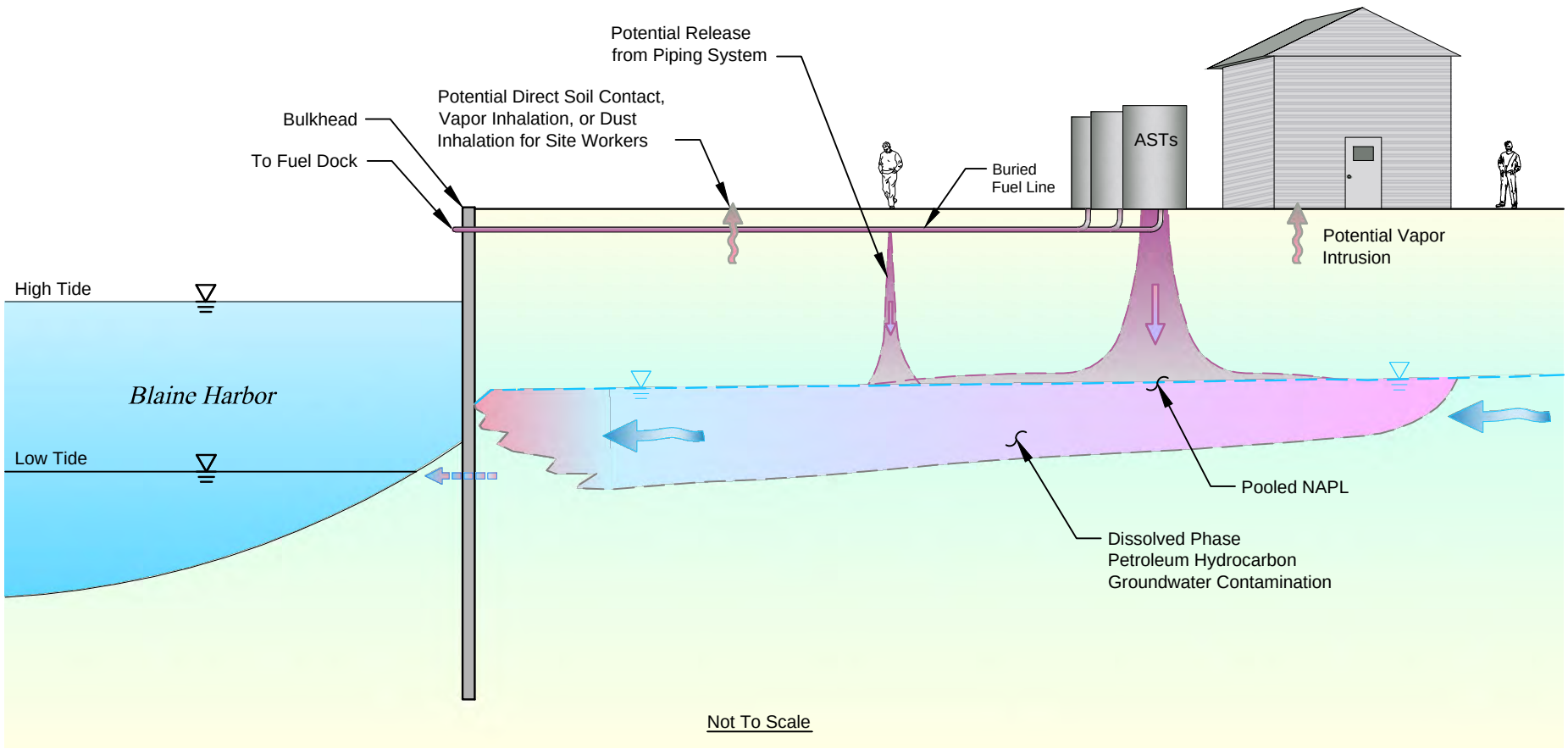
Blaine Marina Inc. Site Blaine Harbor Blaine, Washington	**Interim Action - Bulkhead Repair**	Figure 6



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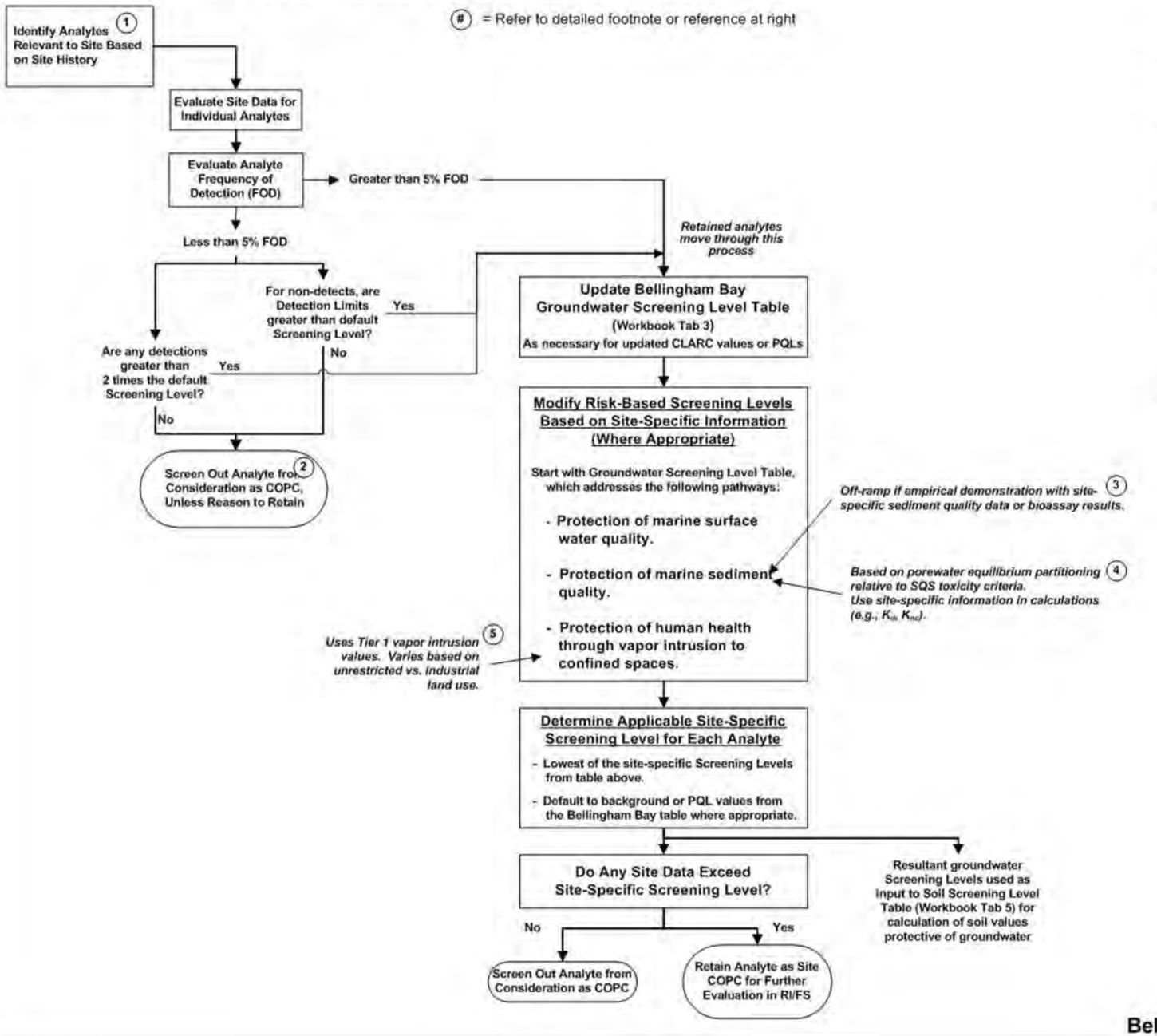
Blaine Marina Inc. Blaine Harbor Blaine, Washington	**Preliminary Conceptual Site Model**	Figure 7

GROUNDWATER SCREENING LEVEL FLOWCHART

This flowchart illustrates steps in comparing site data to Screening Levels to determine site Contaminants of Potential Concern (COPCs) for Groundwater

(#) = Refer to detailed footnote or reference at right



FOOTNOTES

(1) Analytical groups selected should be based on site history, including operational practices and release mechanisms, such that all possible contaminants suspected of being present are analyzed during the RI/FS process (WAC 173-340-350).

(2) Analytes will be retained if they are less than 5 percent Frequency of Detect (FOD) and less than 2 times the Screening Level only if there is a site-specific reason to retain, such as a known association with site activity (USEPA's *Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual* 1989).

(3) If empirical data show that sediments are in compliance with sediment Screening Level values, it can be concluded that the groundwater to sediment pathway is protective and does not require further evaluation.

(4) Groundwater concentrations that are protective of sediments are calculated using an equilibration partitioning method. Site-specific data (e.g., distribution coefficient [K_d], soil organic carbon water partitioning coefficient [K_{oc}], etc.) can be used to calculate if porewater is protective of sediments. In the Groundwater Screening Level Table (Workbook Tab 3), the equilibrium partitioning equation is used with default parameters and is defined to achieve sediment concentrations protective of benthic toxicity.

(5) The Groundwater Screening Level Table (Workbook Tab 3) includes values protective of vapor intrusion from Table B-1 of Ecology's *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, Draft 2009*. Values vary based on site-specific land use (i.e., industrial or unrestricted). Evaluation of this pathway is applicable only if certain criteria can be satisfied. For instance, a preliminary empirical assessment may show that site-specific groundwater concentrations are not great enough to negatively impact indoor air. Additionally, if existing and planned site structures are not within close proximity to subsurface contamination, vapor intrusion is not currently posing a threat to indoor air receptors and no further evaluation is required.

WORKBOOK TAB 2
GROUNDWATER FLOWCHART
Bellingham Bay Nearshore Site Screening Level Workbook

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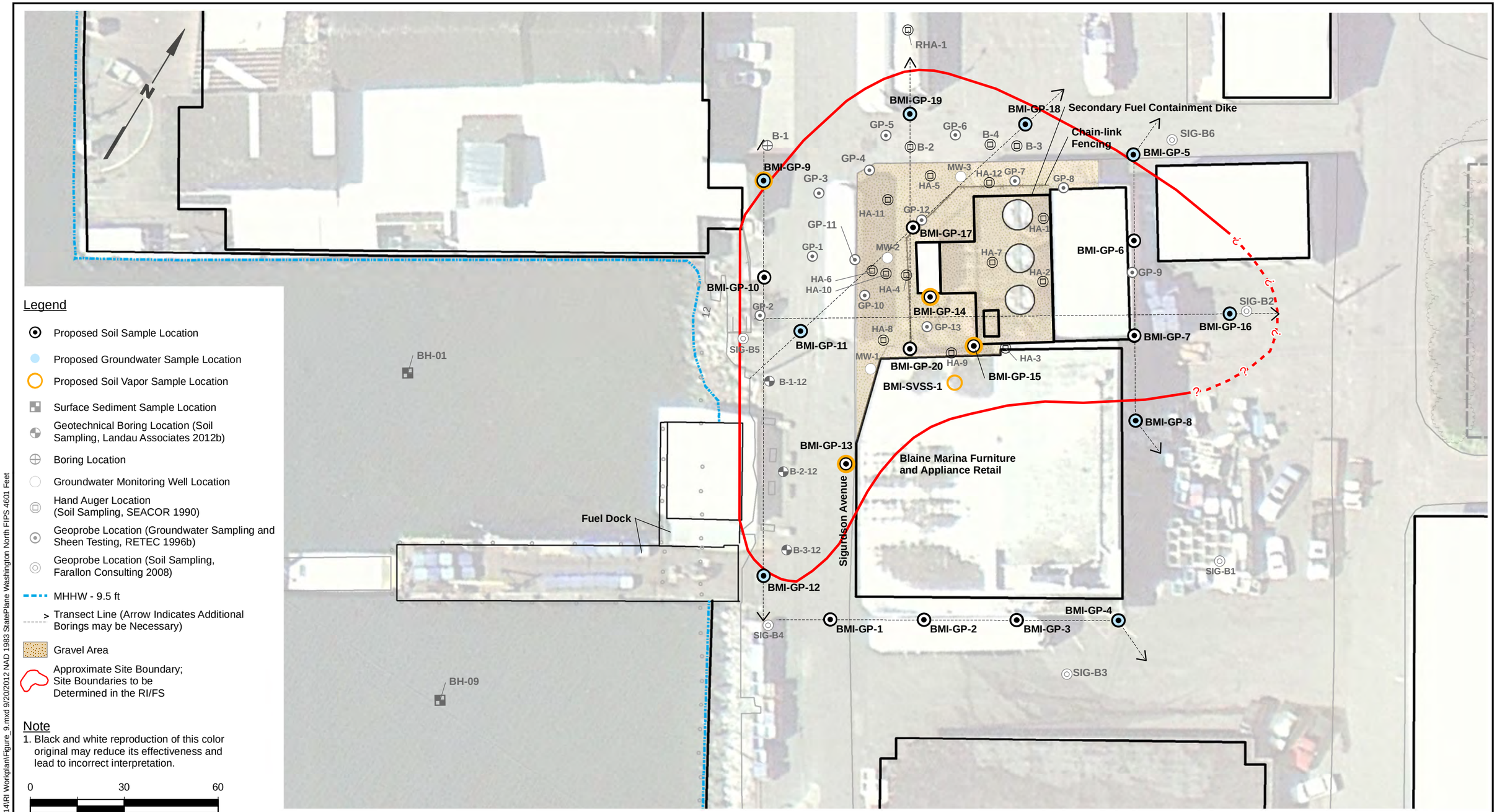
Blaine Marina Inc. Site Blaine Harbor Blaine, Washington	**Groundwater Screening-Level Flowchart**	Figure 8



Legend

- Proposed Soil Sample Location
- Proposed Groundwater Sample Location
- Proposed Soil Vapor Sample Location
- Surface Sediment Sample Location
- Geotechnical Boring Location (Soil Sampling, Landau Associates 2012b)
- Boring Location
- Groundwater Monitoring Well Location
- Hand Auger Location (Soil Sampling, SEACOR 1990)
- Geoprobe Location (Groundwater Sampling and Sheen Testing, RETEC 1996b)
- Geoprobe Location (Soil Sampling, Farallon Consulting 2008)
- MHHW - 9.5 ft
- Transect Line (Arrow Indicates Additional Borings may be Necessary)
- Gravel Area
- Approximate Site Boundary; Site Boundaries to be Determined in the RI/FS

Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 30 60

Scale in Feet

Source: Wilson Engineering 2011, Port of Bellingham 2011, Walker and Associates, Inc.

Blaine Marina Inc. Site Blaine Harbor Blaine, Washington	**Proposed Upland Investigation Sampling Locations**	Figure 9

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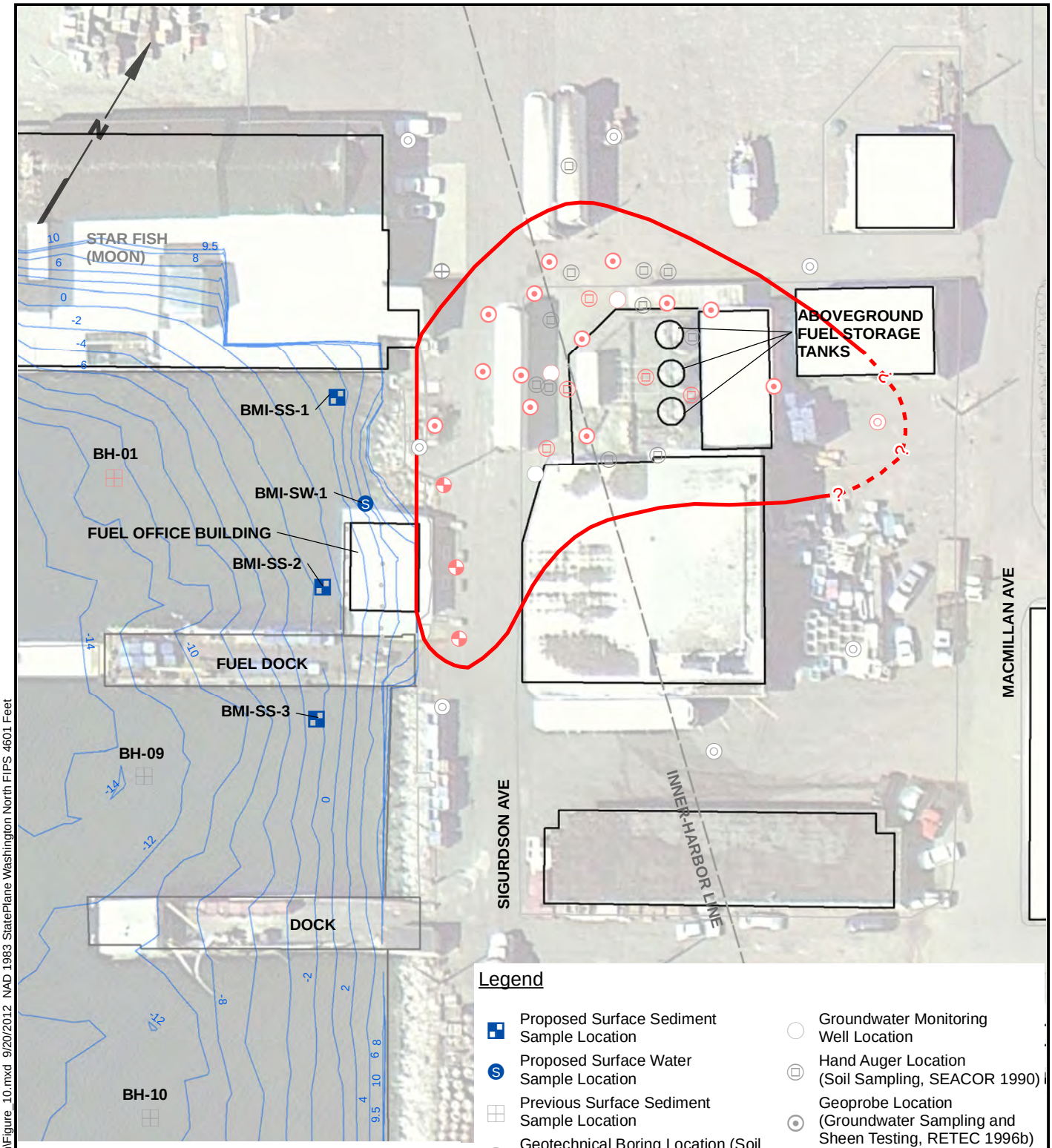
Y:\Projects\001034\010.014\RI Workplan\Figure_9.mxd 9/20/2012 NAD 1983 StatePlane Washington North FIPS 4601 Feet



Legend

- Proposed Surface Sediment Sample Location
- Proposed Surface Water Sample Location
- Previous Surface Sediment Sample Location
- Geotechnical Boring Location (Soil Boring, Landau Associates 2012b)
- Boring Location
- Approximate Site Boundary; Site Boundaries to be Determined in the RI/FS
- Groundwater Monitoring Well Location
- Hand Auger Location (Soil Sampling, SEACOR 1990)
- Geoprobe Location (Groundwater Sampling and Sheen Testing, RETEC 1996b)
- Geoprobe Location (Soil Sampling, Farallon 2008)
- Bathymetry Contours
- Existing Building Location

Notes

1. Explorations shown in Red indicate contaminant levels exceed preliminary screening levels.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 50 100

Scale in Feet

Data Sources: Wilson Engineering; Port of Blaine 2011; Walker and Associates, Inc.; Google Earth Professional 2010

Y:\Projects\001034\010.014\RI Workplan\Figure_10.mxd 9/20/2012 NAD 1983 StatePlane Washington North FIPS 4601 Feet

LANDAU ASSOCIATES

Blaine Marina Inc. Site
Blaine Harbor
Blaine, Washington

Proposed Sediment Investigation Sampling Locations

Figure 10

TABLE 1
PREVIOUS INVESTIGATIONS – SOIL ANALYTICAL RESULTS
BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

Location/ Sample ID	Data Source	Sample Date	Sample Depth	TPH	Gasoline-Range Organics	Diesel-Range Organics	Motor Oil	Benzene	Toluene	Ethylbenzene	M,p-xylene	O-xylene	Xylenes
				Preliminary Screening Level (all units mg/kg)									
				2,000	100 (c) 30 (c)	2,000	2,000	0.014 (d) 0.005 (e)	110 (d) 6.4 (e)	18 (d) 1 (e)	-	-	9.1 (d) 0.52 (e)
B-1	1	Unknown	Unknown	**34**									
HA-1	2	5/8/1990	5.5	**1,600**									
HA-2	2	5/8/1990	5.7	**16,000**									
HA-3	2	5/8/1990	3.5	**1,400**									
HA-4	2	5/8/1990	3.0	**12,000**									
HA-5	2	5/8/1990	3.0	**11,000**									
HA-6	2	5/8/1990	3.0	**10**									
HA-7	2	5/8/1990	9.5		**389**								
HA-8	2	5/8/1990	6.0		**407**								
HA-9	2	5/8/1990	5.0	**183**									
HA-10	2	5/8/1990	9.5	**217**									
HA-11	2	5/8/1990	9.0	**10**									
HA-12	2	5/8/1990	7.0			**732**							
SIG-B1	3	1/7/2008	7.5		3.5 U	27 U	**68**	0.02 U	0.35 U	0.35 U	0.35 U	0.35 U	
SIG-B2	3	1/7/2008	10.8		8.4 U	**3,300**	68 U	0.02 U	0.084 U	0.084 U	0.084 U	0.084 U	
SIG-B3	3	1/7/2008	9.0		4.1 U	33 U	**70**	0.02 U	0.041 U	0.041 U	0.041 U	0.041 U	
SIG-B4	3	1/7/2008	9.0		5.4 U	32 U	64 U	0.02 U	0.054 U	0.054 U	0.054 U	0.054 U	
SIG-B5	3	1/7/2008	10.0		4.1 U	34 U	68 U	0.02 U	0.041 U	0.041 U	0.041 U	0.041 U	
SIG-B6	3	1/7/2008	15.0		4.2 U	34 U	68 U	0.02 U	0.042 U	0.042 U	0.042 U	0.042 U	
SIG-B7	3	1/7/2008	10.8		4 U	34 U	**210**	0.02 U	0.04 U	0.04 U	0.04 U	0.04 U	
SIG-B8	3	1/7/2008	10.0		4.3 U	33 U	66 U	0.02 U	0.043 U	0.043 U	0.043 U	0.043 U	
B-1 S-3 7.5'	4	1/5/2012	7.5		**680**	**140**	50 U	0.3 U	**0.89**	**1.6**			2.0 U
B-2 S-3 7.5'	4	1/5/2012	7.5		**6,100**	**510**	50 U	3.4 U	5.7 U	**120**			**120**
B-3 S-3 7.5'	4	1/5/2012	7.5		**1,800**	**330**	**150**	3.0 U	5.0 U	**31**			**42**

Bold = Detected compound.
Boxed value = Concentration exceeds screening level.
U = Indicates the compound was undetected at the reported concentration.

(a) Screening Levels developed in Table 7.
(b) Historical data do not distinguish between gasoline-, diesel-, or motor oil-range total petroleum hydrocarbons.
(c) MTCA Method A cleanup level is 100 mg/kg if benzene is not present and the total of ethylbenzene, toluene, and xylenes is less than 1 percent of the gasoline mixture; otherwise the cleanup level is 30 mg/kg.
(d) Unsaturated Soil - (see Table 6 for development of Screening Levels).
(e) Saturated Soil - (see Table 6 for development of Screening Levels).

Data sources:
1. RETEC 1996a.
2. SEACOR 1990.
3. Farallon Consulting 2008.
4. Landau Associates 2012b.

TABLE 2
PREVIOUS INVESTIGATIONS – GROUNDWATER ANALYTICAL RESULTS
BLAINE MARINA INC. SITE
BLAINE, WASHINGTON

Sample ID	Sample Date	Diesel-Range Organics (mg/L)	
		Screening Level 0.5 (a)	
GP-1	07/19/96	**55**	
GP-2	07/19/96	**1.4**	
GP-3	07/19/96	**160.5**	
GP-4	07/19/96	**27.5**	
GP-5	07/19/96	0.2 (b)	U
GP-6	07/19/96	**54.7**	
GP-7	07/19/96	0.2 (b)	U
GP-8	07/19/96	**11.4**	
GP-9	07/19/96	**13.4**	
GP-10	07/19/96	**251**	
GP-11	07/19/96	**85.6**	
GP-12	07/19/96	NAPL	
GP-13	07/19/96	**33.5**	
MW-1	07/19/96	0.1	U
MW-2	07/19/96	NAPL	
MW-3	07/19/96	NAPL	

Notes:
U = Indicates the compound was undetected at the reported concentra
NAPL = Non-aqueous phase liquid
Boxed value = Concentration exceeds screening level.

(a) Screening Level developed in Table 6.
(b) Results were boxed due to sheen or NAPL observed in the boring.

Data Source: RETEC 1996a.

TABLE 3
PREVIOUS INVESTIGATIONS – MARINE SEDIMENT ANALYTICAL RESULTS
BLAINE MARINA INC. SITE
BLAINE, WASHINGTON

Sample ID / Sample Date	SQS (a)	CSL (b)	BH-01 9/27/2001	BH-09 9/27/2001	BH-10 9/27/2001
Metals (mg/kg)					
Arsenic	57	93	6 U		
Cadmium	5.1	6.7	1.1		
Chromium	260	270	28.4		
Copper	390	390	76.8 J		
Lead	450	530	13 J		
Mercury	0.41	0.59	0.09 J		
Silver	6.1	6.1	0.3		
Zinc	410	960	103		
PCBs (mg/kg OC) (c)					
Aroclor 1016	NA	NA	1.2 U		
Aroclor 1242	NA	NA	1.2 U		
Aroclor 1248	NA	NA	1.2 U		
Aroclor 1254	NA	NA	1.2 U		
Aroclor 1260	NA	NA	1.2 U		
Aroclor 1221	NA	NA	2.4 U		
Aroclor 1232	NA	NA	1.2 U		
Total PCBs (d)	12	65	2.4 U		
PAHs (mg/kg OC) (c)					
Naphthalene	99	170	1.2 U	1.3 U	
Acenaphthylene	66	66	6.1	2.8	
Acenaphthene	16	57	1.7	1.4 M	
Fluorene	23	79	2.9	2.1	
Phenanthrene	100	480	28.1	25.3	
Anthracene	220	1,200	17.5	7.3	
2-Methylnaphthalene	38	64	1.2 U	1.3 U	
LPAH (d)(e)	370	780	56.3	39.0	
Fluoranthene	160	1,200	87.5	47.3	
Pyrene	1,000	1,400	87.5	46.0	
Benzo(a)anthracene	110	270	35.0	20.0	
Chrysene	110	460	68.8	34.7	
Benzo(b)fluoranthene	NA	NA	55.0	24.0	
Benzo(k)fluoranthene	NA	NA	55.0	24.0	
Total Benzofluoranthenes (f)	230	450	110.0	48.0	
Benzo(a)pyrene	99	210	28.8	20.7	
Indeno(1,2,3-c,d)pyrene	34	88	19.4	13.3	
Dibenz(a,h)anthracene	12	33	3.2	2.8	
Benzo(g,h,i)perylene	31	78	9.4	12.0	
HPAH (d)(g)	960	5,300	449.4	244.8	
SVOCs (mg/kg OC) (c)					
1,2-Dichlorobenzene	2.3	2.3	1.2 U	1.3 U	
1,3-Dichlorobenzene	NA	NA	1.2 U	1.3 U	
1,4-Dichlorobenzene	3.1	9	1.2 U	1.3 U	
1,2,4-Trichlorobenzene	0.81	1.8	1.2 U (h)	1.3 U (h)	
Hexachlorobenzene	0.38	2.3	0.06 U	1.3 U (h)	
Dimethylphthalate	53	53	1.8	2.5	
Diethylphthalate	61	110	1.2 U	1.3 U	
Di-n-Butylphthalate	220	1,700	1.2 U	1.3 U	
Butylbenzylphthalate	4.9	64	1.2 U	1.3 U	
bis(2-Ethylhexyl)phthalate	47	78	81.3	16.0	
Di-n-octyl phthalate	58	4,500	1.2 U	1.3 U	
Dibenzofuran	15	58	1.4	1.3 U	
Hexachlorobutadiene	3.9	6.2	0.06 U	1.3 U	
N-Nitrosodiphenylamine	11	11	1.2 U	1.3 U	
SVOCs (µg/kg)					
Phenol	420	1,200	19 U	20 U	
2-Methylphenol	63	63	19 U	20 U	
4-Methylphenol	670	670	19 U	64	
2,4-Dimethylphenol	29	29	19 U	20 U	
Pentachlorophenol	360	690	120	99 U	
Benzyl Alcohol	57	73	19 U	20 U	
Benzoic Acid	650	650	190 U	200 U	
Organotins (µg/kg)					
Tributyltin (as chloride)	NA	NA	35		24
Tributyltin (as TBT ion)	73 (i)	NA	31		21
Conventionals					
Total Organic Carbon (percent)	NA	NA	1.6	1.5	
Total Solids (percent)	NA	NA	44.6	61.5	
Preserved Total Solids (percent)	NA	NA	41.2		
N-Ammonia (mg-N/kg)	NA	NA	38		
Sulfide (mg/kg)	NA	NA	310		
Fecal Coliform (CFU/g)	NA	NA	49 U		

OC = Organic Carbon
NA = Not available.
U = Indicates compound was analyzed for, but was not detected at the given detection limit.
J = Estimated value.
M = Indicates an estimated value of analyte detected and confirmed by analyst with low spectral match parameters.
CFU = Colony-forming units.
Boxed results exceed the SQS.
Shaded results exceed the CSL.

(a) SMS sediment quality standard (Chapter 173-204 WAC).
(b) SMS cleanup screening level (Chapter 173-204 WAC).
(c) Where chemical criteria in this table represent the sum of individual compounds or isomers, the following methods shall be applied:
  (i) Where chemical analyses identify an undetected value for every individual compound/isomer, then the single highest detection limit shall represent the sum of the respective compounds/isomers.
  (ii) Where chemical analyses detect one or more individual compounds/isomers, only the detected concentrations will be added to represent the group sum.
(d) All organic data (except phenols, benzyl alcohol, and benzoic acid) are normalized to total organic carbon; this involves dividing the dry weight concentration of the constituent by the fraction of total organic carbon present.
(e) The LPAH criterion represents the sum of the following "low molecular weight polycyclic aromatic hydrocarbon" compounds: naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, and anthracene. The LPAH criterion is not the sum of the criteria values for the individual LPAH compounds listed.
(f) The total benzofluoranthenes criterion represents the sum of the concentrations of the "B," "J," and "K" isomers.
(g) The HPAH criterion represents the sum of the following "high molecular weight polynuclear aromatic hydrocarbon" compounds: fluoranthene, pyrene, benzo(a)anthracene, chrysene, total benzofluoranthenes, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene. The HPAH criterion is not the sum of the criteria values for the individual HPAH compounds as listed.
(h) Method detection limits exceed the SQS or CSL criteria.
(i) TBT bulk sediment screening level established by Ecology, which is conceptually equivalent to the SQS.

TABLE 4
SOIL EVALUATION – CONSTITUENTS OF POTENTIAL CONCERN
BLAINE MARINA INC. SITE
BLAINE, WASHINGTON

Analyte	Number of Samples Analyzed	Number of Samples with Detected Concentrations	Frequency of Detection (%)	Number of Samples with Concentrations Exceeding Screening Levels	Units	Screening Level (Unsaturated Soil)	Screening Level (Saturated Soil)	Min Reporting Limit	Max Reporting Limit	Min Detection	Max Detection	Rationale for Inclusion or Exclusion as COPC
Volatile Organic Compounds (including BTEX)												
1,2-Dibromoethane (EDB)	0	-	-	-	mg/kg	0.02	0.02	-	-	-	-	Gasoline additive; associated with TPH-G releases
1,2-Dichloroethane (EDC)	0	-	-	-	mg/kg	0.02	0.005	-	-	-	-	Gasoline additive; associated with TPH-G releases
Benzene	11	0	0.0	0	mg/kg	0.014	0.005	0.02	3.4	-	-	VOC associated with TPH-G releases
Ethylbenzene	11	3	27.3	2	mg/kg	18	1	0.041	0.4	1.6	120	VOC associated with TPH-G releases
Methyl-Tert-Butyl Ether	0	-	-	-	mg/kg	190	0.24	-	-	-	-	Gasoline additive; associated with TPH-G releases
Toluene	11	1	9.1	0	mg/kg	110	6.4	0.041	5.7	0.89	0.89	VOC associated with TPH-G releases
Xylenes	11	2	18.2	2	mg/kg	9.1	0.52	0.041	2.0	42	120	VOC associated with TPH-G releases
Petroleum Hydrocarbons												
Gasoline	13	5	38.5	5	mg/kg	30/100 (a)	30/100	3.5	8.4	389	6100	Recent data indicate TPH-G is present at concentrations above PSLs
Diesel	21	13	61.9	5	mg/kg	2,000	2,000	27	34	140	16000	Confirmed diesel release
Motor Oil	12	5	41.7	0	mg/kg	2,000	2,000	64	70	68	150	Associated with fuel releases
PAHs												
Total Naphthalenes	0	-	-	-	mg/kg	2.3	0.12	-	-	-	-	Associated with TPH-G releases
Metals												
Lead	0	-	-	-	mg/kg	250	81	-	-	-	-	Associated with TPH-G releases

Notes:

BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes
PAH = Polycyclic Aromatic Hydrocarbons
COPC = Constituent of Potential Concern
TPH-G = Gasoline-Range Total Petroleum Hydrocarbons
TPH-D = Diesel-Range Total Petroleum Hydrocarbons
VOC = Volatile Organic Compound
PSL = Preliminary Screening Level

(a) 30 mg/kg if benzene is present; 100 mg/kg if benzene is not present.

TABLE 5
GROUNDWATER EVALUATION – CONSTITUENTS OF POTENTIAL CONCERN
BLAINE MARINA INC. SITE
BLAINE, WASHINGTON

Analyte	Number of Samples Analyzed	Number of Samples with Detected Concentrations	Frequency of Detection (%)	Number of Samples with Concentrations Exceeding Screening Levels	Units	Screening Level	Min Detection	Max Detection	Rationale for Inclusion or Exclusion as COPC
Volatile Organic Compounds (including BTEX)									
1,2-Dibromoethane (EDB)	0	-	-	-	µg/L	2	-	-	Gasoline additive; associated with TPH-G releases
1,2-Dichloroethane (EDC)	0	-	-	-	µg/L	4.2	-	-	Gasoline additive; associated with TPH-G releases
Benzene	0	-	-	-	µg/L	2.4	-	-	VOC associated with TPH-G releases
Ethylbenzene	0	-	-	-	µg/L	2100	-	-	VOC associated with TPH-G releases
Methyl-Tert-Butyl Ether	0	-	-	-	µg/L	610	-	-	Gasoline additive; associated with TPH-G releases
Toluene	0	-	-	-	µg/L	15,000	-	-	VOC associated with TPH-G releases
Xylenes	0	-	-	-	µg/L	1,000	-	-	VOC associated with TPH-G releases
Petroleum Hydrocarbons									
Gasoline	0	-	-	-	µg/L	800 / 1000 (a)	-	-	Recent data indicate TPH-G is present at concentrations above PSLs in soil
Diesel	16	13	81.3	13	µg/L	500	140	16,050	Confirmed diesel release
PAHs									
Total Naphthalenes	0	-	-	-	µg/L	83	-	-	Associated with TPH-G and TPH-D releases
Metals									
Lead (Dissolved)	0	-	-	-	µg/L	8.1	-	-	Associated with TPH-G releases

Notes:

TPH = Total Petroleum Hydrocarbons
TPH-G = Gasoline-Range TPH
TPH-D = Diesel-Range TPH
PAHs = Polycyclic Aromatic Hydrocarbons
VOCs = Volatile Organic Compounds
COPC = Constituent of Potential Concern

(a) 800 µg/L if benzene is present; 1,000 µg/L if benzene is not present.

TABLE 6
PRELIMINARY SOIL SCREENING LEVELS
BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

ANALYTE (BY GROUP)	Most Stringent Unrestricted Land Use Value from Groundwater Screening Level Table (refer to Tab 3, Table 1) (µg/L)	APPLICABLE SOIL VALUES: Groundwater Protection: Constants and Coefficients (a): K_{oc} (Soil Organic Carbon-Water Partitioning Coefficient) (L/kg)	K_d (Distribution Coefficient for metals) (L/kg)	Henry's Law Constant (Hcc; unitless)	Calculated Values: **Unsaturated Soil** Concentration Protective of Leachability to Groundwater for **Unrestricted** Land Use (mg/kg) (b)	**Saturated Soil** Concentration Protective of Leachability to Groundwater for **Unrestricted** Land Use (mg/kg) (c)	Direct Contact (d): Soil, Method A, Unrestricted Land Use, Table Value (mg/kg) (a,e)	Soil, Method B, Most-Restrictive Standard Formula Value, Direct Contact (ingestion only), Unrestricted Land Use (mg/kg) (a,f)	Natural Background Concentrations (Ecology 1994) (mg/kg) (g)	Applicable Practical Quantitation Level (PQL) for RI Analyses (mg/kg) (h)	Soil Screening Level (mg/kg): **Unsaturated Soil**		**Saturated Soil**	
					(gwl-u)	*(gwl-s)*	*(mA)*	*(mB)*	*(back)*	*(pql)*				
Total Petroleum Hydrocarbons (mg/kg)														
Gasoline Range Hydrocarbons (with benzene)	800						30			5	30	*(mA)*	30	*(mA)*
Gasoline Range Hydrocarbons (without benzene)	1,000						100				100	*(mA)*	100	*(mA)*
Diesel Range Hydrocarbons	500						2,000			25	2,000	*(mA)*	2,000	*(mA)*
Oil Range Hydrocarbons							2,000			100	2,000	*(mA)*	2,000	*(mA)*
Heavy Metals (mg/kg)														
Lead	8.1		*10,000*	*0*	1,600	81	250		24	0.1	250	*(mA)*	81	*(gwl-s)*
Volatile Organic Compounds (including BTEX) (mg/kg)														
1,2-Dibromoethane (EDB)	2	*66*			0.011	0.00071	0.005	0.5		0.02	0.02	*(pql)*	0.02	*(pql)*
1,2-Dichloroethane (EDC)	4.2	*38*		*0.04*	0.02	0.0014		11		0.005	0.02	*(gwl-u)*	0.005	*(pql)*
Benzene	2.4	*62*		*0.23*	0.014	0.00084	0.03	18		0.005	0.014	*(gwl-u)*	0.005	*(pql)*
Ethylbenzene	2,100	*200*		*0.32*	18	1	6	8,000		0.005	18	*(gwl-u)*	1	*(gwl-s)*
Methyl-Tert-Butyl Ether	610	*110*		*180*	190	0.24	0.1			0.05	190	*(gwl-u)*	0.24	*(gwl-s)*
Toluene	15,000	*140*		*0.27*	110	6.4	7	6,400		0.005	110	*(gwl-u)*	6.4	*(gwl-s)*
Xylenes (total)	1,000	*230*		*0.28*	9.1	0.52	9	16,000		0.02	9.1	*(gwl-u)*	0.52	*(gwl-s)*
Polycyclic Aromatic Hydrocarbons (PAHs)														
Total Naphthalenes	83	*1200*		*0.02*	2.3	0.12	5	1,600		0.005	2.3	*(gwl-u)*	0.12	*(gwl-s)*

(a) Values taken from Ecology's CLARC Database May 2012 (Ecology website 2012), except as noted.
(b) Calculated values from 3-phase model, per MTCA Equation 747-1, with groundwater value (Cw) as most stringent value from groundwater screening level process (Table 1), and Dilution Factor = 20.
(c) Calculated values from 3-phase model, per MTCA Equation 747-1, with groundwater value (Cw) as most stringent value from groundwater screening level process (Table 1), and Dilution Factor = 1.
(d) Direct contact criteria applicable for soils to 15-ft depth.
(e) Because groundwater at this Site not a practicable source of drinking water in accordance with MTCA, many Method A soil cleanup levels are not applicable. Method A unrestricted cleanup levels used only if they are based on background or ARARs, or there are no corresponding Method B direct contact values. Soil leachability to groundwater is addressed separately. Method A values for diesel- and oil-range TPH based on accumulation of free product, not direct contact.
(f) Method B values are most restrictive of carcinogenic or non-carcinogenic values presented in Ecology's CLARC Database (Ecology website 2012).
(g) Values are from Ecology's Natural Background Soil Metals Concentrations in Washington State (Ecology 1994).
(h) From Columbia Analytical Services, Inc. (Kelso, WA) and Analytical Resources, Inc. (Tukwila, WA) published method reporting limits. PQLs will be laboratory-specific, thus site-specific, and are the lowest concentration of an analyte that can be accurately measured.

ARAR = Applicable or Relevant and Appropriate Requirement.
CLARC = Cleanup Levels and Risk Calculation.
Ecology = Washington State Department of Ecology.
K_d = Distribution coefficient.
K_{oc} = Soil organic carbon water partitioning coefficient.
MTCA = Model Toxics Control Act.
TPH = Total petroleum hydrocarbons.
PAH = Polycyclic Aromatic Hydrocarbon

Note: Blank cells are intentional.

TABLE 7
PRELIMINARY GROUNDWATER SCREENING LEVELS
BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

ANALYTE (BY GROUP)	APPLICABLE GROUNDWATER VALUES: Marine Surface Water Criteria: Surface Water ARAR Aquatic Life - Marine/Chronic - Ch. 173-201A WAC (ma-wac)	Surface Water ARAR Aquatic Life - Marine/Chronic - Clean Water Act §304 (ma-cwa)	Surface Water ARAR Aquatic Life - Marine/Chronic National Toxics Rule, 40 CFR 131 (ma-ntr)	Surface Water ARAR - Human Health – Marine – Clean Water Act §304 (hh-cwa)	Surface Water ARAR - Human Health – Marine – National Toxics Rule, 40 CFR 131 (hh-ntr)	Surface Water, Method B, Most-Restrictive, Standard Formula (a) (sw-b)	Protection of Marine Sediment Recontamination: Partitioning/Distribution Coefficients (b): K_{oc} (Soil Organic Carbon-Water Partitioning Coefficient) (L/kg)	K_d (Distribution Coefficient for metals) (L/kg)	Marine Sediment Quality Standards: WAC 173-204 Marine SQS (mg/kg organic carbon)	WAC 173-204 Marine SQS (mg/kg dry weight)	**Calculated Porewater Concentration Protective of Marine Sediment (c)** (sed)	Tier 1 Vapor Intrusion Groundwater Screening Levels (d, g): Method B, Unrestricted Land Use (vi-b)	Method C, Industrial Land Use (vi-c)	**Method A Cleanup Levels (e)** (vi-d)	**Applicable PQL for RI Analyses (f)** (pql)	***Groundwater Screening Level***	
Total Petroleum Hydrocarbons (µg/L)																	
Gasoline-Range Hydrocarbons (with benzene)														800	250	800	*(vi-d)*
Gasoline-Range Hydrocarbons (without benzene)														1,000	250	1,000	*(vi-d)*
Diesel-Range Hydrocarbons														500	250	500	*(vi-d)*
Metals (µg/L)																	
Lead	8.1	8.1	8.1					*10,000*		450	45			15	0.1	8.1	*(ma-wac)*
Volatile Organic Compounds (Including BTEX) (µg/L)																	
1,2-Dibromoethane (EDB)							*66*					0.74	7.4	0.01	2	2	*(pql)*
1,2-Dichloroethane (EDC)				37	99	59	*38*					4.2	42	5	0.5	4.2	*(vi-b)*
Benzene				51	71	23	*62*					2.4	24	5	0.5	2.4	*(vi-b)*
Ethylbenzene				2,100	29,000	6,900	*200*					2,800	6,100	700	0.5	2,100	*(hh-cwa)*
Methyl-Tert-Butyl Ether												610	6,100	20	0.5	610	*(vi-b)*
Toluene				15,000	200,000	19,000	*140*					15,000	33,000	1,000	0.5	15,000	*(hh-cwa)*
Xylenes (Total)							*230*							1,000	2	1,000	*(vi-d)*
Polycyclic Aromatic Hydrocarbons (PAHs) (µg/L)																	
Total Naphthalenes						4,900	*1,200*		99		83	170	360	160	0.01	83	*(sed)*

ARAR = Applicable or Relevant and Appropriate Requirement
Ch = Chapter
CFR = Code of Federal Regulations
COPC = Constituent of Potential Concern
Ecology = Washington State Department of Ecology
K_d = Distribution Coefficient
K_{oc} = Soil Organic Carbon Water Partitioning Coefficient
PQL = Practical Quantitation Limit
RI = Remedial Investigation
SQS = Sediment Quality Standards
WAC = Washington Administrative Code

(a) Method B values are most restrictive of carcinogenic or non-carcinogenic values presented in Ecology's Cleanup Levels and Risk Calculation (CLARC) Database (Ecology website 2012).
(b) Values from Ecology's CLARC Database May 2012 (Ecology website 2012), except as noted.
(c) Calculated assuming equilibrium partitioning: Cw (porewater) = Sediment Quality Standard (SQS; WAC 173-204-320) / Kd.
(d) From Table B-1 (Appendix B) of Ecology's Guidance for Evaluation of Soil Vapor Intrusion (Ecology 2009).
(e) MTCA Method A Cleanup Levels from WAC 173-340-900, Table 720-1.
(f) From ALS Laboratories, Inc. (Kelso, WA) and Analytical Resources, Inc. (Tukwila, WA) published method reporting limits. PQLs will be laboratory-specific, thus, site-specific, and are the lowest concentration of an analyte that can be accurately measured. PQLs are always above the method detection limit (MDL).
(g) Values protective of vapor intrusion from Table B-1 of Ecology's Guidance for Evaluating Soil Vapor Intrusion (Ecology's Guidance for Evaluating Soil Vapor Intrusion (Ecology 2009).

Note: Blank cells are intentional.

TABLE 8
PRELIMINARY SEDIMENT SCREENING LEVELS
BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

ANALYTE (BY GROUP)	APPLICABLE SEDIMENT VALUES			
	Protection of Benthic Toxicity			
	WAC 173-204 Sediment Management Standards (SMS)		WAC 173-204 Dry Weight Equivalents of SMS Criteria (a)	
	SMS SQS	SMS CSL/MCUL	Dry Weight SQS	Dry Weight CSL
Heavy Metals	**mg/kg-dry wt**	**mg/kg-dry wt**	**mg/kg-dry wt**	**mg/kg-dry wt**
Lead	450	530	450	530
Petroleum Hydrocarbons (b)				
Diesel-Range Petroleum Hydrocarbons	-	-	-	-
Gasoline-Range Petroleum Hydrocarbons	-	-	-	-

CSL = Cleanup screening level
MCUL = Maximum cleanup level
mg/kg = Milligrams per kilogram
MTCA = Model Toxics Control Act
OC = Organic carbon
RI/FS = Remedial Investigation/Feasibility Study
SMS = Sediment Management Standards
WAC = Washington Administrative Code
wt = Weight

(a) In some cases, it may be appropriate to use dry weight-based Apparent Effects Threshold (AET) sediment quality values in place of the Total Organic Carbon (TOC)-based sediment quality criteria contained in the SMS. The use of the dry weight-based AET sediment quality values should be done only on a case-by-case basis in consultation with Ecology.

(b) No SMS numeric criteria are promulgated for protection of benthic toxicity. If petroleum hydrocarbons are detected in sediment samples at elevated concentrations, bioassay will be evaluated in the RI/FS to determine potential impacts to benthic organisms as per WAC 173-204-320.

TABLE 9
SUMMARY OF PROPOSED REMEDIAL INVESTIGATION UPLAND SAMPLING LOCATIONS
BLAINE MARINA INC. SITE
BLAINE, WASHINGTON

Location ID	Location Description	Rationale for Sample Collection	Surface Conditions	Boring Depth (ft) (a)	Soil Sampling Protocol Overview (b)	Soil Analyses (b,c,d)	Soil Vapor Sampling Protocol	Groundwater Sampling Protocol
BMI-GP-1 through BMI-GP-3	South of the Blaine Marina Furniture and Appliance retail building	Evaluate soil conditions approaching Site boundary to the south.	Asphalt Pavement	12	Field screening for visual, olfactory, or PID indication of TPH contamination will be conducted on continuous soil cores from ground surface to the total depth of the boring. Based on field screening, field personnel will characterize the vertical extent of contamination by collecting a soil sample from (1) above the zone of contamination in apparently *"clean" soil* , (2) within the zone of most-apparently contaminated soil, and (3) below the zone of contamination in apparently "*clean"* soil. Soil samples from these three vertical locations will be submitted for the laboaratory analyses described in this table. Field personnel will archive at least one sample above and below the three samples listed above in case follow-up analyses is required. Sample intervals will be 1 ft in length in apparently "clean" soil, and 1 to 2 ft in length in the zone of apparently contaminated soil. Depth of the intervals will depend on field-screening results. If there is no indication of contamination based on field screening, submit one sample at the groundwater interface for the analyses listed in this table, and archive one sample from above and one sample from below for potential follow-up analyses.	TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	-
BMI-GP-4	South of the Blaine Marina Furniture and Appliance retail building	Evaluate soil and groundwater conditions approaching Site boundary to the South. If significant contamination is indicated by field screening, advance an additional boring heading east along the transect.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	Collect groundwater sample and analyze for TPH-G, TPH-Dx, dissolved lead, VOCs, and naphthalenes
BMI-GP-5	Northeast of the ASTs	Evaluate soil and groundwater conditions approaching Site boundary to the North. If significant contamination is indicated by field screening, advance an additional boring heading north along the transect.	Asphalt Pavement	16		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	Collect groundwater sample and analyze for TPH-G, TPH-Dx, dissolved lead, VOCs, and naphthalenes
BMI-GP-6 and RI-GP-7	East of the ASTs	Evaluate soil conditions east of the ASTs.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	-
BMI-GP-8	Southeast of the ASTs	Evaluate soil and groundwater conditions southeast of the ASTs.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	Collect groundwater sample and analyze for TPH-G, TPH-Dx, dissolved lead, VOCs, and naphthalenes
BMI-GP-9	Northwest of the ASTs	Evaluate soil, groundwater, and soil gas conditions northwest of the ASTs.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	Collect soil vapor sample at approximately 5 ft BGS and analyze for VOCs	Collect groundwater sample and analyze for TPH-G, TPH-Dx, dissolved lead, VOCs, and naphthalenes

TABLE 9
SUMMARY OF PROPOSED REMEDIAL INVESTIGATION UPLAND SAMPLING LOCATIONS
BLAINE MARINA INC. SITE
BLAINE, WASHINGTON

Location ID	Location Description	Rationale for Sample Collection	Surface Conditions	Boring Depth (ft) (a)	Soil Sampling Protocol Overview (b)	Soil Analyses (b,c,d)	Soil Vapor Sampling Protocol	Groundwater Sampling Protocol
BMI-GP-10	West of the ASTs	Evaluate soil conditions west of the ASTs.	Asphalt Pavement	12	Field screening for visual, olfactory, or PID indication of TPH contamination will be conducted on continuous soil cores from ground surface to the total depth of the boring. Based on field screening, field personnel will characterize the vertical extent of contamination by collecting a soil sample from (1) above the zone of contamination in apparently "clean" soil, (2) within the zone of most-apparently contaminated soil, and (3) below the zone of contamination in apparently "clean" soil. Soil samples from these three vertical locations will be submitted for the laboaratory analyses described in this table. Field personnel will archive at least one sample above and below the three samples listed above in case follow-up analyses is required. Sample intervals will be 1 ft in length in apparently "clean" soil, and 1 to 2 ft in length in the zone of apparently contaminated soil. Depth of the intervals will depend on field-screening results. If there is no indication of contamination based on field screening, submit one sample at the groundwater interface for the analyses listed in this table, and archive one sample from above and one sample from below for potential follow-up	TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	-
BMI-GP-11	West of the ASTs	Evaluate soil and groundwater conditions west of the ASTs.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	Collect groundwater sample and analyze for TPH-G, TPH-D, dissolved lead, VOCs, and naphthalenes
BMI-GP-12	Southwest of the ASTs	Evaluate soil and groundwater conditions southwest of the ASTs.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	Collect groundwater sample and analyze for TPH-G, TPH-D, dissolved lead, VOCs, and naphthalenes
BMI-GP-13 through BMI-GP-15	Southwest of the ASTs	Evaluate soil and soil vapor conditions southwest of the ASTs.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	BMI-GP-13 and BMI-GP-14:Collect soil vapor sample at approximately 5 ft	-
BMI-GP-16	East of the ASTs	Evaluate soil and groundwater conditions southeast of the ASTs.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	Collect groundwater sample and analyze for TPH-G, TPH-Dx, dissolved lead, VOCs, and naphthalenes
BMI-GP-17 and BMI-GP-20	West and southwest of the ASTs	Evaluate soil conditions west and southwest of the ASTs.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	-
BMI-GP-18 and BMI-GP-19	North and northwest of the ASTs	Evaluate soil conditions north of the ASTs.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	Collect groundwater sample and analyze for TPH-G, TPH-Dx, dissolved lead, VOCs, and naphthalenes

TABLE 9
SUMMARY OF PROPOSED REMEDIAL INVESTIGATION UPLAND SAMPLING LOCATIONS
BLAINE MARINA INC. SITE
BLAINE, WASHINGTON

Location ID	Location Description	Rationale for Sample Collection	Surface Conditions	Boring Depth (ft) (a)	Soil Sampling Protocol Overview (b)	Soil Analyses (b,c,d)	Soil Vapor Sampling Protocol	Groundwater Sampling Protocol
BMI-SVSS-1	Inside the Blaine Marina furniture and appliance retail building	Evaluate soil vapor conditions	Concrete slab	<1		-	Collect sub slab soil vapor sample and analyze for VOCs	-

Notes:

TPH-G = Gasoline-Range Total Petroleum Hydrocarbons
TPH-Dx = Diesel- and Motor Oil-Range Total Petroleum Hydrocarbons (Extended Range)
ASTs = Aboveground Storage Tanks
VOCs = Volatile Organic Compounds
BGS = Below Ground Surface
PID Photoionization Detector

(a) Actual boring depth may be deeper than indicated in this table based on field screening results.
(b) Soil samples collected for TPH-Dx, lead, or naphthalenes analyses will be composed of a composite sample representing the appropriate depth interval, based on observed conditions.
(c) Soil samples collected for TPH-G or VOC analyses will be collected discretely (not a composite) by EPA Method 5035 from un-homogenized soil.
(d) Naphthalenes includes a total value for naphthalene, 1-methyl naphthalene, and 2-methyl naphthalene.

