Phase I Environmental Site Assessment

Portland Expo Center

2060 N. Marine Drive
Portland, Oregon

Prepared for
Metro

April 27, 2020
150-016-002

HARTCROWSER

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ACRONYMS

AAI	All Appropriate Inquiries
ACM	asbestos-containing materials
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
AUL	Activity and Use Limitation
bgs	below the ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CESQG	Conditionally exempt small quantity generator
CFR	Code of Federal Regulations
COPD	City of Portland datum
CORRACTS	Corrective Action Report List
CRL	Confirmed Release List
DEQ	Oregon Department of Environmental Quality
DSL	Oregon Division of State Lands
EC	Engineering Controls
ECSI	Environmental Cleanup Site Information
EDR	Environmental Data Resources, Inc.
EPA	United States Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
FINDS	Facility Index System
HazMat	Hazardous Materials
HSIS	Hazardous Substance Information System
IC	Institutional Controls
LLP	Landowner Liability Protection
LUST	leaking underground storage tank
MCDD	Multnomah County Drainage District
mg/kg	milligrams per kilogram
NFA	No Further Action
NFRAP	No Further Remedial Action Planned
NonGen	non-generator
NPL	National Priorities List
ODOT	Oregon Department of Transportation
OWRD	Oregon Water Resource Department
PCBs	polychlorinated biphenyls
PCE	Tetrachloroethylene
PPM	parts per million
RBC	risk-based concentration
RCRA	Resource Conservation and Recovery Act

ACRONYMS CONTINUED

REC	Recognized Environmental Condition
SWF/LF	Solid Waste Facility/Landfill
TCE	Trichloroethene
TSD	Treatment, Storage, and Disposal
µg/L	micrograms per Liter
UPI	User Provided Information
USACE	U.S. Army Corps of Engineers
USFW	U.S. Fish and Wildlife
UST	underground storage tank
VCP	Voluntary Cleanup Program

Portland Expo Center

2060 N. Marine Drive

Portland, Oregon

EXECUTIVE SUMMARY

This report presents the results of a Phase I Environmental Site Assessment (ESA) completed for the Portland Expo Center Convention Facility at 2060 N. Marine Drive in Portland, Oregon (Property). Metro currently owns the Property and is considering its options for redevelopment. Hart Crowser prepared this Phase I ESA in compliance with the All Appropriate Inquiries (AAI) requirements of 40 Code of Federal Regulations (CFR) Part 312 and the American Society for Testing and Materials (ASTM) Standard E1527-13, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process." A summary of our findings is presented in the following subsections.

Recognized Environmental Conditions

Recognized Environmental Conditions (RECs) are defined in ASTM E1527-13 as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment." The following RECs were identified for the Property:

Trichloroethene and Tetrachloroethylene in Groundwater

In 1991, trichloroethene (TCE) and tetrachloroethylene (PCE) were detected in groundwater from the Property's on-site well at concentrations of 9 micrograms per liter (µg/L) and 4 µg/L, respectively. In 2004, the Oregon Department of Environmental Quality (DEQ) added the Portland Expo Center Property to the Confirmed Release List (CRL). The priority for further action at the Property was designated by the DEQ as "low" and there is no record in DEQ files that subsequent investigations have been conducted on the Property or requested by the agency. Based on current risk-based concentrations (RBCs), the concentration of TCE detected in groundwater in 1991 exceeded the groundwater ingestion and inhalation RBC for residential (0.49 µg/L), urban residential (2.0 µg/L), and occupational (3.3 µg/L) exposures. However, concentrations of PCE were below the groundwater ingestion and inhalation RBCs for residential (12 µg/L), urban residential (49 µg/L), and occupational (48 µg/L) exposures.

Opinion. Although there does not appear to be direct correlation between historical Property activities and the areawide investigation, TCE and PCE were identified at low concentrations in groundwater from the water well in the northwestern part of the Property in 1991. Additional investigation on the Property will likely be needed if Metro wishes the Property to be delisted as part of the Environmental Cleanup Site Information (ECSI) listing.

Historical RECs

Historical RECs are defined in ASTM E1527-13 as "a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls." We identified instances where releases of hazardous substances or petroleum products were found and have been addressed to the satisfaction of regulatory agencies. The following historical REC were identified for the Property.

Underground Storage Tanks

In 1992, one 1,000-gallon diesel fuel underground storage tank (UST) was removed. The UST was associated with an emergency standby generator located on the north side of Exhibit Hall A, the current location of an on-site diesel UST. Reportedly, the removed UST showed no signs of, and soil samples showed no evidence of, a petroleum release.

In 1996, a 1,000-gallon gasoline UST was removed and approximately 300 cubic yards of petroleum-impacted soils were treated on site by aeration. Confirmatory sampling of the excavation limits and treated soil revealed no detectable petroleum contamination. Reportedly, groundwater was not encountered during the excavation. As a result, a no further action (NFA) letter was issued for the Property on August 13, 1996. No map accompanied the NFA letter, however, based on our research of historical photographs taken during the Oregon Centennial celebration held on the Property in 1959, and on maps showing relative location of features during the Centennial celebration, the tank could have been associated with one of the two fuel pumps located near a former rail spur on the Property.

Opinion. Based on our review of the removed diesel UST and the NFA letter for the gasoline UST, it is our opinion that there is a low potential that the Property has been affected by the reported UST releases. However, there is a possibility that another tank may have existed in the location of the two former fuel pumps associated with the Oregon Centennial Exposition's Adventureland train depot. We recommend that Metro conduct a geophysical survey to further evaluate the possibility for a UST in the vicinity of the former fuel pumps.

Controlled RECs

Controlled RECs are defined in ASTM E1527-13 as "a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls)." No controlled RECs were identified for the Property.

De Minimis Conditions

De minimis conditions are defined in ASTM E1527-13 as "a condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies." No *de minimis* conditions were identified for the Property.

Other Environmental Conditions

Several environmental issues were either outside the scope of ASTM Practice E1527-13 or are environmental conditions that may be associated with the Property. During our records review and site reconnaissance, we identified several items warranting discussion.

Hazardous Building Materials

Hazardous building materials include asbestos-containing materials (ACMs), lead-containing and lead-based paint, and electrical equipment with polychlorinated biphenyls (PCBs) and mercury.

During the site reconnaissance, a boiler tank was observed in a storage room north of Exhibit Hall A. The tank was elevated approximately 6 feet above the ground and was covered with thermal insulation. The insulation was torn in places, revealing a fibrous material beneath. There was no visible labeling on the insulation regarding asbestos content. Additionally, Hart Crowser found no information regarding installation date of the boiler.

Based on the various ages of the building, particularly Exhibit Halls A, B, and C, hazardous building materials may exist in floor tiles, ceilings, walls, windows and other construction materials.

Opinion. Due to the condition of the insulation around the boiler and the lack of visible labeling regarding asbestos, we recommend sampling the insulation material for analysis of asbestos content. Based on the analysis results, the material can be appropriately managed in accordance with regulations and guidance. Additionally, prior to remodeling or demolition of one or more parts of the convention center, a hazardous building material survey should be performed. Any hazardous building materials should be removed, recycled, abated, and/or appropriately managed in accordance with regulations and guidance.

Columbia Slough Area-Wide Discovery Project

In May 2004, the Property was listed as part of the DEQ's Columbia Slough Areawide Discovery Project. The Property was part of ECSI cleanup (#4138). Additionally, several off-site sources of groundwater contamination have been identified to the west and southwest of the Property that could have affected groundwater beneath the Property.

Opinion. As part of property purchase negotiations, an attorney should be consulted to identify methods to minimize possible environmental liabilities that the Property may have due its proximity to the Portland Harbor Superfund Site. If redevelopment will not affect the riverbank or sediments below the ordinary high-water line (17.9 feet City of Portland datum [COPD]), no action is likely needed.

However, the progress of activities by the Environmental Protection Agency (EPA), DEQ, and others in the Portland Harbor Superfund Site should be tracked.

If redevelopment involves riverbank or in-water work, permits will be required from the U.S. Army Corps of Engineers (USACE) and Oregon Division of State Lands (DSL). Sampling and analysis also will be required, and proposed work and analytical results will be reviewed during the permit process by these and other governmental agencies.

1.0 INTRODUCTION

This report presents the results of a Phase I ESA performed for the Portland Expo Center located just south of the Columbia River at 2060 N. Marine Drive in Portland, Oregon. The 52.90-acre Property accommodates one 332,900-square-foot convention center building comprised of five distinct exhibit halls, and asphalt-paved parking areas. A TriMet regional light rail station (MAX) adjoins the Property on the east. The Property is shown on Figure 1, and site-specific features are presented on Figure 2.

1.1 Purpose and Scope

The purpose of this Phase I ESA was to evaluate the history, current conditions, and environmental regulatory status associated with the Property to establish Landowner Liability Protection (LLP) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This Phase I ESA was prepared by an Environmental Professional from Hart Crowser in conformance with ASTM Practice E1527-13 and the AAI Final Rule requirements of 40 CFR 312. Our scope of work consisted of the following:

- Reviewing environmental agency databases and records within the regulatory specified search parameters for the Property.
- Describing physical setting characteristics of the Property by reviewing published documents, environmental reports, and internet sources.
- Determining historical uses of the Property, adjoining properties, and surrounding areas through a review of historical sources (e.g., aerial photographs).
- Conducting site reconnaissance and interviews regarding current Property uses and conditions for known or possible releases of hazardous substances or petroleum products.
- Assessing use of adjoining and surrounding area properties and the likely impact of known or suspected releases of hazardous substances or petroleum products from those properties on the Property.
- Preparing this Phase I ESA report.

1.2 Assumptions, Limitations, and Exceptions

In preparing this report, Hart Crowser relied on information provided by Metro (Owner) and other individuals and companies as indicated herein. Hart Crowser can only relay this information and is not responsible for its accuracy or completeness. This Phase I ESA was completed in accordance with

40 CFR Part 312 and ASTM Practice E1527-13, with no exceptions to or deletions from the intent of this standard.

1.3 Special Terms and Conditions

There were no special terms or contractual conditions for this assessment.

1.4 User Reliance

This report was prepared for the exclusive use and reliance by Metro for the specific application to the Property. Metro may rely upon the information, findings, and conclusions set forth in this report, subject to the limitations contained in this report. This report is not meant to represent a legal opinion. No other warranty, express or implied, is made.

2.0 SITE DESCRIPTION

A general site description and current use of the Property is presented in the following subsections. The site description is based on our reconnaissance of the Property and on a review of documentation as referenced. Photographs of the Property were taken during the site reconnaissance and are included in Appendix A**.**

2.1 Property Location and Characteristics

The Property is located at 2060 N. Marine Drive in Portland, Multnomah County, Oregon, and is developed as a convention center for consumer shows, concerts, and catered events. The Property is located within the historic floodplain of the Columbia River, which has been modified by the presence of the Columbia River levee system, surface water controls, and active groundwater pumping. The Property and vicinity are located within the Multnomah County Drainage District (MCDD) Peninsula Drainage District No. 1 (MCDD 2019). The Property and surrounding area are zoned General Industrial 2, which allows for commercial and industrial uses (PortlandMaps 2019). There are several zoning overlays on the Property, which are identified as Industrial Sanctuary.

2.2 Current Use and Property Description

The Property is situated on approximately 52.90 acres, on Multnomah County tax lots 100, 200, and 1400 on Tax Map 2N1E33 (PortlandMaps 2019). Tax lot 1400 consists of 4.09 acres and is comprised of an undeveloped, grass-covered levee on the north side of N. Marine Drive, on the south bank of the Columbia River. Tax lots 100 and 200 are comprised of 10.91 and 37.90 acres, respectively, and accommodate the Portland Expo Center and associated asphalt-paved parking areas and landscaping on the south side of N. Marine Drive. The Property is situated in the Southeast Quarter of Section 33, Township 2N, and the Northeast Quarter of Section 4, Township 1N; Range 1E of the Willamette Meridian.

The Portland Expo Center was constructed in stages, with Exhibit Halls A, B, and C being constructed in 1925 as the International Stockyard Exposition; Exhibit Hall E was constructed in 1997; and Exhibit Hall D was constructed in 2001. A paved parking lot with limited landscaping surrounds the facility. A

TriMet light rail station for a MAX line is located adjoining the eastern boundary of the Property. The Property is served by the following utilities:

Utility	Provider
Electricity	Portland General Electric
Natural Gas	NW Natural
Water	City of Portland
Sanitary Sewer	City of Portland
Storm Sewer	City of Portland

2.3 Adjoining Property Use and Description

Adjoining properties, as defined in ASTM E1527-13, are any properties that border the Property or would border the Property, except for a public thoroughfare separating them. The zoning for all adjoining properties is General Industrial 2 with Open Space designated to the south, southwest, and southeast (PortlandMaps 2019). A brief description of use of each adjoining property is presented in the following table.

Direction	Observation
North	N. Marine Drive and the Columbia River
East	Diversified Marine, Inc. and the TriMet MAX Light Rail Station
South	Expo Drive and Vanport Wetlands
West	N. Force Avenue, Bulk Transportation, Peninsula Terminal (a regional short-line railroad), Ecolube Recovery (American Recyclers), and Stockyards Commerce Center

3.0 PHYSICAL SETTING

This section describes the physical setting of the Property, which is useful in understanding the possibility for contaminant migration in the subsurface. This discussion is based on the referenced sources and on our experience of the Property vicinity.

3.1 Topographic Setting

The Property is situated on the Oregon Slough along the south bank of the northwesterly-flowing Columbia River. Most of the Property (tax lots 100 and 200) is flat at an elevation of approximately 30 feet above mean sea level. Tax lot 1400 is located on a Columbia River Levee at an elevation of approximately 40 feet. The Federal Emergency Management Agency (FEMA) website indicates that Tax Lot 1400 is within the floodway zone; however, due to the presence of the levee, Tax Lots 100 and 200 are within an area of reduced flood risk (FEMA 2019). According to the National Wetland Inventory, the nearest mapped wetland is the Vanport Wetlands to the south of the Property, which are identified as L2EM2F (lacustrine, littoral, emergent, non-persistent, semi permanently flooded). The Vanport Wetlands are located approximately 250 feet southwest of the Property (USFW 2019).

3.2 Geology

The geologic setting of the Property consists of native alluvium; however, it is likely that fill has been placed on the Property over time. Periodic, catastrophic floods deposited sediment throughout the Columbia River floodplain (including the Property) by one or more phases of floods from ancient Lake Missoula between 15,000 and 18,000 years ago. Boring logs identified online at the Oregon Water Resources Department (OWRD) website (OWRD 2019) indicate that in the Property vicinity, approximately 120 feet of clay is present over sand/gravel/boulders to at least 215 feet below the ground surface (bgs).

3.3 Hydrogeology

Based on our review of published environmental documentation and review of water well reports for the Property and vicinity, shallow groundwater has been encountered at depths ranging from 20 to 22 feet bgs (OWRD 2019). Shallower levels are indicated by some boring logs identified online at the OWRD website. Groundwater levels beneath the Property and vicinity vary seasonally based on rainfall and river levels. Anticipated shallow groundwater flow is to the north and west, in the direction and flow of the Columbia River; however, shallow groundwater on the southern portion of the Property likely is directed southward, towards the Vanport Wetlands. One water well record was identified for the Property in online OWRD records. This water well record is identified as MULT 2024. A second water well record (MULT 2022) was identified as a record of deepening the existing well. OWRD records for both wells are included in Appendix D**.**

4.0 USER-PROVIDED INFORMATION

For the purposes of this assessment, Metro is the User of this Phase I ESA report. In accordance with Section 6 of the ASTM E 1527-13 standard, the User of this Phase I ESA was informed they were responsible for providing the following information to Hart Crowser's environmental professional for consideration during the assessment:

- Recorded instruments on the Property such as title or judicial records related to environmental liens and Activity and Use Limitations (AULs) for the Property or actual knowledge of environmental liens or AULs.
- Specialized knowledge or experience of the User, or commonly known or reasonably ascertainable information regarding the Property and activities thereon that may be material to potential RECs.
- Information on Property valuation, specifically as it relates to whether the Property has been devalued due to contamination.

The following subsections summarize information provided by Mr. Michael Rotchford, Executive Director of the Portland Expo Center. A copy of the User Provided Information (UPI) Questionnaire completed by Mr. Rotchford is included in Appendix B**.**

4.1 Recorded Instruments on Property

In the UPI questionnaire, Mr. Rotchford indicated that he was aware that American Recyclers (also known as Ecolube Recovery), located on the western adjoining property, was identified as a DEQ cleanup site. Mr. Rotchford did not provide a preliminary title report for our review. However, no recorded liens were identified by Environmental Data Resources, Inc. (EDR) in their report (Appendix C). Mr. Rotchford was unaware of any activity or use limitations (e.g., engineering or institutional controls) filed or recorded for the Property.

An Ownership and Encumbrances Report and a Vesting Deed were provided for our review by Ms. Karen Starin, Senior Program Analyst at Metro. These documents are included in Appendix B. Our review of the Ownership and Encumbrances Report revealed easements and rights-of-way grants for the property beginning as early as 1911. The first reported easement was granted in 1911 to the Pacific Stages Telephone and Telegraph Company and Western Union Telegraph Company. The following additional easements and rights-of-way on the property were granted from 1916 through 2003:

Year Granted	Additional Easements and Rights-of-Ways
1916	Easement to Portland Gas and Coke Company for gas main and service pipes
1921	Easement to Peninsula Industrial Company for a sewer and water main
1934	Right-of-way granted to Peninsula Industrial Company (intent not listed)
1951	Easement to Portland General Electric Company for a utility pole
1955	Easement to Kernan Livestock farm for ingress and egress
1955	Easements to Multnomah County and ODOT for slope construction/maintenance
1959	Easement to King Broadcasting Company
1963	Three easements to Peninsula Drainage District No. 1
1973	Easement to City of Portland for water line
1983	Easement to ODOT for installation and maintenance of Highway signage
1984	Easement to Portland General Electric company for electric power line
1985	Easement to Pacific NW Bell Telephone company for underground communications
1988	Easement to City of Portland for sewer
1990	Easement to ODOT for slope
1992	Easement to ODOT for construction and maintenance of slope
1993	Easement to ODOT for bike path and storm drain
1993	Street Abandonment
1996	Series of development agreements and easements for US West Communications
2003	Easement Agreement between Metro and Port of Portland

Note: ODOT = Oregon Department of Transportation.

In addition to the easements, the Vesting Deed also identified an easement for spur track from Pacific International Associate to King Broadcasting Company in 1959.

4.2 Actual, Reasonably Ascertainable, or Specialized Knowledge

Mr. Rotchford understood that the Property is near Ecolube Recovery, a facility listed as a state cleanup site. He did not have knowledge regarding the possible environmental concerns or releases of contaminants at the facility.

4.3 Property Valuation

In the UPI questionnaire, Mr. Rotchford indicated that he was not aware of Property devaluation due to contamination. Additionally, he was not aware of information regarding fair market value of the Property.

5.0 ENVIRONMENTAL RECORDS REVIEW

This section presents the results of a review of environmental regulatory agency records and a discussion of Property and facility listings within the standard ASTM search distances up to 1 mile from the Property. The purpose of the environmental records review was to screen for possible sources of contamination or activities of environmental concern for the Property and nearby sites.

Hart Crowser contracted with EDR to search local, state, federal, and EDR-curated environmental databases, the results of which were provided in a report dated September 9, 2019. Hart Crowser reviewed the report for information pertaining to storage and/or reported releases of hazardous substances and/or petroleum products on the Property or on surrounding sites that may affect the Property. Because the regulatory agency database search was based on the most current agency records available to EDR, the search results were only as accurate as the records provided. We supplemented the EDR search by reviewing information on the DEQ's Facility Profiler website (DEQ 2019a), DEQ's Leaking Underground Storage Tank (LUST) online database (DEQ 2019b), EPA's Envirofacts Data Warehouse (EPA 2019), and the Oregon State Fire Marshal Hazardous Materials Incident (Oregon State Fire Marshal 2019).

EDR searched agency-published databases for sites of possible concern in accordance with Section 8.2.1 of ASTM E1527-13. Regulatory agency database lists identified from Section 8.2.1 of the ASTM Standard were reviewed and the search distances from the boundaries of the Property are included in the following table. The EDR search report is included in Appendix C.

Regulatory Lists	Search Radius
Federal Environmental Databases	
National Priorities List (NPL)	1 mile
Delisted NPL Sites	1 mile
Proposed NPL Sites	1mile
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and its Information System (CERCLIS) List	0.5 mile
CERCLIS No Further Remedial Action Planned (NFRAP) List	0.5 mile
Corrective Action Report (CORRACTS) List	1.0 mile
Resource, Conservation, and Recovery ACT (RCRA) List Treatment, Storage, and Disposal (TSD) Facilities Generators, Transporters, and Handlers	 0.50 mile 0.50 mile
Emergency Response Notification System (ERNS) List	0.25 mile
Facility Index System (FINDS) List	0.25 mile
State and Tribal Environmental Databases	
Environmental Cleanup Site Information (ECSI) and Confirmed Release Lists (CRL)	1.25 mile
Solid Waste Facilities/Landfill (SWF/LF) Lists	0.5 mile
DEQ and Tribal Underground Storage Tank (UST) Lists	0.55 mile
DEQ and Tribal Aboveground Storage Tank (AST) Lists	0.5 mile
DEQ and Tribal Leaking UST (LUST) Lists	0.5 mile
Institutional Controls (IC) and Engineering Controls (EC) Lists	0.5 mile
DEQ Voluntary Cleanup Program (VCP) Sites	0.5 mile
Brownfields List	0.5 mile
Oregon SPILLs List	Site
Oregon Hazardous Substances Information System (HSIS) List	Site

5.1 Property Listings

Based on to the EDR environmental database search, the Property was identified on the ECSI, UST, LUST, FINDS, AST, SPILLS, and HSIS databases. The following subsections provide a summary of the database search findings, with supplementary information provided as referenced.

5.1.1 Environmental Cleanup Site Information

The Property was identified by the DEQ as ECSI #4138 due to its location within an area-wide investigation of the Columbia Slough located approximately 4,000 feet south of the Property. As reported by DEQ, the Property was added to the ECSI database on May 13, 2004, due to a concern that stormwater runoff from the Property could reach the Columbia Slough or area wetlands via stormwater drainage system. However, no information regarding releases or former releases at the Property was associated with DEQ's listing of the ECSI database.

Our review of OWRD records revealed the following well log for the Property: one groundwater monitoring well (MULT 126808) that was installed in September 25, 2017, at a location just south of the gravel parking lot on the Property. This well was abandoned on June 21, 2018 (MULT 129410).

Six additional geotechnical boring logs also were found for the Property and appeared to be related to construction of the most recent building addition on the Property. Boring logs indicate that all were abandoned. Boring logs found for the Property are included in Appendix D.

The status of the Property on the ECSI database is identified as "Suspect site requiring further investigation," and a Site Screening was recommended; however, to date, a Site Screening nor other activities appear to have been performed. As such, the Property will remain on the ECSI database until additional research and/or subsurface investigation has demonstrated that current or past activities at the Property have not likely contributed to area-wide contamination.

5.1.2 Oregon Registered UST and LUST Cleanup Databases

The Property was identified on the UST database for reporting two decommissioned USTs. Two LUST records were also found for the Property: 26-92-0100 and 26-92-0139. Based on our review of online DEQ LUST records, the 26-92-0100 file was administratively closed. The only note found online in this record indicated that "the file on this project is being combined with file 26-92-0139, Multnomah Expo Center #2, since both tank removals were conducted on the same facility". The records for both UST removals are discussed in the following paragraphs.

The Allied Tank report (Allied Tank 1992) describes the removal of one 1,000-gallon diesel UST that had been used for an emergency standby generator. The tank reportedly showed no signs of leakage or petroleum odors upon removal. According to the report, soil samples were collected 1 foot below the concrete hold-down slab. No soil sample or testing records were included in the Allied Tank report. The location of the diesel UST was identified in the Allied Tank report as located on the northern exterior wall of the generator room facing N. Marine Drive. Based on our review of the map accompanying the report, this would be the location of Exhibit Hall A, at the current location of the diesel UST.

In an NFA letter for what appears to be the second tank, a 1,000-gallon gasoline UST, the tank was removed and approximately 300 cubic yards of petroleum-impacted soils were treated on site by aeration (removing the soil, placing it on the ground, and allowing it to aerate). The excavation limits and the treated soil were tested, and confirmatory sampling did not detect petroleum contamination. Reportedly, groundwater was not encountered during the excavation. As a result, an NFA letter was issued for the Property on August 13, 1996. No map accompanied the NFA letter, however, based on our research of historical photographs taken during the Oregon Centennial celebration held on the Property in 1959, and on maps showing relative location of features during the Centennial celebration, the tank could have been associated with one of two fuel pumps located near a former rail spur on the Property. Additional discussions of the former USTs are presented in Section 6.5. A copy of the Allied Tank report for the diesel UST, the NFA Letter for the gasoline UST, historical site photographs, and a map showing the Centennial Celebration features at the Property in 1959, are included in Appendix C.

Based on our review of the NFA letter and the confirmation soil sampling after treatment, it is our opinion that there is a low potential that the Property has been affected by the UST releases reported to DEQ in 1992 and 1996. However, there is a possibility that another tank may have existed in the

location of the two former fuel pumps associated with the Oregon Centennial Exposition's Adventureland train depot.

5.1.3 Oregon AST Database

The Property was identified on the Oregon AST database for reporting one diesel fuel AST. The AST is associated with the on-site generator located on the north side of Exhibit Hall A, as discussed in Section 7.1.2. No further information was provided in the AST database.

5.1.4 SPILLS Database

The Property was identified on the Oregon SPILLS database due to a release that occurred on February 10, 2016. Reportedly, an asphalt company truck carrying flats of 5-gallon buckets of a concrete sealer turned a corner and lost 10 buckets onto the pavement on N. Marine Drive. The product was removed, and the incident report was closed. Based on the reported information, it does not appear that the Property was affected by this reported incident.

5.1.5 Hazardous Substances Information System Database

As required by Oregon law, facilities are required to report hazardous substances at their locations on an annual basis. The HSIS listing for Portland Expo Center reported lead acid batteries and diesel fuel located on site. No information regarding improper storage of the materials was identified on the HSIS report.

5.1.6 Federal Facility Index System Database

The Property was identified on the FINDS list due to its listing on the ECSI, UST, and LUST databases. The FINDS database is a federal database that tracks listings of sites from other databases only.

5.2 Adjoining Properties

Adjoining properties are properties that border the Property or would border the Property except for being separated by a public thoroughfare. Several sites identified in the EDR report are considered adjoining and are discussed in the following subsections.

5.2.1 2200 N. Marine Drive

On March 9, 1994, approximately 60 gallons of diesel fuel spilled from a semi-truck involved in an accident located on N. Marine Drive, just north of the Property. The spill was released into a storm drain that directly flows to the Columbia River. It is our opinion that the reported release is not expected to have resulted in a REC on the Property.

5.2.2 Delta Park Exit

In 1990, soil contaminated by diesel-range petroleum hydrocarbons was discovered during a diesel UST decommissioning (26-90-0346) at the Delta Park Exit construction east of the Property. A DEQ NFA letter dated December 24, 1990, indicated that diesel contamination did not exceed a soil cleanup level of 500 milligrams per kilogram (mg/kg). In its NFA letter, the DEQ understood that no groundwater was encountered in the excavation and that no further action was required unless new

or undisclosed facts indicated that the cleanup did not meet with the referenced cleanup rules. It is our opinion that there is a low potential for the release and cleanup associated with the Delta Park Exit construction that would result in a REC on the Property. A copy of the DEQ NFA letter for the Delta Park Exit construction is included in Appendix C.

5.2.3 2360 N. Marine Drive

The former Merit USA, Inc., facility is located at 2360 N. Marine Drive, adjacent to the northwest corner of the Property. The Merit USA site was identified on the Oregon UST and LUST cleanup (26-89-0031) databases and appeared to have been part of a much larger 16-acre property being considered for a proposed Oregon Waste Management transfer station. Based on our review of online DEQ information, during an investigation at the former Merit USA site in 1987, eight USTs were identified. At that time, soil and groundwater sampling revealed contamination, including free product.

Over the next 15 years, two USTs were removed, and several subsurface investigations were conducted to characterize and monitor soil and groundwater contamination. In 1993, the remaining USTs were removed and approximately 5,600 tons of petroleum-contaminated soil were excavated, treated on site using aeration, and returned to the excavation. An additional 4,500 cubic yards of diesel-contaminated soil exceeding a diesel cleanup level of 500 mg/kg were transported to Waste Management's Arlington, Oregon, facility for disposal. From 1990 to 1998, free product was removed from several on-site wells and groundwater extraction and treatment was conducted. In 2002, an *in-situ* air sparging and soil vapor extraction system was installed and operated until October 2006 when Oxygen Releasing Compound was injected into the groundwater to further reduce petroleum concentrations. In a January 24, 2008, NFA letter, the DEQ indicated that the site had been sufficiently remediated and monitored and that chemicals in soil and groundwater did not pose an unacceptable risk to current or likely future use, contingent upon sampling and evaluating future exposed contaminated media. The DEQ also prohibited the development of shallow groundwater for beneficial uses.

Based on our understanding of the 2360 N. Marine Drive location and our site vicinity reconnaissance, the Merit USA site has been redeveloped with the Stockyard Distribution Center, and industrial flex-space office park. It is our opinion that there is a moderate potential that groundwater impacts from past uses at the Merit USA facility could have impacted groundwater beneath the northwestern part of the Property.

5.2.4 11645 N. Force Avenue

Several facilities were identified at 11645 N Force Avenue, the location of the Peninsula Terminal west/northwest of the Property. Facilities at the Peninsula Terminal consist of Safety-Kleen Systems (a RCRA Conditionally Exempt Small Quantity Generator [CESQG]), the Peninsula Terminal Company (AST, SPILLS, and HSIS), the Red Giant Oil Company (RCRA Non-Generator [NonGen]), and FMC Corporation (RCRA NonGen). The Peninsula Terminal has one inactive AST, estimated to be less than 5,000 gallons.

The Oregon SPILLS database identified two spills at the Peninsula Terminal location:

- In July 2007, 700 gallons of hydrogen peroxide spilled onto the ground. No cleanup efforts were attempted as the material was considered a product used in groundwater remediation.
- In October 2017, a release of 40 gallons of sulfuric acid occurred when a product valve on a rail container car was disconnected. The release was estimated to be 40 gallons and reportedly, no water ways were affected.

Although several facilities handling chemicals and petroleum products are located at the 11645 N. Force Avenue address, there are no reports to indicate that a release has occurred that has adversely affected the Property. Additional facilities are located at the Peninsula Terminal (11619 N. Force Avenue; 2416 N. Force Avenue; 11535 N. Force Avenue; and 11707 N. Force Avenue).

5.2.5 1835 N. Marine Drive

One facility was identified by two alias names at the address of 1835 N. Marine Drive: Vanport Plant and Ross Island Sand & Gravel, Vanport Plant, located northeast of the Property, on the south bank of the Columbia River. This facility was identified on the Oregon UST database for reporting one decommissioned UST in August 2017. According to a DEQ NFA letter, dated December 18, 2017, one 10,000-gallon diesel UST was decommissioned in place at the facility. Seventeen soil samples were collected around the tank, with contamination detected in three samples. Maximum concentrations were 114 mg/kg gasoline-range hydrocarbons; 1,530 mg/kg diesel-range hydrocarbons; and 591 mg/kg residual-range hydrocarbons. After approximately 18.56 tons of petroleum-contaminated soil were removed, final confirmation sampling indicated no detectable concentrations of petroleum hydrocarbons. Reportedly, no groundwater was encountered during explorations to the total depth explored (25 feet bgs). Based on this information, and the inferred cross-gradient location relative to the Property, it is our opinion that there is a low potential for the release associated with this facility to result in a REC on the Property. A copy of the DEQ NFA letter for this facility is included in Appendix C.

5.2.6 1801 N. Marine Drive

Diversified Marine was identified at the location of 1801 N. Marine Drive, northeast of the Property and adjacent to the Ross Island Sand & Gravel, Vanport Plant. This facility was identified on the RCRA-CESQG, ECSI (#3759), SPILLS, CRL, Hazardous Materials (HazMat), and HSIS databases.

Between 1990 and 2001, DEQ received nine pollution complaints and six reports of spills associated with possible hazardous substance releases at the facility location, including petroleum sheens present on the river adjacent to the facility. Five of the pollution complaints and one of the spill reports involved fugitive dust emissions associated with sandblasting operations at the facility. Based on DEQ information presented in the EDR report, there is a concern that sandblasting boat hulls at the facility could have released toxic metals at concentrations threatening aquatic life or that could accumulate in river sediments. Two additional spill reports and one additional pollution complaint involved petroleum sheens of unknown origin on North Portland Harbor adjacent to the facility. An additional 1998 spill report and pollution complaint were associated with a petroleum release that drained across N. Marine Drive onto state highway property, approximately 200 yards from the Property.

A March 2009 Preliminary Assessment, completed by Ecology and Environment for EPA Region 10 concluded that the facility may be contributing copper, lead, and zinc contamination to the river. The DEQ indicated that except for copper, none of the detected metals in the sediment samples collected exceeded DEQ freshwater sediment screening level values. The facility is undergoing Primary Action with DEQ oversight. Due to this facility's up- to cross-gradient location relative to the Property, there is a low potential for the activities at this facility to result in a REC on the Property.

5.2.7 11619 N. Force Avenue

The 11619 N. Force Avenue address is the location of Bulk Transportation, a facility within the Peninsula Terminal area west/northwest of the Property. This facility was identified on the ECSI (#5696) and SPILLS databases based on documented evidence of elevated concentrations of chlorinated solvents, metals, and petroleum hydrocarbons in the facility's soils and shallow groundwater. In the late 1980s and early 1990s, these contaminants were found but were below human health RBCs except for TCE and PCE in groundwater. Based on DEQ information contained in the EDR report, TCE and PCE concentrations have been documented to be areawide. Although there is no information to suggest that groundwater beneath the Property has been affected, it is our opinion that there is a moderate potential that groundwater on the western Property boundary could have been affected by the documented releases at this location.

The property was developed in the 1940s as an on-site fertilizer yard that received manure produced at the nearby stockyards. J.W. Fertilizer, a commercial fertilizer and soil additive facility was operating in the eastern part of the facility during the 1970s until 1990. Since 1995, Bulk Transportation/DTI, a chemical transport company, has used the facility as a satellite trucking terminal. Liquids, gases, chemicals, and hazardous materials are unloaded from rail cars and trucked to their destination. In addition to the reported activities at this location, a spill of copper-chromium-arsenate solution was released onto asphalt in 2005. The release was cleaned up using absorbent materials. A second spill of an unknown chemical substance was reported in 2015. Based on documented contamination in groundwater at this facility that is adjacent to the western Property boundary, and DEQ's reference to areawide TCE and PCE groundwater contamination, it is our opinion that there is a moderate potential that groundwater on the western Property boundary could have been affected by the documented releases at this location.

5.2.8 2416 N. Marine Drive

Several facilities were identified at the address of 2416 N. Marine Drive, located west/northwest of the Property. These facilities consist of the Stockyards Property, B&L Clark Express, and Peninsula Terminal Railroad. Like the Bulk Transportation facility described previously at 11619 N. Force Avenue, the Stockyards Property was added to the ECSI (#5695) database in March 2013 based on documented evidence of chlorinated solvents, metals, and petroleum constituents in shallow groundwater and elevated concentrations of chlorinated hydrocarbons in stormwater draining to the Columbia River. Possible environmental contaminants of concern include residual petroleum constituents in soil. Additionally, PCE and TCE were found in shallow and deep groundwater at the facility and PCBs have been found in the soils at the site. The DEQ Site Assessment recommended further investigation at this facility; the facility is part of the DEQ's VCP. Based on documented contamination in groundwater at

this facility, that is adjacent to the western Property boundary, and the DEQ's reference to areawide TCE and PCE groundwater contamination, it is our opinion that there is a moderate potential that groundwater on the western Property boundary could have been affected by the documented releases at this location.

B&L Clark Express and the Peninsula Terminal Railroad were identified as RCRA NonGen with no reported violations. Based on this information, these facilities are not expected to represent an environmental concern for the Property. However, the Peninsula Terminal, on which both facilities are located, have reported releases and facilities currently undergoing property clean up with DEQ oversight.

5.2.9 11535 N. Force Avenue

Several facilities were identified at the address of 11535 N. Force Avenue, located near the Peninsula Terminal location west of the Property. These facilities consist of American Recyclers (Ecolube), Energy and Material Recyclers, WBP Renewable Diesel, and Recyclers Transport.

The American Recyclers facility was listed on multiple state and federal databases, including NPL, RCRA-CESQG, ECSI (#24), and HazMat. There is no evidence that historical releases from the American Recyclers facility were followed by remedial actions. According to DEQ information contained in the EDR report, recent sampling revealed significant hydrocarbon contamination in an associated wetlands area. Past releases at this facility could have affected ecologically sensitive wetlands.

The 11535 N. Force Avenue location was also the site of the Harbor Oil facility, the site of an expanded subsurface investigation in 2012. Our review of a Remedial Investigation Report prepared on March 30, 2012, by Bridgewater Group and Windward Environmental, LLC, (Bridgewater and Windward Environmental 2012) revealed that significant investigation of the extent of TCE and PCE has been conducted over time. The report referenced a previous document prepared by Golder Associates in 1991 titled "Oregon Waste Systems Deep Groundwater Sampling in the Vicinity of the Portland Stockyards Property". This report included groundwater sampling from deep water wells, including the water supply well at the Expo Center. Analytical results reported by Golder in 1991 (Bridgewater 2012) indicated TCE was detected in groundwater from the Property's on-site well at a concentration of 9 µg/L and PCE at a concentration of 4 µg/L. At that time, the data suggested that the sampling results were indicative of relatively low-level regional PCE and TCE impacts on the regional aquifer (deep groundwater zone). DEQ added the Portland Expo Center property to the CRL. The priority for further action at the property was designated by DEQ as "low," and there is no record in DEQ files that subsequent investigations have been requested by the agency. Based on current RBCs, the concentration of TCE detected in groundwater in 1991 exceeded the groundwater ingestion and inhalation RBC for residential (0.49 µg/L), urban residential (2.0 µg/L), and occupational (3.3 ug/L) exposures. However, concentrations of PCE were below the groundwater ingestion and inhalation RBCs for residential (12 µg/L), urban residential (49 µg/L), and occupational (48 µg/L) exposures.

5.2.10 2335 N. Marine Drive

The White Marine Service adjoins the Property to the north at 2335 N. Marine Drive. This location was listed on the ECSI database (#4310) in December 2004. A spill from a waste oil drum was first reported by a neighboring business in June 2004. As part of the complaint investigation, DEQ collected soil

samples to a depth of 4 feet near the reported spill area. Analyses indicated surface soil contamination with heavy oil-range hydrocarbons at a depth of 1 foot bgs. Based on the location of this facility and the anticipated flow direction of groundwater, the activities at the White Marine Service facility are not expected to result in a REC on the Property.

5.2.11 2632 N. Marine Drive

Rod's Truck Stop formerly adjoined the Property to the northwest at 2632 N. Marine Drive. This location was listed on the LUST Cleanup (#26-90-0291) and UST database. DEQ information contained in the EDR report indicated that a 300-gallon and 3,000-gallon UST were decommissioned at this location. Gasoline contamination was discovered during the decommissioning and approximately 20 cubic yards of contaminated soil was removed and transported to a landfill for disposal. After soil removal, a pocket of contamination containing 3,300 mg/kg gasoline-range petroleum hydrocarbons remained adjacent to an on-site building. Under a corrective action plan, four groundwater wells were monitored for four quarters to evaluate groundwater impacts. During monitoring, no contamination was detected in the wells. An NFA letter was issued by the DEQ in February 1993. Based on this information, it is our opinion that there is a low potential for the release reported at this facility to result in a REC on the Property. A copy of the NFA letter is presented in Appendix C.

5.2.12 12301 N. Force Avenue

The Star-Oil Company adjoins the Property to the west and was identified on the LUST Cleanup (#26-97-0705) and UST databases. One 4,000-gallon gasoline UST and one 4,000-gallon diesel UST were removed, and soil contamination was discovered during the decommissioning. Approximately 53 tons of contaminated soil were removed and transported to TPST Soil Recyclers for thermal treatment. No groundwater was encountered in the excavation. The DEQ issued an NFA letter on April 13, 1998. Based on this information, it is our opinion that there is a low potential for the release reported at this facility to result in a REC on the Property. A copy of the NFA letter is included in Appendix C.

5.2.13 11707 N. Force Avenue

The Peninsula Terminal adjoins the Property to the northwest. This location is listed on the CRL, ECSI (#1505), INST CONTROL, and VCP databases. The Peninsula Terminal location has been used since the early 1900s as a train car switching yard, and for the offloading of materials including coal, cattle, and chemicals. The site currently is used mainly as a switching yard and for some off-loading of chemical materials such as plastics and petroleum product. The site owner, Peninsula Terminal Company, signed a Letter Agreement with the DEQ in March 1994 requesting participation in the VCP.

Several small releases of chemicals have occurred during off-loading activities at the site. A UST formerly located near the Locomotive House, and possibly used to store waste oil, was later removed (exact date unknown). Additionally, in the past, waste oil and solvents have been released from the Locomotive House via a drain line.

Soil and groundwater sampling were conducted at this location in August 1995. Based on the results of this work, additional sampling was completed in the transloading area in 1996. Contaminants detected

in site soil were below industrial cleanup standards and no significant impacts to groundwater were identified. In an October 9, 1996, NFA letter, the DEQ determined that no further action was required under an industrial cleanup scenario. There are several facilities located at the Peninsula Terminal, west of the Property, and it is our opinion that there is a moderate potential that releases associated at this location could have resulted in a REC at the Property.

5.3 Non-Adjoining Properties

The EDR report identified 70 non-adjoining site listings within the expanded ASTM distances from the Property as listed below. It should be noted that some sites may be listed on multiple databases.

List	Sites	RECs for Property
CERCLIS	1	No
CERCLIS-NFRAP	0	No
ECSI	23	No
CRL	8	No
OR VCP	3	No
OR LUST	9	No
OR UST	2	No
OR AST	1	No
OR EC	0	No
OR IC	1	No
Brownfields (two different lists)	0	No
SWF/LF (three different lists)	1	No
RCRA-CESQG	2	No
RCRA NonGen	13	No
Record of Decision	1	No
HazMat	1	No
OR MANIFEST	3	No
Historical Auto	1	No

We reviewed the information reported by EDR regarding these sites to assess whether any of them posed environmental threats to the Property. From a review of these sites, we did not identify a site possessing historical concern to the Property.

5.4 Orphan Properties

The EDR report listed no orphan site listings within the specified search radii.

6.0 HISTORICAL RECORDS REVIEW

Hart Crowser researched the history of land use on the Property and vicinity to identify former activities that may have caused or contributed to possible environmental conditions. Appendix D includes copies of historical documentation. The following sources were reviewed:

- Historical aerial photographs
- Sanborn Fire Insurance maps
- Topographic maps
- City directories
- Public agency records
- Other documentation available online and in our files

In summary, the northwest part of the Property has been developed since at least 1925. This part of the Property originally was developed with a livestock exposition center that included the original Exhibit Halls A, B, and C. Building D was built in 2001 and Building E was built in 1997. In 1959, the Property was the site of the Centennial Exposition to celebrate Oregon's 100th year as the 33rd state in the United States. The Centennial Exposition consisted of exhibits and entertainment in the buildings, an amusement park, an International Garden of Tomorrow, an Adventureland, and a train that transported attendees around the exposition (Oregon History 2019). Historical photographs show what appears to be two fuel pumps adjacent to the train stop near the center of the Property.

6.1 Aerial Photographs

Historical aerial photographs from 1935, 1948, 1951, 1955, 1960, 1970, 1975, 1981, 1990, 1994, 2000, 2006, 2011, 2014, and 2017 from EDR were reviewed to document the development history of the Property and surrounding area. The table below summarizes the land uses observed on the photographs for the Property and surrounding areas. Copies of the aerial photographs are provided in Appendix D.

Year	Land Uses and Other Observed Features
1936	**Property:** Exhibit Halls A, B, and C and covered stockyards are in the northwest part of the Property. A rail spur is located south of Exhibit Hall C and extends westward towards adjoining properties. A rectangular shed or small warehouse is located adjacent to the south side of the rail spur. The remainder of the property is undeveloped with some rural land with a portion of land being farmed in the southeast. A road traverses the center of the Property from north to south and continues off site to the southeast. **Adjoining Properties:** The adjoining property to the north, beyond Marine Drive, is an undeveloped riverbank of the Columbia River. Adjoining properties to the east and south are undeveloped farmland, with a north-south trending road to the east (a precursor to Interstate 5). The adjoining properties to the west appear to be developed with industrial buildings and stockyards.

Year	Land Uses and Other Observed Features
1948	**Property**: In 1948, Exhibit Halls A, B, and C and the stockyards appear to be relatively unchanged. Approximately 20 rail cars are stationed on the rail spur to the south of the buildings. The remainder of the property is undeveloped with approximately 15 rectangular structures scattered in disarray on the eastern and southwestern parts of the Property. Other similar structures are scattered in a similar manner to the southwest of the site and in a large flooded area to the south and southeast of the Property. The photograph appears to show the remains of the community of Vanport that was destroyed in the 1948 Vanport Flood. **Adjoining Properties:** The adjoining property to the northeast has developed docks on the Columbia River. Flooding related to the Vanport Flood is visible to the southwest of the Property. The industrial buildings and stockyards to the west of the Property appear to have been unaffected by the flooding.
1951	**Property**: Exhibit Halls A, B, and C and associated stockyards remain relatively unchanged in the northwest part of the Property. The eastern portion of the property is developed as an unpaved parking area. The rail spur south of Exhibit Hall C remains in place. Several areas south of the rail spur and the southwestern part of the Property show evidence of stockpiled materials. The previous shed or small warehouse located adjacent to the south of the rail spur is no longer present and a new structure has been constructed south of the rail spur to the southwest. Farmland is located on the southern portion of the Property where the flood water appeared on the previous aerial photograph. **Adjoining Properties:** A highway on-ramp is located on the adjoining property to the east. The property to the south is a rural farmland. There are three developments on the adjoining properties to the west.
1955	**Property:** The Property remains relatively unchanged. **Adjoining Properties:** The adjoining property to the north was developed with a ship facility. The on-ramp for I-5 is enlarged to become the south adjoining property. The west adjoining properties are more developed, with storage in the parking lot near the rail line.
1960	**Property:** The south and west portion of the Property appears to be used for storage. No further development has occurred on the Property. **Adjoining Properties:** No significant changes.
1970	**Property:** The Property remains relatively unchanged. **Adjoining Properties:** No significant changes.
1975	**Property:** The Property remains relatively unchanged. **Adjoining Properties:** No significant changes.
1981	**Property:** The southeastern part of the Property appears to be used for storage and the rail line appears to have been removed. **Adjoining Properties:** No significant changes.
1994	**Property:** A building appears south of Building C with parking located throughout the Property. **Adjoining Properties:** No significant changes.
2000	**Property:** Building E is constructed south of Building C with a gap in between. The overfill parking lot is representative of what was seen during the site visit. **Adjoining Properties:** The west adjoining properties are developed as two commercial buildings that is representative of what was seen during the site visit.

Year	Land Uses and Other Observed Features
2006	**Property:** Building D is constructed in between Building C and Building E. The rail line appears to be reconstructed on the southern portion of the Property. **Adjoining Properties:** No significant changes.
2011	**Property:** The Property remains relatively unchanged. **Adjoining Properties:** No significant changes.
2014	**Property:** The Property remains relatively unchanged. **Adjoining Properties:** No significant changes.
2017	**Property:** The Property remains relatively unchanged. **Adjoining Properties:** No significant changes.

Based on our review of the aerial photographs no evidence for RECs associated with the Property were noted. However, a rail spur was located at the Property from at least 1925 through some time prior to 1981. It is likely that the rail spur was used to bring in cattle and other livestock to the facility when it operated as a livestock exposition center.

6.2 Fire Insurance Maps

Sanborn fire insurance maps dated 1924, 1950, 1952, and 1966 were obtained from EDR and were reviewed to evaluate land uses for past evidence of environmental conditions. The table below summarizes the land uses noted on the maps for the northwestern part of Property and surrounding properties. Copies of the maps from EDR are included in Appendix D.

Year	Land Uses
1924	**Property:** The Property is developed with several contiguous buildings, with the entire facility identified as “Pacific International Livestock Exposition.” The buildings were sectioned off into stock pens, pavilions, and an arena. A rail spur wraps around the south of the buildings from the west, ending on the east side of the building before N. Marine Drive. A rectangular structure labeled “shed” is located adjacent to the south side of the rail spur, just southeast of the building. The remainder of the Property is along the riverbank of the Columbia River and N. Marine Drive. A Swift and Cos pump house is present on the Property along the riverbank. **Adjoining Properties:** Western adjoining properties were developed with the Portland Union Stockyards Company and associated corrals to the northwest of the Property. Mowat & Swift Panel and Shingle Mill are depicted to the northwest on the south bank of the Columbia River (including an oil house and a pump house)
1950	**Property:** The Property remains developed with several contiguous buildings and remains labeled as “Pacific International Livestock Exposition.” The use of the buildings remains the same, with pavilions, stock pens, and an arena. The rail spur is depicted on the map, however, the shed located on the south side of the rail spur is not shown. The remainder of the Property along the riverbank remains the same; however, the Switch and Cos pump house is labeled as “not used”. **Adjoining Properties:** The west adjoining properties are listed as “office building.”

Year	Land Uses
1952	**Property:** The Property remains relatively unchanged. **Adjoining Properties:** The west adjoining property has an addition, "Garage and Auto Repair Shop." The garage and auto repair shop is depicted on the map as having an auto paint, and body and fender shop.
1966	**Property:** The buildings on the northwestern part of the Property are identified as" Multnomah County Exposition Center." The Property lists a cafeteria on the northeast section of the building. Exhibit Halls A, B and C are in the current layout the way it was observed during the site visit. **Adjoining Properties:** The adjoining property remains the same from the last map.

Based on our review of the Sanborn maps, no evidence for RECs was identified for the Property, except for a previous rail spur located on the Property, as discussed previously in Section 7.1. Nearby properties with historical activities that could have resulted in environmental conditions at that location consist of a former garage and auto repair shop on the western adjoining property, identified in the 1952 and 1966 maps. There is a moderate potential that activities associated with this former facility could have affected groundwater beneath the Property.

6.3 Topographic Maps

Topographic maps from the U.S. Geological Survey were obtained from EDR and were reviewed for the years 1905, 1940, 1954, 1961, 1970, 1977/78, 1995, and 2014. The following table describes features observed on the maps for the Property and surrounding area. Copies of the maps are included in Appendix D.

Year	Features
1897	**Property:** The Property is part of a large low-lying, undeveloped area between the Columbia Slough and Force Lake. No structures are shown on the map; however, two unimproved paths or roadways traverse the Property. **Surrounding Area:** No adjacent buildings are located on the map.
1905	**Property:** The Property remains relatively unchanged since 1897. **Surrounding Area:** No adjacent buildings are located on the map.
1940	**Property:** The Property is developed on the northwest with the first structure/building and a rail spur on the south side of the building. An unimproved roadway traverses the center of the Property from north to south and extends off site where it splits to the southwest and southeast. **Surrounding Area:** The west adjoining property has two structures. The rail line is shown in clarity and with more tracks.
1954	**Property:** The building is labeled "Livestock Exhibition Building". Two smaller structures are located adjacent to the south of the rail spur. No other significant changes. **Surrounding Area:** No significant changes. The adjoining property rail spurt is shown in more clarity and with more tracks.
1961	**Property:** No significant changes. **Surrounding Area:** No significant changes.

Year	Features
1970	**Property:** No significant changes. **Surrounding Area:** No significant changes.
1977	**Property:** No significant changes. **Surrounding Area:** No significant changes.
1995	**Property:** Topo map shows only topographic lines, no structures on Property or surrounding areas. .
2014	**Property:** Topo map shows only topographic lines, no structures non Property or surrounding areas.

In general, the maps show buildings on the Property as of 1954. The railway warehouse is located on maps for years 1940 through 1995 with the change in rail line shown in the 2014 topographic map.

6.4 City Directories

EDR conducted a search of city directories from 1967 through 2014 in approximately 5-year intervals, for the Property and adjoining addresses. Listings for the Property address 2060 N. Marine Avenue were available for 2010 and thereafter. Copies of the EDR City Directory search are included in Appendix D. The following table summarizes reported listings.

Year	Occupants
2005	**Property:** Not Listed **Adjoining Properties:** Building D and Fed Ex Home Delivery (2500 Marine Drive), Energy & Material Recovery Inc, Oregon Biodiesel and Oregon Biofuels (11535 N Force Avenue)
2010	**Property:** Aramark Spt & Entertainment Group LLC, Better Living Show, Circ Du Soliel and Portland Metropolitan Expo Center (2060 N. Marine Drive) **Adjoining Properties:** No Listing
2014	**Property:** Aramark Spt & Entertainment Group LLC, Northwest Pet & Companion Fair and Portland Metropolitan Expo Center (2060 N. Marine Drive) **Adjoining Properties:** No Listing

6.5 Other Historical Documentation

During our review of available documents in our files and internet sources, historical information for the Property and surrounding area was found. This information is presented below, and is included in Appendix D.

Based on a review of a Centennial Exposition map from an Oregonian News article dated June 12, 1959, an Adventureland train depot was located near a Standard Oil Company-sponsored information kiosk near the central thoroughfare. A copy of a Centennial Exposition brochure was found online and depicts a layout of the Centennial Exposition. Both the Oregonian Map and a copy of the brochure map are included in Appendix D.

A review of photographs of the Centennial Exposition of 1959 obtained from the Oregon Historical Society confirmed that an Adventureland train appeared to travel along part of the original rail spur that had been present south of the Exposition building. One photograph shows one green and one red fuel pump with a Texaco sign located at the Adventureland train depot near the main thoroughfare for the Exposition. A copy of the photograph is included in Appendix D.

Based on our review of this information and of aerial photographs of the Property, our estimation of the former fuel pump location would have been in the vicinity of the currently existing asphalt half-circle and landscaped area located in the parking areas east of Exhibit Hall D. The NFA letter provided by DEQ for a 1992 UST removal and subsequent soil excavation and cleanup did not indicate the location of the tank. It is not clear whether the UST removed in 1992 represented one or more USTs that could have been associated with the Adventureland train depot fuel pumps.

7.0 SITE RECONNAISSANCE

On August 29, 2019, Tess Lydick and Richard Ernst of Hart Crowser performed a site reconnaissance of the Property, accompanied by the Portland Expo Center's Executive Director, Mr. Matthew Rotchford. Mr. Rotchford has worked for the Portland Expo Center for 18 years. Adjoining sites were viewed from the Property and from public rights-of-way. Our observations were documented with field notes and photographs. Representative photographs and the extent and layout of the Property are included in Appendix A. Our observations and findings are described in the following subsections.

7.1 Subject Property

The Property is located at 2060 N. Marine Drive and covers two tax parcels (tax lots 100 and 200) south of N. Marine Drive totaling 48.81 acres and one tax lot (1400) north of N. Marine Drive totaling 4.09 acres. The extent and layout of the Property are shown on Figure 2.

7.1.1 Structures

Tax lots 100 and 200 of the Property are developed with one large structure comprised of five contiguous exhibit halls with associated storage and offices areas (Photograph 1, Photograph 2). Tax lot 1400, located north of N. Marine Drive is a vegetated levee of the Columbia River (Photograph 3). One abandoned concrete water supply intake feature was observed on Tax Lot 1400 at the time of the site reconnaissance (Photograph 4). Exhibit halls are described in the following subsections.

Exhibit Hall A. Exhibit Hall A was constructed in 1925 and covers approximately 48,000 square feet (Photograph 5, Photograph 6). This exhibit hall generally is used as an event hall and showroom. The exhibit hall is constructed of concrete, with carpet over concrete floors; wood, brick and mortar walls; and fluorescent light fixtures. Kitchen storage, a cafeteria space, a full-service bar and lounge, as well as several storage rooms are in the exhibit hall.

A boiler tank (Photograph 7) covered with visibly flaking insulation was observed in one of the storage rooms. No information regarding the tank, such as installation date or insulation material, was identified during the reconnaissance. A small extension to the east end of Exhibit Hall A is used for operations office space, restrooms, and sign storage. Restrooms were observed to be covered with

linoleum flooring and/or vinyl floor tiles. Along the north wall of the exhibit hall is a two-story enclosure for parking, offices, repair shop/storage area, and a breakroom.

Exhibit Hall B. Exhibit Hall B was constructed in 1925 and covers approximately 36,000 square feet. This exhibit hall is connected directly to Exhibit Halls A and C and is used for consumer shows, fundraisers, meetings, and other events. Concrete floors, wood walls, and fluorescent light fixtures were observed during the site reconnaissance (Photograph 8). An electrical room was observed along the north wall of Exhibit Hall B.

One storage room connected to the west side of the Exhibit Hall B was observed to contain Christmas decorations for the Oregon Zoo, various containers of latex and spray paints, new drums of AlphaGuard BIO Base Coat and AlphaGuard BIO Top Coat, which are two-component, bio-based, polyurethane liquid applied products typically used in roof restoration (Photograph 9). Workshop tools and various small amounts of petroleum-based products also were observed in this area. A second storage room was observed on the south side of Exhibit Hall B and to the west side of Exhibit Hall C. Historically, this storage room had been the "Dairy Barn." It is used for storage of signage, traffic cones, and recycling (Photograph 10, Photograph 11).

Exhibit Hall C. Exhibit Hall C was constructed in 1925 and covers approximately 60,000 square feet. This exhibit hall is connected to Exhibit Halls A and B, with two hallways to the south connecting to Exhibit Hall D. This space is used for consumer shows, conventions, music concerts and athletic events. The facility has concrete floors, wood walls, and fluorescent light fixtures (Photograph 12, Photograph 13). Along the north wall are restrooms and storage rooms.

Exhibit Hall D. Exhibit Hall D was constructed in 2001, covers approximately 72,000 square feet and is connected by two hallways south of Exhibit Hall C and one large hallway to Exhibit Hall E. The facility is constructed with concrete floor, concrete walls, and fluorescent light fixtures (Photograph 14). A two-story lobby is located on the east side of Exhibit Hall D and is carpeted on the ground floor (Photograph 15). The lobby accommodates a bar and grill on the ground floor, and carpeted offices on the second floor. The lobby also is used for "will call" ticket pick up. Exhibit Hall D is used for consumer shows, conventions, and concerts. A full-service kitchen and storage space are in the exhibit hall and a three-bay loading dock (Photograph 16) is located on the west side of the exhibit hall. A hydraulic leveler was observed in one bay (Photograph 17).

Exhibit Hall E. Exhibit Hall E was constructed in 1997 and covers approximately 108,000 square feet. This exhibit hall is connected to Exhibit Hall D by a single large hallway. Exhibit Hall E space is used for consumer shows, conventions, and concerts. There is a carpeted lobby with a "will call" ticket booth and restrooms at the east side of the exhibit hall. Concrete floors, concrete walls and fluorescent light fixtures are present throughout the exhibit hall's main space (Photograph 18). A loading dock is attached to the hall on the west side. A vegetated wall that captures surface water runoff from the exhibit hall's roof, is located on the eastern exterior wall of the exhibit hall.

7.1.2 Outside Areas

Paved parking areas surround the exhibit halls on the east and the west, with additional overflow parking spaces located southwest of N. Expo Road in the southwest corner of the Expo property. The overflow parking lot is graveled and mostly surrounded by fencing. The east side of the overflow area is used for storing various construction materials, pallets, dumpsters, and a large water tank (Photograph 19). Numerous empty 55-gallon steel and plastic drums were also staged in the overflow parking area and are used for show events. A lower, graveled lot adjoins the southeast side of the overflow lot and was being used to store one semi-trailer.

The south westernmost portion of the Property is covered with vegetation. A paved parking area also is present north of the overflow lot, west of N. Expo Road. A Conex box (reportedly empty) and metal spectator stands were stored in the southern portion of this area.

A 1,000-gallon diesel AST (Photograph 20) and shed (Photograph 21) are located on the north side of Exhibit Hall B. The diesel tank is used to contain fuel for an emergency generator situated in the shed. The tank was observed to have secondary containment. Additionally, a small catch-basin was located adjacent to the tank. No information regarding the catch-basin or its connection status was found during our research.

Two utility pole-mounted transformers were observed near the entrance to the parking lot for Blue Heron Landing off N. Marine Drive. Both the utility pole and transformers were labelled as owned by Portland General Electric and the transformers were labeled as non-PCB containing. At the time of the site reconnaissance, the transformers appeared to be in good condition, with no apparent leaks. Additionally, no staining was observed on the ground surface beneath it. Three pad-mounted transformers are also located on the Property and are identified below:

- One pad-mounted transformer was located on the north Property boundary, east of Exhibit A, near a driveway to the parking lot. The transformer was in good condition with no visible evidence of leaks or spills. The transformer was labeled as Non-PCB containing.
- One pad-mounted transformer was observed north of the MAX station and was labeled with a blue sticker stating “Less than 1 [parts per million] PPM” PCBs.
- One pad-mounted transformer was observed near the northwest corner of Exhibit Hall E and was labeled with a blue sticker stating “Less than 1 PPM” PCBs.

A second emergency generator was observed near Exhibit Hall E, near the transformer. The generator appeared to have a self-contained fuel source and was enclosed in fencing on a concrete pad (Photograph 22).

One groundwater well is located on the northwest portion of the Property, within a small building located just southwest of Exhibit Hall B (Photograph 23). Groundwater is used for landscape irrigation and is used to fill a manmade fishpond that is assembled during an annual sports show. A search of water well records and water rights on the OWRD website revealed a well log dated 1959 that likely represents the on-site well. The well log noted that the well was constructed to a depth of 166 feet

bgs, with a static water of 21 feet bgs at the time the well was measured on March 20, 1959. A second well log showing that the well may have been deepened to 171 feet bgs on September 2, 1965. Static water level measured at the time of well deepening was 248 inches bgs. Well logs are included in Appendix A.

7.2 Adjoining and Surrounding Properties

As part of the site reconnaissance, Hart Crowser personnel observed adjoining properties for activities or features that may indicate the potential for contamination at the Property. Based on our observations, adjoining properties consist of the Columbia River to the north (Photograph 24); Diversified Marine to the northeast (Photograph 25); Blue Heron Landing to the northwest (Photograph 26); Vanport Wetlands to the south and southeast (Photograph 27); and EcoLube Recovery (Photograph 28), Bulk Transportation (specializing in dry and liquid commodities transportation), and Peninsula Terminal Company (a full-service, regional short line railroad) located to the west and southwest (Photograph 29). Additionally, a 451,000 square foot business center known as Stockyards Commerce Center (Photograph 30), is located northwest of the Property and is the former location of the Merit USA facility and several other facilities discussed previously in Section 6.

Based on our observations on the adjoining and surrounding properties, industrial activities are located adjacent to the west and north of the Property. Although several facilities to the north and west of the Property have been identified on one or more environmental databases, the facilities located to the west of the Property are more likely to have resulted in groundwater contamination on or near the western Property boundary. Additionally, areawide TCE and PCE contamination in shallow groundwater has been documented in the Property vicinity and there has been documented evidence that groundwater beneath the northwestern part of the Property has been affected by low concentrations of these and possible other volatile organic compounds (Section 5.2.9).

8.0 INTERVIEWS

During the site reconnaissance, Hart Crowser interviewed Matthew Rotchford, the Executive Director of the Expo Center, about his current knowledge of the Property. Mr. Rotchford also accompanied Hart Crowser during the August 29, 2019, site visit and provided information regarding his knowledge of the Property. Information provided by Mr. Rotchford has been incorporated into the appropriate sections of this report. Hart Crowser also interviewed Ms. Hillary Wilton, the Senior Development Project Manager of Metro.

During the interview, it was noted that the pad-mounted transformer near the southeast side of the building was installed when the previous transformer was decommissioned in-place. The current transformer is labeled as non-PCB containing.

9.0 PHASE I ESA DATA GAP ANALYSIS

Reasonably ascertainable information is required to be collected per ASTM E1527-13 and 40 CFR 312. During our assessment, no data gaps were identified.

10.0 CONCLUSIONS

Hart Crowser has performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E1527-13 for the Portland Expo Center located at 2060 N. Marine Drive Portland, Oregon. Any exceptions to, or deletions from, this practice are described in *Section 2.2 – Assumptions, Limitations, and Exceptions* of this report. This assessment has revealed no evidence of RECs in connection with the Property.

Based on a review of reasonably ascertainable information, possible environmental concerns were classified as REC), historical RECs, controlled RECs, *de minimis* conditions, or an environmentally related condition on the Property that is beyond the scope required by ASTM E1527-13.

10.1 Recognized Environmental Conditions

RECs are defined in ASTM E1527-13 as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment." The following RECs were identified for the Property.

10.1.1 TCE and PCE in Groundwater

As summarized by Bridgewater Group in 2012 (Bridgewater 2012), in 1991, TCE and PCE were detected in groundwater from the Property's on-site well at concentrations of 9 ug/L and 4 ug/L, respectively. At that time, the data suggested that the sampling results were indicative of relatively low-level regional TCE and PCE impacts in the deep groundwater zone. In 2004, DEQ added the Portland Expo Center Property to the CRL. The priority for further action at the Property was designated by DEQ as "low" and there is no record in DEQ files that subsequent investigations have been conducted on the Property or requested by the agency. Based on current RBCs, the concentration of TCE detected in groundwater in 1991 exceeded the groundwater ingestion and inhalation RBC for residential (0.49 µg/L), urban residential (2.0 µg/L), and occupational (3.3 µg/L) exposures. However, concentrations of PCE were below the groundwater ingestion and inhalation RBCs for residential (12 µg/L), urban residential (49 µg/L), and occupational (48 µg/L) exposures.

Opinion. Although there does not appear to be direct correlation between historical Property activities and the areawide investigation; in 1991, TCE and PCE were identified at low concentrations in groundwater from the water well in the northwestern part of the Property. If Metro wishes the Property to be delisted as part of the ECSI listing, additional investigation on the Property will likely be needed.

10.2 Historical RECs

Historical RECs are defined in ASTM E1527-13 as "a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls." We identified instances

where releases were found and have been addressed to the satisfaction of regulatory agencies. The following historical RECs were identified for the Property.

10.2.1 Leaking Underground Storage Tanks

A March 24, 1992 report by Allied Tank describes the removal of one 1,000-gallon diesel fuel UST that had been used for an emergency standby generator. The tank reportedly showed no signs of leakage or petroleum odors upon removal. According to the report, soil samples were collected 1 foot below the concrete hold-down slab. No soil sample or testing records were included in the Allied Tank Report. The location of the diesel UST was identified in the Allied Tank report as located on the northern exterior wall of the generator room facing N. Marine Drive. Based on our review of the map accompanying the report, this would be the location of Exhibit Hall A, at the current location of the diesel fuel UST.

In 1996, a 1,000-gallon gasoline UST was removed and approximately 300 cubic yards of petroleum-impacted soils were treated on site by aeration. Confirmatory sampling of the excavation limits and treated soil revealed no detectable petroleum contamination. Reportedly, groundwater was not encountered during the excavation. As a result, an NFA letter was issued for the Property on August 13, 1996. No map accompanied the NFA letter, however, based on our research of historical photographs taken during the Oregon Centennial celebration held on the Property in 1959, and on maps showing relative location of features during the Centennial celebration. The tank could have been associated with one of two fuel pumps located near a former rail spur on the Property.

Opinion. Based on our review of the Allied Tank report for the diesel UST and the NFA letter for the gasoline UST, it is our opinion that there is a low potential that the Property has been affected by the reported UST releases. However, there is a possibility that another tank may have existed in the location of the two former fuel pumps associated with the Oregon Centennial Exposition's Adventureland train depot. We recommend that Metro conduct a geophysical survey to further evaluate the possibility that a UST in the vicinity of the former fuel pumps.

10.3 Controlled RECs

Controlled RECs are defined in ASTM E1527-13 as "a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls)." No controlled RECs were identified for the Property.

10.4 *De Minimis* Conditions

De minimis conditions are defined in ASTM E1527-13 as "a condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies." No *de minimis* conditions were identified for the Property.

10.5 Other Environmental Conditions

Several environmental issues were either outside the scope of ASTM Practice E1527-13 or are environmental conditions that may be associated with the Property. During our records review and site reconnaissance, we identified several items warranting discussion.

10.5.1 Hazardous Building Materials

Hazardous building materials include ACM), lead-containing and lead-based paint, and electrical equipment with PCBs and mercury.

During the site reconnaissance, a boiler tank was observed in a storage room north of Exhibit Hall A. The tank was elevated about 6 feet above the ground and was covered with thermal insulation. The insulation was torn in places, revealing a fibrous material beneath. There was no visible labeling on the insulation regarding asbestos content. Additionally, Hart Crowser found no information regarding installation date of the boiler.

Based on the various ages of the building, particularly Exhibit Halls, A, B, and C, hazardous building materials may exist in floor tiles, ceilings, walls, windows and other construction materials.

Opinion. Due to the condition of the insulation around the boiler and the lack of visible labeling regarding asbestos, we recommend sampling the insulation material for analysis of asbestos content. Based on the analysis results, the material can be appropriately managed in accordance with regulations and guidance. Additionally, prior to remodeling or demolition of one or more parts of the convention center, a hazardous building material survey should be performed. Any hazardous building materials should be removed, recycled, abated, and/or appropriately managed in accordance with regulations and guidance.

10.5.2 Columbia Slough Area-Wide Discovery Project

In May 2004, the Property was listed as part of the DEQ Columbia Slough Areawide Discovery Project. The Property was part of ECSI cleanup (#4138). Additionally, several off-site sources of groundwater contamination have been identified to the west and southwest of the Property that could have affected groundwater beneath the Property.

Opinion. As part of property purchase negotiations, an attorney should be consulted to identify methods to minimize environmental liabilities that the Property may have due its proximity to the Portland Harbor Superfund Site. If redevelopment will not affect the riverbank or sediments below the ordinary high-water line (17.9 feet COPD), no action is likely needed. However, the progress of activities by the EPA, DEQ, and others in the Portland Harbor Superfund Site should be tracked.

If redevelopment involves riverbank or in-water work, permits will be required from the USACE and the DSL. Sampling and analysis also will be required, and proposed work and analytical results will be reviewed during the permit process by these and other governmental agencies.

11.0 ENVIRONMENTAL PROFESSIONAL STATEMENT

Ms. Tess Lydick, an environmental professional with 2 years of experience, conducted research, performed the site reconnaissance, and prepared this report. Mr. Rick Ernst, a registered geologist in the state of Oregon with 28 years of experience, provided senior Principal review and oversight. Resumes for Ms. Lydick and Mr. Ernst are included in Appendix E.

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in § 312.10 of 40 CFR 312. We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

12.0 REFERENCES

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Bridgewater 2012. Remedial Investigation Report for the Harbor Oil Site, prepared for the Voluntary Group for the Harbor Oil Site RI/FS FINAL, March 30, 2012.

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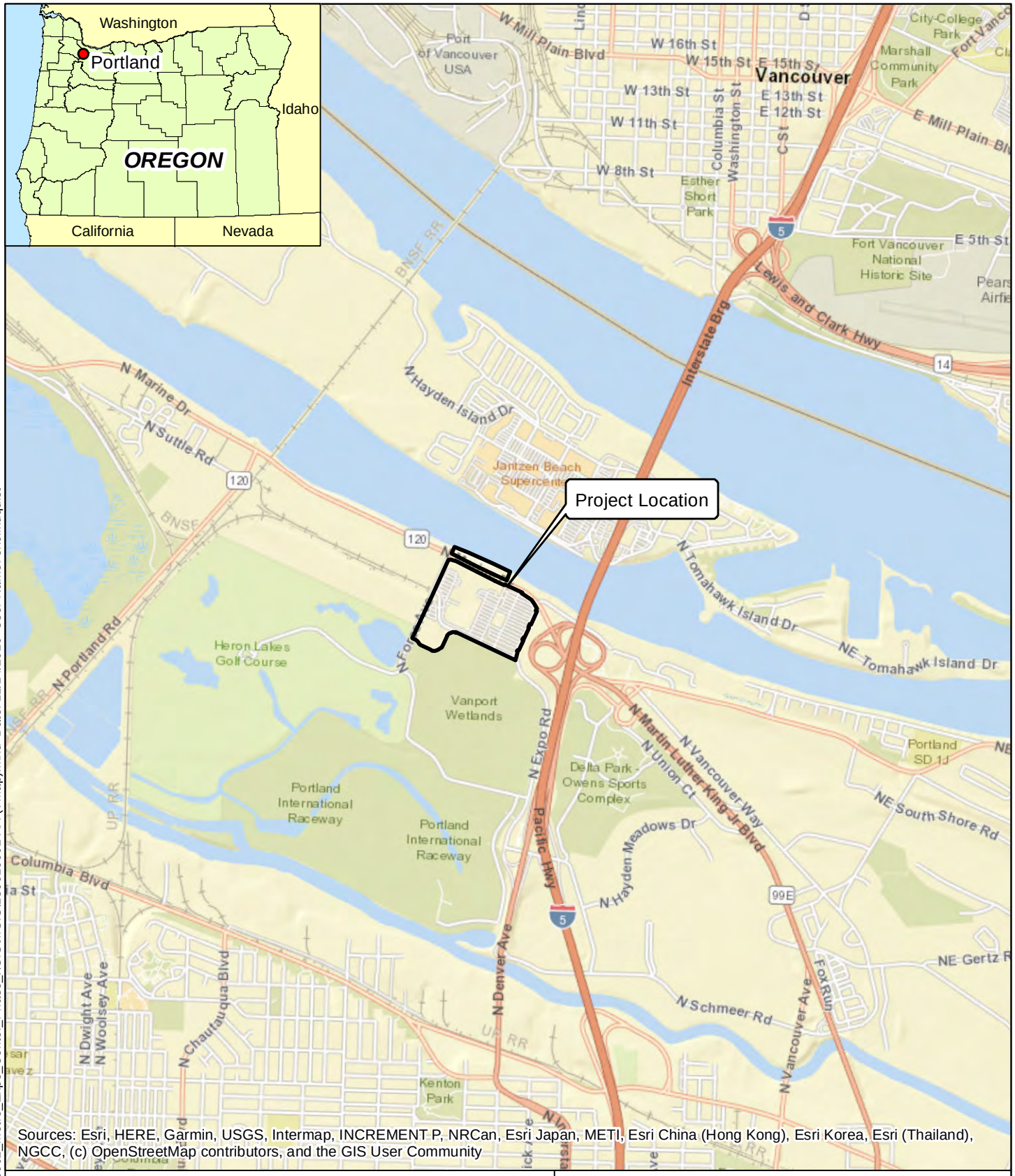
PortlandMaps 2019. PortlandMaps website for property detail and permit information. Accessed September 2019 at: http://www.portlandmaps.com/.

U.S. Fish and Wildlife (USFW) 2019. National Wetlands Inventory Digital Data. Accessed September 2019 at: https://www.fws.gov/wetlands/data/mapper.html



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

0 1,000 2,000 4,000 Feet

Note: Feature locations are approximate.

N

Expo Center
Portland, Oregon

Vicinity Map

150-016-002 11/19

HARTCROWSER

Figure 1

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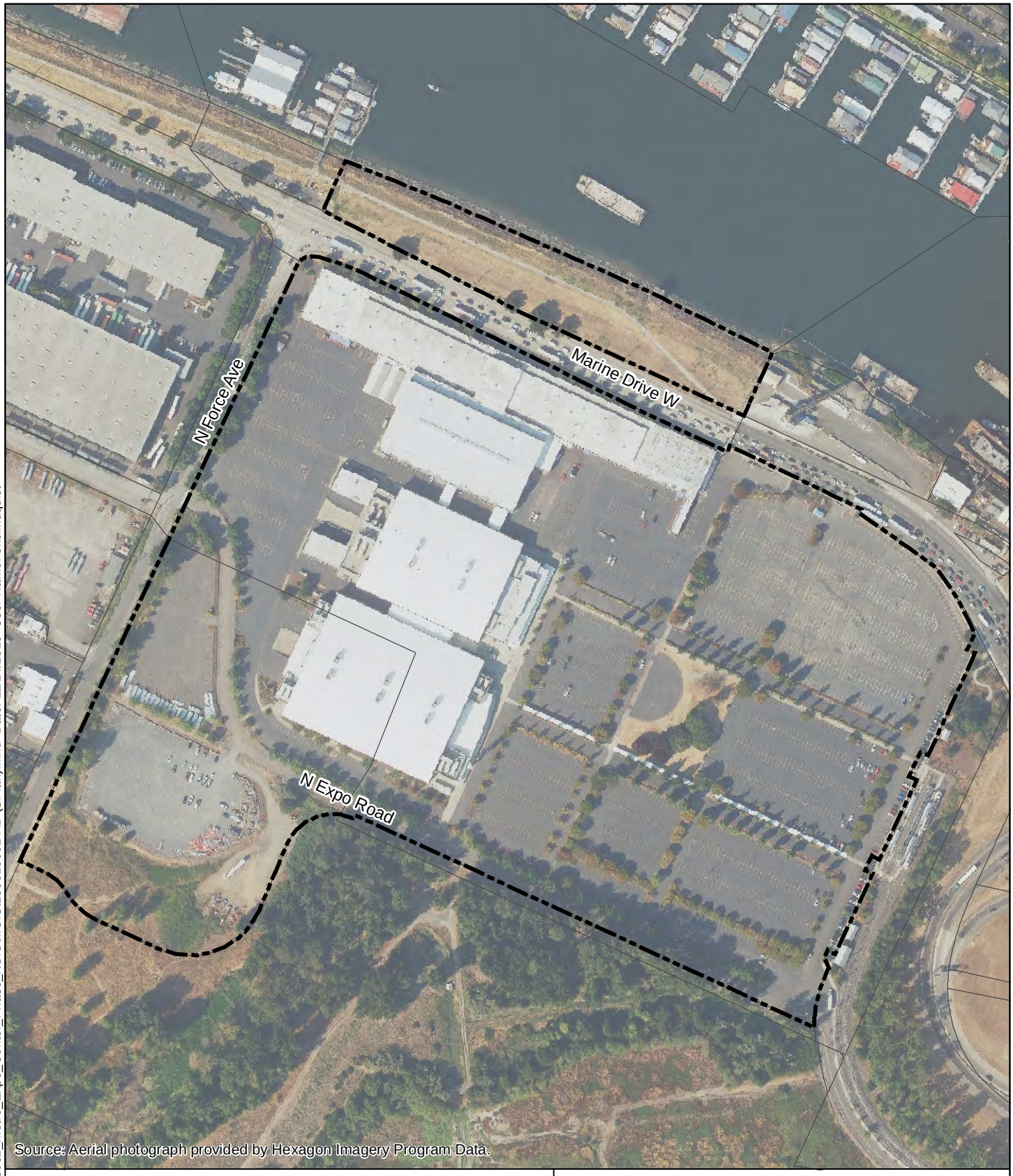

Legend

Property Boundary

0 150 300 600 Feet

Note: Feature locations are approximate.

N

Expo Center
Portland, Oregon

Site Plan

150-016-002 11/19

HARTCROWSER

Figure
2

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APPENDIX A
Site Reconnaissance Photographs

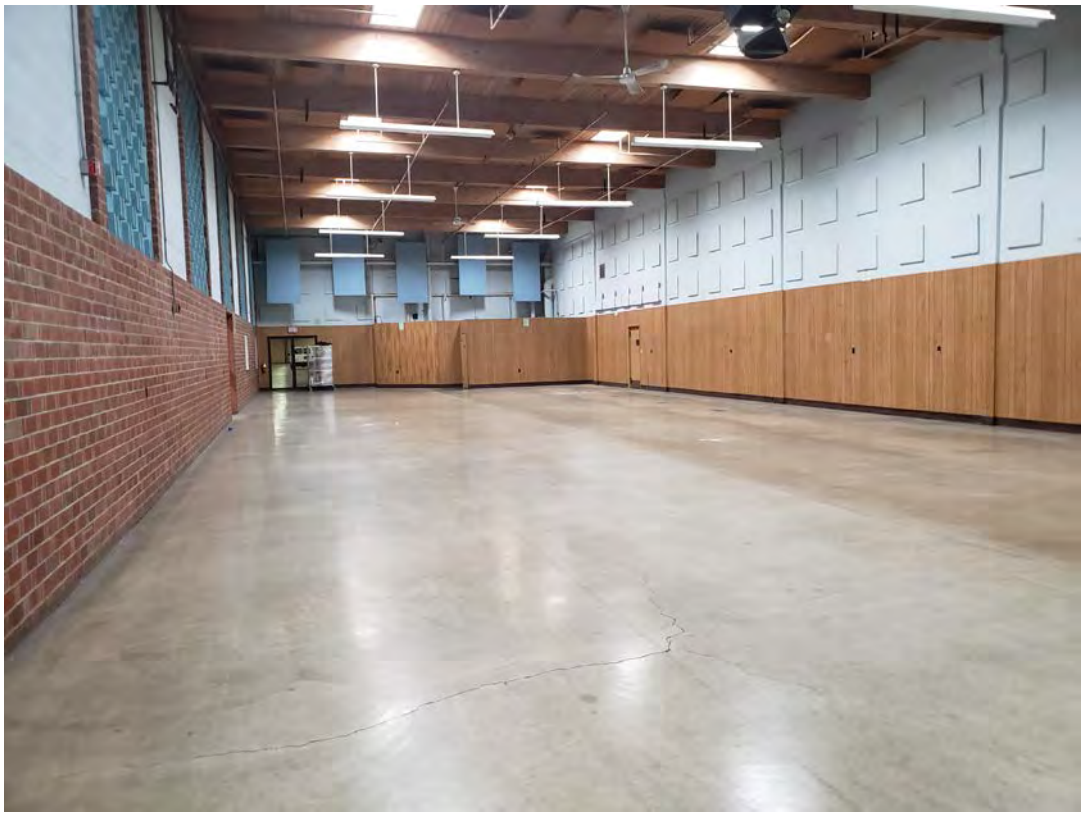
Photograph 1 – The main entrance to Portland Expo Center. Photograph taken facing west.

Photograph 2 – The parking lot adjacent to Exhibit Hall E. Photograph taken facing northeast.

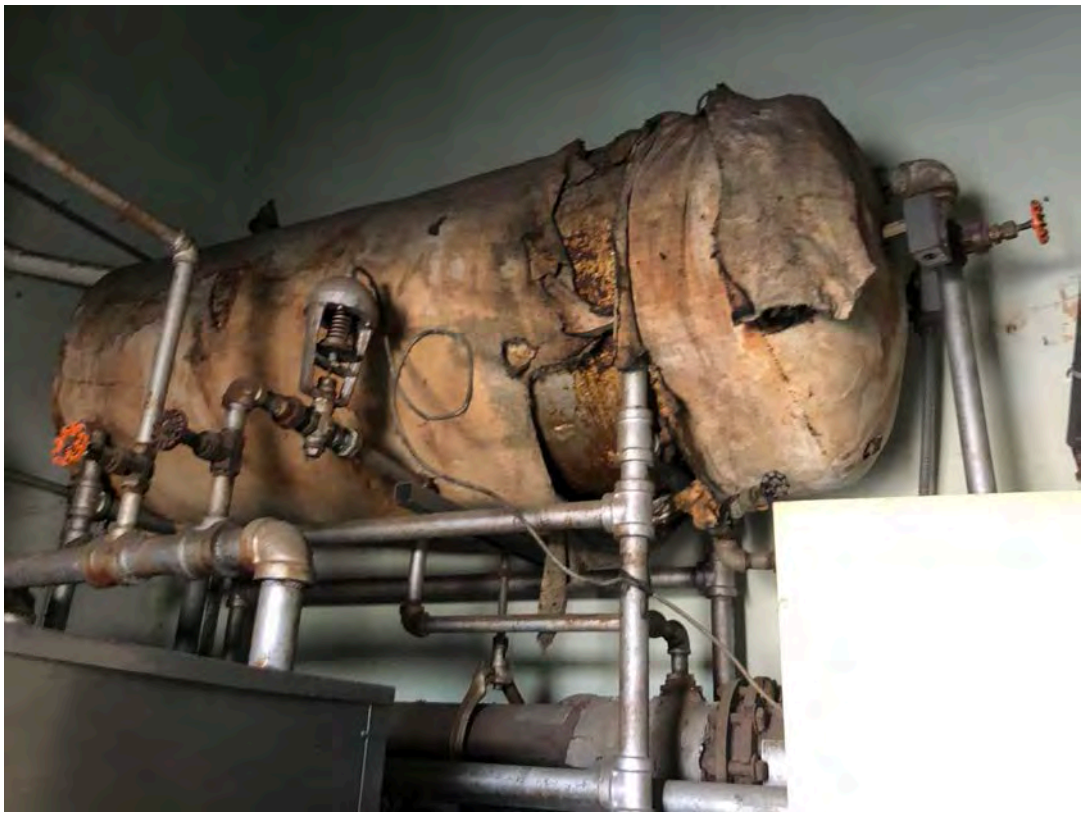
Photograph 3 – Tax Lot 1400 showing Marine Drive Trail. Photograph taken facing east.

Photograph 4 – A former surface water intake feature. Photograph taken facing north.

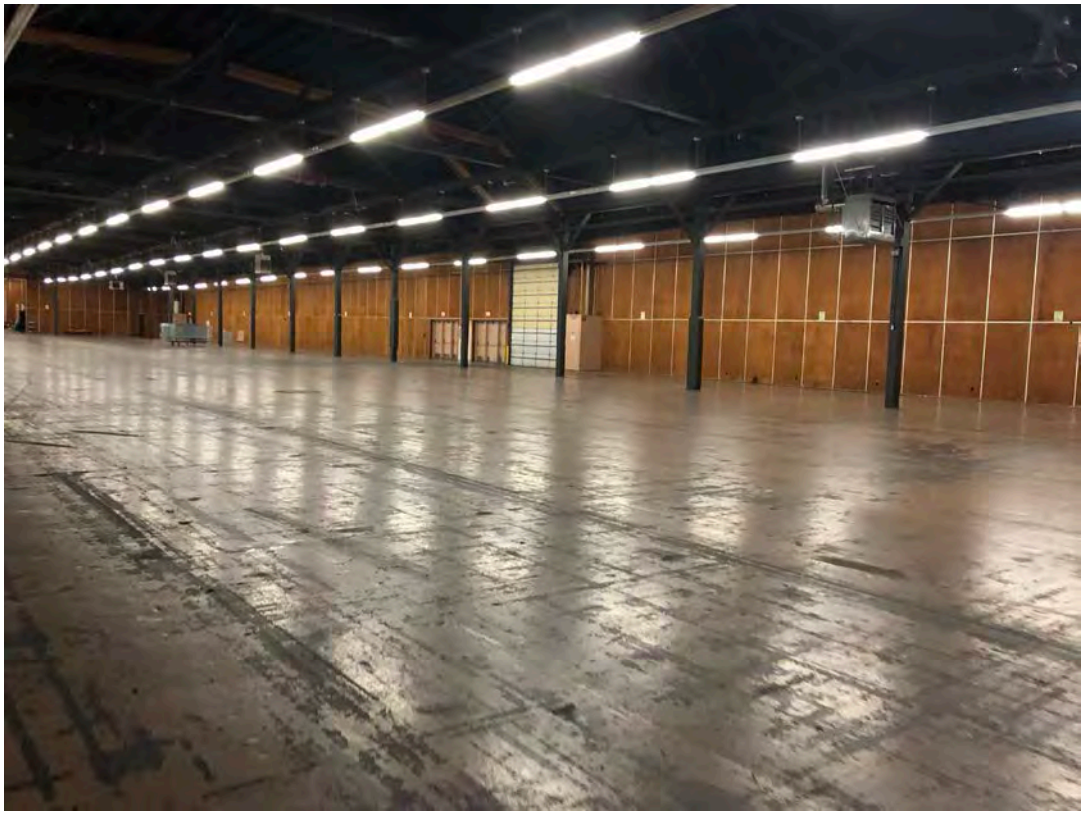
Photograph 5 – The entrance in Exhibit Hall A.



Photograph 6 – Exhibit Hall A.



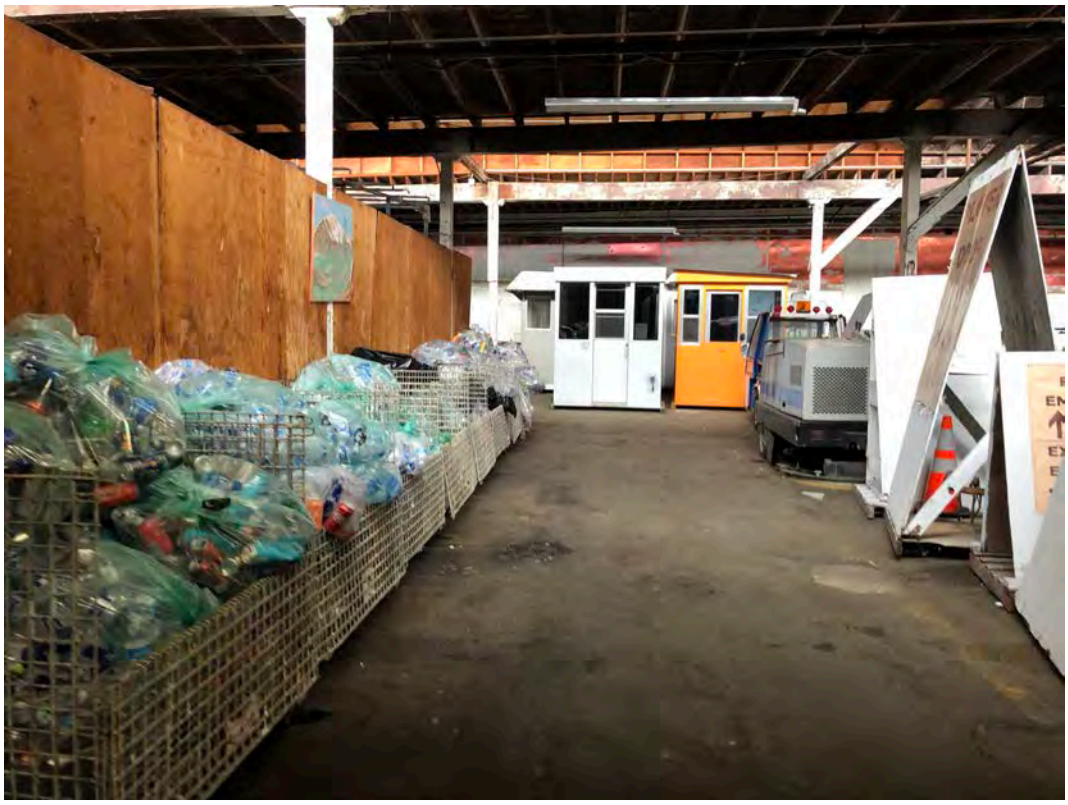
Photograph 7 – Boiler observed in the storage room on the north side of Exhibit Hall A.



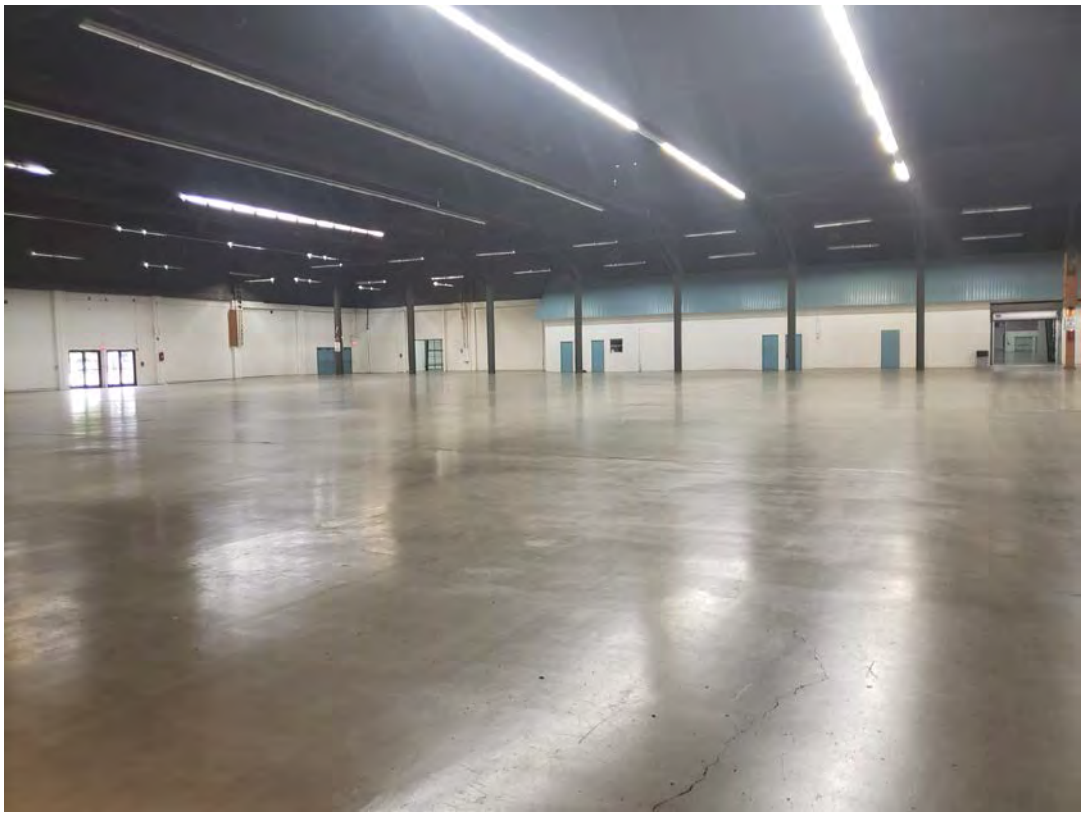
Photograph 8 – Exhibit Hall B.

Photograph 9 – New 55-gallon drums of AlphaGuard BIO Base Coat and AlphaGuard BIO Topcoat stored in Exhibit Hall B.

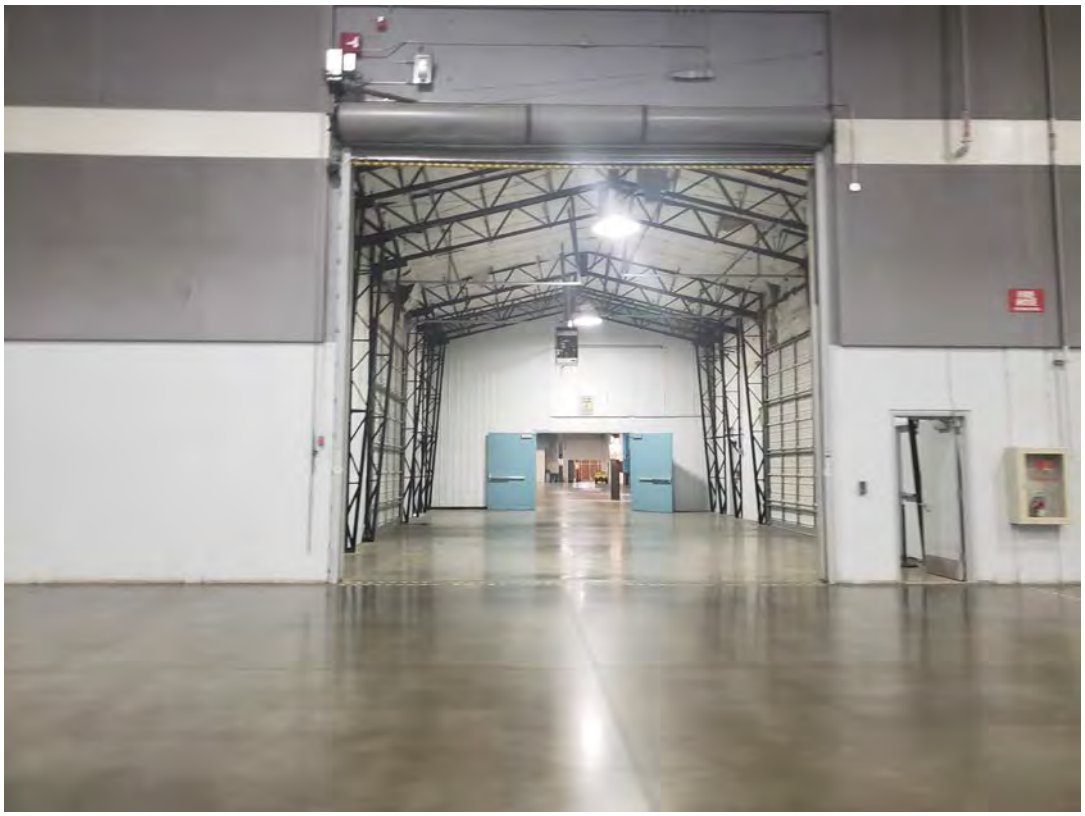
Photograph 10 – Interior view of storage room in Exhibit Hall.



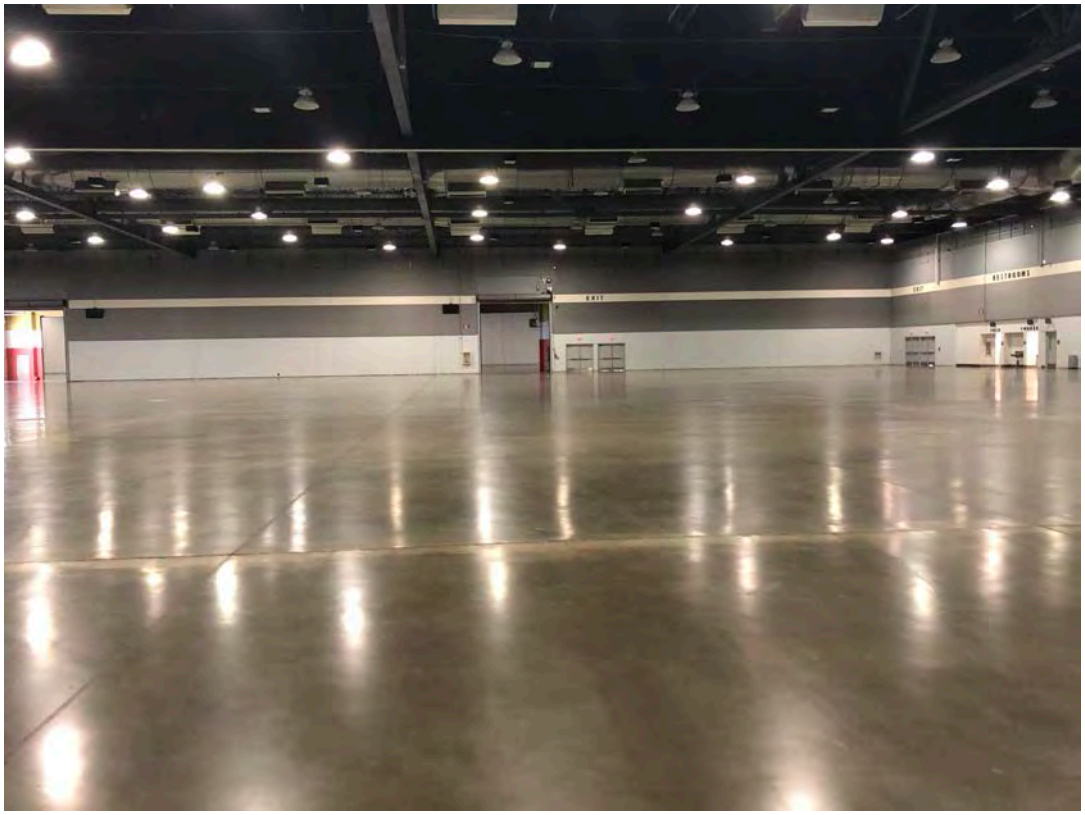
Photograph 11 – Recycling and storage area in Exhibit Hall B.



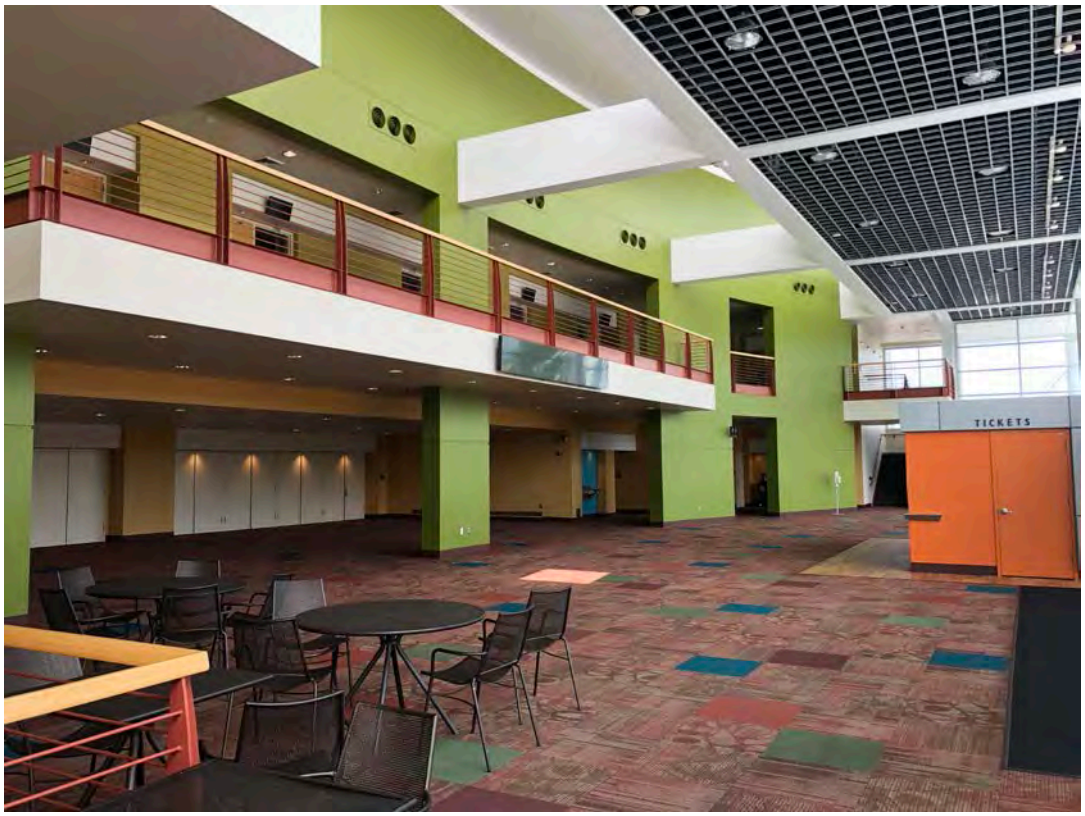
Photograph 12 – Exhibit Hall C.



Photograph 13 – The hallway connecting Exhibit Hall C and Exhibit Hall D.



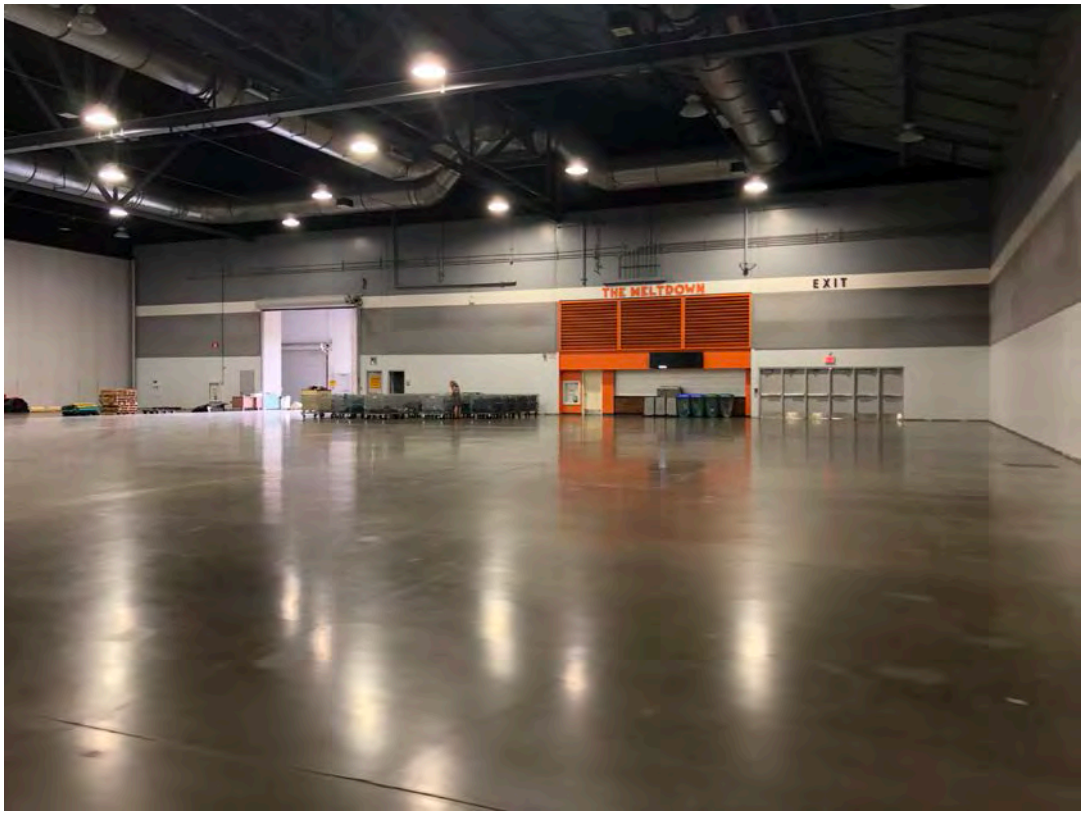
Photograph 14 – Exhibit Hall D.



Photograph 15 – The front entrance in Exhibit Hall D.

Photograph 16 – The loading dock located on the northwest side of Exhibit Hall D. Photograph taken facing east.

Photograph 17 – Hydraulic leveler at loading dock in Exhibit Hall D.



Photograph 18 – Exhibit Hall E.

Photograph 19 – The east side overflow parking area.

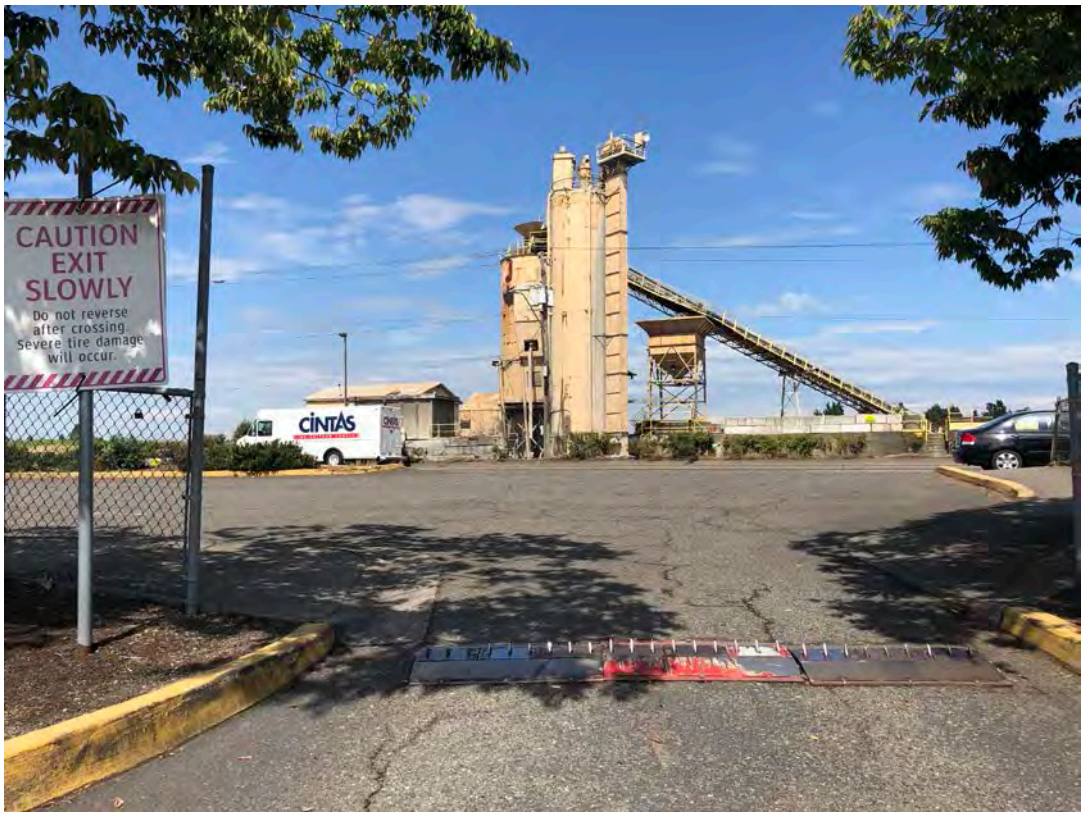
Photograph 20 – 1,000-gallon aboveground diesel tank associated with emergency generator on north side of Exhibit Hall B.

Photograph 21 – The emergency generator located on the north side of Exhibit Hall B.

Photograph 22 – Generator with self-contained fuel source near Exhibit Hall E.

Photograph 23 – The water well building located on the northwest portion of the Property.

Photograph 24 – Oregon Slough of Columbia River along the north parcel. Photograph facing north.



Photograph 25 – Northeast adjoining property, Diversified Marine, Inc. Photograph facing north.

Photograph 26 – Northwest adjoining property, Blue Heron Landing. Photograph facing west.

Photograph 27 – South adjoining property, Vanport Wetlands. Photograph facing south.

Photograph 28 – West adjoining property, Ecolube Recovery. Photograph facing south.

Photograph 29 – West adjoining property, Peninsula Terminal Company. Photograph facing north.

Photograph 30 – West adjoining property, Stockyards Commerce Center. Photograph facing west.

APPENDIX B
User Provided Information

AAI User Questionnaire: Expo Center
2060 N Marine Drive
Portland, Oregon

In accordance with All Appropriate Inquiry (AAI) rule per 40 CFR 312.22 and ASTM E1527-13, the User of the Phase I Environmental Site Assessment (ESA) shall provide the following information, if available, to the environmental professional conducting the Phase I ESA. Please respond to these questions for the above-referenced property.

1. Are you aware of any environmental cleanup liens that are filed or recorded against the property under federal, tribal, state, or local law (40 CFR 312.25)?

No.

2. Are you aware of any activity and use limitations (AULs) that are in place on the property or that have been filed or recorded against the property (40 CFR 312.26)? AULs include engineering controls (e.g., caps), land use restrictions, or institutional controls.

No.

3. Do you have any specialized knowledge or experience related to the property or nearby sites that would assist in identifying conditions indicative of releases or potential releases on the property (40 CFR 312.28)?

Yes.

4. Are you aware of information about the property or nearby sites that would help identify known or potential environmental concerns or releases (40 CRF 312.30)? If so, can you provide that information?

Yes, City of Portland would have that information.

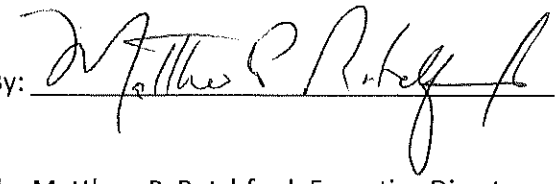
5. Have you observed or are knowledgeable of any environmental features/concerns on or near the property that have resulted or could result in contamination on the property (40 CFR 312.31)?

Yes, Ecolube on Force Ave.

6. Does the purchase or leasing price reasonably reflect the fair market value (FMW) of the property (40 CFR 312.29)? If the price is lower than FMV, is it due to known or perceived contamination on the property?

N/A

Date: 10/16/19

By: 

Printed Name/Title: Matthew P. Rotchford, Executive Director

APPENDIX C
EDR Report and Environmental Support Documentation

Portland Expo Center
2060 N Marine Drive
Portland, OR 97217

Inquiry Number: 5782459.2s
September 09, 2019

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
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 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

2060 N MARINE DRIVE
PORTLAND, OR 97217

COORDINATES

Latitude (North):	45.6065900 - 45° 36' 23.72''
Longitude (West):	122.6884560 - 122° 41' 18.44''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	524294.7
UTM Y (Meters):	5050168.0
Elevation:	21 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	6067252 PORTLAND, OR
Version Date:	2014
North Map:	5995774 VANCOUVER, WA
Version Date:	2014

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20150728
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
2060 N MARINE DRIVE
PORTLAND, OR 97217

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	EXPO CENTER	2060 N MARINE DR	OR ECSI, OR LUST, OR UST, OR AST, OR SPILLS, OR...		TP
A2	METRO EXPO CENTER	2060 N MARINE DR	FINDS		TP
A3	EXPO CENTER	2060 N MARINE DRIVE	OR RGA LUST		TP
A4	EXPO CENTER/MULTNOMA	2060 N MARINE DR	OR RGA LUST		TP
A5	METRO EXPO CENTER	2060 N MARINE DR.	OR RGA HWS		TP
A6	METRO EXPO CENTER	2060 N MARINE DR	OR RGA HWS		TP
A7	EXPO CENTER/MULTNOMA	2060 N MARINE DR	OR RGA LUST		TP
Reg	COLUMBIA SLOUGH	PORTLAND RD	SEMS-ARCHIVE	Same	120, 0.023, West
8		2200 N MARINE DR	OR HAZMAT	Lower	1 ft.
9	DELTA PARK EXIT CONS	DELTA PARK EXIT, WES	OR LUST	Higher	1 ft.
B10	D AND L SALES AND SE	2360 N MARINE DR	EDR Hist Auto	Lower	13, 0.002, NW
B11	MERIT USA, INC.	2360 N MARINE DR	OR LUST, OR UST	Lower	13, 0.002, NW
C12	SAFETY-KLEEN SYSTEMS	11645 N FORCE AVE	RCRA-CESQG, OR MANIFEST	Lower	55, 0.010, WNW
C13	PENINSULA TERMINAL C	11645 N FORCE AVE, 2	OR AST, OR SPILLS, OR HSIS	Lower	55, 0.010, WNW
C14	RED GIANT OIL COMPAN	11645 N FORCE AVE RG	RCRA NonGen / NLR	Lower	55, 0.010, WNW
C15	FMC CORPORATION @ PE	11645 N FORCE AVE S	RCRA NonGen / NLR	Lower	55, 0.010, WNW
D16	VANPORT PLANT	1835 N MARINE DR	OR UST	Higher	64, 0.012, ENE
D17	ROSS ISLAND SAND & G	1835 N MARINE DR	OR AST, OR AIRS, OR HSIS	Higher	64, 0.012, ENE
D18	ROSS ISLAND SAND & G	1835 N MARINE DRIVE	OR LUST	Higher	64, 0.012, ENE
D19	DIVERSIFIED MARINE,	1801 N MARINE DRIVE	SEMS-ARCHIVE	Higher	70, 0.013, ENE
D20	DIVERSIFIED MARINE I	1801 N MARINE DR	RCRA-CESQG	Higher	70, 0.013, ENE
D21	DIVERSIFIED MARINE,	1801 N MARINE DR	OR ECSI, OR CDL, OR SPILLS, OR HAZMAT, OR HSIS, OR...	Higher	70, 0.013, ENE
C22	BULK TRANSPORTATION	11619 N FORCE AVE.	OR ECSI, OR SPILLS	Lower	87, 0.016, WNW
B23	MERIT USA*	2416 N MARINE DR	EDR Hist Auto	Lower	113, 0.021, NW
B24	STOCKYARDS PROPERTY	2416 N MARINE DR RM	RCRA NonGen / NLR, FINDS, ECHO	Lower	113, 0.021, NW
B25	B & L CLARK EXPRESS	2416 N MARINE DR #22	RCRA NonGen / NLR	Lower	113, 0.021, NW
B26	STOCKYARDS PROPERTY	2416 N MARINE DR	OR LUST, OR UST	Lower	113, 0.021, NW
B27	PENINSULA TERMINAL R	2416 N MARINE DR RM	RCRA NonGen / NLR, FINDS, ECHO	Lower	113, 0.021, NW
E28	AMERICAN RECYCLERS,	11535 N FORCE AVE	Delisted NPL, SEMS, RCRA-CESQG, OR ECSI, OR...	Lower	114, 0.022, West
E29	ENERGY & MATERIAL RE	11535 N FORCE AVE	RCRA NonGen / NLR	Lower	114, 0.022, West
E30	W B P RENEWABLE DIES	11535 N FORCE AVENUE	RCRA NonGen / NLR	Lower	114, 0.022, West
E31	WBP RENEWABLE DIESEL	11535 N FORCE AVE ST	RCRA NonGen / NLR	Lower	114, 0.022, West
E32	RECYCLERS TRANSPORT	11535 N FORCE AVE	RCRA NonGen / NLR	Lower	114, 0.022, West
E33	ENERGY & MATERIAL RE	4150-A N SUTTLE RD	RCRA NonGen / NLR, PADS	Lower	114, 0.022, West
B34	WASTE MGMT FORMER ME	2331 N MARINE DR	RCRA NonGen / NLR, OR MANIFEST, OR UIC	Lower	193, 0.037, NW
B35	WHITE MARINE SERVICE	2335 N MARINE DR.	OR ECSI	Lower	209, 0.040, NW
36	OREGON WASTE SYSTEMS	SW CORNER, N MARINE	OR ECSI, OR CRL	Lower	341, 0.065, NW
37	PENINSULA TERMINAL R	11707 N FORCE AVE.	OR CRL, OR ECSI, OR INST CONTROL, OR VCP	Lower	453, 0.086, WNW
F38	STOCKYARDS COMMERCE	2500-2664 N MARINE D	OR ECSI, OR VCP	Lower	519, 0.098, NW

MAPPED SITES SUMMARY

Target Property Address:
2060 N MARINE DRIVE
PORTLAND, OR 97217

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
G39	PIER WEST LLC	1610 N PIER 99 ST	RCRA-CESQG	Higher	687, 0.130, East
G40	PIER 99 - PORTLAND	1610 N PIER 99 STREE	SEMS, PRP, ICIS	Higher	687, 0.130, East
G41	MILTON O BROWN	1610 N PIER 99 ST	OR CRL, OR ECSI, OR MANIFEST	Higher	687, 0.130, East
F42	ROD'S TRUCK STOP	2632 N MARINE DR	OR LUST, OR UST	Lower	703, 0.133, NW
H43	ODEQ CLEAN UP HAYDEN	1190 N JANTZEN DR	RCRA NonGen / NLR	Higher	1094, 0.207, NE
H44	JANTZEN BAY FUEL	1130 N JANTZEN AVE	OR LUST, OR UST, OR SPILLS	Higher	1102, 0.209, NE
45	MARINELAND PIER 99	1441 N MARINE DR	RCRA NonGen / NLR	Higher	1230, 0.233, ESE
46	STAR-OILCO	12301 N FORCE	OR LUST, OR UST	Lower	1366, 0.259, SSW
47	JANTZEN BEACH CLEANE	1190 N JANTZEN DR	OR ECSI, OR DRYCLEANERS	Higher	1803, 0.341, ENE
48	FLINT GROUP PACKAGIN	2985 N MARINE DR	OR ECSI, OR SPILLS, OR AIRS, OR HSIS, OR NPDES	Lower	1831, 0.347, NW
49	HILLMAN PROPERTIES	1750 JANTZEN BEACH C	OR LUST, OR UST	Higher	1878, 0.356, NNE
50	CONOCOPHILLIPS COMPA	12205 N CENTER AVE	OR LUST, OR UST, OR SPILLS	Higher	1915, 0.363, NE
51	HEATING OIL TANK	10850 N DENVER AVE	OR LUST, OR NPDES	Lower	1935, 0.366, SSE
52	JANTZEN BEACH CAR WA	12100 N TOMAHAWK DRI	OR LUST	Higher	2518, 0.477, ENE
53	PLAID PANTRY #209	1020 N MARINE DR	OR ECSI, OR LUST, OR UST, OR AIRS	Higher	2533, 0.480, ESE
54	HAYDEN ISLAND - UMAT	1445 AND 1463 N HAYD	OR ECSI, OR VCP	Higher	2633, 0.499, NNE
I55	HAYDEN'S CORNER	1321-1337 N HAYDEN I	OR ECSI, OR VCP, OR BROWNFIELDS	Higher	2734, 0.518, NE
I56	HAYDEN ISLAND LANDFI	NORTH PARTS OF HAYDE	OR ECSI, OR CRL	Higher	2749, 0.521, NE
57	JAMES RIVER CORP. -	3400 N MARINE DR.	OR CRL, OR ECSI, OR INST CONTROL, OR VCP, OR...	Lower	2877, 0.545, WNW
58	CANOE BAY - CONTAMIN	N HAYDEN ISLAND DR.	OR CRL, OR ECSI, OR ENG CONTROLS	Lower	3903, 0.739, NNW
59	LACAMAS LABORATORIES	12411 N PORTLAND RD/	OR ECSI, OR VCP	Lower	3995, 0.757, WNW
60	REDDAWAY	10510 N VANCOUVER WA	RCRA-CESQG, OR ECSI, OR LUST, OR UST, OR AST, OR...	Lower	4269, 0.809, ESE
61	MORRISON, GLEN	3747 N SUTTLE RD	OR ECSI, OR UST, OR VCP	Higher	4451, 0.843, WNW
62	JRJ PROPERTIES	9425 N BURRAGE AVE.	OR ECSI	Lower	4888, 0.926, SSW
J63	LAMM PROPERTY - SITE	4065 N SUTTLE RD	OR ECSI, FINDS	Higher	4948, 0.937, WNW
64	N MARINE DR. EXTENSI	N MARINE DR.	OR ECSI	Higher	4995, 0.946, WNW
65	HERBERT MALARKEY ROO	3131 N COLUMBIA BLVD	OR ECSI, OR SWF/LF, OR AST, OR VCP, OR SPILLS, OR...	Higher	5021, 0.951, SSW
J66	LAMM PROPERTY - SITE	4101 N SUTTLE RD.	OR ECSI	Higher	5086, 0.963, WNW
67	MARKET TRANSPORT LTD	110 N MARINE DR	RCRA-CESQG, OR ECSI, OR AST, OR VCP, OR SPILLS,...	Higher	5097, 0.965, ESE
68	CONTAINER CARE PORTL	1501 N SCHMEER RD.	OR ECSI, OR NPDES	Lower	5121, 0.970, South
69	HAYDEN ISLAND DUMPIN	HAYDEN ISLAND	OR ECSI, FINDS	Higher	5191, 0.983, NNW
70	FUEL PROCESSORS INC	4150 N SUTTLE RD	OR CRL, OR ECSI, OR SWF/LF, OR AST, OR HAZMAT, OR...	Higher	5195, 0.984, WNW
71	PACIFIC MEAT CO.	2701 N NEWARK ST.	OR CRL, OR ECSI, OR INST CONTROL, OR NPDES	Higher	5233, 0.991, SSW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
EXPO CENTER 2060 N MARINE DR PORTLAND, OR 97217	OR ECSI Investigation: Suspect State ID Number: 4138 OR LUST Facility ID: 26-92-0139 Cleanup Complete: 04/05/1996 OR UST Facility ID: 6137 OR AST Facility Id: 017036 OR SPILLS Facility ID: 2016-0363 OR HSIS Facility Id: 017036	N/A
METRO EXPO CENTER 2060 N MARINE DR PORTLAND, OR 97217	FINDS Registry ID:: 110014082884	N/A
EXPO CENTER 2060 N MARINE DRIVE PORTLAND, OR	OR RGA LUST Facility ID: 26-92-0100	N/A
EXPO CENTER/MULTNOMA 2060 N MARINE DR PORTLAND, OR	OR RGA LUST Facility ID: 26-92-0139	N/A
METRO EXPO CENTER 2060 N MARINE DR. PORTLAND, OR	OR RGA HWS	N/A
METRO EXPO CENTER 2060 N MARINE DR PORTLAND, OR	OR RGA HWS	N/A
EXPO CENTER/MULTNOMA 2060 N MARINE DR PORTLAND, OR	OR RGA LUST Facility ID: 26-92-0139	N/A

EXECUTIVE SUMMARY

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

Federal CERCLIS list

FEDERAL FACILITY ---------- Federal Facility Site Information listing

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

LUCIS ---------- Land Use Control Information System
US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State- and tribal - equivalent CERCLIS

WA CSCSL ---------- Confirmed and Suspected Contaminated Sites List

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

WA SWF/LF ---------- Solid Waste Facility Database

State and tribal leaking storage tank lists

WA LUST ---------- Leaking Underground Storage Tanks Site List

INDIAN LUST - Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

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

State and tribal institutional control / engineering control registries

WA INST CONTROL - Institutional Control Site List

State and tribal voluntary cleanup sites

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

State and tribal Brownfields sites

WA BROWNFIELDS - Brownfields Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS - A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

OR SWRCY - Recycling Facility Location Listing
OR HIST LF - Old Closed SW Disposal Sites
WA SWRCY - Recycling Facility List
INDIAN ODI - Report on the Status of Open Dumps on Indian Lands
ODI - Open Dump Inventory
DEBRIS REGION 9 - Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS - Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

OR AOCONCERN - Columbia Slough
US HIST CDL - Delisted National Clandestine Laboratory Register
WA CDL - Clandestine Drug Lab Contaminated Site List
US CDL - National Clandestine Laboratory Register

Local Land Records

LIENS 2 - CERCLA Lien Information

Records of Emergency Release Reports

HMIRS - Hazardous Materials Information Reporting System
WA SPILLS - Reported Spills
OR SPILLS 90 - SPILLS 90 data from FirstSearch

WA SPILLS 90 ---------- SPILLS 90 data from FirstSearch

Other Ascertainable Records

FUDS ---------- Formerly Used Defense Sites
DOD ---------- Department of Defense Sites
SCRD DRYCLEANERS ---------- State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR ---------- Financial Assurance Information
EPA WATCH LIST ---------- EPA WATCH LIST
2020 COR ACTION ---------- 2020 Corrective Action Program List
TSCA ---------- Toxic Substances Control Act
TRIS ---------- Toxic Chemical Release Inventory System
SSTS ---------- Section 7 Tracking Systems
RMP ---------- Risk Management Plans
RAATS ---------- RCRA Administrative Action Tracking System
MLTS ---------- Material Licensing Tracking System
COAL ASH DOE ---------- Steam-Electric Plant Operation Data
COAL ASH EPA ---------- Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER ---------- PCB Transformer Registration Database
RADINFO ---------- Radiation Information Database
DOT OPS ---------- Incident and Accident Data
CONSENT ---------- Superfund (CERCLA) Consent Decrees
INDIAN RESERV ---------- Indian Reservations
FUSRAP ---------- Formerly Utilized Sites Remedial Action Program
UMTRA ---------- Uranium Mill Tailings Sites
LEAD SMELTERS ---------- Lead Smelter Sites
US AIRS ---------- Aerometric Information Retrieval System Facility Subsystem
US MINES ---------- Mines Master Index File
ABANDONED MINES ---------- Abandoned Mines
DOCKET HWC ---------- Hazardous Waste Compliance Docket Listing
UXO ---------- Unexploded Ordnance Sites
FUELS PROGRAM ---------- EPA Fuels Program Registered Listing
WA AIRS ---------- Washington Emissions Data System
OR COAL ASH ---------- Coal Ash Disposal Sites Listing
WA COAL ASH ---------- Coal Ash Disposal Site Listing
WA DRYCLEANERS ---------- Drycleaner List
OR Enforcement ---------- Enforcement Action Listing
WA Financial Assurance ---------- Financial Assurance Information Listing
WA MANIFEST ---------- Hazardous Waste Manifest Data
WA NPDES ---------- Water Quality Permit System Data
WA UIC ---------- Underground Injection Wells Listing

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP ---------- EDR Proprietary Manufactured Gas Plants
EDR Hist Cleaner ---------- EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

WA RGA HWS ---------- Recovered Government Archive State Hazardous Waste Facilities List

OR RGA LF Recovered Government Archive Solid Waste Facilities List
WA RGA LF Recovered Government Archive Solid Waste Facilities List
WA RGA LUST Recovered Government Archive Leaking Underground Storage Tank

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 Delisted NPL site list

Delisted NPL: 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 deleted from the NPL where no further response is appropriate.

A review of the Delisted NPL list, as provided by EDR, and dated 07/19/2019 has revealed that there is 1 Delisted NPL site within approximately 1 mile of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
AMERICAN RECYCLERS, EPA ID:: ORD071803985 Site ID:: 1000442	***11535 N FORCE AVE***	***W 0 - 1/8 (0.022 mi.)***	***E28***	***90***

Federal CERCLIS list

SEMS: SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list 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). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

A review of the SEMS list, as provided by EDR, and dated 07/19/2019 has revealed that there are 2 SEMS sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PIER 99 - PORTLAND	***1610 N PIER 99 STREE***	***E 1/8 - 1/4 (0.130 mi.)***	***G40***	***216***

Site ID: 1002699
EPA Id: ORN001002699

Lower Elevation	Address	Direction / Distance	Map ID	Page
AMERICAN RECYCLERS, Site ID: 1000442 EPA Id: ORD071803985	***11535 N FORCE AVE***	***W 0 - 1/8 (0.022 mi.)***	***E28***	***90***

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS 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 the 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. The 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 potential NPL site.

A review of the SEMS-ARCHIVE list, as provided by EDR, and dated 07/19/2019 has revealed that there are 2 SEMS-ARCHIVE sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
COLUMBIA SLOUGH Site ID: 1000493 EPA Id: ORD980723076	PORTLAND RD	W 0 - 1/8 (0.023 mi.)	0	15
DIVERSIFIED MARINE, Site ID: 1002703 EPA Id: ORN001002703	1801 N MARINE DRIVE	ENE 0 - 1/8 (0.013 mi.)	D19	51

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 03/25/2019 has revealed that there are 4 RCRA-CESQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DIVERSIFIED MARINE I	1801 N MARINE DR	ENE 0 - 1/8 (0.013 mi.)	D20	52

EPA ID:: ORQ000021675				
PIER WEST LLC EPA ID:: ORQ000032499	1610 N PIER 99 ST	E 1/8 - 1/4 (0.130 mi.)	G39	214

Lower Elevation	Address	Direction / Distance	Map ID	Page
SAFETY-KLEEN SYSTEMS EPA ID:: ORQ000006601	***11645 N FORCE AVE***	***WNW 0 - 1/8 (0.010 mi.)***	***C12***	***21***
AMERICAN RECYCLERS, EPA ID:: ORD071803985	***11535 N FORCE AVE***	***W 0 - 1/8 (0.022 mi.)***	***E28***	***90***

State- and tribal - equivalent CERCLIS

OR ECSI: The Environmental Cleanup Site Information System records information about sites in Oregon that may be of environmental interest. The data come from the Department of Environmental Quality.

A review of the OR ECSI list, as provided by EDR, and dated 04/01/2019 has revealed that there are 29 OR ECSI sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DIVERSIFIED MARINE, Investigation: Suspect State ID Number: 3759	***1801 N MARINE DR***	***ENE 0 - 1/8 (0.013 mi.)***	***D21***	***55***
MILTON O BROWN Investigation: Listed on the CRL/Inventory State ID Number: 3526	***1610 N PIER 99 ST***	***E 1/8 - 1/4 (0.130 mi.)***	***G41***	***220***
JANTZEN BEACH CLEANE Investigation: No Further Action State ID Number: 1865	***1190 N JANTZEN DR***	***ENE 1/4 - 1/2 (0.341 mi.)***	***47***	***281***
PLAID PANTRY #209 Investigation: Suspect State ID Number: 4134	***1020 N MARINE DR***	***ESE 1/4 - 1/2 (0.480 mi.)***	***53***	***310***
HAYDEN ISLAND - UMAT Investigation: No Further Action State ID Number: 6128	***1445 AND 1463 N HAYD***	***NNE 1/4 - 1/2 (0.499 mi.)***	***54***	***313***
HAYDEN'S CORNER Investigation: No Further Action State ID Number: 5711	***1321-1337 N HAYDEN I***	***NE 1/2 - 1 (0.518 mi.)***	***I55***	***320***
HAYDEN ISLAND LANDFI Investigation: Listed on the CRL/Inventory State ID Number: 1559	***NORTH PARTS OF HAYDE***	***NE 1/2 - 1 (0.521 mi.)***	***I56***	***327***
MORRISON, GLEN Investigation: No Further Action State ID Number: 800	***3747 N SUTTLE RD***	***WNW 1/2 - 1 (0.843 mi.)***	***61***	***507***
LAMM PROPERTY - SITE Investigation: Suspect State ID Number: 1200	***4065 N SUTTLE RD***	***WNW 1/2 - 1 (0.937 mi.)***	***J63***	***524***
N MARINE DR. EXTENSI	N MARINE DR.	WNW 1/2 - 1 (0.946 mi.)	64	532

Investigation: Suspect State ID Number: 1170				
HERBERT MALARKEY ROO Investigation: Suspect State ID Number: 690	***3131 N COLUMBIA BLVD***	***SSW 1/2 - 1 (0.951 mi.)***	***65***	***538***
LAMM PROPERTY - SITE Investigation: No Further Action State ID Number: 1230	4101 N SUTTLE RD.	WNW 1/2 - 1 (0.963 mi.)	J66	580
MARKET TRANSPORT LTD Investigation: Suspect State ID Number: 4746	***110 N MARINE DR***	***ESE 1/2 - 1 (0.965 mi.)***	***67***	***586***
HAYDEN ISLAND DUMPIN Investigation: No Further Action State ID Number: 77	***HAYDEN ISLAND***	***NNW 1/2 - 1 (0.983 mi.)***	***69***	***609***
FUEL PROCESSORS INC Investigation: Listed on the CRL/Inventory State ID Number: 673	***4150 N SUTTLE RD***	***WNW 1/2 - 1 (0.984 mi.)***	***70***	***615***
PACIFIC MEAT CO. Investigation: Listed on the CRL/Inventory State ID Number: 145	***2701 N NEWARK ST.***	***SSW 1/2 - 1 (0.991 mi.)***	***71***	***653***

Lower Elevation	Address	Direction / Distance	Map ID	Page
BULK TRANSPORTATION Investigation: Suspect State ID Number: 5696	***11619 N FORCE AVE.***	***WNW 0 - 1/8 (0.016 mi.)***	***C22***	***74***
AMERICAN RECYCLERS, Investigation: Suspect State ID Number: 24	***11535 N FORCE AVE***	***W 0 - 1/8 (0.022 mi.)***	***E28***	***90***
WHITE MARINE SERVICE Investigation: Suspect State ID Number: 4310	2335 N MARINE DR.	NW 0 - 1/8 (0.040 mi.)	B35	166
OREGON WASTE SYSTEMS Investigation: Listed on the CRL/Inventory State ID Number: 1091	***SW CORNER, N MARINE***	***NW 0 - 1/8 (0.065 mi.)***	***36***	***168***
PENINSULA TERMINAL R Investigation: Listed on the CRL/Inventory State ID Number: 1505	***11707 N FORCE AVE.***	***WNW 0 - 1/8 (0.086 mi.)***	***37***	***195***
STOCKYARDS COMMERCE Investigation: Suspect State ID Number: 5695	***2500-2664 N MARINE D***	***NW 0 - 1/8 (0.098 mi.)***	***F38***	***205***
FLINT GROUP PACKAGIN Investigation: Suspect State ID Number: 5939	***2985 N MARINE DR***	***NW 1/4 - 1/2 (0.347 mi.)***	***48***	***291***
JAMES RIVER CORP. - Investigation: Listed on the CRL/Inventory State ID Number: 127	***3400 N MARINE DR.***	***WNW 1/2 - 1 (0.545 mi.)***	***57***	***345***
CANOE BAY - CONTAMIN Investigation: Listed on the CRL/Inventory State ID Number: 3333	***N HAYDEN ISLAND DR.***	***NNW 1/2 - 1 (0.739 mi.)***	***58***	***368***
LACAMAS LABORATORIES	***12411 N PORTLAND RD/***	***WNW 1/2 - 1 (0.757 mi.)***	***59***	***455***

Investigation: No Further Action
State ID Number: 1201

REDDAWAY	***10510 N VANCOUVER WA***	***ESE 1/2 - 1 (0.809 mi.)***	***60***	***463***
Investigation: No Further Action State ID Number: 1437				
JRJ PROPERTIES	9425 N BURRAGE AVE.	SSW 1/2 - 1 (0.926 mi.)	62	522
Investigation: Suspect State ID Number: 4139				
CONTAINER CARE PORTL	***1501 N SCHMEER RD.***	***S 1/2 - 1 (0.970 mi.)***	***68***	***604***
Investigation: No Further Action State ID Number: 105				

OR CRL: Sites that are or may be contaminated and may require cleanup.

A review of the OR CRL list, as provided by EDR, and dated 05/01/2019 has revealed that there are 8 OR CRL sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MILTON O BROWN	***1610 N PIER 99 ST***	***E 1/8 - 1/4 (0.130 mi.)***	***G41***	***220***
Facility Status: OPERATION & MAINTENANCE Facility Id: 3526				
HAYDEN ISLAND LANDFI	***NORTH PARTS OF HAYDE***	***NE 1/2 - 1 (0.521 mi.)***	***I56***	***327***
Facility Status: Site Investigation recommended (SI) Facility Id: 1559				
FUEL PROCESSORS INC	***4150 N SUTTLE RD***	***WNW 1/2 - 1 (0.984 mi.)***	***70***	***615***
Facility Status: OPERATION & MAINTENANCE Facility Id: 673				
PACIFIC MEAT CO.	***2701 N NEWARK ST.***	***SSW 1/2 - 1 (0.991 mi.)***	***71***	***653***
Facility Status: REMEDIAL ACTION Facility Id: 145				

Lower Elevation	Address	Direction / Distance	Map ID	Page
OREGON WASTE SYSTEMS	***SW CORNER, N MARINE***	***NW 0 - 1/8 (0.065 mi.)***	***36***	***168***
Facility Status: State Basic Preliminary Assessment recommended (PA) Facility Id: 1091				
PENINSULA TERMINAL R	***11707 N FORCE AVE.***	***WNW 0 - 1/8 (0.086 mi.)***	***37***	***195***
Facility Status: No Further Action (Conditional) Facility Id: 1505				
JAMES RIVER CORP. -	***3400 N MARINE DR.***	***WNW 1/2 - 1 (0.545 mi.)***	***57***	***345***
Facility Status: Source Control Evaluation Facility Id: 127				
CANOE BAY - CONTAMIN	***N HAYDEN ISLAND DR.***	***NNW 1/2 - 1 (0.739 mi.)***	***58***	***368***
Facility Status: No Further Action (Conditional) Facility Id: 3333				

EXECUTIVE SUMMARY

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

OR 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 Environmental Quality's Closure & Regular Solid Waste Active Disposal Permits database.

A review of the OR SWF/LF list, as provided by EDR, and dated 01/14/2019 has revealed that there is 1 OR SWF/LF site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
AMERICAN RECYCLERS,	***11535 N FORCE AVE***	***W 0 - 1/8 (0.022 mi.)***	***E28***	***90***
Permit Status: Active				
Facility Id: 112270				

State and tribal leaking storage tank lists

OR 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 Environmental Quality's LUST Database List.

A review of the OR LUST list, as provided by EDR, and dated 04/05/2019 has revealed that there are 12 OR LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DELTA PARK EXIT CONS	DELTA PARK EXIT, WES	0 - 1/8 (0.000 mi.)	9	19
Facility ID: 26-90-0346				
Cleanup Complete: 12/24/1990				
ROSS ISLAND SAND & G	1835 N MARINE DRIVE	ENE 0 - 1/8 (0.012 mi.)	D18	50
Facility ID: 26-17-0101				
Cleanup Complete: 09/11/2017				
JANTZEN BAY FUEL	***1130 N JANTZEN AVE***	***NE 1/8 - 1/4 (0.209 mi.)***	***H44***	***277***
Facility ID: 26-90-0258				
Facility ID: 26-97-0017				
Cleanup Complete: 08/01/1991				
Cleanup Complete: 12/04/2001				
HILLMAN PROPERTIES	***1750 JANTZEN BEACH C***	***NNE 1/4 - 1/2 (0.356 mi.)***	***49***	***307***
Facility ID: 26-90-0190				
Cleanup Complete: 01/30/1995				
CONOCOPHILLIPS COMPA	***12205 N CENTER AVE***	***NE 1/4 - 1/2 (0.363 mi.)***	***50***	***308***
Facility ID: 26-90-0055				
Facility ID: 26-94-0063				
Cleanup Complete: 04/16/1991				
Cleanup Complete: 06/20/2012				
JANTZEN BEACH CAR WA	12100 N TOMAHAWK DRI	ENE 1/4 - 1/2 (0.477 mi.)	52	310
Facility ID: 26-98-0453				
Cleanup Complete: 07/14/1998				
PLAID PANTRY #209	***1020 N MARINE DR***	***ESE 1/4 - 1/2 (0.480 mi.)***	***53***	***310***
Facility ID: 26-92-0348				
Cleanup Complete: 08/23/1996				

Lower Elevation	Address	Direction / Distance	Map ID	Page
MERIT USA, INC.	***2360 N MARINE DR***	***NW 0 - 1/8 (0.002 mi.)***	***B11***	***20***

Facility ID: 26-89-0031 Cleanup Complete: 11/29/2007				
STOCKYARDS PROPERTY Facility ID: 26-90-0462 Cleanup Complete: 07/22/1991	***2416 N MARINE DR***	***NW 0 - 1/8 (0.021 mi.)***	***B26***	***88***
ROD'S TRUCK STOP Facility ID: 26-90-0291 Cleanup Complete: 12/17/1992	***2632 N MARINE DR***	***NW 1/8 - 1/4 (0.133 mi.)***	***F42***	***275***
STAR-OILCO Facility ID: 26-97-0705 Cleanup Complete: 02/10/1998	***12301 N FORCE***	***SSW 1/4 - 1/2 (0.259 mi.)***	***46***	***281***
HEATING OIL TANK Facility ID: 26-01-5308 Cleanup Complete: 08/16/2001	***10850 N DENVER AVE***	***SSE 1/4 - 1/2 (0.366 mi.)***	***51***	***309***

State and tribal registered storage tank lists

OR 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 Environmental Quality's UST List on Disk.

A review of the OR UST list, as provided by EDR, and dated 04/05/2019 has revealed that there are 5 OR UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
VANPORT PLANT Facility ID: 1890	1835 N MARINE DR	ENE 0 - 1/8 (0.012 mi.)	D16	38
JANTZEN BAY FUEL Facility ID: 7011	***1130 N JANTZEN AVE***	***NE 1/8 - 1/4 (0.209 mi.)***	***H44***	***277***

Lower Elevation	Address	Direction / Distance	Map ID	Page
MERIT USA, INC. Facility ID: 3750	***2360 N MARINE DR***	***NW 0 - 1/8 (0.002 mi.)***	***B11***	***20***
STOCKYARDS PROPERTY Facility ID: 10703	***2416 N MARINE DR***	***NW 0 - 1/8 (0.021 mi.)***	***B26***	***88***
ROD'S TRUCK STOP Facility ID: 10526	***2632 N MARINE DR***	***NW 1/8 - 1/4 (0.133 mi.)***	***F42***	***275***

OR AST: The Aboveground Storage Tank database contains registered ASTs. The data comes from the list of ASTs reported to the Office of State Fire Marshal.

A review of the OR AST list, as provided by EDR, and dated 01/17/2019 has revealed that there are 3 OR AST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ROSS ISLAND SAND & G	***1835 N MARINE DR***	***ENE 0 - 1/8 (0.012 mi.)***	***D17***	***39***

Facility Id: 004699

Lower Elevation	Address	Direction / Distance	Map ID	Page
PENINSULA TERMINAL C Facility Id: 033038	***11645 N FORCE AVE, 2***	***WNW 0 - 1/8 (0.010 mi.)***	***C13***	***25***
AMERICAN RECYCLERS, Facility Id: 014481	***11535 N FORCE AVE***	***W 0 - 1/8 (0.022 mi.)***	***E28***	***90***

State and tribal institutional control / engineering control registries

OR INST CONTROL: Sites with Engineering or Institutional Controls.

A review of the OR INST CONTROL list, as provided by EDR, and dated 04/01/2019 has revealed that there is 1 OR INST CONTROL site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
PENINSULA TERMINAL R Site Id: 1505	***11707 N FORCE AVE.***	***WNW 0 - 1/8 (0.086 mi.)***	***37***	***195***

State and tribal voluntary cleanup sites

OR VCP: Responsible parties have entered into an agreement with DEQ to voluntarily address contamination associated with their property.

A review of the OR VCP list, as provided by EDR, and dated 04/11/2019 has revealed that there are 3 OR VCP sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HAYDEN ISLAND - UMAT ECS Site ID: 6128	***1445 AND 1463 N HAYD***	***NNE 1/4 - 1/2 (0.499 mi.)***	***54***	***313***

Lower Elevation	Address	Direction / Distance	Map ID	Page
PENINSULA TERMINAL R ECS Site ID: 1505	***11707 N FORCE AVE.***	***WNW 0 - 1/8 (0.086 mi.)***	***37***	***195***
STOCKYARDS COMMERCE ECS Site ID: 5695	***2500-2664 N MARINE D***	***NW 0 - 1/8 (0.098 mi.)***	***F38***	***205***

ADDITIONAL ENVIRONMENTAL RECORDS

Records of Emergency Release Reports

OR HAZMAT: The Oregon HAZMAT Database contains Fire Department response to spills as reported by Oregon State Fire Marshall's Office.

A review of the OR HAZMAT list, as provided by EDR, and dated 02/20/2019 has revealed that there is 1 OR HAZMAT site within approximately 0.001 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
Not reported Facility Id: 940118	2200 N MARINE DR	0 - 1/8 (0.000 mi.)	8	16

Other Ascertainable Records

RCRA NonGen / NLR: 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.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 03/25/2019 has revealed that there are 13 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ODEQ CLEAN UP HAYDEN EPA ID:: ORQ000012062	1190 N JANTZEN DR	NE 1/8 - 1/4 (0.207 mi.)	H43	276
MARINELAND PIER 99 EPA ID:: ORSTATE04981	1441 N MARINE DR	ESE 1/8 - 1/4 (0.233 mi.)	45	280

Lower Elevation	Address	Direction / Distance	Map ID	Page
RED GIANT OIL COMPAN EPA ID:: ORQ000037975	11645 N FORCE AVE RG	WNW 0 - 1/8 (0.010 mi.)	C14	35
FMC CORPORATION @ PE EPA ID:: ORQ000024905	11645 N FORCE AVE S	WNW 0 - 1/8 (0.010 mi.)	C15	36
STOCKYARDS PROPERTY EPA ID:: ORD987200284	***2416 N MARINE DR RM***	***NW 0 - 1/8 (0.021 mi.)***	***B24***	***85***
B & L CLARK EXPRESS EPA ID:: ORD980982441	2416 N MARINE DR #22	NW 0 - 1/8 (0.021 mi.)	B25	87
PENINSULA TERMINAL R EPA ID:: ORD045772506	***2416 N MARINE DR RM***	***NW 0 - 1/8 (0.021 mi.)***	***B27***	***89***
ENERGY & MATERIAL RE EPA ID:: ORSTATE06429	11535 N FORCE AVE	W 0 - 1/8 (0.022 mi.)	E29	155
W B P RENEWABLE DIES EPA ID:: ORSTATE08381	11535 N FORCE AVENUE	W 0 - 1/8 (0.022 mi.)	E30	156
WBP RENEWABLE DIESEL EPA ID:: ORQ000008805	11535 N FORCE AVE ST	W 0 - 1/8 (0.022 mi.)	E31	157
RECYCLERS TRANSPORT EPA ID:: ORQ000016204	11535 N FORCE AVE	W 0 - 1/8 (0.022 mi.)	E32	159
ENERGY & MATERIAL RE	***4150-A N SUTTLE RD***	***W 0 - 1/8 (0.022 mi.)***	***E33***	***161***

EPA ID:: ORD987192978

WASTE MGMT FORMER ME	***2331 N MARINE DR***	***NW 0 - 1/8 (0.037 mi.)***	***B34***	***162***

EPA ID:: ORQ000021691

ROD: Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid the cleanup.

A review of the ROD list, as provided by EDR, and dated 07/19/2019 has revealed that there is 1 ROD site within approximately 1 mile of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
AMERICAN RECYCLERS,	***11535 N FORCE AVE***	***W 0 - 1/8 (0.022 mi.)***	***E28***	***90***

EPA ID:: ORD071803985

OR MANIFEST: Hazardous waste manifest information.

A review of the OR MANIFEST list, as provided by EDR, and dated 12/31/2017 has revealed that there are 3 OR MANIFEST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MILTON O BROWN	***1610 N PIER 99 ST***	***E 1/8 - 1/4 (0.130 mi.)***	***G41***	***220***

Status: SQG
Status: LQG
Status: Small quantity generator
Status: Large quantity generator
EPA Id: ORQ000032499

Lower Elevation	Address	Direction / Distance	Map ID	Page
SAFETY-KLEEN SYSTEMS	***11645 N FORCE AVE***	***WNW 0 - 1/8 (0.010 mi.)***	***C12***	***21***

Status: CEG
Status: LQG
EPA Id: ORQ000006601
EPA Id: ORQ000024905

WASTE MGMT FORMER ME	***2331 N MARINE DR***	***NW 0 - 1/8 (0.037 mi.)***	***B34***	***162***

Status: CEG
EPA Id: ORQ000021691

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR Hist Auto: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not

limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Auto list, as provided by EDR, has revealed that there are 2 EDR Hist Auto sites within approximately 0.125 miles of the target property.

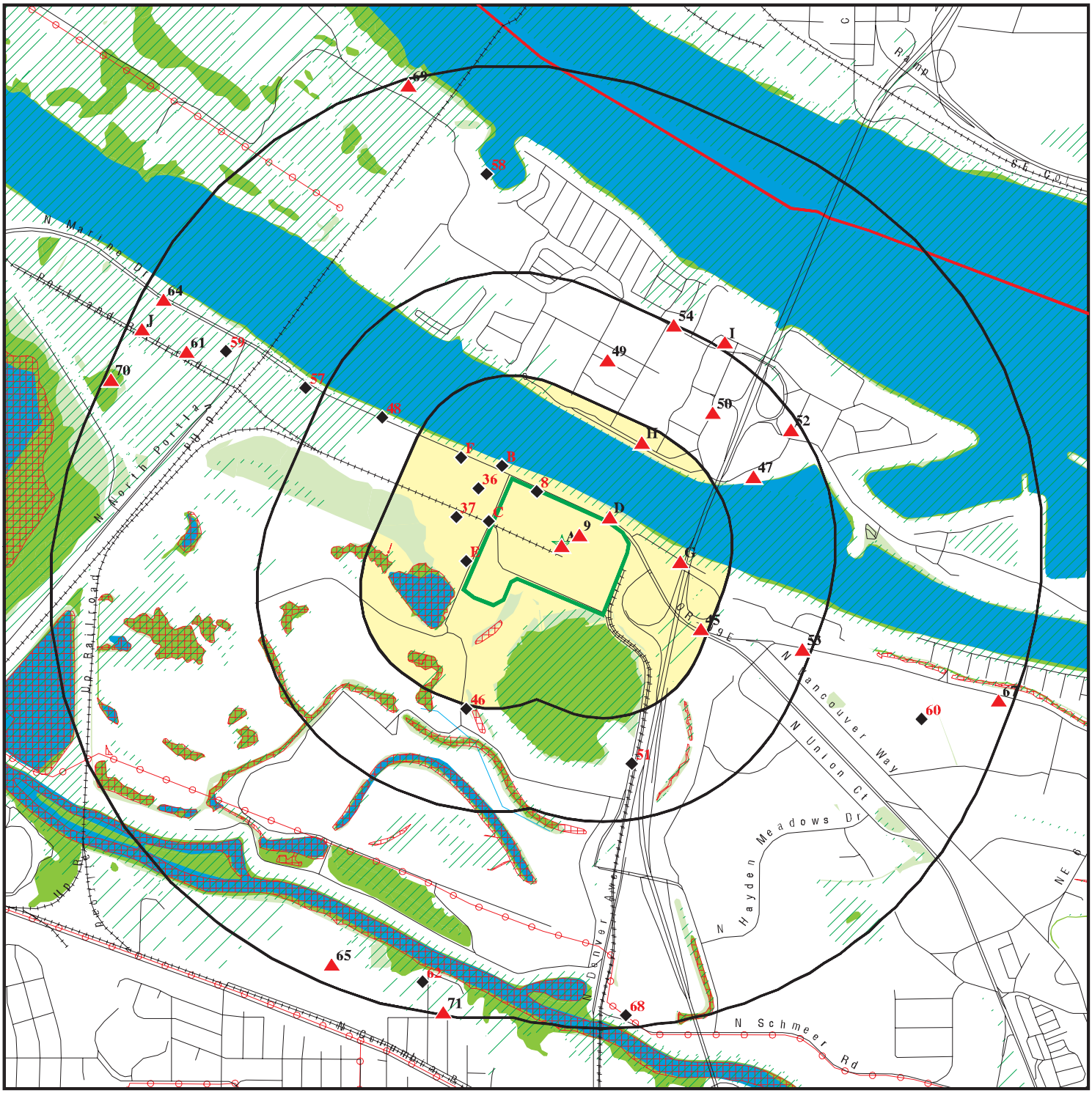
Lower Elevation	Address	Direction / Distance	Map ID	Page
D AND L SALES AND SE	2360 N MARINE DR	NW 0 - 1/8 (0.002 mi.)	B10	19
MERIT USA*	2416 N MARINE DR	NW 0 - 1/8 (0.021 mi.)	B23	85

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 6 records.

Site Name	Database(s)
COLUMBIA SLOUGH	OR CRL, OR ECSI, OR ENG CONTROLS
EAST SIDE CSO	OR ECSI, OR VCP
ODOT - PORTLAND HARBOR SOURCE CONT	OR ECSI, OR VCP
V.A.- COLUMBIA SOUTH SHORE WELLFIE	OR ECSI
HAYDEN ISLAND LANDFILL	SEMS-ARCHIVE
VANCOUVER LAKE & FLUSHING CHANNEL,	SEMS-ARCHIVE

OVERVIEW MAP - 5782459.2S



- 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
- Indian Reservations BIA
- County Boundary
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

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:	Portland Expo Center	CLIENT:	Hart Crowser, Inc.
ADDRESS:	2060 N Marine Drive Portland OR 97217	CONTACT:	Theresa Lydick
		INQUIRY #:	5782459.2s
LAT/LONG:	45.60659 / 122.688456	DATE:	September 09, 2019 7:38 pm

DETAIL MAP - 5782459.2S

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

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

Areas of Concern

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:	Portland Expo Center	CLIENT:	Hart Crowser, Inc.
ADDRESS:	2060 N Marine Drive Portland OR 97217	CONTACT:	Theresa Lydick
		INQUIRY #:	5782459.2s
LAT/LONG:	45.60659 / 122.688456	DATE:	September 09, 2019 7:40 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 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	1.000		0	0	0	0	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		1	0	0	0	NR	1
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		1	1	0	NR	NR	2
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		2	0	0	NR	NR	2
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		3	1	NR	NR	NR	4
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
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	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
OR ECSI	1.000	1	7	1	4	17	NR	30
OR CRL	1.000		2	1	0	5	NR	8
WA CSCSL	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
OR SWF/LF	0.500		1	0	0	NR	NR	1
WA SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
OR LUST	0.500	1	4	2	6	NR	NR	13

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
WA LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
OR UST	0.250	1	3	2	NR	NR	NR	6
WA UST	0.250		0	0	NR	NR	NR	0
OR AST	0.250	1	3	0	NR	NR	NR	4
WA AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
OR ENG CONTROLS	0.500		0	0	0	NR	NR	0
OR INST CONTROL	0.500		1	0	0	NR	NR	1
WA INST CONTROL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
OR VCP	0.500		2	0	1	NR	NR	3
WA VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
OR BROWNFIELDS	0.500		0	0	0	NR	NR	0
WA 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								
OR SWRCY	0.500		0	0	0	NR	NR	0
OR HIST LF	0.500		0	0	0	NR	NR	0
WA SWRCY	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
OR AOCONCERN	1.000		0	0	0	0	NR	0
US HIST CDL	0.001		0	NR	NR	NR	NR	0
OR CDL	0.001		0	NR	NR	NR	NR	0
WA CDL	0.001		0	NR	NR	NR	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
OR SPILLS	0.001	1	0	NR	NR	NR	NR	1
WA SPILLS	0.001		0	NR	NR	NR	NR	0
OR HAZMAT	0.001		1	NR	NR	NR	NR	1
OR SPILLS 90	0.001		0	NR	NR	NR	NR	0
WA SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		11	2	NR	NR	NR	13
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		1	0	0	0	NR	1
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001	1	0	NR	NR	NR	NR	1
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
WA AIRS	0.001		0	NR	NR	NR	NR	0
OR AIRS	0.001		0	NR	NR	NR	NR	0
OR COAL ASH	0.500		0	0	0	NR	NR	0
WA COAL ASH	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
OR DRYCLEANERS	0.250		0	0	NR	NR	NR	0
WA DRYCLEANERS	0.250		0	0	NR	NR	NR	0
OR Enforcement	0.001		0	NR	NR	NR	NR	0
OR Financial Assurance	0.001		0	NR	NR	NR	NR	0
WA Financial Assurance	0.001		0	NR	NR	NR	NR	0
OR HSIS	0.001	1	0	NR	NR	NR	NR	1
OR MANIFEST	0.250		2	1	NR	NR	NR	3
WA MANIFEST	0.250		0	0	NR	NR	NR	0
OR NPDES	0.001		0	NR	NR	NR	NR	0
WA NPDES	0.001		0	NR	NR	NR	NR	0
OR UIC	0.001		0	NR	NR	NR	NR	0
WA UIC	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		2	NR	NR	NR	NR	2
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
OR RGA HWS	0.001	2	0	NR	NR	NR	NR	2
WA RGA HWS	0.001		0	NR	NR	NR	NR	0
OR RGA LF	0.001		0	NR	NR	NR	NR	0
WA RGA LF	0.001		0	NR	NR	NR	NR	0
OR RGA LUST	0.001	3	0	NR	NR	NR	NR	3
WA RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		12	47	11	11	22	0	103

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 **EXPO CENTER** **OR ECSI** **U000432847**
Target **2060 N MARINE DR** **OR LUST** **N/A**
Property **PORTLAND, OR 97217** **OR UST**
OR AST
Site 1 of 7 in cluster A **OR SPILLS**
OR HSIS

Actual:
21 ft.

ECSI:

Name:	METRO EXPO CENTER
Address:	2060 N MARINE DR.
City,State,Zip:	PORTLAND, OR 97217
State ID Number:	4138
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	0
Investigation:	Suspect
FACA ID:	22109
Further Action:	0
Lat/Long (dms):	45 36 26.60 / -122 41 19.00
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	2.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	33
Qtr Section:	Not reported
Tax Lots:	200
Size:	38.66 acres
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	04/20/2006
Created Date:	05/13/2004
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	Suspect
Decode For Legislative:	Not reported

Narrative:

NARR ID:	5745255
NARR Code:	Contamination
Created By:	CHARMAN
Created Date:	07/29/2004
Updated By:	CHARMAN
Updated Date:	07/29/2004
Decode for NarcdID:	Contamination
NARR Comments:	Area around site has been extensively investigated and the past activity has not been evaluated as part of DEQ Cleanup program. As part of Columbia Slough Area-wide Discovery Project this site was noted due to the presense of soil borings found in Water Resources Department well log database. Site runoff or subsurface contamination could reach part of Columbia Slough or location wetlands via stormwater drainage system.

Administrative Action:

Action ID:	9424

EXPO CENTER (Continued) **U000432847**

Region: Not reported
Complete Date: 05/13/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/13/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 05/13/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/13/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: 0
Comments: Not reported

LUST:
Name: EXPO CENTER/MULTNOMAH EXPO CENTER #2
Address: 2060 N MARINE DR
City,State,Zip: PORTLAND, OR 97217
Region: North Western Region
Facility ID: 26-92-0139
Cleanup Received Date: 04/13/1992
Cleanup Start Date: 04/13/1992
Cleanup Complete Date: 04/05/1996
Decode for Region: North West Region

UST:
Name: EXPO CENTER
Address: 2060 N MARINE DR
City: PORTLAND
Facility ID: 6137
Facility Telephone: (503)248-5050
Permittee Name: TOM GUINEY, FLEET ADMINISTRATOR
Number of Permitted Tanks: Not reported
Active Tanks: Not reported
Decommissioned Tanks: 2
Number of Tanks: 2

AST:
Facility Id: 017036
Hazardous Substance: DIESEL FUEL
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported

EXPO CENTER (Continued) **U000432847**

Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: MARTHA
Direct Site Phone: 5037365200
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

OR SPILLS:
Name: Not reported
Address: 2060 N. MARINE DR.
City,State,Zip: PORTLAND, OR 97217
Facility ID: 2016-0363
Incident Status: Closed
Material: Chemical Product
Quantity: 50
Unit of Measure: Gallons
Release Date: 02/10/2016
Description: An asphalt company truck carrying flats of 5-gallon buckets of a concrete sealer turned a corner, was cut off, made evasive maneuver and lost 10 buckets to the pavement on N. Marine Drive. Portland Fire and ODOT are on-scene.
Lat/Long: 45.607167 / -122.68929
Source: Container
Media: Pavement
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

HSIS:
Name: PORTLAND METROPOLITAN EXPO CTR
Address: 2060 N MARINE DR
City,State,Zip: PORTLAND, OR 972170364
Facility ID: 017036
Department Or Division Of Company: Not reported
Chemical Is Extremely Hazardous Substance (EHS: N
Contains 112R: N
Facility Has Written Emergency Plan: Y
NAICS Code 1: 921190
NAICS Desc 1: OTHER GENERAL GOV SUPPORT
NAICS Code 2: 000000
NAICS Desc 2: Not reported
Manager Name: MARTHA BENNETT
Business Phone: 5037365200
Mailing Address: 2060 N MARINE DR
Mailing City: PORTLAND
Mailing State: OR
Mailing Zip: 972170364
No. of Employees: 14
Day Phone: 5037365200
Placard: N

EXPO CENTER (Continued) **U000432847**

Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Y
Emergency Contact:	CHUCK DILLS
Emergency Procedure:	OPS OFFICE ADMIN & CONCESSIONS OFFICES
Business Type:	TRADE SHOW CENTER
Facility Type:	Not reported
Department:	Not reported
Status:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Last Reported ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	Not reported
Maximum Daily Amount Unit:	Not reported
Chemical Added Date:	Not reported
Is Chem PSM:	Not reported
Is Chem 112R:	Not reported
Is Chem 302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
Number of Days Onsite:	Not reported
Year:	Not reported

Chemical:

Chemical Name:	LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	017036
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	11
Maximum Amount Possessed During The Year Code:	21
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported

EXPO CENTER (Continued) **U000432847**

Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	35
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4

Chemical Name:	DIESEL FUEL
Physical Description:	LIQUID
Case Number:	0068334305
Facility Id:	017036
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	11
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	petroleum products, diesel oil
United Nations/north America 4 Digit Class Number:	1993
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid

EXPO CENTER (Continued) **U000432847**

Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

A2 **METRO EXPO CENTER** **FINDS** **1006846499**
Target **2060 N MARINE DR** **N/A**
Property **PORTLAND, OR 97217**

Site 2 of 7 in cluster A

Actual: **21 ft.**

FINDS:

Registry ID: 110014082884

Environmental Interest/Information System

OR-DEQ (Oregon - Department Of Environmental Quality) is a regulatory agency whose job is to protect the quality of Oregon's Environment. DEQ uses a combination of technical assistance, inspections and permitting to help public and private facilities and citizens understand and comply with state and federal environmental regulations.

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

A3 **EXPO CENTER** **OR RGA LUST** **S115364974**
Target **2060 N MARINE DRIVE** **N/A**
Property **PORTLAND, OR**

Site 3 of 7 in cluster A

Actual: **21 ft.**

RGA LUST:

2006	EXPO CENTER	2060 N MARINE DRIVE
2005	EXPO CENTER	2060 N MARINE DRIVE
2004	EXPO CENTER	2060 N MARINE DRIVE
2003	EXPO CENTER	2060 N MARINE DRIVE
2002	EXPO CENTER	2060 N MARINE DRIVE

A4 **EXPO CENTER/MULTNOMAH EXPO CENTER** **OR RGA LUST** **S115364973**
Target Property **2060 N MARINE DR** **N/A**
PORTLAND, OR

Site 4 of 7 in cluster A

Actual: 21 ft.

RGA LUST:

2004	EXPO CENTER/MULTNOMAH EXPO CENTER	2060 N MARINE DR
2003	EXPO CENTER/MULTNOMAH EXPO CENTER	2060 N MARINE DR

A5 **METRO EXPO CENTER** **OR RGA HWS** **S115335524**
Target Property **2060 N MARINE DR.** **N/A**
PORTLAND, OR

Site 5 of 7 in cluster A

Actual: 21 ft.

RGA HWS:

2012	METRO EXPO CENTER	2060 N MARINE DR.
2011	METRO EXPO CENTER	2060 N MARINE DR.
2010	METRO EXPO CENTER	2060 N MARINE DR.
2009	METRO EXPO CENTER	2060 N MARINE DR.
2008	METRO EXPO CENTER	2060 N MARINE DR.
2007	METRO EXPO CENTER	2060 N MARINE DR.
2006	METRO EXPO CENTER	2060 N MARINE DR.

A6 **METRO EXPO CENTER** **OR RGA HWS** **S115335525**
Target Property **2060 N MARINE DR** **N/A**
PORTLAND, OR

Site 6 of 7 in cluster A

Actual: 21 ft.

RGA HWS:

2005	METRO EXPO CENTER	2060 N MARINE DR

A7 **EXPO CENTER/MULTNOMAH EXPO CENTER #2** **OR RGA LUST** **S115364972**
Target Property **2060 N MARINE DR** **N/A**
PORTLAND, OR

Site 7 of 7 in cluster A

Actual: 21 ft.

RGA LUST:

2012	EXPO CENTER/MULTNOMAH EXPO CENTER #2	2060 N MARINE DR
2011	EXPO CENTER/MULTNOMAH EXPO CENTER #2	2060 N MARINE DR
2010	EXPO CENTER/MULTNOMAH EXPO CENTER #2	2060 N MARINE DR
2009	EXPO CENTER/MULTNOMAH EXPO CENTER #2	2060 N MARINE DR
2008	EXPO CENTER/MULTNOMAH EXPO CENTER #2	2060 N MARINE DR

EXPO CENTER/MULTNOMAH EXPO CENTER #2 (Continued) **S115364972**

2007	EXPO CENTER/MULTNOMAH EXPO CENTER #2	2060 N MARINE DR
2006	EXPO CENTER/MULTNOMAH EXPO CENTER #2	2060 N MARINE DR
2005	EXPO CENTER/MULTNOMAH EXPO CENTER #2	2060 N MARINE DR
2002	EXPO CENTER/MULTNOMAH EXPO CENTER #2	2060 N MARINE DR

Areas of Concern West < 1/8 120 ft. **COLUMBIA SLOUGH** **SEMS-ARCHIVE** **1003880262**
PORTLAND RD **ORD980723076**
PORTLAND, OR 97218

SEMS Archive:

Site ID:	1000493
EPA ID:	ORD980723076
Cong District:	03
FIPS Code:	41051
FF:	N
NPL:	Not on the NPL
Non NPL Status:	NFRAP-Site does not qualify for the NPL based on existing information

SEMS Archive Detail:

Region:	10
Site ID:	1000493
EPA ID:	ORD980723076
Site Name:	COLUMBIA SLOUGH
NPL:	N
FF:	N
OU:	00
Action Code:	VS
Action Name:	ARCH SITE
SEQ:	1
Start Date:	Not reported
Finish Date:	1988-12-15 05:00:00
Qual:	Not reported
Current Action Lead:	EPA Perf In-Hse

Region:	10
Site ID:	1000493
EPA ID:	ORD980723076
Site Name:	COLUMBIA SLOUGH
NPL:	N
FF:	N
OU:	00
Action Code:	PA
Action Name:	PA
SEQ:	2
Start Date:	1988-12-15 05:00:00
Finish Date:	1988-12-15 05:00:00
Qual:	N
Current Action Lead:	EPA Perf

Region:	10
Site ID:	1000493
EPA ID:	ORD980723076
Site Name:	COLUMBIA SLOUGH

COLUMBIA SLOUGH (Continued) **1003880262**

NPL:	N
FF:	N
OU:	00
Action Code:	PA
Action Name:	PA
SEQ:	1
Start Date:	1980-03-01 05:00:00
Finish Date:	1980-03-01 05:00:00
Qual:	L
Current Action Lead:	EPA Perf
Region:	10
Site ID:	1000493
EPA ID:	ORD980723076
Site Name:	COLUMBIA SLOUGH
NPL:	N
FF:	N
OU:	00
Action Code:	DS
Action Name:	DISCVRY
SEQ:	1
Start Date:	1979-07-01 04:00:00
Finish Date:	1979-07-01 04:00:00
Qual:	Not reported
Current Action Lead:	EPA Perf

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8 **OR HAZMAT** **S101951135**
2200 N MARINE DR **N/A**
< 1/8 **PORTLAND, OR 97217**
1 ft.

Relative: **Lower**
Actual: **19 ft.**

HAZMAT:

Responsble Party:	MARK WISER
RP Company:	SURE CROP FARM SERV
RP Address:	24397 TERRITORIAL HWY
RP City,St,Zip:	MONROE, OR
Facility ID:	940118
OERS Number:	Not reported
Dept Rsp:	PORTLAND BUREAU OF F&R&EMS
Narrative:	Not reported
Property Loss:	Not reported
Amount Released:	Not reported
Service County:	Not reported
Service Name:	Not reported
Incident Type:	Not reported
Civilian Casualty Activity:	Not reported
Chemical Name:	Not reported
Hazmat Area Affected:	Not reported
Hazmat Area Evacuated:	Not reported
Hazmat Container Type:	Not reported
Hazmat Physical State Released:	Not reported
Hazmat Released Into:	Not reported
Hazmat Released Volume Units:	Not reported
Hazmat Released Weight Units:	Not reported
Hazmat Released From:	Not reported
Hazmat Area Affected Measurement:	Not reported
Hazmat No. of People Evacuated:	Not reported

(Continued) **S101951135**

Hazmat No of Buildings Evacuated:	Not reported
Incident Content Loss:	Not reported
Civilian Casualty Patient Disposition:	Not reported
Incident Mixed Use Property:	Not reported
Location Type:	Not reported
Incident Aid Given Or Received:	Not reported
Incident AID Received from FDID:	Not reported
Incident Aided Department FDID:	Not reported
Person Involved Business Name:	Not reported
Person Involved First Name:	Not reported
Person Involved Last Name:	Not reported
Person Involved Type:	Not reported
Person Involved Phone Number:	Not reported
Person Involved Primary Language:	Not reported
Hazmat Evacuated Measurement:	Not reported
Hazmat Story of Release:	Not reported
Remark:	Not reported
Incident District:	PORTLAND BUREAU OF F&R&EMS
Date Added:	01/01/1985
Unit:	Not reported
Agency Phone:	0008233844
Osfm Incident Report Number:	940118
Dept. Responding:	PORTLAND BUREAU OF F&R&EMS
Person Making Report:	BILL SPENCER
Title:	LT
Agency:	PORTLAND BUREAU OF F&R&EMS
Phone:	0008233844
Date Of Incident:	03/09/1994
Call Time:	11:02:00 AM
In Route:	12:00:00 AM
Arrival:	11:06:00 AM
Depart Scene:	12:00:00 AM
Back In Quarters:	12:00:00 AM
In Service:	12:32:00 PM
Dist Of Incident:	PORTLAND BUREAU OF F&R&EMS
Were State Resources Used?:	False
Was Oers Notified?:	False
Oers Number:	Not reported
Team Number:	Not reported
Agency Report Number:	Not reported
Unit:	Not reported
Highway:	Not reported
Mile Post:	Not reported
Scene Type:	Public Road
Area Type:	Industrial
Responsible Party(Ies):	MARK WISER
Company:	SURE CROP FARM SERV
Respcontact:	Not reported
Address:	24397 TERRITORIAL HWY
Resp City:	MONROE
Resp State:	OR
Resp ZipCode:	Not reported
Phone:	0008475746
Resp Phone2:	Not reported
Weather:	0
Temperature:	0
Wind Speed:	0

(Continued) **S101951135**

Wind Direction:	Not reported
Were Haz Materials Released?:	True
Operation Performed:	During Delivery/Shipment
Cause:	Unknown
Vehicle And Cargo:	14000
Fixed Property:	0
Total Loss:	$14,000.00
Hazmat Population Density:	Not reported
HazMat Actions Taken - Description:	Not reported
Hazmat Factors Contributing To Release:	Not reported
Hazmat DOT Hazard Classification:	Not reported
Hazmat CAS Number:	Not reported
Hazardous Materials Release:	Not reported
Fire Incident Type:	Not reported
Property Use:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Hazmat Disposition:	Not reported

HAZMAT:

Casualties Id:	410
Incident Id:	940118
Casualties Type:	1
Injury Exp:	0
Injury Other:	2
Death Exp:	0
Death Other:	0
Hopitalized:	0

Chemical:

Chemical Info:	6930
Chemical Id:	35430
Incident Id:	940118
Chemical Name:	UNKNOWN CHEMICAL
UNNA:	Not reported
Amount At Risk:	0
Amount Released:	0
Amount Measured:	0
Biological:	False
Radiological:	False

Chemical Id:	35430
Chemical Name:	UNKNOWN CHEMICAL
Hazardous Ingredient:	UNKNOWN CHEMICAL
Hazardous Class 1:	9.0
Hazardous Class 2:	Not reported
Hazardous Rank:	2
Case Number:	Not reported
UNNA Number:	Not reported
EPA Pest Reg:	Not reported
EHA Chem:	Not reported
PSM Chem:	Not reported
CAA 112R Chem:	Not reported

Method:

Method Used Id:	5371
Incident Id:	940118

(Continued) **S101951135**

Identity Method: 5

Released:
Release Behavior Id: 5977
Incident Id: 940118
Behavior: 5

Narrative:
Narrative Id: 4712
Incident Id: 940118
Incident Narrative: SEMI-TRUCK INVOLVED IN ACCIDENT WITH AUTO; LEAKED DIESEL FUEL APPROX. 60 GAL, INTO STORM DRAIN THAT FEEDS INTO N. PORTLAND HARBOR-COLUMBIA RIVER. A VERY SMALL AMOUNT REACHED THE WATER (APPROX 1 CUP) THE REST STILL IN THE STORM DRAIN OR SOAKED INTO RIVER
Incident Date: 3/9/1994

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9 **DELTA PARK EXIT CONSTRUCTION** **OR LUST** **S100497559**
DELTA PARK EXIT, WEST SIDE OF I-5 **N/A**
< 1/8 **PORTLAND, OR 97217**
1 ft.

Relative: Higher
Actual: 22 ft.

LUST:
Name: DELTA PARK EXIT CONSTRUCTION
Address: DELTA PARK EXIT, WEST SIDE OF I-5
City,State,Zip: PORTLAND, OR 97217
Region: North Western Region
Facility ID: 26-90-0346
Cleanup Received Date: 09/21/1990
Cleanup Start Date: 09/19/1990
Cleanup Complete Date: 12/24/1990
Decode for Region: North West Region

B10 **D AND L SALES AND SERVICE INC** **EDR Hist Auto** **1009489905**
NW **2360 N MARINE DR** **N/A**
< 1/8 **PORTLAND, OR**
0.002 mi.
13 ft. **Site 1 of 9 in cluster B**

Relative: Lower
Actual: 20 ft.

EDR Hist Auto

Year:	Name:	Type:
1971	WALSH WILLIAM E	Gasoline Service Stations
1972	INTERSTATE TRUCK & AUTO SV INC	Gasoline Service Stations
1973	INTERSTATE TRUCK & AUTO SV INC	Gasoline Service Stations
1974	ARCHIES GEAR TRAIN	Automotive Repair Shops, NEC
1974	INTERSTATE TRUCK & AUTO SV*	Gasoline Service Stations
1975	INTERSTATE TRUCK & AUTO SV*	Gasoline Service Stations
1975	ARCHIES GEAR TRAIN SERVICE	Automotive Repair Shops, NEC
1976	INTERSTATE TRUCK & AUTO SV*	Gasoline Service Stations
1976	ARCHIES GEAR TRAIN	Automotive Repair Shops, NEC
1977	ARCHIES GEAR TRAIN	Automotive Repair Shops, NEC
1977	INTERSTATE TRUCK & AUTO SV*	Gasoline Service Stations
1978	ARCHIES GEAR TRAIN	Automotive Repair Shops, NEC
1978	INTERSTATE TRUCK & AUTO SV*	Gasoline Service Stations

D AND L SALES AND SERVICE INC (Continued) **1009489905**

1978	D & L SALES & SERVICE INC	General Automotive Repair Shops
1979	ARCHIES GEAR TRAIN	Automotive Repair Shops, NEC
1979	ARCHIES GEAR TRAIN	Automotive Repair Shops, NEC
1979	D & L SALES & SERVICE INC	General Automotive Repair Shops
1979	INTERSTATE TRUCK & AUTO SV*	Gasoline Service Stations
1980	INTERSTATE TRUCK & AUTO SV*	Gasoline Service Stations
1980	D & L SALES & SERVICE INC	General Automotive Repair Shops
1980	ARCHIES GEAR TRAIN	Automotive Repair Shops, NEC
1982	MERIT USA*	Gasoline Service Stations
1982	INTERSTATE TRUCK & AUTO SV*	Gasoline Service Stations
1982	ARCHIES GEAR TRAIN	Automotive Repair Shops, NEC
1982	D & L SALES & SERVICE INC	General Automotive Repair Shops
1983	MERIT USA*	Gasoline Service Stations
1983	ARCHIES GEAR TRAIN	Automotive Repair Shops, NEC
1983	D & L SALES & SERVICE INC	General Automotive Repair Shops
1985	D AND L SALES AND SERVICE INC	DIESEL ENGINE REPAIR
1985	D & L SALES & SERVICE INC	General Automotive Repair Shops
1985	ARCHIES GEAR TRAIN	Automotive Repair Shops, NEC
1986	D & L SALES & SERVICE INC	General Automotive Repair Shops
1986	ARCHIES GEAR TRAIN	Automotive Repair Shops, NEC
1987	D & L SALES & SERVICE INC	Automotive Repair Shops, NEC
1987	ARCHIES GEAR TRAIN	Automotive Repair Shops, NEC
1988	ARCHIES GEAR TRAIN	Automotive Repair Shops, NEC
1988	D & L SALES & SERVICE INC	General Automotive Repair Shops
1989	D & L SALES & SERVICE INC	Engine Repair
1989	ARCHIES GEAR TRAIN	Automotive Transmission Repair Shops
1990	ARCHIES GEAR TRAIN	Automotive Transmission Repair Shops
1990	D & L SALES & SERVICE INC	Engine Repair
1990	DAVES MERIT TRUCK STOP	Eating Places
1991	D & L SALES & SERVICE INC	Engine Repair
1991	FO FLETCHER INC	Gasoline Service Stations
1991	DAVES MERIT TRUCK STOP	Eating Places
1991	ARCHIES GEAR TRAIN	Automotive Transmission Repair Shops
1992	ARCHIES GEAR TRAIN	Automotive Transmission Repair Shops
1992	DAVES MERIT TRUCK STOP	Eating Places
1993	DAVES MERIT TRUCK STOP	Eating Places
1995	DAVES MERIT TRUCK STOP	Eating Places

B11 **MERIT USA, INC.** **OR LUST U004015215**
NW **2360 N MARINE DR** **OR UST N/A**
< 1/8 **PORTLAND, OR 97218**
0.002 mi.
13 ft. **Site 2 of 9 in cluster B**

Relative: **Lower**
Actual: **20 ft.**

LUST:

Name:	OREGON WASTE SYSTEMS (MERIT TRUCK STOP)
Address:	2360 N MARINE DR
City,State,Zip:	PORTLAND, OR 97217
Region:	North Western Region
Facility ID:	26-89-0031
Cleanup Received Date:	11/09/1990
Cleanup Start Date:	03/21/1990
Cleanup Complete Date:	**11/29/2007**
Decode for Region:	**North West Region**

UST:

Name:	MERIT USA, INC.

MERIT USA, INC. (Continued) **U004015215**

Address:	2360 N MARINE DR
City:	PORTLAND
Facility ID:	3750
Facility Telephone:	(208)377-0024
Permittee Name:	MARLA J. GARDNER, OPERATIONS MANAGER
Number of Permitted Tanks:	Not reported
Active Tanks:	Not reported
Decommissioned Tanks:	7
Number of Tanks:	7

C12 **SAFETY-KLEEN SYSTEMS, INC.** **RCRA-CESQG** **1001225033**
WNW **11645 N FORCE AVE** **OR MANIFEST** **ORQ000006601**
< 1/8 **PORTLAND, OR 97217**
0.010 mi.
55 ft. **Site 1 of 5 in cluster C**

Relative:
Lower

Actual:
13 ft.

RCRA-CESQG:

Date form received by agency:	06/21/2016
Facility name:	SAFETY-KLEEN SYSTEMS, INC.
Facility address:	11645 N FORCE AVE PORTLAND, OR 97217
EPA ID:	ORQ000006601
Mailing address:	1502 E VILLA ST ELGIN, IL 60120
Contact:	DAN ROURKE
Contact address:	16540 SE 130TH AVE CLACKAMAS, OR 97015
Contact country:	US
Contact telephone:	503-307-1423
Contact email:	ROURKE.DANIEL@CLEANHARBORS.COM
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 hazardous waste

Owner/Operator Summary:

Owner/operator name:	PT RAIL SERVICES, LTD
Owner/operator address:	11645 N FORCE AVE PORTLAND, OR 97217
Owner/operator country:	US
Owner/operator telephone:	503-285-5023
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported

SAFETY-KLEEN SYSTEMS, INC. (Continued) **1001225033**

Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 06/21/2016
Owner/Op end date: Not reported

Owner/operator name: SAFETY KLEEN SYSTEMS INC
Owner/operator address: 2600 NORTH CENTRAL EXPRESSWAY, RICHARDSON, TX 75080
Owner/operator country: US
Owner/operator telephone: 972-265-2000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 06/21/2016
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: Yes
Used oil Specification marketer: Yes
Used oil transfer facility: Yes
Used oil transporter: Yes

Historical Generators:
Date form received by agency: 04/30/2015
Site name: SAFETY KLEEN SYSTEMS INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2011
Site name: SAFETY KLEEN SYSTEMS INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2010
Site name: SAFETY KLEEN SYSTEMS INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2009
Site name: SAFETY KLEEN SYSTEMS INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2008
Site name: SAFETY KLEEN SYSTEMS INC
Classification: Conditionally Exempt Small Quantity Generator

SAFETY-KLEEN SYSTEMS, INC. (Continued) **1001225033**

Date form received by agency: 12/31/2007
Site name: SAFETY KLEEN SYSTEMS INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2005
Site name: SAFETY KLEEN SYSTEMS INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2005
Site name: SAFETY KLEEN SYSTEMS INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2004
Site name: SAFETY KLEEN SYSTEMS INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 03/03/2003
Site name: SAFETY KLEEN SYSTEMS INC
Classification: Large Quantity Generator

Date form received by agency: 02/25/2002
Site name: SAFETY KLEEN SYSTEMS INC
Classification: Small Quantity Generator

Date form received by agency: 03/06/2001
Site name: SAFETY KLEEN SYSTEMS INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 07/08/1998
Site name: SAFETY KLEEN SYSTEMS INC
Classification: Not a generator, verified

Date form received by agency: 04/29/1998
Site name: SAFETY KLEEN SYSTEMS INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 04/28/1998
Site name: SAFETY KLEEN SYSTEMS INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 06/23/1997
Site name: SAFETY KLEEN SYSTEMS INC
Classification: Conditionally Exempt Small Quantity Generator

Hazardous Waste Summary:

. Waste code: NA
. Waste name: NA

. Waste code: NONE
. Waste name: None

Facility Has Received Notices of Violations:
Regulation violated: FR - 40 CFR 279.45(d)
Area of violation: Generators - General
Date violation determined: 11/16/1999

SAFETY-KLEEN SYSTEMS, INC. (Continued) **1001225033**

Date achieved compliance: 02/15/2000
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 11/30/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 279.45(a)
Area of violation: Generators - General
Date violation determined: 07/21/1999
Date achieved compliance: 09/30/1999
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 07/30/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 279.45(d)
Area of violation: Generators - General
Date violation determined: 07/21/1999
Date achieved compliance: 09/30/1999
Violation lead agency: State
Enforcement action: INITIAL 3008(A) CP/CO ORDER
Enforcement action date: 02/22/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 2000
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - OAR 340-111-032
Area of violation: Generators - General
Date violation determined: 07/21/1999
Date achieved compliance: 09/30/1999
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 07/30/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 279.45(d)
Area of violation: Generators - General
Date violation determined: 07/21/1999
Date achieved compliance: 09/30/1999

SAFETY-KLEEN SYSTEMS, INC. (Continued) **1001225033**

Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 07/30/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 11/16/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 02/15/2000
Evaluation lead agency: State

Evaluation date: 07/21/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 09/30/1999
Evaluation lead agency: State

OR MANIFEST:
Manifest Year: Manifest Year - 2007
EPA Id: ORQ000024905
Inactive Status: 2007-10-25 00:00:00
Organization Name: Not reported
Contact Name: Jim Brennan
Contact Telephone Number: 716 879-0494
Mailing Address: PO Box 845
Mailing City/State/Zip: Buffalo, NY 14240

C13 **PENINSULA TERMINAL COMPANY** **OR AST** **S111253588**
WNW **11645 N FORCE AVE, 2** **OR SPILLS** **N/A**
< 1/8 **PORTLAND, OR 97217** **OR HSIS**
0.010 mi.
55 ft. **Site 2 of 5 in cluster C**

Relative:
Lower

Actual:
13 ft.

AST:
Facility Id: 033038
Hazardous Substance: FUEL OIL.
Reporting Quantities: 1,000-4,999
Quantity Units: GALLONS
Physical State: LIQUID
Storage 1: ABOVEGROUND TANK
Storage 2: TANK INSIDE BUILDING
County: Not reported
Owner-Operator Name: Not reported

PENINSULA TERMINAL COMPANY (Continued) **S111253588**

Direct Site Phone: Not reported
Report Class: Not reported
Report Year: Not reported
Is Poisonous Gas: Not reported
Is Poisonous Material: Not reported
Is Biological Hazard: Not reported
Is Radioactive Material: Not reported
Is Explosive: Not reported
Status: Inactive

OR SPILLS:
Name: Not reported
Address: 11645 N FORCE AVE
City,State,Zip: PORTLAND, OR 97217-7703
Facility ID: 2007-1516
Incident Status: Archive
Material: Products, manufacturing intermediates, etc.
Quantity: 700
Unit of Measure: Gallons
Release Date: 07/12/2007
Description: 700 gallons of hydrogen peroxide spilled to the ground (52%). RP was loading a cargo tank and it overflowed. RP says the material breaks apart when it hits the ground. It is used for groundwater remediation. No cleanup efforts underway.
Lat/Long: 45.6071 / -122.6912
Source: Container
Media: Non-saturated soil, rock, etc.
Responsible Company: FMC Corporation
Responsible Address: 1735 Market St
Responsible City,St,Zip: Philadelphia, PA 19103-7501

Name: Not reported
Address: 11645 N FORCE AVE
City,State,Zip: PORTLAND, OR 97217
Facility ID: 2017-3116
Incident Status: Closed
Material: Chemical Product
Quantity: 40
Unit of Measure: Gallons
Release Date: 10/25/2017
Description: PT Railroad Services reported the release of a minimum of 40 gals of sulfuric acid. Location listed is the Peninsula Terminal, a rail yard and transfer facility. There was an error when disconnecting the product valve on the container car - the vent valve was closed and forced forced sulfuric acid out of the container. It is unknown exactly how much was spilled, caller is guessing at least 40 gals. No waterways affected. Spill is contained in the facility on asphalt. Clean Harbors on scene cleaning it.
Lat/Long: 45.607431 / -122.69271
Source: Railway
Media: Pavement
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

Name: Not reported
Address: 11645 N FORCE AVE

PENINSULA TERMINAL COMPANY (Continued) **S111253588**

City,State,Zip: PORTLAND, OR 97217-7703
Facility ID: 1997-2928
Incident Status: Archive
Material: Products, manufacturing intermediates, etc.
Quantity: 150
Unit of Measure: Gallons
Release Date: 12/01/1997
Description: While transfering solvent, from a tank to a truck, 150 gallons overfill was experienced. Generated 60 gallons of clean-up.
Lat/Long: 45.6071 / -122.6912
Source: Motor Vehicle - Tank Truck
Media: Non-saturated soil, rock, etc.
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

Name: Not reported
Address: 11645 N FORCE AVE
City,State,Zip: PORTLAND, OR 97217-7703
Facility ID: 2001-2979
Incident Status: Archive
Material: Not reported
Quantity: 55
Unit of Measure: Gallons
Release Date: 11/14/2001
Description: 55 gal drum - labeled "waste oil" - noticable ammonia odor
Lat/Long: 45.6071 / -122.6912
Source: Drum (55-Gal)
Media: Suspected, unknown, or no discharge
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

HSIS:

Name:	PENINSULA TERMINAL COMPANY
Address:	11645 N FORCE AVE
City,State,Zip:	PORTLAND, OR 97217
Facility ID:	033038
Department Or Division Of Company:	Not reported
Chemical Is Extremely Hazardous Substance (EHS:	N
Contains 112R:	N
Facility Has Written Emergency Plan:	Y
NAICS Code 1:	482112
NAICS Desc 1:	SHORT LINE RAILROADS
NAICS Code 2:	000000
NAICS Desc 2:	Not reported
Manager Name:	DARYL NESS
Business Phone:	5032855023
Mailing Address:	11645 N FORCE AVE
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	97217
No. of Employees:	14
Day Phone:	5032855023
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE

PENINSULA TERMINAL COMPANY (Continued) **S111253588**

Sprinkler System:	Y
Emergency Contact:	DARYL NESS
Emergency Procedure:	MAIN OFFICE
Business Type:	SWITCHING & TERMINAL RAILROAD
Facility Type:	Not reported
Department:	Not reported
Status:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Last Reported ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	Not reported
Maximum Daily Amount Unit:	Not reported
Chemical Added Date:	Not reported
Is Chem PSM:	Not reported
Is Chem 112R:	Not reported
Is Chem 302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
Number of Days Onsite:	Not reported
Year:	Not reported
Case Number:	68476346
Chemical Name:	BIODIESEL 5%
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	20
Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/03/2017
Is Chem PSM:	No
Is Chem 112R:	Yes
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid

PENINSULA TERMINAL COMPANY (Continued) **S111253588**

UNNA Number:	1993
NFPA Health:	2
NFPA Flammability:	2
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health SkinCorrosion, Physical HNOC
Number of Days Onsite:	365
Year:	2018
Case Number:	7782447
Chemical Name:	OXYGEN
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	10
Maximum Daily Amount Unit:	cuft
Chemical Added Date:	10/03/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Gas
UNNA Number:	1072
NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	OX
Hazards:	Health HNOC, Physical HNOC
Number of Days Onsite:	365
Year:	2018
Case Number:	74862
Chemical Name:	ACETYLENE
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	10
Maximum Daily Amount Unit:	cuft
Chemical Added Date:	03/13/2018
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Gas
UNNA Number:	1001
NFPA Health:	0
NFPA Flammability:	4
NFPA Reactivity:	3
NFPA Special Notice:	N/A
Hazards:	Health HNOC
Number of Days Onsite:	365

PENINSULA TERMINAL COMPANY (Continued) **S111253588**

Year:	2018
Case Number:	67641
Chemical Name:	ACETONE
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	30
Maximum Daily Amount Unit:	gal
Chemical Added Date:	09/28/2018
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	1090
NFPA Health:	2
NFPA Flammability:	3
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health HNOC, Health SeriousEye, Physical Combustive
Number of Days Onsite:	40
Year:	2018
Case Number:	67561
Chemical Name:	METHANOL
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	41
Maximum Daily Amount Unit:	gal
Chemical Added Date:	09/28/2018
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	1230
NFPA Health:	2
NFPA Flammability:	3
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Acute, Health SkinCorrosion, Physical Combustive
Number of Days Onsite:	20
Year:	2018
Case Number:	64175
Chemical Name:	DENATURED ETHANOL
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No

PENINSULA TERMINAL COMPANY (Continued) **S111253588**

Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	40
Maximum Daily Amount Unit:	gal
Chemical Added Date:	09/28/2018
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	1170
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Health Acute, Health SeriousEye, Physical Combustive
Number of Days Onsite:	20
Year:	2018

Case Number:	N/A
Chemical Name:	SULFURIC ACID-SPENT
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	30
Maximum Daily Amount Unit:	gal
Chemical Added Date:	09/28/2018
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	1832
NFPA Health:	3
NFPA Flammability:	1
NFPA Reactivity:	2
NFPA Special Notice:	N/A
Hazards:	Health SkinCorrosion, Physical Corrosive
Number of Days Onsite:	4
Year:	2018

Case Number:	7722841
Chemical Name:	HYDROGEN PEROXIDE
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	30
Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/08/2018
Is Chem PSM:	No
Is Chem 112R:	No

PENINSULA TERMINAL COMPANY (Continued) **S111253588**

Is Chem 302:	Yes
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	2014
NFPA Health:	2
NFPA Flammability:	0
NFPA Reactivity:	1
NFPA Special Notice:	Not reported
Hazards:	Health Acute, Health SkinCorrosion
Number of Days Onsite:	20
Year:	2018

Case Number:	14215522
Chemical Name:	CMC 10.3 WOOD PRESERVATIVE
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	30
Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/09/2018
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	1760
NFPA Health:	2
NFPA Flammability:	1
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Acute, Health SeriousEye, Health SpecificOrganToxicity
Number of Days Onsite:	20
Year:	2018

Case Number:	14215522
Chemical Name:	NW-CA CONCENTRATE
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	30
Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/10/2018
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	Yes
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	2491
NFPA Health:	3
NFPA Flammability:	0

PENINSULA TERMINAL COMPANY (Continued) **S111253588**

NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Acute, Health ReproductiveToxicity, Health SeriousEye, Health SkinCorrosion, Health SpecificOrganToxicity
Number of Days Onsite:	30
Year:	2018

Chemical:

Chemical Name:	FUEL OIL.
Physical Description:	LIQUID
Case Number:	68476335
Facility Id:	033038
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	11
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	C
Temperature Description:	TANK INSIDE BUILDING
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	RESIDUAL FUEL OIL
United Nations/north America 4 Digit Class Number:	1268
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Y
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	OXYGEN

PENINSULA TERMINAL COMPANY (Continued) **S111253588**

Physical Description:	GAS
Case Number:	7782447
Facility Id:	033038
Physical State Of The Substance:	3
Average Amount Possessed During The Year Code:	11
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Click this hyperlink while viewing on your computer to access
9 additional OR HSIS: record(s) in the EDR Site Report.

C14 WNW < 1/8 0.010 mi. 55 ft. **RED GIANT OIL COMPANY LLC** **RCRA NonGen / NLR** **1024893244**
11645 N FORCE AVE RGO RAIL SPO **ORQ000037975**
PORTLAND, OR 97217

Site 3 of 5 in cluster C

Relative: Lower

Actual: 13 ft.

RCRA NonGen / NLR:

Date form received by agency:	12/19/2018
Facility name:	RED GIANT OIL COMPANY LLC
Facility address:	11645 N FORCE AVE RGO RAIL SPO PORTLAND, OR 97217
EPA ID:	ORQ000037975
Mailing address:	3720 LESIKAR LANE JOSHUA, TX 76058
Contact:	AL FOREMAN
Contact address:	3720 LESIKAR LANE JOSHUA, TX 76058
Contact country:	US
Contact telephone:	817-202-1070
Contact email:	ALF@REDGIANTOIL.COM
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	RED GIANT OIL COMPANY LLC
Owner/operator address:	1701 SOUTH 3RD ST COUNCIL BLUFFS, IA 51503
Owner/operator country:	US
Owner/operator telephone:	712-323-2441
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	12/19/2018
Owner/Op end date:	Not reported

Owner/operator name:	RED GIANT OIL COMPANY LLC
Owner/operator address:	1701 SOUTH 3RD ST COUNCIL BLUFFS, IA 51503
Owner/operator country:	US
Owner/operator telephone:	712-323-2441
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	12/19/2018
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

RED GIANT OIL COMPANY LLC (Continued) **1024893244**

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:	Yes
Used oil transporter:	Yes

Hazardous Waste Summary:

. Waste code: NA
. Waste name: NA

Violation Status: No violations found

C15 WNW < 1/8 0.010 mi. 55 ft. **FMC CORPORATION @ PENINSULA TERMINAL** **RCRA NonGen / NLR** **1008892312**
11645 N FORCE AVE S PARKING LO **ORQ000024905**
PORTLAND, OR 97217

Site 4 of 5 in cluster C

Relative: Lower

Actual: 13 ft.

RCRA NonGen / NLR:

Date form received by agency:	12/31/2007
Facility name:	FMC CORPORATION @ PENINSULA TERMINAL
Site name:	BULK TRANSPORTATION SPILL @ PENINSULA TE
Facility address:	11645 N FORCE AVE S PARKING LO PORTLAND, OR 97217
EPA ID:	ORQ000024905
Mailing address:	3032 S EL DORADO ST STOCKTON, CA 95206
Contact:	RICHARD FUNDERHIDE
Contact address:	11619 B NORTH FORCE AVE PORTLAND, OR 97217
Contact country:	US
Contact telephone:	503-283-5684
Contact email:	RICHARDF@BULK-DTI.COM
EPA Region:	10
Land type:	Private
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	BULK TRANSPORTATION INC
Owner/operator address:	11619 B NORTH FORCE AVE PORTLAND, OR 97217
Owner/operator country:	US
Owner/operator telephone:	503-283-5684
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	12/31/2007
Owner/Op end date:	Not reported

Owner/operator name: BULK TRANSPORTATION INC

FMC CORPORATION @ PENINSULA TERMINAL (Continued) **1008892312**

Owner/operator address: 11619 B NORTH FORCE AVE
PORTLAND, OR 97217
Owner/operator country: US
Owner/operator telephone: 503-283-5684
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 12/31/2007
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: 10/25/2007
Site name: FMC CORPORATION @ PENINSULA TERMINAL
Classification: Large Quantity Generator

Date form received by agency: 10/25/2007
Site name: FMC CORPORATION @ PENINSULA TERMINAL
Classification: Not a generator, verified

Date form received by agency: 05/14/2007
Site name: FMC CORPORATION @ PENINSULA TERMINAL
Classification: Not a generator, verified

Date form received by agency: 12/31/2005
Site name: BULK TRANSPORTATION SPILL @ PENINSULA TE
Classification: Not a generator, verified

Date form received by agency: 10/14/2005
Site name: BULK TRANSPORTATION SPILL @ PENINSULA TE
Classification: Not a generator, verified

Hazardous Waste Summary:

. Waste code: NA
. Waste name: NA

FMC CORPORATION @ PENINSULA TERMINAL (Continued) **1008892312**

Facility Has Received Notices of Violations:
- Regulation violated: Not reported
- Area of violation: Generators - Pre-transport
- Date violation determined: 07/20/2007
- Date achieved compliance: 08/07/2007
- Violation lead agency: State
- Enforcement action: NOTICE OF NONCOMPLIANCE
- Enforcement action date: 08/03/2007
- Enf. disposition status: Not reported
- Enf. disp. status date: Not reported
- Enforcement lead agency: State
- Proposed penalty amount: Not reported
- Final penalty amount: Not reported
- Paid penalty amount: Not reported

- Regulation violated: Not reported
- Area of violation: Generators - Records/Reporting
- Date violation determined: 07/20/2007
- Date achieved compliance: 08/07/2007
- Violation lead agency: State
- Enforcement action: NOTICE OF NONCOMPLIANCE
- Enforcement action date: 08/03/2007
- Enf. disposition status: Not reported
- Enf. disp. status date: Not reported
- Enforcement lead agency: State
- Proposed penalty amount: Not reported
- Final penalty amount: Not reported
- Paid penalty amount: Not reported

Evaluation Action Summary:
- Evaluation date: 07/20/2007
- Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
- Area of violation: Generators - Records/Reporting
- Date achieved compliance: 08/07/2007
- Evaluation lead agency: State

- Evaluation date: 07/20/2007
- Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
- Area of violation: Generators - Pre-transport
- Date achieved compliance: 08/07/2007
- Evaluation lead agency: State

D16 **VANPORT PLANT** **OR UST** **U004015206**
ENE **1835 N MARINE DR** **N/A**
< 1/8 **PORTLAND, OR 97217**
0.012 mi.
64 ft. **Site 1 of 6 in cluster D**

Relative: Higher
Actual: 22 ft.

UST:
- Name: VANPORT PLANT
- Address: 1835 N MARINE DR
- City: PORTLAND
- Facility ID: 1890
- Facility Telephone: (503)239-5504
- Permittee Name: Ryan Enoch
- Number of Permitted Tanks: Not reported
- Active Tanks: Not reported
- Decommissioned Tanks: 1

VANPORT PLANT (Continued) **U004015206**

Number of Tanks: 1

D17 **ROSS ISLAND SAND & GRAVEL CO** **OR AST** **S111254599**
ENE **1835 N MARINE DR** **OR AIRS** **N/A**
< 1/8 **PORTLAND, OR 97217** **OR HSIS**
0.012 mi.
64 ft. **Site 2 of 6 in cluster D**

Relative:
Higher

Actual:
22 ft.

AST:

Facility Id:	004699
Hazardous Substance:	DIESEL FUEL
Reporting Quantities:	Not reported
Quantity Units:	Not reported
Physical State:	Not reported
Storage 1:	Above ground tank
County:	MULTNOMAH
Owner-Operator Name:	RANDALL
Direct Site Phone:	5032395504
Report Class:	Annual
Report Year:	2017
Is Poisonous Gas:	No
Is Poisonous Material:	No
Is Biological Hazard:	No
Is Radioactive Material:	No
Is Explosive:	No
Status:	Not reported

OR AIRS:

Name:	ROSS ISLAND SAND & GRAVEL CO.
Address:	1835 N MARINE DR
City,State,Zip:	PORTLAND, OR 97217
Year:	Not reported
Emission:	Not reported
Permit Number:	26-1944-09-01
Permit Type:	General (1) ACDP
Expiration Date:	10/01/2027
Source ID:	Not reported
Issue Date:	04/10/2018
NAICS Code:	327320
Is Primary:	Not reported
SIC Code:	3273
Is Primary:	Not reported
Latitude:	45.6063
Longitude:	-122.6821
Poll:	Not reported
Emission Source Code:	Not reported
Process Code:	Not reported
SCC:	Not reported
Emission Source Description:	Not reported
Process Description:	Not reported
Throughput:	Not reported
Process Unit:	Not reported
Throughput Type:	Not reported

HSIS:

Name:	ROSS ISLAND SAND & GRAVEL CO
Address:	1835 N MARINE DR

ROSS ISLAND SAND & GRAVEL CO (Continued) **S111254599**

City,State,Zip:	PORTLAND, OR 97217
Facility ID:	004699
Department Or Division Of Company:	Not reported
Chemical Is Extremely Hazardous Substance (EHS:	Not reported
Contains 112R:	Not reported
Facility Has Written Emergency Plan:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
Manager Name:	Not reported
Business Phone:	Not reported
Mailing Address:	Not reported
Mailing City:	Not reported
Mailing State:	Not reported
Mailing Zip:	Not reported
No. of Employees:	Not reported
Day Phone:	Not reported
Placard:	Not reported
Fire Dept Code:	Not reported
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Not reported
Emergency Contact:	Not reported
Emergency Procedure:	Not reported
Business Type:	Not reported
Facility Type:	Private
Department:	VANPORT PLANT
Status:	ACTIVE
Latitude:	45.6079
Longitude:	-122.686
Status TRI:	Active
Status RMP:	Active
Status PSM:	Active
Status CR2K:	Inactive
Status 302:	Active
Owner Name:	RANDALL H. STEED
Last Reported ID:	34394
Case Number:	N/A
Chemical Name:	GLENIUM 3030 NS
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	20
Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/10/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	N/A
NFPA Health:	1
NFPA Flammability:	0
NFPA Reactivity:	0

ROSS ISLAND SAND & GRAVEL CO (Continued) **S111254599**

NFPA Special Notice:	N/A
Hazards:	Health HNOC
Number of Days Onsite:	365
Year:	2018
Case Number:	8050280
Chemical Name:	MB AE 90
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	11
Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/10/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	0
NFPA Health:	1
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	Not reported
Hazards:	Health Respiratory, Health SeriousEye
Number of Days Onsite:	365
Year:	2018
Case Number:	1305788
Chemical Name:	SLAG CEMENT
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	31
Maximum Daily Amount Unit:	lbs
Chemical Added Date:	10/10/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Solid
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Health Carcinogenicity, Health SeriousEye, Health SkinCorrosion
Number of Days Onsite:	365
Year:	2018
Case Number:	10124375
Chemical Name:	POZZOLITH AC 534

ROSS ISLAND SAND & GRAVEL CO (Continued) **S111254599**

EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	20
Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/10/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Health Acute, Health SeriousEye
Number of Days Onsite:	365
Year:	2018

Case Number:	65997151
Chemical Name:	CEMENT
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	41
Maximum Daily Amount Unit:	lbs
Chemical Added Date:	10/10/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Solid
UNNA Number:	0
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Health Aspiration, Health Carcinogenicity, Health SeriousEye, Health SkinCorrosion, Health SpecificOrganToxicity
Number of Days Onsite:	365
Year:	2018

Case Number:	6419198
Chemical Name:	DELVO STABILIZER
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	20

ROSS ISLAND SAND & GRAVEL CO (Continued) **S111254599**

Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/10/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	0
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Health Respiratory, Health SeriousEye, Health SkinCorrosion
Number of Days Onsite:	365
Year:	2018
Case Number:	68334305
Chemical Name:	DIESEL FUEL
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	20
Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/10/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	1993
NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Aspiration, Health Carcinogenicity, Health SkinCorrosion, Health SpecificOrganToxicity, Physical Combustive
Number of Days Onsite:	365
Year:	2018
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	Not reported
Maximum Daily Amount Unit:	Not reported
Chemical Added Date:	Not reported
Is Chem PSM:	Not reported
Is Chem 112R:	Not reported
Is Chem 302:	Not reported
Is Pesticide:	Not reported

ROSS ISLAND SAND & GRAVEL CO (Continued) **S111254599**

Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
Number of Days Onsite:	Not reported
Year:	Not reported

Chemical:

Chemical Name:	GLENIUM 3030 NS
Physical Description:	LIQUID
Case Number:	000000
Facility Id:	004699
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	11
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	NONE LISTED ON MSDS
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	1
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N

ROSS ISLAND SAND & GRAVEL CO (Continued) **S111254599**

Contains 313:	N
Chemical Name:	MB AE 90
Physical Description:	LIQUID
Case Number:	0008050280
Facility Id:	004699
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	11
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	ROSIN
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	1
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	False
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N
Chemical Name:	SLAG CEMENT
Physical Description:	SOLID
Case Number:	1305788
Facility Id:	004699
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	30
Maximum Amount Possessed During The Year Code:	31

ROSS ISLAND SAND & GRAVEL CO (Continued) **S111254599**

Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	H
Description:	SILO
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	50,000-99,999
Description Of The Avg Qnty Code:	10,000-49,999
Most Hazardous Ingridient:	CALCIUM OXIDE
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	POZZOLITH AC 534
Physical Description:	LIQUID
Case Number:	0010124375
Facility Id:	004699
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	11
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported

ROSS ISLAND SAND & GRAVEL CO (Continued) **S111254599**

Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	CALCIUM NITRATE, TETRAHYDRATE
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	1
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	POZZOLITH 200
Physical Description:	LIQUID
Case Number:	0000102716
Facility Id:	004699
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	11
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	NITRILOTRIETHANOL
United Nations/north America 4 Digit Class Number:	Not reported

ROSS ISLAND SAND & GRAVEL CO (Continued) **S111254599**

Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	CEMENT
Physical Description:	SOLID
Case Number:	65997151
Facility Id:	004699
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	40
Maximum Amount Possessed During The Year Code:	40
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	H
Description:	SILO
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	100,000-249,999
Description Of The Avg Qnty Code:	100,000-249,999
Most Hazardous Ingridient:	PORTLAND CEMENT
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	4
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

ROSS ISLAND SAND & GRAVEL CO (Continued) **S111254599**

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	DELVO STABILIZER
Physical Description:	LIQUID
Case Number:	6419198
Facility Id:	004699
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	10
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	PHOSPHONIC ACID ((NITRILOTRIS(METHYLENE
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

ROSS ISLAND SAND & GRAVEL CO (Continued) **S111254599**

Chemical Name:	DIESEL FUEL
Physical Description:	LIQUID
Case Number:	0068334305
Facility Id:	004699
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	21
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	B
Description:	UNDERGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	petroleum products, diesel oil
United Nations/north America 4 Digit Class Number:	1993
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

D18 **ROSS ISLAND SAND & GRAVEL VANPORT PLANT** **OR LUST** **S120414426**
ENE **1835 N MARINE DRIVE** **N/A**
< 1/8 **PORTLAND, OR 97217**
0.012 mi.
64 ft. **Site 3 of 6 in cluster D**

Relative:
Higher

Actual:
22 ft.

LUST:

Name:	ROSS ISLAND SAND & GRAVEL VANPORT PLANT
Address:	1835 N MARINE DRIVE
City,State,Zip:	PORTLAND, OR 97217

ROSS ISLAND SAND & GRAVEL VANPORT PLANT (Continued) **S120414426**

Region: North Western Region
Facility ID: 26-17-0101
Cleanup Received Date: 02/03/2017
Cleanup Start Date: 08/01/2017
Cleanup Complete Date: 09/11/2017
Decode for Region: North West Region

D19 **DIVERSIFIED MARINE, INC** **SEMS-ARCHIVE** **1010417140**
ENE **1801 N MARINE DRIVE** **ORN001002703**
< 1/8 **PORTLAND, OR 97217**
0.013 mi.
70 ft. **Site 4 of 6 in cluster D**

Relative:
Higher

Actual:
22 ft.

SEMS Archive:
Site ID: 1002703
EPA ID: ORN001002703
Cong District: Not reported
FIPS Code: 41051
FF: N
NPL: Not on the NPL
Non NPL Status: NFRAP-Site does not qualify for the NPL based on existing information

SEMS Archive Detail:
Region: 10
Site ID: 1002703
EPA ID: ORN001002703
Site Name: DIVERSIFIED MARINE, INC
NPL: N
FF: N
OU: 00
Action Code: VS
Action Name: ARCH SITE
SEQ: 1
Start Date: Not reported
Finish Date: 2010-08-06 05:00:00
Qual: Not reported
Current Action Lead: EPA Perf In-Hse

Region: 10
Site ID: 1002703
EPA ID: ORN001002703
Site Name: DIVERSIFIED MARINE, INC
NPL: N
FF: N
OU: 00
Action Code: DS
Action Name: DISCVRY
SEQ: 1
Start Date: 2007-07-16 04:00:00
Finish Date: 2007-07-16 04:00:00
Qual: Not reported
Current Action Lead: EPA Perf In-Hse

Region: 10
Site ID: 1002703
EPA ID: ORN001002703
Site Name: DIVERSIFIED MARINE, INC
NPL: N

DIVERSIFIED MARINE, INC (Continued) **1010417140**

FF:	N
OU:	00
Action Code:	PA
Action Name:	PA
SEQ:	1
Start Date:	2007-07-16 04:00:00
Finish Date:	2010-08-06 05:00:00
Qual:	N
Current Action Lead:	EPA Perf

D20 **DIVERSIFIED MARINE INC** **RCRA-CESQG** **1008374820**
ENE **1801 N MARINE DR** **ORQ000021675**
< 1/8 **PORTLAND, OR 97217**
0.013 mi.
70 ft. **Site 5 of 6 in cluster D**

Relative: **Higher**

Actual: **22 ft.**

RCRA-CESQG:

Date form received by agency:	04/24/2003
Facility name:	DIVERSIFIED MARINE INC
Facility address:	1801 N MARINE DR PORTLAND, OR 97217
EPA ID:	ORQ000021675
Mailing address:	PO BOX 83723 PORTLAND, OR 97283
Contact:	CARLA SHOWN
Contact address:	PO BOX 83723 PORTLAND, OR 97283
Contact country:	US
Contact telephone:	503-289-2669
Contact email:	Not reported
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 hazardous waste

Owner/Operator Summary:

Owner/operator name:	DIVERSIFIED MARINE INC
Owner/operator address:	PO BOX 83723 PORTLAND, OR 97283
Owner/operator country:	US
Owner/operator telephone:	503-289-2669
Owner/operator email:	Not reported
Owner/operator fax:	Not reported

DIVERSIFIED MARINE INC (Continued) **1008374820**

Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 04/24/2003
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: 03/12/2003
Site name: S S LEADER AT DIVERSIFIED MARINE
Classification: Large Quantity Generator

Date form received by agency: 11/05/2002
Site name: S S LEADER AT DIVERSIFIED MARINE
Classification: Large Quantity Generator

Facility Has Received Notices of Violations:
Regulation violated: FR - 40 CFR 262.23
Area of violation: Generators - General
Date violation determined: 11/25/2002
Date achieved compliance: 07/07/2003
Violation lead agency: State
Enforcement action: INITIAL 3008(A) CP/CO ORDER
Enforcement action date: 07/07/2003
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 3600
Final penalty amount: Not reported
Paid penalty amount: 3600

Regulation violated: FR - 40 CFR 262.40(c)
Area of violation: Generators - General
Date violation determined: 11/25/2002
Date achieved compliance: 07/07/2003
Violation lead agency: State
Enforcement action: INITIAL 3008(A) CP/CO ORDER
Enforcement action date: 07/07/2003
Enf. disposition status: Not reported
Enf. disp. status date: Not reported

DIVERSIFIED MARINE INC (Continued) **1008374820**

Enforcement lead agency: State
Proposed penalty amount: 3600
Final penalty amount: Not reported
Paid penalty amount: 3600

Regulation violated: SS - ORS 466.095
Area of violation: Generators - General
Date violation determined: 11/25/2002
Date achieved compliance: 07/07/2003
Violation lead agency: State
Enforcement action: INITIAL 3008(A) CP/CO ORDER
Enforcement action date: 07/07/2003
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 3600
Final penalty amount: Not reported
Paid penalty amount: 3600

Regulation violated: FR - 40 CFR 262.23
Area of violation: Generators - General
Date violation determined: 11/25/2002
Date achieved compliance: 07/07/2003
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 12/02/2002
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40 CFR 262.40(c)
Area of violation: Generators - General
Date violation determined: 11/25/2002
Date achieved compliance: 07/07/2003
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 12/02/2002
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SS - ORS 466.095
Area of violation: Generators - General
Date violation determined: 11/25/2002
Date achieved compliance: 07/07/2003
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 12/02/2002
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State

DIVERSIFIED MARINE INC (Continued) **1008374820**

Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 11/25/2002
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 07/07/2003
Evaluation lead agency: State

D21 **DIVERSIFIED MARINE, INC.** **OR ECSI** **S108659504**
ENE **1801 N MARINE DR** **OR CDL** **N/A**
< 1/8 **PORTLAND, OR 97217** **OR SPILLS**
0.013 mi. **OR HAZMAT**
70 ft. **Site 6 of 6 in cluster D** **OR HSIS**
OR NPDES

Relative:
Higher

Actual:
22 ft.

ECSI:
Name: DIVERSIFIED MARINE, INC.
Address: 1801 N MARINE DR.
City,State,Zip: PORTLAND, OR 97217
State ID Number: 3759
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: Suspect
FACA ID: 47829
Further Action: 257
Lat/Long (dms): 45 36 27.00 / -122 41 6.00
County Code: 26.00
Score Value: Not reported
Cerclis ID: 001002703
Township Coord.: 2.00
Township Zone: N
Range Coord: 1.00
Range Zone: E
Section Coord: 33
Qtr Section: Dd
Tax Lots: 300 (2N1E33DD 300)
Size: Approx. 0.8 acre
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 04/08/2015
Created Date: 12/24/2002
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: High-Medium
Decode For Investstat: Suspect
Decode For Legislative: Not reported
Alias Name: Portmarco, Inc.
Alias Name: Whitecap Cove, Inc.
Alias Name: Diversified Mechanical, Inc.

Hazardous Release:
Substance ID.: 121671
Haz Release ID: 387451

DIVERSIFIED MARINE, INC. (Continued) **S108659504**

Qty Released: unknown
Date Released: unknown
Update Date: 01/13/2010
Update By: CHARMAN
Substance Code: 7440-47-3
Substance Name: CHROMIUM
Substance Abbrev.: Not reported
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318145
Sub Alias Name: CHROMIUM, INORGANIC
Substance Alias ID: 319294
Sub Alias Name: CHROMIUM, TOTAL
Sampling Result ID: 349807
Feature Id: 0
Hazard Release Id: 387451
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 10/28/2008
End Date: 10/28/2008
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 10.4 ppm (CR05SD). Sample collected downstream from DMI - locally elevated above two upstream samples, but below DEQ ecological SLV for Cr in sediment of 37 ppm. Lat. 45.60825; Long. -122.685783
Last Update By: CHARMAN
Update Date: 01/13/2010
Decode for MediumID: Sediment

Substance ID.: 121673
Haz Release ID: 387452
Qty Released: unknown
Date Released: unknown
Update Date: 01/13/2010
Update By: CHARMAN
Substance Code: 7440-50-8
Substance Name: COPPER
Substance Abbrev.: Not reported
Substance Category ID: 8464
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8464

DIVERSIFIED MARINE, INC. (Continued) **S108659504**

Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319296
Sub Alias Name: CU
Sampling Result ID: 349808
Feature Id: 0
Hazard Release Id: 387452
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 10/28/2008
End Date: 10/28/2008
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 39.8 ppm (CR05SD). Elevated locally and above two upstream samples. DEQ freshwater sediment SLV for Cu is 37 ppm. Lat. 45.60825; Long. -122.685783
Last Update By: CHARMAN
Update Date: 01/13/2010
Decode for MediumID: Sediment

Narrative:
NARR ID: 5743775
NARR Code: Site Contacts
Created By: SFORTUN
Created Date: 07/03/2003
Updated By: SFORTUN
Updated Date: 07/03/2003
Decode for NarcdID: Site Contacts
NARR Comments: Mr. Kurt Redd, President, Diversified Marine, Inc. / Portmarco, Inc. / Whitecap Cove, Inc., P.O. Box 83723, Portland, OR 97283-0723, 503-289-2669 (FAX 503-289-2825). Ms. Carla Shown, Treasurer, Diversified Marine, Inc., P.. Box 83719, Portland, OR 97283-0719, 503-289-2669 (FAX 503-289-2825). Ms. Carla Shown, Registered Agent, Diversified Marine, Inc. / Portmarco, Inc., P.O. Box 83723, Portland, OR 97283-0723. Mr. Kevin F. Kerstiens, Registered Agent, Whitecap Cove, Inc., 1211 SW Fifth Avenue, Suite 1800, Portland, OR 97204

NARR ID: 5743776
NARR Code: Contamination
Created By: SFORTUN
Created Date: 07/03/2003
Updated By: CHARMAN
Updated Date: 01/13/2010
Decode for NarcdID: Contamination
NARR Comments: Stormwater quality data collected twice since June 2002 indicate that the facility meets DEQ's stormwater benchmark values, although concentrations of copper and zinc in site stormwater exceeded the National Recommended Water Quality Criteria's respective Freshwater Critical Maximum Concentrations, DEQ's respective Freshwater Acute Toxicity Criteria, and DEQ's Level II Ecological Risk Assessment Screening Benchmark Values for freshwater aquatic life. Between 1990

DIVERSIFIED MARINE, INC. (Continued) **S108659504**

and 2001, DEQ received nine Pollution Complaints and six Spill Reports associated with potential hazardous substance releases at the Diversified Marine facility, or petroleum sheens present on the river directly adjacent to the facility. Five of the Pollution Complaints and one of the Spill Reports involved fugitive dust emissions associated with sandblasting operations at the site. There is concern that sandblasting of boat hulls at the site could have released paint chips and toxic metals at concentrations that could represent a threat to the river s aquatic life, or otherwise accumulated in the river s sediments. Two other Spill Reports and another Pollution Complaint involved petroleum sheens of unknown origin on North Portland Harbor adjacent to the site. One additional 1998 Spill Report and simultaneous Pollution Complaint were associated with a petroleum release at the site that drained across N Marine Drive onto state highway property located 200 yards from the site. Diversified Marine s record of Pollution Complaints and Spill Reports suggests that on-site activities could have contaminated site soils and nearby Columbia River sediments with any of a variety of boat building, maintenance, and repair related contaminants, including toxic metals and paint chips containing toxic metals such as copper oxide, organotins, lead, cadmium, chromium, mercury, and zinc; petroleum constituents such as BTEX (benzene, toluene, ethylbenzene, toluene) and polynuclear aromatic hydrocarbons (PAHs); and other potential organic contaminants such as, phthalates, pentachlorophenol, chlorinated solvents, and possibly polychlorinated biphenyls (PCBs). (1/13/10 CWH/CU) The march 2009 Preliminary Assessment produced by Ecology and Environment for EPA Region 10 noted that, based on comparison to immediate upstream sediments, that the sediment sample (CR05SD) collected just downstream/adjacent to DMI <quot>indicates that DMI is contributing to copper, lead, and zinc contamination in the river.<quot> DEQ feels it is important to note that with the exception of copper, none of the detected metals, while elevated locally, exceed DEQ freshwater sediment SLVs. It is also important to note that the CR05SD sample was collected at a location that was not near where DMI stormwater runoff or working areas might be expected to be impacted.Similarly, PAH sediment data for CR05SD shows locally elevated concentrations of PAHs, but none above DEQ SLVs. PCBs were non-detect for CR05SD, but detection limits (41-45 ppb) were above DEQ SLVs. To summarize - the CR05SD sediment sample collected on behalf of EPA in October 2008 does indicate releases are likely to have occurred from the DMI site, but there were no samples collected in locations that would be suspected as release points.

NARR ID: 5743777
NARR Code: Data Sources
Created By: SFORTUN
Created Date: 07/03/2003
Updated By: CHARMAN
Updated Date: 01/13/2010
Decode for NarcdID: Data Sources
NARR Comments: DEQ Pollution Complaint files, Spill Report files. Preliminary Assessment Report, Diversified Marine, Inc. (DMI). Prepared for US EPA Region 10. March 2009. (produced by Ecology and Environment, Inc.) Final 1610 North Pier 99, Site Inspection Report, Portland, Oregon. Prepared for US EPA Region 10. August 2009 (produced by Ecology and Environment, Inc.) [NOTE: Report for investigation primarily at Pier 99 site (ECSI #3526), but which included some

DIVERSIFIED MARINE, INC. (Continued) **S108659504**

sediment sampling near and slightly downstream from DMI.

NARR ID: 5743778
NARR Code: General Site Description
Created By: SFORTUN
Created Date: 07/03/2003
Updated By: GWISTAR
Updated Date: 07/10/2003
Decode for NarcdID: General Site Description
NARR Comments: The subject site is an approximate 0.8 acre parcel in North Portland, on the south shore of North Portland Harbor, about 500 feet west of the Interstate Highway 5 (I-5) bridge over North Portland Harbor. Work is performed within an onshore building, on vessels moored at the site, and in a 200-ton floating dry dock at the site. North Marine Drive and North Pier 99 Street are located along the site s southern boundary. A paved parking lot for the Multnomah County Fairgrounds and Exposition Center lies directly across North Marine Drive, 100 to 300 feet south and southwest of the site. Hayden Island is across North Portland Harbor, about 1,000 feet north of the site.

NARR ID: 5743779
NARR Code: Hazardous Substance/Waste Types
Created By: SFORTUN
Created Date: 07/03/2003
Updated By: SFORTUN
Updated Date: 07/07/2003
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Diversified Marine s record of Pollution Complaints and Spill Reports suggests that on-site activities could have contaminated site soils and nearby Columbia River sediments with any of a variety of boat building, maintenance, repair, or refueling related contaminants, including toxic metals and paint chips containing toxic metals such as copper oxide, organotins, lead, cadmium, chromium, mercury, and zinc; petroleum constituents such as BTEX (benzene, toluene, ethylbenzene, toluene) and polynuclear aromatic hydrocarbons (PAHs); and other potential organic contaminants such as, phthalates, pentachlorophenol, chlorinated solvents, and possibly polychlorinated biphenyls (PCBs).

NARR ID: 5743780
NARR Code: Project Issues Summary
Created By: SFORTUN
Created Date: 07/03/2003
Updated By: SFORTUN
Updated Date: 07/03/2003
Decode for NarcdID: Project Issues Summary
NARR Comments: Although DEQ has records of known and suspected hazardous substance releases at the site, there is no indication that environmental sampling has ever been conducted at the site. Because of an abundance of nearby receptors (nearby wetlands, community drinking water wells, Critical Habitat for Threatened and Endangered fish), a high priority has been assigned to conducting an expanded Preliminary Assessment of the site.

NARR ID: 5743781
NARR Code: Land Use (Current/Reasonably Likely)
Created By: SFORTUN

DIVERSIFIED MARINE, INC. (Continued) **S108659504**

Created Date: 07/03/2003
Updated By: SFORTUN
Updated Date: 07/03/2003
Decode for NarcdID: Land Use (Current/Reasonably Likely)
NARR Comments: The narrow strip of land between N Marine Drive and the Oregon Slough is used pregominantly for small industries.

NARR ID: 5742784
NARR Code: Site Location
Created By: JWAGGY
Created Date: 12/24/2002
Updated By: SFORTUN
Updated Date: 07/07/2003
Decode for NarcdID: Site Location
NARR Comments: Street address has also been listed as 1801 - 1809 N Pier 99 Street, in tax records. The site is bounded on the north by North Portland Harbor (also called Oregon Slough; a channel of the Columbia River located south of Hayden Island), and on the east by the Former Schooner Creek Boat Works site (ECSI #3526). Hayden Island lies about 1,000 feet north of the site. The Interstate Highway 5 bridge over North Portland Harbor is located about 500 feet east of the site.

NARR ID: 5743782
NARR Code: Manner of Release
Created By: SFORTUN
Created Date: 07/07/2003
Updated By: SFORTUN
Updated Date: 07/07/2003
Decode for NarcdID: Manner of Release
NARR Comments: Fugitive dust emissions associated with sandblasting of boat hulls at the site could have released paint chips and toxic metals at concentrations that could represent a threat to the river s aquatic life, or otherwise accumulated in the river s sediments. Petroleum sheens of unknown origin have been reported on North Portland Harbor adjacent to the site. A historic petroleum release at the site was also reported to have drained across N Marine Drive onto state highway property located 200 yards from the site. Since Diversified Marine site activities include machine shop activities, bilge removal, and boat and equipment refueling activities, it may not be unreasonable to suspect that some of the petroleum contamination observed in the river channel could have originated from on-site activities. Such releases could represent a threat to the river s aquatic life, or otherwise have accumulated in river sediments.

NARR ID: 5743783
NARR Code: Media Contamination
Created By: SFORTUN
Created Date: 07/07/2003
Updated By: SFORTUN
Updated Date: 07/07/2003
Decode for NarcdID: Media Contamination
NARR Comments: The primary media of concern at the site are Columbia River surface water and sediments. Site soils and shallow groundwater might also be contaminated.

NARR ID: 5743784
NARR Code: Site Ownership

DIVERSIFIED MARINE, INC. (Continued) **S108659504**

Created By: SFORTUN
Created Date: 07/07/2003
Updated By: SFORTUN
Updated Date: 07/07/2003
Decode for NarcdID: Site Ownership
NARR Comments: The site is owned by Whitecap Cove, Inc., while Diversified Marine, Inc. and Portmarco, Inc. operate at the site. Kurt R. Redd is president of Whitecap Cove, Inc., Diversified Marine, Inc., and Portmarco, Inc. Carla Shown is the Registered Agent for Diversified Marine, Inc. and Portmarco, Inc. Kevin F. Kerstiens is the Registered Agent for Whitecap Cove, Inc.

NARR ID: 5743785
NARR Code: Project Activity Status
Created By: SFORTUN
Created Date: 07/07/2003
Updated By: SFORTUN
Updated Date: 07/07/2003
Decode for NarcdID: Project Activity Status
NARR Comments: A Federal Screening of the site was completed on July 3, 2003. The Strategy Recommendation for that screening recommended that a high priority be assigned to conducting an Expanded Preliminary Assessment (XPA) of the site. There was insufficient information at that time to propose that the site be recommended for addition the DEQ's confirmed Release List (CRL) or Inventory of sites requiring further investigation or cleanup.

NARR ID: 5743786
NARR Code: Pathways Other Hazards
Created By: SFORTUN
Created Date: 07/07/2003
Updated By: SFORTUN
Updated Date: 07/07/2003
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: There is concern that site activities may have contributed contaminants to on-site soils and shallow groundwater, as well as in Columbia River surface water and sediments. Soil contaminants could represent a health threat for on-site workers or utility trench workers. North Portland Harbor (the Columbia River; Oregon Slough) forms the site's northern boundary; the entire site lies within the river's 100-year flood zone. The Columbia River is migratory and rearing habitat for eleven varieties of Threatened or Endangered salmonids. The Columbia Slough lies about 1 mile south of the site. The area between North Portland Harbor on the north, I-5 on the east, Columbia Slough on the south, and a Burlington Northern Santa Fe Railroad right-of-way on the west comprises Peninsula Drainage District No. 1. Most of the drainage district is publicly owned wetlands. Wetlands areas directly south of the site attract populations of sensitive wildlife species to the area. Metro has designated much of Peninsula Drainage District No. 1 as important wetlands or wildlife Habitats of Concern, or regionally significant riparian corridors. Migratory waterfowl and songbirds have been observed within the drainage district, as well as a variety of other sensitive and Threatened and Endangered wildlife species. Sensitive and Threatened plant species may also be present within the wetlands. Site contaminants could represent a threat to sensitive plant and wildlife species within the wetlands. The nearest residence is

DIVERSIFIED MARINE, INC. (Continued) **S108659504**

located on a tax lot at the site's eastern boundary. Other residences are located across I-5, about 0.3 mile east-southeast of the site, and across North Portland Harbor, about 0.4 mile northeast and 0.5 mile north-northwest of the site. Oregon Water Resources Department (OWRD) has records for three community or group-domestic wells, one Public Water Supply well, and five domestic wells within 1.25 mile of the site. The nearest is a 261 foot well installed at Kernan Village in 1958 to supply drinking water for a store, service station, apartment building, and trailer park. The well is believed to be located about 600- to 900 feet south-southwest of the site. Kernan Village no longer exists; its well may now be located either within the current I-5 / North Marine Drive cloverleaf interchange, or within the county fairgrounds paved parking area. It seems unlikely that the well is still being used or even still exists, although OWRD has no record to indicate that the well was formally decommissioned. The City of Portland has supplemental Municipal Supply Wells along the Columbia River south shore, 6- to 11 miles east of the site, as well as four supplemental supply wells on Hayden Island. Two of the Hayden Island wells lie about 1,200 feet north of the site, directly across North Portland Harbor. These wells lie across North Portland Harbor, a 1,000 foot wide, 20- to 30 foot deep branch of the Columbia River, and may be about 225- to 250 feet deep. Several nearby public facilities draw substantial numbers of people to the area. The Multnomah County Fairgrounds and Exposition Center lie southwest of the site, directly across North Marine Drive. East Delta (municipal) Park lies about 0.25 mile south-southeast of the site, across I-5. The Portland International Raceway lies about 0.5 mile south-southwest of the site. Heron Lakes (public) Golf Club lies about 0.25 mile southwest of the site. Jantzen Beach Supercenter shopping center lies directly across North Portland Harbor from the site.

NARR ID: 5745883
NARR Code: Remedial Action
Created By: JWAGGY
Created Date: 11/18/2004
Updated By: SMILLER
Updated Date: 03/20/2015
Decode for NarcdID: Remedial Action
NARR Comments: (10/19/04 AC/ER&CU) Site status on hold. Responsible party (RP) unwilling to join the Voluntary Cleanup Program or perform an Expanded Preliminary Assessment (XPA). Principle concern is that potential site contaminants in sediments could pose a threat to Columbia River ecological receptors. Insufficient evidence to require sediment sampling in the Columbia River. Project on hold pending available orphan funds or willing responsible party. [3/20/15 SA/SAM] An Abbriviated Preliminary Assessment was finalized by EPA through its contractor E&E on May 14, 2009. EPA also performed a SI in 2009 at a neighboring property(ECSI#3526 1610 N Pier 99) downstream samples indicates releases are likely to have occurred from the DMI site, but there were no samples collected in locations that would be suspected as release points for this facility. No Further Remedial Action Planned under Federal program was designated in 2010. A Site Investigation is recommended under state supervision.

NARR ID: 5743787
NARR Code: Substances of Concern

DIVERSIFIED MARINE, INC. (Continued) **S108659504**

Created By: SFORTUN
Created Date: 07/07/2003
Updated By: SFORTUN
Updated Date: 07/07/2003
Decode for NarcdID: Substances of Concern
NARR Comments: On-site activities could have contaminated site soils and nearby Columbia River sediments with any of a variety of boat building, maintenance, and repair related contaminants, including toxic metals and paint chips containing toxic metals such as copper oxide, organotins, lead, cadmium, chromium, mercury, and zinc; petroleum constituents such as BTEX (benzene, toluene, ethylbenzene, xylenes) and polynuclear aromatic hydrocarbons (PAHs); and other potential organic contaminants such as, phthalates, pentachlorophenol, chlorinated solvents, and possibly polychlorinated biphenyls (PCBs).

NARR ID: 5743788
NARR Code: Health Threats
Created By: SFORTUN
Created Date: 07/07/2003
Updated By: SFORTUN
Updated Date: 07/07/2003
Decode for NarcdID: Health Threats
NARR Comments: Any potential site contaminants present could represent a threat to site workers, utility trench workers, Threatened and Endangered fish species and other aquatic life in the Columbia River, wildlife within the nearby Peninsula Drainage District Number 1 wetlands, occupants of an adjoining residence, or to users of the Portland Municipal Water Supply.

NARR ID: 5743789
NARR Code: Water Use (Current/Reasonably Likely)
Created By: SFORTUN
Created Date: 07/07/2003
Updated By: SFORTUN
Updated Date: 07/07/2003
Decode for NarcdID: Water Use (Current/Reasonably Likely)
NARR Comments: OWRD also has records for three community or group-domestic wells, one Public Water Supply well, and five domestic wells within 1.25 mile of the site. The nearest is a 261 foot well installed at Kernan Village in 1958 to supply drinking water for a store, service station, apartment building, and trailer park. The well is believed to be located about 600- to 900 feet south-southwest of the site. Kernan Village no longer exists; its well may now be located either within the current I-5 / North Marine Drive cloverleaf interchange, or within the county fairgrounds paved parking area. It seems unlikely that the well is still being used or even still exists, although OWRD has no record to indicate that the well was formally decommissioned. The City of Portland has supplemental supply wells along the Columbia River south shore, 6- to 11 miles east of the site, as well as four supplemental supply wells on Hayden Island. Two of the Hayden Island wells lie about 1,200 feet north of the site, directly across North Portland Harbor. The nearest Municipal Water Supply wells lie across North Portland Harbor, a 1,000 foot wide, 20- to 30 foot deep branch of the Columbia River, and may be about 225- to 250 feet deep. It is unclear if any potential site contaminants could represent a direct threat to the nearby Municipal Drinking Water Supply wells.

DIVERSIFIED MARINE, INC. (Continued) **S108659504**

NARR ID: 5742785
NARR Code: Site History
Created By: JWAGGY
Created Date: 12/24/2002
Updated By: SFORTUN
Updated Date: 07/07/2003
Decode for NarcdID: Site History
NARR Comments: Also known as Portmarco, Inc., and Whitecap Cove, Inc. (both active entities, same president, same secretary, same business address, same mailing address) (different registered agent for Whitecap Cove). The company has conducted tug boat and barge building, repair, sandblasting, painting, machine shop, bilge removal, and boat and equipment refueling activities at the site since at least 1990 - possibly as early as 1986. Between 1990 and 2001, DEQ received five Pollution Complaints and one Spill Report about the facility's sandblasting and painting operations, and releases of paint chips to the river. Additional complaints have been received for petroleum flowing southward, off-site from the site, and for petroleum sheens on the river from unknown sources near the facility.

Administrative Action:
Action ID: 9459
Region: Northwestern Region
Complete Date: 05/14/2009
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/13/2010
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: PRELIMINARY ASSESSMENT EQUIVALENT
Further Action: 0
Comments: Not reported

Action ID: 9511
Region: Northwestern Region
Complete Date: 08/28/2009
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/13/2010
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9421
Region: 0
Complete Date: 07/16/2007
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/19/2010
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action

DIVERSIFIED MARINE, INC. (Continued) **S108659504**

Action Code Flag: False
Action: Site added to CERCLIS
Further Action: 0
Comments: Not reported

Action ID: 9444
Region: 0
Complete Date: 08/26/2010
Rank Value: Not reported
Cleanup Flag: False
Created Date: 09/03/2010
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: No Further Remedial Action Planned under Federal program
Further Action: 0
Comments: Not reported

Action ID: 9506
Region: Northwestern Region
Complete Date: 10/28/2009
Rank Value: Not reported
Cleanup Flag: False
Created Date: 03/20/2015
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Investigation recommended (SI)
Further Action: High-Medium
Comments: Not reported

Action ID: 9424
Region: Not reported
Complete Date: 12/24/2002
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/24/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 12/24/2002
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/24/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False

DIVERSIFIED MARINE, INC. (Continued) **S108659504**

Action: Site Screening recommended (EV)
Further Action: High
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 07/03/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/14/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: 0
Comments: Not reported

Action ID: 9449
Region: Northwestern Region
Complete Date: 07/03/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 07/03/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Insufficient information to list
Further Action: 0
Comments: Not reported

Action ID: 9510
Region: Northwestern Region
Complete Date: 07/03/2003
Rank Value: 102
Cleanup Flag: False
Created Date: 07/03/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: State Expanded Preliminary Assessment recommended (XPA)
Further Action: High
Comments: Not reported

Action ID: 9517
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 07/07/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SRS Waiting List

DIVERSIFIED MARINE, INC. (Continued) **S108659504**

Further Action: 0
Comments: Not reported

Action ID: 9521
Region: Northwestern Region
Complete Date: 07/07/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 07/07/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: OPTN
Further Action: 0
Comments: Not reported

Operations:

Operation Id: 134646
Operation Status: Active
Common Name: Diversified Marine, Inc.
Yrs of Operation: 1986 - present
Comments: Originally 1986 - 1999, but reincorporated in 1999.
Updated Date: 07/07/2003
Updated By: SFORTUN
Decode for OpstatID: Active
Operations SIC Id: 198204
SIC Code: 3731
Created By: SFORTUN
Created Date: 07/07/2003

Operation Id: 134647
Operation Status: Active
Common Name: Portmarco, Inc.
Yrs of Operation: 1986 - present
Comments: Merged with Diversified Mechanical, Inc. in 1996.
Updated Date: 07/07/2003
Updated By: SFORTUN
Decode for OpstatID: Active

Operation Id: 134648
Operation Status: Active
Common Name: Whitecap Cove, Inc.
Yrs of Operation: 1998- present
Comments: Not reported
Updated Date: 07/07/2003
Updated By: SFORTUN
Decode for OpstatID: Active

Operation Id: 134772
Operation Status: Inactive
Common Name: Diversified Mechanical, Inc.
Yrs of Operation: 1992-1996
Comments: Absorbed by Portmarco, Inc. in 1996.
Updated Date: 07/07/2003
Updated By: SFORTUN
Decode for OpstatID: Inactive

DIVERSIFIED MARINE, INC. (Continued) **S108659504**

OR CDL2:

Region:	2
Facility Id:	010336
Incident Number:	010336
Report Date:	Not reported
Dist Id Number:	HM06
Resp Id Number:	HM06
Unit:	Not reported
Cause:	11
Area Type:	0
Scene Type:	2
Agency Id:	FP01056018
OERS Num:	Not reported
Incident Date:	11/30/2001
Remarks:	Not reported

OR SPILLS:

Name:	Not reported
Address:	1801 N. MARINE DR.
City,State,Zip:	PORTLAND, OR 97217
Facility ID:	2016-0532
Incident Status:	Closed
Material:	Oil - Other
Quantity:	Unknown
Unit of Measure:	None
Release Date:	03/02/2016
Description:	Received an NRC report of an unknown rainbow sheen on the Columbia River from an unknown source. The sheen measures approximately 25 YDS wide by 100 YDS long.
Lat/Long:	45.607475 / -122.68617
Source:	Unknown
Media:	Surface Water
Responsible Company:	Not reported
Responsible Address:	Not reported
Responsible City,St,Zip:	Not reported

HAZMAT:

Responsble Party:	UNKNOWN
RP Company:	Not reported
RP Address:	Not reported
RP City,St,Zip:	Not reported
Facility ID:	010336
OERS Number:	Not reported
Dept Rsp:	HAZMAT TEAM PORTLAND - 06
Narrative:	Not reported
Property Loss:	Not reported
Amount Released:	Not reported
Service County:	Not reported
Service Name:	Not reported
Incident Type:	Not reported
Civilian Casualty Activity:	Not reported
Chemical Name:	Not reported
Hazmat Area Affected:	Not reported
Hazmat Area Evacuated:	Not reported
Hazmat Container Type:	Not reported
Hazmat Physical State Released:	Not reported

DIVERSIFIED MARINE, INC. (Continued) **S108659504**

Hazmat Released Into:	Not reported
Hazmat Released Volume Units:	Not reported
Hazmat Released Weight Units:	Not reported
Hazmat Released From:	Not reported
Hazmat Area Affected Measurement:	Not reported
Hazmat No. of People Evacuated:	Not reported
Hazmat No of Buildings Evacuated:	Not reported
Incident Content Loss:	Not reported
Civilian Casualty Patient Disposition:	Not reported
Incident Mixed Use Property:	Not reported
Location Type:	Not reported
Incident Aid Given Or Received:	Not reported
Incident AID Received from FDID:	Not reported
Incident Aided Department FDID:	Not reported
Person Involved Business Name:	Not reported
Person Involved First Name:	Not reported
Person Involved Last Name:	Not reported
Person Involved Type:	Not reported
Person Involved Phone Number:	Not reported
Person Involved Primary Language:	Not reported
Hazmat Evacuated Measurement:	Not reported
Hazmat Story of Release:	Not reported
Remark:	Not reported
Incident District:	HAZMAT TEAM PORTLAND - 06
Date Added:	01/08/2002
Unit:	Not reported
Agency Phone:	5038233856
Osfm Incident Report Number:	010336
Dept. Responding:	HAZMAT TEAM PORTLAND - 06
Person Making Report:	CAPT JEFF BANCROFT
Title:	HAZMAT CAPT
Agency:	HAZMAT TEAM PORTLAND - 06
Phone:	5038233856
Date Of Incident:	11/30/2001
Call Time:	2:25:00 PM
In Route:	2:45:00 PM
Arrival:	3:12:00 PM
Depart Scene:	12:00:00 AM
Back In Quarters:	12:00:00 AM
In Service:	5:55:00 PM
Dist Of Incident:	HAZMAT TEAM PORTLAND - 06
Were State Resources Used?:	False
Was Oers Notified?:	True
Oers Number:	Not reported
Team Number:	HM06
Agency Report Number:	FP01056018
Unit:	Not reported
Highway:	Not reported
Mile Post:	Not reported
Scene Type:	Public Road
Area Type:	Not reported
Responsible Party(Ies):	UNKNOWN
Company:	Not reported
Respcontact:	Not reported
Address:	Not reported
Resp City:	Not reported
Resp State:	Not reported

DIVERSIFIED MARINE, INC. (Continued) **S108659504**

Resp ZipCode:	Not reported
Phone:	Not reported
Resp Phone2:	Not reported
Weather:	0
Temperature:	0
Wind Speed:	0
Wind Direction:	Not reported
Were Haz Materials Released?:	False
Operation Performed:	Not reported
Cause:	Clandestine Drug Lab
Vehicle And Cargo:	0
Fixed Property:	0
Total Loss:	$0.00
Hazmat Population Density:	Not reported
HazMat Actions Taken - Description:	Not reported
Hazmat Factors Contributing To Release:	Not reported
Hazmat DOT Hazard Classification:	Not reported
Hazmat CAS Number:	Not reported
Hazardous Materials Release:	Not reported
Fire Incident Type:	Not reported
Property Use:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Hazmat Disposition:	Not reported

Chemical:

Chemical Info:	4416
Chemical Id:	35430
Incident Id:	010336
Chemical Name:	UNKNOWN CHEMICAL
UNNA:	Not reported
Amount At Risk:	0
Amount Released:	0
Amount Measured:	0
Biological:	False
Radiological:	False

Chemical Id:	35430
Chemical Name:	UNKNOWN CHEMICAL
Hazardous Ingredient:	UNKNOWN CHEMICAL
Hazardous Class 1:	9.0
Hazardous Class 2:	Not reported
Hazardous Rank:	2
Case Number:	Not reported
UNNA Number:	Not reported
EPA Pest Reg:	Not reported
EHA Chem:	Not reported
PSM Chem:	Not reported
CAA 112R Chem:	Not reported

Released:

Release Behavior Id:	2566
Incident Id:	010336
Behavior:	9

Narrative:

Narrative Id:	1056

DIVERSIFIED MARINE, INC. (Continued) **S108659504**

Incident Id: 010336
Incident Narrative: STATE HAZMAT TEAM 6 FROM PFB CALLED BY PORTLAND DVD TO 1801 N MARINE DR. SUSPECTS HAD DUMPED DRUG LAB WASTE AND SUPPLIES IN A PARKING AREA NEAR A ROADWAY. THE SUSPECTS HAD BEEN ABOARD A NEARBY 60 FOOT YACHT AND THERE WAS A STRONG CHEMICAL SMELL COMING FROM THE BOAT. THE TEAM ARRIVED AND CONFERRED WITH DVD OFFICER IN CHARE SGT HENDRICKS DETERMINING HOT ZONE AND NEEDED SETUP. THERE WERE THREE BACKPACKS AND A DUFFEL BAG IN THE PARKING LOT. UNKNOWN NUMBER OF SAMPLES TO BE TAKEN. TWO DVD OFFICERS WERE SUITED UP IN LEVEL B WITH SCBA- ALL PERSONNEL WORE LIFE PRESERVERS DUE TO THE PROXIMITY TO THE COLUMBIA RIVER. THE TWO OFFICERS WERE: DORIS PAISLEY (#BPSST UNK) AND BILL SHAW (#28923). SHAW SUITED UP AND WENT WITH HENDRICKS DOWN THE DOCK TO "CLEAR" THE YACHT OF ANY POTENTIAL TWO-LEGGED THREATS. SHAW FOUND ONE CONTAINER OF LIQUID AND TOOK A SAMPLE FROM IT FOR EVIDENCE. FB 17 WAS CALLED TO THE SCENE TO EVALUATE MOVING THE YACHT TO A SAFER LOCATION FOR EVIDENCE TAKING, BUT THAT PROVED UNNECESSARY. PAISLEY AND SHAW TOOK A TOTAL OF 12 SAMPLES FROM THE BACKPACKS AND DUFFL BAG. THEY ENTERED THE HOT ZONE AT 1559 HOURS AND EXITED AT APPROX 1702 HOURS FOR DECON. HM TEAM SET UP EVIDENCE COLLECTION TABLE AND MATERIALS FOR DVD - PROVIDE DECON.
Incident Date: 11/30/2001

HSIS:

Name:	DIVERSIFIED MARINE INC
Address:	1801 N MARINE DR
City,State,Zip:	PORTLAND, OR 97217
Facility ID:	022914
Department Or Division Of Company:	Not reported
Chemical Is Extremely Hazardous Substance (EHS:	N
Contains 112R:	N
Facility Has Written Emergency Plan:	Y
NAICS Code 1:	336611
NAICS Desc 1:	SHIP BLDG & REPAIRING
NAICS Code 2:	237990
NAICS Desc 2:	OTHER HEAVY & CIVIL ENGINEERING CONST
Manager Name:	CARLA SHOWN
Business Phone:	5032892669
Mailing Address:	PO BOX 83723
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	97283
No. of Employees:	35
Day Phone:	5032892669
Placard:	N
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	N
Emergency Contact:	KURT REDD
Emergency Procedure:	POSTED IN SHOP & OFFICE
Business Type:	VESSEL REPAIR & CONSTRUCTION
Facility Type:	Not reported
Department:	Not reported
Status:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Status TRI:	Not reported

DIVERSIFIED MARINE, INC. (Continued) **S108659504**

Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Last Reported ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	Not reported
Maximum Daily Amount Unit:	Not reported
Chemical Added Date:	Not reported
Is Chem PSM:	Not reported
Is Chem 112R:	Not reported
Is Chem 302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
Number of Days Onsite:	Not reported
Year:	Not reported

Chemical:

Chemical Name:	INTERNATIONAL INTERTUF 262
Physical Description:	LIQUID
Case Number:	25085998
Facility Id:	022914
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	10
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499

DIVERSIFIED MARINE, INC. (Continued) **S108659504**

Most Hazardous Ingridient:	OXIRANE, 2,2-4-BYTYLIDENEBISPHENYLENEOXY
United Nations/north America 4 Digit Class Number:	1263
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

NPDES:

WQ File Nbr:	111695
Legal Name:	DIVERSIFIED MARINE, INC.
Region:	NWR
Pri SIC:	3731
Facility Type:	SHIP BUILDING AND REPAIRING
Latitude:	45.6075
Longitude:	-122.685
Category:	STM
Permit Type:	GEN12Z
Permit Active:	True
Is Active?:	Not reported
Permit Description:	Stormwater; NPDES specific SIC codes
Expiration Date:	07/31/2022
EPA Number:	ORR207168
UIC Facility:	False
Admin Agent:	City of Portland
Last Action Date:	08/17/2017
Permit Writer:	Not reported
Compliance Inspector:	PORTLAND
DMR Reviewer:	Not reported
Application Number:	955369
Class:	MINOR
Start Date:	12/20/2001
Region Decode:	North West Region

C22
WNW
< 1/8
0.016 mi.
87 ft.

BULK TRANSPORTATION FACILITY
11619 N FORCE AVE.
PORTLAND, OR 97217

Site 5 of 5 in cluster C

OR ECSI **S102081444**
OR SPILLS **N/A**

Relative:
Lower

Actual:
13 ft.

ECSI:

Name:	BULK TRANSPORTATION FACILITY
Address:	11619 N FORCE AVE.
City,State,Zip:	PORTLAND, OR 97217
State ID Number:	5696
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	0
Investigation:	Suspect
FACA ID:	122999
Further Action:	258
Lat/Long (dms):	45 36 25.90 / -122 41 37.70
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	2.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	33
Qtr Section:	C
Tax Lots:	1400 (T2N/R1E-S33C)
Size:	15.62 acres
NPL:	False
Orphan:	False
Updated By:	SMILLER
Update Date:	05/23/2013
Created Date:	02/23/2012
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Medium
Decode For Investstat:	Suspect
Decode For Legislative:	Not reported
Alias Name:	Farmers Plant Aid Facility
Alias Name:	Arrow Transportation
Alias Name:	Portland Pacific C.F.S.
Alias Name:	J. W. Fertilizer

Hazardous Release:

Substance ID.:	121673
Haz Release ID:	388132
Qty Released:	Not reported
Date Released:	Not reported
Update Date:	05/22/2013
Update By:	SMILLER
Substance Code:	7440-50-8
Substance Name:	COPPER
Substance Abbrev.:	Not reported
Substance Category ID:	8464
Substance Category:	Inorganics
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002

BULK TRANSPORTATION FACILITY (Continued) **S102081444**

Substance Category ID: 8464
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319296
Sub Alias Name: CU
Sampling Result ID: 350593
Feature Id: 0
Hazard Release Id: 388132
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 103 ppm surface soil 1988
Last Update By: SMILLER
Update Date: 05/22/2013
Decode for MediumID: Soil

Substance ID.: 121639
Haz Release ID: 388133
Qty Released: Not reported
Date Released: Not reported
Update Date: 05/22/2013
Update By: SMILLER
Substance Code: 7439-92-1
Substance Name: LEAD
Substance Abbrev.: Not reported
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319256
Sub Alias Name: PB
Sampling Result ID: 350594
Feature Id: 0
Hazard Release Id: 388133
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported

BULK TRANSPORTATION FACILITY (Continued) **S102081444**

Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 64 ppm surface soil 1988
Last Update By: SMILLER
Update Date: 05/22/2013
Decode for MediumID: Soil

Substance ID.: 121654
Haz Release ID: 388134
Qty Released: Not reported
Date Released: Not reported
Update Date: 05/22/2013
Update By: SMILLER
Substance Code: 7440-22-4
Substance Name: SILVER
Substance Abbrev.: Not reported
Substance Category ID: 8470
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8470
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319274
Sub Alias Name: AG
Sampling Result ID: 350595
Feature Id: 0
Hazard Release Id: 388134
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 19ppm surface soil in 1988
Last Update By: SMILLER
Update Date: 05/22/2013
Decode for MediumID: Soil

Substance ID.: 121608
Haz Release ID: 388135
Qty Released: Not reported
Date Released: Not reported
Update Date: 05/22/2013
Update By: SMILLER
Substance Code: 71-43-2
Substance Name: BENZENE

BULK TRANSPORTATION FACILITY (Continued) **S102081444**

Substance Abbrev.: Not reported
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319178
Sub Alias Name: BENZOL
Substance Alias ID: 319179
Sub Alias Name: COAL NAPTHA
Substance Alias ID: 319180
Sub Alias Name: CYCLOHEXATRIENE
Substance Alias ID: 319181
Sub Alias Name: PHENE
Substance Alias ID: 319182
Sub Alias Name: PYROBENZOL
Sampling Result ID: 350596
Feature Id: 0
Hazard Release Id: 388135
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 670ppb in year 1990
Last Update By: SMILLER
Update Date: 05/22/2013
Decode for MediumID: Soil

Substance ID.: 121781
Haz Release ID: 388136
Qty Released: Not reported
Date Released: Not reported
Update Date: 05/22/2013
Update By: SMILLER
Substance Code: 79-01-6
Substance Name: TRICHLOROETHYLENE
Substance Abbrev.: Not reported
Substance Category ID: 8523
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8545
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported

BULK TRANSPORTATION FACILITY (Continued) **S102081444**

Created By:	Not reported
Created Date:	12/17/2002
Substance Category ID:	8523
Substance Category:	Volatiles
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Category ID:	8545
Substance Category:	Solvents of interest to Milwaukie Area GW study
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Alias ID:	317517
Sub Alias Name:	ETHINYL TRICHLORIDE
Substance Alias ID:	317518
Sub Alias Name:	ETHYLENE TRICHLORIDE
Substance Alias ID:	317519
Sub Alias Name:	TCE
Substance Alias ID:	317520
Sub Alias Name:	TRI-CLENE
Substance Alias ID:	317521
Sub Alias Name:	TRICHLOROETHENE
Sampling Result ID:	350597
Feature Id:	0
Hazard Release Id:	388136
Medium:	703
Substance Abbrev.:	0
Unit Code:	Not reported
Observation:	False
Owner Operator:	False
Lab Data:	False
Sample Depth:	Not reported
Start Date:	Not reported
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	Not reported
Sample Comment:	30 ppb TCE in year 1990
Last Update By:	SMILLER
Update Date:	05/22/2013
Decode for MediumID:	Soil
Sampling Result ID:	350598
Feature Id:	0
Hazard Release Id:	388136
Medium:	704
Substance Abbrev.:	0
Unit Code:	Not reported
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	Not reported
Start Date:	Not reported
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	Not reported
Sample Comment:	18ppb TCE stormwater in 1990
Last Update By:	SMILLER
Update Date:	05/22/2013

BULK TRANSPORTATION FACILITY (Continued) **S102081444**

Decode for MediumID: Surface Water

Narrative:

NARR ID: 5754692
NARR Code: Site Contacts
Created By: SMILLER
Created Date: 05/22/2013
Updated By: SMILLER
Updated Date: 05/22/2013
Decode for NarcdID: Site Contacts
NARR Comments: Site Owner: Harsch Investment Properties Stockyards LLC Attn: Jeffrey Nudelman, Registered Agent 1121 SW Salmon Street, Suite 500 Portland, OR 97205-2022 Site Contacts: Michael A. Zahn, Assoc. General Counsel and Asst. Secretary Harsch Investment Properties, LLC 1121 SW Salmon Street, Suite 500 Portland, OR 97205-2022 503-450-0779 Steve Roselli, Senior Vice President and Regional Manager Harsch Investment Properties, LLC 1430 SW Broadway, Suite 100 Portland, OR 97201-3517 Matt Coale, Branch Manager Bulk Transportation Inc. 11619 N Force Ave. Portland, OR 97217-7703

NARR ID: 5753998
NARR Code: Contamination
Created By: SFORTUN
Created Date: 04/12/2012
Updated By: SFORTUN
Updated Date: 04/12/2012
Decode for NarcdID: Contamination
NARR Comments: This site was added to ECSI based on documented evidence of elevated concentrations of chlorinated solvents, metals, and petroleum constituents in the site's soils and shallow groundwater.

NARR ID: 5754696
NARR Code: Data Sources
Created By: SMILLER
Created Date: 05/22/2013
Updated By: SMILLER
Updated Date: 05/22/2013
Decode for NarcdID: Data Sources
NARR Comments: Bulk Transportation Facility. DEQ Strategy Recommendation May 22, 2013. Environmental Audit: Field Investigation and Remedial Alternatives Assessment, Proposed Transfer Station Site, prepared for Waste Management Systems, Inc., by Sweet-Edwards/EMCON, Inc., April 25, 1988.

NARR ID: 5754695
NARR Code: Hazardous Substance/Waste Types
Created By: SMILLER
Created Date: 05/22/2013
Updated By: SMILLER
Updated Date: 05/22/2013
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: 5/22/13 SAM/SA] Contaminants of concern include VOCs, TPH, TCE/PCE, metals and potentially SVOCs. Generally these were detected at low concentrations throughout the site.

NARR ID: 5754310
NARR Code: Site Location
Created By: SFORTUN

BULK TRANSPORTATION FACILITY (Continued) **S102081444**

Created Date: 11/27/2012
Updated By: SFORTUN
Updated Date: 11/27/2012
Decode for NarcdID: Site Location
NARR Comments: 11619 N. Force Ave. Portland, OR 97217-7703

NARR ID: 5754694
NARR Code: Pathways Other Hazards
Created By: SMILLER
Created Date: 05/22/2013
Updated By: SMILLER
Updated Date: 05/22/2013
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: [5/22/13 SAM/SA] Soil contact to occupational workers, construction and excavation workers could be a potential pathway of concern. Stormwater and soils could be deposited in nearby wetlands at concentrations that could pose an ecological concern.