APPENDIX A

Historical Aerial Photographs

LANDAU ASSOCIATES

Blaine Marina Inc. Site
Blaine Harbor
Blaine, Washington

1949 Aerial Photograph

Figure
A-1

LANDAU ASSOCIATES

Blaine Marina Inc. Site
Blaine Harbor
Blaine, Washington

1956 Aerial Photograph

Figure
A-2

LANDAU ASSOCIATES

Blaine Marina Inc. Site
Blaine Harbor
Blaine, Washington

2010 Aerial Photograph

Figure
A-3

APPENDIX B

Environmental Database Resources Radius Map™ Report with Geocheck®

Blaine Marina Tank Farm Site
214 Sigurdson Ave
Blaine, WA 98230

Inquiry Number: 3209005.2s
November 17, 2011

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

214 SIGURDSON AVE
BLAINE, WA 98230

COORDINATES

Latitude (North):	48.992400 - 48° 59' 32.6''
Longitude (West):	122.763900 - 122° 45' 50.0''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	517272.1
UTM Y (Meters):	5426419.0
Elevation:	5 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	48122-H7 BIRCH POINT, WA
Most Recent Revision:	1994
East Map:	48122-H6 BLAINE, WA
Most Recent Revision:	1994

AERIAL PHOTOGRAPHY IN THIS REPORT

Photo Year:	2009
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 7 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
BLAINE MARINA INC BLAINE, WA	CSCSL ALLSITES HSL Facility Type: Hazardous Sites List	N/A
BLAINE MARINA INC MARINE DR & MCMILLAN AVE BLAINE, WA 98230	FINDS	N/A
BLAINE MARINA BLAINE MARINA BLAINE, WA	ERNS	N/A

BLAINE MARINA BLAINE MARINA BLAINE, WA	ERNS	N/A
BLAINE MARINA BLAINE MARINA BLAINE, WA	ERNS	N/A
BLAINE MARINA BLAINE MARINA BLAINE, WA	ERNS	N/A
BLAINE MARINA BLAINE MARINA BLAINE, WA	ERNS	N/A
BLAINE MARINA BLAINE MARINA WHATCOM (County), WA	ERNS	N/A
BLAINE MARINA, SLIP F16 BLAINE MARINA, SLIP F16 WHATCOM (County), WA	ERNS	N/A
IN BLAINE MARINA AREA IN BLAINE MARINA AREA BLAINE, WA	ERNS	N/A
BLAINE MARINA INC 214 SIGURDSON BLAINE, WA 98231	FINDS	N/A

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL---------- National Priority List

EXECUTIVE SUMMARY

Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

CERCLIS ---------- Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ---------- Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP ---------- CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators

Federal institutional controls / engineering controls registries

US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls

State and tribal leaking storage tank lists

INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

AST ---------- Aboveground Storage Tank Locations
INDIAN UST ---------- Underground Storage Tanks on Indian Land
FEMA UST ---------- Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

INST CONTROL ---------- Institutional Control Site List

State and tribal voluntary cleanup sites

INDIAN VCP ---------- Voluntary Cleanup Priority Listing
VCP ---------- Voluntary Cleanup Program Sites

State and tribal Brownfields sites

BROWNFIELDS ---------- Brownfields Sites Listing

EXECUTIVE SUMMARY

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
ODI ..... Open Dump Inventory
SWTIRE ..... Solid Waste Tire Facilities
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL ..... Clandestine Drug Labs
CSCSL NFA ..... Confirmed & Contaminated Sites - No Further Action
CDL ..... Clandestine Drug Lab Contaminated Site List
HIST CDL ..... List of Sites Contaminated by Clandestine Drug Labs
US HIST CDL ..... National Clandestine Laboratory Register

Local Land Records

LIENS 2 ..... CERCLA Lien Information
LUCIS ..... Land Use Control Information System

Records of Emergency Release Reports

HMIRS ..... Hazardous Materials Information Reporting System
SPILLS ..... Reported Spills

Other Ascertainable Records

RCRA-NonGen ..... RCRA - Non Generators
DOT OPS ..... Incident and Accident Data
DOD ..... Department of Defense Sites
FUDS ..... Formerly Used Defense Sites
CONSENT ..... Superfund (CERCLA) Consent Decrees
ROD ..... Records Of Decision
UMTRA ..... Uranium Mill Tailings Sites
MINES ..... Mines Master Index File
TRIS ..... Toxic Chemical Release Inventory System
TSCA ..... Toxic Substances Control Act
FTTS ..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS ..... FIFRA/TSCA Tracking System Administrative Case Listing
SSTS ..... Section 7 Tracking Systems
ICIS ..... Integrated Compliance Information System
PADS ..... PCB Activity Database System
MLTS ..... Material Licensing Tracking System
RADINFO ..... Radiation Information Database
RAATS ..... RCRA Administrative Action Tracking System
UIC ..... Underground Injection Wells Listing

DRYCLEANERS Drycleaner List
NPDES Water Quality Permit System Data
AIRS Washington Emissions Data System
Inactive Drycleaners Inactive Drycleaners
INDIAN RESERV Indian Reservations
SCRD DRYCLEANERS State Coalition for Remediation of Drycleaners Listing
FINANCIAL ASSURANCE Financial Assurance Information Listing
COAL ASH Coal Ash Disposal Site Listing
COAL ASH DOE Sleam-Electric Plan Operation Data
COAL ASH EPA Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER PCB Transformer Registration Database

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-CESQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

A review of the RCRA-CESQG list, as provided by EDR, and dated 06/15/2011 has revealed that there is 1 RCRA-CESQG site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WESTMAN MARINE INC	***218 MCMILLAN AVE***	***NE 0 - 1/8 (0.031 mi.)***	***B13***	***14***

EXECUTIVE SUMMARY

State- and tribal - equivalent NPL

HSL: The Hazardous Sites List is a subset of the CSCSL Report. It includes sites which have been assessed and ranked using the Washington Ranking Method (WARM).

A review of the HSL list, as provided by EDR, and dated 08/31/2011 has revealed that there are 3 HSL sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WESTMAN MARINE INC Facility Type: Hazardous Sites List	***218 MCMILLAN AVE***	***NE 0 - 1/8 (0.031 mi.)***	***B13***	***14***
ONEIL PROPERTY Facility Type: Hazardous Sites List	***625 PEACE PORTAL DR***	***ENE 1/2 - 1 (0.583 mi.)***	***23***	***66***
TANK N TOTE Facility Type: Hazardous Sites List	***321 D ST***	***ENE 1/2 - 1 (0.770 mi.)***	***25***	***73***

State- and tribal - equivalent CERCLIS

CSCSL: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Ecology's Confirmed & Suspected Contaminated Sites List.

A review of the CSCSL list, as provided by EDR, and dated 07/28/2011 has revealed that there are 6 CSCSL sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WESTMAN MARINE INC	***218 MCMILLAN AVE***	***NE 0 - 1/8 (0.031 mi.)***	***B13***	***14***
ALASKA PACKERS ASSOC	***9550 SEMIAHMOO PKWY***	***WSW 1/2 - 1 (0.554 mi.)***	***22***	***63***
ONEIL PROPERTY	***625 PEACE PORTAL DR***	***ENE 1/2 - 1 (0.583 mi.)***	***23***	***66***
CONOCOPHILLIPS 30783	***247 D ST***	***ENE 1/2 - 1 (0.731 mi.)***	***24***	***68***
TANK N TOTE	***321 D ST***	***ENE 1/2 - 1 (0.770 mi.)***	***25***	***73***
BLAINE SHELL	***360 D ST***	***ENE 1/2 - 1 (0.798 mi.)***	***26***	***77***

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Department of Ecology's Solid Waste Facilities Handbook.

A review of the SWF/LF list, as provided by EDR, and dated 10/11/2011 has revealed that there is 1 SWF/LF site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
BLAINE - LIGHTHOUSE POINT WRF	272 MARINE DRIVE	NE 1/4 - 1/2 (0.403 mi.)	21	62

EXECUTIVE SUMMARY

State and tribal leaking storage tank lists

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Ecology's Leaking Underground Storage Tanks Site List.

A review of the LUST list, as provided by EDR, and dated 08/23/2011 has revealed that there are 2 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SEA K FISH CO	***225 SIGURDSON AVE***	***SSE 0 - 1/8 (0.016 mi.)***	***A12***	***11***
T & M PROTEIN	***206 MCMILLAN***	***NNE 0 - 1/8 (0.036 mi.)***	***B14***	***31***

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Ecology's Statewide UST Site/Tank Report.

A review of the UST list, as provided by EDR, and dated 08/24/2011 has revealed that there are 4 UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SEA K FISH CO	***225 SIGURDSON AVE***	***SSE 0 - 1/8 (0.016 mi.)***	***A12***	***11***
T & M PROTEIN	***206 MCMILLAN***	***NNE 0 - 1/8 (0.036 mi.)***	***B14***	***31***

Lower Elevation	Address	Direction / Distance	Map ID	Page
BLAINE BOAT HARBOR	***MARINE DR***	***ENE 0 - 1/8 (0.113 mi.)***	***15***	***32***
BOUNDARY FISH COMPANY INC	***485 SIGURDSON & BERG***	***ESE 0 - 1/8 (0.120 mi.)***	***16***	***33***

State and tribal voluntary cleanup sites

ICR: These are remedial action reports Ecology has received from either the owner or operator of the site. These actions have been conducted without department oversight or approval and are not under an order or decree.

A review of the ICR list, as provided by EDR, and dated 12/01/2002 has revealed that there is 1 ICR site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SEA K FISH CO	***225 SIGURDSON AVE***	***SSE 0 - 1/8 (0.016 mi.)***	***A12***	***11***

EXECUTIVE SUMMARY

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

ALLSITES: Information on facilities and sites of interest to the Department of Ecology.

A review of the ALLSITES list, as provided by EDR, and dated 08/09/2011 has revealed that there are 9 ALLSITES sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SEA K FISH CO	***225 SIGURDSON AVE***	***SSE 0 - 1/8 (0.016 mi.)***	***A12***	***11***
WESTMAN MARINE INC	***218 MCMILLAN AVE***	***NE 0 - 1/8 (0.031 mi.)***	***B13***	***14***
T & M PROTEIN	***206 MCMILLAN***	***NNE 0 - 1/8 (0.036 mi.)***	***B14***	***31***
BLAINE MARINE SERVICES LLC	***199 MARINE DRIVE***	***NE 1/4 - 1/2 (0.283 mi.)***	***C17***	***35***
LIGHTHOUSE POINT WATER RECLAMA	200 MARINE DR	NE 1/4 - 1/2 (0.286 mi.)	C18	36
BLAINE HARBOR DENTAL	215 MARINE DR	NE 1/4 - 1/2 (0.309 mi.)	19	37
BELLINGHAM PORT BLAINE HARBOR	***235 MARINE DR***	***NE 1/4 - 1/2 (0.341 mi.)***	***20***	***37***

Lower Elevation	Address	Direction / Distance	Map ID	Page
BLAINE BOAT HARBOR	***MARINE DR***	***ENE 0 - 1/8 (0.113 mi.)***	***15***	***32***
BOUNDARY FISH COMPANY INC	***485 SIGURDSON & BERG***	***ESE 0 - 1/8 (0.120 mi.)***	***16***	***33***

Other Ascertainable Records

MANIFEST: Hazardous waste manifest information.

A review of the MANIFEST list, as provided by EDR, and dated 12/31/2010 has revealed that there is 1 MANIFEST site within approximately 0.25 miles of the target property.

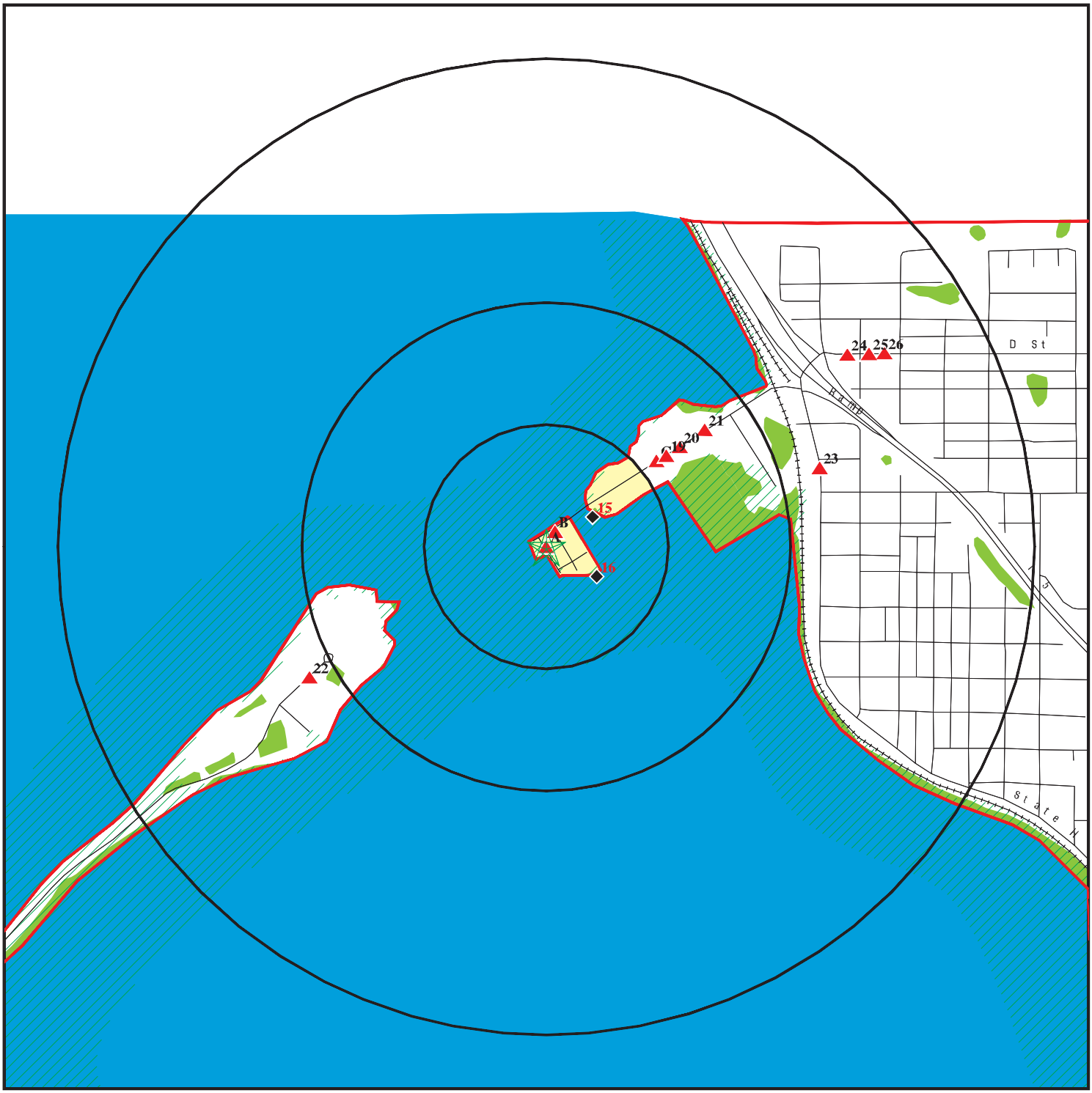
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WESTMAN MARINE INC	***218 MCMILLAN AVE***	***NE 0 - 1/8 (0.031 mi.)***	***B13***	***14***

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 20 records.

Site Name	Database(s)
BLAINE WA LINE SEG 50 PRINT 476	FINDS,ALLSITES
AT&T BLAINE	FINDS,ALLSITES
US GSA BLAINE	ALLSITES
BLAINE DRUG LAB	FINDS,RCRA-NLR,ALLSITES
US DOJ DEA PEACE ARCH BLAINE	FINDS,RCRA-NLR,ALLSITES
SPRINT COMMUNICATIONS CO BLAINE	FINDS,ALLSITES
BELLINGHAM PORT OF BLAINE HARBOR	FTTS
PUGET SOUND POWER & LIGHT CO BLAIN	FTTS,FINDS,HIST FTTS INSP
BELLINGHAM PORT OF BLAINE HARBOR	HIST FTTS INSP
US GSA	FINDS,RCRA-NLR
BLAINE HARBOR	ERNS
BLAINE HARBOR	ERNS
BLAINE HARBOR	ERNS
211 MARINA DR	ERNS
PORT OF BELLINGHAM BLAINE MARINA	ERNS
FUDS BLAINE AFS	FINDS
BLAINE, CITY OF	FINDS
THE RESERVE BLAINE CSWGP	FINDS
DRAYTON FARM	FINDS
BLAINE MUNI	FINDS

OVERVIEW MAP - 3209005.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites

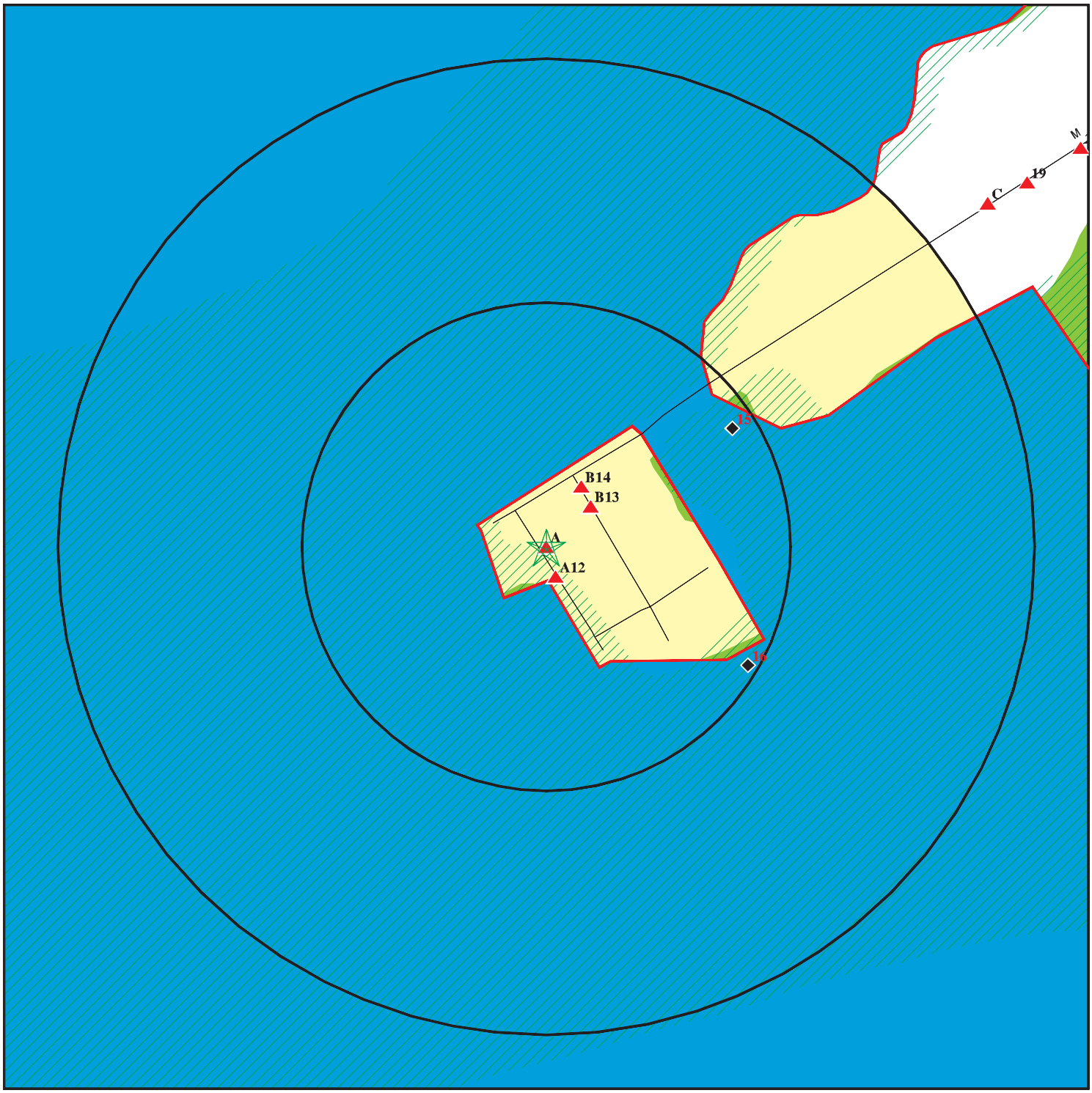
0 1/4 1/2 1 Miles

- Indian Reservations BIA
- County Boundary
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Blaine Marina Tank Farm Site	CLIENT:	Landau Associates, Inc.
ADDRESS:	214 Sigurdson Ave Blaine WA 98230	CONTACT:	Mark Brunner
LAT/LONG:	48.9924 / 122.7639	INQUIRY #:	3209005.2s
		DATE:	November 17, 2011 10:55 am

DETAIL MAP - 3209005.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- County Boundary
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Blaine Marina Tank Farm Site	CLIENT:	Landau Associates, Inc.
ADDRESS:	214 Sigurdson Ave Blaine WA 98230	CONTACT:	Mark Brunner
LAT/LONG:	48.9924 / 122.7639	INQUIRY #:	3209005.2s
		DATE:	November 17, 2011 10:55 am

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL		1.000	0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS		0.500	0	0	0	NR	NR	0
FEDERAL FACILITY		1.000	0	0	0	0	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP		0.500	0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS		1.000	0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF		0.500	0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG		0.250	0	0	NR	NR	NR	0
RCRA-SQG		0.250	0	0	NR	NR	NR	0
RCRA-CESQG		0.250	1	0	NR	NR	NR	1
Federal institutional controls / engineering controls registries								
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
Federal ERNS list								
ERNS	X	TP	NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
HSL	X	1.000	1	0	0	2	NR	3
State- and tribal - equivalent CERCLIS								
CSCSL	X	1.000	1	0	0	5	NR	6
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF		0.500	0	0	1	NR	NR	1
State and tribal leaking storage tank lists								
LUST		0.500	2	0	0	NR	NR	2
INDIAN LUST		0.500	0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
State and tribal registered storage tank lists								
UST		0.250	4	0	NR	NR	NR	4
AST		0.250	0	0	NR	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
FEMA UST		0.250	0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
INST CONTROL		0.500	0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0
ICR		0.500	1	0	0	NR	NR	1
State and tribal Brownfields sites								
BROWNFIELDS		0.500	0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
SWTIRE		0.500	0	0	0	NR	NR	0
INDIAN ODI		0.500	0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL		TP	NR	NR	NR	NR	NR	0
ALLSITES	X	0.500	5	0	4	NR	NR	9
CSCSL NFA		0.500	0	0	0	NR	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
HIST CDL		TP	NR	NR	NR	NR	NR	0
US HIST CDL		TP	NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2		TP	NR	NR	NR	NR	NR	0
LUCIS		0.500	0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS		TP	NR	NR	NR	NR	NR	0
SPILLS		TP	NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA-NonGen		0.250	0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DOT OPS		TP	NR	NR	NR	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
FINDS	X	TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
UIC		TP	NR	NR	NR	NR	NR	0
MANIFEST		0.250	1	0	NR	NR	NR	1
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
NPDES		TP	NR	NR	NR	NR	NR	0
AIRS		TP	NR	NR	NR	NR	NR	0
Inactive Drycleaners		0.250	0	0	NR	NR	NR	0
INDIAN RESERV		1.000	0	0	0	0	NR	0
SCRD DRYCLEANERS		0.500	0	0	0	NR	NR	0
FINANCIAL ASSURANCE		TP	NR	NR	NR	NR	NR	0
COAL ASH		0.500	0	0	0	NR	NR	0
COAL ASH DOE		TP	NR	NR	NR	NR	NR	0
COAL ASH EPA		0.500	0	0	0	NR	NR	0
PCB TRANSFORMER		TP	NR	NR	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
EDR Proprietary Records								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 **BLAINE MARINA INC** **CSCSL** **S103084168**
Target **ALLSITES** **N/A**
Property **BLAINE, WA** **HSL**

Site 1 of 12 in cluster A

Actual:
5 ft.

CSCSL:

Facility ID:	2888
Region:	Northwest
Lat/Long:	48.9923 / -122.7631899999
Brownfield Status:	Not reported
Rank Status:	3
Clean Up Siteid:	63
Site Status:	Awaiting Cleanup
PSI?:	Yes
Contaminant Name:	Base/Neutral/Acid Organics
Ground Water:	Not reported
Surface Water:	Not reported
Soil:	Not reported
Sediment:	C
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Headquarters

Facility ID:	2888
Region:	Northwest
Lat/Long:	48.9923 / -122.7631899999
Brownfield Status:	Not reported
Rank Status:	3
Clean Up Siteid:	63
Site Status:	Awaiting Cleanup
PSI?:	Yes
Contaminant Name:	Metals - Other
Ground Water:	Not reported
Surface Water:	Not reported
Soil:	Not reported
Sediment:	C
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Headquarters

Facility ID:	2888
Region:	Northwest
Lat/Long:	48.9923 / -122.7631899999
Brownfield Status:	Not reported
Rank Status:	3
Clean Up Siteid:	63
Site Status:	Awaiting Cleanup
PSI?:	Yes
Contaminant Name:	Non-Halogenated Solvents
Ground Water:	S
Surface Water:	S
Soil:	S
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Headquarters

Facility ID:	2888

BLAINE MARINA INC (Continued) **S103084168**

Region: Northwest
Lat/Long: 48.9923 / -122.7631899999
Brownfield Status: Not reported
Rank Status: 3
Clean Up Siteid: 63
Site Status: Awaiting Cleanup
PSI?: Yes
Contaminant Name: Petroleum Products - unspecified
Ground Water: C
Surface Water: Not reported
Soil: C
Sediment: S
Air: Not reported
Bedrock: Not reported
Responsible Unit: Headquarters

Facility ID: 2888
Region: Northwest
Lat/Long: 48.9923 / -122.7631899999
Brownfield Status: Not reported
Rank Status: 3
Clean Up Siteid: 63
Site Status: Awaiting Cleanup
PSI?: Yes
Contaminant Name: Polynuclear Aromatic Hydrocarbons
Ground Water: Not reported
Surface Water: Not reported
Soil: Not reported
Sediment: C
Air: Not reported
Bedrock: Not reported
Responsible Unit: Headquarters

ALLSITES:
Facility Id: 2888
Latitude: 48.9923
Longitude: -122.76318
Geographic location identifier (alias facid): 2888
Facility Name: BLAINE MARINA Inc
Latitude Decimal Degrees: 48.9923
Longitude Decimal Degrees: -122.76318999999999
Coordinate Point Areal Extent Code: 99
Horizontal Accuracy Code: 4
Coordinate Point Geographic Position Code: 99
Location Verified Code: Y

Geographic Location Identifier (Alias Facid): 2888
Interaction (Aka Env Int) Type Code: SCS
Interaction (Aka Env Int) Description: State Cleanup Site
Interaction Status: A
Federal Program Indentifier: Not reported
Interaction Start Date: 1900-01-01 00:00:00
Interaction End Date: Not reported
prgm_facil: BLAINE MARINA Inc
cur_sys_pr: TOXICS
cur_sys_nm: ISIS

BLAINE MARINA INC (Continued) **S103084168**

HSL:
edr_fstat: WA
edr_fzip: Not reported
edr_fcnty: WHATCOM
edr_zip: Not reported
Facility Type: Hazardous Sites List
Facility Status: Awaiting Cleanup
FSID Number: 2888
Rank: 3
Region: HQ

A2 Target Property **BLAINE MARINA INC**
MARINE DR & MCMILLAN AVE
BLAINE, WA 98230

FINDS **1007080204**
N/A

Site 2 of 12 in cluster A

Actual: 5 ft.

FINDS:

Registry ID: 110015569222

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

A3 Target Property **BLAINE MARINA**
BLAINE MARINA
BLAINE, WA

ERNS **2006816763**
N/A

Site 3 of 12 in cluster A

Actual: 5 ft.

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

A4 Target Property **BLAINE MARINA**
BLAINE MARINA
BLAINE, WA

ERNS **2008893296**
N/A

Site 4 of 12 in cluster A

Actual: 5 ft.

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

A5 **BLAINE MARINA** **ERNS** **2008911820**
Target Property **BLAINE MARINA** **N/A**
BLAINE, WA

Site 5 of 12 in cluster A

Actual: 5 ft.

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

A6 **BLAINE MARINA** **ERNS** **2009911820**
Target Property **BLAINE MARINA** **N/A**
BLAINE, WA

Site 6 of 12 in cluster A

Actual: 5 ft.

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

A7 **BLAINE MARINA** **ERNS** **2010930106**
Target Property **BLAINE MARINA** **N/A**
BLAINE, WA

Site 7 of 12 in cluster A

Actual: 5 ft.

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

A8 **BLAINE MARINA** **ERNS** **2010959514**
Target Property **BLAINE MARINA** **N/A**
WHATCOM (County), WA

Site 8 of 12 in cluster A

Actual: 5 ft.

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

A9 **BLAINE MARINA, SLIP F16** **ERNS** **2011974172**
Target Property **BLAINE MARINA, SLIP F16** **N/A**
WHATCOM (County), WA

Site 9 of 12 in cluster A

Actual: 5 ft.

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

A10 **IN BLAINE MARINA AREA** **ERNS** **90179890**
Target Property **IN BLAINE MARINA AREA** **N/A**
BLAINE, WA

Site 10 of 12 in cluster A

Actual: 5 ft.

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

A11 **BLAINE MARINA INC** **FINDS** **1009323449**
Target **214 SIGURDSON** **N/A**
Property **BLAINE, WA 98231**

Site 11 of 12 in cluster A

Actual:
5 ft.

FINDS:

Registry ID: 110024274006

Environmental Interest/Information System
ICIS (Integrated Compliance Information System) is the Integrated Compliance Information System and provides a database that, when complete, will contain integrated Enforcement and Compliance information across most of EPA's programs. The vision for ICIS is to replace EPA's independent databases that contain Enforcement data with a single repository for that information. Currently, ICIS contains all Federal Administrative and Judicial enforcement actions. This information is maintained in ICIS by EPA in the Regional offices and it Headquarters. A future release of ICIS will replace the Permit Compliance System (PCS) which supports the NPDES and will integrate that information with Federal actions already in the system. ICIS also has the capability to track other activities occurring in the Region that support Compliance and Enforcement programs. These include; Incident Tracking, Compliance Assistance, and Compliance Monitoring.

A12 **SEA K FISH CO** **ALLSITES** **U003025656**
SSE **225 SIGURDSON AVE** **LUST** **N/A**
< 1/8 **BLAINE, WA 98230** **UST**
0.016 mi. **ICR**
85 ft. **Site 12 of 12 in cluster A**

Relative:
Equal

Actual:
5 ft.

ALLSITES:

Facility Id:	80387768	
Latitude:	48.9924600	
Longitude:	-122.76394	
Geographic location identifier (alias facid):		80387768
Facility Name:		SEA K FISH CO
Latitude Decimal Degrees:		48.992460000000001
Longitude Decimal Degrees:		-122.76394000000001
Coordinate Point Areal Extent Code:		4
Horizontal Accuracy Code:		4
Coordinate Point Geographic Position Code:		5
Location Verified Code:		Y

Facility Id:	4497413	
Latitude:	48.9922180	
Longitude:	-120.76551	
Geographic location identifier (alias facid):		4497413
Facility Name:		BLAINE SEAFOOD PROCESSORS
Latitude Decimal Degrees:		48.9922180103
Longitude Decimal Degrees:		-120.765511123
Coordinate Point Areal Extent Code:		99
Horizontal Accuracy Code:		99
Coordinate Point Geographic Position Code:		99
Location Verified Code:		N

SEA K FISH CO (Continued) **U003025656**

LUST:

FS ID:	80387768
Cleanup Site ID:	10583
Cleanup Unit Type:	Upland
Process Type:	Independent Action
Facility Status:	Awaiting Cleanup
Alternate Name:	SEA K FISH CO
Release Notification Date:	Not reported
Release Status Date:	02/26/1996
Site Response Unit Code:	Northwest
Lat/Long:	48.9924600 / -122.76394

FS ID:	80387768
Cleanup Site ID:	10583
Cleanup Unit Type:	Upland
Process Type:	Independent Action
Facility Status:	Cleanup Started
Alternate Name:	SEA K FISH CO
Release Notification Date:	Not reported
Release Status Date:	03/19/1996
Site Response Unit Code:	Northwest
Lat/Long:	48.9924600 / -122.76394

UST:

Facility ID:	80387768
Site ID:	11692
Lat Deg:	48
Lat Min:	59
Lat Sec:	32.856000000004428
Long Deg:	-122
Long Min:	45
Long Sec:	50.184000000018614
UBI:	6000179460010001
Phone Number:	3603325121

Tank ID:	13861
Tank Name:	2 DIESEL
Install Date:	04/01/1973
Capacity:	Not reported
Tank Upgrade Date:	01/01/2001
TankSystem Status:	Not reported
TankSystem Status Change Date:	03/25/1997
Tank Status:	Removed
Tank Permit Expiration Date:	04/30/1997
Tank Closure Date:	01/01/2001
Tank Pumping System:	Pressurized System
Tank Spill Prevention:	None
Tank Overfill Prevention:	None
Tank Material:	Not reported
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Impressed Current
Pipe Material:	Not reported
Pipe Construction:	Single Wall Pipe
Pipe Primary Release Detection:	Automatic Line Leak Detection
Pipe Second Release Detection:	Not reported

SEA K FISH CO (Continued) **U003025656**

Pipe Corrosion Protection:	None
Tank Primary Release Detection:	Manual Inventory Control (daily)
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	08/06/1996
Tag Number:	A3504

Tank ID:	330
Tank Name:	1 GAS
Install Date:	04/01/1973
Capacity:	Not reported
Tank Upgrade Date:	01/01/2001
TankSystem Status:	Not reported
TankSystem Status Change Date:	03/25/1997
Tank Status:	Removed
Tank Permit Expiration Date:	04/30/1997
Tank Closure Date:	01/01/2001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Not reported
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	08/06/1996
Tag Number:	A3504

Tank ID:	366647
Tank Name:	#3
Install Date:	04/02/1996
Capacity:	10,000 to 19,999 Gallons
Tank Upgrade Date:	04/02/1996
TankSystem Status:	Not reported
TankSystem Status Change Date:	04/05/2007
Tank Status:	Removed
Tank Permit Expiration Date:	04/30/2007
Tank Closure Date:	02/27/2007
Tank Pumping System:	Pressurized System
Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Ball Float Valve (vent line)
Tank Material:	Coated Steel
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Sacrificial Anode
Pipe Material:	Coated Steel
Pipe Construction:	Single Wall Pipe
Pipe Primary Release Detection:	Automatic Line Leak Detection

SEA K FISH CO (Continued) **U003025656**

Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Corrosion Resistant
Tank Primary Release Detection: Automatic Tank Gauging
Tank Second Release Detection: Not reported
Pipe Tightness Test: Annual
Tank Actual Status Date: 03/26/2007
Tag Number: A3504

ICR:
Date Ecology Received Report: 06/03/96
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 94-32
County Code: 37
Contact: Not reported
Report Title: Not reported

B13 **WESTMAN MARINE INC** **RCRA-CESQG** **1000660518**
NE **218 MCMILLAN AVE** **FINDS** **WAD988502050**
< 1/8 **BLAINE, WA 98230** **CSCSL**
0.031 mi. **ALLSITES**
164 ft. **Site 1 of 2 in cluster B** **HSL**
MANIFEST

Relative:
Equal

Actual:
5 ft.

RCRA-CESQG:
Date form received by agency: 03/03/2010
Facility name: WESTMAN MARINE INC
Facility address: 218 MCMILLAN AVE
BLAINE, WA 98230
EPA ID: WAD988502050
Mailing address: PO BOX 948
BLAINE, WA 98231
Contact: BRIAN K FORSYTH
Contact address: PO BOX 948
BLAINE, WA 98231
Contact country: US
Contact telephone: (360) 332-5051
Contact email: WESTMANMARINE@VERIZON.NET
EPA Region: 10
Land type: Private
Classification: Conditionally Exempt Small Quantity Generator
Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely

WESTMAN MARINE INC (Continued) **1000660518**

hazardous waste

Owner/Operator Summary:

Owner/operator name:	WESTMAN MARINE INC
Owner/operator address:	PO BOX 948
	BLAINE, 98231
Owner/operator country:	US
Owner/operator telephone:	360-332-5051
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	01/01/1997
Owner/Op end date:	Not reported

Owner/operator name:	DAWSON CONSTRUCTION INC
Owner/operator address:	PO BOX 948
	BLAINE, 98231
Owner/operator country:	US
Owner/operator telephone:	(360)734-8130 2
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	08/02/1996
Owner/Op end date:	Not reported

Owner/operator name:	WESTMAN MARINE INC
Owner/operator address:	PO BOX 948
	BLAINE, WA 98231
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	01/01/1997
Owner/Op end date:	Not reported

Owner/operator name:	DAWSON CONSTRUCTION INC
Owner/operator address:	PO BOX 30920
	BELLINGHAM, WA 98228
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	08/02/1996
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	Yes
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No

WESTMAN MARINE INC (Continued) **1000660518**

Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 02/08/2008
Facility name: WESTMAN MARINE INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2007
Facility name: WESTMAN MARINE INC
Classification: Not a generator, verified

Date form received by agency: 12/31/2005
Facility name: WESTMAN MARINE INC
Classification: Not a generator, verified

Date form received by agency: 12/31/2003
Facility name: WESTMAN MARINE INC
Classification: Not a generator, verified

Hazardous Waste Summary:
Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: WSQG
Waste name: A placeholder to allow BR submission to validate. In WA State, Conditionally Exempt Small Quantity Generators (Called SQG in WA) are not required to report waste streams, so no valid State or Fed codes are available for reporting to BR.

Waste code: WT02
Waste name: Washington State Dangerous Toxic Waste with a toxic constituents concentration greater than or equal to 0.001% and less than 1.0%, determined by biological testing methods or a book designation procedure.

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 07/21/2010
Date achieved compliance: 12/20/2010
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/13/2010
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 0
Final penalty amount: 0

WESTMAN MARINE INC (Continued) **1000660518**

Paid penalty amount: 0

Regulation violated: Not reported
Area of violation: State Statute or Regulation
Date violation determined: 07/21/2010
Date achieved compliance: 12/20/2010
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/13/2010
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 0
Final penalty amount: 0
Paid penalty amount: 0

Regulation violated: Not reported
Area of violation: TSD IS-Container Use and Management
Date violation determined: 07/21/2010
Date achieved compliance: 12/20/2010
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/13/2010
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 0
Final penalty amount: 0
Paid penalty amount: 0

Regulation violated: SR - -522(2)(a)
Area of violation: Generators - General
Date violation determined: 07/27/2005
Date achieved compliance: 07/29/2005
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/20/2005
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 0
Final penalty amount: 0
Paid penalty amount: 0

Regulation violated: SR - -070(3) / -170(1)
Area of violation: Generators - General
Date violation determined: 11/13/2003
Date achieved compliance: 02/19/2004
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/26/2003
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 0
Final penalty amount: 0
Paid penalty amount: 0

WESTMAN MARINE INC (Continued) **1000660518**

Regulation violated: SR - -200(1)(d) / -170(2)
Area of violation: Generators - General
Date violation determined: 11/13/2003
Date achieved compliance: 03/03/2004
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/26/2003
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 0
Final penalty amount: 0
Paid penalty amount: 0

Regulation violated: SR - -630(6) / -200(1)(b)
Area of violation: Generators - General
Date violation determined: 11/13/2003
Date achieved compliance: 03/03/2004
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/26/2003
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 0
Final penalty amount: 0
Paid penalty amount: 0

Regulation violated: SR - -630(7) / -200(1)(b)
Area of violation: Generators - General
Date violation determined: 11/13/2003
Date achieved compliance: 12/16/2003
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/26/2003
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 0
Final penalty amount: 0
Paid penalty amount: 0

Regulation violated: SR - -200(1)(c) / -170(2)
Area of violation: Generators - General
Date violation determined: 11/13/2003
Date achieved compliance: 03/03/2004
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/26/2003
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 0
Final penalty amount: 0
Paid penalty amount: 0

WESTMAN MARINE INC (Continued) **1000660518**

Evaluation Action Summary:

Evaluation date: 07/21/2010
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: State Statute or Regulation
Date achieved compliance: 12/20/2010
Evaluation lead agency: State

Evaluation date: 07/21/2010
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD IS-Container Use and Management
Date achieved compliance: 12/20/2010
Evaluation lead agency: State

Evaluation date: 07/21/2010
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 12/20/2010
Evaluation lead agency: State

Evaluation date: 07/27/2005
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 07/29/2005
Evaluation lead agency: State

Evaluation date: 11/13/2003
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 12/16/2003
Evaluation lead agency: State

Evaluation date: 11/13/2003
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 02/19/2004
Evaluation lead agency: State

Evaluation date: 11/13/2003
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 03/03/2004
Evaluation lead agency: State

Evaluation date: 06/17/1993
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

FINDS:

Registry ID: 110005372408

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each

WESTMAN MARINE INC (Continued) **1000660518**

facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

PCS (Permit Compliance System) is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

CSCSL:

Facility ID:	66519819
Region:	Northwest
Lat/Long:	48.992330000000 / -122.76239
Brownfield Status:	Not reported
Rank Status:	1
Clean Up Siteid:	2205
Site Status:	Awaiting Cleanup
PSI?:	Yes
Contaminant Name:	Non-Halogenated Solvents
Ground Water:	Not reported
Surface Water:	Not reported
Soil:	S
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Headquarters

Facility ID:	66519819
Region:	Northwest
Lat/Long:	48.992330000000 / -122.76239
Brownfield Status:	Not reported
Rank Status:	1
Clean Up Siteid:	2205
Site Status:	Awaiting Cleanup
PSI?:	Yes
Contaminant Name:	Petroleum Products - unspecified
Ground Water:	Not reported
Surface Water:	Not reported
Soil:	S
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Headquarters

Facility ID:	66519819
Region:	Northwest
Lat/Long:	48.992330000000 / -122.76239
Brownfield Status:	Not reported
Rank Status:	1

WESTMAN MARINE INC (Continued) **1000660518**

Clean Up Siteid: 2205
Site Status: Awaiting Cleanup
PSI?: Yes
Contaminant Name: Polynuclear Aromatic Hydrocarbons
Ground Water: S
Surface Water: S
Soil: C
Sediment: C
Air: S
Bedrock: Not reported
Responsible Unit: Headquarters

Facility ID: 66519819
Region: Northwest
Lat/Long: 48.992330000000 / -122.76239
Brownfield Status: Not reported
Rank Status: 1
Clean Up Siteid: 2205
Site Status: Awaiting Cleanup
PSI?: Yes
Contaminant Name: Tributyltin
Ground Water: S
Surface Water: Not reported
Soil: S
Sediment: C
Air: S
Bedrock: Not reported
Responsible Unit: Headquarters

Facility ID: 66519819
Region: Northwest
Lat/Long: 48.992330000000 / -122.76239
Brownfield Status: Not reported
Rank Status: 1
Clean Up Siteid: 2205
Site Status: Awaiting Cleanup
PSI?: Yes
Contaminant Name: Base/Neutral/Acid Organics
Ground Water: Not reported
Surface Water: Not reported
Soil: S
Sediment: C
Air: Not reported
Bedrock: Not reported
Responsible Unit: Headquarters

Facility ID: 66519819
Region: Northwest
Lat/Long: 48.992330000000 / -122.76239
Brownfield Status: Not reported
Rank Status: 1
Clean Up Siteid: 2205
Site Status: Awaiting Cleanup
PSI?: Yes
Contaminant Name: Metals - Other
Ground Water: S
Surface Water: S

WESTMAN MARINE INC (Continued) **1000660518**

Soil: S
Sediment: C
Air: S
Bedrock: Not reported
Responsible Unit: Headquarters

Facility ID: 66519819
Region: Northwest
Lat/Long: 48.992330000000 / -122.76239
Brownfield Status: Not reported
Rank Status: 1
Clean Up Siteid: 2205
Site Status: Awaiting Cleanup
PSI?: Yes
Contaminant Name: Metals Priority Pollutants
Ground Water: S
Surface Water: S
Soil: C
Sediment: Not reported
Air: S
Bedrock: Not reported
Responsible Unit: Headquarters

ALLSITES:
Facility Id: 66519819
Latitude: 48.9923300
Longitude: -122.76239
Geographic location identifier (alias facid): 66519819
Facility Name: Westman Marine Inc
Latitude Decimal Degrees: 48.992330000000003
Longitude Decimal Degrees: -122.76239
Coordinate Point Areal Extent Code: 99
Horizontal Accuracy Code: 13
Coordinate Point Geographic Position Code: 8
Location Verified Code: N

HSL:
edr_fstat: WA
edr_fzip: Not reported
edr_fcnty: WHATCOM
edr_zip: Not reported
Facility Type: Hazardous Sites List
Facility Status: Awaiting Cleanup
FSID Number: 66519819
Rank: 1
Region: HQ

WA MANIFEST:
Facility Site ID Number: 66519819
SWC Desc: WT02-Toxic: Still bottoms sludge from recycling of paint thinnerWT02-TOXIC
FWC Desc: D0001 - IGNITABLE: STILL BOTTOMS, SLUDGE FROM RECYCLING OF PAINT THINNERD0001-Ign
Form Comm: TOTAL QUANTITY GENERATED IN 2007 = 146 LBS. OF RECOVERED STILL BOTTOMS. MAX. QTY. GENERATED IN A SINGLE BATCH = 10 LBS. SEALED IN CLEARLY LABELED CONTAINERS, W/ HAZMAT WARNINGS. PLACED IN SECONDARY CONTAINMENT PRIOR TO TRANSPORTATION TO TOXICS FACITotal quantity

WESTMAN MARINE INC (Continued) **1000660518**

generated in 2005 = 382 lbs. of recovered Still bottoms. Max. qty. generated in a single batch 77 lbs. Sealed in clearly labeled containers w/ hazmat warnings. Placed in secondary containment prior to transportation to toxics facilLITY IN BELLINGHAM.ity at Bellingham.