NARR ID: 5754693
NARR Code: Remedial Action
Created By: SMILLER
Created Date: 05/22/2013
Updated By: SMILLER
Updated Date: 05/22/2013
Decode for NarcdID: Remedial Action
NARR Comments: [5/22/13 SAM/SA] Prior investigations in the late 1980s/early 1990s found metals, TPH and VOC contamination generally below human health risk based concentrations in site soils and groundwater(except for TCE/PCE which is found in groundwater area wide), but elevated from background concentrations. Sources of the elevated soils are unknown and the true nature and extent of contamination has not been adequately determined. Several spills have occurred on site since 1994 with no record of cleanup provided to DEQ. DEQ Site Assessment recommends the following activities be performed at the site to help clarify site risk and priority for further action. Based on the results of a DEQ site assessment prioritization scoring, the priority for further action is medium. Soils o Prior characterization of waste disposal piles (potential dump area found elevated concentrations of metals. SVOCs were never analyzed, even though PID readings were elevated. SVOCs and metals should be examined further in the waste disposal pile area. o Characterize the full magnitude, nature, and extent of contamination in subsurface soils in the backfilled retention pond. Prior work showed elevated concentrations of petroleum constituents. o Determine if spills were adequately cleaned up; particularly the 1994 diesel spill, 1997 unknown solvent spill and 2005 CCA spill. o Characterize areas where any historic Harbor Oil releases that may have migrated to the site, particularly if a change of land use is considered. Stormwater drainage for the site should be mapped to determine where runoff is directed after entry to the vegetated strip in center of the parking area s southern boundary. If stormwater is directed towards wetlands, additional sediment characterization and source control evaluation may be needed. Groundwater- the southern extent of PCE/TCE groundwater contamination present on the adjacent northern properties (Stockyards Commerce Center #5695) should be defined in the Bulk Transport area.

NARR ID: 5754691

BULK TRANSPORTATION FACILITY (Continued) **S102081444**

NARR Code: Substances of Concern
Created By: SMILLER
Created Date: 05/22/2013
Updated By: SMILLER
Updated Date: 05/22/2013
Decode for NarcdID: Substances of Concern
NARR Comments: Contaminants of concern include VOCs, TPH, TCE/PCE, metals and potentially SVOCs. Generally these were detected at low concentrations throughout the site.

NARR ID: 5753999
NARR Code: Health Threats
Created By: SFORTUN
Created Date: 04/12/2012
Updated By: SFORTUN
Updated Date: 04/12/2012
Decode for NarcdID: Health Threats
NARR Comments: Contaminants in site soils groundwater could represent a potential threat to aquatic life in the Columbia River, wildlife and aquatic life in nearby wetlands, and/or other users of groundwater and surface water in the immediate vicinity of the site. Water quality in the Columbia River is already impaired. The Columbia River is used for recreational and commercial fishing, as well as other recreational purposes. It also provides Critical Habitat for threatened and endangered fish species. The river and nearby wetlands also provide important habitat for other sensitive species such as protected migratory bird species, sensitive amphibian, reptile, and plant species, and food resources for sensitive aquatic and terrestrial species.

NARR ID: 5754690
NARR Code: Site History
Created By: SMILLER
Created Date: 05/22/2013
Updated By: SMILLER
Updated Date: 05/22/2013
Decode for NarcdID: Site History
NARR Comments: [5/22/13 SAM/SA] The property was developed in the 1940 s as an on-site fertilizer yard that received manure produced at the nearby stockyards. J.W. Fertilizer, a commercial fertilizer and soil additive facility was operating on the eastern portion of the site during the 1970 s until 1990. Since about 1995, Bulk Transportation / DTI a chemical transport company uses the site as a satellite trucking terminal. Liquids, gases, chemicals, and hazardous materials are unloaded from rail cars and trucked to their final destination. Other services include product mixing, liquid bulk storage, tank containers, and warehousing. The western portion of the site is an undeveloped 6acre wetland

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 02/23/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 02/23/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported

BULK TRANSPORTATION FACILITY (Continued) **S102081444**

Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 05/22/2013
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/18/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Medium
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/18/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: 0
Comments: Not reported

Action ID: 9449
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/23/2013
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Insufficient information to list
Further Action: 0
Comments: Not reported

Action ID: 9506
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/23/2013
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action

BULK TRANSPORTATION FACILITY (Continued) **S102081444**

Action Code Flag: False
Action: Site Investigation recommended (SI)
Further Action: Medium
Comments: Not reported

Operations:
Operation Id: 135899
Operation Status: Inactive
Common Name: Hay farming operation
Yrs of Operation: Mid-1930's -1960's
Comments: Periodic. Row crops in the 1940's.
Updated Date: 06/26/2012
Updated By: SFORTUN
Decode for OpstatID: Inactive

Operation Id: 135900
Operation Status: Inactive
Common Name: Farmer's Plant Aid / J.W. Fertilizer
Yrs of Operation: 1970's ?
Comments: Commercial fertilizer operation - utilized manure from stockyards.
Updated Date: 06/26/2012
Updated By: SFORTUN
Decode for OpstatID: Inactive

Operation Id: 135904
Operation Status: Inactive
Common Name: Portland Pacific C.F.S.
Yrs of Operation: Not reported
Comments: Container Freight station
Updated Date: 06/26/2012
Updated By: SFORTUN
Decode for OpstatID: Inactive

OR SPILLS:
Name: Not reported
Address: 11619 N FORCE AVE
City,State,Zip: PORTLAND, OR 97217-7703
Facility ID: 2005-2160
Incident Status: Archive
Material: Products, manufacturing intermediates, etc.
Quantity: 10
Unit of Measure: Gallons
Release Date: 09/13/2005
Description: Bulk Transport spilled 10 gallons of a product called CCA which contains Arsenic Acid to asphalt. They have applied absorbent materials and boomed off the area. US Environmental is on-scene.
Lat/Long: 45.6065 / -122.6926
Source: Business
Media: On pavement/asphalt - not direct on soil
Responsible Company: Bulk Transport
Responsible Address: 11619 N Force Ave
Responsible City,St,Zip: Portland, OR 97217-7703

Name: Not reported
Address: 11619 N FORCE AVE
City,State,Zip: PORTLAND, OR 97217-7703
Facility ID: 2005-2160

BULK TRANSPORTATION FACILITY (Continued) **S102081444**

Incident Status: Archive
Material: Products, manufacturing intermediates, etc.
Quantity: 10
Unit of Measure: Gallons
Release Date: 09/13/2005
Description: Bulk Transport spilled 10 gallons of a product called CCA which contains Arsenic Acid to asphalt. They have applied absorbent materials and boomed off the area. US Environmental is on-scene.
Lat/Long: 45.6065 / -122.6926
Source: Business
Media: Coding for the PS/BC Oil Spill Database
Responsible Company: Bulk Transport
Responsible Address: 11619 N Force Ave
Responsible City,St,Zip: Portland, OR 97217-7703

Name: Not reported
Address: 11619 N FORCE AVE
City,State,Zip: PORTLAND, OR 97217-7703
Facility ID: 2005-2160
Incident Status: Archive
Material: Products, manufacturing intermediates, etc.
Quantity: 10
Unit of Measure: Gallons
Release Date: 09/13/2005
Description: Bulk Transport spilled 10 gallons of a product called CCA which contains Arsenic Acid to asphalt. They have applied absorbent materials and boomed off the area. US Environmental is on-scene.
Lat/Long: 45.6065 / -122.6926
Source: Business
Media: Non-saturated soil, rock, etc.
Responsible Company: Bulk Transport
Responsible Address: 11619 N Force Ave
Responsible City,St,Zip: Portland, OR 97217-7703

Name: Not reported
Address: 11619 N. FORCE AVE.
City,State,Zip: PORTLAND, OR 97217
Facility ID: 2015-2428
Incident Status: Referred/Closed
Material: Oil - Other
Quantity: Unknown
Unit of Measure: None
Release Date: 11/04/2015
Description: Private citizen reported a strong odor of gasoline from a company burning motor oil. On-going see reference cases: 2015-2335, 2015-2408, 2015-2419.
Lat/Long: 45.606467 / -122.69269
Source: Business
Media: Air
Responsible Company: Bulk Transportation
Responsible Address: 11619 N. Force Avenue
Responsible City,St,Zip: Portland, OR 97217

Name: Not reported
Address: 11619 N. FORCE AVE.
City,State,Zip: PORTLAND, OR 97217
Facility ID: 2015-2335

BULK TRANSPORTATION FACILITY (Continued) **S102081444**

Incident Status: Closed
Material: Wastewater (Non-Sewage)
Quantity: Unknown
Unit of Measure: Gallons
Release Date: 10/19/2015
Description: A private citizen reported a chemical spill at a business. Reporting party was at Bulk Transportation for a job interview this morning and stepped in a substance on his way out. He was told by an employee that this substance was chicken fat but the sole of his shoe later turned white in color. There were no markings to indicate what the chemical may have been. The spill is located on the north east site of the equipment yard, near the office and was approximately 6inches deep and 20feet long. There was absorbent on the ground near the spill.
Lat/Long: 45.606467 / -122.69269
Source: Container
Media: Pavement
Responsible Company: Bulk Transportation
Responsible Address: 11619 N. Force Avenue
Responsible City,St,Zip: Portland, OR 97217

B23 **MERIT USA*** **EDR Hist Auto** **1020401392**
NW **2416 N MARINE DR** **N/A**
< 1/8 **PORTLAND, OR 97271**
0.021 mi.
113 ft. **Site 3 of 9 in cluster B**

Relative: EDR Hist Auto
Lower

Actual: Year: Name: Type:
19 ft. 1974 MERRITT USA* Carwashes
1975 MERIT USA* Carwashes

B24 **STOCKYARDS PROPERTY** **RCRA NonGen / NLR** **1000834920**
NW **2416 N MARINE DR RM 102** **FINDS** **ORD987200284**
< 1/8 **PORTLAND, OR 97217** **ECHO**
0.021 mi.
113 ft. **Site 4 of 9 in cluster B**

Relative: RCRA NonGen / NLR:
Lower Date form received by agency: 02/27/1998
Actual: Facility name: STOCKYARDS PROPERTY
19 ft. Facility address: 2416 N MARINE DR RM 102
PORTLAND, OR 97217
EPA ID: ORD987200284
Mailing address: 4020 LAKE WASHINGTON BLVD NE S
KIRKLAND, WA 98033
Contact: DAVE LEAR
Contact address: 5330 NE SKYPORT WAY
PORTLAND, OR 97218
Contact country: US
Contact telephone: 503-331-2221
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

STOCKYARDS PROPERTY (Continued) **1000834920**

Owner/Operator Summary:
- Owner/operator name: WASTE MANAGEMENT DISPOSAL SVCS OF OREGON
- Owner/operator address: 5330 NORTH EAST SKYPORT WAY
  PORTLAND, OR 97218
- Owner/operator country: US
- Owner/operator telephone: 503-249-8078
- Owner/operator email: Not reported
- Owner/operator fax: Not reported
- Owner/operator extension: Not reported
- Legal status: Other
- Owner/Operator Type: Owner
- Owner/Op start date: 02/27/1998
- Owner/Op end date: Not reported

- Owner/operator name: WASTE MANAGEMENT DISPOSAL SVCS OF OR
- Owner/operator address: 5330 NE SKYPORT WAY
  PORTLAND, OR 97218
- Owner/operator country: US
- Owner/operator telephone: 503-331-2221
- Owner/operator email: Not reported
- Owner/operator fax: Not reported
- Owner/operator extension: Not reported
- Legal status: Other
- Owner/Operator Type: Operator
- Owner/Op start date: 02/27/1998
- 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: 01/31/1996
- Site name: STOCKYARDS PROPERTY
- Classification: Not a generator, verified

- Date form received by agency: 02/17/1995
- Site name: STOCKYARDS PROPERTY
- Classification: Not a generator, verified

- Date form received by agency: 03/02/1994
- Site name: STOCKYARDS PROPERTY
- Classification: Not a generator, verified

STOCKYARDS PROPERTY (Continued) **1000834920**

Date form received by agency: 03/01/1994
Site name: STOCKYARDS PROPERTY
Classification: Large Quantity Generator

Date form received by agency: 02/08/1993
Site name: STOCKYARDS PROPERTY
Classification: Not a generator, verified

Hazardous Waste Summary:

. Waste code: D001
. Waste name: IGNITABLE WASTE

Violation Status: No violations found

FINDS:

Registry ID: 110004806862

Environmental Interest/Information System
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.

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

ECHO:
Envid: 1000834920
Registry ID: 110004806862
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110004806862

B25 **B & L CLARK EXPRESS INC** **RCRA NonGen / NLR** **1000121601**
NW **2416 N MARINE DR #224** **ORD980982441**
< 1/8 **PORTLAND, OR 97217**
0.021 mi.
113 ft. **Site 5 of 9 in cluster B**

Relative: **Lower**
Actual: **19 ft.**

RCRA NonGen / NLR:
Date form received by agency: 06/06/1986
Facility name: B & L CLARK EXPRESS INC
Facility address: 2416 N MARINE DR #224
PORTLAND, OR 97217
EPA ID: ORD980982441
Contact: Not reported
Contact address: Not reported
Not reported
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

B & L CLARK EXPRESS INC (Continued) **1000121601**

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: 06/05/1986
- Site name: B & L CLARK EXPRESS INC
- Classification: Not a generator, verified

Hazardous Waste Summary:

- . Waste code: NONE
- . Waste name: None

Violation Status: No violations found

B26 **STOCKYARDS PROPERTY** **OR LUST U004190331**
NW **2416 N MARINE DR** **OR UST N/A**
< 1/8 **PORTLAND, OR 97217**
0.021 mi.
113 ft. **Site 6 of 9 in cluster B**

Relative:
Lower

Actual:
19 ft.

LUST:
- Name: PORTLAND STOCK YARDS
- Address: 2416 N MARINE DR
- City,State,Zip: PORTLAND, OR 97217
- Region: North Western Region
- Facility ID: 26-90-0462
- Cleanup Received Date: 11/27/1990
- Cleanup Start Date: 11/27/1990
- **Cleanup Complete Date: 07/22/1991**
- **Decode for Region: North West Region**

UST:
- Name: STOCKYARDS PROPERTY
- Address: 2416 N MARINE DR
- City: PORTLAND
- Facility ID: 10703
- Facility Telephone: (206)822-3770
- Permittee Name: JENNIFER STERIN
- Number of Permitted Tanks: Not reported
- Active Tanks: Not reported
- Decommissioned Tanks: 1
- Number of Tanks: 1

B27 **PENINSULA TERMINAL RAILROAD** **RCRA NonGen / NLR** **1000258602**
NW **2416 N MARINE DR RM 226** **FINDS** **ORD045772506**
< 1/8 **PORTLAND, OR 97217** **ECHO**
0.021 mi.
113 ft. **Site 7 of 9 in cluster B**

Relative:
Lower

Actual:
19 ft.

RCRA NonGen / NLR:

Date form received by agency:	08/19/1980
Facility name:	PENINSULA TERMINAL RAILROAD
Facility address:	2416 N MARINE DR RM 226 PORTLAND, OR 97217
EPA ID:	ORD045772506
Contact:	Not reported
Contact address:	Not reported Not reported
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

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:	08/18/1980
Site name:	PENINSULA TERMINAL RAILROAD
Classification:	Not a generator, verified
Violation Status:	No violations found

FINDS:

Registry ID: 110044947332

Environmental Interest/Information System

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.

PENINSULA TERMINAL RAILROAD (Continued) **1000258602**

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

ECHO:
Envid: 1000258602
Registry ID: 110044947332
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110044947332

E28
West
< 1/8
0.022 mi.
114 ft.

Relative:
Lower

Actual:
19 ft.

AMERICAN RECYCLERS, LLC
11535 N FORCE AVE
PORTLAND, OR 97217

Site 1 of 6 in cluster E

Delisted NPL **1000302670**
SEMS **ORD071803985**
RCRA-CESQG
OR ECSI
OR SWF/LF
OR AST
OR SPILLS
OR HAZMAT
ROD
PRP
PADS
FTTS
HIST FTTS
ECHO
OR AIRS
OR HSIS
OR NPDES

Delisted NPL:
Name: HARBOR OIL INC.
Address: AKA CHEMPRO OF OREGON INC 11535 N FORCE ST
City,State,Zip: PORTLAND, OR 97217
EPA ID: ORD071803985
Site ID: 1000442
EPA Region: 10
Deleted Date: 2014-06-05 00:00:00
Federal Description: N
Latitude: 45.606389
Longitude: -122.691389

SEMS:
Site ID: 1000442
EPA ID: ORD071803985
Cong District: 03
FIPS Code: 41051
Latitude: +45.606389
Longitude: -122.691389
FF: N
NPL: Deleted from the Final NPL
Non NPL Status: Not reported

SEMS Detail:
Region: 10
Site ID: 1000442
EPA ID: ORD071803985
Site Name: HARBOR OIL INC.
NPL: D
FF: N

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

OU:	01
Action Code:	RO
Action Name:	ROD
SEQ:	1
Start Date:	2013-06-28 05:00:00
Finish Date:	6/28/2013 5:00:00 AM
Qual:	R
Current Action Lead:	EPA Perf
Region:	10
Site ID:	1000442
EPA ID:	ORD071803985
Site Name:	HARBOR OIL INC.
NPL:	D
FF:	N
OU:	01
Action Code:	CO
Action Name:	RI/FS
SEQ:	1
Start Date:	2003-09-30 04:00:00
Finish Date:	5/31/2007 4:00:00 AM
Qual:	Not reported
Current Action Lead:	EPA Perf
Region:	10
Site ID:	1000442
EPA ID:	ORD071803985
Site Name:	HARBOR OIL INC.
NPL:	D
FF:	N
OU:	00
Action Code:	ND
Action Name:	DELETION
SEQ:	1
Start Date:	2014-06-05 05:00:00
Finish Date:	6/5/2014 5:00:00 AM
Qual:	Not reported
Current Action Lead:	EPA Perf
Region:	10
Site ID:	1000442
EPA ID:	ORD071803985
Site Name:	HARBOR OIL INC.
NPL:	D
FF:	N
OU:	00
Action Code:	TG
Action Name:	TA GRANT
SEQ:	1
Start Date:	2007-05-10 04:00:00
Finish Date:	5/8/2013 5:00:00 AM
Qual:	Not reported
Current Action Lead:	EPA Perf
Region:	10
Site ID:	1000442
EPA ID:	ORD071803985

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Site Name:	HARBOR OIL INC.
NPL:	D
FF:	N
OU:	01
Action Code:	BD
Action Name:	PRP RI/FS
SEQ:	1
Start Date:	2007-05-31 04:00:00
Finish Date:	6/28/2013 5:00:00 AM
Qual:	Not reported
Current Action Lead:	EPA Ovrsght

Region:	10
Site ID:	1000442
EPA ID:	ORD071803985
Site Name:	HARBOR OIL INC.
NPL:	D
FF:	N
OU:	00
Action Code:	MA
Action Name:	ST COOP
SEQ:	1
Start Date:	2004-06-14 04:00:00
Finish Date:	11/8/2013 5:00:00 AM
Qual:	Not reported
Current Action Lead:	EPA Perf

Region:	10
Site ID:	1000442
EPA ID:	ORD071803985
Site Name:	HARBOR OIL INC.
NPL:	D
FF:	N
OU:	00
Action Code:	MA
Action Name:	ST COOP
SEQ:	3
Start Date:	2007-10-22 04:00:00
Finish Date:	11/6/2013 5:00:00 AM
Qual:	Not reported
Current Action Lead:	EPA Perf

Region:	10
Site ID:	1000442
EPA ID:	ORD071803985
Site Name:	HARBOR OIL INC.
NPL:	D
FF:	N
OU:	00
Action Code:	CQ
Action Name:	CLSOUT R
SEQ:	1
Start Date:	2013-08-05 04:00:00
Finish Date:	8/5/2013 4:00:00 AM
Qual:	Not reported
Current Action Lead:	EPA Perf

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Region:	10
Site ID:	1000442
EPA ID:	ORD071803985
Site Name:	HARBOR OIL INC.
NPL:	D
FF:	N
OU:	00
Action Code:	TU
Action Name:	NOID
SEQ:	1
Start Date:	2014-04-07 04:00:00
Finish Date:	4/7/2014 4:00:00 AM
Qual:	Not reported
Current Action Lead:	EPA Perf

Region:	10
Site ID:	1000442
EPA ID:	ORD071803985
Site Name:	HARBOR OIL INC.
NPL:	D
FF:	N
OU:	00
Action Code:	MA
Action Name:	ST COOP
SEQ:	2
Start Date:	2008-01-22 05:00:00
Finish Date:	2/25/2014 5:00:00 AM
Qual:	Not reported
Current Action Lead:	EPA Perf

Region:	10
Site ID:	1000442
EPA ID:	ORD071803985
Site Name:	HARBOR OIL INC.
NPL:	D
FF:	N
OU:	00
Action Code:	SI
Action Name:	SI
SEQ:	2
Start Date:	2001-02-09 05:00:00
Finish Date:	7/27/2001 4:00:00 AM
Qual:	H
Current Action Lead:	EPA Perf

Region:	10
Site ID:	1000442
EPA ID:	ORD071803985
Site Name:	HARBOR OIL INC.
NPL:	D
FF:	N
OU:	00
Action Code:	SI
Action Name:	SI
SEQ:	1
Start Date:	1985-01-01 06:00:00
Finish Date:	4/12/1985 6:00:00 AM

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Qual:	N
Current Action Lead:	EPA Perf
Region:	10
Site ID:	1000442
EPA ID:	ORD071803985
Site Name:	HARBOR OIL INC.
NPL:	D
FF:	N
OU:	00
Action Code:	NP
Action Name:	PROPOSED
SEQ:	1
Start Date:	2002-09-05 04:00:00
Finish Date:	9/5/2002 4:00:00 AM
Qual:	Not reported
Current Action Lead:	EPA Perf
Region:	10
Site ID:	1000442
EPA ID:	ORD071803985
Site Name:	HARBOR OIL INC.
NPL:	D
FF:	N
OU:	00
Action Code:	NF
Action Name:	NPL FINL
SEQ:	1
Start Date:	2003-09-29 04:00:00
Finish Date:	9/29/2003 4:00:00 AM
Qual:	Not reported
Current Action Lead:	EPA Perf
Region:	10
Site ID:	1000442
EPA ID:	ORD071803985
Site Name:	HARBOR OIL INC.
NPL:	D
FF:	N
OU:	00
Action Code:	DS
Action Name:	DISCVRY
SEQ:	1
Start Date:	1979-07-01 04:00:00
Finish Date:	7/1/1979 4:00:00 AM
Qual:	Not reported
Current Action Lead:	EPA Perf
Region:	10
Site ID:	1000442
EPA ID:	ORD071803985
Site Name:	HARBOR OIL INC.
NPL:	D
FF:	N
OU:	00
Action Code:	HR
Action Name:	HAZRANK

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

SEQ:	1
Start Date:	2001-07-27 04:00:00
Finish Date:	9/5/2002 4:00:00 AM
Qual:	N
Current Action Lead:	EPA Perf
Region:	10
Site ID:	1000442
EPA ID:	ORD071803985
Site Name:	HARBOR OIL INC.
NPL:	D
FF:	N
OU:	00
Action Code:	PA
Action Name:	PA
SEQ:	1
Start Date:	1984-06-26 05:00:00
Finish Date:	8/1/1984 5:00:00 AM
Qual:	H
Current Action Lead:	EPA Perf

RCRA-CESQG:

Date form received by agency:	10/01/2017
Facility name:	ECOLUBE RECOVERY
Facility address:	11535 N FORCE AVE PORTLAND, OR 97217
EPA ID:	ORD071803985
Contact:	DON CARELL
Contact address:	11535 N FORCE AVE PORTLAND, OR 97217
Contact country:	US
Contact telephone:	503-445-7780
Contact email:	DCARELL@ECOLUBERECOVERY.COM
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 hazardous waste

Owner/Operator Summary:

Owner/operator name:	ECOLUBE RECOVERY DBA APES
Owner/operator address:	11535 N FORCE AVE PORTLAND, OR 97217

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Owner/operator country: US
Owner/operator telephone: 503-445-7780
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 10/01/2017
Owner/Op end date: Not reported

Owner/operator name: ECOLUBE RECOVERY DBA APES
Owner/operator address: 11535 N FORCE AVE
PORTLAND, OR 97217
Owner/operator country: US
Owner/operator telephone: 503-445-7780
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 10/01/2017
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: Yes
Used oil fuel marketer to burner: No
Used oil Specification marketer: Yes
Used oil transfer facility: Yes
Used oil transporter: No

Historical Generators:
Date form received by agency: 08/17/2015
Site name: AMERICAN PETROLEUM ENVIRONMENTAL SVCS
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2014
Site name: AMERICAN PETROLEUM ENVIRONMENTAL SVCS
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2011
Site name: AMERICAN RECYCLERS, LLC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/29/2011
Site name: AMERICAN RECYCLERS, LLC
Classification: Conditionally Exempt Small Quantity Generator

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Date form received by agency: 05/13/2009
Site name: ENERGY AND MATERIAL RECOVERY INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2000
Site name: HARBOR OIL INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/05/2000
Site name: HARBOR OIL
Classification: Not a generator, verified

Date form received by agency: 01/21/1999
Site name: HARBOR OIL INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/16/1998
Site name: HARBOR OIL INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/24/1997
Site name: HARBOR OIL INC
Classification: Large Quantity Generator

Date form received by agency: 12/13/1996
Site name: HARBOR OIL INC
Classification: Large Quantity Generator

Date form received by agency: 06/18/1996
Site name: HARBOR OIL INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 06/16/1995
Site name: HARBOR OIL INC
Classification: Large Quantity Generator

Date form received by agency: 02/17/1995
Site name: HARBOR OIL INC
Classification: Large Quantity Generator

Date form received by agency: 01/11/1993
Site name: HARBOR OIL INC
Classification: Small Quantity Generator

Date form received by agency: 10/20/1992
Site name: HARBOR OIL
Classification: Small Quantity Generator

Date form received by agency: 03/02/1992
Site name: HARBOR OIL INC
Classification: Small Quantity Generator

Date form received by agency: 11/19/1980
Site name: HARBOR OIL
Classification: Not a generator, verified

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Hazardous Waste Summary:

. Waste code: F001
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: K001
. Waste name: BOTTOM SEDIMENT SLUDGE FROM THE TREATMENT OF WASTEWATERS FROM WOOD PRESERVING PROCESSES THAT USE CREOSOTE AND/OR PENTACHLOROPHENOL.

. Waste code: K049
. Waste name: SLOP OIL EMULSION SOLIDS FROM THE PETROLEUM REFINING INDUSTRY.

. Waste code: K051
. Waste name: API SEPARATOR SLUDGE FROM THE PETROLEUM REFINING INDUSTRY.

. Waste code: K052
. Waste name: TANK BOTTOMS (LEADED) FROM THE PETROLEUM REFINING INDUSTRY.

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

. Waste code: NA
. Waste name: NA

. Waste code: NONE
. Waste name: None

. Waste code: P030
. Waste name: CYANIDES (SOLUBLE CYANIDE SALTS), NOT OTHERWISE SPECIFIED

. Waste code: U019
. Waste name: BENZENE (I,T)

. Waste code: U051
. Waste name: CREOSOTE

. Waste code: U061
. Waste name: BENZENE, 1,1'-(2,2,2-TRICHLOROETHYLIDENE)BIS[4-CHLORO- (OR) DDT

. Waste code: U112
. Waste name: ACETIC ACID, ETHYL ESTER (I) (OR) ETHYL ACETATE (I)

. Waste code: U117
. Waste name: ETHANE, 1,1'-OXYBIS-(I) (OR) ETHYL ETHER (I)

. Waste code: U159
. Waste name: 2-BUTANONE (I,T) (OR) METHYL ETHYL KETONE (MEK) (I,T)

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO- (OR) METHYL CHLOROFORM

. Waste code: U228
. Waste name: ETHENE, TRICHLORO- (OR) TRICHLOROETHYLENE

. Waste code: U239
. Waste name: BENZENE, DIMETHYL- (I,T) (OR) XYLENE (I)

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Used Oil - Generators
Date violation determined: 08/10/2015
Date achieved compliance: 10/08/2015
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 08/21/2015
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date violation determined: 11/08/1996
Date achieved compliance: 12/11/1996
Violation lead agency: State

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 11/19/1996
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 11/08/1996
Date achieved compliance: 12/11/1996
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 11/19/1996
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Container Use and Management
Date violation determined: 02/04/1993
Date achieved compliance: 12/08/1993
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 02/06/1993
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Container Use and Management
Date violation determined: 06/18/1992
Date achieved compliance: 12/08/1993
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/26/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: LDR - General
Date violation determined: 06/18/1992
Date achieved compliance: 06/18/1992
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Enforcement action date: 06/26/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 06/18/1992
Date achieved compliance: 12/08/1993
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/26/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 03/02/1988
Date achieved compliance: 03/02/1988
Violation lead agency: EPA
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 11/12/1987
Date achieved compliance: 11/25/1987
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/19/1987
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 06/26/1984
Date achieved compliance: 07/10/1984
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/28/1984

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:

Evaluation date: 05/29/2018
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 10/13/2016
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 08/10/2015
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Used Oil - Generators
Date achieved compliance: 10/08/2015
Evaluation lead agency: State

Evaluation date: 11/01/2011
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 12/08/2010
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 08/31/2010
Evaluation: NON-FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 07/26/2010
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 06/01/2010
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 04/20/2000

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Evaluation: NON-FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 11/08/1996
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 12/11/1996
Evaluation lead agency: State

Evaluation date: 11/08/1996
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date achieved compliance: 12/11/1996
Evaluation lead agency: State

Evaluation date: 02/04/1993
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Container Use and Management
Date achieved compliance: 12/08/1993
Evaluation lead agency: State

Evaluation date: 06/18/1992
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 06/18/1992
Evaluation lead agency: State

Evaluation date: 06/18/1992
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Container Use and Management
Date achieved compliance: 12/08/1993
Evaluation lead agency: State

Evaluation date: 06/18/1992
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 12/08/1993
Evaluation lead agency: State

Evaluation date: 04/08/1988
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 03/02/1988
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Generators - General
Date achieved compliance: 03/02/1988
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 11/12/1987
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 11/25/1987

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Evaluation lead agency: State

Evaluation date: 06/03/1985
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 06/26/1984
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 07/10/1984
Evaluation lead agency: State

ECSI:
Name: HARBOR OIL INC. (FORMER)
Address: 11535 N FORCE AVE.
City,State,Zip: PORTLAND, OR 97217
State ID Number: 24
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 834
Investigation: Suspect
FACA ID: 576
Further Action: 0
Lat/Long (dms): 45 36 22.30 / -122 41 37.70
County Code: 26.00
Score Value: Not reported
Cerclis ID: 071803985
Township Coord.: 2.00
Township Zone: N
Range Coord: 1.00
Range Zone: E
Section Coord: 33
Qtr Section: Not reported
Tax Lots: 2
Size: 4.2 acres
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 06/05/2014
Created Date: 04/22/1988
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: Suspect
Decode For Legislative: Environmental Protection Agency
Alias Name: Chem-Pro of Oregon
Alias Name: American Recyclers
Alias Name: Dobbins Oil
Alias Name: Energy & Material Recovery Inc.

Hazardous Release:
Substance ID.: 122012
Haz Release ID: 381644
Qty Released: Not reported
Date Released: historical releases over a number of years

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Update Date: 04/29/1998
Update By: Not reported
Substance Code: ECD275
Substance Name: TOTAL PETROLEUM HYDROCARBONS (TPH)
Substance Abbrev.: Not reported
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Comment ID: 303679
Release Code: General Comments
Release Comments: Harbor Oil a suspected source.
Decode for Relcomcd: General Comments
Comment ID: 303680
Release Code: Media Contamination Footnote
Release Comments: Surface Water Sediment (Force Lake)
Decode for Relcomcd: Media Contamination Footnote
Sampling Result ID: 341975
Feature Id: Not reported
Hazard Release Id: 381644
Medium: 701
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Not reported
Last Update By: jmd
Update Date: 04/29/1998
Decode for MediumID: Sediment
Sampling Result ID: 341976
Feature Id: Not reported
Hazard Release Id: 381644
Medium: 701
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 180 mg/kg
Last Update By: jmd

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Update Date: 04/29/1998
Decode for MediumID: Sediment

Substance ID.: 121639
Haz Release ID: 381645
Qty Released: historical releases over a number of years.
Date Released: Not reported
Update Date: 04/29/1998
Update By: Not reported
Substance Code: 7439-92-1
Substance Name: LEAD
Substance Abbrev.: Not reported
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319256
Sub Alias Name: PB
Comment ID: 303672
Release Code: General Comments
Release Comments: Harbor Oil a suspected source. The sediment concentration may not be representative and will be verified with future sampling.
Decode for Relcomcd: General Comments
Comment ID: 303673
Release Code: Media Contamination Footnote
Release Comments: Surface Water Sediment (Force Lake).
Decode for Relcomcd: Media Contamination Footnote
Sampling Result ID: 347372
Feature Id: 0
Hazard Release Id: 381645
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 08/01/2000
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 337 mg/kg
Last Update By: JWAGGY
Update Date: 07/03/2003
Decode for MediumID: Soil
Sampling Result ID: 341977
Feature Id: Not reported
Hazard Release Id: 381645
Medium: 701
Substance Abbrev.: Not reported
Unit Code: Not reported

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 18,600 mg/kg
Last Update By: jmd
Update Date: 04/29/1998
Decode for MediumID: Sediment

Substance ID.: 121989
Haz Release ID: 384782
Qty Released: unknown
Date Released: Surface runoff/fish kill - 3/74; fire, 10/79 - never fully confirmed.
Update Date: 07/30/2007
Update By: JWAGGY
Substance Code: ECD200
Substance Name: OIL OR FUEL RELATED COMPOUNDS
Substance Abbrev.: Not reported
Substance Category ID: 8532
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8532
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Comment ID: 303678
Release Code: Data Sources
Release Comments: NWR HW Source file for Harbor Oil, PA by E & E
Decode for Relcomcd: Data Sources
Sampling Result ID: 343330
Feature Id: Not reported
Hazard Release Id: 384782
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 11/18/1990
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 13,700 ppm
Last Update By: ars
Update Date: 05/01/1995
Decode for MediumID: Soil

Substance ID.: 121011
Haz Release ID: 385692

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Qty Released: unknown
Date Released: Surface runoff/fish kill - 3/74; fire, 10/79 - never fully confirmed.
Update Date: 07/30/2007
Update By: JWAGGY
Substance Code: 127-18-4
Substance Name: TETRACHLOROETHYLENE
Substance Abbrev.: Not reported
Substance Category ID: 8519
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8551
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8519
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8551
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316912
Sub Alias Name: ETHENE,TETRACHLORO-
Substance Alias ID: 316913
Sub Alias Name: ETHYLENE TETRACHLORIDE
Substance Alias ID: 316914
Sub Alias Name: PERCHLOROETHYLENE
Substance Alias ID: 316915
Sub Alias Name: PERCLENE
Substance Alias ID: 316916
Sub Alias Name: TETRACHLOROETHENE
Substance Alias ID: 316917
Sub Alias Name: TETRACHLOROETHENE,1,1,2,2-
Substance Alias ID: 316918
Sub Alias Name: TETRACHLOROETHYLENE,1,1,2,2-
Comment ID: 303631
Release Code: Data Sources
Release Comments: NWR HW Source file for Harbor Oil, PA by E & E
Decode for Relcomcd: Data Sources
Sampling Result ID: 345373
Feature Id: 0
Hazard Release Id: 385692
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 10/17/1984
End Date: Not reported

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 39 ug/kg
Last Update By: JWAGGY
Update Date: 01/29/2007
Decode for MediumID: Soil
Sampling Result ID: 347382
Feature Id: 0
Hazard Release Id: 385692
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 07/31/2000
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 10.8 ug/kg
Last Update By: JWAGGY
Update Date: 07/03/2003
Decode for MediumID: Soil

Substance ID.: 121781
Haz Release ID: 385693
Qty Released: unknown
Date Released: Surface runoff/fish kill - 3/74; fire, 10/79 - never fully confirmed.
Update Date: 07/30/2007
Update By: JWAGGY
Substance Code: 79-01-6
Substance Name: TRICHLOROETHYLENE
Substance Abbrev.: Not reported
Substance Category ID: 8523
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8545
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8523
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8545
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317517
Sub Alias Name: ETHINYL TRICHLORIDE
Substance Alias ID: 317518

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Sub Alias Name:	ETHYLENE TRICHLORIDE
Substance Alias ID:	317519
Sub Alias Name:	TCE
Substance Alias ID:	317520
Sub Alias Name:	TRI-CLENE
Substance Alias ID:	317521
Sub Alias Name:	TRICHLOROETHENE
Comment ID:	303675
Release Code:	General Comments
Release Comments:	More detailed sampling information in site file.
Decode for Relcomcd:	General Comments
Sampling Result ID:	343331
Feature Id:	0
Hazard Release Id:	385693
Medium:	698
Substance Abbrev.:	0
Unit Code:	Not reported
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	Not reported
Start Date:	11/18/1990
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	Not reported
Sample Comment:	11 ug/L
Last Update By:	JWAGGY
Update Date:	01/29/2007
Decode for MediumID:	Groundwater
Sampling Result ID:	345374
Feature Id:	0
Hazard Release Id:	385693
Medium:	704
Substance Abbrev.:	0
Unit Code:	Not reported
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	Not reported
Start Date:	10/17/1984
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	Not reported
Sample Comment:	Up to 4,500 ug/L
Last Update By:	JWAGGY
Update Date:	01/29/2007
Decode for MediumID:	Surface Water
Sampling Result ID:	347387
Feature Id:	0
Hazard Release Id:	385693
Medium:	703
Substance Abbrev.:	0
Unit Code:	Not reported
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	Not reported

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Start Date: 08/01/2000
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 3.3 ug/kg
Last Update By: JWAGGY
Update Date: 07/03/2003
Decode for MediumID: Soil

Substance ID.: 121019
Haz Release ID: 385694
Qty Released: unknown
Date Released: Surface runoff/fish kill - 3/74; fire, 10/79 - never fully confirmed.
Update Date: 07/30/2007
Update By: JWAGGY
Substance Code: 129-00-0
Substance Name: PYRENE
Substance Abbrev.: Not reported
Substance Category ID: 8497
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8497
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316950
Sub Alias Name: BENZO(def)PHENANTHRENE
Comment ID: 303632
Release Code: Data Sources
Release Comments: NWR HW Source file for Harbor Oil, PA by E & E
Decode for Relcomcd: Data Sources
Sampling Result ID: 345240
Feature Id: 0
Hazard Release Id: 385694
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 10/17/1984
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 14,000 ug/kg
Last Update By: JWAGGY
Update Date: 01/29/2007
Decode for MediumID: Soil

Substance ID.: 121195
Haz Release ID: 385709
Qty Released: unknown
Date Released: Surface runoff/fish kill - 3/74; fire, 10/79

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Update Date: 03/22/1995
Update By: Not reported
Substance Code: 206-44-0
Substance Name: FLUORANTHENE
Substance Abbrev.: Not reported
Substance Category ID: 8491
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8491
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317398
Sub Alias Name: BENZACENAPHTHENE,1,2-
Substance Alias ID: 317399
Sub Alias Name: BENZO(jk)FLUORENE
Comment ID: 303633
Release Code: Data Sources
Release Comments: NWR HW Source file for Harbor Oil, PA by E & E
Decode for Relcomcd: Data Sources
Sampling Result ID: 345372
Feature Id: 0
Hazard Release Id: 385709
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 10/17/1984
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 9,900 ug/kg
Last Update By: JWAGGY
Update Date: 07/03/2003
Decode for MediumID: Soil

Substance ID.: 121671
Haz Release ID: 385970
Qty Released: Not reported
Date Released: Not reported
Update Date: 07/03/2003
Update By: JWAGGY
Substance Code: 7440-47-3
Substance Name: CHROMIUM
Substance Abbrev.: Not reported
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8462

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318145
Sub Alias Name: CHROMIUM, INORGANIC
Substance Alias ID: 319294
Sub Alias Name: CHROMIUM, TOTAL
Sampling Result ID: 347370
Feature Id: 0
Hazard Release Id: 385970
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 08/01/2000
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 38 mg/kg
Last Update By: JWAGGY
Update Date: 07/03/2003
Decode for MediumID: Soil

Substance ID.: 121673
Haz Release ID: 385971
Qty Released: Not reported
Date Released: Not reported
Update Date: 07/03/2003
Update By: JWAGGY
Substance Code: 7440-50-8
Substance Name: COPPER
Substance Abbrev.: Not reported
Substance Category ID: 8464
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8464
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319296
Sub Alias Name: CU
Sampling Result ID: 347371
Feature Id: 0
Hazard Release Id: 385971
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Sample Depth: Not reported
Start Date: 08/01/2000
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 293 mg/kg
Last Update By: JWAGGY
Update Date: 07/03/2003
Decode for MediumID: Soil

Substance ID.: 121643
Haz Release ID: 385972
Qty Released: Not reported
Date Released: Not reported
Update Date: 07/03/2003
Update By: JWAGGY
Substance Code: 7439-97-6
Substance Name: MERCURY
Substance Abbrev.: Not reported
Substance Category ID: 8467
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8467
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319260
Sub Alias Name: HG
Substance Alias ID: 319261
Sub Alias Name: HYDRARGYRUM
Substance Alias ID: 319262
Sub Alias Name: LIQUID SILVER
Substance Alias ID: 319263
Sub Alias Name: QUICKSILVER
Sampling Result ID: 347373
Feature Id: 0
Hazard Release Id: 385972
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 08/01/2000
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 6.69 mg/kg
Last Update By: JWAGGY
Update Date: 07/03/2003
Decode for MediumID: Soil

Substance ID.: 121679

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Haz Release ID: 385973
Qty Released: Not reported
Date Released: Not reported
Update Date: 07/03/2003
Update By: JWAGGY
Substance Code: 7440-66-6
Substance Name: ZINC
Substance Abbrev.: Not reported
Substance Alias ID: 319302
Sub Alias Name: ZN
Sampling Result ID: 347374
Feature Id: 0
Hazard Release Id: 385973
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 08/01/2000
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 289 mg/kg
Last Update By: JWAGGY
Update Date: 07/03/2003
Decode for MediumID: Soil

Substance ID.: 121614
Haz Release ID: 385974
Qty Released: Not reported
Date Released: Not reported
Update Date: 07/03/2003
Update By: JWAGGY
Substance Code: 72-54-8
Substance Name: DDD,p,p'-
Substance Abbrev.: Not reported
Substance Alias ID: 319194
Sub Alias Name: DICHLORO-2,2-BIS(p-CHLOROPHENYL)ETHANE,1,1-
Substance Alias ID: 319195
Sub Alias Name: DICHLORODIPHENYLDICHLOROETHANE
Substance Alias ID: 319196
Sub Alias Name: RHOTHANE
Substance Alias ID: 319197
Sub Alias Name: TDE
Substance Alias ID: 319198
Sub Alias Name: TDE,p,p'-
Substance Alias ID: 319199
Sub Alias Name: TETRACHLORODIPHENYLETHANE
Sampling Result ID: 347375
Feature Id: 0
Hazard Release Id: 385974
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 07/31/2000
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 64 mg/kg
Last Update By: JWAGGY
Update Date: 07/03/2003
Decode for MediumID: Soil

Substance ID.: 121615
Haz Release ID: 385975
Qty Released: Not reported
Date Released: Not reported
Update Date: 07/03/2003
Update By: JWAGGY
Substance Code: 72-55-9
Substance Name: DDE,p,p'-
Substance Abbrev.: Not reported
Substance Alias ID: 319200
Sub Alias Name: BIS(p-CHLOROPHENYL)-1,1-DICHLOROETHYLENE,2,2-
Substance Alias ID: 319201
Sub Alias Name: DICHLORODIPHENYL DICHLOROETHYLENE,p,p'-
Substance Alias ID: 319202
Sub Alias Name: DICHLOROETHENYLIDENE)BIS(4-CHLOROBENZENE),1,1'-(-
Sampling Result ID: 347376
Feature Id: 0
Hazard Release Id: 385975
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 07/31/2000
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 5.2 mg/kg
Last Update By: JWAGGY
Update Date: 07/03/2003
Decode for MediumID: Soil

Substance ID.: 121373
Haz Release ID: 385976
Qty Released: Not reported
Date Released: Not reported
Update Date: 07/03/2003
Update By: JWAGGY
Substance Code: 50-29-3
Substance Name: DDT,p,p'-
Substance Abbrev.: Not reported
Substance Alias ID: 318555
Sub Alias Name: BIS(p-CHLOROPHENYL)-2,2,2-TRICHLOROETHANE,1,1-

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Substance Alias ID: 318556
Sub Alias Name: CHLOROPHENOTHANE
Substance Alias ID: 318557
Sub Alias Name: DICHLORODIPHENYLTRICHLOROETHANE
Substance Alias ID: 318558
Sub Alias Name: ETHANE,1,1,1-TRICHLORO-2,2-BIS(p-CHLOROPHENYL)-
Sampling Result ID: 347377
Feature Id: 0
Hazard Release Id: 385976
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 07/31/2000
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 8.4 mg/kg
Last Update By: JWAGGY
Update Date: 07/03/2003
Decode for MediumID: Soil

Substance ID.: 121009
Haz Release ID: 385977
Qty Released: Not reported
Date Released: Not reported
Update Date: 07/03/2003
Update By: JWAGGY
Substance Code: 12672-29-6
Substance Name: PCB 1248
Substance Abbrev.: Not reported
Substance Category ID: 8555
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8555
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316910
Sub Alias Name: AROCLOR 1248
Sampling Result ID: 347378
Feature Id: 0
Hazard Release Id: 385977
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 08/01/2000

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End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 12 mg/kg
Last Update By: JWAGGY
Update Date: 07/03/2003
Decode for MediumID: Soil

Substance ID.: 120908
Haz Release ID: 385978
Qty Released: Not reported
Date Released: Not reported
Update Date: 07/03/2003
Update By: JWAGGY
Substance Code: 11096-82-5
Substance Name: PCB 1260
Substance Abbrev.: Not reported
Substance Category ID: 8496
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8557
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8496
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8557
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316557
Sub Alias Name: AROCHLOR 1260
Substance Alias ID: 316558
Sub Alias Name: AROCLOR 1260
Sampling Result ID: 347379
Feature Id: 0
Hazard Release Id: 385978
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 08/01/2000
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 4.6 mg/kg
Last Update By: JWAGGY

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Update Date: 07/03/2003
Decode for MediumID: Soil

Substance ID.: 121374
Haz Release ID: 385979
Qty Released: Not reported
Date Released: Not reported
Update Date: 07/03/2003
Update By: JWAGGY
Substance Code: 50-32-8
Substance Name: BENZO(a)PYRENE
Substance Abbrev.: Not reported
Substance Category ID: 8476
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8476
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318559
Sub Alias Name: B(a)P
Substance Alias ID: 318560
Sub Alias Name: BENZOPYRENE,3,4-
Substance Alias ID: 318561
Sub Alias Name: BENZPYRENE,3,4-
Substance Alias ID: 318562
Sub Alias Name: BP
Sampling Result ID: 347380
Feature Id: 0
Hazard Release Id: 385979
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 07/31/2000
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 540 ug/kg
Last Update By: JWAGGY
Update Date: 07/03/2003
Decode for MediumID: Soil

Substance ID.: 121868
Haz Release ID: 385980
Qty Released: Not reported
Date Released: Not reported
Update Date: 07/03/2003
Update By: JWAGGY
Substance Code: 91-20-3
Substance Name: NAPHTHALENE

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Substance Abbrev.: Not reported
Substance Category ID: 8494
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8494
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317793
Sub Alias Name: MOTH BALLS
Substance Alias ID: 317794
Sub Alias Name: NAPHTHENE
Substance Alias ID: 317795
Sub Alias Name: TAR CAMPHOR
Sampling Result ID: 347381
Feature Id: 0
Hazard Release Id: 385980
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 08/01/2000
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 5.88 mg/kg
Last Update By: JWAGGY
Update Date: 07/03/2003
Decode for MediumID: Soil

Substance ID.: 121426
Haz Release ID: 385981
Qty Released: Not reported
Date Released: Not reported
Update Date: 07/03/2003
Update By: JWAGGY
Substance Code: 53469-21-9
Substance Name: PCB 1242
Substance Abbrev.: Not reported
Substance Category ID: 8554
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8554
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318695
Sub Alias Name: AROCHLOR 1242

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Substance Alias ID: 318696
Sub Alias Name: AROCLOR 1242
Sampling Result ID: 347383
Feature Id: 0
Hazard Release Id: 385981
Medium: 700
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 08/02/2000
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Medium=Product, 9.6 mg/kg
Last Update By: JWAGGY
Update Date: 07/03/2003
Decode for MediumID: Other

Substance ID.: 120909
Haz Release ID: 385982
Qty Released: Not reported
Date Released: Not reported
Update Date: 07/03/2003
Update By: JWAGGY
Substance Code: 11097-69-1
Substance Name: PCB 1254
Substance Abbrev.: Not reported
Substance Category ID: 8556
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8556
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316559
Sub Alias Name: AROCHLOR 1254
Substance Alias ID: 316560
Sub Alias Name: AROCLOR 1254
Sampling Result ID: 347384
Feature Id: 0
Hazard Release Id: 385982
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 08/12/2000
End Date: Not reported
Min Concentration: Not reported

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Max Concentration: Not reported
Sample Comment: 5.3 mg/kg
Last Update By: JWAGGY
Update Date: 07/03/2003
Decode for MediumID: Soil

Substance ID.: 121516
Haz Release ID: 385983
Qty Released: Not reported
Date Released: Not reported
Update Date: 07/03/2003
Update By: JWAGGY
Substance Code: 60-57-1
Substance Name: DIELDRIN
Substance Abbrev.: Not reported
Substance Alias ID: 318927
Sub Alias Name: HEOD
Substance Alias ID: 318928
Sub Alias Name: OCTALOX
Sampling Result ID: 347385
Feature Id: 0
Hazard Release Id: 385983
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 08/02/2000
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 150 ug/kg
Last Update By: JWAGGY
Update Date: 07/03/2003
Decode for MediumID: Soil

Substance ID.: 121777
Haz Release ID: 385984
Qty Released: Not reported
Date Released: Not reported
Update Date: 07/03/2003
Update By: JWAGGY
Substance Code: 78-93-3
Substance Name: METHYL ETHYL KETONE
Substance Abbrev.: Not reported
Substance Alias ID: 317507
Sub Alias Name: BUTANONE,2-
Substance Alias ID: 317508
Sub Alias Name: ETHYL METHYL KETONE
Substance Alias ID: 317509
Sub Alias Name: MEK
Substance Alias ID: 317510
Sub Alias Name: METHYL ACETONE
Sampling Result ID: 347386
Feature Id: 0

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Hazard Release Id: 385984
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 07/31/2000
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 93.5 ug/kg
Last Update By: JWAGGY
Update Date: 07/03/2003
Decode for MediumID: Soil

Narrative:

NARR ID: 5730348
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: JWAGGY
Updated Date: 07/30/2007
Decode for NarcdID: Contamination
NARR Comments: (5/29/01 MDK/SRP) Waste oil purified and recycled in a process involving screening, filtering, and heating. Oil trucks cleaned on-site generating wastewater with approximately 5% trichloroethylene (TCE). TCE was vaporized, condensed, and reused. Waste TCE, waste oil sludge stored in drums and tanks. Surface runoff may have contributed to a major fish kill in Force Lake in March 1974. Runoff collection system installed since then, consisting of an oil/water separator. Suspect past operating practices and frequent spills as potential problems. A major fire in 1979 destroyed the facility and was reported to have caused oil and other contaminants to pour across the site and into the wetlands west and south of the site, however, records for this are mostly anecdotal. The TCE used to clean out tank trucks has been found in low concentrations in surface water at the southwest (lowest) end of the site, and has entered the environment. Comprehensive sampling in 1990 showed high levels of oil in site soils and low levels of chlorinated VOCs in deep groundwater (100 ft. depth), although these same VOCs appear to be widespread in groundwater in the immediate site vicinity. Off-site sampling in 1994 showed significant oil contamination in shallow wetland soils, and this contamination is likely to have originated from past releases at the site. Sampling by EPA's contractor in 2000 on behalf of EPA Region 10 has confirmed the presence and extent of contamination originating from past site operations. (12/27/06 MDK/CU&ER) Site added to NPL in 2001. Efforts by EPA to negotiate a cleanup order is on-going (2001 - 2006).

NARR ID: 5730349
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: PSEIDEL
Updated Date: 12/16/2011
Decode for NarcdID: Data Sources

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NARR Comments: EPA CERCLA Preliminary Assessment/Site Investigation. Strategy Recommendation (2/21/95). 3) EPA SI, 2001. Windward Environmental, July 18, 2008, <quot>Remedial Investigation/Feasibility Study Risk Assessment Scoping Memorandum for the Harbor Oil Site<quot> Windward Environmental and Bridgewater Group, Aug 8, 2008, <quot>Preliminary Site Characterization Report for the Harbor Oil Site<quot> Windward Environmental, Oct 9, 2009, <quot>Baseline Human Health Risk Assessment for the Harbor Oil Study Area<quot> (draft) Windward Environmental, Oct 9, 2009, <quot>Baseline Ecological Risk Assessment for the Harbor Oil Study Area<quot> (draft)

NARR ID: 5730350
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: JWAGGY
Updated Date: 07/03/2003
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Waste oil and other petroleum products, trichloroethylene, metals, pesticides, PAHs, PCBs.

NARR ID: 5730352
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Operating practices resulting in surface runoff/fish kill during 3/74; major facility fire 10/79; general surface runoff mixing with contaminated soil.

NARR ID: 5730353
NARR Code: Site Ownership
Created By: Not reported
Created Date: 12/17/2002
Updated By: PSEIDEL
Updated Date: 03/19/2012
Decode for NarcdID: Site Ownership
NARR Comments: Empire Industries (1961 to Nov. 1974); Chempro of Oregon Inc. (Nov. 1974 to Dec. 1984); Harbor Oil Inc. (Dec. 1984 to 1999); Energy Materials Recovery Inc. (1999 to 2010). October 201 to present: Encore Energy, Portland. American Recyclers. LLC current operator.

NARR ID: 5751976
NARR Code: Project Activity Status
Created By: MKENT
Created Date: 01/27/2010
Updated By: PSEIDEL
Updated Date: 12/16/2011
Decode for NarcdID: Project Activity Status
NARR Comments: (1/27/10 MDK/CU&ER) Site investigation activities were conducted in 2007 and 2008. Draft HHRA and ERA reports were submitted to EPA and then provided to DEQ and stakeholders. Draft Remedial Investigation Report submitted. DEQ provided comments on the HHRA and ERA in November 2009, and then comments on the VG responses to the consolidated EPA comments on January 14, 2010. Risk Assessment have

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been revised in accordance with US EPA comments, and US EPA has responded to DEQ, Portland BES, and other stakeholder comments. Draft risk assessments are expected to be finalized in accordance with US EPA comments early 2012 and proposed plan Spring 2012.

NARR ID: 5730354
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: PSEIDEL
Updated Date: 12/16/2011
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: The site is located within 100 feet of Force Lake to the southwest and the Columbia River 1000 feet to the north. A drainage system of buried tiles drains the lake through the adjacent wetland marsh, west and south where it is pumped into the Columbia Slough. The wetlands associated with Force Lake support great blue heron nesting areas, and the City of Portland considers this wetlands area, as well as the lake, to be a sensitive environment. Site is now largely paved and the berm on the western edge of the property leveled off in 2011 dring site modifications

NARR ID: 5730355
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 06/05/2014
Decode for NarcdID: Remedial Action
NARR Comments: (5/29/01 MDK/SRP) There is no evidence that historical releases from the Harbor Oil site were followed by any remedial actions, and recent sampling shows that significant hydrocarbon contamination remains on-site and in the wetlands area. The primary issue of concern at this site is the effect from past releases on ecologically sensitive wetlands associated with Force Lake. An RP notice letter was sent in January 2000 requesting committment to perform an RI/FS and pay DEQ oversight. The RP did not commit to RI/FS and payment of oversight, and site was referred to EPA for further site assessment. Field work for the EPA Site Inspection was conducted July 31 - August 4, 2000. A summary report was released November 2000. EPA determined that the site qualified for listing on the NPL. (6/30/03 MDK/C&ER) The draft PA/SI was released on February 2, 2003. October 2001 letter from Gov. Kitzhaber supports proposed NPL listing. (6/5/14 GMW/SAS) EPA proposed the site for the NPL in 2002. The site was listed on the NPL in 2003, and subsequent investigation and risk assessment work has been conducted under EPA oversight. In June 2014, following a notice in the Federal Register and soliciting public comment, EPA delisted Harbor Oil from the NPL.

NARR ID: 5747279
NARR Code: Health Threats
Created By: GWISTAR
Created Date: 10/03/2005
Updated By: PSEIDEL
Updated Date: 12/16/2011
Decode for NarcdID: Health Threats
NARR Comments: The primary threat is the effect from past releases on ecologically

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sensitive wetlands associated with Force Lake.

NARR ID: 5751622
NARR Code: 1922
Created By: MKENT
Created Date: 07/27/2009
Updated By: GWISTAR
Updated Date: 06/05/2014
Decode for NarcdID: Current Site Summary Statement
NARR Comments: [June 2014] EPA declared the property a Superfund (NPL) site in 2003 at the request of DEQ, which wanted EPA to use Superfund law to bring responsible parties to the table. Harbor Oil ceased operating in 1999. In 2012, EPA s project manager for the site indicated that EPA believed the property posed no unacceptable risk to people or wildlife, despite its Superfund designation.

 On June 5, 2014, EPA removed Harbor Oil from the NPL.

Administrative Action:
Action ID: 9456
Region: Northwestern Region
Complete Date: 02/02/2001
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/01/2006
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: BASIC PRELIMINARY ASSESSEMENT
Further Action: 0
Comments: Not reported

Action ID: 9484
Region: Northwestern Region
Complete Date: 12/16/2011
Rank Value: Not reported
Cleanup Flag: False
Created Date: 07/27/2009
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9486
Region: Northwestern Region
Complete Date: 12/16/2011
Rank Value: Not reported
Cleanup Flag: True
Created Date: 12/16/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: RISK ASSESSMENT
Further Action: 0

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Comments: Not reported

Action ID: 9413
Region: Northwestern Region
Complete Date: 06/05/2014
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/30/2016
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Closeout activities on completed project
Further Action: 0
Comments: Not reported

Action ID: 9503
Region: Northwestern Region
Complete Date: 05/04/2001
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Remedial Investigation/Feasibility Study recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9513
Region: Not reported
Complete Date: 03/15/2001
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA Screening Site Inspection 2
Further Action: Not reported
Comments: Not reported

Action ID: 9442
Region: Northwestern Region
Complete Date: 01/31/2000
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NEGOTIATIONS
Further Action: 0
Comments: Not reported

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Action ID: 9442
Region: Northwestern Region
Complete Date: 03/28/1999
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NEGOTIATIONS
Further Action: 0
Comments: Not reported

Action ID: 9503
Region: Northwestern Region
Complete Date: 02/21/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Remedial Investigation/Feasibility Study recommended
Further Action: High
Comments: Not reported

Action ID: 9426
Region: Northwestern Region
Complete Date: 02/19/1998
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: Not reported
Comments: Not reported

Action ID: 9519
Region: Northwestern Region
Complete Date: 11/04/1998
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: Not reported
Comments: Not reported

Action ID: 9426

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Region: Northwestern Region
Complete Date: 03/14/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: Not reported
Comments: Not reported

Action ID: 9514
Region: Not reported
Complete Date: 10/17/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA Site Inspection Prioritization
Further Action: Not reported
Comments: Not reported

Action ID: 9438
Region: Headquarters
Complete Date: 03/28/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9439
Region: Headquarters
Complete Date: 03/28/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9517
Region: Northwestern Region

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Complete Date: 07/15/1999
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SRS Waiting List
Further Action: 0
Comments: Not reported

Action ID: 9437
Region: Northwestern Region
Complete Date: 02/21/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9430
Region: Headquarters
Complete Date: 09/30/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Petition or request granted
Further Action: Not reported
Comments: Not reported

Action ID: 9421
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: Site added to CERCLIS
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Northwestern Region
Complete Date: 06/19/1995

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Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9467
Region: Northwestern Region
Complete Date: 06/19/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9428
Region: 0
Complete Date: 08/18/1995
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Extension requested by owner/operator
Further Action: 0
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 02/21/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Northwestern Region
Complete Date: 02/21/1995
Rank Value: 0

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Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9499
Region: Northwestern Region
Complete Date: 02/21/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Inventory recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9459
Region: Northwestern Region
Complete Date: 02/21/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: PRELIMINARY ASSESSMENT EQUIVALENT
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9457
Region: Not reported
Complete Date: 08/01/1984
Rank Value: 0
Cleanup Flag: False

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA Basic Preliminary Assessment
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Headquarters
Complete Date: 02/12/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: Not reported
Comments: Not reported

Action ID: 9512
Region: Not reported
Complete Date: 04/12/1985
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA Screening Site Inspection 1
Further Action: Not reported
Comments: Not reported

Action ID: 9445
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Responsible party notified re 11/88 Inventory listing
Further Action: Not reported
Comments: Not reported

Action ID: 9447
Region: 0
Complete Date: 09/05/2002
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/17/2003

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: Proposed for the NPL
Further Action: 0
Comments: Not reported

Action ID: 9446
Region: 0
Complete Date: 06/05/2014
Rank Value: Not reported
Cleanup Flag: False
Created Date: 09/30/2003
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: National Priorities List Site
Further Action: 0
Comments: Not reported

Operations:
Operation Id: 131425
Operation Status: Inactive
Common Name: Harbor Oil Inc.
Yrs of Operation: 1961 to 1999
Comments: Waste oil recycling facility
Updated Date: 06/28/2007
Updated By: JWAGGY
Decode for OpstatID: Inactive
Operations SIC Id: 195537
SIC Code: 2911
Created By: Not reported
Created Date: 12/17/2002
Operations SIC Id: 195904
SIC Code: 5171
Created By: Not reported
Created Date: 12/17/2002

Operation Id: 135305
Operation Status: Active
Common Name: Energy & Material Recovery Inc.
Yrs of Operation: Unknown
Comments: Not reported
Updated Date: 06/28/2007
Updated By: JWAGGY
Decode for OpstatID: Active

LF:
Permit Number: 1591
Facility Id: 112270
Facility Telephone: Not reported
Facility Telephone 2: Not reported
Lat/Long: 45.6058 / -122.693
Solid Waste Class: Industrial
Solid Waste Type: Transfer/Material Recovery

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Date Opened: 03/13/2017
End Date: Not reported
Date Closed: Not reported
Permit Status: Active
Organization: Not reported
Contact Name: Not reported
Affil Start Date: Not reported
Mailing Address: Not reported
Mailing City: Not reported
Mailing State: Not reported
Mailing Zip: Not reported

AST:
Facility Id: 014481
Hazardous Substance: ANTIFREEZE
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: Eric
Direct Site Phone: 5034457780
Report Class: Annual(Revision)
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 014481
Hazardous Substance: WASTE OIL
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: Eric
Direct Site Phone: 5034457780
Report Class: Annual(Revision)
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

OR SPILLS:
Name: Not reported
Address: 11535 N FORCE AVE
City,State,Zip: PORTLAND, OR 97217
Facility ID: 1999-0173
Incident Status: Archive
Material: Not reported

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Quantity: 15
Unit of Measure: Gallons
Release Date: 01/21/1999
Description: Oil "burped" from tank during heating- 5-15 Gall used motor oil.
Lat/Long: 45.6062 / -122.6938
Source: Heating Oil AST
Media: Non-saturated soil, rock, etc.
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

Name: Not reported
Address: 11535 N FORCE AVE
City,State,Zip: PORTLAND, OR 97217
Facility ID: 2009-1642
Incident Status: Archive
Material: Used oil/waste oil
Quantity: 100
Unit of Measure: Gallons
Release Date: 07/24/2009
Description: Received notice from Hazmat that an oil recycling facility had a fire involving one of their oil tanks. Fire was out and the fire dept was concerned about oil and FF foam reaching a waterway. Hazmat team requested on scene DEQ presence. Contacted Ray Hoy.
Lat/Long: 45.6062 / -122.6938
Source: Industrial Plant
Media: Not reported
Responsible Company: Oil Re-Refining Company, Inc.
Responsible Address: 4150 N Suttle Rd
Responsible City,St,Zip: Portland, OR 97217-7717

Name: Not reported
Address: 11535 N FORCE AVE
City,State,Zip: PORTLAND, OR 97217
Facility ID: 2009-1642
Incident Status: Archive
Material: Used oil/waste oil
Quantity: 100
Unit of Measure: Gallons
Release Date: 07/24/2009
Description: Received notice from Hazmat that an oil recycling facility had a fire involving one of their oil tanks. Fire was out and the fire dept was concerned about oil and FF foam reaching a waterway. Hazmat team requested on scene DEQ presence. Contacted Ray Hoy.
Lat/Long: 45.6062 / -122.6938
Source: Industrial Plant
Media: On pavement/asphalt - not direct on soil
Responsible Company: Oil Re-Refining Company, Inc.
Responsible Address: 4150 N Suttle Rd
Responsible City,St,Zip: Portland, OR 97217-7717

Name: Not reported
Address: 11535 N FORCE AVE
City,State,Zip: PORTLAND, OR 97217
Facility ID: 2009-1642
Incident Status: Archive
Material: Used oil/waste oil

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Quantity: 100
Unit of Measure: Gallons
Release Date: 07/24/2009
Description: Received notice from Hazmat that an oil recycling facility had a fire involving one of their oil tanks. Fire was out and the fire dept was concerned about oil and FF foam reaching a waterway. Hazmat team requested on scene DEQ presence. Contacted Ray Hoy.
Lat/Long: 45.6062 / -122.6938
Source: Industrial Plant
Media: Coding for the PS/BC Oil Spill Database
Responsible Company: Oil Re-Refining Company, Inc.
Responsible Address: 4150 N Suttle Rd
Responsible City,St,Zip: Portland, OR 97217-7717

Name: Not reported
Address: 11535 N FORCE AVE
City,State,Zip: PORTLAND, OR 97217
Facility ID: 2009-1642
Incident Status: Archive
Material: Used oil/waste oil
Quantity: 100
Unit of Measure: Gallons
Release Date: 07/24/2009
Description: Received notice from Hazmat that an oil recycling facility had a fire involving one of their oil tanks. Fire was out and the fire dept was concerned about oil and FF foam reaching a waterway. Hazmat team requested on scene DEQ presence. Contacted Ray Hoy.
Lat/Long: 45.6062 / -122.6938
Source: Industrial Plant
Media: Non-saturated soil, rock, etc.
Responsible Company: Oil Re-Refining Company, Inc.
Responsible Address: 4150 N Suttle Rd
Responsible City,St,Zip: Portland, OR 97217-7717

Name: Not reported
Address: 11535 N. FORCE AVE.
City,State,Zip: PORTLAND, OR
Facility ID: 2016-2107
Incident Status: Referred/Closed
Material: Unknown
Quantity: Unknown
Unit of Measure: None
Release Date: 08/28/2016
Description: Nancy Vardanega (503-282-9096) reported an odor from the American Petroleum Environmental Service re-refinery. She says this has been going on for over a year. Should be forwarded to complaints.
Lat/Long: 45.606 / -122.694
Source: Business
Media: Air
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

HAZMAT:
Responsble Party: Not reported
RP Company: ORRECO
RP Address: 11535 N. FORCE AVE.

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

RP City,St,Zip:	PORTLAND, OR 97217
Facility ID:	090035
OERS Number:	20091642
Dept Rsp:	PORTLAND BUREAU OF F&R&EMS
Narrative:	Not reported
Property Loss:	Not reported
Amount Released:	Not reported
Service County:	Not reported
Service Name:	Not reported
Incident Type:	Not reported
Civilian Casualty Activity:	Not reported
Chemical Name:	Not reported
Hazmat Area Affected:	Not reported
Hazmat Area Evacuated:	Not reported
Hazmat Container Type:	Not reported
Hazmat Physical State Released:	Not reported
Hazmat Released Into:	Not reported
Hazmat Released Volume Units:	Not reported
Hazmat Released Weight Units:	Not reported
Hazmat Released From:	Not reported
Hazmat Area Affected Measurement:	Not reported
Hazmat No. of People Evacuated:	Not reported
Hazmat No of Buildings Evacuated:	Not reported
Incident Content Loss:	Not reported
Civilian Casualty Patient Disposition:	Not reported
Incident Mixed Use Property:	Not reported
Location Type:	Not reported
Incident Aid Given Or Received:	Not reported
Incident AID Received from FDID:	Not reported
Incident Aided Department FDID:	Not reported
Person Involved Business Name:	Not reported
Person Involved First Name:	Not reported
Person Involved Last Name:	Not reported
Person Involved Type:	Not reported
Person Involved Phone Number:	Not reported
Person Involved Primary Language:	Not reported
Hazmat Evacuated Measurement:	Not reported
Hazmat Story of Release:	Not reported
Remark:	Not reported
Incident District:	PORTLAND BUREAU OF F&R&EMS
Date Added:	11/09/2009
Unit:	Not reported
Agency Phone:	5038233856
Osfm Incident Report Number:	090035
Dept. Responding:	PORTLAND BUREAU OF F&R&EMS
Person Making Report:	SHON CHRISTENSEN
Title:	HMLT
Agency:	PORTLAND BUREAU OF F&R&EMS
Phone:	5038233856
Date Of Incident:	07/24/2009
Call Time:	12:05:00 PM
In Route:	12:06:00 PM
Arrival:	12:09:00 PM
Depart Scene:	2:58:00 PM
Back In Quarters:	3:04:00 PM
In Service:	2:58:00 PM
Dist Of Incident:	PORTLAND BUREAU OF F&R&EMS

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Were State Resources Used?:	True
Was Oers Notified?:	True
Oers Number:	20091642
Team Number:	HM06
Agency Report Number:	FP09038303
Unit:	Not reported
Highway:	Not reported
Mile Post:	Not reported
Scene Type:	Private Land
Area Type:	Industrial
Responsible Party(les):	Not reported
Company:	ORRECO
Respcontact:	BILL BRIGGS
Address:	11535 N. FORCE AVE.
Resp City:	PORTLAND
Resp State:	OR
Resp ZipCode:	97217
Phone:	5032868352
Resp Phone2:	Not reported
Weather:	1
Temperature:	6
Wind Speed:	1
Wind Direction:	W
Were Haz Materials Released?:	True
Operation Performed:	Normal Operation
Cause:	Fire/Explosion
Vehicle And Cargo:	0
Fixed Property:	0
Total Loss:	$0.00
Hazmat Population Density:	Not reported
HazMat Actions Taken - Description:	Not reported
Hazmat Factors Contributing To Release:	Not reported
Hazmat DOT Hazard Classification:	Not reported
Hazmat CAS Number:	Not reported
Hazardous Materials Release:	Not reported
Fire Incident Type:	Not reported
Property Use:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Hazmat Disposition:	Not reported

Chemical:

Chemical Info:	9186
Chemical Id:	19115
Incident Id:	090035
Chemical Name:	MOTOR OIL
UNNA:	Not reported
Amount At Risk:	12000
Amount Released:	50
Amount Measured:	2
Biological:	False
Radiological:	False

Chemical Id:	19115
Chemical Name:	MOTOR OIL
Hazardous Ingredient:	PETROLEUM HYDROCARBONS
Hazardous Class 1:	4.5
Hazardous Class 2:	6.4

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Hazardous Rank: 2
Case Number: 64742547
UNNA Number: 0000
EPA Pest Reg: Not reported
EHA Chem: Not reported
PSM Chem: Not reported
CAA 112R Chem: Not reported

Method:
Method Used Id: 7688
Incident Id: 090035
Identity Method: 5

Released:
Release Behavior Id: 9300
Incident Id: 090035
Behavior: 4

Narrative:
Narrative Id: 8049
Incident Id: 090035
Incident Narrative: HM-06 responded on a request from Portland Truck 4 who was sent out on whit powder. HM06 found a trail of white powder approximately three feet long, three inches wide by one quarter deep. HM06 informed maintenance that they could handle the clean up of the product. OERS was contacted, #2009-1389
Incident Date: 7/24/2009

ROD:
EPA ID: ORD071803985
RG: 10
Site ID: 1000442
Name: HARBOR OIL INC.
Action: GOVT Decision Document (ROD)
Operable Unit Number: REMEDIAL
SEQ ID: 1
Action Completion: 2013-06-28 00:00:00
NPL Status: Deleted
Non NPL Status: Not reported

PRP:
EPAID: ORD071803985
PRP Name: BONNEVILLE POWER ADMINISTRATION
Site ID: 1000442
Facility Name: HARBOR OIL INC.
Facility Address: AKA CHEMPRO OF OREGON INC
Facility City: PORTLAND
Facility State: OR
Facility Zip: 97217
NPL Status: Deleted from the Final NPL
NPL Status Short Name: Not reported
PRP Address: BOX 3621, CODE SJ
PRP City: PORTLAND,
PRP State: OR

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

PRP Zip: 97208
Data Type: SPECIAL NOTICE
Action Date: 2005-06-27 04:00:00
Settlement Code: SG-1
Settlement: Spcl Not Ltrs

Action Date: 2005-06-27 04:00:00
Settlement Code: SG-1
Settlement: Spcl Not Ltrs

Action Date: 2005-06-27 04:00:00
Settlement Code: SG-1
Settlement: Spcl Not Ltrs

Action Date: 2007-05-31 04:00:00
Settlement Code: AC-1
Settlement: ADM ORDR

Action Date: 2007-05-31 04:00:00
Settlement Code: AC-1
Settlement: ADM ORDR

Action Date: 2005-06-27 04:00:00
Settlement Code: SG-1
Settlement: Spcl Not Ltrs

Action Date: 2007-05-31 04:00:00
Settlement Code: AC-1
Settlement: ADM ORDR

Action Date: 2005-06-27 04:00:00
Settlement Code: SG-1
Settlement: Spcl Not Ltrs

Action Date: 2005-06-27 04:00:00
Settlement Code: SG-1
Settlement: Spcl Not Ltrs

Action Date: 2007-05-31 04:00:00
Settlement Code: AC-1
Settlement: ADM ORDR

Action Date: 2005-06-27 04:00:00
Settlement Code: SG-1
Settlement: Spcl Not Ltrs

PADS:
EPAID: ORD071803985
Facility name: AMERICAN PETROLEUM
Facility Address: 11535 N FORCE AVE
PORTLAND, OR 97217
Facility country: US
Generator: Yes
Storer: No
Transporter: No
Disposer: No
Research facility: No

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Smelter: No
Facility owner name: ECOLUBE RECOVERY
Contact title: FACILITIES MANAGER
Contact name: KRISTI HUNT
Contact tel: 503-445-7780
Contact extension: Not reported
Contact Email: Not reported
Mailing address: 11535 N FORCE AVE
PORTLAND, OR 97217
Mailing country: US
Cert. date: 12/03/2017

FTTS INSP:
Inspection Number: 199003024476 1
Region: 10
Inspection Date: 03/02/90
Inspector: LONG
Violation occurred: No
Investigation Type: Section 6 PCB Federal Conducted
Investigation Reason: Neutral Scheme, Region
Legislation Code: TSCA
Facility Function: Disposer

HIST FTTS INSP:
Inspection Number: 199003024476 1
Region: 10
Inspection Date: Not reported
Inspector: LONG
Violation occurred: No
Investigation Type: Section 6 PCB Federal Conducted
Investigation Reason: Neutral Scheme, Region
Legislation Code: TSCA
Facility Function: Disposer

ECHO:
Envid: 1000302670
Registry ID: 110001656351
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110001656351

OR AIRS:
Name: ECOLUBE RECOVERY LLC
Address: 11535 N FORCE AVE
City,State,Zip: PORTLAND, OR 97217
Year: Not reported
Emission: Not reported
Permit Number: 26-3021-ST-01
Permit Type: Standard ACDP
Expiration Date: 09/01/2022
Source ID: Not reported
Issue Date: 09/28/2017
NAICS Code: 423930
Is Primary: Not reported
SIC Code: 2992

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Is Primary:	Not reported
Latitude:	45.6062
Longitude:	-122.6938
Poll:	Not reported
Emission Source Code:	Not reported
Process Code:	Not reported
SCC:	Not reported
Emission Source Description:	Not reported
Process Description:	Not reported
Throughput:	Not reported
Process Unit:	Not reported
Throughput Type:	Not reported

HSIS:

Name:	AMERICAN PETROLEUM ENVIRONMENTAL SERVICE
Address:	11535 N FORCE AVE
City,State,Zip:	PORTLAND, OR 97217
Facility ID:	014481
Department Or Division Of Company:	Not reported
Chemical Is Extremely Hazardous Substance (EHS:	N
Contains 112R:	Y
Facility Has Written Emergency Plan:	Y
NAICS Code 1:	423930
NAICS Desc 1:	RECYCLABLE MATERIAL WHSLE
NAICS Code 2:	000000
NAICS Desc 2:	Not reported
Manager Name:	MICHAEL MAZZA
Business Phone:	5034457780
Mailing Address:	11535 N FORCE AVE
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	97217
No. of Employees:	14
Day Phone:	5034457780
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	N
Emergency Contact:	KRISTI HUNT
Emergency Procedure:	LAB
Business Type:	OIL RECYCLING-USED OIL RECYCLING & RE-REFINING
Facility Type:	Not reported
Department:	Not reported
Status:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Last Reported ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	Not reported
Maximum Daily Amount Unit:	Not reported
Chemical Added Date:	Not reported
Is Chem PSM:	Not reported
Is Chem 112R:	Not reported
Is Chem 302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
Number of Days Onsite:	Not reported
Year:	Not reported

Case Number:	N/A
Chemical Name:	GEAR OIL
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	10
Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/26/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	1270
NFPA Health:	1
NFPA Flammability:	1
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Respiratory
Number of Days Onsite:	365
Year:	2018

Case Number:	7782447
Chemical Name:	OXYGEN
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	11
Maximum Daily Amount Unit:	cuft
Chemical Added Date:	10/26/2017
Is Chem PSM:	No

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Gas
UNNA Number:	1072
NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	OX
Hazards:	Health Acute, Health SkinCorrosion, Physical Flammable
Number of Days Onsite:	365
Year:	2018

Case Number:	1310732
Chemical Name:	SODIUM HYDROXIDE 50%
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	20
Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/26/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	1824
NFPA Health:	3
NFPA Flammability:	0
NFPA Reactivity:	1
NFPA Special Notice:	Not reported
Hazards:	Health SeriousEye, Health SkinCorrosion, Physical Corrosive
Number of Days Onsite:	365
Year:	2018

Case Number:	107211
Chemical Name:	ANTIFREEZE
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	30
Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/26/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	3082
NFPA Health:	1

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

NFPA Flammability:	1
NFPA Reactivity:	0
NFPA Special Notice:	Not reported
Hazards:	Health SpecificOrganToxicity
Number of Days Onsite:	365
Year:	2018

Case Number:	N/A
Chemical Name:	WASTE OIL
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	41
Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/26/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	N/A
NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Aspiration, Health Respiratory, Health SeriousEye
Number of Days Onsite:	365
Year:	2018

Chemical:

Chemical Name:	GEAR OIL
Physical Description:	LIQUID
Case Number:	0000000
Facility Id:	014481
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	10
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	SEVERELY REFINED PETROLEUM DISTILLATES
United Nations/north America 4 Digit Class Number:	1270
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	OXYGEN
Physical Description:	GAS
Case Number:	7782447
Facility Id:	014481
Physical State Of The Substance:	3
Average Amount Possessed During The Year Code:	11
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	SODIUM HYDROXIDE 25%
Physical Description:	LIQUID
Case Number:	1310732
Facility Id:	014481
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	SODIUM HYDROXIDE
United Nations/north America 4 Digit Class Number:	1824
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Pesticide:	N
Contains 313:	N

Chemical Name:	ANTIFREEZE
Physical Description:	LIQUID
Case Number:	107211
Facility Id:	014481
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	ETHYLENE GLYCOL
United Nations/north America 4 Digit Class Number:	3082
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	WASTE OIL
Physical Description:	LIQUID
Case Number:	Not reported
Facility Id:	014481
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	41

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Maximum Amount Possessed During The Year Code:	41
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	250,000-499,999
Description Of The Avg Qnty Code:	250,000-499,999
Most Hazardous Ingridient:	PETROLEUM HYDROCARBONS
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical Name:	AS-35
Physical Description:	LIQUID
Case Number:	67630
Facility Id:	014481
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	11
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Most Hazardous Ingridient:	ISOPROPYL ALCOHOL
United Nations/north America 4 Digit Class Number:	1760
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Combustible Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	4.5
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	TRIATHERM 550 LP
Physical Description:	LIQUID
Case Number:	164250902
Facility Id:	014481
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	ISOMETRIC DIBENZYLTOLUENES
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Combustible Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Hazard Class 2 Of The Chemical:	4.5
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	DIESEL FUEL
Physical Description:	LIQUID
Case Number:	0068334305
Facility Id:	014481
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	petroleum products, diesel oil
United Nations/north America 4 Digit Class Number:	1993
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Contains 313: N

Chemical Name: ACETYLENE
Physical Description: GAS
Case Number: 74862
Facility Id: 014481
Physical State Of The Substance: 3
Average Amount Possessed During The Year Code: 10
Maximum Amount Possessed During The Year Code: 11
Applicable Unit Of Measure Code: 3
Description Of The Unit Of Measure: CUBIC FEET
Type Code: L
Description: CYLINDER
Type Code: Not reported
Temperature Description: Not reported
Pressure of Code: 2
Pressure Description: GREATER THAN NORMAL PRESSURE
Pressure of Code: Not reported
Pressure Description: Not reported
Temperature Description: NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code: 4
Temperature Description: Not reported
Temperature of The Hazardous Substance Code: Not reported
Days Hazardous Substance On Site During Year: 365
Is The Substance Protected A Trade Secret: False
Description Of The Max Qnty Code: 500-999
Description Of The Avg Qnty Code: 200-499
Most Hazardous Ingridient: ACETYLENE
United Nations/north America 4 Digit Class Number: 1001
Hazard Rank: 2
EHS Ingredient: NONE LISTED ON MSDS
Substance Pure: True
Substance Mix: False
First Hazardous Class Code For Chemical: Flammable Gas
Second Hazardous Class Code For Chemical: Chronic Health Hazard
Third Hazardous Class Code For Chemical: Not reported
Hazard Class 1 Of The Chemical: 2.1
Hazard Class 2 Of The Chemical: 6.4
Hazard Class 3 Of The Chemical: Not reported

Additional Chemical:
Chemical Is A Toxic 313 Chemical: N
EPA Pesticide Registration Number: Not reported
Contains 112R: N
Contains EHS: N
Fertilizer: N
Pesticide: N
Contains 313: N

NPDES:
WQ File Nbr: 100707
Legal Name: EcoLube Recovery LLC
Region: Not reported
Pri SIC: 2911
Facility Type: Not reported

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12T
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	100707
Legal Name:	EcoLube Recovery LLC
Region:	Not reported
Pri SIC:	2911
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN13
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	100707
Legal Name:	EcoLube Recovery LLC
Region:	NWR
Pri SIC:	2911
Facility Type:	PETROLEUM REFINING (& ASPHALT)
Latitude:	45.6062
Longitude:	-122.6938
Category:	STM
Permit Type:	GEN12Z
Permit Active:	True
Is Active?:	Not reported
Permit Description:	Stormwater; NPDES specific SIC codes

AMERICAN RECYCLERS, LLC (Continued) **1000302670**

Expiration Date:	07/31/2022
EPA Number:	ORR800309
UIC Facility:	False
Admin Agent:	City of Portland
Last Action Date:	11/07/2018
Permit Writer:	Not reported
Compliance Inspector:	PORTLAND
DMR Reviewer:	Not reported
Application Number:	952905
Class:	MINOR
Start Date:	12/30/1999
Region Decode:	North West Region

E29
West
< 1/8
0.022 mi.
114 ft.

ENERGY & MATERIAL RECOVERY, INC. **RCRA NonGen / NLR** **1015748697**
11535 N FORCE AVE **ORSTATE06429**
PORTLAND, OR 97217

Site 2 of 6 in cluster E

Relative:
Lower

Actual:
19 ft.

RCRA NonGen / NLR:

Date form received by agency:	07/24/2006
Facility name:	ENERGY & MATERIAL RECOVERY, INC.
Facility address:	11535 N FORCE AVE PORTLAND, OR 97217-7735
EPA ID:	ORSTATE06429
Contact:	Not reported
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	10
Land type:	Other land type
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

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

Violation Status: No violations found

Evaluation Action Summary:

Evaluation date:	03/10/2010

ENERGY & MATERIAL RECOVERY, INC. (Continued) **1015748697**

Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 10/02/2008
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 07/05/2006
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 06/22/2006
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

E30
West
< 1/8
0.022 mi.
114 ft.

W B P RENEWABLE DIESEL LLC **RCRA NonGen / NLR** **1015749285**
11535 N FORCE AVENUE **ORSTATE08381**
PORTLAND, OR 97217

Site 3 of 6 in cluster E

Relative:
Lower

Actual:
19 ft.

RCRA NonGen / NLR:
Date form received by agency: 02/24/2010
Facility name: W B P RENEWABLE DIESEL LLC
Facility address: 11535 N FORCE AVENUE
PORTLAND, OR 97217
EPA ID: ORSTATE08381
Contact: Not reported
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 10
Land type: Other land type
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

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

W B P RENEWABLE DIESEL LLC (Continued) **1015749285**

Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: State Statute or Regulation
Date violation determined: 11/01/2011
Date achieved compliance: 01/04/2012
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 12/07/2011
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 11/01/2011
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: State Statute or Regulation
Date achieved compliance: 01/04/2012
Evaluation lead agency: State

Evaluation date: 02/24/2010
Evaluation: NON-FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

E31
West
< 1/8
0.022 mi.
114 ft.

WBP RENEWABLE DIESEL LLC **RCRA NonGen / NLR** **1001225083**
11535 N FORCE AVE STE B **ORQ000008805**
PORTLAND, OR 97217

Site 4 of 6 in cluster E

Relative:
Lower

Actual:
19 ft.

RCRA NonGen / NLR:
Date form received by agency: 03/10/2016
Facility name: WBP RENEWABLE DIESEL LLC
Facility address: 11535 N FORCE AVE STE B
PORTLAND, OR 97217
EPA ID: ORQ000008805
Mailing address: 1207 SW SIXTH AVENUE
PORTLAND, OR 97217
Contact: CRAIG PORTER
Contact address: 11535 N FORCE AVE STE
PORTLAND, OR 97217
Contact country: US
Contact telephone: 503-381-3201
Contact email: CRAIG@WBPRENEWABLEDIESEL.COM
EPA Region: 10
Land type: Private
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

WBP RENEWABLE DIESEL LLC (Continued) **1001225083**

Owner/Operator Summary:
Owner/operator name: CRAIG PORTER
Owner/operator address: 11535 N FORCE AVE
PORTLAND, OR 97217
Owner/operator country: US
Owner/operator telephone: 503-381-3201
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 03/10/2016
Owner/Op end date: Not reported

Owner/operator name: WPB RENEWABLE DIESEL AND AM RECYCLERS
Owner/operator address: 11535 N FORCE AVE
PORTLAND, OR 97212
Owner/operator country: US
Owner/operator telephone: 503-381-3201
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 03/10/2016
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: 03/13/2012
Site name: WBP RENEWABLE DIESEL LLC
Classification: Not a generator, verified

Date form received by agency: 03/13/2012
Site name: WBP RENEWABLE DIESEL LLC
Classification: Not a generator, verified

Date form received by agency: 03/20/1998
Site name: PRACTICAL ENVIRONMENTAL
Classification: Not a generator, verified

WBP RENEWABLE DIESEL LLC (Continued) **1001225083**

Hazardous Waste Summary:

. Waste code: NA
. Waste name: NA

. Waste code: NONE
. Waste name: None

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Used Oil - Processors and Re-refiners
Date violation determined: 02/17/2012
Date achieved compliance: 03/26/2012
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 04/23/2012
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 02/17/2012
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Used Oil - Processors and Re-refiners
Date achieved compliance: 03/26/2012
Evaluation lead agency: State

E32
West
< 1/8
0.022 mi.
114 ft.

RECYCLERS TRANSPORT INC (RTI) **RCRA NonGen / NLR** **1005417810**
11535 N FORCE AVE **ORQ000016204**
PORTLAND, OR 97217

Site 5 of 6 in cluster E

Relative:
Lower

Actual:
19 ft.

RCRA NonGen / NLR:
Date form received by agency: 05/21/2009
Facility name: RECYCLERS TRANSPORT INC (RTI)
Facility address: 11535 N FORCE AVE
PORTLAND, OR 97217
EPA ID: ORQ000016204
Contact: JOHN OXFORD
Contact address: 11535 N FORCE AVE
PORTLAND, OR 97217
Contact country: US
Contact telephone: 503-286-0196
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: RECYCLERS TRANSPORT INC (RTI)
Owner/operator address: 11535 N FORCE AVE
PORTLAND, OR 97217
Owner/operator country: US

RECYCLERS TRANSPORT INC (RTI) (Continued) **1005417810**

Owner/operator telephone: 503-286-0196
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 09/12/2000
Owner/Op end date: Not reported

Owner/operator name: RECYCLERS TRANSPORT INC (RTI)
Owner/operator address: 11535 N FORCE AVE
PORTLAND, OR 97217
Owner/operator country: US
Owner/operator telephone: 503-286-0196
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 05/21/2009
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: 09/12/2000
Site name: RECYCLERS TRANSPORT INC (RTI)
Classification: Not a generator, verified

Hazardous Waste Summary:

. Waste code: NA
. Waste name: NA

Violation Status: No violations found

E33 **ENERGY & MATERIAL RECOVERY INC** **RCRA NonGen / NLR** **1000644456**
West **4150-A N SUTTLE RD** **PADS** **ORD987192978**
< 1/8 **PORTLAND, OR 97217**
0.022 mi.
114 ft. **Site 6 of 6 in cluster E**

Relative:
Lower

Actual:
19 ft.

RCRA NonGen / NLR:

Date form received by agency:	01/11/1994
Facility name:	ENERGY & MATERIAL RECOVERY INC
Facility address:	4150-A N SUTTLE RD PORTLAND, OR 97217
EPA ID:	ORD987192978
Mailing address:	4150 N SUTTLE ROAD PORTLAND, OR 97217
Contact:	BILL BRIGGS
Contact address:	4150 N SUTTLE ROAD PORTLAND, OR 97217
Contact country:	US
Contact telephone:	503-286-8352
Contact email:	Not reported
EPA Region:	10
Land type:	Other land type
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	MERIT USA INC
Owner/operator address:	4150 N SUTTLE ROAD PORTLAND, OR 97217
Owner/operator country:	US
Owner/operator telephone:	503-286-8352
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Owner
Owner/Op start date:	11/04/1991
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:	06/18/1992

ENERGY & MATERIAL RECOVERY INC (Continued) **1000644456**

Site name: ENERGY & MATERIAL RECOVERY INC
Classification: Not a generator, verified

Hazardous Waste Summary:

. Waste code: NA
. Waste name: NA

. Waste code: NONE
. Waste name: None

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 10/11/2004
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

PADS:
EPAID: ORD987192978
Facility name: ENERGY & MATERIAL RECOVERY INC
Facility Address: 11535 N FORCE AVE
PORTLAND, OR 97247
Facility country: US
Generator: No
Storer: Yes
Transporter: No
Disposer: No
Research facility: No
Smelter: No
Facility owner name: BILL BRIGGS
Contact title: PRESIDENT
Contact name: BILL BRIGGS
Contact tel: 503-286-8352
Contact extension: Not reported
Contact Email: Not reported
Mailing address: 4150 N SUTTLE ROAD
PORTLAND, OR 97217
Mailing country: US
Cert. date: 07/15/2010

B34 **WASTE MGMT FORMER MERIT TRUCK STOP** **RCRA NonGen / NLR** **1008195982**
NW **2331 N MARINE DR** **OR MANIFEST** **ORQ000021691**
< 1/8 **PORTLAND, OR 97217** **OR UIC**
0.037 mi.
193 ft. **Site 8 of 9 in cluster B**

Relative:
Lower

Actual:
20 ft.

RCRA NonGen / NLR:
Date form received by agency: 12/31/2011
Facility name: WASTE MGMT FORMER MERIT TRUCK STOP
Facility address: 2331 N MARINE DR
PORTLAND, OR 97217
EPA ID: ORQ000021691
Mailing address: 2400 WEST UNION AVE.
ENGLEWOOD, CO 80110-5354

WASTE MGMT FORMER MERIT TRUCK STOP (Continued) **1008195982**

Contact: STEVE RICHTEL
Contact address: 2400 WEST UNION AVE.
ENGLEWOOD, CO 80110-5354
Contact country: US
Contact telephone: 303-914-1454
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: WASTE MGMT DISPOSAL SVCS OF OREGON INC C
Owner/operator address: 18177 CEDAR SPRINGS LN
ARLINGTON, OR 97812
Owner/operator country: US
Owner/operator telephone: 541-454-2030
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Municipal
Owner/Operator Type: Owner
Owner/Op start date: 11/26/2002
Owner/Op end date: Not reported

Owner/operator name: WASTE MGMT DISPOSAL SVCS OF OREGON INC C
Owner/operator address: 18177 CEDAR SPRINGS LN
ARLINGTON, OR 97812
Owner/operator country: US
Owner/operator telephone: 541-454-2030
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 12/31/2011
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: 12/31/2008

WASTE MGMT FORMER MERIT TRUCK STOP (Continued) **1008195982**

Site name: WASTE MGMT FORMER MERIT TRUCK STOP
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2007
Site name: WASTE MGMT FORMER MERIT TRUCK STOP
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2005
Site name: WASTE MGMT FORMER MERIT TRUCK STOP
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2005
Site name: WASTE MGMT FORMER MERIT TRUCK STOP
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2004
Site name: WASTE MGMT FORMER MERIT TRUCK STOP
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/13/2003
Site name: WASTE MGMT FORMER MERIT TRUCK STOP
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 11/26/2002
Site name: WASTE MGMT FORMER MERIT TRUCK STOP
Classification: Small Quantity Generator

Hazardous Waste Summary:

. Waste code: NA
. Waste name: NA

Violation Status: No violations found

OR MANIFEST:
Manifest Year: Manifest Year - 2007
EPA Id: ORQ000021691
Inactive Status: Not reported
Organization Name: Not reported
Contact Name: Steve Richtel
Contact Telephone Number: (303) 914-1454
Mailing Address: 2400 West Union Ave.
Mailing City/State/Zip: Englewood, CO 80110-5354

OR UIC:
Name: WASTE MANAGEMENT DISPOSAL SERVICES OF OREGON (DBA MERIT TRUCK STOP)
Address: 2331 N. MARINE DRIVE
City,State,Zip: PORTLAND, OR
UIC Well #: 1
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active

WASTE MGMT FORMER MERIT TRUCK STOP (Continued) **1008195982**

UIC Number: 11632
Facility Status: Registered & RA
Lat/Long: 45.6091 / -122.6996

Name: WASTE MANAGEMENT DISPOSAL SERVICES OF OREGON (DBA MERIT TRUCK STOP)
Address: 2331 N. MARINE DRIVE
City,State,Zip: PORTLAND, OR
UIC Well #: 2
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 11632
Facility Status: Registered & RA
Lat/Long: 45.6091 / -122.6996

Name: WASTE MANAGEMENT DISPOSAL SERVICES OF OREGON (DBA MERIT TRUCK STOP)
Address: 2331 N. MARINE DRIVE
City,State,Zip: PORTLAND, OR
UIC Well #: 3
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 11632
Facility Status: Registered & RA
Lat/Long: 45.6091 / -122.6996

Name: WASTE MANAGEMENT DISPOSAL SERVICES OF OREGON (DBA MERIT TRUCK STOP)
Address: 2331 N. MARINE DRIVE
City,State,Zip: PORTLAND, OR
UIC Well #: 4
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 11632
Facility Status: Registered & RA
Lat/Long: 45.6091 / -122.6996

Name: WASTE MANAGEMENT DISPOSAL SERVICES OF OREGON (DBA MERIT TRUCK STOP)
Address: 2331 N. MARINE DRIVE
City,State,Zip: PORTLAND, OR
UIC Well #: 5
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 11632
Facility Status: Registered & RA
Lat/Long: 45.6091 / -122.6996

Name: WASTE MANAGEMENT DISPOSAL SERVICES OF OREGON (DBA MERIT TRUCK STOP)
Address: 2331 N. MARINE DRIVE
City,State,Zip: PORTLAND, OR
UIC Well #: 6
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 11632
Facility Status: Registered & RA

WASTE MGMT FORMER MERIT TRUCK STOP (Continued) **1008195982**

Lat/Long: 45.6091 / -122.6996

Name: WASTE MANAGEMENT DISPOSAL SERVICES OF OREGON (DBA MERIT TRUCK STOP)
Address: 2331 N. MARINE DRIVE
City,State,Zip: PORTLAND, OR
UIC Well #: 7
Type: 5X26
Type Description: Aquifer Remediation Related
Status: Active
UIC Number: 11632
Facility Status: Registered & RA
Lat/Long: 45.6091 / -122.6996

B35 **WHITE MARINE SERVICES, INC.** **OR ECSI** **S102521499**
NW **2335 N MARINE DR.** **N/A**
< 1/8 **PORTLAND, OR 97217**
0.040 mi.
209 ft. **Site 9 of 9 in cluster B**

Relative:
Lower

Actual:
20 ft.

ECSI:
Name: WHITE MARINE SERVICES, INC.
Address: 2335 N MARINE DR.
City,State,Zip: PORTLAND, OR 97217
State ID Number: 4310
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: Suspect
FACA ID: 55509
Further Action: 258
Lat/Long (dms): 45 36 34.20 / -122 41 29.00
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 2.00
Township Zone: N
Range Coord: 1.00
Range Zone: E
Section Coord: 33
Qtr Section: Not reported
Tax Lots: 1300
Size: 1.34 acres
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 12/31/2013
Created Date: 12/23/2004
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Medium
Decode For Investstat: Suspect
Decode For Legislative: Not reported
Alias Name: Blue Heron Marina

Narrative:
NARR ID: 5746072
NARR Code: Contamination

WHITE MARINE SERVICES, INC. (Continued) **S102521499**

Created By: LGIBSON
Created Date: 12/23/2004
Updated By: GWISTAR
Updated Date: 12/23/2004
Decode for NarcdID: Contamination
NARR Comments: [12/23/2004, BP] As a part of complaint investigation, DEQ has collected three hand-augured soil samples to a depth of 4 feet near the reported spill area. A field visit and lab analyses indicate surface soil contamination with heavy oil-range hydrocarbons at uo to 7,810 ppm at a depth of 1 foot below ground surface, decreasing to 247 ppm at a depth of 4 feet.

NARR ID: 5746071
NARR Code: Manner of Release
Created By: LGIBSON
Created Date: 12/23/2004
Updated By: GWISTAR
Updated Date: 12/23/2004
Decode for NarcdID: Manner of Release
NARR Comments: [12/23/2004, BP] A spill from a waste oil drum was first reported by a neighboring business, Oregon Waste Management, on 6/17/2004 @3:16 p.m. The report was filed as a complaint for later investigation.

NARR ID: 5746073
NARR Code: Remedial Action
Created By: LGIBSON
Created Date: 12/23/2004
Updated By: GWISTAR
Updated Date: 12/23/2004
Decode for NarcdID: Remedial Action
NARR Comments: [12/23/2004, BP] The neighboring Oregon Waste Management has two off-site monitoring wells on the Marina property as a part of their remedial system. The access to these wells has been, and still is, in litigation. A contractor with Waste Management first observed and reported the spilled drum.

Administrative Action:
Action ID: 9506
Region: Northwestern Region
Complete Date: 12/30/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/31/2013
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Investigation recommended (SI)
Further Action: Medium
Comments: Not reported

Action ID: 9424
Region: Not reported
Complete Date: 12/23/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/23/2004
Decode for AgencyID: Department of Environmental Quality

WHITE MARINE SERVICES, INC. (Continued) **S102521499**

Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: 0
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/23/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: 0
Comments: Not reported

Operations:
Operation Id: 135030
Operation Status: Active
Common Name: White Marine Services, Inc.
Yrs of Operation: unknown
Comments: Not reported
Updated Date: 12/23/2004
Updated By: LGIBSON
Decode for OpstatID: Active

36
NW
< 1/8
0.065 mi.
341 ft.

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION **OR ECSI** **S103303248**
SW CORNER, N MARINE DR. AND N FORCE AVE. **OR CRL** **N/A**
PORTLAND, OR 97217

Relative:
Lower

Actual:
17 ft.

ECSI:
Name: OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION
Address: SW CORNER, N MARINE DR. AND N FORCE AVE.
City,State,Zip: PORTLAND, OR 97217
State ID Number: 1091
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 832
Investigation: Listed on the CRL/Inventory
FACA ID: 100433
Further Action: 260
Lat/Long (dms): 45 36 31.00 / -122 41 33.40
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 2.00
Township Zone: N
Range Coord: 1.00
Range Zone: E
Section Coord: 33

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Qtr Section: Not reported
Tax Lots: Not reported
Size: 46 acres
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 06/24/2014
Created Date: 12/17/1990
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Low
Decode For Investstat: Listed on the CRL/Inventory
Decode For Legislative: Owner, operator or other party under state or federal authority
Alias Name: Stockyards - Portland

Hazardous Release:
Substance ID.: 121433
Haz Release ID: 383774
Qty Released: unknown
Date Released: unknown
Update Date: 01/01/2001
Update By: Not reported
Substance Code: 541-73-1
Substance Name: DICHLOROBENZENE,1,3-
Substance Abbrev.: Not reported
Substance Alias ID: 318708
Sub Alias Name: BENZENE,1,3-DICHLORO-
Substance Alias ID: 318709
Sub Alias Name: DICHLOROBENZENE,m-
Sampling Result ID: 345414
Feature Id: Not reported
Hazard Release Id: 383774
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1 - 9 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater
Sampling Result ID: 345415
Feature Id: Not reported
Hazard Release Id: 383774
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 16 - 255 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 120838
Haz Release ID: 383775
Qty Released: unknown
Date Released: unknown
Update Date: 01/01/2001
Update By: Not reported
Substance Code: 106-46-7
Substance Name: DICHLOROBENZENE,1,4-
Substance Abbrev.: Not reported
Substance Alias ID: 316291
Sub Alias Name: BENZENE,1,4-DICHLORO-
Substance Alias ID: 316292
Sub Alias Name: DI-CHLORICIDE
Substance Alias ID: 316293
Sub Alias Name: DICHLOROBENZENE,p-
Substance Alias ID: 316294
Sub Alias Name: PARADICHLOROBENZENE
Substance Alias ID: 316295
Sub Alias Name: PARAMOTH
Substance Alias ID: 316296
Sub Alias Name: PDB
Sampling Result ID: 345416
Feature Id: Not reported
Hazard Release Id: 383775
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 417 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 120781
Haz Release ID: 383776
Qty Released: unknown
Date Released: unknown
Update Date: 01/01/2001
Update By: Not reported
Substance Code: 100-41-4
Substance Name: ETHYLBENZENE
Substance Abbrev.: Not reported

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Substance Category ID: 8515
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8515
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316146
Sub Alias Name: ETHYLBENZOL
Substance Alias ID: 316147
Sub Alias Name: PHENYLETHANE
Sampling Result ID: 345417
Feature Id: Not reported
Hazard Release Id: 383776
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 5.2 - 91,000 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater
Sampling Result ID: 345418
Feature Id: Not reported
Hazard Release Id: 383776
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 34 - 58,000 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 121610
Haz Release ID: 383777
Qty Released: unknown
Date Released: unknown
Update Date: 01/01/2001
Update By: Not reported

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Substance Code:	71-55-6
Substance Name:	TRICHLOROETHANE,1,1,1-
Substance Abbrev.:	Not reported
Substance Category ID:	8521
Substance Category:	Volatiles
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Category ID:	8552
Substance Category:	Solvents of interest to Milwaukie Area GW study
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Category ID:	8521
Substance Category:	Volatiles
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Category ID:	8552
Substance Category:	Solvents of interest to Milwaukie Area GW study
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Alias ID:	318151
Sub Alias Name:	TCA,1,1,1-
Substance Alias ID:	319183
Sub Alias Name:	BALTANA
Substance Alias ID:	319184
Sub Alias Name:	CHLOROTHENE
Substance Alias ID:	319185
Sub Alias Name:	METHYLCHLOROFORM
Sampling Result ID:	345419
Feature Id:	Not reported
Hazard Release Id:	383777
Medium:	698
Substance Abbrev.:	Not reported
Unit Code:	Not reported
Observation:	False
Owner Operator:	True
Lab Data:	False
Sample Depth:	Not reported
Start Date:	Not reported
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	Not reported
Sample Comment:	0.3 - 60 ppb
Last Update By:	CONV
Update Date:	09/13/1994
Decode for MediumID:	Groundwater
Sampling Result ID:	345420
Feature Id:	Not reported
Hazard Release Id:	383777
Medium:	703
Substance Abbrev.:	Not reported
Unit Code:	Not reported
Observation:	False
Owner Operator:	False

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 2 - 4 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 121664
Haz Release ID: 383778
Qty Released: unknown
Date Released: unknown
Update Date: 01/01/2001
Update By: Not reported
Substance Code: 7440-38-2
Substance Name: ARSENIC
Substance Abbrev.: Not reported
Substance Category ID: 8439
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8439
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319286
Sub Alias Name: AS
Sampling Result ID: 345421
Feature Id: Not reported
Hazard Release Id: 383778
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 2.1 - 6.3 ug/L
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater
Sampling Result ID: 345422
Feature Id: Not reported
Hazard Release Id: 383778
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1.2 - 23.7 mg/kg
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 121665
Haz Release ID: 383779
Qty Released: unknown
Date Released: unknown
Update Date: 01/01/2001
Update By: Not reported
Substance Code: 7440-39-3
Substance Name: BARIUM
Substance Abbrev.: Not reported
Substance Category ID: 8458
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8458
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319287
Sub Alias Name: BA
Sampling Result ID: 345423
Feature Id: Not reported
Hazard Release Id: 383779
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 70 - 433 ug/L
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater
Sampling Result ID: 345424
Feature Id: Not reported
Hazard Release Id: 383779
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 48 - 1220 mg/kg
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 121671
Haz Release ID: 383780
Qty Released: unknown
Date Released: unknown
Update Date: 01/01/2001
Update By: Not reported
Substance Code: 7440-47-3
Substance Name: CHROMIUM
Substance Abbrev.: Not reported
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318145
Sub Alias Name: CHROMIUM, INORGANIC
Substance Alias ID: 319294
Sub Alias Name: CHROMIUM, TOTAL
Sampling Result ID: 345369
Feature Id: Not reported
Hazard Release Id: 383780
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 30 ug/L
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater
Sampling Result ID: 345370
Feature Id: Not reported
Hazard Release Id: 383780

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 6.5 - 104 mg/kg
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 121672
Haz Release ID: 383781
Qty Released: unknown
Date Released: unknown
Update Date: 01/01/2001
Update By: Not reported
Substance Code: 7440-48-4
Substance Name: COBALT
Substance Abbrev.: Not reported
Substance Alias ID: 319295
Sub Alias Name: CO
Sampling Result ID: 345425
Feature Id: Not reported
Hazard Release Id: 383781
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 4.1 - 72 mg/kg
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 121639
Haz Release ID: 383782
Qty Released: unknown
Date Released: unknown
Update Date: 01/01/2001
Update By: Not reported
Substance Code: 7439-92-1
Substance Name: LEAD
Substance Abbrev.: Not reported
Substance Category ID: 8466
Substance Category: Inorganics

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319256
Sub Alias Name: PB
Sampling Result ID: 345426
Feature Id: Not reported
Hazard Release Id: 383782
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1.2 - 41 ug/L
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater
Sampling Result ID: 345427
Feature Id: Not reported
Hazard Release Id: 383782
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 3.5 - 235 mg/kg
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 121643
Haz Release ID: 383783
Qty Released: unknown
Date Released: unknown
Update Date: 01/01/2001
Update By: Not reported
Substance Code: 7439-97-6
Substance Name: MERCURY
Substance Abbrev.: Not reported
Substance Category ID: 8467

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8467
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319260
Sub Alias Name: HG
Substance Alias ID: 319261
Sub Alias Name: HYDRARGYRUM
Substance Alias ID: 319262
Sub Alias Name: LIQUID SILVER
Substance Alias ID: 319263
Sub Alias Name: QUICKSILVER
Sampling Result ID: 337507
Feature Id: Not reported
Hazard Release Id: 383783
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 0.09 - 0.34 mg/kg
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 121755
Haz Release ID: 383784
Qty Released: unknown
Date Released: unknown
Update Date: 01/01/2001
Update By: Not reported
Substance Code: 7782-49-2
Substance Name: SELENIUM
Substance Abbrev.: Not reported
Substance Alias ID: 319488
Sub Alias Name: SE
Sampling Result ID: 345428
Feature Id: Not reported
Hazard Release Id: 383784
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: False
Sample Depth: Not reported

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 0.94 mg/kg
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 121608
Haz Release ID: 383785
Qty Released: unknown
Date Released: unknown
Update Date: 01/01/2001
Update By: Not reported
Substance Code: 71-43-2
Substance Name: BENZENE
Substance Abbrev.: Not reported
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319178
Sub Alias Name: BENZOL
Substance Alias ID: 319179
Sub Alias Name: COAL NAPTHA
Substance Alias ID: 319180
Sub Alias Name: CYCLOHEXATRIENE
Substance Alias ID: 319181
Sub Alias Name: PHENE
Substance Alias ID: 319182
Sub Alias Name: PYROBENZOL
Sampling Result ID: 345429
Feature Id: Not reported
Hazard Release Id: 383785
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1.5 - 37,000 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater
Sampling Result ID: 345430

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Feature Id: Not reported
Hazard Release Id: 383785
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 2.2 - 37,000 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 121983
Haz Release ID: 385556
Qty Released: unknown
Date Released: unknown
Update Date: 12/17/1990
Update By: Not reported
Substance Code: ECD173
Substance Name: GASOLINE
Substance Abbrev.: Not reported
Substance Category ID: 8530
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8530
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Comment ID: 302742
Release Code: Data Sources
Release Comments: Sweet-Edwards/Emcon PA (11/18/87) and Environmental Audit (4/25/88)
Decode for Relcomcd: Data Sources
Sampling Result ID: 345066
Feature Id: Not reported
Hazard Release Id: 385556
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 0.2 - 373 ppm
Last Update By: CONV

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Update Date: 09/13/1994
Decode for MediumID: Groundwater

Substance ID.: 121051
Haz Release ID: 385578
Qty Released: unknown
Date Released: unknown
Update Date: 12/17/1990
Update By: Not reported
Substance Code: 1330-20-7
Substance Name: XYLENEs
Substance Abbrev.: Not reported
Substance Category ID: 8526
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8526
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317017
Sub Alias Name: DIMETHYLBENZENEs
Substance Alias ID: 317018
Sub Alias Name: XYLOLs
Comment ID: 302735
Release Code: Data Sources
Release Comments: Sweet-Edwards/Emcon PA (11/18/87) and Environmental Audit (4/25/88)
Decode for Relcomcd: Data Sources
Sampling Result ID: 345413
Feature Id: Not reported
Hazard Release Id: 385578
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 3 - 590,000 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil
Sampling Result ID: 346832
Feature Id: Not reported
Hazard Release Id: 385578
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: True

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 2.6 - 265,000 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater

Substance ID.: 121552
Haz Release ID: 385579
Qty Released: unknown
Date Released: unknown
Update Date: 12/17/1990
Update By: Not reported
Substance Code: 630-20-6
Substance Name: TETRACHLOROETHANE,1,1,1,2-
Substance Abbrev.: Not reported
Substance Alias ID: 319031
Sub Alias Name: ETHANE,1,1,1,2-TETRACHLORO-
Comment ID: 302737
Release Code: Data Sources
Release Comments: Sweet-Edwards/Emcon PA (11/18/87) and Environmental Audit (4/25/88)
Decode for Relcomcd: Data Sources
Sampling Result ID: 346723
Feature Id: Not reported
Hazard Release Id: 385579
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 0.9 - 12 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater

Substance ID.: 121982
Haz Release ID: 385616
Qty Released: unknown
Date Released: unknown
Update Date: 12/17/1990
Update By: Not reported
Substance Code: ECD169
Substance Name: DIESEL - FUEL OIL
Substance Abbrev.: Not reported
Substance Category ID: 8529
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Created Date: 12/17/2002
Substance Category ID: 8529
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Comment ID: 302741
Release Code: Data Sources
Release Comments: Sweet-Edwards/Emcon PA (11/18/87) and Environmental Audit (4/25/88)
Decode for Relcomcd: Data Sources
Sampling Result ID: 346831
Feature Id: Not reported
Hazard Release Id: 385616
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 0.2 - 53 ppm
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater

Substance ID.: 121907
Haz Release ID: 385617
Qty Released: unknown
Date Released: unknown
Update Date: 12/17/1990
Update By: Not reported
Substance Code: 95-50-1
Substance Name: DICHLOROBENZENE,1,2-
Substance Abbrev.: Not reported
Substance Alias ID: 317942
Sub Alias Name: BENZENE,1,2-DICHLORO-
Substance Alias ID: 317943
Sub Alias Name: CHLOROBEN
Substance Alias ID: 317944
Sub Alias Name: DICHLOROBENZENE,o-
Substance Alias ID: 317945
Sub Alias Name: DILANTIN DB
Substance Alias ID: 317946
Sub Alias Name: DOWTHERM E
Comment ID: 302740
Release Code: Data Sources
Release Comments: Sweet-Edwards/Emcon PA (11/18/87) and Environmental Audit (4/25/88)
Decode for Relcomcd: Data Sources
Sampling Result ID: 345412
Feature Id: Not reported
Hazard Release Id: 385617
Medium: 703
Substance Abbrev.: Not reported

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 11 - 153 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil
Sampling Result ID: 346719
Feature Id: Not reported
Hazard Release Id: 385617
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 4.7 - 1000 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater

Substance ID.: 121700
Haz Release ID: 385618
Qty Released: unknown
Date Released: unknown
Update Date: 12/17/1990
Update By: Not reported
Substance Code: 75-34-3
Substance Name: DICHLOROETHANE,1,1-
Substance Abbrev.: Not reported
Substance Category ID: 8548
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8548
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319361
Sub Alias Name: ETHANE,1,1-DICHLORO-
Substance Alias ID: 319362
Sub Alias Name: ETHYLIDENE CHLORIDE
Substance Alias ID: 319363
Sub Alias Name: ETHYLIDENE DICHLORIDE

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Comment ID: 302739
Release Code: Data Sources
Release Comments: Sweet-Edwards/Emcon PA (11/18/87) and Environmental Audit (4/25/88)
Decode for Relcomcd: Data Sources
Sampling Result ID: 346720
Feature Id: Not reported
Hazard Release Id: 385618
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 4.9 - 10.3 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater

Substance ID.: 121690
Haz Release ID: 385619
Qty Released: unknown
Date Released: unknown
Update Date: 12/17/1990
Update By: Not reported
Substance Code: 75-01-4
Substance Name: VINYL CHLORIDE
Substance Abbrev.: Not reported
Substance Category ID: 8525
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8550
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8525
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8550
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319325
Sub Alias Name: CHLOROETHENE
Substance Alias ID: 319326
Sub Alias Name: CHLOROETHYLENE
Substance Alias ID: 319327

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Sub Alias Name: ETHENE,CHLORO-
Substance Alias ID: 319328
Sub Alias Name: MONOCHLOROETHYLENE
Comment ID: 302738
Release Code: Data Sources
Release Comments: Sweet-Edwards/Emcon PA (11/18/87) and Environmental Audit (4/25/88)
Decode for Relcomcd: Data Sources
Sampling Result ID: 346721
Feature Id: Not reported
Hazard Release Id: 385619
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1.2 - 50 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater

Substance ID.: 120919
Haz Release ID: 385620
Qty Released: unknown
Date Released: unknown
Update Date: 12/17/1990
Update By: Not reported
Substance Code: 11104-28-2
Substance Name: PCB 1221
Substance Abbrev.: Not reported
Substance Category ID: 8543
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8543
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316591
Sub Alias Name: AROCHLOR 1221
Substance Alias ID: 316592
Sub Alias Name: AROCLOR 1221
Comment ID: 302734
Release Code: Data Sources
Release Comments: Sweet-Edwards/Emcon PA (11/18/87) and Environmental Audit (4/25/88)
Decode for Relcomcd: Data Sources
Sampling Result ID: 346722
Feature Id: Not reported
Hazard Release Id: 385620
Medium: 698

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 10.8 ppm
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater

Substance ID.: 120868
Haz Release ID: 385621
Qty Released: unknown
Date Released: unknown
Update Date: 12/17/1990
Update By: Not reported
Substance Code: 108-10-1
Substance Name: METHYL-2-PENTANONE,4-
Substance Abbrev.: Not reported
Substance Alias ID: 316417
Sub Alias Name: HEXONE
Substance Alias ID: 316418
Sub Alias Name: ISOBUTYL METHYL KETONE
Substance Alias ID: 316419
Sub Alias Name: ISOPROPYLACETONE
Substance Alias ID: 316420
Sub Alias Name: METHYL ISOBUTYL KETONE
Substance Alias ID: 316421
Sub Alias Name: MIBK
Substance Alias ID: 316422
Sub Alias Name: PENTANONE,4-METHYL-2-
Comment ID: 302733
Release Code: Data Sources
Release Comments: Sweet-Edwards/Emcon PA (11/18/87) and Environmental Audit (4/25/88)
Decode for Relcomcd: Data Sources
Sampling Result ID: 345067
Feature Id: Not reported
Hazard Release Id: 385621
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 726 - 1800 ppb
Last Update By: CONV
Update Date: 09/13/1994

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Decode for MediumID: Soil

Narrative:

NARR ID: 5731435
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: (11/20/90 MM) This site includes multiple businesses. Low levels of hazardous substances were identified in soils and groundwater on-site during an environmental audit for a proposed transfer station. One business on-site has free petroleum product floating on groundwater and high concentrations of dissolved volatile organics in groundwater. DEQ's UST program is working with Oregon Waste Systems, Inc. and the truck-stop operator to remediate petroleum problems on-site. The other contaminants present at the site need to be evaluated to determine the need for further assessment or corrective action.

NARR ID: 5731436
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Data Sources
NARR Comments: Sweet-Edwards/EMCON Preliminary Environmental Site Audit 11/18/87; Sweet-Edwards/EMCON Environmental Audit 4/25/88; Golder Associates PA 7/24/91; Golder Associates Corrective Action Plan 9/13/91.

NARR ID: 5731437
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Gasoline, diesel, 1,2-dichlorobenzene, 1,1-dichloroethane, PCBs, vinyl chloride, methyl isobutyl ketone, perchloroethene, total xylenes. (11/14/97 LSK) Soil contamination was associated with primarily 5 areas of the site: Rod's Truck Repair, The Merit Truck Stop, areas adjacent to the Peninsula Terminal Railroad, Harbor Oil and Star Oil. At Rod's Truck Repair and Merit Truck Stop, BTEX contamination likely from leaking USTs. There is some floating product in shallow groundwater beneath the Merit Truck Stop site. Petroleum hydrocarbons were found in shallow soils at Star Oil (100 to 2,000 ppm) and Farmers (200 to 5,000 ppm). Harbor Oil is described in a separate file (ECSI#24).

NARR ID: 5731438
NARR Code: Site Location
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Site Location

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

NARR Comments: Part of the site consists of Harbor Oil (ECSI #24); others include Rod's Truck Stop, 2632 N Marine Dr. and Merit Truck Stop, 2360 N Marine Dr.

NARR ID: 5731439
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Time of release unknown.

NARR ID: 5731440
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: (11/20/90 MM) Site is located in a light industrial area, and consists of a stockyard, two truck service stations, a card-lock station, a restaurant, railroad tracks and engine barns, and wetlands. Other than workers, the population immediately around the site is low. Land to the south is vacant, to the east and west is industrial. Nearest dense population is one mile south and north across the Slough. The site is on flat land and in the floodplain of the Columbia River. Soils are fine-grained alluvium intermixed with fill consisting of crushed rock, and clayey silt - gravel. Threat or potential threat to surface water - sediments from storm sewer outfalls that enter the Columbia River contained methyl isobutyl ketone (MIBK), 1,2-, 1,3-, and 1,4-dichlorobenzene, Cr, Cd, Zn, Pb, Cu, and Ni above background levels. Depth to groundwater varies from ground surface to 15 feet across the site; its uses are unknown. (11/14/97 LSK) The site is located within 1,000 ft. of Force Lake to the southeast and is adjacent to the Oregon Slough to the north. The wetlands associated with Force Lake support great blue heron nesting areas, and the City of Portland considers this wetlands area, as well as the lake, a sensitive environment. Stormwater runoff from some of the site is carried north towards the Oregon Slough by storm drains that run beneath Marine Dr. Some runoff flows south towards Force Lake and area wetlands. Force Lake drains via the North Ditch, which is part of Peninsula Drainage District No. 1. Water in the ditch is routed to the District's main pumping station southwest of the site, where it is pumped into the Columbia Slough. Shallow groundwater north of the railroad flows radially outward in all directions, and south of the railroad flows to Force Lake and the wetlands area. Deep and intermediate groundwater flow is both to the northwest towards the Oregon Slough and Columbia River and to the south away from the river, depending upon the season and river level changes.

NARR ID: 5731441
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Decode for NarcdID: Remedial Action
NARR Comments: (11/14/97 LSK) Site reevaluated as part of review of all sites within the Columbia Slough Study Area. A preliminary assessment is needed at this site; it is a low priority for DEQ follow-up.

NARR ID: 5731442
NARR Code: Health Threats
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Health Threats
NARR Comments: Threat to surface waters.

Permit:
Permit Agency: Oregon DEQ
Permit Number: 1091
Permit Type: Solid Waste Disposal Site
Comments: Originally issued 6/23/87.

Administrative Action:
Action ID: 9496
Region: Northwestern Region
Complete Date: 11/14/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Low
Comments: Not reported

Action ID: 9426
Region: Northwestern Region
Complete Date: 11/14/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9519
Region: Northwestern Region
Complete Date: 03/01/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: Not reported
Comments: Not reported

Action ID: 9428
Region: Not reported
Complete Date: 08/19/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Extension requested by owner/operator
Further Action: Not reported
Comments: Not reported

Action ID: 9451
Region: Not reported
Complete Date: 08/14/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Owner/operator comments received on listing notification
Further Action: Not reported
Comments: Not reported

Action ID: 9428
Region: Not reported
Complete Date: 08/14/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Action: Extension requested by owner/operator
Further Action: Not reported
Comments: Not reported

Action ID: 9430
Region: Not reported
Complete Date: 08/20/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Petition or request granted
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Not reported
Complete Date: 11/20/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Not reported
Complete Date: 06/28/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Not reported
Complete Date: 11/20/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Further Action: Not reported
Comments: Not reported

Action ID: 9428
Region: Not reported
Complete Date: 08/20/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Extension requested by owner/operator
Further Action: Not reported
Comments: Not reported

Action ID: 9451
Region: Not reported
Complete Date: 08/08/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Owner/operator comments received on listing notification
Further Action: Not reported
Comments: Not reported

Action ID: 9451
Region: Not reported
Complete Date: 07/25/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Owner/operator comments received on listing notification
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Not reported
Complete Date: 11/20/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

Comments: Not reported

Action ID: 9448
Region: Not reported
Complete Date: 02/06/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Review for final listing
Further Action: Not reported
Comments: Not reported

Action ID: 9488
Region: Not reported
Complete Date: 02/06/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Listing on Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9438
Region: Not reported
Complete Date: 02/07/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: Not reported
Comments: Not reported

Operations:
Operation Id: 132402
Operation Status: Unknown
Common Name: Oregon Waste Systems - Proposed Transfer
Yrs of Operation: Not reported
Comments: see 'other information' complete description
Updated Date: 09/13/1994
Updated By: CONV
Decode for OpstatID: Unknown

CRL:
Name: OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION
Address: SW CORNER, N MARINE DR. AND N FORCE AVE.

OREGON WASTE SYSTEMS - PROPOSED TRANSFER STATION (Continued) **S103303248**

City,State,Zip: PORTLAND, OR 97217
Facility ID: 1091
Location ID: 100433
Status Code: LIS
Facility Status: State Basic Preliminary Assessment recommended (PA)
Lat/Long: 45.6086 / -122.6926

37
WNW
< 1/8
0.086 mi.
453 ft.

PENINSULA TERMINAL RR
11707 N FORCE AVE.
PORTLAND, OR 97217

OR CRL **S105042448**
OR ECSI **N/A**
OR INST CONTROL
OR VCP

Relative:
Lower

Actual:
13 ft.

CRL:
Name: PENINSULA TERMINAL RR
Address: 11707 N FORCE AVE.
City,State,Zip: PORTLAND, OR 97217
Facility ID: 1505
Location ID: 38618
Status Code: LIS
Facility Status: No Further Action (Conditional)
Lat/Long: 45.6076 / -122.6937

ECSI:
Name: PENINSULA TERMINAL RR
Address: 11707 N FORCE AVE.
City,State,Zip: PORTLAND, OR 97217
State ID Number: 1505
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 831
Investigation: Listed on the CRL/Inventory
FACA ID: 38618
Further Action: 0
Lat/Long (dms): 45 36 27.40 / -122 41 37.30
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 2.00
Township Zone: N
Range Coord: 1.00
Range Zone: E
Section Coord: 33
Qtr Section: Not reported
Tax Lots: Not reported
Size: 5 acres
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 04/28/2006
Created Date: 02/07/1994
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: Listed on the CRL/Inventory
Decode For Legislative: Owner, operator or other party under agreement, order or consent

PENINSULA TERMINAL RR (Continued) **S105042448**

decree under ORS 465.200 or 465.420

Hazardous Release:
Substance ID.: 122012
Haz Release ID: 384762
Qty Released: unknown
Date Released: unknown
Update Date: 03/17/1995
Update By: Not reported
Substance Code: ECD275
Substance Name: TOTAL PETROLEUM HYDROCARBONS (TPH)
Substance Abbrev.: Not reported
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 343306
Feature Id: Not reported
Hazard Release Id: 384762
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 07/01/1991
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 10,000 ppm
Last Update By: jmd
Update Date: 03/17/1995
Decode for MediumID: Soil

Substance ID.: 122002
Haz Release ID: 384763
Qty Released: unknown
Date Released: unknown
Update Date: 03/17/1995
Update By: Not reported
Substance Code: ECD243
Substance Name: POLYAROMATIC HYDROCARBONS (PAH)
Substance Abbrev.: Not reported
Substance Alias ID: 318143
Sub Alias Name: PAH
Substance Alias ID: 318148
Sub Alias Name: POLYCYCLIC AROMATIC HYDROCARBONS (PAH)
Substance Alias ID: 318149
Sub Alias Name: POLYNUCLEAR AROMATIC HYDROCARBINS (PNA)
Substance Alias ID: 318150
Sub Alias Name: PNA

PENINSULA TERMINAL RR (Continued) **S105042448**

Sampling Result ID: 343305
Feature Id: Not reported
Hazard Release Id: 384763
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 07/01/1991
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 27,000 ppb
Last Update By: jmd
Update Date: 03/17/1995
Decode for MediumID: Soil

Substance ID.: 121608
Haz Release ID: 384764
Qty Released: unknown
Date Released: unknown
Update Date: 03/17/1995
Update By: Not reported
Substance Code: 71-43-2
Substance Name: BENZENE
Substance Abbrev.: Not reported
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319178
Sub Alias Name: BENZOL
Substance Alias ID: 319179
Sub Alias Name: COAL NAPTHA
Substance Alias ID: 319180
Sub Alias Name: CYCLOHEXATRIENE
Substance Alias ID: 319181
Sub Alias Name: PHENE
Substance Alias ID: 319182
Sub Alias Name: PYROBENZOL
Sampling Result ID: 343304
Feature Id: Not reported
Hazard Release Id: 384764
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True

PENINSULA TERMINAL RR (Continued) **S105042448**

Sample Depth: Not reported
Start Date: 07/01/1991
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 250 ppb
Last Update By: jmd
Update Date: 03/17/1995
Decode for MediumID: Soil

Narrative:
NARR ID: 5733859
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 06/27/2003
Decode for NarcdID: Contamination
NARR Comments: (10/9/1996 DJH/VCS) Site owner Peninsula Terminal Company contacted DEQ in October 1993 regarding their intent to participate in the Voluntary Cleanup Program, and signed a Letter Agreement with DEQ in March 1994 requesting that DEQ review an investigative report prepared for the site by Braun Intertec. There appear to have been a number of small releases of chemicals during off-loading activities at the site. An underground storage tank formerly located near the Locomotive House, and possibly used to store waste oil, was later removed (exact date unknown). Waste oil in the past has been released from the Locomotive House via a drain line.

NARR ID: 5733860
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Petroleum hydrocarbons, volatile organic compounds including chlorinated solvents, semi-volatile organic compounds including PAHs.

NARR ID: 5733862
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Release in Transloading Area appears to be due to spillage associated with unloading of bulk liquids from tanker cars into tanker trucks. Release date likely between 1987 and present. Manner and date of releases in area of Locomotive House unknown.

NARR ID: 5733863
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Pathways & Other Hazards

PENINSULA TERMINAL RR (Continued) **S105042448**

NARR Comments: The site is located in an industrial area of north Portland. However, wetlands and a golf course are located a short distance south of the site. Shallow groundwater beneath the site contains low levels of chlorinated solvents, the source of which appears to be off-site. Shallow groundwater is not known to be used for drinking. Access to the site is restricted.

NARR ID: 5733864
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Remedial Action
NARR Comments: (10/9/1996 DJH/VCS) Site owner signed Letter Agreement with DEQ's Voluntary Cleanup Program to review investigation and cleanup documents in March 1994. File review memo requesting additional soil and groundwater sampling at the site was completed in June 1994. DEQ-requested soil and groundwater sampling was completed at the site in August 1995. Based on the results of this work, additional sampling was completed in the transloading area in 1996. Contaminants detected in site soil were below industrial cleanup standards presented in OAR 340-122-045, and no significant impacts to groundwater were observed. DEQ therefore determined on 10/9/96 that no further action was required for the site under an industrial cleanup scenario.