Data Year:	Not reported
Permit by Rule:	FALSE
Treatment by Generator:	FALSE
Mixed radioactive waste:	FALSE
Importer of hazardous waste:	FALSE
Immediate recycler:	FALSE
Treatment/Storage/Disposal/Recycling Facility:	FALSE
Generator of dangerous fuel waste:	FALSE
Generator marketing to burner:	FALSE
"Other marketers (i.e., blender, distributor, etc.)":	FALSE
Utility boiler burner:	FALSE
Industry boiler burner:	FALSE
Industrial Furnace:	FALSE
Smelter defferal:	FALSE
Universal waste - batteries - generate:	FALSE
Universal waste - thermostats - generate:	FALSE
Universal waste - mercury - generate:	FALSE
Universal waste - lamps - generate:	FALSE
Universal waste - batteries - accumulate:	FALSE
Universal waste - thermostats - accumulate:	FALSE
Universal waste - mercury - accumulate:	FALSE
Universal waste - lamps - accumulate:	FALSE
Destination Facility for Universal Waste:	FALSE
Off-specification used oil burner - utility boiler:	FALSE
Off-specification used oil burner - industrial boiler:	FALSE
Off-specification used oil burner - industrial furnace:	FALSE
EPA ID:	WAD988502050
Facility Address 2:	Not reported
TAX REG NBR:	601202976
NAICS CD:	336612
BUSINESS TYPE:	boat yard
MAIL NAME:	Westman Marine Inc
MAIL ADDR LINE1:	PO Box 948
MAIL CITY,ST,ZIP:	BLAINE, WA 98231-0948
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	Dawson Construction Inc
LEGAL ORG TYPE:	Private
LEGAL ADDR LINE1:	PO Box 30920
LEGAL CITY,ST,ZIP:	BELLINGHAM, WA 98228-2920
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	(360)734-8130 211
LEGAL EFFECTIVE DATE:	8/2/1996
LAND ORG NAME:	Port of Bellingham
LAND ORG TYPE:	Private
LAND PERSON NAME:	Michael Stoner
LAND ADDR LINE1:	1801 ROEDER AVE
LAND ADDR LINE2:	PO BOX 1677
LAND CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	360-647-6176
OPERATOR ORG NAME:	Westman Marine Inc
OPERATOR ORG TYPE:	Private
OPERATOR ADDR LINE1:	PO Box 948

WESTMAN MARINE INC (Continued) **1000660518**

OPERATOR CITY,ST,ZIP:	BLAINE, WA 98231
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	360-332-5051
OPERATOR EFFECTIVE DATE:	1/1/1997
SITE CONTACT NAME:	Brian K Forsyth
SITE CONTACT ADDR LINE1:	PO Box 948
SITE CONTACT ZIP:	BLAINE, WA 98231
SITE CONTACT COUNTRY:	UNITED STATES
SITE CONTACT PHONE NBR:	(360)332-5051
SITE CONTACT EMAIL:	westmanmarine@verizon.net
FORM CONTACT NAME:	Brian K Forsyth
FORM CONTACT ADDR LINE1:	PO Box 948
FORM CONTACT CITY,ST,ZIP:	BLAINE, WA 98231
FORM CONTACT COUNTRY:	UNITED STATES
FORM CONTACT PHONE NBR:	(360)332-5051
FORM CONTACT EMAIL:	westmanmarine@verizon.net
GEN STATUS CD:	SQG
MONTHLY GENERATION:	FALSE
BATCH GENERATION:	TRUE
ONE TIME GENERATION:	FALSE
TRANSPORTS OWN WASTE:	TRUE
TRANSPORTS OTHRS WASTE:	FALSE
RECYCLER ONSITE:	TRUE
TRANSFER FACILITY:	FALSE
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	FALSE
USED OIL TRANSPORTER:	FALSE
USED OIL TRANSFER FACLTY:	FALSE
USED OIL PROCESSOR:	FALSE
USED OIL REREFINER:	FALSE
USED OIL FUEL MRKTR DIRECTS SHPMNTS:	FALSE
USED OIL FUEL MRKTR MEETS SPECS:	FALSE

Facility Site ID Number:	66519819
SWC Desc:	WT02-Toxic: Still bottoms sludge from recycling of paint thinnerWT02-TOXIC
FWC Desc:	D0001 - IGNITABLE: STILL BOTTOMS, SLUDGE FROM RECYCLING OF PAINT THINNERD0001-Ign
Form Comm:	TOTAL QUANTITY GENERATED IN 2007 = 146 LBS. OF RECOVERED STILL BOTTOMS. MAX. QTY. GENERATED IN A SINGLE BATCH = 10 LBS. SEALED IN CLEARLY LABELED CONTAINERS, W/ HAZMAT WARNINGS. PLACED IN SECONDARY CONTAINMENT PRIOR TO TRANSPORTATION TO TOXICS FACITotal quantity generated in 2005 = 382 lbs. of recovered Still bottoms. Max. qty. generated in a single batch 77 lbs. Sealed in clearly labeled containers w/ hazmat warnings. Placed in secondary containment prior to transportation to toxics facilLITY IN BELLINGHAM.ity at Bellingham.
Data Year:	Not reported
Permit by Rule:	No
Treatment by Generator:	No
Mixed radioactive waste:	No
Importer of hazardous waste:	No
Immediate recycler:	No
Treatment/Storage/Disposal/Recycling Facility:	No
Generator of dangerous fuel waste:	No
Generator marketing to burner:	No
"Other marketers (i.e., blender, distributor, etc.)":	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No

WESTMAN MARINE INC (Continued) **1000660518**

Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
EPA ID:	WAD988502050
Facility Address 2:	Not reported
TAX REG NBR:	601202976
NAICS CD:	336612
BUSINESS TYPE:	boat yard
MAIL NAME:	Westman Marine Inc
MAIL ADDR LINE1:	PO Box 948
MAIL CITY,ST,ZIP:	BLAINE, WA 98231-0948
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	Dawson Construction Inc
LEGAL ORG TYPE:	Private
LEGAL ADDR LINE1:	PO Box 30920
LEGAL CITY,ST,ZIP:	BELLINGHAM, WA 98228-2920
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	(360)734-8130 211
LEGAL EFFECTIVE DATE:	8/2/1996
LAND ORG NAME:	Port of Bellingham
LAND ORG TYPE:	Private
LAND PERSON NAME:	Michael Stoner
LAND ADDR LINE1:	1801 ROEDER AVE
LAND ADDR LINE2:	PO BOX 1677
LAND CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	360-647-6176
OPERATOR ORG NAME:	Westman Marine Inc
OPERATOR ORG TYPE:	Private
OPERATOR ADDR LINE1:	PO Box 948
OPERATOR CITY,ST,ZIP:	BLAINE, WA 98231
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	360-332-5051
OPERATOR EFFECTIVE DATE:	1/1/1997
SITE CONTACT NAME:	Brian K Forsyth
SITE CONTACT ADDR LINE1:	PO Box 948
SITE CONTACT ZIP:	BLAINE, WA 98231
SITE CONTACT COUNTRY:	UNITED STATES
SITE CONTACT PHONE NBR:	(360)332-5051
SITE CONTACT EMAIL:	westmanmarine@verizon.net
FORM CONTACT NAME:	Brian K Forsyth
FORM CONTACT ADDR LINE1:	PO Box 948
FORM CONTACT CITY,ST,ZIP:	BLAINE, WA 98231
FORM CONTACT COUNTRY:	UNITED STATES
FORM CONTACT PHONE NBR:	(360)332-5051
FORM CONTACT EMAIL:	westmanmarine@verizon.net
GEN STATUS CD:	SQG

WESTMAN MARINE INC (Continued) **1000660518**

MONTHLY GENERATION: No
BATCH GENERATION: Yes
ONE TIME GENERATION: No
TRANSPORTS OWN WASTE: Yes
TRANSPORTS OTHRS WASTE: No
RECYCLER ONSITE: Yes
TRANSFER FACILITY: No
OTHER EXEMPTION: Not reported
UW BATTERY GEN: No
USED OIL TRANSPORTER: No
USED OIL TRANSFER FACLTY: No
USED OIL PROCESSOR: No
USED OIL REREFINER: No
USED OIL FUEL MRKTR DIRECTS SHPMNTS: No
USED OIL FUEL MRKTR MEETS SPECS: No

Facility Site ID Number: 66519819
SWC Desc: WT02-TOXIC: STILL BOTTOMS, "SLUDGE" FROM RECYCLING OF PAINT THINNER
FWC Desc: D0001-IGNITABLE: STILL BOTTOMS, "SLUDGE" FROM RECYCLING OF PAINT THINNER
Form Comm: TOTAL QTY. GENERATED IN 2008= 137 LBS OF RECOVERED STILL BOTTOMS. MAX. QTY. GENERATED IN A SINGLE BATCH= 10 LBS. SEALED IN CLEARLY LABELED CONTAINERS, W/ HAZMAT WARNINGS. PLACED IN SECONDARY CONTAINMENT PRIOR TO TRANSPORTATION TO TOXICS FACILITY IN BELLINGHAM.
Data Year: 2009
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
"Other marketers (i.e., blender, distributor, etc.)": False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter defferal: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
EPA ID: WAD988502050
Facility Address 2: Not reported
TAX REG NBR: 601202976
NAICS CD: 336612
BUSINESS TYPE: boat yard
MAIL NAME: Westman Marine Inc
MAIL ADDR LINE1: PO Box 948
MAIL CITY,ST,ZIP: BLAINE, WA 98231-0948

WESTMAN MARINE INC (Continued) **1000660518**

MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	Dawson Construction Inc
LEGAL ORG TYPE:	Private
LEGAL ADDR LINE1:	PO Box 948
LEGAL CITY,ST,ZIP:	BLAINE, WA 98231-0948
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	(360)734-8130 211
LEGAL EFFECTIVE DATE:	8/2/1996
LAND ORG NAME:	Port of Bellingham
LAND ORG TYPE:	Private
LAND PERSON NAME:	Michael Stoner
LAND ADDR LINE1:	1801 ROEDER AVE
LAND ADDR LINE2:	PO BOX 1677
LAND CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	360-647-6176
OPERATOR ORG NAME:	Westman Marine Inc
OPERATOR ORG TYPE:	Private
OPERATOR ADDR LINE1:	PO Box 948
OPERATOR CITY,ST,ZIP:	BLAINE, WA 98231
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	360-332-5051
OPERATOR EFFECTIVE DATE:	1/1/1997
SITE CONTACT NAME:	Brian K Forsyth
SITE CONTACT ADDR LINE1:	PO Box 948
SITE CONTACT ZIP:	BLAINE, WA 98231
SITE CONTACT COUNTRY:	UNITED STATES
SITE CONTACT PHONE NBR:	(360)332-5051
SITE CONTACT EMAIL:	westmanmarine@verizon.net
FORM CONTACT NAME:	Brian K Forsyth
FORM CONTACT ADDR LINE1:	PO Box 948
FORM CONTACT CITY,ST,ZIP:	BLAINE, WA 98231
FORM CONTACT COUNTRY:	UNITED STATES
FORM CONTACT PHONE NBR:	(360)332-5051
FORM CONTACT EMAIL:	westmanmarine@verizon.net
GEN STATUS CD:	SQG
MONTHLY GENERATION:	False
BATCH GENERATION:	True
ONE TIME GENERATION:	False
TRANSPORTS OWN WASTE:	True
TRANSPORTS OTHRS WASTE:	False
RECYCLER ONSITE:	False
TRANSFER FACILITY:	False
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	False
USED OIL TRANSPORTER:	False
USED OIL TRANSFER FACLTY:	False
USED OIL PROCESSOR:	False
USED OIL REREFINER:	False
USED OIL FUEL MRKTR DIRECTS SHPMNTS:	False
USED OIL FUEL MRKTR MEETS SPECS:	False

Facility Site ID Number:	66519819
SWC Desc:	WT02-TOXIC: STILL BOTTOMS, "SLUDGE" FROM RECYCLING OF PAINT THINNER.
FWC Desc:	D0001 - IGNITABLE: STILL BOTTOMS, "SLUDGE" FROM RECYCLING OF PAINT THINNER.
Form Comm:	TOTAL QTY. GENERATED IN 2008 = 125 OF RECOVERED STILL BOTTOMS. MAX. QTY. GENERATED IN A SINGLE BATCH = 10 LBS. SEALED IN CLEARLY LABELED

WESTMAN MARINE INC (Continued) **1000660518**

CONTAINERS, W/ HAZMAT WARNINGS. PLACED IN SECONDARY CONTAINMENT PRIOR TO TRANSPORTATION TO TOXICS FACILITY IN BELLINGHAM.

Data Year:	2008
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
"Other marketers (i.e., blender, distributor, etc.)":	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
EPA ID:	WAD988502050
Facility Address 2:	Not reported
TAX REG NBR:	601202976
NAICS CD:	336612
BUSINESS TYPE:	boat yard
MAIL NAME:	Westman Marine Inc
MAIL ADDR LINE1:	PO Box 948
MAIL CITY,ST,ZIP:	BLAINE, WA 98231-0948
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	Dawson Construction Inc
LEGAL ORG TYPE:	Private
LEGAL ADDR LINE1:	PO Box 30920
LEGAL CITY,ST,ZIP:	BELLINGHAM, WA 98228-2920
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	(360)734-8130 211
LEGAL EFFECTIVE DATE:	8/2/1996
LAND ORG NAME:	Port of Bellingham
LAND ORG TYPE:	Private
LAND PERSON NAME:	Michael Stoner
LAND ADDR LINE1:	1801 ROEDER AVE
LAND ADDR LINE2:	PO BOX 1677
LAND CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	360-647-6176
OPERATOR ORG NAME:	Westman Marine Inc
OPERATOR ORG TYPE:	Private
OPERATOR ADDR LINE1:	PO Box 948
OPERATOR CITY,ST,ZIP:	BLAINE, WA 98231
OPERATOR COUNTRY:	UNITED STATES

WESTMAN MARINE INC (Continued) **1000660518**

OPERATOR PHONE NBR: 360-332-5051
OPERATOR EFFECTIVE DATE: 1/1/1997
SITE CONTACT NAME: Brian K Forsyth
SITE CONTACT ADDR LINE1: PO Box 948
SITE CONTACT ZIP: BLAINE, WA 98231
SITE CONTACT COUNTRY: UNITED STATES
SITE CONTACT PHONE NBR: (360)332-5051
SITE CONTACT EMAIL: westmanmarine@verizon.net
FORM CONTACT NAME: Brian K Forsyth
FORM CONTACT ADDR LINE1: PO Box 948
FORM CONTACT CITY,ST,ZIP: BLAINE, WA 98231
FORM CONTACT COUNTRY: UNITED STATES
FORM CONTACT PHONE NBR: (360)332-5051
FORM CONTACT EMAIL: westmanmarine@verizon.net
GEN STATUS CD: SQG
MONTHLY GENERATION: False
BATCH GENERATION: True
ONE TIME GENERATION: False
TRANSPORTS OWN WASTE: True
TRANSPORTS OTHRS WASTE: False
RECYCLER ONSITE: True
TRANSFER FACILITY: False
OTHER EXEMPTION: Not reported
UW BATTERY GEN: False
USED OIL TRANSPORTER: False
USED OIL TRANSFER FACLTY: False
USED OIL PROCESSOR: False
USED OIL REREFINER: False
USED OIL FUEL MRKTR DIRECTS SHPMNTS: False
USED OIL FUEL MRKTR MEETS SPECS: False

Facility Site ID Number: 66519819
SWC Desc: WT02-TOXIC: STILL BOTTOMS, SLUDGE FROM RECYCLING OF PAINT THINNER
FWC Desc: D0001-IGNITABLE: STILL BOTTOMS, SLUDGE FROM RECYCLING OF PAINT THINNER
Form Comm: TOTAL QTY. GENERATED IN 2010 = 27 LBS OF RECOVERED STILL BOTTOMS. MAX. QTY GENERATED IN A SINGLE BATCH = 6 LBS. SEALED IN CLEARLY LABELED CONTAINERS W/ HAZMAT WARNINGS. PLACED IN SECONDARY CONTAINMENT PRIOR TO TRANSPORTATION TO TOXICS FACILITY IN BELLINGHAM.
Data Year: 2010
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
"Other marketers (i.e., blender, distributor, etc.)": False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter defferal: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False

WESTMAN MARINE INC (Continued) **1000660518**

Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
EPA ID:	WAD988502050
Facility Address 2:	Not reported
TAX REG NBR:	601202976
NAICS CD:	336612
BUSINESS TYPE:	boat yard
MAIL NAME:	Westman Marine Inc
MAIL ADDR LINE1:	PO Box 948
MAIL CITY,ST,ZIP:	BLAINE, WA 98231-0948
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	Dawson Construction Inc
LEGAL ORG TYPE:	Private
LEGAL ADDR LINE1:	PO Box 948
LEGAL CITY,ST,ZIP:	BLAINE, WA 98231-0948
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	(360)734-8130 211
LEGAL EFFECTIVE DATE:	8/2/1996
LAND ORG NAME:	Port of Bellingham
LAND ORG TYPE:	Private
LAND PERSON NAME:	Michael Stoner
LAND ADDR LINE1:	1801 ROEDER AVE
LAND ADDR LINE2:	PO BOX 1677
LAND CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	360-647-6176
OPERATOR ORG NAME:	Westman Marine Inc
OPERATOR ORG TYPE:	Private
OPERATOR ADDR LINE1:	PO Box 948
OPERATOR CITY,ST,ZIP:	BLAINE, WA 98231
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	360-332-5051
OPERATOR EFFECTIVE DATE:	1/1/1997
SITE CONTACT NAME:	Brian K Forsyth
SITE CONTACT ADDR LINE1:	PO Box 948
SITE CONTACT ZIP:	BLAINE, WA 98231
SITE CONTACT COUNTRY:	UNITED STATES
SITE CONTACT PHONE NBR:	(360)332-5051
SITE CONTACT EMAIL:	westmanmarine@verizon.net
FORM CONTACT NAME:	Brian K Forsyth
FORM CONTACT ADDR LINE1:	PO Box 948
FORM CONTACT CITY,ST,ZIP:	BLAINE, WA 98231
FORM CONTACT COUNTRY:	UNITED STATES
FORM CONTACT PHONE NBR:	(360)332-5051
FORM CONTACT EMAIL:	westmanmarine@verizon.net
GEN STATUS CD:	SQG
MONTHLY GENERATION:	False
BATCH GENERATION:	True
ONE TIME GENERATION:	False
TRANSPORTS OWN WASTE:	True
TRANSPORTS OTHRS WASTE:	False
RECYCLER ONSITE:	False

WESTMAN MARINE INC (Continued) **1000660518**

TRANSFER FACILITY:	False
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	False
USED OIL TRANSPORTER:	False
USED OIL TRANSFER FACLTY:	False
USED OIL PROCESSOR:	False
USED OIL REREFINER:	False
USED OIL FUEL MRKTR DIRECTS SHPMNTS:	False
USED OIL FUEL MRKTR MEETS SPECS:	False

Click this hyperlink while viewing on your computer to access
1 additional WA MANIFEST: record(s) in the EDR Site Report.

B14 **T & M PROTEIN** **ALLSITES** **U004117985**
NNE **206 MCMILLAN** **LUST** **N/A**
< 1/8 **BLAINE, WA 98230** **UST**
0.036 mi.
189 ft. **Site 2 of 2 in cluster B**

Relative:
Equal

Actual:
5 ft.

ALLSITES:

Facility Id:	4433308
Latitude:	48.992846
Longitude:	-122.76352
Geographic location identifier (alias facid):	4433308
Facility Name:	T & M PROTEIN
Latitude Decimal Degrees:	48.992846
Longitude Decimal Degrees:	-122.763525
Coordinate Point Areal Extent Code:	99
Horizontal Accuracy Code:	99
Coordinate Point Geographic Position Code:	8
Location Verified Code:	N

LUST:

FS ID:	4433308
Cleanup Site ID:	7578
Cleanup Unit Type:	Upland
Process Type:	Independent Action
Facility Status:	Cleanup Started
Alternate Name:	T & M Protein
Release Notification Date:	Not reported
Release Status Date:	10/04/2007
Site Response Unit Code:	Northwest
Lat/Long:	48.992846 / -122.76352

FS ID:	4433308
Cleanup Site ID:	7578
Cleanup Unit Type:	Upland
Process Type:	Independent Action
Facility Status:	Awaiting Cleanup
Alternate Name:	T & M Protein
Release Notification Date:	Not reported
Release Status Date:	08/28/2007
Site Response Unit Code:	Northwest
Lat/Long:	48.992846 / -122.76352

T & M PROTEIN (Continued) **U004117985**

UST:

Facility ID:	4433308
Site ID:	619422
Lat Deg:	48
Lat Min:	59
Lat Sec:	34.245600000000422
Long Deg:	-122
Long Min:	45
Long Sec:	48.690000000004829
UBI:	Not reported
Phone Number:	Not reported
Tank ID:	619549
Tank Name:	1
Install Date:	01/01/2001
Capacity:	Not reported
Tank Upgrade Date:	01/01/2001
TankSystem Status:	Not reported
TankSystem Status Change Date:	12/12/2007
Tank Status:	Removed
Tank Permit Expiration Date:	01/01/2001
Tank Closure Date:	01/01/2001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Not reported
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	07/30/2007
Tag Number:	Not reported

---

15 **BLAINE BOAT HARBOR** **ALLSITES** **U000797922**
ENE **MARINE DR** **UST** **N/A**
< 1/8 **BLAINE, WA 98230**
0.113 mi.
596 ft.

Relative:
Lower

Actual:
0 ft.

ALLSITES:

Facility Id:	55561428	
Latitude:	48.9969480	
Longitude:	-122.75411	
Geographic location identifier (alias facid):		55561428
Facility Name:		BLAINE BOAT HARBOR
Latitude Decimal Degrees:		48.996948000000003
Longitude Decimal Degrees:		-122.754119
Coordinate Point Areal Extent Code:		4
Horizontal Accuracy Code:		13
Coordinate Point Geographic Position Code:		5

BLAINE BOAT HARBOR (Continued) **U000797922**

Location Verified Code: N

UST:

Facility ID:	55561428
Site ID:	2330
Lat Deg:	48
Lat Min:	59
Lat Sec:	49.012800000011794
Long Deg:	-122
Long Min:	45
Long Sec:	14.828400000010333
UBI:	Not reported
Phone Number:	2063328037
Tank ID:	38635
Tank Name:	BL. WST OIL
Install Date:	12/31/1964
Capacity:	Not reported
Tank Upgrade Date:	01/01/2001
TankSystem Status:	Not reported
TankSystem Status Change Date:	08/26/1996
Tank Status:	Removed
Tank Permit Expiration Date:	01/01/2001
Tank Closure Date:	01/01/2001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Steel
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	08/06/1996
Tag Number:	Not reported

---

16 **BOUNDARY FISH COMPANY INC** **ALLSITES** **1000660434**
ESE **485 SIGURDSON & BERG** **UST** **N/A**
< 1/8 **BLAINE, WA 98230**
0.120 mi.
633 ft.

Relative:
Lower

Actual:
0 ft.

ALLSITES:

Facility Id:	93465967	
Latitude:	48.9917730	
Longitude:	-122.76481	
Geographic location identifier (alias facid):		93465967
Facility Name:		BOUNDARY FISH COMPANY INC
Latitude Decimal Degrees:		48.991773000000002
Longitude Decimal Degrees:		-122.76481699999999

BOUNDARY FISH COMPANY INC (Continued) **1000660434**

Coordinate Point Areal Extent Code: 4
Horizontal Accuracy Code: 7
Coordinate Point Geographic Position Code: 5
Location Verified Code: N

UST:
Facility ID: 93465967
Site ID: 4939
Lat Deg: 48
Lat Min: 59
Lat Sec: 30.382800000007251
Long Deg: -122
Long Min: 45
Long Sec: 53.341199999977107
UBI: Not reported
Phone Number: 2063326715

Tank ID: 7412
Tank Name: 2
Install Date: 12/31/1964
Capacity: Not reported
Tank Upgrade Date: 01/01/2001
TankSystem Status: Not reported
TankSystem Status Change Date: 08/26/1996
Tank Status: Closed in Place
Tank Permit Expiration Date: 01/01/2001
Tank Closure Date: 01/01/2001
Tank Pumping System: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Steel
Tank Construction: Not reported
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Pipe Material: Steel
Pipe Construction: Not reported
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Tank Primary Release Detection: Not reported
Tank Second Release Detection: Not reported
Pipe Tightness Test: Not reported
Tank Actual Status Date: 08/06/1996
Tag Number: Not reported

Tank ID: 7473
Tank Name: 3
Install Date: 12/31/1964
Capacity: Not reported
Tank Upgrade Date: 01/01/2001
TankSystem Status: Not reported
TankSystem Status Change Date: 08/26/1996
Tank Status: Closed in Place
Tank Permit Expiration Date: 01/01/2001
Tank Closure Date: 01/01/2001

BOUNDARY FISH COMPANY INC (Continued) **1000660434**

Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Steel
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	08/06/1996
Tag Number:	Not reported

Tank ID:	7505
Tank Name:	1
Install Date:	12/31/1964
Capacity:	Not reported
Tank Upgrade Date:	01/01/2001
TankSystem Status:	Not reported
TankSystem Status Change Date:	08/26/1996
Tank Status:	Closed in Place
Tank Permit Expiration Date:	01/01/2001
Tank Closure Date:	01/01/2001
Tank Pumping System:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Pipe Material:	Steel
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Tank Primary Release Detection:	Not reported
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Not reported
Tank Actual Status Date:	08/06/1996
Tag Number:	Not reported

C17 **BLAINE MARINE SERVICES LLC** **ALLSITES** **S107862764**
NE **199 MARINE DRIVE** **NPDES** **N/A**
1/4-1/2 **BLAINE, WA 98230**
0.283 mi.
1493 ft. **Site 1 of 2 in cluster C**

Relative:
Higher

Actual:
7 ft.

ALLSITES:

Facility Id:	9877589
Latitude:	48.9963795
Longitude:	-122.75560
Geographic location identifier (alias facid):	9877589

BLAINE MARINE SERVICES LLC (Continued) **S107862764**

Facility Name:	BLAINE MARINE SERVICES LLC
Latitude Decimal Degrees:	48.996379500000003
Longitude Decimal Degrees:	-122.75560369999999
Coordinate Point Areal Extent Code:	99
Horizontal Accuracy Code:	99
Coordinate Point Geographic Position Code:	8
Location Verified Code:	Not reported

NPDES:

Facility Status:	Active
Facility Type:	Boatyard GP
Admin Region:	Northwest
Latitude:	48.99637950
Longitude:	-122.755603
Permit ID:	WAG030119
Permit Version:	3
Permit Status:	Active
Permit SubStatus:	Coverage Issued
Ecology Contact:	Jerry Shervey
WRIA:	Nooksack
Permit Expiration Date:	05/31/2016
Effective Date:	06/01/2011

C18 **LIGHTHOUSE POINT WATER RECLAMATION** **ALLSITES** **S110037574**
NE **200 MARINE DR** **N/A**
1/4-1/2 **BLAINE, WA 98230**
0.286 mi.
1512 ft. **Site 2 of 2 in cluster C**

Relative:
Higher

Actual:
7 ft.

ALLSITES:

Facility Id:	12385
Latitude:	48.9947000
Longitude:	-122.761
Geographic location identifier (alias facid):	12385
Facility Name:	LIGHTHOUSE POINT WATER RECLAMATION
Latitude Decimal Degrees:	48.994700000000002
Longitude Decimal Degrees:	-122.761
Coordinate Point Areal Extent Code:	0
Horizontal Accuracy Code:	99
Coordinate Point Geographic Position Code:	0
Location Verified Code:	Not reported

Geographic Location Identifier (Alias Facid):	12385
Interaction (Aka Env Int) Type Code:	CONSTGP
Interaction (Aka Env Int) Description:	Construction SW GP
Interaction Status:	I
Federal Program Indentifier:	WAR010658
Interaction Start Date:	2008-05-13 00:00:00
Interaction End Date:	2010-08-13 00:00:00
prgm_facil:	LIGHTHOUSE POINT WATER RECLAMATION
cur_sys_pr:	WATQUAL
cur_sys_nm:	PARIS

19
NE
1/4-1/2
0.309 mi.
1630 ft.

BLAINE HARBOR DENTAL
215 MARINE DR
BLAINE, WA 98230

ALLSITES **S110123415**
N/A

Relative:
Higher

Actual:
7 ft.

ALLSITES:

Facility Id:	6832	
Latitude:	48.9960840	
Longitude:	-122.75589	
Geographic location identifier (alias facid):		6832
Facility Name:		Blaine Harbor Dental
Latitude Decimal Degrees:		48.996084000000003
Longitude Decimal Degrees:		-122.755894
Coordinate Point Areal Extent Code:		0
Horizontal Accuracy Code:		99
Coordinate Point Geographic Position Code:		8
Location Verified Code:		Not reported
Geographic Location Identifier (Alias Facid):		6832
Interaction (Aka Env Int) Type Code:		LSC
Interaction (Aka Env Int) Description:		Local Source Control
Interaction Status:		I
Federal Program Indentifier:		Not reported
Interaction Start Date:		2009-03-18 00:00:00
Interaction End Date:		2010-04-29 00:00:00
prgm_facil:		Blaine Harbor Dental
cur_sys_pr:		HAZWASTE
cur_sys_nm:		LSC

20
NE
1/4-1/2
0.341 mi.
1802 ft.

BELLINGHAM PORT BLAINE HARBOR MARINA
235 MARINE DR
BLAINE, WA 98230

RCRA-NonGen **1005445237**
FINDS **WAH000015008**
ALLSITES
MANIFEST
SPILLS

Relative:
Higher

Actual:
8 ft.

RCRA-NonGen:

Date form received by agency:	02/22/2010
Facility name:	BELLINGHAM PORT BLAINE HARBOR MARINA
Facility address:	235 MARINE DR BLAINE, WA 98230
EPA ID:	WAH000015008
Mailing address:	PO BOX 1677 BELLINGHAM, WA 98227
Contact:	PAM TAFT
Contact address:	PO BOX 1677 BELLINGHAM, WA 98227
Contact country:	US
Contact telephone:	(360) 676-2500
Contact email:	PAMT@PORTOFBELLINGHAM.COM
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	PORT OF BELLINGHAM
Owner/operator address:	PO BOX 1677 BELLINGHAM, 98227

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

Owner/operator country: US
Owner/operator telephone: (360)676-2500 3
Legal status: Municipal
Owner/Operator Type: Operator
Owner/Op start date: 01/01/1900
Owner/Op end date: Not reported

Owner/operator name: PORT OF BELLINGHAM
Owner/operator address: PO BOX 1677
BELLINGHAM, 98227
Owner/operator country: US
Owner/operator telephone: (360)676-2500,E
Legal status: Municipal
Owner/Operator Type: Owner
Owner/Op start date: 05/16/2001
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 04/16/2008
Facility name: BELLINGHAM PORT BLAINE HARBOR MARINA
Classification: Large Quantity Generator

Date form received by agency: 12/31/2007
Facility name: BELLINGHAM PORT BLAINE HARBOR MARINA
Classification: Large Quantity Generator

Date form received by agency: 12/31/2005
Facility name: BELLINGHAM PORT BLAINE HARBOR MARINA
Classification: Not a generator, verified

Date form received by agency: 12/31/2003
Facility name: BELLINGHAM PORT BLAINE HARBOR MARINA
Classification: Not a generator, verified

Date form received by agency: 03/01/2002
Facility name: BELLINGHAM PORT BLAINE HARBOR MARINA
Classification: Large Quantity Generator

Violation Status: No violations found

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

FINDS:

Registry ID: 110012561628

Environmental Interest/Information System

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

NCDB (National Compliance Data Base) supports implementation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA). The system tracks inspections in regions and states with cooperative agreements, enforcement actions, and settlements.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ALLSITES:

Facility Id:	49715867
Latitude:	48.9960000
Longitude:	-122.75739
Geographic location identifier (alias facid):	49715867
Facility Name:	Bellingham Port Blaine Harbor Marina
Latitude Decimal Degrees:	48.996000083799998
Longitude Decimal Degrees:	-122.7573974
Coordinate Point Areal Extent Code:	99
Horizontal Accuracy Code:	99
Coordinate Point Geographic Position Code:	8
Location Verified Code:	N

WA MANIFEST:

Facility Site ID Number:	49715867
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	Not reported
Permit by Rule:	FALSE
Treatment by Generator:	FALSE
Mixed radioactive waste:	FALSE
Importer of hazardous waste:	FALSE
Immediate recycler:	FALSE
Treatment/Storage/Disposal/Recycling Facility:	FALSE
Generator of dangerous fuel waste:	FALSE
Generator marketing to burner:	FALSE
"Other marketers (i.e., blender, distributor, etc.)":	FALSE
Utility boiler burner:	FALSE

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

Industry boiler burner:	FALSE
Industrial Furnace:	FALSE
Smelter defferal:	FALSE
Universal waste - batteries - generate:	FALSE
Universal waste - thermostats - generate:	FALSE
Universal waste - mercury - generate:	FALSE
Universal waste - lamps - generate:	FALSE
Universal waste - batteries - accumulate:	FALSE
Universal waste - thermostats - accumulate:	FALSE
Universal waste - mercury - accumulate:	FALSE
Universal waste - lamps - accumulate:	FALSE
Destination Facility for Universal Waste:	FALSE
Off-specification used oil burner - utility boiler:	FALSE
Off-specification used oil burner - industrial boiler:	FALSE
Off-specification used oil burner - industrial furnace:	FALSE
EPA ID:	WAH000015008
Facility Address 2:	Not reported
TAX REG NBR:	371000005
NAICS CD:	71393
BUSINESS TYPE:	Marina
MAIL NAME:	Port of Bellingham
MAIL ADDR LINE1:	PO Box 1677
MAIL CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	Port of Bellingham
LEGAL ORG TYPE:	Municipal
LEGAL ADDR LINE1:	PO Box 1677
LEGAL CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	(360)676-2500,ext 307
LEGAL EFFECTIVE DATE:	5/16/2001
LAND ORG NAME:	Port of Bellingham
LAND ORG TYPE:	Municipal
LAND PERSON NAME:	Not reported
LAND ADDR LINE1:	PO Box 1677
LAND CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	(360)676-2500,ext 307
OPERATOR ORG NAME:	Port of Bellingham
OPERATOR ORG TYPE:	Municipal
OPERATOR ADDR LINE1:	PO Box 1677
OPERATOR CITY,ST,ZIP:	Bellingham, WA 98227-1677
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	(360)676-2500,ext 307
OPERATOR EFFECTIVE DATE:	Not reported
SITE CONTACT NAME:	Pam Taft
SITE CONTACT ADDR LINE1:	PO Box 1677
SITE CONTACT ZIP:	BELLINGHAM, WA 98227-1677
SITE CONTACT COUNTRY:	UNITED STATES
SITE CONTACT PHONE NBR:	(360)676-2500,ext 390
SITE CONTACT EMAIL:	Not reported
FORM CONTACT NAME:	Alan Birdsall
FORM CONTACT ADDR LINE1:	PO Box 1677
FORM CONTACT CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
FORM CONTACT COUNTRY:	UNITED STATES
FORM CONTACT PHONE NBR:	(360)676-2500,ext 383
FORM CONTACT EMAIL:	alanb@portofbellingham.com

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

GEN STATUS CD:	XQG
MONTHLY GENERATION:	FALSE
BATCH GENERATION:	FALSE
ONE TIME GENERATION:	FALSE
TRANSPORTS OWN WASTE:	FALSE
TRANSPORTS OTHRS WASTE:	FALSE
RECYCLER ONSITE:	FALSE
TRANSFER FACILITY:	FALSE
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	FALSE
USED OIL TRANSPORTER:	FALSE
USED OIL TRANSFER FACLTY:	FALSE
USED OIL PROCESSOR:	FALSE
USED OIL REREFINER:	FALSE
USED OIL FUEL MRKTR DIRECTS SHPMNTS:	FALSE
USED OIL FUEL MRKTR MEETS SPECS:	FALSE

Facility Site ID Number:	49715867
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	Not reported
Permit by Rule:	FALSE
Treatment by Generator:	FALSE
Mixed radioactive waste:	FALSE
Importer of hazardous waste:	FALSE
Immediate recycler:	FALSE
Treatment/Storage/Disposal/Recycling Facility:	FALSE
Generator of dangerous fuel waste:	FALSE
Generator marketing to burner:	FALSE
"Other marketers (i.e., blender, distributor, etc.)":	FALSE
Utility boiler burner:	FALSE
Industry boiler burner:	FALSE
Industrial Furnace:	FALSE
Smelter defferal:	FALSE
Universal waste - batteries - generate:	FALSE
Universal waste - thermostats - generate:	FALSE
Universal waste - mercury - generate:	FALSE
Universal waste - lamps - generate:	FALSE
Universal waste - batteries - accumulate:	FALSE
Universal waste - thermostats - accumulate:	FALSE
Universal waste - mercury - accumulate:	FALSE
Universal waste - lamps - accumulate:	FALSE
Destination Facility for Universal Waste:	FALSE
Off-specification used oil burner - utility boiler:	FALSE
Off-specification used oil burner - industrial boiler:	FALSE
Off-specification used oil burner - industrial furnace:	FALSE
EPA ID:	WAH000015008
Facility Address 2:	Not reported
TAX REG NBR:	371000005
NAICS CD:	71393
BUSINESS TYPE:	Marina
MAIL NAME:	Port of Bellingham
MAIL ADDR LINE1:	PO Box 1677
MAIL CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	Port of Bellingham

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

LEGAL ORG TYPE:	Municipal
LEGAL ADDR LINE1:	PO Box 1677
LEGAL CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	(360)676-2500,ext 307
LEGAL EFFECTIVE DATE:	5/16/2001
LAND ORG NAME:	Port of Bellingham
LAND ORG TYPE:	Municipal
LAND PERSON NAME:	Not reported
LAND ADDR LINE1:	PO Box 1677
LAND CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	(360)676-2500,ext 307
OPERATOR ORG NAME:	Port of Bellingham
OPERATOR ORG TYPE:	Municipal
OPERATOR ADDR LINE1:	PO Box 1677
OPERATOR CITY,ST,ZIP:	Bellingham, WA 98227-1677
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	(360)676-2500,ext 307
OPERATOR EFFECTIVE DATE:	Not reported
SITE CONTACT NAME:	Pam Taft
SITE CONTACT ADDR LINE1:	PO Box 1677
SITE CONTACT ZIP:	BELLINGHAM, WA 98227-1677
SITE CONTACT COUNTRY:	UNITED STATES
SITE CONTACT PHONE NBR:	(360)676-2500,ext 390
SITE CONTACT EMAIL:	Not reported
FORM CONTACT NAME:	Alan Birdsall
FORM CONTACT ADDR LINE1:	PO Box 1677
FORM CONTACT CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
FORM CONTACT COUNTRY:	UNITED STATES
FORM CONTACT PHONE NBR:	(360)676-2500,ext 383
FORM CONTACT EMAIL:	alanb@portofbellingham.com
GEN STATUS CD:	XQG
MONTHLY GENERATION:	FALSE
BATCH GENERATION:	FALSE
ONE TIME GENERATION:	FALSE
TRANSPORTS OWN WASTE:	FALSE
TRANSPORTS OTHRS WASTE:	FALSE
RECYCLER ONSITE:	FALSE
TRANSFER FACILITY:	FALSE
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	FALSE
USED OIL TRANSPORTER:	FALSE
USED OIL TRANSFER FACLTY:	FALSE
USED OIL PROCESSOR:	FALSE
USED OIL REREFINER:	FALSE
USED OIL FUEL MRKTR DIRECTS SHPMNTS:	FALSE
USED OIL FUEL MRKTR MEETS SPECS:	FALSE

Facility Site ID Number:	49715867
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2009
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
"Other marketers (i.e., blender, distributor, etc.)":	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
EPA ID:	WAH000015008
Facility Address 2:	Not reported
TAX REG NBR:	371000005
NAICS CD:	713930
BUSINESS TYPE:	Marina
MAIL NAME:	Port of Bellingham
MAIL ADDR LINE1:	PO Box 1677
MAIL CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	Port of Bellingham
LEGAL ORG TYPE:	Municipal
LEGAL ADDR LINE1:	PO Box 1677
LEGAL CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	(360)676-2500,ext 307
LEGAL EFFECTIVE DATE:	5/16/2001
LAND ORG NAME:	Port of Bellingham
LAND ORG TYPE:	Municipal
LAND PERSON NAME:	Not reported
LAND ADDR LINE1:	PO Box 1677
LAND CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	(360)676-2500 307
OPERATOR ORG NAME:	Port of Bellingham
OPERATOR ORG TYPE:	Municipal
OPERATOR ADDR LINE1:	PO Box 1677
OPERATOR CITY,ST,ZIP:	Bellingham, WA 98227-1677
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	(360)676-2500 307
OPERATOR EFFECTIVE DATE:	Not reported
SITE CONTACT NAME:	Pam Taft
SITE CONTACT ADDR LINE1:	PO Box 1677
SITE CONTACT ZIP:	Bellingham, WA 98227-1677
SITE CONTACT COUNTRY:	UNITED STATES
SITE CONTACT PHONE NBR:	(360)676-2500

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

SITE CONTACT EMAIL:	pamt@portofbellingham.com
FORM CONTACT NAME:	Alan Birdsall
FORM CONTACT ADDR LINE1:	PO Box 1677
FORM CONTACT CITY,ST,ZIP:	Bellingham, WA 98227-1677
FORM CONTACT COUNTRY:	UNITED STATES
FORM CONTACT PHONE NBR:	(360)676-2500 307
FORM CONTACT EMAIL:	alanb@portofbellingham.com
GEN STATUS CD:	XQG
MONTHLY GENERATION:	False
BATCH GENERATION:	False
ONE TIME GENERATION:	False
TRANSPORTS OWN WASTE:	False
TRANSPORTS OTHRS WASTE:	False
RECYCLER ONSITE:	False
TRANSFER FACILITY:	False
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	False
USED OIL TRANSPORTER:	False
USED OIL TRANSFER FACLTY:	False
USED OIL PROCESSOR:	False
USED OIL REREFINER:	False
USED OIL FUEL MRKTR DIRECTS SHPMNTS:	False
USED OIL FUEL MRKTR MEETS SPECS:	False

Facility Site ID Number:	49715867
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	Not reported
Permit by Rule:	No
Treatment by Generator:	No
Mixed radioactive waste:	No
Importer of hazardous waste:	No
Immediate recycler:	No
Treatment/Storage/Disposal/Recycling Facility:	No
Generator of dangerous fuel waste:	No
Generator marketing to burner:	No
"Other marketers (i.e., blender, distributor, etc.)":	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No
Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
EPA ID:	WAH000015008
Facility Address 2:	Not reported
TAX REG NBR:	371000005

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

NAICS CD:	71393
BUSINESS TYPE:	Marina
MAIL NAME:	Port of Bellingham
MAIL ADDR LINE1:	PO Box 1677
MAIL CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	Port of Bellingham
LEGAL ORG TYPE:	Municipal
LEGAL ADDR LINE1:	PO Box 1677
LEGAL CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	(360)676-2500ext 307
LEGAL EFFECTIVE DATE:	5/16/2001
LAND ORG NAME:	Port of Bellingham
LAND ORG TYPE:	Municipal
LAND PERSON NAME:	Not reported
LAND ADDR LINE1:	PO Box 1677
LAND CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	(360)676-2500ext 307
OPERATOR ORG NAME:	Port of Bellingham
OPERATOR ORG TYPE:	Municipal
OPERATOR ADDR LINE1:	PO Box 1677
OPERATOR CITY,ST,ZIP:	Bellingham, WA 98227-1677
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	(360)676-2500ext 307
OPERATOR EFFECTIVE DATE:	Not reported
SITE CONTACT NAME:	Mike Stoner
SITE CONTACT ADDR LINE1:	PO Box 1677
SITE CONTACT ZIP:	BELLINGHAM, WA 98227-1677
SITE CONTACT COUNTRY:	UNITED STATES
SITE CONTACT PHONE NBR:	(360)676-2500ext 307
SITE CONTACT EMAIL:	Not reported
FORM CONTACT NAME:	Alan Birdsall
FORM CONTACT ADDR LINE1:	PO Box 1677
FORM CONTACT CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
FORM CONTACT COUNTRY:	UNITED STATES
FORM CONTACT PHONE NBR:	(360)676-2500ext 383
FORM CONTACT EMAIL:	alanb@portofbellingham.com
GEN STATUS CD:	XQG
MONTHLY GENERATION:	No
BATCH GENERATION:	No
ONE TIME GENERATION:	No
TRANSPORTS OWN WASTE:	No
TRANSPORTS OTHRS WASTE:	No
RECYCLER ONSITE:	No
TRANSFER FACILITY:	No
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	No
USED OIL TRANSPORTER:	No
USED OIL TRANSFER FACLTY:	No
USED OIL PROCESSOR:	No
USED OIL REREFINER:	No
USED OIL FUEL MRKTR DIRECTS SHPMNTS:	No
USED OIL FUEL MRKTR MEETS SPECS:	No

Facility Site ID Number: 49715867

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Site is a small boat marina. One 55-gallon drum of chlorinated used oil was found abondoned in the marina in 2008. The DW is not generated by marina operations.
Data Year:	2008
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
"Other marketers (i.e., blender, distributor, etc.)":	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
EPA ID:	WAH000015008
Facility Address 2:	Not reported
TAX REG NBR:	371000005
NAICS CD:	71393
BUSINESS TYPE:	Marina
MAIL NAME:	Port of Bellingham
MAIL ADDR LINE1:	PO Box 1677
MAIL CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	Port of Bellingham
LEGAL ORG TYPE:	Municipal
LEGAL ADDR LINE1:	PO Box 1677
LEGAL CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	(360)676-2500,ext 307
LEGAL EFFECTIVE DATE:	5/16/2001
LAND ORG NAME:	Port of Bellingham
LAND ORG TYPE:	Municipal
LAND PERSON NAME:	Not reported
LAND ADDR LINE1:	PO Box 1677
LAND CITY,ST,ZIP:	BELLINGHAM, WA 98227-1677
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	(360)676-2500 307
OPERATOR ORG NAME:	Port of Bellingham
OPERATOR ORG TYPE:	Municipal
OPERATOR ADDR LINE1:	PO Box 1677

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

OPERATOR CITY,ST,ZIP:	Bellingham, WA 98227-1677
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	(360)676-2500 307
OPERATOR EFFECTIVE DATE:	Not reported
SITE CONTACT NAME:	Pam Taft
SITE CONTACT ADDR LINE1:	PO Box 1677
SITE CONTACT ZIP:	Bellingham, WA 98227-1677
SITE CONTACT COUNTRY:	UNITED STATES
SITE CONTACT PHONE NBR:	(360)676-2500
SITE CONTACT EMAIL:	pamt@portofbellingham.com
FORM CONTACT NAME:	Alan Birdsall
FORM CONTACT ADDR LINE1:	PO Box 1677
FORM CONTACT CITY,ST,ZIP:	Bellingham, WA 98227-1677
FORM CONTACT COUNTRY:	UNITED STATES
FORM CONTACT PHONE NBR:	(360)676-2500 307
FORM CONTACT EMAIL:	alanb@portofbellingham.com
GEN STATUS CD:	SQG
MONTHLY GENERATION:	False
BATCH GENERATION:	False
ONE TIME GENERATION:	False
TRANSPORTS OWN WASTE:	False
TRANSPORTS OTHRS WASTE:	False
RECYCLER ONSITE:	False
TRANSFER FACILITY:	False
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	False
USED OIL TRANSPORTER:	False
USED OIL TRANSFER FACLTY:	False
USED OIL PROCESSOR:	False
USED OIL REREFINER:	False
USED OIL FUEL MRKTR DIRECTS SHPMNTS:	False
USED OIL FUEL MRKTR MEETS SPECS:	False

Click this hyperlink while viewing on your computer to access additional WA MANIFEST: detail in the EDR Site Report.