NARR ID: 5733865
NARR Code: Health Threats
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Health Threats
NARR Comments: Volatile and semi-volatile compounds released to soil at the site, but at concentrations below DEQ soil cleanup levels (OAR 340-122-045) for industrial sites. As long as the site remains in industrial use, soil contamination should pose no significant exposure risks to humans.

NARR ID: 5743708
NARR Code: Site History
Created By: GWISTAR
Created Date: 06/27/2003
Updated By: GWISTAR
Updated Date: 06/27/2003
Decode for NarcdID: Site History
NARR Comments: The site has been used since at least the early 1900s as a train car switching yard, and for the offloading of materials including coal, cattle, and chemicals. The site is currently used mainly as a switching yard and for some offloading of chemical materials such as plastics, petroleum products, and solvents.

Site Control:
Site Control #: 156
Control Number: 5
Begin Date: 10/09/1996
End Date: Not reported

PENINSULA TERMINAL RR (Continued) **S105042448**

Frequency Of Review: 0
Last Reviewed By: Dan Hafley
Last Reviewed Date: 12/01/2004
Last Update By: JPALMER
Last Updated Date: 06/10/2005
Site Comment: No further action determination is based on industrial soil cleanup standards and is contingent on site zoning/use remaining industrial, as documented in the deed restriction attached to site.

Administrative Action:
Action ID: 9465
Region: Northwestern Region
Complete Date: 01/10/2001
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9467
Region: Northwestern Region
Complete Date: 01/10/2001
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9438
Region: Northwestern Region
Complete Date: 07/05/2001
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9439
Region: Northwestern Region
Complete Date: 07/05/2001
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002

PENINSULA TERMINAL RR (Continued) **S105042448**

Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Northwestern Region
Complete Date: 06/28/2000
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9499
Region: Northwestern Region
Complete Date: 06/28/2000
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Inventory recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9440
Region: Northwestern Region
Complete Date: 03/25/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Letter Agreement
Further Action: Not reported
Comments: Not reported

Action ID: 9434
Region: Northwestern Region
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality

PENINSULA TERMINAL RR (Continued) **S105042448**

Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Institutional Control
Further Action: Not reported
Comments: Not reported

Action ID: 9411
Region: Northwestern Region
Complete Date: 10/09/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: No Further Action (Conditional)
Further Action: Not reported
Comments: Not reported

Action ID: 9511
Region: Northwestern Region
Complete Date: 10/09/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 03/27/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9459
Region: Northwestern Region
Complete Date: 06/14/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region

PENINSULA TERMINAL RR (Continued) **S105042448**

Category: Remedial Action
Action Code Flag: False
Action: PRELIMINARY ASSESSMENT EQUIVALENT
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9519
Region: Not reported
Complete Date: 02/06/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: Not reported
Comments: Not reported

Action ID: 9442
Region: Northwestern Region
Complete Date: 03/25/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NEGOTIATIONS
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Not reported
Complete Date: 05/23/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action

PENINSULA TERMINAL RR (Continued) **S105042448**

Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9449
Region: Not reported
Complete Date: 05/23/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Insufficient information to list
Further Action: Not reported
Comments: Not reported

Operations:
Operation Id: 132836
Operation Status: Active
Common Name: Peninsula Terminal RR Site
Yrs of Operation: Early 1900s to present.
Comments: Rail yard used for switching and off-loading of chemical tank cars.
Updated Date: 06/04/2001
Updated By: jmw
Decode for OpstatID: Active
Operations SIC Id: 196664
SIC Code: 4013
Created By: Not reported
Created Date: 12/17/2002

Institutional Control:
Name: PENINSULA TERMINAL RR
Address: 11707 N FORCE AVE.
City,State,Zip: PORTLAND, OR 97217
Site Control Sequence #: 156
Site Id: 1505
Control Sequence #: 5
Begin Date: 10/09/1996
End Date: Not reported
Frequency Of Review: 0
Last Reviewed By: Dan Hafley
Last Review Date: 12/01/2004
Last Updated By: JPALMER
Last Updated Date: 06/10/2005
Group Sequence #: 2
Control Code: USL
Control Description: Use Restriction Land
FK Type Code: 1
Group Code: PR
Group Description: Proprietary
Type Code: I
Type Description: Institutional
Comments: No further action determination is based on industrial soil cleanup standards and is contingent on site zoning/use remaining industrial,

PENINSULA TERMINAL RR (Continued) **S105042448**

as documented in the deed restriction attached to site.

VCS:

Name:	PENINSULA TERMINAL RR
Address:	11707 N FORCE AVE.
City,State,Zip:	PORTLAND, OR 97217
ECS Site ID:	1505
Facility Size:	5 acres
Action:	No Further Action (Conditional)
Start Date:	10/09/1996
End Date:	10/09/1996
Facility Status:	Completed
Program:	VCS
Latitude:	45.6076
Longitude:	-122.6937

F38 **STOCKYARDS COMMERCE CENTER** **OR ECSI** **S111766402**
NW **2500-2664 N MARINE DR.** **OR VCP** **N/A**
< 1/8 **PORTLAND, OR 97217**
0.098 mi.
519 ft. **Site 1 of 2 in cluster F**

Relative: **Lower**

Actual: **18 ft.**

ECSI:

Name:	STOCKYARDS COMMERCE CENTER
Address:	2500-2664 N MARINE DR.
City,State,Zip:	PORTLAND, OR 97217
State ID Number:	5695
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	0
Investigation:	Suspect
FACA ID:	122989
Further Action:	0
Lat/Long (dms):	45 36 33.10 / -122 41 40.20
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	2.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	33
Qtr Section:	C
Tax Lots:	1300
Size:	22.98 acres
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	07/14/2014
Created Date:	02/22/2012
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	Suspect
Decode For Legislative:	Not reported

Alias Name: Portland Union Stock Yards

STOCKYARDS COMMERCE CENTER (Continued) **S111766402**

Alias Name: Portland Livestock Auction, Inc.

Hazardous Release:
Substance ID.: 121011
Haz Release ID: 388122
Qty Released: Not reported
Date Released: Not reported
Update Date: 04/08/2013
Update By: SMILLER
Substance Code: 127-18-4
Substance Name: TETRACHLOROETHYLENE
Substance Abbrev.: Not reported
Substance Category ID: 8519
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8551
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8519
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8551
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316912
Sub Alias Name: ETHENE,TETRACHLORO-
Substance Alias ID: 316913
Sub Alias Name: ETHYLENE TETRACHLORIDE
Substance Alias ID: 316914
Sub Alias Name: PERCHLOROETHYLENE
Substance Alias ID: 316915
Sub Alias Name: PERCLENE
Substance Alias ID: 316916
Sub Alias Name: TETRACHLOROETHENE
Substance Alias ID: 316917
Sub Alias Name: TETRACHLOROETHENE,1,1,2,2-
Substance Alias ID: 316918
Sub Alias Name: TETRACHLOROETHYLENE,1,1,2,2-
Sampling Result ID: 350582
Feature Id: 0
Hazard Release Id: 388122
Medium: 698
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: shallow
Start Date: 07/22/1991
End Date: Not reported

STOCKYARDS COMMERCE CENTER (Continued) **S111766402**

Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 8 ppb shallow groundwater
Last Update By: SMILLER
Update Date: 04/08/2013
Decode for MediumID: Groundwater

Substance ID.: 121781
Haz Release ID: 388123
Qty Released: Not reported
Date Released: Not reported
Update Date: 04/08/2013
Update By: SMILLER
Substance Code: 79-01-6
Substance Name: TRICHLOROETHYLENE
Substance Abbrev.: Not reported
Substance Category ID: 8523
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8545
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8523
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8545
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317517
Sub Alias Name: ETHINYL TRICHLORIDE
Substance Alias ID: 317518
Sub Alias Name: ETHYLENE TRICHLORIDE
Substance Alias ID: 317519
Sub Alias Name: TCE
Substance Alias ID: 317520
Sub Alias Name: TRI-CLENE
Substance Alias ID: 317521
Sub Alias Name: TRICHLOROETHENE
Sampling Result ID: 350583
Feature Id: 0
Hazard Release Id: 388123
Medium: 698
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: shallow
Start Date: 07/22/1991

STOCKYARDS COMMERCE CENTER (Continued) **S111766402**

End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 6 ppb shallow groundwater
Last Update By: SMILLER
Update Date: 04/08/2013
Decode for MediumID: Groundwater

Narrative:

NARR ID: 5753996
NARR Code: Contamination
Created By: SFORTUN
Created Date: 04/12/2012
Updated By: SFORTUN
Updated Date: 04/12/2012
Decode for NarcdID: Contamination
NARR Comments: This site was added to ECSI based on documented evidence of elevated concentrations of chlorinated solvents, metals, and petroleum constituents in the site's shallow groundwater, as well as an elevated concentration of a chlorinated hydrocarbon in stormwater draining to the Columbia River.

NARR ID: 5754069
NARR Code: Data Sources
Created By: SFORTUN
Created Date: 06/26/2012
Updated By: SFORTUN
Updated Date: 06/26/2012
Decode for NarcdID: Data Sources
NARR Comments: Preliminary Environmental Site Audit, Waste Management of Oregon, Inc., Proposed Transfer Station Site, Portland, Oregon, prepared by Sweet-Edwards/EMCON, for Waste Management of Oregon, Inc., November 18, 1987 (report filed with ECSI #1091, Oregon Waste Systems - Proposed Transfer Station). Environmental Audit: Field Investigation and Remedial Alternatives Assessment, Proposed Transfer Station Site, Portland, Oregon, prepared by Sweet-Edwards/EMCON, for Oregon Waste Systems, Inc., April 25, 1988. (report filed with ECSI #1091).

NARR ID: 5754597
NARR Code: General Site Description
Created By: SMILLER
Created Date: 04/18/2013
Updated By: SMILLER
Updated Date: 04/18/2013
Decode for NarcdID: General Site Description
NARR Comments: The Stockyards Commerce Center site is a 22.98-acre parcel (Tax Lot 1300 of Township 2 North / Range 1 East Section 33C) that was originally part of the larger, 46-acre Oregon Waste Systems Proposed Transfer Station site (ECSI #1091).

NARR ID: 5754570
NARR Code: Hazardous Substance/Waste Types
Created By: SMILLER
Created Date: 04/08/2013
Updated By: SMILLER
Updated Date: 04/08/2013
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: [4/8/13 SA/SAM] Potential environmental contaminants of concern

STOCKYARDS COMMERCE CENTER (Continued) **S111766402**

include residual petroleum constituents in soils, such as benzene, anthrazene and benzo(a)pyrene. PCE and TCE are found in shallow and deep groundwater at the site. PCBs have been found in site soils.

NARR ID: 5754569
NARR Code: Manner of Release
Created By: SMILLER
Created Date: 04/08/2013
Updated By: SMILLER
Updated Date: 04/08/2013
Decode for NarcdID: Manner of Release
NARR Comments: unknown- likely historic uses. PCE and TCE in deeper groundwater may be part of a larger area wide contamination.

NARR ID: 5754568
NARR Code: Remedial Action
Created By: SMILLER
Created Date: 04/08/2013
Updated By: SMILLER
Updated Date: 04/08/2013
Decode for NarcdID: Remedial Action
NARR Comments: [4/8/13 SA/SAM] Site Investigations and some cleanup has occured on site since approximately 1988; generally focusing on underground storage tank removal and remediation. DEQ Site Assessment recommends the following activities be performed at the site to help clarify site risk and priority for further action. Contaminated soil remained under the Rod s Truck Stop building with issuance of underground storage tank program NFA in 1993. A review of the archived UST file and possible investigation should be completed to determine the risk of contaminated soils for vapor intrusion for petroleum. PCE/TCE samples were collected from shallow groundwater in 1991. Confirmation of PCE/TCE concentrations is recommended to ensure vapor intrusion occupational risk based concentrations are currently met. Potential sources of PCE/TCE in shallow groundwater include remaining soils at Rod s Truck Service and potential spills from Peninsula Railroad Terminal to the south of the Stockyard property. Current site stormwater drainage should be diagramed and determine discharge points for the property. Columbia Slough Sediments- sediment sampling near current and historic stormwater outfalls should be tested for metals, PCBs, PAHs and VOCs. Sediment results should be compared to the average Lower Columbia River concentrations to determine if the sediments are either near average conditions or significantly above average Lower Columbia River sediment conditions. If sediment concentrations are above average, a source control evaluation may need to be performed.

NARR ID: 5753997
NARR Code: Health Threats
Created By: SFORTUN
Created Date: 04/12/2012
Updated By: SFORTUN
Updated Date: 04/12/2012
Decode for NarcdID: Health Threats
NARR Comments: Contaminants in site groundwater and stormwater could represent a potential threat to on-site workers, aquatic life in the Columbia River, wildlife and aquatic life in nearby wetlands, and/or other users of groundwater and surface water in the immediate vicinity of

STOCKYARDS COMMERCE CENTER (Continued) **S111766402**

the site. Water quality in the Columbia River is already impaired. The Columbia River is used for recreational and commercial fishing, as well as other recreational purposes. It also provides Critical Habitat for threatened and endangered fish species. The river and nearby wetlands also provide important habitat for other sensitive species such as protected migratory bird species, sensitive amphibian, reptile, and plant species, and food resources for sensitive aquatic and terrestrial species.

NARR ID: 5754567
NARR Code: Site History
Created By: SMILLER
Created Date: 04/08/2013
Updated By: SMILLER
Updated Date: 04/08/2013
Decode for NarcdID: Site History
NARR Comments: [4/8/13 SA/SAM] The site was originally developed in 1908 with the construction of a small hotel and a livestock Exchange Building. The Portland Union Stockyards was built in about 1910. The stockyards ceased operations in 1980. Site buildings also included Merit USA (Texaco) Truck Stop (built in about 1952), which included two fueling stations, truck scales, and a cafT. Rod s Truck Repair, a commercial gas station and repair shop began operating in the 1980 s. The stockyards were demolished in 1996 and redeveloped in approximately 1997 to its current configuration as light industry and warehousing.

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 02/22/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 02/22/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 02/22/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/18/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: 0
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 04/08/2013

STOCKYARDS COMMERCE CENTER (Continued) **S111766402**

Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/18/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: 0
Comments: Not reported

Action ID: 9506
Region: Northwestern Region
Complete Date: 04/08/2013
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/08/2013
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Investigation recommended (SI)
Further Action: Medium
Comments: Not reported

Action ID: 9419
Region: Northwestern Region
Complete Date: 04/08/2013
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/08/2013
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Decision Not to List Site (on the CRL or Inventory)
Further Action: 0
Comments: Not reported

Action ID: 9519
Region: Northwestern Region
Complete Date: 07/18/2013
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/03/2013
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: 0
Comments: Not reported

Action ID: 9511
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported

STOCKYARDS COMMERCE CENTER (Continued) **S111766402**

Cleanup Flag: False
Created Date: 07/24/2013
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION
Further Action: 0
Comments: Not reported

Operations:

Operation Id: 135893
Operation Status: Inactive
Common Name: Portland Union Stock Yards
Yrs of Operation: 1910 - 1980's
Comments: Division of United Stockyards Corporation (a.k.a.: Portland Livestock Auction, Inc.); Livestock auction facility
Updated Date: 06/26/2012
Updated By: SFORTUN
Decode for OpstatID: Inactive

Operation Id: 135894
Operation Status: Inactive
Common Name: Rod's Truck Repair
Yrs of Operation: 1960's - early 1990's
Comments: Truck repair facility. Occupied a building used by the stockyards from the 1930's to the 1960's as a repair facility, including metral tank sandblasting (1950 to mid-1960's). Served as a gas station and repair shop from mid 60's to 1980's.
Updated Date: 06/26/2012
Updated By: SFORTUN
Decode for OpstatID: Inactive

Operation Id: 135895
Operation Status: Inactive
Common Name: Star Oil cardlock facility
Yrs of Operation: unknown
Comments: Refueling facility
Updated Date: 06/26/2012
Updated By: SFORTUN
Decode for OpstatID: Inactive

Operation Id: 135896
Operation Status: Inactive
Common Name: Merit USA Truck Stop
Yrs of Operation: 1952 - early 1990 ?
Comments: Truck refueling facility (Texaco), truck scales, cafe.
Updated Date: 06/26/2012
Updated By: SFORTUN
Decode for OpstatID: Inactive

Operation Id: 135897
Operation Status: Inactive
Common Name: L&R Transport
Yrs of Operation: 1950's - 1970's
Comments: Operated on south central portion of site.
Updated Date: 06/26/2012
Updated By: SFORTUN

STOCKYARDS COMMERCE CENTER (Continued) **S111766402**

Decode for OpstatID: Inactive

Operation Id: 135898
Operation Status: Inactive
Common Name: Gulf Pacific Lumber Company
Yrs of Operation: 1950's - 1970's
Comments: Operated on south central portion of facility.
Updated Date: 06/26/2012
Updated By: SFORTUN
Decode for OpstatID: Inactive

Operation Id: 135901
Operation Status: Inactive
Common Name: Hotel
Yrs of Operation: 1908-1910
Comments: Not reported
Updated Date: 06/26/2012
Updated By: SFORTUN
Decode for OpstatID: Inactive

Operation Id: 135902
Operation Status: Inactive
Common Name: Red Steer Restaurant
Yrs of Operation: 1980's-1990's
Comments: restaurant
Updated Date: 06/26/2012
Updated By: SFORTUN
Decode for OpstatID: Inactive

Operation Id: 135903
Operation Status: Inactive
Common Name: Commercial Driver Training
Yrs of Operation: thru late 1980's
Comments: Truck driving school.
Updated Date: 06/26/2012
Updated By: SFORTUN
Decode for OpstatID: Inactive

VCS:
Name: STOCKYARDS COMMERCE CENTER
Address: 2500-2664 N MARINE DR.
City,State,Zip: PORTLAND, OR 97217
ECS Site ID: 5695
Facility Size: 22.98 acres
Action: SITE INVESTIGATION
Start Date: 07/18/2013
End Date: Not reported
Facility Status: Active
Program: VCP
Latitude: 45.6092
Longitude: -122.6945

G39 **PIER WEST LLC** **RCRA-CESQG** **1016455826**
East **1610 N PIER 99 ST** **ORQ000032499**
1/8-1/4 **PORTLAND, OR 97217**
0.130 mi.
687 ft. **Site 1 of 3 in cluster G**

Relative:
Higher

Actual:
42 ft.

RCRA-CESQG:

Date form received by agency:	02/04/2019
Facility name:	PIER WEST LLC
Facility address:	1610 N PIER 99 ST PORTLAND, OR 97217
EPA ID:	ORQ000032499
Mailing address:	8320 NE HWY 99 VANCOUVER, WA 98665
Contact:	RYAN ROCKWELL
Contact address:	8320 NE HWY 99 VANCOUVER, WA 98665
Contact country:	US
Contact telephone:	503-891-5094
Contact email:	MOBINV@COMCAST.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 hazardous waste

Owner/Operator Summary:

Owner/operator name:	PIER WEST LLC
Owner/operator address:	8320 NE HWY 99 VANCOUVER, WA 98665
Owner/operator country:	US
Owner/operator telephone:	503-574-6255
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	02/04/2019
Owner/Op end date:	Not reported

Owner/operator name:	PIER WEST LLC
Owner/operator address:	8320 NE HWY 99 VANCOUVER, WA 98665
Owner/operator country:	US
Owner/operator telephone:	503-574-6255
Owner/operator email:	Not reported
Owner/operator fax:	Not reported

PIER WEST LLC (Continued) **1016455826**

Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 02/04/2019
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: 12/31/2015
Site name: MILTON O BROWN
Classification: Small Quantity Generator

Date form received by agency: 03/23/2015
Site name: MILTON O BROWN
Classification: Not a generator, verified

Date form received by agency: 12/31/2014
Site name: MILTON O BROWN
Classification: Large Quantity Generator

Date form received by agency: 12/30/2014
Site name: MILTON O BROWN
Classification: Large Quantity Generator

Date form received by agency: 11/01/2013
Site name: MILTON O BROWN
Classification: Small Quantity Generator

Hazardous Waste Summary:

. Waste code: D008
. Waste name: LEAD

. Waste code: NA
. Waste name: NA

Violation Status: No violations found

Evaluation Action Summary:

PIER WEST LLC (Continued) **1016455826**

Evaluation date: 07/14/2015
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

G40 **PIER 99 - PORTLAND** **SEMS 1014948183**
East **1610 N PIER 99 STREET** **PRP ORN001002699**
1/8-1/4 **PORTLAND, OR 97217** **ICIS**
0.130 mi.
687 ft. **Site 2 of 3 in cluster G**

Relative:
Higher

Actual:
42 ft.

SEMS:
Site ID: 1002699
EPA ID: ORN001002699
Cong District: Not reported
FIPS Code: 41051
Latitude: Not reported
Longitude: Not reported
FF: N
NPL: Not on the NPL
Non NPL Status: Referred to Removal - NFRAP

SEMS Detail:
Region: 10
Site ID: 1002699
EPA ID: ORN001002699
Site Name: PIER 99 - PORTLAND
NPL: N
FF: N
OU: 00
Action Code: EE
Action Name: EE/CA
SEQ: 1
Start Date: 2012-12-18 05:00:00
Finish Date: 8/15/2013 5:00:00 AM
Qual: Not reported
Current Action Lead: EPA Ovrsght

Region: 10
Site ID: 1002699
EPA ID: ORN001002699
Site Name: PIER 99 - PORTLAND
NPL: N
FF: N
OU: 00
Action Code: BB
Action Name: PRP RV
SEQ: 1
Start Date: 2013-09-09 05:00:00
Finish Date: 11/14/2014 5:00:00 AM
Qual: Not reported
Current Action Lead: EPA Ovrsght

Region: 10
Site ID: 1002699
EPA ID: ORN001002699
Site Name: PIER 99 - PORTLAND
NPL: N

PIER 99 - PORTLAND (Continued) **1014948183**

FF:	N
OU:	00
Action Code:	SI
Action Name:	SI
SEQ:	1
Start Date:	2008-03-21 04:00:00
Finish Date:	1/19/2011 5:00:00 AM
Qual:	W
Current Action Lead:	EPA Perf
Region:	10
Site ID:	1002699
EPA ID:	ORN001002699
Site Name:	PIER 99 - PORTLAND
NPL:	N
FF:	N
OU:	00
Action Code:	DS
Action Name:	DISCVRY
SEQ:	1
Start Date:	2007-06-07 04:00:00
Finish Date:	6/7/2007 4:00:00 AM
Qual:	Not reported
Current Action Lead:	EPA Perf In-Hse
Region:	10
Site ID:	1002699
EPA ID:	ORN001002699
Site Name:	PIER 99 - PORTLAND
NPL:	N
FF:	N
OU:	00
Action Code:	PA
Action Name:	PA
SEQ:	1
Start Date:	2007-07-16 04:00:00
Finish Date:	2/1/2008 5:00:00 AM
Qual:	H
Current Action Lead:	EPA Perf

PRP:

EPAID:	ORN001002699
PRP Name:	BROWN, MILTON
Site ID:	1002699
Facility Name:	PIER 99 - PORTLAND
Facility Address:	1610 N PIER 99 STREET
Facility City:	PORTLAND
Facility State:	OR
Facility Zip:	97217
NPL Status:	Not on the NPL
NPL Status Short Name:	Referred to Removal - NFRAP
PRP Address:	Not reported
PRP City:	Not reported
PRP State:	OR
PRP Zip:	Not reported
Data Type:	SETTLEMENT DATE

PIER 99 - PORTLAND (Continued) **1014948183**

Action Date: 2013-09-05 05:00:00
Settlement Code: AC-2
Settlement: ADM ORDR

Action Date: 2012-08-30 05:00:00
Settlement Code: AC-1
Settlement: ADM ORDR

ICIS:
Enforcement Action ID: 10-2013-0161
FRS ID: 110030826168
Action Name: 1610 North Pier 99 Site Removal Action
Facility Name: PIER 99 - PORTLAND
Facility Address: 1610 N PIER 99 STREET
PORTLAND, OR 97217
Enforcement Action Type: CERCLA 106 AO For Resp Action/Imm Haz
Facility County: MULTNOMAH
Program System Acronym: CERCLIS
Enforcement Action Forum Desc: Administrative - Formal
EA Type Code: 106
Facility SIC Code: Not reported
Federal Facility ID: Not reported
Latitude in Decimal Degrees: 45.60644
Longitude in Decimal Degrees: -122.6834
Permit Type Desc: Not reported
Program System Acronym: ORN001002699
Facility NAICS Code: Not reported
Tribal Land Code: Not reported

Enforcement Action ID: 10-2012-0191
FRS ID: 110030826168
Action Name: Pier 99 - Portland Site (EE/CA)
Facility Name: PIER 99 - PORTLAND
Facility Address: 1610 N PIER 99 STREET
PORTLAND, OR 97217
Enforcement Action Type: CERCLA 104E5A AO For Access And/Or Info
Facility County: MULTNOMAH
Program System Acronym: CERCLIS
Enforcement Action Forum Desc: Administrative - Formal
EA Type Code: 104E5A
Facility SIC Code: Not reported
Federal Facility ID: Not reported
Latitude in Decimal Degrees: 45.60644
Longitude in Decimal Degrees: -122.6834
Permit Type Desc: Not reported
Program System Acronym: ORN001002699
Facility NAICS Code: Not reported
Tribal Land Code: Not reported

Facility Name: PIER 99 - PORTLAND
Address: 1610 N PIER 99 STREET
Tribal Indicator: Not reported
Fed Facility: Not reported
NAIC Code: Not reported
SIC Code: Not reported

PIER 99 - PORTLAND (Continued) **1014948183**

Facility Name: PIER 99 - PORTLAND
Address: 1610 N PIER 99 STREET
Tribal Indicator: Not reported
Fed Facility: Not reported
NAIC Code: Not reported
SIC Code: Not reported

Facility Name: PIER 99 - PORTLAND
Address: 1610 N PIER 99 STREET
Tribal Indicator: Not reported
Fed Facility: Not reported
NAIC Code: Not reported
SIC Code: Not reported

Facility Name: PIER 99 - PORTLAND
Address: 1610 N PIER 99 STREET
Tribal Indicator: Not reported
Fed Facility: Not reported
NAIC Code: Not reported
SIC Code: Not reported

Facility Name: PIER 99 - PORTLAND
Address: 1610 N PIER 99 STREET
Tribal Indicator: Not reported
Fed Facility: Not reported
NAIC Code: Not reported
SIC Code: Not reported

Facility Name: PIER 99 - PORTLAND
Address: 1610 N PIER 99 STREET
Tribal Indicator: Not reported
Fed Facility: Not reported
NAIC Code: Not reported
SIC Code: Not reported

Facility Name: PIER 99 - PORTLAND
Address: 1610 N PIER 99 STREET
Tribal Indicator: Not reported
Fed Facility: Not reported
NAIC Code: Not reported
SIC Code: Not reported

Facility Name: PIER 99 - PORTLAND
Address: 1610 N PIER 99 STREET
Tribal Indicator: Not reported
Fed Facility: Not reported
NAIC Code: Not reported
SIC Code: Not reported

G41 **MILTON O BROWN** **OR CRL** **S106655861**
East **1610 N PIER 99 ST** **OR ECSI** **N/A**
1/8-1/4 **PORTLAND, OR 97217** **OR MANIFEST**
0.130 mi.
687 ft. **Site 3 of 3 in cluster G**

Relative:
Higher

Actual:
42 ft.

CRL:

Name:	1610 NORTH PIER 99 ST.
Address:	1610 N PIER 99 ST.
City,State,Zip:	PORTLAND, OR 97217
Facility ID:	3526
Location ID:	47622
Status Code:	LIS
Facility Status:	OPERATION & MAINTENANCE
Lat/Long:	45.6065 / -122.6829

ECSI:

Name:	1610 NORTH PIER 99 ST.
Address:	1610 N PIER 99 ST.
City,State,Zip:	PORTLAND, OR 97217
State ID Number:	3526
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	831
Investigation:	Listed on the CRL/Inventory
FACA ID:	47622
Further Action:	0
Lat/Long (dms):	45 36 23.40 / -122 40 58.40
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	001002699
Township Coord.:	2.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	33
Qtr Section:	DDD
Tax Lots:	100 (2N1E33DD 100; R323457)
Size:	1.07 acres
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	11/25/2013
Created Date:	11/22/2002
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	Listed on the CRL/Inventory
Decode For Legislative:	Owner, operator or other party under agreement, order or consent decree under ORS 465.200 or 465.420
Alias Name:	Mermaid Marine
Alias Name:	Pier 99 - Portland
Alias Name:	Schooner Creek Boat Works
Alias Name:	Schroeder’s Marine Machine Works
Alias Name:	Interstate Dry Dock
Alias Name:	Guy Bloiden

Hazardous Release:

MILTON O BROWN (Continued) **S106655861**

Substance ID.: 121639
Haz Release ID: 386023
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 7439-92-1
Substance Name: LEAD
Substance Abbrev.: Not reported
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319256
Sub Alias Name: PB
Comment ID: 304755
Release Code: Data Sources
Release Comments: Consultant report
Decode for Relcomcd: Data Sources
Sampling Result ID: 347500
Feature Id: 0
Hazard Release Id: 386023
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 07/03/2003
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 6790.00
Sample Comment: 6790 ppm lead in upland surface soils at UP01SS 1590 ppm in waste storage area soils at WS02SS. 1380 ppm in soils at OP02SS. 628 ppm at 12 inches (7/3/03) 90.8 ppm in waste storage areas soils at WS01SS. 21.4 ppm in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil
Sampling Result ID: 349715
Feature Id: 0
Hazard Release Id: 386023
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008

MILTON O BROWN (Continued) **S106655861**

End Date: Not reported
Min Concentration: Not reported
Max Concentration: 6.20
Sample Comment: 6.2 ppm lead in dock area sediments at DO02SD and DO06SD. 5.4 ppm in sediments at DO09SD. 4.9 ppm in sediments at DO03SD and DO08SD. Nearby Columbia River sediments contained 1.7- to 2.8 ppm lead.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Sediment
Sampling Result ID: 350655
Feature Id: 0
Hazard Release Id: 386023
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 10/05/2013
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to 2,300mg/kg at 0.5-1ft depth. Sample RAC-2.
Last Update By: SMILLER
Update Date: 11/27/2013
Decode for MediumID: Soil

Substance ID.: 121982
Haz Release ID: 386067
Qty Released: Not reported
Date Released: Not reported
Update Date: 09/16/2003
Update By: JWAGGY
Substance Code: ECD169
Substance Name: DIESEL - FUEL OIL
Substance Abbrev.: Not reported
Substance Category ID: 8529
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8529
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 347501
Feature Id: 0
Hazard Release Id: 386067
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 12 inches

MILTON O BROWN (Continued) **S106655861**

Start Date: 07/03/2003
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 7,540 mg/kg
Last Update By: JWAGGY
Update Date: 09/19/2003
Decode for MediumID: Soil

Substance ID.: 121988
Haz Release ID: 386070
Qty Released: Not reported
Date Released: Not reported
Update Date: 09/19/2003
Update By: JWAGGY
Substance Code: ECD198
Substance Name: OIL - LUBRICATING
Substance Abbrev.: Not reported
Substance Category ID: 8531
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8531
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 347504
Feature Id: 0
Hazard Release Id: 386070
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 12 inches
Start Date: 07/03/2003
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 42,400 mg/kg
Last Update By: JWAGGY
Update Date: 09/19/2003
Decode for MediumID: Soil

Substance ID.: 122031
Haz Release ID: 387354
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: ECD312
Substance Name: TRIBUTYLTIN
Substance Abbrev.: Not reported
Comment ID: 305254

MILTON O BROWN (Continued) **S106655861**

Release Code: General Comments
Release Comments: Upland surface soils also contained: 210000 ppb dibutyltin at UP01SS; 9000 ppb dibutyltin at OP02SS; 8400 ppb dibutyltin at WS02SS; 220 ppb dibutyltin at OP03SS; 210 ppb dibutyltin at WS01SS. EPA Industrial Soil RSL for dibutyltin = 180000 ppb
Decode for Relcomcd: General Comments
Sampling Result ID: 349678
Feature Id: 0
Hazard Release Id: 387354
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 660000.00
Sample Comment: 660000 ppb tributyltin in upland surface soils at UP01SS. 36000 ppb in soils at OP02SS 24000 ppb in surface soils from waste storage area at WS02SS. 1100 ppb in surface soils from waste storage area at WS01SS. 48 ppb in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Soil
Sampling Result ID: 350658
Feature Id: 0
Hazard Release Id: 387354
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: 10/05/2013
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to 1,000 ppb after removal
Last Update By: SMILLER
Update Date: 11/27/2013
Decode for MediumID: Soil

Substance ID.: 121614
Haz Release ID: 387355
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 72-54-8
Substance Name: DDD,p,p'-
Substance Abbrev.: Not reported
Substance Alias ID: 319194
Sub Alias Name: DICHLORO-2,2-BIS(p-CHLOROPHENYL)ETHANE,1,1-

MILTON O BROWN (Continued) **S106655861**

Substance Alias ID: 319195
Sub Alias Name: DICHLORODIPHENYLDICHLOROETHANE
Substance Alias ID: 319196
Sub Alias Name: RHOTHANE
Substance Alias ID: 319197
Sub Alias Name: TDE
Substance Alias ID: 319198
Sub Alias Name: TDE,p,p'-
Substance Alias ID: 319199
Sub Alias Name: TETRACHLORODIPHENYLETHANE
Sampling Result ID: 349679
Feature Id: 0
Hazard Release Id: 387355
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 2700.00
Sample Comment: 2700 ppb p,p'-DDD in upland surface soils at UP01SS. 930 ppb in soils at OP02SS. 76 ppb in upland soils from waste storage area at WS01SS. 8 ppb in soils at OP03SS. 0.39 ppb in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Soil
Sampling Result ID: 350661
Feature Id: 0
Hazard Release Id: 387355
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 10/05/2013
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to 209 ug/kg at 0-0.5ft depth. Sample REX 15. All other samples below 35 ug/kg
Last Update By: SMILLER
Update Date: 11/27/2013
Decode for MediumID: Soil

Substance ID.: 121373
Haz Release ID: 387356
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 50-29-3

MILTON O BROWN (Continued) **S106655861**

Substance Name:	DDT,p,p'-
Substance Abbrev.:	Not reported
Substance Alias ID:	318555
Sub Alias Name:	BIS(p-CHLOROPHENYL)-2,2,2-TRICHLOROETHANE,1,1-
Substance Alias ID:	318556
Sub Alias Name:	CHLOROPHENOTHANE
Substance Alias ID:	318557
Sub Alias Name:	DICHLORODIPHENYLTRICHLOROETHANE
Substance Alias ID:	318558
Sub Alias Name:	ETHANE,1,1,1-TRICHLORO-2,2-BIS(p-CHLOROPHENYL)-
Sampling Result ID:	349680
Feature Id:	0
Hazard Release Id:	387356
Medium:	703
Substance Abbrev.:	0
Unit Code:	8
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/30/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	370.00
Sample Comment:	370 ppb p,p'-DDT in upland surface soils at UP01SS. 180 ppm in soils at OP02SS. 33 ppb in upland waste storage area soils at WS01SS and WS02SS. 19 ppb in soils at OP03SS. 1.2 ppb in background soils at BK01SS.
Last Update By:	SFORTUN
Update Date:	09/09/2009
Decode for MediumID:	Soil
Sampling Result ID:	349741
Feature Id:	0
Hazard Release Id:	387356
Medium:	701
Substance Abbrev.:	0
Unit Code:	8
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/29/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	1.30
Sample Comment:	1.3 ppb DDT in dock area sediments at DO07SD. 0.18 ppb at DO08SD. 0.17 ppb at DO09SD. 0.18 ppb in one of two nearshore background sediment samples at BK02SD. Not detected in nearby Columbia River sediments.
Last Update By:	SFORTUN
Update Date:	09/11/2009
Decode for MediumID:	Sediment
Sampling Result ID:	350660
Feature Id:	0
Hazard Release Id:	387356
Medium:	703
Substance Abbrev.:	0
Unit Code:	Not reported

MILTON O BROWN (Continued) **S106655861**

Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 10/05/2013
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to 435ug/kg 0-0.5ft at REX 15
Last Update By: SMILLER
Update Date: 11/27/2013
Decode for MediumID: Soil

Substance ID.: 120909
Haz Release ID: 387357
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 11097-69-1
Substance Name: PCB 1254
Substance Abbrev.: Not reported
Substance Category ID: 8556
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8556
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316559
Sub Alias Name: AROCHLOR 1254
Substance Alias ID: 316560
Sub Alias Name: AROCLOR 1254
Sampling Result ID: 349681
Feature Id: 0
Hazard Release Id: 387357
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 3800.00
Sample Comment: 3800 ppb aroclor 1254 in upland surface soils at UP01SS. 1600 ppb in surface soils at OP02SS. 380 ppb in waste storage area surface soils at WS02SS. Undetected in background soils at BK01SS at an analytical detection limit of 34 ppb.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil

MILTON O BROWN (Continued) **S106655861**

Substance ID.: 120814
Haz Release ID: 387358
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 1024-57-3
Substance Name: HEPTACHLOR EPOXIDE
Substance Abbrev.: Not reported
Substance Alias ID: 316215
Sub Alias Name: VELSICOL 53-CS-17
Sampling Result ID: 349682
Feature Id: 0
Hazard Release Id: 387358
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 4.50
Sample Comment: 4.5 ppb heptachlor epoxide in upland waste storage area surface soils at WS01SS. Undetected in surface soils at background location BK01SS (detection limit of 1.8 ppb).
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil

Substance ID.: 120786
Haz Release ID: 387359
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 100-52-7
Substance Name: BENZALDEHYDE
Substance Abbrev.: Not reported
Substance Alias ID: 316170
Sub Alias Name: BENZENECARBONAL
Substance Alias ID: 316171
Sub Alias Name: BENZOIC ALDEHYDE
Sampling Result ID: 349683
Feature Id: 0
Hazard Release Id: 387359
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported

MILTON O BROWN (Continued) **S106655861**

Min Concentration: Not reported
Max Concentration: 4600.00
Sample Comment: 4600 ppb benzaldehyde in upland surface soils at UP01SS. 3000 ppb in upland soils at OP02SS. 2000 ppb in upland waste storage soils at WS02SS. 240 ppb in soils at OP03SS. 230 ppb in soils at OP01SS. 43 ppb in upland background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil

Substance ID.: 120941
Haz Release ID: 387360
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 117-81-7
Substance Name: BIS(2-ETHYLHEXYL)PHTHALATE
Substance Abbrev.: Not reported
Substance Category ID: 8480
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8480
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316655
Sub Alias Name: BIS(2-ETHYLHEXYL)-1,2-BENZENEDICARBOXYLATE
Substance Alias ID: 316656
Sub Alias Name: BIS(2-ETHYLHEXYL)-o-PHTHALATE
Substance Alias ID: 316657
Sub Alias Name: DI(2-ETHYLHEXYL)ORTHOPHTHALATE
Substance Alias ID: 316658
Sub Alias Name: DI-2-ETHYLHEXYLPHTHALATE
Substance Alias ID: 316659
Sub Alias Name: DI-sec-OCTYL PHTHALATE
Substance Alias ID: 316660
Sub Alias Name: DIOCTYL PHTHALATE
Substance Alias ID: 316661
Sub Alias Name: PHTHALIC ACID, BIS(2-ETHYLHEXYL) ESTER
Sampling Result ID: 349684
Feature Id: 0
Hazard Release Id: 387360
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 11000.00

MILTON O BROWN (Continued) **S106655861**

Sample Comment: 11000 ppb bis-(2-ethylhexyl)phthalate in upland surface soils at UP01SS. 6400 ppb in upland soils at OP02SS. 5100 ppb in upland waste storage area soils at WS02SS. 210 ppb at WS01SS. 93 ppb in background upland soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/11/2009
Decode for MediumID: Soil

Substance ID.: 121030
Haz Release ID: 387361
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 131-11-3
Substance Name: DIMETHYL PHTHALATE
Substance Abbrev.: Not reported
Substance Alias ID: 316972
Sub Alias Name: BENZENEDICARBOXYLIC ACID,1,2-, DIMETHYL ESTER
Substance Alias ID: 316973
Sub Alias Name: DIMETHYL PHTHALATE,o-
Substance Alias ID: 316974
Sub Alias Name: PHTHALIC ACID, DIMETHYL ESTER
Sampling Result ID: 349685
Feature Id: 0
Hazard Release Id: 387361
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 48000.00
Sample Comment: 48000 ppb dimethylphthalate in upland surface soils at UP01SS. 21000 ppb in upland soils at OP02SS. 17000 ppb in waste storage area soils at WS02SS. 660 ppb in waste storage area soils at WS01SS. 200 ppb in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil

Substance ID.: 121821
Haz Release ID: 387362
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 84-74-2
Substance Name: DI-n-BUTYL PHTHALATE
Substance Abbrev.: Not reported
Substance Alias ID: 317639
Sub Alias Name: BENZENEDICARBOXYLIC ACID,1,2-, DIBUTYL ESTER
Substance Alias ID: 317640

MILTON O BROWN (Continued) **S106655861**

Sub Alias Name: BUTYL PHTHALATE
Substance Alias ID: 317641
Sub Alias Name: BUTYL PHTHALATE,n-
Substance Alias ID: 317642
Sub Alias Name: DBP
Substance Alias ID: 317643
Sub Alias Name: DIBUTYL PHTHALATE
Sampling Result ID: 349686
Feature Id: 0
Hazard Release Id: 387362
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 53000.00
Sample Comment: 53000 ppb di-n-butylphthalate in upland soils from waste storage area at WS02SS. 26000 ppb in upland surface soils at UP01SS. 2100 ppb in upland soils at OP02SS. 160 ppb in waste storage area soils at WS01SS. 22 ppb in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil

Substance ID.: 120887
Haz Release ID: 387363
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 108-95-2
Substance Name: PHENOL
Substance Abbrev.: Not reported
Substance Alias ID: 316484
Sub Alias Name: BENZENE,HYDROXY-
Substance Alias ID: 316485
Sub Alias Name: CARBOLIC ACID
Substance Alias ID: 316486
Sub Alias Name: HYDROXYBENZENE
Substance Alias ID: 316487
Sub Alias Name: OXYBENZENE
Substance Alias ID: 316488
Sub Alias Name: PHENIC ACID
Substance Alias ID: 316489
Sub Alias Name: PHENYL HYDRATE
Substance Alias ID: 316490
Sub Alias Name: PHENYL HYDROXIDE
Sampling Result ID: 349687
Feature Id: 0
Hazard Release Id: 387363
Medium: 703
Substance Abbrev.: 0

MILTON O BROWN (Continued) **S106655861**

Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 3100.00
Sample Comment: 3100 ppb phenol in upland surface soils at UP01SS. 680 ppb in waste storage area soils at WS02SS. 14 ppb in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Soil

Substance ID.: 121634
Haz Release ID: 387364
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 7429-90-5
Substance Name: ALUMINUM
Substance Abbrev.: Not reported
Substance Alias ID: 319250
Sub Alias Name: AL
Substance Alias ID: 319251
Sub Alias Name: ALUMINIUM
Sampling Result ID: 349688
Feature Id: 0
Hazard Release Id: 387364
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 13500.00
Sample Comment: 13500 ppm aluminum in upland soils at OP03SS. 9900 in upland soils at OP01SS. 9830 ppm in soils from upland waste storage area at WS02SS. 7750 ppm in upland soils at OP02SS. 5570 ppm in soils at background soil sampling location BK01SS.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil
Sampling Result ID: 349709
Feature Id: 0
Hazard Release Id: 387364
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False

MILTON O BROWN (Continued) **S106655861**

Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 6290.00
Sample Comment: 6290 ppm aluminum in dock area sediments at DO09SD. 6100 ppm in sediments at DO02SD. 5970 ppm in sediments at DO06SD. Nearby Columbia River sediments contained 2010- to 4370 ppm aluminum.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Sediment

Substance ID.: 121662
Haz Release ID: 387365
Qty Released: unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 7440-36-0
Substance Name: ANTIMONY
Substance Abbrev.: Not reported
Substance Alias ID: 319283
Sub Alias Name: SB
Substance Alias ID: 319284
Sub Alias Name: STIBIUM
Sampling Result ID: 349689
Feature Id: 0
Hazard Release Id: 387365
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 48.40
Sample Comment: 48.4 ppm antimony in upland surface soils at UP01SS. 14.7 ppm in upland waste storage area soils at WS02SS. Undetected in background soils at BK01SS at an analytical detection limit of 6 ppm.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Soil
Sampling Result ID: 349737
Feature Id: 0
Hazard Release Id: 387365
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/29/2008

MILTON O BROWN (Continued) **S106655861**

End Date: Not reported
Min Concentration: Not reported
Max Concentration: 9.10
Sample Comment: 9.1 ppm antimony in dock area sediments at DO02SD. Not detected in nearshore background sediments or nearby Columbia River sediments.
Last Update By: SFORTUN
Update Date: 09/11/2009
Decode for MediumID: Sediment

Substance ID.: 121664
Haz Release ID: 387366
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 7440-38-2
Substance Name: ARSENIC
Substance Abbrev.: Not reported
Substance Category ID: 8439
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8439
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319286
Sub Alias Name: AS
Sampling Result ID: 349690
Feature Id: 0
Hazard Release Id: 387366
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 20.90
Sample Comment: 20.9 ppm arsenic in upland soils at OP02SS. 16 oppm in upland waste storage area soils at WS02SS. 15.1 ppm in upland soils at UP01SS. 11.4 ppm in upland soils at OP03SS. 2.2 ppm in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil
Sampling Result ID: 349710
Feature Id: 0
Hazard Release Id: 387366
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True

MILTON O BROWN (Continued) **S106655861**

Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 3.00
Sample Comment: 3.0 ppm arsenic in dock area sediments at DO03SD. 2.2 ppm in sediments at DO02SD and DO04SD. Nearby Columbia River sediments contained 1.2- to 1.7 ppm arsenic.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Sediment

Substance ID.: 121665
Haz Release ID: 387367
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 7440-39-3
Substance Name: BARIUM
Substance Abbrev.: Not reported
Substance Category ID: 8458
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8458
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319287
Sub Alias Name: BA
Sampling Result ID: 349691
Feature Id: 0
Hazard Release Id: 387367
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 599.00
Sample Comment: 599 ppm barium in upland surface soils at UP01SS. 379 ppm in upland soils at OP02SS. 274 ppm in upland waste storage area soils at WS02SS. 135 ppm in upland soils at OP03SS. 124 ppm in upland soils at OP01SS. 70 ppm in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil
Sampling Result ID: 349711

MILTON O BROWN (Continued) **S106655861**

Feature Id: 0
Hazard Release Id: 387367
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 84.50
Sample Comment: 84.5 ppm barium in dock area sediments at DO09SD. 83.4 ppm in sediments at DO02SD. 79.8 ppm in sediments at DO06SD. Nearby Columbia River sediments contained 22.3- to 92.5 ppm barium.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Sediment

Substance ID.: 121668
Haz Release ID: 387368
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 7440-43-9
Substance Name: CADMIUM
Substance Abbrev.: Not reported
Substance Category ID: 8460
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8460
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319291
Sub Alias Name: CD
Sampling Result ID: 349692
Feature Id: 0
Hazard Release Id: 387368
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 7.50
Sample Comment: 7.5 ppm cadmium in soils at UP01SS. 4.9 ppm in soils at OP02SS. 4.4 ppm in waste storage area soils at WS02SS. 1.1 ppm in soils at OP03SS.

MILTON O BROWN (Continued) **S106655861**

0.97 ppm at OP01SS. 0.8 ppm in waste storage area soils at WS01SS. 0.36 ppm in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil
Sampling Result ID: 349738
Feature Id: 0
Hazard Release Id: 387368
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/29/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: .48
Sample Comment: 0.48 ppm cadmium in dock area sediments at DO09SD. 0.46 ppm in sediments at DO02SD and DO03SD, 0.42 ppm at DO06SD. 0.41 ppm at DO10SD. Nearshore background sediments had 0.17- to 0.40 ppm. Nearby Columbia Riv. sediments had 0.14- to 0.22 ppm.
Last Update By: SFORTUN
Update Date: 09/11/2009
Decode for MediumID: Sediment

Substance ID.: 121671
Haz Release ID: 387369
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 7440-47-3
Substance Name: CHROMIUM
Substance Abbrev.: Not reported
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318145
Sub Alias Name: CHROMIUM, INORGANIC
Substance Alias ID: 319294
Sub Alias Name: CHROMIUM, TOTAL
Sampling Result ID: 349693
Feature Id: 0
Hazard Release Id: 387369
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True

MILTON O BROWN (Continued) **S106655861**

Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 201.00
Sample Comment: 201 ppm chromium in upland surface soils at UP01SS. 87.8 ppm in soils at OP02SS. 79.3 ppm in waste storage area soils at WS02SS. 26.6 ppm in soils at OP03SS. 9.5 ppm in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil
Sampling Result ID: 349712
Feature Id: 0
Hazard Release Id: 387369
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 9.50
Sample Comment: 9.5 ppm chromium in dock area sediments at DO02SS, DO03SS, and DO09SD. 8.9 ppm in sediments at DO06SD. Nearby Columbia River sediments contained 3.8- to 8.7 ppm chromium.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Sediment

Substance ID.: 121672
Haz Release ID: 387370
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 7440-48-4
Substance Name: COBALT
Substance Abbrev.: Not reported
Substance Alias ID: 319295
Sub Alias Name: CO
Sampling Result ID: 349694
Feature Id: 0
Hazard Release Id: 387370
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported

MILTON O BROWN (Continued) **S106655861**

Min Concentration: Not reported
Max Concentration: 15.40
Sample Comment: 15.4 ppm in upland surface soils at UP01SS and OP02SS. 14.4 ppm in waste storage area soils at WS02SS. 8.6 ppm in soils at OP03SS. 4.3 ppm in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil

Substance ID.: 121673
Haz Release ID: 387371
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 7440-50-8
Substance Name: COPPER
Substance Abbrev.: Not reported
Substance Category ID: 8464
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8464
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319296
Sub Alias Name: CU
Sampling Result ID: 349695
Feature Id: 0
Hazard Release Id: 387371
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 83000.00
Sample Comment: 83000 ppm copper in upland surface soils at UP01SS. 17300 ppm in waste storage area soils at WS02SS. 9260 ppm in soils at OP02SS. 503 ppm in waste storage area soils at WS01SS. 95.1 ppm in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil
Sampling Result ID: 349713
Feature Id: 0
Hazard Release Id: 387371
Medium: 701
Substance Abbrev.: 0
Unit Code: 7

MILTON O BROWN (Continued) **S106655861**

Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 2580.00
Sample Comment: 2580 ppm copper in dack area sediments at DO07SD. 16.2 ppm in sediments at DO06SD. 15.1 ppm in sediments at DO02SD. Nearby Columbia River sediments contained 5.2- to 7.3 ppm copper.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Sediment
Sampling Result ID: 350656
Feature Id: 0
Hazard Release Id: 387371
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 10/05/2013
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to 7,800 mg/kg 0.5-1ft Sample RAC 2.
Last Update By: SMILLER
Update Date: 11/27/2013
Decode for MediumID: Soil

Substance ID.: 121637
Haz Release ID: 387372
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 7439-89-6
Substance Name: IRON
Substance Abbrev.: Not reported
Substance Alias ID: 319254
Sub Alias Name: FE
Sampling Result ID: 349696
Feature Id: 0
Hazard Release Id: 387372
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported

MILTON O BROWN (Continued) **S106655861**

Max Concentration: 52200.00
Sample Comment: 52200 ppm iron in waste storage area soils at WS02SS. 38100 ppm in soils at UP01SS. 27400 ppm in soils at OP02SS. 22700 ppm in soils at OP03SS. 16300 ppm in waste storage area soils at WS01SS. 12100 ppm in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil
Sampling Result ID: 349714
Feature Id: 0
Hazard Release Id: 387372
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 12500.00
Sample Comment: 12500 ppm iron in dock area sediments at DO03SD. 12100 ppm in sediments at DO09SD. 11800 ppm in sediments at DO02SD. 11100 ppm in sediments at DO06SD. Nearby Columbia River sediments contained 4980- to 8300 ppm iron.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Sediment

Substance ID.: 121642
Haz Release ID: 387373
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 7439-96-5
Substance Name: MANGANESE
Substance Abbrev.: Not reported
Substance Category ID: 8468
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8468
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319259
Sub Alias Name: MN
Sampling Result ID: 349697
Feature Id: 0
Hazard Release Id: 387373
Medium: 703
Substance Abbrev.: 0
Unit Code: 7

MILTON O BROWN (Continued) **S106655861**

Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 574.00
Sample Comment: 574 ppm manganese in waste storage area soils at WS02SS. 465 ppm in upland surface soils at UP01SS. 441 ppm in soils at OP03SS. 419 ppm in soils at OP02SS. 207 ppm in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil
Sampling Result ID: 349716
Feature Id: 0
Hazard Release Id: 387373
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 289.00
Sample Comment: 289 ppm manganese in dock area sediments at DO09SD. 283 ppm in sediments at DO02SD. 240 ppm in sediments at DO06SD. 237 ppm in sediments at DO03SD. Nearby Columbia River sediments contained 105- to 213 ppm manganese.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Sediment

Substance ID.: 121643
Haz Release ID: 387374
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 7439-97-6
Substance Name: MERCURY
Substance Abbrev.: Not reported
Substance Category ID: 8467
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8467
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319260
Sub Alias Name: HG

MILTON O BROWN (Continued) **S106655861**

Substance Alias ID: 319261
Sub Alias Name: HYDRARGYRUM
Substance Alias ID: 319262
Sub Alias Name: LIQUID SILVER
Substance Alias ID: 319263
Sub Alias Name: QUICKSILVER
Sampling Result ID: 349698
Feature Id: 0
Hazard Release Id: 387374
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 2.50
Sample Comment: 2.5 ppm mercury in soils at OP02SS. 0.61 ppm mercury in soils at UP01SS. 0.42 ppm in waste storage area soils at WS01SS. 0.31 ppm in soils at OP03SS. Mercury undetected in background soils at BK01SS (detection limit of 0.099 ppm).
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil

Substance ID.: 121646
Haz Release ID: 387375
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 7440-02-0
Substance Name: NICKEL
Substance Abbrev.: Not reported
Substance Category ID: 8469
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8469
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319266
Sub Alias Name: NI
Sampling Result ID: 349699
Feature Id: 0
Hazard Release Id: 387375
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False

MILTON O BROWN (Continued) **S106655861**

Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 150.00
Sample Comment: 150 ppm nickel in waste storage area soils at WS02SS. 94.7 ppm in upland surface soils at UP01SS. 38.4 ppm in soils at OP02SS. 18.9 ppm in soils at OP03SS. 9.0 ppm in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil
Sampling Result ID: 349717
Feature Id: 0
Hazard Release Id: 387375
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 9.60
Sample Comment: 9.6 ppm nickel in dock area sediments at DO09SD. 9.3 ppm in sediments at DO02SD. 9.1 ppm in sediments at DO03SD. 8.8 ppm in sediments at DO06SD. Nearby Columbia River sediments contained 4.4- to 7.0 ppm nickel.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Sediment

Substance ID.: 121755
Haz Release ID: 387376
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 7782-49-2
Substance Name: SELENIUM
Substance Abbrev.: Not reported
Substance Alias ID: 319488
Sub Alias Name: SE
Sampling Result ID: 349700
Feature Id: 0
Hazard Release Id: 387376
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported

MILTON O BROWN (Continued) **S106655861**

Min Concentration: Not reported
Max Concentration: 4.20
Sample Comment: 4.2 ppm selenium in waste storage area soils at WS02SS. 3.6 ppm in upland surface soils at UP01SS. 0.8 ppm in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Soil
Sampling Result ID: 349739
Feature Id: 0
Hazard Release Id: 387376
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/29/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 1.00
Sample Comment: 1.0 ppm selenium in dock area sediments at DO09SD. 0.92 ppm in sediments at DO03SD. Nearshore background sediments contained 0.80- to 0.94 ppm selenium. Nearby Columbia River sediments had less than 0.12 ppm to 0.61 ppm.
Last Update By: SFORTUN
Update Date: 09/11/2009
Decode for MediumID: Sediment

Substance ID.: 121654
Haz Release ID: 387377
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 7440-22-4
Substance Name: SILVER
Substance Abbrev.: Not reported
Substance Category ID: 8470
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8470
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319274
Sub Alias Name: AG
Sampling Result ID: 349701
Feature Id: 0
Hazard Release Id: 387377
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True

MILTON O BROWN (Continued) **S106655861**

Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 5.20
Sample Comment: 5.2 ppm silver in upland surface soils at UP01SS. Undetected in background soils at BK01SS at an analytical detection limit of 0.99 ppm.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Soil

Substance ID.: 121677
Haz Release ID: 387378
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 7440-62-2
Substance Name: VANADIUM
Substance Abbrev.: Not reported
Substance Alias ID: 319300
Sub Alias Name: V
Sampling Result ID: 349702
Feature Id: 0
Hazard Release Id: 387378
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 55.80
Sample Comment: 55.8 ppm vanadium in waste storage area soils at WS02SS. 51.8 ppm in soils at OP03SS. 50.5 ppm in soils at OP02SS. 39.9 ppmk in soils at OP01SS. 32.4 ppm in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil
Sampling Result ID: 349718
Feature Id: 0
Hazard Release Id: 387378
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported

MILTON O BROWN (Continued) **S106655861**

Min Concentration: Not reported
Max Concentration: 36.90
Sample Comment: 36.9 ppm vanadium in dock area sediments at DO03SD. 32.6 ppm in sediments at DO09SD. 31.2 ppm in sediments at D)10SD. 30.6 ppm in sediments at D)04SD. 30.5 ppm in sediments at DO02SD. Columbia Riv. sediments contained 13.8- to 22.7 ppm vanadium.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Sediment

Substance ID.: 121679
Haz Release ID: 387379
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 7440-66-6
Substance Name: ZINC
Substance Abbrev.: Not reported
Substance Alias ID: 319302
Sub Alias Name: ZN
Sampling Result ID: 349703
Feature Id: 0
Hazard Release Id: 387379
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 4130.00
Sample Comment: 4130 ppm zinc in upland surface soils at UP01SS. 2170 ppm in soils at OP02SS. 1250 ppm in waste storage area soils at WS02SS. 169 ppm in waste storage area soils at WS01SS and soils at OP03SS. 88.3 ppm in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil
Sampling Result ID: 349719
Feature Id: 0
Hazard Release Id: 387379
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 61.20
Sample Comment: 61.2 ppm zinc in dock area sediments at DO09SD. 57.9 ppm in sediments

MILTON O BROWN (Continued) **S106655861**

at DO02SD. 55.1 ppm in sediments at DO06SD. 52.9 ppm in sediments at DO03SD. Nearby Columbia River sediments contained 20.9- to 37.8 ppm zinc.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Sediment
Sampling Result ID: 350657
Feature Id: 0
Hazard Release Id: 387379
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 10/05/2013
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to 1,500mg/kg at 0.5-1ft depth. sample RAC-2.
Last Update By: SMILLER
Update Date: 11/27/2013
Decode for MediumID: Soil

Substance ID.: 121615
Haz Release ID: 387380
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 72-55-9
Substance Name: DDE,p,p'-
Substance Abbrev.: Not reported
Substance Alias ID: 319200
Sub Alias Name: BIS(p-CHLOROPHENYL)-1,1-DICHLOROETHYLENE,2,2-
Substance Alias ID: 319201
Sub Alias Name: DICHLORODIPHENYL DICHLOROETHYLENE,p,p'-
Substance Alias ID: 319202
Sub Alias Name: DICHLOROETHENYLIDENE)BIS(4-CHLOROBENZENE),1,1'-(-
Sampling Result ID: 349704
Feature Id: 0
Hazard Release Id: 387380
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 58.00
Sample Comment: 58 ppb p,p'-DDE in surface soils at OP02SS. Undetected in background soils at BK01SS at an analytical detection limit of 3.4 ppb.
Last Update By: SFORTUN

MILTON O BROWN (Continued) **S106655861**

Update Date: 09/09/2009
Decode for MediumID: Soil
Sampling Result ID: 349740
Feature Id: 0
Hazard Release Id: 387380
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/29/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: .35
Sample Comment: 0.35 ppb DDE indock area sediments at DO07SD. 0.26 ppb at DO09SD. 0.19 ppb at DO06SD. Not detected in nearshore background sediments or in nearby Columbia River sediments.
Last Update By: SFORTUN
Update Date: 09/11/2009
Decode for MediumID: Sediment

Substance ID.: 121009
Haz Release ID: 387381
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 12672-29-6
Substance Name: PCB 1248
Substance Abbrev.: Not reported
Substance Category ID: 8555
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8555
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316910
Sub Alias Name: AROCLOR 1248
Sampling Result ID: 349705
Feature Id: 0
Hazard Release Id: 387381
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported

MILTON O BROWN (Continued) **S106655861**

Max Concentration: 1200.00
Sample Comment: 1200 ppb aroclor 1248 in surface soils at OP02SS. Undetected in background soils at BK01SS at an analytical detection limit of 34 ppb.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Soil

Substance ID.: 121826
Haz Release ID: 387382
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/10/2009
Update By: SFORTUN
Substance Code: 85-68-7
Substance Name: BUTYL BENZYL PHTHALATE
Substance Abbrev.: Not reported
Substance Alias ID: 317652
Sub Alias Name: BENZYL-n-BUTYL PHTHALATE
Substance Alias ID: 317653
Sub Alias Name: PHTHALIC ACID, BENZYL BUTYL ESTER
Sampling Result ID: 349706
Feature Id: 0
Hazard Release Id: 387382
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 2200.00
Sample Comment: 2200 ppb butylbenzylphthalate in upland soils at OP02SS. 15 ppb in backfround soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil

Substance ID.: 121195
Haz Release ID: 387383
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/10/2009
Update By: SFORTUN
Substance Code: 206-44-0
Substance Name: FLUORANTHENE
Substance Abbrev.: Not reported
Substance Category ID: 8491
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8491
Substance Category: Semi-volatiles
Category Level: Not reported

MILTON O BROWN (Continued) **S106655861**

Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317398
Sub Alias Name: BENZACENAPHTHENE,1,2-
Substance Alias ID: 317399
Sub Alias Name: BENZO(jk)FLUORENE
Sampling Result ID: 349707
Feature Id: 0
Hazard Release Id: 387383
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 2500.00
Sample Comment: 2500 ppb fluoranthene in upland soils at OP02SS. 71 ppb in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/10/2009
Decode for MediumID: Soil

Substance ID.: 121019
Haz Release ID: 387384
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/10/2009
Update By: SFORTUN
Substance Code: 129-00-0
Substance Name: PYRENE
Substance Abbrev.: Not reported
Substance Category ID: 8497
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8497
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316950
Sub Alias Name: BENZO(def)PHENANTHRENE
Sampling Result ID: 349708
Feature Id: 0
Hazard Release Id: 387384
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches

MILTON O BROWN (Continued) **S106655861**

Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 2200.00
Sample Comment: 2200 ppb pyrene in upland soils at OP02SS. 870 ppb in soils at UP01SS. 560 ppb in waste storage area soils at WS02SS. 66 ppb in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/11/2009
Decode for MediumID: Soil
Sampling Result ID: 349732
Feature Id: 0
Hazard Release Id: 387384
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/29/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 65.00
Sample Comment: 65 ppb pyrene in dock area sediments at DO08SD. 47 ppb in dock area sediments at DO03SD. 8.4 ppb in nearshore background sediments. Not detected in nearby Columbia River sediments.
Last Update By: SFORTUN
Update Date: 09/11/2009
Decode for MediumID: Sediment

Substance ID.: 122002
Haz Release ID: 387385
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/11/2009
Update By: SFORTUN
Substance Code: ECD243
Substance Name: POLYAROMATIC HYDROCARBONS (PAH)
Substance Abbrev.: Not reported
Substance Alias ID: 318143
Sub Alias Name: PAH
Substance Alias ID: 318148
Sub Alias Name: POLYCYCLIC AROMATIC HYDROCARBONS (PAH)
Substance Alias ID: 318149
Sub Alias Name: POLYNUCLEAR AROMATIC HYDROCARBINS (PNA)
Substance Alias ID: 318150
Sub Alias Name: PNA
Sampling Result ID: 349720
Feature Id: 0
Hazard Release Id: 387385
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True

MILTON O BROWN (Continued) **S106655861**

Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 14090.00
Sample Comment: 14090 ppb total PAHs (calculated) in surface soils at OP02SS. 9303 ppb at UP01SS. 6535 ppb at waste storage area site WS02SS. 1175 ppb at waste storage area site WS01SS. 432 ppb at OP03SS. 397 ppb at OP01SS. 519 ppb at background location BK01SS.
Last Update By: SFORTUN
Update Date: 09/11/2009
Decode for MediumID: Soil
Sampling Result ID: 349721
Feature Id: 0
Hazard Release Id: 387385
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 534.00
Sample Comment: 534 ppb total PAHs (calculated) in dock area sediments at DO08SD. 191 ppb at DO03SD. 106 ppb at DO02SD. 202 ppb in background sediments at BK03SD. 33 ppb in background sediments at BK02SD. No PAHs detected in nearby Columbia River sediments.
Last Update By: SFORTUN
Update Date: 09/11/2009
Decode for MediumID: Sediment

Substance ID.: 121462
Haz Release ID: 387386
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/11/2009
Update By: SFORTUN
Substance Code: 56-55-3
Substance Name: BENZO(a)ANTHRACENE
Substance Abbrev.: Not reported
Substance Category ID: 8475
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8475
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318790
Sub Alias Name: BENZ(a)ANTHRACENE
Substance Alias ID: 318791
Sub Alias Name: BENZANTHRACENE,1,2-

MILTON O BROWN (Continued) **S106655861**

Substance Alias ID: 318792
Sub Alias Name: BENZANTHRENE
Substance Alias ID: 318793
Sub Alias Name: BENZOANTHRACENE
Substance Alias ID: 318794
Sub Alias Name: BENZPHENANTHRENE,2,3-
Substance Alias ID: 318795
Sub Alias Name: NAPHTHANTHRACENE
Substance Alias ID: 318796
Sub Alias Name: TETRAPHENE
Sampling Result ID: 349722
Feature Id: 0
Hazard Release Id: 387386
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 1300.00
Sample Comment: 1300 ppb benzo(a)anthracene in upland surface soils at OP02SS. 810 ppb in soils at UP01SS. 420 ppb in waste storage area at WS02SS. 46 ppb in background soil at BK01SS.
Last Update By: SFORTUN
Update Date: 09/11/2009
Decode for MediumID: Soil
Sampling Result ID: 349727
Feature Id: 0
Hazard Release Id: 387386
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/29/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 58.00
Sample Comment: 58 ppb benzo(a)anthracene in dock area sediments at DO08SD. 13 ppb at DO02SD. 12 ppb at DO03SD. Up to 7 ppb in nearshore background sediments. Not detected in nearby Columbia River sediments.
Last Update By: SFORTUN
Update Date: 09/11/2009
Decode for MediumID: Sediment

Substance ID.: 121374
Haz Release ID: 387387
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/11/2009
Update By: SFORTUN

MILTON O BROWN (Continued) **S106655861**

Substance Code:	50-32-8
Substance Name:	BENZO(a)PYRENE
Substance Abbrev.:	Not reported
Substance Category ID:	8476
Substance Category:	Semi-volatiles
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Category ID:	8476
Substance Category:	Semi-volatiles
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Alias ID:	318559
Sub Alias Name:	B(a)P
Substance Alias ID:	318560
Sub Alias Name:	BENZOPYRENE,3,4-
Substance Alias ID:	318561
Sub Alias Name:	BENZPYRENE,3,4-
Substance Alias ID:	318562
Sub Alias Name:	BP
Sampling Result ID:	349723
Feature Id:	0
Hazard Release Id:	387387
Medium:	703
Substance Abbrev.:	0
Unit Code:	8
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/30/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	930.00
Sample Comment:	930 ppb in upland surface soils at OP02SS. 640 ppb in soils at UP01SS. 390 ppb in waste storage area soils at WS02SS. 88 ppb at WS01SS. 37 ppb at OP03SS. 35 ppb at OP01SS. 52 ppb in background soils at BK01SS.
Last Update By:	SFORTUN
Update Date:	09/11/2009
Decode for MediumID:	Soil
Sampling Result ID:	349728
Feature Id:	0
Hazard Release Id:	387387
Medium:	701
Substance Abbrev.:	0
Unit Code:	8
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/29/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	58.00
Sample Comment:	58 ppb benzo(a)pyrene in dock area sediments at DO08SD. 12 ppb in sediments at DO03SD. Not detected in nearshore background sediments or

MILTON O BROWN (Continued) **S106655861**

nearby Columbia River sediments.
Last Update By: SFORTUN
Update Date: 09/11/2009
Decode for MediumID: Sediment

Substance ID.: 121192
Haz Release ID: 387388
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/11/2009
Update By: SFORTUN
Substance Code: 205-99-2
Substance Name: BENZO(b)FLUORANTHENE
Substance Abbrev.: Not reported
Substance Category ID: 8477
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8477
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317390
Sub Alias Name: B(b)F
Substance Alias ID: 317391
Sub Alias Name: BENZ(e)ACEPHENANTHRYLENE
Substance Alias ID: 317392
Sub Alias Name: BENZFLUORANTHENE,3,4-
Substance Alias ID: 317393
Sub Alias Name: BENZOFLUORANTHENE,2,3-
Substance Alias ID: 317394
Sub Alias Name: BENZOFLUORANTHENE,3,4-
Sampling Result ID: 349724
Feature Id: 0
Hazard Release Id: 387388
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 1600.00
Sample Comment: 1600 ppb benzo(b)fluoranthene in upland surface soils at UP01SS. 1400 ppb in soils at OP02SS. 660 ppb in waste storage area soils at WS02SS. 74 ppb in background soil sample BK01SS.
Last Update By: SFORTUN
Update Date: 09/11/2009
Decode for MediumID: Soil

Substance ID.: 121415
Haz Release ID: 387389

MILTON O BROWN (Continued) **S106655861**

Qty Released: Unknown
Date Released: Unknown
Update Date: 09/11/2009
Update By: SFORTUN
Substance Code: 53-70-3
Substance Name: DIBENZO(a,h)ANTHRACENE
Substance Abbrev.: Not reported
Substance Category ID: 8499
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8499
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318667
Sub Alias Name: DB(a,h)A
Substance Alias ID: 318668
Sub Alias Name: DIBENZ(a,h)ANTHRACENE
Substance Alias ID: 318669
Sub Alias Name: DIBENZANTHRACENE,1,2-5,6-
Substance Alias ID: 318670
Sub Alias Name: DIBENZANTHRACENE,1,2:5,6-
Sampling Result ID: 349725
Feature Id: 0
Hazard Release Id: 387389
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 1800.00
Sample Comment: 1800 ppb dibenzo(a,h)anthracene in waste storage area soils at WS02SS. 190 ppb in soils at UP01SS. 170 ppb in soils at OP02SS. 13 ppb in background soil sample BK01SS.
Last Update By: SFORTUN
Update Date: 09/11/2009
Decode for MediumID: Soil

Substance ID.: 121176
Haz Release ID: 387390
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/11/2009
Update By: SFORTUN
Substance Code: 193-39-5
Substance Name: INDENO(1,2,3-cd)PYRENE
Substance Abbrev.: Not reported
Substance Category ID: 8493
Substance Category: Semi-volatiles

MILTON O BROWN (Continued) **S106655861**

Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8493
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317339
Sub Alias Name: PHENYLENEPYRENE,2,3-
Substance Alias ID: 317340
Sub Alias Name: PHENYLENEPYRENE,o-
Sampling Result ID: 349726
Feature Id: 0
Hazard Release Id: 387390
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 720.00
Sample Comment: 720 ppb indeno(1,2,3-cd)pyrene in soils at OP02SS. 700 ppb in soils at UP01SS. 440 ppb in waste storage area soils at WS02SS. 46 ppb in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/11/2009
Decode for MediumID: Soil
Sampling Result ID: 349731
Feature Id: 0
Hazard Release Id: 387390
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/29/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 44.00
Sample Comment: 44 ppb indeno(1,2,3-cd)pyrene in dock area sediments at DO08SD. Not detected in nearshore background sediments or nearby Columbia River sediments.
Last Update By: SFORTUN
Update Date: 09/11/2009
Decode for MediumID: Sediment

Substance ID.: 121196
Haz Release ID: 387391
Qty Released: Unknown
Date Released: Unknown

MILTON O BROWN (Continued) **S106655861**

Update Date:	09/11/2009
Update By:	SFORTUN
Substance Code:	207-08-9
Substance Name:	BENZO(k)FLUORANTHENE
Substance Abbrev.:	Not reported
Substance Category ID:	8478
Substance Category:	Semi-volatiles
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Category ID:	8478
Substance Category:	Semi-volatiles
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Alias ID:	317400
Sub Alias Name:	B(k)F
Substance Alias ID:	317401
Sub Alias Name:	BENZOFLUORANTHENE,11,12-
Sampling Result ID:	349729
Feature Id:	0
Hazard Release Id:	387391
Medium:	701
Substance Abbrev.:	0
Unit Code:	8
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/29/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	27.00
Sample Comment:	27 ppb benzo(k)fluoranthene in dock area sediments at DO08SD. Not detected in background nearshore sediments or in nearby Columbia River sediments.
Last Update By:	SFORTUN
Update Date:	09/11/2009
Decode for MediumID:	Sediment
Sampling Result ID:	349730
Feature Id:	0
Hazard Release Id:	387391
Medium:	703
Substance Abbrev.:	0
Unit Code:	8
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/30/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	530.00
Sample Comment:	530 ppb benzo(k)fluoranthene in upland surface soils at OP02SS. 390 ppb at UP01SS. 230 ppb in waste storage area soils at WS02SS. 29 ppb in background soil sample BK01SS.
Last Update By:	SFORTUN

MILTON O BROWN (Continued) **S106655861**

Update Date: 09/11/2009
Decode for MediumID: Soil

Substance ID.: 121167
Haz Release ID: 387393
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/11/2009
Update By: SFORTUN
Substance Code: 191-24-2
Substance Name: BENZO(ghi)PERYLENE
Substance Abbrev.: Not reported
Substance Alias ID: 317305
Sub Alias Name: B(ghi)P
Substance Alias ID: 317306
Sub Alias Name: BENZOPERYLENE,1,12-
Substance Alias ID: 317307
Sub Alias Name: BENZPERYLENE,1,12-
Sampling Result ID: 349733
Feature Id: 0
Hazard Release Id: 387393
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 660.00
Sample Comment: 660 ppb benzo(g,h,i)perylene in surface soils at OP02SS. 540 ppb in soils at UP01SS. 340 ppb in waste storage area soils at WS02SS. 40 ppb in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/11/2009
Decode for MediumID: Soil
Sampling Result ID: 349734
Feature Id: 0
Hazard Release Id: 387393
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 31.00
Sample Comment: 31 ppb benzo(g,h,i)perylene in dock area sediments at DO08SD. 10 ppb at DO03SD. Not detected in nearshore background sediments or nearby Columbia River sediments.
Last Update By: SFORTUN
Update Date: 09/11/2009

MILTON O BROWN (Continued) **S106655861**

Decode for MediumID: Sediment

Substance ID.: 121210
Haz Release ID: 387394
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/11/2009
Update By: SFORTUN
Substance Code: 218-01-9
Substance Name: CHRYSENE
Substance Abbrev.: Not reported
Substance Category ID: 8481
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8481
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317438
Sub Alias Name: BENZ(a)PHENANTHRENE
Substance Alias ID: 317439
Sub Alias Name: BENZPHENANTHRENE,1,2-
Substance Alias ID: 317440
Sub Alias Name: DIBENZONAPHTHALENE,1,2,5,6-
Sampling Result ID: 349735
Feature Id: 0
Hazard Release Id: 387394
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 1400.00
Sample Comment: 1400 ppb chrysene in upland surface soils at UP01SS. 1200 ppb at OP02SS. 550 ppb in waste storage area soils at WS02SS. 47 ppb in background soils at BK01SS.
Last Update By: SFORTUN
Update Date: 09/11/2009
Decode for MediumID: Soil
Sampling Result ID: 349736
Feature Id: 0
Hazard Release Id: 387394
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches

MILTON O BROWN (Continued) **S106655861**

Start Date: 10/30/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 48.00
Sample Comment: 48 ppb in dock area sediments at DO08SD. 35 ppb at DO05SD. Nearshore background sediments contained 170 ppb. Not detected in nearby Columbia River sediments.
Last Update By: SFORTUN
Update Date: 09/11/2009
Decode for MediumID: Sediment

Substance ID.: 121059
Haz Release ID: 388184
Qty Released: Not reported
Date Released: Not reported
Update Date: 11/27/2013
Update By: SMILLER
Substance Code: 1336-36-3
Substance Name: PCBs
Substance Abbrev.: Not reported
Substance Category ID: 8558
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8558
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317029
Sub Alias Name: BIPHENYL,POLYCHLORO-
Substance Alias ID: 317030
Sub Alias Name: CHLORINATED BIPHENYL
Substance Alias ID: 317031
Sub Alias Name: CHLOROBIPHENYL
Substance Alias ID: 317032
Sub Alias Name: POLYCHLORINATED BIPHENYLs
Substance Alias ID: 317033
Sub Alias Name: POLYCHLOROBIPHENYL
Sampling Result ID: 350659
Feature Id: 0
Hazard Release Id: 388184
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 10/05/2013
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 18,450 ug/kg at 0-0.5ft depth at RAC-2. All other samples below 1,600 ug/kg
Last Update By: SMILLER

MILTON O BROWN (Continued) **S106655861**

Update Date: 10/22/2014
Decode for MediumID: Soil

Narrative:
NARR ID: 5743043
NARR Code: Contamination
Created By: JWAGGY
Created Date: 03/02/2003
Updated By: SFORTUN
Updated Date: 09/11/2009
Decode for NarcdID: Contamination
NARR Comments: (2/24/03 SMF/SAP) DEQ received four pollution complaints, (between 1991 - 1999) alleging that ongoing activities at the Former Schooner Creek Boat Works site were contaminating the Columbia River and nearby properties. Two other pollution complaints, received in May 1990 and March 1999, described oil sheens and petroleum odors from unknown sources on the Columbia River near the Former Schooner Creek Boat Works. Although the release characteristics were similar to those described in pollution complaints against the boat works site, there is no information to indicate that the source(s) of these petroleum releases were ever determined. A number of other potential sources are found in the immediate vicinity of the Former Schooner Creek Boat Works site. See DEQ January 24, 2003, Strategy Recommendation for specific pollution complaint history. (8/11/03 AC/C&ER) Site tested for VOCs, petroleum hydrocarbons and metals. Diesel, oil and lead were detected at concentrations above background. Sediment and groundwater have not been tested. (9/10/09;smf) EPA completed an SI of the site in August 2009. Site soils and Columbia River (North Portland Harbor / Oregon Slough) sediments were sampled and analyzed for metals, SVOCs, organo-chlorine pesticides, PCBs, and tributyltin in October 2008. EPA's data indicates that site soils are contaminated with metals, PAHs, PCBs, DDT, phthalates, and tributyltin at concentrations that represent a potential risk to on-site workers, to the adjoining residents, to on-site plants and wildlife, and to nearby aquatic life. Sediments in the site's boat dock area are contaminated with metals, PAHs, and DDT at concentrations that represent potential toxic and bioaccumulative threats to aquatic life.

NARR ID: 5743047
NARR Code: Data Sources
Created By: JWAGGY
Created Date: 03/02/2003
Updated By: SMILLER
Updated Date: 08/22/2016
Decode for NarcdID: Data Sources
NARR Comments: ESCI#3526 DEQ Strategy Recomendation. January 2003 Final 1610 North Pier 99 Site Inspection Report, Technical Direction Document Number: 08-03-0006, prepared for U.S. EPA, by Ecology and Environment, Inc., August 2009. Pier 99 EE/CA. June 2013. prepared by Apex. http://www.epaosc.org/site/site_profile.aspx?site_id=8650

NARR ID: 5743051
NARR Code: General Site Description
Created By: JWAGGY
Created Date: 03/02/2003
Updated By: GWISTAR
Updated Date: 07/23/2003

MILTON O BROWN (Continued) **S106655861**

Decode for NarcdID: General Site Description
NARR Comments: The subject site is an approximate 1 acre parcel in North Portland, along the western edge of the Interstate Highway (I-5) bridge over North Portland Harbor. The site has been the location of boat building, repair, and machine shop activities since about 1937. Schooner Creek Boat Works, a boat building and repair business, began operating at the site in 1989, but relocated its operations about 1 mile northwest, to the north shore of Hayden Island, In July 2000. However, it continued to lease the site through December 2001. DEQ s Northwest Region (NWR) Hazardous Waste program first referred the site to Site Assessment in April 2002 for investigation of a pollution complaint. Mermaid Marine had recently begun leasing the site, but became involved in an extensive cleanup of wastes and debris that Schooner Creek Boat Works allegedly left behind when they vacated the site.

NARR ID: 5743044
NARR Code: Hazardous Substance/Waste Types
Created By: JWAGGY
Created Date: 03/02/2003
Updated By: SFORTUN
Updated Date: 09/11/2009
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Existing information suggests that site soils and nearby Columbia River Sediments may be contaminated with copper oxide, paint thinner, and heavier petroleum constituents such as polynuclear aromatic hydrocarbons (PAHs). Considering the types of activities conducted at the site, and the length of time that these activities were conducted, other potential site contaminants might include: Organotins, other potential toxic metals (such as arsenic, lead, cadmium, chromium, mercury, and zinc), volatile organic contaminants (VOCs), semi-volatile organic contaminants (SVOCs), and possibly polychlorinated biphenyls (PCBs). (9/11/09; smf) A 2008/2009 EPA SI found that site soils are contaminated with metals, PAHs, phthalates, PCBs, DDT, and tributyltin at concentrations that represent potential risks to on-site workers, adjoining residents, on-site plants and wildlife, and nearby aquatic life. Sediments in the site's boat dock area are contaminated with metals, PAHs, and DDT at concentrations that represent potential toxic and bioaccumulative risks to aquatic life.

NARR ID: 5742713
NARR Code: Site Location
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 06/09/2011
Decode for NarcdID: Site Location
NARR Comments: (Also known as 1601 N Marine Dr.; formerly 1523 N Marine Dr.) Located on the south shore of Oregon Slough (the Columbia River, North Portland Harbor), south of Hayden Island, beneath and west of the southbound lane of Interstate Highway 5. Site addresses: 1) 1610 N Pier 99 Street, Portland, OR, 97217 (which the Post Office doesn't recognize, hence no 4 digit tail code); 2) 1601 N Marine Drive, Portland, OR 97217-7801; 3) 1523 N Marine Drive, Portland, OR 97217-7801 (neither address 2 nor 3 is recognized by the Tax Office, but are recognized as separate addresses by the US Post Office). The

MILTON O BROWN (Continued) **S106655861**

1601 address appears on a small building immediately west of the site of concern.

NARR ID: 5743504
NARR Code: Manner of Release
Created By: JWAGGY
Created Date: 05/08/2003
Updated By: JWAGGY
Updated Date: 05/08/2003
Decode for NarcdID: Manner of Release
NARR Comments: Unknown

NARR ID: 5743049
NARR Code: Media Contamination
Created By: JWAGGY
Created Date: 03/02/2003
Updated By: JWAGGY
Updated Date: 03/02/2003
Decode for NarcdID: Media Contamination
NARR Comments: Soil, Columbia River sediments

NARR ID: 5749728
NARR Code: Site Ownership
Created By: SFORTUN
Created Date: 09/12/2007
Updated By: SFORTUN
Updated Date: 09/12/2007
Decode for NarcdID: Site Ownership
NARR Comments: (9/12/07 smf) Multnomah County Tax Office currently lists the property (site) owner as Oliver C. Larson Trust, 8320 NE Highway 99, Vancouver, WA 98665. Oliver C. Larson died September 9, 2002. The mailing address is that of Tigard Plaza, tele. 360-566-8192. The Registrant for Tigard Plaza is Tigard Plaza LLC, and Authorized Representative is Milton O. Brown. Milton O. Brown is also the Manager of Tigard Plaza.

NARR ID: 5751700
NARR Code: Project Activity Status
Created By: SFORTUN
Created Date: 09/11/2009
Updated By: SFORTUN
Updated Date: 09/11/2009
Decode for NarcdID: Project Activity Status
NARR Comments: (9/10/09;smf) EPA completed an SI of the site in August 2009. Site soils and Columbia River (North Portland Harbor / Oregon Slough) sediments were sampled and analyzed for metals, SVOCs, organo-chlorine pesticides, PCBs, and tributyltin in October 2008. EPA's data indicates that site soils are contaminated with metals, PAHs, PCBs, DDT, phthalates, and tributyltin at concentrations that represent a potential risk to on-site workers, to the adjoining residents, to on-site plants and wildlife, and to nearby aquatic life. Sediments in the site's boat dock area are contaminated with metals, PAHs, and DDT at concentrations that represent potential toxic and bioaccumulative threats to aquatic life.

NARR ID: 5743045
NARR Code: Pathways Other Hazards

MILTON O BROWN (Continued) **S106655861**

Created By: JWAGGY
Created Date: 03/02/2003
Updated By: SMILLER
Updated Date: 11/27/2013
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: The site is located in a narrow, isolated strip of industrial properties on the south bank of North Portland Harbor, along North Marine Drive. The area between North Portland Harbor on the north, I-5 on the east, Columbia Slough on the south, and a Burlington Northern Santa Fe Railroad right-of-way on the west comprises Peninsula Drainage District #1. The entire site lies within the Columbia River s 100-year flow zone, so flood waters could mobilize any surface contamination at the site. The nearest residence evidently shares the same tax lot as the site. North Portland Harbor and I-5 should limit potential exposures for most upland residences, except for potential exposures at the on-site residence. There are approximately 200 houseboats moored along the north shore of the North Portland Harbor, within .5 mile of the site. It is unclear if site contaminants would significantly affect residents at the nearby houseboats. The Multnomah County Fairgrounds and Exposition Center lied southwest of the site, directly across North Marine Drive. East Delta Park, a municipal park, lies about .25 mile south-southeast of the site. The Portland International Raceway lies about .5 mile south-southwest of the site. Heron Lakes Golf Club, a municipal golf course, lies about .25 mile southwest of the site. In addition, Jantzen Beach Supercenter shopping center lies directly across North Portland Harbor from the site. In August 2001, Metro hired a consultant to advance five pushprobe soil borings 100 to 200 feet south of the site. These borings encountered groundwater at 7 to 16 feet below ground surface (bgs), suggesting that any potential contaminants at the boat yard site could represent a threat to nearby drinking water wells, and that potential shallow groundwater contamination could represent a threat to aquatic life in North Portland Harbor. Wetlands areas directly to the south of the site attract populations of sensitive wildlife species to the area. A major heronry is also located about 1 mile from the site. Site contaminants could represent a threat to sensitive wildlife and plant species within the drainage district. Along the 1610 North Pier 99 Street site, the Columbia River provides migratory and rearing habitat for twelve sensitive anadromous fish species.

NARR ID: 5743046
NARR Code: Remedial Action
Created By: JWAGGY
Created Date: 03/02/2003
Updated By: SMILLER
Updated Date: 08/22/2016
Decode for NarcdID: Remedial Action
NARR Comments: (2/24/03 SMF/SAP) The site has a lengthy operational history, and DEQ has received multiple complaints alleging releases or improper handling of hazardous substances at the site. A high priority is assigned for conducting an Expanded Preliminary Assessment (XPA) of the site. Site soils, groundwater, and nearby Columbia River sediments should be sampled for toxic metals, VOCs, SVOCs, and PCBs to determine if past activities may have significantly contaminated the site and surrounding environment. (8/21/03 AC/C&ER) A preliminary investigation confirms the presence of petroleum hydrocarbons and

MILTON O BROWN (Continued) **S106655861**

metals in site soils. Site sediment must still be evaluated. [10/21/13 SA/SAM] A Site inspection Report was prepared in 2009. Sample results for the sediment samples collected from below the Pier 99 docks indicated the presence of one TAL metal at a significant concentration with respect to background concentration. No organotins, pesticides/PCBs, SVOCs were detected at significant concentrations with respect to background concentrations. Site soils contained sources of CERCLA hazardous substances. EPA completed an EE/CA on June 13, 2013. The site was divided up into 4 operable units: - Operable Unit 1 Bank Area - Operable Unit 2 Eastern Solid Waste Storage Area (Eastern Unimproved Area) - Operable Unit 3 Gravel Filter Area and Upland Boat Maintenance Repair Area - Operable Unit 4 Former Crane Area Based on the results of this EE/CA, the recommended removal actions for the Site are OU3 Gravel Filter Removal and stormwater Pipe Removal and OU1 Bank Stabilization(which included some debris removal and sand blast grit removal). The OU 2 elevated area coresponded with the OU3 discharge area and is addressed in this action. An OU 4 data gap investigation indicate that removal is not needed for the former crane area soil or groundwater at the site. Onsite work by EPA started Sept 1, 2013. For more details, visit http://www.epaosc.org/site/site_profile.aspx?site_id=8650 By 10/10/2013 all initial removal and restoration activities at the Pier 99 site were completed. [6/26/14 SA/SAM] Additonal removal at two locations(REX-16 and RAC-2) will occur in June 2014. EPA will perform a one-year monitoring and maintenance review. [10/22/14 SA/SAM]Additional removal was completed at the burn area on June 30 and July 2, 2014. As much as 3.5 feet of ashy soil was removed along a 15 foot length at the base of the slope. Because a significant portion of the bank was exposed during the excavation, EPA agreed that further excavation could jeopardize the stability of the bank, and excavation could be stopped. The area at the toe of the slope was reinforced with Envirlok vegetated sand bags installed at approximately a 1:1 slope. The two foot soil cover requirement was met at the toe of the bank, but could not be met further up the bank on the steep slope. Up the slope only 18-20inches of soil cover was placed. The EPA will require Post-Removal Site Controls, including monthly inspections, prohibit any activity that damages or disturbs the integrity of the cover and restoring the integrity of the cover if it is jeopardized in any way. [8/22/16 SA/SAM] The 2015 Monitoring report(year 2), indicated bank conditions were stable; grass covered the bank and no ground distrubances occured. THe next monitoring report is due to EPA/DEQ in fall 2018.

NARR ID: 5743050
NARR Code: Health Threats
Created By: JWAGGY
Created Date: 03/02/2003
Updated By: SMILLER
Updated Date: 11/27/2013
Decode for NarcdID: Health Threats
NARR Comments: The nearest residence evidently shares the same tax lot as the site. North Portland Harbor and I-5 should limit potential exposures for most upland residences, except for potential exposures at the on-site residence. There are approximately 200 houseboats moored along the north shore of the North Portland Harbor, within 0.5 mile of the site. Nearly 80% of these are located either directly across the harbor, or downstream from the boat works site. The Multnomah County

MILTON O BROWN (Continued) **S106655861**

Fairgrounds and Exposition Center lies southwest of the site, directly across North Marine Drive. East Delta Park, a municipal park, lies about 0.25 mile south-southeast of the site. The Portland International Raceway lies about .5 mile south-southwest of the site. Heron Lakes Golf Club, a municipal golf course, lies about 0.25 mile southwest of the site. In addition, the Jantzen Beach Supercenter (shopping center) lies directly across North Portland Harbor from the site. In August 2001, Metro hired a consultant to advance five pushprobe soil borings 100 to 200 feet south of the site. These borings encountered groundwater at 7 to 16 feet below ground surface (bgs), suggesting that any potential contaminants at the boat yard site could represent a threat to nearby drinking water wells, and that potential shallow groundwater contamination could represent a threat to aquatic life in North Portland Harbor. City records indicate that the on-site residence is serviced by the Portland municipal water supply. The city also has supplemental supply wells along the Columbia River south shore, 6 to 11 miles east of the site, as well as four supplemental supply wells on Hayden Island. Two of the Hayden Island wells lie about 1,200 feet north of the site, directly across North Portland Harbor. The nearest municipal water supply wells lie across North Portland Harbor, a 1,000-foot-wide, 20 30 foot deep channel of the Columbia River, and may be about 225 250 feet deep, so it remains unclear if site contaminants represent a significant threat to the city drinking water supply. OWRD also has records of three community or group-domestic wells, one public water supply well, and five domestic wells within 1.25 miles of the site.

Administrative Action:

Action ID:	9421
Region:	0
Complete Date:	06/07/2007
Rank Value:	Not reported
Cleanup Flag:	False
Created Date:	10/22/2008
Decode for AgencyID:	Environmental Protection Agency
Decode for RegionID:	Not reported
Category:	EPA Led Action
Action Code Flag:	False
Action:	Site added to CERCLIS
Further Action:	0
Comments:	Not reported

Action ID:	9458
Region:	0
Complete Date:	02/01/2008
Rank Value:	Not reported
Cleanup Flag:	False
Created Date:	10/22/2008
Decode for AgencyID:	Environmental Protection Agency
Decode for RegionID:	Not reported
Category:	EPA Led Action
Action Code Flag:	False
Action:	EPA Preliminary Assessment 2
Further Action:	0
Comments:	Not reported

Action ID:	9511
Region:	Northwestern Region

MILTON O BROWN (Continued) **S106655861**

Complete Date: 08/28/2009
Rank Value: Not reported
Cleanup Flag: False
Created Date: 10/22/2008
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9467
Region: Northwestern Region
Complete Date: 06/28/2010
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/28/2010
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Inventory
Further Action: 0
Comments: Not reported

Action ID: 9501
Region: Northwestern Region
Complete Date: 06/28/2010
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/17/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Remedial Action recommended (RA)
Further Action: High
Comments: Not reported

Action ID: 9491
Region: Northwestern Region
Complete Date: 06/30/2014
Rank Value: Not reported
Cleanup Flag: False
Created Date: 11/21/2013
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMOVAL
Further Action: 0
Comments: Not reported

Action ID: 9450
Region: Northwestern Region
Complete Date: Not reported

MILTON O BROWN (Continued) **S106655861**

Rank Value: Not reported
Cleanup Flag: False
Created Date: 11/24/2014
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: OPERATION and MAINTENANCE
Further Action: 0
Comments: Not reported

Action ID: 9424
Region: Northwestern Region
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 01/24/2003
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: 0
Comments: Not reported

Action ID: 9449
Region: Northwestern Region
Complete Date: 01/24/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 03/02/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Insufficient information to list
Further Action: 0
Comments: Not reported

Action ID: 9517
Region: Northwestern Region
Complete Date: 04/09/2003
Rank Value: Not reported

MILTON O BROWN (Continued) **S106655861**

Cleanup Flag: False
Created Date: 03/02/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SRS Waiting List
Further Action: 0
Comments: Not reported

Action ID: 9510
Region: Northwestern Region
Complete Date: 01/24/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 03/03/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: State Expanded Preliminary Assessment recommended (XPA)
Further Action: High
Comments: Not reported

Action ID: 9459
Region: Northwestern Region
Complete Date: 01/24/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 03/03/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: PRELIMINARY ASSESSMENT EQUIVALENT
Further Action: 0
Comments: Not reported

Action ID: 9442
Region: Northwestern Region
Complete Date: 08/01/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/30/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NEGOTIATIONS
Further Action: 0
Comments: Not reported

Action ID: 9511
Region: Northwestern Region
Complete Date: 08/27/2003
Rank Value: Not reported
Cleanup Flag: False

MILTON O BROWN (Continued) **S106655861**

Created Date: 08/21/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9498
Region: Northwestern Region
Complete Date: 08/11/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/25/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: 0
Comments: Not reported

Action ID: 9465
Region: Northwestern Region
Complete Date: 09/22/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 09/16/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: 0
Comments: Not reported

Action ID: 9506
Region: Northwestern Region
Complete Date: 08/27/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 10/22/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Investigation recommended (SI)
Further Action: High
Comments: Not reported

Action ID: 9428
Region: Northwestern Region
Complete Date: 10/31/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/04/2003

MILTON O BROWN (Continued) **S106655861**

Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Extension requested by owner/operator
Further Action: 0
Comments: Not reported

Action ID: 9430
Region: Northwestern Region
Complete Date: 11/03/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/04/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Petition or request granted
Further Action: 0
Comments: Not reported

Action ID: 9438
Region: Northwestern Region
Complete Date: 06/02/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/03/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: 0
Comments: Not reported

Operations:

Operation Id: 134629
Operation Status: Inactive
Common Name: Interstate Dry Dock
Yrs of Operation: Operating in 1976
Comments: At 1511 N Marine Drive (owner V.W. Church)
Updated Date: 12/02/2002
Updated By: sxf
Decode for OpstatID: Inactive

Operation Id: 134630
Operation Status: Active
Common Name: Mermaid Marine - Guy Bloiden
Yrs of Operation: 2002
Comments: Not reported
Updated Date: 11/22/2002
Updated By: sxf
Decode for OpstatID: Active

Operation Id: 134631
Operation Status: Inactive
Common Name: Former Schooner Creek Boat Works

MILTON O BROWN (Continued) **S106655861**

Yrs of Operation:	1992-1999
Comments:	Not reported
Updated Date:	08/16/2004
Updated By:	JWAGGY
Decode for OpstatID:	Inactive
Operations SIC Id:	198070
SIC Code:	1721
Created By:	Not reported
Created Date:	12/17/2002
Operations SIC Id:	198071
SIC Code:	4493
Created By:	Not reported
Created Date:	12/17/2002
Operations SIC Id:	198072
SIC Code:	1711
Created By:	Not reported
Created Date:	12/17/2002
Operations SIC Id:	198073
SIC Code:	3732
Created By:	Not reported
Created Date:	12/17/2002
Operations SIC Id:	198074
SIC Code:	4499
Created By:	Not reported
Created Date:	12/17/2002

Operation Id:	134632
Operation Status:	Inactive
Common Name:	Schroeder's Marine Machine Works
Yrs of Operation:	Operating in 1976
Comments:	1523 N Marine Dr. (owner P.R. Schroeder)
Updated Date:	12/02/2002
Updated By:	sxf
Decode for OpstatID:	Inactive

OR MANIFEST:

Manifest Year:	Manifest Year - 2014
EPA Id:	ORQ000032499
Inactive Status:	2015-03-23 00:00:00
Organization Name:	Apex Companies LLC
Contact Name:	John Foxwell
Contact Telephone Number:	Not reported
Mailing Address:	3015 SW First Ave
Mailing City/State/Zip:	Portland, OR 97201

Manifest:

Year :	2014
RCRA Id :	ORQ000032499
Inactive :	2015-03-23 00:00:00
Status:	Small quantity generator
Manifest :	Not reported
Ship Date :	02/18/2014
TSD :	UTD981550177
WS Num:	1
Transporter:	ORQ000023150
Ship Qty :	Not reported

MILTON O BROWN (Continued) **S106655861**

Rpt Unit : Not reported
Off Mng : H110
EPA Waste Codes: D008
Waste Description: Rinsate water from pipe cleaning
Total Amt Of Waste Stream Generated in Reporting Yr 1: 163.25999999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 163.25999999999999

Manifest:
Year : 2013
RCRA Id : ORQ000032499
Inactive : Not reported
Status: Large quantity generator
Manifest : 001138564
Ship Date : 11/13/2013
TSD : ORD089452353
WS Num: 1
Transporter: WAD988479440
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D008
Waste Description: Burn debris encountered during remediation project
Total Amt Of Waste Stream Generated in Reporting Yr 1: 1387.71
Total Amt Of Waste Stream Generated in Reporting Yr 2: 1387.71

F42 **ROD'S TRUCK STOP** **OR LUST** **U000432918**
NW **2632 N MARINE DR** **OR UST** **N/A**
1/8-1/4 **PORTLAND, OR 97217**
0.133 mi.
703 ft. **Site 2 of 2 in cluster F**

Relative:
Lower

Actual:
18 ft.

LUST:
Name: ROD'S TRUCK STOP
Address: 2632 N MARINE DR
City,State,Zip: PORTLAND, OR 97217
Region: North Western Region
Facility ID: 26-90-0291
Cleanup Received Date: 08/15/1990
Cleanup Start Date: 08/16/1990
Cleanup Complete Date: 12/17/1992
Decode for Region: North West Region

UST:
Name: ROD'S TRUCK STOP
Address: 2632 N MARINE DR
City: PORTLAND
Facility ID: 10526
Facility Telephone: (503)882-0101
Permittee Name: JENNIFER STERIN
Number of Permitted Tanks: Not reported
Active Tanks: Not reported
Decommissioned Tanks: 2
Number of Tanks: 2

H43 **ODEQ CLEAN UP HAYDEN ISLAND DRY CLEANERS** **RCRA NonGen / NLR** **1004771649**
NE **1190 N JANTZEN DR** **ORQ000012062**
1/8-1/4 **PORTLAND, OR 97217**
0.207 mi.
1094 ft. **Site 1 of 2 in cluster H**

Relative:
Higher

Actual:
33 ft.

RCRA NonGen / NLR:

Date form received by agency:	01/03/2002
Facility name:	ODEQ CLEAN UP HAYDEN ISLAND DRY CLEANERS
Facility address:	1190 N JANTZEN DR PORTLAND, OR 97217
EPA ID:	ORQ000012062
Mailing address:	2146 NE 4TH BEND, OR 97702
Contact:	DAVID ANDERSON
Contact address:	2146 NE 4TH BEND, OR 97702
Contact country:	US
Contact telephone:	541-388-6141
Contact email:	ANDERSON.DAVID@DEQ.STATE.OR.US
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	OREGON DEPT. OF ENVIRONMENTAL QUALITY
Owner/operator address:	811 SW 6TH AVENUE PORTLAND, OR 97204
Owner/operator country:	US
Owner/operator telephone:	503-229-5355
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Owner
Owner/Op start date:	01/03/2002
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:	06/15/2001
Site name:	ODEQ CLEAN UP HAYDEN ISLAND DRY CLEANERS

ODEQ CLEAN UP HAYDEN ISLAND DRY CLEANERS (Continued) **1004771649**

Classification: Not a generator, verified

Date form received by agency: 06/14/2001
Site name: ODEQ CLEAN UP HAYDEN ISLAND DRY CLEANERS
Classification: Not a generator, verified

Date form received by agency: 06/14/2001
Site name: ODEQ CLEAN UP HAYDEN ISLAND DRY CLEANERS
Classification: Not a generator, verified

Date form received by agency: 06/02/1999
Site name: ODEQ CLEAN UP HAYDEN ISLAND DRY CLEANERS
Classification: Not a generator, verified

Hazardous Waste Summary:

. Waste code: NONE
. Waste name: None

Violation Status: No violations found

H44 **JANTZEN BAY FUEL** **OR LUST** **U004015169**
NE **1130 N JANTZEN AVE** **OR UST** **N/A**
1/8-1/4 **PORTLAND, OR 97217** **OR SPILLS**
0.209 mi.
1102 ft. **Site 2 of 2 in cluster H**

Relative:
Higher

Actual:
32 ft.

LUST:
Name: JANTZEN BEACH MOORAGE
Address: 1130 N JANTZEN AVENUE
City,State,Zip: PORTLAND, OR 97217
Region: North Western Region
Facility ID: 26-90-0258
Cleanup Received Date: 07/23/1990
Cleanup Start Date: 11/01/1990
Cleanup Complete Date: 08/01/1991
Decode for Region: North West Region

Name: JANTZEN BEACH MOORAGE
Address: 1130 N JANTZEN AVE
City,State,Zip: PORTLAND, OR 97217
Region: North Western Region
Facility ID: 26-97-0017
Cleanup Received Date: 01/03/1997
Cleanup Start Date: 01/03/1997
Cleanup Complete Date: 12/04/2001
Decode for Region: North West Region

UST:
Name: JANTZEN BAY FUEL
Address: 1130 N JANTZEN AVE
City: PORTLAND
Facility ID: 7011
Facility Telephone: 971-255-8056
Permittee Name: John Walker
Number of Permitted Tanks: 2
Active Tanks: 2
Decommissioned Tanks: 3

JANTZEN BAY FUEL (Continued) **U004015169**

Number of Tanks: 5

OR SPILLS:

Name: Not reported
Address: 1130 N JANTZEN AVE
City,State,Zip: PORTLAND, OR 97217
Facility ID: 2010-0935
Incident Status: Archive
Material: Diesel fuel
Quantity: 50
Unit of Measure: Gallons
Release Date: 04/30/2010
Description: ODOT reporting a semi truck who lost its saddle tank to the roadway and catch basin on I-5, NB at Jantzen Beach & Marine Drive.
Lat/Long: 45.6088 / -122.6803
Source: Motor Vehicle - Commercial
Media: On pavement/asphalt - not direct on soil
Responsible Company: Sun Valley Transportation
Responsible Address: PO Box 548
Responsible City,St,Zip: Scio, OR 97374-0548

Name: Not reported
Address: 1130 N JANTZEN AVE
City,State,Zip: PORTLAND, OR 97217
Facility ID: 2010-0935
Incident Status: Archive
Material: Diesel fuel
Quantity: 50
Unit of Measure: Gallons
Release Date: 04/30/2010
Description: ODOT reporting a semi truck who lost its saddle tank to the roadway and catch basin on I-5, NB at Jantzen Beach & Marine Drive.
Lat/Long: 45.6088 / -122.6803
Source: Motor Vehicle - Commercial
Media: Coding for the PS/BC Oil Spill Database
Responsible Company: Sun Valley Transportation
Responsible Address: PO Box 548
Responsible City,St,Zip: Scio, OR 97374-0548

Name: Not reported
Address: 1130 N JANTZEN AVE
City,State,Zip: PORTLAND, OR 97217
Facility ID: 2010-0935
Incident Status: Archive
Material: Diesel fuel
Quantity: 50
Unit of Measure: Gallons
Release Date: 04/30/2010
Description: ODOT reporting a semi truck who lost its saddle tank to the roadway and catch basin on I-5, NB at Jantzen Beach & Marine Drive.
Lat/Long: 45.6088 / -122.6803
Source: Motor Vehicle - Commercial
Media: Not reported
Responsible Company: Sun Valley Transportation
Responsible Address: PO Box 548
Responsible City,St,Zip: Scio, OR 97374-0548

JANTZEN BAY FUEL (Continued) **U004015169**

Name: Not reported
Address: 1130 N JANTZEN AVE
City,State,Zip: PORTLAND, OR 97217
Facility ID: 2009-1133
Incident Status: Archive
Material: Motor, bearing, propeller and other lubrication oils
Quantity: 1
Unit of Measure: Gallons
Release Date: 05/22/2009
Description: 32’ Grand Banks sank at the dock at Jantzen Beach Marina, Vessel had minor sheen caused from lube oil, estimated .75 gal released. USCG was on scene and required hard and soft boom to contain spill. USCG would not allow the vessel to be resurfaced until the spill was secured. Marina contact is Ken McLarty 503-720-2621.
Lat/Long: 45.6088 / -122.6803
Source: Vessel - Recreational
Media: Coding for the PS/BC Oil Spill Database
Responsible Company: 32’ Vessel
Responsible Address: 16034 86th Ave SE
Responsible City,St,Zip: Yelm, WA 98597-9475

Name: Not reported
Address: 1130 N JANTZEN AVE
City,State,Zip: PORTLAND, OR 97217
Facility ID: 2009-1133
Incident Status: Archive
Material: Motor, bearing, propeller and other lubrication oils
Quantity: 1
Unit of Measure: Gallons
Release Date: 05/22/2009
Description: 32’ Grand Banks sank at the dock at Jantzen Beach Marina, Vessel had minor sheen caused from lube oil, estimated .75 gal released. USCG was on scene and required hard and soft boom to contain spill. USCG would not allow the vessel to be resurfaced until the spill was secured. Marina contact is Ken McLarty 503-720-2621.
Lat/Long: 45.6088 / -122.6803
Source: Vessel - Recreational
Media: Not reported
Responsible Company: 32’ Vessel
Responsible Address: 16034 86th Ave SE
Responsible City,St,Zip: Yelm, WA 98597-9475

Name: Not reported
Address: 1130 N JANTZEN AVE
City,State,Zip: PORTLAND, OR 97217
Facility ID: 2008-1479
Incident Status: Archive
Material: Not reported
Quantity: 10
Unit of Measure: Gallons
Release Date: 06/30/2008
Description: fuel line break caused by faulty hose installation from contractor
Lat/Long: 45.6088 / -122.6803
Source: AST
Media: Not reported
Responsible Company: Columbia Crossings
Responsible Address: 1130 N Jantzen Ave

JANTZEN BAY FUEL (Continued) **U004015169**

Responsible City,St,Zip: Portland, OR 97217-8121

45
ESE
1/8-1/4
0.233 mi.
1230 ft.

MARINELAND PIER 99
1441 N MARINE DR
PORTLAND, OR 97217

RCRA NonGen / NLR **1015748391**
ORSTATE04981

Relative:
Higher

Actual:
33 ft.

RCRA NonGen / NLR:

Date form received by agency:	12/02/2004
Facility name:	MARINELAND PIER 99
Facility address:	1441 N MARINE DR PORTLAND, OR 97217-7941
EPA ID:	ORSTATE04981
Contact:	Not reported
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	10
Land type:	Other land type
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

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

Violation Status: No violations found

Evaluation Action Summary:

Evaluation date:	11/17/2004
Evaluation:	COMPLIANCE ASSISTANCE VISIT
Area of violation:	Not reported
Date achieved compliance:	Not reported
Evaluation lead agency:	State

46
SSW
1/4-1/2
0.259 mi.
1366 ft.

STAR-OILCO
12301 N FORCE
PORTLAND, OR 97211

OR LUST **U000432573**
OR UST **N/A**

Relative:
Lower

Actual:
16 ft.

LUST:

Name:	STAR-OILCO
Address:	12301 N FORCE
City,State,Zip:	PORTLAND, OR 97211
Region:	North Western Region
Facility ID:	26-97-0705
Cleanup Received Date:	09/23/1997
Cleanup Start Date:	09/23/1997
Cleanup Complete Date:	**02/10/1998**
Decode for Region:	**North West Region**

UST:

Name:	STAR-OILCO
Address:	12301 N FORCE
City:	PORTLAND
Facility ID:	8507
Facility Telephone:	(503)283-1256
Permittee Name:	MICHAEL A. FITZ, GENERAL MANAGER
Number of Permitted Tanks:	Not reported
Active Tanks:	Not reported
Decommissioned Tanks:	2
Number of Tanks:	2

47
ENE
1/4-1/2
0.341 mi.
1803 ft.

JANTZEN BEACH CLEANERS
1190 N JANTZEN DR
PORTLAND, OR 97205

OR ECSI **S104329423**
OR DRYCLEANERS **N/A**

Relative:
Higher

Actual:
22 ft.

ECSI:

Name:	HAYDEN ISLAND CLEANERS
Address:	1190 N JANTZEN DR.
City,State,Zip:	PORTLAND, OR 97217
State ID Number:	1865
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	833
Investigation:	No Further Action
FACA ID:	30709
Further Action:	0
Lat/Long (dms):	45 36 32.40 / -122 40 44.00
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	2.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	34
Qtr Section:	Not reported
Tax Lots:	Not reported
Size:	Not reported

JANTZEN BEACH CLEANERS (Continued) **S104329423**

NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 02/28/2006
Created Date: 05/08/1996
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: No Further Action
Decode For Legislative: Dry Cleaner Environmental Response Account
Alias Name: Country Club Cleaners
Alias Name: Winmar of Jantzen Beach Inc.

Hazardous Release:
Substance ID.: 121011
Haz Release ID: 380447
Qty Released: unknown
Date Released: unknown
Update Date: 10/28/1997
Update By: Not reported
Substance Code: 127-18-4
Substance Name: TETRACHLOROETHYLENE
Substance Abbrev.: Not reported
Substance Category ID: 8519
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8551
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8519
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8551
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316912
Sub Alias Name: ETHENE,TETRACHLORO-
Substance Alias ID: 316913
Sub Alias Name: ETHYLENE TETRACHLORIDE
Substance Alias ID: 316914
Sub Alias Name: PERCHLOROETHYLENE
Substance Alias ID: 316915
Sub Alias Name: PERCLENE
Substance Alias ID: 316916
Sub Alias Name: TETRACHLOROETHENE
Substance Alias ID: 316917
Sub Alias Name: TETRACHLOROETHENE,1,1,2,2-
Substance Alias ID: 316918
Sub Alias Name: TETRACHLOROETHYLENE,1,1,2,2-
Sampling Result ID: 340048

JANTZEN BEACH CLEANERS (Continued) **S104329423**

Feature Id: Not reported
Hazard Release Id: 380447
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 03/30/1998
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to 267 ug/kg
Last Update By: kpd
Update Date: 06/15/1998
Decode for MediumID: Soil
Sampling Result ID: 342133
Feature Id: Not reported
Hazard Release Id: 380447
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 04/07/1998
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to 1,230 ug/L
Last Update By: kpd
Update Date: 06/15/1998
Decode for MediumID: Groundwater

Substance ID.: 121781
Haz Release ID: 387687
Qty Released: unknown
Date Released: unknown
Update Date: 02/23/2011
Update By: GWISTAR
Substance Code: 79-01-6
Substance Name: TRICHLOROETHYLENE
Substance Abbrev.: Not reported
Substance Category ID: 8523
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8545
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8523
Substance Category: Volatiles

JANTZEN BEACH CLEANERS (Continued) **S104329423**

Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8545
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317517
Sub Alias Name: ETHINYL TRICHLORIDE
Substance Alias ID: 317518
Sub Alias Name: ETHYLENE TRICHLORIDE
Substance Alias ID: 317519
Sub Alias Name: TCE
Substance Alias ID: 317520
Sub Alias Name: TRI-CLENE
Substance Alias ID: 317521
Sub Alias Name: TRICHLOROETHENE

Narrative:
NARR ID: 5735910
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: (12/5/2001 DGA/SRS) Dry-cleaning facilities have operated at the site since the mid-1970s. A preliminary environmental assessment in November 1994 identified four floor drains within the facility, three of which yielded a positive reading on a photoionization detector. In August 1995, four Geoprobe borings were advanced at the site to see if PCE had been released to the soil or groundwater. PCE was detected in soil gas (up to 75 ppm) and groundwater (up to 780 ug/L) in all four boreholes. It appears that PCE may have been released down the floor drains at the site, leaking into the soil through cracks in the sanitary sewer lines. Tidal fluctuations in the shallow groundwater may have spread the contaminants across the site. Hayden Island Cleaners applied to DEQ's Dry Cleaner Program in January 1997, and was accepted in February 1997.

NARR ID: 5735911
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 09/21/2005
Decode for NarcdID: Data Sources
NARR Comments: 1) November 1994 Hart Crowser <quot>Preliminary Environmental Site Assessment<quot>. 2) September 1995 Hydro Geo Chem <quot>Limited Environmental Investigation<quot>. 3) June 1998 Jacobs Engineering <quot>Dry Cleaning XPA Report<quot>. 4) March 1999 E&E <quot>Focused Site Investigation Report<quot>. 5) June 1999 E&E <quot>Technical Memorandum...Beneficial Use Survey Report<quot>.

NARR ID: 5735912
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported

JANTZEN BEACH CLEANERS (Continued) **S104329423**

Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Perchloroethene (PCE), trichloroethene (TCE), and 1,2-dichloroethene (DCE)

NARR ID: 5735913
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: unknown; possible past releases of contaminated wastewaters through floor drains and sanitary sewer pipes.

NARR ID: 5735914
NARR Code: Site Ownership
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Site Ownership
NARR Comments: JB Laundry (approx 1975 to 1982); Country Club Cleaners (1982 to January 1996); Hayden Island Cleaners (January 1996 to present).

NARR ID: 5747224
NARR Code: Project Activity Status
Created By: GWISTAR
Created Date: 09/21/2005
Updated By: GWISTAR
Updated Date: 09/21/2005
Decode for NarcdID: Project Activity Status
NARR Comments: PROJECT FILE ARCHIVED, BOX #272839185

NARR ID: 5735915
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: The City of Portland owns four deep production wells on Hayden Island, two of which are within 600 feet of the site. Since 1988, Bull Run water has been provided for residents and businesses on Hayden and Tomahawk Islands, and the wells are currently designated for backup fire suppression only. Three of the four wells are contaminated with low levels of TCE and PCE; however, the contamination is thought to be unrelated to Hayden Island Cleaners. Because of the site's proximity to the Columbia River, surface water was another potential pathway of concern. But the contamination does not appear to have reached either the river or the deeper aquifer.

NARR ID: 5735916
NARR Code: Remedial Action
Created By: Not reported

JANTZEN BEACH CLEANERS (Continued) **S104329423**

Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Remedial Action
NARR Comments: (12/5/2001 DGA/SRS) DEQ retained Jacobs Engineering to conduct an expanded Preliminary Assessment (XPA) at the site in August 1997. As part of the XPA, three monitoring wells were installed, and soil and groundwater samples collected. PCE was detected in soil samples (up to 267 ug/kg) and groundwater samples (up to 1,230 ug/L) from all three wells. The XPA report was completed in June 1998. DEQ retained Ecology & Environment (E&E) to follow up with a focused Site Investigation in August 1998. Additional groundwater monitoring wells were installed at the site and on adjacent properties. In addition, a pumping test was conducted at the secondary municipal wells (backup fire suppression wells) to determine if there was any connection between the shallow and deep aquifers. No connection was established. The Site Investigation report was completed in March 1999. In May 1999, DEQ injected Hydrogen Releasing Compound (HRC) into the shallow groundwater to accelerate the natural biodegradation of the PCE. Monitoring over the next couple of years showed that the HRC was successful in stimulating degradation of the PCE. DEQ formally notified the site owners and operators in December 2001 that no further cleanup of the site was necessary.

Administrative Action:
Action ID: 9417
Region: Headquarters
Complete Date: 03/29/2002
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility delisted from Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9491
Region: Northwestern Region
Complete Date: 05/21/1999
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMOVAL
Further Action: 0
Comments: Not reported

Action ID: 9511
Region: Northwestern Region
Complete Date: 03/25/1999
Rank Value: 0
Cleanup Flag: False

JANTZEN BEACH CLEANERS (Continued) **S104329423**

Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9520
Region: Headquarters
Complete Date: 06/04/1998
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: EXPANDED PRELIMINARY ASSESSMENT
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Northwestern Region
Complete Date: 07/10/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Northwestern Region
Complete Date: 03/13/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9451
Region: Headquarters
Complete Date: 04/04/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002

JANTZEN BEACH CLEANERS (Continued) **S104329423**

Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Owner/operator comments received on listing notification
Further Action: Not reported
Comments: Not reported

Action ID: 9448
Region: Northwestern Region
Complete Date: 05/01/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Review for final listing
Further Action: Not reported
Comments: Not reported

Action ID: 9488
Region: Northwestern Region
Complete Date: 05/01/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Listing on Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9438
Region: Headquarters
Complete Date: 06/23/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Northwestern Region
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality

JANTZEN BEACH CLEANERS (Continued) **S104329423**

Decode for RegionID: Northwest Region
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 07/10/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9502
Region: Northwestern Region
Complete Date: 07/10/1996
Rank Value: 73
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Remedial Investigation recommended (RI)
Further Action: Medium
Comments: Not reported

Action ID: 9498
Region: Northwestern Region
Complete Date: 07/10/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 12/05/2001
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region

JANTZEN BEACH CLEANERS (Continued) **S104329423**

Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

Operations:
Operation Id: 133162
Operation Status: Active
Common Name: Hayden Island Cleaners
Yrs of Operation: ~1975 to present
Comments: Dry Cleaner
Updated Date: 10/28/1997
Updated By: kpd
Decode for OpstatID: Active
Operations SIC Id: 196327
SIC Code: 7216
Created By: Not reported
Created Date: 12/17/2002

DRYCLEANERS:
Name: JANTZEN BEACH CLEANERS
Address: 1190 N JANTZEN DR
City,State,Zip: PORTLAND, OR 97205
Dry Cleaner ID: 6
Current Status: Closed
Last Update: 02/07/2002
DEQID: Not reported
Latitude: 45.609181053
Longitude: -122.67834168
Decode for Fstatus: Closed
Mail Name: Fabricare Equipment Inc
Mail Address: PO Box 12785
Mail City: Salem
Mail State: OR
Mail ZIP: 97309-0785
Mail Email Address: Not reported
Mail Effective Date: 01/05/2012
Mail Last Updated: 01/05/2012
Owner ID: 7471
Own Name: Fussy's in South Salem LLC
Own Organization: Fussy's in South Salem LLC
Own Address: 3410 Commercial SE
Own City: Salem
Own State: OR
Own ZIP: 97302
Own Phone: Not reported
Own Email Address: Not reported
Owner Effective Date: 01/01/2006
Owner Last Updated: 07/30/2007
Property Owner ID: 3081
Property Owner Name: Not reported
Property Owner Organization: Columbia Crossings
Property Owner Address: 515 N Tomahawk Island Dr
Property Owner City: Portland
Property Owner State: OR
Property Owner ZIP: 97217

JANTZEN BEACH CLEANERS (Continued) **S104329423**

Property Owner Phone:	Not reported
Property Owner Email Address:	Not reported
Property Owner Effective Date:	01/01/2000
Property Owner Last Updated:	01/01/2000

Name:	COUNTRY CLUB CLEANERS
Address:	1190 N JANTZEN DR
City,State,Zip:	PORTLAND, OR 97217
Dry Cleaner ID:	539
Current Status:	Closed
Last Update:	08/26/2002
DEQID:	Not reported
Latitude:	45.609175104
Longitude:	-122.67834145
Decode for Fstatus:	Closed
Mail Name:	Not reported
Mail Address:	Not reported
Mail City:	Not reported
Mail State:	Not reported
Mail ZIP:	Not reported
Mail Email Address:	Not reported
Mail Effective Date:	Not reported
Mail Last Updated:	Not reported
Owner ID:	Not reported
Own Name:	Not reported
Own Organization:	Not reported
Own Address:	Not reported
Own City:	Not reported
Own State:	Not reported
Own ZIP:	Not reported
Own Phone:	Not reported
Own Email Address:	Not reported
Owner Effective Date:	Not reported
Owner Last Updated:	Not reported
Property Owner ID:	Not reported
Property Owner Name:	Not reported
Property Owner Organization:	Not reported
Property Owner Address:	Not reported
Property Owner City:	Not reported
Property Owner State:	Not reported
Property Owner ZIP:	Not reported
Property Owner Phone:	Not reported
Property Owner Email Address:	Not reported
Property Owner Effective Date:	Not reported
Property Owner Last Updated:	Not reported

48
NW
1/4-1/2
0.347 mi.
1831 ft.

FLINT GROUP PACKAGING INKS NORTH AMERICA LLC
2985 N MARINE DR
PORTLAND, OR 97217

OR ECSI **S108659827**
OR SPILLS **N/A**
OR AIRS
OR HSIS
OR NPDES

Relative:
Lower

Actual:
12 ft.

ECSI:

Name:	FLINT INK-FORMER JAMES RIVER INK DIVISION
Address:	2985 N MARINE DRIVE
City,State,Zip:	PORTLAND, OR 97217
State ID Number:	5939
Brown ID:	0

FLINT GROUP PACKAGING INKS NORTH AMERICA LLC (Continued) **S108659827**

Study Area:	False
Region ID:	2
Legislatve ID:	0
Investigation:	Suspect
FACA ID:	541
Further Action:	0
Lat/Long (dms):	45 36 41.00 / -122 41 52.44
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	2.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	33
Qtr Section:	c
Tax Lots:	1200
Size:	Not reported
NPL:	False
Orphan:	False
Updated By:	SMILLER
Update Date:	01/07/2015
Created Date:	01/06/2015
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	Suspect
Decode For Legislative:	Not reported

Narrative:

NARR ID:	5755505
NARR Code:	Data Sources
Created By:	SMILLER
Created Date:	01/06/2015
Updated By:	SMILLER
Updated Date:	01/06/2015
Decode for NarcdID:	Data Sources
NARR Comments:	UST File #26-89-0063. ECSI# 127

NARR ID:	5755506
NARR Code:	Hazardous Substance/Waste Types
Created By:	SMILLER
Created Date:	01/06/2015
Updated By:	SMILLER
Updated Date:	01/06/2015
Decode for NarcdID:	Hazardous Substance/Waste Types
NARR Comments:	[1/6/15 SA/SAM] Solvents, alcohols, toluene, methyl ethyl ketone.

NARR ID:	5755504
NARR Code:	Remedial Action
Created By:	SMILLER
Created Date:	01/06/2015
Updated By:	SMILLER
Updated Date:	01/06/2015
Decode for NarcdID:	Remedial Action
NARR Comments:	[1/6/15 SA/SAM] See ECSI#127 for site history-The following text is from ECSI #127: James River characterized soil and groundwater contamination associated with the three major UST areas across the

FLINT GROUP PACKAGING INKS NORTH AMERICA LLC (Continued) **S108659827**

site, and excavated and aerated soils from leaking USTs in the late 1980s. DEQ's UST Section issued an NFA letter for the gasoline UST area in 1996, but referred all other UST issues to Site Assessment in 1997, since the remaining USTs did not contain motor fuels or waste oils. Site Assessment recommended a remedial investigation (RI) covering the entire facility(including this property), to determine the extent, magnitude, and sources of chlorinated solvents, BTEX, and metals in shallow soil and groundwater.

NARR ID: 5755503
NARR Code: Site History
Created By: SMILLER
Created Date: 01/06/2015
Updated By: SMILLER
Updated Date: 01/06/2015
Decode for NarcdID: Site History
NARR Comments: [1/6/15 SA/SAM] Formerly a part of neighboring James River Corp ECSI#127. Site separated from orginal site due to differing property ownership.