SPILLS:

Facility ID:	564515
Medium:	Not reported
Material Desc:	PETROLEUM - UNKNOWN
Material Qty:	1
Material Units:	SHEEN
Date Received:	8/11/2007
Contact Name:	UNK

Facility ID:	623074
Medium:	SURFACE WATER-MARINE
Material Desc:	PETROLEUM - UNKNOWN
Material Qty:	Not reported
Material Units:	GALLON
Date Received:	10/24/2010 3:42:00 PM
Contact Name:	UNKNOWN

Facility ID:	564469
Medium:	Not reported
Material Desc:	UNKNOWN
Material Qty:	1

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

Material Units: SHEEN
Date Received: 8/9/2007
Contact Name: UNK

Facility ID: 603143
Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: Not reported
Material Units: GALLON
Date Received: 1/9/2008 5:00:00 AM
Contact Name: WINSTEAD

Facility ID: 606516
Medium: Not reported
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 6/19/2008 3:05:00 PM
Contact Name: UNKNOWN

Facility ID: 609058
Medium: Not reported
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 10/22/2008 11:28:00 AM
Contact Name: UNKNOWN

Facility ID: 609271
Medium: Not reported
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 11/3/2008 8:32:00 AM
Contact Name: UNKNOWN

Facility ID: 603224
Medium: Not reported
Material Desc: SMOKE
Material Qty: Not reported
Material Units: Not reported
Date Received: 1/11/2008 3:13:00 PM
Contact Name: UNKNOWN

Facility ID: 561560
Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: 1
Material Units: CUP
Date Received: 3/29/2007
Contact Name: RODRIGUEZ

Facility ID: 606866
Medium: Not reported
Material Desc: PETROLEUM - GASOLINE
Material Qty: Not reported
Material Units: GALLON

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

Date Received: 7/7/2008 11:08:00 AM
Contact Name: Not reported

Facility ID: 609271
Medium: Not reported
Material Desc: PETROLEUM - MOTOR OIL
Material Qty: Not reported
Material Units: GALLON
Date Received: 11/3/2008 8:58:00 AM
Contact Name: ANTONELLI

Facility ID: 613782
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 7/1/2009 8:35:00 AM
Contact Name: UNKNOWN

Facility ID: 624684
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - MOTOR OIL
Material Qty: Not reported
Material Units: GALLON
Date Received: 1/22/2011
Contact Name: UNKNOWN

Facility ID: 627391
Medium: SURFACE WATER-MARINE
Material Desc: BILGE WATER
Material Qty: Not reported
Material Units: GALLON
Date Received: 6/15/2011
Contact Name: UNK

Facility ID: 554966
Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: 1
Material Units: QUART
Date Received: 5/6/2006
Contact Name: SPROUSE

Facility ID: 626419
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 4/26/2011
Contact Name: UNKNOWN

Facility ID: 626574
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 5/5/2011

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

Contact Name: UNKNOWN

Facility ID: 624315
Medium: SURFACE WATER-FRESH
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: Not reported
Material Units: GALLON
Date Received: 1/3/2011
Contact Name: WHITEMAN

Facility ID: 519518
Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: 1
Material Units: GALLON
Date Received: 7/6/2001
Contact Name: FRANK CLADOOSKY

Facility ID: 607879
Medium: Not reported
Material Desc: PETROLEUM - HYDRAULIC OIL
Material Qty: 1
Material Units: GALLON
Date Received: 8/21/2008 8:08:00 PM
Contact Name: KING

Facility ID: 563367
Medium: Not reported
Material Desc: PETROLEUM - UNKNOWN
Material Qty: 1
Material Units: SHEEN
Date Received: 6/20/2007
Contact Name: UNK

Facility ID: 544605
Medium: Not reported
Material Desc: PETROLEUM - UNKNOWN
Material Qty: 1
Material Units: SHEEN
Date Received: 11/9/2004
Contact Name: UNK

Facility ID: 600074
Medium: Not reported
Material Desc: PETROLEUM - HYDRAULIC OIL
Material Qty: Not reported
Material Units: Not reported
Date Received: 8/19/2007 7:15:00 PM
Contact Name: EDWARDS

Facility ID: 563927
Medium: Not reported
Material Desc: PETROLEUM - OIL OTHER
Material Qty: 1
Material Units: SHEEN
Date Received: 7/18/2007
Contact Name: KINLEY

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

Facility ID: 621908
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - HYDRAULIC OIL
Material Qty: Not reported
Material Units: GALLON
Date Received: 8/21/2010 7:30:00 AM
Contact Name: PLASTER

Facility ID: 621964
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - MOTOR OIL
Material Qty: 0
Material Units: GALLON
Date Received: 8/25/2010 9:57:00 AM
Contact Name: MONTENEGRO

Facility ID: 601171
Medium: Not reported
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 10/4/2007 2:03:00 PM
Contact Name: UNKNOWN

Facility ID: 619169
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 4/10/2010 8:24:00 PM
Contact Name: UNKNOWN

Facility ID: 623413
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - GASOLINE
Material Qty: 0
Material Units: GALLON
Date Received: 11/10/2010 8:07:00 AM
Contact Name: JEFFERSON

Facility ID: 623413
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - HYDRAULIC OIL
Material Qty: Not reported
Material Units: GALLON
Date Received: 11/10/2010 8:07:00 AM
Contact Name: JEFFERSON

Facility ID: 623413
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - HYDRAULIC OIL
Material Qty: 0
Material Units: GALLON
Date Received: 11/10/2010 8:07:00 AM
Contact Name: JEFFERSON

Facility ID: 558402

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: 2
Material Units: QUART
Date Received: 10/20/2006
Contact Name: HANSEN

Facility ID: 608487
Medium: Not reported
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 9/24/2008 7:32:00 AM
Contact Name: UNKNOWN

Facility ID: 607879
Medium: Not reported
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 8/21/2008 5:15:00 PM
Contact Name: UNKNOWN

Facility ID: 625251
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 3/1/2011
Contact Name: UNKNOWN

Facility ID: 625355
Medium: IMPERMEABLE CONTAINMENT
Material Desc: PETROLEUM - MOTOR OIL
Material Qty: Not reported
Material Units: GALLON
Date Received: 3/7/2011
Contact Name: Not reported

Facility ID: 627662
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 6/28/2011
Contact Name: UNKNOWN

Facility ID: 629080
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 9/8/2011
Contact Name: UNKNOWN

Facility ID: 629088
Medium: SURFACE WATER-MARINE

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: Not reported
Material Units: GALLON
Date Received: 9/8/2011
Contact Name: EINASON

Facility ID: 629160
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 9/13/2011
Contact Name: UNKNOWN

Facility ID: 629200
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 9/14/2011
Contact Name: UNKNOWN

Facility ID: 629249
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: Not reported
Material Units: GALLON
Date Received: 9/15/2011
Contact Name: UNK

Facility ID: 628019
Medium: SURFACE WATER-MARINE
Material Desc: BILGE WATER
Material Qty: Not reported
Material Units: GALLON
Date Received: 7/17/2011
Contact Name: UNK

Facility ID: 628265
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 7/29/2011
Contact Name: UNKNOWN

Facility ID: 628430
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 8/6/2011
Contact Name: UNK

Facility ID: 628619
Medium: IMPERMEABLE CONTAINMENT
Material Desc: PETROLEUM - HYDRAULIC OIL

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

Material Qty: Not reported
Material Units: GALLON
Date Received: 8/16/2011
Contact Name: Not reported

Facility ID: 536429
Medium: Not reported
Material Desc: PETROLEUM - HYDRAULIC OIL
Material Qty: 30
Material Units: GALLON
Date Received: 9/29/2003
Contact Name: JARDIN

Facility ID: 601942
Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: Not reported
Material Units: GALLON
Date Received: 11/12/2007 12:33:00 PM
Contact Name: WILSON

Facility ID: 601143
Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: Not reported
Material Units: GALLON
Date Received: 10/3/2007 3:56:00 PM
Contact Name: UNKNOWN

Facility ID: 604355
Medium: Not reported
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 3/14/2008 12:49:00 PM
Contact Name: UNKNOWN

Facility ID: 600807
Medium: Not reported
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 9/14/2007 6:05:00 PM
Contact Name: UNK

Facility ID: 607879
Medium: Not reported
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 8/21/2008 5:16:00 PM
Contact Name: UNKNOWN

Facility ID: 535507
Medium: Not reported
Material Desc: PETROLEUM - GASOLINE
Material Qty: 1

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

Material Units: QUART
Date Received: 8/12/2003
Contact Name: WILBUR

Facility ID: 608728
Medium: Not reported
Material Desc: PETROLEUM - MOTOR OIL
Material Qty: Not reported
Material Units: GALLON
Date Received: 10/6/2008 8:24:00 AM
Contact Name: ROBERTS

Facility ID: 560474
Medium: Not reported
Material Desc: PETROLEUM - UNKNOWN
Material Qty: 1
Material Units: SHEEN
Date Received: 2/5/2007
Contact Name: UNK

Facility ID: 563334
Medium: Not reported
Material Desc: PETROLEUM - UNKNOWN
Material Qty: 1
Material Units: SHEEN
Date Received: 6/19/2007
Contact Name: UNK

Facility ID: 560207
Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: 1
Material Units: SHEEN
Date Received: 1/23/2007
Contact Name: OREIRO

Facility ID: 555151
Medium: Not reported
Material Desc: PETROLEUM - UNKNOWN
Material Qty: 1
Material Units: SHEEN
Date Received: 5/15/2006
Contact Name: WALLACE

Facility ID: 600074
Medium: Not reported
Material Desc: PETROLEUM - HYDRAULIC OIL
Material Qty: Not reported
Material Units: GALLON
Date Received: 8/19/2007 10:07:00 PM
Contact Name: EDWARDS

Facility ID: 620113
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: 5
Material Units: GALLON

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

Date Received: 5/25/2010 11:10:00 AM
Contact Name: UNKNOWN

Facility ID: 620226
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 5/28/2010 3:23:00 PM
Contact Name: UNKNOWN

Facility ID: 622576
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 9/27/2010 12:49:00 PM
Contact Name: UNKNOWN

Facility ID: 546308
Medium: Not reported
Material Desc: PETROLEUM - GASOLINE
Material Qty: 5
Material Units: GALLON
Date Received: 2/13/2005
Contact Name: BYRUN

Facility ID: 606396
Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: Not reported
Material Units: GALLON
Date Received: 6/12/2008 5:07:00 PM
Contact Name: BOBBINK

Facility ID: 617843
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - GASOLINE
Material Qty: Not reported
Material Units: GALLON
Date Received: 1/30/2010 2:30:00 PM
Contact Name: UNKNOWN

Facility ID: 621964
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - HYDRAULIC OIL
Material Qty: Not reported
Material Units: GALLON
Date Received: 8/25/2010 9:57:00 AM
Contact Name: MONTENEGRO

Facility ID: 618746
Medium: SURFACE WATER-MARINE
Material Desc: BILGE WATER
Material Qty: Not reported
Material Units: GALLON
Date Received: 3/18/2010 7:05:00 PM

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

Contact Name: Not reported

Facility ID: 561556
Medium: Not reported
Material Desc: PETROLEUM - UNKNOWN
Material Qty: 1
Material Units: SHEEN
Date Received: 3/29/2007
Contact Name: UNK

Facility ID: 560610
Medium: Not reported
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: Not reported
Date Received: 2/8/2007
Contact Name: UNK

Facility ID: 613015
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: Not reported
Material Units: GALLON
Date Received: 5/24/2009 3:00:00 PM
Contact Name: UNKNOWN

Facility ID: 560470
Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: 1
Material Units: SHEEN
Date Received: 1/23/2007
Contact Name: FRY

Facility ID: 561743
Medium: Not reported
Material Desc: BILGE WATER
Material Qty: 1
Material Units: SHEEN
Date Received: 4/9/2007
Contact Name: UNK

Facility ID: 560987
Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: 1
Material Units: GALLON
Date Received: 3/2/2007
Contact Name: CARRICO

Facility ID: 560161
Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: 1
Material Units: SHEEN
Date Received: 1/19/2007
Contact Name: UNK

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

Facility ID: 558323
Medium: Not reported
Material Desc: PETROLEUM - UNKNOWN
Material Qty: 1
Material Units: SHEEN
Date Received: 10/17/2006
Contact Name: Not reported

Facility ID: 561522
Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: 1
Material Units: OUNCE
Date Received: 3/26/2007
Contact Name: RODIGUEZ

Facility ID: 600131
Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: 1
Material Units: GALLON
Date Received: 8/16/2007 7:15:00 PM
Contact Name: PATTISON

Facility ID: 543934
Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: 1
Material Units: CUP
Date Received: 10/8/2004
Contact Name: MURVINE

Facility ID: 614621
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 8/11/2009 4:53:00 AM
Contact Name: UNKNOWN

Facility ID: 600043
Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: Not reported
Material Units: GALLON
Date Received: 8/17/2007 9:54:00 AM
Contact Name: PATTERSON

Facility ID: 562198
Medium: Not reported
Material Desc: PETROLEUM - CHLORINATED OIL
Material Qty: 1
Material Units: SHEEN
Date Received: 4/26/2007
Contact Name: GIBSON

Facility ID: 612690

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: 1
Material Units: GALLON
Date Received: 5/7/2009 8:36:00 PM
Contact Name: SISCO

Facility ID: 623305
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 11/3/2010 6:42:00 PM
Contact Name: UNKNOWN

Facility ID: 623305
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 11/4/2010 4:17:00 PM
Contact Name: UNKNOWN

Facility ID: 619699
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 5/6/2010 6:49:00 AM
Contact Name: UNKNOWN

Facility ID: 604454
Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: Not reported
Material Units: GALLON
Date Received: 3/18/2008 2:07:00 PM
Contact Name: BROWN

Facility ID: 613657
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: Not reported
Material Units: GALLON
Date Received: 6/23/2009 2:49:00 PM
Contact Name: LENIHAN

Facility ID: 614046
Medium: SURFACE WATER-MARINE
Material Desc: BILGE WATER
Material Qty: Not reported
Material Units: GALLON
Date Received: 7/15/2009 4:22:00 PM
Contact Name: YO

Facility ID: 608116
Medium: Not reported

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

Material Desc: BILGE WATER
Material Qty: Not reported
Material Units: GALLON
Date Received: 9/3/2008 6:35:00 PM
Contact Name: UNKNOWN

Facility ID: 621964
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: 0
Material Units: GALLON
Date Received: 8/25/2010 9:57:00 AM
Contact Name: MONTENEGRO

Facility ID: 621964
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - HYDRAULIC OIL
Material Qty: 0
Material Units: GALLON
Date Received: 8/25/2010 9:57:00 AM
Contact Name: MONTENEGRO

Facility ID: 600907
Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: Not reported
Material Units: GALLON
Date Received: 9/23/2007 8:45:00 AM
Contact Name: HAYNES

Facility ID: 612833
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: Not reported
Material Units: GALLON
Date Received: 5/14/2009 9:30:00 PM
Contact Name: UNKNOWN

Facility ID: 613451
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - MOTOR OIL
Material Qty: Not reported
Material Units: GALLON
Date Received: 6/14/2009 11:32:00 AM
Contact Name: Not reported

Facility ID: 622814
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - HYDRAULIC OIL
Material Qty: Not reported
Material Units: GALLON
Date Received: 10/10/2010 3:25:00 PM
Contact Name: TOBY

Facility ID: 541179
Medium: Not reported
Material Desc: BILGE WATER

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

Material Qty: 2
Material Units: OUNCE
Date Received: 5/22/2004
Contact Name: PATTISON

Facility ID: 559371
Medium: Not reported
Material Desc: UNKNOWN
Material Qty: 1
Material Units: SHEEN
Date Received: 12/12/2006
Contact Name: UNK

Facility ID: 600384
Medium: Not reported
Material Desc: PETROLEUM - WASTE/USED OIL
Material Qty: Not reported
Material Units: GALLON
Date Received: 8/29/2007 8:39:00 PM
Contact Name: Not reported

Facility ID: 549534
Medium: Not reported
Material Desc: PETROLEUM - UNKNOWN
Material Qty: 1
Material Units: SHEEN
Date Received: 7/24/2005
Contact Name: UNKNOWN

Facility ID: 612744
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: Not reported
Material Units: GALLON
Date Received: 5/11/2009 6:21:00 PM
Contact Name: UNKNOWN

Facility ID: 564203
Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: 1
Material Units: SHEEN
Date Received: 7/30/2007
Contact Name: UNK

Facility ID: 624213
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 12/24/2010 4:34:00 PM
Contact Name: UNKNOWN

Facility ID: 602715
Medium: Not reported
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported

BELLINGHAM PORT BLAINE HARBOR MARINA (Continued) **1005445237**

Material Units: GALLON
Date Received: 12/16/2007 9:07:00 AM
Contact Name: UNKNOWN

Facility ID: 564568
Medium: Not reported
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: Not reported
Material Units: Not reported
Date Received: 8/14/2007
Contact Name: ZIHIR

Facility ID: 561700
Medium: Not reported
Material Desc: PETROLEUM - HYDRAULIC OIL
Material Qty: 1
Material Units: QUART
Date Received: 4/5/2007
Contact Name: ANDERSON

Facility ID: 624375
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - UNKNOWN
Material Qty: Not reported
Material Units: GALLON
Date Received: 1/6/2011
Contact Name: UNKNOWN

Facility ID: 627049
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - OIL OTHER
Material Qty: 0
Material Units: GALLON
Date Received: 5/26/2011
Contact Name: UNKNOWN

Facility ID: 627052
Medium: SURFACE WATER-MARINE
Material Desc: PETROLEUM - DIESEL FUEL
Material Qty: Not reported
Material Units: GALLON
Date Received: 5/28/2011
Contact Name: OGARA

21
NE
1/4-1/2
0.403 mi.
2129 ft.

BLAINE - LIGHTHOUSE POINT WRF **SWF/LF** **S111027536**
272 MARINE DRIVE **N/A**
BLAINE, WA 98230

Relative:
Higher

Actual:
9 ft.

SWF/LF:
Facility ID: 2880
Region: STATE
Permit Status: ACTIVE
Date Closed: Not reported
Contact Organization: CITY OF BLAINE
Contact Address1: 1200 YEW AVE
Contact Address2: Not reported

BLAINE - LIGHTHOUSE POINT WRF (Continued) **S111027536**

Contact City:	BLAINE
Contact State:	WA
Contact Postal:	98230
Contact EMail:	CNESS@CITYOFBLAINE.COM
Contact Phone:	360-332-3718
Contact Phone Ext:	Not reported
Permit No:	Not reported
Phone:	Not reported
Operator Name:	Not reported
Operator Organization:	Not reported
EMail:	cness@cityofblaine.com
Recycle Survey Code:	Not reported
Ownership:	PUBLIC
Type:	BIOSOLIDS
Contact Name:	CHRISTINA NESS
Contact Title:	LEAD OPERATOR
Activity1:	BIOSOLIDS (308)

22
WSW
1/2-1
0.554 mi.
2924 ft.

ALASKA PACKERS ASSOC **FINDS** **1007080198**
9550 SEMIAHMOO PKWY **CSCSL** **N/A**
BLAINE, WA 98230 **ALLSITES**

Relative:
Higher

Actual:
12 ft.

FINDS:

Registry ID: 110015569160

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

CSCSL:

Facility ID:	2881
Region:	Northwest
Lat/Long:	48.989820000000 / -122.77273
Brownfield Status:	Not reported
Rank Status:	Not reported
Clean Up Siteid:	216
Site Status:	Cleanup Started
PSI?:	Yes
Contaminant Name:	Halogenated Organics
Ground Water:	S
Surface Water:	S
Soil:	C
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	2881
Region:	Northwest

ALASKA PACKERS ASSOC (Continued) **1007080198**

Lat/Long: 48.989820000000 / -122.77273
Brownfield Status: Not reported
Rank Status: Not reported
Clean Up Siteid: 216
Site Status: Cleanup Started
PSI?: Yes
Contaminant Name: Metals Priority Pollutants
Ground Water: S
Surface Water: S
Soil: S
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

Facility ID: 2881
Region: Northwest
Lat/Long: 48.989820000000 / -122.77273
Brownfield Status: Not reported
Rank Status: Not reported
Clean Up Siteid: 216
Site Status: Cleanup Started
PSI?: Yes
Contaminant Name: Non-Halogenated Solvents
Ground Water: S
Surface Water: S
Soil: S
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

Facility ID: 2881
Region: Northwest
Lat/Long: 48.989820000000 / -122.77273
Brownfield Status: Not reported
Rank Status: Not reported
Clean Up Siteid: 216
Site Status: Cleanup Started
PSI?: Yes
Contaminant Name: Petroleum Products - unspecified
Ground Water: S
Surface Water: S
Soil: C
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

Facility ID: 2881
Region: Northwest
Lat/Long: 48.989820000000 / -122.77273
Brownfield Status: Not reported
Rank Status: Not reported
Clean Up Siteid: 216
Site Status: Cleanup Started
PSI?: Yes

ALASKA PACKERS ASSOC (Continued) **1007080198**

Contaminant Name:	Phenolic Compounds
Ground Water:	S
Surface Water:	S
Soil:	S
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest
Facility ID:	2881
Region:	Northwest
Lat/Long:	48.989820000000 / -122.77273
Brownfield Status:	Not reported
Rank Status:	Not reported
Clean Up Siteid:	216
Site Status:	Cleanup Started
PSI?:	Yes
Contaminant Name:	Polynuclear Aromatic Hydrocarbons
Ground Water:	S
Surface Water:	S
Soil:	C
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

ALLSITES:

Facility Id:	2881
Latitude:	48.9898200
Longitude:	-122.77273
Geographic location identifier (alias facid):	2881
Facility Name:	ALASKA PACKERS ASSOC
Latitude Decimal Degrees:	48.989820000000002
Longitude Decimal Degrees:	-122.77273
Coordinate Point Areal Extent Code:	99
Horizontal Accuracy Code:	4
Coordinate Point Geographic Position Code:	99
Location Verified Code:	Y
Geographic Location Identifier (Alias Facid):	2881
Interaction (Aka Env Int) Type Code:	SCS
Interaction (Aka Env Int) Description:	State Cleanup Site
Interaction Status:	I
Federal Program Indentifier:	NW1277
Interaction Start Date:	1988-03-01 00:00:00
Interaction End Date:	2004-06-22 00:00:00
prgm_facil:	ALASKA PACKERS ASSOC
cur_sys_pr:	TOXICS
cur_sys_nm:	ISIS
Geographic Location Identifier (Alias Facid):	2881
Interaction (Aka Env Int) Type Code:	VOLCLNST
Interaction (Aka Env Int) Description:	Voluntary Cleanup Sites
Interaction Status:	I
Federal Program Indentifier:	NW1277
Interaction Start Date:	2004-06-22 00:00:00
Interaction End Date:	2007-01-29 00:00:00

ALASKA PACKERS ASSOC (Continued) **1007080198**

prgm_facil: ALASKA PACKERS ASSOC
cur_sys_pr: TOXICS
cur_sys_nm: ISIS

Geographic Location Identifier (Alias Facid): 2881
Interaction (Aka Env Int) Type Code: SCS
Interaction (Aka Env Int) Description: State Cleanup Site
Interaction Status: A
Federal Program Indentifier: Not reported
Interaction Start Date: 2007-01-29 00:00:00
Interaction End Date: Not reported
prgm_facil: ALASKA PACKERS ASSOC
cur_sys_pr: TOXICS
cur_sys_nm: ISIS

Geographic Location Identifier (Alias Facid): 2881
Interaction (Aka Env Int) Type Code: VOLCLNST
Interaction (Aka Env Int) Description: Voluntary Cleanup Sites
Interaction Status: I
Federal Program Indentifier: NW1759
Interaction Start Date: 2007-04-06 00:00:00
Interaction End Date: 2010-02-23 00:00:00
prgm_facil: ALASKA PACKERS ASSOC
cur_sys_pr: TOXICS
cur_sys_nm: ISIS

23
ENE
1/2-1
0.583 mi.
3076 ft.

ONEIL PROPERTY **FINDS** **1007074400**
625 PEACE PORTAL DR **CSCSL** **N/A**
BLAINE, WA 98230 **ALLSITES**
HSL

Relative: Higher

Actual: 50 ft.

FINDS:

Registry ID: 110015510393

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

CSCSL:
Facility ID: 21797146
Region: Northwest
Lat/Long: 48.754722222220 / -122.7511111111
Brownfield Status: Not reported
Rank Status: 3
Clean Up Siteid: 4044
Site Status: Awaiting Cleanup
PSI?: Yes
Contaminant Name: Metals Priority Pollutants
Ground Water: S

ONEIL PROPERTY (Continued) **1007074400**

Surface Water: Not reported
Soil: S
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

Facility ID: 21797146
Region: Northwest
Lat/Long: 48.754722222220 / -122.7511111111
Brownfield Status: Not reported
Rank Status: 3
Clean Up Siteid: 4044
Site Status: Awaiting Cleanup
PSI?: Yes
Contaminant Name: Petroleum Products - unspecified
Ground Water: C
Surface Water: Not reported
Soil: C
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

ALLSITES:
Facility Id: 21797146
Latitude: 48.7547222
Longitude: -122.75111
Geographic location identifier (alias facid): 21797146
Facility Name: ONeil Property
Latitude Decimal Degrees: 48.754722222200002
Longitude Decimal Degrees: -122.751111111
Coordinate Point Areal Extent Code: 2
Horizontal Accuracy Code: 13
Coordinate Point Geographic Position Code: 99
Location Verified Code: N

HSL:
edr_fstat: WA
edr_fzip: Not reported
edr_fcnty: WHATCOM
edr_zip: Not reported
Facility Type: Hazardous Sites List
Facility Status: Awaiting Cleanup
FSID Number: 21797146
Rank: 3
Region: NW

24
ENE
1/2-1
0.731 mi.
3862 ft.

Relative:
Higher

Actual:
54 ft.

CONOCOPHILLIPS 30783
247 D ST
BLAINE, WA 98230

Database(s): RCRA-NonGen, FINDS, CSCSL, ALLSITES, LUST, MANIFEST, VCP

EDR ID Number: 1001491314
EPA ID Number: WAR000009704

RCRA-NonGen:

Date form received by agency:	03/01/2006
Facility name:	CONOCOPHILLIPS 30783
Facility address:	247 D ST BLAINE, WA 98230
EPA ID:	WAR000009704
Mailing address:	600 NORTH DAIRY ASHFORD HOUSTON, TX 77079
Contact:	IRENE JIMENEZ
Contact address:	600 NORTH DAIRY ASHFORD HOUSTON, TX 77079
Contact country:	US
Contact telephone:	(510)245-5176
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	CONOCOPHILLIPS
Owner/operator address:	600 NORTH DAIRY ASHFORD HOUSTON, TX 77079
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	06/01/2000
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	12/31/2005
Facility name:	CONOCOPHILLIPS 30783
Classification:	Not a generator, verified

CONOCOPHILLIPS 30783 (Continued) **1001491314**

Date form received by agency: 12/31/2003
Facility name: CONOCOPHILLIPS 30783
Classification: Not a generator, verified

Date form received by agency: 02/28/2000
Facility name: CONOCOPHILLIPS 30783
Site name: TOSCO 5028
Classification: Large Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110005405310

Environmental Interest/Information System

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

CSCSL:

Facility ID: 84364874
Region: Northwest
Lat/Long: 48.998049999999 / -122.75072
Brownfield Status: Not reported
Rank Status: Not reported
Clean Up Siteid: 6753
Site Status: Cleanup Started
PSI?: Yes
Contaminant Name: Benzene
Ground Water: C
Surface Water: Not reported
Soil: C
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

Facility ID: 84364874
Region: Northwest
Lat/Long: 48.998049999999 / -122.75072
Brownfield Status: Not reported
Rank Status: Not reported
Clean Up Siteid: 6753
Site Status: Cleanup Started
PSI?: Yes

CONOCOPHILLIPS 30783 (Continued) **1001491314**

Contaminant Name:	LUST - Other Hazardous Substance
Ground Water:	C
Surface Water:	Not reported
Soil:	C
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest
Facility ID:	84364874
Region:	Northwest
Lat/Long:	48.998049999999 / -122.75072
Brownfield Status:	Not reported
Rank Status:	Not reported
Clean Up Siteid:	6753
Site Status:	Cleanup Started
PSI?:	Yes
Contaminant Name:	Non-Halogenated Solvents
Ground Water:	C
Surface Water:	Not reported
Soil:	C
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest
Facility ID:	84364874
Region:	Northwest
Lat/Long:	48.998049999999 / -122.75072
Brownfield Status:	Not reported
Rank Status:	Not reported
Clean Up Siteid:	6753
Site Status:	Cleanup Started
PSI?:	Yes
Contaminant Name:	Petroleum-Diesel
Ground Water:	C
Surface Water:	Not reported
Soil:	C
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest
Facility ID:	84364874
Region:	Northwest
Lat/Long:	48.998049999999 / -122.75072
Brownfield Status:	Not reported
Rank Status:	Not reported
Clean Up Siteid:	6753
Site Status:	Cleanup Started
PSI?:	Yes
Contaminant Name:	Petroleum-Gasoline
Ground Water:	C
Surface Water:	Not reported
Soil:	C
Sediment:	Not reported
Air:	Not reported

CONOCOPHILLIPS 30783 (Continued) **1001491314**

Bedrock: Not reported
Responsible Unit: Northwest

Facility ID: 84364874
Region: Northwest
Lat/Long: 48.998049999999 / -122.75072
Brownfield Status: Not reported
Rank Status: Not reported
Clean Up Siteid: 6753
Site Status: Cleanup Started
PSI?: Yes
Contaminant Name: Petroleum-Other
Ground Water: C
Surface Water: Not reported
Soil: C
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

ALLSITES:
Facility Id: 84364874
Latitude: 48.9980499
Longitude: -122.75072
Geographic location identifier (alias facid): 84364874
Facility Name: Tosco 5028
Latitude Decimal Degrees: 48.998049999999999
Longitude Decimal Degrees: -122.75072
Coordinate Point Areal Extent Code: 4
Horizontal Accuracy Code: 4
Coordinate Point Geographic Position Code: 5
Location Verified Code: Y

LUST:
FS ID: 84364874
Cleanup Site ID: 6753
Cleanup Unit Type: Upland
Process Type: Voluntary Cleanup Program
Facility Status: RCU
Alternate Name: UNOCAL STATION # 5028
Release Notification Date: Not reported
Release Status Date: 07/06/2004
Site Response Unit Code: Northwest
Lat/Long: 48.9980499 / -122.75072

FS ID: 84364874
Cleanup Site ID: 6753
Cleanup Unit Type: Upland
Process Type: Voluntary Cleanup Program
Facility Status: Cleanup Started
Alternate Name: UNOCAL STATION # 5028
Release Notification Date: Not reported
Release Status Date: 07/19/1996
Site Response Unit Code: Northwest
Lat/Long: 48.9980499 / -122.75072

CONOCOPHILLIPS 30783 (Continued) **1001491314**

WA MANIFEST:

Facility Site ID Number:	84364874
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	Not reported
Permit by Rule:	No
Treatment by Generator:	No
Mixed radioactive waste:	No
Importer of hazardous waste:	No
Immediate recycler:	No
Treatment/Storage/Disposal/Recycling Facility:	No
Generator of dangerous fuel waste:	No
Generator marketing to burner:	No
"Other marketers (i.e., blender, distributor, etc.)":	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No
Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
EPA ID:	WAR000009704
Facility Address 2:	Not reported
TAX REG NBR:	600115909
NAICS CD:	44711
BUSINESS TYPE:	Not reported
MAIL NAME:	ConocoPhillips Company
MAIL ADDR LINE1:	600 North Dairy Ashford
MAIL CITY,ST,ZIP:	Houston, TX 77079
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	ConocoPhillips Company
LEGAL ORG TYPE:	Private
LEGAL ADDR LINE1:	600 North Dairy Ashford
LEGAL CITY,ST,ZIP:	Houston, TX 77079
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	281-293-1000
LEGAL EFFECTIVE DATE:	12/31/2003
LAND ORG NAME:	ConocoPhillips Company
LAND ORG TYPE:	Private
LAND PERSON NAME:	Not reported
LAND ADDR LINE1:	600 North Dairy Ashford
LAND CITY,ST,ZIP:	Houston, TX 77079
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	281-293-1000
OPERATOR ORG NAME:	ConocoPhillips
OPERATOR ORG TYPE:	Private
OPERATOR ADDR LINE1:	1380 San Pablo Ave

CONOCOPHILLIPS 30783 (Continued) **1001491314**

OPERATOR CITY,ST,ZIP:	Rodeo, CA 94572
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	510-245-5176
OPERATOR EFFECTIVE DATE:	6/1/2000
SITE CONTACT NAME:	Irene Jimenez
SITE CONTACT ADDR LINE1:	1380 San Pablo Ave
SITE CONTACT ZIP:	Rodeo, CA 94572
SITE CONTACT COUNTRY:	UNITED STATES
SITE CONTACT PHONE NBR:	510-245-5176
SITE CONTACT EMAIL:	Irene.I.Jimenez@ConocoPhillips.com
FORM CONTACT NAME:	Marina Tishkova
FORM CONTACT ADDR LINE1:	600 North Dairy Ashford
FORM CONTACT CITY,ST,ZIP:	Houston, TX 77079
FORM CONTACT COUNTRY:	UNITED STATES
FORM CONTACT PHONE NBR:	281-293-1684
FORM CONTACT EMAIL:	Marina.A.Tishkova@conocophillips.com
GEN STATUS CD:	XQG
MONTHLY GENERATION:	No
BATCH GENERATION:	No
ONE TIME GENERATION:	No
TRANSPORTS OWN WASTE:	No
TRANSPORTS OTHRS WASTE:	No
RECYCLER ONSITE:	No
TRANSFER FACILITY:	No
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	No
USED OIL TRANSPORTER:	No
USED OIL TRANSFER FACLTY:	No
USED OIL PROCESSOR:	No
USED OIL REREFINER:	No
USED OIL FUEL MRKTR DIRECTS SHPMNTS:	No
USED OIL FUEL MRKTR MEETS SPECS:	No

VCP:

edr_fstat:	WA
edr_fzip:	98230
edr_fcnty:	WHATCOM COUNTY
edr_zip:	Not reported
Facility ID:	84364874
VCP Status:	PSI, VCP
VCP:	Not reported
Ecology Status:	Cleanup Started
NFA Type:	Cleanup Started
Date NFA:	Cleanup Started
Rank:	Cleanup Started

25
ENE
1/2-1
0.770 mi.
4064 ft.

TANK N TOTE
321 D ST
BLAINE, WA 98230

CSCSL **U003025156**
HSL **N/A**
ALLSITES
LUST
UST

Relative:
Higher

Actual:
54 ft.

CSCSL:

Facility ID:	98716497
Region:	Northwest
Lat/Long:	48.997993999999 / -122.7504650000
Brownfield Status:	Not reported

TANK N TOTE (Continued) **U003025156**

Rank Status: Not reported
Clean Up Siteid: 11325
Site Status: Awaiting Cleanup
PSI?: Yes
Contaminant Name: Benzene
Ground Water: Not reported
Surface Water: Not reported
Soil: C
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

Facility ID: 98716497
Region: Northwest
Lat/Long: 48.997993999999 / -122.7504650000
Brownfield Status: Not reported
Rank Status: Not reported
Clean Up Siteid: 11325
Site Status: Awaiting Cleanup
PSI?: Yes
Contaminant Name: Non-Halogenated Solvents
Ground Water: Not reported
Surface Water: Not reported
Soil: C
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

Facility ID: 98716497
Region: Northwest
Lat/Long: 48.997993999999 / -122.7504650000
Brownfield Status: Not reported
Rank Status: Not reported
Clean Up Siteid: 11325
Site Status: Awaiting Cleanup
PSI?: Yes
Contaminant Name: Petroleum-Diesel
Ground Water: Not reported
Surface Water: Not reported
Soil: C
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

Facility ID: 98716497
Region: Northwest
Lat/Long: 48.997993999999 / -122.7504650000
Brownfield Status: Not reported
Rank Status: Not reported
Clean Up Siteid: 11325
Site Status: Awaiting Cleanup
PSI?: Yes
Contaminant Name: Petroleum-Gasoline
Ground Water: Not reported

TANK N TOTE (Continued) **U003025156**

Surface Water:	Not reported
Soil:	C
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

HSL:

edr_fstat:	WA
edr_fzip:	Not reported
edr_fcnty:	WHATCOM
edr_zip:	Not reported
Facility Type:	**Hazardous Sites List**
Facility Status:	Awaiting Cleanup
FSID Number:	98716497
Rank:	5
Region:	NW

ALLSITES:

Facility Id:	98716497	
Latitude:	48.9979939	
Longitude:	-122.75046	
Geographic location identifier (alias facid):		98716497
Facility Name:		TANK N TOTE
Latitude Decimal Degrees:		48.997993999999998
Longitude Decimal Degrees:		-122.75046500000001
Coordinate Point Areal Extent Code:		4
Horizontal Accuracy Code:		6
Coordinate Point Geographic Position Code:		5
Location Verified Code:		N

LUST:

FS ID:	98716497
Cleanup Site ID:	11325
Cleanup Unit Type:	Upland
Process Type:	Independent Action
Facility Status:	Awaiting Cleanup
Alternate Name:	Tank-n-Tote
Release Notification Date:	Not reported
Release Status Date:	07/30/2008
Site Response Unit Code:	Northwest
Lat/Long:	48.9979939 / -122.75046

UST:

Facility ID:	98716497
Site ID:	101479
Lat Deg:	48
Lat Min:	59
Lat Sec:	52.778399999994576
Long Deg:	-122
Long Min:	45
Long Sec:	1.6740000000197597
UBI:	6022828870010002
Phone Number:	3603121100

TANK N TOTE (Continued) **U003025156**

Tank ID:	15194
Tank Name:	1
Install Date:	12/02/1991
Capacity:	10,000 to 19,999 Gallons
Tank Upgrade Date:	12/02/1991
TankSystem Status:	Not reported
TankSystem Status Change Date:	08/26/1996
Tank Status:	Operational
Tank Permit Expiration Date:	03/31/2010
Tank Closure Date:	01/01/2001
Tank Pumping System:	Pressurized System
Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Automatic Shutoff (fill pipe)
Tank Material:	Fiberglass Reinforced Plastic
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Corrosion Resistant
Pipe Material:	Fiberglass
Pipe Construction:	Single Wall Pipe
Pipe Primary Release Detection:	Automatic Line Leak Detection
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Corrosion Resistant
Tank Primary Release Detection:	Automatic Tank Gauging
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Annual
Tank Actual Status Date:	08/06/1996
Tag Number:	a8514

Tank ID:	15316
Tank Name:	3
Install Date:	12/02/1991
Capacity:	10,000 to 19,999 Gallons
Tank Upgrade Date:	12/02/1991
TankSystem Status:	Not reported
TankSystem Status Change Date:	08/26/1996
Tank Status:	Operational
Tank Permit Expiration Date:	03/31/2010
Tank Closure Date:	01/01/2001
Tank Pumping System:	Pressurized System
Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Ball Float Valve (vent line)
Tank Material:	Fiberglass Reinforced Plastic
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Corrosion Resistant
Pipe Material:	Fiberglass
Pipe Construction:	Single Wall Pipe
Pipe Primary Release Detection:	Automatic Line Leak Detection
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Corrosion Resistant
Tank Primary Release Detection:	Automatic Tank Gauging
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Annual
Tank Actual Status Date:	08/06/1996
Tag Number:	a8514

TANK N TOTE (Continued) **U003025156**

Tank ID:	15382
Tank Name:	2
Install Date:	12/02/1991
Capacity:	10,000 to 19,999 Gallons
Tank Upgrade Date:	12/02/1991
TankSystem Status:	Not reported
TankSystem Status Change Date:	08/26/1996
Tank Status:	Operational
Tank Permit Expiration Date:	03/31/2010
Tank Closure Date:	01/01/2001
Tank Pumping System:	Pressurized System
Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Automatic Shutoff (fill pipe)
Tank Material:	Fiberglass Reinforced Plastic
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Corrosion Resistant
Pipe Material:	Fiberglass
Pipe Construction:	Single Wall Pipe
Pipe Primary Release Detection:	Automatic Line Leak Detection
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Corrosion Resistant
Tank Primary Release Detection:	Automatic Tank Gauging
Tank Second Release Detection:	Not reported
Pipe Tightness Test:	Annual
Tank Actual Status Date:	08/06/1996
Tag Number:	a8514

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26 **BLAINE SHELL** **CSCSL** **S108969465**
ENE **360 D ST** **ALLSITES** **N/A**
1/2-1 **BLAINE, WA 98230** **LUST**
0.798 mi. **VCP**
4213 ft.

Relative:
Higher

Actual:
54 ft.

CSCSL:

Facility ID:	9525494
Region:	Northwest
Lat/Long:	48.998179999999 / -122.74848
Brownfield Status:	Not reported
Rank Status:	Not reported
Clean Up Siteid:	5492
Site Status:	Cleanup Started
PSI?:	Yes
Contaminant Name:	Benzene
Ground Water:	C
Surface Water:	Not reported
Soil:	C
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	9525494
Region:	Northwest
Lat/Long:	48.998179999999 / -122.74848
Brownfield Status:	Not reported
Rank Status:	Not reported
Clean Up Siteid:	5492

BLAINE SHELL (Continued) **S108969465**

Site Status: Cleanup Started
PSI?: Yes
Contaminant Name: Petroleum-Gasoline
Ground Water: C
Surface Water: Not reported
Soil: C
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

ALLSITES:
Facility Id: 9525494
Latitude: 48.9981799
Longitude: -122.74848
Geographic location identifier (alias facid): 9525494
Facility Name: Blaine Shell
Latitude Decimal Degrees: 48.998179999999998
Longitude Decimal Degrees: -122.74848
Coordinate Point Areal Extent Code: 99
Horizontal Accuracy Code: 99
Coordinate Point Geographic Position Code: 99
Location Verified Code: N

LUST:
FS ID: 9525494
Cleanup Site ID: 5492
Cleanup Unit Type: Upland
Process Type: Voluntary Cleanup Program
Facility Status: Awaiting Cleanup
Alternate Name: SHELL BLAINE
Release Notification Date: Not reported
Release Status Date: 09/11/2003
Site Response Unit Code: Northwest
Lat/Long: 48.9981799 / -122.74848

FS ID: 9525494
Cleanup Site ID: 5492
Cleanup Unit Type: Upland
Process Type: Voluntary Cleanup Program
Facility Status: Cleanup Started
Alternate Name: SHELL BLAINE
Release Notification Date: Not reported
Release Status Date: 06/20/2006
Site Response Unit Code: Northwest
Lat/Long: 48.9981799 / -122.74848

VCP:
edr_fstat: WA
edr_fzip: 98230
edr_fcnty: WHATCOM COUNTY
edr_zip: Not reported
Facility ID: 9525494
VCP Status: PSI,VCP
VCP: Not reported

BLAINE SHELL (Continued) **S108969465**

Ecology Status: Cleanup Started
NFA Type: Cleanup Started
Date NFA: Cleanup Started
Rank: Cleanup Started

Count: 20 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BLAINE	1000199675	BLAINE DRUG LAB	8600 CUSTER RD	98230	FINDS,RCRA-NLR,ALLSITES
BLAINE	1000878679	US DOJ DEA PEACE ARCH BLAINE	US CUSTOMS PEACE ARCH	98230	FINDS,RCRA-NLR,ALLSITES
BLAINE	1001820655	US GSA	PACIFIC HWY BORDER STA	98230	FINDS,RCRA-NLR
BLAINE	1004614143	PUGET SOUND POWER & LIGHT CO BLAIN	4518 SWEET WATER RD	98230	FTTS,FINDS,HIST FTTS INSP
BLAINE	1007066446	SPRINT COMMUNICATIONS CO BLAINE	3608 H ST RD		FINDS,ALLSITES
BLAINE	1007072972	BLAINE WA LINE SEG 50 PRINT 476	MP 11E.5 2ND SUB PACIFIC DIV	98230	FINDS,ALLSITES
BIRCH BAY	1007081346	FUDS BLAINE AFS	NEAR BIRCH BAY	98230	FINDS
BLAINE	1007993350	BLAINE, CITY OF	344	98230	FINDS
BLAINE	1007998957	AT&T BLAINE	BLAN FT1S F278 SW1/4 S 31 T41N	98230	FINDS,ALLSITES
BLAINE	1008175581	BELLINGHAM PORT OF BLAINE HARBOR	MARINE DR	98230	HIST FTTS INSP
BLAINE	1010001288	BELLINGHAM PORT OF BLAINE HARBOR	MARINE DR	98230	FTTS
BLAINE	1011975405	BLAINE MUNI	UNKNOWN		FINDS
BLAINE	1012302633	THE RESERVE BLAINE CSWGP	E OF SEMIAHMOO PARKWAY	98230	FINDS
BLAINE	1012312704	DRAYTON FARM	E OF SHINTAFFER RD	98230	FINDS
BLAINE	2007322271	BLAINE HARBOR	BLAINE HARBOR		ERNS
BLAINE	2008858732	BLAINE HARBOR	BLAINE HARBOR		ERNS
BLAINE	2008874672	PORT OF BELLINGHAM BLAINE MARINA	PORT OF BELLINGHAM BLAINE MARI		ERNS
BLAINE	2008881128	211 MARINA DR	211 MARINA DR		ERNS
BLAINE	2008885081	BLAINE HARBOR	BLAINE HARBOR		ERNS
BLAINE	S109555069	US GSA BLAINE	PACIFIC HWY BORDER STA	98230	ALLSITES

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 06/30/2011
Date Data Arrived at EDR: 07/12/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 79

Source: EPA
Telephone: N/A
Last EDR Contact: 10/12/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 06/30/2011
Date Data Arrived at EDR: 07/12/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 79

Source: EPA
Telephone: N/A
Last EDR Contact: 10/12/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 06/30/2011
Date Data Arrived at EDR: 07/12/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 79

Source: EPA
Telephone: N/A
Last EDR Contact: 10/12/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/25/2011
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 09/01/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/10/2010
Date Data Arrived at EDR: 01/11/2011
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 10/14/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 02/25/2011
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 09/01/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/09/2011
Date Data Arrived at EDR: 03/15/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 91

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 11/14/2011
Next Scheduled EDR Contact: 02/27/2012
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 10/05/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 10/05/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 10/05/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 10/05/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/16/2011
Date Data Arrived at EDR: 03/25/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/16/2011
Date Data Arrived at EDR: 03/25/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 10/03/2011
Date Data Arrived at EDR: 10/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 38

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 10/04/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Annually

State- and tribal - equivalent NPL

HSL: Hazardous Sites List

The Hazardous Sites List is a subset of the CSCSL Report. It includes sites which have been assessed and ranked using the Washington Ranking Method (WARM).

Date of Government Version: 08/31/2011
Date Data Arrived at EDR: 09/22/2011
Date Made Active in Reports: 11/10/2011
Number of Days to Update: 49

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 09/13/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

State- and tribal - equivalent CERCLIS

CSCSL: Confirmed and Suspected Contaminated Sites List

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 07/28/2011
Date Data Arrived at EDR: 07/29/2011
Date Made Active in Reports: 09/08/2011
Number of Days to Update: 41

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 10/27/2011
Next Scheduled EDR Contact: 02/06/2012
Data Release Frequency: Semi-Annually

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Solid Waste Facility Database

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 10/11/2011
Date Data Arrived at EDR: 10/11/2011
Date Made Active in Reports: 11/10/2011
Number of Days to Update: 30

Source: Department of Ecology
Telephone: 360-407-6132
Last EDR Contact: 10/11/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Annually

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tanks Site List

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 08/23/2011
Date Data Arrived at EDR: 08/25/2011
Date Made Active in Reports: 09/21/2011
Number of Days to Update: 27

Source: Department of Ecology
Telephone: 360-407-7183
Last EDR Contact: 08/25/2011
Next Scheduled EDR Contact: 12/05/2011
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 01/31/2011
Date Data Arrived at EDR: 02/01/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 48

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Quarterly

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 08/11/2011
Date Data Arrived at EDR: 08/12/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 32

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Semi-Annually

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/02/2011
Date Data Arrived at EDR: 11/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 7

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/01/2011
Date Data Arrived at EDR: 11/01/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 10

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 11/01/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 59

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 02/16/2011
Date Data Arrived at EDR: 06/02/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 103

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/18/2011
Date Data Arrived at EDR: 08/19/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 25

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Quarterly

State and tribal registered storage tank lists

UST: Underground Storage Tank Database
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 08/24/2011
Date Data Arrived at EDR: 08/26/2011
Date Made Active in Reports: 09/14/2011
Number of Days to Update: 19

Source: Department of Ecology
Telephone: 360-407-7183
Last EDR Contact: 08/26/2011
Next Scheduled EDR Contact: 12/05/2011
Data Release Frequency: Quarterly

AST: Aboveground Storage Tank Locations
A listing of aboveground storage tank locations regulated by the Department of Ecology's Spill Prevention, Preparedness and Response Program.

Date of Government Version: 05/27/2009
Date Data Arrived at EDR: 05/28/2009
Date Made Active in Reports: 06/19/2009
Number of Days to Update: 22

Source: Department of Ecology
Telephone: 360-407-7562
Last EDR Contact: 11/07/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 08/11/2011
Date Data Arrived at EDR: 08/12/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 32

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Semi-Annually

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 08/04/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 39

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/18/2011
Date Data Arrived at EDR: 08/19/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 25

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 11/02/2011
Date Data Arrived at EDR: 11/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 7

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/01/2011
Date Data Arrived at EDR: 11/01/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 10

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 07/01/2011
Date Data Arrived at EDR: 08/26/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 18

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/10/2011
Date Data Arrived at EDR: 05/11/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 34

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/01/2011
Date Data Arrived at EDR: 06/01/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 13
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 10/17/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

INST CONTROL: Institutional Control Site List
Sites that have institutional controls.

Date of Government Version: 08/17/2011
Date Data Arrived at EDR: 08/19/2011
Date Made Active in Reports: 09/14/2011
Number of Days to Update: 26
Source: Department of Ecology
Telephone: 360-407-7170
Last EDR Contact: 11/17/2011
Next Scheduled EDR Contact: 02/27/2012
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 08/04/2011
Date Data Arrived at EDR: 10/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 38
Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 10/04/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Sites
Sites that have entered either the Voluntary Cleanup Program or its predecessor Independent Remedial Action Program.

Date of Government Version: 07/22/2011
Date Data Arrived at EDR: 08/02/2011
Date Made Active in Reports: 08/18/2011
Number of Days to Update: 16
Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 10/25/2011
Next Scheduled EDR Contact: 02/06/2012
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27
Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

ICR: Independent Cleanup Reports
These are remedial action reports Ecology has received from either the owner or operator of the sites. These actions have been conducted without department oversight or approval and are not under an order or decree. This database is no longer updated by the Department of Ecology.

Date of Government Version: 12/01/2002
Date Data Arrived at EDR: 01/03/2003
Date Made Active in Reports: 01/22/2003
Number of Days to Update: 19
Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 08/10/2009
Next Scheduled EDR Contact: 11/09/2009
Data Release Frequency: No Update Planned

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Sites Listing
A listing of brownfields sites included in the Confirmed & Suspected Sites Listing. Brownfields are abandoned, idle or underused commercial or industrial properties, where the expansion or redevelopment is hindered by real or perceived contamination. Brownfields vary in size, location, age, and past use -- they can be anything from a five-hundred acre automobile assembly plant to a small, abandoned corner gas station.

Date of Government Version: 07/28/2011
Date Data Arrived at EDR: 07/29/2011
Date Made Active in Reports: 08/18/2011
Number of Days to Update: 20
Source: Department of Ecology
Telephone: 360-725-4030
Last EDR Contact: 10/27/2011
Next Scheduled EDR Contact: 02/06/2012
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 06/27/2011
Date Data Arrived at EDR: 06/27/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 78
Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/28/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137
Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39
Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWTIRE: Solid Waste Tire Facilities
This study identified sites statewide with unauthorized accumulations of scrap tires.

Date of Government Version: 11/01/2005
Date Data Arrived at EDR: 03/16/2006
Date Made Active in Reports: 04/13/2006
Number of Days to Update: 28
Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 09/15/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52
Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 11/07/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 06/08/2011
Date Data Arrived at EDR: 09/16/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 13
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 09/07/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: Quarterly

ALLSITES: Facility/Site Identification System Listing
Information on facilities and sites of interest to the Department of Ecology.

Date of Government Version: 08/09/2011
Date Data Arrived at EDR: 08/09/2011
Date Made Active in Reports: 09/14/2011
Number of Days to Update: 36
Source: Department of Ecology
Telephone: 360-407-6423
Last EDR Contact: 11/08/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Quarterly

CSCSL NFA: Confirmed and Contaminated Sites - No Further Action
The data set contains information about sites previously on the Confirmed and Suspected Contaminated Sites list that have received a No Further Action (NFA) determination. Because it is necessary to maintain historical records of sites that have been investigated and cleaned up, sites are not deleted from the database when cleanup activities are completed. Instead, a No Further Action code is entered based upon the type of NFA determination the site received.

Date of Government Version: 07/28/2011
Date Data Arrived at EDR: 07/29/2011
Date Made Active in Reports: 08/18/2011
Number of Days to Update: 20

Source: Department of Ecology
Telephone: 360-407-7170
Last EDR Contact: 10/27/2011
Next Scheduled EDR Contact: 02/06/2012
Data Release Frequency: Semi-Annually

CDL: Clandestine Drug Lab Contaminated Site List

Illegal methamphetamine labs use hazardous chemicals that create public health hazards. Chemicals and residues can cause burns, respiratory and neurological damage, and death. Biological hazards associated with intravenous needles, feces, and blood also pose health risks.

Date of Government Version: 02/09/2009
Date Data Arrived at EDR: 03/18/2009
Date Made Active in Reports: 03/24/2009
Number of Days to Update: 6

Source: Department of Health
Telephone: 360-236-3380
Last EDR Contact: 11/15/2011
Next Scheduled EDR Contact: 02/27/2012
Data Release Frequency: Varies

HIST CDL: List of Sites Contaminated by Clandestine Drug Labs

This listing of contaminated sites by Clandestine Drug Labs includes non-remediated properties. The current CDL listing does not. This listing is no longer updated by the state agency.

Date of Government Version: 02/08/2007
Date Data Arrived at EDR: 06/26/2007
Date Made Active in Reports: 07/19/2007
Number of Days to Update: 23

Source: Department of Health
Telephone: 360-236-3381
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 09/09/2011
Date Data Arrived at EDR: 09/16/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 07/11/2011
Next Scheduled EDR Contact: 09/05/2011
Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 10/04/2011
Date Data Arrived at EDR: 10/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 38
Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 10/04/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Annually

SPILLS: Reported Spills
Spills reported to the Spill Prevention, Preparedness and Response Division.

Date of Government Version: 09/23/2011
Date Data Arrived at EDR: 09/27/2011
Date Made Active in Reports: 11/10/2011
Number of Days to Update: 44
Source: Department of Ecology
Telephone: 360-407-6950
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

Other Ascertainable Records

RCRA-NonGen: RCRA - Non Generators
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32
Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 10/05/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/29/2011
Date Data Arrived at EDR: 08/09/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 94
Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 11/08/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Varies

DOD: Department of Defense Sites
This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62
Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 10/20/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites
The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 08/12/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 112
Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 06/01/2011
Date Data Arrived at EDR: 08/19/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 41

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 10/03/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/31/2011
Date Data Arrived at EDR: 09/14/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 15

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/14/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/21/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 99

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/31/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Varies

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/18/2011
Date Data Arrived at EDR: 09/08/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 21

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 09/08/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/17/2010
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 94

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 09/01/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/27/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: Every 4 Years

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/31/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/31/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77
Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 01/07/2011
Date Data Arrived at EDR: 01/21/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 59

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2010
Date Data Arrived at EDR: 11/10/2010
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 98

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 10/19/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 06/21/2011
Date Data Arrived at EDR: 07/15/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 60

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/11/2011
Date Data Arrived at EDR: 01/13/2011
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 34

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 10/13/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/14/2010
Date Data Arrived at EDR: 04/16/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 41

Source: EPA
Telephone: (206) 553-1200
Last EDR Contact: 09/13/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/01/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Biennially

UIC: Underground Injection Wells Listing

A listing of underground injection wells.

Date of Government Version: 08/23/2011
Date Data Arrived at EDR: 08/25/2011
Date Made Active in Reports: 09/14/2011
Number of Days to Update: 20

Source: Department of Ecology
Telephone: 360-407-6143
Last EDR Contact: 08/25/2011
Next Scheduled EDR Contact: 12/05/2011
Data Release Frequency: Varies

WA MANIFEST: Hazardous Waste Manifest Data

Hazardous waste manifest information.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 06/30/2011
Date Made Active in Reports: 07/27/2011
Number of Days to Update: 27

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 10/24/2011
Next Scheduled EDR Contact: 02/06/2012
Data Release Frequency: Annually

DRYCLEANERS: Drycleaner List

A listing of registered drycleaners who registered with the Department of Ecology (using the SIC code of 7215 and 7216) as hazardous waste generators.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 06/30/2011
Date Made Active in Reports: 07/27/2011
Number of Days to Update: 27

Source: Department of Ecology
Telephone: 360-407-6732
Last EDR Contact: 10/24/2011
Next Scheduled EDR Contact: 02/06/2012
Data Release Frequency: Varies

NPDES: Water Quality Permit System Data

A listing of permitted wastewater facilities.