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 01/06/2015
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/06/2015
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9506
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/06/2015
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Investigation recommended (SI)
Further Action: Medium
Comments: Not reported

OR SPILLS:
Name: Not reported
Address: 2985 N MARINE DR
City,State,Zip: PORTLAND, OR 97217
Facility ID: 2004-2677
Incident Status: Archive
Material: Products, manufacturing intermediates, etc.
Quantity: 300

FLINT GROUP PACKAGING INKS NORTH AMERICA LLC (Continued) **S108659827**

Unit of Measure: Pounds
Release Date: 11/30/2004
Description: Flint Ink reporting a 300 lbs, 40 gallons go water based ink component to release to the pavement, as much as 7 gallons may have reached a storm drain. Great Western Vacuum on scene at 1100 hours to clean up.
Lat/Long: 45.6114 / -122.6978
Source: Container
Media: On pavement/asphalt - not direct on soil
Responsible Company: Flint Ink Corporation
Responsible Address: 2985 N Marine Dr
Responsible City,St,Zip: Portland, OR 97217-7745

Name: Not reported
Address: 2985 N MARINE DR
City,State,Zip: PORTLAND, OR 97217
Facility ID: 2004-2677
Incident Status: Archive
Material: Products, manufacturing intermediates, etc.
Quantity: 300
Unit of Measure: Pounds
Release Date: 11/30/2004
Description: Flint Ink reporting a 300 lbs, 40 gallons go water based ink component to release to the pavement, as much as 7 gallons may have reached a storm drain. Great Western Vacuum on scene at 1100 hours to clean up.
Lat/Long: 45.6114 / -122.6978
Source: Container
Media: Coding for the PS/BC Oil Spill Database
Responsible Company: Flint Ink Corporation
Responsible Address: 2985 N Marine Dr
Responsible City,St,Zip: Portland, OR 97217-7745

OR AIRS:

Name:	FLINT GROUP PACKAGING INKS NORTH AMERICA LLC
Address:	2985 N MARINE DR
City,State,Zip:	PORTLAND, OR 97217
Year:	Not reported
Emission:	Not reported
Permit Number:	26-0076-SI-01
Permit Type:	Simple ACDP
Expiration Date:	07/01/2023
Source ID:	Not reported
Issue Date:	07/24/2018
NAICS Code:	325910
Is Primary:	Not reported
SIC Code:	2893
Is Primary:	Not reported
Latitude:	45.6114
Longitude:	-122.6978
Poll:	Not reported
Emission Source Code:	Not reported
Process Code:	Not reported
SCC:	Not reported
Emission Source Description:	Not reported
Process Description:	Not reported
Throughput:	Not reported
Process Unit:	Not reported
Throughput Type:	Not reported

FLINT GROUP PACKAGING INKS NORTH AMERICA LLC (Continued) **S108659827**

HSIS:

Name:	FLINT GROUP NORTH AMERICA CORP
Address:	2985 N MARINE DR
City,State,Zip:	PORTLAND, OR 97217
Facility ID:	007976
Department Or Division Of Company:	PACKAGING DIVISION
Chemical Is Extremely Hazardous Substance (EHS:	Y
Contains 112R:	N
Facility Has Written Emergency Plan:	Y
NAICS Code 1:	325910
NAICS Desc 1:	PRINTING INK MFG
NAICS Code 2:	000000
NAICS Desc 2:	Not reported
Manager Name:	MARK HAUZEN
Business Phone:	5032853621
Mailing Address:	2985 N MARINE DR
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	97217
No. of Employees:	19
Day Phone:	5032853621
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Y
Emergency Contact:	MARK HAUZEN
Emergency Procedure:	MAIN EHS FILES & MARKS OFFICE
Business Type:	PRINTING INK MFG
Facility Type:	Not reported
Department:	Not reported
Status:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Last Reported ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	Not reported
Maximum Daily Amount Unit:	Not reported
Chemical Added Date:	Not reported
Is Chem PSM:	Not reported
Is Chem 112R:	Not reported
Is Chem 302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported

FLINT GROUP PACKAGING INKS NORTH AMERICA LLC (Continued) **S108659827**

NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
Number of Days Onsite:	Not reported
Year:	Not reported

Case Number:	N/A
Chemical Name:	UNI-REZ 2223
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	20
Maximum Daily Amount Unit:	lbs
Chemical Added Date:	02/25/2019
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Solid
UNNA Number:	Not reported
NFPA Health:	1
NFPA Flammability:	1
NFPA Reactivity:	0
NFPA Special Notice:	Not reported
Hazards:	Physical Combustive
Number of Days Onsite:	89
Year:	2018

Case Number:	N/A
Chemical Name:	FILTREZ 521
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	11
Maximum Daily Amount Unit:	lbs
Chemical Added Date:	02/25/2019
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Solid
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Health Respiratory, Health SeriousEye
Number of Days Onsite:	89
Year:	2018

FLINT GROUP PACKAGING INKS NORTH AMERICA LLC (Continued) **S108659827**

Case Number:	71238
Chemical Name:	1-PROPANOL
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	20
Maximum Daily Amount Unit:	gal
Chemical Added Date:	02/25/2019
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	1274
NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health SeriousEye, Health SpecificOrganToxicity, Physical Combustive
Number of Days Onsite:	365
Year:	2018

Case Number:	N/A
Chemical Name:	INK WATER BASE-ETHANOL
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	11
Maximum Daily Amount Unit:	gal
Chemical Added Date:	02/25/2019
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	1993
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Health SeriousEye, Physical Combustive
Number of Days Onsite:	365
Year:	2018

Chemical:

Chemical Name:	INK WATER BASED FLEXOGRAPHIC
Physical Description:	LIQUID
Case Number:	00000
Facility Id:	007976
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	20

FLINT GROUP PACKAGING INKS NORTH AMERICA LLC (Continued) **S108659827**

Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	O
Temperature Description:	TOTEBIN
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	STYRENE-ACRYLIC COPOLYMER
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Combustible Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	4.5
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	KAOLIN CLAY
Physical Description:	SOLID
Case Number:	1332587
Facility Id:	007976
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	10
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported

FLINT GROUP PACKAGING INKS NORTH AMERICA LLC (Continued) **S108659827**

Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	KAOLIN
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	1
EHS Ingredient:	Not reported
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	JONCRYL 2646
Physical Description:	LIQUID
Case Number:	000000
Facility Id:	007976
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	AMMONIA SALT OF MODIFIED STYRENE ACRYLIC

FLINT GROUP PACKAGING INKS NORTH AMERICA LLC (Continued) **S108659827**

United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	SHAMROCK S-394 N1
Physical Description:	SOLID
Case Number:	00000
Facility Id:	007976
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	I
Description:	FIBER DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	NONE LISTED ON MSDS
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported

FLINT GROUP PACKAGING INKS NORTH AMERICA LLC (Continued) **S108659827**

Hazard Class 3 Of The Chemical:	Not reported
Additional Chemical:	
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N
Chemical Name:	JONCRYL 678
Physical Description:	SOLID
Case Number:	52831046
Facility Id:	007976
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	30
Maximum Amount Possessed During The Year Code:	30
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	10,000-49,999
Most Hazardous Ingridient:	2-PROPENOIC ACID, POLYMER
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	1
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Additional Chemical:	
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

FLINT GROUP PACKAGING INKS NORTH AMERICA LLC (Continued) **S108659827**

Chemical Name:	LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	007976
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4

Chemical Name:	CARBON BLACK
Physical Description:	SOLID
Case Number:	1333864
Facility Id:	007976
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	04
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4

FLINT GROUP PACKAGING INKS NORTH AMERICA LLC (Continued) **S108659827**

Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	50-199
Most Hazardous Ingridient:	CARBON BLACK
United Nations/north America 4 Digit Class Number:	1361
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Chronic Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.4
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	KRONOS TIO2
Physical Description:	SOLID
Case Number:	13463677
Facility Id:	007976
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	10
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	TITANIUM DIOXIDE
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	1
EHS Ingredient:	Not reported

FLINT GROUP PACKAGING INKS NORTH AMERICA LLC (Continued) **S108659827**

Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	UNI-REZ 2223
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	007976
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	11
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	POLYAMIDE RESIN
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	1
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical Name:	FILTREZ 521

FLINT GROUP PACKAGING INKS NORTH AMERICA LLC (Continued) **S108659827**

Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	007976
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	10
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	ROSIN ADDUCT ESTER
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Chemical Name:	INK WATER BASED
Physical Description:	LIQUID
Case Number:	0009086526
Facility Id:	007976
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	E
Temperature Description:	PLASTIC OR NON-METALLIC DRUM
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE

FLINT GROUP PACKAGING INKS NORTH AMERICA LLC (Continued) **S108659827**

Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	POLY(OXY-1,2-ETHANEDIYL),A-[BIS(1-PHENYL
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	1
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

NPDES:

WQ File Nbr:	21359
Legal Name:	Flint Group Packaging Inks North America LLC
Region:	Not reported
Pri SIC:	2893
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12H
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	21359
Legal Name:	Flint Group Packaging Inks North America LLC
Region:	NWR

FLINT GROUP PACKAGING INKS NORTH AMERICA LLC (Continued) **S108659827**

Pri SIC:	2893
Facility Type:	PRINTING INK
Latitude:	45.6114
Longitude:	-122.6978
Category:	STM
Permit Type:	GEN12Z
Permit Active:	True
Is Active?:	Not reported
Permit Description:	Stormwater; NPDES specific SIC codes
Expiration Date:	07/31/2022
EPA Number:	ORR230098
UIC Facility:	False
Admin Agent:	City of Portland
Last Action Date:	07/30/2018
Permit Writer:	Not reported
Compliance Inspector:	PORTLAND
DMR Reviewer:	Not reported
Application Number:	953113
Class:	MINOR
Start Date:	12/13/1997
Region Decode:	North West Region

WQ File Nbr:	21359
Legal Name:	Flint Group Packaging Inks North America LLC
Region:	NWR
Pri SIC:	2893
Facility Type:	PRINTING INK
Latitude:	45.6114
Longitude:	-122.6978
Category:	IND
Permit Type:	GEN01
Permit Active:	True
Is Active?:	Not reported
Permit Description:	Industrial Wastewater; NPDES cooling water
Expiration Date:	07/31/2001
EPA Number:	ORG250003
UIC Facility:	False
Admin Agent:	NW Region Office
Last Action Date:	10/02/2006
Permit Writer:	Moore
Compliance Inspector:	Moore
DMR Reviewer:	Kennedy
Application Number:	976996
Class:	MINOR
Start Date:	10/02/1981
Region Decode:	North West Region

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49 **HILLMAN PROPERTIES** **OR LUST U000432222**
NNE **1750 JANTZEN BEACH CTR** **OR UST N/A**
1/4-1/2 **PORTLAND, OR 97217**
0.356 mi.
1878 ft.

Relative: **Higher**
Actual: **28 ft.**

LUST:

Name:	HILLMAN PROPERTIES
Address:	1750 N JANTZEN BEACH CENTER
City,State,Zip:	PORTLAND, OR 97203
Region:	North Western Region

HILLMAN PROPERTIES (Continued) **U000432222**

Facility ID: 26-90-0190
Cleanup Received Date: 05/25/1990
Cleanup Start Date: 05/25/1990
Cleanup Complete Date: 01/30/1995
Decode for Region: North West Region

UST:
Name: HILLMAN PROPERTIES
Address: 1750 JANTZEN BEACH CTR
City: PORTLAND
Facility ID: 10425
Facility Telephone: (503) 283-4111
Permittee Name: DIRK KOOPMAN
Number of Permitted Tanks: Not reported
Active Tanks: Not reported
Decommissioned Tanks: 3
Number of Tanks: 3

50
NE
1/4-1/2
0.363 mi.
1915 ft.

CONOCOPHILLIPS COMPANY - 255953 **OR LUST** **U004015171**
12205 N CENTER AVE **OR UST** **N/A**
PORTLAND, OR 97217 **OR SPILLS**

Relative:
Higher

Actual:
40 ft.

LUST:
Name: UNOCAL 5953
Address: 12205 N CENTER
City,State,Zip: PORTLAND, OR 97217
Region: North Western Region
Facility ID: 26-90-0055
Cleanup Received Date: 02/05/1990
Cleanup Start Date: 02/05/1990
Cleanup Complete Date: 04/16/1991
Decode for Region: North West Region

Name: UNOCAL 5953
Address: 12205 N CENTER
City,State,Zip: PORTLAND, OR 97217
Region: North Western Region
Facility ID: 26-94-0063
Cleanup Received Date: 04/06/1994
Cleanup Start Date: 04/06/1994
Cleanup Complete Date: 06/20/2012
Decode for Region: North West Region

UST:
Name: CONOCOPHILLIPS COMPANY - 255953
Address: 12205 N CENTER AVE
City: PORTLAND
Facility ID: 1102
Facility Telephone: (503)285-2657
Permittee Name: Tiana Andriamanarivo
Number of Permitted Tanks: Not reported
Active Tanks: Not reported
Decommissioned Tanks: 10
Number of Tanks: 10

CONOCOPHILLIPS COMPANY - 255953 (Continued) **U004015171**

OR SPILLS:
Name: Not reported
Address: 12205 N CENTER AVE
City,State,Zip: PORTLAND, OR 97217-7806
Facility ID: 1998-0951
Incident Status: Archive
Material: Not reported
Quantity: 40
Unit of Measure: Gallons
Release Date: 04/24/1998
Description: Fixed site spill of 40 gal of unleaded gas at a UNOCAL station in Portland.
Lat/Long: 45.6112 / -122.6806
Source: Motor Vehicle - Tank Truck
Media: Not reported
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

51
SSE
1/4-1/2
0.366 mi.
1935 ft.

HEATING OIL TANK **OR LUST** **S104908026**
10850 N DENVER AVE **OR NPDES** **N/A**
PORTLAND, OR 97217

Relative:
Lower

Actual:
20 ft.

LUST:
Name: HEATING OIL TANK
Address: 10850 N DENVER AVE
City,State,Zip: PORTLAND, OR 97217
Region: North Western Region
Facility ID: 26-01-5308
Cleanup Received Date: 02/22/2001
Cleanup Start Date: 02/22/2001
Cleanup Complete Date: 08/16/2001
Decode for Region: North West Region

NPDES:
WQ File Nbr: 123318
Legal Name: DELTA DEVELOPMENT COMPANY LLC
Region: Not reported
Pri SIC: 1629
Facility Type: Not reported
Latitude: Not reported
Longitude: Not reported
Category: Not reported
Permit Type: GEN12C
Permit Active: Not reported
Is Active?: FALSE
Permit Description: Not reported
Expiration Date: Not reported
EPA Number: Not reported
UIC Facility: Not reported
Admin Agent: Not reported
Last Action Date: Not reported
Permit Writer: Not reported
Compliance Inspector: Not reported
DMR Reviewer: Not reported

HEATING OIL TANK (Continued) **S104908026**

Application Number: Not reported
Class: Not reported
Start Date: Not reported
Region Decode: Not reported

52
ENE
1/4-1/2
0.477 mi.
2518 ft.

JANTZEN BEACH CAR WASH
12100 N TOMAHAWK DRIVE
PORTLAND, OR 97217

OR LUST **S103248269** **N/A**

Relative:
Higher

Actual:
30 ft.

LUST:
Name: JANTZEN BEACH CAR WASH
Address: 12100 N TOMAHAWK DRIVE
City,State,Zip: PORTLAND, OR 97217
Region: North Western Region
Facility ID: 26-98-0453
Cleanup Received Date: 06/17/1998
Cleanup Start Date: 02/19/1998
Cleanup Complete Date: 07/14/1998
Decode for Region: North West Region

53
ESE
1/4-1/2
0.480 mi.
2533 ft.

PLAID PANTRY #209
1020 N MARINE DR
PORTLAND, OR 97217

OR ECSI **U004015189**
OR LUST **N/A**
OR UST
OR AIRS

Relative:
Higher

Actual:
25 ft.

ECSI:
Name: WEBSTER FAMILY CONVENIENCE STORE/GAS STATION
Address: 1020 N MARINE DR.
City,State,Zip: PORTLAND, OR 97217
State ID Number: 4134
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: Suspect
FACA ID: 83118
Further Action: 0
Lat/Long (dms): 45 36 9.70 / -122 40 38.60
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 1.00
Range Zone: E
Section Coord: 3
Qtr Section: BB
Tax Lots: 1200
Size: 1.29 acres
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 01/31/2012

PLAID PANTRY #209 (Continued) **U004015189**

Created Date: 05/12/2004
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: Suspect
Decode For Legislative: Not reported
Alias Name: Plaid Pantry #209

Narrative:
NARR ID: 5745251
NARR Code: Contamination
Created By: CHARMAN
Created Date: 07/29/2004
Updated By: KDANA
Updated Date: 11/19/2015
Decode for NarcdID: Contamination
NARR Comments: Site is suspected of petroleum releases to the subsurface. As part of Columbia Slough Area-wide Discovery (CSD) Project this site was noted due to the presense of soil borings found in Water Resources Department well log database. Site runoff or subsurface contamination could reach part of Columbia Slough via stormwater piping system. Site has received cleanup of USTs via DEQ UST program (26-92-0348) cited as ending in 1997. However, CSD project found investigation on the site initiated in 2000, in areas away from the main building, to the west.

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 05/12/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/12/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 05/12/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/12/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: 0
Comments: Not reported

LUST:
Name: POTTER WEBSTER CO
Address: 1020 N MARINE DR

PLAID PANTRY #209 (Continued) **U004015189**

City,State,Zip:	PORTLAND, OR 97217
Region:	North Western Region
Facility ID:	26-92-0348
Cleanup Received Date:	12/15/1992
Cleanup Start Date:	12/15/1992
Cleanup Complete Date:	**08/23/1996**
Decode for Region:	**North West Region**

UST:

Name:	PLAID PANTRY #209
Address:	1020 N MARINE DR
City:	PORTLAND
Facility ID:	12242
Facility Telephone:	503-358-6123
Permittee Name:	Jonathan Polonsky
Number of Permitted Tanks:	3
Active Tanks:	3
Decommissioned Tanks:	Not reported
Number of Tanks:	3

OR AIRS:

Name:	PLAID PANTRIES, INC.
Address:	1020 N MARINE DR
City,State,Zip:	PORTLAND, OR 97217-8048
Year:	Not reported
Emission:	Not reported
Permit Number:	26-9570-23-01
Permit Type:	General (4) ACDP
Expiration Date:	03/01/2020
Source ID:	Not reported
Issue Date:	09/20/2010
NAICS Code:	447110
Is Primary:	Not reported
SIC Code:	Not reported
Is Primary:	Not reported
Latitude:	45.6030
Longitude:	-122.6771
Poll:	Not reported
Emission Source Code:	Not reported
Process Code:	Not reported
SCC:	Not reported
Emission Source Description:	Not reported
Process Description:	Not reported
Throughput:	Not reported
Process Unit:	Not reported
Throughput Type:	Not reported

54
NNE
1/4-1/2
0.499 mi.
2633 ft.

HAYDEN ISLAND - UMATILLA PROPERTY
1445 AND 1463 N HAYDEN ISLAND DR.
PORTLAND, OR 97217

OR ECSI **S118869506**
OR VCP **N/A**

Relative:
Higher

Actual:
24 ft.

ECSI:

Name:	HAYDEN ISLAND - UMATILLA PROPERTY
Address:	1445 AND 1463 N HAYDEN ISLAND DR.
City,State,Zip:	PORTLAND, OR 97217
State ID Number:	6128
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	0
Investigation:	No Further Action
FACA ID:	134387
Further Action:	0
Lat/Long (dms):	45 36 51.50 / -122 40 55.90
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	2.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	34
Qtr Section:	Not reported
Tax Lots:	200 and 100
Size:	1.53 acres
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	06/01/2017
Created Date:	08/01/2016
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	No Further Action
Decode For Legislative:	Not reported
Alias Name:	US Bank

Hazardous Release:

Substance ID.:	121982
Haz Release ID:	388331
Qty Released:	unknown
Date Released:	unknown
Update Date:	11/10/2016
Update By:	RWILLIA
Substance Code:	ECD169
Substance Name:	DIESEL - FUEL OIL
Substance Abbrev.:	Not reported
Substance Category ID:	8529
Substance Category:	Petroleum Related Releases for OSPIRG Report
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Category ID:	8529
Substance Category:	Petroleum Related Releases for OSPIRG Report
Category Level:	Not reported

HAYDEN ISLAND - UMATILLA PROPERTY (Continued) **S118869506**

Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 350908
Feature Id: 0
Hazard Release Id: 388331
Medium: 698
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 12/10/2015
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 664 ug/L
Last Update By: RWILLIA
Update Date: 11/10/2016
Decode for MediumID: Groundwater

Substance ID.: 121989
Haz Release ID: 388332
Qty Released: unknown
Date Released: unknown
Update Date: 11/10/2016
Update By: RWILLIA
Substance Code: ECD200
Substance Name: OIL OR FUEL RELATED COMPOUNDS
Substance Abbrev.: Not reported
Substance Category ID: 8532
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8532
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 350909
Feature Id: 0
Hazard Release Id: 388332
Medium: 698
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 12/10/2015
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1800 ug/L
Last Update By: RWILLIA
Update Date: 11/10/2016

HAYDEN ISLAND - UMATILLA PROPERTY (Continued) **S118869506**

Decode for MediumID: Groundwater

Substance ID.: 121664
Haz Release ID: 388333
Qty Released: unknown
Date Released: unknown
Update Date: 11/10/2016
Update By: RWILLIA
Substance Code: 7440-38-2
Substance Name: ARSENIC
Substance Abbrev.: Not reported
Substance Category ID: 8439
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8439
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319286
Sub Alias Name: AS
Sampling Result ID: 350910
Feature Id: 0
Hazard Release Id: 388333
Medium: 698
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: 12/10/2015
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 98.5 ug/L
Last Update By: RWILLIA
Update Date: 11/10/2016
Decode for MediumID: Groundwater

Substance ID.: 121639
Haz Release ID: 388334
Qty Released: unknown
Date Released: unknown
Update Date: 11/10/2016
Update By: RWILLIA
Substance Code: 7439-92-1
Substance Name: LEAD
Substance Abbrev.: Not reported
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8466

HAYDEN ISLAND - UMATILLA PROPERTY (Continued) **S118869506**

Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319256
Sub Alias Name: PB
Sampling Result ID: 350911
Feature Id: 0
Hazard Release Id: 388334
Medium: 698
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 12/10/2015
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 6960 ug/L
Last Update By: RWILLIA
Update Date: 11/10/2016
Decode for MediumID: Groundwater

Substance ID.: 121643
Haz Release ID: 388335
Qty Released: unknown
Date Released: unknown
Update Date: 11/10/2016
Update By: RWILLIA
Substance Code: 7439-97-6
Substance Name: MERCURY
Substance Abbrev.: Not reported
Substance Category ID: 8467
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8467
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319260
Sub Alias Name: HG
Substance Alias ID: 319261
Sub Alias Name: HYDRARGYRUM
Substance Alias ID: 319262
Sub Alias Name: LIQUID SILVER
Substance Alias ID: 319263
Sub Alias Name: QUICKSILVER
Sampling Result ID: 350912
Feature Id: 0
Hazard Release Id: 388335
Medium: 698
Substance Abbrev.: 0

HAYDEN ISLAND - UMATILLA PROPERTY (Continued) **S118869506**

Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 12/10/2015
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 41.3 ug/L
Last Update By: RWILLIA
Update Date: 11/10/2016
Decode for MediumID: Groundwater

Narrative:

NARR ID: 5756333
NARR Code: Contamination
Created By: KDANA
Created Date: 08/01/2016
Updated By: RWILLIA
Updated Date: 11/10/2016
Decode for NarcdID: Contamination
NARR Comments: Groundwater below the site is contaminated with petroleum, metals, minor VOCs, and PAHs. Contamination is likely from the old Hayden Island Landfill, over which the site is located.

NARR ID: 5756682
NARR Code: Data Sources
Created By: RWILLIA
Created Date: 04/13/2017
Updated By: RWILLIA
Updated Date: 04/13/2017
Decode for NarcdID: Data Sources
NARR Comments: Geosyntec, 2017. Phase II Environmental Site Assessment Report, Hayden Island, 1445 N. Hayden Island Drive, 1463 N. Hayden Island Drive, Portland, Oregon. September 23, 2016. Geosyntec, 2017. Methane Gas Assessment on Hayden Island Properties 1445 through 1463 N. Hayden Island Drive, Portland, Oregon February 6, 2017. Wohlers, 2015. Wohlers Environmental Services, Inc. Phase I Environmental SiteAssessment. 1445 N Hayden Island Drive, Portland, Oregon. October 30, 2015.

NARR ID: 5756612
NARR Code: General Site Description
Created By: RWILLIA
Created Date: 02/15/2017
Updated By: RWILLIA
Updated Date: 02/15/2017
Decode for NarcdID: General Site Description
NARR Comments: The site is just north of the center of Hayden Island in the Columbia River. The topography is flat and the elevation is approximately 20 feet above of sea level. The main channel of the Columbia River is just over 500 feet north of the site. Subsurface material encountered below asphalt and base gravel was medium-grained sand. At depths as little as 5 feet below ground surface (bgs) fill material consisting of paper, glass, wood, brick, plastic and metal, was encountered and found at depths up to 18 feet bgs.

HAYDEN ISLAND - UMATILLA PROPERTY (Continued) **S118869506**

NARR ID: 5756485
NARR Code: Remedial Action
Created By: RWILLIA
Created Date: 11/10/2016
Updated By: RWILLIA
Updated Date: 04/13/2017
Decode for NarcdID: Remedial Action
NARR Comments: (November 2016 RKW) Phase II investigation including sampling of soil and shallow groundwter. Minor diesel and oil contamination was found in soil on the 1445 lot. Groundwater below the site contains widespread petroleum, metals (arsenic, barium, cadmium, lead, silver, and mercury), minor VOCs and PAHs. Follow-up investigation for methane (landfill gas) was undertaken in January 2017 using handheld Landtec instrument. Samples from two boring on each property and from interior confined spaces in the 1463 building. No significant levels of methane were detected. NFAs for both properties were dated April 4, 2017.

NARR ID: 5756487
NARR Code: Site History
Created By: RWILLIA
Created Date: 11/10/2016
Updated By: RWILLIA
Updated Date: 11/10/2016
Decode for NarcdID: Site History
NARR Comments: The properties are located on the old unregulated Hayden Island Landfill which was located in a seasonal lake basin and probably operated between 1950 and 1970, when it was covered by a 7 to 8-foot layer of clean fill prior to development.

NARR ID: 5756486
NARR Code: 1922
Created By: RWILLIA
Created Date: 11/10/2016
Updated By: RWILLIA
Updated Date: 04/04/2017
Decode for NarcdID: Current Site Summary Statement
NARR Comments: This site, the location of a former US Bank branch (since demolished) is situated on top of the abandoned Hayden Island Landfill (ECSI #1559). The site is currently owned by Umatilla, Inc. Belmar Properties, the owners of an adjacent property, are proposing to purchase the site. Belmar has applied to DEQ's Voluntary Cleanup Program to obtain a No Further Action determination for the site. These properties recent landuse was commercial and not expected to lead to contamination. Groundwater below the properties is contaminated with TPH and metals, particularly arsenic, barium, lead, silver, and mercury. Groundwater contaminatinon is thought to be associated with the former landfill.

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 08/01/2016
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/01/2016
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported

HAYDEN ISLAND - UMATILLA PROPERTY (Continued) **S118869506**

Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9519
Region: Northwestern Region
Complete Date: 10/26/2016
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/01/2016
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: 0
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 04/04/2017
Rank Value: Not reported
Cleanup Flag: False
Created Date: 10/31/2016
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: 0
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 04/04/2017
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/13/2017
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

VCS:
Name: HAYDEN ISLAND - UMATILLA PROPERTY
Address: 1445 AND 1463 N HAYDEN ISLAND DR.
City,State,Zip: PORTLAND, OR 97217
ECS Site ID: 6128
Facility Size: 1.53 acres
Action: NO FURTHER STATE ACTION REQUIRED
Start Date: 04/04/2017
End Date: 04/04/2017

HAYDEN ISLAND - UMATILLA PROPERTY (Continued) **S118869506**

Facility Status: Completed
Program: VCP
Latitude: 45.6143
Longitude: -122.6822

I55 **HAYDEN'S CORNER** **OR ECSI** **S111766412**
NE **1321-1337 N HAYDEN ISLAND DR.** **OR VCP** **N/A**
1/2-1 **PORTLAND, OR 97217** **OR BROWNFIELDS**
0.518 mi.
2734 ft. **Site 1 of 2 in cluster I**

Relative:
Higher

Actual:
23 ft.

ECSI:
Name: HAYDEN'S CORNER
Address: 1321-1337 N HAYDEN ISLAND DR.
City,State,Zip: PORTLAND, OR 97217
State ID Number: 5711
Brown ID: Brownfield Site - DEQ Tech Assistance
Study Area: False
Region ID: 2
Legislatve ID: 0
Investigation: No Further Action
FACA ID: 123291
Further Action: 0
Lat/Long (dms): 45 36 48.60 / -122 40 45.80
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 2.00
Township Zone: N
Range Coord: 1.00
Range Zone: E
Section Coord: 33
Qtr Section: Not reported
Tax Lots: Tax Lot 300
Size: 0.62 acre
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 11/04/2015
Created Date: 03/20/2012
Decode For RegionID: Northwest Region
Decode For BrownID: Brownfield Site - DEQ Technical Assistance
Decode For Furtheract: Not reported
Decode For Investstat: No Further Action
Decode For Legislative: Not reported
Alias Name: Hayden Island Landfill
Alias Name: Arco Service Station #4475

Hazardous Release:
Substance ID.: 121623
Haz Release ID: 387990
Qty Released: unknown
Date Released: unknown
Update Date: 07/05/2012
Update By: RWILLIA
Substance Code: 74-82-8
Substance Name: METHANE
Substance Abbrev.: Not reported

HAYDEN'S CORNER (Continued) **S111766412**

Sampling Result ID: 350457
Feature Id: 0
Hazard Release Id: 387990
Medium: 697
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 06/01/2012
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 2.1% (soil gas)
Last Update By: RWILLIA
Update Date: 07/05/2012
Decode for MediumID: Air

Substance ID.: 121608
Haz Release ID: 387991
Qty Released: unknown
Date Released: unknown
Update Date: 07/05/2012
Update By: RWILLIA
Substance Code: 71-43-2
Substance Name: BENZENE
Substance Abbrev.: Not reported
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319178
Sub Alias Name: BENZOL
Substance Alias ID: 319179
Sub Alias Name: COAL NAPTHA
Substance Alias ID: 319180
Sub Alias Name: CYCLOHEXATRIENE
Substance Alias ID: 319181
Sub Alias Name: PHENE
Substance Alias ID: 319182
Sub Alias Name: PYROBENZOL
Sampling Result ID: 350455
Feature Id: 0
Hazard Release Id: 387991
Medium: 697
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True

HAYDEN'S CORNER (Continued) **S111766412**

Sample Depth: Not reported
Start Date: 06/01/2012
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 12 ug/m3 (soil gas)
Last Update By: RWILLIA
Update Date: 07/05/2012
Decode for MediumID: Air

Substance ID.: 120883
Haz Release ID: 387992
Qty Released: unknown
Date Released: unknown
Update Date: 07/05/2012
Update By: RWILLIA
Substance Code: 108-88-3
Substance Name: TOLUENE
Substance Abbrev.: Not reported
Substance Category ID: 8520
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8520
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316466
Sub Alias Name: BENZENE,METHYL-
Substance Alias ID: 316467
Sub Alias Name: METHACIDE
Substance Alias ID: 316468
Sub Alias Name: METHYLBENZENE
Substance Alias ID: 316469
Sub Alias Name: METHYLBENZOL
Substance Alias ID: 316470
Sub Alias Name: PHENYLMETHANE
Substance Alias ID: 316471
Sub Alias Name: TOLUOL
Sampling Result ID: 350458
Feature Id: 0
Hazard Release Id: 387992
Medium: 697
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 06/01/2012
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 130 ug/m3 (soil gas)
Last Update By: RWILLIA

HAYDEN'S CORNER (Continued) **S111766412**

Update Date: 07/05/2012
Decode for MediumID: Air

Substance ID.: 121912
Haz Release ID: 387993
Qty Released: unknown
Date Released: unknown
Update Date: 07/05/2012
Update By: RWILLIA
Substance Code: 95-63-6
Substance Name: TRIMETHYLBENZENE,1,2,4-
Substance Abbrev.: Not reported
Substance Alias ID: 317959
Sub Alias Name: BENZENE,1,2,5-TRIMETHYL-
Substance Alias ID: 317960
Sub Alias Name: CUMENE,psi-
Substance Alias ID: 317961
Sub Alias Name: PSEUDOCUMENE
Substance Alias ID: 317962
Sub Alias Name: PSEUDOCUMOL
Substance Alias ID: 317963
Sub Alias Name: TRIMETHYLBENZENE,asym-

Substance ID.: 121588
Haz Release ID: 387994
Qty Released: unknown
Date Released: unknown
Update Date: 07/05/2012
Update By: RWILLIA
Substance Code: 67-66-3
Substance Name: CHLOROFORM
Substance Abbrev.: Not reported
Substance Category ID: 8510
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8510
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319118
Sub Alias Name: METHANE,TRICHLORO-
Substance Alias ID: 319119
Sub Alias Name: TRICHLOROFORM
Substance Alias ID: 319120
Sub Alias Name: TRICHLOROMETHANE
Sampling Result ID: 350456
Feature Id: 0
Hazard Release Id: 387994
Medium: 697
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True

HAYDEN'S CORNER (Continued) **S111766412**

Sample Depth: Not reported
Start Date: 06/01/2012
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 32 ug/m3 (soil gas)
Last Update By: RWILLIA
Update Date: 07/05/2012
Decode for MediumID: Air

Narrative:

NARR ID: 5753953
NARR Code: Contamination
Created By: RWILLIA
Created Date: 03/22/2012
Updated By: RWILLIA
Updated Date: 03/22/2012
Decode for NarcdID: Contamination
NARR Comments: Suspected methane related to the underlying Hayden Island Landfill. Possible petroleum and VOCs related to the former use of the site as an ARCO service station.

NARR ID: 5754122
NARR Code: Data Sources
Created By: RWILLIA
Created Date: 08/02/2012
Updated By: RWILLIA
Updated Date: 08/02/2012
Decode for NarcdID: Data Sources
NARR Comments: Methane Testing - Hayden's Corner, PBS Engineering and Enrironmental, June 2011. Phase II Sampling and Analysis Report, 1321-1337 N. Hayden Island Drive, prepared for Hayden's Corner LLC by Environmental Inspection Services, June 2012.

NARR ID: 5753952
NARR Code: General Site Description
Created By: RWILLIA
Created Date: 03/22/2012
Updated By: RWILLIA
Updated Date: 08/02/2012
Decode for NarcdID: General Site Description
NARR Comments: Flat-lying, paved site with parking to the north and commercial buildings on the south.

NARR ID: 5754082
NARR Code: Hazardous Substance/Waste Types
Created By: RWILLIA
Created Date: 07/05/2012
Updated By: RWILLIA
Updated Date: 07/05/2012
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Methane and potentially hazardous volatile organic compounds (VOC)

NARR ID: 5753954
NARR Code: Pathways Other Hazards
Created By: RWILLIA
Created Date: 03/22/2012
Updated By: RWILLIA

HAYDEN'S CORNER (Continued) **S111766412**

Updated Date: 03/22/2012
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: Potential intrusion into site buildings of methane and/or VOCs related to the underlying landfill and former use of the site as a gasoline station.

NARR ID: 5754083
NARR Code: Remedial Action
Created By: RWILLIA
Created Date: 07/05/2012
Updated By: GWISTAR
Updated Date: 08/20/2012
Decode for NarcdID: Remedial Action
NARR Comments: Methane and other atmospheric gases were measured in confined spaces inside the site buildings using a handheld meter in May 2011. Methane at levels from 1.5 to 5.5% was detected at the drains of two restrooms. This could be related to sewer gas from leaking drain traps. Little or no methane was detected in any other confined space locations within the buildings. In May 2012 three borings were arrayed around the property and one included the location of a former leaking waste oil tank from the prior gas station. Borings were sampled for methane using a handheld meter as well as summa canister sampling. VOCs samples were also collected using a summa. The maximum methane detection was around 2% in one hole (near the former waste oil tank) and near zero in other holes. Various VOCs (largely associated with petroleum) were found at generally low concentrations. No VOCs were found at concentrations greater than commercial risk-based concentrations. In July 2012 a plumber was hired by site owner to inspect and correct any problems with the bathroom drains/traps. No Further Action determination in August 2012. The determination applies only to the immediate Hayden's Corner site and not to the greater Hayden Island Landfill (ECSI #1559).

NARR ID: 5753951
NARR Code: Site History
Created By: RWILLIA
Created Date: 03/22/2012
Updated By: RWILLIA
Updated Date: 03/22/2012
Decode for NarcdID: Site History
NARR Comments: An ARCO service station that operated on the property starting in 1971 initiated an investigation in 1989 that showed gasoline contamination in groundwater. Borings also revealed a layer of landfill debris beneath clean fill. The property is apparently located within the footprint of the former Hayden Island Landfill, an unregulated landfill that was located in a seasonal lake basin and probably operated between 1950 and 1970, when it was covered by a 7 to 8-foot layer of clean fill. DEQ's LUST program (file #26-89-0149) requested a Corrective Action Plan from ARCO, leading to pump-and-treat remediation that began operating 8/90. Groundwater samples from eight monitoring wells contained dissolved metals, which are most likely a result of landfill leachate percolating through unknown solid wastes in the unsaturated zone. Because of system fouling from these metals, the treatment program was shut down in May 1991. The ARCO station recieved a No Further Action determination in 1998 with the exception that the determination did not apply to other contaminants found at the site related to the greater Hayden Island

HAYDEN'S CORNER (Continued) **S111766412**

Landfill.

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 03/20/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 03/20/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9511
Region: Northwestern Region
Complete Date: 08/02/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 03/20/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 08/02/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/06/2012
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

VCS:
Name: HAYDEN'S CORNER
Address: 1321-1337 N HAYDEN ISLAND DR.
City,State,Zip: PORTLAND, OR 97217
ECS Site ID: 5711
Facility Size: 0.62 acre
Action: NO FURTHER STATE ACTION REQUIRED
Start Date: 08/02/2012
End Date: 08/02/2012
Facility Status: Completed
Program: ICP
Latitude: 45.6135

HAYDEN'S CORNER (Continued) **S111766412**

Longitude: -122.6794

OR BROWNFIELDS:
Name: HAYDEN'S CORNER
Address: 1321-1337 N HAYDEN ISLAND DR.
City,State,Zip: PORTLAND, OR 97217
Geolocation Id: 123291
Status: NO FURTHER STATE ACTION REQUIRED
Lat/Long: 45.6135 / -122.679

I56 **HAYDEN ISLAND LANDFILL** **OR ECSI** **S103842510**
NE **NORTH PARTS OF HAYDEN ISLAND, WEST OF I-5** **OR CRL** **N/A**
1/2-1 **PORTLAND, OR 97217**
0.521 mi.
2749 ft. **Site 2 of 2 in cluster I**

Relative:
Higher

Actual:
23 ft.

ECSI:
Name: HAYDEN ISLAND LANDFILL
Address: NORTH PARTS OF HAYDEN ISLAND, WEST OF I-5
City,State,Zip: PORTLAND, OR 97217
State ID Number: 1559
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 834
Investigation: Listed on the CRL/Inventory
FACA ID: 2298
Further Action: 258
Lat/Long (dms): 45 36 49.30 / -122 40 48.70
County Code: 26.00
Score Value: Not reported
Cerclis ID: 001002700
Township Coord.: 2.00
Township Zone: N
Range Coord: 1.00
Range Zone: E
Section Coord: 34
Qtr Section: Not reported
Tax Lots: Not reported
Size: 20 acres
NPL: False
Orphan: False
Updated By: KDANA
Update Date: 02/18/2014
Created Date: 05/23/1994
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Medium
Decode For Investstat: Listed on the CRL/Inventory
Decode For Legislative: Environmental Protection Agency
Alias Name: Arco Station #4475
Alias Name: Hayden's Corner

Hazardous Release:
Substance ID.: 121608
Haz Release ID: 384614
Qty Released: unknown
Date Released: 1950 to 1970

HAYDEN ISLAND LANDFILL (Continued) **S103842510**

Update Date: 05/12/1994
Update By: Not reported
Substance Code: 71-43-2
Substance Name: BENZENE
Substance Abbrev.: Not reported
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319178
Sub Alias Name: BENZOL
Substance Alias ID: 319179
Sub Alias Name: COAL NAPTHA
Substance Alias ID: 319180
Sub Alias Name: CYCLOHEXATRIENE
Substance Alias ID: 319181
Sub Alias Name: PHENE
Substance Alias ID: 319182
Sub Alias Name: PYROBENZOL
Sampling Result ID: 343087
Feature Id: Not reported
Hazard Release Id: 384614
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 06/08/1994
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 210 ppb
Last Update By: ars
Update Date: 12/05/1994
Decode for MediumID: Groundwater

Substance ID.: 120781
Haz Release ID: 384615
Qty Released: unknown
Date Released: 1950 to 1970
Update Date: 05/12/1994
Update By: Not reported
Substance Code: 100-41-4
Substance Name: ETHYLBENZENE
Substance Abbrev.: Not reported
Substance Category ID: 8515
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported

HAYDEN ISLAND LANDFILL (Continued) **S103842510**

Created Date: 12/17/2002
Substance Category ID: 8515
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316146
Sub Alias Name: ETHYLBENZOL
Substance Alias ID: 316147
Sub Alias Name: PHENYLETHANE
Sampling Result ID: 343088
Feature Id: Not reported
Hazard Release Id: 384615
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 12/12/1993
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 2.2 ppb
Last Update By: ars
Update Date: 12/05/1994
Decode for MediumID: Groundwater

Substance ID.: 120883
Haz Release ID: 384616
Qty Released: unknown
Date Released: 1950 to 1970
Update Date: 05/12/1994
Update By: Not reported
Substance Code: 108-88-3
Substance Name: TOLUENE
Substance Abbrev.: Not reported
Substance Category ID: 8520
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8520
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316466
Sub Alias Name: BENZENE,METHYL-
Substance Alias ID: 316467
Sub Alias Name: METHACIDE
Substance Alias ID: 316468
Sub Alias Name: METHYLBENZENE
Substance Alias ID: 316469
Sub Alias Name: METHYLBENZOL
Substance Alias ID: 316470

HAYDEN ISLAND LANDFILL (Continued) **S103842510**

Sub Alias Name: PHENYLMETHANE
Substance Alias ID: 316471
Sub Alias Name: TOLUOL
Sampling Result ID: 343089
Feature Id: Not reported
Hazard Release Id: 384616
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 06/08/1994
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1.9 ppb
Last Update By: ars
Update Date: 12/05/1994
Decode for MediumID: Groundwater

Substance ID.: 121051
Haz Release ID: 384617
Qty Released: unknown
Date Released: 1950 to 1970
Update Date: 05/12/1994
Update By: Not reported
Substance Code: 1330-20-7
Substance Name: XYLENEs
Substance Abbrev.: Not reported
Substance Category ID: 8526
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8526
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317017
Sub Alias Name: DIMETHYLBENZENEs
Substance Alias ID: 317018
Sub Alias Name: XYLOLs
Sampling Result ID: 343090
Feature Id: Not reported
Hazard Release Id: 384617
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 06/08/1994
End Date: Not reported

HAYDEN ISLAND LANDFILL (Continued) **S103842510**

Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 0.6 ppb
Last Update By: ars
Update Date: 12/05/1994
Decode for MediumID: Groundwater

Substance ID.: 121664
Haz Release ID: 384618
Qty Released: unknown
Date Released: 1950 to 1970
Update Date: 05/12/1994
Update By: Not reported
Substance Code: 7440-38-2
Substance Name: ARSENIC
Substance Abbrev.: Not reported
Substance Category ID: 8439
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8439
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319286
Sub Alias Name: AS
Sampling Result ID: 343091
Feature Id: Not reported
Hazard Release Id: 384618
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/04/1992
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 344 ppb
Last Update By: ars
Update Date: 12/05/1994
Decode for MediumID: Groundwater

Substance ID.: 121666
Haz Release ID: 384619
Qty Released: unknown
Date Released: 1950 to 1970
Update Date: 05/12/1994
Update By: Not reported
Substance Code: 7440-41-7
Substance Name: BERYLLIUM
Substance Abbrev.: Not reported
Substance Category ID: 8459

HAYDEN ISLAND LANDFILL (Continued) **S103842510**

Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8459
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319288
Sub Alias Name: BE
Substance Alias ID: 319289
Sub Alias Name: GLUCINIUM
Sampling Result ID: 343092
Feature Id: Not reported
Hazard Release Id: 384619
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/04/1992
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 24 ppb
Last Update By: ars
Update Date: 12/05/1994
Decode for MediumID: Groundwater

Substance ID.: 121668
Haz Release ID: 384620
Qty Released: unknown
Date Released: 1950 to 1970
Update Date: 05/12/1994
Update By: Not reported
Substance Code: 7440-43-9
Substance Name: CADMIUM
Substance Abbrev.: Not reported
Substance Category ID: 8460
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8460
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319291
Sub Alias Name: CD
Sampling Result ID: 343093
Feature Id: Not reported
Hazard Release Id: 384620
Medium: 698

HAYDEN ISLAND LANDFILL (Continued) **S103842510**

Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/04/1992
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 34 ppb
Last Update By: ars
Update Date: 12/05/1994
Decode for MediumID: Groundwater

Substance ID.: 121671
Haz Release ID: 384621
Qty Released: unknown
Date Released: 1950 to 1970
Update Date: 05/12/1994
Update By: Not reported
Substance Code: 7440-47-3
Substance Name: CHROMIUM
Substance Abbrev.: Not reported
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318145
Sub Alias Name: CHROMIUM, INORGANIC
Substance Alias ID: 319294
Sub Alias Name: CHROMIUM, TOTAL
Sampling Result ID: 343094
Feature Id: Not reported
Hazard Release Id: 384621
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/04/1992
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 566 ppb
Last Update By: ars
Update Date: 12/05/1994
Decode for MediumID: Groundwater

HAYDEN ISLAND LANDFILL (Continued) **S103842510**

Substance ID.: 121639
Haz Release ID: 384622
Qty Released: unknown
Date Released: 1950 to 1970
Update Date: 05/12/1994
Update By: Not reported
Substance Code: 7439-92-1
Substance Name: LEAD
Substance Abbrev.: Not reported
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319256
Sub Alias Name: PB
Sampling Result ID: 343095
Feature Id: Not reported
Hazard Release Id: 384622
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/04/1992
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 550 ppb
Last Update By: ars
Update Date: 12/05/1994
Decode for MediumID: Groundwater

Substance ID.: 121643
Haz Release ID: 384623
Qty Released: unknown
Date Released: 1950 to 1970
Update Date: 05/12/1994
Update By: Not reported
Substance Code: 7439-97-6
Substance Name: MERCURY
Substance Abbrev.: Not reported
Substance Category ID: 8467
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8467
Substance Category: Inorganics
Category Level: Not reported

HAYDEN ISLAND LANDFILL (Continued) **S103842510**

Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319260
Sub Alias Name: HG
Substance Alias ID: 319261
Sub Alias Name: HYDRARGYRUM
Substance Alias ID: 319262
Sub Alias Name: LIQUID SILVER
Substance Alias ID: 319263
Sub Alias Name: QUICKSILVER
Sampling Result ID: 343096
Feature Id: Not reported
Hazard Release Id: 384623
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/04/1992
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1 ppb
Last Update By: ars
Update Date: 12/05/1994
Decode for MediumID: Groundwater

Substance ID.: 121673
Haz Release ID: 384624
Qty Released: unknown
Date Released: 1950 to 1970
Update Date: 05/12/1994
Update By: Not reported
Substance Code: 7440-50-8
Substance Name: COPPER
Substance Abbrev.: Not reported
Substance Category ID: 8464
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8464
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319296
Sub Alias Name: CU
Sampling Result ID: 343097
Feature Id: Not reported
Hazard Release Id: 384624
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False

HAYDEN ISLAND LANDFILL (Continued) **S103842510**

Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/04/1992
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 748 ppb
Last Update By: ars
Update Date: 12/05/1994
Decode for MediumID: Groundwater

Substance ID.: 121646
Haz Release ID: 384625
Qty Released: unknown
Date Released: 1950 to 1970
Update Date: 05/12/1994
Update By: Not reported
Substance Code: 7440-02-0
Substance Name: NICKEL
Substance Abbrev.: Not reported
Substance Category ID: 8469
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8469
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319266
Sub Alias Name: NI
Sampling Result ID: 343098
Feature Id: Not reported
Hazard Release Id: 384625
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/04/1992
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 543 ppb
Last Update By: ars
Update Date: 12/05/1994
Decode for MediumID: Groundwater

Substance ID.: 121654
Haz Release ID: 384626
Qty Released: unknown
Date Released: 1950 to 1970
Update Date: 05/12/1994

HAYDEN ISLAND LANDFILL (Continued) **S103842510**

Update By: Not reported
Substance Code: 7440-22-4
Substance Name: SILVER
Substance Abbrev.: Not reported
Substance Category ID: 8470
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8470
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319274
Sub Alias Name: AG
Sampling Result ID: 343099
Feature Id: Not reported
Hazard Release Id: 384626
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/04/1992
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 23 ppb
Last Update By: ars
Update Date: 12/05/1994
Decode for MediumID: Groundwater

Narrative:
NARR ID: 5734147
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: This unregulated landfill was located in a seasonal lake basin and probably operated between 1950 and 1970, when it was covered by a 7 to 8-foot layer of clean fill. An ARCO facility that opened in 1971 at the eastern edge of the former landfill initiated an investigation in 1989 that showed gasoline contamination in groundwater. Borings also revealed a layer of landfill debris beneath clean fill. DEQ's LUST program (file #26-89-0149) requested a Corrective Action Plan from ARCO, leading to pump-and-treat remediation that began operating 8/90. Groundwater samples from eight monitoring wells contained dissolved metals, which are most likely a result of leachate percolating through unknown solid wastes in the unsaturated zone. Because of system fouling from these metals, the treatment program was shut down in May 1991.

NARR ID: 5734148

HAYDEN ISLAND LANDFILL (Continued) **S103842510**

NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: RWILLIA
Updated Date: 08/02/2012
Decode for NarcdID: Data Sources
NARR Comments: Numerous documents and reports in NWR LUST file #26-89-0149. Supplemental Environmental Study, Hayden Island Mobile Home / RV Park, Portland, Oregon, prepared for Heller Real Estate Financial Service, by Environmental Associates, Inc., October 30, 1992. Hayden Island Landfill, Preliminary Assessment, Portland, Oregon, TDD: 07-07-0007, prepared for United States Environmental Protection Agency, by Ecology and Environment, Inc., January 2008. Methane Testing - Hayden's Corner, PBS Engineering and Enrironmental, June 2011. Phase II Sampling and Analysis Report, 1321-1337 N. Hayden Island Drive, prepared for Hayden's Corner LLC by Environmental Inspection Services, June 2012.

NARR ID: 5734149
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: metals, gasoline

NARR ID: 5734150
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Unregulated solid waste disposal between about 1950 and 1970; gasoline releases from underground tanks, sometime between 1971 and 1991.

NARR ID: 5734151
NARR Code: Media Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Media Contamination
NARR Comments: groundwater

NARR ID: 5734152
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: SFORTUN
Updated Date: 05/19/2011
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: The depth of groundwater ranges from about 8.8- to 28.7-feet, and varies seasonally, as well as with stage fluctuations in the nearby Columbia River.

HAYDEN ISLAND LANDFILL (Continued) **S103842510**

NARR ID: 5734153
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: RWILLIA
Updated Date: 08/02/2012
Decode for NarcdID: Remedial Action
NARR Comments: In June 1993, ARCO concluded that it was not possible to remediate benzene in groundwater without first removing dissolved metals. ARCO maintained that it had no responsibility for the metals. The LUST section may continue to require regular monitoring as a part of <quot>conditional closure.<quot> Potential pathways of exposure appear limited to groundwater and surface water. Because more information is needed about the landfill and its levels of contamination, Site Assessment recommends that affected property owners characterize contamination in and below the former landfill. Otherwise, a PA should be completed to investigate the site's history and to evaluate potential exposure pathways, under a low priority. Confined space methane testing was performed by PBS for the Hayden's Corner property. The only significant methane was found at two bathroom floor drains where the likely source was sewer gas. Three soil gas samples were collected from borings around the former ARCO site as part of the investigation of the Hayden's Corner property (ECSI #5711). Methane at 2% was found near the former waste oil but this could have been from residual petroleum contamination. Other samples showed only trace methane.

NARR ID: 5734154
NARR Code: Health Threats
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Health Threats
NARR Comments: Potential threats to Columbia River aquatic environments.

NARR ID: 5754123
NARR Code: 1922
Created By: RWILLIA
Created Date: 08/02/2012
Updated By: GWISTAR
Updated Date: 06/21/2017
Decode for NarcdID: Current Site Summary Statement
NARR Comments: [April 2017] This unregulated landfill was located in a seasonal lake basin and probably operated between 1950 and 1970, when it was covered by a 7 to 8-foot layer of clean fill. An ARCO facility that opened in 1971 at the eastern edge of the former landfill initiated an investigation in 1989 that showed gasoline contamination in groundwater. High concentrations of metals were also found. Borings revealed a layer of landfill debris beneath clean fill. The Hayden's Corner property (former ARCO site) was split off from the greater landfill site with a separate ECSI number (#5711). Another site was investigated in the Hayden Island Landfill area in 2016/17 (1445 and 1463 N. Hayden Island Drive). These properties' recent use was commercial, and not expected to lead to contamination. Groundwater below the properties is contaminated with TPH and metals, particularly arsenic, barium, lead, silver, and mercury.

HAYDEN ISLAND LANDFILL (Continued) **S103842510**

Administrative Action:
Action ID: 9421
Region: 0
Complete Date: 06/07/2007
Rank Value: Not reported
Cleanup Flag: False
Created Date: 03/11/2008
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: Site added to CERCLIS
Further Action: 0
Comments: Not reported

Action ID: 9456
Region: 0
Complete Date: 01/31/2008
Rank Value: Not reported
Cleanup Flag: False
Created Date: 03/11/2008
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: BASIC PRELIMINARY ASSESSEMENT
Further Action: 0
Comments: Not reported

Action ID: 9444
Region: 0
Complete Date: 03/07/2008
Rank Value: Not reported
Cleanup Flag: False
Created Date: 03/11/2008
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: No Further Remedial Action Planned under Federal program
Further Action: 0
Comments: Not reported

Action ID: 9519
Region: Northwestern Region
Complete Date: 01/19/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/23/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: 0
Comments: Not reported

HAYDEN ISLAND LANDFILL (Continued) **S103842510**

Action ID: 9506
Region: Northwestern Region
Complete Date: 01/19/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 02/18/2014
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Investigation recommended (SI)
Further Action: Medium
Comments: Not reported

Action ID: 9438
Region: Northwestern Region
Complete Date: 06/24/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9451
Region: Northwestern Region
Complete Date: 10/19/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Owner/operator comments received on listing notification
Further Action: Not reported
Comments: Not reported

Action ID: 9451
Region: Northwestern Region
Complete Date: 11/15/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Owner/operator comments received on listing notification
Further Action: Not reported
Comments: Not reported

Action ID: 9428

HAYDEN ISLAND LANDFILL (Continued) **S103842510**

Region: Northwestern Region
Complete Date: 11/09/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Extension requested by owner/operator
Further Action: Not reported
Comments: Not reported

Action ID: 9430
Region: Northwestern Region
Complete Date: 12/04/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Petition or request granted
Further Action: Not reported
Comments: Not reported

Action ID: 9451
Region: Northwestern Region
Complete Date: 12/14/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Owner/operator comments received on listing notification
Further Action: Not reported
Comments: Not reported

Action ID: 9448
Region: Northwestern Region
Complete Date: 05/20/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Review for final listing
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Northwestern Region

HAYDEN ISLAND LANDFILL (Continued) **S103842510**

Complete Date: 10/04/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Northwestern Region
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Northwestern Region
Complete Date: 11/30/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9496
Region: Northwestern Region
Complete Date: 12/01/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Low
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 11/30/1994

HAYDEN ISLAND LANDFILL (Continued) **S103842510**

Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Northwestern Region
Complete Date: 11/30/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Operations:
Operation Id: 132888
Operation Status: Inactive
Common Name: Hayden Island Landfill
Yrs of Operation: 1950 - 1070
Comments: abandoned landfill covered with clean fill
Updated Date: 03/10/1995
Updated By: jxh
Decode for OpstatID: Inactive
Operations SIC Id: 195874
SIC Code: 4953
Created By: Not reported
Created Date: 12/17/2002

CRL:
Name: HAYDEN ISLAND LANDFILL
Address: NORTH PARTS OF HAYDEN ISLAND, WEST OF I-5
City,State,Zip: PORTLAND, OR 97217
Facility ID: 1559
Location ID: 2298
Status Code: LIS
Facility Status: Site Investigation recommended (SI)
Lat/Long: 45.6137 / -122.6802

57
WNW
1/2-1
0.545 mi.
2877 ft.

JAMES RIVER CORP. - NORTH PORTLAND
3400 N MARINE DR.
PORTLAND, OR 97217

OR CRL **S108660100**
OR ECSI **N/A**
OR INST CONTROL
OR VCP
OR MANIFEST

Relative:
Lower

Actual:
12 ft.

CRL:

Name:	JAMES RIVER CORP. - NORTH PORTLAND
Address:	3400 N MARINE DR.
City,State,Zip:	PORTLAND, OR 97217
Facility ID:	127
Location ID:	1148
Status Code:	LIS
Facility Status:	Source Control Evaluation
Lat/Long:	45.6119 / -122.7022

ECSI:

Name:	JAMES RIVER CORP. - NORTH PORTLAND
Address:	3400 N MARINE DR.
City,State,Zip:	PORTLAND, OR 97217
State ID Number:	127
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	0
Investigation:	Listed on the CRL/Inventory
FACA ID:	1148
Further Action:	0
Lat/Long (dms):	45 36 43.00 / -122 42 8.00
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	009042854
Township Coord.:	2.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	33
Qtr Section:	C
Tax Lots:	600 & 1100
Size:	24.7 acres
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	04/20/2017
Created Date:	08/03/1988
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	Listed on the CRL/Inventory
Decode For Legislative:	Not reported
Alias Name:	Crown Zellerbach - North Portland
Alias Name:	Fort James Corp. - North Portland
Alias Name:	Graphics Technology International
Alias Name:	Rexham Graphics
Alias Name:	Graphic Packaging International
Alias Name:	Riverwood International, Inc.

Hazardous Release:

Substance ID.:	121608

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Haz Release ID: 380674
Qty Released: unknown
Date Released: unknown
Update Date: 11/21/1996
Update By: Not reported
Substance Code: 71-43-2
Substance Name: BENZENE
Substance Abbrev.: Not reported
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319178
Sub Alias Name: BENZOL
Substance Alias ID: 319179
Sub Alias Name: COAL NAPTHA
Substance Alias ID: 319180
Sub Alias Name: CYCLOHEXATRIENE
Substance Alias ID: 319181
Sub Alias Name: PHENE
Substance Alias ID: 319182
Sub Alias Name: PYROBENZOL
Sampling Result ID: 342455
Feature Id: Not reported
Hazard Release Id: 380674
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: (shallow well)
Start Date: 04/07/1993
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 150 ppb
Last Update By: gmw
Update Date: 11/21/1996
Decode for MediumID: Groundwater

Substance ID.: 121701
Haz Release ID: 382778
Qty Released: >75 gals
Date Released: December 5, 1985
Update Date: 02/06/1997
Update By: Not reported
Substance Code: 75-35-4
Substance Name: DICHLOROETHYLENE,1,1-
Substance Abbrev.: Not reported
Substance Category ID: 8512

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8553
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8512
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8553
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319364
Sub Alias Name: DICHLOROETHENE,1,1-
Substance Alias ID: 319365
Sub Alias Name: DICHLOROETHYLENE,asym-
Substance Alias ID: 319366
Sub Alias Name: ETHENE,1,1-DICHLORO-
Substance Alias ID: 319367
Sub Alias Name: VINYLIDENE CHLORIDE
Sampling Result ID: 347025
Feature Id: Not reported
Hazard Release Id: 382778
Medium: 704
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Not reported
Last Update By: kpd
Update Date: 06/02/1997
Decode for MediumID: Surface Water

Substance ID.: 121781
Haz Release ID: 383584
Qty Released: unknown
Date Released: unknown
Update Date: 04/24/1993
Update By: Not reported
Substance Code: 79-01-6
Substance Name: TRICHLOROETHYLENE
Substance Abbrev.: Not reported
Substance Category ID: 8523
Substance Category: Volatiles

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Category ID:	8545
Substance Category:	Solvents of interest to Milwaukie Area GW study
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Category ID:	8523
Substance Category:	Volatiles
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Category ID:	8545
Substance Category:	Solvents of interest to Milwaukie Area GW study
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Alias ID:	317517
Sub Alias Name:	ETHINYL TRICHLORIDE
Substance Alias ID:	317518
Sub Alias Name:	ETHYLENE TRICHLORIDE
Substance Alias ID:	317519
Sub Alias Name:	TCE
Substance Alias ID:	317520
Sub Alias Name:	TRI-CLENE
Substance Alias ID:	317521
Sub Alias Name:	TRICHLOROETHENE
Sampling Result ID:	345937
Feature Id:	Not reported
Hazard Release Id:	383584
Medium:	698
Substance Abbrev.:	Not reported
Unit Code:	Not reported
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	(deep well sample)
Start Date:	05/24/1989
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	Not reported
Sample Comment:	7.1 ppb
Last Update By:	gmw
Update Date:	11/21/1996
Decode for MediumID:	Groundwater
Sampling Result ID:	345938
Feature Id:	Not reported
Hazard Release Id:	383584
Medium:	703
Substance Abbrev.:	Not reported
Unit Code:	Not reported
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	Not reported
Start Date:	Not reported

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to .8 ppm
Last Update By: kpd
Update Date: 06/02/1997
Decode for MediumID: Soil

Substance ID.: 120883
Haz Release ID: 383585
Qty Released: unknown
Date Released: unknown
Update Date: 04/24/1993
Update By: Not reported
Substance Code: 108-88-3
Substance Name: TOLUENE
Substance Abbrev.: Not reported
Substance Category ID: 8520
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8520
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316466
Sub Alias Name: BENZENE,METHYL-
Substance Alias ID: 316467
Sub Alias Name: METHACIDE
Substance Alias ID: 316468
Sub Alias Name: METHYLBENZENE
Substance Alias ID: 316469
Sub Alias Name: METHYLBENZOL
Substance Alias ID: 316470
Sub Alias Name: PHENYLMETHANE
Substance Alias ID: 316471
Sub Alias Name: TOLUOL
Sampling Result ID: 345939
Feature Id: Not reported
Hazard Release Id: 383585
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: (deep well sample)
Start Date: 05/24/1989
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 4.5 ppb
Last Update By: gmw
Update Date: 11/21/1996
Decode for MediumID: Groundwater

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Sampling Result ID: 345940
Feature Id: Not reported
Hazard Release Id: 383585
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to 560 ppm
Last Update By: kpd
Update Date: 06/02/1997
Decode for MediumID: Soil

Substance ID.: 121011
Haz Release ID: 383586
Qty Released: unknown
Date Released: unknown
Update Date: 04/24/1993
Update By: Not reported
Substance Code: 127-18-4
Substance Name: TETRACHLOROETHYLENE
Substance Abbrev.: Not reported
Substance Category ID: 8519
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8551
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8519
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8551
Substance Category: Solvents of interest to Milwaukie Area GW study
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316912
Sub Alias Name: ETHENE,TETRACHLORO-
Substance Alias ID: 316913
Sub Alias Name: ETHYLENE TETRACHLORIDE
Substance Alias ID: 316914
Sub Alias Name: PERCHLOROETHYLENE
Substance Alias ID: 316915
Sub Alias Name: PERCLENE
Substance Alias ID: 316916

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Sub Alias Name: TETRACHLOROETHENE
Substance Alias ID: 316917
Sub Alias Name: TETRACHLOROETHENE,1,1,2,2-
Substance Alias ID: 316918
Sub Alias Name: TETRACHLOROETHYLENE,1,1,2,2-
Sampling Result ID: 342453
Feature Id: Not reported
Hazard Release Id: 383586
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: (deep well sample)
Start Date: 05/10/1991
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 7.4 ppb
Last Update By: gmw
Update Date: 11/21/1996
Decode for MediumID: Groundwater
Sampling Result ID: 342454
Feature Id: Not reported
Hazard Release Id: 383586
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 7.5 feet
Start Date: 06/14/1993
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 2.6 ppm
Last Update By: gmw
Update Date: 11/21/1996
Decode for MediumID: Soil
Sampling Result ID: 345941
Feature Id: Not reported
Hazard Release Id: 383586
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: (water fountain sample)
Start Date: 05/24/1989
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 23 ppb
Last Update By: gmw

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Update Date: 11/21/1996
Decode for MediumID: Groundwater

Substance ID.: 121051
Haz Release ID: 383587
Qty Released: unknown
Date Released: unknown
Update Date: 04/24/1993
Update By: Not reported
Substance Code: 1330-20-7
Substance Name: XYLENEs
Substance Abbrev.: Not reported
Substance Category ID: 8526
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8526
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317017
Sub Alias Name: DIMETHYLBENZENEs
Substance Alias ID: 317018
Sub Alias Name: XYLOLs
Sampling Result ID: 345942
Feature Id: Not reported
Hazard Release Id: 383587
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to 150 ppm
Last Update By: kpd
Update Date: 06/02/1997
Decode for MediumID: Soil

Substance ID.: 120781
Haz Release ID: 383588
Qty Released: unknown
Date Released: unknown
Update Date: 04/24/1993
Update By: Not reported
Substance Code: 100-41-4
Substance Name: ETHYLBENZENE
Substance Abbrev.: Not reported
Substance Category ID: 8515
Substance Category: Volatiles
Category Level: Not reported

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8515
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316146
Sub Alias Name: ETHYLBENZOL
Substance Alias ID: 316147
Sub Alias Name: PHENYLETHANE
Sampling Result ID: 345943
Feature Id: Not reported
Hazard Release Id: 383588
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: up to 9.6 ppm
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Narrative:
NARR ID: 5733412
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: (4/29/97 GMW/SAS) Throughout this facility's history, many hazardous-material releases have been documented from spills and wastewater discharges, USTs, above-ground tanks, and an underground pipeline. See the project file for more detail on these releases. Although most releases have involved alcohols and related solvents, the main contaminants of concern are chlorinated solvents, BTEX, and metals. Chlorinated solvents above drinking-water standards were detected in deep wells on-site in the late 1980s and early 1990s. All of the UST issues other than the <quot>gasoline tank area<quot> have been referred from the UST Section to Site Assessment.

NARR ID: 5733413
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: KDANA
Updated Date: 01/06/2015
Decode for NarcdID: Data Sources
NARR Comments: 1) LUST file #26-89-0064. 2) LUST file #26-89-0088. 3) LUST file #26-98-0092. 4) UST Facility ID #3124. 5) UST Facility ID #3136.

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

NARR ID: 5733414
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: SFORTUN
Updated Date: 08/19/2010
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: vinylidene chloride; alcohols; toluene; solvents; metals.

NARR ID: 5733415
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Series of spills and other releases, including from USTs; first documented release occurred 12/85.

NARR ID: 5756056
NARR Code: Project Activity Status
Created By: RHOOD
Created Date: 04/06/2016
Updated By: RHOOD
Updated Date: 04/14/2017
Decode for NarcdID: Project Activity Status
NARR Comments: 4/2017: Additional investigation and risk evaluation completed in 2016. draftinf staff memo in support of NFA. Plan a site visit in next month. Hope to take to public notice in June. 2015: Graphics Packaging submitted investigation report in August 2015. DEQ provided comments in March 2016. Working on next phase of work.

NARR ID: 5733416
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: Soil, surface water, and groundwater contamination could threaten the Oregon Slough portion of the Columbia River. James River uses three on-site wells (screened in the deeper, semi-confined aquifer) for industrial water supply; until about 1989, these wells supplied drinking water for site employees.

NARR ID: 5733417
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Remedial Action
NARR Comments: (4/29/97 GMW/SAS) James River has characterized soil and groundwater contamination associated with the three major UST areas across the site, and excavated and aerated soils from leaking USTs in the late 1980s. DEQ's UST Section issued an NFA letter for the gasoline UST area in 1996, but has referred all other UST issues to Site

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Assessment, since the remaining USTs did not contain motor fuels or waste oils. Site Assessment recommends a remedial investigation (RI) covering the entire facility, to determine the extent, magnitude, and sources of chlorinated solvents, BTEX, and metals in shallow soil and groundwater. The RI should also attempt to find the source(s) of chlorinated solvents in deep groundwater beneath the site. Further action at the site is a medium priority. The site should be added to the Site Response Waiting List, and to the Confirmed Release List & Inventory. (3/8/99 MTP/SAS) Findings of Federal Preliminary Assessment support medium ranking of site.

NARR ID: 5733418
NARR Code: Health Threats
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Health Threats
NARR Comments: Series of spills impacting soils, groundwater, and surface water (Oregon Slough section of Columbia River).

Site Control:
Site Control #: 1147
Control Number: 4
Begin Date: 10/20/2017
End Date: Not reported
Frequency Of Review: 60
Last Reviewed By: R. Hood, DEQ
Last Reviewed Date: Not reported
Last Update By: GWISTAR
Last Updated Date: 01/30/2018
Site Comment: Owner may not extract through new wells or by other means or use deep groundwater at the Property for domestic or drinking water purposes. This prohibition does not apply to extraction of groundwater associated with groundwater treatment or monitoring activities approved by DEQ or to temporary dewatering activities related to construction., development, or installation of sewer or utilities at the Property.

Site Control #: 1148
Control Number: 5
Begin Date: 10/20/2017
End Date: Not reported
Frequency Of Review: 60
Last Reviewed By: R. Hood, DEQ
Last Reviewed Date: Not reported
Last Update By: GWISTAR
Last Updated Date: 01/30/2018
Site Comment: Development is restricted in areas of concern 1 and 8, unless either: 1) further sampling and evaluation are completed and show an acceptable risk level; or 2) DEQ approves engineering controls and required performance monitoring is completed.

Administrative Action:
Action ID: 9519
Region: Northwestern Region
Complete Date: 02/19/2015
Rank Value: Not reported

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Cleanup Flag: False
Created Date: 01/06/2015
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: 0
Comments: Not reported

Action ID: 9426
Region: Northwestern Region
Complete Date: 02/26/2016
Rank Value: Not reported
Cleanup Flag: False
Created Date: 02/23/2015
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: 0
Comments: Not reported

Action ID: 9511
Region: Northwestern Region
Complete Date: 12/18/2017
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/14/2017
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9411
Region: Northwestern Region
Complete Date: 12/14/2017
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/18/2017
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: No Further Action (Conditional)
Further Action: 0
Comments: Not reported

Action ID: 9524
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Created Date: 08/24/2018
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SCE
Further Action: 0
Comments: Not reported

Action ID: 9506
Region: Northwestern Region
Complete Date: 03/19/1999
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Investigation recommended (SI)
Further Action: Medium
Comments: Not reported

Action ID: 9439
Region: Northwestern Region
Complete Date: 05/28/1999
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9517
Region: Northwestern Region
Complete Date: 09/01/1998
Rank Value: 84
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SRS Waiting List
Further Action: Medium
Comments: Not reported

Action ID: 9426
Region: Northwestern Region
Complete Date: 09/01/1998
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: 0
Comments: Not reported

Action ID: 9456
Region: Northwestern Region
Complete Date: 02/02/1999
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: BASIC PRELIMINARY ASSESSEMENT
Further Action: Not reported
Comments: Not reported

Action ID: 9467
Region: Northwestern Region
Complete Date: 03/10/1999
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9421
Region: Northwestern Region
Complete Date: 07/09/1998
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: EPA Led Action
Action Code Flag: False
Action: Site added to CERCLIS
Further Action: Not reported
Comments: Not reported

Action ID: 9502
Region: Northwestern Region
Complete Date: 04/29/1997
Rank Value: 84
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Remedial Investigation recommended (RI)
Further Action: Medium
Comments: Not reported

Action ID: 9499
Region: Northwestern Region
Complete Date: 04/28/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Inventory recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9459
Region: Northwestern Region
Complete Date: 04/28/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: PRELIMINARY ASSESSMENT EQUIVALENT
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Headquarters
Complete Date: 01/23/1989
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Headquarters
Complete Date: 01/24/1989
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9496
Region: Headquarters
Complete Date: 01/25/1989
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Not reported
Comments: Not reported

Action ID: 9448
Region: Headquarters
Complete Date: 04/05/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Review for final listing
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Northwestern Region
Complete Date: 04/25/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Headquarters
Complete Date: 01/23/1989
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9438
Region: Headquarters
Complete Date: 04/06/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9488
Region: Headquarters
Complete Date: 04/05/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Listing on Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Headquarters
Complete Date: 02/10/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9444
Region: 0
Complete Date: 07/25/2000
Rank Value: Not reported
Cleanup Flag: False
Created Date: 07/14/2003
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: No Further Remedial Action Planned under Federal program
Further Action: 0
Comments: Not reported

Operations:
Operation Id: 131531
Operation Status: Active
Common Name: James River Corp.
Yrs of Operation: Not reported
Comments: flexible package printing
Updated Date: 06/02/1997
Updated By: kpd
Decode for OpstatID: Active
Operations SIC Id: 195598
SIC Code: 2651
Created By: Not reported
Created Date: 12/17/2002

Institutional Control:
Name: JAMES RIVER CORP. - NORTH PORTLAND
Address: 3400 N MARINE DR.
City,State,Zip: PORTLAND, OR 97217
Site Control Sequence #: 1147
Site Id: 127
Control Sequence #: 4
Begin Date: 10/20/2017
End Date: Not reported
Frequency Of Review: 60
Last Reviewed By: R. Hood, DEQ
Last Review Date: Not reported
Last Updated By: GWISTAR
Last Updated Date: 01/30/2018
Group Sequence #: 2
Control Code: USG
Control Description: Use Restriction Groundwater
FK Type Code: 1
Group Code: PR
Group Description: Proprietary
Type Code: I
Type Description: Institutional
Comments: Owner may not extract through new wells or by other means or use deep groundwater at the Property for domestic or drinking water purposes. This prohibition does not apply to extraction of groundwater

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

associated with groundwater treatment or monitoring activities approved by DEQ or to temporary dewatering activities related to construction., development, or installation of sewer or utilities at the Property.

Name:	JAMES RIVER CORP. - NORTH PORTLAND
Address:	3400 N MARINE DR.
City,State,Zip:	PORTLAND, OR 97217
Site Control Sequence #:	1148
Site Id:	127
Control Sequence #:	5
Begin Date:	10/20/2017
End Date:	Not reported
Frequency Of Review:	60
Last Reviewed By:	R. Hood, DEQ
Last Review Date:	Not reported
Last Updated By:	GWISTAR
Last Updated Date:	01/30/2018
Group Sequence #:	2
Control Code:	USL
Control Description:	Use Restriction Land
FK Type Code:	1
Group Code:	PR
Group Description:	Proprietary
Type Code:	I
Type Description:	Institutional
Comments:	Development is restricted in areas of concern 1 and 8, unless either: 1) further sampling and evaluation are completed and show an acceptable risk level; or 2) DEQ approves engineering controls and required performance monitoring is completed.

VCS:

Name:	JAMES RIVER CORP. - NORTH PORTLAND
Address:	3400 N MARINE DR.
City,State,Zip:	PORTLAND, OR 97217
ECS Site ID:	127
Facility Size:	24.7 acres
Action:	Source Control Evaluation
Start Date:	08/24/2018
End Date:	Not reported
Facility Status:	Active
Program:	vcp
Latitude:	45.6119
Longitude:	-122.7022

OR MANIFEST:

Manifest Year:	Manifest Year - 2013
EPA Id:	ORD009042854
Inactive Status:	Not reported
Organization Name:	Not reported
Contact Name:	Nathan Phelan
Contact Telephone Number:	Not reported
Mailing Address:	PO Box 17128
Mailing City/State/Zip:	Portland, OR 97217

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Manifest:

Year :	2013
RCRA Id :	ORD009042854
Inactive :	Not reported
Status:	Large quantity generator
Manifest :	005093472FLE
Ship Date :	06/12/2013
TSD :	KSD980633259
WS Num:	1
Transporter:	ORD009227398
Ship Qty :	Not reported
Rpt Unit :	Not reported
Off Mng :	H061
EPA Waste Codes:	D001 F003
Waste Description:	Stiil Bottoms
Total Amt Of Waste Stream Generated in Reporting Yr 1:	2947.75
Total Amt Of Waste Stream Generated in Reporting Yr 2:	1097.47

Year :	2013
RCRA Id :	ORD009042854
Inactive :	Not reported
Status:	Large quantity generator
Manifest :	005094851FLE
Ship Date :	03/22/2013
TSD :	KSD980633259
WS Num:	1
Transporter:	ORD009227398
Ship Qty :	Not reported
Rpt Unit :	Not reported
Off Mng :	H061
EPA Waste Codes:	D001 F003
Waste Description:	Stiil Bottoms
Total Amt Of Waste Stream Generated in Reporting Yr 1:	2947.75
Total Amt Of Waste Stream Generated in Reporting Yr 2:	1020.375

Year :	2013
RCRA Id :	ORD009042854
Inactive :	Not reported
Status:	Large quantity generator
Manifest :	006488659FLE
Ship Date :	09/26/2013
TSD :	KSD980633259
WS Num:	1
Transporter:	ORD009227398
Ship Qty :	Not reported
Rpt Unit :	Not reported
Off Mng :	H061
EPA Waste Codes:	D001 F003
Waste Description:	Stiil Bottoms
Total Amt Of Waste Stream Generated in Reporting Yr 1:	2947.75
Total Amt Of Waste Stream Generated in Reporting Yr 2:	829.90499999999997

Year :	2013
RCRA Id :	ORD009042854
Inactive :	Not reported
Status:	Large quantity generator
Manifest :	005093472FLE

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Ship Date : 06/12/2013
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 F003
Waste Description: Waste Flammable Ink
Total Amt Of Waste Stream Generated in Reporting Yr 1: 224.48249999999999
Total Amt Of Waste Stream Generated in Reporting Yr 2: 224.48249999999999

Year : 2013
RCRA Id : ORD009042854
Inactive : Not reported
Status: Large quantity generator
Manifest : 006488669FLE
Ship Date : 09/27/2013
TSD : KSD980633259
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: Waste Paint
Total Amt Of Waste Stream Generated in Reporting Yr 1: 2471.5749999999998
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2471.5749999999998

Year : 2013
RCRA Id : ORD009042854
Inactive : Not reported
Status: Large quantity generator
Manifest : 006488783FLE
Ship Date : 10/30/2013
TSD : KSD980633259
WS Num: 4
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: Flammable Liquids Loosepack
Total Amt Of Waste Stream Generated in Reporting Yr 1: 453.5
Total Amt Of Waste Stream Generated in Reporting Yr 2: 453.5

Year : 2013
RCRA Id : ORD009042854
Inactive : Not reported
Status: Large quantity generator
Manifest : 006488783FLE
Ship Date : 10/30/2013
TSD : KSD980633259
WS Num: 5
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Off Mng : H061
EPA Waste Codes: D001
Waste Description: Oil & Ink Sludge
Total Amt Of Waste Stream Generated in Reporting Yr 1: 226.75
Total Amt Of Waste Stream Generated in Reporting Yr 2: 226.75

Manifest:
Year : 2012
RCRA Id : ORD009042854
Inactive : Not reported
Status: Large quantity generator
Manifest : 004206728
Ship Date : 08/02/2012
TSD : KSD980633259
WS Num: 1
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 F003
Waste Description: Waste Gold Ink
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD009042854
Inactive : Not reported
Status: Large quantity generator
Manifest : 004206372
Ship Date : 04/19/2012
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 F003
Waste Description: Stiil Bottoms from Renzman Distalation Unit
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD009042854
Inactive : Not reported
Status: Large quantity generator
Manifest : 004206728
Ship Date : 08/02/2012
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 F003
Waste Description: Stiil Bottoms from Renzman Distalation Unit

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD009042854
Inactive : Not reported
Status: Large quantity generator
Manifest : 004206936
Ship Date : 10/03/2012
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 F003
Waste Description: Stiil Bottoms from Renzman Distalation Unit
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD009042854
Inactive : Not reported
Status: Large quantity generator
Manifest : 0045311906
Ship Date : 12/21/2012
TSD : KSD980633259
WS Num: 2
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001 F003
Waste Description: Stiil Bottoms from Renzman Distalation Unit
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD009042854
Inactive : Not reported
Status: Large quantity generator
Manifest : 004206933
Ship Date : 10/03/2012
TSD : IND000646943
WS Num: 3
Transporter: ORD009227398
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: Obsolete or out of date waste materials
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2012
RCRA Id : ORD009042854
Inactive : Not reported

JAMES RIVER CORP. - NORTH PORTLAND (Continued) **S108660100**

Status:	Large quantity generator
Manifest :	004206933
Ship Date :	10/03/2012
TSD :	IND000646943
WS Num:	3
Transporter:	ORD009227398
Ship Qty :	Not reported
Rpt Unit :	Not reported
Off Mng :	H132
EPA Waste Codes:	D001
Waste Description:	Obsolete or out of date waste materials

Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

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58
NNW
1/2-1
0.739 mi.
3903 ft.

CANOE BAY - CONTAMINATED SEDIMENT **OR CRL** **S105807718**
N HAYDEN ISLAND DR. **OR ECSI** **N/A**
PORTLAND, OR 97217 **OR ENG CONTROLS**

Relative:
Lower

Actual:
12 ft.

CRL:

Name:	CANOE BAY - CONTAMINATED SEDIMENT
Address:	N HAYDEN ISLAND DR.
City,State,Zip:	PORTLAND, OR 97217
Facility ID:	3333
Location ID:	38235
Status Code:	LIS
Facility Status:	No Further Action (Conditional)
Lat/Long:	45.6196 / -122.6922

ECSI:

Name:	CANOE BAY - CONTAMINATED SEDIMENT
Address:	N HAYDEN ISLAND DR.
City,State,Zip:	PORTLAND, OR 97217
State ID Number:	3333
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	0
Investigation:	Listed on the CRL/Inventory
FACA ID:	38235
Further Action:	0
Lat/Long (dms):	45 37 10.60 / -122 41 31.90
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	001002698
Township Coord.:	2.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	33
Qtr Section:	ABB
Tax Lots:	2N1E33A 1400
Size:	7.6 acres
NPL:	False
Orphan:	False

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Updated By: JSUTTER
Update Date: 01/05/2018
Created Date: 05/13/2002
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: Listed on the CRL/Inventory
Decode For Legislative: Not reported
Alias Name: Grandma's Cove
Alias Name: Schooner Creek Boat Works
Alias Name: Inland Sea Maritime Group
Alias Name: Heisley Marine Corp.

Hazardous Release:
Substance ID.: 120909
Haz Release ID: 379435
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/18/2002
Update By: Not reported
Substance Code: 11097-69-1
Substance Name: PCB 1254
Substance Abbrev.: Not reported
Substance Category ID: 8556
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8556
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316559
Sub Alias Name: AROCHLOR 1254
Substance Alias ID: 316560
Sub Alias Name: AROCLOR 1254
Sampling Result ID: 337895
Feature Id: 0
Hazard Release Id: 379435
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 59.00
Sample Comment: 59 ppb aroclor 1254 in Canoe Bay sediments at CB11SD (0-6 inches; 10/28/08). 51 ppb at CB05SD. 51 ppb in Canoe Bay sediment composite (two cores). 41 ppb at CB03SD. 28 ppb at CB14SD.
Last Update By: SFORTUN
Update Date: 09/14/2009
Decode for MediumID: Sediment
Sampling Result ID: 349636

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Feature Id: 0
Hazard Release Id: 379435
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 490.00
Sample Comment: 490 ppb aroclor 1254 in surface soils adjacent to Canoe Bay at CB03SS. 30 ppb at CB02SS and CB05SS.
Last Update By: SFORTUN
Update Date: 09/14/2009
Decode for MediumID: Soil
Sampling Result ID: 349749
Feature Id: 0
Hazard Release Id: 379435
Medium: 700
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 26.00
Sample Comment: 26 ppb aroclor 1254 in sediments below stormwater outfall at SO02SD.
Last Update By: SFORTUN
Update Date: 09/14/2009
Decode for MediumID: Other

Substance ID.: 120908
Haz Release ID: 379436
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/18/2002
Update By: Not reported
Substance Code: 11096-82-5
Substance Name: PCB 1260
Substance Abbrev.: Not reported
Substance Category ID: 8496
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8557
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8496

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8557
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316557
Sub Alias Name: AROCHLOR 1260
Substance Alias ID: 316558
Sub Alias Name: AROCLOR 1260
Sampling Result ID: 337896
Feature Id: 0
Hazard Release Id: 379436
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 13.00
Sample Comment: 13 ppb in Canoe Bay sediment core composite (two cores)
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment

Substance ID.: 120887
Haz Release ID: 379437
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 108-95-2
Substance Name: PHENOL
Substance Abbrev.: Not reported
Substance Alias ID: 316484
Sub Alias Name: BENZENE,HYDROXY-
Substance Alias ID: 316485
Sub Alias Name: CARBOLIC ACID
Substance Alias ID: 316486
Sub Alias Name: HYDROXYBENZENE
Substance Alias ID: 316487
Sub Alias Name: OXYBENZENE
Substance Alias ID: 316488
Sub Alias Name: PHENIC ACID
Substance Alias ID: 316489
Sub Alias Name: PHENYL HYDRATE
Substance Alias ID: 316490
Sub Alias Name: PHENYL HYDROXIDE
Sampling Result ID: 337897
Feature Id: 0

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Hazard Release Id: 379437
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 1-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: .00
Max Concentration: 290.00
Sample Comment: 290 ppb phenol in Canoe Bay sediments at CB09SD. 260 ppb at CB06SD. 220 ppb at CB06SD. 22 ppb in Canoe Bay sediment composites (two-core composites) (0-7 feet)(1/14/02). 190 ppb in Columbia River sediments at CR05SD.
Last Update By: SFORTUN
Update Date: 09/14/2009
Decode for MediumID: Sediment
Sampling Result ID: 349677
Feature Id: 0
Hazard Release Id: 379437
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 210.00
Sample Comment: 210 ppb phenol in surface soils at City of Portland stormwater outfall at SO05SS.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Soil

Substance ID.: 120785
Haz Release ID: 379438
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/18/2002
Update By: Not reported
Substance Code: 100-51-6
Substance Name: BENZYL ALCOHOL
Substance Abbrev.: Not reported
Substance Alias ID: 316161
Sub Alias Name: BENZENE CARBINOL
Substance Alias ID: 316162
Sub Alias Name: BENZENE METHANOL
Substance Alias ID: 316163
Sub Alias Name: BENZOYL ALCOHOL
Substance Alias ID: 316164
Sub Alias Name: HYDROXYTOLUENE,alpha-
Substance Alias ID: 316165

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Sub Alias Name: METHANOL,PHENYL-
Substance Alias ID: 316166
Sub Alias Name: PHENOL CARBINOL
Substance Alias ID: 316167
Sub Alias Name: PHENYL CARBINOL
Substance Alias ID: 316168
Sub Alias Name: PHENYLMETHANOL
Substance Alias ID: 316169
Sub Alias Name: PHENYLMETHYL ALCOHOL
Sampling Result ID: 337898
Feature Id: 0
Hazard Release Id: 379438
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 18.00
Sample Comment: 18 ppb Canoe Bay sediment composite (two cores)
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment

Substance ID.: 120837
Haz Release ID: 379439
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 106-44-5
Substance Name: CRESOL,4-
Substance Abbrev.: Not reported
Substance Alias ID: 316281
Sub Alias Name: CRESOL,p-
Substance Alias ID: 316282
Sub Alias Name: CRESYLIC ACID,p-
Substance Alias ID: 316283
Sub Alias Name: HYDROXY-4-METHYLBENZENE,1-
Substance Alias ID: 316284
Sub Alias Name: HYDROXYTOLUENE,4-
Substance Alias ID: 316285
Sub Alias Name: HYDROXYTOLUENE,p-
Substance Alias ID: 316286
Sub Alias Name: METHYLHYDROXYBENZENE,p-
Substance Alias ID: 316287
Sub Alias Name: METHYLPHENOL,4-
Substance Alias ID: 316288
Sub Alias Name: METHYLPHENOL,p-
Substance Alias ID: 316289
Sub Alias Name: OXYTOLUENE,p-
Substance Alias ID: 316290
Sub Alias Name: TOLYL ALCOHOL,p-

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Sampling Result ID: 337899
Feature Id: 0
Hazard Release Id: 379439
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 16.00
Sample Comment: 16 ppb in Canoe Bay sediment composites (two 2-core composites)
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment

Substance ID.: 121868
Haz Release ID: 379440
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 91-20-3
Substance Name: NAPHTHALENE
Substance Abbrev.: Not reported
Substance Category ID: 8494
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8494
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317793
Sub Alias Name: MOTH BALLS
Substance Alias ID: 317794
Sub Alias Name: NAPHTHENE
Substance Alias ID: 317795
Sub Alias Name: TAR CAMPHOR
Sampling Result ID: 337900
Feature Id: 0
Hazard Release Id: 379440
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Max Concentration: 8.80
Sample Comment: 8.8 ppb in Canoe Bay sediment composites (two 2-core composites)
Detected in analytical method blank at 4 ppb
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment
Sampling Result ID: 337958
Feature Id: 0
Hazard Release Id: 379440
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: 4.60
Sample Comment: 4.6 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121197
Haz Release ID: 379441
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 208-96-8
Substance Name: ACENAPHTHYLENE
Substance Abbrev.: Not reported
Sampling Result ID: 337901
Feature Id: 0
Hazard Release Id: 379441
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 4.00
Sample Comment: 4 ppb in Canoe Bay sediment composites (two 2-core composites)
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment
Sampling Result ID: 337944
Feature Id: 0
Hazard Release Id: 379441
Medium: 700
Substance Abbrev.: 0

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: 5.80
Sample Comment: 5.8 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121030
Haz Release ID: 379442
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/18/2002
Update By: Not reported
Substance Code: 131-11-3
Substance Name: DIMETHYL PHTHALATE
Substance Abbrev.: Not reported
Substance Alias ID: 316972
Sub Alias Name: BENZENEDICARBOXYLIC ACID,1,2-, DIMETHYL ESTER
Substance Alias ID: 316973
Sub Alias Name: DIMETHYL PHTHALATE,o-
Substance Alias ID: 316974
Sub Alias Name: PHTHALIC ACID, DIMETHYL ESTER
Sampling Result ID: 337902
Feature Id: 0
Hazard Release Id: 379442
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 36.00
Sample Comment: 36 ppb in Canoe Bay sediment composite (two cores)
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment
Sampling Result ID: 349631
Feature Id: 0
Hazard Release Id: 379442
Medium: 700
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: Not reported

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 7.30
Sample Comment: 7.3 ppb dimethylphthalate in stormwater outfall discharge at SO01SW.
Last Update By: SFORTUN
Update Date: 09/08/2009
Decode for MediumID: Other
Sampling Result ID: 349659
Feature Id: 0
Hazard Release Id: 379442
Medium: 700
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 2200.00
Sample Comment: 2200 ppb dimethylphthalate in surface soils at Schooner Creek stormwater outfall SO04SS.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121815
Haz Release ID: 379443
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 83-32-9
Substance Name: ACENAPHTHENE
Substance Abbrev.: Not reported
Substance Category ID: 8471
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8471
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317621
Sub Alias Name: DIHYDROACENAPHTHYLENE,1,2-
Substance Alias ID: 317622
Sub Alias Name: ETHYLENENAPHTHALENE,1,8-
Substance Alias ID: 317623
Sub Alias Name: PERIETHYLENENAPHTHALENE
Sampling Result ID: 337903
Feature Id: 0
Hazard Release Id: 379443
Medium: 701

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 4.00
Sample Comment: 4 ppb in Canoe Bay sediment composite (two cores)
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment
Sampling Result ID: 337943
Feature Id: 0
Hazard Release Id: 379443
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: 16.80
Sample Comment: 16.8 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121829
Haz Release ID: 379444
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 86-73-7
Substance Name: FLUORENE
Substance Abbrev.: Not reported
Substance Category ID: 8489
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8489
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317663
Sub Alias Name: BIPHENYLENEMETHANE,o-
Substance Alias ID: 317664
Sub Alias Name: DIPHENYLENEMETHANE
Substance Alias ID: 317665

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Sub Alias Name: METHYLENEBIPHENYL,2,2'-
Sampling Result ID: 337904
Feature Id: 0
Hazard Release Id: 379444
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 6.10
Sample Comment: 6.1 ppb in Canoe Bay sediment composite (two cores)
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment
Sampling Result ID: 337955
Feature Id: 0
Hazard Release Id: 379444
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: 10.40
Sample Comment: 10.4 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121839
Haz Release ID: 379445
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/18/2002
Update By: Not reported
Substance Code: 87-86-5
Substance Name: PENTACHLOROPHENOL
Substance Abbrev.: Not reported
Substance Category ID: 8495
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8495
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Substance Alias ID: 317688
Sub Alias Name: CHLOROPHEN
Substance Alias ID: 317689
Sub Alias Name: PCP
Substance Alias ID: 317690
Sub Alias Name: PENCHLOROL
Substance Alias ID: 317691
Sub Alias Name: PHENOL,PENTCHLORO-
Sampling Result ID: 337906
Feature Id: 0
Hazard Release Id: 379445
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 6.60
Sample Comment: 6.6 ppb in Canoe Bay sediment composite (two cores)
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment

Substance ID.: 121819
Haz Release ID: 379446
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/18/2002
Update By: Not reported
Substance Code: 84-66-2
Substance Name: DIETHYL PHTHALATE
Substance Abbrev.: Not reported
Substance Alias ID: 317633
Sub Alias Name: BENZENEDICARBOXYLIC ACID,1,2-, DIETHYL ESTER
Substance Alias ID: 317634
Sub Alias Name: DIETHYL PHTHALATE,o-
Substance Alias ID: 317635
Sub Alias Name: ETHYL PHTHALATE
Substance Alias ID: 317636
Sub Alias Name: PHTHALIC ACID, DIETHYL ESTER
Sampling Result ID: 337905
Feature Id: 0
Hazard Release Id: 379446
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Max Concentration: 6.30
Sample Comment: 6.3 ppb in Canoe Bay sediment composite (two cores)
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment

Substance ID.: 121824
Haz Release ID: 379447
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 85-01-8
Substance Name: PHENANTHRENE
Substance Abbrev.: Not reported
Substance Alias ID: 317648
Sub Alias Name: PHENATHRIN
Sampling Result ID: 337907
Feature Id: 0
Hazard Release Id: 379447
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 26.00
Sample Comment: 26 ppb in Canoe Bay sediment composites (two 2-core composites)
Detected in analytical method blank at 3.8 ppb
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment
Sampling Result ID: 337959
Feature Id: 0
Hazard Release Id: 379447
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: 41.10
Sample Comment: 41.1 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 120952
Haz Release ID: 379448

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 120-12-7
Substance Name: ANTHRACENE
Substance Abbrev.: Not reported
Substance Category ID: 8473
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8473
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316696
Sub Alias Name: ANTHRACIN
Substance Alias ID: 316697
Sub Alias Name: GREEN OIL
Substance Alias ID: 316698
Sub Alias Name: PARANAPTHALENE
Substance Alias ID: 316699
Sub Alias Name: TETRA OLIVE N2G
Sampling Result ID: 337908
Feature Id: 0
Hazard Release Id: 379448
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 13.00
Sample Comment: 13 ppb in Canoe Bay sediment composites (two 2-core composites)
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment

Substance ID.: 121821
Haz Release ID: 379449
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 84-74-2
Substance Name: DI-n-BUTYL PHTHALATE
Substance Abbrev.: Not reported
Substance Alias ID: 317639
Sub Alias Name: BENZENEDICARBOXYLIC ACID,1,2-, DIBUTYL ESTER
Substance Alias ID: 317640
Sub Alias Name: BUTYL PHTHALATE

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Substance Alias ID: 317641
Sub Alias Name: BUTYL PHTHALATE,n-
Substance Alias ID: 317642
Sub Alias Name: DBP
Substance Alias ID: 317643
Sub Alias Name: DIBUTYL PHTHALATE
Sampling Result ID: 337909
Feature Id: 0
Hazard Release Id: 379449
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 8.60
Sample Comment: 8.6 ppb in Canoe Bay sediment samples - one core and two 2-core composites
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment
Sampling Result ID: 337953
Feature Id: 0
Hazard Release Id: 379449
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: 27.90
Sample Comment: 27.9 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121195
Haz Release ID: 379450
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 206-44-0
Substance Name: FLUORANTHENE
Substance Abbrev.: Not reported
Substance Category ID: 8491
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Created Date: 12/17/2002
Substance Category ID: 8491
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317398
Sub Alias Name: BENZACENAPHTHENE,1,2-
Substance Alias ID: 317399
Sub Alias Name: BENZO(jk)FLUORENE
Sampling Result ID: 337910
Feature Id: 0
Hazard Release Id: 379450
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 55.00
Sample Comment: 55 ppb in Canoe Bay sediment composites (two 2-core composites)
Detected in analytical method blank at 3.3 ppb
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment
Sampling Result ID: 337954
Feature Id: 0
Hazard Release Id: 379450
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: 38.00
Sample Comment: 38 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121019
Haz Release ID: 379451
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 129-00-0
Substance Name: PYRENE
Substance Abbrev.: Not reported

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Substance Category ID: 8497
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8497
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316950
Sub Alias Name: BENZO(def)PHENANTHRENE
Sampling Result ID: 337911
Feature Id: 0
Hazard Release Id: 379451
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 54.00
Sample Comment: 54 ppb in Canoe Bay sediment composites (two 2-core composites)
Detected in analytical method blank at 3.4 ppb
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment
Sampling Result ID: 337960
Feature Id: 0
Hazard Release Id: 379451
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: 25.20
Sample Comment: 25.2 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121826
Haz Release ID: 379452
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 85-68-7

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Substance Name: BUTYL BENZYL PHTHALATE
Substance Abbrev.: Not reported
Substance Alias ID: 317652
Sub Alias Name: BENZYL-n-BUTYL PHTHALATE
Substance Alias ID: 317653
Sub Alias Name: PHTHALIC ACID, BENZYL BUTYL ESTER
Sampling Result ID: 337912
Feature Id: 0
Hazard Release Id: 379452
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 9.80
Sample Comment: 9.8 ppb in Canoe Bay sediment composite (two cores)
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment

Substance ID.: 121462
Haz Release ID: 379453
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 56-55-3
Substance Name: BENZO(a)ANTHRACENE
Substance Abbrev.: Not reported
Substance Category ID: 8475
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8475
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318790
Sub Alias Name: BENZ(a)ANTHRACENE
Substance Alias ID: 318791
Sub Alias Name: BENZANTHRACENE,1,2-
Substance Alias ID: 318792
Sub Alias Name: BENZANTHRENE
Substance Alias ID: 318793
Sub Alias Name: BENZOANTHRACENE
Substance Alias ID: 318794
Sub Alias Name: BENZPHENANTHRENE,2,3-
Substance Alias ID: 318795
Sub Alias Name: NAPHTHANTHRACENE
Substance Alias ID: 318796

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Sub Alias Name:	TETRAPHENE
Sampling Result ID:	337913
Feature Id:	0
Hazard Release Id:	379453
Medium:	701
Substance Abbrev.:	0
Unit Code:	8
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-7 feet
Start Date:	01/14/2002
End Date:	01/14/2002
Min Concentration:	.00
Max Concentration:	30.00
Sample Comment:	30 ppb benzo(a)anthracene in Canoe Bay sediments at CB13SD (10/28/08). 29 ppb at CB14SD. 19 ppb in Canoe Bay sediment composites (two 2-core composites) Detected in analytical method blank at 1.4 ppb. 38 ppb in Columbia River sediments at CR04SD.
Last Update By:	SFORTUN
Update Date:	09/14/2009
Decode for MediumID:	Sediment
Sampling Result ID:	337945
Feature Id:	0
Hazard Release Id:	379453
Medium:	700
Substance Abbrev.:	0
Unit Code:	7
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	Not reported
Start Date:	05/01/2001
End Date:	05/01/2001
Min Concentration:	.00
Max Concentration:	16.00
Sample Comment:	16 ppm Concentration in residual paint dust
Last Update By:	SFORTUN
Update Date:	09/09/2009
Decode for MediumID:	Other
Sampling Result ID:	349744
Feature Id:	0
Hazard Release Id:	379453
Medium:	703
Substance Abbrev.:	0
Unit Code:	8
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	49.00
Sample Comment:	49 ppb benzo(a)anthracene in surface soils at CB04SS. 29 ppb at CB05SS.
Last Update By:	SFORTUN

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Update Date: 09/14/2009
Decode for MediumID: Soil
Sampling Result ID: 349745
Feature Id: 0
Hazard Release Id: 379453
Medium: 700
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 47.00
Sample Comment: 47 ppb benzo(a)anthracene in surface soils at Schooner Creek stormwater outfall SO04SS.
Last Update By: SFORTUN
Update Date: 09/14/2009
Decode for MediumID: Other

Substance ID.: 121210
Haz Release ID: 379454
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 218-01-9
Substance Name: CHRYSENE
Substance Abbrev.: Not reported
Substance Category ID: 8481
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8481
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317438
Sub Alias Name: BENZ(a)PHENANTHRENE
Substance Alias ID: 317439
Sub Alias Name: BENZPHENANTHRENE,1,2-
Substance Alias ID: 317440
Sub Alias Name: DIBENZONAPHTHALENE,1,2,5,6-
Sampling Result ID: 337914
Feature Id: 0
Hazard Release Id: 379454
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Start Date:	01/14/2002
End Date:	01/14/2002
Min Concentration:	.00
Max Concentration:	43.00
Sample Comment:	43 ppb chrysene in Canoe Bay sediments (0-6 inches) at CB13SD. 29 ppb at CB14SD. 24 ppb in Canoe Bay sediment samples - one core and two 2-core composites Detected in analytical method blank at 1.7 ppb. 36 ppb in Columbia River sediments at CR04SD.
Last Update By:	SFORTUN
Update Date:	09/14/2009
Decode for MediumID:	Sediment
Sampling Result ID:	337952
Feature Id:	0
Hazard Release Id:	379454
Medium:	700
Substance Abbrev.:	0
Unit Code:	7
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	Not reported
Start Date:	05/01/2001
End Date:	05/01/2001
Min Concentration:	.00
Max Concentration:	22.00
Sample Comment:	22 ppm Concentration in residual paint dust
Last Update By:	SFORTUN
Update Date:	09/09/2009
Decode for MediumID:	Other
Sampling Result ID:	349658
Feature Id:	0
Hazard Release Id:	379454
Medium:	700
Substance Abbrev.:	0
Unit Code:	8
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	110.00
Sample Comment:	110 ppb chrysene in surface soils at Schooner Creek stormwater outfall at SO04SS. 44 ppb in surface soils at City of Portland stormwater outfall SO05SS.
Last Update By:	SFORTUN
Update Date:	09/14/2009
Decode for MediumID:	Other
Sampling Result ID:	349746
Feature Id:	0
Hazard Release Id:	379454
Medium:	703
Substance Abbrev.:	0
Unit Code:	8
Observation:	True
Owner Operator:	False

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 61.00
Sample Comment: 61 ppb chrysene in surface soils at CB04SS. 34 ppb in soils at CB05SS.
Last Update By: SFORTUN
Update Date: 09/14/2009
Decode for MediumID: Soil

Substance ID.: 121192
Haz Release ID: 379455
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 205-99-2
Substance Name: BENZO(b)FLUORANTHENE
Substance Abbrev.: Not reported
Substance Category ID: 8477
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8477
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317390
Sub Alias Name: B(b)F
Substance Alias ID: 317391
Sub Alias Name: BENZ(e)ACEPHENANTHRYLENE
Substance Alias ID: 317392
Sub Alias Name: BENZFLUORANTHENE,3,4-
Substance Alias ID: 317393
Sub Alias Name: BENZOFLUORANTHENE,2,3-
Substance Alias ID: 317394
Sub Alias Name: BENZOFLUORANTHENE,3,4-
Sampling Result ID: 337915
Feature Id: 0
Hazard Release Id: 379455
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 26.00
Sample Comment: 26 ppb in Canoe Bay sediment composites (two 2-core composites)
Last Update By: SFORTUN
Update Date: 09/09/2009

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Decode for MediumID: Sediment
Sampling Result ID: 337947
Feature Id: 0
Hazard Release Id: 379455
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: 17.90
Sample Comment: 17.9 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121374
Haz Release ID: 379456
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 50-32-8
Substance Name: BENZO(a)PYRENE
Substance Abbrev.: Not reported
Substance Category ID: 8476
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8476
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318559
Sub Alias Name: B(a)P
Substance Alias ID: 318560
Sub Alias Name: BENZOPYRENE,3,4-
Substance Alias ID: 318561
Sub Alias Name: BENZPYRENE,3,4-
Substance Alias ID: 318562
Sub Alias Name: BP
Sampling Result ID: 337916
Feature Id: 0
Hazard Release Id: 379456
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 44.00
Sample Comment: 44 ppb benzo(a)pyrene in Canoe Bay sediments at CB14SD. 33 ppb at CB13SD. 22 ppb in Canoe Bay sediment composites (two 2-core composites) 47 ppb in Columbia River sediment sample CR04SD.
Last Update By: SFORTUN
Update Date: 09/14/2009
Decode for MediumID: Sediment
Sampling Result ID: 337946
Feature Id: 0
Hazard Release Id: 379456
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: 12.00
Sample Comment: 12 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other
Sampling Result ID: 349743
Feature Id: 0
Hazard Release Id: 379456
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 41.00
Sample Comment: 41 ppb benzo(a)pyrene in surface soils at CB04SS. 23 ppm at CB05SS.
Last Update By: SFORTUN
Update Date: 09/14/2009
Decode for MediumID: Soil

Substance ID.: 121176
Haz Release ID: 379457
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 193-39-5
Substance Name: INDENO(1,2,3-cd)PYRENE
Substance Abbrev.: Not reported
Substance Category ID: 8493

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Substance Category:	Semi-volatiles
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Category ID:	8493
Substance Category:	Semi-volatiles
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Alias ID:	317339
Sub Alias Name:	PHENYLENEPYRENE,2,3-
Substance Alias ID:	317340
Sub Alias Name:	PHENYLENEPYRENE,o-
Sampling Result ID:	337917
Feature Id:	0
Hazard Release Id:	379457
Medium:	701
Substance Abbrev.:	0
Unit Code:	8
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-7 feet
Start Date:	01/14/2002
End Date:	01/14/2002
Min Concentration:	.00
Max Concentration:	26.00
Sample Comment:	26 ppb indeno(1,2,3-cd)pyrene in Canoe Bay sediments at CB14SD. 17 ppb in Canoe Bay sediment composites (two 2-core composites). 27 ppb in Columbia River sediments at CR04SD.
Last Update By:	SFORTUN
Update Date:	09/14/2009
Decode for MediumID:	Sediment
Sampling Result ID:	337956
Feature Id:	0
Hazard Release Id:	379457
Medium:	700
Substance Abbrev.:	0
Unit Code:	7
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	Not reported
Start Date:	05/01/2001
End Date:	05/01/2001
Min Concentration:	.00
Max Concentration:	7.40
Sample Comment:	7.4 ppb Concentration in residual paint dust
Last Update By:	SFORTUN
Update Date:	09/09/2009
Decode for MediumID:	Other
Sampling Result ID:	349660
Feature Id:	0
Hazard Release Id:	379457
Medium:	700
Substance Abbrev.:	0
Unit Code:	8

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 210.00
Sample Comment: 210 ppb indeno(1,2,3-cd)pyrene in surface soils at City of Portland stormwater outfall SO05SS.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other
Sampling Result ID: 349747
Feature Id: 0
Hazard Release Id: 379457
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 31 ppb indeno(1,2,3-cd)pyrene in surface soils at CB04SS.
Last Update By: SFORTUN
Update Date: 09/14/2009
Decode for MediumID: Soil

Substance ID.: 121415
Haz Release ID: 379458
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 53-70-3
Substance Name: DIBENZO(a,h)ANTHRACENE
Substance Abbrev.: Not reported
Substance Category ID: 8499
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8499
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318667
Sub Alias Name: DB(a,h)A
Substance Alias ID: 318668
Sub Alias Name: DIBENZ(a,h)ANTHRACENE
Substance Alias ID: 318669
Sub Alias Name: DIBENZANTHRACENE,1,2-5,6-

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Substance Alias ID: 318670
Sub Alias Name: DIBENZANTHRACENE,1,2:5,6-
Sampling Result ID: 337918
Feature Id: 0
Hazard Release Id: 379458
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 6.70
Sample Comment: 6.7 ppb in Canoe Bay sediment composites (two 2-core composites)
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment

Substance ID.: 121167
Haz Release ID: 379459
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 191-24-2
Substance Name: BENZO(ghi)PERYLENE
Substance Abbrev.: Not reported
Substance Alias ID: 317305
Sub Alias Name: B(ghi)P
Substance Alias ID: 317306
Sub Alias Name: BENZOPERYLENE,1,12-
Substance Alias ID: 317307
Sub Alias Name: BENZPERYLENE,1,12-
Sampling Result ID: 337919
Feature Id: 0
Hazard Release Id: 379459
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 20.00
Sample Comment: 20 ppb in Canoe Bay sediment composites (two 2-core composites)
Detected in analytical method blank at 3.3 ppb
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment
Sampling Result ID: 337948
Feature Id: 0

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Hazard Release Id: 379459
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: 9.40
Sample Comment: 9.4 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121577
Haz Release ID: 379460
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 65-85-0
Substance Name: BENZOIC ACID
Substance Abbrev.: Not reported
Substance Category ID: 8479
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8479
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319080
Sub Alias Name: BENZENECARBOXYLIC ACID
Substance Alias ID: 319081
Sub Alias Name: CARBOXYBENZENE
Substance Alias ID: 319082
Sub Alias Name: DRACYCLIC ACID
Substance Alias ID: 319083
Sub Alias Name: PHENYLCARBOXYLIC ACID
Substance Alias ID: 319084
Sub Alias Name: PHENYLFORMIC ACID
Sampling Result ID: 337920
Feature Id: 0
Hazard Release Id: 379460
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 33.00
Sample Comment: 33 ppb in Canoe Bay sediment composite (two cores)
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment

Substance ID.: 121196
Haz Release ID: 379461
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 207-08-9
Substance Name: BENZO(k)FLUORANTHENE
Substance Abbrev.: Not reported
Substance Category ID: 8478
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8478
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317400
Sub Alias Name: B(k)F
Substance Alias ID: 317401
Sub Alias Name: BENZOFLUORANTHENE,11,12-
Sampling Result ID: 337921
Feature Id: 0
Hazard Release Id: 379461
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 43.00
Sample Comment: 43 ppb benzo(k)fluoranthene in Canoe Bay sediments at CB14SD. 39 ppb at CB13SD. 5.5 ppb in Canoe Bay sediment composite (two cores). 55 ppb in Columbia River sediments at CR04SD.
Last Update By: SFORTUN
Update Date: 09/14/2009
Decode for MediumID: Sediment
Sampling Result ID: 337949
Feature Id: 0
Hazard Release Id: 379461
Medium: 700
Substance Abbrev.: 0
Unit Code: 7

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: 17.90
Sample Comment: 17.9 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 122004
Haz Release ID: 379462
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: ECD250
Substance Name: AMMONIA NITROGEN
Substance Abbrev.: Not reported
Sampling Result ID: 337922
Feature Id: 0
Hazard Release Id: 379462
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 219000.00
Sample Comment: 219000 ppb in Canoe Bay sediment samples - one core and two 2-core composites
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment

Substance ID.: 121982
Haz Release ID: 379463
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: ECD169
Substance Name: DIESEL - FUEL OIL
Substance Abbrev.: Not reported
Substance Category ID: 8529
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8529

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 337923
Feature Id: 0
Hazard Release Id: 379463
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 17000.00
Sample Comment: 17000 ppb in Canoe Bay sediment composites (two 2-core composites)
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment

Substance ID.: 121988
Haz Release ID: 379464
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: ECD198
Substance Name: OIL - LUBRICATING
Substance Abbrev.: Not reported
Substance Category ID: 8531
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8531
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 337924
Feature Id: 0
Hazard Release Id: 379464
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 55000.00
Sample Comment: 55000 ppb in Canoe Bay sediment composites (two 2-core composites)

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment

Substance ID.: 121614
Haz Release ID: 379465
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 72-54-8
Substance Name: DDD,p,p'-
Substance Abbrev.: Not reported
Substance Alias ID: 319194
Sub Alias Name: DICHLORO-2,2-BIS(p-CHLOROPHENYL)ETHANE,1,1-
Substance Alias ID: 319195
Sub Alias Name: DICHLORODIPHENYLDICHLOROETHANE
Substance Alias ID: 319196
Sub Alias Name: RHOTHANE
Substance Alias ID: 319197
Sub Alias Name: TDE
Substance Alias ID: 319198
Sub Alias Name: TDE,p,p'-
Substance Alias ID: 319199
Sub Alias Name: TETRACHLORODIPHENYLETHANE
Sampling Result ID: 337925
Feature Id: 0
Hazard Release Id: 379465
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 32.00
Sample Comment: 32 ppb in Canoe Bay sediment composites (two 2-core composites)
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment

Substance ID.: 121615
Haz Release ID: 379466
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 72-55-9
Substance Name: DDE,p,p'-
Substance Abbrev.: Not reported
Substance Alias ID: 319200
Sub Alias Name: BIS(p-CHLOROPHENYL)-1,1-DICHLOROETHYLENE,2,2-
Substance Alias ID: 319201
Sub Alias Name: DICHLORODIPHENYL DICHLOROETHYLENE,p,p'-

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Substance Alias ID: 319202
Sub Alias Name: DICHLOROETHENYLIDENE)BIS(4-CHLOROBENZENE),1,1'-(-
Sampling Result ID: 337926
Feature Id: 0
Hazard Release Id: 379466
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 10.00
Sample Comment: 10 ppb in Canoe Bay sediment composites (two 2-core composites)
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment

Substance ID.: 121373
Haz Release ID: 379467
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 50-29-3
Substance Name: DDT,p,p'-
Substance Abbrev.: Not reported
Substance Alias ID: 318555
Sub Alias Name: BIS(p-CHLOROPHENYL)-2,2,2-TRICHLOROETHANE,1,1-
Substance Alias ID: 318556
Sub Alias Name: CHLOROPHENOTHANE
Substance Alias ID: 318557
Sub Alias Name: DICHLORODIPHENYLTRICHLOROETHANE
Substance Alias ID: 318558
Sub Alias Name: ETHANE,1,1,1-TRICHLORO-2,2-BIS(p-CHLOROPHENYL)-
Sampling Result ID: 337927
Feature Id: 0
Hazard Release Id: 379467
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 3.30
Sample Comment: 3.3 ppb DDT in Canoe Bay sediments at CB11SD (0-6 inches; 10/28/08). 1.6 ppb in Canoe Bay sediment composites (two 2-core composites). 1.3 ppb at CB14SD.
Last Update By: SFORTUN
Update Date: 09/14/2009

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Decode for MediumID: Sediment

Substance ID.: 121399
Haz Release ID: 379468
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 5103-71-9
Substance Name: CHLORDANE,CIS-
Substance Abbrev.: Not reported
Substance Alias ID: 318634
Sub Alias Name: CHLORDANE,alpha-
Sampling Result ID: 337928
Feature Id: 0
Hazard Release Id: 379468
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: 1.50
Sample Comment: 1.5 ppb in Canoe Bay sediment composite (two cores)
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment

Substance ID.: 121662
Haz Release ID: 379469
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 7440-36-0
Substance Name: ANTIMONY
Substance Abbrev.: Not reported
Substance Alias ID: 319283
Sub Alias Name: SB
Substance Alias ID: 319284
Sub Alias Name: STIBIUM
Sampling Result ID: 337929
Feature Id: 0
Hazard Release Id: 379469
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Min Concentration: .00
Max Concentration: 1.53
Sample Comment: 1.53 ppm in Canoe Bay sediment samples (core and two 2-core composites) Detected in analytical method blank at 0.016 ppm
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment

Substance ID.: 121664
Haz Release ID: 379470
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 7440-38-2
Substance Name: ARSENIC
Substance Abbrev.: Not reported
Substance Category ID: 8439
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8439
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319286
Sub Alias Name: AS
Sampling Result ID: 337930
Feature Id: 0
Hazard Release Id: 379470
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: .00
Max Concentration: 8.40
Sample Comment: 8.4 ppm arsenic in Canoe Bay sediments at CB06SD (10/28/08). 4.72 ppm arsenic in Canoe Bay sediment composite (two cores; 1/14/02) from 0-7 foot depths. Arsenic concentrations in Columbia River (10/27/08) sediments were 1.3 ppm to 3.1 ppm.
Last Update By: SFORTUN
Update Date: 09/08/2009
Decode for MediumID: Sediment
Sampling Result ID: 349637
Feature Id: 0
Hazard Release Id: 379470
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 08/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 18.90
Sample Comment: 18.9 ppb arsenic in surface soils adjacent to Canoe Bay at CB05SS. 7.8 ppm at CB03SS. 6.7 ppm at CB02SS. Background soils contained 2.89 ppm arsenic.
Last Update By: SFORTUN
Update Date: 09/14/2009
Decode for MediumID: Soil

Substance ID.: 121666
Haz Release ID: 379471
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 7440-41-7
Substance Name: BERYLLIUM
Substance Abbrev.: Not reported
Substance Category ID: 8459
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8459
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319288
Sub Alias Name: BE
Substance Alias ID: 319289
Sub Alias Name: GLUCINIUM
Sampling Result ID: 337931
Feature Id: 0
Hazard Release Id: 379471
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-4 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: .34
Sample Comment: 0.34 ppm in Canoe Bay sediment composite (two cores)
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment

Substance ID.: 121668

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Haz Release ID: 379472
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 7440-43-9
Substance Name: CADMIUM
Substance Abbrev.: Not reported
Substance Category ID: 8460
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8460
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319291
Sub Alias Name: CD
Sampling Result ID: 337932
Feature Id: 0
Hazard Release Id: 379472
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: .00
Max Concentration: 1.60
Sample Comment: 1.6 ppm cadmium in Canoe Bay sediments at CB06SD. 1.1 ppm cadmium in Canoe Bay sediment composites (two 2-core composites) from 0-7 feet depths. 1.0 ppm at CB05SD, CB09SD, CB10SD, and CB14SD.
Last Update By: SFORTUN
Update Date: 09/14/2009
Decode for MediumID: Sediment
Sampling Result ID: 337950
Feature Id: 0
Hazard Release Id: 379472
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: .03
Sample Comment: 0.03 ppm TCLP Leachable cadmium concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Decode for MediumID: Other
Sampling Result ID: 349639
Feature Id: 0
Hazard Release Id: 379472
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 14.60
Sample Comment: 14.6 ppm cadmium in surface soils adjacent to canoe bay at CB05SS. 2.9 ppm at CB03SS. Background soils contained no detectable cadmium at an analytical detection limit of 0.50 ppm.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Soil
Sampling Result ID: 349653
Feature Id: 0
Hazard Release Id: 379472
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: .96
Sample Comment: 0.96 ppm cadmium in sediments from stormwater outfall seeding Canoe Bay at SD02SD. 0.82 ppm in sediments at outfall SO01SD.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121671
Haz Release ID: 379473
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 7440-47-3
Substance Name: CHROMIUM
Substance Abbrev.: Not reported
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8462
Substance Category: Inorganics

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Alias ID:	318145
Sub Alias Name:	CHROMIUM, INORGANIC
Substance Alias ID:	319294
Sub Alias Name:	CHROMIUM, TOTAL
Sampling Result ID:	337933
Feature Id:	0
Hazard Release Id:	379473
Medium:	701
Substance Abbrev.:	0
Unit Code:	7
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	.00
Max Concentration:	16.20
Sample Comment:	16.2 ppm chromium in Canoe Bay sediments at CB06SD. 15.8 ppm at CB09SD. 15.2 ppm at CB05SD. 15 ppm in Canoe Bay sediment composite (two cores) at 0-7 feet depths (1/14/02). Columbia River sediments generally contained 5.1 - to 8.7 ppm chromium.
Last Update By:	SFORTUN
Update Date:	09/08/2009
Decode for MediumID:	Sediment
Sampling Result ID:	337951
Feature Id:	Not reported
Hazard Release Id:	379473
Medium:	700
Substance Abbrev.:	Not reported
Unit Code:	7
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	Not reported
Start Date:	05/01/2001
End Date:	05/01/2001
Min Concentration:	.00
Max Concentration:	.00
Sample Comment:	TCLP leachable concentration in residual paint dust
Last Update By:	sxf
Update Date:	09/24/2002
Decode for MediumID:	Other
Sampling Result ID:	349640
Feature Id:	0
Hazard Release Id:	379473
Medium:	703
Substance Abbrev.:	0
Unit Code:	7
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/28/2008

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

End Date: Not reported
Min Concentration: Not reported
Max Concentration: 33.70
Sample Comment: 33.7 ppm chromium in surface soils adjacent to Canoe Bay at CB05SS. 23.5 ppm at CB03SS. Background soils contained 8.5 ppm chromium.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Soil
Sampling Result ID: 349655
Feature Id: 0
Hazard Release Id: 379473
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 1-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 16.00
Sample Comment: 16 ppm chromium in surface soils at Schooner Creek stormwater outfall SO04SS.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121673
Haz Release ID: 379474
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 7440-50-8
Substance Name: COPPER
Substance Abbrev.: Not reported
Substance Category ID: 8464
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8464
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319296
Sub Alias Name: CU
Sampling Result ID: 337934
Feature Id: 0
Hazard Release Id: 379474
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Lab Data:	True
Sample Depth:	0-7 feet
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	.00
Max Concentration:	79.20
Sample Comment:	79.2 ppm copper in Canoe Bay sediments at CB11SD. 68.4 ppm at CB05SD. 66.7 ppm at CB10SD. 19.9 ppm copper in Canoe Bay sediment samples (core and two 2-core composites) 0-7 feet (1/14/02). Nearby Columbia River sediments had 5.1-11.7 ppm copper.
Last Update By:	SFORTUN
Update Date:	09/08/2009
Decode for MediumID:	Sediment
Sampling Result ID:	349633
Feature Id:	0
Hazard Release Id:	379474
Medium:	700
Substance Abbrev.:	0
Unit Code:	8
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	Not reported
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	966.00
Sample Comment:	966 ppb copper in stormwater from outfall discharge at SO01SW. 65.4 ppb at SO03SW. 49.1 ppb at SO02SW.
Last Update By:	SFORTUN
Update Date:	09/09/2009
Decode for MediumID:	Other
Sampling Result ID:	349641
Feature Id:	0
Hazard Release Id:	379474
Medium:	703
Substance Abbrev.:	0
Unit Code:	7
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	357.00
Sample Comment:	357 ppm copper in surface soils adjacent to Canoe Bay at CB05SS. 125 ppm at CD03SS. 68.9 ppm at CB02SS.
Last Update By:	SFORTUN
Update Date:	09/08/2009
Decode for MediumID:	Soil
Sampling Result ID:	349657
Feature Id:	0
Hazard Release Id:	379474
Medium:	700
Substance Abbrev.:	0
Unit Code:	7

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 455.00
Sample Comment: 455 ppm copper in soils at Schooner Creek stormwater outfall SO04SS. 407 ppm at City of Portland stormwater outfall SO05SS.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other
Sampling Result ID: 349664
Feature Id: 0
Hazard Release Id: 379474
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 90.00
Sample Comment: 90 ppm copper in sediments below stormwater outfall at SO01SD. 63.9 ppm in sediments below stormwater outfall at SD02SD.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121639
Haz Release ID: 379475
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 7439-92-1
Substance Name: LEAD
Substance Abbrev.: Not reported
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319256
Sub Alias Name: PB
Sampling Result ID: 337935
Feature Id: 0
Hazard Release Id: 379475

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Medium:	701
Substance Abbrev.:	0
Unit Code:	7
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	.00
Max Concentration:	22.60
Sample Comment:	22.6 ppm lead in Canoe Bay sediments at CB06SD. 20.7 ppm lead in Canoe Bay sediment composite (two cores) at 0-7 feet depths (1/14/02). 14 ppm at CB14SD. 13.8 ppm at CB11SD. 13.5 ppm at CB05SD and CB10SD. Columbia River sediments had 3- to 4.8 ppm.
Last Update By:	SFORTUN
Update Date:	09/08/2009
Decode for MediumID:	Sediment
Sampling Result ID:	337957
Feature Id:	0
Hazard Release Id:	379475
Medium:	700
Substance Abbrev.:	0
Unit Code:	7
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	Not reported
Start Date:	05/01/2001
End Date:	05/01/2001
Min Concentration:	.00
Max Concentration:	1.20
Sample Comment:	1.2 ppm TCLP leachable concentration in residual paint dust
Last Update By:	SFORTUN
Update Date:	09/09/2009
Decode for MediumID:	Other
Sampling Result ID:	349634
Feature Id:	0
Hazard Release Id:	379475
Medium:	700
Substance Abbrev.:	0
Unit Code:	8
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	Not reported
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	11.50
Sample Comment:	11.5 ppb lead in stormwater outfall discharge at SO01SW. 3.3 ppb at SO03SW. 2.7 ppb at SO02SW.
Last Update By:	SFORTUN
Update Date:	09/08/2009
Decode for MediumID:	Other
Sampling Result ID:	349643
Feature Id:	0

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Hazard Release Id: 379475
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 853.00
Sample Comment: 853 ppm lead in surface soils adjacent to Canoe Bay at CB05SS. 213 ppm at CB03SS. Background soils contained 19.8 ppm lead.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Soil
Sampling Result ID: 349667
Feature Id: 0
Hazard Release Id: 379475
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 96.30
Sample Comment: 96.3 ppm lead in surface soils at Schooner Creek stormwater outfall at SO04SS.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121643
Haz Release ID: 379476
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 7439-97-6
Substance Name: MERCURY
Substance Abbrev.: Not reported
Substance Category ID: 8467
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8467
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319260

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Sub Alias Name: HG
Substance Alias ID: 319261
Sub Alias Name: HYDRARGYRUM
Substance Alias ID: 319262
Sub Alias Name: LIQUID SILVER
Substance Alias ID: 319263
Sub Alias Name: QUICKSILVER
Sampling Result ID: 337936
Feature Id: 0
Hazard Release Id: 379476
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: .00
Max Concentration: .26
Sample Comment: 0.26 ppm mercury in Canoe Bay sediments at CB08SD. 0.18 ppm at CB10SD. 0.12 ppm at CB09SD. 0.11 ppm at CB07SD. 0.08 ppm in Canoe Bay sediment samples (core and two 2-core composites) at 0-7 feet depths (1/14/02).
Last Update By: SFORTUN
Update Date: 09/08/2009
Decode for MediumID: Sediment
Sampling Result ID: 349650
Feature Id: 0
Hazard Release Id: 379476
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: .26
Sample Comment: 0.26 ppm mercury in surface soils along trhe southwest edge of Canoe Bay at CB05SS. Background soils contained no detectable mercury at an analytical detection limit of 0.038 ppm.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Soil

Substance ID.: 121646
Haz Release ID: 379477
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 7440-02-0
Substance Name: NICKEL
Substance Abbrev.: Not reported

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Substance Category ID: 8469
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8469
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319266
Sub Alias Name: NI
Sampling Result ID: 337937
Feature Id: 0
Hazard Release Id: 379477
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: .00
Max Concentration: 14.50
Sample Comment: 14.5 ppm nickel in Canoe Bay sediments at CB09SD. 14.3 ppm at CB06SD. 13.5 ppm at CB01SD. 13.5 ppm in Canoe Bay sediment composite (two cores) at 0-7 feet (1/14/02). Nearby Columbia River sediments contained 5.6- to 9.5 ppm.
Last Update By: SFORTUN
Update Date: 09/08/2009
Decode for MediumID: Sediment
Sampling Result ID: 349649
Feature Id: 0
Hazard Release Id: 379477
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 49.60
Sample Comment: 49.6 ppm nickel in surface soils along the southwest edge of Canoe Bay at CB05SS. 30.7 ppm at CB03SS. 13.4 ppm at CB02SS. Background soils contained 8.9 ppm.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Soil

Substance ID.: 121755
Haz Release ID: 379478
Qty Released: Unknown

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 7782-49-2
Substance Name: SELENIUM
Substance Abbrev.: Not reported
Substance Alias ID: 319488
Sub Alias Name: SE
Sampling Result ID: 337938
Feature Id: 0
Hazard Release Id: 379478
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: .00
Max Concentration: 1.80
Sample Comment: 1.8 ppm selenium in canoe Bay sediments at CB06SD. 1.7 ppm at CB09SD. 1.6 ppm at CB05SD, CB10SD, and CB14SD. 0.58 ppm in Canoe Bay sediment composite (two cores) at 0-7 feet (1/14/02).
Last Update By: SFORTUN
Update Date: 09/08/2009
Decode for MediumID: Sediment
Sampling Result ID: 349648
Feature Id: 0
Hazard Release Id: 379478
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 5.90
Sample Comment: 5.9 ppm selenium in surface soils along southwest edge of Canoe Bay at CB05SS. 1.8 ppm at CB03SS. 1.6 ppm at CB02SS. Background soils contained no detectable selenium at an analytical detection limit of 0.82 ppm.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Soil
Sampling Result ID: 349670
Feature Id: 0
Hazard Release Id: 379478
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 1.30
Sample Comment: 1.3 ppm selenium in surface soils at Schooner Creek stormwater outfall at SO04SS. 0.9 ppm at City of Portland Stormwater outfall at SO05SS.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other
Sampling Result ID: 349671
Feature Id: 0
Hazard Release Id: 379478
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 1.30
Sample Comment: 1.3 ppm selenium in sediments below stormwater outfall at SO02SD. 0.98 ppm in sediments below outfall at SO01SD.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121657
Haz Release ID: 379479
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 7440-28-0
Substance Name: THALLIUM
Substance Abbrev.: Not reported
Substance Alias ID: 319278
Sub Alias Name: TL
Sampling Result ID: 337939
Feature Id: 0
Hazard Release Id: 379479
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: .24
Sample Comment: 0.24 ppm in Canoe Bay sediment composite (two cores)

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment

Substance ID.: 121677
Haz Release ID: 379480
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 7440-62-2
Substance Name: VANADIUM
Substance Abbrev.: Not reported
Substance Alias ID: 319300
Sub Alias Name: V
Sampling Result ID: 337940
Feature Id: 0
Hazard Release Id: 379480
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: .00
Max Concentration: 51.20
Sample Comment: 51.2 ppm vanadium in Canoe Bay sediments at CB09SD. 47.5 ppm at CB10SD. 47.3 ppm at CB05SD. 46.3 ppm at CB06SD. 33.5 ppm in Canoe Bay sediment composites (two 2-core composites) at 0-7 ft (1/14/02). Nearby Columbia Riv. sediments: 19.9- to 32.1 ppm.
Last Update By: SFORTUN
Update Date: 09/08/2009
Decode for MediumID: Sediment
Sampling Result ID: 349646
Feature Id: 0
Hazard Release Id: 379480
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 51.80
Sample Comment: 51.8 ppm vanadium in surface soils along southwest edge of Canoe Bay at CB02SS. 44.7 ppm at CB03SS. 34.8 ppm at CB05SS. 33.1 ppm at CB01SS. Background soils had 29.8 ppm.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Soil
Sampling Result ID: 349672

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Feature Id: 0
Hazard Release Id: 379480
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 63.50
Sample Comment: 63.5 ppm vanadium in surface soils at Schooner Creek stormwater outfall at SO04SS. 45.3 ppm at City of Portland stormwater outfall at SO05SS.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other
Sampling Result ID: 349673
Feature Id: 0
Hazard Release Id: 379480
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 55.20
Sample Comment: 55.2 ppm vanadium in sediments below stormwater outfall at SO02SD. 55.0 ppm in sediments below outfall at SO01SD.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121679
Haz Release ID: 379481
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 7440-66-6
Substance Name: ZINC
Substance Abbrev.: Not reported
Substance Alias ID: 319302
Sub Alias Name: ZN
Sampling Result ID: 337941
Feature Id: 0
Hazard Release Id: 379481
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	.00
Max Concentration:	146.00
Sample Comment:	146 ppm zinc in Canoe Bay sediments at CB06SD. 118 ppm at CB10SD. 116 ppm at CB05SD. 111 ppm in Canoe Bay sediment composite (two cores) at 0-7 feet (1/14/02). Nearby Columbia River sediments had 30.2- to 53.9 ppm.
Last Update By:	SFORTUN
Update Date:	09/14/2009
Decode for MediumID:	Sediment
Sampling Result ID:	349635
Feature Id:	0
Hazard Release Id:	379481
Medium:	700
Substance Abbrev.:	0
Unit Code:	8
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	Not reported
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	370.00
Sample Comment:	370 ppb zinc in stormwater outfall discharge at SO01SW. 138 ppb at SO03SW. 122 ppb at SO02SW.
Last Update By:	SFORTUN
Update Date:	09/08/2009
Decode for MediumID:	Other
Sampling Result ID:	349645
Feature Id:	0
Hazard Release Id:	379481
Medium:	703
Substance Abbrev.:	0
Unit Code:	7
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	1120.00
Sample Comment:	1120 ppm zinc in surface soils at the southwest edge of Canoe Bay at CB05SS. 637 ppm at CB03SS. 100 ppm at CB04SS. Background soils had 76.5 ppm.
Last Update By:	SFORTUN
Update Date:	09/09/2009
Decode for MediumID:	Soil
Sampling Result ID:	349674
Feature Id:	0
Hazard Release Id:	379481
Medium:	700