Date of Government Version: 08/01/2011
Date Data Arrived at EDR: 08/03/2011
Date Made Active in Reports: 08/31/2011
Number of Days to Update: 28

Source: Department of Ecology
Telephone: 360-407-6073
Last EDR Contact: 11/07/2011
Next Scheduled EDR Contact: 02/06/2012
Data Release Frequency: Quarterly

AIRS (EMI): Washington Emissions Data System

Emissions inventory data.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 01/11/2011
Date Made Active in Reports: 02/23/2011
Number of Days to Update: 43

Source: Department of Ecology
Telephone: 360-407-6040
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: Annually

INACTIVE DRYCLEANERS: Inactive Drycleaners
A listing of inactive drycleaner facility locations.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 06/30/2011
Date Made Active in Reports: 07/27/2011
Number of Days to Update: 27
Source: Department of Ecology
Telephone: 360-407-6732
Last EDR Contact: 10/24/2011
Next Scheduled EDR Contact: 02/06/2012
Data Release Frequency: Annually

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34
Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 10/20/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing
The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54
Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 10/24/2011
Next Scheduled EDR Contact: 02/06/2012
Data Release Frequency: Varies

FINANCIAL ASSURANCE 3: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/19/2007
Number of Days to Update: 44
Source: Department of Ecology
Telephone: 360-407-6136
Last EDR Contact: 08/23/2011
Next Scheduled EDR Contact: 12/05/2011
Data Release Frequency: Varies

FINANCIAL ASSURANCE 1: Financial Assurance Information Listing
A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 08/24/2011
Date Data Arrived at EDR: 08/26/2011
Date Made Active in Reports: 09/21/2011
Number of Days to Update: 26
Source: Department of Ecology
Telephone: 360-586-1060
Last EDR Contact: 08/22/2011
Next Scheduled EDR Contact: 12/05/2011
Data Release Frequency: Varies

FINANCIAL ASSURANCE 2: Financial Assurance Information Listing
A listing of financial assurance information for hazardous waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 05/23/2011
Date Data Arrived at EDR: 05/26/2011
Date Made Active in Reports: 06/27/2011
Number of Days to Update: 32
Source: Department of Ecology
Telephone: 360-407-6754
Last EDR Contact: 08/22/2011
Next Scheduled EDR Contact: 12/05/2011
Data Release Frequency: Varies

COAL ASH: Coal Ash Disposal Site Listing
A listing of coal ash disposal site locations.

Date of Government Version: 06/29/2009
Date Data Arrived at EDR: 07/02/2009
Date Made Active in Reports: 07/08/2009
Number of Days to Update: 6
Source: Department of Ecology
Telephone: 360-407-6933
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 10/18/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 09/16/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 01/01/2008
Date Data Arrived at EDR: 02/18/2009
Date Made Active in Reports: 05/29/2009
Number of Days to Update: 100
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 11/04/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339
Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/20/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: N/A

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

COUNTY RECORDS

KING COUNTY:

Abandoned Landfill Study in King County
The King County Abandoned Landfill Survey was conducted from October through December 1984 by the Health Department's Environmental Health Division at the request of the King County Council. The primary objective of the survey was to determine if any public health problems existed at the predetermined 24 sites.

Date of Government Version: 04/30/1985
Date Data Arrived at EDR: 11/07/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Seattle-King County Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 10/21/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SEATTLE COUNTY:

Abandoned Landfill Study in the City of Seattle
The Seattle Abandoned Landfill Survey was conducted in June and July of 1984 by the Health Department's Environmental Health Division at the request of the Mayor's Office. The primary objective of the survey was to determine if any public health problems existed at the predetermined 12 sites.

Date of Government Version: 07/30/1984
Date Data Arrived at EDR: 11/07/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Seattle - King County Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 10/21/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SEATTLE/KING COUNTY:

Seattle - King County Abandoned Landfill Toxicity / Hazard Assessment Project
This report presents the Seattle-King County Health Department's follow-up investigation of two city owned and four county owned abandoned landfills which was conducted from February to December 1986.

Date of Government Version: 12/31/1986
Date Data Arrived at EDR: 08/18/1995
Date Made Active in Reports: 09/20/1995
Number of Days to Update: 33

Source: Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 08/14/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SNOHOMISH COUNTY:

Solid Waste Sites of Record at Snohomish Health District
Solid waste disposal and/or utilization sites in Snohomish County.

Date of Government Version: 03/08/2011
Date Data Arrived at EDR: 03/31/2011
Date Made Active in Reports: 05/06/2011
Number of Days to Update: 36

Source: Snohomish Health District
Telephone: 206-339-5250
Last EDR Contact: 09/30/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: Semi-Annually

TACOMA/PIERCE COUNTY:

Closed Landfill Survey

Following numerous requests for information about closed dumpsites and landfills in Pierce County, the Tacoma-Pierce County Health Department decided to conduct a study on the matter. The aim of the study was to evaluate public health risks associated with the closed dumpsites and landfills, and to determine the need, if any, for further investigations of a more detailed nature. The sites represent all of the known dumpsites and landfills closed after 1950.

Date of Government Version: 09/01/2002
Date Data Arrived at EDR: 03/24/2003
Date Made Active in Reports: 05/14/2003
Number of Days to Update: 51

Source: Tacoma-Pierce County Health Department
Telephone: 206-591-6500
Last EDR Contact: 03/19/2003
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 08/26/2009
Date Made Active in Reports: 09/11/2009
Number of Days to Update: 16

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 10/28/2011
Next Scheduled EDR Contact: 12/05/2011
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 08/01/2011
Date Data Arrived at EDR: 08/09/2011
Date Made Active in Reports: 09/16/2011
Number of Days to Update: 38

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 11/08/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 12/01/2009
Date Made Active in Reports: 12/14/2009
Number of Days to Update: 13

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 08/19/2011
Date Made Active in Reports: 09/15/2011
Number of Days to Update: 27

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Daycare Center Listing
Source: Department of Social & Health Services
Telephone: 253-383-1735

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

BLAINE MARINA TANK FARM SITE
214 SIGURDSON AVE
BLAINE, WA 98230

TARGET PROPERTY COORDINATES

Latitude (North):	48.99240 - 48° 59' 32.6''
Longitude (West):	122.7639 - 122° 45' 50.0''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	517272.1
UTM Y (Meters):	5426419.0
Elevation:	5 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	48122-H7 BIRCH POINT, WA
Most Recent Revision:	1994
East Map:	48122-H6 BLAINE, WA
Most Recent Revision:	1994

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

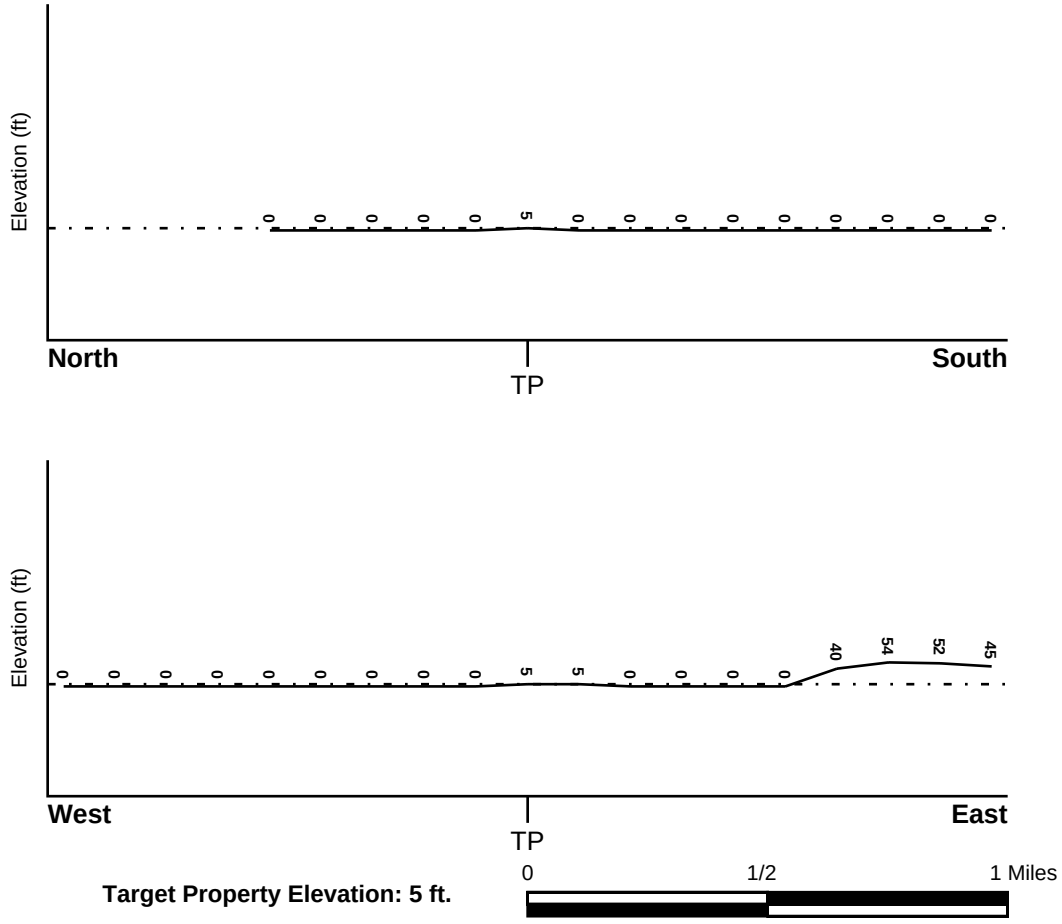
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: Undeterminable

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
WHATCOM, WA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 53073C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
BIRCH POINT	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

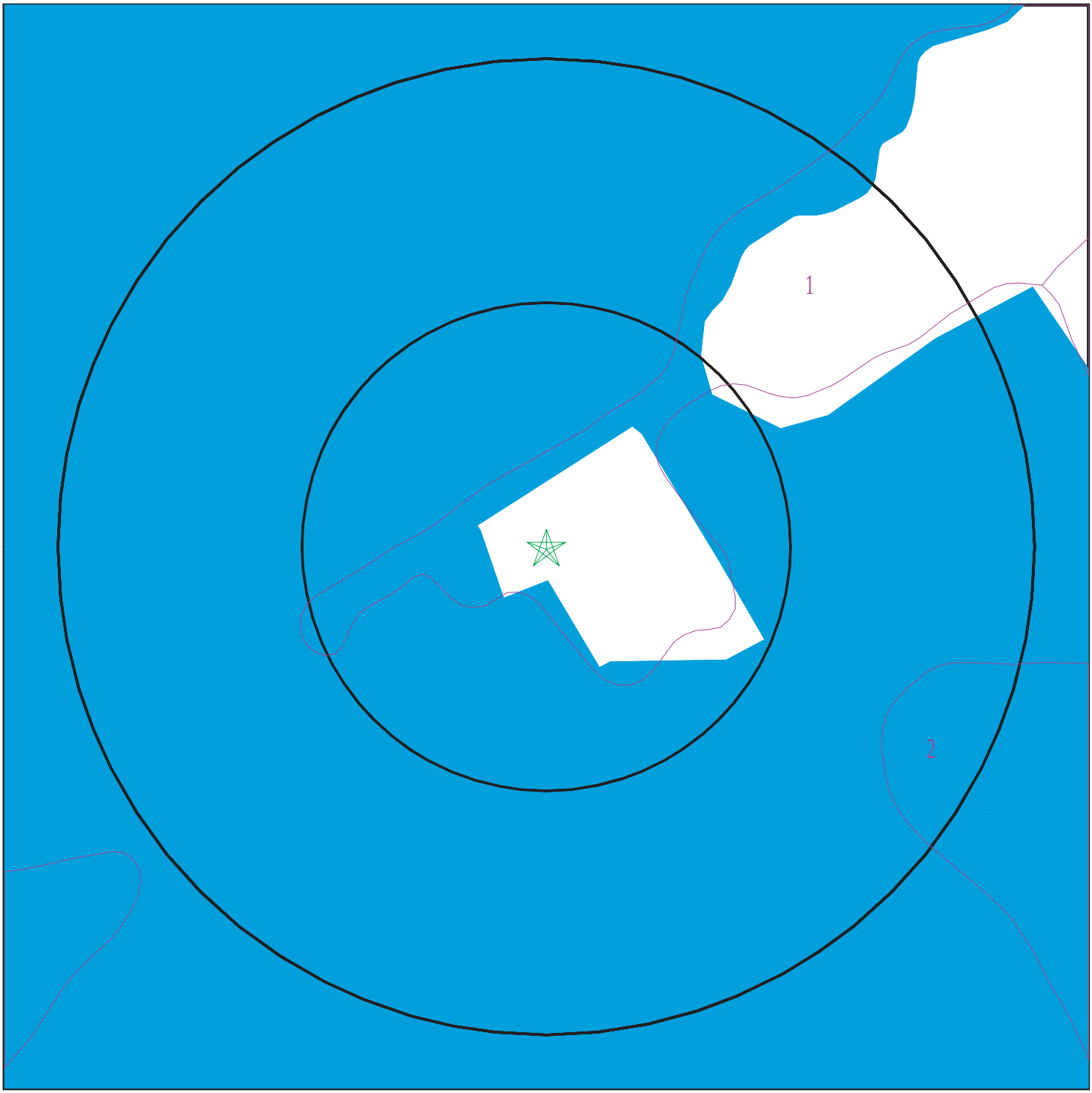
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 3209005.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Blaine Marina Tank Farm Site	CLIENT:	Landau Associates, Inc.
ADDRESS:	214 Sigurdson Ave Blaine WA 98230	CONTACT:	Mark Brunner
LAT/LONG:	48.9924 / 122.7639	INQUIRY #:	3209005.2s
		DATE:	November 17, 2011 10:56 am

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Blainegate

Soil Surface Texture: silty clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 15 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0 Min: 0	Max: 7.3 Min: 6.6
2	9 inches	26 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0 Min: 0	Max: 7.3 Min: 6.6
3	26 inches	59 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0 Min: 0	Max: 7.3 Min: 6.6

Soil Map ID: 2

Soil Component Name: Hydraquents

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 5 Min: 3.6
2	5 inches	59 inches	stratified fine sandy loam to silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 5 Min: 3.6

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

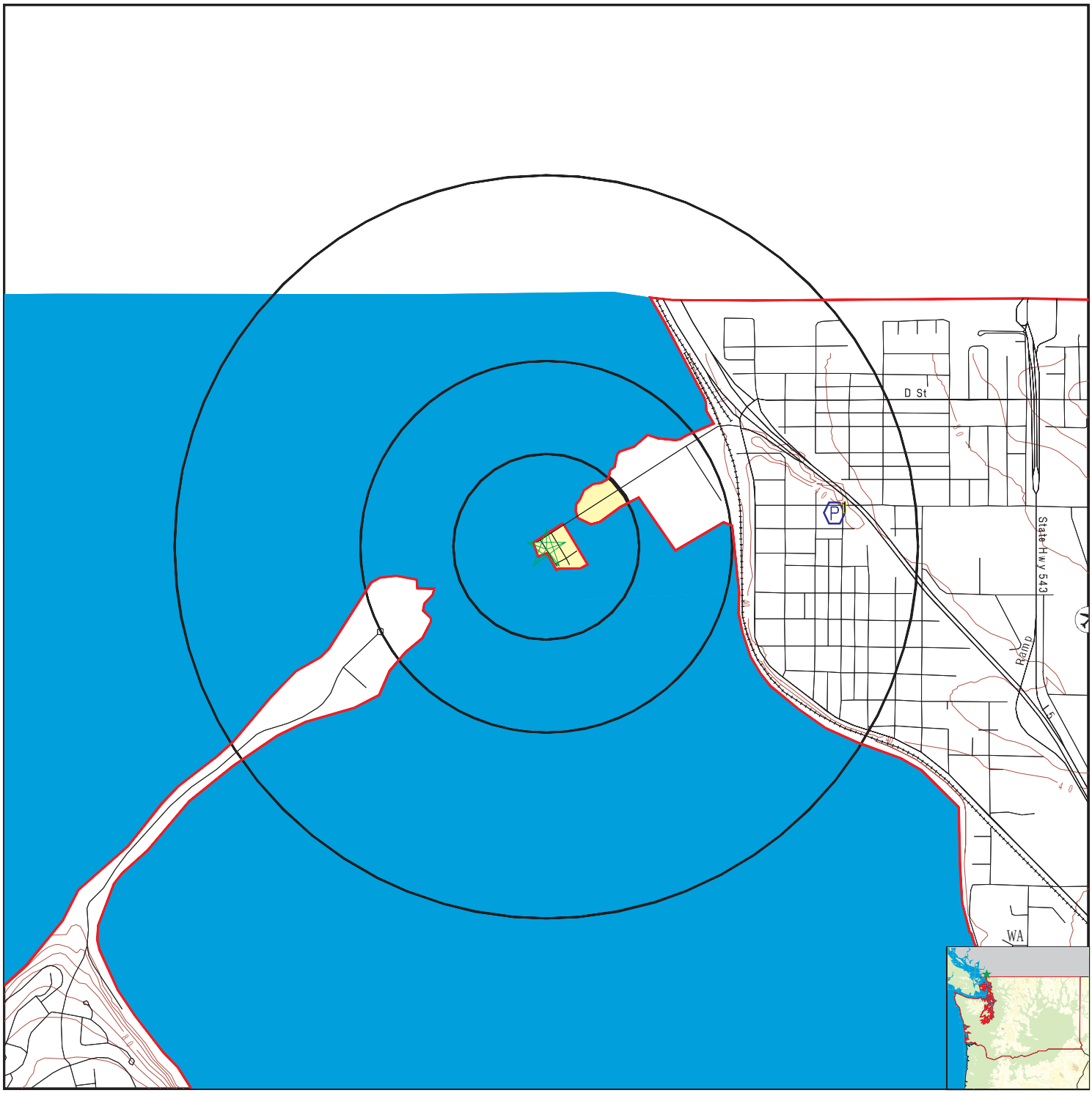
MAP ID	WELL ID	LOCATION FROM TP
1	WA5307300	1/2 - 1 Mile East

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 3209005.2s



- County Boundary
- Major Roads
- Contour Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data

SITE NAME:	Blaine Marina Tank Farm Site	CLIENT:	Landau Associates, Inc.
ADDRESS:	214 Sigurdson Ave Blaine WA 98230	CONTACT:	Mark Brunner
LAT/LONG:	48.9924 / 122.7639	INQUIRY #:	3209005.2s
		DATE:	November 17, 2011 10:56 am

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
East
1/2 - 1 Mile
Higher | **FRDS PWS** | **WA5307300**

Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8045		
Facility name:	WELL #2		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		

Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8046		
Facility name:	WELL #3 (WAS ABAN D)		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		

Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8047		
Facility name:	WELL #4		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		

Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8048		
Facility name:	WELL #5		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8049		
Facility name:	LINCOLN PARK		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8050		
Facility name:	12TH STREET		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		

Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8051		
Facility name:	WELL #6		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	2353		
Facility name:	Wells 2, 4, 5		
Facility type:	Treatment_plant	Treatment process:	hypochlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	2354		
Facility name:	Lincoln Park Well 12		
Facility type:	Treatment_plant	Treatment process:	hypochlorination, post
Treatment objective:	disinfection		

Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	4		
Facility name:	WELL #4		
Facility type:	Well	Treatment process:	hypochlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	5		
Facility name:	WELL #5		
Facility type:	Well	Treatment process:	hypochlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	6		
Facility name:	LINCOLN PARK		
Facility type:	Well	Treatment process:	hypochlorination, post
Treatment objective:	disinfection		

Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	7		
Facility name:	12TH STREET		
Facility type:	Well	Treatment process:	hypochlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8		
Facility name:	WELL #6		
Facility type:	Well	Treatment process:	hypochlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	5		
Facility name:	WELL #5		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		

Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	6		
Facility name:	LINCOLN PARK		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	7		
Facility name:	12TH STREET		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8		
Facility name:	WELL #6		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		

Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8044		
Facility name:	WELL #1-ABAN D		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8045		
Facility name:	WELL #2		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8053		
Facility name:	WELL #1R-UNAPPV D		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		

Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8054		
Facility name:	WELL #3R-UNAPPV D		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	10		
Facility name:	WELL #1R-UNAPPV D		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	11		
Facility name:	WELL #3R-UNAPPV D		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		

Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	2		
Facility name:	WELL #2		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	2353		
Facility name:	Wells 2, 4, 5		
Facility type:	Treatment_plant	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8052		
Facility name:	WELL #9-UNAPPV D		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		

Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8053		
Facility name:	WELL #1R-UNAPPV D		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8054		
Facility name:	WELL #3R-UNAPPV D		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	10		
Facility name:	WELL #1R-UNAPPV D		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		

Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	11		
Facility name:	WELL #3R-UNAPPV D		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	2		
Facility name:	WELL #2		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	2353		
Facility name:	Wells 2, 4, 5		
Facility type:	Treatment_plant	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		

Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	2354		
Facility name:	Lincoln Park Well 12		
Facility type:	Treatment_plant	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	4		
Facility name:	WELL #4		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	5		
Facility name:	WELL #5		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		

Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	6		
Facility name:	LINCOLN PARK		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	7		
Facility name:	12TH STREET		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8		
Facility name:	WELL #6		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		

Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8044		
Facility name:	WELL #1-ABAN D		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8045		
Facility name:	WELL #2		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8046		
Facility name:	WELL #3 (WAS ABAN D)		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		

Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8047		
Facility name:	WELL #4		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8048		
Facility name:	WELL #5		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8049		
Facility name:	LINCOLN PARK		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		

Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8050		
Facility name:	12TH STREET		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8051		
Facility name:	WELL #6		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8052		
Facility name:	WELL #9-UNAPPV D		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		

Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8053		
Facility name:	WELL #1R-UNAPPV D		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		
Pwsid:	WA5307300	Epa region:	10
State:	WA	County:	Whatcom
Pws name:	BLAINE, CITY OF		
Population Served:	4855	Pwssvcconn:	2112
PWS Source:	Groundwater		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	8054		
Facility name:	WELL #3R-UNAPPV D		
Facility type:	Well	Treatment process:	gaseous chlorination, post
Treatment objective:	disinfection		
Contact name:	LEROY DOUGALL		
Original name:	BLAINE, CITY OF		
Contact phone:	Not Reported	Contact address1:	1200 YEW AVE
Contact address2:	Not Reported		
Contact city:	BLAINE		
Contact zip:	98230		

PWS ID:	WA5307300		
Date Initiated:	Not Reported	Date Deactivated:	Not Reported
PWS Name:	BLAINE, CITY OF BLAINE, WA 98230		

Addressee / Facility:	Not Reported		
Facility Latitude:	48 59 38	Facility Longitude:	122 44 44
City Served:	Not Reported		
Treatment Class:	Treated	Population:	3175

PWS currently has or had major violation(s) or enforcement: YES

VIOLATIONS INFORMATION:

Violation ID:	9425138	Source ID:	Not Reported	PWS Phone:	Not Reported
Vio. beginning Date:	03/01/94	Vio. end Date:	03/31/94	Vio. Period:	001 Months
Num required Samples:	Not Reported	Number of Samples Taken:		Not Reported	
Analysis Result:	Not Reported	Maximum Contaminant Level:		Not Reported	
Analysis Method:	Not Reported				
Violation Type:	MCL, Monthly (TCR)				
Contaminant:	COLIFORM (TCR)				
Vio. Awareness Date:	033194				

Violation ID:	9400050	Source ID:	Not Reported	PWS Phone:	Not Reported
Vio. beginning Date:	11/01/93	Vio. end Date:	11/30/93	Vio. Period:	001 Months
Num required Samples:	Not Reported	Number of Samples Taken:		Not Reported	
Analysis Result:	Not Reported	Maximum Contaminant Level:		Not Reported	
Analysis Method:	Not Reported				
Violation Type:	MCL, Monthly (TCR)				
Contaminant:	COLIFORM (TCR)				
Vio. Awareness Date:	113093				

ENFORCEMENT INFORMATION:

Truedate:	03/31/2009	Pwsid:	WA5307300
Pwsname:	BLAINE, CITY OF		
Retpopsrvd:	6305	Pwstypecod:	C
Vioid:	0662724	Contaminant:	NITRATE
Viol. Type:	3		
Complperbe:	1/1/2006 0:00:00		
Complperen:	12/31/2006 0:00:00	Enfdate:	6/12/2007 0:00:00
Enf action:	State Compliance Achieved		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	WA5307300
Pwsname:	BLAINE, CITY OF		
Retpopsrvd:	6305	Pwstypecod:	C
Vioid:	0682317	Contaminant:	LEAD & COPPER RULE
Viol. Type:	Follow-up and Routine Tap Sampling		
Complperbe:	1/1/2007 0:00:00		
Complperen:	12/31/2007 0:00:00	Enfdate:	12/31/2007 0:00:00
Enf action:	State Compliance Achieved		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	WA5307300
Pwsname:	BLAINE, CITY OF		
Retpopsrvd:	6305	Pwstypecod:	C
Vioid:	0770935	Contaminant:	NITRATE
Viol. Type:	3		
Complperbe:	1/1/2007 0:00:00		
Complperen:	12/31/2007 0:00:00	Enfdate:	5/13/2008 0:00:00
Enf action:	State Compliance Achieved		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	WA5307300
Pwsname:	BLAINE, CITY OF		
Retpopsrvd:	6305	Pwstypecod:	C
Vioid:	08442971005	Contaminant:	ARSENIC
Viol. Type:	3		
Complperbe:	10/1/2008 0:00:00		
Complperen:	12/31/2008 0:00:00	Enfdate:	No Enf Action as of
Enf action:	7/8/2009 0:00:00		
Violmeasur:	Not Reported		

System Name:	BLAINE, CITY OF		
Violation Type:	CCR Complete Failure to Report		
Contaminant:	7000		
Compliance Period:	1999-10-19 - 1999-12-31		
Violation ID:	0099999		
Enforcement Date:	1999-12-31	Enf. Action:	Fed Compliance Achieved

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

ENFORCEMENT INFORMATION:

System Name:	BLAINE, CITY OF		
Violation Type:	3		
Contaminant:	NITRATE		
Compliance Period:	1/1/2006 0:00:00 - 12/31/2006 0:00:00		
Violation ID:	0662724		
Enforcement Date:	4/12/2007 0:00:00	Enf. Action:	Not Reported
System Name:	BLAINE, CITY OF		
Violation Type:	MCL, Monthly (TCR)		
Contaminant:	COLIFORM (TCR)		
Compliance Period:	1994-03-01 - 1994-03-31		
Violation ID:	9425138		
Enforcement Date:	1994-03-31	Enf. Action:	State Violation/Reminder Notice
System Name:	BLAINE, CITY OF		
Violation Type:	MCL, Monthly (TCR)		
Contaminant:	COLIFORM (TCR)		
Compliance Period:	1994-08-01 - 1994-08-31		
Violation ID:	9475028		
Enforcement Date:	1994-08-31	Enf. Action:	State Violation/Reminder Notice

CONTACT INFORMATION:

Name:	BLAINE, CITY OF	Population:	6305
Contact:	LEROY DOUGALL	Phone:	Not Reported
Address:	1200 YEW AVE		
Address 2:	BLAINE		
	WA, 98		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for WHATCOM County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 98230

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.100 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	0.600 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Wells
Source: Department of Health
Telephone: 360-236-3148
Group A and B well locations.

Water Well Listing
Source: Public Utility District
Telephone: 206-779-7656
A listing of water well locations in Kitsap County.

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Listing
Source: Department of Natural Resources
Telephone: 360-902-1445
Locations that represent oil and gas test well sites in Washington State from 1890 to present.

RADON

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

APPENDIX C

Existing Boring and Monitoring Well Completion Logs

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

USCS Classification and Graphic Legend

Major Divisions			USCS Graphic Symbol	USCS Letter Symbol	Lithologic Description
Coarse-Grained Soil (More than 50% of material is larger than No. 200 sieve size)	GRAVEL AND GRAVELLY SOIL (More than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVEL (Little or no fines)		GW	Well graded GRAVEL, well graded GRAVEL with sand
				GP	Poorly graded GRAVEL, GRAVEL with sand
		GRAVEL WITH FINES (Appreciable amount of fines)		GP-GM	Poorly graded GRAVEL - GRAVEL with sand and silt
				GM	Silty GRAVEL
				GC	Clayey GRAVEL
	SAND AND SANDY SOIL (More than 50% of coarse fraction passed through No. 4 sieve)	CLEAN SAND (Little or no fines)		SW	Well graded SAND
				SP	Poorly graded SAND
		SAND WITH FINES (Appreciable amount of fines)		SP-SM	Poorly graded SAND - silty SAND
				SM	Silty SAND
				SC	Clayey SAND
				SM-ML	SILT - Silty SAND
Fine-Grained Soil (More than 50% of material is smaller than No. 200 sieve size)	SILT AND CLAY (Liquid limit less than 50)			ML	SILT
				CL	CLAY
				OL	Organic SILT
	SILT AND CLAY (Liquid limit greater than 50)			MH	Inorganic SILT
				CH	Inorganic CLAY
				OH	Organic CLAY
		Highly Organic Soil		PT	Peat
OTHER MATERIALS	PAVEMENT			AC	Asphalt concrete
				CO	Concrete
	OTHER			RK	Bedrock
				WD	Wood Debris
				DB	Debris (Miscellaneous)
				PC	Portland cement

Legend

- Sample Interval
- G — Grab Sample Interval
- ▼ — Water level at time of drilling
- ▼ — Water level at time of sampling
- Blank Casing
- Screened Casing
- Cement Grout
- Bentonite
- Sand Pack
- Well Cap
- ——— Solid line indicates sharp contact between units well defined.
- - - - - - - Dashed line indicates gradational contact between units.

feet bgs = feet below ground surface
NE = Not Encountered
NA = Not Applicable
PID = Photoionization Detector
PN = Project Number
units = PID units calibrated to 100 ppm isobutylene
USCS = Unified Soil Classification System

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: SIG-B1

Client: Port of Bellingham
Project: Blaine Marina-Sigurdson Site
Location: Blaine, WA
Farallon PN: 303-004-002
Logged By: L. Needham

Date/Time Started:	1/7/08 11:12	Sampler Type:	4' PE sleeve
Date/Time Completed:	1/7/08 11:30	Drive Hammer (lbs.):	NA
Equipment:	Geoprobe	Depth of Water ATD (ft bgs):	9.0
Drilling Company:	ESN	Total Boring Depth (ft bgs):	12
Drilling Foreman:	John Mefford	Total Well Depth (ft bgs):	NA
Drilling Method:	Direct-push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0'-0.3' Asphalt.	AC							
		0.3'-2.5' No recovery.			35					
		2.5'-4' Poorly graded gravel (50% gravel/ 50% sand), medium to coarse gravel, medium sand, round to subround gravel, light brown, estimated loose, moist, no odor.	GP				0.3			
		4'-4.8' No recovery.								
5		4.8'-5' Poorly graded gravel (50% gravel/ 50% sand), medium to coarse gravel, medium sand, round to subround gravel, light brown, estimated loose, moist, no odor.	GP							
		5'-7' Silt (85% silt/ 10% shell fragments/ 5% clay), olive gray, estimated medium dense, moist, no odor.	ML		75					
		7'-8' Poorly graded sand (95% sand/ 5% shell fragments), fine to medium sand, light gray to light brown, moist, no odor.	SP				0.4	SIB-B1-7.5-010708	x	
		8' Becomes wet.								
		9' Becomes saturated.					0.3			▼
10		9.5'-12' Poorly graded sand (90% sand/ 10% shell fragments), fine to medium sand, olive gray, saturated, no odor.	SP		100					
15										

Well Construction Information

Monument Type:	NA	Filter Pack:	NA	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	NA	Surface Seal:	NA	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	NA	Annular Seal:	NA	Boring Abandonment:	Bentonite
Screened Interval (ft bgs):	NA			Surveyed Location: X: NA	Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: SIG-B2

Client: Port of Bellingham
Project: Blaine Marina-Sigurdson Site
Location: Blaine, WA
Farallon PN: 303-004-002
Logged By: L. Needham

Date/Time Started:	1/7/08 11:43	Sampler Type:	4' PE sleeve
Date/Time Completed:	1/7/08 12:10	Drive Hammer (lbs.):	NA
Equipment:	Geoprobe	Depth of Water ATD (ft bgs):	10
Drilling Company:	ESN	Total Boring Depth (ft bgs):	12
Drilling Foreman:	John Mefford	Total Well Depth (ft bgs):	NA
Drilling Method:	Direct-push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0'-0.2' Asphalt	AC							
		0.2'-3.5' Rock stuck in sampler. No recovery.			20					
		3.5'-4' Poorly graded gravel (85% gravel/ 15% sand), medium to coarse gravel, fine to medium sand, greenish gray, moist, no odor.	GP							
		4'-7.5' Rock stuck in sampler. No recovery.			15					
5		7.5-8' Poorly graded sand (90% sand/ 10% shell fragments), fine to medium sand, light brown, estimated loose, moist, sulfur-like odor.	SP							
		8'-9.5' Poorly graded sand with silt (85% sand/ 10% shell fragments/ 5% silt), fine to medium sand, olive gray, estimated loose, moist, slight petroleum-like odor.	SP-SM							
10		10' Becomes saturated, slight petroleum-like odor.			85		2.4	SIG-B2-9.75-010708		
							68.7	SIB-B2-10.75-010708	x	
15										

Well Construction Information

Monument Type:	NA	Filter Pack:	NA	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	NA	Surface Seal:	NA	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	NA	Annular Seal:	NA	Boring Abandonment:	Bentonite
Screened Interval (ft bgs):	NA			Surveyed Location: X: NA	Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: SIG-B3

Client: Port of Bellingham
Project: Blaine Marina-Sigurdson Site
Location: Blaine, WA
Farallon PN: 303-004-002
Logged By: L. Needham

Date/Time Started:	1/7/08 12:20	Sampler Type:	4' PE sleeve
Date/Time Completed:	1/7/08 12:40	Drive Hammer (lbs.):	NA
Equipment:	Geoprobe	Depth of Water ATD (ft bgs):	10
Drilling Company:	ESN	Total Boring Depth (ft bgs):	12
Drilling Foreman:	John Mefford	Total Well Depth (ft bgs):	NA
Drilling Method:	Direct-push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0'-0.25' Ashpalt.	AC							
		0.25'-2' No recovery.								
		2'-3' Poorly graded sand (95% sand/ 5% gravel), medium to coarse sand, fine gravel, round gravel, light brown to yellowish orange, estimated loose, moist, no odor.	SP		60					
		3'-4' Poorly graded sand with silt (75% sand/ 10% shell fragments/ 10% gravel/ 5% silt), fine to medium sand, fine to medium gravel, greenish gray to olive gray, moist, no odor.	SP-SM				0.6			
		4'-5' No recovery.								
5		5'-8' Poorly graded sand with silt (70% sand/ 10% silt/ 10% shell fragments/ 5% gravel/ 5% clay), fine to medium sand, fine to medium gravel, round gravel, olive gray, estimated loose, moist, no odor.	SP-SM		70		0.5	SIG-B3-9-010708	x	
10		10'-12' Poorly graded sand with silt (65% sand/ 30% shell fragments/ 5% silt), fine to medium sand, olive gray, saturated, slight petroleum-like odor.	SP-SM		100		0.8			
15										

Well Construction Information

Monument Type:	NA	Filter Pack:	NA	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	NA	Surface Seal:	NA	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	NA	Annular Seal:	NA	Boring Abandonment:	Bentonite
Screened Interval (ft bgs):	NA			Surveyed Location: X: NA	Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: SIG-B4

Client: Port of Bellingham
Project: Blaine Marina-Sigurdson Site
Location: Blaine, WA
Farallon PN: 303-004-002
Logged By: L. Needham

Date/Time Started:	1/7/08 12:57	Sampler Type:	4' PE sleeve
Date/Time Completed:	1/7/08 13:15	Drive Hammer (lbs.):	NA
Equipment:	Geoprobe	Depth of Water ATD (ft bgs):	10.5
Drilling Company:	ESN	Total Boring Depth (ft bgs):	12
Drilling Foreman:	John Mefford	Total Well Depth (ft bgs):	NA
Drilling Method:	Direct-push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0'-0.3' Asphalt.	AC							
		0.3'-2.5' No recovery.			40					
		2.5'-4' Poorly graded gravel (70% gravel/ 25% sand/ 5% silt), medium to coarse gravel, fine to medium sand, round to subround gravel, light to medium brown, estimated medium dense, moist, no odor.	GP				0.8			
		4'-4.75' No recovery.								
5		4.75'-5' Poorly graded gravel (70% gravel/ 25% sand/ 5% silt), medium to coarse gravel, fine to medium sand, round to subround gravel, light to medium brown, estimated medium dense, moist, no odor.	GP							
		5'-8' Poorly graded sand with silt (77% sand/ 10% silt/ 10% shell fragments/ 3% clay), fine to medium sand, olive gray, estimated medium dense, no odor.	SP-SM		80		0.7			
		8'-8.75' No recovery.								
		8.75'-12' Poorly graded sand with silt (77% sand/ 10% silt/ 10% shell fragments/ 3% clay), fine to medium sand, olive gray, estimated medium dense, no odor.	SP-SM				0.6	SIG-B4-9-010708	x	
10		10.5' Becomes saturated, no odor.			80		0.7			▼
15										

Well Construction Information

Monument Type:	NA	Filter Pack:	NA	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	NA	Surface Seal:	NA	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	NA	Annular Seal:	NA	Boring Abandonment:	Bentonite
Screened Interval (ft bgs):	NA			Surveyed Location: X: NA	Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: SIG-B5

Client: Port of Bellingham
Project: Blaine Marina-Sigurdson Site
Location: Blaine, WA
Farallon PN: 303-004-002
Logged By: L. Needham

Date/Time Started:	1/7/08 13:20	Sampler Type:	4' PE sleeve
Date/Time Completed:	1/7/08 14:00	Drive Hammer (lbs.):	NA
Equipment:	Geoprobe	Depth of Water ATD (ft bgs):	10.5
Drilling Company:	ESN	Total Boring Depth (ft bgs):	12
Drilling Foreman:	John Mefford	Total Well Depth (ft bgs):	NA
Drilling Method:	Direct-push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0'-0.3' Asphalt.	AC							
		0.3'-2.5' No recovery.			40					
		2.5'-4' Poorly graded gravel (70% gravel/ 30%sand), medium to coarse gravel, fine to medium sand, round to subangular gravel, light brown, estimated medium dense, moist, no odor.	GP				0.5			
		4'-4.4' No recovery.								
5		4.4'-7.6' Silty sand (55% sand/ 30% silt/ 10% shell fragments/ 5% clay), fine to medium sand, greenish gray to olive gray, moist, no odor.	SM		80		0.6			
		7.6'-8' Silty sand (60% shell fragments/ 35% sand/ 5% silt), fine to medium sand, olive gray, moist, no odor.	SM							
		8'-10' Silty sand (55% sand/ 30% silt/ 10% shell fragments/ 5% clay), fine to medium sand, greenish gray, estimated loose, moist, no odor.	SM							
10		10'-12' Poorly graded sand with silt (72% sand/ 15% shell fragments/ 10% silt/ 3% clay), fine to medium sand, greenish gray to olive gray, moist, no odor. 10.5' Becomes saturated, no odor. 11' Petroleum-like odor.	SP-SM		100		0.4	SIG-B5-10-010708	x	▼
							20	SIG-B5-11.5-010708		
15										

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA
Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: Bentonite
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: SIG-B6

Client: Port of Bellingham
Project: Blaine Marina-Sigurdson Site
Location: Blaine, WA
Farallon PN: 303-004-002
Logged By: L. Needham

Date/Time Started:	1/7/08 14:10	Sampler Type:	4' PE sleeve
Date/Time Completed:	1/7/08 14:45	Drive Hammer (lbs.):	NA
Equipment:	Geoprobe	Depth of Water ATD (ft bgs):	15.5
Drilling Company:	ESN	Total Boring Depth (ft bgs):	16
Drilling Foreman:	John Mefford	Total Well Depth (ft bgs):	NA
Drilling Method:	Direct-push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0'-0.3' Asphalt.	AC							
		0.3'-3' No recovery.			30					
		3'-4' Poorly graded sand (90% sand/ 10% gravel), medium sand, medium to coarse gravel, subround gravel, light brown, estimated loose to medium dense, moist, no odor.	SP							
		4'-4.75' Poorly graded sand (80% sand/ 20% gravel), medium to coarse sand, medium gravel, subround gravel, medium to dark brown, estimated loose, moist, no odor.	SP							
5		4.75'-7.6' Silty sand (55% sand/ 30% silt/ 10% shell fragments/ 5% clay), fine to medium sand, olive gray, estimated loose to medium dense, moist, no odor.	SM		95					
		7.6'-8' Poorly graded sand (70% shell fragments/ 30% sand), fine to medium sand, olive gray, moist, no odor.	SP							
		8'-8.2' No recovery.	SP-SM							
10		8.2'-11' Poorly graded sand with silt (75% sand/ 10% silt/ 10% shell fragments/ 5% clay), fine to medium sand, olive gray, estimated medium dense, moist, no odor.			80					
		11'-12' Poorly graded sand (70% shell fragments/ 30% sand), fine to medium sand, olive gray, estimated loose, moist, very slight petroleum-like odor.	SP				0.5			
		12'-15.5' Silty sand (70% sand/ 20% silt/ 10% shell fragments), fine to medium sand, olive gray to light gray, estimated medium dense, moist, slight petroleum-like odor.	SM		100					
15		15.5'-16' Poorly graded sand (95% sand/ 5% shell fragments), fine to medium sand, dark gray, estimated loose, saturated, slight petrolum-like odor.	SP				1.2	SIG-B6-15-010708	x	▼

Well Construction Information

Monument Type:	NA	Filter Pack:	NA	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	NA	Surface Seal:	NA	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	NA	Annular Seal:	NA	Boring Abandonment:	Bentonite
Screened Interval (ft bgs):	NA			Surveyed Location: X: NA	Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: SIG-B7

Client: Port of Bellingham
Project: Blaine Marina-Sigurdson Site
Location: Blaine, WA
Farallon PN: 303-004-002
Logged By: L. Needham

Date/Time Started:	1/7/08 14:56	Sampler Type:	4' PE sleeve
Date/Time Completed:	1/7/08 15:18	Drive Hammer (lbs.):	NA
Equipment:	Geoprobe	Depth of Water ATD (ft bgs):	11
Drilling Company:	ESN	Total Boring Depth (ft bgs):	12
Drilling Foreman:	John Mefford	Total Well Depth (ft bgs):	NA
Drilling Method:	Direct-push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0'-0.3' Asphalt.	AC							
		0.3'-3' No recovery.			40					
		3'-4' Poorly graded sand (85% sand/ 10% gravel/ 5% shell fragments), fine to medium sand, fine to medium gravel, round to subround gravel, light brown, estimated medium dense, moist, no odor.	SP				0.6			
		4'-8' Silty sand (70% sand/ 20% silt/ 10% shell fragments), medium to fine sand, olive gray, estimated loose to medium dense, moist, no odor.	SM		100					
5										
10					100					
		10.5'-11' Poorly graded sand (90% sand/ 10% shell fragments), fine to medium sand, olive gray, estimated loose to medium dense, moist, no odor.	SP				0.6	SIG-B7-10.75-010708	x	▼
		11'-12' Poorly graded sand (95% sand/ 5% shell fragments), fine to medium sand, dark gray, estimated loose, saturated, slight petroleum-like odor.	SP				0.9			
15										

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA
Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: Bentonite
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: SIG-B8

Client: Port of Bellingham
Project: Blaine Marina-Sigurdson Site
Location: Blaine, WA
Farallon PN: 303-004-002
Logged By: L. Needham

Date/Time Started:	1/7/08 15:30	Sampler Type:	4' PE sleeve
Date/Time Completed:	1/7/08 16:02	Drive Hammer (lbs.):	NA
Equipment:	Geoprobe	Depth of Water ATD (ft bgs):	10.5
Drilling Company:	ESN	Total Boring Depth (ft bgs):	12
Drilling Foreman:	John Mefford	Total Well Depth (ft bgs):	NA
Drilling Method:	Direct-push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0'-0.5' Asphalt.	AC							
		0.5'-2.5' No recovery.			50					
		2.5'-2.75' Poorly graded gravel (50% gravel/ 50% sand), medium to coarse gravel, medium to coarse sand, subround gravel, light brown, estimated medium dense, moist, no odor.	GP							
		2.75'-4' Silty sand (50% silt/ 40% sand/ 10% shell fragments), medium to fine sand, olive gray, estimated medium dense, moist, no odor.	SM				0.5			
		4'-5' No recovery.								
5		5'-6' Silty sand (50% silt/ 40% sand/ 10% shell fragments), medium to fine sand, olive gray, estimated medium dense, moist, no odor.	SM							
		6'-8' Poorly graded sand with silt (75% sand/ 15% silt/ 10% shell fragments), fine to medium sand, greensih gray, estimate medium dense, moist, slight sulfur-like odor.	SP-SM		60					
		8'-9' No recovery.								
		9'-10.5' Poorly graded sand with silt (75% sand/ 15% silt/ 10% shell fragments), fine to medium sand, greensih gray, estimate medium dense, moist, slight sulfur-like odor.	SP-SM				0.4	SIG-B8-10-010708	x	▼
10		10.5'-12' Poorly graded sand (90% sand/ 10% shell fragments), fine to medium sand, olive gray to dark gray, estimated loose, saturated, no odor.	SP		60		1.6			
15										

Well Construction Information

Monument Type:	NA	Filter Pack:	NA	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	NA	Surface Seal:	NA	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	NA	Annular Seal:	NA	Boring Abandonment:	Bentonite
Screened Interval (ft bgs):	NA			Surveyed Location: X: NA	Y: NA

Soil Classification System

MAJOR DIVISIONS			GRAPHIC SYMBOL	USCS LETTER SYMBOL[1]	TYPICAL DESCRIPTIONS [2][3]
COARSE-GRAINED SOIL (More than 50% of material is larger than No. 200 sieve size)	GRAVEL AND GRAVELLY SOIL (More than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVEL (Little or no fines)		GW	Well-graded gravel; gravel/sand mixture(s); little or no fines
				GP	Poorly graded gravel; gravel/sand mixture(s); little or no fines
		GRAVEL WITH FINES (Appreciable amount of fines)		GM	Silty gravel; gravel/sand/silt mixture(s)
				GC	Clayey gravel; gravel/sand/clay mixture(s)
	SAND AND SANDY SOIL (More than 50% of coarse fraction passed through No. 4 sieve)	CLEAN SAND (Little or no fines)		SW	Well-graded sand; gravelly sand; little or no fines
				SP	Poorly graded sand; gravelly sand; little or no fines
		SAND WITH FINES (Appreciable amount of fines)		SM	Silty sand; sand/silt mixture(s)
				SC	Clayey sand; sand/clay mixture(s)
FINE-GRAINED SOIL (More than 50% of material is smaller than No. 200 sieve size)	SILT AND CLAY (Liquid limit less than 50)			ML	Inorganic silt and very fine sand; rock flour; silty or clayey fine sand or clayey silt with slight plasticity
				CL	Inorganic clay of low to medium plasticity; gravelly clay; sandy clay; silty clay; lean clay
				OL	Organic silt; organic, silty clay of low plasticity
	SILT AND CLAY (Liquid limit greater than 50)			MH	Inorganic silt; micaceous or diatomaceous fine sand
				CH	Inorganic clay of high plasticity; fat clay
				OH	Organic clay of medium to high plasticity; organic silt
	HIGHLY ORGANIC SOIL			PT	Peat; humus; swamp soil with high organic content

OTHER MATERIALS	GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
PAVEMENT		AC or PC	Asphalt concrete pavement or Portland cement pavement
ROCK		RK	Rock (See Rock Classification)
WOOD		WD	Wood, lumber, wood chips
DEBRIS		DB	Construction debris, garbage

Notes:
1. USCS letter symbols correspond to symbols used by the Unified Soil Classification System and ASTM classification methods. Dual letter symbols (e.g., SP-SM for sand or gravel) indicate soil with an estimated 5-15% fines. Multiple letter symbols (e.g., ML/CL) indicate borderline or multiple soil classifications.
2. Soil descriptions are based on the general approach presented in the Standard Practice for Description and Identification of Soils (Visual-Manual Procedure), outlined in ASTM D 2488. Where laboratory index testing has been conducted, soil classifications are based on the Standard Test Method for Classification of Soils for Engineering Purposes, as outlined in ASTM D 2487.
3. Soil description terminology is based on visual estimates (in the absence of laboratory test data) of the percentages of each soil type and is defined as follows:

Primary Constituent:	> 50% - "GRAVEL," "SAND," "SILT," "CLAY," etc.
Secondary Constituents:	> 30% and ≤ 50% - "very gravelly," "very sandy," "very silty," etc.
	> 15% and ≤ 30% - "gravelly," "sandy," "silty," etc.
Additional Constituents:	> 5% and ≤ 15% - "with gravel," "with sand," "with silt," etc.
	≤ 5% - "with trace gravel," "with trace sand," "with trace silt," etc., or not noted.

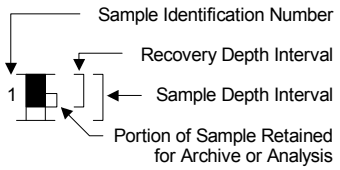
4. Soil density or consistency descriptions are based on judgement using a combination of sampler penetration blow counts, drilling or excavating conditions, field tests, and laboratory tests, as appropriate.