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 315.00
Sample Comment: 315 ppm zinc in surface soils at Schooner Creek stormwater outfall at SO04SS. 178 ppm at City of Portland outfall at SO05SS.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other
Sampling Result ID: 349675
Feature Id: 0
Hazard Release Id: 379481
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 148.00
Sample Comment: 148 ppm zinc in sediments below stormwater outfall at SO02SD. 125 ppm below outfall at SO01SD.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121654
Haz Release ID: 379482
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/19/2002
Update By: Not reported
Substance Code: 7440-22-4
Substance Name: SILVER
Substance Abbrev.: Not reported
Substance Category ID: 8470
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8470
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319274
Sub Alias Name: AG
Sampling Result ID: 337942

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Feature Id: 0
Hazard Release Id: 379482
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0-7 feet
Start Date: 01/14/2002
End Date: 01/14/2002
Min Concentration: .00
Max Concentration: .38
Sample Comment: 0.38 ppm in Canoe Bay sediment samples (core and two 2-core composites)
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Sediment
Sampling Result ID: 349647
Feature Id: 0
Hazard Release Id: 379482
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 1.50
Sample Comment: 1.5 ppm silver in surface soils along southwest edge of Canoe Bay at CB05SS. Background soils contained no detectable silver at an analytical detection limit of 1.1 ppm
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Soil

Substance ID.: 121665
Haz Release ID: 379483
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 7440-39-3
Substance Name: BARIUM
Substance Abbrev.: Not reported
Substance Category ID: 8458
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8458
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Created Date:	12/17/2002
Substance Alias ID:	319287
Sub Alias Name:	BA
Sampling Result ID:	337961
Feature Id:	0
Hazard Release Id:	379483
Medium:	700
Substance Abbrev.:	0
Unit Code:	7
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	Not reported
Start Date:	05/01/2001
End Date:	05/01/2001
Min Concentration:	.00
Max Concentration:	.76
Sample Comment:	0.76 ppm TCLP leachable concentration in residual paint dust
Last Update By:	SFORTUN
Update Date:	09/09/2009
Decode for MediumID:	Other
Sampling Result ID:	349625
Feature Id:	0
Hazard Release Id:	379483
Medium:	701
Substance Abbrev.:	0
Unit Code:	7
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	127.00
Sample Comment:	127 ppm barium in Canoe Bay sediments at CB01SD. 126 ppm at CB09SD. 123 ppm at CB06SD. 121 ppm at CB05SD. 120 ppm at CB04SD. Barium in nearby Columbia River sediments generally ranged from 48.8- to 66.2 ppm.
Last Update By:	SFORTUN
Update Date:	09/08/2009
Decode for MediumID:	Sediment
Sampling Result ID:	349632
Feature Id:	0
Hazard Release Id:	379483
Medium:	700
Substance Abbrev.:	0
Unit Code:	8
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	Not reported
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	30.60
Sample Comment:	30.6 ppb barium in stormwater outfall discharge at S)01SW. 7.5 ppb at

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SO03SW. 5.9 ppb at SO02SW.
Last Update By: SFORTUN
Update Date: 09/08/2009
Decode for MediumID: Other
Sampling Result ID: 349638
Feature Id: 0
Hazard Release Id: 379483
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 175.00
Sample Comment: 175 ppm barium in surface soils adjacent to Canoe Bay at CB03SS. 157 ppm at CB05SS. Background soils contained 85.6 ppm.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Soil
Sampling Result ID: 349654
Feature Id: 0
Hazard Release Id: 379483
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 112.00
Sample Comment: 112 ppm barium in surface soils at Schooner Creek stormwater outfall SO04SS. 63.3 ppm at SO05SS. Background soil sample contained 119 ppm (BK01SS).
Last Update By: SFORTUN
Update Date: 09/14/2009
Decode for MediumID: Other

Substance ID.: 121694
Haz Release ID: 379484
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 75-09-2
Substance Name: METHYLENE CHLORIDE
Substance Abbrev.: Not reported
Substance Category ID: 8518
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Created Date: 12/17/2002
Substance Category ID: 8518
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319341
Sub Alias Name: DICHLOROMETHANE
Substance Alias ID: 319342
Sub Alias Name: METHANE DICHLORIDE
Substance Alias ID: 319343
Sub Alias Name: METHYLENE BICHLORIDE
Substance Alias ID: 319344
Sub Alias Name: METHYLENE DICHLORIDE
Sampling Result ID: 337962
Feature Id: 0
Hazard Release Id: 379484
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: 1.55
Sample Comment: 1.55 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 120781
Haz Release ID: 379485
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 100-41-4
Substance Name: ETHYLBENZENE
Substance Abbrev.: Not reported
Substance Category ID: 8515
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8515
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316146
Sub Alias Name: ETHYLBENZOL
Substance Alias ID: 316147
Sub Alias Name: PHENYLETHANE
Sampling Result ID: 337963

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Feature Id: 0
Hazard Release Id: 379485
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: .39
Sample Comment: 0.39 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121051
Haz Release ID: 379486
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 1330-20-7
Substance Name: XYLENEs
Substance Abbrev.: Not reported
Substance Category ID: 8526
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8526
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317017
Sub Alias Name: DIMETHYLBENZENEs
Substance Alias ID: 317018
Sub Alias Name: XYLOLs
Sampling Result ID: 337964
Feature Id: 0
Hazard Release Id: 379486
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: 3.81
Sample Comment: 3.8 ppm Concentration in residual paint dust
Last Update By: SFORTUN

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Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 120782
Haz Release ID: 379487
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 100-42-5
Substance Name: STYRENE
Substance Abbrev.: Not reported
Substance Alias ID: 316148
Sub Alias Name: PHENYLETHYLENE
Substance Alias ID: 316149
Sub Alias Name: STYROL
Substance Alias ID: 316150
Sub Alias Name: STYROLENE
Substance Alias ID: 316151
Sub Alias Name: VINYLBENZENE
Sampling Result ID: 337965
Feature Id: 0
Hazard Release Id: 379487
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: 8.41
Sample Comment: 8.4 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 120819
Haz Release ID: 379488
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 103-65-1
Substance Name: PROPYLBENZENE,n-
Substance Abbrev.: Not reported
Substance Alias ID: 316223
Sub Alias Name: BENZENE,PROPYL-
Substance Alias ID: 316224
Sub Alias Name: ISOCUMENE
Substance Alias ID: 316225
Sub Alias Name: PHENYLPROPANE,1-
Sampling Result ID: 337966
Feature Id: 0
Hazard Release Id: 379488

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Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: .17
Sample Comment: 0.17 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121943
Haz Release ID: 379489
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 98-82-8
Substance Name: CUMENE
Substance Abbrev.: Not reported
Substance Alias ID: 318072
Sub Alias Name: BENZENE,(1-METHYLETHYL)-
Substance Alias ID: 318073
Sub Alias Name: CUMOL
Substance Alias ID: 318074
Sub Alias Name: ISOPROPYLBENZENE
Substance Alias ID: 318075
Sub Alias Name: PHENYLPROPANE,2-
Sampling Result ID: 337967
Feature Id: 0
Hazard Release Id: 379489
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: .27
Sample Comment: 0.27 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121795
Haz Release ID: 379490
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002

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Update By: Not reported
Substance Code: 80-43-3
Substance Name: ISOPROPYLBENZENE,P-
Substance Abbrev.: Not reported

Substance ID.: 121956
Haz Release ID: 379491
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 99-87-6
Substance Name: ISOPROPYLTOLUENE,p-
Substance Abbrev.: Not reported
Substance Alias ID: 318126
Sub Alias Name: BENZENE,1-ISOPROPYL-4-METHYL-
Substance Alias ID: 318127
Sub Alias Name: CUMENE,p-METHYL-
Substance Alias ID: 318128
Sub Alias Name: CYMENE
Substance Alias ID: 318129
Sub Alias Name: CYMENE,p-
Substance Alias ID: 318130
Sub Alias Name: CYMOL
Substance Alias ID: 318131
Sub Alias Name: DOLCYMENE
Substance Alias ID: 318132
Sub Alias Name: ISOPROPYL-1-METHYLBENZENE,4-
Substance Alias ID: 318133
Sub Alias Name: PARACYMENE
Sampling Result ID: 337968
Feature Id: 0
Hazard Release Id: 379491
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: .25
Sample Comment: 0.25 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121912
Haz Release ID: 379492
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 95-63-6
Substance Name: TRIMETHYLBENZENE,1,2,4-

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Substance Abbrev.: Not reported
Substance Alias ID: 317959
Sub Alias Name: BENZENE,1,2,5-TRIMETHYL-
Substance Alias ID: 317960
Sub Alias Name: CUMENE,psi-
Substance Alias ID: 317961
Sub Alias Name: PSEUDOCUMENE
Substance Alias ID: 317962
Sub Alias Name: PSEUDOCUMOL
Substance Alias ID: 317963
Sub Alias Name: TRIMETHYLBENZENE,asym-
Sampling Result ID: 337969
Feature Id: 0
Hazard Release Id: 379492
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: 3.11
Sample Comment: 3.1 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 120878
Haz Release ID: 379493
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/24/2002
Update By: Not reported
Substance Code: 108-67-8
Substance Name: TRIMETHYLBENZENE,1,3,5-
Substance Abbrev.: Not reported
Substance Alias ID: 316454
Sub Alias Name: BENZENE,1,3,5-TRIMETHYL-
Substance Alias ID: 316455
Sub Alias Name: MESITYLENE
Substance Alias ID: 316456
Sub Alias Name: TRIMENTHYLBENZENE,sym-
Substance Alias ID: 316457
Sub Alias Name: TRIMETHYLBENZOL
Sampling Result ID: 337970
Feature Id: 0
Hazard Release Id: 379493
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported

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Start Date: 05/01/2001
End Date: 05/01/2001
Min Concentration: .00
Max Concentration: 1.48
Sample Comment: 1.48 ppm Concentration in residual paint dust
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121634
Haz Release ID: 387346
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/08/2009
Update By: SFORTUN
Substance Code: 7429-90-5
Substance Name: ALUMINUM
Substance Abbrev.: Not reported
Substance Alias ID: 319250
Sub Alias Name: AL
Substance Alias ID: 319251
Sub Alias Name: ALUMINIUM
Sampling Result ID: 349624
Feature Id: 0
Hazard Release Id: 387346
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 11500.00
Sample Comment: 11500 ppm aluminum in Canoe bay sediments at sampling points CB05SD and CB06SD. Aluminum concentrations in Columbia River background sediments generally ranged from 2750 ppm (CR01SD) to 5540 ppm (CR04SD).
Last Update By: SFORTUN
Update Date: 09/08/2009
Decode for MediumID: Sediment
Sampling Result ID: 349742
Feature Id: 0
Hazard Release Id: 387346
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 12900.00

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Sample Comment: 11400 ppm aluminum in surface soils at CB03SS. 12900 ppm aluminum in background soil sample BK01SS.
Last Update By: SFORTUN
Update Date: 09/14/2009
Decode for MediumID: Soil

Substance ID.: 121637
Haz Release ID: 387347
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/08/2009
Update By: SFORTUN
Substance Code: 7439-89-6
Substance Name: IRON
Substance Abbrev.: Not reported
Substance Alias ID: 319254
Sub Alias Name: FE
Sampling Result ID: 349626
Feature Id: 0
Hazard Release Id: 387347
Medium: 701
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 22600.00
Sample Comment: 22600 ppm iron in Canoe Bay sediments at CB14SD. 21000 ppm at CB09SD. 20400 ppm at CB05SD. 20200 ppm at CB10SD. Nearby Columbia River sediments generally contained 7890- to 10800 ppm iron.
Last Update By: SFORTUN
Update Date: 09/08/2009
Decode for MediumID: Sediment
Sampling Result ID: 349642
Feature Id: 0
Hazard Release Id: 387347
Medium: 703
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 103000.00
Sample Comment: 103000 ppm iron in surface soils adjacent to Canoe Bay at CB05SS. 29600 ppm at CB03SS. 26600 ppm at CB02SS.
Last Update By: SFORTUN
Update Date: 09/08/2009
Decode for MediumID: Soil
Sampling Result ID: 349665

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Feature Id: 0
Hazard Release Id: 387347
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 20200.00
Sample Comment: 20200 ppm iron in surface soils at Schooner Creek stormwater outfall SO04SS.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other
Sampling Result ID: 349666
Feature Id: 0
Hazard Release Id: 387347
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 20600.00
Sample Comment: 20600 ppm iron in sediments below stormwater outfall SO02SD.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 121642
Haz Release ID: 387348
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/08/2009
Update By: SFORTUN
Substance Code: 7439-96-5
Substance Name: MANGANESE
Substance Abbrev.: Not reported
Substance Category ID: 8468
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8468
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319259

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Sub Alias Name:	MN
Sampling Result ID:	349627
Feature Id:	0
Hazard Release Id:	387348
Medium:	701
Substance Abbrev.:	0
Unit Code:	7
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	330.00
Sample Comment:	330 ppm manganese in Canoe Bay sediments at CB06SD. 316 ppm at CB11SD. Nearby Columbuia River sediments generally contained 162- to 311 ppm manganese.
Last Update By:	SFORTUN
Update Date:	09/08/2009
Decode for MediumID:	Sediment
Sampling Result ID:	349644
Feature Id:	0
Hazard Release Id:	387348
Medium:	703
Substance Abbrev.:	0
Unit Code:	7
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	582.00
Sample Comment:	582 ppm manganese in surface soils adjacent to Canoe Bay at CB05SS. 345 ppm at CB03SS. 303 ppm at CB02SS. 108 ppm at CB01SS.
Last Update By:	SFORTUN
Update Date:	09/08/2009
Decode for MediumID:	Soil
Sampling Result ID:	349668
Feature Id:	0
Hazard Release Id:	387348
Medium:	700
Substance Abbrev.:	0
Unit Code:	7
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	284.00
Sample Comment:	284 ppm manganese in surface soils at Schooner Creek stormwater outfall SS04SS. 237 ppm at City of Portland stormwater outfall SO05SS.
Last Update By:	SFORTUN

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Update Date: 09/09/2009
Decode for MediumID: Other
Sampling Result ID: 349669
Feature Id: 0
Hazard Release Id: 387348
Medium: 700
Substance Abbrev.: 0
Unit Code: 7
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 292.00
Sample Comment: 292 ppm manganese in sediments below stormwater outfall at SO02SD. 253 ppm below outfall at SO01SD.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other

Substance ID.: 122031
Haz Release ID: 387349
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/08/2009
Update By: SFORTUN
Substance Code: ECD312
Substance Name: TRIBUTYLTIN
Substance Abbrev.: Not reported
Comment ID: 305255
Release Code: Media Contamination Footnote
Release Comments: Canoe Bay sediments at CB04SD (0-6 inches; 10/28/08) also contained 310 ppb dibutyltin, and 400 ppb monobutyltin. Sediments at CB11SD also contained 25 ppb dibutyltin, and 31 ppb monobutyltin.
Decode for Relcomcd: Media Contamination Footnote
Comment ID: 305256
Release Code: General Comments
Release Comments: Surface soils at Schooner Creek stormwater outfall at SO04SS also contained 65 ppb dibutyltin and 110 ppb monobutyltin. Sediments below Schooner Creek stormwater outfall at SO01SD contained 62 ppb dibutyltin and 100 ppb monobutyltin.
Decode for Relcomcd: General Comments
Comment ID: 305257
Release Code: Release Containment
Release Comments: Stormwater draining from Schooner Creek stormwater outfall at SO01SW contained 0.028 ppb tributyltin, 0.020 ppb dibutyltin, and 0.050 ppb monobutyltin.
Decode for Relcomcd: Release Containment
Sampling Result ID: 349628
Feature Id: 0
Hazard Release Id: 387349
Medium: 701
Substance Abbrev.: 0
Unit Code: 8
Observation: True

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Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	410.00
Sample Comment:	410 ppb Tributyltin in Canoe Bay sediments at CB04SD (equivalent to 34,167 ug/Kg OC). 200 ppb at CB11SD (equivalent to 13,333 ug/Kg OC). 7.4 ppb at CB14SD (equivalent to 1,574 ug/Kg OC).
Last Update By:	SFORTUN
Update Date:	09/14/2009
Decode for MediumID:	Sediment
Sampling Result ID:	349629
Feature Id:	0
Hazard Release Id:	387349
Medium:	700
Substance Abbrev.:	0
Unit Code:	8
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	Not reported
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	.03
Sample Comment:	0.028 ppb tributyltin in stormwater discharging from outfall at SO01SW.
Last Update By:	SFORTUN
Update Date:	09/09/2009
Decode for MediumID:	Other
Sampling Result ID:	349661
Feature Id:	0
Hazard Release Id:	387349
Medium:	700
Substance Abbrev.:	0
Unit Code:	8
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	110.00
Sample Comment:	110 ppb tributyltin in surface soils at Schooner Creek stormwater outfall SO04SS.
Last Update By:	SFORTUN
Update Date:	09/09/2009
Decode for MediumID:	Other
Sampling Result ID:	349750
Feature Id:	0
Hazard Release Id:	387349
Medium:	700
Substance Abbrev.:	0
Unit Code:	8

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Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 20.00
Sample Comment: 20 ppb tributyltin in sediments below stormwater outfall at SO02SD.
Last Update By: SFORTUN
Update Date: 09/14/2009
Decode for MediumID: Other

Substance ID.: 121925
Haz Release ID: 387350
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/08/2009
Update By: SFORTUN
Substance Code: 959-98-8
Substance Name: ENDOSULFAN I
Substance Abbrev.: Not reported
Substance Alias ID: 318009
Sub Alias Name: ENDOSULFAN,alpha-
Substance Alias ID: 318010
Sub Alias Name: THIODAN I
Sampling Result ID: 349630
Feature Id: 0
Hazard Release Id: 387350
Medium: 700
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: .06
Sample Comment: 0.064 ppb endosulfan I in stormwater outfall drainage at SO03SW.
Last Update By: SFORTUN
Update Date: 09/08/2009
Decode for MediumID: Other

Substance ID.: 121672
Haz Release ID: 387351
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 7440-48-4
Substance Name: COBALT
Substance Abbrev.: Not reported
Substance Alias ID: 319295
Sub Alias Name: CO
Sampling Result ID: 349651

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Feature Id:	0
Hazard Release Id:	387351
Medium:	703
Substance Abbrev.:	0
Unit Code:	7
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	10.00
Sample Comment:	10 ppm cobalt in surface soils along the southwest edge of Canoe Bay at CB05SS. Background soils contained no detectable cobalt at an analytical detection limit of 4.8 ppm.
Last Update By:	SFORTUN
Update Date:	09/09/2009
Decode for MediumID:	Soil
Sampling Result ID:	349652
Feature Id:	0
Hazard Release Id:	387351
Medium:	701
Substance Abbrev.:	0
Unit Code:	7
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	16.20
Sample Comment:	16.2 ppm cobalt in Canoe Bay sediments at CB06SD. 15.8 ppm at CB09SD. 15.2 ppm at CB05SD. 15.0 ppm at CB10SD.
Last Update By:	SFORTUN
Update Date:	09/09/2009
Decode for MediumID:	Sediment
Sampling Result ID:	349656
Feature Id:	0
Hazard Release Id:	387351
Medium:	700
Substance Abbrev.:	0
Unit Code:	7
Observation:	True
Owner Operator:	False
Lab Data:	True
Sample Depth:	0-6 inches
Start Date:	10/28/2008
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	8.20
Sample Comment:	8.2 ppm cobalt in surface soils at Schooner Creek stormwater outfall SO04SS.
Last Update By:	SFORTUN
Update Date:	09/09/2009
Decode for MediumID:	Other

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Substance ID.: 120941
Haz Release ID: 387352
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 117-81-7
Substance Name: BIS(2-ETHYLHEXYL)PHTHALATE
Substance Abbrev.: Not reported
Substance Category ID: 8480
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8480
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316655
Sub Alias Name: BIS(2-ETHYLHEXYL)-1,2-BENZENEDICARBOXYLATE
Substance Alias ID: 316656
Sub Alias Name: BIS(2-ETHYLHEXYL)-o-PHTHALATE
Substance Alias ID: 316657
Sub Alias Name: DI(2-ETHYLHEXYL)ORTHOPHTHALATE
Substance Alias ID: 316658
Sub Alias Name: DI-2-ETHYLHEXYLPHTHALATE
Substance Alias ID: 316659
Sub Alias Name: DI-sec-OCTYL PHTHALATE
Substance Alias ID: 316660
Sub Alias Name: DIOCTYL PHTHALATE
Substance Alias ID: 316661
Sub Alias Name: PHTHALIC ACID, BIS(2-ETHYLHEXYL) ESTER
Sampling Result ID: 349662
Feature Id: 0
Hazard Release Id: 387352
Medium: 700
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 1300.00
Sample Comment: 1300 ppb bis(2-ethylhexyl)phthalate in surface soils at Schooner Creek stormwater outfall SO04SS. 650 ppb in surface soils at City of Portland stormwater outfall at SO05SS.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other
Sampling Result ID: 349663
Feature Id: 0
Hazard Release Id: 387352
Medium: 700

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 520.00
Sample Comment: 520 ppb bis(2-ethylhexyl)phthalate in sediments below stormwater outfall at SO01SD.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Other
Sampling Result ID: 349748
Feature Id: 0
Hazard Release Id: 387352
Medium: 703
Substance Abbrev.: 0
Unit Code: 8
Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 370.00
Sample Comment: 370 ppb bis(2-ethylhexyl)phthalate in surface soils at CB02SS.
Last Update By: SFORTUN
Update Date: 09/14/2009
Decode for MediumID: Soil

Substance ID.: 121477
Haz Release ID: 387353
Qty Released: Unknown
Date Released: Unknown
Update Date: 09/09/2009
Update By: SFORTUN
Substance Code: 57-74-9
Substance Name: CHLORDANE
Substance Abbrev.: Not reported
Substance Alias ID: 318829
Sub Alias Name: CORODANE
Substance Alias ID: 318830
Sub Alias Name: OCTACHLOR
Substance Alias ID: 318831
Sub Alias Name: TOXICHLOR
Substance Alias ID: 318832
Sub Alias Name: VELSICOL 1068
Sampling Result ID: 349676
Feature Id: 0
Hazard Release Id: 387353
Medium: 703
Substance Abbrev.: 0
Unit Code: 8

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Observation: True
Owner Operator: False
Lab Data: True
Sample Depth: 0-6 inches
Start Date: 10/28/2008
End Date: Not reported
Min Concentration: Not reported
Max Concentration: 7.50
Sample Comment: 7.5 ppb gamma-chlordane in surface soils along the southwest edge of canoe bay at CB03SS.
Last Update By: SFORTUN
Update Date: 09/09/2009
Decode for MediumID: Soil

Narrative:

NARR ID: 5742354
NARR Code: Site Contacts
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Site Contacts
NARR Comments: Mike Ward, Schooner Creek Boat Works, Inc., 3255 N Hayden Island Drive, Portland, OR 97217, 503-735-0569, Yard Manager, part owner of Schooner Creek Boat Works; site operator. Steven D. Rander, Schooner Creek Boat Works, Inc., 3255 N Hayden Island Drive, Portland, OR 97217, 503-735-0569, President and part owner of Schooner Creek Boat Works; site operator. Nancy G. Rander, Schooner Creek Boat Works, Inc., 3255 N Hayden Island Drive, Portland, OR 97217, 503-735-0569, Secretary and part owner of Schooner Creek Boat Works; site operator. Kevin B. Flanigan, Inland Sea Maritime Group LLC, 11401 N Hayden Island Drive, Portland, OR 97217, 503-699-7982, member of LLC, site owner.

NARR ID: 5742355
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: SFORTUN
Updated Date: 04/23/2010
Decode for NarcdID: Contamination
NARR Comments: Sediments: Sediments directly beneath a Schooner Creek Boat Works dock and adjacent to the shoreline are contaminated with PCBs, PAHs, phthalates, PCP, phenols, DDTs, chlordane, metals (arsenic, cadmium, copper, selenium, zinc), and relatively low concentrations of diesel fuel and oil. The source and full vertical and horizontal extent of sediment contamination have not been defined. Upland Areas: A sample of residual paint dust collected at the boat repair facility contained PAHs, di-n-butyl phthalate, chloroform, methylene chloride, light aromatic hydrocarbons, and TCLP-extractable barium, cadmium, and lead. Paint dust residues have been observed on graveled surfaces at Schooner Creek Boat Works, and other boat repair wastes have been observed on Canoe Bay's steep southwest embankment at the boat works. Stained soils and stressed vegetation have also been documented at the boat works site. Chemical residues (30 - 60 sq ft area) and stressed vegetation were also observed on the southern portion of the lot west of the boat works, prior to Schooner Creek Boat Works occupying the site. Most of the western lot is now used for

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

automobile storage, although a portion is used for boat storage. DEQ photographed small areas of stressed vegetation along Schooner Creek Boat Works' north fence line during an April 2001 multi-media inspection. (5/15/04 JLS/VCP) Waste materials, (e.g. broken glass, electrical casings) that apparently resulted from historical dumping by unknown parties are present along the shoreline. Waste material remaining at this time appear to be present primarily on land owned by the Oregon Division of State Lands. A private and City outfall discharge stormwater to Canoe Bay in the vicinity of the ramp to the docks. (9/9/09, smf) Samplings from an October 2008 EPA Site Insection detected elevated concentrations of metals (especially cadmium) in Canoe Bay sediments in the southern half of the bay. Elevated concentrations of TBT were detected in sediments at the boat dock, as well as in surface soils at the Schooner Creek Boatworks stormwater outfall just westr of the boat dock. Elevated concentrations of several metals were detected in surface soils along the southwest side of Canoe Bay, and in stormwater discharging from outfalls on the northeast and south sides of the bay.

NARR ID: 5742356
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: SFORTUN
Updated Date: 09/09/2009
Decode for NarcdID: Data Sources
NARR Comments: Sediment Sampling and Analysis report (March 2004) prepared for ISMG by PBS Engineering and Environmental. Sediment sampling conducted 1/14/02 as part of planned maintenance dredging at the Schooner Creek Boat Works dock in Canoe Bay. Sampling & Analysis Plan, Schooner Creek Boat Works, 3233 N. Hayden Island Drive, prepared for Inland Sea Maritime Group LLC by PBS Engineering & Environmental, December 2001. Analysis of residual paint dust conducted by Schooner Creek Boat Works under the direction of DEQ's Hazardous Waste Program, May 2001 (Notice of Noncompliance, April 26, 2001: failure to perform hazardous waste determination; discharge of paint dust and wood dust to waters of the state). Geotechnical Engineering Investigation, West Side Vacant Lot, 2755 NE Hayden Island, prepared for Schooner Creek Boat Works by LaVielle Geotechnical, 2/24/99 Geotechnical Engineering Recommendations, Waterfront Slope Stabilization, 2755 N Hayden Island, prepared for Schooner Creek Boat Works by LaVielle Geotechnical, 1/10/00. Phase I Environmental Site Assessment Update, Schooner Creek Boat Works, 3255 N Hayden Island Drive, Wells Fargo Project Number SF01-11181, prepared for Wells Fargo Bank by P&D Environmental Services, 7/2/01. Phase I Environmental Site Assessment, Heisley Marine, 2755 N Hayden Island Dr, prepared for US Bank of Oregon by Kleinfelder, Inc., 6/25/98. Final Canoe Bay Site Inspection Report, prepared by Ecology and Environment, Inc., for USEPA, August 2009.

NARR ID: 5742357
NARR Code: General Site Description
Created By: Not reported
Created Date: 12/17/2002
Updated By: JWAGGY
Updated Date: 08/30/2004
Decode for NarcdID: General Site Description

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

NARR Comments: Canoe Bay is a 7.6-acre rectangular embayment of the Columbia River along the central north side of Hayden Island. The river is located to the northeast; Hayden Island Mobile Home Community is on the east side of the bay; Schooner Creek Boat Works, an automobile storage lot and paved boat storage area, and North Hayden Island Drive are along the southwestern edge of the bay. Schooner Creek Boat Works operates from a concrete tilt-up building constructed in 1989. A small scrub-shrub palustrine wetlands area is immediately northwest of the bay. A Burlington Northern Santa Fe Railroad right-of-way and tressel are about 675 feet northwest of the bay. Jantzen Beach Shopping Center is between 1,506 and 3,761 feet southeast of the bay. Interstate Highway 5 and the I-5 Interstate Bridge over the Columbia River are located about 4,210 feet southeast of the bay.

NARR ID: 5742358
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: SFORTUN
Updated Date: 09/09/2009
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: PCBs, PAHs, DDTs, chlordane, metals (arsenic, barium, cadmium, copper, iron, lead, mercury, selenium, zinc), TBT, PCP, other phenols, and phthalates.

NARR ID: 5742359
NARR Code: Project Issues Summary
Created By: Not reported
Created Date: 12/17/2002
Updated By: JSUTTER
Updated Date: 11/21/2011
Decode for NarcdID: Project Issues Summary
NARR Comments: Contaminants were discovered in Canoe Bay sediments beneath a Schooner Creek Boat Works dock when preparing for maintenance dredging of the bay sediments. Levels of PCBs, DDTs, PAHs, and metals (arsenic, cadmium, copper, selenium, and zinc) in sediment samples exceed DEQ's Level II Ecological Risk Assessment Baseline Screening Levels for freshwater sediments. The contamination could represent a significant threat to T&E salmonids in the bay, migratory waterfowl and songbirds that visit the bay, wildlife in nearby wetlands, as well as a potential threat to people and wildlife who consume impacted fish. The sources and full vertical and horizontal extent of contamination have not been defined. A previous boat works operation at the site is known to have left behind chemical residues and stressed vegetation. However, since Schooner Creek Boat Works began operating along the southern end of the bay in 1999, DEQ has received at least 74 Pollution Complaints from nearby residents about its operations. An April 2001 DEQ site inspection confirmed some of the complaint allegations; DEQ documented evidence of stressed vegetation and boat works wastes migrating to Canoe Bay. Paint dust from the boat works was analyzed and found to contain leachable metals, phthalates, light aromatic hydrocarbons, chlorinated hydrocarbons, and relatively high concentrations of PAHs. DEQ files also contain similar complaints about activities at Schooner Creek Boat Works' previous operating location along N Marine Dr. There is no record of Pollution Complaints against the site's previous boat builder (Heisley Marine). Aerial photos and material identified along the

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shoreline suggest that historical dumping of waste materials may have taken place in the past, resulting in an accumlation of materials in a shoreline area on property owned by the State.

NARR ID: 5742360
NARR Code: Land Use (Current/Reasonably Likely)
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Land Use (Current/Reasonably Likely)
NARR Comments: Land on the southeast side of Canoe Bay is zoned for low-density residential use, while land on the southwest side of the bay is zoned for industrial use. The entire bay and its shoreline lie within a City of Portland Environmental Conservation Overlay Zone. A small scrub-shrub palustrine wetland sits just west of the bay, and most of the Columbia River's south shoreline downstream from the site is tidal riverine wetlands. Metro has mapped land west of the BNSF Railroad right-of-way as important riparian corridor and wildlife habitat of concern.

NARR ID: 5742361
NARR Code: Site Location
Created By: Not reported
Created Date: 12/17/2002
Updated By: BBRODY
Updated Date: 05/13/2003
Decode for NarcdID: Site Location
NARR Comments: On the southern shore of the Columbia River, at the northeast corner of Township 2 North, Range 1 East, Section 33 (Willamette Meridian), along the central northern side of Hayden Island, within the northern fringe of Portland's municipal boundary.

NARR ID: 5742362
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: JSUTTER
Updated Date: 11/21/2011
Decode for NarcdID: Manner of Release
NARR Comments: Undefined at this time. Recent boat manufacturing and repair activities by Schooner Creek Boat Works could be a source but significant efforts have been completed by the facility to manage stormwater and current stormwater discharge is meeting permit benchmarks. A city storm drain also discharges to the bay near the Boat Works' stormwater outfall and may be contributing road-related contamination. A previous yacht builder at the site (Heisley Marine) is known to have left behind chemical residues and stressed vegetation prior to Schooner Creek Boat Works' arrival at the site. The detections of DDTs and chlordane in sediments suggest that deposits of riverborne sediments could also be a source, as could be an outfall from the Columbia Blvd. Sewage Treatment Plant to the Columbia River, located about 500 to 700 feet northeast of (downstream from) the bay. Part of the bay also appears to have been backfilled since the 1970s, possibly with Columbia River dredgings, so the bay's backfill may also have contained contaminants. Historical dumping of wastes over the shoreline appears to have

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resulted in an accumulation of waste materials that appears to have resulted in elevated PCBs and metals on the shoreline. Contaminants associated with the shoreline waste materials appear to have resulted in a localized area of contaminated sediment.

NARR ID: 5742363
NARR Code: Media Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: SFORTUN
Updated Date: 09/09/2009
Decode for NarcdID: Media Contamination
NARR Comments: Freshwater bay sediments, and possibly surface water; stormwater and stormwater sediments; surface soils along the bay. Paint dust residues have been documented in gravel at the Schooner Creek Boat Works site. Stressed vegetation was documented along the boat works' fence line. Chemical residues and stressed vegetation were observed on Inland Sea Maritime Group's other lot prior to their acquisition of the site.

NARR ID: 5742364
NARR Code: Site Ownership
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 06/25/2003
Decode for NarcdID: Site Ownership
NARR Comments: Canoe Bay sediments are owned by the Oregon Division of State Lands. However, boat building and repair activities on an adjoining parcel owned by Inland Sea Maritime LLC may be a source of sediment contamination. Schooner Creek Boat Works leases dock space from the Oregon Division of State Lands.

NARR ID: 5742365
NARR Code: Project Activity Status
Created By: Not reported
Created Date: 12/17/2002
Updated By: JSUTTER
Updated Date: 11/21/2011
Decode for NarcdID: Project Activity Status
NARR Comments: A site screening was completed in September 2002. An Expanded Preliminary Assessment of the Schooner Creek Boat Works site is recommended. Further samplings of sediment and upland soils are needed to define the full extent and character of local contaminants. Site owner, Inland Sea Maritime Group, completed sediment and shoreline sampling at the site which is documented in a January 2004 report. (9/8/09, smf) Ecology and Environment, Inc. conducted a federal Site Inspection of Canoe Bay for EPA during October 2008, issuing its report in August 2009. E&E sampled and analyzed: sediments from Canoe Bay and nearby in the Columbia River; stormwater and stormwater sediments from stormwater outfalls emptying into Canoe Bay; and uplands surface soils from along the southwest edge of Canoe Bay.

NARR ID: 5742366
NARR Code: Pathways Other Hazards
Created By: Not reported

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Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 11/17/2015
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: Canoe Bay provides seasonal habitat for migratory waterfowl and migratory songbirds, which feed in and around the bay. The bay has been defined as Critical Habitat for Snake R. spring/summer chinook (Threatened species), Snake River fall chinook (Threatened species), and Snake River sockeye salmon (Endangered species) [58 FR 68543, 12/28/93]. A small wetlands area is also located immediately upland from the bay's west shoreline. Metro considers much of Hayden Island west of the BNSF Railroad right-of-way important riparian corridor and wildlife habitat of concern, The City of Portland has a community water supply well less than 1,000 feet SSE of the site.

NARR ID: 5742367
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: JSUTTER
Updated Date: 01/05/2018
Decode for NarcdID: Remedial Action
NARR Comments: Site Assessment recommends a high-priority further investigation to determine the full nature and extent of Canoe Bay sediment contamination near SCBW's dock. Because hazardous substances have been released at the site, and concentrations of these substances in sediment are above threshold risk values for aquatic life, it is further recommended that the site be proposed for addition to DEQ's Confirmed Release List and Inventory. (12/6/02 JMA/VCP) Received Intent to Participate in DEQ's Voluntary Cleanup Program in December 2002. Sediment sampling work plan submitted March 2003. DEQ approved with comments provided May 2003. Response to comments submitted June 2003. DEQ acknowledgement provided July 2003. Sediment sampling conducted October 2003. (3/1/04 JLS/CU&ER) Sediment sampling report submitted January 2004. Meeting/site visit held February 2004. (5/17/04 JLS/VCP) DEQ comments on report provided March 2004. Revised report submitted April 2004. DEQ approval with clarification provided May 2004. (11/12/04 JLS/CU&LW) DEQ coordinating with City of Portland, Division of State Lands (DSL) and ISMG on next steps. (11/7/05 JLS/CU&LW) DEQ preparing memo documenting issues and priorities November 2005. (6/23/09 SAM/SAS)EPA completed a preliminary assessment-March 7,2008- and determined additional site investigation is warranted. (11/22/10 SAM/SAS) In late August 2010, after completing a Site Investigation, EPA determined that the site was a low priority for additional federal action and referred the site back to DEQ for state follow-up. [6/8/11] DEQ prioritized shoreline debris pile cleanup and outfall soil cleanup as primary actions warranted at the site. [6/11/12] In Fall, 2011, ISMG/SCBW proposed conducting shoreline stabilization to maintain stability for upland infrastructure and incorporate capping of the debris pile and immediately adjacent contamination. Additional shoreline data was collected in February 2012 to help assess shoreline options and a feasibility study was drafted in May 2012. FS completed in June 2012. Staff report on proposed shoreline stablization action issued for public comment in July 2012. ROD issued August 2012. Consent Judgement covering DEQ oversight of remedial action and settlement for contamination in Canoe Bay issued for public comment in September

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2012. Negotiations with City of Portland for development permit to cover action in the environmental zone adjacent to Canoe Bay completed in Spring 2013. Consent Judgment with DEQ finalized in July 2013. Remedial Design workplan and associated reports submitted in November 2012. Revised documents, based on DEQ comment and modifications to address City permitting requirements, submitted June 2013. Shoreline stabilization and capping, and habitat improvement work completed August through November 2013. Project completion report submitted February 2014 and approved March 6, 2014. O&M to establish vegetation on the bank in progress. Certificate of Completion and NFA letter issued May 2014. (JLS 5/19/14) Annual monitoring reports submitted 2015, 2016, and 2017.

NARR ID: 5742369
NARR Code: Water Use (Current/Reasonably Likely)
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Water Use (Current/Reasonably Likely)
NARR Comments: Primary use of local surface water is for support of sensitive anadromous fish populations. Surface water may also provide some recharge to the local drinking water aquifer. The City of Portland has a community well less than 1000 feet southeast of the contaminated area.

NARR ID: 5749885
NARR Code: 1922
Created By: GWISTAR
Created Date: 11/20/2007
Updated By: JSUTTER
Updated Date: 10/11/2016
Decode for NarcdID: Current Site Summary Statement
NARR Comments: [Nov. 2015] In May 2014, DEQ made a conditional no further action determination for the site, with the NFA conditioned on maintenance of the engineered cap placed along the shoreline covering the debris pile area and the stormwater outfall discharge area. Annual monitoring is on-going with reports submitted in 2015 and 2016. EPA followed up in February 2015 with its own determination of <quot>no further remedial action planned<quot> at the site.

Site Control:
Site Control #: 717
Control Number: 36
Begin Date: 01/15/2014
End Date: Not reported
Frequency Of Review: 12
Last Reviewed By: 5/16/14
Last Reviewed Date: 05/15/2014
Last Update By: JSUTTER
Last Updated Date: 05/19/2014
Site Comment: Envirolok and sand cap placed over debris pile area on the shoreline. Envirolok placed in stormwater outfall discharge area. Establishing vegetation first year and maintaining thereafter.

Administrative Action:
Action ID: 9421
Region: 0

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Complete Date: 06/07/2007
Rank Value: Not reported
Cleanup Flag: False
Created Date: 10/22/2008
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: Site added to CERCLIS
Further Action: 0
Comments: Not reported

Action ID: 9458
Region: 0
Complete Date: 03/20/2008
Rank Value: Not reported
Cleanup Flag: False
Created Date: 10/22/2008
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA Preliminary Assessment 2
Further Action: 0
Comments: Not reported

Action ID: 9511
Region: 0
Complete Date: 08/28/2009
Rank Value: Not reported
Cleanup Flag: False
Created Date: 10/22/2008
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9476
Region: Northwestern Region
Complete Date: 08/30/2010
Rank Value: Not reported
Cleanup Flag: False
Created Date: 09/07/2010
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Refer to Program
Further Action: 0
Comments: Not reported

Action ID: 9469
Region: Northwestern Region
Complete Date: 11/18/2013

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Rank Value: Not reported
Cleanup Flag: True
Created Date: 07/15/2013
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL ACTION
Further Action: 0
Comments: Not reported

Action ID: 9411
Region: Northwestern Region
Complete Date: 05/19/2014
Rank Value: Not reported
Cleanup Flag: True
Created Date: 05/19/2014
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: No Further Action (Conditional)
Further Action: 0
Comments: Not reported

Action ID: 9422
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/19/2014
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Engineering Control
Further Action: 0
Comments: Not reported

Action ID: 9414
Region: Northwestern Region
Complete Date: 05/19/2014
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/19/2014
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Certification of Completion
Further Action: 0
Comments: Not reported

Action ID: 9444
Region: 0
Complete Date: 02/10/2015
Rank Value: Not reported

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Cleanup Flag: False
Created Date: 02/19/2015
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: No Further Remedial Action Planned under Federal program
Further Action: 0
Comments: Not reported

Action ID: 9459
Region: Northwestern Region
Complete Date: 10/30/2002
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: PRELIMINARY ASSESSMENT EQUIVALENT
Further Action: Not reported
Comments: Not reported

Action ID: 9519
Region: Northwestern Region
Complete Date: 01/06/2003
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: 0
Comments: Not reported

Action ID: 9498
Region: Northwestern Region
Complete Date: 10/30/2002
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9499
Region: Northwestern Region
Complete Date: 10/30/2002
Rank Value: 0
Cleanup Flag: False

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Inventory recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9502
Region: Northwestern Region
Complete Date: 10/30/2002
Rank Value: 99
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Remedial Investigation recommended (RI)
Further Action: High
Comments: Not reported

Action ID: 9424
Region: Northwestern Region
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 10/30/2002
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Northwestern Region
Complete Date: 02/18/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 02/19/2003

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: 0
Comments: Not reported

Action ID: 9467
Region: Northwestern Region
Complete Date: 02/18/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 02/19/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Inventory
Further Action: 0
Comments: Not reported

Action ID: 9451
Region: Northwestern Region
Complete Date: 04/03/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/22/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Owner/operator comments received on listing notification
Further Action: 0
Comments: Not reported

Action ID: 9506
Region: Northwestern Region
Complete Date: 01/30/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/30/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Investigation recommended (SI)
Further Action: High
Comments: Not reported

Action ID: 9511
Region: Northwestern Region
Complete Date: 08/15/2012
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/30/2003
Decode for AgencyID: Department of Environmental Quality

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9440
Region: Northwestern Region
Complete Date: 03/07/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/30/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Letter Agreement
Further Action: 0
Comments: Not reported

Action ID: 9430
Region: Northwestern Region
Complete Date: 05/15/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/15/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Petition or request granted
Further Action: 0
Comments: Not reported

Action ID: 9428
Region: Northwestern Region
Complete Date: 10/10/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/04/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Extension requested by owner/operator
Further Action: 0
Comments: Not reported

Action ID: 9430
Region: Northwestern Region
Complete Date: 10/16/2003
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/04/2003
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Category: Listing Action
Action Code Flag: False
Action: Petition or request granted
Further Action: 0
Comments: Not reported

Action ID: 9431
Region: Northwestern Region
Complete Date: 05/17/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/09/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Place on hold
Further Action: 0
Comments: Not reported

Action ID: 9437
Region: Northwestern Region
Complete Date: 05/17/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/07/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: 0
Comments: Not reported

Action ID: 9438
Region: Northwestern Region
Complete Date: 06/07/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/07/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: 0
Comments: Not reported

Action ID: 9439
Region: Northwestern Region
Complete Date: 06/07/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/07/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Action Code Flag: False
Action: Facility placed on Inventory
Further Action: 0
Comments: Not reported

Operations:
Operation Id: 134475
Operation Status: Inactive
Common Name: Heisley Marine Corporation
Yrs of Operation: 1989-1995
Comments: Company formed in 1985, but operated at site between 1989 and 1995 (bankrupt in October 1996). Originally Nugget Equipment, Inc (1980-1988).
Updated Date: 05/13/2003
Updated By: BBRODY
Decode for OpstatID: Inactive
Operations SIC Id: 198015
SIC Code: 3732
Created By: Not reported
Created Date: 12/17/2002

Operation Id: 134476
Operation Status: Active
Common Name: Schooner Creek Boat Works
Yrs of Operation: April 1999 - present
Comments: Schooner Creek Boat Works is site operator. Site owner is Inland Sea Maritime
Updated Date: 09/18/2002
Updated By: sxf
Decode for OpstatID: Active
Operations SIC Id: 198011
SIC Code: 3732
Created By: Not reported
Created Date: 12/17/2002
Operations SIC Id: 198012
SIC Code: 4493
Created By: Not reported
Created Date: 12/17/2002
Operations SIC Id: 198013
SIC Code: 4499
Created By: Not reported
Created Date: 12/17/2002
Operations SIC Id: 198014
SIC Code: 1721
Created By: Not reported
Created Date: 12/17/2002

Enginering Control:
Name: CANOE BAY - CONTAMINATED SEDIMENT
Address: N HAYDEN ISLAND DR.
City,State,Zip: PORTLAND, OR 97217
Site Control Sequence #: 717
Site Id: 3333
Control Sequence #: 36
Begin Date: 01/15/2014
End Date: Not reported
Frequency Of Review: 12

CANOE BAY - CONTAMINATED SEDIMENT (Continued) **S105807718**

Last Reviewed By:	5/16/14
Last Review Date:	05/15/2014
Last Updated By:	JSUTTER
Last Updated Date:	05/19/2014
Group Sequence #:	9
Control Code:	CPE
Control Description:	Cap, engineered
FK Type Code:	2
Group Code:	SB
Group Description:	Surface Barriers
Type Code:	E
Type Description:	Engineering
Comments:	Envirolok and sand cap placed over debris pile area on the shoreline. Envirolok placed in stormwater outfall discharge area. Establishing vegetation first year and maintaining thereafter.

59
WNW
1/2-1
0.757 mi.
3995 ft.

LACAMAS LABORATORIES **OR ECSI** **S106655856**
12411 N PORTLAND RD/3625 N SUTTLE RD. **OR VCP** **N/A**
PORTLAND, OR 97217

Relative:
Lower

Actual:
20 ft.

ECSI:

Name:	LACAMAS LABORATORIES
Address:	12411 N PORTLAND RD/3625 N SUTTLE RD.
City,State,Zip:	PORTLAND, OR 97217
State ID Number:	1201
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	832
Investigation:	No Further Action
FACA ID:	2748
Further Action:	0
Lat/Long (dms):	45 36 48.20 / -122 42 18.70
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	2.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	32
Qtr Section:	Not reported
Tax Lots:	11
Size:	Not reported
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	10/01/2004
Created Date:	06/24/1992
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	No Further Action
Decode For Legislative:	Owner, operator or other party under state or federal authority
Alias Name:	Graham Property

LACAMAS LABORATORIES (Continued) **S106655856**

Hazardous Release:
Substance ID.: 122012
Haz Release ID: 379426
Qty Released: Not reported
Date Released: Not reported
Update Date: 08/16/2002
Update By: Not reported
Substance Code: ECD275
Substance Name: TOTAL PETROLEUM HYDROCARBONS (TPH)
Substance Abbrev.: Not reported
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 337888
Feature Id: Not reported
Hazard Release Id: 379426
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 09/01/1999
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Heay Oil 891 ppm
Last Update By: jmw
Update Date: 08/16/2002
Decode for MediumID: Soil

Substance ID.: 121664
Haz Release ID: 383279
Qty Released: unknown
Date Released: unknown
Update Date: 06/25/1992
Update By: Not reported
Substance Code: 7440-38-2
Substance Name: ARSENIC
Substance Abbrev.: Not reported
Substance Category ID: 8439
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8439
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported

LACAMAS LABORATORIES (Continued) **S106655856**

Created Date: 12/17/2002
Substance Alias ID: 319286
Sub Alias Name: AS
Sampling Result ID: 345581
Feature Id: Not reported
Hazard Release Id: 383279
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 09/01/1999
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 9 ppm
Last Update By: jmw
Update Date: 08/16/2002
Decode for MediumID: Soil

Narrative:
NARR ID: 5732110
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 10/01/2004
Decode for NarcdID: Contamination
NARR Comments: (7/26/94 LSK) The City of Portland has built a portion of the North Marine Drive extension across the site, a former lumber and cedar shake mill. Studies conducted by the City revealed arsenic, barium, and chromium within the right-of-way, which is now paved. No sampling has occurred on portions of the site that are not affected by the North Marine Drive project. (8/16/02 MTP/VCP) In 1996, GeoEngineers conducted a site investigation to assess TPH and metal contamination at the site. They subsequently removed about 323 tons of soil from the site. Confirmation sampling showed that most TPH concentrations in excess of 500 ppm in soil had been removed. In 1999, Roger N Smith Associates (RNSA) conducted a Site Investigation to better assess site contamination and confirm that the 1996 soil removal was effective. A total of 10 direct-push borings were advanced. Eight soil and five groundwater samples were analyzed. TPH was detected in two of eight samples analyzed (567 ppm, 891 ppm). The samples with TPH detections were collected outside the 1996 soil removal area. Arsenic concentrations were found to be above EPA Region 9 PRGs, but within the range of naturally occurring concentrations.

NARR ID: 5732111
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: petroleum contaminated fill

LACAMAS LABORATORIES (Continued) **S106655856**

NARR ID: 5732112
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Possibility imported fill.

NARR ID: 5732113
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 06/27/2006
Decode for NarcdID: Remedial Action
NARR Comments: The area sampled during the City of Portland's investigation is now covered by the N Marine Drive extension. This would inhibit the movement of arsenic and chromium towards either surface water through runoff or groundwater through leaching. It also minimizes the risk of direct contact with contaminated soils. The arsenic and chromium in soil now covered by the N Marine Drive extension appear to be elevated above background levels. However, due to the impervious cover and the lack of targets, they do not appear to pose a risk to the environment or public health. Further development of the site, especially any activity that disturbs site soils, should be accompanied by additional sampling for inorganics, since the entire site was not evaluated as part of the NMDP. The uncovered portion of the site is considered a low priority for further action by DEQ. (8/16/02 MTP/VCP) Lacamas Laboratories entered the VCP on September 27, 2001, for review of an ICP report. DEQ completed the review and determined further evaluation and/or investigation was needed to assess the risk from residual contamination at the site. DEQ met with Lacamas Laboratories and Coles Environmental Consulting (CEC) to discuss the environmental concerns. CEC addressed DEQ concerns by providing a qualitative risk assessment. DEQ accepted the assessment and determined that residual TPH contamination at the site did not pose a significant risk to human health or the environment. The Oregonian (Associated Press article), 5/9/05: Three people were injured in an early-morning explosion Monday [May 9] at the Lacamas Laboratories Inc. chemical plant near the Columbia River in north Portland. The Coast Guard and DEQ were assisting fire crews to evaluate potential contamination. City of Portland Bureau of Environmental Services officials were concentrating late this morning on preventing chemical-containing wastewater and fire suppression water from entering the city s stormwater system, which empties into the Columbia Slough. Chemicals reportedly involved include hydrochloric acid, benzene, heptane, methyl ethyl acetate and hydroxybenzopriazole hydrate. DEQ will continue to monitor the situation and has fielded numerous news media requests for information.

Administrative Action:
Action ID: 9496
Region: Not reported
Complete Date: 06/29/1992
Rank Value: 0
Cleanup Flag: False

LACAMAS LABORATORIES (Continued) **S106655856**

Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Low
Comments: Not reported

Action ID: 9440
Region: Northwestern Region
Complete Date: 08/16/2002
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Letter Agreement
Further Action: 0
Comments: Not reported

Action ID: 9510
Region: Northwestern Region
Complete Date: 10/06/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: State Expanded Preliminary Assessment recommended (XPA)
Further Action: Low
Comments: Not reported

Action ID: 9424
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9456
Region: Northwestern Region
Complete Date: 10/06/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002

LACAMAS LABORATORIES (Continued) **S106655856**

Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: BASIC PRELIMINARY ASSESSEMENT
Further Action: Not reported
Comments: Not reported

Action ID: 9428
Region: Not reported
Complete Date: 04/18/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Extension requested by owner/operator
Further Action: Not reported
Comments: Not reported

Action ID: 9430
Region: Headquarters
Complete Date: 04/18/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Petition or request granted
Further Action: Not reported
Comments: Not reported

Action ID: 9451
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Owner/operator comments received on listing notification
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Not reported
Complete Date: 06/25/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality

LACAMAS LABORATORIES (Continued) **S106655856**

Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Not reported
Complete Date: 03/14/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Not reported
Complete Date: 06/25/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Not reported
Complete Date: 06/26/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 08/16/2002
Rank Value: Not reported
Cleanup Flag: False
Created Date: 10/01/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region

LACAMAS LABORATORIES (Continued) **S106655856**

Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

Action ID: 9419
Region: Northwestern Region
Complete Date: 05/07/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Decision Not to List Site (on the CRL or Inventory)
Further Action: Not reported
Comments: Not reported

Operations:
Operation Id: 132507
Operation Status: Inactive
Common Name: Graham Property
Yrs of Operation: 1967 to 1980
Comments: lumber mill, cedar shake mill
Updated Date: 03/10/1995
Updated By: jxh
Decode for OpstatID: Inactive
Operations SIC Id: 195641
SIC Code: 2421
Created By: Not reported
Created Date: 12/17/2002

VCS:
Name: LACAMAS LABORATORIES
Address: 12411 N PORTLAND RD/3625 N SUTTLE RD.
City,State,Zip: PORTLAND, OR 97217
ECS Site ID: 1201
Facility Size: Not reported
Action: NO FURTHER STATE ACTION REQUIRED
Start Date: 08/16/2002
End Date: 08/16/2002
Facility Status: Completed
Program: ICP
Latitude: 45.6134
Longitude: -122.7052

60
ESE
1/2-1
0.809 mi.
4269 ft.

Relative:
Lower

Actual:
10 ft.

REDDAWAY
10510 N VANCOUVER WAY
PORTLAND, OR 97217

Database(s): RCRA-CESQG, OR ECSI, OR LUST, OR UST, OR AST, OR VCP, OR SPILLS, OR HAZMAT, FINDS, ECHO, OR HSIS, OR MANIFEST, OR UIC

EDR ID Number: 1000291272
EPA ID Number: ORD093480804

RCRA-CESQG:

Date form received by agency:	12/31/2018
Facility name:	REDDAWAY INC
Facility address:	10510 N VANCOUVER WAY PORTLAND, OR 97217-7549
EPA ID:	ORD093480804
Mailing address:	10990 ROE AVENUE OVERLAND PARK, KS 66211-1213
Contact:	MARTY HOPE
Contact address:	10510 N VANCOUVER WAY PORTLAND, OR 97217-7549
Contact country:	US
Contact telephone:	503-247-2585
Contact email:	MARTY.HOPE@USFC.COM
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 hazardous waste

Owner/Operator Summary:

Owner/operator name:	YRC WORLDWIDE INC
Owner/operator address:	10990 ROE AVENUE OVERLAND PARK, KS 66211
Owner/operator country:	US
Owner/operator telephone:	913-344-5205
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	12/31/2018
Owner/Op end date:	Not reported

REDDAWAY (Continued) **1000291272**

Owner/operator name: REDDAWAY INC
Owner/operator address: 10990 ROE AVENUE
OVERLAND PARK, KS 66211
Owner/operator country: US
Owner/operator telephone: 913-344-5205
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 12/31/2018
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: 12/31/2016
Site name: REDDAWAY INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2016
Site name: REDDAWAY INC
Classification: Large Quantity Generator

Date form received by agency: 12/30/2016
Site name: REDDAWAY INC
Classification: Large Quantity Generator

Date form received by agency: 03/01/2016
Site name: REDDAWAY INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2015
Site name: REDDAWAY INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2014
Site name: REDDAWAY INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2013

REDDAWAY (Continued) **1000291272**

Site name: REDDAWAY INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2011
Site name: REDDAWAY INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2011
Site name: REDDAWAY INC
Classification: Large Quantity Generator

Date form received by agency: 12/31/2010
Site name: REDDAWAY INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2009
Site name: YRC INC.
Classification: Small Quantity Generator

Date form received by agency: 12/31/2008
Site name: YELLOW TRANSPORTATION INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2007
Site name: YELLOW TRANSPORTATION INC
Classification: Small Quantity Generator

Date form received by agency: 03/01/2007
Site name: YELLOW TRANSPORTATION INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2005
Site name: YELLOW TRANSPORTATION INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/2004
Site name: YELLOW TRANSPORTATION INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/23/2003
Site name: YELLOW TRANSPORTATION INC
Classification: Small Quantity Generator

Date form received by agency: 01/23/2002
Site name: YELLOW TRANSPORTATION INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/17/2001
Site name: YELLOW TRANSPORTATION INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/24/2000
Site name: YELLOW TRANSPORTATION INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/01/1999
Site name: YELLOW TRANSPORTATION INC

REDDAWAY (Continued) **1000291272**

Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/12/1998
Site name: YELLOW TRANSPORTATION INC
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 04/15/1997
Site name: YELLOW TRANSPORTATION INC
Classification: Small Quantity Generator

Date form received by agency: 03/04/1996
Site name: YELLOW TRANSPORTATION INC
Classification: Small Quantity Generator

Date form received by agency: 02/28/1995
Site name: YELLOW TRANSPORTATION INC
Classification: Small Quantity Generator

Date form received by agency: 02/28/1994
Site name: YELLOW TRANSPORTATION INC
Classification: Small Quantity Generator

Date form received by agency: 11/01/1993
Site name: YELLOW TRANSPORTATION INC
Classification: Small Quantity Generator

Date form received by agency: 04/01/1992
Site name: YELLOW TRANSPORTATION INC
Classification: Conditionally Exempt Small Quantity Generator

Hazardous Waste Summary:

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: NA
. Waste name: NA

. Waste code: P050
. Waste name: 6,9-METHANO-2,4,3-BENZODIOXATHIEPIN,6,7,8,9,10,10-HEXACHLORO-1,5,5A,6,9,9A-HEXAHYDRO-,3-OXIDE (OR) ENDOSULFAN

. Waste code: U012
. Waste name: ANILINE (I,T) (OR) BENZENAMINE (I,T)

REDDAWAY (Continued) **1000291272**

Biennial Reports:

Last Biennial Reporting Year: 2017

Annual Waste Handled:

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.
Amount (Lbs):	615

Waste code:	P050
Waste name:	ENDOSULFAN
Amount (Lbs):	490

Facility Has Received Notices of Violations:

Regulation violated:	Not reported
Area of violation:	Generators - Records/Reporting
Date violation determined:	12/13/1995
Date achieved compliance:	02/15/1998
Violation lead agency:	State
Enforcement action:	FINAL 3008(A) SFO ORDER
Enforcement action date:	01/29/1998
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	State
Proposed penalty amount:	Not reported
Final penalty amount:	2400
Paid penalty amount:	2400

Regulation violated:	Not reported
Area of violation:	LDR - General
Date violation determined:	12/13/1995
Date achieved compliance:	02/15/1998
Violation lead agency:	State
Enforcement action:	NOTICE OF NONCOMPLIANCE
Enforcement action date:	12/21/1995
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	State
Proposed penalty amount:	Not reported
Final penalty amount:	Not reported
Paid penalty amount:	Not reported

Regulation violated:	Not reported
Area of violation:	Generators - Records/Reporting
Date violation determined:	12/13/1995
Date achieved compliance:	02/15/1998
Violation lead agency:	State
Enforcement action:	NOTICE OF NONCOMPLIANCE
Enforcement action date:	12/21/1995
Enf. disposition status:	Not reported

REDDAWAY (Continued) **1000291272**

Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Manifest
Date violation determined: 12/13/1995
Date achieved compliance: 02/15/1998
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 12/21/1995
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: LDR - General
Date violation determined: 12/13/1995
Date achieved compliance: 02/15/1998
Violation lead agency: State
Enforcement action: INITIAL 3008(A) CP/CO ORDER
Enforcement action date: 04/03/1996
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 3600
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Records/Reporting
Date violation determined: 12/13/1995
Date achieved compliance: 02/15/1998
Violation lead agency: State
Enforcement action: INITIAL 3008(A) CP/CO ORDER
Enforcement action date: 04/03/1996
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 3600
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date violation determined: 12/13/1995
Date achieved compliance: 02/15/1998
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 12/21/1995
Enf. disposition status: Not reported
Enf. disp. status date: Not reported

REDDAWAY (Continued) **1000291272**

Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Container Use and Management
Date violation determined: 12/13/1995
Date achieved compliance: 02/15/1998
Violation lead agency: State
Enforcement action: FINAL 3008(A) SFO ORDER
Enforcement action date: 01/29/1998
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: 2400
Paid penalty amount: 2400

Regulation violated: Not reported
Area of violation: TSD - Preparedness and Prevention
Date violation determined: 12/13/1995
Date achieved compliance: 02/15/1998
Violation lead agency: State
Enforcement action: FINAL 3008(A) SFO ORDER
Enforcement action date: 01/29/1998
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: 2400
Paid penalty amount: 2400

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 12/13/1995
Date achieved compliance: 02/15/1998
Violation lead agency: State
Enforcement action: INITIAL 3008(A) CP/CO ORDER
Enforcement action date: 04/03/1996
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 3600
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Preparedness and Prevention
Date violation determined: 12/13/1995
Date achieved compliance: 02/15/1998
Violation lead agency: State
Enforcement action: INITIAL 3008(A) CP/CO ORDER
Enforcement action date: 04/03/1996
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State

REDDAWAY (Continued) **1000291272**

Proposed penalty amount: 3600
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Container Use and Management
Date violation determined: 12/13/1995
Date achieved compliance: 02/15/1998
Violation lead agency: State
Enforcement action: INITIAL 3008(A) CP/CO ORDER
Enforcement action date: 04/03/1996
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 3600
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Manifest
Date violation determined: 12/13/1995
Date achieved compliance: 02/15/1998
Violation lead agency: State
Enforcement action: FINAL 3008(A) SFO ORDER
Enforcement action date: 01/29/1998
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: 2400
Paid penalty amount: 2400

Regulation violated: Not reported
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date violation determined: 12/13/1995
Date achieved compliance: 02/15/1998
Violation lead agency: State
Enforcement action: FINAL 3008(A) SFO ORDER
Enforcement action date: 01/29/1998
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: 2400
Paid penalty amount: 2400

Regulation violated: Not reported
Area of violation: TSD - Preparedness and Prevention
Date violation determined: 12/13/1995
Date achieved compliance: 02/15/1998
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 12/21/1995
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported

REDDAWAY (Continued) **1000291272**

Final penalty amount:	Not reported
Paid penalty amount:	Not reported
Regulation violated:	Not reported
Area of violation:	Generators - General
Date violation determined:	12/13/1995
Date achieved compliance:	02/15/1998
Violation lead agency:	State
Enforcement action:	FINAL 3008(A) SFO ORDER
Enforcement action date:	01/29/1998
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	State
Proposed penalty amount:	Not reported
Final penalty amount:	2400
Paid penalty amount:	2400
Regulation violated:	Not reported
Area of violation:	TSD - Contingency Plan and Emergency Procedures
Date violation determined:	12/13/1995
Date achieved compliance:	02/15/1998
Violation lead agency:	State
Enforcement action:	INITIAL 3008(A) CP/CO ORDER
Enforcement action date:	04/03/1996
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	State
Proposed penalty amount:	3600
Final penalty amount:	Not reported
Paid penalty amount:	Not reported
Regulation violated:	Not reported
Area of violation:	Generators - General
Date violation determined:	12/13/1995
Date achieved compliance:	02/15/1998
Violation lead agency:	State
Enforcement action:	NOTICE OF NONCOMPLIANCE
Enforcement action date:	12/21/1995
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	State
Proposed penalty amount:	Not reported
Final penalty amount:	Not reported
Paid penalty amount:	Not reported
Regulation violated:	Not reported
Area of violation:	LDR - General
Date violation determined:	12/13/1995
Date achieved compliance:	02/15/1998
Violation lead agency:	State
Enforcement action:	FINAL 3008(A) SFO ORDER
Enforcement action date:	01/29/1998
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	State
Proposed penalty amount:	Not reported
Final penalty amount:	2400

REDDAWAY (Continued) **1000291272**

Paid penalty amount: 2400

Regulation violated: Not reported
Area of violation: Generators - Manifest
Date violation determined: 12/13/1995
Date achieved compliance: 02/15/1998
Violation lead agency: State
Enforcement action: INITIAL 3008(A) CP/CO ORDER
Enforcement action date: 04/03/1996
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 3600
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Container Use and Management
Date violation determined: 12/13/1995
Date achieved compliance: 02/15/1998
Violation lead agency: State
Enforcement action: NOTICE OF NONCOMPLIANCE
Enforcement action date: 12/21/1995
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 12/04/2018
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 03/20/2013
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 10/06/2009
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 12/13/1995
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Preparedness and Prevention
Date achieved compliance: 02/15/1998
Evaluation lead agency: State

Evaluation date: 12/13/1995
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE

REDDAWAY (Continued) **1000291272**

Area of violation: TSD - Container Use and Management
Date achieved compliance: 02/15/1998
Evaluation lead agency: State

Evaluation date: 12/13/1995
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Manifest
Date achieved compliance: 02/15/1998
Evaluation lead agency: State

Evaluation date: 12/13/1995
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Records/Reporting
Date achieved compliance: 02/15/1998
Evaluation lead agency: State

Evaluation date: 12/13/1995
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date achieved compliance: 02/15/1998
Evaluation lead agency: State

Evaluation date: 12/13/1995
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 02/15/1998
Evaluation lead agency: State

Evaluation date: 12/13/1995
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 02/15/1998
Evaluation lead agency: State

ECSI:
Name: YELLOW FREIGHT SYSTEMS
Address: 10510 N VANCOUVER WAY
City,State,Zip: PORTLAND, OR 97217
State ID Number: 1437
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 831
Investigation: No Further Action
FACA ID: 548
Further Action: 0
Lat/Long (dms): 45 36 2.20 / -122 40 14.20
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 1.00
Range Zone: E
Section Coord: 3
Qtr Section: Not reported
Tax Lots: R-94103-0480
Size: Not reported

REDDAWAY (Continued) **1000291272**

NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 05/02/2006
Created Date: 09/28/1993
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: No Further Action
Decode For Legislative: Owner, operator or other party under agreement, order or consent decree under ORS 465.200 or 465.420

Hazardous Release:
Substance ID.: 121982
Haz Release ID: 383766
Qty Released: 10,000 gal- estimate based on missing volume from tanks
Date Released: July 1993
Update Date: 01/07/1993
Update By: Not reported
Substance Code: ECD169
Substance Name: DIESEL - FUEL OIL
Substance Abbrev.: Not reported
Substance Category ID: 8529
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8529
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Comment ID: 303028
Release Code: Media Contamination Footnote
Release Comments: soil saturated - significant quantities of pure product were released.
Decode for Relcomcd: Media Contamination Footnote
Sampling Result ID: 344207
Feature Id: Not reported
Hazard Release Id: 383766
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 07/29/1993
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 19,000 ppm
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil
Sampling Result ID: 344208
Feature Id: Not reported
Hazard Release Id: 383766
Medium: 698

REDDAWAY (Continued) **1000291272**

Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: True
Lab Data: False
Sample Depth: Not reported
Start Date: 07/29/1993
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Not reported
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater

Narrative:

NARR ID: 5733510
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: (1/10/00 ACV/VCP) Possible release of 10,000 gallons of fuel oil on-site in late 7/93, via a break in underground piping. Soil and groundwater affected. (Waste oil sump overflow during storm event in 1988. UST releases in 1988 and 1997.)

NARR ID: 5733511
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Data Sources
NARR Comments: Spill Report prepared by Olympus Environmental 8/27/93

NARR ID: 5733512
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: diesel fuel, waste oil

NARR ID: 5733513
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Pipeline release - July 1993

NARR ID: 5733514
NARR Code: Pathways Other Hazards
Created By: Not reported

REDDAWAY (Continued) **1000291272**

Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: Groundwater is shallow, found at a depth of about 4 feet.

NARR ID: 5733515
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 12/24/2002
Decode for NarcdID: Remedial Action
NARR Comments: RP moving aggressively to remove free product from ground and define extent of plume. 10/20/93 - RP is continuing independent cleanup. (10/25/93 GMW/SAS) Further action letter sent. (11/10/97 LSK) Site re-evaluated as part of review of all sites within the Columbia Slough Study Area. PAE recommended, under medium priority. (4/13/99 ACV/VCP) RP entered the Voluntary Cleanup Program in January 1999 to obtain DEQ review of existing file information. RP has conducted independent groundwater investigation and product recovery. DEQ file memo expected in April 1999. (1/7/00 ACV/VCP) VCP coordinated review of all UST and cleanup issues in 1999, and issued an NFA for environmental issues (with UST concurrence) in January 2000.

Administrative Action:
Action ID: 9443
Region: Northwestern Region
Complete Date: 01/02/2000
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: Not reported
Comments: Not reported

Action ID: 9442
Region: Northwestern Region
Complete Date: 01/01/1999
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NEGOTIATIONS
Further Action: Not reported
Comments: Not reported

Action ID: 9484
Region: Northwestern Region
Complete Date: 01/02/2000
Rank Value: 0

REDDAWAY (Continued) **1000291272**

Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL INVESTIGATION
Further Action: Not reported
Comments: Not reported

Action ID: 9440
Region: Northwestern Region
Complete Date: 11/05/1998
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Letter Agreement
Further Action: Not reported
Comments: Not reported

Action ID: 9519
Region: Northwestern Region
Complete Date: 11/05/1998
Rank Value: 9
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: Not reported
Comments: Not reported

Action ID: 9426
Region: Northwestern Region
Complete Date: 11/12/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: 0
Comments: Not reported

Action ID: 9424
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False

REDDAWAY (Continued) **1000291272**

Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Not reported
Complete Date: 10/20/1993
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 10/20/1993
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9449
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Insufficient information to list
Further Action: Not reported
Comments: Not reported

Action ID: 9497
Region: Northwestern Region
Complete Date: 11/12/1997
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/30/2003

REDDAWAY (Continued) **1000291272**

Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Preliminary Assessment Equivalent recommended (PAE)
Further Action: Medium
Comments: Not reported

Operations:
Operation Id: 132769
Operation Status: Active
Common Name: Yellow Freight Systems
Yrs of Operation: since 1983
Comments: Tractor Trailer terminal with repair and refueling operations
Updated Date: 01/10/2000
Updated By: jmw
Decode for OpstatID: Active

LUST:
Name: YELLOW FREIGHT SYSTEM, INC.
Address: 10510 N VANCOUVER WAY
City,State,Zip: PORTLAND, OR 97217
Region: North Western Region
Facility ID: 26-88-0056
Cleanup Received Date: 09/09/1988
Cleanup Start Date: 09/09/1988
Cleanup Complete Date: 01/10/2000
Decode for Region: North West Region

UST:
Name: USF REDDAWAY, INC.- 501
Address: 10510 N VANCOUVER WAY
City: PORTLAND
Facility ID: 4475
Facility Telephone: 913-344-3367
Permittee Name: LeaAnne Corliss
Number of Permitted Tanks: 2
Active Tanks: 2
Decommissioned Tanks: 9
Number of Tanks: 11

AST:
Facility Id: 018661
Hazardous Substance: DIESEL FUEL 2
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: LEA ANNE
Direct Site Phone: 5035576200
Report Class: Annual(Revision)
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No

REDDAWAY (Continued) **1000291272**

Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 018661
Hazardous Substance: MOTOR OIL
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Below ground tank
County: MULTNOMAH
Owner-Operator Name: LEA ANNE
Direct Site Phone: 5035576200
Report Class: Annual(Revision)
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 018661
Hazardous Substance: WASTE ANTIFREEZE
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: LEA ANNE
Direct Site Phone: 5035576200
Report Class: Annual(Revision)
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 018661
Hazardous Substance: WASTE OIL
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Below ground tank
County: MULTNOMAH
Owner-Operator Name: LEA ANNE
Direct Site Phone: 5035576200
Report Class: Annual(Revision)
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

REDDAWAY (Continued) **1000291272**

VCS:
Name: YELLOW FREIGHT SYSTEMS
Address: 10510 N VANCOUVER WAY
City,State,Zip: PORTLAND, OR 97217
ECS Site ID: 1437
Facility Size: Not reported
Action: NO FURTHER STATE ACTION REQUIRED
Start Date: 09/01/1999
End Date: 01/02/2000
Facility Status: Completed
Program: VCS
Latitude: 45.6006
Longitude: -122.6706

OR SPILLS:
Name: Not reported
Address: 10510 N. VANCOUVER ST.
City,State,Zip: PORTLAND, OR 97217
Facility ID: 2014-1700
Incident Status: Closed
Material: Chemical Product
Quantity: .5
Unit of Measure: Gallons
Release Date: 08/03/2014
Description: ERTS reporting the release of Thionex 3EC (Organic Pesticide) from a container to the truck and dock at Reddaway on N. Vancouver. NRCES en-route for cleanup.
Lat/Long: 45.598715 / -122.67227
Source: Container
Media: Pavement
Responsible Company: Reddaway
Responsible Address: 10990 Roe Ave.
Responsible City,St,Zip: Overland Park, KS 66211

Name: Not reported
Address: 10510 N. VANCOUVER ST.
City,State,Zip: PORTLAND, OR 97217
Facility ID: 2014-1700
Incident Status: Closed
Material: Chemical Product
Quantity: .5
Unit of Measure: Gallons
Release Date: 08/03/2014
Description: ERTS reporting the release of Thionex 3EC (Organic Pesticide) from a container to the truck and dock at Reddaway on N. Vancouver. NRCES en-route for cleanup.
Lat/Long: 45.598715 / -122.67227
Source: Container
Media: Pavement
Responsible Company: Reddaway
Responsible Address: 10510 N. Vancouver Way
Responsible City,St,Zip: Portland, OR 97217

Name: Not reported
Address: 10510 N VANCOUVER WAY
City,State,Zip: PORTLAND, OR 97217-7549

REDDAWAY (Continued) **1000291272**

Facility ID: 2007-0842
Incident Status: Archive
Material: Other oil
Quantity: 90
Unit of Measure: Gallons
Release Date: 04/27/2007
Description: 90 gallons of salmon fish oil released from a punctured tote by Yellow Freight Trucking. Employees assumed it was no problem to wash it down the storm drain and into the Willamette River. BES on-scene to supervise cleanup.
Lat/Long: 45.6006 / -122.6706
Source: Container
Media: On pavement/asphalt - not direct on soil
Responsible Company: Yellow Freight
Responsible Address: 10510 N Vancouver Way
Responsible City,St,Zip: Portland, OR 97217-7549

Name: Not reported
Address: 10510 N VANCOUVER WAY
City,State,Zip: PORTLAND, OR 97217-7549
Facility ID: 2007-0842
Incident Status: Archive
Material: Other oil
Quantity: 90
Unit of Measure: Gallons
Release Date: 04/27/2007
Description: 90 gallons of salmon fish oil released from a punctured tote by Yellow Freight Trucking. Employees assumed it was no problem to wash it down the storm drain and into the Willamette River. BES on-scene to supervise cleanup.
Lat/Long: 45.6006 / -122.6706
Source: Container
Media: Not reported
Responsible Company: Yellow Freight
Responsible Address: 10510 N Vancouver Way
Responsible City,St,Zip: Portland, OR 97217-7549

HAZMAT:

Responsble Party:	Not reported
RP Company:	YELLOW FREIGHT
RP Address:	10510 N VANCOVER WAY
RP City,St,Zip:	PORTLAND, OR 97217
Facility ID:	930126
OERS Number:	Not reported
Dept Rsp:	HAZMAT TEAM PORTLAND - 06
Narrative:	Not reported
Property Loss:	Not reported
Amount Released:	Not reported
Service County:	Not reported
Service Name:	Not reported
Incident Type:	Not reported
Civilian Casualty Activity:	Not reported
Chemical Name:	Not reported
Hazmat Area Affected:	Not reported
Hazmat Area Evacuated:	Not reported
Hazmat Container Type:	Not reported
Hazmat Physical State Released:	Not reported

REDDAWAY (Continued) **1000291272**

Hazmat Released Into:	Not reported
Hazmat Released Volume Units:	Not reported
Hazmat Released Weight Units:	Not reported
Hazmat Released From:	Not reported
Hazmat Area Affected Measurement:	Not reported
Hazmat No. of People Evacuated:	Not reported
Hazmat No of Buildings Evacuated:	Not reported
Incident Content Loss:	Not reported
Civilian Casualty Patient Disposition:	Not reported
Incident Mixed Use Property:	Not reported
Location Type:	Not reported
Incident Aid Given Or Received:	Not reported
Incident AID Received from FDID:	Not reported
Incident Aided Department FDID:	Not reported
Person Involved Business Name:	Not reported
Person Involved First Name:	Not reported
Person Involved Last Name:	Not reported
Person Involved Type:	Not reported
Person Involved Phone Number:	Not reported
Person Involved Primary Language:	Not reported
Hazmat Evacuated Measurement:	Not reported
Hazmat Story of Release:	Not reported
Remark:	Not reported
Incident District:	HAZMAT TEAM PORTLAND - 06
Date Added:	01/01/1985
Unit:	Not reported
Agency Phone:	Not reported
Osfm Incident Report Number:	930126
Dept. Responding:	HAZMAT TEAM PORTLAND - 06
Person Making Report:	DUANE BRAY
Title:	LT
Agency:	HAZMAT TEAM PORTLAND - 06
Phone:	Not reported
Date Of Incident:	04/05/1993
Call Time:	7:13:00 PM
In Route:	12:00:00 AM
Arrival:	7:29:00 PM
Depart Scene:	12:00:00 AM
Back In Quarters:	12:00:00 AM
In Service:	8:09:00 PM
Dist Of Incident:	HAZMAT TEAM PORTLAND - 06
Were State Resources Used?:	False
Was Oers Notified?:	False
Oers Number:	Not reported
Team Number:	HM06
Agency Report Number:	93-11945
Unit:	Not reported
Highway:	Not reported
Mile Post:	Not reported
Scene Type:	Private Structure
Area Type:	Industrial
Responsible Party(Ies):	Not reported
Company:	YELLOW FREIGHT
Respcontact:	Not reported
Address:	10510 N VANCOVER WAY
Resp City:	PORTLAND
Resp State:	OR

REDDAWAY (Continued) **1000291272**

Resp ZipCode:	97217
Phone:	0002898800
Resp Phone2:	Not reported
Weather:	0
Temperature:	0
Wind Speed:	0
Wind Direction:	Not reported
Were Haz Materials Released?:	True
Operation Performed:	In Route
Cause:	Unknown
Vehicle And Cargo:	1500
Fixed Property:	0
Total Loss:	$1,500.00
Hazmat Population Density:	Not reported
HazMat Actions Taken - Description:	Not reported
Hazmat Factors Contributing To Release:	Not reported
Hazmat DOT Hazard Classification:	Not reported
Hazmat CAS Number:	Not reported
Hazardous Materials Release:	Not reported
Fire Incident Type:	Not reported
Property Use:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Hazmat Disposition:	Not reported

Chemical:

Chemical Info:	6515
Chemical Id:	35430
Incident Id:	930126
Chemical Name:	UNKNOWN CHEMICAL
UNNA:	Not reported
Amount At Risk:	0
Amount Released:	0
Amount Measured:	0
Biological:	False
Radiological:	False

Chemical Id:	35430
Chemical Name:	UNKNOWN CHEMICAL
Hazardous Ingredient:	UNKNOWN CHEMICAL
Hazardous Class 1:	9.0
Hazardous Class 2:	Not reported
Hazardous Rank:	2
Case Number:	Not reported
UNNA Number:	Not reported
EPA Pest Reg:	Not reported
EHA Chem:	Not reported
PSM Chem:	Not reported
CAA 112R Chem:	Not reported

Method:

Method Used Id:	7038
Incident Id:	930126
Identity Method:	1

Released:

Release Behavior Id:	7418

REDDAWAY (Continued) **1000291272**

Incident Id: 930126
Behavior: 10

Narrative:
Narrative Id: 4161
Incident Id: 930126
Incident Narrative: HZM23 WAS CONTRACTED BY AN EMPLOYEE OF YELLOW FREIGHT WITH A CONCERN ABOUT A 55 GALLON DRUM OF RESIN SPILLED IN A LOADING DOCK A TRAILER WITH RESIN SPILLED INSIDE AND IN THE LOADING DOCK THE RESIN HAD DIRT COVERING IT WITH A FEW TIRE TRACKS THROUGH
Incident Date: 4/5/1993

FINDS:

Registry ID: 110004787295

Environmental Interest/Information System
OR-DEQ (Oregon - Department Of Environmental Quality) is a regulatory agency whose job is to protect the quality of Oregon's Environment. DEQ uses a combination of technical assistance, inspections and permitting to help public and private facilities and citizens understand and comply with state and federal environmental regulations.

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.

HAZARDOUS WASTE BIENNIAL REPORTER

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

ECHO:
Envid: 1000291272
Registry ID: 110004787295
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110004787295

HSIS:
Name: REDDAWAY INC 501
Address: 10510 N VANCOUVER WAY
City,State,Zip: PORTLAND, OR 97217
Facility ID: 018661
Department Or Division Of Company: YRC INC YRC FREIGHT
Chemical Is Extremely Hazardous Substance (EHS: N
Contains 112R: N
Facility Has Written Emergency Plan: Y
NAICS Code 1: 484122
NAICS Desc 1: GENERAL FREIGHT TRUCKING-LONG-DISTANCE LE
NAICS Code 2: 000000

REDDAWAY (Continued) **1000291272**

NAICS Desc 2:	Not reported
Manager Name:	JOYCE LOREDO
Business Phone:	5035576200
Mailing Address:	10990 ROE AVE MS A-650
Mailing City:	OVERLAND PARK
Mailing State:	KS
Mailing Zip:	662111213
No. of Employees:	219
Day Phone:	5035576200
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Y
Emergency Contact:	MARTY HOPE
Emergency Procedure:	SHOP OFFICE
Business Type:	TRUCKING
Facility Type:	Not reported
Department:	Not reported
Status:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Last Reported ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	Not reported
Maximum Daily Amount Unit:	Not reported
Chemical Added Date:	Not reported
Is Chem PSM:	Not reported
Is Chem 112R:	Not reported
Is Chem 302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
Number of Days Onsite:	Not reported
Year:	Not reported
Case Number:	64742547
Chemical Name:	MOTOR OIL
EHS Name:	Not reported
Is Pure:	No

REDDAWAY (Continued) **1000291272**

Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	21
Maximum Daily Amount Unit:	gal
Chemical Added Date:	04/03/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	N/A
NFPA Health:	1
NFPA Flammability:	2
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Acute, Health Aspiration
Number of Days Onsite:	365
Year:	2018

Case Number:	74986
Chemical Name:	PROPANE
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	11
Maximum Daily Amount Unit:	gal
Chemical Added Date:	04/03/2017
Is Chem PSM:	No
Is Chem 112R:	Yes
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Gas
UNNA Number:	1978
NFPA Health:	2
NFPA Flammability:	4
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Asphyxiant, Physical Combustive, Physical Flammable
Number of Days Onsite:	365
Year:	2018

Case Number:	107211
Chemical Name:	ANTIFREEZE
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	11
Maximum Daily Amount Unit:	gal
Chemical Added Date:	04/03/2017
Is Chem PSM:	No

REDDAWAY (Continued) **1000291272**

Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	3082
NFPA Health:	1
NFPA Flammability:	1
NFPA Reactivity:	0
NFPA Special Notice:	Not reported
Hazards:	Health ReproductiveToxicity, Health SpecificOrganToxicity
Number of Days Onsite:	365
Year:	2018

Case Number:	N/A
Chemical Name:	WASTE OIL
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	21
Maximum Daily Amount Unit:	gal
Chemical Added Date:	04/03/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	N/A
NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health SeriousEye, Health SkinCorrosion
Number of Days Onsite:	365
Year:	2018

Case Number:	68476346
Chemical Name:	DIESEL FUEL 2
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	40
Maximum Daily Amount Unit:	gal
Chemical Added Date:	04/03/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	1993
NFPA Health:	2

REDDAWAY (Continued) **1000291272**

NFPA Flammability:	2
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Acute, Health Carcinogenicity, Health SeriousEye, Health SkinCorrosion, Physical Combustive
Number of Days Onsite:	365
Year:	2018
Case Number:	74862
Chemical Name:	ACETYLENE
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	11
Maximum Daily Amount Unit:	cuft
Chemical Added Date:	04/03/2017
Is Chem PSM:	No
Is Chem 112R:	Yes
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Gas
UNNA Number:	1001
NFPA Health:	0
NFPA Flammability:	4
NFPA Reactivity:	3
NFPA Special Notice:	N/A
Hazards:	Health Asphyxiant, Physical Combustive, Physical Flammable
Number of Days Onsite:	365
Year:	2018
Case Number:	57136
Chemical Name:	BLUE DEF
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	10
Maximum Daily Amount Unit:	gal
Chemical Added Date:	02/22/2018
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	N/A
NFPA Health:	1
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health SeriousEye, Health SkinCorrosion
Number of Days Onsite:	365
Year:	2018

REDDAWAY (Continued) **1000291272**

Case Number:	64742650
Chemical Name:	SYNTHETIC GEAR OIL
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	10
Maximum Daily Amount Unit:	gal
Chemical Added Date:	02/22/2018
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Health SeriousEye
Number of Days Onsite:	365
Year:	2018

Case Number:	N/A
Chemical Name:	LUBRICATING GREASE/OIL
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	10
Maximum Daily Amount Unit:	gal
Chemical Added Date:	02/22/2018
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	1268
NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health SeriousEye
Number of Days Onsite:	365
Year:	2018

Case Number:	107211
Chemical Name:	WASTE ANTIFREEZE
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported

REDDAWAY (Continued) **1000291272**

Maximum Daily Amount Code:	10
Maximum Daily Amount Unit:	gal
Chemical Added Date:	02/22/2018
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	3082
NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health ReproductiveToxicity, Health SpecificOrganToxicity
Number of Days Onsite:	365
Year:	2018

Chemical:

Chemical Name:	MOTOR OIL
Physical Description:	LIQUID
Case Number:	64742547
Facility Id:	018661
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	53
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	B
Description:	UNDERGROUND TANK
Type Code:	D
Temperature Description:	STEEL DRUM
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	7,500,000-9,999,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PETROLEUM HYDROCARBONS
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

REDDAWAY (Continued) **1000291272**

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	N
Pesticide:	N
Contains 313:	Not reported

Chemical Name:	OXYGEN
Physical Description:	GAS
Case Number:	7782447
Facility Id:	018661
Physical State Of The Substance:	3
Average Amount Possessed During The Year Code:	11
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

REDDAWAY (Continued) **1000291272**

Chemical Name:	PROPANE
Physical Description:	GAS
Case Number:	74986
Facility Id:	018661
Physical State Of The Substance:	3
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PROPANE
United Nations/north America 4 Digit Class Number:	1075
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ANTIFREEZE
Physical Description:	LIQUID
Case Number:	107211
Facility Id:	018661
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	10
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D

REDDAWAY (Continued) **1000291272**

Description:	STEEL DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	ETHYLENE GLYCOL
United Nations/north America 4 Digit Class Number:	3082
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	WASTE OIL
Physical Description:	LIQUID
Case Number:	Not reported
Facility Id:	018661
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	B
Description:	UNDERGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported

REDDAWAY (Continued) **1000291272**

Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PETROLEUM HYDROCARBONS
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical Name:	DIESEL FUEL 2
Physical Description:	LIQUID
Case Number:	68476346
Facility Id:	018661
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	61
Maximum Amount Possessed During The Year Code:	80
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	100,000,000-249,999,999
Description Of The Avg Qnty Code:	25,000,000-49,999,999
Most Hazardous Ingridient:	PETROLEUM DISTILLATES
United Nations/north America 4 Digit Class Number:	1993
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N

REDDAWAY (Continued) **1000291272**

EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ACETYLENE
Physical Description:	GAS
Case Number:	74862
Facility Id:	018661
Physical State Of The Substance:	3
Average Amount Possessed During The Year Code:	10
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

REDDAWAY (Continued) **1000291272**

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

OR MANIFEST:
Manifest Year: Manifest Year - 2016
EPA Id: ORD093480804
Inactive Status: Not reported
Organization Name: Not reported
Contact Name: Marty Hope
Contact Telephone Number: Not reported
Mailing Address: 10510 N Vancouver Way
Mailing City/State/Zip: Portland, OR 97217-7549

Manifest:
Year : 2016
RCRA Id : ORD093480804
Inactive : Not reported
Status: Conditionally exempt generator
Manifest : 010520885JJK
Ship Date : 02/05/2016
TSD : IDD073114654
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D001
Waste Description: Cleanup of Sodium Nitrite spill
Total Amt Of Waste Stream Generated in Reporting Yr 1: 47.6175
Total Amt Of Waste Stream Generated in Reporting Yr 2: 2.2675

Year : 2016
RCRA Id : ORD093480804
Inactive : Not reported
Status: Conditionally exempt generator
Manifest : 2116025-1511
Ship Date : 09/13/2016
TSD : OHD980613541
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Cleanup of Sodium Nitrite spill
Total Amt Of Waste Stream Generated in Reporting Yr 1: 47.6175
Total Amt Of Waste Stream Generated in Reporting Yr 2: 45.35

Year : 2016
RCRA Id : ORD093480804
Inactive : Not reported
Status: Conditionally exempt generator
Manifest : 000147972DAT
Ship Date : 10/06/2016
TSD : WAD991281767
WS Num: 2

REDDAWAY (Continued) **1000291272**

Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D035
Waste Description: Paint Contaminated Absorbents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 15.8725
Total Amt Of Waste Stream Generated in Reporting Yr 2: 15.8725

Manifest:
Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator
Manifest : 000619431WAS
Ship Date : 02/03/2015
TSD : MOD981505555
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Cleanup of spill of Endosulfan product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 160.9925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 160.9925

Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator
Manifest : 000619431WAS
Ship Date : 02/03/2015
TSD : MOD981505555
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: P050
Waste Description: Cleanup of spill of Endosulfan product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 160.9925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 160.9925

Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator
Manifest : 000619431WAS
Ship Date : 02/03/2015
TSD : MOD981505555
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported

REDDAWAY (Continued) **1000291272**

Off Mng : H040
EPA Waste Codes: P050
Waste Description: Absorbents from cleanup of Endosulfan product spill
Total Amt Of Waste Stream Generated in Reporting Yr 1: 61.2225
Total Amt Of Waste Stream Generated in Reporting Yr 2: 61.2225

Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator
Manifest : 008054787FLE
Ship Date : 02/06/2015
TSD : NED981723513
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Discarded Paint Product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 113.375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 113.375

Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator
Manifest : 008054787FLE
Ship Date : 02/06/2015
TSD : NED981723513
WS Num: 4
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Discarded Sodium Nitrite product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4.535
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4.535

Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator
Manifest : 000619431WAS
Ship Date : 02/03/2015
TSD : MOD981505555
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Cleanup of spill of Endosulfan product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 160.9925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 160.9925

REDDAWAY (Continued) **1000291272**

Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator
Manifest : 000619431WAS
Ship Date : 02/03/2015
TSD : MOD981505555
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: P050
Waste Description: Cleanup of spill of Endosulfan product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 160.9925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 160.9925

Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator
Manifest : 000619431WAS
Ship Date : 02/03/2015
TSD : MOD981505555
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: P050
Waste Description: Absorbents from cleanup of Endosulfan product spill
Total Amt Of Waste Stream Generated in Reporting Yr 1: 61.2225
Total Amt Of Waste Stream Generated in Reporting Yr 2: 61.2225

Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator
Manifest : 008054787FLE
Ship Date : 02/06/2015
TSD : NED981723513
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Discarded Paint Product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 113.375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 113.375

Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator
Manifest : 008054787FLE
Ship Date : 02/06/2015

REDDAWAY (Continued) **1000291272**

TSD : NED981723513
WS Num: 4
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Discarded Sodium Nitrite product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4.535
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4.535

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

Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator
Manifest : 000619431WAS
Ship Date : 02/03/2015
TSD : MOD981505555
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Cleanup of spill of Endosulfan product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 160.9925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 160.9925

Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator
Manifest : 000619431WAS
Ship Date : 02/03/2015
TSD : MOD981505555
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: P050
Waste Description: Cleanup of spill of Endosulfan product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 160.9925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 160.9925

Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator
Manifest : 000619431WAS
Ship Date : 02/03/2015
TSD : MOD981505555
WS Num: 2
Transporter: Not reported

REDDAWAY (Continued) **1000291272**

Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: P050
Waste Description: Absorbents from cleanup of Endosulfan product spill
Total Amt Of Waste Stream Generated in Reporting Yr 1: 61.2225
Total Amt Of Waste Stream Generated in Reporting Yr 2: 61.2225

Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator
Manifest : 008054787FLE
Ship Date : 02/06/2015
TSD : NED981723513
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Discarded Paint Product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 113.375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 113.375

Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator
Manifest : 008054787FLE
Ship Date : 02/06/2015
TSD : NED981723513
WS Num: 4
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Discarded Sodium Nitrite product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4.535
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4.535

Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator
Manifest : 000619431WAS
Ship Date : 02/03/2015
TSD : MOD981505555
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Cleanup of spill of Endosulfan product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 160.9925

REDDAWAY (Continued) **1000291272**

Total Amt Of Waste Stream Generated in Reporting Yr 2: 160.9925

Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator
Manifest : 000619431WAS
Ship Date : 02/03/2015
TSD : MOD981505555
WS Num: 1
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: P050
Waste Description: Cleanup of spill of Endosulfan product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 160.9925
Total Amt Of Waste Stream Generated in Reporting Yr 2: 160.9925

Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator
Manifest : 000619431WAS
Ship Date : 02/03/2015
TSD : MOD981505555
WS Num: 2
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: P050
Waste Description: Absorbents from cleanup of Endosulfan product spill
Total Amt Of Waste Stream Generated in Reporting Yr 1: 61.2225
Total Amt Of Waste Stream Generated in Reporting Yr 2: 61.2225

Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator
Manifest : 008054787FLE
Ship Date : 02/06/2015
TSD : NED981723513
WS Num: 3
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Discarded Paint Product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 113.375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 113.375

Year : 2015
RCRA Id : ORD093480804
Inactive : Not reported
Status: Large quantity generator

REDDAWAY (Continued) **1000291272**

Manifest : 008054787FLE
Ship Date : 02/06/2015
TSD : NED981723513
WS Num: 4
Transporter: Not reported
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Discarded Sodium Nitrite product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 4.535
Total Amt Of Waste Stream Generated in Reporting Yr 2: 4.535

Manifest:
Year : 2013
RCRA Id : ORD093480804
Inactive : Not reported
Status: Conditionally exempt generator
Manifest : 000488310WAS
Ship Date : 10/10/2013
TSD : AZD081705402
WS Num: 1
Transporter: IND058484114
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H110
EPA Waste Codes: D001
Waste Description: Algaecide/Fungicide product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 22.675000000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 22.675000000000001

Year : 2013
RCRA Id : ORD093480804
Inactive : Not reported
Status: Conditionally exempt generator
Manifest : 000488257WAS
Ship Date : 09/12/2013
TSD : AZD081705402
WS Num: 2
Transporter: IND058484114
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H061
EPA Waste Codes: D001
Waste Description: WD-40 Lubricant cans
Total Amt Of Waste Stream Generated in Reporting Yr 1: 68.025000000000006
Total Amt Of Waste Stream Generated in Reporting Yr 2: 68.025000000000006

Manifest:
Year : 2008

REDDAWAY (Continued) **1000291272**

RCRA Id : ORD093480804
Inactive : Not reported
Status: Small quantity generator
Manifest : 004049079JJK
Ship Date : 04/09/2008
TSD : WAD991281767
WS Num: 4
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Damaged Petroleum Distillates
Total Amt Of Waste Stream Generated in Reporting Yr 1: 22.675000000000001
Total Amt Of Waste Stream Generated in Reporting Yr 2: 22.675000000000001

Year : 2008
RCRA Id : ORD093480804
Inactive : Not reported
Status: Small quantity generator
Manifest : 004049081JJK
Ship Date : 04/09/2008
TSD : WAD991281767
WS Num: 5
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Damaged Resin solution in absorbents
Total Amt Of Waste Stream Generated in Reporting Yr 1: 272.10000000000002
Total Amt Of Waste Stream Generated in Reporting Yr 2: 272.10000000000002

Year : 2008
RCRA Id : ORD093480804
Inactive : Not reported
Status: Small quantity generator
Manifest : 004813132JJK
Ship Date : 12/03/2008
TSD : WAD991281767
WS Num: 3
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H132
EPA Waste Codes: D001 D002
Waste Description: Damaged Corrosive Oxidizing liquid
Total Amt Of Waste Stream Generated in Reporting Yr 1: 11.3375
Total Amt Of Waste Stream Generated in Reporting Yr 2: 11.3375

Year : 2008
RCRA Id : ORD093480804
Inactive : Not reported
Status: Small quantity generator
Manifest : 003618585JJK
Ship Date : 02/14/2008
TSD : WAD991281767

REDDAWAY (Continued) **1000291272**

WS Num: 1
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D002
Waste Description: Damaged Acetic Acid Product
Total Amt Of Waste Stream Generated in Reporting Yr 1: 19.868401875
Total Amt Of Waste Stream Generated in Reporting Yr 2: 19.868401875

Year : 2008
RCRA Id : ORD093480804
Inactive : Not reported
Status: Small quantity generator
Manifest : 004813113JJK
Ship Date : 12/03/2008
TSD : WAD991281767
WS Num: 2
Transporter: WAR000001743
Ship Qty : Not reported
Rpt Unit : Not reported
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Damaged Organic Peroxide
Total Amt Of Waste Stream Generated in Reporting Yr 1: 68.025000000000006
Total Amt Of Waste Stream Generated in Reporting Yr 2: 68.025000000000006

Manifest:
Year : 2006
RCRA Id : ORD093480804
Inactive : Not reported
Status: Small quantity generator
Manifest : AR-1804871
Ship Date : 04/04/2006
TSD : ARD069748192
WS Num: Not reported
Transporter: OKD981588791
Ship Qty : 295
Rpt Unit : LB
Off Mng : H111
EPA Waste Codes: D002
Waste Description: Ammonia Solutions
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

Year : 2006
RCRA Id : ORD093480804
Inactive : Not reported
Status: Small quantity generator
Manifest : 001168631FLE
Ship Date : 12/22/2006
TSD : ARD069748192
WS Num: Not reported

REDDAWAY (Continued) **1000291272**

Transporter: MAD039322250
Ship Qty : 30
Rpt Unit : LB
Off Mng : H040
EPA Waste Codes: D001
Waste Description: Paraformaldehyde Contaminated Absorbent and Debris
Total Amt Of Waste Stream Generated in Reporting Yr 1: Not reported
Total Amt Of Waste Stream Generated in Reporting Yr 2: Not reported

OR UIC:
Name: YELLOW FREIGHT SYSTEMS
Address: 10510 N. VANCOUVER WAY
City,State,Zip: PORTLAND, OR
UIC Well #: 1
Type: 5X28
Type Description: Motor Vehicle Waste Disposal Wells
Status: Formal Closure
UIC Number: 10865
Facility Status: Formal Closure
Lat/Long: 45.600601 / -122.6715

---

61 WNW 1/2-1 0.843 mi. 4451 ft.

MORRISON, GLEN
3747 N SUTTLE RD
PORTLAND, OR 97217

OR ECSI **1000362907**
OR UST **N/A**
OR VCP

Relative: Higher

Actual: 22 ft.

ECSI:
Name: MORRISON OIL CO.
Address: 3747 N SUTTLE RD.
City,State,Zip: PORTLAND, OR 97217
State ID Number: 800
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 832
Investigation: No Further Action
FACA ID: 924
Further Action: 0
Lat/Long (dms): 45 36 49.70 / -122 42 24.80
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 2.00
Township Zone: N
Range Coord: 1.00
Range Zone: E
Section Coord: 32
Qtr Section: Not reported
Tax Lots: 18
Size: 6.16 acres
NPL: False
Orphan: False
Updated By: GWISTAR

MORRISON, GLEN (Continued) **1000362907**

Update Date: 06/01/2017
Created Date: 05/10/1988
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: No Further Action
Decode For Legislative: Owner, operator or other party under state or federal authority
Alias Name: Christenson Oil #2
Alias Name: Kleen Blast
Alias Name: Castia Stone Inc
Alias Name: Canam Minerals, Inc.
Alias Name: Ager & Davis Refining Co.

Hazardous Release:
Substance ID.: 120883
Haz Release ID: 384175
Qty Released: unknown
Date Released: unknown
Update Date: 01/05/1990
Update By: Not reported
Substance Code: 108-88-3
Substance Name: TOLUENE
Substance Abbrev.: Not reported
Substance Category ID: 8520
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8520
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316466
Sub Alias Name: BENZENE,METHYL-
Substance Alias ID: 316467
Sub Alias Name: METHACIDE
Substance Alias ID: 316468
Sub Alias Name: METHYLBENZENE
Substance Alias ID: 316469
Sub Alias Name: METHYLBENZOL
Substance Alias ID: 316470
Sub Alias Name: PHENYLMETHANE
Substance Alias ID: 316471
Sub Alias Name: TOLUOL
Sampling Result ID: 344518
Feature Id: Not reported
Hazard Release Id: 384175
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/1990
End Date: Not reported
Min Concentration: Not reported

MORRISON, GLEN (Continued) **1000362907**

Max Concentration: Not reported
Sample Comment: 200 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater

Substance ID.: 122012
Haz Release ID: 384176
Qty Released: unknown
Date Released: unknown
Update Date: 01/06/1990
Update By: Not reported
Substance Code: ECD275
Substance Name: TOTAL PETROLEUM HYDROCARBONS (TPH)
Substance Abbrev.: Not reported
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 344519
Feature Id: Not reported
Hazard Release Id: 384176
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 06/01/1990
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 100,000 ppm
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 122014
Haz Release ID: 384177
Qty Released: unknown
Date Released: unknown
Update Date: 01/05/1990
Update By: Not reported
Substance Code: ECD281
Substance Name: VOLATILE ORGANIC COMPOUNDS (VOC)
Substance Abbrev.: Not reported

Substance ID.: 121608
Haz Release ID: 384178
Qty Released: unknown

MORRISON, GLEN (Continued) **1000362907**

Date Released: unknown
Update Date: 01/06/1990
Update By: Not reported
Substance Code: 71-43-2
Substance Name: BENZENE
Substance Abbrev.: Not reported
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8502
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319178
Sub Alias Name: BENZOL
Substance Alias ID: 319179
Sub Alias Name: COAL NAPTHA
Substance Alias ID: 319180
Sub Alias Name: CYCLOHEXATRIENE
Substance Alias ID: 319181
Sub Alias Name: PHENE
Substance Alias ID: 319182
Sub Alias Name: PYROBENZOL
Sampling Result ID: 344520
Feature Id: Not reported
Hazard Release Id: 384178
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 07/01/1990
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 18 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater

Substance ID.: 121051
Haz Release ID: 384179
Qty Released: unknown
Date Released: unknown
Update Date: 01/05/1990
Update By: Not reported
Substance Code: 1330-20-7
Substance Name: XYLENEs
Substance Abbrev.: Not reported
Substance Category ID: 8526
Substance Category: Volatiles
Category Level: Not reported

MORRISON, GLEN (Continued) **1000362907**

Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8526
Substance Category: Volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317017
Sub Alias Name: DIMETHYLBENZENEs
Substance Alias ID: 317018
Sub Alias Name: XYLOLs
Sampling Result ID: 344521
Feature Id: Not reported
Hazard Release Id: 384179
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/01/1990
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 525 ppb
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater

Substance ID.: 121059
Haz Release ID: 384349
Qty Released: unknown
Date Released: unknown
Update Date: 01/02/1992
Update By: Not reported
Substance Code: 1336-36-3
Substance Name: PCBs
Substance Abbrev.: Not reported
Substance Category ID: 8558
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8558
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317029
Sub Alias Name: BIPHENYL,POLYCHLORO-
Substance Alias ID: 317030
Sub Alias Name: CHLORINATED BIPHENYL
Substance Alias ID: 317031
Sub Alias Name: CHLOROBIPHENYL
Substance Alias ID: 317032
Sub Alias Name: POLYCHLORINATED BIPHENYLs

MORRISON, GLEN (Continued) **1000362907**

Substance Alias ID: 317033
Sub Alias Name: POLYCHLOROBIPHENYL
Sampling Result ID: 344729
Feature Id: Not reported
Hazard Release Id: 384349
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 02/01/1992
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 7 ppm
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 121639
Haz Release ID: 384350
Qty Released: unknown
Date Released: unknown
Update Date: 01/02/1992
Update By: Not reported
Substance Code: 7439-92-1
Substance Name: LEAD
Substance Abbrev.: Not reported
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319256
Sub Alias Name: PB
Sampling Result ID: 344718
Feature Id: Not reported
Hazard Release Id: 384350
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 02/01/1992
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 30 ppm

MORRISON, GLEN (Continued) **1000362907**

Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Narrative:
NARR ID: 5727828
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: (7/7/98 MAF/SRS) In 1968, Ager Petroleum transported sludge from a used oil recycling process to the Morrison Oil site. This sludge was stockpiled until 1976, at which time it was used to fill topographic lows in the area of the present day retention pond. Three underground storage tanks (two gasoline, one waste oil) were removed from the site in 1989, along with 50 cubic yards of associated contaminated soil. Two USTs remain on-site. Groundwater has been impacted and the site remains open in Northwest Region's UST program. Environmental investigations have shown site soils to be contaminated with TPH, VOCs/SVOCs, PCBs, and lead. Groundwater at the site is contaminated with TPH and VOCs. Releases to the nearby Oregon Slough are thought to have occurred.

NARR ID: 5727829
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: JWAGGY
Updated Date: 03/18/2003
Decode for NarcdID: Data Sources
NARR Comments: 1. DEQ, NWR Site Response files. 2. NWR WQ file. 3. NWR UST file. 4. DEQ WMC file. 5. Consultant Investigative Reports (SRH Environmental, SEACOR, Shannon & Wilson).

NARR ID: 5727830
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Petroleum products, volatile and semi-volatile organic compounds, PCBs and lead.

NARR ID: 5727831
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Past business practices associated with bulk petroleum operations, and placement of waste oil sludge in low-lying areas of site.

NARR ID: 5727832
NARR Code: Pathways Other Hazards

MORRISON, GLEN (Continued) **1000362907**

Created By: Not reported
Created Date: 12/17/2002
Updated By: JWAGGY
Updated Date: 03/18/2003
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: Four other industries on-site include Ager Petroleum, Christenson Oil, Gemini Electric, and Lion Industries. Ager Petroleum operations commingled with those of Morrison. Groundwater is the primary pathway of concern and contamination could reach the nearby Columbia Slough.

NARR ID: 5727833
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: PSEIDEL
Updated Date: 02/10/2017
Decode for NarcdID: Remedial Action
NARR Comments: 12/10/2017: (PRS) Between 2010 and 2013 and remedial investigation and risk assessment was completed for tax lots 700 and 800. The site was adequately characterized and risks were found to be below acceptable levels for potentially complete pathways on tax lot 800, excluding the lead-contaminated soil stockpile. In 2016, all lead-contaminated soil was removed from the site and properly disposed in a solid waste landfill. Underlying soil within three feet of ground surface was sampled and found to be below acceptable levels. A Certificate of Completion and no further action determination is currently proposed for tax lot 800. Tax lot 700 remains to be addressed. (6/04/08 BLR/SRS) A Notice of Non-compliance (NON) has been issued for the on-site soil pile. Originally, approximately 7,500 cubic yards of lead contaminated soil was excavated and placed in a pile onsite. A Consent Order was signed in September 1996 for the treatment and management of this soil. DEQ approved the work plan submitted by the responsible party (RP) in May 1997. Approximately 1,500 cubic yards of soil exceeding 5 ppm TCLP lead has been treated and disposed at a licensed solid waste landfill. In May 2006, the RP completed additional characterization of the soil pile and determined that most of the soil remaining in the pile still exceeds 5 ppm TCLP lead. The RP is treating portions of the pile that contain unacceptable concentrations of lead with FESI-Bond phosphate chelating agent to bind leachable lead in order to stabilize the lead in soil for disposal at an approved landfill. Approximately 6,000 cubic yards of soil remains in the pile and it is estimated 4,000 to 5,000 cubic yards will need to be treated.

NARR ID: 5727834
NARR Code: Health Threats
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Health Threats
NARR Comments: Known releases of TPH, VOCs, SVOCs, PCBs and metals to surface and near-surface soils, and release of VOCs to shallow groundwater. Release of contaminants to Oregon Slough immediately north of site has likely also occurred.

NARR ID: 5750560

MORRISON, GLEN (Continued) **1000362907**

NARR Code: 1922
Created By: BROBERT
Created Date: 06/04/2008
Updated By: PSEIDEL
Updated Date: 05/03/2017
Decode for NarcdID: Current Site Summary Statement
NARR Comments: 5/3/2017: A no further action determination and Certificate of Completion have been issued for lot 800. No significant risks remain on-site, and the site is protective under current land use. The former on-site water well on lot 800 has been properly decommissioned in accordance with an approved workplan. Residual contamination does remain on lot 700. 12/10/2017: (PRS) Between 2010 and 2013 and remedial investigation and risk assessment was completed for tax lots 700 and 800. The site was adequately characterized and risks were found to be below acceptable levels for potentially complete pathways on tax lot 800, excluding the lead-contaminated soil stockpile. In 2016, all lead-contaminated soil was removed from the site and properly disposed in a solid waste landfill. Underlying soil within three feet of ground surface was sampled and found to be below acceptable levels. A Certificate of Completion and no further action determination is currently proposed for tax lot 800. (6/04/08 BLR/SRS) Approximately 6,000 cubic yards of lead-impacted soil remains onsite. In May 2006, additional samples from the soil pile indicated an estimated 4,000 to 5,000 cubic yards of this soil contains lead at greater than 5 ppm TCLP lead. At 6,000 cubic yards, the volume is approximately equal to 7,350 tons of material. The responsible party is treating the contaminated soil with Forrester Environmental FESI-Bond phosphate chelating agent to bind leachable lead (resulting in TCLP-lead concentrations in treated soil of less than the 5.0 ppm toxicity characteristics standard). It is assumed that the FESI-Bond material would be applied at a 1% by weight application rate (i.e., 1 ton of FESI-Bond liquid applied to treat 100 tons of lead-impacted soil). Additional soil treatment is scheduled for the summer of 2008. Following treatment, the stabilized soil will be disposed at a licensed solid waste landfill.

Administrative Action:
Action ID: 9464
Region: Northwestern Region
Complete Date: 05/14/2015
Rank Value: Not reported
Cleanup Flag: False
Created Date: 09/28/2016
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Prospective Purchaser Agreement
Further Action: 0
Comments: Not reported

Action ID: 9414
Region: 0
Complete Date: 05/03/2017
Rank Value: Not reported
Cleanup Flag: True
Created Date: 05/03/2017
Decode for AgencyID: Department of Environmental Quality

MORRISON, GLEN (Continued) **1000362907**

Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: Certification of Completion
Further Action: 0
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 05/03/2017
Rank Value: Not reported
Cleanup Flag: True
Created Date: 06/01/2017
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

Action ID: 9417
Region: Northwestern Region
Complete Date: 05/02/2017
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/01/2017
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility delisted from Confirmed Release List
Further Action: 0
Comments: Not reported

Action ID: 9418
Region: Northwestern Region
Complete Date: 05/02/2017
Rank Value: Not reported
Cleanup Flag: False
Created Date: 06/01/2017
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility delisted from Inventory List
Further Action: 0
Comments: Not reported

Action ID: 9491
Region: Northwestern Region
Complete Date: 02/28/2011
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region

MORRISON, GLEN (Continued) **1000362907**

Category: Remedial Action
Action Code Flag: False
Action: REMOVAL
Further Action: 0
Comments: Not reported

Action ID: 9504
Region: Northwestern Region
Complete Date: 05/10/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Removal Action Recommended (RM)
Further Action: Medium
Comments: Not reported

Action ID: 9425
Region: Headquarters
Complete Date: 06/27/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Northwestern Region
Complete Date: 03/10/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9499
Region: Northwestern Region
Complete Date: 03/11/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action

MORRISON, GLEN (Continued) **1000362907**

Action Code Flag: False
Action: Proposal for Inventory recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9426
Region: Northwestern Region
Complete Date: 05/09/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: Not reported
Comments: Not reported

Action ID: 9448
Region: Northwestern Region
Complete Date: 05/15/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Review for final listing
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9438
Region: Headquarters
Complete Date: 05/17/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False

MORRISON, GLEN (Continued) **1000362907**

Action: Facility placed on Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9439
Region: Headquarters
Complete Date: 05/17/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9456
Region: Northwestern Region
Complete Date: 02/28/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: BASIC PRELIMINARY ASSESSEMENT
Further Action: Not reported
Comments: Not reported

Action ID: 9467
Region: Northwestern Region
Complete Date: 03/14/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9489
Region: Northwestern Region
Complete Date: 05/16/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Listing on Inventory recommended

MORRISON, GLEN (Continued) **1000362907**

Further Action: Not reported
Comments: Not reported

Action ID: 9456
Region: Northwestern Region
Complete Date: 06/01/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: BASIC PRELIMINARY ASSESSEMENT
Further Action: Not reported
Comments: Not reported

Action ID: 9491
Region: Northwestern Region
Complete Date: 02/28/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMOVAL
Further Action: Not reported
Comments: Not reported

Action ID: 9488
Region: Northwestern Region
Complete Date: 05/16/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Listing on Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Northwestern Region
Complete Date: 03/14/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported

MORRISON, GLEN (Continued) **1000362907**

Comments: Not reported

Action ID: 9442
Region: Headquarters
Complete Date: 07/07/1993
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: NEGOTIATIONS
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Headquarters
Complete Date: 06/27/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Headquarters
Complete Date: 06/28/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9496
Region: Headquarters
Complete Date: 06/29/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: High
Comments: Not reported

MORRISON, GLEN (Continued) **1000362907**

Operations:

Operation Id:	132101
Operation Status:	Active
Common Name:	Morrison Oil Co.
Yrs of Operation:	1961 to 1998
Comments:	Petroleum products blending, packaging, warehousing & distribution plant
Updated Date:	06/20/2002
Updated By:	jmw
Decode for OpstatID:	Active
Operations SIC Id:	194992
SIC Code:	2992
Created By:	Not reported
Created Date:	12/17/2002

UST:

Name:	MORRISON, GLEN
Address:	3747 N SUTTLE RD
City:	PORTLAND
Facility ID:	8179
Facility Telephone:	(503)286-1673
Permittee Name:	GLEN MORRISON, PRESIDENT
Number of Permitted Tanks:	Not reported
Active Tanks:	Not reported
Decommissioned Tanks:	2
Number of Tanks:	2

VCS:

Name:	MORRISON OIL CO.
Address:	3747 N SUTTLE RD.
City,State,Zip:	PORTLAND, OR 97217
ECS Site ID:	800
Facility Size:	6.16 acres
Action:	NO FURTHER STATE ACTION REQUIRED
Start Date:	05/03/2017
End Date:	05/03/2017
Facility Status:	Completed
Program:	VCP
Latitude:	45.6138
Longitude:	-122.7069

62
SSW
1/2-1
0.926 mi.
4888 ft.

JRJ PROPERTIES **OR ECSI** **S111248871**
9425 N BURRAGE AVE. **N/A**
PORTLAND, OR 97217

Relative:
Lower

Actual:
20 ft.

ECSI:

Name:	JRJ PROPERTIES
Address:	9425 N BURRAGE AVE.
City,State,Zip:	PORTLAND, OR 97217
State ID Number:	4139
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	0

JRJ PROPERTIES (Continued) **S111248871**

Investigation: Suspect
FACA ID: 38763
Further Action: 256
Lat/Long (dms): 45 35 28.00 / -122 41 44.50
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 1.00
Township Zone: N
Range Coord: 1.00
Range Zone: E
Section Coord: 9
Qtr Section: Not reported
Tax Lots: 100
Size: 3.4 acres
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 12/27/2013
Created Date: 05/13/2004
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: High
Decode For Investstat: Suspect
Decode For Legislative: Not reported
Alias Name: JR Johnson, Inc.
Alias Name: Fabrimetrics, Inc.
Alias Name: Dennis Harding Painting
Alias Name: NW Equipment Rental

Narrative:
NARR ID: 5745256
NARR Code: Contamination
Created By: CHARMAN
Created Date: 07/29/2004
Updated By: CHARMAN
Updated Date: 07/29/2004
Decode for NarcdID: Contamination
NARR Comments: Site discovered as part of Columbia Slough Area-wide Site Discovery project. Past investigation of site was discovered by way of Water Resources Department well logs. Site was originally a meat processing plant and had some other unknown past industrial use.

NARR ID: 5745893
NARR Code: Hazardous Substance/Waste Types
Created By: JWAGGY
Created Date: 11/19/2004
Updated By: JWAGGY
Updated Date: 11/19/2004
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: TCE

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 05/13/2004
Rank Value: Not reported
Cleanup Flag: False

JRJ PROPERTIES (Continued) **S111248871**

Created Date: 05/13/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9508
Region: Northwestern Region
Complete Date: 05/13/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 05/13/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Screening recommended (EV)
Further Action: High
Comments: Not reported

J63 **LAMM PROPERTY - SITE 2** **OR ECSI** **1006857502**
WNW **4065 N SUTTLE RD** **FINDS** **N/A**
1/2-1 **PORTLAND, OR 97217**
0.937 mi.
4948 ft. **Site 1 of 2 in cluster J**

Relative: **Higher**
Actual: **24 ft.**

ECSI:
Name: LAMM PROPERTY - SITE 2
Address: 4065 N SUTTLE RD.
City,State,Zip: PORTLAND, OR 97217
State ID Number: 1200
Brown ID: 0
Study Area: False
Region ID: 2
Legislatve ID: 831
Investigation: Suspect
FACA ID: 8935
Further Action: 260
Lat/Long (dms): 45 36 50.80 / -122 42 28.80
County Code: 26.00
Score Value: Not reported
Cerclis ID: Not reported
Township Coord.: 2.00
Township Zone: N
Range Coord: 1.00
Range Zone: E
Section Coord: 32
Qtr Section: Not reported
Tax Lots: 20
Size: 3.5 ac.
NPL: False
Orphan: False
Updated By: GWISTAR
Update Date: 02/26/2009
Created Date: 06/24/1992

LAMM PROPERTY - SITE 2 (Continued) **1006857502**

Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Low
Decode For Investstat: Suspect
Decode For Legislative: Owner, operator or other party under agreement, order or consent decree under ORS 465.200 or 465.420

Hazardous Release:
Substance ID.: 121059
Haz Release ID: 383276
Qty Released: unknown
Date Released: unknown
Update Date: 06/25/1992
Update By: Not reported
Substance Code: 1336-36-3
Substance Name: PCBs
Substance Abbrev.: Not reported
Substance Category ID: 8558
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8558
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317029
Sub Alias Name: BIPHENYL,POLYCHLORO-
Substance Alias ID: 317030
Sub Alias Name: CHLORINATED BIPHENYL
Substance Alias ID: 317031
Sub Alias Name: CHLOROBIPHENYL
Substance Alias ID: 317032
Sub Alias Name: POLYCHLORINATED BIPHENYLs
Substance Alias ID: 317033
Sub Alias Name: POLYCHLOROBIPHENYL
Sampling Result ID: 345578
Feature Id: Not reported
Hazard Release Id: 383276
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 10 ppm and less
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 122012
Haz Release ID: 383277

LAMM PROPERTY - SITE 2 (Continued) **1006857502**

Qty Released: unknown
Date Released: unknown
Update Date: 06/25/1992
Update By: Not reported
Substance Code: ECD275
Substance Name: TOTAL PETROLEUM HYDROCARBONS (TPH)
Substance Abbrev.: Not reported
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 345579
Feature Id: Not reported
Hazard Release Id: 383277
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 41 to 64 ppm
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 121639
Haz Release ID: 383278
Qty Released: unknown
Date Released: unknown
Update Date: 06/25/1992
Update By: Not reported
Substance Code: 7439-92-1
Substance Name: LEAD
Substance Abbrev.: Not reported
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319256
Sub Alias Name: PB

LAMM PROPERTY - SITE 2 (Continued) **1006857502**

Comment ID: 302811
Release Code: Data Sources
Release Comments: Soil samples were taken from the northern portion of the site.
Decode for Relcomcd: Data Sources
Comment ID: 302812
Release Code: Media Contamination Footnote
Release Comments: Soil samples were taken from the northern portion of the site.
Decode for Relcomcd: Media Contamination Footnote
Sampling Result ID: 345580
Feature Id: Not reported
Hazard Release Id: 383278
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 93 ppm (in a composite of 4 surface samples)
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Narrative:

NARR ID: 5732105
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: The City of Portland investigated the site as part of its plans to build an extension to North Marine Drive. The portion south of the proposed road has not been characterized. Based on aerial photographs reviewed, salvage activities occurred primarily on the southern portion of the site. For additional information, see VCS project files for the North Marine Drive project (ECSI #1170).

NARR ID: 5732106
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: PCBs, lead, TPH

NARR ID: 5732107
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release

LAMM PROPERTY - SITE 2 (Continued) **1006857502**

NARR Comments: Manner and time of release not known.

NARR ID: 5732108
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Remedial Action
NARR Comments: (9/19/94 LSK) Site Assessment recommends DEQ review and evaluation of further data that the City of Portland will collect during ongoing excavation activities associated with the N Marine Dr. extension. Site Assessment also recommends further evaluation of possible PCB contamination in soils on other parts of the property. This further action is a low priority for DEQ followup. (2/8/96 GMW) Because the City of Portland has excvated and removed soils with documented contamination along the Marine Dr. right-of-way, and because DEQ cannot confirm that contamination exists on the southern portion of the property, the site should not be added to the Confirmed Release List at this time. (11/10/97 LSK) Site reevaluated as part of review of all sites within the Columbia Slough Study Area. Located to the northeast of Smith Lake. Only the Oregon Slough has potential to be impacted by any remaining contaminants at the site. DEQ never received confirmation sampling for areas of soil removed or additional sampling info. from City of Portland.

NARR ID: 5732109
NARR Code: Health Threats
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Health Threats
NARR Comments: Soil contamination

Administrative Action:
Action ID: 9505
Region: Northwestern Region
Complete Date: 11/10/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Site Confirmatory Sampling recommended
Further Action: Low
Comments: Not reported

Action ID: 9426
Region: Northwestern Region
Complete Date: 11/10/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region

LAMM PROPERTY - SITE 2 (Continued) **1006857502**

Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: Not reported
Comments: Not reported

Action ID: 9459
Region: Northwestern Region
Complete Date: 09/19/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: PRELIMINARY ASSESSMENT EQUIVALENT
Further Action: Not reported
Comments: Not reported

Action ID: 9449
Region: Northwestern Region
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Insufficient information to list
Further Action: Not reported
Comments: Not reported

Action ID: 9470
Region: Northwestern Region
Complete Date: 09/19/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Other remedial or investigative action recommended
Further Action: Low
Comments: Not reported

Action ID: 9431
Region: Northwestern Region
Complete Date: 02/08/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action

LAMM PROPERTY - SITE 2 (Continued) **1006857502**

Action Code Flag: False
Action: Place on hold
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Not reported
Complete Date: 06/24/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Not reported
Complete Date: 12/04/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9451
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False

LAMM PROPERTY - SITE 2 (Continued) **1006857502**

Action: Owner/operator comments received on listing notification
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Not reported
Complete Date: 06/25/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Not reported
Complete Date: 06/26/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9496
Region: Not reported
Complete Date: 06/30/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Medium
Comments: Not reported

Operations:
Operation Id: 132506
Operation Status: Unknown
Common Name: Lamm Property Site Two
Yrs of Operation: see above
Comments: auto wrecking yard (approximately 1963 - 1984), truck/trailer parking (approximately 1963 - 1984)
Updated Date: 03/10/1995
Updated By: jxh
Decode for OpstatID: Unknown
Operations SIC Id: 195640
SIC Code: 5093

LAMM PROPERTY - SITE 2 (Continued) **1006857502**

Created By: Not reported
Created Date: 12/17/2002

FINDS:

Registry ID: 110014199330

Environmental Interest/Information System
OR-DEQ (Oregon - Department Of Environmental Quality) is a regulatory agency whose job is to protect the quality of Oregon's Environment. DEQ uses a combination of technical assistance, inspections and permitting to help public and private facilities and citizens understand and comply with state and federal environmental regulations.

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

64
WNW
1/2-1
0.946 mi.
4995 ft.

N MARINE DR. EXTENSION - NORTH PORTLAND **OR ECSI** **S106236422**
N MARINE DR. **N/A**
PORTLAND, OR 97217

Relative:
Higher

Actual:
26 ft.

ECSI:

Name:	N MARINE DR. EXTENSION - NORTH PORTLAND
Address:	N MARINE DR.
City,State,Zip:	PORTLAND, OR 97217
State ID Number:	1170
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	831
Investigation:	Suspect
FACA ID:	8936
Further Action:	0
Lat/Long (dms):	45 36 55.00 / -122 42 30.00
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	2.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	32
Qtr Section:	Not reported
Tax Lots:	Not reported
Size:	Not reported
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	10/24/2006
Created Date:	01/03/1992
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported

N MARINE DR. EXTENSION - NORTH PORTLAND (Continued) **S106236422**

Decode For Investstat: Suspect
Decode For Legislative: Owner, operator or other party under agreement, order or consent decree under ORS 465.200 or 465.420

Hazardous Release:
Substance ID.: 122012
Haz Release ID: 384339
Qty Released: unknown
Date Released: unknown
Update Date: 08/30/1991
Update By: Not reported
Substance Code: ECD275
Substance Name: TOTAL PETROLEUM HYDROCARBONS (TPH)
Substance Abbrev.: Not reported
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8540
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Sampling Result ID: 344703
Feature Id: Not reported
Hazard Release Id: 384339
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Not reported
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 121059
Haz Release ID: 384340
Qty Released: unknown
Date Released: unknown
Update Date: 08/30/1991
Update By: Not reported
Substance Code: 1336-36-3
Substance Name: PCBs
Substance Abbrev.: Not reported
Substance Category ID: 8558
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8558

N MARINE DR. EXTENSION - NORTH PORTLAND (Continued) **S106236422**

Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 317029
Sub Alias Name: BIPHENYL,POLYCHLORO-
Substance Alias ID: 317030
Sub Alias Name: CHLORINATED BIPHENYL
Substance Alias ID: 317031
Sub Alias Name: CHLOROBIPHENYL
Substance Alias ID: 317032
Sub Alias Name: POLYCHLORINATED BIPHENYLs
Substance Alias ID: 317033
Sub Alias Name: POLYCHLOROBIPHENYL
Sampling Result ID: 344700
Feature Id: Not reported
Hazard Release Id: 384340
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Not reported
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 121993
Haz Release ID: 384341
Qty Released: unknown
Date Released: unknown
Update Date: 08/30/1991
Update By: Not reported
Substance Code: ECD220
Substance Name: PESTICIDES
Substance Abbrev.: Not reported
Sampling Result ID: 344701
Feature Id: Not reported
Hazard Release Id: 384341
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Not reported

N MARINE DR. EXTENSION - NORTH PORTLAND (Continued) **S106236422**

Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil
Sampling Result ID: 344702
Feature Id: Not reported
Hazard Release Id: 384341
Medium: 698
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Not reported
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Groundwater

Narrative:
NARR ID: 5745529
NARR Code: General Site Description
Created By: GWISTAR
Created Date: 09/22/2004
Updated By: GWISTAR
Updated Date: 09/22/2004
Decode for NarcdID: General Site Description
NARR Comments: (4th Quarter 93/1st Quarter 94 MK/VCS) City of Portland road extension project, using Federal Highway Administration (FHWA) funds, planned for an industrial area along North Marine Drive that includes 3 contaminated sites (see ECSI sites #80, #165, and #1200). The extension will allow the development of 4,000 acres of industrial land in the Port of Portland and is projected to result in the employment of 30,000 people. (This may be the last industrial development area within the city limits.) The road extension is a $26 million project with 85% federal funding.

NARR ID: 5731912
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: TPH, PCBs, pesticides

NARR ID: 5731913
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Past operating practices

N MARINE DR. EXTENSION - NORTH PORTLAND (Continued) **S106236422**

NARR ID: 5731914
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Remedial Action
NARR Comments: (4th Quarter 93/1st Quarter 94 MHK/VCS) City requested DEQ project oversight on 8/31/91 and planned cleanup only to the extent necessary to build the road. (They have not requested cleanup oversight or approval from DEQ.) DEQ was asked to evaluated whether the planned construction activities would exacerbate existing conditions and whether DEQ would require any future cleanup action following the construction. After detailed reviews of the investigations conducted on the 3 contaminated properties were completed, DEQ stated in a 4/24/92 letter that highway construction should not exacerbate existing contamination, but there was insufficient information to determine the need for future cleanup in the areas of the right-of-way on any of the 3 properties. On 12/7/93, DEQ, the City, and the Port of Portland signed an agreement allowing road construction to proceed and providing for future closure and removal of a portion of the road if it is determined that cleanup is necessary at the time. Construction started 1/94 and is proceeding. The City is proceeding with an independent soil removal at the Morrison Oil right-of-way. DEQ SAS is performing a PA for the entire Morrison Oil facility and DEQ SRS is taking enforcement action against Rhone-Poulenc for performance of a facility-wide investigation. (7/31/00 GMW/SAS) This site has been inactive at DEQ for about six years, and the city has long since completed its N Marine Dr. extension. A PA should be conducted to review any contaminant and receptor concerns that may remain along the extension right-of-way, and to provide updates on remedial activities at nearby sites.

NARR ID: 5731915
NARR Code: Substances of Concern
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Substances of Concern
NARR Comments: pesticides, TPH, PCBs

NARR ID: 5731916
NARR Code: Health Threats
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Health Threats
NARR Comments: Road construction plans call for minimal disturbance of existing soils. Fill material will generally be placed above the existing ground surface. (These two factors limit concern for additional damage to the environment caused by the extension’s construction.)