Drilling and Sampling Key

SAMPLER TYPE

Code	Description
a	3.25-inch O.D., 2.42-inch I.D. Split Spoon
b	2.00-inch O.D., 1.50-inch I.D. Split Spoon
c	Shelby Tube
d	Grab Sample
e	Single-Tube Core Barrel
f	Double-Tube Core Barrel
g	2.50-inch O.D., 2.00-inch I.D. WSDOT
h	3.00-inch O.D., 2.375-inch I.D. Mod. California
i	Other - See text if applicable
1	300-lb Hammer, 30-inch Drop
2	140-lb Hammer, 30-inch Drop
3	Pushed
4	Vibrocore (Rotosonic/Geoprobe)
5	Other - See text if applicable

SAMPLE NUMBER & INTERVAL



Field and Lab Test Data

Code	Description
PP = 1.0	Pocket Penetrometer, tsf
TV = 0.5	Torvane, tsf
PID = 100	Photoionization Detector VOC screening, ppm
W = 10	Moisture Content, %
D = 120	Dry Density, pcf
-200 = 60	Material smaller than No. 200 sieve, %
GS	Grain Size - See separate figure for data
AL	Atterberg Limits - See separate figure for data
GT	Other Geotechnical Testing
CA	Chemical Analysis

Groundwater

▽ Approximate water level at time of drilling (ATD)

▼ Approximate water level at time other than ATD

LANDAU ASSOCIATES

Blaine Marina Inc. Site
Blaine, Washington

Soil Classification System and Key

Figure C-1

B-1-12

LAI Project No: 001034.010

SAMPLE DATA | **SOIL PROFILE**

Drilling Method: Hollow-Stem Auger
Ground Elevation (ft): 15
Drilled By: Holocene Drilling Inc.
Logged By: CTM Date: 01/05/12

Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Soil Description	Groundwater
0	15						AC	Approximately 5-inches of asphalt concrete pavement	
							GW-GM	Brown, sandy GRAVEL with silt (medium dense, damp)	
		S-1	a2	5	0.4 W = 33		CL	**(FILL)**	
5	10	S-2	b2	0	0.0 W = 38			Gray, sandy CLAY with numerous jumbled pockets of clayey SAND (soft/loose to very soft/very loose, moist to damp) no odor	ATD
		S-3	b2	4	455		SP-SM	Gray, fine to medium SAND with silt and shell fragments, plus zones of sandy silt (loose, wet) strong gasoline and diesel odor	
10	5	S-4	b2	0	371		SM/ML	Gray, sandy SILT with zones of silty fine to medium SAND (very soft/very loose, wet) strong gasoline and diesel odor	
		S-5	b2	2	4.1			-- moderate to weak diesel and gas odor, sulfur odor also present	
15	0	S-6	b2	4	0 W = 36		SM	Gray, silty fine SAND with shells, occasional coarse wood fragments (very loose to loose, wet) weak sulfur odor **(MARINE DEPOSITS)**	
20	-5	S-7	b2	4	0				
25									
30									
35									

Moisture Content (%) — Plastic Limit — Liquid Limit
10 20 30 40

▲ SPT N-Value ▲
△ Non-Standard N-Value △
10 20 30 40

× Fines Content (%) ×
10 20 30 40

Boring Completed 01/05/12
Total Depth of Boring = 21.5 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

1034.01 7/18/12 N:\PROJECTS\001034.010.015.GPJ SOIL BORING LOG WITH GRAPH

LANDAU ASSOCIATES

Blaine Marina Inc. Site
Blaine, Washington

Log of Boring B-1-12

Figure
C-2

B-2-12

LAI Project No: 001034.010

SAMPLE DATA | **SOIL PROFILE**

Drilling Method: Hollow-Stem Auger
Ground Elevation (ft): 15
Drilled By: Holocene Drilling Inc.
Logged By: CTM Date: 01/05/12

Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Description	Groundwater
0	15						AC	Approximately 5-inches of asphalt concrete pavement	
							GW-GM	Brown, sandy GRAVEL with silt (medium dense, damp)	
							CL	**(FILL)**	
		S-1	b2	3	W = 34			Gray, silty CLAY with pockets of silty sand, trace of gravel, occasional coarse wood fragments (very soft to soft, moist) no odor	
5	10	S-2	b2	0	2.5 W = 38			-- no gravel, no odor	
		S-3	b2	2	452			-- color change to dark gray, strong diesel and gasoline odor, oil sheen in sampler	ATD
10	5	S-4	b2	1	220		SM	Dark gray, silty fine SAND (very loose, wet) very strong diesel and gasoline odor, sheen in sampler	
							SM	Dark gray, silty fine SAND to SAND with silt, with scattered shells (very loose to loose, wet)	
15	0							**(MARINE DEPOSITS)**	
		S-5	b2	4	47			-- very strong diesel and gasoline odor, sheen in sampler	
		S-6	b2	5	4.5 W = 27 GS			-- color change to gray, moderate petroleum odor and sheen -- below 18 ft, weighted mud added to auger to help prevent heave	
20	-5	S-7	b2	4				-- occasional shells, no sheen, slight sulfur odor	
25	-10	S-8a S-8b	b2 b2	3			CL/CH	-- gray, silty fine SAND with shells, occasional wood fragments, no odor, no sheen	
								Gray, silty CLAY, occasional clayey sand pockets (very soft to medium stiff, moist)	
								(GLACIOMARINE DRIFT)	
30	-15	S-9	b2	5	W = 45			-- trace of fine sand and shell fragments, no odor, no sheen	
35	-20								

Moisture Content (%) — Plastic Limit — Liquid Limit
10 20 30 40

▲ SPT N-Value ▲
△ Non-Standard N-Value △
10 20 30 40

× Fines Content (%) ×
10 20 30 40

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

1034.01 7/18/12 N:\PROJECTS\001034.010.015.GPJ SOIL BORING LOG WITH GRAPH

LANDAU ASSOCIATES

Blaine Marina Inc. Site
Blaine, Washington

Log of Boring B-2-12

Figure
C-3
(1 of 2)

B-2-12

LAI Project No: 001034.010

SAMPLE DATA | **SOIL PROFILE**

Drilling Method: Hollow-Stem Auger
Ground Elevation (ft): 15
Drilled By: Holocene Drilling Inc.
Logged By: CTM Date: 01/05/12

Moisture Content (%) — Plastic Limit — Liquid Limit
10 20 30 40
▲ SPT N-Value ▲
△ Non-Standard N-Value △
10 20 30 40
× Fines Content (%) ×
10 20 30 40

Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Soil Description	Groundwater
35	-20	S-10	b2	1			CL/ CH	Gray, silty CLAY, occasional clayey sand pockets (very soft to medium stiff, moist) **(GLACIOMARINE DRIFT)**	
40	-25	S-11	b2	5	W = 26			-- occasional partings of fine sandy silt	
45	-30	S-12	b2	0					

Boring Completed 01/05/12
Total Depth of Boring = 46.5 ft.

50
55
60
65
70

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

1034.01 7/18/12 N:\PROJECTS\001034.010.015.GPJ SOIL BORING LOG WITH GRAPH

LANDAU ASSOCIATES

Blaine Marina Inc. Site
Blaine, Washington

Log of Boring B-2-12

Figure
C-3
(2 of 2)

B-3-12

LAI Project No: 001034.010

SAMPLE DATA | **SOIL PROFILE**

Drilling Method: Hollow-Stem Auger
Ground Elevation (ft): 15
Drilled By: Holocene Drilling Inc.
Logged By: CTM Date: 01/05/12

Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Soil Description	Groundwater
0	15						AC	Approximately 4-inches of asphalt concrete pavement	
							GW-GM	Brown, sandy GRAVEL with silt (medium dense, damp)	
		S-1	b2	2	W = 27		CL/CH	**(FILL)** Gray, sandy CLAY with sand pockets (very soft, moist)	
5	10	S-2	b2	2	10.8 W = 24			-- no odor	ATD
		S-3	b2	5	406		SM	Gray, silty, fine SAND to SAND with silt, numerous shell fragments (very loose to loose, wet) -- strong diesel and gasoline odor	
10	5	S-4	b2	3	14.5 W = 27 GS			-- moderate diesel and gasoline odor	
		S-5	b2	3	11.8		SM	Gray, silty fine SAND, no shells, faint bedding (very loose to loose, wet) faint petroleum odor **(MARINE DEPOSITS)**	
15	0	S-6	b2	5	3.1 W = 25			-- no odor	
20									
25									
30									
35									

Moisture Content (%) — Plastic Limit — Liquid Limit
10 20 30 40
▲ SPT N-Value ▲
△ Non-Standard N-Value △
10 20 30 40
× Fines Content (%) ×
10 20 30 40

Boring Completed 01/05/12
Total Depth of Boring = 16.5 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

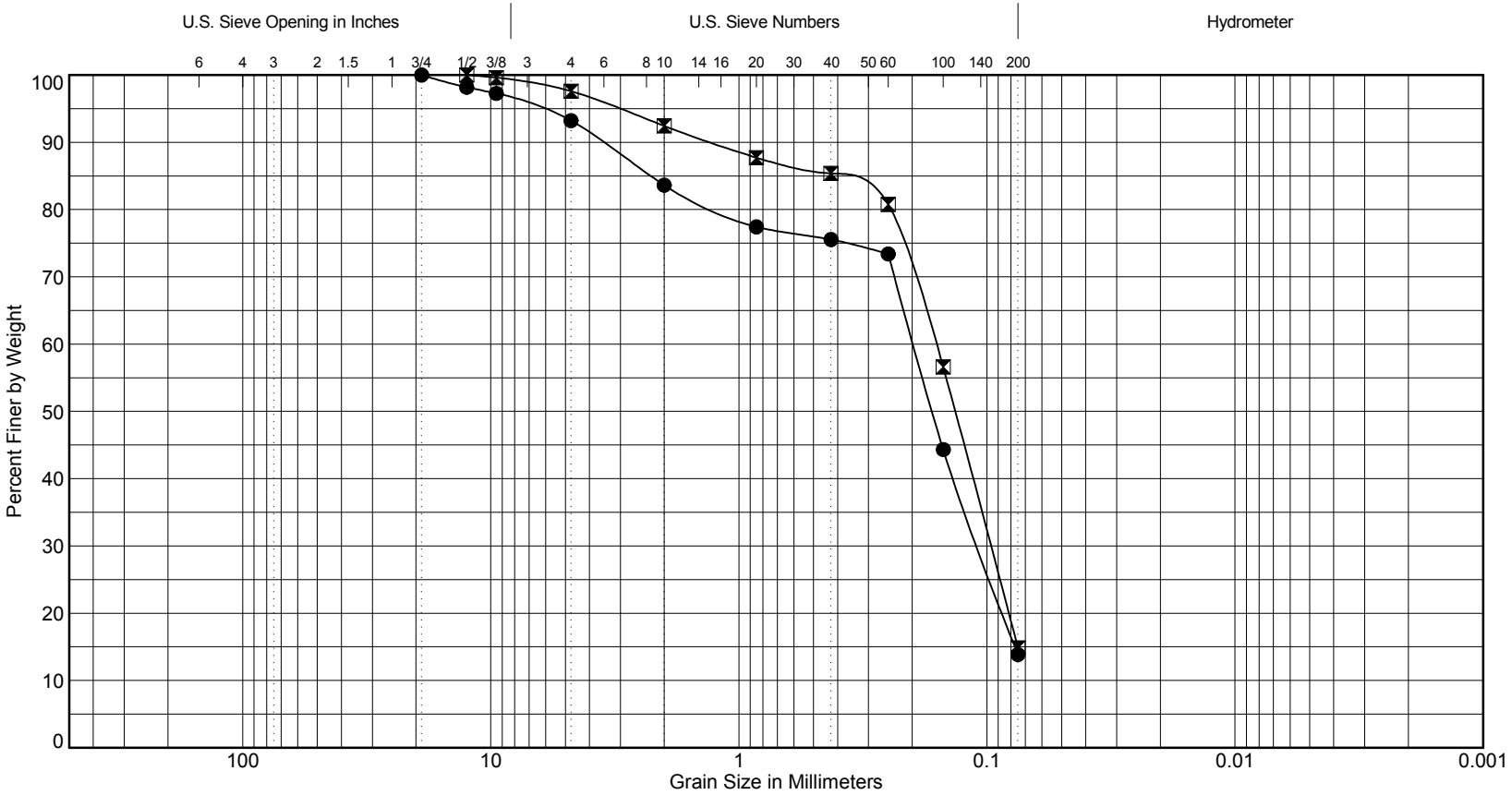
1034.01 7/18/12 N:\PROJECTS\001034.010.015.GPJ SOIL BORING LOG WITH GRAPH

LANDAU ASSOCIATES

Blaine Marina Inc. Site
Blaine, Washington

Log of Boring B-3-12

Figure
C-4



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

Symbol	Exploration Number	Sample Number	Depth (ft)	Natural Moisture (%)	Soil Description	Unified Soil Classification
●	B-2-12	S-6	17.5	27	Fine SAND with silt and fine gravel, numerous shells	SP-SM
⧓	B-3-12	S-4	10.0	27	Fine SAND with silt, trace fine gravel, numerous shells	SP-SM

LANDAU ASSOCIATES

Blaine Marina Inc. Site
Blaine, Washington

Grain Size Distribution

Figure
C-5

APPENDIX D

Upland Sampling and Analysis Plan

Sampling and Analysis Plan
Upland Investigation
Blaine Marina, Inc. Site
Blaine, Washington

October 4, 2012

Prepared for

Port of Bellingham
Bellingham, Washington

LANDAU ASSOCIATES
130 2nd Avenue South
Edmonds, WA 98020
(425) 778-0907

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LIST OF ABBREVIATIONS AND ACRONYMS

AST	Aboveground Storage Tank
BGS	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
COPC	Constituent of Potential Concern
CSV	Comma Separated Value
DO	Dissolved Oxygen
DQO	Data Quality Objective
Ecology	Washington State Department of Ecology
EDB	Ethylene Dibromide
EDC	Ethylene Dichloride
EIM	Environmental Information Management
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
ft	Feet
GPS	Global Positioning Device
mL	Milliliter
MSD	Matrix Spike Duplicate
MTBE	Methyl Tert-Butyl Ether
NAPL	Non-Aqueous Phase Liquid
NAVD88	North American Vertical Datum of 1988
NTU	Nephelometric Turbidity Unit
ORP	Oxidation Reduction Potential
oz	Ounce
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PID	Photoionization Detector
Port	Port of Bellingham
QA	Quality Assurance
QC	Quality Control
RI	Remedial Investigation
RPD	Relative Percent Difference
SAP	Sampling and Analysis Plan
Site	Blaine Marina Inc. Site
TPH-D	Diesel-Range Total Petroleum Hydrocarbons
TPH-G	Gasoline-Range Total Petroleum Hydrocarbons
TPH-O	Oil-Range Total Petroleum Hydrocarbons
VOC	Volatile Organic Compound
WAC	Washington Administrative Code

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1.0 INTRODUCTION

This sampling and analysis plan (SAP) describes the procedures for conducting field activities during the remedial investigation (RI) within the upland portion of the Blaine Marina Inc. Site (Site) located at 214 Sigurdson Avenue, Blaine, Washington (Figure D-1). This SAP is an appendix to the Blaine Marina Site RI/Feasibility Study (FS) Work Plan, one of the required deliverables under Agreed Order No. DE 9000 between the Port of Bellingham (Port) and the Washington State Department of Ecology (Ecology). The primary objective of this SAP is to provide sampling and analysis procedures and methodologies consistent with accepted procedures so that the data collected will be adequate for use in characterizing Site upland environmental conditions. This SAP was prepared consistent with the requirements of Washington Administrative Code (WAC) 173-340-820. It provides field, sampling, and analytical procedures to be used during the upland RI.

Investigation of the upland portion of the Site will focus on characterization of soil and groundwater quality. As discussed in Section 8.0 of the RI/FS Work Plan, further investigation of Site soil and groundwater is needed to evaluate the nature and extent of Site upland contamination. More specifically, the RI soil and groundwater characterization will largely focus on determining the extent of fuel contamination originating in the area of the aboveground fuel storage tanks (Figure D-2) and associated conveyance pipelines. Additionally, based on the confirmed presence of gasoline-range total petroleum hydrocarbons (TPH-G) in soil, upland media will also be evaluated for the presence of fuel additives that are associated with older gasoline releases.

Based on their proximity to the nearby marine surface waters of Blaine Harbor, surface sediments will also be evaluated, as described in the RI/FS Work Plan. Marine sediment sampling procedures are described in the Sediment Investigation SAP (Appendix E to the RI/FS Work Plan).

Soil and groundwater investigation locations were selected based on an investigation approach that extends outward from the known release area, based on the findings of previous investigations, until the lateral limits of the affected area are adequately defined for soil and groundwater. The intent of this approach is to evaluate for the presence of non-aqueous phase liquid (NAPL) and significant contamination in the vicinity of the aboveground storage tanks (ASTs) and to delineate the vertical and horizontal extent of contamination moving outward from the ASTs. The investigation will be extended as necessary to bound the limits of contamination by advancing borings progressively farther from the source area until field screening indicates the soil encountered is not contaminated. For the purpose of this portion of the investigation, significant contamination will be determined by field screening for volatile organic compounds (VOCs) with a photoionization detector (PID) and visual observation for the presence of sheen or NAPL. This sampling approach will be conducted along transects to provide an

efficient and systematic approach for soil and groundwater quality characterization since the location of source area contamination is generally understood. The upland investigation will provide valuable data in cross sections across the impacted area and parallel to Site boundaries to characterize the soil quality in three dimensions and includes a dynamic approach to advancing additional borings based on findings during the investigation. As indicated on Figure D-2, additional sampling locations may be added to determine the areal boundary of noticeably impacted soil. The arrows on the transect lines on Figure D-2 show the likely direction where additional borings may be advanced although the actual direction and placement will be decided based on findings in the field. It should be noted that the proposed boring locations are approximate, and may be adjusted based on observed Site conditions, available access, and the location of utilities. It should also be noted that additional phases of investigation may be required to adequately delineate the extent of contamination, particularly with respect to groundwater.

2.0 FIELD INVESTIGATION PROCEDURES

This section presents the field procedures for the soil, groundwater, and soil vapor investigation at the Site. The investigation will begin with an initial phase of work that includes advancing direct-push borings to collect soil, groundwater, and soil vapor samples. Soil vapor samples will be analyzed for the presence of volatile compounds to evaluate potential contaminants in the vapor phase that may impact human health. During the second phase of the investigation, groundwater monitoring wells will be installed in locations based on the analytical results of the initial phase of investigation. Groundwater from the monitoring wells will be collected for analysis twice as part of the RI.

2.1 SOIL INVESTIGATION

This section describes the activities to be conducted to collect and screen soil samples from direct-push borings. The subsurface soil investigation will consist of advancing at least 20 borings, which is expected to take 3 days of direct-push drilling. Borings will be advanced by either a truck-mounted or track-mounted (limited access), direct-push drill rig. Each boring will extend from the ground surface to at least 3 feet (ft) below the groundwater table, or deeper at some locations, to obtain the sample interval depths described in Table D-1. Groundwater levels near the shoreline are likely to be significantly influenced by changing tides. During the recent exploration in January 2012, groundwater was encountered at about 7.5 ft below ground surface (BGS) at the time of drilling. In 2008, groundwater was reportedly encountered at about 10 ft BGS at the time of drilling (Farallon Consulting 2008). Most boring depths are anticipated to be approximately 12 ft BGS. At BMI-GP-5, the boring depth will extend to 16 ft BGS based on observations of petroleum hydrocarbon odors noted while advancing a previous exploration at a nearby location (SIG-B6) at this depth. Boring depths will extend deeper than indicated in this SAP if field screening indicates contamination extends deeper into the soil. All drilling will be conducted in accordance with applicable Washington State well construction regulations (Chapter 173-160 WAC).

As shown on Figure D-2, there are 20 proposed RI soil boring locations distributed throughout the Site, generally along transects of interest. The sampling locations were selected to fill data gaps in the existing data set, provide information regarding the extent of NAPL in the subsurface, investigate conditions along the downgradient Site boundary, and determine the extent of contamination above preliminary screening levels at the Site. The rationale for the proposed sampling locations is presented in Table D-1. The final location of each soil boring will be modified as necessary based on the observations in the field or the utility check. Depending on the location of utilities compared to areas critical for the

investigation, an “air knife” may be used to inspect the proposed boring locations for subsurface utilities in highly congested areas, or for locations that require precisely locating utilities for sample collection.

A site reconnaissance will be conducted prior to intrusive activities to identify obstructions to planned boring locations (i.e., utilities, equipment, materials), and to evaluate the condition of certain features that may affect the approach to or need for investigation at that location. If practicable, boring locations will be relocated to avoid obstructions. However, if locations are obstructed by equipment or materials, and a viable alternative location is not available nearby, the Port will coordinate with applicable tenants to move the obstruction to allow sampling.

After the completion of each boring, the soil borehole will be backfilled to the ground surface with bentonite chips. Surface restoration will match existing conditions (e.g., if borings are advanced through asphalt, an asphalt patch will be used for surface completion). Soil sample collection methods are described in Sections 2.1.1, and analytical testing methods are outlined in Section 2.1.2.

2.1.1 SOIL SAMPLE COLLECTION METHODS – DIRECT-PUSH BORINGS

Soil samples will be collected continuously from ground surface to the target depth using an approximately 2-inch diameter, 4-ft long, hammer-driven sampler with a disposable acrylic liner. The sampler will be advanced to the top of the sample interval with the piston in a locked position. The piston tip will then be loosened and the sampler will be advanced over the desired depth interval, thereby coring the soil inside the sampler’s disposable, single- use liner. The sampler will then be withdrawn to retrieve the liner and soil sample. The liner will be cut to remove the soil sample. A new liner will be placed in the core sampler and this process will be repeated until all desired soil samples have been obtained. Between samples, the core sampler, including the piston tip and rods, will be decontaminated, as specified in Section 2.6.

The acrylic liner will be cut open for field screening and soil classification. Soil samples collected from each sampling core will be classified in general accordance with the Unified Soil Classification System. Soil descriptions will include physical characteristics, including visual grain size, grading, subordinate constituents, color, density, and apparent moisture content. Soils will also be screened for contamination by visual inspection for staining/discoloration or NAPL. Unusual odors will be recorded. Additionally, screening will be conducted for the presence of NAPL and volatile organic compounds (VOCs), as described below.

If visual screening for the presence of NAPL is inconclusive, shaker testing or hydrophobic dye testing may be used to evaluate soil samples for the presence of NAPL. Shaker testing will be accomplished by adding a spoonful of suspect soil into a clear 4-ounce (oz) sample jar, then filling the jar approximately ⅓ to ½ full of water. The jar will be agitated to dislodge NAPL from pore spaces and

increase contact with the water. NAPL may be apparent after shaking. If shaker testing is also inconclusive, hydrophobic dye will be added to the shaker jar. Hydrophobic dye will mix with NAPL and change to a bright color for easier identification. The dye is not affected by fuel contamination in the dissolved phase.

Soil cores will be screened for the presence of VOCs using a PID. PID readings will be made by passing a calibrated PID meter over each 1- to 2-ft section of soil core and recording the readings on the field boring log.

Field data, including sampling depths, sampling methods, sample recoveries, soil types, stratifications, evidence of contamination as indicated through visual observations, groundwater conditions, odors observed during sample handling, PID readings, and other pertinent information will be recorded on a field boring log. Each log will also contain the name of the drilling contractor, individual drillers, the type of drilling equipment used, start and finish dates, probe diameter, probe number, and a generalized sketch showing the location of each probe. Geographical coordinates of each probe location will be recorded using a portable Global Positioning System (GPS) instrument.

The core will be divided into 1- to 2-ft sample intervals as identified in Table D-1 and the sample intervals will be individually homogenized using decontaminated stainless steel bowls and spoons. The homogenized sample volumes will then be placed into the appropriate laboratory-supplied sample containers. However, samples collected for VOC and TPH-G analysis will be collected from the undisturbed soil prior to homogenization, as described below.

If obvious signs of contamination are indicated by field screening, a discrete sample will be collected from the area with the greatest level of observed contamination. As indicated in Table D-1, three samples from each boring location will be analyzed by the laboratory immediately upon submission and are intended to provide characterization within the most contaminated zone (anticipated to be near the groundwater table), and above and below this zone of contamination. Field personnel will archive at least one sample from above and below the three samples described above in case follow-up analyses are required. For investigation locations that are not in the immediate vicinity of the ASTs, such as locations BMI-GP-1 through BMI-GP-4 and BMI-GP-12, it is not anticipated that significant contamination will be encountered. At these locations, if field screening does not indicate the presence of contamination, one sample from near the groundwater table (sample interval 6 to 8 ft BGS) will be immediately analyzed and samples from above and below this level will be archived at the laboratory for potential follow-up analyses.

U.S. Environmental Protection Agency (EPA) soil sampling method 5035A will be used to collect soil samples planned for VOC and TPH-G analyses, consistent with Ecology's memorandum on collecting soil samples for VOC analysis (Ecology 2004a). If the soil consists primarily of course sand or

finer-grained material, the EPA method described below will be used. If soil containing significant gravel content is encountered, EPA Method 5035A is not effective and the previously accepted method of placing larger sample volumes in a larger sample container will be used.

The EPA 5035A soil sampling method is intended to reduce volatilization and biodegradation of samples. The EPA 5035A procedure for soil sample collection is as follows:

- Collect soil "cores" using coring devices (i.e., EnCore® sampler, EasyDraw Syringe®, or a Terra Core™ sampling device). Each "core" will consist of approximately 5 grams of soil. Collect three discrete "cores" from each sampling location. One EasyDraw Syringe or Terra Core device will be used to collect the three discrete "cores"; however, if the EnCore samplers are used, three sampling devices are required.
- Remove excess soil from coring device. If the EasyDraw Syringe or Terra Core sampling device is used for sample collection, place the "cored" soil directly into unpreserved 40 milliliter (mL) vials with a stirbar. If the EnCore sampler is used, close the sampler for transport to the laboratory.
- Collect one 2-oz jar of representative soil for moisture content and laboratory screening purposes. Fill the jar to minimize headspace.

Soil samples will be collected and preserved consistent with the method-specific requirements and sample hold times in Table D-2.

2.1.2 SOIL LABORATORY ANALYSIS

Soil samples from the borings will be submitted for laboratory analyses as described in Section 2.1.1 and in Table D-1. Samples will be analyzed for TPH-G by Method NWTPH-G, diesel-range total petroleum hydrocarbons (TPH-D) and oil-range total petroleum hydrocarbons (TPH-O) by Method NWTPH-Dx, lead by EPA Method 6020, naphthalenes by EPA Method 8270D, and VOCs by EPA 8260C.

2.2 DIRECT-PUSH GROUNDWATER INVESTIGATION

This section describes the activities to be conducted to collect and analyze groundwater grab samples from direct-push borings. The investigation will consist of conducting groundwater sampling at nine of the borings advanced during the soil investigation. Procedures for advancing the direct-push borings are provided in Section 2.1. The borings where groundwater sampling will be conducted are indicated on Figure D-2. The sampling locations were selected to evaluate groundwater near the likely source of contamination and near the anticipated Site boundaries. The direct-push borings used for groundwater sampling will be advanced to a minimum of 4 ft into the water table.

Groundwater grab samples will be collected using a groundwater sampler consisting of a 4-ft-long, wire-wrapped, stainless steel screen (0.010-inch slot size) with a retractable protective steel

sheath. The groundwater sampler will be advanced to the sample depth and the protective sheath will be retracted to expose the stainless steel screen to the formation. Low-flow purging will be performed for 10 minutes or until the purge water is clear using a peristaltic pump. During purging, pH, specific conductance, and temperature will be measured using a flow-through cell.

Groundwater samples will be collected into the appropriate sample containers using disposable polyethylene tubing and a peristaltic pump. To prevent degassing during sampling for VOCs, a pumping rate will be maintained below about 100 milliliters per minute (mL/min). The VOC containers will be filled completely so that no headspace remains. Samples will be chilled to 4°C immediately after collecting the sample. Groundwater for dissolved lead analyses will be collected last and field-filtered through a 0.45 micron, in-line disposable filter and preserved, as specified in Table D-2. A note will be made on the sample label, sample collection form, and chain-of-custody form to indicate the sample for dissolved metals analysis has been field-filtered and preserved, including the type of preservative used. Groundwater samples will be submitted to the laboratory under a signed chain-of-custody form for analysis as described in Section 2.2.1.

During this phase of the investigation, field personnel will gauge existing monitoring wells MW-1, MW-2, and MW-3. If NAPL is present, the apparent thickness will be recorded and a groundwater sample will not be collected. If no NAPL is observed, a groundwater sample will be collected as described in Section 2.3.1 and analyzed as described in Section 2.2.1.

2.2.1 LABORATORY ANALYSIS

Each of the nine groundwater grab samples will be submitted to the laboratory for analyses including TPH-G and TPH-D by Method NWTPH-G and NWTPH-Dx, dissolved lead by EPA Method 6020, VOCs by EPA Method 8260C, and polycyclic aromatic hydrocarbons (PAHs; naphthalenes) by EPA Method 8270D.

Both filtered and unfiltered samples will be collected for all metals (lead) analyses. Unfiltered metals samples will be tested initially, and filtered metals samples will be tested only if lead exceeds its screening level in the unfiltered sample. Dissolved metals samples will be field-filtered prior to analysis. Groundwater collected from direct-push borings tends to have significantly higher turbidity than those collected from groundwater monitoring wells due to the entrainment of particles in the water sample.

Particulates in groundwater can result in a high bias of the analytical results for organic compounds that partition heavily to soil, such as TPH-O and to a lesser extent naphthalenes. This is particularly a concern for groundwater samples that are collected from temporary wells installed in direct-push borings because turbidity is typically elevated in groundwater samples that are collected from temporary wells. As a result, analytical results for TPH-O and naphthalenes collected from direct-push

borings will be used for screening purposes, and any exceedance of the screening levels will be further evaluated using monitoring wells to obtain more representative groundwater samples.

Groundwater samples will be collected and preserved consistent with the method-specific requirements shown in Table D-2. Analyses will be conducted within the specified holding times shown in Table D-2. All samples will be archived by the laboratory under chain-of-custody protocol until Landau Associates directs the laboratory that they may be discarded.

2.3 GROUNDWATER INVESTIGATION – MONITORING WELLS

This section describes the activities to be conducted to collect groundwater samples from groundwater monitoring wells. Groundwater monitoring wells will be installed at the Site to evaluate groundwater conditions at the Site boundaries (to be determined during the RI process, and which generally define the point of compliance), and NAPL thickness near the ASTs. Prior to installing the monitoring wells, as described below, the Port in consultation with Ecology will select well installation locations. The Port may also prepare a revised list of constituents of potential concern (COPCs) based on the results of the direct-push groundwater investigation described in Section 2.2. The list of groundwater COPCs may need to be revised because the initial phase of groundwater sampling from direct-push borings includes parameters that have not been previously tested for at the Site, and the first phase of the investigation may adequately demonstrate that those compounds are not present at this Site.

2.3.1 MONITORING WELL INSTALLATION AND CONSTRUCTION

Monitoring wells will be constructed by a drilling contractor licensed in the state of Washington using the hollow-stem auger drilling method. Prior to initiation of drilling, or any other invasive subsurface activity, the locations of each proposed exploration will be checked in the field to identify aboveground utilities or physical limitations that would prevent drilling at the proposed location. In addition, a public utility locate service will be contacted to locate underground utilities at the perimeter of the Site and a private utility locate service will be contacted to identify potential underground utilities. Based on the findings by the utility locating service, an adjustment to the boring location may be required. Additionally, it may be necessary to use an "air knife" to carefully inspect the subsurface and confirm the locations of utilities prior to advancing the drilling auger. The final location for each borehole will be based on the findings of the field check.

The monitoring wells will be constructed in accordance with Washington State Minimum Standards for Construction and Maintenance of Wells (WAC 173-160; Ecology 2006). Landau Associates field personnel familiar with environmental sampling and construction of resource protection wells will oversee the drilling and well installation activities, and maintain a detailed record of the well

construction. The monitoring wells will be drilled using conventional hollow-stem auger techniques with 4.25-inch inside diameter augers. The monitoring wells will be constructed with 2-inch-diameter, flush-threaded, Schedule 40 polyvinyl chloride (PVC) pipe and 10-ft screens. Wells installed in the source area will be constructed using 0.020-inch machine-slotted casings and filter pack material consisting of pre-washed, pre-sized number 10/20 silica sand to promote the entry of free product into the well, if present. Wells installed outside the source area will be constructed using 0.010-inch machine-slotted casings and filter pack material consisting of pre-washed, pre-sized number 20/40 silica sand to minimize sample turbidity.

The well screen location will be selected based on observed conditions. We anticipate the screens will be placed from 5 to 15 ft BGS to intersect the water table. The filter pack will be placed from the bottom of the well to approximately 1 ft above the top of the screen. Filter pack material will be placed slowly and carefully to avoid bridging of material. A bentonite seal will be placed above the filter pack material to within about 3 ft of ground surface. Grout will be used to backfill the boring to the subgrade for placement of the protective cover.

The well names and the identification numbers assigned by Ecology will be marked on the well identification tags supplied by Ecology and will be attached to each well casing following well installation. Before and between drilling of each boring and at completion of the project, downhole drilling equipment will be cleaned using a high-pressure hot water or steam washer as described in Section 2.9.

Water levels will be measured at least three times in association with the well installation: during drilling, following the well installation, and following the well development. In addition, water levels will be measured in all Site wells within an hour of each other prior to conducting groundwater sampling events. Specific conductance will also be monitored in at least one well at multiple times within a low tide cycle to determine an optimal sampling time that minimizes marine surface water intrusion into the upland well. Water level measurement procedures are discussed in Section 2.8.1.

2.3.2 MONITORING WELL DEVELOPMENT

The monitoring wells will be developed after construction to remove formation material from the well borehole and the filter pack prior to groundwater level measurement and sampling. Development will be achieved by repeatedly surging the well with a surge block and purging the well until the water runs clear, but no less than five well casing volumes. During development, the purged groundwater will be monitored for the following field parameters:

- pH
- Specific conductance

- Temperature
- Turbidity
- Oxidation reduction potential (ORP)
- Dissolved oxygen (DO).

The wells will be developed until the turbidity of the purged groundwater decreases to 5 nephelometric turbidity units (NTUs) and until the stabilization criteria in Section 2.3.3 are met, if practicable. If the well dewaters during the initial surging and purging effort, one final well casing volume will be removed after the well has fully recharged, if practicable. Well development activities will be recorded on a Well Development form.

2.3.3 SAMPLE COLLECTION

The initial groundwater samples will be collected at least 1 week after well development. Samples will be collected during low tide, at a time during the tide cycle selected to minimize influence on the sample by marine surface water as discussed in Section 2.4. For the RI, one round of groundwater sampling will be conducted during the wet season (November through April) and one round of groundwater sampling will be completed during the dry season (June through October). Collection of groundwater samples will be completed at each monitoring well using the following procedures:

- Immediately following removal of each well monument cover, the wellhead will be observed for damage, leakage, and staining. Additionally, immediately following removal of the wellhead cap, any odors will be recorded and the condition of the well opening will be observed. Any damage, leakage, or staining to the wellhead or well opening will be recorded.
- Prior to sampling, each well will be purged using a pump that is attached to dedicated purge and sample collection tubing (the types of pumps used may vary depending on purge volume and depth and include a centrifugal pump, a peristaltic pump, and an electric submersible pump). Purging will begin with a low pumping rate. The rate will be adjusted upward slowly to minimize drawdown (with a target drawdown of less than 0.33 ft) during purging. Purging will continue until at least three casing volumes of water have been removed and specific conductance and temperature have stabilized or until the well goes dry. The purge volume will be calculated based on the following formula:

  1 casing volume (gallons) = $\pi r^2 h \times 7.48$ gal/ft^3

  where: π = 3.14
  r = radius of well casing in ft
  h = height of water column from the bottom of the well, in feet.

- Field parameters, including pH, temperature, specific conductance, DO, ORP, and turbidity, will be continuously monitored during purging using a flow cell. Purging of the well will be considered to be complete when all field parameters become stable for three successive readings. The successive readings should be within +/– 0.1 pH units for pH, +/– 3 percent for specific conductance, and +/– 10 percent for DO and turbidity.

- Purge data will be recorded on a Groundwater Sample Collection form including purge volume; time of commencement and termination of purging; any observations regarding color, turbidity, or other factors that may have been important in evaluation of sample quality; and field measurements of pH, specific conductance, temperature, DO, and turbidity.
- Following the stabilization of field parameters, the flow cell will be disconnected and groundwater samples will be collected. Sample data will be recorded on a Groundwater Sample Collection form, including sample number and time collected, the observed physical characteristics of the sample (e.g., color, turbidity, etc.), and field parameters (pH, specific conductance, temperature, and turbidity).
- Four replicate field measurements of temperature, pH, specific conductance, DO, ORP, and turbidity will be obtained using the following procedures:
  - A 250-mL plastic beaker will be rinsed with de-ionized water followed by sample water.
  - The electrodes and temperature compensation probe will be rinsed with de-ionized water followed by sample water.
  - The beaker will be filled with sample water; the probes will be placed in the beaker until the readings are stabilized. Temperature, pH, specific conductance, DO, and turbidity measurements will be recorded on the Groundwater Sample Collection form.
  - The above step will be repeated to collect the remaining replicates.
- Any problems or significant observations will be noted in the "comments" section of the Groundwater Sample Collection form.
- Groundwater samples will be collected into the appropriate sample containers using a peristaltic pump. To prevent degassing during sampling for VOCs, a pumping rate will be maintained below about 100 mL/min. The VOC containers will be filled completely so that no headspace remains. Samples will be chilled to 4°C immediately after collecting the sample. Clean gloves will be worn when collecting each sample.
- Groundwater for dissolved metals analyses will be collected last and field-filtered through a 0.45 micron, in-line disposable filter. Dissolved metal samples will be preserved, as specified in Table D-2. A note will be made on the sample label, sample collection form, and chain-of-custody form to indicate the sample has been field-filtered and preserved, including the type of preservative used.
- Groundwater samples will be submitted to the laboratory for analysis as described in Section 2.2.4.

2.3.4 LABORATORY ANALYSIS

Groundwater COPCs will be evaluated in consultation with Ecology based on the results of the initial phase of the groundwater investigation. Groundwater samples collected from monitoring wells during the second phase of the investigation will, at a minimum, be analyzed for TPH-G by Method NWTPH-G, TPH-D and TPH-O by Method NWTPH-Dx, and dissolved lead by EPA Method 6020. Analyses for VOCs [including benzene, toluene, ethylbenzene, and xylenes (BTEX)] or PAHs may not be necessary if the initial phase of the investigation conclusively demonstrates that constituents in these

analyte groups are not a concern at the Site. If necessary, VOCs will be analyzed for by EPA Method 8260C and naphthalenes by EPA Method 8270D.

Groundwater samples will be collected and preserved consistent with the method-specific requirements shown in Table D-2. Analyses will be conducted within the specified holding times shown in Table D-2. All samples will be archived by the laboratory under the chain-of-custody protocol until Landau Associates directs the laboratory that they may be discarded.

2.4 SOIL VAPOR INVESTIGATION

This section describes the activities to be conducted to collect soil vapor samples to evaluate the potential risks of volatile COPCs in air that could impact human health. Soil vapor samples will be collected from the four locations shown on Figure D-2. Three of the sampling locations were selected to evaluate soil gas conditions near the ASTs where soil vapors may have the potential to impact indoor air quality at the Site (BMI-GP-14 and BMI-SVSS-1), or may indicate a potential for offsite migration (BMI-GP-9). BMI-GP-13 is located downgradient from the ASTs, across the Blaine Marina retail building to provide additional information regarding the potential to impact indoor air quality.

Three samples will be collected from boreholes advanced using a direct-push drilling rig (BMI-GP-9, BMI-GP-13, and BMI-GP-14). These soil vapor samples will be collected by advancing the probe rod to the target depth (approximately 5 ft BGS) and inserting dedicated Teflon® vapor sampling tubing and an adapter into the rod bore and connecting to a peristaltic pump at the surface. A ball valve will be placed in line before the peristaltic pump. A seal of hydrated bentonite will be placed around the top of the drill rods at the soil surface to prevent intrusion of atmospheric air. The peristaltic pump will be used to evacuate at least 3 times the volume of air contained in the sample tubing. After purging the tubing, the ball valve will be closed, and the sample tubing will be connected to a 6-liter Summa canister for sample collection as described below.

Soil vapor sample BMI-SVSS-1 will be collected from beneath the floor slab of the Blaine Marina furniture and appliance retail building through a ⅝-inch diameter core in the concrete. The core will be drilled with a handheld rotary hammer style drill. Immediately following coring, a PID will be used to measure VOC concentrations in the sample port core. The sampling port location will consist of a stainless steel Vapor Pin™ with a silicone sleeve. The Vapor Pin will be placed flush with the concrete slab and will prevent vapor loss prior to sampling. Some coring debris will remain at the bottom of the boring; therefore, drilling should extend beneath the bottom of the slab by approximately 4 to 6 inches to expose the soil before installing the Vapor Pin. A bottle brush will be used to clean coring debris from the hole before the Vapor Pin is installed. To prevent the sampling port from being tampered with or damaged, a construction cone will be placed over the sampling assembly. The sample location will be

allowed to equilibrate overnight before proceeding with sample collection. Before sample collection, approximately 2 ft of ¼-inch outside diameter (OD) Teflon tubing will be attached to the barb fitting of the Vapor Pin. A ball valve will be placed at the end of the tubing to prevent soil gas from escaping prior to sampling.

Samples will be collected from the direct-push borings and the sub-slab sampling port into a 6-liter Summa canister with a laboratory-supplied and calibrated flow control valve. The flow control valve will be calibrated to a flow rate not to exceed 200 mL/min (collection time of approximately 30 minutes). After connecting the flow controller to the Summa canister, and the sample tubing to the flow controller inlet, field personnel will open the valve on the sample tubing, then the needle valve on the Summa canister. A pressure gauge on the flow control valve will be monitored as the sample is collected. When the pressure gauge reads approximately 5 inches of mercury vacuum, the canister valve and then the tubing valve will be closed and the canister will be detached. The sub slab vapor sampling port will be abandoned by removing the Vapor Pin with the extraction tool and filling in the hole with quick-set concrete.

Each of the four soil vapor samples will be analyzed for VOCs using EPA Method TO-15, which includes the following analytes (among a list of 75) that are related to TPH-G contamination and that will be used to determine the potential for impacts to human health from potential exposure to vapors: methyl tert-butyl ether (MTBE), BTEX, naphthalene, ethylene dibromide (EDB), and ethylene dichloride (EDC).

2.5 SCHEDULE

Based on the Site's close proximity to tidally influenced marine surface water, groundwater sampling will be conducted when the tide is low to reduce potential dilution of groundwater samples that could be caused by water flowing inland from Blaine Harbor. For samples along the shoreline, the optimal sample timing is likely to be within 2 hours before and after low tide, although the actual sampling window will be decided based on predicted tides and the site-specific water level and specific conductance readings collected to evaluate sampling timing. It is not expected that tidal cycles will significantly impact the results of soil or soil vapor sampling.

2.6 SAMPLE CONTAINERS, PRESERVATION, AND STORAGE

Soil and groundwater samples submitted to the analytical laboratory for analyses will be collected in the appropriate sample container provided by the analytical laboratory. The samples will be preserved by cooling to a temperature of 4°C or as required by the analytical method. Maximum holding and extraction times until analysis is performed will be strictly adhered to by field personnel and the analytical laboratory. Sample containers, preservatives, and holding times for each chemical analysis are shown in

Table D-2. For soil vapor samples, Summa canisters that are 100 percent laboratory-certified clean (not batch-certified) will be used to collect samples. It is not necessary to keep the soil vapor samples at 4°C.

2.7 SAMPLE TRANSPORTATION AND HANDLING

The transportation and handling of soil and groundwater samples will be accomplished in a manner that not only protects the integrity of the sample, but also prevents any detrimental effects due to the release of samples. Samples will be logged on a chain-of-custody form and will be kept in coolers on ice until delivery to the analytical laboratory. The chain-of-custody form will accompany each shipment of samples to the laboratory.

2.8 SURVEYING

The location of each direct-push sampling location will be surveyed using GPS equipment to facilitate accurate placement of these features on project figures and drawings, as well as for submittal to Ecology. Monitoring well locations and reference elevations will be professionally surveyed to the nearest 0.01 ft for use in evaluating groundwater and lithologic unit elevations. Both the top of the monitoring well casing elevation and ground surface elevation adjacent to the monitoring well will be measured. This information will be used to develop groundwater elevation contour maps. North American Vertical Datum of 1988 (NAVD88) will be used as the reference elevation datum. Surveying will be accomplished after completion of the well installations.

2.8.1 WATER LEVEL MEASUREMENTS

Water level measurements will be obtained at each monitoring well prior to purging and sample collection. All water levels will be measured using an electronic water level indicator and will be recorded to the nearest 0.01 ft. Measurements will be taken from the top of the well casing.

2.9 EQUIPMENT DECONTAMINATION

The decontamination procedures described below are to be used by field personnel to clean drilling, sampling, and related field equipment. Deviation from these procedures must be documented in field records.

2.9.1 WATER LEVEL INDICATOR

The tape from the water level indicator will be washed with Alconox soap and rinsed with distilled water between each well measurement. If NAPL is encountered, a paper towel wetted with hexane will be used to clean the NAPL from the indicator. Following the cleaning with hexane, the

indicator will be washed with Alconox soap and rinsed with distilled water. If odors persist on the indicator, the process will be repeated.

2.9.2 SAMPLING EQUIPMENT

All reusable sampling equipment used (e.g., stainless steel bowls, stainless steel spoons, hand augers, direct-push core samplers, etc.) will be decontaminated using a three-step process, as follows:

1. Scrub surfaces of equipment that would be in contact with the sample with brushes using an Alconox solution
2. Rinse and scrub equipment with clean tap water
3. Rinse equipment a final time with de-ionized water to remove tap water impurities.

Decontamination of the reusable sampling equipment will occur between collection of each sample. Decontamination of sampling equipment that contains a visible sheen will include a hexane rinse (or other appropriate solvent) prior to the tap water rinse. Groundwater sampling equipment in contact with groundwater is dedicated to a specific sampling location and will not be used at more than one location; therefore, no sampling equipment decontamination is necessary.

2.9.3 HEAVY EQUIPMENT

Heavy equipment (e.g., the drilling rigs and drilling equipment that is used downhole, or that contacts material and equipment going downhole) will be cleaned by a hot water, high-pressure wash before each use and at completion of the project. Potable tap water will be used as the cleansing agent.

2.10 INVESTIGATION-DERIVED WASTE MANAGEMENT

This section describes the management of investigation-derived waste including soil cuttings, well development water, purge water, and decontamination water generated during well installation, well development, and groundwater sampling activities.

2.10.1 SOIL CUTTINGS

Soil cuttings from boreholes will be temporarily stored in 55-gallon drums. Only a small volume of soil cuttings are derived from direct-push borings; soil cuttings from the uplands investigation are expected to be contained in one 55-gallon drum. A sufficient supply of drums will be made available by the drilling subcontractor for soil cuttings in case additional storage is needed. Disposal of the soil cuttings will be in accordance with appropriate regulations. A soil composite cutting sample will be collected from the material in the drum. Samples from each drum will be analyzed for parameters required for disposal.

2.10.2 LIQUID WASTE

Decontamination water, purge water, and monitoring well development water generated during soil and groundwater sampling and monitoring well installation will be temporarily stored in 55-gallon drums. Disposal methods will be determined based on the analytical results for the soil and groundwater samples.

3.0 QUALITY ASSURANCE

The overall goal of the project quality assurance (QA) program is to provide a reasonable degree of confidence in project data and results through establishment of a rigorous system of quality and performance checks on data collection, analysis, and reporting activities, as well as to provide for appropriate and timely corrective action to achieve compliance with established performance and quality criteria.

This section presents data quality objectives (DQOs) and the quality control (QC) procedures developed to meet these DQOs, sample handling and chain-of-custody procedures, laboratory control samples, performance and system audits, corrective actions, and data validation.

3.1 DATA QUALITY OBJECTIVES

Results from the upland investigation activities will be used to document and evaluate current environmental conditions at the Site. The sample results must be precise, accurate, representative, complete, and comparable to a degree commensurate with this use.

The QA procedures presented are based on DQOs that were developed in accordance with Ecology guidelines (Ecology 2004).

The target control limits (the range within which project data of acceptable quality should fall) for data quality will be laboratory acceptance limits generated according to EPA guidelines (EPA 2005a). The target control limits will be used to evaluate data acceptability and are considered to be QC goals for data acceptance.

Completeness of the project will be calculated as the percentage of data generated that is accepted as valid through the data validation process.

Comparability is an expression of the confidence with which one data set can be compared to another. Statistical tests used to determine data precision, accuracy, and completeness are described in the following subsections. Statistical definitions for representativeness and comparability are also provided in the following subsections.

3.1.1 PRECISION

Precision is a measure of mutual agreement among individual measurements of the same property under prescribed conditions. Precision is best expressed in terms of the standard deviation or relative percent difference (RPD). QA/QC sample types that test precision include field and laboratory duplicates and matrix or blank spike duplicates. The estimate of precision of duplicate measurements will be expressed as RPD, which is calculated:

$$RPD = \left| \frac{D_1 - D_2}{(D_1 + D_2)/2} \right| x\,100$$

where: D_1 = first sample value

D_2 = second sample value (duplicate).

The RPDs will be routinely calculated and compared with DQO control limits. RPD control limits for field duplicate samples will be 50 percent.

3.1.2 ACCURACY

Accuracy is the degree of agreement of a measurement (or an average of measurements of the same property) X, with an accepted reference or true value T, usually expressed as the difference between the two values (X–T), the difference as a percentage of the reference or true value (100 (X–T)/T), or as a ratio (X/T). Accuracy is a measure of the bias in a system and is expressed as the percent recovery of spiked (matrix or surrogate spike) samples:

$$Percent\ Recovery = \frac{(Spiked\ Sample\ Result - Unspiked\ Sample\ Result)}{Amount\ of\ Spike\ Added} x\,100$$

The percent recovery will be routinely calculated and checked against DQO control limits.

3.1.3 REPRESENTATIVENESS

Representativeness expresses the degree to which data accurately and precisely represent an actual condition or characteristic of a population. Representativeness can be evaluated using replicate samples, additional sampling locations, and blanks.

3.1.4 COMPLETENESS

Completeness is a measure of the proportion of data obtained from a task sampling plan that is determined to be valid. It is calculated as the number of valid data points divided by the total number of data points requested. The QA objective for completeness during this project will be 95 percent. Completeness will be routinely determined and compared to the DQO acceptable percentage.

3.1.5 COMPARABILITY

Comparability is an expression of the confidence with which one data set can be compared to another. QA procedures in this document will provide for measurements that are consistent and representative of the media and conditions measured. All sampling procedures and analytical methods

used for the investigation sampling activities will be consistent to provide comparability of results for samples and split samples.

3.2 FIELD AND LABORATORY QUALITY CONTROL SAMPLES

Field and laboratory control samples will used to evaluate data precision, accuracy, representativeness, completeness, and comparability of the analytical results for the verification sampling. A summary of the QC samples is presented in the following subsections.

3.2.1 BLIND FIELD DUPLICATE

Blind field duplicate samples will be used to evaluate data precision for groundwater and soil vapor. Groundwater blind field duplicates will consist of split samples collected at a single sample location. Blind field duplicates of water will be collected by alternately filling sample containers for both the original and the corresponding duplicate sample at the same location to decrease variability between the duplicates. For vapor samples, an inlet splitter or "co-locator" will be used to draw air simultaneously into the original and corresponding duplicate Summa canister. Due to its natural heterogeneity, soil duplicate samples rarely exhibit precision within EPA-specified limits. As a result, blind field duplicates will not be collected and analyzed for soil.

Duplicates will be submitted "blind" to the laboratory as discrete samples (i.e., given unique sample identifiers to keep the duplicate identity unknown to the laboratory), but will be clearly identified in the field log. Blind field duplicates will be collected at a frequency of one per 20 samples, not including QC samples, but not less than one duplicate per sampling event for groundwater and soil vapor, and will be analyzed for a suite of constituents equivalent to the associated original sample.

3.2.2 FIELD TRIP BLANKS

Field trip blanks will consist of de-ionized water sealed in a sample container by the analytical laboratory. The trip blank will accompany groundwater sample containers during transportation to and from the field, and then will be returned to the laboratory with each shipment of groundwater samples for VOC and TPH-G analysis. The trip blanks will remain unopened until submitted to the laboratory for analysis of VOCs and TPH-G to determine possible sample contamination during transport.

3.2.3 FIELD RINSATE BLANKS

Field rinsate blanks will consist of de-ionized water passed over decontaminated sampling equipment and transferred to sample containers for analysis at the laboratory. Field rinsate blanks are used to identify potential cross-contamination between the sampling equipment and the sample.