Administrative Action:
Action ID: 9496
Region: Headquarters

N MARINE DR. EXTENSION - NORTH PORTLAND (Continued) **S106236422**

Complete Date: 07/31/2000
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Headquarters
Complete Date: 04/30/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9442
Region: Headquarters
Complete Date: 04/30/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: NEGOTIATIONS
Further Action: Not reported
Comments: Not reported

Operations:
Operation Id: 132477
Operation Status: Unknown
Common Name: North Marine DR Extension - North Portla

N MARINE DR. EXTENSION - NORTH PORTLAND (Continued) **S106236422**

Yrs of Operation: Not reported
Comments: Not reported
Updated Date: 03/10/1995
Updated By: jxh
Decode for OpstatID: Unknown

---

65 SSW 1/2-1 0.951 mi. 5021 ft.

Relative: Higher

Actual: 32 ft.

HERBERT MALARKEY ROOFING CO
3131 N COLUMBIA BLVD
PORTLAND, OR 97217

OR ECSI **1000641899**
OR SWF/LF **N/A**
OR AST
OR VCP
OR SPILLS
OR AIRS
OR Financial Assurance
OR HSIS
OR NPDES
OR UIC

ECSI:

Name:	MALARKEY ROOFING CO.
Address:	3131 N COLUMBIA BLVD.
City,State,Zip:	PORTLAND, OR 97217
State ID Number:	690
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	831
Investigation:	Suspect
FACA ID:	5131
Further Action:	0
Lat/Long (dms):	45 35 28.00 / -122 42 .40
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	980984801
Township Coord.:	1.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	9
Qtr Section:	Not reported
Tax Lots:	400
Size:	30.06 acres
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	08/27/2013
Created Date:	10/08/1988
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	Suspect
Decode For Legislative:	Owner, operator or other party under agreement, order or consent decree under ORS 465.200 or 465.420

Alias Name: Herbert Malarkey
Alias Name: NW Cast Metal Products - N Endicott Ave.
Alias Name: Central Brass and Aluminum
Alias Name: Northwest Cast Metal Products

Hazardous Release:

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Substance ID.: 121426
Haz Release ID: 385335
Qty Released: unknown
Date Released: unknown
Update Date: 08/10/1988
Update By: Not reported
Substance Code: 53469-21-9
Substance Name: PCB 1242
Substance Abbrev.: Not reported
Substance Category ID: 8554
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8554
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318695
Sub Alias Name: AROCHLOR 1242
Substance Alias ID: 318696
Sub Alias Name: AROCLOR 1242
Comment ID: 304403
Release Code: Data Sources
Release Comments: Malarkey Roofing Co. RI/FS
Decode for Relcomcd: Data Sources
Sampling Result ID: 346766
Feature Id: Not reported
Hazard Release Id: 385335
Medium: 703
Substance Abbrev.: Not reported
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: .00
Max Concentration: 7.20
Sample Comment: 7.2 ppm
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 122002
Haz Release ID: 385336
Qty Released: unknown
Date Released: unknown
Update Date: 08/10/1988
Update By: Not reported
Substance Code: ECD243
Substance Name: POLYAROMATIC HYDROCARBONS (PAH)
Substance Abbrev.: Not reported
Substance Alias ID: 318143
Sub Alias Name: PAH

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Substance Alias ID: 318148
Sub Alias Name: POLYCYCLIC AROMATIC HYDROCARBONS (PAH)
Substance Alias ID: 318149
Sub Alias Name: POLYNUCLEAR AROMATIC HYDROCARBINS (PNA)
Substance Alias ID: 318150
Sub Alias Name: PNA
Comment ID: 304405
Release Code: Data Sources
Release Comments: Malarkey Roofing Co. RI/FS
Decode for Relcomcd: Data Sources
Sampling Result ID: 346533
Feature Id: Not reported
Hazard Release Id: 385336
Medium: 703
Substance Abbrev.: Not reported
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: .00
Max Concentration: 1.20
Sample Comment: 1.2 ppm
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 121639
Haz Release ID: 385337
Qty Released: unknown
Date Released: unknown
Update Date: 08/10/1988
Update By: Not reported
Substance Code: 7439-92-1
Substance Name: LEAD
Substance Abbrev.: Not reported
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319256
Sub Alias Name: PB
Comment ID: 304404
Release Code: Data Sources
Release Comments: Malarkey Roofing Co. RI/FS
Decode for Relcomcd: Data Sources
Sampling Result ID: 346898
Feature Id: Not reported
Hazard Release Id: 385337

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Medium: 703
Substance Abbrev.: Not reported
Unit Code: 7
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: .00
Max Concentration: 1500.00
Sample Comment: 1500 ppm
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Narrative:

NARR ID: 5752120
NARR Code: Site Contacts
Created By: SMILLER
Created Date: 03/29/2010
Updated By: SMILLER
Updated Date: 03/29/2010
Decode for NarcdID: Site Contacts
NARR Comments: Jim Fagan- 503-283-1191

NARR ID: 5726206
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 06/27/2003
Decode for NarcdID: Contamination
NARR Comments: Early investigations by DEQ and EPA suggested that the property may be contaminated by PCBs from Peter Haney's operations. Sampling in 1988 found low levels of PCBs, and elevated levels of heavy metals, particularly lead (up to 5,039 ppm). (For more information on Mr. Haney's activities, see ECSI #s 96, 145, 999, and 1135.) The Northwest Cast Metal Products - N Endicott Avenue site (ECSI #1134) has been combined with the Malarkey Roofing Company site (ECSI #690).

NARR ID: 5726207
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Data Sources
NARR Comments: 1) August 1988 E&E TAT Site Assessment report. 2) May 1990 RES Remedial Investigation/ Feasibility Study (RI/FS) report. 3) June 11, 1990 DEQ Interoffice Memorandum. 4) March 28, 1991 DEQ Remedial Action Staff Report. 5) Laboratory Data.

NARR ID: 5726208
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: lead, PCB 1242, PAHs

NARR ID: 5726209
NARR Code: Site Location
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Site Location
NARR Comments: Address of NW Cast Metal was 9200 N Endicott AVE (formerly ECSI site #1134).

NARR ID: 5726210
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Burning of transformer insulation/oils; discharge to soil (1981-1984). Landfilling of inert construction debris (1950s to present). Discharge of soda ash to unlined settling ponds (1956-1983). Not reported

NARR ID: 5726211
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: The Columbia Slough borders the site to the north. The Kenton neighborhood is across Columbia Blvd. to the south. Industrial properties border the site to the east and west. The site is within the Columbia River floodplain, but is protected by a 20 foot clay dike built and maintained by the US Army Corps of Engineers. Shallow groundwater flow is to the southwest (Slough recharges groundwater).

NARR ID: 5726212
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: SMILLER
Updated Date: 01/26/2018
Decode for NarcdID: Remedial Action
NARR Comments: Malarkey entered into a voluntary agreement with DEQ's Site Response Section in August 1988 to remediate the contamination at the site. 2300 cubic yards of contaminated soil were excavated in January 1989, and an additional 700 cubic yards were excavated in November-December 1990. Both soil piles were disposed of at the Hillsboro Landfill, and the excavations were backfilled with clean soil. Confirmation sampling found some scattered elevated levels after the removals. However, taking into account the depth of the elevated levels (at least one foot bgs) and the lack of observed groundwater contamination, DEQ determined that no further action was necessary at

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

the site under the state Environmental Cleanup program. Malarkey's landfilling activities will continue to be monitored under a Solid Waste permit. [3/31/10 SAM/SA] In 2009, DEQ sampled Columbia Slough sediments near outfalls in the lower Slough. The sediment sample collected at Outfall 59, where Malarkey Roofing, Co. stormwater enters the slough, had visual evidence of roofing gravel and the highest level of chromium and nickel found in the lower slough sampling event. Copper was also above screening level values. Work completed in 1991 did not evaluate the stormwater system and whether historical releases of stormwater from the facility had adversely affected the Slough. In light of this new information, DEQ requests that a stormwater source control evaluation be performed. [11/23/11 SAM/ICP] Malarkey agreed to perform source control evaluation on August 2, 2011. Malarkey will provide a past stormwater/groundwater monitoring summary in Dec 2011. [4/19/2012 SAM/ICP]DEQ approved stormwater sampling plan [5/1/14 SAM/VCP] A source control evaulation work plan is needed and will evaluate effectiveness of stormwater BMPs. BMPs included a stormwater pipe and catch basin cleanout of the site; where approximatley 7.75 tons of material was removed in November 2013. [1/26/18 VCP/SAM] DEQ approved an updated Source Control Work Plan in October 2017. Malarkey is collected stormwater samples fall/winter 17/18.

NARR ID: 5750755
NARR Code: Water Use (Current/Reasonably Likely)
Created By: CHARMAN
Created Date: 08/15/2008
Updated By: CHARMAN
Updated Date: 08/15/2008
Decode for NarcdID: Water Use (Current/Reasonably Likely)
NARR Comments: (CWH CU&ER 8/15/08) The Beneficial Water Use analysis determined that groundwater underneath and in the vicinity of the site will reasonably likely be used for industrial, engineering and irrigation uses, but not domestic use. DEQ concurs with this analysis.

NARR ID: 5743700
NARR Code: Site History
Created By: GWISTAR
Created Date: 06/27/2003
Updated By: GWISTAR
Updated Date: 06/27/2003
Decode for NarcdID: Site History
NARR Comments: The Herbert Malarkey Roofing Company has been manufacturing roofing materials at the site since 1956. (The site was used as farmland previously). Inert waste materials, including demolition debris and waste products from Malarkey's operations, have been landfilled on the northern portion of the site. In places the landfill is up to 30 feet deep. In 1984, Malarkey purchased adjacent property with two warehouses. One warehouse had been used by Central Brass and Aluminum as a foundry. The other warehouse had been occupied by Peter O. Haney, who ran a transformer salvage and secondary metal smelting operation.

Administrative Action:
Action ID: 9506
Region: 0
Complete Date: 03/29/2010
Rank Value: Not reported

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Cleanup Flag: False
Created Date: 03/31/2010
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: Site Investigation recommended (SI)
Further Action: High
Comments: Not reported

Action ID: 9519
Region: Northwestern Region
Complete Date: 08/01/2011
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/11/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: VCS Waiting List
Further Action: High
Comments: Not reported

Action ID: 9524
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/19/2016
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SCE
Further Action: 0
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 10/08/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

Action ID: 9421
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: Site added to CERCLIS
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Headquarters
Complete Date: 12/22/1988
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9503
Region: Not reported
Complete Date: 12/22/1988
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: Remedial Investigation/Feasibility Study recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9412
Region: Headquarters
Complete Date: 12/23/1988
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: Consent Order
Further Action: Not reported
Comments: Not reported

Action ID: 9457
Region: Not reported
Complete Date: 09/29/1987
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA Basic Preliminary Assessment
Further Action: Not reported
Comments: Not reported

Action ID: 9458
Region: Not reported
Complete Date: 10/19/1988
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA Preliminary Assessment 2
Further Action: Not reported
Comments: Not reported

Action ID: 9444
Region: Not reported
Complete Date: 10/19/1988
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: No Further Remedial Action Planned under Federal program
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9469
Region: Headquarters
Complete Date: 03/08/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL ACTION
Further Action: Not reported
Comments: Not reported

Action ID: 9459
Region: Northwestern Region
Complete Date: 10/08/1991
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: PRELIMINARY ASSESSMENT EQUIVALENT
Further Action: 0
Comments: Not reported

Action ID: 9413
Region: Northwestern Region
Complete Date: 02/11/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Closeout activities on completed project
Further Action: 0
Comments: Not reported

Action ID: 9429
Region: Headquarters
Complete Date: 05/03/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: FEASIBILITY STUDY
Further Action: Not reported
Comments: Not reported

Action ID: 9484
Region: Headquarters
Complete Date: 05/07/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL INVESTIGATION
Further Action: Not reported
Comments: Not reported

Action ID: 9445
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Responsible party notified re 11/88 Inventory listing
Further Action: Not reported
Comments: Not reported

Operations:

Operation Id: 131991
Operation Status: Inactive
Common Name: Central Brass and Aluminum
Yrs of Operation: unknown; prior to 1984
Comments: foundry
Updated Date: 04/04/1995
Updated By: kpd
Decode for OpstatID: Inactive

Operation Id: 131992
Operation Status: Active
Common Name: Herbert Malarkey Roofing Co.
Yrs of Operation: 1956 to present
Comments: Roofing manufacturer of felt paper and fiberglass shingles.
Updated Date: 04/04/1995
Updated By: kpd
Decode for OpstatID: Active
Operations SIC Id: 195041
SIC Code: 2952
Created By: Not reported
Created Date: 12/17/2002

Operation Id: 131993
Operation Status: Inactive
Common Name: Northwest Cast Metal Products
Yrs of Operation: 1981-1984
Comments: secondary metal smelting & transformer salvage facility
Updated Date: 04/04/1995
Updated By: kpd
Decode for OpstatID: Inactive
Operations SIC Id: 195912
SIC Code: 3499
Created By: Not reported
Created Date: 12/17/2002

LF:

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Permit Number: 1041
Facility Id: 104268
Facility Telephone: (503) 283-1191
Facility Telephone 2: Not reported
Lat/Long: 45.5911 / -122.7001
Solid Waste Class: Industrial
Solid Waste Type: Landfill (Captive)
Date Opened: 06/27/1974
End Date: 10/17/2007
Date Closed: 01/01/2005
Permit Status: Terminated
Organization: Herbert Malarkey Roofing Company
Contact Name: Not reported
Affil Start Date: 03/03/1995
Mailing Address: PO Box 17217
Mailing City: Portland
Mailing State: OR
Mailing Zip: 97217-0217

Permit Number: 1360
Facility Id: 104268
Facility Telephone: 503-283-1191
Facility Telephone 2: Not reported
Lat/Long: 45.5911 / -122.7001
Solid Waste Class: Industrial
Solid Waste Type: Landfill (Captive)
Date Opened: 06/27/1974
End Date: Not reported
Date Closed: 11/21/2008
Permit Status: Closure
Organization: Herbert Malarkey Roofing Company
Contact Name: Not reported
Affil Start Date: 01/01/1999
Mailing Address: PO Box 17217
Mailing City: Portland
Mailing State: OR
Mailing Zip: 97217-0217

AST:
Facility Id: 003460
Hazardous Substance: ACRYLIC RESIN
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: JAMES S
Direct Site Phone: 5032831191
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Facility Id: 003460
Hazardous Substance: FIBERGLASS RESIN
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: JAMES S
Direct Site Phone: 5032831191
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 003460
Hazardous Substance: GROUND COLEMANITE
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: JAMES S
Direct Site Phone: 5032831191
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 003460
Hazardous Substance: LIMESTONE
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: JAMES S
Direct Site Phone: 5032831191
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 003460
Hazardous Substance: ROOFING ASPHALT
Reporting Quantities: Not reported

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: JAMES S
Direct Site Phone: 5032831191
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 003460
Hazardous Substance: ROOFING GRANULES
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: JAMES S
Direct Site Phone: 5032831191
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 003460
Hazardous Substance: SAND
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: JAMES S
Direct Site Phone: 5032831191
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

VCS:
Name: MALARKEY ROOFING CO.
Address: 3131 N COLUMBIA BLVD.
City,State,Zip: PORTLAND, OR 97217
ECS Site ID: 690
Facility Size: 30.06 acres

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Action: Source Control Evaluation
Start Date: 08/01/2011
End Date: Not reported
Facility Status: Active
Program: VCP
Latitude: 45.5911
Longitude: -122.7001

OR SPILLS:
Name: Not reported
Address: 3131 N COLUMBIA BLVD
City,State,Zip: PORTLAND, OR 97217-7472
Facility ID: 2001-0235
Incident Status: Archive
Material: Not reported
Quantity: 1
Unit of Measure: Gallons
Release Date: 02/01/2001
Description: City of Portland dye test in storm and sanitary sewer - started at 08:00
Lat/Long: 45.5911 / -122.7001
Source: Other
Media: Not reported
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

Name: Not reported
Address: 3131 N COLUMBIA BLVD
City,State,Zip: PORTLAND, OR 97217-7472
Facility ID: 2004-0863
Incident Status: Archive
Material: Not reported
Quantity: 50
Unit of Measure: Gallons
Release Date: 04/27/2004
Description: 503-283-1191 office. Spill occured at approx. 0800 this morning at 3131 N. Columbia Blvd. in Portland. Spill of approx. 50 gallons of hydraulic fluid due to an apparent leak in the cooling system. RP believes the spill may have impacted the Columbia Slough. Caller has already left a message for Chris Kaufman and he has talked with BES. They are currently handling cleanup and taking spill prevention measures.
Lat/Long: 45.5911 / -122.7001
Source: Business
Media: Coding for the PS/BC Oil Spill Database
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

Name: Not reported
Address: 3131 N COLUMBIA BLVD
City,State,Zip: PORTLAND, OR 97217-7472
Facility ID: 2004-0863
Incident Status: Archive
Material: Not reported
Quantity: 50

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Unit of Measure: Gallons
Release Date: 04/27/2004
Description: 503-283-1191 office. Spill occured at approx. 0800 this morning at 3131 N. Columbia Blvd. in Portland. Spill of approx. 50 gallons of hydraulic fluid due to an apparent leak in the cooling system. RP believes the spill may have impacted the Columbia Slough. Caller has already left a message for Chris Kaufman and he has talked with BES. They are currently handling cleanup and taking spill prevention measures.
Lat/Long: 45.5911 / -122.7001
Source: Business
Media: Not reported
Responsible Company: Not reported
Responsible Address: Not reported
Responsible City,St,Zip: Not reported

Name: Not reported
Address: 3131 N COLUMBIA BLVD
City,State,Zip: PORTLAND, OR 97217-7472
Facility ID: 2008-0868
Incident Status: Archive
Material: Other oil
Quantity: 350
Unit of Measure: Gallons
Release Date: 04/09/2008
Description: Front loader at Malarkey Roofing, 3131 N Columbia Blvd Portland struck a hot oil line, releasing 75 gallons onto asphalt, 25 gallons to soil, 250 gallons into warehouse. Booms and absorbents placed in warehouse, no waterways impacted. Cowlitz Clean Sweep is contractor for cleanup.
Lat/Long: 45.5892 / -122.6987
Source: Business
Media: On pavement/asphalt - not direct on soil
Responsible Company: Malarkey Roofing
Responsible Address: 3131 N Columbia Blvd
Responsible City,St,Zip: Portland, OR 97217-7472

Name: Not reported
Address: 3131 N COLUMBIA BLVD
City,State,Zip: PORTLAND, OR 97217-7472
Facility ID: 2008-0868
Incident Status: Archive
Material: Other oil
Quantity: 350
Unit of Measure: Gallons
Release Date: 04/09/2008
Description: Front loader at Malarkey Roofing, 3131 N Columbia Blvd Portland struck a hot oil line, releasing 75 gallons onto asphalt, 25 gallons to soil, 250 gallons into warehouse. Booms and absorbents placed in warehouse, no waterways impacted. Cowlitz Clean Sweep is contractor for cleanup.
Lat/Long: 45.5892 / -122.6987
Source: Business
Media: Coding for the PS/BC Oil Spill Database
Responsible Company: Malarkey Roofing
Responsible Address: 3131 N Columbia Blvd
Responsible City,St,Zip: Portland, OR 97217-7472

Name: Not reported

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Address: 3131 N COLUMBIA BLVD
City,State,Zip: PORTLAND, OR 97217-7472
Facility ID: 2008-0868
Incident Status: Archive
Material: Other oil
Quantity: 350
Unit of Measure: Gallons
Release Date: 04/09/2008
Description: Front loader at Malarkey Roofing, 3131 N Columbia Blvd Portland struck a hot oil line, releasing 75 gallons onto asphalt, 25 gallons to soil, 250 gallons into warehouse. Booms and absorbents placed in warehouse, no waterways impacted. Cowlitz Clean Sweep is contractor for cleanup.
Lat/Long: 45.5892 / -122.6987
Source: Business
Media: Non-saturated soil, rock, etc.
Responsible Company: Malarkey Roofing
Responsible Address: 3131 N Columbia Blvd
Responsible City,St,Zip: Portland, OR 97217-7472

OR AIRS:

Name:	HERBERT MALARKEY ROOFING COMPANY
Address:	3131 N COLUMBIA BLVD
City,State,Zip:	PORTLAND, OR 97217-7472
Year:	Not reported
Emission:	Not reported
Permit Number:	26-1894-ST-01
Permit Type:	Standard ACDP
Expiration Date:	06/01/2014
Source ID:	Not reported
Issue Date:	06/16/2009
NAICS Code:	324122
Is Primary:	Not reported
SIC Code:	2952
Is Primary:	Not reported
Latitude:	45.5911
Longitude:	-122.7001
Poll:	Not reported
Emission Source Code:	Not reported
Process Code:	Not reported
SCC:	Not reported
Emission Source Description:	Not reported
Process Description:	Not reported
Throughput:	Not reported
Process Unit:	Not reported
Throughput Type:	Not reported

OR Financial Assurance 2:

Name:	MALARKEY LANDFILL
Address:	3131 N COLUMBIA BLVD
City,State,Zip:	PORTLAND, OR 97217-7472
Facility Id:	104268
Region:	2
Permit Id:	1360
Instrument Class Name:	Post Closure
Comment:	Not reported
Provider Name:	Wells Fargo Bank

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Certified Date:	Not reported
Expiration Date:	Not reported
Inst Type:	Irrevocable letter of credit
Closure Cost Estimate:	Not reported
Post Closure Cost Estimate:	$377,500.00

HSIS:

Name:	HERBERT MALARKEY ROOFING CO
Address:	3131 N COLUMBIA BLVD
City,State,Zip:	PORTLAND, OR 972177472
Facility ID:	003460
Department Or Division Of Company:	Not reported
Chemical Is Extremely Hazardous Substance (EHS:	Not reported
Contains 112R:	Not reported
Facility Has Written Emergency Plan:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
Manager Name:	Not reported
Business Phone:	Not reported
Mailing Address:	Not reported
Mailing City:	Not reported
Mailing State:	Not reported
Mailing Zip:	Not reported
No. of Employees:	Not reported
Day Phone:	Not reported
Placard:	Not reported
Fire Dept Code:	Not reported
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Not reported
Emergency Contact:	Not reported
Emergency Procedure:	Not reported
Business Type:	Not reported
Facility Type:	Private
Department:	Not reported
Status:	ACTIVE
Latitude:	45.5919
Longitude:	-122.7
Status TRI:	Active
Status RMP:	Inactive
Status PSM:	Active
Status CR2K:	Inactive
Status 302:	Active
Owner Name:	JAMES S FAGAN
Last Reported ID:	38908
Case Number:	9003354
Chemical Name:	ACRYLIC RESIN
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	31
Maximum Daily Amount Unit:	gal
Chemical Added Date:	09/20/2016
Is Chem PSM:	No

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Health Carcinogenicity, Health Respiratory, Health SeriousEye, Health SkinCorrosion
Number of Days Onsite:	365
Year:	2018
Case Number:	100425
Chemical Name:	FIBERGLASS RESIN
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	41
Maximum Daily Amount Unit:	lbs
Chemical Added Date:	09/20/2016
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	1866
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Health Carcinogenicity, Health ReproductiveToxicity, Health Respiratory, Health SeriousEye
Number of Days Onsite:	365
Year:	2018
Case Number:	1317653
Chemical Name:	LIMESTONE
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	43
Maximum Daily Amount Unit:	lbs
Chemical Added Date:	09/20/2016
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Solid

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

UNNA Number:	N/A
NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Carcinogenicity, Health Respiratory
Number of Days Onsite:	365
Year:	2018
Case Number:	64742547
Chemical Name:	MOTOR OIL
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	21
Maximum Daily Amount Unit:	gal
Chemical Added Date:	09/20/2016
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	N/A
NFPA Health:	1
NFPA Flammability:	2
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Physical Combustive
Number of Days Onsite:	365
Year:	2018
Case Number:	7727379
Chemical Name:	NITROGEN
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	20
Maximum Daily Amount Unit:	cuft
Chemical Added Date:	09/20/2016
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Gas
UNNA Number:	1066
NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Physical Flammable
Number of Days Onsite:	365

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Year:	2018
Case Number:	7782447
Chemical Name:	OXYGEN
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	21
Maximum Daily Amount Unit:	cuft
Chemical Added Date:	09/20/2016
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Gas
UNNA Number:	1072
NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	OX
Hazards:	Physical Flammable, Physical Oxidizer
Number of Days Onsite:	365
Year:	2018
Case Number:	74986
Chemical Name:	PROPANE
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	20
Maximum Daily Amount Unit:	gal
Chemical Added Date:	09/20/2016
Is Chem PSM:	No
Is Chem 112R:	Yes
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Gas
UNNA Number:	1978
NFPA Health:	2
NFPA Flammability:	4
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Asphyxiant, Health Respiratory, Health SeriousEye, Health SkinCorrosion, Physical Combustive, Physical Flammable
Number of Days Onsite:	365
Year:	2018
Case Number:	8052424
Chemical Name:	ROOFING ASPHALT
EHS Name:	Not reported
Is Pure:	No

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	40
Maximum Daily Amount Unit:	gal
Chemical Added Date:	09/20/2016
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	9259
NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Physical Combustive
Number of Days Onsite:	365
Year:	2018

Case Number:	1308389
Chemical Name:	ROOFING GRANULES
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	53
Maximum Daily Amount Unit:	lbs
Chemical Added Date:	09/20/2016
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Solid
UNNA Number:	0
NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Carcinogenicity
Number of Days Onsite:	365
Year:	2018

Case Number:	14808607
Chemical Name:	SAND
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	42
Maximum Daily Amount Unit:	lbs
Chemical Added Date:	09/20/2016
Is Chem PSM:	No

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Solid
UNNA Number:	N/A
NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Respiratory
Number of Days Onsite:	365
Year:	2018

Case Number:	64742467
Chemical Name:	TRANSFORMER OIL
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	11
Maximum Daily Amount Unit:	gal
Chemical Added Date:	09/20/2016
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	1270
NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Aspiration
Number of Days Onsite:	365
Year:	2018

Chemical:

Chemical Name:	ACRYLIC RESIN
Physical Description:	LIQUID
Case Number:	9003354
Facility Id:	003460
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	30
Maximum Amount Possessed During The Year Code:	30
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	C
Description:	TANK INSIDE BUILDING
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	10,000-49,999
Most Hazardous Ingridient:	ACRYLIC RESIN
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	FIBERGLASS RESIN
Physical Description:	SOLID
Case Number:	100425
Facility Id:	003460
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	41
Maximum Amount Possessed During The Year Code:	41
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	250,000-499,999
Description Of The Avg Qnty Code:	250,000-499,999
Most Hazardous Ingridient:	STYRENE
United Nations/north America 4 Digit Class Number:	1866

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	LIMESTONE
Physical Description:	SOLID
Case Number:	1317653
Facility Id:	003460
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	43
Maximum Amount Possessed During The Year Code:	43
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	H
Description:	SILO
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	750,000-999,999
Description Of The Avg Qnty Code:	750,000-999,999
Most Hazardous Ingridient:	CALCIUM CARBONATE
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	1
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	MOTOR OIL
Physical Description:	LIQUID
Case Number:	64742547
Facility Id:	003460
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	21
Maximum Amount Possessed During The Year Code:	21
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	O
Description:	TOTEBIN
Type Code:	D
Temperature Description:	STEEL DRUM
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	5,000-9,999
Most Hazardous Ingridient:	PETROLEUM HYDROCARBONS
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	N
Pesticide:	N
Contains 313:	Not reported

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Chemical Name:	NITROGEN
Physical Description:	GAS
Case Number:	7727379
Facility Id:	003460
Physical State Of The Substance:	3
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	NITROGEN
United Nations/north America 4 Digit Class Number:	1066
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	OXYGEN
Physical Description:	GAS
Case Number:	7782447
Facility Id:	003460
Physical State Of The Substance:	3
Average Amount Possessed During The Year Code:	21
Maximum Amount Possessed During The Year Code:	21
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	5,000-9,999
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	PROPANE
Physical Description:	GAS
Case Number:	74986
Facility Id:	003460
Physical State Of The Substance:	3
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	L
Temperature Description:	CYLINDER
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PROPANE
United Nations/north America 4 Digit Class Number:	1075
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	QUARTZ
Physical Description:	SOLID
Case Number:	14808607
Facility Id:	003460
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	31
Maximum Amount Possessed During The Year Code:	31
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	50,000-99,999
Description Of The Avg Qnty Code:	50,000-99,999
Most Hazardous Ingridient:	SILICA
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Substance Mix:	True
First Hazardous Class Code For Chemical:	Chronic Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.4
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	ROOFING ASPHALT
Physical Description:	LIQUID
Case Number:	8052424
Facility Id:	003460
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	40
Maximum Amount Possessed During The Year Code:	40
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	C
Temperature Description:	TANK INSIDE BUILDING
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	100,000-249,999
Description Of The Avg Qnty Code:	100,000-249,999
Most Hazardous Ingridient:	PETROLEUM ASPHALT
United Nations/north America 4 Digit Class Number:	9259
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	Not reported

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	ROOFING GRANULES
Physical Description:	SOLID
Case Number:	1308389
Facility Id:	003460
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	50
Maximum Amount Possessed During The Year Code:	50
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	H
Description:	SILO
Type Code:	J
Temperature Description:	BAG
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000,000-2,499,999
Description Of The Avg Qnty Code:	1,000,000-2,499,999
Most Hazardous Ingridient:	CHROMIUM OXIDE/COPPER OXIDE
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	1
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	SAND
Physical Description:	SOLID

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Case Number:	14808607
Facility Id:	003460
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	41
Maximum Amount Possessed During The Year Code:	42
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	H
Description:	SILO
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500,000-749,999
Description Of The Avg Qnty Code:	250,000-499,999
Most Hazardous Ingridient:	SILICA, SAND CRYSTALLINE
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	1
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Chronic Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.4
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	TRANSFORMER OIL
Physical Description:	LIQUID
Case Number:	64742467
Facility Id:	003460
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	11
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	Not reported

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	LIGHT NAPHTHENIC PETROLEUM DISTILLATES
United Nations/north America 4 Digit Class Number:	1270
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	WATER BASE PAINT
Physical Description:	LIQUID
Case Number:	13463677
Facility Id:	003460
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	21
Maximum Amount Possessed During The Year Code:	21
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	O
Description:	TOTEBIN
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	5,000-9,999
Most Hazardous Ingridient:	ETHYLENE GLYCOL/TITANIUM DIOXIDE
United Nations/north America 4 Digit Class Number:	1263
Hazard Rank:	1
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	Not reported
Pesticide:	Not reported
Contains 313:	Not reported

Chemical Name:	WAXES DRY
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	003460
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	K
Description:	BOX
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	POLYETHYLENE
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported
Chemical Name:	POLYMER RESIN
Physical Description:	SOLID
Case Number:	0000000
Facility Id:	003460
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	30
Maximum Amount Possessed During The Year Code:	30
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	K
Description:	BOX
Type Code:	J
Temperature Description:	BAG
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	10,000-49,999
Most Hazardous Ingridient:	PROPRIETARY
United Nations/north America 4 Digit Class Number:	2924
Hazard Rank:	2
EHS Ingredient:	UNKNOWN
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	U
Contains EHS:	U
Fertilizer:	N
Pesticide:	N
Contains 313:	U
Chemical Name:	NALCO 8493
Physical Description:	LIQUID
Case Number:	000000
Facility Id:	003460

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	11
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	O
Description:	TOTEBIN
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	NONE LISTED ON SDS
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	1
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Miscellaneous Hazardous Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	9.0
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	GROUND COLEMANITE
Physical Description:	SOLID
Case Number:	12291655
Facility Id:	003460
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	31
Maximum Amount Possessed During The Year Code:	31
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	50,000-99,999
Description Of The Avg Qnty Code:	50,000-99,999
Most Hazardous Ingridient:	COLEMANITE
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Reactive Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.4
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	HONEYWELL TITAN 8459
Physical Description:	SOLID
Case Number:	25722456
Facility Id:	003460
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	30
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	2,5-FURANDIONE, POLYMER WITH 1-PROPENE
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Combustible Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	4.5
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	CHOPPED STRAND
Physical Description:	SOLID
Case Number:	65997173
Facility Id:	003460
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	42
Maximum Amount Possessed During The Year Code:	42
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	K
Description:	BOX
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500,000-749,999
Description Of The Avg Qnty Code:	500,000-749,999
Most Hazardous Ingridient:	FIBER GLASS CONTINUOUS
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	DIESEL FUEL
Physical Description:	LIQUID
Case Number:	0068334305
Facility Id:	003460
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	10
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	C
Description:	TANK INSIDE BUILDING
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	petroleum products, diesel oil
United Nations/north America 4 Digit Class Number:	1993
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Pesticide:	N
Contains 313:	N

Chemical Name:	ACETYLENE
Physical Description:	GAS
Case Number:	74862
Facility Id:	003460
Physical State Of The Substance:	3
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Click this hyperlink while viewing on your computer to access
11 additional OR HSIS: record(s) in the EDR Site Report.

NPDES:

WQ File Nbr:	52638

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Legal Name:	HERBERT MALARKEY ROOFING COMPANY
Region:	Not reported
Pri SIC:	2952
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12C
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	52638
Legal Name:	HERBERT MALARKEY ROOFING COMPANY
Region:	Not reported
Pri SIC:	2952
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12Z
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	52638
Legal Name:	HERBERT MALARKEY ROOFING COMPANY
Region:	NWR
Pri SIC:	2952
Facility Type:	ASPHALT FELTS AND COATINGS
Latitude:	45.5911
Longitude:	-122.7001
Category:	STM

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

Permit Type:	GEN12Z
Permit Active:	True
Is Active?:	Not reported
Permit Description:	Stormwater; NPDES specific SIC codes
Expiration Date:	07/31/2022
EPA Number:	ORR703184
UIC Facility:	False
Admin Agent:	City of Portland
Last Action Date:	08/01/2017
Permit Writer:	Not reported
Compliance Inspector:	PORTLAND
DMR Reviewer:	Not reported
Application Number:	956742
Class:	MINOR
Start Date:	02/08/2000
Region Decode:	North West Region

WQ File Nbr:	52638
Legal Name:	HERBERT MALARKEY ROOFING COMPANY
Region:	NWR
Pri SIC:	2952
Facility Type:	ASPHALT FELTS AND COATINGS
Latitude:	45.5911
Longitude:	-122.7001
Category:	IND
Permit Type:	GEN01
Permit Active:	True
Is Active?:	Not reported
Permit Description:	Industrial Wastewater; NPDES cooling water
Expiration Date:	07/31/2001
EPA Number:	ORG250024
UIC Facility:	False
Admin Agent:	NW Region Office
Last Action Date:	04/09/2001
Permit Writer:	Kennedy
Compliance Inspector:	Kennedy
DMR Reviewer:	Kennedy
Application Number:	987927
Class:	MINOR
Start Date:	06/07/1984
Region Decode:	North West Region

OR UIC:

Name:	HERBERT MALARKEY ROOFING
Address:	3131 N. COLUMBIA BLVD
City,State,Zip:	PORTLAND, OR
UIC Well #:	1
Type:	5D2
Type Description:	Storm Water Drainage
Status:	Formal Closure
UIC Number:	13071
Facility Status:	Formal Closure
Lat/Long:	45.590698 / -122.7004

Name:	HERBERT MALARKEY ROOFING
Address:	3131 N. COLUMBIA BLVD
City,State,Zip:	PORTLAND, OR

HERBERT MALARKEY ROOFING CO (Continued) **1000641899**

UIC Well #: 2
Type: 5D2
Type Description: Storm Water Drainage
Status: Formal Closure
UIC Number: 13071
Facility Status: Formal Closure
Lat/Long: 45.590698 / -122.7004

Name: HERBERT MALARKEY ROOFING
Address: 3131 N. COLUMBIA BLVD
City,State,Zip: PORTLAND, OR
UIC Well #: 3
Type: 5D2
Type Description: Storm Water Drainage
Status: Formal Closure
UIC Number: 13071
Facility Status: Formal Closure
Lat/Long: 45.590698 / -122.7004

J66 **LAMM PROPERTY - SITE 1** **OR ECSI** **S106236427**
WNW **4101 N SUTTLE RD.** **N/A**
1/2-1 **PORTLAND, OR 97217**
0.963 mi.
5086 ft. **Site 2 of 2 in cluster J**

Relative:
Higher

Actual:
25 ft.

ECSI:

Name:	LAMM PROPERTY - SITE 1
Address:	4101 N SUTTLE RD.
City,State,Zip:	PORTLAND, OR 97217
State ID Number:	1230
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	832
Investigation:	No Further Action
FACA ID:	8934
Further Action:	0
Lat/Long (dms):	45 36 51.10 / -122 42 34.20
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	2.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	32
Qtr Section:	Not reported
Tax Lots:	36
Size:	Not reported
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	06/23/2015
Created Date:	08/27/1992
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	No Further Action

LAMM PROPERTY - SITE 1 (Continued) **S106236427**

Decode For Legislative: Owner, operator or other party under state or federal authority

Hazardous Release:
Substance ID.: 121615
Haz Release ID: 380412
Qty Released: unknown
Date Released: unknown
Update Date: 03/28/1996
Update By: Not reported
Substance Code: 72-55-9
Substance Name: DDE,p,p'-
Substance Abbrev.: Not reported
Substance Alias ID: 319200
Sub Alias Name: BIS(p-CHLOROPHENYL)-1,1-DICHLOROETHYLENE,2,2-
Substance Alias ID: 319201
Sub Alias Name: DICHLORODIPHENYL DICHLOROETHYLENE,p,p'-
Substance Alias ID: 319202
Sub Alias Name: DICHLOROETHENYLIDENE)BIS(4-CHLOROBENZENE),1,1'-(-
Sampling Result ID: 342081
Feature Id: Not reported
Hazard Release Id: 380412
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 63 ppb
Last Update By: dmc
Update Date: 03/28/1996
Decode for MediumID: Soil

Substance ID.: 121614
Haz Release ID: 380413
Qty Released: unknown
Date Released: unknown
Update Date: 03/28/1996
Update By: Not reported
Substance Code: 72-54-8
Substance Name: DDD,p,p'-
Substance Abbrev.: Not reported
Substance Alias ID: 319194
Sub Alias Name: DICHLORO-2,2-BIS(p-CHLOROPHENYL)ETHANE,1,1-
Substance Alias ID: 319195
Sub Alias Name: DICHLORODIPHENYLDICHLOROETHANE
Substance Alias ID: 319196
Sub Alias Name: RHOTHANE
Substance Alias ID: 319197
Sub Alias Name: TDE
Substance Alias ID: 319198
Sub Alias Name: TDE,p,p'-
Substance Alias ID: 319199
Sub Alias Name: TETRACHLORODIPHENYLETHANE

LAMM PROPERTY - SITE 1 (Continued) **S106236427**

Sampling Result ID: 342080
Feature Id: Not reported
Hazard Release Id: 380413
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 22 ppb
Last Update By: dmc
Update Date: 03/28/1996
Decode for MediumID: Soil

Substance ID.: 121373
Haz Release ID: 380414
Qty Released: unknown
Date Released: unknown
Update Date: 03/28/1996
Update By: Not reported
Substance Code: 50-29-3
Substance Name: DDT,p,p'-
Substance Abbrev.: Not reported
Substance Alias ID: 318555
Sub Alias Name: BIS(p-CHLOROPHENYL)-2,2,2-TRICHLOROETHANE,1,1-
Substance Alias ID: 318556
Sub Alias Name: CHLOROPHENOTHANE
Substance Alias ID: 318557
Sub Alias Name: DICHLORODIPHENYLTRICHLOROETHANE
Substance Alias ID: 318558
Sub Alias Name: ETHANE,1,1,1-TRICHLORO-2,2-BIS(p-CHLOROPHENYL)-
Sampling Result ID: 342079
Feature Id: Not reported
Hazard Release Id: 380414
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 12 ppb
Last Update By: dmc
Update Date: 03/28/1996
Decode for MediumID: Soil

Substance ID.: 121639
Haz Release ID: 383357

LAMM PROPERTY - SITE 1 (Continued) **S106236427**

Qty Released: unknown
Date Released: unknown
Update Date: 06/25/1992
Update By: Not reported
Substance Code: 7439-92-1
Substance Name: LEAD
Substance Abbrev.: Not reported
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319256
Sub Alias Name: PB
Sampling Result ID: 345662
Feature Id: Not reported
Hazard Release Id: 383357
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 414 ppm
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Narrative:
NARR ID: 5732301
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: (6/25/92 MJM/VCS) Elevated lead was detected in a near surface soil sample collected during the installation of a monitoring well for a site assessment conducted by the City of Portland. See VCS project files for North Marine Drive (ECSI #1170).

NARR ID: 5732302
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types

LAMM PROPERTY - SITE 1 (Continued) **S106236427**

NARR Comments: lead

NARR ID: 5732303
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Manner and time of release not known.

NARR ID: 5732304
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Remedial Action
NARR Comments: (6/25/92 MJM) Appears to be an elevated concentration of lead in soil at the site. VCS recommends proposal for the Confirmed Release List and a low priority PA to be performed in conjunction with Lamm Property Site Two (ECSI #1200). (7/26/94 LSK/SAS) A PAE was completed for the site on 7/26/94. NFA was recommended because: 1) The available site history information did not indicate that hazardous materials were stored, transferred, used or produced on the site; 2) There is no documentation that any significant releases have occurred due to site activities in the past; 3) The TPH and lead findings are low and may be the result of minor drippage or releases from trucks parked on the site between 1984 and 1989; 4) The pesticide levels are not extremely high and are probably the result of wind blown contamination from the Rhone Poulenc site. See the Strategy Recommendation for more information.

Administrative Action:
Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 07/26/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False

LAMM PROPERTY - SITE 1 (Continued) **S106236427**

Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

Action ID: 9459
Region: Northwestern Region
Complete Date: 07/26/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: PRELIMINARY ASSESSMENT EQUIVALENT
Further Action: 0
Comments: Not reported

Action ID: 9465
Region: Headquarters
Complete Date: 03/14/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Headquarters
Complete Date: 06/24/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Headquarters
Complete Date: 06/24/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed

LAMM PROPERTY - SITE 1 (Continued) **S106236427**

Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Headquarters
Complete Date: 06/25/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9496
Region: Headquarters
Complete Date: 06/26/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Low
Comments: Not reported

Operations:
Operation Id: 132540
Operation Status: Active
Common Name: Lamm Property Site One
Yrs of Operation: 1984 to present.
Comments: Truck and trailer parking.
Updated Date: 03/28/1996
Updated By: dmc
Decode for OpstatID: Active

67
ESE
1/2-1
0.965 mi.
5097 ft.

Relative:
Higher

Actual:
24 ft.

MARKET TRANSPORT LTD
110 N MARINE DR
PORTLAND, OR 97217

RCRA-CESQG **1004770051**
OR ECSI **ORD076437417**
OR AST
OR VCP
OR SPILLS
FINDS
ECHO
OR HSIS
OR MANIFEST
OR NPDES
OR UIC

RCRA-CESQG:
Date form received by agency: 12/31/2005
Facility name: MARKET TRANSPORT LTD
Facility address: 110 N MARINE DR
PORTLAND, OR 97217

MARKET TRANSPORT LTD (Continued) **1004770051**

EPA ID: ORD076437417
Mailing address: 110 NORTH MARINE DRIVE
PORTLAND, OR 97217
Contact: TONI M MINER
Contact address: 110 NORTH MARINE DRIVE
PORTLAND, OR 97217
Contact country: US
Contact telephone: 503-283-2405
Contact email: Not reported
EPA Region: 10
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 hazardous waste

Owner/Operator Summary:
Owner/operator name: MARKET TRANSPORT LTD
Owner/operator address: 110 NORTH MARINE DRIVE
PORTLAND, OR 97217
Owner/operator country: US
Owner/operator telephone: 503-283-2405
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/12/2004
Owner/Op end date: Not reported

Owner/operator name: MARKET TRANSPORT LTD
Owner/operator address: 110 N MARINE DR
PORTLAND, OR 97217
Owner/operator country: US
Owner/operator telephone: 503-283-2405
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 06/18/1993
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No

MARKET TRANSPORT LTD (Continued) **1004770051**

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: 12/31/2004
Site name: MARKET TRANSPORT LTD
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/15/2004
Site name: MARKET TRANSPORT LTD
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/30/2003
Site name: MARKET TRANSPORT LTD
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/09/2002
Site name: MARKET TRANSPORT LTD
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/11/2001
Site name: MARKET TRANSPORT LTD
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/29/2000
Site name: MARKET TRANSPORT LTD
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/22/1999
Site name: MARKET TRANSPORT LTD
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/05/1998
Site name: MARKET TRANSPORT LTD
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 04/11/1997
Site name: MARKET TRANSPORT LTD
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 04/18/1996
Site name: MARKET TRANSPORT LTD
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 04/10/1995
Site name: MARKET TRANSPORT LTD

MARKET TRANSPORT LTD (Continued) **1004770051**

Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 10/05/1993
Site name: MARKET TRANSPORT LTD
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 10/05/1993
Site name: MARKET TRANSPORT LTD
Classification: Not a generator, verified

Date form received by agency: 04/01/1992
Site name: MARKET TRANSPORT LTD
Classification: Conditionally Exempt Small Quantity Generator

Hazardous Waste Summary:

. Waste code: NA
. Waste name: NA

. Waste code: NONE
. Waste name: None

Violation Status: No violations found

ECSI:

Name:	MARKET TRANSPORT LTD
Address:	110 N MARINE DR
City,State,Zip:	PORTLAND, OR 97217
State ID Number:	4746
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	831
Investigation:	Suspect
FACA ID:	604
Further Action:	0
Lat/Long (dms):	45 36 2.20 / -122 40 1.20
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	1.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	3
Qtr Section:	ACAD
Tax Lots:	SEE SITE LOCATION
Size:	18.4 acres
NPL:	False
Orphan:	False
Updated By:	JWAGGY
Update Date:	12/29/2006
Created Date:	12/29/2006
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	Suspect

MARKET TRANSPORT LTD (Continued) **1004770051**

Decode For Legislative: Owner, operator or other party under agreement, order or consent decree under ORS 465.200 or 465.420

Hazardous Release:
Substance ID.: 121664
Haz Release ID: 386953
Qty Released: Not reported
Date Released: Not reported
Update Date: 12/29/2006
Update By: JWAGGY
Substance Code: 7440-38-2
Substance Name: ARSENIC
Substance Abbrev.: Not reported
Substance Category ID: 8439
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8439
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319286
Sub Alias Name: AS
Sampling Result ID: 349018
Feature Id: 0
Hazard Release Id: 386953
Medium: 698
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 02/14/2006
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: B-1 5.14
Last Update By: JWAGGY
Update Date: 12/29/2006
Decode for MediumID: Groundwater

Narrative:
NARR ID: 5748873
NARR Code: Hazardous Substance/Waste Types
Created By: JWAGGY
Created Date: 12/29/2006
Updated By: JWAGGY
Updated Date: 12/29/2006
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: Diesel, motor oil and arsenic.

NARR ID: 5748875
NARR Code: Site Location
Created By: JWAGGY
Created Date: 12/29/2006

MARKET TRANSPORT LTD (Continued) **1004770051**

Updated By: JWAGGY
Updated Date: 12/29/2006
Decode for NarcdID: Site Location
NARR Comments: Located at 110 N Marine Drive in Portland. 1N1E3, Tax lots: 1900, 2000, 2001, 5300, 6200, 5100, 6000, 5900, 5800, 5700, 5400, 5500, and 5300

NARR ID: 5748872
NARR Code: Media Contamination
Created By: JWAGGY
Created Date: 12/29/2006
Updated By: JWAGGY
Updated Date: 12/29/2006
Decode for NarcdID: Media Contamination
NARR Comments: Soil and groundwater.

NARR ID: 5748874
NARR Code: Remedial Action
Created By: JWAGGY
Created Date: 12/29/2006
Updated By: JWAGGY
Updated Date: 12/29/2006
Decode for NarcdID: Remedial Action
NARR Comments: Site enrolled in DEQ's Independent Cleanup Pathway (ICP) program in May 2006. Site review currently in progress.

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: 12/29/2006
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/29/2006
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9435
Region: Northwestern Region
Complete Date: 08/31/2007
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/29/2006
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Independent Cleanup Program
Further Action: 0
Comments: Not reported

Action ID: 9413
Region: Northwestern Region
Complete Date: 08/31/2007

MARKET TRANSPORT LTD (Continued) **1004770051**

Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/11/2014
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Closeout activities on completed project
Further Action: 0
Comments: Not reported

Operations:
Operation Id: 135235
Operation Status: Active
Common Name: Market Transport Ltd
Yrs of Operation: Unknown
Comments: Not reported
Updated Date: 12/29/2006
Updated By: JWAGGY
Decode for OpstatID: Active
Operations SIC Id: 198676
SIC Code: 4231
Created By: JWAGGY
Created Date: 12/29/2006

AST:
Facility Id: 045140
Hazardous Substance: MOTOR OIL
Reporting Quantities: 5,000-9,999
Quantity Units: GALLONS
Physical State: LIQUID
Storage 1: ABOVEGROUND TANK
County: Not reported
Owner-Operator Name: Not reported
Direct Site Phone: Not reported
Report Class: Not reported
Report Year: Not reported
Is Poisonous Gas: Not reported
Is Poisonous Material: Not reported
Is Biological Hazard: Not reported
Is Radioactive Material: Not reported
Is Explosive: Not reported
Status: Inactive

VCS:
Name: MARKET TRANSPORT LTD
Address: 110 N MARINE DR
City,State,Zip: PORTLAND, OR 97217
ECS Site ID: 4746
Facility Size: 18.4 acres
Action: Closeout activities on completed project
Start Date: 08/31/2007
End Date: 08/31/2007
Facility Status: Completed
Program: ICP
Latitude: 45.6006
Longitude: -122.667

MARKET TRANSPORT LTD (Continued) **1004770051**

OR SPILLS:

Name:	Not reported
Address:	110 NORTH MARINE DR
City,State,Zip:	PORTLAND, OR 97217
Facility ID:	2017-3443
Incident Status:	Closed
Material:	Oil - Diesel
Quantity:	50
Unit of Measure:	Gallons
Release Date:	12/04/2017
Description:	Haz mat unit reports 150 gal diesel spill marine drive area Portland, no waterways affected. LE on scene, NRC responding for clean up via trucking company. Haz Mat responding to deploy containment pool. 1223am/ 12/05/2017 by cjb - Steve Hamski with ERTS 440-384-2922 advised that they represent trucking co Covenant Transport with release of 50 gallons of diesel at this location per NRC environmental on scene, no waterways affected.
Lat/Long:	45.601503 / -122.66785
Source:	Motor Vehicle - Commercial
Media:	Soil, Pavement
Responsible Company:	Covenant Transport
Responsible Address:	PO Box Box 22997
Responsible City,St,Zip:	Chatanooga, TN 37422

FINDS:

Registry ID: 110004786241

Environmental Interest/Information System

OR-DEQ (Oregon - Department Of Environmental Quality) is a regulatory agency whose job is to protect the quality of Oregon's Environment. DEQ uses a combination of technical assistance, inspections and permitting to help public and private facilities and citizens understand and comply with state and federal environmental regulations.

US National Pollutant Discharge Elimination System (NPDES) module of the Compliance Information System (ICIS) tracks surface water permits issued under the Clean Water Act. Under NPDES, all facilities that discharge pollutants from any point source into waters of the United States are required to obtain a permit. The permit will likely contain limits on what can be discharged, impose monitoring and reporting requirements, and include other provisions to ensure that the discharge does not adversely affect water quality.

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.

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

MARKET TRANSPORT LTD (Continued) **1004770051**

ECHO:

Envid:	1004770051
Registry ID:	110004786241
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110004786241

HSIS:

Name:	MARKET TRANSPORT LTD
Address:	110 N MARINE DR
City,State,Zip:	PORTLAND, OR 97217
Facility ID:	045140
Department Or Division Of Company:	Not reported
Chemical Is Extremely Hazardous Substance (EHS:	Not reported
Contains 112R:	Not reported
Facility Has Written Emergency Plan:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
Manager Name:	Not reported
Business Phone:	Not reported
Mailing Address:	Not reported
Mailing City:	Not reported
Mailing State:	Not reported
Mailing Zip:	Not reported
No. of Employees:	Not reported
Day Phone:	Not reported
Placard:	Not reported
Fire Dept Code:	Not reported
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Not reported
Emergency Contact:	Not reported
Emergency Procedure:	Not reported
Business Type:	Not reported
Facility Type:	Private
Department:	MAINTENANCE
Status:	ACTIVE
Latitude:	45.6007
Longitude:	-122.666
Status TRI:	Active
Status RMP:	Active
Status PSM:	Active
Status CR2K:	Inactive
Status 302:	Active
Owner Name:	EDWARD MCARTHUR
Last Reported ID:	39774
Case Number:	64742547
Chemical Name:	MOTOR OIL
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	21
Maximum Daily Amount Unit:	gal
Chemical Added Date:	09/18/2017
Is Chem PSM:	No

MARKET TRANSPORT LTD (Continued) **1004770051**

Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	N/A
NFPA Health:	1
NFPA Flammability:	2
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Respiratory, Health SkinCorrosion, Physical Combustive
Number of Days Onsite:	365
Year:	2018
Case Number:	7727379
Chemical Name:	NITROGEN
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	11
Maximum Daily Amount Unit:	cuft
Chemical Added Date:	09/18/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Gas
UNNA Number:	1066
NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Asphyxiant, Physical Flammable
Number of Days Onsite:	365
Year:	2018
Case Number:	7782447
Chemical Name:	OXYGEN
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	11
Maximum Daily Amount Unit:	cuft
Chemical Added Date:	09/18/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Gas
UNNA Number:	1072
NFPA Health:	0

MARKET TRANSPORT LTD (Continued) **1004770051**

NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	OX
Hazards:	Health HNOC, Physical Flammable, Physical Oxidizer
Number of Days Onsite:	365
Year:	2018

Case Number:	68334305
Chemical Name:	DIESEL FUEL
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	30
Maximum Daily Amount Unit:	gal
Chemical Added Date:	09/18/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	1993
NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Carcinogenicity, Health SkinCorrosion, Physical HNOC
Number of Days Onsite:	365
Year:	2018

Case Number:	74862
Chemical Name:	ACETYLENE
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	11
Maximum Daily Amount Unit:	cuft
Chemical Added Date:	09/18/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Gas
UNNA Number:	1001
NFPA Health:	0
NFPA Flammability:	4
NFPA Reactivity:	3
NFPA Special Notice:	N/A
Hazards:	Health Asphyxiant, Physical Combustive, Physical Flammable
Number of Days Onsite:	365
Year:	2018

MARKET TRANSPORT LTD (Continued) **1004770051**

Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	Not reported
Maximum Daily Amount Unit:	Not reported
Chemical Added Date:	Not reported
Is Chem PSM:	Not reported
Is Chem 112R:	Not reported
Is Chem 302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
Number of Days Onsite:	Not reported
Year:	Not reported

Chemical:

Chemical Name:	GEAR OIL
Physical Description:	LIQUID
Case Number:	0000000
Facility Id:	045140
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	10
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	C
Description:	TANK INSIDE BUILDING
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	SEVERELY REFINED PETROLEUM DISTILLATES
United Nations/north America 4 Digit Class Number:	1270
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True

MARKET TRANSPORT LTD (Continued) **1004770051**

First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	MOTOR OIL
Physical Description:	LIQUID
Case Number:	64742547
Facility Id:	045140
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	21
Maximum Amount Possessed During The Year Code:	21
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	5,000-9,999
Description Of The Avg Qnty Code:	5,000-9,999
Most Hazardous Ingridient:	PETROLEUM HYDROCARBONS
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	Not reported
EPA Pesticide Registration Number:	Not reported

MARKET TRANSPORT LTD (Continued) **1004770051**

Contains 112R:	Not reported
Contains EHS:	Not reported
Fertilizer:	N
Pesticide:	N
Contains 313:	Not reported

Chemical Name:	NITROGEN
Physical Description:	GAS
Case Number:	7727379
Facility Id:	045140
Physical State Of The Substance:	3
Average Amount Possessed During The Year Code:	04
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	50-199
Most Hazardous Ingridient:	NITROGEN
United Nations/north America 4 Digit Class Number:	1066
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Non-flammable Gas
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.2
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	OXYGEN
Physical Description:	GAS
Case Number:	7782447

MARKET TRANSPORT LTD (Continued) **1004770051**

Facility Id:	045140
Physical State Of The Substance:	3
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	OXYGEN
United Nations/north America 4 Digit Class Number:	1072
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Non-flammable Gas
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	2.2
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	LEAD ACID BATTERIES
Physical Description:	SOLID
Case Number:	Not reported
Facility Id:	045140
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	R
Description:	OTHER
Type Code:	Not reported
Temperature Description:	Not reported

MARKET TRANSPORT LTD (Continued) **1004770051**

Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	SULFURIC ACID
United Nations/north America 4 Digit Class Number:	2794
Hazard Rank:	4
EHS Ingredient:	SULFURIC ACID
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.4

Chemical Name:	DIESEL FUEL
Physical Description:	LIQUID
Case Number:	0068334305
Facility Id:	045140
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	30
Maximum Amount Possessed During The Year Code:	30
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	B
Description:	UNDERGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	10,000-49,999
Most Hazardous Ingridient:	petroleum products, diesel oil
United Nations/north America 4 Digit Class Number:	1993
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid

MARKET TRANSPORT LTD (Continued) **1004770051**

Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ACETYLENE
Physical Description:	GAS
Case Number:	74862
Facility Id:	045140
Physical State Of The Substance:	3
Average Amount Possessed During The Year Code:	11
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N

MARKET TRANSPORT LTD (Continued) **1004770051**

Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

OR MANIFEST:

Manifest Year:	Manifest Year - 2004
EPA Id:	ORD076437417
Inactive Status:	Not reported
Organization Name:	Not reported
Contact Name:	Toni Miner
Contact Telephone Number:	(503) 283-2405
Mailing Address:	110 North Marine Drive
Mailing City/State/Zip:	Portland, OR 97217

NPDES:

WQ File Nbr:	104786
Legal Name:	MARKET TRANSPORT, LTD.
Region:	Not reported
Pri SIC:	4213
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12T
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	104786
Legal Name:	MARKET TRANSPORT, LTD.
Region:	NWR
Pri SIC:	4213
Facility Type:	TRUCKING, EXCEPT LOCAL
Latitude:	45.6006
Longitude:	-122.667
Category:	STM
Permit Type:	GEN12Z
Permit Active:	True
Is Active?:	Not reported
Permit Description:	Stormwater; NPDES specific SIC codes
Expiration Date:	07/31/2022

MARKET TRANSPORT LTD (Continued) **1004770051**

EPA Number:	ORR800108
UIC Facility:	False
Admin Agent:	City of Portland
Last Action Date:	08/01/2017
Permit Writer:	Not reported
Compliance Inspector:	PORTLAND
DMR Reviewer:	Not reported
Application Number:	956696
Class:	MINOR
Start Date:	02/08/2000
Region Decode:	North West Region

OR UIC:

Name:	MARKET TRANSPORT LTD @
Address:	110 N MARINE DR
City,State,Zip:	PORTLAND, OR
UIC Well #:	1
Type:	5D4
Type Description:	Industrial Storm Water Drainage
Status:	Active
UIC Number:	10247
Facility Status:	Not Registered
Lat/Long:	45.600201 / -122.6669

68
South
1/2-1
0.970 mi.
5121 ft.

CONTAINER CARE PORTLAND INC. **OR ECSI S108659191**
1501 N SCHMEER RD. **OR NPDES N/A**
PORTLAND, OR 97217

Relative:
Lower

Actual:
17 ft.

ECSI:

Name:	CONTAINER CARE PORTLAND INC.
Address:	1501 N SCHMEER RD.
City,State,Zip:	PORTLAND, OR 97217
State ID Number:	105
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	0
Investigation:	No Further Action
FACA ID:	5926
Further Action:	0
Lat/Long (dms):	45 35 26.50 / -122 41 6.40
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	1.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	9
Qtr Section:	Not reported
Tax Lots:	73
Size:	6.9 acres
NPL:	False
Orphan:	False
Updated By:	GWISTAR

CONTAINER CARE PORTLAND INC. (Continued) **S108659191**

Update Date: 05/02/2006
Created Date: 07/26/1988
Decode For RegionID: Northwest Region
Decode For BrownID: Not reported
Decode For Furtheract: Not reported
Decode For Investstat: No Further Action
Decode For Legislative: Not reported

Hazardous Release:
Substance ID.: 121919
Haz Release ID: 382773
Qty Released: Unknown
Date Released: Unknown, discovered September 1987
Update Date: 07/26/1988
Update By: Not reported
Substance Code: 95-80-7
Substance Name: TOLUENEDIAMINE,2,4-
Substance Abbrev.: Not reported
Substance Alias ID: 317991
Sub Alias Name: BENZENEDIAMINE,4-METHYL-1,3-
Substance Alias ID: 317992
Sub Alias Name: DIAMINOTOLUENE,2,4-
Substance Alias ID: 317993
Sub Alias Name: METHYLBENZENE,1,3-DIAMINO-4-
Substance Alias ID: 317994
Sub Alias Name: METHYLBENZENE,2,4-DIAMINO-1-
Substance Alias ID: 317995
Sub Alias Name: PHENYLENEDIAMINE,4-METHYL-m-
Substance Alias ID: 317996
Sub Alias Name: TOLYLENEDIAMINE,2,4-
Comment ID: 302636
Release Code: Data Sources
Release Comments: F.Hansen's letterRe:Notice of Assessment of Civil Penalty HW-NWR 87-83
Decode for Relcomcd: Data Sources
Sampling Result ID: 346959
Feature Id: Not reported
Hazard Release Id: 382773
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 39 ppm
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Narrative:
NARR ID: 5730163
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002

CONTAINER CARE PORTLAND INC. (Continued) **S108659191**

Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: Investigation initiated from three complaints during the summer of 1987. The complainants alleged that they could smell <quot>strong chemical odors.<quot> The odor was traced to Container Care. DEQ investigated and determined the odors were from open containers at Container Care. The facility was ordered to clean the containers. Soils were also sampled.

NARR ID: 5730416
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: 2,4-D

NARR ID: 5730535
NARR Code: Site Location
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Site Location
NARR Comments: Between I-5 and Interstate Ave on Schmeer Rd in North Portland.

NARR ID: 5730536
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Spill discovered September 1987

NARR ID: 5730537
NARR Code: Site Ownership
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Site Ownership
NARR Comments: Hayden Island or Hellman Properties, OWN, CUR,

NARR ID: 5730538
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Remedial Action
NARR Comments: (12/18/90 MJM) Subsequent sampling by Container Care's consultant did not find detectable levels of 2,4-D. (6/30/92 AGG) NWR reviewed site assessment by PRP, which indicated no contamination on the site. Letter dated 11/30/88 informed RP that no further action was required.

CONTAINER CARE PORTLAND INC. (Continued) **S108659191**

Not reported

Administrative Action:
Action ID: 9424
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9427
Region: Not reported
Complete Date: 12/18/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Excluded from confirmed release definition
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 06/29/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: 0
Comments: Not reported

Action ID: 9445
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Responsible party notified re 11/88 Inventory listing
Further Action: Not reported
Comments: Not reported

CONTAINER CARE PORTLAND INC. (Continued) **S108659191**

Action ID: 9437
Region: Not reported
Complete Date: 12/17/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 06/30/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

Operations:
Operation Id: 131509
Operation Status: Active
Common Name: Container Care Portland Inc.
Yrs of Operation: Not reported
Comments: Container care
Updated Date: 03/10/1995
Updated By: jxh
Decode for OpstatID: Active
Operations SIC Id: 195578
SIC Code: 4783
Created By: Not reported
Created Date: 12/17/2002

NPDES:
WQ File Nbr: 110909
Legal Name: CONGLOBAL INDUSTRIES, INC.
Region: Not reported
Pri SIC: 7699
Facility Type: Not reported
Latitude: Not reported
Longitude: Not reported
Category: Not reported
Permit Type: G12COLS
Permit Active: Not reported
Is Active?: FALSE
Permit Description: Not reported
Expiration Date: Not reported
EPA Number: Not reported

CONTAINER CARE PORTLAND INC. (Continued) **S108659191**

UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

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69 **HAYDEN ISLAND DUMPING AREA** **OR ECSI** **1006868932**
NNW **HAYDEN ISLAND** **FINDS** **N/A**
1/2-1 **PORTLAND, OR 97217**
0.983 mi.
5191 ft.

Relative:
Higher

Actual:
24 ft.

ECSI:

Name:	HAYDEN ISLAND DUMPING AREA
Address:	WEST HAYDEN ISLAND
City,State,Zip:	PORTLAND, OR 97217
State ID Number:	77
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	0
Investigation:	No Further Action
FACA ID:	39906
Further Action:	0
Lat/Long (dms):	45 37 21.70 / -122 41 46.00
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	980665392
Township Coord.:	2.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	29
Qtr Section:	Not reported
Tax Lots:	Not reported
Size:	100 acres
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	12/21/2011
Created Date:	05/04/1988
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	No Further Action
Decode For Legislative:	Not reported
Alias Name:	Hayden Island Disposal Site
Alias Name:	Milwaukie Dumping Area

Hazardous Release:

Substance ID.:	121989
Haz Release ID:	382674
Qty Released:	10,000 gal. of washwater cont. PCP and oil

HAYDEN ISLAND DUMPING AREA (Continued) **1006868932**

Date Released: 1957-1977
Update Date: 04/05/1988
Update By: Not reported
Substance Code: ECD200
Substance Name: OIL OR FUEL RELATED COMPOUNDS
Substance Abbrev.: Not reported
Substance Category ID: 8532
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8532
Substance Category: Petroleum Related Releases for OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Comment ID: 304515
Release Code: Data Sources
Release Comments: Remedial Action Cerclis file
Decode for Relcomcd: Data Sources
Sampling Result ID: 345249
Feature Id: Not reported
Hazard Release Id: 382674
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Unknown
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Substance ID.: 121839
Haz Release ID: 382675
Qty Released: 10,000 gal. of washwater cont. PCP and oil
Date Released: 1957-1977
Update Date: 04/05/1988
Update By: Not reported
Substance Code: 87-86-5
Substance Name: PENTACHLOROPHENOL
Substance Abbrev.: Not reported
Substance Category ID: 8495
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8495
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported

HAYDEN ISLAND DUMPING AREA (Continued) **1006868932**

Created Date: 12/17/2002
Substance Alias ID: 317688
Sub Alias Name: CHLOROPHEN
Substance Alias ID: 317689
Sub Alias Name: PCP
Substance Alias ID: 317690
Sub Alias Name: PENCHLOROL
Substance Alias ID: 317691
Sub Alias Name: PHENOL,PENTCHLORO-
Comment ID: 304512
Release Code: Data Sources
Release Comments: Remedial Action Cerclis file
Decode for Relcomcd: Data Sources
Sampling Result ID: 346933
Feature Id: Not reported
Hazard Release Id: 382675
Medium: 703
Substance Abbrev.: Not reported
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: Not reported
Start Date: Not reported
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: Unknown
Last Update By: CONV
Update Date: 09/13/1994
Decode for MediumID: Soil

Narrative:
NARR ID: 5733373
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Contamination
NARR Comments: Waste oil and washwater containing pentachlorophenol from McCormick & Baxter was spread on Union Pacific land on Hayden Island by Schultz Sanitation.

NARR ID: 5733374
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 09/21/2005
Decode for NarcdID: Data Sources
NARR Comments: CERCLIS file; 1/20/82 DEQ interoffice memo to file from Mark Hope; EPA CERCLA Preliminary Assessment; Site Investigation.

NARR ID: 5733375
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002

HAYDEN ISLAND DUMPING AREA (Continued) **1006868932**

Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: pentachlorophenol, oil

NARR ID: 5733376
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Broadcast spraying between 1957 and 1977.

NARR ID: 5746145
NARR Code: Project Activity Status
Created By: GWISTAR
Created Date: 01/13/2005
Updated By: GWISTAR
Updated Date: 01/13/2005
Decode for NarcdID: Project Activity Status
NARR Comments: PROJECT FILE ARCHIVED, BOX #272839196

NARR ID: 5733377
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 04/05/2004
Decode for NarcdID: Remedial Action
NARR Comments: (11/92 LSK) Washwater containing oil waste (< 1% PCP) from McCormick & Baxter (ECSI #74) spread on Union Pacific RR land from approximately 1957 to 1977; DEQ was unable to identify specific areas where the disposal occurred. EPA determined that no further federal action was needed at the site in 1984; DEQ recommends no further state action as well.

Administrative Action:
Action ID: 9421
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: Site added to CERCLIS
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002

HAYDEN ISLAND DUMPING AREA (Continued) **1006868932**

Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Not reported
Complete Date: 11/05/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9443
Region: Northwestern Region
Complete Date: 11/06/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NO FURTHER STATE ACTION REQUIRED
Further Action: 0
Comments: Not reported

Action ID: 9444
Region: Not reported
Complete Date: 03/21/1984
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: No Further Remedial Action Planned under Federal program
Further Action: Not reported
Comments: Not reported

Action ID: 9457
Region: Not reported
Complete Date: 03/24/1984
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency

HAYDEN ISLAND DUMPING AREA (Continued) **1006868932**

Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA Basic Preliminary Assessment
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Not reported
Complete Date: 11/04/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Operations:
Operation Id: 131478
Operation Status: Unknown
Common Name: Milwaukie Dumping Area
Yrs of Operation: 1960s to 1970s
Comments: Unknown
Updated Date: 09/13/1994
Updated By: CONV
Decode for OpstatID: Unknown
Operations SIC Id: 195499
SIC Code: 4953
Created By: Not reported
Created Date: 12/17/2002

FINDS:

Registry ID: 110014318844

Environmental Interest/Information System
OR-DEQ (Oregon - Department Of Environmental Quality) is a regulatory agency whose job is to protect the quality of Oregon's Environment. DEQ uses a combination of technical assistance, inspections and permitting to help public and private facilities and citizens understand and comply with state and federal environmental regulations.

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

70
WNW
1/2-1
0.984 mi.
5195 ft.

Relative:
Higher

Actual:
22 ft.

FUEL PROCESSORS INC
4150 N SUTTLE RD
PORTLAND, OR 97217

OR CRL
OR ECSI
OR SWF/LF
OR AST
OR HAZMAT
OR AIRS
OR HSIS
OR NPDES

1001424376
N/A

CRL:

Name:	MERIT OIL/FUEL PROCESSORS
Address:	4150 N SUTTLE RD
City,State,Zip:	PORTLAND, OR 97217
Facility ID:	673
Location ID:	2871
Status Code:	LIS
Facility Status:	OPERATION & MAINTENANCE
Lat/Long:	45.6135 / -122.7111

ECSI:

Name:	MERIT OIL/FUEL PROCESSORS
Address:	4150 N SUTTLE RD
City,State,Zip:	PORTLAND, OR 97217
State ID Number:	673
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	0
Investigation:	Listed on the CRL/Inventory
FACA ID:	2871
Further Action:	0
Lat/Long (dms):	45 36 48.60 / -122 42 40.00
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	980975692
Township Coord.:	2.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	32
Qtr Section:	Not reported
Tax Lots:	1100, 1200, 1300, 1400.1700
Size:	6.6 acres
NPL:	False
Orphan:	False
Updated By:	GWISTAR
Update Date:	02/19/2015
Created Date:	11/04/1988
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	Listed on the CRL/Inventory
Decode For Legislative:	Not reported
Alias Name:	Merit USA Inc.
Alias Name:	Oil Re-Refining Co.

Hazardous Release:

Substance ID.:	121754
Haz Release ID:	388383

FUEL PROCESSORS INC (Continued) **1001424376**

Qty Released: Not reported
Date Released: Not reported
Update Date: 11/21/2017
Update By: MPUGH
Substance Code: 7782-41-4
Substance Name: FLUORINE
Substance Abbrev.: Not reported
Sampling Result ID: 350966
Feature Id: 0
Hazard Release Id: 388383
Medium: 700
Substance Abbrev.: 0
Unit Code: 63
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/15/2015
End Date: 05/15/2015
Min Concentration: 2320.00
Max Concentration: 4110.00
Sample Comment: porewater sample
Last Update By: MPUGH
Update Date: 11/21/2017
Decode for MediumID: Other
Sampling Result ID: 350967
Feature Id: 0
Hazard Release Id: 388383
Medium: 698
Substance Abbrev.: 0
Unit Code: 63
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/23/2015
End Date: 05/23/2015
Min Concentration: Not reported
Max Concentration: 501000.00
Sample Comment: well FP-5
Last Update By: MPUGH
Update Date: 11/21/2017
Decode for MediumID: Groundwater
Sampling Result ID: 350968
Feature Id: 0
Hazard Release Id: 388383
Medium: 704
Substance Abbrev.: 0
Unit Code: 63
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Not reported
Start Date: 05/17/2015
End Date: 05/17/2015
Min Concentration: Not reported
Max Concentration: 5120.00

FUEL PROCESSORS INC (Continued) **1001424376**

Sample Comment: surface water at FP-10
Last Update By: MPUGH
Update Date: 11/21/2017
Decode for MediumID: Surface Water

Narrative:
NARR ID: 5727631
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: MPUGH
Updated Date: 08/21/2012
Decode for NarcdID: Contamination
NARR Comments: (12/9/97 DAB/SRP) Samples collected in soil, surface water, groundwater, and sediments at the site have shown a variety of metals, volatile organics, and semivolatile organics. The sources of contamination are assumed to be activities that have occurred on-site which include or included the following: used oil recycling, petroleum solvent recycling, wastewater management using an oil/water separator that overflowed at least once, extraction of oil from old automobile tires, and landfilling of aluminum dross and foundry sands on-site adjacent to wetland areas. Petroleum-related contamination has dissapated and is generally found at low levels with the excpetion of isolated occurrence of free oil in two site wells. The primary drivers for ecological risk are lead and zinc in sediment and panhandle soil. Isolated elevated concentrations of PCBs, PAHs and volatile organic compounds are present around the operational site area but there are no current exposure pathways. MTPugh 8/21/12 Upon review of 1200COLS stormwater permit records for the Triggco property, and later confirmed by Triggco through their site investigation, the source of the chromium appears to be steel slag placement on their property for a parking lot surface. Based on the information, the requirement for ORRCO/FPI/Merit to remove the previously identified chromium hotspot will not be required under terms of the Consent Order. Triggco has entered into an Agreement with DEQ to complete additional risk assessment on the chromium in soil and determine whether it presents a significant risk to human health or the environment.

NARR ID: 5728017
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: MPUGH
Updated Date: 08/16/2011
Decode for NarcdID: Data Sources
NARR Comments: 1) August 1988 CERCLA Preliminary Assessment. 2) January 1990 CERCLA Site Inspection. 3) Enforcement file. 4) NWR RCRA files. 5) NWR SRP files. 6)Preliminary Risk Assessment Problem Formulation & RI Proposal, Merit USA/Fuel Processors Site, Portland, Oregon oles Environmental Consulting, Inc. (CEC), October 8, 2004. RI Quarterly Progress Report #2 for the Period January-March 2005 Merit USA/Fuel Processors Site, 3/28/05. Monitoring Well Installation Plan for the Merit USA/FPI Site RI, 5/26/05. CEC, 2006, Remedial Investigation Work Plan, June 12, 2006. CEC, 2007a, Merit USA/FPI Site RI Quarterly Progress Report #9 for the Period October-December 2006 (DEQ Order No. LQSR-NWR-04-02. January 22, 2007. CEC, 2007b, Merit USA/FPI Site RI Quarterly Progress Report #12 for the Period July- September 2007

FUEL PROCESSORS INC (Continued) **1001424376**

(DEQ Order No. LQSR-NWR-04-02. October 3, 2007. City of Portland, 1997, Columbia Slough Consolidation Conduit Project, March 1997. DEQ, 1992, DEQ s April 1992 Sampling at Fuel Processors, Inc., Sampling Notes and Location Map. DEQ, 2002, Memorandum to DEQ Cleanup Project Managers from DEQ Toxicology Workgroup, Regarding Default Background Concentrations for Metals. October 28, 2002. DEQ, 2007, Letter to Merit Oil, RE: Meeting Summary and Project Schedule, March 20, 2007. EPA, 1990, Site Inspection Report for Merit USA, Portland, Oregon. January 1990. DEQ, 2007, Letter to Merit USA/FPI, Meeting Summary, July 12, 2007-contains table of COPCs. Paradigm Labs, 2008, Human Health Risk Screening and Ecological Risk Assessment, Merit USA/Fuel Processors Site, May 18, 2008. Document Draft and not Approved by DEQ. RAM, 1996a, Final Remedial Investigation Work Plan, July 29, 1996. RAM, 1996b, Data Summary Report, December 31, 1996. ADMINISTRATIVE RECORD INDEX FROM ROD CEC, 2006a, Remedial Investigation Work Plan, June 12, 2006. CEC, 2006b, Merit USA/FPI Site RI Quarterly Progress Report #7 for the Period March-June 2006 (DEQ Order No. LQSR-NWR-04-02. July 3, 2006. CEC, 2006c, Merit USA/FPI Site RI Quarterly Progress Report #8 for the Period July-September 2006 (DEQ Order No. LQSR-NWR-04-02. October 2, 2006. CEC, 2007a, Merit USA/FPI Site RI Quarterly Progress Report #9 for the Period October-December 2006 (DEQ Order No. LQSR-NWR-04-02. January 22, 2007. CEC, 2007b, Merit USA/FPI Site RI Quarterly Progress Report #12 for the Period July- September 2007 (DEQ Order No. LQSR-NWR-04-02. October 3, 2007. CEC, 2008, Merit USA/FPI Site RI Quarterly Progress Report #15 for the Period July- September 2008 (DEQ Order No. LQSR-NWR-04-02. July 7, 2008. CEC, 2009a, Merit USA/FPI Site RI Quarterly Progress Report #18 for the Period December-March2009 (DEQ Order No. LQSR-NWR-04-02. April 27, 2009. CEC, 2009b, Merit USA/FPI Site RI Quarterly Progress Report #20 for the Period July- September 2009 (DEQ Order No. LQSR-NWR-04-02. November 3, 2009. CEC, 2009c, Summary Remedial Investigation Report, Merit USA/FPI, 4150 N. Suttle Road, Portland, Oregon. June 30, 2009. CEC, 2010, Merit USA/FPI Site RI Quarterly Progress Report #22 for the Period December-March (DEQ Order No. LQSR-NWR-04-02. April 13, 2010. City of Portland, 1997, Columbia Slough Consolidation Conduit Project, March 1997. City of Portland, 1990, Natural Resource Management Plan for Smith and Bybee Lakes, November 8, 1990. DEQ, 1992, DEQ s April 1992 Sampling at Fuel Processors, Inc., Sampling Notes and Location Map. DEQ, 1988, Preliminary Assessment, Fuel Processors, Inc., ORD980975692, 4150 N. Suttle Road, Portland Oregon, 97217. August 31, 1988. DEQ, 1996, 1996 FUP Data, Notebook containing DEQ laboratory results, ECSI File #673, DEQ NWR Office. DEQ, 2002, Memorandum to DEQ Cleanup Project Managers from DEQ Toxicology Workgroup, Regarding Default Background Concentrations for Metals. October 28, 2002. DEQ 2007a, Guidance for Assessing Bioaccumulative Chemicals of Concern in Sediment, January 31, 2007, Revised April 3, 2007 DEQ, 2007b, Letter to Merit Oil, RE: Meeting Summary and Project Schedule, March 20, 2007. DEQ, 2008, Data Gap Evaluation for Upland Soil, Merit Oil/Merit USA/Fuel Processors 4150 N. Suttle Road, Portland, Oregon, ECSI #673. September 19, 2008. DEQ 2009, Risk-Based Concentrations, updated September 15, 2009 (http://www.deq.state.or.us/lq/pubs/docs/RBDMTable.pdf). DEQ, 2010a, Memorandum to File: Merit Oil/Fuel Processors Inc. Groundwater and Surface Water Monitoring Results Tables. October 28, 2010. DEQ, 2010b, Memorandum to File: Ecological and Human Health Risk Screening Merit Oil/Fuel Processors Inc. Site, 4150 N. Suttle Road, Portland,

FUEL PROCESSORS INC (Continued) **1001424376**

Oregon ECSI #673 EPA, 1990, Site Inspection Report for Merit USA, Portland, Oregon. January 1990. EPA, 2002, Merit USA, Inc. Expanded Site Inspection Report, Portland, Oregon. TDD: 02-02-0005. December 2002. e.p. and t., Inc., 1997, Memorandum, Level I Scoping Ecological Risk Assessment, September 30, 1997. Fishman Environmental Services (FES), 1987, Smith and Bybee Lakes Environmental Studies, September 1987. James C. Brown & Associates, P.C., 2011, Letter to Mark T. Pugh, DEQ, Re: Merit Oil/Fuel Processors Site, ECSI #673, DEQ s Proposed Cleanup Action. March 21, 2011. McDonald, D.D., C.G. Ingersoll and T.A. Berger. 2000. Development of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems. Archives of Environmental Contamination and Toxicology, Volume 39, PP. 20-31. January. Oregon National Heritage Information Center, 1997, Threatened or Endangered Species Database Review, Township 2 North, Range 1 East, Section 32. June 4, 2007. Parametrix, 1995, Screening Level Risk Assessment, Columbia Slough Sediment Remedial Investigation/Feasibility Study. Roholt, 2010, Feasibility Study for the Merit USA/Fuel Processors Site, 4150 N. Suttle Road, Portland, Oregon. June 15, 2010. United States Department of Transportation (USDOT), 1997, User Guidelines for Waste and Byproduct Materials in Pavement Construction, Publication Number: FHWA-RD-97-148 Web: Foundry Sand - Material Description - User Guidelines for Waste and Byproduct Materials in Pavement Construction - FHWA-RD-97-148

NARR ID: 5728018
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: MPUGH
Updated Date: 08/25/2008
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: used oil, foundry sand, carbon black, aluminum dross in panhandle adjacent to wetlands.

NARR ID: 5728019
NARR Code: Project Issues Summary
Created By: Not reported
Created Date: 12/17/2002
Updated By: MPUGH
Updated Date: 09/18/2018
Decode for NarcdID: Project Issues Summary
NARR Comments: Since completion of the wetland remedy in SEpt. 2013, monitoring has shown that elevated levels of fluoride persist in sediment porewater, and thought to be attributable to aluminum dross placed in the panhandle as fill in the 1980s. Additonal evaluation of the potential source of fluoride, and whether there are upgradient operational sources, is needed.

NARR ID: 5728020
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Overflow from oil/water separator pond, landfilling, past practices. Spills known to have occurred in January 1985, July 1986, and March

FUEL PROCESSORS INC (Continued) **1001424376**

1987. Other releases may have occurred.

NARR ID: 5750286
NARR Code: Project Activity Status
Created By: MPUGH
Created Date: 03/27/2008
Updated By: MPUGH
Updated Date: 09/18/2018
Decode for NarcdID: Project Activity Status
NARR Comments: MTPugh 3/26/08 Risk Assessment work plan is due. DEQ anticipates the RI data ga[sampling will be completed in summer 2008, risk assessment will be completed by end of the year. DEQ will then require a feasibility to address risk at the site and will select an appropriate remedy. DEQ anticipates the remedy will be implemented no earlier than summer of 2009. MTPugh 6/4/08 Although a signifant site work has been conducted DEQ believes additional sampling is needed in the site upland area to supplement historical data, much of which is over 10 years old. For failing to complete an RI work plan DEQ issued a Warning Letter in May 2008. Merit Oil submitted a risk assessment document that is currently under review. A sampling plan for completing the wetland soil sampling has been finalized and sampling will be conducted in fall 2008. 9/17/08 Mark Pugh DEQ has completed a data gap evaluation for a portion of the Merit Oil/Merit USA/Fuel Processors (Merit) site. The evaluation focused on soil data in the upland portion of the site. The purpose of the evaluation was to determine if the available data indicate potential hotspots of contamination in soil were present that required further characterization for completion of the Remedial Investigation/Feasibility Study (RI/FS). An evaluation of groundwater and surface water hotspots was not conducted and will need to be documented in the pending RI and FS reports. Based on the results of the data gap evaluation DEQ will not require additional soil sampling in the majority of the upland area at this time given the current site use, with the exception of the former waste water pond area as discussed below. This finding is an important step in the overall remedial investigation framework and DEQ believes the memorandum provides justifiable rationale for deferring additional investigation in the site upland process area until site conditions change. DEQ determined that quantitative risk assessment with the existing data has a large degree of uncertainty given the temporal span of sample collection and analysis and elevated detection limits for laboratory analysis performed during some investigations. Completion of a risk assessment representative of current conditions would require additional data collection. As noted in the memorandum, there are no monitoring wells beneath the operational site area and significant soil contamination in this area that has likely impacted underlying groundwater. In addition, well FP-3 has not been included in recent sampling events due to the presence of free-phase oil in the well. To address these data gaps DEQ is directing Merit to restart groundwater monitoring in the site upland on a semi-annual basis to monitor existing or potential future contaminant releases and migration. The sampling should include FP-3 to determine the current nature and magnitude of groundwater source area contaminants. In summary, while residual soil contamination is present above human health risk-based screening criteria, DEQ has determined that soil contamination does not constitute a hotspot(s) of contamination, and that remedial action and a quantitative risk assessment for soil in the site upland

FUEL PROCESSORS INC (Continued) **1001424376**

is not necessary unless site contamination or land use conditions change. 8/19/09 MTP In early 2009 approximately 2 feet of light non-aqueous phase liquid (LNAPL) was detected in FP-7 during routine monitoring. Additional investigation was conducted in early August to assess the extent of LNAPL. Approximately 12 borings were advanced and no indications of LNAPL was observed in any of the borings. The RI Report was completed in July 2009. A feasibility study (FS) is currently being conducted to develop and evaluate remedial alternatives to address unacceptable risk at the site. The primary risk is to ecological receptors such as birds from landfilled material in the southern panhandle containing elevated levels of metals such as lead and zinc. 8/1/10 DEQ has received a revised FS and additional information, and will approve a selected remedy of partial sediment removal and capping with clean imported fill in the wetland, consolidation of sediment into the panhandle area, with subsequent capping with asphalt in the upland area. 7/13/11 DEQ has completed a Record of Decision and selected the following remedy. The selected remedial alternative includes the following elements: Removal of sediment hot spots from wetland areas of the facility and capping remaining sediments with contaminants above risk-based concentrations with clean soil and revegetating the wetland area; Excavation of hot spot fill from the panhandle upland area of the site; Off-site disposal of soil and sediment that exceeds upland hotspot levels; Consolidation of non-hotspot sediment within the upland panhandle area; Benching the bank of the panhandle area that borders the wetlands and capping the bank with clean fill; Capping the panhandle area with asphalt to minimize infiltration of rainfall through contaminated fill; Re-engineering the bank between the facility and the adjacent Triggco property to mitigate erosion and overland transport of contaminated fill to the wetland through Triggco s stormwater collection system; Periodic removal of LNAPL from FP-3 and FP-7; Surface water and groundwater monitoring; Installation of a stormwater management system, and Institutional controls memorialized in an Easement and Equitable Servitudes (E&ES). DEQ is currently negotating a Consent Order for completion of the site remedy and for additional monitoring. MTPugh 3/20/14 The remedial action was completed in September 2013 and summarized in a Construction Completion Report dated MArch 13, 2014. Post-remedy monitoring is ongoing. 11/21/17 MTPugh Surface water monitoring is resuming in December 2017 following a 2-year delay. Previous surface water and groundwater samples showed elevated levels of contaminants including flourine. Subsequent testing will focus of porewater sampling, which is the compliance point specified in the Record of Decision. At least two additional monitoring events will be conducted. 9/18/18 MTPugh Based on December 2017 porewater sampling, elevated levels of fluorine persist in sediment porewater, and thought to be attributable to aluminum dross placed in the panhandle as fill in the 1980s. Additonal evaluation of the potential source of fluoride, and whether there are upgradient operational sources, is needed.

NARR ID:	5728021
NARR Code:	Pathways Other Hazards
Created By:	Not reported
Created Date:	12/17/2002
Updated By:	MPUGH
Updated Date:	09/18/2018

FUEL PROCESSORS INC (Continued) **1001424376**

Decode for NarcdID: Pathways & Other Hazards
NARR Comments: Groundwater discharge into sediment porewater and surface water appears to be a complete pathway. Direct contact with soil could present unacceptble risk. Virtually all impacted soil at the site is capped with asphalt or beneath the building and operational footprint, and thus the direct contact pathways are not complete. The site is located adjacnet to a wetland, that is connected to Smith-Bybee Lake during periods of high water table conditons. The Smith and Bybee Lakes area of north Portland is an important wildlife habitat. Both lakes discharge to the Columbia Slough. The Oregon Slough is about a quarter-mile north of the site.

NARR ID: 5728022
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: MPUGH
Updated Date: 03/20/2014
Decode for NarcdID: Remedial Action
NARR Comments: (4/28/99 DAB/SRP) A remedial investigation at the site is in progress as required by a court order issued to Mr. Briggs and Fuel Processors, Inc. The site was referred to the Site Response Program in 1995. The first phase of remedial investigation has been completed. The workplan for the second phase has been completed. Implementation of the workplan has been postponed. (4/19/00 DAB/SRP) Site was referred to EPA for further investigation. (11/20/01 DAB/SRP) EPA has completed the investigation and is evaluating the results. (10/25/04, MTP) Following several years of negotiation, and settlement of a number of hazardous waste and water quality violations, DEQ issued an Order for Merit Oil to complete the RI/FS at the site. Merit has submitted a preliminary risk evaluation and RI proposal, and DEQ is currently reviewing the document. (3/14/05) Coles environmental Consulting is currently preparing a submittal containing results of a preliminary groundwater evaluation, including a well rehabiliation and initial round of groundwater sampling. DEQ conducted a site visit on Feb 14 to review potential ecological exposure pathways. (7/26/05, MTP) Coles Environmental Consulting, on behalf of Merit Oil, has completed the well rehabilitation and reported the findings in a RI Quarterly Progress Report #2 for the Period January-March 2005, dated 3/28/2005. A monitoring well installation plan dated 5/26/05 has been approved by DEQ. The well installation is scheduled to be completed by mid-September. The RI Work is scheduled to be submitted to DEQ by November 15, 2005. 8/21/06, MTP Two rounds of groundwater sampling have been completed. DEQ has provided comments on a draft RI work plan. The final work plan is due October 15, 2006. DEQ has approved the wetland and panhandle area soil sampling for implementation in the remainder of the <quot>dry<quot> season (i.e.,. September 2006). Additional groundwater and soil sampling (as needed) will be implemented following completion of the RI work plan. 6/3/08 MTPugh Although significant site work has been conducted, DEQ believes additional sampling may be needed in the site's upland area to supplement historical data, much of which is over 10 years old. For failing to complete an RI work plan, DEQ issued a Warning Letter in May 2008. Merit Oil submitted a risk assessment document that is currently under review. A sampling plan for completing the wetland soil sampling has been finalized and sampling will be conducted in fall

FUEL PROCESSORS INC (Continued) **1001424376**

2008. 9/17/08 Mark Pugh DEQ has completed a data gap evaluation for a portion of the Merit Oil/Merit USA/Fuel Processors (Merit) site. The evaluation focused on soil data in the upland portion of the site. The purpose of the evaluation was to determine if the available data indicate potential hotspots of contamination in soil were present that required further characterization for completion of the Remedial Investigation/Feasibility Study (RI/FS). An evaluation of groundwater and surface water hotspots was not conducted and will need to be documented in the pending RI and FS reports. Based on the results of the data gap evaluation DEQ will not require additional soil sampling in the majority of the upland area at this time given the current site use, with the exception of the former waste water pond area as discussed below. This finding is an important step in the overall remedial investigation framework and DEQ believes the memorandum provides justifiable rationale for deferring additional investigation in the site upland process area until site conditions change. DEQ determined that quantitative risk assessment with the existing data has a large degree of uncertainty given the temporal span of sample collection and analysis and elevated detection limits for laboratory analysis performed during some investigations. Completion of a risk assessment representative of current conditions would require additional data collection. As noted in the memorandum, there are no monitoring wells beneath the operational site area and significant soil contamination in this area that has likely impacted underlying groundwater. In addition, well FP-3 has not been included in recent sampling events due to the presence of free-phase oil in the well. To address these data gaps DEQ is directing Merit to restart groundwater monitoring in the site upland on a semi-annual basis to monitor existing or potential future contaminant releases and migration. The sampling should include FP-3 to determine the current nature and magnitude of groundwater source area contaminants. In summary, while residual soil contamination is present above human health risk-based screening criteria, DEQ has determined that soil contamination does not constitute a hotspot(s) of contamination, and that remedial action and a quantitative risk assessment for soil in the site upland is not necessary unless site contamination or land use conditions change. 8/19/09 MTP In early 2009 approximately 2 feet of light non-aqueous phase liquid (LNAPL) was detected in FP-7 during routine monitoring. Additional investigation was conducted in early August to assess the extent of LNAPL. Approximately 12 borings were advanced and no indications of LNAPL was observed in any of the borings. The RI Report was completed in July 2009. A feasibility study (FS) is currently being conducted to develop and evaluate remedial alternatives to address unacceptable risk at the site. The primary risk is to ecological receptors such as birds from landfilled material in the southern panhandle containing elevated levels of metals such as lead and zinc. 8/1/10 DEQ has received a revised FS and additional information, and will approve a selected remedy of partial sediment removal and capping with clean imported fill in the wetland, consolidation of sediment into the panhandle area, with subsequent capping with asphalt in the upland area. 7/13/11 DEQ has completed a Record of Decision and selected the following remedy. The selected remedial alternative includes the following elements: Removal of sediment hot spots from wetland areas of the facility and capping remaining sediments with contaminants above risk-based concentrations with clean soil and revegetating the wetland area; Excavation of hot spot fill from the panhandle upland area of the

FUEL PROCESSORS INC (Continued) **1001424376**

site; Off-site disposal of soil and sediment that exceeds upland hotspot levels; Consolidation of non-hotspot sediment within the upland panhandle area; Benching the bank of the panhandle area that borders the wetlands and capping the bank with clean fill; Capping the panhandle area with asphalt to minimize infiltration of rainfall through contaminated fill; Re-engineering the bank between the facility and the adjacent Triggco property to mitigate erosion and overland transport of contaminated fill to the wetland through Triggco s stormwater collection system; Periodic removal of LNAPL from FP-3 and FP-7; Surface water and groundwater monitoring; Installation of a stormwater management system, and Institutional controls memorialized in an Easement and Equitable Servitudes (E&ES). MTPugh 3/20/14 The remedial action was completed in September 2013 and summarized in a Construction Completion Report dated MArch 13, 2014. Post-remedy monitoring is ongoing.

Administrative Action:

Action ID: 9429
Region: Northwestern Region
Complete Date: 08/19/2010
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/20/2009
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: FEASIBILITY STUDY
Further Action: 0
Comments: Not reported

Action ID: 9484
Region: 0
Complete Date: 06/01/2009
Rank Value: Not reported
Cleanup Flag: True
Created Date: 12/21/2009
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9494
Region: Northwestern Region
Complete Date: 06/30/2011
Rank Value: Not reported
Cleanup Flag: False
Created Date: 11/15/2010
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: RECORD OF DECISION
Further Action: 0
Comments: Not reported

FUEL PROCESSORS INC (Continued) **1001424376**

Action ID: 9412
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 08/16/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Consent Order
Further Action: 0
Comments: Not reported

Action ID: 9442
Region: Northwestern Region
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NEGOTIATIONS
Further Action: Not reported
Comments: Not reported

Action ID: 9469
Region: 0
Complete Date: 09/30/2013
Rank Value: Not reported
Cleanup Flag: False
Created Date: 03/20/2014
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL ACTION
Further Action: 0
Comments: Not reported

Action ID: 9450
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 03/20/2014
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: OPERATION and MAINTENANCE
Further Action: 0
Comments: Not reported

Action ID: 9499

FUEL PROCESSORS INC (Continued) **1001424376**

Region: Northwestern Region
Complete Date: 10/27/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Inventory recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Northwestern Region
Complete Date: 10/27/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Northwestern Region
Complete Date: 11/12/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9467
Region: Northwestern Region
Complete Date: 11/12/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9451
Region: Northwestern Region

FUEL PROCESSORS INC (Continued) **1001424376**

Complete Date: 12/01/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Owner/operator comments received on listing notification
Further Action: Not reported
Comments: Not reported

Action ID: 9438
Region: Northwestern Region
Complete Date: 12/23/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9439
Region: Northwestern Region
Complete Date: 12/23/1997
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9426
Region: Headquarters
Complete Date: 05/13/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: Not reported
Comments: Not reported

Action ID: 9431
Region: Headquarters
Complete Date: 09/30/1995

FUEL PROCESSORS INC (Continued) **1001424376**

Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Place on hold
Further Action: Not reported
Comments: Not reported

Action ID: 9484
Region: Northwestern Region
Complete Date: 08/03/2009
Rank Value: Not reported
Cleanup Flag: True
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9514
Region: Not reported
Complete Date: 09/24/1993
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA Site Inspection Prioritization
Further Action: Not reported
Comments: Not reported

Action ID: 9421
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: Site added to CERCLIS
Further Action: Not reported
Comments: Not reported

Action ID: 9425
Region: Headquarters
Complete Date: 08/30/1988
Rank Value: 0

FUEL PROCESSORS INC (Continued) **1001424376**

Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9496
Region: Headquarters
Complete Date: 08/30/1988
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9426
Region: Headquarters
Complete Date: 09/30/1993
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: SITE PRIORITY EVALUATION FOR FURTHER ACTION
Further Action: Not reported
Comments: Not reported

Action ID: 9449
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False

FUEL PROCESSORS INC (Continued) **1001424376**

Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Insufficient information to list
Further Action: Not reported
Comments: Not reported

Action ID: 9456
Region: Headquarters
Complete Date: 09/26/1988
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Remedial Action
Action Code Flag: False
Action: BASIC PRELIMINARY ASSESSEMENT
Further Action: Not reported
Comments: Not reported

Action ID: 9512
Region: Not reported
Complete Date: 03/02/1990
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA Screening Site Inspection 1
Further Action: Not reported
Comments: Not reported

Action ID: 9445
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Responsible party notified re 11/88 Inventory listing
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Headquarters
Complete Date: 05/13/1992
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002

FUEL PROCESSORS INC (Continued) **1001424376**

Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9522
Region: Northwestern Region
Complete Date: 05/03/2004
Rank Value: Not reported
Cleanup Flag: False
Created Date: 10/27/2004
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Unilateral Order
Further Action: 0
Comments: Not reported

Operations:
Operation Id: 131974
Operation Status: Active
Common Name: Fuel Processors
Yrs of Operation: 1985 - present
Comments: Used oil recycler
Updated Date: 12/09/1997
Updated By: jmd
Decode for OpstatID: Active
Operations SIC Id: 196104
SIC Code: 2992
Created By: Not reported
Created Date: 12/17/2002

Operation Id: 131975
Operation Status: Inactive
Common Name: Merit USA Inc.
Yrs of Operation: 1980-1984
Comments: Former used oil recycler
Updated Date: 12/09/1997
Updated By: jmd
Decode for OpstatID: Inactive
Operations SIC Id: 196546
SIC Code: 2992
Created By: Not reported
Created Date: 12/17/2002

LF:
Permit Number: 1364
Facility Id: 112088
Facility Telephone: 503-286-8352
Facility Telephone 2: Not reported
Lat/Long: 45.613 / -122.7067
Solid Waste Class: Industrial
Solid Waste Type: SW Treatment

FUEL PROCESSORS INC (Continued) **1001424376**

Date Opened: 02/06/2007
End Date: 11/01/2027
Date Closed: Not reported
Permit Status: Active
Organization: Oil Re-Refining Co., Inc.
Contact Name: Scott Briggs
Affil Start Date: 06/22/2018
Mailing Address: 4150 N Suttle Rd
Mailing City: Portland
Mailing State: OR
Mailing Zip: 97217-7717

Permit Number: 1341
Facility Id: 112088
Facility Telephone: Not reported
Facility Telephone 2: Not reported
Lat/Long: 45.613 / -122.7067
Solid Waste Class: SWLA
Solid Waste Type: Treatment
Date Opened: 02/06/2007
End Date: Not reported
Date Closed: Not reported
Permit Status: Terminated
Organization: Not reported
Contact Name: Not reported
Affil Start Date: Not reported
Mailing Address: Not reported
Mailing City: Not reported
Mailing State: Not reported
Mailing Zip: Not reported

AST:
Facility Id: 007982
Hazardous Substance: ALUMINUM SULFATE LIQUID
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: W, L
Direct Site Phone: 5032868352
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 007982
Hazardous Substance: ANTIFREEZE
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH

FUEL PROCESSORS INC (Continued) **1001424376**

Owner-Operator Name: W, L
Direct Site Phone: 5032868352
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 007982
Hazardous Substance: CAUSTIC SODA SOLUTION 50%
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: W, L
Direct Site Phone: 5032868352
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 007982
Hazardous Substance: GASOLINE
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: W, L
Direct Site Phone: 5032868352
Report Class: Annual
Report Year: 2017
Is Poisonous Gas: No
Is Poisonous Material: No
Is Biological Hazard: No
Is Radioactive Material: No
Is Explosive: No
Status: Not reported

Facility Id: 007982
Hazardous Substance: HEPTANE
Reporting Quantities: Not reported
Quantity Units: Not reported
Physical State: Not reported
Storage 1: Above ground tank
County: MULTNOMAH
Owner-Operator Name: W, L
Direct Site Phone: 5032868352
Report Class: Annual

FUEL PROCESSORS INC (Continued) **1001424376**

Report Year:	2017
Is Poisonous Gas:	No
Is Poisonous Material:	No
Is Biological Hazard:	No
Is Radioactive Material:	No
Is Explosive:	No
Status:	Not reported

Facility Id:	007982
Hazardous Substance:	WASTE OIL
Reporting Quantities:	Not reported
Quantity Units:	Not reported
Physical State:	Not reported
Storage 1:	Above ground tank
County:	MULTNOMAH
Owner-Operator Name:	W, L
Direct Site Phone:	5032868352
Report Class:	Annual
Report Year:	2017
Is Poisonous Gas:	No
Is Poisonous Material:	No
Is Biological Hazard:	No
Is Radioactive Material:	No
Is Explosive:	No
Status:	Not reported

HAZMAT:

Responsble Party:	JIM CARR
RP Company:	AC FOUNDRY PRODUCTS
RP Address:	4150 N SUTTLE RD
RP City,St,Zip:	PORTLAND 97217
Facility ID:	900138
OERS Number:	Not reported
Dept Rsp:	PORTLAND BUREAU OF F&R&EMS
Narrative:	Not reported
Property Loss:	Not reported
Amount Released:	Not reported
Service County:	Not reported
Service Name:	Not reported
Incident Type:	Not reported
Civilian Casualty Activity:	Not reported
Chemical Name:	Not reported
Hazmat Area Affected:	Not reported
Hazmat Area Evacuated:	Not reported
Hazmat Container Type:	Not reported
Hazmat Physical State Released:	Not reported
Hazmat Released Into:	Not reported
Hazmat Released Volume Units:	Not reported
Hazmat Released Weight Units:	Not reported
Hazmat Released From:	Not reported
Hazmat Area Affected Measurement:	Not reported
Hazmat No. of People Evacuated:	Not reported
Hazmat No of Buildings Evacuated:	Not reported
Incident Content Loss:	Not reported
Civilian Casualty Patient Disposition:	Not reported
Incident Mixed Use Property:	Not reported
Location Type:	Not reported

FUEL PROCESSORS INC (Continued) **1001424376**

Incident Aid Given Or Received:	Not reported
Incident AID Received from FDID:	Not reported
Incident Aided Department FDID:	Not reported
Person Involved Business Name:	Not reported
Person Involved First Name:	Not reported
Person Involved Last Name:	Not reported
Person Involved Type:	Not reported
Person Involved Phone Number:	Not reported
Person Involved Primary Language:	Not reported
Hazmat Evacuated Measurement:	Not reported
Hazmat Story of Release:	Not reported
Remark:	Not reported
Incident District:	PORTLAND BUREAU OF F&R&EMS
Date Added:	01/01/1985
Unit:	Not reported
Agency Phone:	5032810053
Osfm Incident Report Number:	900138
Dept. Responding:	PORTLAND BUREAU OF F&R&EMS
Person Making Report:	Not reported
Title:	Not reported
Agency:	PORTLAND BUREAU OF F&R&EMS
Phone:	5032810053
Date Of Incident:	06/05/1990
Call Time:	12:00:00 AM
In Route:	12:00:00 AM
Arrival:	11:50:00 AM
Depart Scene:	12:00:00 AM
Back In Quarters:	12:00:00 AM
In Service:	12:27:00 PM
Dist Of Incident:	PORTLAND BUREAU OF F&R&EMS
Were State Resources Used?:	False
Was Oers Notified?:	False
Oers Number:	Not reported
Team Number:	Not reported
Agency Report Number:	90-23371
Unit:	Not reported
Highway:	Not reported
Mile Post:	Not reported
Scene Type:	Private Land
Area Type:	Industrial
Responsible Party(Ies):	JIM CARR
Company:	AC FOUNDRY PRODUCTS
Respcontact:	Not reported
Address:	4150 N SUTTLE RD
Resp City:	PORTLAND
Resp State:	Not reported
Resp ZipCode:	97217
Phone:	Not reported
Resp Phone2:	Not reported
Weather:	0
Temperature:	0
Wind Speed:	0
Wind Direction:	Not reported
Were Haz Materials Released?:	True
Operation Performed:	Not reported
Cause:	Container Rupture
Vehicle And Cargo:	0

FUEL PROCESSORS INC (Continued) **1001424376**

Fixed Property:	500
Total Loss:	$500.00
Hazmat Population Density:	Not reported
HazMat Actions Taken - Description:	Not reported
Hazmat Factors Contributing To Release:	Not reported
Hazmat DOT Hazard Classification:	Not reported
Hazmat CAS Number:	Not reported
Hazardous Materials Release:	Not reported
Fire Incident Type:	Not reported
Property Use:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Hazmat Disposition:	Not reported

Chemical:

Chemical Info:	1095
Chemical Id:	9324
Incident Id:	900138
Chemical Name:	DIESEL 2
UNNA:	Not reported
Amount At Risk:	200
Amount Released:	50
Amount Measured:	2
Biological:	False
Radiological:	False

Chemical Id:	9324
Chemical Name:	DIESEL 2
Hazardous Ingredient:	PETROLEUM DISTILLATES
Hazardous Class 1:	3.3
Hazardous Class 2:	6.4
Hazardous Rank:	2
Case Number:	68476346
UNNA Number:	1993
EPA Pest Reg:	Not reported
EHA Chem:	N
PSM Chem:	N
CAA 112R Chem:	N

Method:

Method Used Id:	4410
Incident Id:	900138
Identity Method:	5

Released:

Release Behavior Id:	2306
Incident Id:	900138
Behavior:	2

Narrative:

Narrative Id:	2863
Incident Id:	900138
Incident Narrative:	200 GALLON DIESEL FUEL TANK RUPTURED FROM UNKNOWN CAUSE AND IGNITED. SOME OF THE FUEL WAS CONSUMED IN THE FIRE AND EXPLOSION AND SOME WAS ABSORBED INTO THE SURROUNDING GROUND AND LATER RECOVERED ON SITE BY A SYSTEM DESIGNED FOR THAT PURPOSE. DEQ WAS AL

FUEL PROCESSORS INC (Continued) **1001424376**

Incident Date: 6/5/1990

OR AIRS:

Name:	OIL RE-REFINING COMPANY INC.
Address:	4150 N SUTTLE RD
City,State,Zip:	PORTLAND, OR 97217-7717
Year:	Not reported
Emission:	Not reported
Permit Number:	26-3048-ST-01
Permit Type:	Standard ACDP
Expiration Date:	06/01/2023
Source ID:	Not reported
Issue Date:	06/27/2018
NAICS Code:	423930
Is Primary:	Not reported
SIC Code:	2992
Is Primary:	Not reported
Latitude:	45.6135
Longitude:	-122.7111
Poll:	Not reported
Emission Source Code:	Not reported
Process Code:	Not reported
SCC:	Not reported
Emission Source Description:	Not reported
Process Description:	Not reported
Throughput:	Not reported
Process Unit:	Not reported
Throughput Type:	Not reported

HSIS:

Name:	FUEL PROCESSORS INC
Address:	4150 N SUTTLE RD
City,State,Zip:	PORTLAND, OR 972177717
Facility ID:	007982
Department Or Division Of Company:	OIL RE-REFINING CO INC
Chemical Is Extremely Hazardous Substance (EHS:	N
Contains 112R:	N
Facility Has Written Emergency Plan:	Y
NAICS Code 1:	423930
NAICS Desc 1:	RECYCLABLE MATERIAL WHSLE
NAICS Code 2:	000000
NAICS Desc 2:	Not reported
Manager Name:	W, L BRIGGS
Business Phone:	5032868352
Mailing Address:	4150 N SUTTLE RD
Mailing City:	PORTLAND
Mailing State:	OR
Mailing Zip:	972177717
No. of Employees:	33
Day Phone:	5032868352
Placard:	Y
Fire Dept Code:	0291
FD:	PORTLAND FIRE & RESCUE
Sprinkler System:	Y
Emergency Contact:	TERRY WALKER

FUEL PROCESSORS INC (Continued) **1001424376**

Emergency Procedure:	LAB - CONFERENCE RM - UTILITY POLE AT NE CORNER
Business Type:	USED OIL RECYCLING
Facility Type:	Not reported
Department:	Not reported
Status:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Status TRI:	Not reported
Status RMP:	Not reported
Status PSM:	Not reported
Status CR2K:	Not reported
Status 302:	Not reported
Owner Name:	Not reported
Last Reported ID:	Not reported
Case Number:	Not reported
Chemical Name:	Not reported
EHS Name:	Not reported
Is Pure:	Not reported
Is Mix:	Not reported
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	Not reported
Maximum Daily Amount Unit:	Not reported
Chemical Added Date:	Not reported
Is Chem PSM:	Not reported
Is Chem 112R:	Not reported
Is Chem 302:	Not reported
Is Pesticide:	Not reported
Is Fertilizer:	Not reported
Physical State:	Not reported
UNNA Number:	Not reported
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Not reported
Number of Days Onsite:	Not reported
Year:	Not reported

Case Number:	8006619
Chemical Name:	GASOLINE
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	30
Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/27/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	1203
NFPA Health:	1

FUEL PROCESSORS INC (Continued) **1001424376**

NFPA Flammability:	3
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Acute, Physical Combustive
Number of Days Onsite:	365
Year:	2018

Case Number:	142825
Chemical Name:	HEPTANE
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	20
Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/27/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	1206
NFPA Health:	2
NFPA Flammability:	3
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Acute, Physical Combustive
Number of Days Onsite:	300
Year:	2018

Case Number:	7722841
Chemical Name:	HYDROGEN PEROXIDE
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	4
Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/27/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	Yes
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	2014
NFPA Health:	2
NFPA Flammability:	0
NFPA Reactivity:	1
NFPA Special Notice:	Not reported
Hazards:	Physical Corrosive, Physical Oxidizer
Number of Days Onsite:	365
Year:	2018

FUEL PROCESSORS INC (Continued) **1001424376**

Case Number:	10043013
Chemical Name:	ALUM
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	11
Maximum Daily Amount Unit:	lbs
Chemical Added Date:	10/27/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Solid
UNNA Number:	3077
NFPA Health:	Not reported
NFPA Flammability:	Not reported
NFPA Reactivity:	Not reported
NFPA Special Notice:	Not reported
Hazards:	Health Acute, Health SeriousEye, Health SkinCorrosion
Number of Days Onsite:	365
Year:	2018

Case Number:	16828129
Chemical Name:	ALUMINUM SULFATE LIQUID
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	11
Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/27/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	3264
NFPA Health:	2
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	Not reported
Hazards:	Health SeriousEye, Health SkinCorrosion
Number of Days Onsite:	365
Year:	2018

Case Number:	1305620
Chemical Name:	SLAKED LIME
EHS Name:	Not reported
Is Pure:	Yes
Is Mix:	No
Is EHS:	Not reported
Mixture Component:	Not reported

FUEL PROCESSORS INC (Continued) **1001424376**

Maximum Daily Amount Code:	20
Maximum Daily Amount Unit:	lbs
Chemical Added Date:	10/27/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Solid
UNNA Number:	0
NFPA Health:	3
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	Not reported
Hazards:	Health Acute, Health SkinCorrosion
Number of Days Onsite:	365
Year:	2018

Case Number:	7757837
Chemical Name:	SODIUM SULFITE
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	11
Maximum Daily Amount Unit:	lbs
Chemical Added Date:	10/27/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Solid
UNNA Number:	0
NFPA Health:	1
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	Not reported
Hazards:	Health Acute
Number of Days Onsite:	365
Year:	2018

Case Number:	107211
Chemical Name:	ANTIFREEZE
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	20
Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/27/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No

FUEL PROCESSORS INC (Continued) **1001424376**

Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	3082
NFPA Health:	1
NFPA Flammability:	1
NFPA Reactivity:	0
NFPA Special Notice:	Not reported
Hazards:	Health Acute
Number of Days Onsite:	365
Year:	2018
Case Number:	N/A
Chemical Name:	WASTE OIL
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	51
Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/27/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	N/A
NFPA Health:	0
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	N/A
Hazards:	Health Acute, Physical Combustive
Number of Days Onsite:	365
Year:	2018
Case Number:	1310732
Chemical Name:	CAUSTIC SODA SOLUTION 50%
EHS Name:	Not reported
Is Pure:	No
Is Mix:	Yes
Is EHS:	Not reported
Mixture Component:	Not reported
Maximum Daily Amount Code:	20
Maximum Daily Amount Unit:	gal
Chemical Added Date:	10/27/2017
Is Chem PSM:	No
Is Chem 112R:	No
Is Chem 302:	No
Is Pesticide:	No
Is Fertilizer:	No
Physical State:	Liquid
UNNA Number:	1824
NFPA Health:	3
NFPA Flammability:	0
NFPA Reactivity:	0
NFPA Special Notice:	Not reported

FUEL PROCESSORS INC (Continued) **1001424376**

Hazards:	Health Acute, Health SkinCorrosion
Number of Days Onsite:	365
Year:	2018

Chemical:

Chemical Name:	GASOLINE
Physical Description:	LIQUID
Case Number:	8006619
Facility Id:	007982
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	30
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	O
Temperature Description:	TOTEBIN
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	10,000-49,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	PETROLEUM DISTILLATES
United Nations/north America 4 Digit Class Number:	1203
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	Y
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	HEPTANE
Physical Description:	LIQUID
Case Number:	142825
Facility Id:	007982

FUEL PROCESSORS INC (Continued) **1001424376**

Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	20
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	300
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	HEPTANE
United Nations/north America 4 Digit Class Number:	1206
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Flammable and Combustible Liquid
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Chronic Health Hazard
Hazard Class 1 Of The Chemical:	3.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	6.4

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	HYDROGEN PEROXIDE
Physical Description:	LIQUID
Case Number:	7722841
Facility Id:	007982
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	10
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	O
Description:	TOTEBIN
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1

FUEL PROCESSORS INC (Continued) **1001424376**

Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	280
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	HYDROGEN PEROXIDE
United Nations/north America 4 Digit Class Number:	2014
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Oxidizers
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Acute Health Hazard
Hazard Class 1 Of The Chemical:	5.1
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	6.3

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	5749-7
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	Y
Contains 313:	N

Chemical Name:	ALUM
Physical Description:	SOLID
Case Number:	10043013
Facility Id:	007982
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	11
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999

FUEL PROCESSORS INC (Continued) **1001424376**

Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	ALUMINUM SULFATE
United Nations/north America 4 Digit Class Number:	3077
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	False
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ALUMINUM SULFATE LIQUID
Physical Description:	LIQUID
Case Number:	16828129
Facility Id:	007982
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	11
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	ALUMINUM SULFATE HYDRATE
United Nations/north America 4 Digit Class Number:	3264
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported

FUEL PROCESSORS INC (Continued) **1001424376**

Hazard Class 1 Of The Chemical:	8.0
Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	SLAKED LIME
Physical Description:	SOLID
Case Number:	1305620
Facility Id:	007982
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	11
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	J
Description:	BAG
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	CALCIUM HYDROXIDE
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	False
Substance Mix:	False
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Corrosive Material
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	8.0
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N

FUEL PROCESSORS INC (Continued) **1001424376**

Pesticide:	N
Contains 313:	N

Chemical Name:	SODIUM SULFITE
Physical Description:	SOLID
Case Number:	7757837
Facility Id:	007982
Physical State Of The Substance:	1
Average Amount Possessed During The Year Code:	04
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	1
Description Of The Unit Of Measure:	POUNDS
Type Code:	I
Description:	FIBER DRUM
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	50-199
Most Hazardous Ingridient:	SODIUM SULFITE
United Nations/north America 4 Digit Class Number:	0000
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON SDS
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ANTIFREEZE
Physical Description:	LIQUID
Case Number:	107211
Facility Id:	007982
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	20

FUEL PROCESSORS INC (Continued) **1001424376**

Maximum Amount Possessed During The Year Code:	31
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	A
Description:	ABOVEGROUND TANK
Type Code:	D
Temperature Description:	STEEL DRUM
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	50,000-99,999
Description Of The Avg Qnty Code:	1,000-4,999
Most Hazardous Ingridient:	ETHYLENE GLYCOL
United Nations/north America 4 Digit Class Number:	3082
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Acute Health Hazard
Second Hazardous Class Code For Chemical:	Not reported
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	6.3
Hazard Class 2 Of The Chemical:	Not reported
Hazard Class 3 Of The Chemical:	Not reported

Additional Chemical:

Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	Y

Chemical Name:	WASTE OIL
Physical Description:	LIQUID
Case Number:	Not reported
Facility Id:	007982
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	31
Maximum Amount Possessed During The Year Code:	42
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	D
Description:	STEEL DRUM
Type Code:	A
Temperature Description:	ABOVEGROUND TANK
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1

FUEL PROCESSORS INC (Continued) **1001424376**

Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500,000-749,999
Description Of The Avg Qnty Code:	50,000-99,999
Most Hazardous Ingridient:	PETROLEUM HYDROCARBONS
United Nations/north America 4 Digit Class Number:	Not reported
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Combustible Material
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	4.5
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported

Chemical Name:	CAUSTIC SODA SOLUTION 50%
Physical Description:	LIQUID
Case Number:	1310732
Facility Id:	007982
Physical State Of The Substance:	2
Average Amount Possessed During The Year Code:	10
Maximum Amount Possessed During The Year Code:	20
Applicable Unit Of Measure Code:	2
Description Of The Unit Of Measure:	GALLONS
Type Code:	E
Description:	PLASTIC OR NON-METALLIC DRUM
Type Code:	A
Temperature Description:	ABOVEGROUND TANK
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Pressure of Code:	1
Pressure Description:	NORMAL PRESSURE
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	1,000-4,999
Description Of The Avg Qnty Code:	200-499
Most Hazardous Ingridient:	SODIUM HYDROXIDE
United Nations/north America 4 Digit Class Number:	1824
Hazard Rank:	2
EHS Ingredient:	Not reported
Substance Pure:	False
Substance Mix:	True
First Hazardous Class Code For Chemical:	Corrosive Material
Second Hazardous Class Code For Chemical:	Acute Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	8.0

FUEL PROCESSORS INC (Continued) **1001424376**

Hazard Class 2 Of The Chemical:	6.3
Hazard Class 3 Of The Chemical:	Not reported
Additional Chemical:	
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N
Contains 313:	N

Chemical Name:	ACETYLENE
Physical Description:	GAS
Case Number:	74862
Facility Id:	007982
Physical State Of The Substance:	3
Average Amount Possessed During The Year Code:	11
Maximum Amount Possessed During The Year Code:	11
Applicable Unit Of Measure Code:	3
Description Of The Unit Of Measure:	CUBIC FEET
Type Code:	L
Description:	CYLINDER
Type Code:	Not reported
Temperature Description:	Not reported
Pressure of Code:	2
Pressure Description:	GREATER THAN NORMAL PRESSURE
Pressure of Code:	Not reported
Pressure Description:	Not reported
Temperature Description:	NORMAL TEMPERATURE
Temperature of The Hazardous Substance Code:	4
Temperature Description:	Not reported
Temperature of The Hazardous Substance Code:	Not reported
Days Hazardous Substance On Site During Year:	365
Is The Substance Protected A Trade Secret:	False
Description Of The Max Qnty Code:	500-999
Description Of The Avg Qnty Code:	500-999
Most Hazardous Ingridient:	ACETYLENE
United Nations/north America 4 Digit Class Number:	1001
Hazard Rank:	2
EHS Ingredient:	NONE LISTED ON MSDS
Substance Pure:	True
Substance Mix:	False
First Hazardous Class Code For Chemical:	Flammable Gas
Second Hazardous Class Code For Chemical:	Chronic Health Hazard
Third Hazardous Class Code For Chemical:	Not reported
Hazard Class 1 Of The Chemical:	2.1
Hazard Class 2 Of The Chemical:	6.4
Hazard Class 3 Of The Chemical:	Not reported
Additional Chemical:	
Chemical Is A Toxic 313 Chemical:	N
EPA Pesticide Registration Number:	Not reported
Contains 112R:	N
Contains EHS:	N
Fertilizer:	N
Pesticide:	N

FUEL PROCESSORS INC (Continued) **1001424376**

Contains 313: N

Click this hyperlink while viewing on your computer to access
2 additional OR HSIS: record(s) in the EDR Site Report.

NPDES:

WQ File Nbr:	122656
Legal Name:	OIL RE-REFINING COMPANY
Region:	Not reported
Pri SIC:	1542
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12C
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

WQ File Nbr:	122718
Legal Name:	OIL RE-REFINING COMPANY
Region:	NWR
Pri SIC:	5093
Facility Type:	SCRAP AND WASTE MATERIALS
Latitude:	45.613
Longitude:	-122.7116
Category:	STM
Permit Type:	GEN12Z
Permit Active:	True
Is Active?:	Not reported
Permit Description:	Stormwater; NPDES specific SIC codes
Expiration Date:	07/31/2022
EPA Number:	ORR607197
UIC Facility:	False
Admin Agent:	City of Portland
Last Action Date:	08/01/2017
Permit Writer:	Not reported
Compliance Inspector:	PORTLAND
DMR Reviewer:	Not reported
Application Number:	956723
Class:	MINOR
Start Date:	01/23/2013
Region Decode:	North West Region

71
SSW
1/2-1
0.991 mi.
5233 ft.

PACIFIC MEAT CO.
2701 N NEWARK ST.
PORTLAND, OR 97217

OR CRL **S110048288**
OR ECSI **N/A**
OR INST CONTROL
OR NPDES

Relative:
Higher

Actual:
31 ft.

CRL:

Name:	PACIFIC MEAT CO.
Address:	2701 N NEWARK ST.
City,State,Zip:	PORTLAND, OR 97217
Facility ID:	145
Location ID:	5413
Status Code:	LIS
Facility Status:	REMEDIAL ACTION
Lat/Long:	45.5904 / -122.6947

ECSI:

Name:	PACIFIC MEAT CO.
Address:	2701 N NEWARK ST.
City,State,Zip:	PORTLAND, OR 97217
State ID Number:	145
Brown ID:	0
Study Area:	False
Region ID:	2
Legislatve ID:	832
Investigation:	Listed on the CRL/Inventory
FACA ID:	5413
Further Action:	0
Lat/Long (dms):	45 35 25.40 / -122 41 40.90
County Code:	26.00
Score Value:	Not reported
Cerclis ID:	050185750
Township Coord.:	1.00
Township Zone:	N
Range Coord:	1.00
Range Zone:	E
Section Coord:	9
Qtr Section:	BA
Tax Lots:	200
Size:	6.3 acres
NPL:	False
Orphan:	False
Updated By:	JWAGGY
Update Date:	03/13/2007
Created Date:	04/18/1988
Decode For RegionID:	Northwest Region
Decode For BrownID:	Not reported
Decode For Furtheract:	Not reported
Decode For Investstat:	Listed on the CRL/Inventory
Decode For Legislative:	Owner, operator or other party under state or federal authority
Alias Name:	Northwest Cast Metal Products
Alias Name:	Pelletrox, Inc.
Alias Name:	Blue Line Transportation Co.