Currently, groundwater sample collection will be conducted using disposable and/or dedicated equipment, thereby eliminating potential cross-contamination between samples via sampling equipment. As a result, collection of rinsate blanks is not currently planned. If non-dedicated equipment is used during groundwater sample collection, at least one field equipment blank will be collected for laboratory analysis.

3.2.4 LABORATORY METHOD BLANKS

One laboratory method blank will be analyzed for all parameters (except total solids) to assess possible laboratory contamination. Dilution water will be used whenever possible. Method blanks will contain all reagents used for analysis. The generation and analysis of additional method, reagent, and glassware blanks may be necessary to verify that laboratory procedures do not contaminate samples.

3.2.5 LABORATORY CONTROL SAMPLE

One laboratory control sample will be analyzed for all parameters except total solids.

3.2.6 SURROGATE SPIKES

Samples analyzed for organic constituents will be spiked with appropriate surrogate compounds as defined by the analytical methods.

3.2.7 LABORATORY MATRIX SPIKE

A minimum of 1 laboratory matrix spike per 20 samples, not including QC samples, or 1 matrix spike sample per batch of samples if fewer than 20 samples are obtained, will be analyzed for inorganic compounds for each matrix sampled. The matrix spikes will be performed using a project sample. These analyses will be performed to provide information on accuracy and to verify that extraction and concentration levels are acceptable. The laboratory spikes will follow EPA guidelines for matrix and blank spikes. Note that a matrix spike duplicate (MSD) will not be collected because the current federal guidance for Quality Assurance Project Plans developed by the EPA, the Department of Defense, and the Department of Energy indicates that the MSD is not an effective measurement of precision in environmental media and is not a useful data quality indicator (EPA 2005a).

3.2.8 LABORATORY DUPLICATE

A minimum of 1 laboratory duplicate per 20 samples, not including QC samples, or 1 laboratory duplicate sample per batch of samples if fewer than 20 samples are obtained, will be analyzed for lead.

These analyses will be performed to provide information on the precision of the chemical analyses. The laboratory duplicate will follow the appropriate EPA guidance for the method.

3.3 CORRECTIVE ACTIONS

Corrective actions will be needed for two categories of nonconformance:

- Deviations from the methods or QA requirements established in this SAP
- Equipment or analytical malfunctions.

Corrective action procedures to be implemented based on detection of unacceptable data are developed on a case-by-case basis. Such actions may include one or more of the following:

- Altering procedures in the field
- Using a different batch of sample containers
- Performing an audit of field or laboratory procedures
- Reanalyzing samples (if holding times allow)
- Resampling and analyzing
- Evaluating sampling and analytical procedures to determine possible causes of the discrepancies
- Accepting the data without action, acknowledging the level of uncertainty
- Rejecting the data as unusable.

During field operations and sampling activities, the field personnel will be responsible for conducting and reporting required corrective actions. A description of any action taken will be entered in the daily field notebook. The project manager will be consulted immediately if field conditions are such that conformance with this SAP is not possible. The field coordinator will consult with the Landau Associates project manager, who may authorize changes or exceptions to the QA/QC portion of this SAP, as necessary and appropriate.

During laboratory analysis, the laboratory QA officer will be responsible for taking required corrective actions in response to equipment malfunctions. If an analysis does not meet DQOs outlined in this SAP, corrective action will follow the guidelines in the noted EPA analytical methods and the EPA guidelines for data validation for organics and inorganics analyses (EPA 1999, 2004). At a minimum, the laboratory will be responsible for monitoring the following:

- Calibration check results must be within performance criteria specified in the EPA method or corrective action must be taken prior to initiation of sample analysis. No analyses may be performed until these criteria are met.
- Before processing any samples, the analyst should demonstrate (through analysis of a reagent blank) that interferences from the analytical system, glassware, and reagents are within acceptable limits. Each time a set of samples is extracted or there is a change in reagents, a reagent blank should be processed as a safeguard against chronic laboratory contamination.

The blank samples should be carried through all stages of the sample preparation and measurement steps.

- Method blank results should, in general, be below instrument detection limits. If contaminants are present, then the source of contamination must be investigated, corrective action taken and documented, and all samples associated with a contaminated blank reanalyzed. If, upon reanalysis, blanks do not meet these requirements, Landau Associates will be notified immediately to discuss whether analyses may proceed.
- Surrogate spike analysis must be within the specified range for recovery limits for each analytical method used or corrective action must be taken and documented. Corrective action includes: 1) reviewing calculations, 2) checking surrogate solutions, 3) checking internal standards, and 4) checking instrument performance. Subsequent action could include recalculating the data and/or reanalyzing the sample if any of the above checks reveal a problem. If the problem is determined to be caused by matrix interference, reanalysis may be waived if so directed following consultation with Landau Associates. If the problem cannot be corrected through reanalysis, the laboratory will notify Landau Associates prior to data submittal so that additional corrective action can be taken, if appropriate.
- If the recovery of a surrogate compound in the method blank is outside the recovery limits, the blank will be reanalyzed along with all samples associated with that blank. If the surrogate recovery is still outside the limits, Landau Associates will be notified immediately to discuss whether analyses may proceed.
- If quantitation limits or matrix spike control limits cannot be met for a sample, Landau Associates will be notified immediately to discuss corrective action required.
- If holding times are exceeded, all positive and undetected results may need to be qualified as estimated concentrations. If holding times are grossly exceeded, Landau Associates may determine the data to be unusable.

If analytical conditions are such that nonconformance with this SAP is indicated, Landau Associates will be notified as soon as possible so that any additional corrective action can be taken. The laboratory project manager will then document the corrective action by a memorandum submitted to Landau Associates. A narrative describing the anomaly, the steps taken to identify and correct the anomaly, and any recalculation, reanalysis, or re-extractions will be submitted with the data package in the form of a cover letter.

3.4 DATA VERIFICATION AND VALIDATION

All RI data will be verified and validated to determine the results are acceptable and meet the DQOs described in Section 3.1. Prior to submitting a laboratory report, the laboratory will verify that all the data are consistent, correct, and complete, with no errors or omissions.

Validation of the data will be performed by Landau Associates following the guidelines in the appropriate sections of the EPA Contract Laboratory Program *National Functional Guidelines for Organic and Inorganic Data Review* (EPA 1999, 2004) and will include evaluations of the following:

- Chain-of-custody records
- Holding times

- Laboratory method blanks
- Surrogate recoveries
- Laboratory matrix spikes and matrix spike duplicates
- Blank spikes/laboratory control samples
- Laboratory duplicates
- Corrective action records
- Completeness
- Overall assessment of data quality.

In the event that a portion of the data is outside the DQO limits or the EPA guidance (EPA 1999, 2004, 2005b, 2009), or sample collection and/or documentation practices are deficient, corrective action(s) will be initiated. Corrective action, as described in Section 3.3, will be determined by the field coordinator and Landau Associates' QA officer in consultation with the Landau Associates project/task manager and may include any of the following:

- Rejection of the data and resampling
- Qualification of the data
- Modified field and/or laboratory procedures.

Data qualification arising from data validation activities will be described in the data validation technical memorandum, rather than in individual corrective action reports.

4.0 DATA MANAGEMENT PROCEDURES

All laboratory analytical results, including QC data, will be submitted electronically to Landau Associates. Electronic format will include comma separated value (CSV) files that will be downloaded directly to an Excel spreadsheet. Following validation of the data, any qualifiers will be added to the Excel spreadsheets. All survey data will be provided electronically in a format that can be downloaded into an Excel spreadsheet. All field data (groundwater field parameter data and water levels measurements) will be entered into an Excel spreadsheet and verified to determine all entered data are correct and without omissions and errors. Following receipt of all RI data, all survey data, water level measurements, field parameters, and analytical results will be formatted electronically and downloaded to Ecology's Environmental Information Management (EIM) system.

5.0 REFERENCES

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N

0 1.5 3

Miles

Data Source: ESRI 2008

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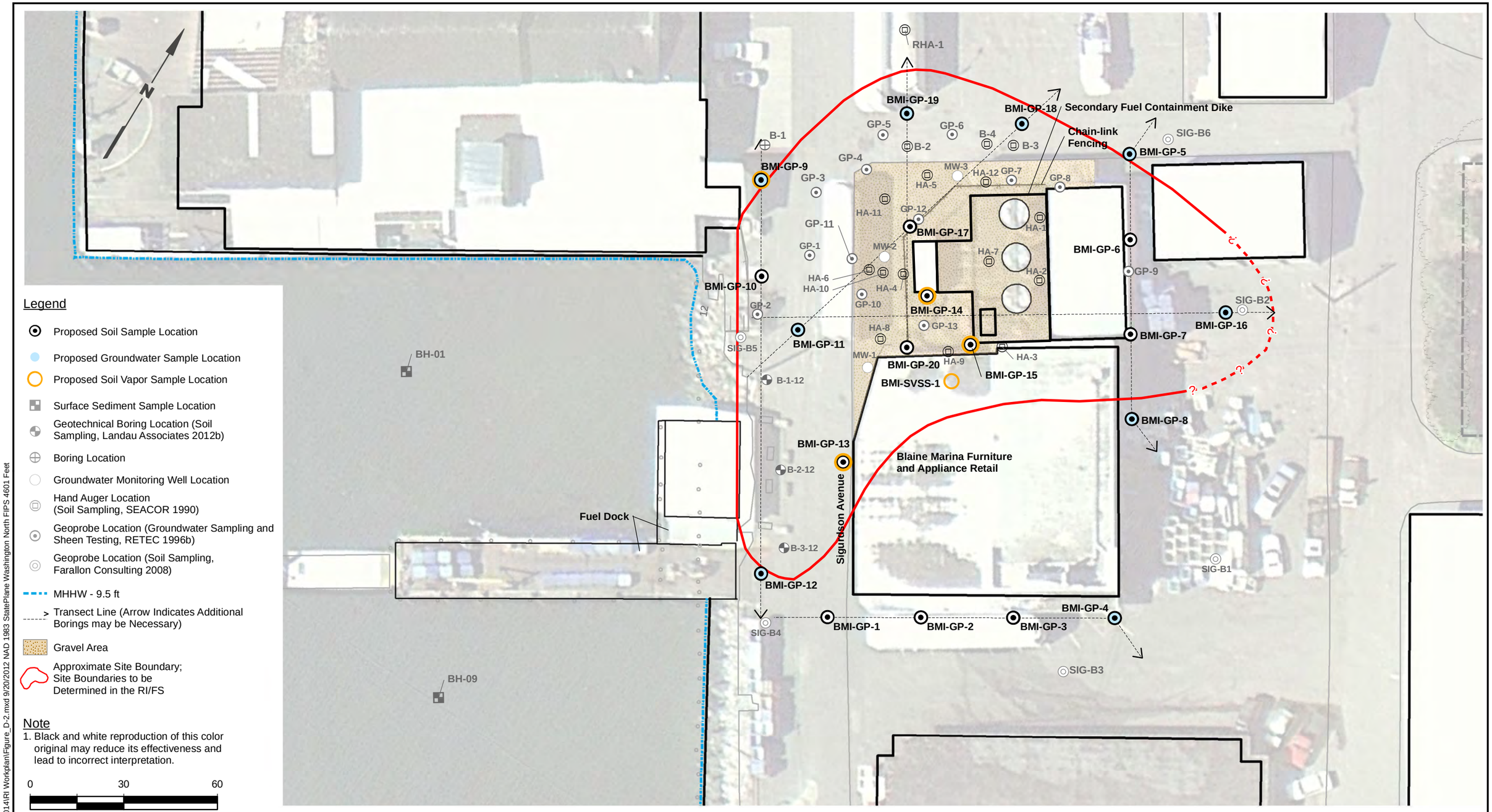
LANDAU ASSOCIATES

Blaine Marina Inc. Site Blaine Harbor Blaine, Washington	**Vicinity Map**	Figure D-1



Legend

- Proposed Soil Sample Location
- Proposed Groundwater Sample Location
- Proposed Soil Vapor Sample Location
- Surface Sediment Sample Location
- Geotechnical Boring Location (Soil Sampling, Landau Associates 2012b)
- Boring Location
- Groundwater Monitoring Well Location
- Hand Auger Location (Soil Sampling, SEACOR 1990)
- Geoprobe Location (Groundwater Sampling and Sheen Testing, RETEC 1996b)
- Geoprobe Location (Soil Sampling, Farallon Consulting 2008)
- MHHW - 9.5 ft
- Transect Line (Arrow Indicates Additional Borings may be Necessary)
- Gravel Area
- Approximate Site Boundary; Site Boundaries to be Determined in the RI/FS

Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 30 60

Scale in Feet

Source: Wilson Engineering 2011, Port of Bellingham 2011, Walker and Associates, Inc.

Blaine Marina Inc. Site Blaine Harbor Blaine, Washington	**Proposed Upland Investigation Sampling Locations**	Figure D-2

LANDAU ASSOCIATES

Y:\Projects\001034\010.014\RI Workplan\Figure_D-2.mxd 9/20/2012 NAD 1983 StatePlane Washington North FIPS 4601 Feet

TABLE D-1
PROPOSED INVESTIGATION LOCATION SUMMARY
BLAINE MARINA INC. SITE
BLAINE, WASHINGTON

Location ID	Location Description	Rationale for Sample Collection	Surface Conditions	Boring Depth (ft) (a)	Soil Sampling Protocol Overview (b)	Soil Analyses (b,c,d)	Soil Vapor Sampling Protocol	Groundwater Sampling Protocol
BMI-GP-1 through BMI-GP-3	South of the Blaine Marina Furniture and Appliance retail building	Evaluate soil conditions approaching Site boundary to the south.	Asphalt Pavement	12	Field screening for visual, olfactory, or PID indication of TPH contamination will be conducted on continuous soil cores from ground surface to the total depth of the boring. Based on field screening, field personnel will characterize the vertical extent of contamination by collecting a soil sample from (1) above the zone of contamination in apparently *"clean" soil* , (2) within the zone of most-apparently contaminated soil, and (3) below the zone of contamination in apparently "*clean"* soil. Soil samples from these three vertical locations will be submitted for the laboaratory analyses described in this table. Field personnel will archive at least one sample above and below the three samples listed above in case follow-up analyses is required. Sample intervals will be 1 ft in length in apparently "clean" soil, and 1 to 2 ft in length in the zone of apparently contaminated soil. Depth of the intervals will depend on field-screening results. If there is no indication of contamination based on field screening, submit one sample at the groundwater interface for the analyses listed in this table, and archive one sample from above and one sample from below for potential follow-up analyses.	TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	-
BMI-GP-4	South of the Blaine Marina Furniture and Appliance retail building	Evaluate soil and groundwater conditions approaching Site boundary to the South. If significant contamination is indicated by field screening, advance an additional boring heading east along the transect.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	Collect groundwater sample and analyze for TPH-G, TPH-Dx, dissolved lead, VOCs, and naphthalenes
BMI-GP-5	Northeast of the ASTs	Evaluate soil and groundwater conditions approaching Site boundary to the North. If significant contamination is indicated by field screening, advance an additional boring heading north along the transect.	Asphalt Pavement	16		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	Collect groundwater sample and analyze for TPH-G, TPH-Dx, dissolved lead, VOCs, and naphthalenes
BMI-GP-6 and RI-GP-7	East of the ASTs	Evaluate soil conditions east of the ASTs.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	-
BMI-GP-8	Southeast of the ASTs	Evaluate soil and groundwater conditions southeast of the ASTs.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	Collect groundwater sample and analyze for TPH-G, TPH-Dx, dissolved lead, VOCs, and naphthalenes
BMI-GP-9	Northwest of the ASTs	Evaluate soil, groundwater, and soil gas conditions northwest of the ASTs.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	Collect soil vapor sample at approximately 5 ft BGS and analyze for VOCs	Collect groundwater sample and analyze for TPH-G, TPH-Dx, dissolved lead, VOCs, and naphthalenes

TABLE D-1
PROPOSED INVESTIGATION LOCATION SUMMARY
BLAINE MARINA INC. SITE
BLAINE, WASHINGTON

Location ID	Location Description	Rationale for Sample Collection	Surface Conditions	Boring Depth (ft) (a)	Soil Sampling Protocol Overview (b)	Soil Analyses (b,c,d)	Soil Vapor Sampling Protocol	Groundwater Sampling Protocol
BMI-GP-10	West of the ASTs	Evaluate soil conditions west of the ASTs.	Asphalt Pavement	12	Field screening for visual, olfactory, or PID indication of TPH contamination will be conducted on continuous soil cores from ground surface to the total depth of the boring. Based on field screening, field personnel will characterize the vertical extent of contamination by collecting a soil sample from (1) above the zone of contamination in apparently "clean" soil, (2) within the zone of most-apparently contaminated soil, and (3) below the zone of contamination in apparently "clean" soil. Soil samples from these three vertical locations will be submitted for the laboaratory analyses described in this table. Field personnel will archive at least one sample above and below the three samples listed above in case follow-up analyses is required. Sample intervals will be 1 ft in length in apparently "clean" soil, and 1 to 2 ft in length in the zone of apparently contaminated soil. Depth of the intervals will depend on field-screening results. If there is no indication of contamination based on field screening, submit one sample at the groundwater interface for the analyses listed in this table, and archive one sample from above and one sample from below for potential follow-up	TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	-
BMI-GP-11	West of the ASTs	Evaluate soil and groundwater conditions west of the ASTs.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	Collect groundwater sample and analyze for TPH-G, TPH-D, dissolved lead, VOCs, and naphthalenes
BMI-GP-12	Southwest of the ASTs	Evaluate soil and groundwater conditions southwest of the ASTs.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	Collect groundwater sample and analyze for TPH-G, TPH-D, dissolved lead, VOCs, and naphthalenes
BMI-GP-13 through BMI-GP-15	Southwest of the ASTs	Evaluate soil and soil vapor conditions southwest of the ASTs.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	BMI-GP-13 and BMI-GP-14:Collect soil vapor sample at approximately 5 ft	-
BMI-GP-16	East of the ASTs	Evaluate soil and groundwater conditions southeast of the ASTs.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	Collect groundwater sample and analyze for TPH-G, TPH-Dx, dissolved lead, VOCs, and naphthalenes
BMI-GP-17 and BMI-GP-20	West and southwest of the ASTs	Evaluate soil conditions west and southwest of the ASTs.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	-
BMI-GP-18 and BMI-GP-19	North and northwest of the ASTs	Evaluate soil conditions north of the ASTs.	Asphalt Pavement	12		TPH-G, TPH-Dx, VOCs, naphthalenes, and lead	-	Collect groundwater sample and analyze for TPH-G, TPH-Dx, dissolved lead, VOCs, and naphthalenes

TABLE D-1
PROPOSED INVESTIGATION LOCATION SUMMARY
BLAINE MARINA INC. SITE
BLAINE, WASHINGTON

Location ID	Location Description	Rationale for Sample Collection	Surface Conditions	Boring Depth (ft) (a)	Soil Sampling Protocol Overview (b)	Soil Analyses (b,c,d)	Soil Vapor Sampling Protocol	Groundwater Sampling Protocol
BMI-SVSS-1	Inside the Blaine Marina furniture and appliance retail building	Evaluate soil vapor conditions	Concrete slab	<1		-	Collect sub slab soil vapor sample and analyze for VOCs	-

Notes:

TPH-G = Gasoline-Range Total Petroleum Hydrocarbons
TPH-Dx = Diesel- and Motor Oil-Range Total Petroleum Hydrocarbons (Extended Range)
ASTs = Aboveground Storage Tanks
VOCs = Volatile Organic Compounds
BGS = Below Ground Surface
PID Photoionization Detector

(a) Actual boring depth may be deeper than indicated in this table based on field screening results.
(b) Soil samples collected for TPH-Dx, lead, or naphthalenes analyses will be composed of a composite sample representing the appropriate depth interval, based on observed conditions.
(c) Soil samples collected for TPH-G or VOC analyses will be collected discretely (not a composite) by EPA Method 5035 from un-homogenized soil.
(d) Naphthalenes includes a total value for naphthalene, 1-methyl naphthalene, and 2-methyl naphthalene.

TABLE D-2
SAMPLE CONTAINERS, PRESERVATIVES, AND HOLDING TIMES
UPLAND INVESTIGATION – BLAINE MARINA INC. SITE
BLAINE, WASHINGTON

Matrix / Analysis	Analytical Method	Container	Preservation	Maximum Holding Time (Days)
Soil:				
NWTPH-Dx	NWTPH-Dx (a)	8-oz. jar - glass	Store cool at 4°C	14
NWTPH-G	NWTPH-G	4 x 40-ml vial - glass 1 x 2-oz jar - glass	Sodium Bisulfate (2 vials) Methanol (2 vials) Store at <6°C	14
VOCs (including BTEX, EDB, EDC, MTBE)	EPA 8260C	4 x 40-ml vial - glass 1 x 2-oz jar - glass	Sodium Bisulfate (2 vials) Methanol (2 vials) Store at <6°C	14
Metals (lead)	EPA 6020	8-oz. jar - glass	Store cool at 4°C	180
Naphthalenes	EPA 8270D	8-oz. jar - glass	Store cool at 4°C	14
Water:				
NWTPH-Dx	NWTPH-Dx (a)	2 x 500-mL amber glass	Store cool at 4°C	7
NWTPH-Gx	NWTPH-Gx	2 x 40-ml vials - glass	HCl to pH<2; Store cool at 4°C	14
VOCs (including BTEX, EDB, EDC, MTBE)	EPA 8260C	2 x 40-ml vials - glass	HCl to pH<2; Store cool at 4°C	14
Naphthalenes	EPA 8270D	2 x 500-mL amber glass	Store cool at 4°C	7
Dissolved Metals (lead)	EPA 6020	1-L polyethylene	$HN0_3$; Store cool at 4°C	180 (mercury 28 days)

Notes:
BTEX = Benzene, Toluene, Ethylbenzene, Xylenes
EDB = Ethylene dibromide (gasoline fuel additive)
EDC = Ethylene dichloride (gasoline fuel additive)
MTBE = Methyl tert-butyl ether (gasoline fuel additive)
VOCs = Volatile Organic Compounds

(a) Laboratory sample preparation / Cleanup method: Acid / Silica gel cleanup.

TABLE D-3
QUANTITATION LIMIT GOALS FOR SOIL AND GROUNDWATER
UPLAND INVESTIGATION – BLAINE MARINA INC. SITE
BLAINE, WASHINGTON

Analyte	Analytical Method (a)	SOIL		WATER	
		Reporting Limits (b)	Units	Reporting Limits (b)	Units
NAPHTHALENES					
Naphthalene	EPA-8270D	ND(<0.067)	mg/kg	ND(<1.0)	µg/L
1-Methylnaphthalene	EPA-8270D	ND(<0.067)	mg/kg	ND(<1.0)	µg/L
2-Methylnaphthalene	EPA-8270D	ND(<0.067)	mg/kg	ND(<1.0)	µg/L
METALS					
Lead	EPA-6020	ND(<2.0)	mg/kg	ND(<1.0)	µg/L
TOTAL PETROLEUM HYDROCARBONS (TPH)					
Gasoline Range	NWTPH-Gx (c)	ND(<5)	mg/kg	ND(<250)	µg/L
Diesel Range	NWTPH-Dx (c,d)	ND(<25)	mg/kg	ND(<250)	µg/L
Motor Oil Range	NWTPH-Dx (c,d)	ND(<100)	mg/kg	ND(<250)	µg/L
VOLATILE ORGANICS COMPOUNDS (VOCs)					
1,2-Dichloroethane (EDC)	EPA-8260C (e)	ND(<0.005)	mg/kg	ND(<0.5)	µg/L
Benzene	EPA-8260C (e)	ND(<0.005)	mg/kg	ND(<0.5)	µg/L
Toluene	EPA-8260C (e)	ND(<0.005)	mg/kg	ND(<0.2)	µg/L
Ethyl Benzene	EPA-8260C (e)	ND(<0.005)	mg/kg	ND(<0.5)	µg/L
m,p-Xylene	EPA-8260C (e)	ND(<0.003)	mg/kg	ND(<0.4)	µg/L
o-Xylene	EPA-8260C (e)	ND(<0.003)	mg/kg	ND(<0.2)	µg/L
Ethylene Dibromide (EDB)	EPA-8260C (e)	ND(<0.020)	mg/kg	ND(<2)	µg/L
Methyl tert-butyl ether (MTBE)	EPA-8260C (e)	ND(<0.050)	mg/kg	ND(<0.5)	µg/L

ND = Not Detected.

(a) Analytical methods are from SW-846 (EPA 1986) and updates, unless otherwise noted.
(b) Reporting limit goals are based on current laboratory data and may be modified during the investigation process as methodology is refined. Laboratory reporting will be based on the lowest standard on the calibration curve. Instances may arise where high sample concentrations, nonhomogeneity of samples, or matrix interferences preclude achieving the desired reporting limits.
(c) Methods as described in Analytical Methods for Petroleum Hydrocarbons (Ecology 1997).
(d) Acid/silica gel cleanup procedures will be applied to soil and water samples analyzed for NWTPH-Dx.
(e) Method 8260C will be performed using a 20-mL purge to obtain lower reporting limits.

APPENDIX E

Marine Sediment Sampling and Analysis Plan

Sampling and Analysis Plan
Marine Sediment Investigation
Blaine Marina, Inc. Site
Blaine, Washington

October 4, 2012

Prepared for

Port of Bellingham
Bellingham, Washington

LANDAU ASSOCIATES
130 2nd Avenue South
Edmonds, WA 98020
(425) 778-0907

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LIST OF ABBREVIATIONS AND ACRONYMS

AST	Aboveground Storage Tank
ASTM	ASTM International
BEHP	Bis(2-ethylhexyl)phthalate
CFR	Code of Federal Regulations
cm	Centimeter
CSL	Cleanup Screening Level
DGPS	Differential Global Positioning Device
DMMP	Dredged Material Management Program
DNR	Washington State Department of Natural Resources
Ecology	Washington State Department of Ecology
EDR	Environmental Data Resources Inc.
EIM	Environmental Information Management
EPA	U.S. Environmental Protection Agency
EPH	Extractable Petroleum Hydrocarbon
FS	Feasibility Study
HASP	Health and Safety Plan
HDPE	High-Density Polyethylene
mg/kg OC	Milligrams per Kilogram, Normalized Based on Organic Carbon Content
MLLW	Mean Lower Low Water
NAD83	North American Datum of 1983
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
Port	Port of Bellingham
PSEP	Puget Sound Estuary Program
QA	Quality Assurance
QC	Quality Control
RI	Remedial Investigation
SAP	Sampling and Analysis Plan
SAPA	Sampling and Analysis Plan Appendix
Site	Blaine Marina Inc. Site
SMS	Sediment Management Standard
SQS	Sediment Quality Standard
SVOC	Semivolatile Organic Compound
TOC	Total Organic Carbon
TPH	Total Petroleum Hydrocarbon
TPH-G	Gasoline-Range Total Petroleum Hydrocarbon
VOC	Volatile Organic Compound
VPH	Volatile Petroleum Hydrocarbon
WAC	Washington Administrative Code

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1.0 INTRODUCTION AND BACKGROUND

This sampling and analysis plan (SAP) describes the sample collection, handling, and laboratory analysis procedures for the remedial investigation (RI) marine sediment characterization for the Blaine Marina Inc. Site (Site) in Blaine, Washington (Figure E-1). This SAP is an appendix to the Blaine Marina Inc. Site RI Work Plan, one of the required deliverables under the Agreed Order (No. DE 9000) between the Port of Bellingham (Port) and the Washington State Department of Ecology (Ecology). The primary objective of this plan is to provide sampling, sample handling, and analytical testing methodologies consistent with accepted procedures so that the data collected will be adequate for use in characterizing Site sediment conditions. This SAP is consistent with the requirements of Washington Administrative Code (WAC) 173-340-820, the Sediment Management Standards (SMS; WAC 173-204; Ecology 1995), and the Sediment Sampling and Analysis Plan Appendix (SAPA; Ecology 2008). It provides field, sampling, and analytical procedures to be used during the RI.

1.1 SITE DESCRIPTION

The Site is owned by the Port and the Washington State Department of Natural Resources (DNR) and is located within Blaine Harbor. Blaine Harbor is at the north end of Drayton Harbor, in the Willamette Meridian northwest quarter of Section 1, Township 40 North, Range 1 West. The Site is a part of a larger area referred to as the Blaine Harbor Industrial Area that is being redeveloped by the Port. Blaine Marina Inc. (Blaine Marina) has leased approximately 39,000 square feet of property at 214 Sigurdson Avenue from the Port since the 1950s. Blaine Marina operates a bulk fuel storage and transfer facility that has resulted in the release of petroleum hydrocarbons to soil and groundwater at the Site. Significant surface features at the Site include a fueling dock and supporting office, the Blaine Marina retail building, smaller buildings that are used for storage, and the aboveground storage tanks (ASTs) and equipment associated with the storage and dispensing of fuel products (Figure E-2). A secondary containment area with concrete walls to contain accidental spills was constructed in the immediate vicinity of the ASTs.

It appears that stormwater runoff generated at the Site generally either infiltrates in unpaved areas or flows west into Blaine Harbor, although stormwater flow will be further evaluated during the RI. Except the area in the immediate vicinity of the ASTs, the surface of the Site is covered by buildings or asphalt pavement. In the immediate vicinity of the ASTs, both inside and outside the secondary containment area, the surface of the Site consists of soil and gravel. Stormwater collected on building rooftops is routed to the ground surface with gutters and downspouts. Downspouts on buildings in the vicinity of the ASTs generally discharge to soil and gravel surfaces just outside of the secondary

containment area, where the collected stormwater runoff likely infiltrates. Stormwater that falls within the boundaries of the secondary containment area presumably infiltrates through the soil surface. No stormwater catch basins or outfalls have been identified at the Site.

1.2 SITE HISTORY AND OPERATIONS

The history of Site development and operations presented in this section is based on a review of existing environmental reports related to previous Site investigations and a review of historical aerial photographs taken between 1949 and 2011, which are provided in Appendix A of the RI/FS Work Plan.

Blaine Harbor was originally created in the late 1930s by dredging 2 acres of tideflats to create a small boat harbor. An access road was constructed and adjacent tidelands were filled to create uplands and provide shoreline support for the area. In the late 1940s, 4 additional acres were dredged, additional tidelands were filled, and a breakwater, bulkheads, floats, and ramps were constructed, as shown in the 1949 aerial photograph (Appendix A of the RI/FS Work Plan). The upland area created at the Site generally consists of hydraulic fill with timber bulkheads along the shoreline. In some areas, riprap was used instead of, or in conjunction with, the bulkheads to establish the shoreline. An additional 15-acre area of tideflats was dredged and an extension of the breakwater was completed in the mid-1950s (TEC 2001). The 1956 aerial photograph (Appendix A of the RI/FS Work Plan) shows the breakwater extending farther east and improvements to upland facilities including additional buildings and ASTs to support the storage of fuel dispensed at the fuel dock. The harbor and marina have been upgraded over the years to meet the demand for services. Despite the upgrades, most of the infrastructure supporting the harbor is from the original construction and the footprint of the upland industrial area has remained largely unchanged from that shown in the 1949 aerial photograph. In 2001, the Port completed an expansion project at Blaine Harbor that included enlarging the moorage basin and adding more than 300 slips. The 2001 aerial photograph of the Site (Appendix A of the RI/FS Work Plan) generally depicts the current layout of the Site and surrounding facilities.

Business activity has historically been focused in the area along the western end of Blaine Harbor referred to herein as the Blaine Harbor Industrial Area, which comprises all of the upland area shown on Figure 2. A portion of the southwestern end of the harbor includes state-owned lands that are managed by the Port under a Port Management Agreement with DNR. The Inner Harbor Line shown on Figure E-2 defines the boundary between property owned by the Port (east of the Inner Harbor Line), and property owned by the State and managed by the Port under contract to DNR (west of the Inner Harbor Line).

1.2.1 BLAINE MARINA INC. HISTORICAL OPERATIONS

Blaine Marina is a family-owned retail business that sells furniture, appliances, and fuel products. The company has leased the property at 214 Sigurdson Avenue from the Port since the mid-1950s. The furniture and appliance retailing portion of the business is presumed not to have contributed to releases observed at the Site. Blaine Marina has continuously operated the tank farm at the Site to support the fuel retailing portion of its business from the mid-1950s to the present. This activity is suspected to have resulted in the contamination of soil and groundwater at the Site. The tank farm includes three 8,500-gallon fuel ASTs that store diesel and gasoline to support Blaine Marina's onsite fueling facility. A 4,000-gallon, horizontally oriented AST was formerly located at the tank farm; this AST stored home heating oil that was transferred to tanker trucks for offsite delivery. Because the horizontally oriented AST was supported above the ground surface, leaks would have been noticed and likely remedied quickly. It is not considered a likely source of significant contamination at the Site. This horizontally oriented AST is no longer present at the Site, although it is not clear from the documents reviewed for this SAP when it was removed from service.

Fuel from the three vertically oriented 8,500-gallon ASTs was historically transferred through steel pipes buried underground from the ASTs to the fuel dock. In recent years, the use of the steel pipes was discontinued and fuel is now transferred through flexible hose from the ASTs to the dock. Underneath Sigurdson Avenue, the flexible hose is run inside of the older steel pipe.

The three 8,500-gallon vertically oriented steel tanks were installed in contact with the ground surface (or more accurately, slightly below ground surface) approximately 56 years ago, in about 1956. Because the facility stores more than 1,320 gallons, it is subject to the federal requirements for a Spill Prevention Control and Countermeasures plan [40 Code of Federal Regulations (CFR) Part 112]. Tank and piping integrity testing are requirements under the applicable federal regulation, although no documentation of this testing was available for review for this SAP. Blaine Marina reports that no fuel losses are apparent based on its records of fuel purchases and sales.

1.2.2 DOCUMENTED RELEASES OF CONTAMINATION

Two releases of petroleum hydrocarbons are reported to have occurred at the Site. There are discrepancies in the release dates and volumes of the releases. The two releases described below were reported in the Environmental Data Resources Inc. (EDR) report (Appendix B of the RI/FS Work Plan) and a previous investigation report by RETEC in 1996:

1. A leaky piping elbow was discovered and replaced in about 1986 according to Mike Dodd of Blaine Marina Inc. No record regarding the type of fuel released or the volume of fuel released was available for review (RETEC 1996).

2. A spill of approximately 500 to 700 gallons of No. 2 diesel was reported to have occurred at the Site on May 2, 1990 due to a valve that connects two of the ASTs being accidentally left open during a fuel transfer. The spill was reportedly contained on site and cleaned up by a vactor truck (RETEC 1996). According to the EDR report for the Site, an accidental release of 8,200 gallons of diesel occurred on May 4, 1990 due to an open valve (Appendix B of the RI/FS Work Plan). The Blaine Fire Department's Incident report (No. 90-002875-000), dated May 3, indicates that approximately 500 gallons of fuel was recovered during the incident response effort on that day. It is unclear from these reports whether one or more incidents occurred on May 2, 3, or (least likely) May 4. Also unclear is the actual volume released. For the purposes of this SAP and to guide our conceptual site model and upcoming investigations, we assume these reports, although with a minor discrepancy regarding the release date, describe one release of contamination in early May 1990 of approximately 500 to 8,200 gallons of diesel fuel.

1.3 EXISTING SEDIMENT QUALITY DATA

Landau Associates conducted a sediment quality investigation in Blaine Harbor on behalf of the Port in 2001 (Landau Associates 2002). The purpose of the investigation was to evaluate compliance with the Washington State Sediment Management Standards (SMS) for surface sediments within Blaine Harbor that may have been affected by harbor activities. Surface sediment samples were collected from 16 locations within Blaine Harbor. Three of the 16 samples (BH-01, BH-09, BH-10; Figure E-3) were collected from surface sediments [0 to 10 centimeters (cm)] that are near the Site, to the west and southwest.

The surface sediment sample collected from BH-01 was analyzed for SMS chemicals including metals, semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), organotins, and conventional parameters [total organic carbon (TOC), total solids, total sulfides, ammonia, and grain size], and fecal coliform. The surface sediment sample collected from BH-09 was analyzed for SVOCs, PAHs, TOC, and total solids. The surface sediment sample collected from BH-10 was analyzed for organotins. Table 3 of the RI/FS Work Plan presents the sediment sample analytical results from the 2001 investigation.

The analytical results indicated that the concentration of bis(2-ethylhexyl)phthalate (BEHP) [81.3 milligrams per kilogram, normalized based on organic carbon content (mg/kg OC)] at BH-01 was above the current SMS sediment quality standard (SQS) of 47 mg/kg OC and the SMS cleanup screening level (CSL) of 78 mg/kg OC. Concentrations of other SMS chemicals at BH-01 were either below the reporting limit or below the current SQS and CSL standards. Additionally, concentrations of SMS chemicals sampled for at BH-09 (PAHs and SVOCs) and BH-10 (organotins) were either below their reporting limit or below the SQS and CSL standards or screening criteria for those chemicals. Because BEHP is not commonly associated with petroleum hydrocarbons, and BH-01 is located a distance from

the shoreline closest to the Site, the presence of elevated BEHP at BH-01 does not appear to be associated with a Site release.

1.4 SEDIMENT QUALITY DATA GAPS

As described above, available sediment quality data from the Site vicinity do not indicate that Site releases have impacted sediment quality; however, surface sediments near the shoreline in Blaine Harbor have not been analyzed for site-specific constituents of potential concern (COPCs) such as lead and total petroleum hydrocarbons (TPH) that may have migrated to groundwater and could have been transported in groundwater from the uplands portion of the Site to adjacent marine surface water and sediment.

2.0 OBJECTIVE AND DESIGN OF SEDIMENT INVESTIGATION

This section describes the objective of the sediment investigation and the sampling approach for achieving the objective.

2.1 OBJECTIVE

The objective of the sediment investigation is to determine if previous Site activities have impacted sediment quality to an extent that may pose a threat to human health or adversely affect biological resources.

2.2 OVERALL SAMPLING DESIGN

As discussed in Section 1.4, there is a potential for contaminants to have migrated from the uplands portion of the Site to sediment via groundwater. Based on this consideration, a limited sediment characterization will be conducted that focuses on shallow sediment near the shoreline. The sediment investigation will consist of collecting three surface sediment samples (0 to 10 cm, which is considered to be the bioactive zone for benthic organisms) at the locations shown on Figure E-3 (BMI-SS-1, BMI-SS-2 and BMI-SS-3). It should be noted that riprap located along much of this shoreline may influence the final sampling locations and could result in difficulty with sample recovery. Two of the proposed sampling locations, BMI-SS-1 and BMI-SS-3, are located in areas anticipated to be beyond the limits of the shoreline riprap but will be adjusted in the field to be as close to the shoreline as possible. It is possible that sloughing of soil from behind the failed section of bulkhead has resulted in sufficient accumulation of sediment in the interstices of the riprap underlying the former fuel office building to allow for surface sediment sampling closer to the shoreline in this area. Field personnel will conduct a reconnaissance of this area during low tide and if sufficient sediment is present, the BMI-SS-2 sampling location will be moved as close as possible to the bulkhead beneath the former fuel office building. A reference sample will be collected from an approved offsite location and used for the bioassay testing, if needed.

The surface sediment samples will be analyzed for TPH, lead, and TOC and a grain-size test will be conducted for each sample. A bioassay test will be conducted using the sediment sample with the highest concentrations of TPH, if TPH constituents are detected in sediment at concentrations that indicate a release from the Site may have occurred. If the sediment is submitted for bioassay testing and passes, the sediment quality will be considered protective of biological resources. If the sediment sample fails the bioassay tests, additional sediment bioassay testing will be conducted using samples representative of the range of TPH concentrations in sediment, using either archived samples or newly

collected samples. Additional bioassay testing will be identified and completed in consultation with Ecology.

3.0 FIELD INVESTIGATION METHODOLOGY

This section presents the field sampling methods to be used by Landau Associates and its subcontractors for the sediment investigation and collection of a marine surface water sample. In general, field and sample processing methods will follow WAC 173-340-820, WAC 173-204-600, SAPA (Ecology 2008), and Puget Sound Estuary Program (PSEP) guidelines for marine sediments and surface waters (PSEP 1997a,b,c, 1998).

3.1 STATION POSITIONING METHODS

The objective of the station positioning is to accurately establish and record the positions of all sampling locations within ±2 meters (6.56 feet). The northings and eastings of the proposed sediment sampling station locations in State Plane Coordinates are provided in Table E-1. Station locations will be surveyed in the field using a Trimble NT300D differential global positioning system (DGPS) or equivalent DGPS with the use of a known survey control point. Sampling station coordinates will be reported relative to the North American Datum of 1983 (NAD83). Planned sampling location coordinates are included in Table E-1. Planned sampling location coordinates will be entered into the sampling vessel's onboard GPS unit.

Vertical position control will be evaluated by using the depth sounder on the sampling vessel to determine depth to mudline. A lead line (or weighted tape) will be periodically used to measure from the water surface to the mudline as a check and to provide a correction factor (if necessary) for readings from the vessel's depth sounder. The elevation of the mudline at each location will be determined by measuring the surface water elevation from a surveyed benchmark and subtracting the measured depth of water at each location from the measured surface water elevation. Elevations wills be measured based on the mean lower low water (MLLW) datum.

3.2 SITE SEDIMENT SAMPLE COLLECTION

In general, surface sediment samples for chemical and toxicity testing will be collected using a powered (pneumatic) van Veen grab sampler; however, if a sufficient accumulation of sediment in the interstices of the riprap underlying the former fuel office building is present, the surface sediment sample at this location will be collected using a decontaminated stainless steel spoon and bowl. For those samples collected using the van Veen grab sampler, a hydraulic winch system will be used to deploy the sampler at a rate not exceeding 1 minute/second to minimize the bow wake associated with sampler descent. Once the sampler hits the bottom, the jaws will be slowly closed by retrieving the slack on the winch line and then the sampler will be brought to the deck of the vessel at a rate not exceeding

1 minute/second to minimize any washing and disturbance of the sediment within the sampler. At the moment the sampler hits the bottom, the time, depth, and location of sample acquisition will be recorded in the field logbook (Section 3.4).

Once onboard, the sampler will be secured, any overlying water will be carefully siphoned off, and the sample will be inspected to determine acceptability. Criteria used to determine acceptability are those detailed in PSEP (1997a) guidelines. These criteria include but are not limited to:

- Minimal or no excessive water leakage from the jaws of the sampler
- No excessive turbidity in the water overlying the sample
- The sampler is not overfilled with sediment
- The sediment surface appears to be intact with minimal disturbance
- The penetration depth is sufficient (10 cm; dependent on grain size).

If the sample meets acceptability criteria, the sample will be recorded and observations of the sediment physical characteristics and field-screening results (e.g., photoionization detector readings) will be entered into a sample description form or log. If after multiple sampling attempts, a surface sample does not meet acceptability criteria (e.g., overpenetration), the sample will still be collected but the sampler will document the reasons for not meeting criteria on the field sampling form.

Once the sample has been characterized/described following PSEP (1997a) guidelines and visual-manual procedures for describing soils [ASTM International standard D 2488-09a (ASTM 2009)], the sediment will then be sub-sampled for chemical analysis. Sediment for chemical analyses and bioassay testing will be removed. To prevent possible cross-contamination, sediments touching the margins of the sampler will not be used. Sediment for analysis using volatile petroleum hydrocarbon (VPH) and NWTPH-G methodologies will be collected using U.S. Environmental Protection Agency (EPA) Method 5035a. Sediment for all other chemical analyses will be placed into a pre-cleaned stainless steel container or bowl and, using a stainless steel spoon, the sediment will be homogenized to obtain a smooth consistency based on color and texture. The composited sediment will then be dispensed into pre-cleaned sample jars provided by the laboratory for the various chemical analyses, and will be placed into coolers with ice until they are transported to the laboratory. Sediment for bioassay testing will be placed into high-density polyethylene (HDPE) buckets with no headspace or purged with nitrogen gas and stored in coolers at approximately 4°C until transported to the laboratory.

If sediment sample BMI-SS-2 is collected from the interstices of the riprap underlying the former fuel office building, any debris and detritus material will be removed, and the sediment to a depth of 10 cm will scooped using a pre-cleaned stainless steel spoon and placed into a pre-cleaned stainless steel container or bowl. Sediment for analysis using VPH and NWTPH-G methodologies will be collected from the bowl using EPA Method 5035a. The remaining sediment in the bowl will be homogenized to

obtain a smooth consistency based on color and texture. The composited sediment will then be dispensed into pre-cleaned sample jars provided by the laboratory for the remaining chemical analyses. All of the sample containers will be placed into coolers with ice until they are transported to the laboratory.

3.3 REFERENCE SAMPLE COLLECTION

Toxicity testing requires that appropriate reference sediment be collected and tested with Site sediments. Concurrent tests on reference sediment are conducted to control possible sediment grain-size effects on bioassay organisms. Bioassay testing will be conducted using reference sediment samples with grain size that are similar to the project sediment sample used for toxicity testing. The reference samples will be collected from an area where no known chemical contamination is present. For this effort, reference sediment samples from Samish Bay or a similar reference site in Washington will be collected. The reference samples will consist of surface sediment collected with a van Veen grab sampler or comparable device. Sample locations will be recorded (longitude and latitude, NAD83) and water depth, corrected to the MLLW, will be measured during sampling. Use of a wet sieve will aid in the appropriate identification of a reference sample based on the grain size of the composite samples.

3.4 SURFACE WATER SAMPLE COLLECTION

A surface water sample will be collected during the ebbing tide, within 2 hours of low tide, from the shoreline at the approximate location shown on Figure 10. Because the Site is located within an active harbor with recreational and commercial vessels, there are many potential sources of petroleum hydrocarbons to surface water that are unrelated to Site releases. As a result, if a sheen is observed on the water surface that does not appear to be emanating from the Site uplands, a sample will not be collected at that time, or the sampling location will be moved to avoid collecting a surface water sample that may be affected by non-Site releases.

The surface water sample will be collected from the water surface with an unpreserved laboratory-supplied sample container in a manner that would allow surface sheen to enter the container, if present. For volatile organic compounds (VOCs), gasoline-range total petroleum hydrocarbon (TPH-G), and total lead, the water will be transferred from the unpreserved container to an appropriate preserved, laboratory-supplied container.

3.5 SAMPLE DOCUMENTATION AND HANDLING

A complete record of field activities will be maintained. Documentation necessary to meet quality assurance (QA) objectives for this project include: field notes and sampling forms, sample container labels, and sample chain-of-custody forms. All original documentation will be kept in the

Landau Associates project files. The documentation and other project records will be safeguarded to prevent loss, damage, or alteration.

If an error is made on a document, corrections will be made by drawing a single line through the error and entering the correct information. The erroneous information will not be obliterated. Corrections will be initialed and dated, and, if necessary, a footnote explaining the correction will be added. Errors will be corrected by the person who made the entry, whenever possible. Documentation will include:

- Recordkeeping by field personnel of primary field activities
- Recordkeeping of all samples collected for analysis
- Use of sample labels and chain-of-custody tracking forms for all samples collected for analysis.

Field logbooks will provide descriptions of all sampling activities, sampling personnel, weather conditions, and a record of all modifications to the procedures and plans identified in this SAP. The field logbooks are intended to provide sufficient data and observations to enable participants to reconstruct events that occurred during the sampling period.

After sample collection, the following information will be recorded on the field log sheet:

- Sample identification
- Date, time, of sample collection
- Name of person collecting the sample
- Sample location coordinates
- Depth of water at the location
- Surface water elevation at the time of sample collection
- Sampler penetration depth
- Physical observations including presence of debris (e.g., wood debris), color, presence of sheen (or other visible contamination), apparent grain size, and odor.

3.5.1 SAMPLE IDENTIFICATION

All sediment samples will be assigned an individual identification. The samples will be identified in a manner that identifies the name of the Site; identifies the sample type (i.e., surface sediment); and identifies the location of the sample (i.e., station number). For example, the sample collected at station 1 will be identified as BMI-SS-1.

3.5.2 SAMPLE CONTAINER LABELS

Sample labels will be made of waterproof material and will be self-adhering. An indelible pen will be used to fill out each label. Each sample label will contain the project number, sample

identification, preservation technique (if applicable), analyses, date and time of collection, and initial of the person(s) preparing the sample. Clear packaging tape will be affixed over the label and wrapped completely around the sample container to prevent label damage or loss during transport and storage.

3.5.3 SAMPLE CONTAINERS, PRESERVATION, AND STORAGE

Samples submitted to the laboratory for chemical analysis will be placed in the appropriate sample container provided by the laboratory. The samples will be preserved by cooling to a temperature of 4°C or frozen as required by the analytical method. Maximum holding and extraction times until analysis will be strictly adhered to by field personnel and the analytical laboratory. Sample containers, preservatives, and holding times for each chemical analysis to be performed during the surface sediment quality investigation are provided in Table E-2.

Sediment for bioassay testing will be placed into HDPE buckets with no headspace or purged with nitrogen gas and stored in coolers at approximately 4°C until transported to the laboratory. Temperature within the coolers will be monitored and chain-of-custody protocols will be followed throughout sampling handling by the laboratory. Table E-2 specifies the sample container and maximum allowable holding time for bioassay samples. Sediment samples collected for bioassay analyses will be archived at the laboratory pending the analytical results for the bulk sediment samples. All samples archived at the laboratory will be properly packed in coolers and maintained at 4ºC. Original chain-of-custody forms and analysis request forms will accompany the samples to the laboratory.

3.5.4 SAMPLE CUSTODY

The primary objective of sample custody is to create an accurate, written record that can be used to trace the possession and handling of samples so that their quality and integrity can be maintained from collection until completion of all required analyses. Adequate sample custody will be achieved by means of approved field and analytical documentation. Such documentation includes the chain-of-custody record, which is initially completed by the sampler and is, thereafter, signed by those individuals who accept custody of the sample.

3.5.5 SAMPLE PACKING AND SHIPPING

The transportation and handling of samples will be accomplished in a manner that not only protects the integrity of the sample, but also prevents any harm to the personnel handling the samples due to the possible hazardous nature of the samples. Regulations for packing, marking, labeling, and shipping of hazardous materials are promulgated by the U.S. Department of Transportation in 49 CFR 173.6 and 173.24.

Prior to shipping, samples will be placed on sealed, reusable ice packs, or double-bagged ice in coolers following collection. At the end of the day, samples sent to the analytical laboratory will be inventoried. A plastic cooler will be used as a shipping container, with the drain plug taped shut. When appropriate, approximately 1 inch of packing material will be placed in the bottom of the liner.

The sample bottles will be placed in the cooler containing ice or frozen reusable ice packs. Sample containers will be individually wrapped with plastic bubble-wrap and packaged carefully with sufficient packing material to avoid breakage or cross-contamination, and will be shipped to the offsite analytical laboratory at the proper temperature (4°C). The chain-of-custody form accompanying the samples to the laboratory will be placed inside a separate plastic bag and taped inside the cooler lid.

The cooler will be secured with signed custody seals and taped shut with strapping tape. Coolers will be labeled with project-specific identification and point of contact information. Samples will be transported to the laboratory at the end of the sampling activities. The cooler will be transported to the laboratory by the laboratory's courier.

3.6 EQUIPMENT DECONTAMINATION

All sampling equipment used (i.e., stainless steel bowls, stainless steel spoons, and van Veen grab samplers) will be decontaminated using a three-step process, as follows:

1. Scrub surfaces of equipment that would be in contact with the sample with brushes using an Alconox solution.
2. Rinse and scrub equipment with clean tap water or sea water.
3. Rinse bowls and spoons a final time with de-ionized water.

Decontamination of the reusable sampling equipment will occur prior to the first use and between collection of each sample.

3.7 MANAGEMENT OF RESIDUAL WASTES

Excess sediment generated during sediment sampling will be returned to the water at the station from where it was collected. Decontamination water, if generated, will be placed in 55-gallon drums for offsite disposal.

4.0 SEDIMENT AND SURFACE WATER TESTING

The sediment investigation will include physical and chemical analysis of the three surface sediment samples collected at the Site and chemical analysis of a marine surface water sample. Biological testing will be conducted if the chemical analytical results for the sediment samples indicate a release from the Site may have occurred. The biological testing will be conducted on the Site sediment sample with the highest chemical concentration and an offsite reference sample.

4.1 PHYSICAL TESTING

Physical testing will be conducted on the surface sediment samples, including the reference material sample, to determine the grain-size distribution of the sediment at each sample location. Initially, a wet sieve will be used on the Site sediment samples in the field to determine a preliminary grain size and to collect a reference sample with similar grain-size distribution. The grain-size distribution of each Site sediment sample and the reference sample will also be determined by a laboratory.

4.2 CHEMICAL ANALYSIS

The surface sediment samples will be analyzed for lead, TPH and TOC. The TPH fractions will be determined using volatile petroleum hydrocarbon (VPH), extractable petroleum hydrocarbon (EPH), NWTPH-D, and NWTPH-G methodologies. Analytical methods and target reporting limits for each analysis are provided in Table E-3.

The laboratory analyses for this investigation will be consistent with the PSEP guidelines (PSEP 1997a,b,c) and protocols required by SMS (Ecology 1995) and described in SAPA (Ecology 2008), as applicable. Sample preparation, cleanup, and analytical methods will be in accordance with EPA (1986, 1999, 2004) and PSEP guidelines (PSEP 1997a,b,c) for the lead and TOC analyses.

4.3 BIOLOGICAL TESTING

Biological testing, if conducted, will consist of the three sediment toxicity tests (bioassays): acute 10-day amphipod mortality, acute larval mortality/abnormality, and chronic 20-day juvenile polychaete growth rate. The acute 10-day amphipod mortality test will be conducted using adult amphipods, *Ampelisca abdita*. This species was selected based on the interstitial water salinity [greater than or equal to (≥) 25 parts per thousand] and percentage of fine-grained sediments (≥ 60 percent fines) as recommended by Ecology in the SAPA (Ecology 2008). If the project sample contains less than 60 percent fines, the species will be modified appropriately. The acute larval mortality/ abnormality test will

be conducted using *Mytilus galloprovincialis* (blue mussel) or the *Crassostrea gigas* (Pacific oyster). Modifications to the acute larval mortality/abnormality test, as described below, have been conducted using these species. Selection of an appropriate test species for the acute larval mortality/abnormality is dependent on the seasonal availability of adult organisms that can produce viable gametes. Consequently, for this project, the laboratory will select the best available echinoderm larvae, during the week preceding delivery of the initial sediment samples. These may include *Dendraster excentricus* (sand dollar) or, if necessary, *Strongylocentrotus purpuratus* (purple sea urchin) or *Strongylocentrotus droebachiensis* (green sea urchin) if the blue mussel or the Pacific oyster are not available. The chronic 20-day juvenile polychaete growth rate will be conducted using *Neanthes arenoceodentata*.

Toxicity testing will be in compliance with the procedures and quality assurance/quality control (QA/QC) performance standards described in the PSEP (1995) guidelines as revised by subsequent agency-approved updates and as described in sub-appendix D of the SAPA (Ecology 2008). Due to the fine-grained nature of the material at the sample location and the potential for entrainment and bias of the test results, a modified test-termination procedure that involves resuspension of the larvae and sediment at the end of the exposure period, as described in the Dredged Material Management Program (DMMP) clarification paper recently published for public review (DMMP 2012), will be added to the acute larval mortality/abnormality test. Also, to more accurately evaluate the performance of the reference material during the juvenile polychaete growth rate test, the test will be modified so that any inorganic materials present in the gut of the polychaete used in the project sample, the reference material sample, and laboratory control samples, will not be included in the measurement of the final mass of the biological tissue. The modification protocol is described in the DMMP clarification paper (DMMP 2012), and includes additional combustion of the test organism following determination of the dry weight so that any inorganic material in the polychaete gut is reduced to an ash residue and the residue is then subtracted from the dry weight to determine an ash-free dry weight.

5.0 SURFACE WATER TESTING

The surface water sample will be submitted to the laboratory for analysis of TPH-G using Method NWTPH-G; diesel- and oil-range TPH by Method NWTPH-Dx (with acid/silica gel cleanup procedures); VOCs (including benzene, toluene, ethylbenzene, xylenes, ethylene dibromide, ethylene dichloride, and methyl tert-butyl ether by EPA Method 8260C), naphthalenes by EPA Method 8270D, and total lead by EPA Method 6020.

6.0 QUALITY ASSURANCE AND QUALITY CONTROL

This section describes both field and laboratory QA/QC procedures and provides a description of the data quality review that will be performed on the analytical results. Implementation of these procedures in conjunction with the sample collection and handling procedures described in Section 3.0 should provide a reasonable degree of confidence in the project data.

6.1 LABORATORY QUALITY ASSURANCE/QUALITY CONTROL FOR CHEMICAL AND PHYSICAL ANALYSES

QA/QC for chemical testing of sediment samples includes laboratory instrument QA/QC and analytical method QA/QC. Instrument QA/QC monitors the performance of the instrument and method QA/QC monitors the performance of sample preparation procedures. The analytical laboratory will be responsible for instrument and method QA/QC. QA/QC procedures to be performed by the laboratory are summarized in Table E-4 for analyses of organic compounds, Table E-5 for analyses of metals, and Table E-6 for analyses of conventional parameters. The frequency that each procedure should be implemented and the control limits for the procedures are also summarized in Tables E-4, E-5, and E-6. When an instrument or method control limit is exceeded, the laboratory will contact Landau Associates' quality control officer immediately. The laboratory will be responsible for correcting the problem and will reanalyze the samples within the sample hold time if sample reanalysis is appropriate.

6.2 FIELD AND LABORATORY QUALITY CONTROL SAMPLES FOR CHEMICAL ANALYSES

Field and laboratory control samples that will be used for quality control purposes during the sediment investigation are described in the following subsections.

6.2.1 BLIND FIELD DUPLICATE

One blind field duplicate will be collected during each phase of the sediment investigation. The blind field duplicate will consist of a split sample collected at a single sample location. The sample will be homogenized, split into duplicate sample containers, and submitted blind to the laboratory as two discrete samples. The blind field duplicate samples will be used to evaluate data precision. The blind field duplicates will be analyzed for the same SMS constituents as the sediment samples.

6.2.2 LABORATORY MATRIX SPIKE

A minimum of one laboratory matrix spike will be included with each analysis. These analyses will be conducted to provide information on accuracy and to verify that extraction and concentration levels are acceptable. The laboratory spikes will follow EPA guidance for matrix and blank spikes.

6.2.3 LABORATORY MATRIX SPIKE DUPLICATE

A minimum of one laboratory matrix spike duplicate will be included with each organic analysis. These analyses will be conducted to provide information on the precision of chemical analyses. The laboratory spikes will follow EPA guidance for matrix and blank spike duplicates.

6.2.4 LABORATORY DUPLICATES

A minimum of one laboratory duplicate per 20 samples, not including laboratory QC samples, or one laboratory duplicate sample per batch of samples if fewer than 20 samples are obtained, will be included with each analysis. Laboratory triplicates will be analyzed for TOC and total solids. These analyses will be conducted to provide information on the precision of chemical analyses. The laboratory duplicate will follow EPA guidance in the method.

6.2.5 LABORATORY METHOD BLANKS

One laboratory method blank will be analyzed for all parameters (except total solids) to assess possible laboratory contamination. Dilution water will be used whenever possible. Method blanks will contain all reagents used for analysis. The generation and analysis of additional method, reagent, and glassware blanks may be necessary to verify that laboratory procedures do not contaminate samples.

6.2.6 LABORATORY CONTROL SAMPLE

One laboratory control sample will be analyzed for all parameters except total solids.

6.2.7 SURROGATE SPIKES

Samples analyzed for organic constituents will be spiked with appropriate surrogate compounds as defined by the analytical methods.

6.3 QUALITY ASSURANCE/QUALITY CONTROL FOR BIOLOGICAL TESTING

Biological testing will be in compliance with the QA/QC performance standards described in the PSEP (1995) guidelines as revised by subsequent agency-approved updates and as described in sub-

appendix D of the SAPA (Ecology 2008). QC procedures will include negative controls, positive controls, reference sediment samples, laboratory replicates, and measurements of water quality during testing.

6.4 DATA QUALITY EVALUATION

An internal data quality evaluation will be conducted on all sample data collected as part of the surface sediment investigation to determine acceptability of data results. Data quality evaluation will be conducted in accordance with the appropriate sections of the EPA Contract Laboratory Program *National Functional Guidelines for Organic and Inorganic Data Review* (EPA 1999, 2004) and the *Data Validation Guidance Manual for Selected Sediment Variables* (PTI 1989) and will include evaluations of the following:

- Chain-of-custody records
- Holding times
- Laboratory method blanks
- Surrogate recoveries
- Laboratory matrix spikes and matrix spike duplicates
- Blank spikes/laboratory control samples
- Laboratory duplicates
- Corrective action records
- Completeness
- Overall assessment of data quality.

Data qualification arising from data validation activities will be described in the data validation report, rather than in individual corrective action reports.

Care will be taken by the laboratory to not use method detection limits and to use practical quantitation limits in accordance with the SAPA (Ecology 2008).

6.5 REPORTING

This section describes requirements for laboratory reports. The Agreed Order establishes reporting requirements for the RI/FS.

6.5.1 CHEMICAL AND PHYSICAL LABORATORY REPORTS

A written report will be prepared by the analytical laboratory documenting all the activities associated with sample analyses. As a minimum, the following will be included in the report:

- Results of the laboratory analyses and QA/QC results
- All protocols used during analyses
- Chain-of-custody procedures, including explanation of any deviation from those identified herein
- Any protocol deviations from this SAP
- Location and availability of the data
- Batch identification for each analysis method
- Digestion/extraction/analysis dates for each QA/QC parameter corresponding to each batch definition (i.e., all QA/QC data will be batch-specific)
- A case narrative.

As appropriate, this SAP may be referenced in describing protocols.

6.5.2 BIOLOGICAL LABORATORY REPORTS

The biological laboratory will prepare written reports for each test system (i.e., organism) documenting all samples analyses and associated activities, including the following items:

- Results for survival, growth, reburial, abnormalities, water quality parameters, reference toxicant, and statistical analyses
- Original data sheets
- Suppliers of test organisms
- All protocols and test methods used during analyses
- Results for all the QA/QC checks initiated by the laboratory
- Discussion of laboratory documentation, laboratory notebooks and chain-of-custody forms and their use to record data and storage location.
- A description of any deviation from the methodology or problems with the process and procedures of analyses.

6.6 DATA MANAGEMENT PROCEDURES

All laboratory analytical results, including QC data, will be submitted to Landau Associates. Following validation of the data, any qualifiers will be added to the Excel spreadsheets. All field data will be entered into an Excel spreadsheet and verified to determine all entered data are correct and without omissions and errors. Following receipt of all data, analytical results will be formatted electronically and downloaded to Ecology's Environmental Information Management (EIM) system.

7.0 HEALTH AND SAFETY

General health and safety provisions to protect workers from potential hazards during field activities described in this SAP are provided in the accompanying Health and Safety Plan (HASP; Appendix F of the RI/FS Work Plan). The HASP applies to the employees of Landau Associates and its subcontractors while conducting all field activities at the site.

A copy of the HASP will be with the field crew during field activities. All individuals performing fieldwork must read, understand, and comply with the HASP before undertaking field activities.

8.0 REFERENCES

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Data Source: ESRI 2008

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LANDAU ASSOCIATES

Blaine Marina Inc. Site Blaine Harbor Blaine, Washington	**Vicinity Map**	Figure E-1

Y:\Projects\001034\010.014\RI Workplan\Figure_E2.mxd 9/20/2012 NAD 1983 StatePlane Washington North FIPS 4601 Feet

Legend

- Historical Building Location
- Existing Building Location
- MHHW - 9.5ft
- Approximate Site Boundary; Site Boundaries to be Determined in the RI/FS

Data Sources: Wilson Engineering 2011; Port of Blaine 2011; Walker and Associates, Inc; Google Earth Professional 2011

Note
Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

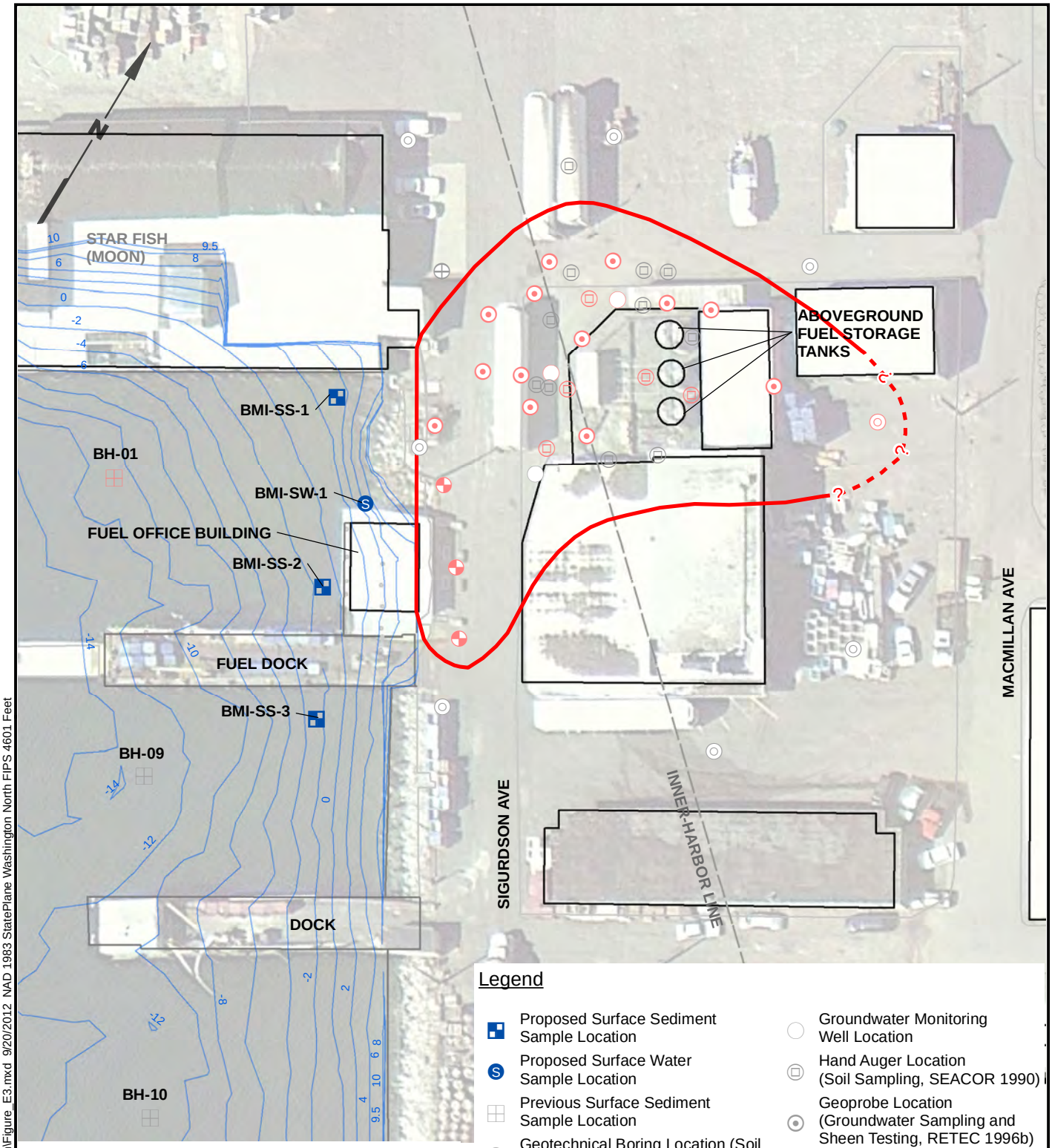
0 140 280
Scale in Feet

LANDAU ASSOCIATES

Blaine Marina Inc. Site
Blaine Harbor
Blaine, Washington

Site Plan

Figure
E-2



Legend

- Proposed Surface Sediment Sample Location
- Proposed Surface Water Sample Location
- Previous Surface Sediment Sample Location
- Geotechnical Boring Location (Soil Boring, Landau Associates 2012b)
- Boring Location
- Approximate Site Boundary; Site Boundaries to be Determined in the RI/FS
- Groundwater Monitoring Well Location
- Hand Auger Location (Soil Sampling, SEACOR 1990)
- Geoprobe Location (Groundwater Sampling and Sheen Testing, RETEC 1996b)
- Geoprobe Location (Soil Sampling, Farallon 2008)
- Bathymetry Contours
- Existing Building Location

Notes

1. Explorations shown in Red indicate contaminant levels exceed preliminary screening levels.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 50 100

Scale in Feet

Data Sources: Wilson Engineering; Port of Blaine 2011; Walker and Associates, Inc.; Google Earth Professional 2010

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LANDAU ASSOCIATES

Blaine Marina Inc. Site
Blaine Harbor
Blaine, Washington

Proposed Sediment Investigation Sampling Locations

Figure
E-3

TABLE E-1
PROPOSED SEDIMENT SAMPLE LOCATIONS AND DESIGNATIONS
SEDIMENT INVESTIGATION – BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

Sampling Station Number	Sample Identification	Proposed Sample Locations (a)	
		Northing (ft)	Easting (ft)
1	BMI-SS-1	732530.61	1176878.91
2	BMI-SS-1	732470.93	1176908.84
3	BMI-SS-1	732430.00	1176930.94

Notes:

(a) State Plane Coordinate System-Washington North Zone, North American Datum of 1983.

TABLE E-2
SAMPLE CONTAINERS, PRESERVATIVES, AND HOLDING TIMES
SEDIMENT INVESTIGATION – BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

Analyses	Sample Container	Preservation	Holding Time
Sediment Samples			
NWTPH-D	1 - 8 oz wide mouth glass	Cool, 4°C Freeze, -18°C	14 days 1 year
NWTPH-G	2, 2-oz glass w/ septum lids	Cool, 4°C	14 days
VPH	1 - 8 oz wide mouth glass	Cool, 4°C	14 days
EPH	1 - 8 oz wide mouth glass	Cool, 4°C	14 days
TOC	1 - 8 oz wide mouth glass	Cool, 4°C Freeze, -18°C	28 days 6 months
Lead	1-4 oz wide mouth glass	Cool, 4°C	6 months
Grain Size	1-16 oz wide mouth glass	Cool, 4°C	6 months
Bioassay	5L-HDPE bucket	Cool, 4°C	56 days

TABLE E-3
SUMMARY OF SEDIMENTSAMPLE ANALYTICAL METHODS AND TARGET REPORTING LIMITS
SEDIMENT INVESTIGATION – BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

Analyte	Sample Preparation Method	Analytical Method (a)	Target Reporting Limits (b)	
Semivolatile Petroleum Hydrocarbons				
Diesel-Range Petroleum Hydrocarbons	-- (c)	NWTPH-D (e)	5	mg/kg
C_8-C_{10} Aliphatics	-- (c)	EPH (f)	2	mg/kg
C_{10}-C_{12} Aliphatics	-- (c)	EPH (f)	2	mg/kg
C_{12}-C_{16} Aliphatics	-- (c)	EPH (f)	2	mg/kg
C_{16}-C_{21} Aliphatics	-- (c)	EPH (f)	2	mg/kg
C_{21}-C_{34} Aliphatics	-- (c)	EPH (f)	2	mg/kg
C_8-C_{10} Aromatics	-- (c)	EPH (f)	2	mg/kg
C_{10}-C_{12} Aromatics	-- (c)	EPH (f)	2	mg/kg
C_{12}-C_{16} Aromatics	-- (c)	EPH (f)	2	mg/kg
C_{16}-C_{21} Aromatics	-- (c)	EPH (f)	2	mg/kg
C_{21}-C_{34} Aromatics	-- (c)	EPH (f)	2	mg/kg
Volatile Petroleum Hydrocarbons				
Gasoline-Range Petroleum Hydrocarbons	-- (c)	NWTPH-G (g)	5	mg/kg
C_5-C_6 Aliphatics	-- (c)	VPH (h)	5	mg/kg
C_6-C_8 Aliphatics	-- (c)	VPH (h)	5	mg/kg
C_8-C_{10} Aliphatics	-- (c)	VPH (h)	5	mg/kg
C_{10}-C_{12} Aliphatics	-- (c)	VPH (h)	5	mg/kg
C_5-C_6 Aromatics	-- (c)	VPH (h)	5	mg/kg
C_6-C_8 Aromatics	-- (c)	VPH (h)	5	mg/kg
C_8-C_{10} Aromatics	-- (c)	VPH (h)	5	mg/kg
C_{10}-C_{12} Aromatics	-- (c)	VPH (h)	5	mg/kg

TABLE E-3
SUMMARY OF SEDIMENTSAMPLE ANALYTICAL METHODS AND TARGET REPORTING LIMITS
SEDIMENT INVESTIGATION – BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

Analyte	Sample Preparation Method	Analytical Method (a)	Target Reporting Limits (b)
Total Metals			
Lead	PSEP/3050B (d)	EPA Method 6010	150 mg/kg
Conventionals			
TOC	-- (c)	EPA Method 9060	0.1% dry weight
Grain size	-- (c)	Plumb (1981) (i)	1% dry weight

(a) Analytical methods are from SW-845 (EPA 1986) and upddates, unless otherwise noted.

(b) Reporting limit goals are based on current laboratory data and may be modified during the investigation process as methodology is refined. Laboratory reporting will be based on the lowest standard on the calibration curve. Instances may arise where high sample concentrations, nonhomogeneity of samples, or matrix interferences preclude achieving the desired reporting limits.

(c) Sample preparation methods are described in the analytical methods.

(d) Sample preparation methods are PSEP 1997 or Method 3050B from SW-846 (EPA 1986) and updates.

(e) Method NWTPH-D as described in *Analytical Methods for Petroleum Hydrocarbons* (Ecology 1997).

(f) Extractable Petroleum Hydrocarbons as described in *Analytical Methods for Petroleum Hydrocarbons* (Ecology 1997).

(g) NWTPH-Gx Method as described in *Analytical Methods for Petroleum Hydrocarbons* (Ecology 1997).

(h) Volatile Petroleum Hydrocarbons as described in *Analytical Methods for Petroleum Hydrocarbons* (Ecology 1997).

(i) Plumb 1981. EPA/U.S. Army Corps of Engineers Technical Report EPA/CE-81-1.

TABLE E-4
QUALITY CONTROL PROCEDURES FOR ORGANIC ANALYSES
SEDIMENT INVESTIGATION – BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

Quality Control Procedure	Frequency	Control Limit	Corrective Action
Instrument Quality Assurance/Quality Control			
Initial Calibration	See reference method(s) in Table E-3	See reference method(s) in Table E-3	Laboratory to recalibrate and reanalyze affected samples
Continuing Calibration	See reference method(s) in Table E-3	See reference method(s) in Table E-3	Laboratory to recalibrate if correlation coefficient or response factor does not meet method requirements
Method Quality Assurance/Quality Control			
Holding Times	Not applicable	See Table E-2	Qualify data or collect fresh samples in cases of extreme holding time or temperature exceedance
Detection Limits	Annually	See Table E-2	Laboratory must initiate corrective actions (which may include additional cleanup steps as well as other measures, see Table E-5) and contact the QA/QC coordinator and/or project manager immediately
Method Blanks	One per sample batch or every 20 samples, whichever is more frequent, or when there is a change in reagents	Analyte concentration < PQL	Laboratory to eliminate or greatly reduce laboratory contamination due to glassware, reagents, or analytical system; reanalyze affected samples
Analytical (Laboratory) Replicates and Matrix Spike Duplicates	1 duplicate analysis with every sample batch or every 20 samples, whichever is more frequent. Use analytical replicates when samples are expected to contain target analytes. Use matrix spike duplicates when samples are not expected to contain target analytes.	Compound- and matrix-specific RPD of ≤35% applied when the analyte concentration is greater than PQL	Laboratory to redigest and reanalyze samples if analytical problems suspected, or to qualify the data if sample homogeneity problems suspected and the project manager consulted
Matrix Spikes	One per sample batch or every 20 samples, whichever is more frequent; spiked with the same analytes at the same concentration as the LCS	Compound- and matrix-specific	Matrix interferences should be assessed and explained in the case narrative accompanying the data package
Surrogate Spikes	Added to every organics sample as specified in analytical protocol	Compound-specific	Follow corrective actions specified in SW-846 (EPA 1996).
Laboratory Control Samples (LCS), Certified or Standard Reference Material	One per analytical batch or every 20 samples, whichever is more frequent	Compound-specific, recovery and relative standard deviation for repeated analyses should not exceed the control limits specified in the method of Table E-5 or performance-based intralaboratory control limits, whichever is lower	Laboratory to correct problem to verify the analysis can be performed in a clean matrix with acceptable precision and recovery; then reanalyze affected samples
Field Quality Assurance/Quality Control			
Field Replicates	At project manager's discretion	Not applicable	Not applicable

TABLE E-4
QUALITY CONTROL PROCEDURES FOR ORGANIC ANALYSES
SEDIMENT INVESTIGATION – BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

Quality Control Procedure	Frequency	Control Limit	Corrective Action
Field Blanks	At project manager's discretion	Analyte concentration ≤ PQL	Compare to method blank results to rule out laboratory contamination; modify sample collection and equipment decontamination procedures

Notes:

EPA = U.S. Environmental Protection Agency
PQL = Practical Quantitation Limit
RPD = Relative Percent Difference

TABLE E-5
QUALITY CONTROL PROCEDURES FOR METALS ANALYSES
SEDIMENT INVESTIGATION – BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

Quality Control Procedure	Frequency	Control Limit	Corrective Action
Instrument Quality Assurance/Quality Control			
Initial Calibration	Daily	Correlation coefficient $\geq$ 0.995	Laboratory to optimize and recalibrate the instrument and reanalyze any affected samples
Initial Calibration Verification	Immediately after initial calibration	90 - 110% recovery or performance-based intralaboratory control limits, whichever is lower	Laboratory to resolve discrepancy prior to sample analysis
Continuing Calibration Verification	After every 10 samples or every 2 hours, whichever is more frequent, and after the last sample	90 -110% recovery	Laboratory to recalibrate and reanalyze affected samples
Initial and Continuing Calibration Blanks	Immediately after initial calibration, then 10% of samples or every 2 hours, whichever is more frequent, and after the last sample	Analyte concentration < PQL	Laboratory to recalibrate and reanalyze affected samples
ICP Interelement Interference Check Samples	At the beginning and end of each analytical sequence or twice per 8-hour shift, whichever is more frequent	80 - 120% of the true value	Laboratory to correct problem, recalibrate, and reanalyze affected samples
Method Quality Assurance/Quality Control			
Holding Times	Not applicable	See Table E-2	Qualify data or collect fresh samples
Detection Limits	Not applicable	See Table E-3	Laboratory must initiate corrective actions and contact the QA/QC coordinator and/or the project manager immediately
Method Blanks	With every sample batch or every 20 samples, whichever is more frequent		Laboratory to redigest and reanalyze samples with analyte concentrations < 10 times the highest method blank
Analytical (Laboratory) Replicates and Matrix Spike Duplicates	1 duplicate analysis with every sample batch or every 20 samples, whichever is more frequent. Use analytical replicates when samples are expected to contain target analytes. Use matrix spike replicates when samples are not expected to contain target analytes.	RPD $\leq$ 20 % applied when the analyte concentration is greater than PQL	Laboratory to redigest and reanalyze samples if analytical problems suspected, or to qualify the data if sample homogeneity problems suspected and the project manager consulted
Matrix Spikes	With every sample batch or every 20 samples, whichever is more frequent	75 - 125% recovery applied when the sample concentration is <4 times the spiked concentration for a particular analyte	Laboratory may be able to correct or minimize problem; or qualify and accept data
Laboratory Control Samples, Certified or Standard Reference Material	Overall frequency of 5% of field samples	80 - 20% recovery, or performance-based intralaboratory control limits, whichever is lower	Laboratory to correct problem to verify the analysis can be performed in a clean matrix with acceptable precision and recovery; then reanalyze affected samples
Field Quality Assurance/Quality Control			

TABLE E-5
QUALITY CONTROL PROCEDURES FOR METALS ANALYSES
SEDIMENT INVESTIGATION – BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

Quality Control Procedure	Frequency	Control Limit	Corrective Action
Field Replicates	At project manager's discretion	Not applicable	Not applicable
Field Blanks	At project manager's discretion	Analyte concentration $\leq$ PQL	Compare to method blank results to rule out laboratory contamination; modify sample collection and equipment decontamination procedures

Notes:

CLP = Contract Laboratory Program (EPA)

EPA = U.S. Environmental Protection Agency

PQL = Practical Quantitation Limit

RPD = Relative Percent Difference

Instrument and method QA/QC monitor the performance of the instrument and sample preparation procedures, and are the responsibility of the analytical laboratory. When an instrument or method control limit is exceeded, the laboratory is responsible for correcting the problem and reanalyzing the samples. Instrument and method QA/QC results reported in the final data package should always meet control limits (with a very small number of exceptions that apply to difficult analytes as specified by EPA for the CLP). If instrument and method QA/QC procedures meet control limits, laboratory procedures are deemed to be adequate. Matrix and field QA/QC procedures monitor matrix effects and field procedures and variability. Although poor analytical procedures may also result in poor spike recovery or duplicate results, the laboratory is not held responsible for meeting control limits for these QA/QC samples. Except in the possible case of unreasonably large exceedances, any reanalyses will be performed at the request and expense of the project manager.

TABLE E-6
QUALITY CONTROL PROCEDURES FOR CONVENTIONAL ANALYSES
SEDIMENT INVESTIGATION – BLAINE MARINA INC. SITE
BLAINE, WASHINGTON

	Suggested Control Limit						
Analyte	**Initial Calibration (a)**	**Continuing Calibration (a)**	**Calibration Blanks (a)**	**Laboratory Control Samples**	**Matrix Spikes (a,b)**	**Laboratory Triplicates (a,b)**	**Method Blank (a,b)**
Grain size	N/A	N/A	N/A	N/A	N/A	20% RSD	N/A
Total organic carbon	Correlation coefficient ≥0.995	90 - 110% recovery	Analyte concentration ≤ PQL	80 -120% recovery	75 -125% recovery	20% RSD	Analyte concentration ≤ PQL
Total solids	N/A	N/A	N/A	N/A	N/A	20% RSD	Analyte concentration ≤ PQL

Notes:

N/A = Not applicable

RSD = Relative Standard Deviation

PQL = Practical quantitation limit

EPA = U.S. Environmental Protection Agency

PSEP = Puget Sound Estuary Program

QA/QC = Quality assurance and quality control

(a) EPA and PSEP control limits are not available for conventional analytes. The control limits provided above are suggested limits only. They are based on EPA control limits for metals analyses (see Table E-5), and an attempt has been made to take into consideration the expected analytical accuracy using PSEP methodology. Corrective action to be taken when control limits are exceeded is left to the Project Manager's discretion. The corrective action indicated for metals in Table E-5 may be applied to conventional analytes.

(b) When applicable, the QA/QC procedures indicated in this table should be completed at the same frequency as for metals analyses (see Table E-5).

APPENDIX F

Health and Safety Plan

LANDAU ASSOCIATES
ENVIRONMENTAL | GEOTECHNICAL | NATURAL RESOURCES

WORK LOCATION PERSONNEL PROTECTION AND SAFETY EVALUATION FORM

Attach Pertinent Documents/Data
Fill in Blanks As Appropriate

Job No.:	0001034.010		
Prepared by:	Jeremy Davis	Reviewed by:	Christine Kimmel
Date:	July 19, 2012	Date:	July 20, 2012

A. WORK LOCATION DESCRIPTION

1. **Project Name:** Blaine Marina Inc.
2. **Location:** Blaine Harbor; Blaine, Washington
3. **Anticipated Activities:** Direct-push soil, groundwater, and soil vapor investigation; sediment investigation
4. **Size:** ~1 Acre
5. **Surrounding Population:** Commercial/Industrial
6. **Buildings/Homes/Industry:** Existing fuel tanks, commercial buildings, parking lots
7. **Topography:** Generally flat
8. **Anticipated Weather:** Possible cold rain and wind, possible sunny and hot
9. **Unusual Features:** Fuel tanks and secondary containment, overhead and subsurface utilities
10. **Site History:** Historically used for fuel storage and dispensing (from the adjacent fuel dock) with aboveground fuel storage and underground pipelines, since the 1950s. Previous investigations have identified gasoline- and diesel-contaminated soil and groundwater. Fueling operation is currently active. Retail sales from the commercial buildings on Site include appliances and furniture – public patrons may visit the Site.

B. HAZARD DESCRIPTION

1. **Background Review:** ☒ Complete ☐ Partial

   If partial, why?

2. **Hazardous Level:** ☐ B ☐ C ☒ D ☐ Unknown

   Justification: Limited contact with environmentally impacted media

3. Types of Hazards: (Attach additional sheets as necessary)

A. ☒ Chemical ☒ Inhalation ☒ Explosive
☐ Biological ☒ Ingestion ☐ O2 Def. ☐ Skin Contact

Describe: Likely exposure due to known gasoline and diesel encountered at the Site. Possible explosive hazard associated with petroleum products. Nitrile gloves and long-sleeved shirts will be worn to prevent dermal contact. Monitoring will be conducted to assess potential explosive conditions. Respirators will be kept on site and will be worn if necessary (as described below).

B. ☒ Physical ☒ Cold Stress ☐ Noise ☒ Heat Stress ☒ Other

Describe: Physical hazards from equipment and overhead equipment falls are possible during drilling. Hard hats will be worn. Noise hazards associated with drilling equipment. Ear protection will be used. Eye contact with drill rig operators or other signaling methods will be used near operating equipment. Reflective vests will be worn and cones will be placed in the work area for traffic safety and to warn pedestrians of the construction zone. Personnel will stand outside radius of extended drill mast unless necessary to perform sampling activities. Due to possible explosive conditions, equipment will be properly grounded or intrinsically safe. During the sediment investigation, sediment samples will be collected from boats using basic principles of water safety, including using U.S. Coast Guard-approved personal floatation devices (PFDs), avoiding standing near the edge of the boat, securing workers with lifeline if work must be conducted over edge, avoiding sampling on stormy days or when seas are high, using caution when transferring from land to sea – making sure barges and boats are firmly secured to dock or pier before boarding or disembarking.

C. ☐ Radiation

Describe:

4. Nature of Hazards:

☒ Air	Describe: Exposure to possible volatile organic components of petroleum hydrocarbons is possible. Breathing zone vapors will be analyzed with a photoionization detector (PID).
☒ Soil	Describe: Exposure to possible volatile organic components of petroleum hydrocarbons in the soil. Nitrile gloves and long-sleeved shirts will be worn when handling soil and equipment to minimize dermal contact with soil. Conduct screening with PID and visual indication for potentially impacted soil.
☐ Surface Water	Describe:
☒ Groundwater	Describe: Possible exposure via splashing during drilling activities and sampling activities. Nitrile gloves and safety glasses will be worn when handling groundwater and sampling equipment.
☐ Other	Describe:

5. Chemical Contaminants of Concern ☐ N/A

Contaminant	PEL (ppm)	I.D.L.H. (ppm)	Source/Quantity Characteristics	Route of Exposure	Symptoms of Acute Exposure	Instruments Used to Monitor Contaminant
Diesel	100	400	NAPL diesel in groundwater may be encountered. Diesel concentrations nearing saturation may be encountered in soil.	Inhalation, skin absorption, ingestion, skin and/or eye contact	N/A	PID meter
Gasoline	100	400	Gasoline concentrations in soil may exceed 6,100 mg/kg. Gasoline concentrations in groundwater are unknown.	Inhalation, skin absorption, ingestion, skin and/or eye contact	Nervous excitation, insomnia, gastrointestinal symptoms, encephalopathy, anxiety, delirium, delusions, convulsions, and acute psychosis	PID meter
Benzene	0.1	5	Benzene concentrations in soil and groundwater are unknown.	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritated eyes, skin, nose, and respiratory system, giddiness, headache, nausea, staggered gait, dermatitis, fatigue, anorexia (carcinogenic)	PID meter
Toluene	100	150	Toluene concentrations in soil and groundwater are unknown.	Inhalation, skin absorption, ingestion, skin and/or eye contact	Headache, dizziness, drowsiness, coordination problems, coma	PID meter
Ethylbenzene	100	125	Ethylbenzene concentrations in soil and groundwater are unknown.	Inhalation, skin absorption, ingestion, skin and/or eye contact	Nervous system depression, headaches, dizziness, nausea, convulsions, coma	PID meter

Contaminant	PEL (ppm)	I.D.L.H. (ppm)	Source/Quantity Characteristics	Route of Exposure	Symptoms of Acute Exposure	Instruments Used to Monitor Contaminant
Xylene	100	150	Xylene concentrations in soil and groundwater are unknown.	Inhalation, skin absorption, ingestion, skin and/or eye contact		PID meter
Lead	0.05 mg/m3	100 mg/m3	Lead concentrations in soil and groundwater are unknown.	Inhalation, ingestion		Visual observation for elevated dust
Ethylene dibromide (EDB)	0.1	0.5	EDB concentrations in soil and groundwater are unknown.	Inhalation, skin absorption, ingestion, skin and/or eye contact		PID meter
Ethylene dichloride (EDC)	-	-	EDC concentrations in soil and groundwater are unknown.	Inhalation, skin absorption, ingestion, skin and/or eye contact		PID meter
Methyl tert-butyl ether (MTBE)	-	-	MTBE concentrations in soil and groundwater are unknown.	Inhalation, skin absorption, ingestion, skin and/or eye contact		PID meter

Notes:

6. Physical Hazards of Concern ☐ N/A

Hazard	Description	Location	Procedures Used to Monitor Hazard
Noise	Heavy equipment noise	Around drill rig	Wear hearing protection.
Slip, trip, and fall	Working around berms, curbs, foundations, etc.	Site-wide	Mark and discuss hazardous terrain. Maintain clean work area.
Heavy equipment	Drill rig on site	Site-wide	Communicate with equipment operator prior to beginning work. Make eye contact when wanting access to area around rig.
Explosive conditions	Drill rig and sampling equipment	Site-wide	Use only intrinsically safe equipment and/or properly ground equipment. Shut off cell phones when drilling near ASTs.
Drowning or hypothermia	Personnel could fall into Blaine Harbor during sediment investigation	Off shore	Basic practices of boater safety will be followed. Boat will be securely tied to the shore when boarding or disembarking; personnel will not stand over the edge of the boat unless safely tied-off; personnel will wear U.S. Coast Guard-approved PFDs at all times when working off shore.

7. Work Location Instrument Readings ☐ N/A

Location: _____

Percent O_2: _____ Percent LEL: _____

Radioactivity: _____ PID: _____

FID: _____ Other: _____

Other: _____ Other: _____

Other: _____ Other: _____

Location: _____

Percent O_2: _____ Percent LEL: _____

Radioactivity: _____ PID: _____

FID: _____ Other: _____

Other: _____ Other: _____

Other: _____ Other: _____

Location: _____

Percent O_2: _____ Percent LEL: _____

Radioactivity: _____ PID: _____

FID: _____ Other: _____

Other: _____ Other: _____

Other: _____ Other: _____

Location: _____

Percent O_2: _____ Percent LEL: _____

Radioactivity: _____ PID: _____

FID: _____ Other: _____

Other: _____ Other: _____

Other: _____ Other: _____

8. Hazards Expected In Preparation For Work Assignment ☐ N/A

Describe:

C. PERSONAL PROTECTIVE EQUIPMENT

1. Level of Protection

☐ A ☐ B ☐ C ☒ D

Location/Activity: Observation of drilling operations. Soil and groundwater sample collection. U.S. Coast Guard-approved PFDs are required when working off shore during the sediment investigation.

☐ A ☐ B ☒ C ☐ D

Location/Activity: If action levels are met or exceeded.

2. Protective Equipment (specify probable quantity required)

Respirator ☐ N/A

- ☐ SCBA, Airline
- ☐ Full-Face Respirator
- ☒ Half-Face Respirator (Cart. organic vapor) (Only if upgrade to Level C)
- ☐ Escape mask
- ☐ None
- ☐ Other:
- ☒ Other: Hearing protection

Clothing ☐ N/A

- ☐ Fully Encapsulating Suit
- ☐ Chemically Resistant Splash Suit
- ☐ Apron, Specify:
- ☒ Tyvek Coverall (Only if upgrade to Level C)
- ☐ Saranex Coverall
- ☐ Coverall, Specify
- ☒ Other: Safety Vest

Head & Eye ☐ N/A

- ☒ Hard Hat
- ☐ Goggles
- ☐ Face Shield
- ☒ Safety Eyeglasses
- ☐ Other:

Hand Protection ☐ N/A

- ☒ Undergloves; Type:
- ☐ Gloves; Type:
- ☐ Overgloves; Type:
- ☐ None
- ☐ Other:

Foot Protection ☐ N/A

- ☐ Neoprene Safety Boots with Steel Toe/Shank
- ☐ Disposable Overboots
- ☒ Other: Steel-toed boots

3. Monitoring Equipment ☐ N/A

☒ CGI ☒ PID

☐ O^2 Meter ☐ FID

☐ Rad Survey ☐ Other

☐ Detector Tubes (optional)

Type:

D. DECONTAMINATION

PERSONAL DECONTAMINATION

☒ Required ☐ Not Required

If required, describe:

Personnel will decontaminate by washing with soap and water prior to eating and departing from the Site. Disposable PPE will be discarded as solid waste.

EQUIPMENT DECONTAMINATION

☒ Required ☐ Not Required

If required, describe and list equipment:

All sampling equipment will be decontaminated using wet decontamination procedures:

- Wash and scrub equipment with Alconox/tap water solution.
- Rinse with tap water.
- Rinse with de-ionized water.
- Repeat entire procedure or any parts of the procedure as necessary.

To decontaminate equipment with NAPL or free product:

- Soak a disposable towel with hexane solvent
- Wipe equipment to remove NAPL
- Dispose used towel in a trash bag as solid waste
- Proceed with above equipment three-step decontamination process.

E. PERSONNEL

	Name	Work Location Title/Task	Medical Current	Fit Test Current
1.	**Dylan Frazer**	**Drilling observation/sample collection; offshore sediment sample collection**	☒	☒
2.	**Brandon Duncan**	**Drilling observation/sample collection**	☒	☒
3.	**Jeremy Davis**	**Drilling observation/sample collection**	☒	☒
4.	**Mark Brunner**	**Drilling observation/sample collection**	☒	☒
5.			☐	☐
6.			☐	☐
7.			☐	☐
8.			☐	☐
9.			☐	☐
10.			☐	☐

Site Safety Coordinator: **Dylan Frazer**

F. ACTIVITIES COVERED UNDER THIS PLAN

Task No.	Description	Preliminary Schedule
1	Field investigation (direct-push soil, groundwater, and soil vapor sampling)	Fall to winter 2012
2	Field investigation (well installation with hollow-stem auger)	Winter 2012 to spring 2013
3	Field investigation (sediment sampling)	Winter 2012 to Spring 2013

G. SUBCONTRACTOR'S HEALTH AND SAFETY PROGRAM EVALUATION ☐ N/A

Name and Address of Subcontractor: Cascade Drilling
19404 Woodinville Snohomish Road
Woodinville, Washington 98072

EVALUATION CRITERIA

Item	Adequate	Inadequate	Comments
Medical Surveillance Program	☒	☐	
Personal Protective Equipment Availability	☒	☐	
Onsite Monitoring Equipment Availability	☒	☐	
Safe Working Procedures Specification	☒	☐	
Training Protocols	☒	☐	
Ancillary Support Procedures (if any)	☒	☐	
Emergency Procedures	☒	☐	
Evacuation Procedures Contingency Plan	☒	☐	
Decontamination Procedures Equipment	☒	☐	
Decontamination Procedures Personnel	☒	☐	

GENERAL HEALTH AND SAFETY PROGRAM EVALUATION: ☒ Adequate ☐ Inadequate

Additional Comments: Contractor health and safety program has been reviewed and is adequate, and maintained by Cascade as a condition of contract between Landau Associates and Cascade Drilling (Basic Subcontractor Services Agreement No. 09CASCADE).

Evaluation Conducted By: Chris Kimmel Date: July 23, 2012

EMERGENCY FACILITIES AND NUMBERS

Hospital: PeaceHealth St. Joseph Medical Center, Bellingham, Washington

Directions: See Attachment B

Telephone: (360) 734-5400

Emergency Transportation Systems (Fire, Police, Ambulance) – 911

Emergency Routes – Map (Attachment B)

Emergency Contacts:

	Offsite	Onsite
Jeremy Davis	425-778-0907	206-601-7614 (cell)
Larry Beard	425-778-0907	206-999-0690 (cell)
Christine Kimmel	425-778-0907	206-786-3801 (cell)

In the event of an emergency, do the following:

1. Call for help as soon as possible. Call 911. Give the following information:
   - WHERE the emergency is – use cross streets or landmarks
   - PHONE NUMBER you are calling from
   - WHAT HAPPENED – type of injury
   - WHAT is being done for the victim(s)
   - YOU HANG UP LAST – let the person you called hang up first.

2. If the victim can be moved, paramedics will transport to the hospital. If the injury or exposure is not life-threatening, decontaminate the individual first. If decontamination is not feasible, wrap the individual in a blanket or sheet of plastic prior to transport.

HEALTH AND SAFETY PLAN
APPROVAL/SIGN OFF FORMAT

I have read, understood, and agreed with the information set forth in this Health and Safety Plan (and attachments) and discussed in the Personnel Health and Safety briefing.

Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Site Safety Coordinator	Signature	Date
Christine Kimmel Landau Health and Safety Manager	Signature	Date
Project Manager	Signature	Date

Personnel Health and Safety Briefing Conducted By:

Jeremy Davis Name	Signature	Date

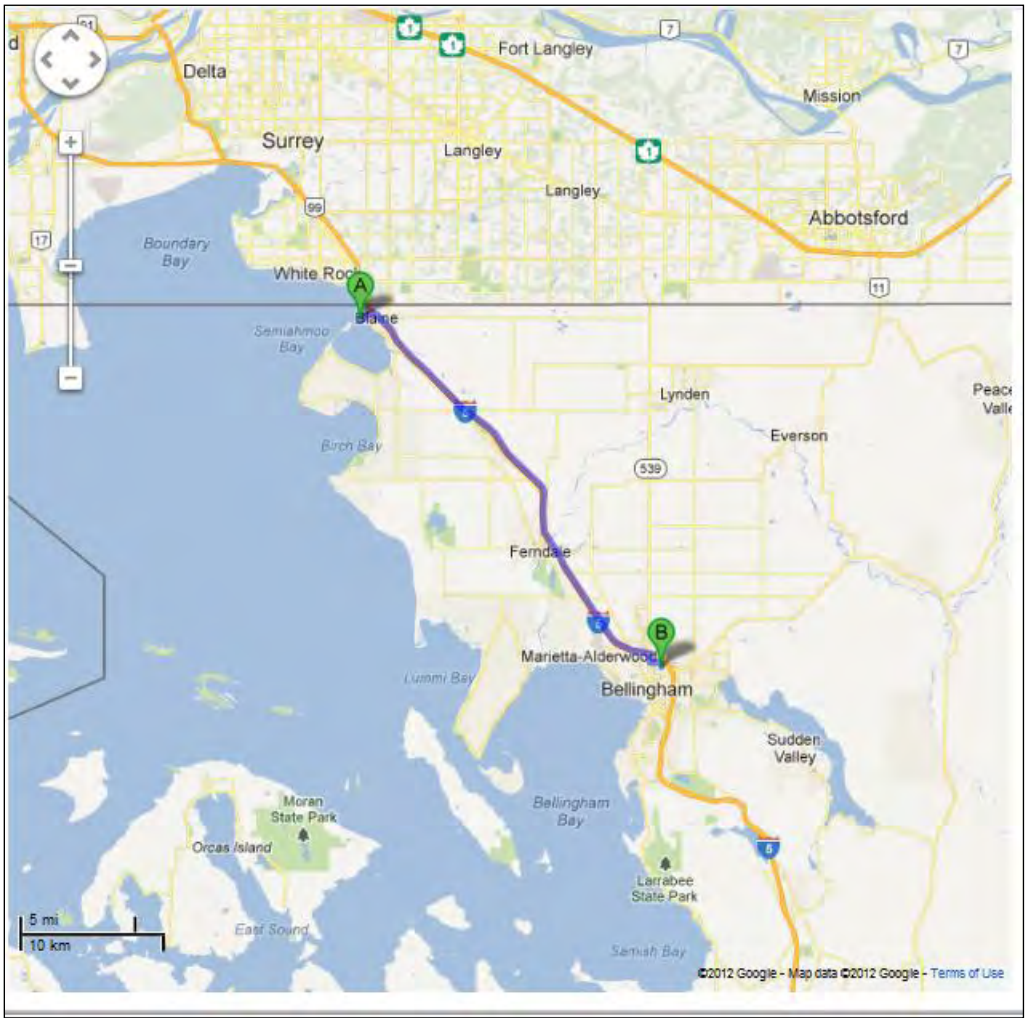
ATTACHMENT A

ACTION LEVELS FOR RESPIRATORY PROTECTION

Monitoring Parameter	Reading	Level of Protection
VOCs	>10 ppm and <25 ppm	Upgrade to level C half-face respirator
VOCs	>25 ppm and <100 ppm	Upgrade to full-face respirator or temporarily stop work until ambient conditions return to background
VOCs	>100 ppm	Stop Work, contact H&S Manager
Explosive Gases	>5% LEL	Temporarily stop work and allow vapor concentrations to aerate
Explosive Gases	>10% LEL	Stop work, employ engineering controls

ATTACHMENT B

MAP AND DIRECTIONS TO HOSPITAL



1.	Head **northwest** on **Sigurdson Ave** toward **Marine Dr**	go 39 ft total 39 ft
2.	Turn right onto **Marine Dr** About 2 mins	go 0.6 mi total 0.6 mi
3.	At the traffic circle, take the **2nd** exit onto the **I-5 S** ramp About 1 min	go 0.2 mi total 0.8 mi
4.	Merge onto **I-5 S** About 18 mins	go 19.5 mi total 20.3 mi
5.	Take exit **256** toward **Washington 539 N/Bellis Fair Mall Parkway/Meridian Street**	go 0.1 mi total 20.5 mi
6.	Turn left onto **McLeod Rd**	go 0.1 mi total 20.6 mi
7.	Take the 1st right onto **Meridian St** About 1 min	go 0.4 mi total 21.0 mi
8.	Take the 3rd left onto **Birchwood Ave** About 2 mins	go 0.5 mi total 21.5 mi
9.	**Birchwood Ave** turns slightly right and becomes **Squalicum Pkwy** Destination will be on the left	go 0.2 mi total 21.6 mi
B	PeaceHealth St. Joseph Medical Center, 2901 Squalicum Parkway, Bellingham, WA 98225	

Show: **Text only** | Map