Hazardous Release:

Substance ID.:	121664
Haz Release ID:	384841
Qty Released:	Not reported
Date Released:	1979-1981

PACIFIC MEAT CO. (Continued) **S110048288**

Update Date: 05/24/1995
Update By: Not reported
Substance Code: 7440-38-2
Substance Name: ARSENIC
Substance Abbrev.: Not reported
Substance Category ID: 8439
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8439
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319286
Sub Alias Name: AS
Sampling Result ID: 343412
Feature Id: 0
Hazard Release Id: 384841
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: GP-22B, 0-0.5 Ft
Start Date: 02/28/2002
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 257 mg/kg
Last Update By: JWAGGY
Update Date: 07/22/2003
Decode for MediumID: Soil
Sampling Result ID: 349031
Feature Id: 0
Hazard Release Id: 384841
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0 - 0.5 ft, Slough
Start Date: 10/17/2006
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 104 mg/kg
Last Update By: JWAGGY
Update Date: 01/22/2007
Decode for MediumID: Sediment

Substance ID.: 121639
Haz Release ID: 384842
Qty Released: Not reported

PACIFIC MEAT CO. (Continued) **S110048288**

Date Released: 1979-1981
Update Date: 05/24/1995
Update By: Not reported
Substance Code: 7439-92-1
Substance Name: LEAD
Substance Abbrev.: Not reported
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8466
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319256
Sub Alias Name: PB
Sampling Result ID: 343413
Feature Id: 0
Hazard Release Id: 384842
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Tank House Sump
Start Date: 05/19/1988
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 2,485 mg/kg
Last Update By: JWAGGY
Update Date: 07/28/2003
Decode for MediumID: Sediment
Sampling Result ID: 347422
Feature Id: 0
Hazard Release Id: 384842
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: West Settling Pond
Start Date: 02/14/2002
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1,020 mg/kg
Last Update By: JWAGGY
Update Date: 07/28/2003
Decode for MediumID: Sediment
Sampling Result ID: 347423
Feature Id: 0
Hazard Release Id: 384842

PACIFIC MEAT CO. (Continued) **S110048288**

Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Columbia Slough
Start Date: 05/01/1988
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 464 mg/kg
Last Update By: JWAGGY
Update Date: 07/28/2003
Decode for MediumID: Sediment

Substance ID.: 121643
Haz Release ID: 384843
Qty Released: Not reported
Date Released: 1979-1981
Update Date: 05/24/1995
Update By: Not reported
Substance Code: 7439-97-6
Substance Name: MERCURY
Substance Abbrev.: Not reported
Substance Category ID: 8467
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8467
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319260
Sub Alias Name: HG
Substance Alias ID: 319261
Sub Alias Name: HYDRARGYRUM
Substance Alias ID: 319262
Sub Alias Name: LIQUID SILVER
Substance Alias ID: 319263
Sub Alias Name: QUICKSILVER
Sampling Result ID: 343414
Feature Id: 0
Hazard Release Id: 384843
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: Stock Barn Gutter
Start Date: 05/19/1988
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported

PACIFIC MEAT CO. (Continued) **S110048288**

Sample Comment: 5 mg/kg
Last Update By: JWAGGY
Update Date: 07/28/2003
Decode for MediumID: Sediment
Sampling Result ID: 347424
Feature Id: 0
Hazard Release Id: 384843
Medium: 703
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: GP-22a, 0-0.5 Ft
Start Date: 02/28/2002
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 0.042 mg/kg
Last Update By: JWAGGY
Update Date: 07/28/2003
Decode for MediumID: Soil
Sampling Result ID: 349035
Feature Id: 0
Hazard Release Id: 384843
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0 - 0.5 ft, Slough
Start Date: 10/17/2006
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 1.52 mg/kg
Last Update By: JWAGGY
Update Date: 01/22/2007
Decode for MediumID: Sediment

Substance ID.: 121668
Haz Release ID: 386959
Qty Released: Not reported
Date Released: Not reported
Update Date: 01/22/2007
Update By: JWAGGY
Substance Code: 7440-43-9
Substance Name: CADMIUM
Substance Abbrev.: Not reported
Substance Category ID: 8460
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8460
Substance Category: Inorganics

PACIFIC MEAT CO. (Continued) **S110048288**

Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319291
Sub Alias Name: CD
Sampling Result ID: 349032
Feature Id: 0
Hazard Release Id: 386959
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: False
Sample Depth: 0 - 0.5 ft, Slough
Start Date: 10/17/2006
End Date: 01/22/2007
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 3.68 mg/kg
Last Update By: JWAGGY
Update Date: 01/22/2007
Decode for MediumID: Sediment

Substance ID.: 121679
Haz Release ID: 386960
Qty Released: Not reported
Date Released: Not reported
Update Date: 01/22/2007
Update By: JWAGGY
Substance Code: 7440-66-6
Substance Name: ZINC
Substance Abbrev.: Not reported
Substance Alias ID: 319302
Sub Alias Name: ZN
Sampling Result ID: 349033
Feature Id: 0
Hazard Release Id: 386960
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0 - 0.5 ft, Slough
Start Date: 10/17/2006
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 604 mg/kg
Last Update By: JWAGGY
Update Date: 01/22/2007
Decode for MediumID: Sediment

Substance ID.: 121671
Haz Release ID: 386961
Qty Released: Not reported

PACIFIC MEAT CO. (Continued) **S110048288**

Date Released: Not reported
Update Date: 01/22/2007
Update By: JWAGGY
Substance Code: 7440-47-3
Substance Name: CHROMIUM
Substance Abbrev.: Not reported
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8462
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 318145
Sub Alias Name: CHROMIUM, INORGANIC
Substance Alias ID: 319294
Sub Alias Name: CHROMIUM, TOTAL
Sampling Result ID: 349034
Feature Id: 0
Hazard Release Id: 386961
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0 - 0.5 ft, Slough
Start Date: 10/17/2006
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 68.8 mg/kg
Last Update By: JWAGGY
Update Date: 01/22/2007
Decode for MediumID: Sediment

Substance ID.: 121755
Haz Release ID: 386962
Qty Released: Not reported
Date Released: Not reported
Update Date: 01/22/2007
Update By: JWAGGY
Substance Code: 7782-49-2
Substance Name: SELENIUM
Substance Abbrev.: Not reported
Substance Alias ID: 319488
Sub Alias Name: SE
Sampling Result ID: 349036
Feature Id: 0
Hazard Release Id: 386962
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False

PACIFIC MEAT CO. (Continued) **S110048288**

Owner Operator: False
Lab Data: True
Sample Depth: 0 - 0.5 ft, Slough
Start Date: 10/17/2006
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 103 mg/kg
Last Update By: JWAGGY
Update Date: 01/22/2007
Decode for MediumID: Sediment

Substance ID.: 121654
Haz Release ID: 386963
Qty Released: Not reported
Date Released: Not reported
Update Date: 01/22/2007
Update By: JWAGGY
Substance Code: 7440-22-4
Substance Name: SILVER
Substance Abbrev.: Not reported
Substance Category ID: 8470
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8470
Substance Category: Inorganics
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 319274
Sub Alias Name: AG
Sampling Result ID: 349037
Feature Id: 0
Hazard Release Id: 386963
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0 - 0.5 ft, Slough
Start Date: 10/17/2006
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 9.94 mg/kg
Last Update By: JWAGGY
Update Date: 01/22/2007
Decode for MediumID: Sediment

Substance ID.: 120909
Haz Release ID: 386964
Qty Released: Not reported
Date Released: Not reported
Update Date: 01/22/2007

PACIFIC MEAT CO. (Continued) **S110048288**

Update By: JWAGGY
Substance Code: 11097-69-1
Substance Name: PCB 1254
Substance Abbrev.: Not reported
Substance Category ID: 8556
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8556
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Alias ID: 316559
Sub Alias Name: AROCHLOR 1254
Substance Alias ID: 316560
Sub Alias Name: AROCLOR 1254
Sampling Result ID: 349038
Feature Id: 0
Hazard Release Id: 386964
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0 - 1 ft, Slough
Start Date: 10/18/2006
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 0.55 mg/kg
Last Update By: JWAGGY
Update Date: 01/22/2007
Decode for MediumID: Sediment

Substance ID.: 120908
Haz Release ID: 386965
Qty Released: unknown
Date Released: 1979-1981
Update Date: 01/22/2007
Update By: JWAGGY
Substance Code: 11096-82-5
Substance Name: PCB 1260
Substance Abbrev.: Not reported
Substance Category ID: 8496
Substance Category: Semi-volatiles
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8557
Substance Category: PCB Substances for the OSPIRG Report
Category Level: Not reported
Created By: Not reported
Created Date: 12/17/2002
Substance Category ID: 8496

PACIFIC MEAT CO. (Continued) **S110048288**

Substance Category:	Semi-volatiles
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Category ID:	8557
Substance Category:	PCB Substances for the OSPIRG Report
Category Level:	Not reported
Created By:	Not reported
Created Date:	12/17/2002
Substance Alias ID:	316557
Sub Alias Name:	AROCHLOR 1260
Substance Alias ID:	316558
Sub Alias Name:	AROCLOR 1260
Comment ID:	305192
Release Code:	Release Containment
Release Comments:	Transformer oil drummed and stored along north roadway may have leaked. Transformer recycle area in northeast portion of site may be location of spills.
Decode for Relcomcd:	Release Containment
Sampling Result ID:	349039
Feature Id:	0
Hazard Release Id:	386965
Medium:	701
Substance Abbrev.:	0
Unit Code:	Not reported
Observation:	False
Owner Operator:	False
Lab Data:	False
Sample Depth:	GP-32, 0-0.5 Ft, pond
Start Date:	05/19/1988
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	Not reported
Sample Comment:	0.992 mg/kg
Last Update By:	JWAGGY
Update Date:	01/22/2007
Decode for MediumID:	Sediment
Sampling Result ID:	349040
Feature Id:	0
Hazard Release Id:	386965
Medium:	703
Substance Abbrev.:	0
Unit Code:	Not reported
Observation:	False
Owner Operator:	False
Lab Data:	True
Sample Depth:	S-6, 0-0.5 Ft
Start Date:	02/14/1988
End Date:	Not reported
Min Concentration:	Not reported
Max Concentration:	Not reported
Sample Comment:	2.48 mg/kg
Last Update By:	JWAGGY
Update Date:	01/22/2007
Decode for MediumID:	Soil
Sampling Result ID:	349041
Feature Id:	0

PACIFIC MEAT CO. (Continued) **S110048288**

Hazard Release Id: 386965
Medium: 701
Substance Abbrev.: 0
Unit Code: Not reported
Observation: False
Owner Operator: False
Lab Data: True
Sample Depth: 0 - 1 Ft, Slough
Start Date: 10/18/2006
End Date: Not reported
Min Concentration: Not reported
Max Concentration: Not reported
Sample Comment: 0.24 mg/kg
Last Update By: JWAGGY
Update Date: 01/22/2007
Decode for MediumID: Sediment

Narrative:

NARR ID: 5729238
NARR Code: Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 08/25/2003
Decode for NarcdID: Contamination
NARR Comments: The late Mr. Haney was known to use PCB-containing oils to fuel his lead smelter. Therefore, dioxins & furans (incomplete combustion products of PCBs) could have been formed at the site. Until a 1985 cleanup, the site contained several drums of oil contaminated with PCBs at up to 60,000 mg/kg. Before the 1985 removal, asphalt north of the stock barn was contaminated with PCBs at up to 7,400 mg/kg. In May 1988, Ecology & Environment conducted a sampling site assessment for EPA, and found significant levels of PCBs in soil and sediments from storm drain sumps and in the eastern settling pond. These samples also showed elevated levels of arsenic, lead, and mercury. (7/2/03 MDK/C&ER) Cyanide has been detected in pond fill, sediment, and in soil beneath the ponds and oil/water separator.

NARR ID: 5729239
NARR Code: Data Sources
Created By: Not reported
Created Date: 12/17/2002
Updated By: MKENT
Updated Date: 01/28/2010
Decode for NarcdID: Data Sources
NARR Comments: EPA CERCLA PA, Pacific Meat Company, 9/87. GeoDesign, Dec 3, 2007, <quot>Remedial Investigation Site Summary, Portland MOtor Transport (Former Pacific Meat Company) Site<quot> GeoDesign and Technical Assessment Services, Feb 2008, <quot>Human Health and Ecological Risk Assessment, Former Pacific Meat Company<quot> GeoDesign, April 4, 2008, <quot>Focused Feasibility Study, Portland Motor Transport (Former Pacific Meat Company) Site<quot> GeoDesign, Jan 5, 2010, <quot>Remedial Design/Remedial Action Plan, Portland Motor Transport (Former Pacific Meat Company) Site<quot>

NARR ID: 5743909
NARR Code: General Site Description
Created By: JWAGGY

PACIFIC MEAT CO. (Continued) **S110048288**

Created Date: 07/22/2003
Updated By: JWAGGY
Updated Date: 07/28/2003
Decode for NarcdID: General Site Description
NARR Comments: The site is located at 2701 N Newark Street in north Portland. The northern property boundary is adjacent to the Columbia Slough, an environmentally vulnerable area.

NARR ID: 5729240
NARR Code: Hazardous Substance/Waste Types
Created By: Not reported
Created Date: 12/17/2002
Updated By: JWAGGY
Updated Date: 08/19/2003
Decode for NarcdID: Hazardous Substance/Waste Types
NARR Comments: The following wastes are or were at one time present at the site: transformer oil contaminated w/PCBs; cyanides; organic solvents and paints in drums; lead, mercury, arsenic, and zinc; phenols; and pesticides.

NARR ID: 5729241
NARR Code: Site Location
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Site Location
NARR Comments: Site is on NE corner of the intersection of N Burrage and N Newark

NARR ID: 5729242
NARR Code: Manner of Release
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Manner of Release
NARR Comments: Spills, leaks, illegal discharges, between 1979 and 1981.

NARR ID: 5729243
NARR Code: Media Contamination
Created By: Not reported
Created Date: 12/17/2002
Updated By: JWAGGY
Updated Date: 01/22/2007
Decode for NarcdID: Media Contamination
NARR Comments: Soil, sediments in storm drain sumps and settling ponds groundwater, Columbia Slough sediment and potentially surface water.

NARR ID: 5729244
NARR Code: Site Ownership
Created By: Not reported
Created Date: 12/17/2002
Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Site Ownership
NARR Comments: Pacific Meat Company moved, with no forwarding address. Peter O. Haney is deceased. Other Peter O. Haney related sites include ECSI

PACIFIC MEAT CO. (Continued) **S110048288**

#96, 690, 999, and 1135.

NARR ID: 5729245
NARR Code: Pathways Other Hazards
Created By: Not reported
Created Date: 12/17/2002
Updated By: JWAGGY
Updated Date: 07/28/2003
Decode for NarcdID: Pathways & Other Hazards
NARR Comments: Sumps on the facility drain to the ponds. These ponds are a possible source of soil and groundwater contamination. Storm drains on-site have contaminated sediments. The site is within two blocks of residential areas, so that human direct contact with soil and sediments is a potential risk. (8/19/97 LSK/SAS) The primary pathways of concern are contact with contaminated soil, sediment and surface water. The site is within 500 ft. of the Lower Slough and south of Delta Park.

NARR ID: 5729246
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002
Updated By: EMCDONN
Updated Date: 04/23/2014
Decode for NarcdID: Remedial Action
NARR Comments: (5/24/95 GMW/SAS) In 1985, the property owner conducted a site evaluation, and hired Riedel Environmental Services to clean up the site. The cleanup consisted of: 1) the removal of about 5,000 gallons of surplus paints within the buildings; 2) removal of transformers and drummed PCB liquids; and 3) excavation and removal of PCB-contaminated asphalt and soil (11 cubic yards) from two areas just north of the <quot>stock barn<quot> building. E&E's 1988 site assessment was in part designed to assess the adequacy of the 1985 removal. E&E's report stated that it appeared as though the site had been cleaned up; however, their sample results showed high levels of PCBs and several metals remained in sump sediments, pond sediments, and in a few areas of soil. According to the property owner, Charles Tindall, no assessment work has occurred since 1988, because EPA Region 10 issued a no further action letter for the property. Site Assessment recommends that the owner conduct further site characterization and remedial action, preferably under the guidance of the Voluntary Cleanup Program. The site is a medium priority, because the site's proximity to residential neighborhoods and West Delta Park raises the potential for human exposure to contaminated soil and sediments. Analyses for dioxins and furans should accompany any additional sampling at the site. (8/19/97 LSK/SAS) Site re-evaluated as part of review of all sites within the Columbia Slough Study Area, and given a high priority for further evaluation. (7/15/98 MDK/SRP) RI proposal submitted 7/6/98 per Consent Order; under review. (11/4/98 MDK/SRP) Revised RI proposal submitted 3rd quarter 1998; under review. (4/8/99 MDK/SRP) The RI proposal was accepted in January 1999 and the draft RI phase I workplan was due to DEQ on February 8, 1999. The workplan was not submitted and a Notice of Noncompliance (NON) was sent on April 8, 1999. (1/3/00 MDK/SRP) A Phase I RI workplan was submitted on April 9, 1999 and resubmitted on September 10, 1999. Phase I RI work was completed in September and October 1999. A Phase I Report is to be submitted by January 10,

PACIFIC MEAT CO. (Continued) **S110048288**

2000. (4/13/2000 MDK/SRP) DEQ reviewed the Phase I report in a letter dated March 17, 2000, requested the RP prepare and submit a Phase II workplan considering IRAMs for contaminated pond sediments and on-site soil stockpile. The Phase I report was not approved and no revision was requested. A Phase II workplan is to be submitted by May 16, 2000. (9/20/00 MDK/SRP) The Phase II work was split into land water use (LWU) determination and Eco Level I, and an RI/RA workplan. The LWU and Eco Level I were submitted on August 31, 2000 and are under review. A RI/RA workplan is to be submitted September 22, 2000. (5/29/01 MDK/SRP) A revised RI work plan was submitted on May 3, 2001, and is under review. A Columbia Slough sediment sampling work plan was submitted on May 25, 2001, and is also under review. (11/16/01 MDK/SRP) Initial review of the two work plans indicates theat DEQ's comments and request for Scope of Work have not been fully addressed. DEQ expects to issue comments on the work plans in December 2001 and will pursue completion of both the upland and slough portions of the investigation. (5/8/02 MDK/SRP) The third revisions to the RI Work Plan and the Slough Sediment Sampling Work Plan were submitted on April 26, 2002, and are under review. (7/2/03 MDK/C&ER) DEQ conducted a complete file and data review in December 2002, and January 2003. A summary of data needs was issued on April 11, 2003, and discussed at a project meeting on April 14, 2003. RP committed to submittal of work plans for an IRM to fill the ponds and conduct the remaining RI work, and a slough sediment investigation. The work plans were submitted on June 4, 2003. DEQ has reviewed initial IRM data and plans and responded by email approving the proposed IRM with conditions. (8/26/04 MDK/C&ER): Additional investigations were conducted in summer 2003. DEQ review of remaining on site and slough investigation plans is underway. (6/16/05 MDK/CU&ER)Site status and data review will be completed in 3rd quarter 2005 to determine next steps for this site. (12/28/06 MDK/CU&ER) Site visit made on August 31, 2006 to discuss steps to complete site investigation and address upland areas of soil contamination. A Columbia Slough Sediment investigation workplan was submitted to DEQ, reviewed and approved on January 25, 2006. Work was conducted in August 2006 and a preliminary report of data provided in December 2006. The sediment data was reviewed by DEQ and a follow-up sediment sampling scope agreed between DEQ and Pacific Meat in December 2006. The follow-up sampling should occur in first quarter 2007. The pond and transformer area IRAM workplan was approved on February 13, 2006. Work began March 1, 2006 with a test stabilization, then sampling for leach testing. Leach test results exceeded criteria. Pacific Meat requested on September 28, 2006, to abandon the stabilization approach and pursue filling the ponds in-place, capping and installing groundwater monitoring wells. Additional work for a filling/capping approach is required to meet Portland BES requirements for work in a conservation zone and for stormwater management. Pacific Meat is currently working to meet those requirements before moving forward with the pond/transformer area IRAM. No dates have been offered by Pacific Meat for conducting the follow-up sediment sampling or moving forward with the pond and transformer area IRAM. (1/28/10 MDK/CU&ER) Remedial Investigation Site Summary dated 12/3/07, HH & ERA dated Feb 2008, and FFS dated 4/4/08 submitted. DEQ did not approve the documents due to extensive revisions that would be required, causing further delay on this project, but accepted them as containing sufficient information to move forward with Staff Report development. Proposed final site

PACIFIC MEAT CO. (Continued) **S110048288**

remedy public comment period held in August 2008 and ROD issued in Sept 2008. New AOC for upland portion of site issued on 3/23/09. RDRA Work Plan expected to be approved in Feb 2010 with immediate implementation of final remedy; most of 2009 spent obtaining all necessary permits for remedial action. Consent Judgment for settlement of liability for slough was filed in 2009 covering contribution to cleanup of site contamination in Slough. (01/10/11 EKM/CU&ER) A DEQ-approved RDRA implementation began February 2010. Site excavation/relocation activities to address impacted soils are complete. The cap design for impacted soils placed in the former settling pond area is expected to be finished by Spring 2011. Stormwater control measures incomplete and pending. Remedial action will be verified with groundwater monitoring on a semi-annual basis. (04.23.14 EKM) Cap installation is complete. Groundwater monitoring has been conducted for four events with no adverse effects observed. Stormwater control measures, including sampling at Outfall 1 and cleanout of the line is complete. The ROD also stipulates institutional controls for the site, including a cap monitoring and maintenance and contaminated media management. As of December 2012, plans for these controls have been submitted to DEQ for review. To ensure performance institutional controls, the property owner will record a DEQ-approved Easement and Equitable Servitudes with the property deed. The E&ES will reference the DEQ-approved monitoring plans and development restrictions at the site.

NARR ID: 5746756
NARR Code: Health Threats
Created By: JWAGGY
Created Date: 06/23/2005
Updated By: JWAGGY
Updated Date: 06/23/2005
Decode for NarcdID: Health Threats
NARR Comments: Direct contact with contaminated soil, impact of discharges of contaminated groundwater on aquatic receptors, human consumption of fish exposed to PCB's in sediment.

NARR ID: 5743932
NARR Code: Site History
Created By: JWAGGY
Created Date: 07/28/2003
Updated By: JWAGGY
Updated Date: 07/28/2003
Decode for NarcdID: Site History
NARR Comments: The site originally operated as Pacific Meat Company, a meat rendering operation. During 1978 to 1981, the site was occupied by Peter O. Haney and used for such activities as secondary lead smelting, precious metals recovery, transformer salvaging and storage, and surplus paint and oil storage. The site contains two unlined ponds adjacent to the Columbia Slough, which the rendering plant had used as settling ponds.

NARR ID: 5751980
NARR Code: 1922
Created By: MKENT
Created Date: 01/28/2010
Updated By: EMCDONN
Updated Date: 01/23/2018

PACIFIC MEAT CO. (Continued) **S110048288**

Decode for NarcdID: Current Site Summary Statement
NARR Comments: The property owner entered into an agreement in the form of a Consent Judgment with DEQ in 2008 to resolve liability associated with their site s contribution to sediment contamination in the Columbia Slough. DEQ implemented a remedial action consisting of the application of carbon-based amendments within the Columbia Slough along the length of the property in 2016 using settlement funds.

 DEQ issued an Order of Consent to complete cleanup in the upland portion of the site in 2009, which succeeded a 1998 Order to complete a remedial investigation (RI) and feasibility study (FS). Implementation of the DEQ-approved remedial design commenced February 2010. The remedy as documented in the 2008 Record of Decision for the upland portion of the site includes consolidation and capping impacted soils with unacceptable risk. Cap installation was completed in the summer of 2011 and monitoring of remedy performance has been performed. Additional measures have been implemented including sampling stormwater at outfalls and cleanout, in accordance of the selected remedy. The ROD also stipulates institutional controls for the site, including a cap monitoring and maintenance and contaminated media management. Draft plans for these controls have been submitted to DEQ. However, discussions are ongoing whether to modify the cap surface cover to incorporate current site operations, which would require re-design plans for DEQ approval. Prior to project completion the property owner will record a DEQ-approved Easement and Equitable Servitudes with the property deed. The E&ES will reference the DEQ-approved monitoring plans and development restrictions at the site.

Site Control:
Site Control #: 728
Control Number: 3
Begin Date: 04/23/2014
End Date: Not reported
Frequency Of Review: 60
Last Reviewed By: E. McDonnell, DEQ
Last Reviewed Date: Not reported
Last Update By: GWISTAR
Last Updated Date: 09/08/2014
Site Comment: The ROD for the site stipulates institutional controls, including a cap monitoring and maintenance and contaminated media management plan. Plans for these controls were submitted to DEQ for review in 2012. The property owner will record an Easement & Equitable Servitude with the property deed, which will reference the DEQ-approved monitoring plans and development restrictions at the site.

Permit:
Permit Agency: DEQ
Permit Number: 145
Permit Type: SW Disposal
Comments: Operations ceased 10/31/77. Formal closure 1983.

Administrative Action:
Action ID: 9491
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/22/2007
Decode for AgencyID: Department of Environmental Quality

PACIFIC MEAT CO. (Continued) **S110048288**

Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMOVAL
Further Action: 0
Comments: Not reported

Action ID: 9473
Region: Northwestern Region
Complete Date: 03/23/2010
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/28/2010
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL DESIGN
Further Action: 0
Comments: Not reported

Action ID: 9412
Region: 0
Complete Date: 03/23/2009
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/28/2010
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: Consent Order
Further Action: 0
Comments: Not reported

Action ID: 9494
Region: 0
Complete Date: 08/03/2008
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/28/2010
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Not reported
Category: Remedial Action
Action Code Flag: False
Action: RECORD OF DECISION
Further Action: 0
Comments: Not reported

Action ID: 9410
Region: Northwestern Region
Complete Date: 01/28/2008
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/28/2010
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region

PACIFIC MEAT CO. (Continued) **S110048288**

Category: Remedial Action
Action Code Flag: False
Action: Consent Decree
Further Action: 0
Comments: Not reported

Action ID: 9469
Region: Northwestern Region
Complete Date: 03/22/2013
Rank Value: Not reported
Cleanup Flag: False
Created Date: 01/10/2011
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL ACTION
Further Action: 0
Comments: Not reported

Action ID: 9412
Region: Northwestern Region
Complete Date: 04/23/2014
Rank Value: Not reported
Cleanup Flag: False
Created Date: 04/23/2014
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Consent Order
Further Action: 0
Comments: Not reported

Action ID: 9484
Region: Northwestern Region
Complete Date: 07/28/2008
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: REMEDIAL INVESTIGATION
Further Action: 0
Comments: Not reported

Action ID: 9470
Region: Northwestern Region
Complete Date: 11/19/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action

PACIFIC MEAT CO. (Continued) **S110048288**

Action Code Flag: False
Action: Other remedial or investigative action recommended
Further Action: High
Comments: Not reported

Action ID: 9442
Region: Northwestern Region
Complete Date: 05/08/1998
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: NEGOTIATIONS
Further Action: Not reported
Comments: Not reported

Action ID: 9438
Region: Northwestern Region
Complete Date: 05/17/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9439
Region: Northwestern Region
Complete Date: 07/20/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility placed on Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Northwestern Region
Complete Date: 05/24/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False

PACIFIC MEAT CO. (Continued) **S110048288**

Action: Listing Review completed
Further Action: Not reported
Comments: Not reported

Action ID: 9421
Region: Not reported
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: Site added to CERCLIS
Further Action: Not reported
Comments: Not reported

Action ID: 9514
Region: Not reported
Complete Date: 09/13/1993
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA Site Inspection Prioritization
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Northwestern Region
Complete Date: 10/20/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9467
Region: Northwestern Region
Complete Date: 10/20/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Inventory

PACIFIC MEAT CO. (Continued) **S110048288**

Further Action: Not reported
Comments: Not reported

Action ID: 9467
Region: Northwestern Region
Complete Date: 02/12/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Inventory
Further Action: Not reported
Comments: Not reported

Action ID: 9465
Region: Northwestern Region
Complete Date: 02/12/1996
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Facility proposed for Confirmed Release List
Further Action: Not reported
Comments: Not reported

Action ID: 9512
Region: Not reported
Complete Date: 09/15/1988
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA Screening Site Inspection 1
Further Action: Not reported
Comments: Not reported

Action ID: 9498
Region: Northwestern Region
Complete Date: 05/24/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Confirmed Release List recommended
Further Action: Not reported

PACIFIC MEAT CO. (Continued) **S110048288**

Comments: Not reported

Action ID: 9499
Region: Northwestern Region
Complete Date: 05/24/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Listing Action
Action Code Flag: False
Action: Proposal for Inventory recommended
Further Action: Not reported
Comments: Not reported

Action ID: 9501
Region: Northwestern Region
Complete Date: 05/24/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Remedial Action recommended (RA)
Further Action: Medium
Comments: Not reported

Action ID: 9425
Region: Northwestern Region
Complete Date: 04/05/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9457
Region: Not reported
Complete Date: 09/18/1987
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: EPA Basic Preliminary Assessment
Further Action: Not reported
Comments: Not reported

PACIFIC MEAT CO. (Continued) **S110048288**

Action ID: 9497
Region: Northwestern Region
Complete Date: 04/05/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Preliminary Assessment Equivalent recommended (PAE)
Further Action: High
Comments: Not reported

Action ID: 9459
Region: Northwestern Region
Complete Date: 05/24/1995
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: PRELIMINARY ASSESSMENT EQUIVALENT
Further Action: Not reported
Comments: Not reported

Action ID: 9444
Region: Not reported
Complete Date: 09/13/1993
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Not reported
Category: EPA Led Action
Action Code Flag: False
Action: No Further Remedial Action Planned under Federal program
Further Action: Not reported
Comments: Not reported

Action ID: 9424
Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Administrative Action
Action Code Flag: False
Action: Site added to database
Further Action: Not reported
Comments: Not reported

Action ID: 9445

PACIFIC MEAT CO. (Continued) **S110048288**

Region: Headquarters
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Headquarters
Category: Listing Action
Action Code Flag: False
Action: Responsible party notified re 11/88 Inventory listing
Further Action: Not reported
Comments: Not reported

Action ID: 9409
Region: Northwestern Region
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Beneficial Water Use Assessment
Further Action: Not reported
Comments: Not reported

Action ID: 9436
Region: Northwestern Region
Complete Date: Not reported
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: Land-Use Assessment
Further Action: Not reported
Comments: Not reported

Operations:
Operation Id: 131553
Operation Status: Inactive
Common Name: Pacific Meat Co.
Yrs of Operation: approx 2 yrs, 1979-1981
Comments: Abandoned meat rendering facility operated to salvage metals
Updated Date: 03/10/1995
Updated By: jxh
Decode for OpstatID: Inactive
Operations SIC Id: 195450
SIC Code: 3499
Created By: Not reported
Created Date: 12/17/2002

Institutional Control:
Name: PACIFIC MEAT CO.

PACIFIC MEAT CO. (Continued) **S110048288**

Address:	2701 N NEWARK ST.
City,State,Zip:	PORTLAND, OR 97217
Site Control Sequence #:	728
Site Id:	145
Control Sequence #:	3
Begin Date:	04/23/2014
End Date:	Not reported
Frequency Of Review:	60
Last Reviewed By:	E. McDonnell, DEQ
Last Review Date:	Not reported
Last Updated By:	GWISTAR
Last Updated Date:	09/08/2014
Group Sequence #:	2
Control Code:	EES
Control Description:	Easement Equitable Servitude
FK Type Code:	1
Group Code:	PR
Group Description:	Proprietary
Type Code:	I
Type Description:	Institutional
Comments:	The ROD for the site stipulates institutional controls, including a cap monitoring and maintenance and contaminated media management plan. Plans for these controls were submitted to DEQ for review in 2012. The property owner will record an Easement & Equitable Servitude with the property deed, which will reference the DEQ-approved monitoring plans and development restrictions at the site.

NPDES:

WQ File Nbr:	119220
Legal Name:	TINDALL FAMILY PROPERTIES LLC
Region:	Not reported
Pri SIC:	1541
Facility Type:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Category:	Not reported
Permit Type:	GEN12C
Permit Active:	Not reported
Is Active?:	FALSE
Permit Description:	Not reported
Expiration Date:	Not reported
EPA Number:	Not reported
UIC Facility:	Not reported
Admin Agent:	Not reported
Last Action Date:	Not reported
Permit Writer:	Not reported
Compliance Inspector:	Not reported
DMR Reviewer:	Not reported
Application Number:	Not reported
Class:	Not reported
Start Date:	Not reported
Region Decode:	Not reported

Count: 6 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
PORTLAND	1012043296	HAYDEN ISLAND LANDFILL	N. HAYDEN ISLAND DR.	97217	SEMS-ARCHIVE
PORTLAND	S106497099	COLUMBIA SLOUGH	31.5 MILES OF WATERWAY OVER AN		OR CRL, OR ECSI, OR ENG CONTRC
PORTLAND	S107421141	EAST SIDE CSO	NEAR SE 18TH & MCLOUGHLIN TO N		OR ECSI, OR VCP
PORTLAND	S110764041	ODOT - PORTLAND HARBOR SOURCE CONT	ODOT FACILITIES WITHIN PORTLAN		OR ECSI, OR VCP
PORTLAND	S106497104	V.A.- COLUMBIA SOUTH SHORE WELLFIE	N OF COLUMBIA/SANDY BLVDS. BET		OR ECSI
VANCOUVER	1010417102	VANCOUVER LAKE & FLUSHING CHANNEL,	NW LOWER RIVER ROAD, 3 MI W OF	98660	SEMS-ARCHIVE

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: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: N/A
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/14/2019
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: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: N/A
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/14/2019
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

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: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: N/A
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Quarterly

Federal CERCLIS list

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: 04/03/2019
Date Data Arrived at EDR: 04/05/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 07/03/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list 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). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS 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 the 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. The 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 potential NPL site.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/28/2019
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: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
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: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
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: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
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: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
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: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

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: 08/13/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 6

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 08/07/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Varies

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: 08/19/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/20/2019
Next Scheduled EDR Contact: 12/09/2019
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: 08/19/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/20/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 03/25/2019
Date Data Arrived at EDR: 03/26/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 36

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

OR CRL: Confirmed Release List and Inventory

All facilities with a confirmed release.

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 05/15/2019
Date Made Active in Reports: 06/14/2019
Number of Days to Update: 30

Source: Department of Environmental Quality
Telephone: 503-229-6170
Last EDR Contact: 08/13/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Quarterly

OR ECSI: Environmental Cleanup Site Information System

Sites that are or may be contaminated and may require cleanup.

Date of Government Version: 04/01/2019
Date Data Arrived at EDR: 04/02/2019
Date Made Active in Reports: 06/17/2019
Number of Days to Update: 76

Source: Department of Environmental Quality
Telephone: 503-229-6629
Last EDR Contact: 07/01/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Quarterly

WA 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: 06/25/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 44

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 07/18/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Quarterly

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

OR SWF/LF: Solid Waste Facilities List

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: 01/14/2019
Date Data Arrived at EDR: 01/15/2019
Date Made Active in Reports: 02/20/2019
Number of Days to Update: 36

Source: Department of Environmental Quality
Telephone: 503-229-6299
Last EDR Contact: 07/15/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Semi-Annually

WA 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: 06/06/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 06/17/2019
Number of Days to Update: 6

Source: Department of Ecology
Telephone: 360-407-6132
Last EDR Contact: 08/30/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Annually

State and tribal leaking storage tank lists

OR LUST: Leaking Underground Storage Tank Database
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: 04/05/2019
Date Data Arrived at EDR: 05/15/2019
Date Made Active in Reports: 06/14/2019
Number of Days to Update: 30

Source: Department of Environmental Quality
Telephone: 503-229-5790
Last EDR Contact: 08/13/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Quarterly

WA 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: 05/13/2019
Date Data Arrived at EDR: 05/15/2019
Date Made Active in Reports: 06/28/2019
Number of Days to Update: 44

Source: Department of Ecology
Telephone: 360-407-7183
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/17/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
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: 10/16/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
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: 02/19/2019
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

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: 10/10/2018
Date Data Arrived at EDR: 03/08/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
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: 11/01/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 09/24/2018
Date Data Arrived at EDR: 03/12/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 50
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 07/23/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/12/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

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: 10/13/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 08/26/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Varies

OR 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: 04/05/2019
Date Data Arrived at EDR: 05/15/2019
Date Made Active in Reports: 06/14/2019
Number of Days to Update: 30
Source: Department of Environmental Quality
Telephone: 503-229-5815
Last EDR Contact: 08/13/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Quarterly

WA 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: 02/09/2019
Date Data Arrived at EDR: 02/12/2019
Date Made Active in Reports: 03/29/2019
Number of Days to Update: 45

Source: Department of Ecology
Telephone: 360-407-7183
Last EDR Contact: 08/14/2020
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Quarterly

OR AST: Aboveground Storage Tanks

Aboveground storage tank locations reported to the Office of State Fire Marshal.

Date of Government Version: 01/17/2019
Date Data Arrived at EDR: 01/23/2019
Date Made Active in Reports: 03/18/2019
Number of Days to Update: 54

Source: Office of State Fire Marshal
Telephone: 503-378-3473
Last EDR Contact: 09/06/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Semi-Annually

WA 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: 12/14/2015
Date Data Arrived at EDR: 02/02/2016
Date Made Active in Reports: 05/03/2016
Number of Days to Update: 91

Source: Department of Ecology
Telephone: 360-407-7562
Last EDR Contact: 07/25/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Varies

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: 10/16/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 08/05/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

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: 10/10/2018
Date Data Arrived at EDR: 03/08/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 54

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

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: 10/17/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
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: 10/12/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/05/2019
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: 11/01/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

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: 11/07/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
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: 09/24/2018
Date Data Arrived at EDR: 03/12/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 50

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 07/23/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

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: 10/03/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

OR ENG CONTROLS: Engineering Controls Recorded at ESCI Sites

Engineering controls are physical measures selected or approved by the Director for the purpose of preventing or minimizing exposure to hazardous substances. Engineering controls may include, but are not limited to, fencing, capping, horizontal or vertical barriers, hydraulic controls, and alternative water supplies.

Date of Government Version: 04/01/2019
Date Data Arrived at EDR: 04/02/2019
Date Made Active in Reports: 06/17/2019
Number of Days to Update: 76

Source: Department of Environmental Quality
Telephone: 503-229-5193
Last EDR Contact: 07/01/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Quarterly

OR INST CONTROL: Institutional Controls Recorded at ESCI Sites
An institutional control is a legal or administrative tool or action taken to reduce the potential for exposure to hazardous substances. Institutional controls may include, but are not limited to, use restrictions, environmental monitoring requirements, and site access and security measures.

Date of Government Version: 04/01/2019
Date Data Arrived at EDR: 04/02/2019
Date Made Active in Reports: 06/17/2019
Number of Days to Update: 76
Source: Department of Environmental Quality
Telephone: 503-229-5193
Last EDR Contact: 07/01/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Quarterly

WA INST CONTROL: Institutional Control Site List
Sites that have institutional controls.

Date of Government Version: 06/25/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/30/2019
Number of Days to Update: 66
Source: Department of Ecology
Telephone: 360-407-7170
Last EDR Contact: 07/18/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Quarterly

State and tribal voluntary cleanup sites

OR VCS: Voluntary Cleanup Program Sites
Responsible parties have entered into an agreement with DEQ to voluntarily address contamination associated with their property.

Date of Government Version: 04/11/2019
Date Data Arrived at EDR: 04/19/2019
Date Made Active in Reports: 06/24/2019
Number of Days to Update: 66
Source: DEQ
Telephone: 503-229-5256
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Quarterly

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: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142
Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 06/20/2019
Next Scheduled EDR Contact: 10/07/2019
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

WA 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: 06/25/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/19/2019
Number of Days to Update: 55
Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 07/18/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Varies

WA PTAP: PTAP Site Listing

A list of sites accepted into the Petroleum Technical Assistance Program. The Petroleum Technical Assistance Program (PTAP) expands the state's ability to respond to the high customer demand to clean up petroleum contaminated sites. Under the PTAP, the Pollution Liability Insurance Agency (PLIA) may provide informal site-specific technical consultations and issue written opinion letters to persons conducting independent remedial actions at qualifying petroleum cleanup sites. PLIA may provide these services under the authority of RCW 70.149.040(9) and the Model Toxics Control Act (MTCA), Chapter 70.149 RCW and Chapter 173-340 WAC.

Date of Government Version: 05/13/2019
Date Data Arrived at EDR: 05/15/2019
Date Made Active in Reports: 06/28/2019
Number of Days to Update: 44

Source: Department of Ecology
Telephone: 360-407-0515
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Varies

State and tribal Brownfields sites

OR BROWNFIELDS: Brownfields Projects

Brownfields investigations and/or cleanups that have been conducted in Oregon.

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 05/15/2019
Date Made Active in Reports: 06/14/2019
Number of Days to Update: 30

Source: Department of Environmental Quality
Telephone: 503-229-6801
Last EDR Contact: 08/13/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Annually

WA 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: 04/16/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 70

Source: Department of Ecology
Telephone: 360-725-4030
Last EDR Contact: 07/18/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/03/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 06/04/2019
Next Scheduled EDR Contact: 09/30/2019
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

OR HIST LF: Old Closed SW Disposal Sites
A list of solid waste disposal sites that have been closed for a long while.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 07/08/2003
Date Made Active in Reports: 07/18/2003
Number of Days to Update: 10
Source: Department of Environmental Quality
Telephone: 503-229-5409
Last EDR Contact: 07/08/2003
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OR SWRCY: Recycling Facility Location Listing
A listing of recycling facility locations.

Date of Government Version: 05/28/2019
Date Data Arrived at EDR: 05/30/2019
Date Made Active in Reports: 06/14/2019
Number of Days to Update: 15
Source: Department of Environmental Quality
Telephone: 503-229-5353
Last EDR Contact: 08/27/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Quarterly

WA SWRCY: Recycling Facility List
A llisting of recycling center locations.

Date of Government Version: 04/08/2019
Date Data Arrived at EDR: 04/12/2019
Date Made Active in Reports: 07/05/2019
Number of Days to Update: 84
Source: Department of Ecology
Telephone: 360-407-6105
Last EDR Contact: 07/22/2019
Next Scheduled EDR Contact: 11/04/2019
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: 07/25/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Varies

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: 07/19/2019
Next Scheduled EDR Contact: 11/04/2019
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

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176
Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 08/02/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

OR AOC MU: East Multnomah County Area
Approximate extent of TSA VOC plume February , 2002

Date of Government Version: N/A
Date Data Arrived at EDR: 10/07/2002
Date Made Active in Reports: 10/22/2002
Number of Days to Update: 15

Source: City of Portland Environmental Services
Telephone: 503-823-5310
Last EDR Contact: 03/13/2007
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OR AOC COL: Columbia Slough
Columbia Slough waterway boundaries.

Date of Government Version: 08/10/2005
Date Data Arrived at EDR: 05/17/2006
Date Made Active in Reports: 06/16/2006
Number of Days to Update: 30

Source: City of Portland Environmental Services
Telephone: 503-823-5310
Last EDR Contact: 03/13/2007
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 06/11/2019
Date Data Arrived at EDR: 06/13/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: No Update Planned

OR CDL: Uninhabitable Drug Lab Properties
The properties listed on these county pages have been declared by a law enforcement agency to be unfit for use due to meth lab and/or storage activities. The properties are considered uninhabitable until cleaned up by a state certified decontamination contractor and a certificate of fitness is issued by the Oregon Health Division.

Date of Government Version: 01/28/2019
Date Data Arrived at EDR: 01/30/2019
Date Made Active in Reports: 02/20/2019
Number of Days to Update: 21

Source: Department of Consumer & Business Services
Telephone: 503-378-4133
Last EDR Contact: 07/30/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Quarterly

OR CDL 2: Clandestine Drug Lab Site Listing
A listing of clandestine drug lab site locations included in the Incident database.

Date of Government Version: 10/29/2018
Date Data Arrived at EDR: 10/31/2018
Date Made Active in Reports: 12/10/2018
Number of Days to Update: 40

Source: Oregon State Police
Telephone: 503-373-1540
Last EDR Contact: 07/25/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Varies

WA 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: 06/17/2019
Date Data Arrived at EDR: 06/20/2019
Date Made Active in Reports: 08/19/2019
Number of Days to Update: 60

Source: Department of Health
Telephone: 360-236-3380
Last EDR Contact: 08/02/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

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: 06/11/2019
Date Data Arrived at EDR: 06/13/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Quarterly

WA PFAS: PFAS Contamination Site Location Listing

PFOS and PFOA stand for perfluorooctane sulfonate and perfluorooctanoic acid, respectively. Both are fluorinated organic chemicals, part of a larger family of compounds referred to as perfluoroalkyl substances (PFASs).

Date of Government Version: 05/06/2019
Date Data Arrived at EDR: 05/07/2019
Date Made Active in Reports: 06/28/2019
Number of Days to Update: 52

Source: Department of Ecology
Telephone: 360-407-6116
Last EDR Contact: 07/08/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Varies

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: 07/30/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Semi-Annually

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: 03/25/2019
Date Data Arrived at EDR: 03/26/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 49

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Quarterly

OR SPILLS: Spill Data

Oil and hazardous material spills reported to the Environmental Response Program.

Date of Government Version: 04/03/2019
Date Data Arrived at EDR: 04/04/2019
Date Made Active in Reports: 06/17/2019
Number of Days to Update: 74

Source: Department of Environmental Quality
Telephone: 503-229-5815
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Semi-Annually

WA SPILLS: Reported Spills

Spills reported to the Spill Prevention, Preparedness and Response Division.

Date of Government Version: 06/12/2019
Date Data Arrived at EDR: 06/14/2019
Date Made Active in Reports: 06/17/2019
Number of Days to Update: 3

Source: Department of Ecology
Telephone: 360-407-6950
Last EDR Contact: 08/30/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Semi-Annually

OR HAZMAT: Hazmat/Incidents

Hazardous material incidents reported to the State Fire Marshal by emergency responders. The hazardous material may or may not have been released.

Date of Government Version: 02/20/2019
Date Data Arrived at EDR: 05/01/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 57

Source: State Fire Marshal's Office
Telephone: 503-373-1540
Last EDR Contact: 08/02/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Semi-Annually

OR SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

WA SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 05/23/2006
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 03/06/2013
Number of Days to Update: 62

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

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: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Quarterly

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: 05/15/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 79

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/23/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 07/09/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Semi-Annually

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: 07/10/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: N/A

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: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/16/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/26/2019
Date Made Active in Reports: 05/07/2019
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 08/05/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/09/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

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: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 06/18/2019
Next Scheduled EDR Contact: 09/30/2019
Data Release Frequency: Every 4 Years

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: 12/31/2016
Date Data Arrived at EDR: 01/10/2018
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 2

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/23/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Annually

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: 09/30/2018
Date Data Arrived at EDR: 04/24/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 106

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/26/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Annually

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: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/25/2019
Date Data Arrived at EDR: 05/02/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/22/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

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

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 04/11/2019
Date Data Arrived at EDR: 04/18/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 11/18/2019
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: 03/20/2019
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 34

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 07/12/2019
Next Scheduled EDR Contact: 10/21/2019
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: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 07/03/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Quarterly

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: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

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: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

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: 06/20/2019
Date Data Arrived at EDR: 06/20/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 49
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 09/04/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant 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: 09/06/2019
Next Scheduled EDR Contact: 12/16/2019
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: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 09/03/2019
Next Scheduled EDR Contact: 12/16/2019
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: 05/24/2017
Date Data Arrived at EDR: 11/30/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 15
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 08/09/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

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: 04/02/2019
Date Data Arrived at EDR: 04/02/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 07/01/2019
Next Scheduled EDR Contact: 10/14/2019
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

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 04/01/2019
Date Data Arrived at EDR: 04/30/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 100

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Quarterly

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: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 30

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 07/08/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Varies

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: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Biennially

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: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 07/10/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 07/30/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

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: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US 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: 05/03/2019
Date Data Arrived at EDR: 05/29/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 71

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/27/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/30/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/30/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 03/27/2019
Date Data Arrived at EDR: 03/28/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 34

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 08/27/2019
Next Scheduled EDR Contact: 12/23/2019
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: 05/03/2019
Date Data Arrived at EDR: 06/05/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 90

Source: EPA
Telephone: (206) 553-1200
Last EDR Contact: 09/04/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 01/17/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 74

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 07/15/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 04/07/2019
Date Data Arrived at EDR: 04/09/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 07/09/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 05/20/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 79

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 08/20/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Quarterly

WA AIRS (EMI): Washington Emissions Data System

Emissions inventory data.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 03/01/2019
Date Made Active in Reports: 06/19/2019
Number of Days to Update: 110

Source: Department of Ecology
Telephone: 360-407-6040
Last EDR Contact: 07/15/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

OR AIRS: Oregon Title V Facility Listing
A listing of Title V facility source and emissions information.

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 04/19/2019
Date Made Active in Reports: 06/24/2019
Number of Days to Update: 66

Source: Department of Environmental Quality
Telephone: 503-229-6459
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 04/17/2047
Data Release Frequency: Annually

OR COAL ASH: Coal Ash Disposal Sites Listing
A listing of coal ash disposal sites.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 03/28/2019
Date Made Active in Reports: 06/18/2019
Number of Days to Update: 82

Source: Department of Environmental Quality
Telephone: 541-298-7255
Last EDR Contact: 08/30/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Varies

WA COAL ASH: Coal Ash Disposal Site Listing
A listing of coal ash disposal site locations.

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 06/18/2019
Number of Days to Update: 7

Source: Department of Ecology
Telephone: 360-407-6933
Last EDR Contact: 08/30/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Varies

OR DRYCLEANERS: Drycleaning Facilities
A listing of registered drycleaning facilities in Oregon.

Date of Government Version: 05/07/2019
Date Data Arrived at EDR: 05/09/2019
Date Made Active in Reports: 06/18/2019
Number of Days to Update: 40

Source: Department of Environmental Quality
Telephone: 503-229-6783
Last EDR Contact: 07/25/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Annually

WA 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: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/24/2019
Number of Days to Update: 62

Source: Department of Ecology
Telephone: 360-407-6732
Last EDR Contact: 07/15/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Varies

OR ENF: Enforcement Action Listing
Enforcement actions

Date of Government Version: 06/13/2019
Date Data Arrived at EDR: 06/13/2019
Date Made Active in Reports: 06/18/2019
Number of Days to Update: 5

Source: Department of Environmental Quality
Telephone: 503-229-5696
Last EDR Contact: 06/13/2019
Next Scheduled EDR Contact: 09/30/2019
Data Release Frequency: Quarterly

OR Financial Assurance 1: Financial Assurance Information Listing
Financial assurance information for hazardous waste facilities.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 04/11/2019
Date Made Active in Reports: 06/24/2019
Number of Days to Update: 74

Source: Department of Environmental Quality
Telephone: 541-633-2011
Last EDR Contact: 08/30/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Semi-Annually

WA 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: 05/28/2019
Date Data Arrived at EDR: 05/30/2019
Date Made Active in Reports: 06/18/2019
Number of Days to Update: 19

Source: Department of Ecology
Telephone: 360-586-1060
Last EDR Contact: 08/23/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: No Update Planned

OR Financial Assurance 2: Financial Assurance Information Listing

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: 06/07/2019
Date Data Arrived at EDR: 06/07/2019
Date Made Active in Reports: 06/18/2019
Number of Days to Update: 11

Source: Department of Environmental Quality
Telephone: 503-229-5521
Last EDR Contact: 08/16/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Semi-Annually

WA 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: 05/22/2019
Date Data Arrived at EDR: 05/23/2019
Date Made Active in Reports: 06/28/2019
Number of Days to Update: 36

Source: Department of Ecology
Telephone: 360-407-6754
Last EDR Contact: 08/09/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Varies

WA 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: 11/15/2017
Date Data Arrived at EDR: 11/20/2017
Date Made Active in Reports: 01/04/2018
Number of Days to Update: 45

Source: Department of Ecology
Telephone: 360-407-6136
Last EDR Contact: 08/09/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: No Update Planned

OR HSIS: Hazardous Substance Information Survey

Companies in Oregon submitting the Hazardous Substance Information Survey and either reporting or not reporting hazardous substances.

Date of Government Version: 07/29/2019
Date Data Arrived at EDR: 07/31/2019
Date Made Active in Reports: 09/06/2019
Number of Days to Update: 37

Source: State Fire Marshal's Office
Telephone: 503-373-1540
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Semi-Annually

OR MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 08/06/2018
Date Made Active in Reports: 08/15/2018
Number of Days to Update: 9

Source: Department of Environmental Quality
Telephone: N/A
Last EDR Contact: 08/02/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Annually

WA MANIFEST: Hazardous Waste Manifest Data
Hazardous waste manifest information.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 06/24/2019
Number of Days to Update: 87

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 06/17/2019
Next Scheduled EDR Contact: 09/30/2019
Data Release Frequency: Annually

OR NPDES: Wastewater Permits Database
A listing of permitted wastewater facilities.

Date of Government Version: 01/29/2019
Date Data Arrived at EDR: 01/30/2019
Date Made Active in Reports: 02/20/2019
Number of Days to Update: 21

Source: Department of Environmental Quality
Telephone: 503-229-5657
Last EDR Contact: 08/02/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

WA NPDES: Water Quality Permit System Data
A listing of permitted wastewater facilities.

Date of Government Version: 04/16/2019
Date Data Arrived at EDR: 04/18/2019
Date Made Active in Reports: 06/25/2019
Number of Days to Update: 68

Source: Department of Ecology
Telephone: 360-407-6073
Last EDR Contact: 07/18/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Quarterly

OR UIC: Underground Injection Control Program Database
DEQ's Underground Injection Control Program is authorized by the Environmental Protection Agency (EPA) to regulate all underground injection in Oregon to protect groundwater resources.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/26/2019
Date Made Active in Reports: 06/18/2019
Number of Days to Update: 84

Source: Department of Environmental Quality
Telephone: 503-229-5945
Last EDR Contact: 06/21/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Quarterly

WA UIC: Underground Injection Wells Listing
A listing of underground injection wells.

Date of Government Version: 01/15/2019
Date Data Arrived at EDR: 01/16/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 75

Source: Department of Ecology
Telephone: 360-407-6143
Last EDR Contact: 07/18/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: 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

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

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: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

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: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

OR RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Quality in Oregon.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/03/2014
Number of Days to Update: 186

Source: Department of Environmental Quality
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

WA RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Ecology in Washington.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/24/2013
Number of Days to Update: 176

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OR RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Quality in Oregon.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Environmental Quality
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

WA RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Ecology in Washington.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/10/2014
Number of Days to Update: 193

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OR RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Quality in Oregon.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/27/2013
Number of Days to Update: 179

Source: Department of Environmental Quality
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

WA RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Ecology in Washington.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/24/2013
Number of Days to Update: 176

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

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.

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: 01/01/2019
Date Data Arrived at EDR: 05/01/2019
Date Made Active in Reports: 06/21/2019
Number of Days to Update: 51

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Quarterly

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 09/06/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

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: Child Care Listings
Source: Employment Department
Telephone: 503-947-1420

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory Data
Source: Oregon Geospatial Enterprise Office
Telephone: 503-378-2166

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

PORTLAND EXPO CENTER
2060 N MARINE DRIVE
PORTLAND, OR 97217

TARGET PROPERTY COORDINATES

Latitude (North):	45.60659 - 45° 36' 23.72''
Longitude (West):	122.688456 - 122° 41' 18.44''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	524294.7
UTM Y (Meters):	5050168.0
Elevation:	21 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	6067252 PORTLAND, OR
Version Date:	2014
North Map:	5995774 VANCOUVER, WA
Version Date:	2014

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).

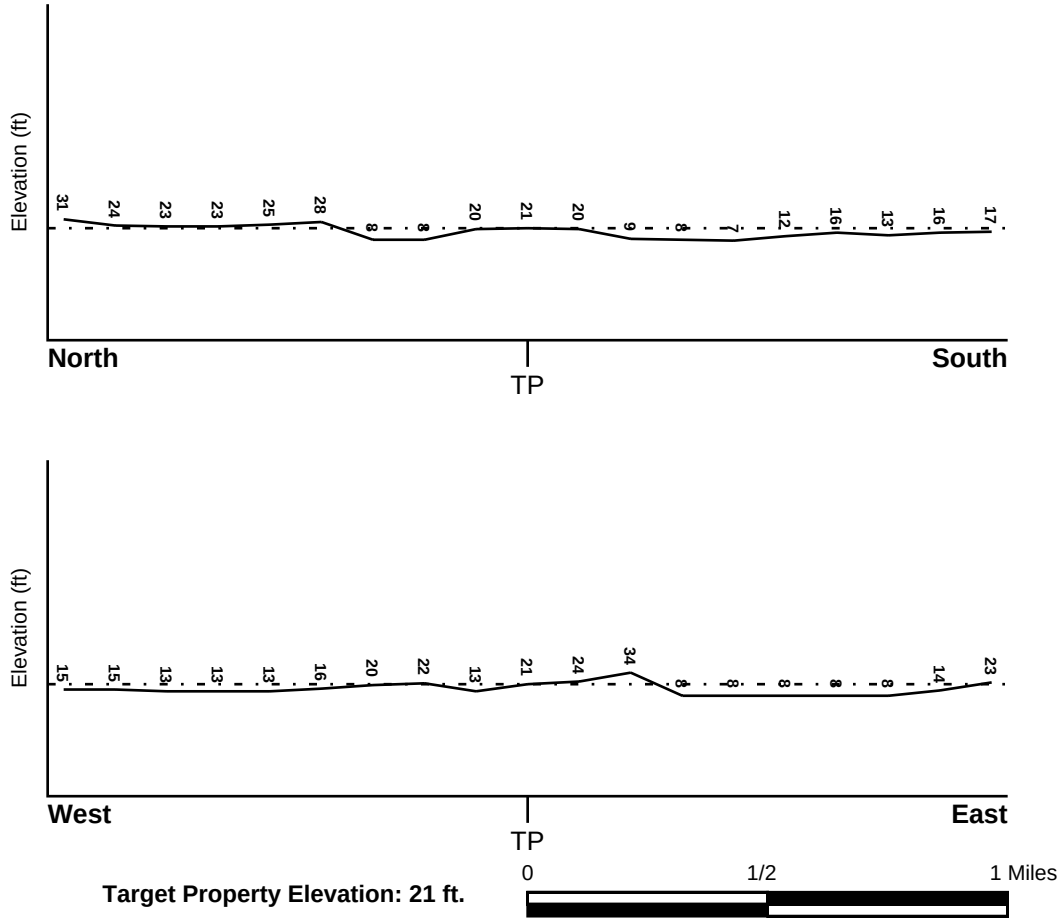
TOPOGRAPHIC INFORMATION

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: General West

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

Flood Plain Panel at Target Property	FEMA Source Type
53011C0477D	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
53011C0481D	FEMA FIRM Flood data
4101830080F	FEMA FIRM Flood data
4101830085F	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
PORTLAND	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.

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

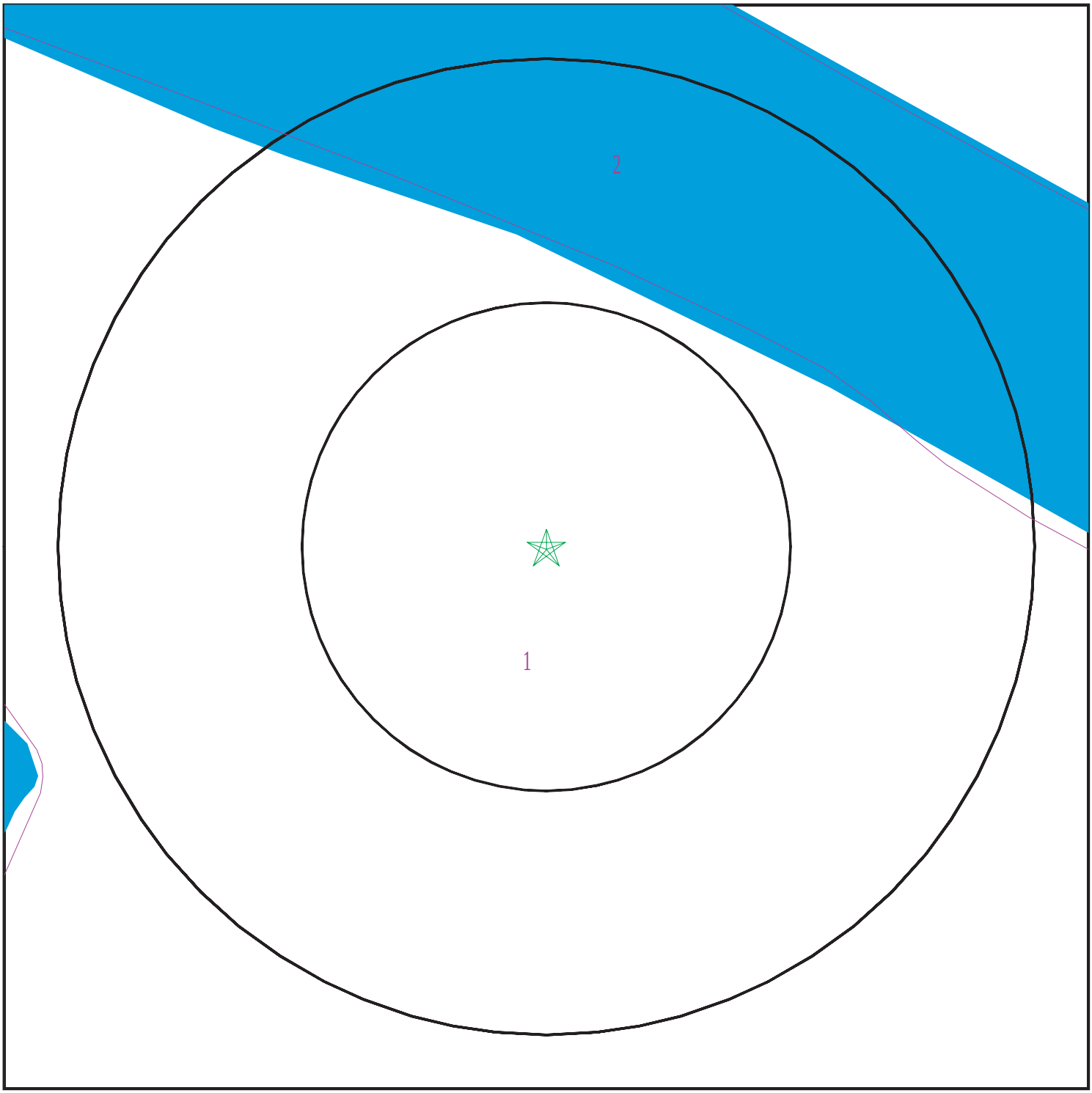
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

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 - 5782459.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Portland Expo Center	CLIENT:	Hart Crowser, Inc.
ADDRESS:	2060 N Marine Drive	CONTACT:	Theresa Lydick
	Portland OR 97217	INQUIRY #:	5782459.2s
LAT/LONG:	45.60659 / 122.688456	DATE:	September 09, 2019 7:40 pm

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: Sauvie

Soil Surface Texture: silt 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: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 5 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	14 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 6.5 Min: 5.6
2	14 inches	38 inches	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%), silt.	Max: 42 Min: 14	Max: 6.5 Min: 5.6
3	38 inches	59 inches	very 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%), silt.	Max: 42 Min: 14	Max: 6.5 Min: 5.6

Soil Map ID: 2

Soil Component Name:	Water
Soil Surface Texture:	silt 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:
Hydric Status: Unknown

Corrosion Potential - Uncoated Steel:	Not Reported
Depth to Bedrock Min:	> 0 inches
Depth to Watertable Min:	> 0 inches

No Layer Information available.

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.

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
A4	USGS40000994250	1/2 - 1 Mile SSE
7	USGS40000994270	1/2 - 1 Mile WSW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

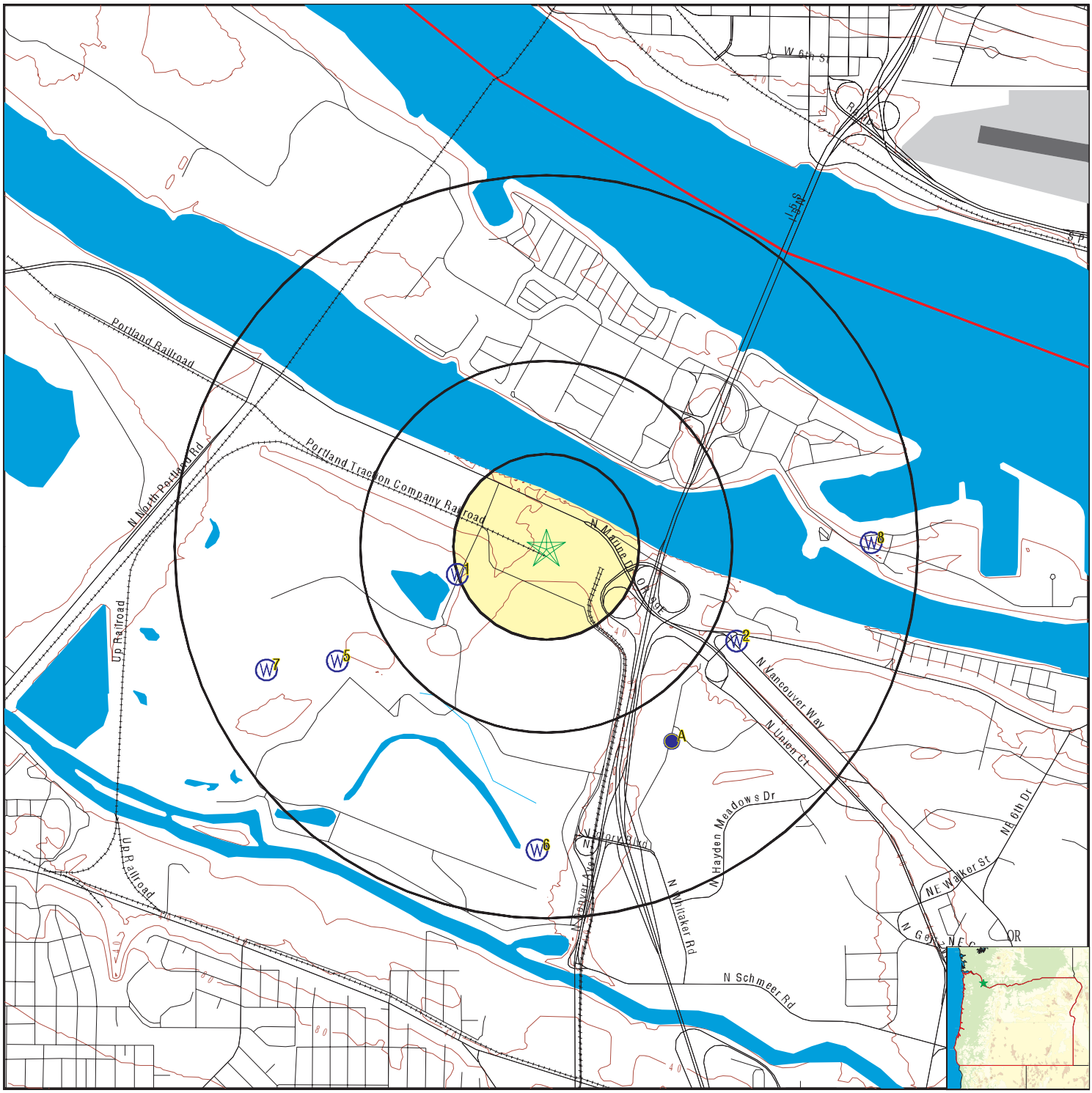
Note: PWS System location is not always the same as well location.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	ORW600000004298	1/4 - 1/2 Mile WSW
2	ORW600000004295	1/2 - 1 Mile ESE
A3	ORW600000003533	1/2 - 1 Mile SSE
5	ORW600000008475	1/2 - 1 Mile WSW
6	ORW600000008474	1/2 - 1 Mile South
8	ORW600000015411	1/2 - 1 Mile East

PHYSICAL SETTING SOURCE MAP - 5782459.2s



- 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
- Oil, gas or related wells

SITE NAME:	Portland Expo Center	CLIENT:	Hart Crowser, Inc.
ADDRESS:	2060 N Marine Drive Portland OR 97217	CONTACT:	Theresa Lydick
		INQUIRY #:	5782459.2s
LAT/LONG:	45.60659 / 122.688456	DATE:	September 09, 2019 7:40 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
WSW
1/4 - 1/2 Mile
Lower

OR WELLS **ORW600000004298**

Well Log ID:	MULT 927	Last Update:	01/01/1990
Well Tag:	0	State Obs Well #:	0
Observation Well:	Not Reported	Recorder Well:	Not Reported
Obs Well Flag:	Not Reported	Surface Elevation:	13

2
ESE
1/2 - 1 Mile
Higher

OR WELLS **ORW600000004295**

Well Log ID:	MULT 923	Last Update:	01/01/1990
Well Tag:	0	State Obs Well #:	0
Observation Well:	Not Reported	Recorder Well:	Not Reported
Obs Well Flag:	Not Reported	Surface Elevation:	20

A3
SSE
1/2 - 1 Mile
Lower

OR WELLS **ORW600000003533**

Well Log ID:	MULT 925	Last Update:	01/01/1990
Well Tag:	0	State Obs Well #:	0
Observation Well:	Noncurrent	Recorder Well:	Not Reported
Obs Well Flag:	Other Obs Well, Noncurrent	Surface Elevation:	5

A4
SSE
1/2 - 1 Mile
Lower

FED USGS **USGS40000994250**

Organization ID:	USGS-OR	Organization Name:	USGS Oregon Water Science Center
Monitor Location:	01N/01E-03BCC1	Type:	Well
Description:	Not Reported	HUC:	17090012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19620221
Well Depth:	175	Well Depth Units:	ft
Well Hole Depth:	175	Well Hole Depth Units:	ft

Ground water levels,Number of Measurements:	3	Level reading date:	1989-03-29
Feet below surface:	10	Feet to sea level:	Not Reported
Note:	Not Reported		
Level reading date:	1987-04-07	Feet below surface:	12
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1962-02-21	Feet below surface:	12

Feet to sea level:	Not Reported	Note:	Not Reported

5
WSW
1/2 - 1 Mile
Lower

OR WELLS **ORW600000008475**

Well Log ID:	MULT 87892	Last Update:	02/26/2007
Well Tag:	87876	State Obs Well #:	0
Observation Well:	Not Reported	Recorder Well:	Not Reported
Obs Well Flag:	Not Reported	Surface Elevation:	13

6
South
1/2 - 1 Mile
Lower

OR WELLS **ORW600000008474**

Well Log ID:	MULT 87891	Last Update:	02/26/2007
Well Tag:	74390	State Obs Well #:	0
Observation Well:	Not Reported	Recorder Well:	Not Reported
Obs Well Flag:	Not Reported	Surface Elevation:	12

7
WSW
1/2 - 1 Mile
Lower

FED USGS **USGS40000994270**

Organization ID:	USGS-OR	Organization Name:	USGS Oregon Water Science Center
Monitor Location:	01N/01E-05ADA	Type:	Well
Description:	Not Reported	HUC:	17090012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	1942
Well Depth:	125	Well Depth Units:	ft
Well Hole Depth:	125	Well Hole Depth Units:	ft

Ground water levels,Number of Measurements:	1	Level reading date:	1942-12-01
Feet below surface:	8	Feet to sea level:	Not Reported
Note:	Not Reported		

8
East
1/2 - 1 Mile
Higher

OR WELLS **ORW600000015411**

Well Log ID:	MULT 99760	Last Update:	05/22/2013
Well Tag:	100309	State Obs Well #:	0
Observation Well:	Not Reported	Recorder Well:	Not Reported
Obs Well Flag:	Not Reported	Surface Elevation:	30

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: OR Radon

Radon Test Results

Zipcode	Num Tests	Maximum	Minimum	Average	# > 4 pCi/L
97217	32	19	0.2	4.4	13

Federal EPA Radon Zone for MULTNOMAH County: 2

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 MULTNOMAH COUNTY, OR

Number of sites tested: 33

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area	1.530 pCi/L	91%	9%	0%
Basement	2.630 pCi/L	57%	43%	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.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory Data
Source: Oregon Geospatial Enterprise Office
Telephone: 503-378-2166

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 Service (NRCS)
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 Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, 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 Well Data
Source: Department of Water Resources
Telephone: 503-986-0843

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Locations
Source: Department of Geology and Mineral Industries
Telephone: 971-673-1540
A listing of oil and gas well locations in the state.

RADON

State Database: OR Radon
Source: Oregon Health Services
Telephone: 503-731-4272
Radon Levels in Orgeon

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

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

ALLIED TANK

(503) 656-5506

DEQ Copy

March 24, 1992

Multnomah Expo Center
2060 N. Marine Dr.
Portland, Oregon

TANK REMOVAL REPORT

INITIAL RESPONSE

March 16, 1992, a 1,000 gallon diesel tank was removed at the Expo Center at the above address. The 1,000 gallon tank was previously used for fuel to an emergency standby generator. The tank was routinely decommissioned by removal. The excavation made for the removal showed no signs of leakage of product. The tank had no visible holes and there was no ground water seen in the excavation. The tank was pumped of residual product, pressure washed and all liquids vacuumed out. The tank was monitored for combustible atmosphere and found to be less than 10% L.E.L.. The fire, explosion and vapor hazards were monitored using a Gastector combustible gas indicator in the explosive and oxygen range.

INITIAL ABATEMENT MEASURES AND SITE CHECK

Product had been removed to less than 4 inches upon arrival at job site. The tank was pumped prior to disturbing the tank, pressure washed, then lifted to capture all remaining liquids prior to removal.

No free product was observed during the removal. No stains or vapors in the soil were observed. The soil materials were sand and sandy clay materials with high permeability. Soil samples were taken below each end of the tank, above the concrete hold-down slab, one foot below the tank. See lab report from Wy'East Environmental Sciences, Inc., and attached sketch.

CLOSURE

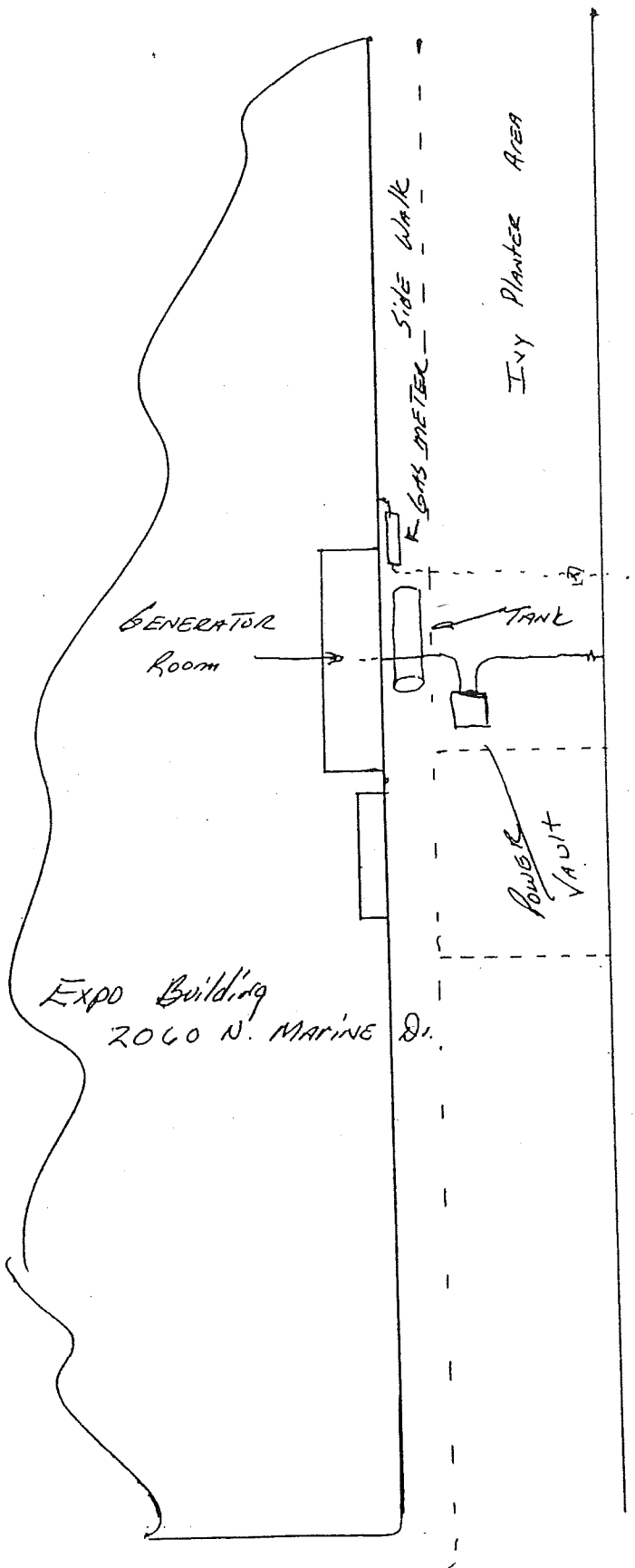
The excavation was backfilled on March 17, 1992. The material used for closure was that which had come from the original excavation topped with 5 cubic yards of crushed rock.

Signed,

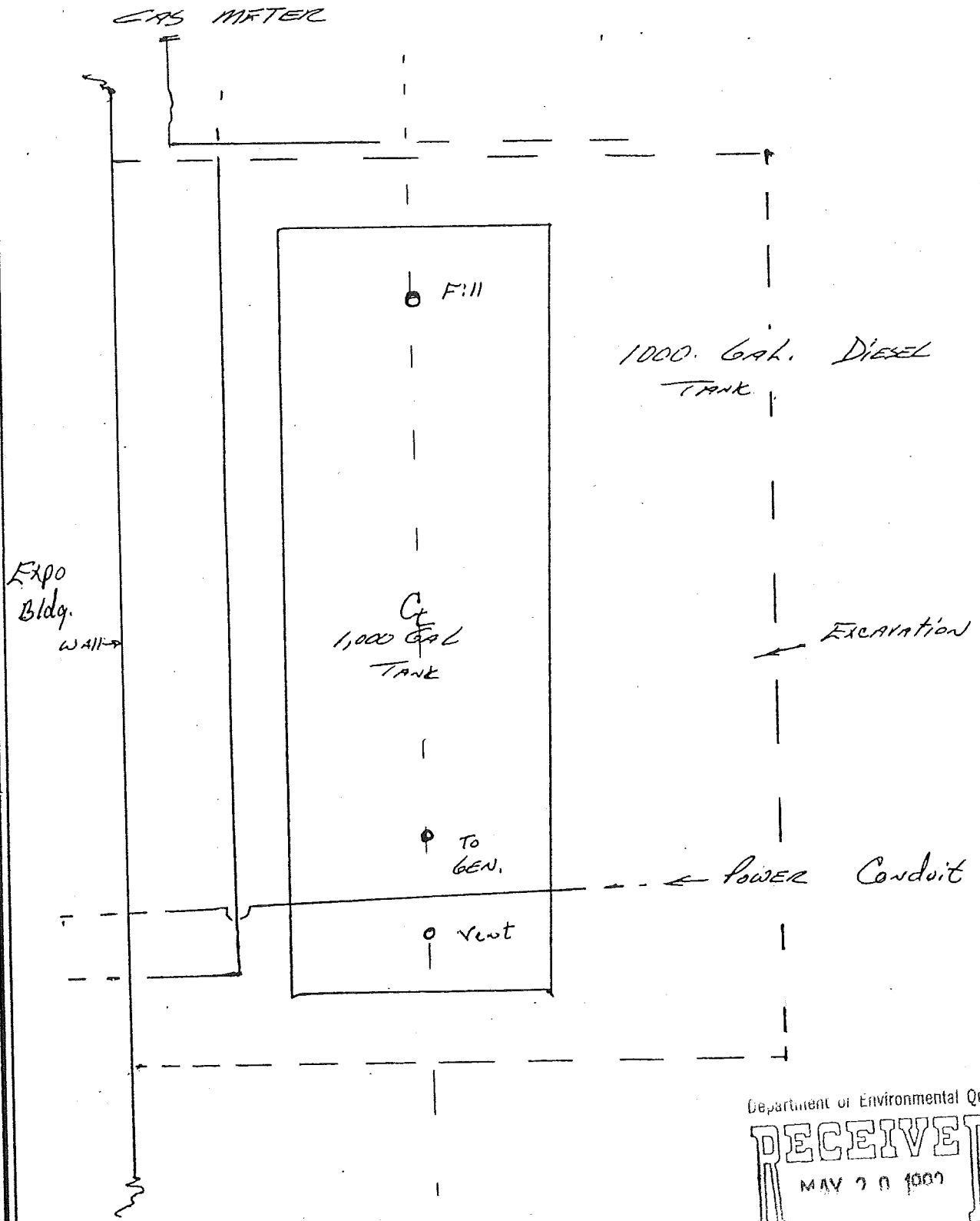
Billy W. Ogilvie
DEQ SER. PROV. #10535

Department of Environmental Quality
RECEIVED
MAR 26 1992
UST Compliance Section

15648 S.E. 114th, Suite 210 • Clackamas, OR 97015



Multnomah Expo Center
2060 N. Marine Dr.



State of Oregon
Department of Environmental Quality

Memorandum

Date: November 1, 1993

To: File No. 26-92-100

From: Andree Pollock, NWR

Subject: Multnomah County Expo Center

The file on this project is being combined with File No. 26-92-~~39~~139, Multnomah Expo Center #2 since both tank removals were conducted on the same facility.

Therefore, this file has been administratively closed.

F

Oregon

August 13, 1996

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

NORTHWEST REGION

MICHAEL MCBRIDE
MULTNOMAH CO FACILITIES MGMT
2505 SE 11TH AVE 3RD FL
PORTLAND OR 97202

Re: Multnomah Co. Expo Center #2
File No. 26-92-0139

Dear Mr. McBride:

The Department of Environmental Quality has completed our review of the information submitted to date regarding the underground storage tank (UST) decommissioning and cleanup conducted at 2060 North Marine Drive, Portland, Oregon. The Department has determined that the site appears to be cleaned up in accordance with OAR 340-122-201 through -360, and that no further action is required at this time.

This determination is a result of our evaluation and judgement based on the regulations and facts as we now understand them, including:

1. One 1,000 gallon gasoline UST was removed and transported to Schnitzer Steel Products in Portland, Oregon.

2. Approximately 300 cubic yards of petroleum-impacted soils were treated on site by aeration. After treatment was complete, confirmatory sampling by Oregon Method-Hydrocarbon Identification (TPH-HCID) did not detect petroleum contamination. These soils were disposed of on site with the Department's approval.

3. After petroleum contaminated soil was removed, all soils remaining in the excavation tested non-detect by TPH-HCID.

4. Groundwater was not encountered in the excavation.

The Department's determination will not be applicable if new or undisclosed facts show that the cleanup does not comply with the referenced rules. The Department's determination also does not apply to any conditions at the site other than the release of the petroleum product specifically addressed in your report. We recommend that a copy of all information be maintained with the permanent facility records.

John A. Kitzhaber
Governor

2020 SW Fourth Avenue
Suite 400
Portland, OR 97201-4987
(503) 229-5263 Voice
TTY (503) 229-5471

Please note that pursuant to OAR 340-122-360(2), a copy of your report must be retained until ten (10) years after the first transfer of the property.

Your effort to comply with the regulations to ensure that your facility has been adequately cleaned up is appreciated. If you have any questions, please feel free to contact James Maresh at 229-5527.

Sincerely,

James Maresh
UST Section
Northwest Region

cc: PBS Environmental
1220 SW Morrison
Portland OR 97205

Remedial Investigation Report for the Harbor Oil Site

Prepared for the Voluntary Group
for the Harbor Oil Site RI/FS
FINAL

March 30, 2012

BRIDGEWATER GROUP, INC.
AND
WINDWARD ENVIRONMENTAL LLC
IN ASSOCIATION WITH
HAHN AND ASSOCIATES, INC.
AND
GEODESIGN, INC.

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Acronyms

ACDP	Air Contaminant Discharge Permit
AMSL	above mean sea level
AOC	Administrative Settlement Agreement and Order on Consent for Remedial Investigation/Feasibility Study
AST	aboveground storage tank
ATSDR	Agency for Toxic Substances and Disease Registry
AWQC	ambient water quality criteria
BAF	bioaccumulation factor
bgs	below ground surface
BHC	benzene hexachloride
BOD	biochemical oxygen demand
Bridgewater	Bridgewater Group, Inc.
BSAF	biota-sediment accumulation factor
C	Celsius
CEC	Coles Environmental Consulting
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
Chempro	Chempro of Oregon
COC	contaminant of concern
COD	chemical oxygen demand
COI	contaminant of interest
COPC	contaminant of potential concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CSM	conceptual site model
CSP	concrete sewer pipe
CU1	Confining Unit 1
CU2	Confining Unit 2
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DEQ	Oregon Department of Environmental Quality
dh/dl	hydraulic gradient
DO	dissolved oxygen
DQO	data quality objective
dw	dry weight
Eco-SSL	ecological soil screening level
EMRI	Energy & Materials Recovery, Inc.
EPA	US Environmental Protection Agency
EPC	exposure point concentration

ERA	ecological risk assessment
F	Fahrenheit
f_{OC}	fraction of organic carbon
FOIA	Freedom of Information Act
GC	gas chromatography
gpm	gallons per minute
GPS	global positioning system
HHRA	human health risk assessment
HI	hazard index
HPAH	high-molecular-weight polycyclic aromatic hydrocarbon
HQ	hazard quotient
ID	identification
IDW	investigation-derived waste
J qualifier	estimated concentration
K	horizontal hydraulic conductivity
K_d	soil-water partition coefficient
K_{OC}	organic carbon-normalized partition coefficient
K_{OW}	octanol-water partition coefficient
LOAEL	lowest-observed-adverse-effects level
LNAPL	light non-aqueous phase liquid
LPAH	low-molecular-weight polycyclic aromatic hydrocarbon
MAO	Mutual Agreement and Order
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
msl	mean sea level
NAPL	non-aqueous phase liquid
NOAEL	no-observed-adverse-effect level
NPDES	National Pollutant Discharge Elimination System
NRMP	Natural Resources Management Plan
NTU	nephelometric turbidity unit
OAR	Oregon Administrative Rule
ORNL	Oak Ridge National Laboratory
PA	preliminary assessment
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	perchloroethylene
PEN 1	Peninsula Drainage District No. 1
PM	particulate matter
ppt	parts per thousand
PVC	polyvinyl chloride
Q qualifier	estimated concentration
QAPP	quality assurance project plan

QA/QC	quality assurance/quality control
R	retardation factor
RAO	remedial action objective
RBC	risk-based concentration
RCRA	Resource Conservation and Recovery Act
RfC	reference concentration
RfD	reference dose
RFO	refined fuel oil
RI/FS	remedial investigation/feasibility study
RL	Reporting limit
RME	reasonable maximum exposure
ROC	receptor of concern
RSL	regional screening level
RZA	Rittenhouse-Zeman and Associates
SF	slope factor
SGA	Sand and Gravel Aquifer
SI	site investigation
SOW	statement of work
SPCC	spill prevention, control, and countermeasure
SVOC	semivolatile organic compound
TAL	target analyte list
TCA	trichloroethane
TCE	trichloroethylene
TEC	threshold effects concentration
TEL	threshold effects levels
TEQ	toxic equivalent
TGA	Troutdale Gravel Aquifer
TLC	thin-layer chromatography
TOC	total organic carbon
TPH	total petroleum hydrocarbons
TPH-Dx	total petroleum hydrocarbons – diesel and oil extractable
TPH-G	total petroleum hydrocarbons – gasoline
TPH-HCID	total petroleum hydrocarbons – hydrocarbon identification
TRV	toxicity reference value
TSA	Troutdale Sandstone Aquifer
TSS	total suspended solid
U qualifier	not detected at given concentration
UCL	upper confidence limit on the mean
v	horizontal pore velocity of groundwater
VOC	volatile organic compound
Windward	Windward Environmental LLC
ww	wet weight

EXECUTIVE SUMMARY

On May 31, 2007, the Voluntary Group for the Harbor Oil Remedial Investigation/Feasibility Study (RI/FS) entered into an Administrative Settlement Agreement and Order on Consent for the RI/FS (AOC) with the US Environmental Protection Agency (EPA) for the Harbor Oil Superfund Site (Site) in Portland, Oregon. The AOC statement of work requires that the Voluntary Group perform an RI. The objective of the RI is to gather sufficient information to support informed risk management decisions regarding the remedy for the Site. In particular, sufficient information must be collected for the characterization of the nature and extent of contamination, determination of potential migration pathways, verification of the preliminary CSMs, and evaluation of risks to human health and ecological receptors.

This RI includes sections on site description and history, Study Area investigations, physical characteristics of the Study Area, the nature and extent of contamination, the conceptual site model (CSM), the baseline risk assessments, and the summary and conclusions of the RI. Each of these sections is briefly summarized below.

ES.1 Site Description and History

The Site encompasses the Harbor Oil facility (Facility), the adjacent wetlands to the south and west of the Facility, and Force Lake. The term Study Area refers to the areas sampled as part of the RI, which includes the areas that make up the Site, as well as a portion of North Lake. The following provide a brief overview of the Study Area, which is shown in Figure ES-1:

- The Facility is an approximately 4.1-ac parcel of land located in an industrial area of north Portland. The Study Area is approximately 19 acres. Until recently, most of the Facility was unpaved and covered with gravel. However, during the fall of 2011, the majority of the Facility (all areas except for the western-most portion) was paved with asphalt.
- Harbor Oil, Inc., ceased doing business on the property in 1999. Energy & Materials Recovery, Inc. (EMRI), currently operates the Facility for the treatment and processing of used oil, fuels, and oily water.
- Stormwater from the Facility is collected and treated onsite near the southwest Facility boundary. Treated stormwater is discharged to the wetlands under a National Pollutant Discharge Elimination System (NPDES) Industrial Stormwater Discharge Permit. A soil berm, which extends along the southwest and northwest Facility boundaries, is intended to prevent Facility stormwater runoff from flowing into the adjacent wetlands.

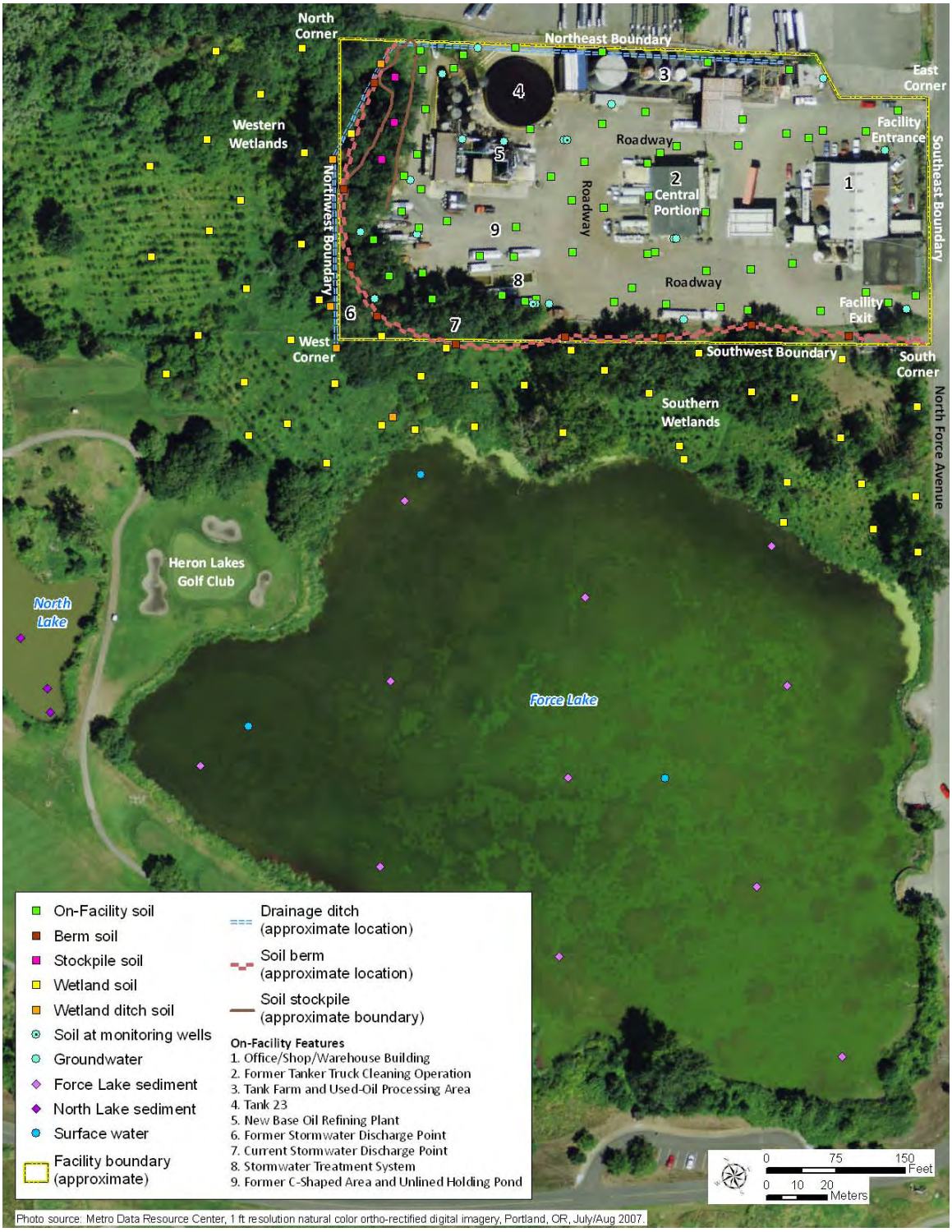


Figure ES-1. Facility Features, Area Descriptions, and RI Sampling Locations

Key points regarding the Facility history that are potentially most relevant to the distribution of chemicals at the Study Area are listed below:

- **Cattle truck and tanker truck cleaning operations**: Truck cleaning operations began in the 1950s and continued until 1994.
- **Road oiling for dust suppression:** There is evidence to suggest that the Facility road was oiled in the early 1970s and mid-1980s.
- **Oil treatment and processing activities:** Oil recycling activities began at the Facility in 1961 by Empire Industries. EMRI currently treats and processes used oil, oily water, and other water at the Facility.
- **1979 Facility fire:** A fire destroyed the Facility in 1979 and reportedly resulted in releases to the adjacent wetlands and Force Lake. After the fire, a soil berm was constructed to prevent direct stormwater flow or other releases into the wetlands, and the Facility was expanded and reconstructed.
- **Stormwater drainage patterns:** During early operations at the Facility, stormwater and industrial wastewater likely drained to sumps and holding ponds located along the southwest Facility boundary (which may have extended into what is now considered the wetlands) and in the western portion of the Facility with overflows into the adjacent wetlands. In the 1970s, a drainage ditch that discharged Facility stormwater to the wetlands was constructed along the northeast Facility boundary. The ditch remained open until 2002 when it was filled. The current stormwater treatment system collects all Facility stormwater and discharges under an NPDES permit to the wetlands southwest of the Facility.

Multiple field investigations have been conducted at the Facility, adjacent wetland areas, and Force Lake since 1988. The data from one sampling event (Ecology and Environment 2001) were considered acceptable for use in the RI. Data from seven other historical sampling events did not meet data quality objectives (DQOs) and were unsuitable for use.

ES.2 Study Area Investigation

All investigation activities were completed in accordance with the EPA-approved *Remedial Investigation/Feasibility Study Work Plan for the Harbor Oil Site* (Bridgewater et al. 2008b), hereafter referred to as the RI/FS Work Plan.

The RI site characterization was conducted in two phases. Phase 1 sampling was conducted in April-May 2008, and Phase 2 was completed in March-April 2009. These sampling events included the following activities:

- Collection of surface or subsurface soil samples at 61 locations at the Facility (including 9 soil berm and 3 soil stockpile locations)

- Collection of wetland and ditch soil samples at 52 surface and 10 subsurface locations
- Collection of surface sediment samples at 11 locations in Force Lake, subsurface sediment samples at 3 locations in Force Lake, and surface sediment samples at 3 locations in North Lake
- Collection of surface water samples at 3 locations in Force Lake
- Installation of 8 new monitoring wells followed by the collection of groundwater samples from the 8 new wells, 7 existing monitoring wells, and the plant well
- Aquifer slug testing at 9 monitoring well locations
- Collection of monthly groundwater and lake elevations between May 2008 and April 2009
- Completion of a fish population survey in Force Lake in April 2009 to obtain information on the types of fish present in the lake and estimate the abundance and sizes of these fish

ES.3 Physical Characteristics of the Study Area

The physical characteristics of the Study Area include:

- **Surface features:** The Facility is relatively flat with a slight slope from northeast to southwest, toward the wetlands and Force Lake.
- **Meteorology:** The Study Area is in a temperate marine climate characterized by wet winters and dry summers. The average annual amount of precipitation (primarily as rain) is 37 in.; the average annual temperature is 54 °F.
- **Surface water hydrology:** The Study Area is located within the Columbia River floodplain, an area with numerous wetlands and small lakes. Force Lake is approximately 12 ac in size and has an average depth of 2.5 ft. Inflows and outflows from the Force Lake are limited, and thus Force Lake acts as a settling basin.
- **Geology:** One non-native (i.e., fill) layer and several native lithologic layers are present beneath the Study Area.
- **Hydrogeology:** Three distinct groundwater zones, separated by saturated silt deposits, are located beneath the Facility: a shallow saturated zone, an intermediate saturated zone, and a deep saturated zone. Depth to uppermost groundwater beneath the Facility (shallow saturated zone) ranges from less than 1 ft to approximately 6 ft below ground surface (bgs), depending on location and the time of year. Groundwater flow is to the southwest for the shallow zone, to the west or southwest for the intermediate zone, and alternates between northwest and southwest for the deep zone. Shallow groundwater flows towards and discharges to Force Lake.

- **Demography and land use:** The current and likely future land use of the Facility is industrial, particularly given its designation as an Industrial Sanctuary by the City of Portland. The current and likely future land use designation of the wetlands and Force Lake is open space, indicating that these areas will continue to be used for recreation and as habitat for ecological receptors.
- **Ecology:** The Study Area is located within the Peninsula Drainage District No. 1 Natural Resources Management Plan (NRMP) area and provides habitat for numerous birds and several species of mammals.

ES.4 Nature and Extent of Contamination

Chemicals and chemical groups known to be of interest at the Study Area based on the results of the risk assessments or because of past or present industrial activities at the Facility are discussed in detail in the RI. These chemicals or chemical groups included total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), petroleum-associated volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), metals, dichlorodiphenyltrichloroethanes (DDTs), and chlorinated solvents. A summary of the data for these chemicals is presented in Table ES-1 for surface soil and sediment and in Table ES-2 for groundwater and surface water.

Table ES-1. Summary of Concentrations for Select Chemicals in Surface Soil and Sediment Samples

Chemical	Unit	Concentration or TEQ Range (Mean Concentration or TEQ)[a]			Area(s) with the Highest Detected Concentrations
		Facility Soil[b]	Wetland Soil[b]	Force Lake Sediment[b]	
TPH, PAH, and Petroleum-Associated VOCs					
TPH – gasoline range	mg/kg dw	5.6 U – 3,800 (260) DF = 62%	9.4 U – 58 U (nc) DF = 4%	7.7 U – 80 U (nc) DF = 9%	central portion of the Facility near the former tanker truck cleaning operation
TPH – diesel range	mg/kg dw	8.0 – 13,000 (1,700) DF = 100%	7.4 U – 4,000 (400) DF = 90%	16 – 270 (98) DF = 100%	central portion of the Facility near the former tanker truck cleaning operation and along the nearby southwest boundary of the Facility
TPH – motor oil range	mg/kg dw	38 – 12,000 (2,200) DF = 100%	15 U – 6,600 (1,200) DF = 94%	130 – 2,000 (760) DF = 100%	
Total TPH	mg/kg dw	46 – 25,000 (4,100) DF = 100%	15 U – 9,300 (1,500) DF = 94%	150 – 2,300 (840) DF = 100%	
cPAH TEQ	µg/kg dw	14.0 – 4,900 (565) DF = 93%	38.0 – 5,200 (438) DF = 96%	11.6 – 118 (61.9) DF = 100%	central portion of the Facility near the former tanker truck cleaning operation and tank farm, and in one sample collected from the soil berm in the west corner of the Facility
Total PAHs	µg/kg dw	36 J – 360,000 (13,000) DF = 98%	200 J – 28,190 J (3,000) DF = 98%	104 – 1,060 (560) DF = 100%	
Benzene	µg/kg dw	1.0 U – 6,400 (140) DF = 38%	1.6 U – 56 (6) DF = 51%	1.1 U – 8.2 U (nc) DF = 0%	central portion of the Facility near the tank farm
PCBs					
Total PCBs	µg/kg dw	4.9 J – 32,000 (2,000) DF = 80%	32 U – 4,200 (400) DF = 62%	32 U – 131 (80) DF = 64%	east corner of the Facility near the Facility entrance, in the central portion of the Facility near the former tanker truck cleaning operation, and along the U-shaped roadway that extends from the Facility entrance around the former truck cleaning operation area
Metals					
Arsenic	mg/kg dw	0.7 – 20.6 J (3) DF = 100%	1.5 – 53.1 (9) DF = 100%	2.6 – 7 (6) DF = 100%	west corner of the Facility, the area of the former unlined holding pond/C-shaped area, and the former drainage ditch to the west of the Facility
Chromium	mg/kg dw	4.0 – 63 (20) DF = 100%	6.6 – 149 (30) DF = 100%	7.7 – 34 (30) DF = 100%	west corner of the Facility and the former drainage ditch to the west of the Facility

Table ES-1. Summary of Concentrations for Select Chemicals in Surface Soil and Sediment Samples (cont.)

Chemical	Unit	Concentration or TEQ Range (Mean Concentration or TEQ)[a]			Area(s) with the Highest Detected Concentrations
		Facility Soil[b]	Wetland Soil[b]	Force Lake Sediment[b]	
Copper	mg/kg dw	9.23 – 1,070 (100) DF = 100%	10.3 – 162 (60) DF = 100%	16.2 – 72 (53) DF = 100%	west corner of the Facility and the area of the former unlined holding pond/C-shaped area
Mercury	mg/kg dw	0.03 – 6.69 (0.2) DF = 45%	0.06 – 0.4 (0.2) DF = 90%	0.06 U – 0.3 U (nc) DF = 9%	the area of the former unlined holding pond/C-shaped area
Zinc	mg/kg dw	35 – 718 J (200) DF = 100%	37 – 748 (230) DF = 100%	80 – 229 (200) DF = 100%	west corner of the Facility, the area of the former unlined holding pond/C-shaped area, the former drainage ditch to the west of the Facility, and the area near the current and former stormwater treatment system discharge points near the southwest corner of the Facility
DDTs					
Total DDTs	µg/kg dw	0.6 U – 78,000 J (8,000) DF = 95%	2.7 J – 46,000 (3,000) DF = 98%	22 J – 250 (160) DF = 100%	central portion of the Facility near the former truck cleaning operation, in the C-shaped area to the west of the former truck cleaning operation, and along the southwest boundary of the Facility
Chlorinated Solvents					
TCE	µg/kg dw	1.0 U – 2,400 (66) DF = 11%	1.5 U – 15 U (nc) DF = 5%	1.1 U – 8.2 U (nc) DF = 0%	central portion of the Facility near the former truck cleaning operations

[a] The mean concentration is equal to the average of all detected values and one-half of the RL for non-detected values. Means were not calculated if the detection frequency was less than 10% or if fewer than three samples had detected concentrations.

[b] Facility surface soil samples were collected immediately below the gravel layer from depths of 0 to 5 ft bgs (0.5- to 1.5-ft sampling intervals for a given sample). Wetland surface soil samples were collected from 0 to 0.5 ft bgs. Lake surface sediment samples were collected from 0 to 4 in. below the mudline.

bgs – below ground surface
cPAH – carcinogenic polycyclic aromatic hydrocarbon
DDT – dichlorodiphenyltrichloroethane
DF – detection frequency
dw – dry weight
J – estimated concentration
nc – not calculated
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
RL – reporting limit
TCE – trichloroethene
TEQ – toxic equivalent
TPH – total petroleum hydrocarbons
U – not detected at given concentration (concentration shown is the RL)
VOC – volatile organic compound

Table ES-2. Summary of Concentrations for Select Chemicals in Groundwater and Lake Surface Water Samples

Chemical	Unit	Water Concentration or TEQ Range (Mean Concentration or TEQ)[a]			Area(s) with the Highest Detected Concentrations
		Groundwater (Shallow)	Groundwater (Intermediate and Deep)	Force Lake Surface Water	
TPH, PAH, and Petroleum-Associated VOCs (unfiltered)					
TPH – gasoline range	mg/L	0.25 U – 0.81 (0.22) DF = 23%	0.25 U (nc) DF = 0%	not analyzed	near the tank farm and the former C-shaped area
TPH – diesel range	mg/L	0.25 U – 0.26 J (nc) DF = 0%	0.25 U (nc) DF = 0%	0.25 U (nc) DF = 0%	detected in only one groundwater sample (from well A-18 near the former C-shaped area)
TPH – motor oil range	mg/L	0.5 U (nc) DF = 0%	0.50 U (nc) DF = 0%	0.50 U (nc) DF = 0%	not detected
Total TPH	mg/L	0.27 – 1.07 J (0.33) DF = 23%	0.50 U (nc) DF = 0%	0.50 U (nc) DF = 0%	near the tank farm and the former C-shaped area)
cPAH TEQ	µg/L	0.0910 U – 1.50 U (nc) DF = 0%	0.0910 U – 1.40 U (nc) DF = 0%	0.0910 U (nc) DF = 0%	not detected
Total PAHs	µg/L	0.10 – 6.3 (1) DF = 43%	0.10 U – 3.8 U (nc) DF = 0%	0.10 U (nc) DF = 0%	near the Facility exit and in the area of the base oil refining plant
Benzene	µg/L	0.20 U – 140 (6) DF = 29%	1.0 U (nc) DF = 0%	1.0 U (nc) DF = 0%	near the tank farm
PCBs (filtered)					
Total PCBs	µg/L	0.10 U – 0.96 U (nc) DF = 0%	0.10 U – 0.92 U (nc) DF = 0%	0.10 U (nc) DF = 0%	not detected
Metals (filtered)					
Arsenic	mg/L	0.8 – 32.2 (10) DF = 100%	0.2 U – 6.3 (3.4) DF = 80%	0.9 – 1.0 (1) DF = 100%	near the tank farm
Chromium	mg/L	5 U (nc) DF = 0%	5 U (nc) DF = 0%	5 U (nc) DF = 0%	not detected
Copper	mg/L	2 U – 5 (nc) DF = 0%	2 U (nc) DF = 0%	2 U – 4 (nc) DF = 33%	low variability in concentrations

Table ES-2. Summary of Concentrations for Select Chemicals in Groundwater and Lake Surface Water Samples (cont.)

Chemical	Unit	Water Concentration or TEQ Range (Mean Concentration or TEQ)[a]			Area(s) with the Highest Detected Concentrations
		Groundwater (Shallow)	Groundwater (Intermediate and Deep)	Force Lake Surface Water	
Mercury	mg/L	0.1 U (nc) DF = 9%	0.1 U (nc) DF = 0%	0.1 U (nc) DF = 0%	not detected
Zinc	mg/L	10 U – 80 (nc) DF = 9%	10 U – 9,870 (nc) DF = 20%	10 U (nc) DF = 0%	plant well (PW-01), located in the east corner of the Facility
DDTs (unfiltered)					
Total DDTs	µg/L	0.0071 J – 0.24 J (0.030) DF = 43%	0.01 U – 0.048 (0.015) DF = 50%	0.010 U (nc) DF = 0%	detected in shallow groundwater samples in some of the areas where DDT concentrations in soil samples were highest (the exit driveway and along the southwest boundary of the Facility)
Chlorinated Solvents (unfiltered)					
TCE	µg/L	0.20 U – 1.0 U (nc) DF = 0%	1.0 U – 6.1 (nc) DF = 17%	1.0 U (nc) DF = 0%	detected only in the plant well (PW-01), located in the east corner of the Facility

[a] The mean concentration is equal to the average of all detected values and one-half of the RL for non-detected values. Means were not calculated if the detection frequency was less than 10% or if fewer than three samples had detected concentrations.

[b] The depth of shallow groundwater wells ranged from 10 to 20 ft bgs, the depth of intermediate wells ranged from 48 to 50 ft bgs, and the depth of the deep well was 97 ft bgs. Lake surface water samples were collected from 1 ft below the water surface.

bgs – below ground surface
cPAH – carcinogenic polycyclic aromatic hydrocarbon
DDT – dichlorodiphenyltrichloroethane
DF – detection frequency
J – estimated concentration
LNAPL – light non-aqueous phase liquid
nc – not calculated
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
RL – reporting limit
TCE – trichloroethene
TEQ – toxic equivalent
TPH – total petroleum hydrocarbons
U – not detected at given concentration (concentration shown is the RL)
VOC – volatile organic compound
ww – wet weight

Key findings of the nature and extent evaluation are summarized below:

- Chemical concentrations were generally highest at the Facility, with the exception of some metals for which the highest concentrations were in the wetlands near the west corner of the Facility. The locations with the highest concentrations (which were generally greater than screening levels) varied by chemical:
    - The highest cPAH TEQs were detected in the central portion of the Facility (near the tank farm and former truck cleaning operation) and in one sample from the soil berm in the west corner of the Facility.
    - TPH concentrations were highest near the former truck cleaning operation and along the southwest boundary of the Facility.
    - The highest total PCB concentrations were detected near the Facility entrance, in the central portion of the Facility, and along the Facility roadway.
    - The highest total DDT concentrations were detected in the central portion of the Facility, in the former C-shaped area where the unlined holding pond was located, and along the southwest boundary of the Facility and wetlands where historical ponds and sumps that received drainage from the truck wash were located.
    - The highest concentrations of arsenic (and other metals) were detected in the west corner of the Facility, near the C-shaped area where the unlined holding pond was located and in the former drainage ditch.
- In most cases, concentrations were highest in surface soil samples (both at the Facility and in the wetlands), except in areas where historical holding ponds or sumps were known to have been located. In these areas, concentrations were sometimes highest in intermediate soil samples but lower in deep soil samples, indicating that the extent of the highest concentrations was limited.
- Patterns of chemical concentrations in the wetlands are consistent with former drainage patterns at the Facility as well as the location of historical sumps and holding ponds along the southwest Facility boundary (which may have extended into what is now considered the wetlands).
- In general, detected concentrations of chemical were limited to shallow groundwater, with detected concentrations low relative to screening levels and of limited lateral extent. Detections of metals, dichlorodiphenyldichloroethane (DDD), six VOCs, and one semivolatile organic compound (SVOC) in intermediate or deep well samples were likely attributable to non-Facility-related sources because detections were located upgradient of Facility operations or, with regard to DDD, to a possible well seal breach

or drilling-induced drag-down of contaminated soil into the screen interval at the MW-2i/B-4 well cluster location.

- A thin layer (0.1 ft) of LNAPL was collected from well GA-30 in 2008; only trace thicknesses (0.01 to 0.02 ft) have been observed in this well during follow-up monitoring. Trace thicknesses of LNAPL (0.01 ft or less) have been observed in two of the precautionary (i.e., never used) extraction wells. Thus, the presence of LNAPL is localized and constrained to a small portion of the Facility. No LNAPL has been observed in wells located along the downgradient boundary of the Facility.
- Chemical concentrations in Force Lake sediment and surface water were generally low relative to concentrations in Facility or wetland soils and were mostly lower than screening levels or, for metals, background concentrations. The background concentrations of metals were as cited by the Oregon Department of Environmental Quality (DEQ) (2002, 2007a), which provides both soil and sediment regional background concentrations (see Section 2.8). No lateral concentration gradients were apparent in lake sediments (i.e., concentrations were not higher in the north end of the lake, which is nearer to the Facility). Concentrations in Force Lake surface sediment were higher than those in Force Lake subsurface sediment.
- With the exception of metals, chemical concentrations in North Lake sediment were typically lower than those in Force Lake sediment. In most cases, concentrations of metals in North Lake sediment were similar to those in Force Lake and to background concentrations. These results indicate that there is minimal transport of chemicals from Force Lake.

The comparison of chemical concentrations with conservative screening levels (and background concentrations for metals) indicated that higher chemical concentrations were generally bounded both vertically and laterally. Chemicals have been adequately delineated, and the available data met the DQOs identified in the RI/FS Work Plan (Bridgewater et al. 2008b).

ES.5 Conceptual Site Model

This section discusses the CSM for the Study Area as it relates to fate and transport processes that affect the distribution of chemicals at the Study Area. A summary of the key components of the CSM is provided below:

- Known or suspected sources of chemicals at the Facility and in the adjacent wetlands that appear to be associated with historical industrial operations at the Facility
- Known or suspected mechanisms for the release of chemicals to Facility soils, which include discharges from the former truck cleaning operations, spillage of petroleum products stored or

handled at the Facility, application of used oils at the Facility roadway for dust suppression, release of oils and other materials present at the Facility during the 1979 Facility fire, and the overflow or discharge of oily rinsate/stormwater from sumps or an unlined pond formerly located in the southwestern portion of the Facility

The primary migration pathway for chemicals appears to be historical direct discharge and transport via stormwater runoff. Chemicals were likely bound to soil particles that were transported in surface water runoff from the areas of spillage or discharge to low-lying areas historically located to the south and west. Over the course of operations, these low-lying areas included existing wetlands and Force Lake to the south of the Facility, as well as areas of the existing Facility that were lower in elevation at the time but were subsequently filled to match the existing grade. This fill history resulted in chemical impacts in deeper soils in certain areas relative to other portions of the Facility.

Facility physical and operational modifications such as the termination of truck cleaning operations, installation of a stormwater collection and treatment system, and the placement of a hard-packed gravel and pavement cover throughout the Facility have mitigated the primary migration pathway (direct discharge and stormwater runoff). Other potential pathways (future erosion of soils, groundwater migration, sediment transport, and volatilization to air) were not found to be pathways of likely significance.

Future land uses in the Study Area are not anticipated to change from those currently established, and thus the conceptual model for the Study Area in terms of migration and exposures is not expected to change.

ES.6 Baseline Risk Assessments

ES.6.1 Human Health Risk Assessment

The baseline HHRA presents human health risk estimates associated with potential exposures to chemicals in soil, lake sediment, lake water, groundwater, and fish caught in Force Lake. The exposure scenarios and assumptions assessed in the HHRA are consistent with a reasonable maximum level of exposure, and thus, although uncertain, risk estimates are intended to be health protective for individuals (EPA 1989).

The following scenarios were evaluated in the HHRA to assess risks to workers at the Facility:

- **Industrial (construction/trenching) worker reasonable maximum exposure (RME) scenario:** evaluated risks to current and future workers involved in construction or excavation work conducted outdoors at the Facility

- **Future outdoor worker RME scenario:** evaluated risks to future outdoor workers in the event that different operations or activities are conducted at the Facility and/or that the surficial gravel fill material and pavement that currently cover most of the Facility are removed
- **Industrial/commercial worker vapor intrusion scenario:** evaluated risks to current and future workers performing routine activities inside buildings at the Facility

The following scenarios were evaluated in the HHRA to assess risks to recreational users and fish consumers in the non-Facility portions of the Study Area:

- **Force Lake recreational user RME scenario:** evaluated risks to current and future recreational users during recreation-associated activities at Force Lake and in the surrounding wetlands, including bird watching, remote-control boating, or golf ball retrieval
- **Force Lake fish consumer RME scenario:** evaluated risks to current and future fish consumers based on the consumption of fish caught in Force Lake

Table ES-3 summarizes the total excess cancer risk and overall hazard index (HI) for each of the scenarios evaluated in the HHRA. When applicable, these risk estimates are the combined risks across the relevant exposure media. All excess cancer risk estimates were within EPA's target risk range of 10-6 to 10-4. The overall HIs (i.e., sum of non-cancer HQs for all contaminants of potential concern (COPCs) across all endpoints) were less than or equal to 1 for all scenarios except the Force Lake fish consumer RME scenario (Table ES-3). However, when endpoint-specific HIs (e.g., developmental or nervous system endpoints) were calculated for this scenario, no endpoint-specific HIs were greater than 1.

Table ES-3. Summary of Total Excess Cancer Risks and Non-Cancer HIs

Scenario	Total Excess Cancer Risk	Overall HI[a]
Industrial (construction/trenching) worker RME scenario (cumulative risk across media)	3×10^{-6}	1
Future outdoor worker RME scenario	2×10^{-5}	0.6
Industrial/commercial worker vapor intrusion scenario	9×10^{-7}	ne[b]
Force Lake recreational user RME scenario (cumulative risk across media)	1×10^{-5}	0.4[c]
Force Lake fish consumer RME scenario	2×10^{-5}	3 (endpoint-specific HIs were less than or equal to 1)[c, d]

[a] The overall HI is equal to the sum of HQs across multiple exposure pathways, endpoints, and/or target organs.

[b] Risks for this scenario were calculated based on a comparison of Study Area concentrations with vapor intrusion screening levels, which are based on the more stringent of the cancer or non-cancer risks (i.e., whichever one results in lower

screening levels). For this scenario, screening levels for all COPCs were based on cancer risks, and thus it was not possible to calculate non-cancer risks.

[c] The overall HI is based on children 0 to 6 years of age. This HI is higher than HIs for the integrated 0-to-30 year age group and for older age groups (i.e., 7 to 16 years and 17 to 30 years), and thus is typically used for risk management decisions.

[d] The overall HI for this scenario was equal to 3. Because this value was greater than 1, endpoint-specific HIs were calculated per EPA guidance (1989). No endpoint-specific HIs were greater than 1 (see Section 5.3.5 of the HHRA [Appendix I] for details).

COPC – contaminant of potential concern
HI – hazard index
HQ – hazard quotient
ne – not evaluated
RME – reasonable maximum exposure

In addition to the scenarios shown in Table ES-3, a screening-level assessment was conducted to estimate risks based on the exposure of hypothetical future residents to contamination in the Study Area. Based on a comparison of concentrations with regional screening levels (RSLs) (EPA 2009c), total excess cancer risks would likely be greater than the upper end of EPA's target risk range (10^{-4}), and HQs for some chemicals would likely be greater than 1, indicating that risks would have to be further assessed in the future if the area were to be developed for residential use. Because the City of Portland has designated the Facility as an Industrial Sanctuary, and the non-Facility portions of the Study Area are zoned as open space within an NRMP area, future residential development in the Study Area is unlikely.

Based on the results of the HHRA, arsenic, carcinogenic PAH (cPAH) toxic equivalent (TEQ), total PCBs, total DDTs, and TPH-gasoline (aliphatic) were identified as contaminants of concern (COCs) (i.e., COPCs with risk estimates greater than 10^{-6}). No COPCs had HQs greater than 1. These COPCs contributed the majority of risk to the total risk for each exposure scenario. Together, these five COCs contributed 95% or more to the total excess cancer risk (other COPCs made up less than 5% of the total risk). For those scenarios with the highest risks (i.e., those greater than 1×10^{-5}), the percent contribution by COPC was as follows:

- **Future outdoor worker RME scenario based on exposure to Facility soil:** The total excess cancer risk of 2×10^{-5} was made up of 30% arsenic, 17% cPAH TEQ, 26% total PCBs, 9% total DDTs, 13% TPH-gasoline (aliphatic), and 5% other COPCs.
- **Force Lake fish consumer RME scenario:** The total excess cancer risk of 2×10^{-5} was made up of 37% arsenic, 53% total PCBs, and 11% total DDTs.

To further evaluate risks for COCs in the HHRA, risk estimates were calculated based on regional background or reference area concentrations. Although background concentrations have been recommended for metals by DEQ, similar recommendations are unavailable for organic compounds (DDTs, cPAH TEQ, and PCBs). For these organic compounds, concentrations from reference areas (urban areas within the vicinity of the Study Area) were used for comparison with Study Area concentrations. Background risk estimates for arsenic were

similar to those based on Study Area concentrations for most exposure scenarios, indicating that background concentrations of arsenic are an important consideration. With one exception, risk estimates based on reference area concentrations were lower than Study Area risk estimates for cPAH TEQ, total PCBs, and total DDTs for all scenarios. The exception was for the Force Lake recreational user based on exposure to wetland soil: cPAH TEQs from reference areas were slightly higher than or similar to those at the Study Area. No background or reference area concentrations were available for TPHs.

ES.6.2 Ecological Risk Assessment

The baseline ERA presents risk estimates for benthic invertebrates, terrestrial invertebrates, fish, and wildlife species that may be exposed directly to chemicals in wetland soil, Force Lake surface sediment, Force Lake surface water, and to aquatic or terrestrial biota through their diet. Conservative assumptions, such as the use of the lowest toxicity values and the use of upper confidence limit on the mean (UCL) concentrations for estimating exposure, were used in an attempt to ensure that risk estimates, although uncertain, were protective of ecological receptors.

The following receptors of concern (ROCs) representing various feeding guilds were selected:

- **Invertebrates:** aquatic benthic invertebrate community and wetland invertebrate community
- **Fish:** brown bullhead (omnivorous fish) and pumpkinseed (invertivorous fish)
- **Birds:** ruddy duck (invertivorous bird), great blue heron (piscivorous bird), and red-tailed hawk (higher-trophic-level carnivorous bird)
- **Mammals:** shrew (invertivorous mammal) and Eastern cottontail (herbivorous mammal)

Table ES-4 provides a summary of HQs for all receptor of concern (ROC)-COPC pairs with effects-based HQs greater than 1.0. Table ES-4 also presents HQs based on background (for metals) or reference area (for organic compounds) concentrations[1] for comparison with those based on Study Area concentrations.

[1] See notes on background concentrations in Section ES.6-1. The term reference area is used instead of background for organic compounds because no specific background concentrations that are representative of anthropogenic background have been selected or approved by EPA.

Table ES-4. COPCs and ROCs with LOAEL-Based HQs Greater than 1.0

COPC	Matrix	NOAEL-Based HQ	LOAEL-Based HQ	Background or Reference Area LOAEL-Based HQ[a]
Aquatic Benthic Invertebrate Community				
DDD	surface sediment	**2.4 – 17**[b]	1.0 **– 7.2**[c]	0.072 – 0.79[c]
DDE	surface sediment	**6.4 – 110**[b]	**1.3 – 22**[c]	1.0 – **1.5**[c]
Terrestrial Invertebrate Community				
Chromium	wetland soil	**3.3 – 75**[d]		**21**[d]
Copper	wetland soil	0.21 – **25**[d]		0.72[d]
Zinc	wetland soil	0.31 – **6.2**[d]		0.72[d]
Total HPAHs	wetland soil	0.0056 **– 3.2**[d]		0.003 – 0.022[d]
Fish – Pumpkinseed				
Copper	diet	**3.5**	**1.8**	0.30
Fish – Brown Bullhead				
Copper	diet	**2.1**	**1.1**	0.18
Birds – Red-Tailed Hawk				
Total DDTs	diet	**5.8**	**1.2**	0.020 – 0.47
Mammals – Eastern Cottontail				
Mercury	diet	**5.9**	**1.2**	0.54
Mammals – Shrew				
Mercury	diet	**65**	**13**	**5.7 – 15**
Total DDTs	diet	**9.2**	**8.5**	0.053 – 0.41

[a] Background and reference area concentrations and sources are discussed in Section 2.8 and in Attachment 4 of the ERA (Appendix J). Concentrations for metals are representative of background concentrations, and concentrations for organic compounds are representative of reference area concentrations.

[b] HQs were developed based on a comparison with a TEL or a TEC.

[c] HQs were developed based on a comparison with a PEL or a PEC; total DDT concentrations were less than the total DDT PEL/PEC.

[e] HQs were developed based on a comparison with soil screening levels.

COPC – contaminant of potential concern
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethylene
DDT – dichlorodiphenyltrichloroethane
HPAH – high-molecular-weight polycyclic aromatic hydrocarbon
HQ – hazard quotient
LOAEL – lowest-observed-adverse-effect level
NOAEL – no-observed-adverse-effect level
PEC – probable effects concentration
PEL – probable effects level
ROC – receptor of concern
TEC – threshold effects concentration
TEL – threshold effects level
TRV – toxicity reference value

Bold identifies HQs greater than 1.0.

Lowest-observed-adverse-effects level (LOAEL)-based HQs were greater than 1.0 for chromium, copper, zinc, mercury, DDTs, and total HPAHs for at least one receptor (Table ES-4). LOAEL-based HQs were greater than 5 for DDE (aquatic invertebrates), DDD (aquatic invertebrates), chromium (terrestrial invertebrates), copper (terrestrial invertebrates), total DDTs (shrew), and zinc (terrestrial invertebrates). LOAEL-based HQs were also

greater than 5 for mercury (shrew), but mercury concentrations were within the range of DEQ background concentrations.

Key uncertainties in these risk estimates include: the terrestrial invertebrate screening levels; the observation of earthworms in areas with higher concentrations of metals (which may indicate that invertebrate screening levels are overly protective for the Study Area); and the bioavailability of DDTs in lake sediment (the total organic carbon [TOC] was high in sediment, likely limiting the potential for toxicological effects).

ES.7 Conclusions and RAOs

This section presents a synthesis of pathway, nature and extent, and risk information for the Facility, groundwater, wetlands, and Force Lake in order to help inform EPA's risk management decisions in each part of the Study Area in concert with the preliminary remedial action objectives (RAOs).

ES.7.1 Facility Soil

Key findings for Facility soil are summarized below:

- Patterns of chemical concentrations are consistent with what is known regarding historical uses and releases at the Facility; ongoing activities appear to be controlled (surface water runoff is collected, treated, and monitored under an NPDES permit).
- In the HHRA, risks associated with current and future activities at the Facility were within EPA's target risk range 10^{-4} to 10^{-6} (3×10^{-6} for the industrial [construction/trenching] worker and 2×10^{-5} for the future outdoor worker). HQs were less than or equal to 1.
- In the HHRA, risks based on exposure to Facility soil were assessed as part of the screening assessment for hypothetical future residents. Based on the results of this analysis (i.e., calculation of risks using the published screening levels), the total excess cancer risks would likely be greater than the upper end of EPA's target risk range (10^{-4}) and HQs for some chemicals would likely be greater than 1. However, as discussed in Section 3.6, the current and expected future land use of the Study Area does not include residential use or development.

ES.7.2 Groundwater

Key findings for Facility groundwater are summarized below:

- In the HHRA, risks associated with potential current exposures to groundwater were less than 10^{-6}. HQs were less than 1.
- The majority of chemicals detected in groundwater were in samples collected from shallow wells; concentrations of detected chemicals were low relative to screening levels.

- Chlorinated solvents were detected in groundwater in only two wells: deep well PW-01 and shallow well GA-34, both of which are located in the east corner of the Facility. The identified chlorinated solvents appear to be attributable to upgradient or documented regional impacts and are not attributable to releases from the Facility.
- DDD was detected in shallow groundwater samples in some of the areas where DDD concentrations in soil samples were highest. The mobility of DDD is low, and DDD is not expected to migrate off of the Facility in groundwater to Force Lake. In addition, DDD was detected in deeper groundwater samples at a single well cluster location in the south-central portion of the Facility. With regard to the deeper DDD detections, and given the low mobility of DDD as demonstrated by calculations using the estimated retardation factor, it is suspected that the deeper presence is likely attributable to drilling artifacts or to a breach in the seals of the wells in this cluster and is not the result of vertical migration through natural processes.
- A thin layer of LNAPL was observed in one well and trace amounts were observed in two wells. Thus, LNAPL is not a significant component at the Facility, and its presence is localized and constrained to a small portion of the Facility.
- Chemicals in groundwater that are related to the Facility do not appear to be widespread or to be migrating off the Facility.
- In the HHRA, risks based on exposure to groundwater were assessed as part of the screening assessment for hypothetical future residents. Based on the results of this screening assessment (i.e., calculation of risks using the published screening levels), the total excess cancer risks would likely be greater than the upper end of EPA's target risk range (10^{-4}), and HQs for some chemicals would likely be greater than 1. However, the current and expected future land use of the Study Area does not include residential use or development.

In addition, it should be noted that five chemicals were detected in groundwater samples at concentrations greater than the MCL. These MCL exceedances are summarized below by chemical:

- **Benzene (1 of 28 samples > MCL):** Detected at a concentration greater than the MCL of 5 µg/L in one sample (140 µg/L in the sample collected from location MW-4s in 2008). In 2009, benzene was detected at a concentration of 2.9 µg/L (which is less than the MCL) at the same location.
- **Arsenic (12 of 27 [filtered] and 16 of 34 [unfiltered] samples > MCL):** Detected at concentrations greater than the MCL of 10 µg/L in 12 of 27 filtered water samples and in 16 of 34 water samples (maximum detected concentrations were equal to 32.2 and 31.6 µg/L for filtered and unfiltered water samples, respectively). Concentrations were greater than the MCL or non-

zero maximum contaminant level goal (MCLG) by factors ranging from 1.1 to 3.2. Similar concentrations of arsenic were detected in groundwater across the Facility, including shallow groundwater at the upgradient property boundary near the northeastern corner of the Facility (arsenic concentrations in samples from well GA-34 were approximately 19 µg/L (for both filtered and unfiltered water samples). These results suggest that arsenic concentrations detected at the Facility may not be site-related.

- **TCE (1 of 28 samples > MCL):** Detected at a concentration above the MCL of 5 µg/L in one sample (6.1 µg/L in the sample from location PW-01 in 2000). TCE was not detected in the sample collected at PW-01 in 2008, and the well was not sampled in 2009.
- **Chlorobenzene (1 of 28 samples > MCL):** Detected at a concentration above the MCL of 100 µg/L in one sample (130 µg/L in the sample collected from location GA-34 in 2009).
- **Lead (1 of 28 samples > MCL):** Detected at a concentration greater than the MCL of 15 µg/L in one sample (19.6 µg/L in the sample collected from location A-18 in 2000). Lead was not detected in samples collected from this well in 2008 or 2009.

ES.7.3 Wetland Soil

Key findings for wetland soil are summarized below.

- Patterns of chemical concentrations are consistent with drainage patterns at the Facility as well as the location of historical sumps and holding ponds along the southwest Facility boundary (which may have extended into what is now considered the wetlands). The migration of chemicals from the Facility into the wetlands now appears to be controlled.
- In the HHRA, risks associated with current activities in the wetlands were within EPA's target risk range of 10^{-4} to 10^{-6} for recreational users (9×10^{-6}). HQs were less than 1.
- In the ERA, dietary effects-based HQs were greater than 1 for red-tailed hawk (total DDTs), Eastern cottontail (mercury), and shrew (total DDTs). All other HQs were less than 1 or within background or reference area ranges.
- Wetland soil concentrations were greater than invertebrate screening levels (e.g., for earthworms) for chromium, copper, zinc, and HPAHs. However, earthworms were frequently observed during field sampling, including in those areas with higher concentrations of these chemicals.

- In the HHRA, risks based on exposure to wetland soil were assessed as part of the screening assessment for hypothetical future residents. Based on the results of this screening assessment (i.e., calculation of risks using the published screening levels), the total excess cancer risks would likely be greater than the upper end of EPA's target risk range (10^{-4}), and HQs for some chemicals would likely be greater than 1. However, the current and expected future land use of the Study Area does not include residential use or development.

ES.7.4 Force Lake Sediment and Surface Water

Key findings for Force Lake sediment and surface water are summarized below:

- No lateral concentration gradients were apparent in lake sediment; mean concentrations were less than those at the Facility or in wetland soil and declined with sediment depth.
- With the exception of metals, concentrations in North Lake sediment were generally lower than those in Force Lake sediment. In most cases, concentrations of metals in sediment were similar to those in Force Lake and to background concentrations. In addition, chemical concentrations in Force Lake surface water were low or non-detect. These results indicate that there is minimal transport of chemicals from Force Lake.
- In the HHRA, risks associated with current activities at Force Lake were less than or equal to 10^{-6} for recreational users. HQs were less than 1. Risks were within EPA's target risk range of 10^{-4} to 10^{-6} for current exposure via fish consumption (2×10^{-5}). HQs and endpoint-specific HIs were less than or equal to 1.
- In the ERA, dietary effects-based HQs were greater than 1 only for pumpkinseed and brown bullhead for both copper.
- Sediment concentrations were greater than effects-based screening levels for benthic invertebrates for DDD and DDE; total DDT concentrations were less than the effects-based screening level. TOC in the sediment was relatively high, which would limit site-specific bioavailability and toxicity.
- In the ERA, no refined COPCs were identified for surface water; therefore, no risks to the ecological receptors from exposure to surface water are expected.

ES.7.5 Preliminary RAOs

Preliminary RAOs were provided in Appendix D of the Work Plan (Bridgewater et al. 2008b). Consistent with EPA guidance (EPA 1988), the preliminary RAOs are media-specific goals for protecting human health and the environment at the Study Area.

The preliminary RAOs were evaluated based on the site-specific environmental information gathered during the RI and on the findings of the HHRA and ERA. They appear to be inclusive and relevant for the assessment and management of current and future risks for the Study Area. The preliminary RAOs, as defined in the work plan for the RI/FS (Bridgewater et al. 2008b), were as follows:

- Control or eliminate ongoing sources of contamination, or other Study Area COCs, to groundwater, surface water, and sediment
- Reduce or eliminate human and ecological exposure to any Study Area-related contaminated media that may lead to potential current or future unacceptable risk

One additional RAO was added to control exposure to chemicals in wetland soil that may result in unacceptable risk to human health. The full list of RAOs, along with a discussion of the relevant findings from the RI, HHRA, and ERA, is provided in Table 7-9.

Based on the results of the RI and baseline risk assessments, EPA will make risk management decisions for the Study Area and will determine whether risks are unacceptable. As discussed in EPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (EPA 1988), if the baseline risk assessments determine that risks are acceptable for humans and ecological receptors, the conclusions of the risk assessments and RI may serve as the primary means of documenting this decision. EPA guidance (1991b) states that action is generally not warranted when carcinogenic risks are less than 10^{-4}, non-carcinogenic risks are less than a HQ of 1, and maximum contaminant levels (MCLs) and non-zero MCLGs are not exceeded. This guidance also indicates that risk assessments should characterize uncertainties when determining whether risks to human health or the environment are unacceptable (EPA 1991b).

Below is a summary of the results of the RI and baseline risk assessments relative to EPA guidance:

- Carcinogenic risks for current and future RME scenarios in the HHRA were less than 10^{-4}, the upper level of EPA's target risk range, which is typically used by EPA for risk management decisions (EPA 1991b).
- Non-cancer HQs for individual COPCs and endpoint-specific HIs were less than or equal to 1 for all RME scenarios.
- For ecological receptors HQs were less than 1.0 or were less than or similar to background or reference area concentrations, with the exception of two COPCs for wildlife (mercury and total DDTs), one COPC for fish (copper), and four COPCs for terrestrial invertebrates (chromium, copper, zinc, and total HPAHs). Uncertainty exists regarding the likelihood that these COPCs would result in unacceptable population-level risks.

- Detected concentrations in groundwater were greater than the MCL or non-zero MCLG for 12 of 27 dissolved water arsenic samples and 16 of 34 total water arsenic samples (approximately 45% of samples), as well as for 1 of 28 samples each for lead, benzene, chlorobenzene, and trichloroethene. However, the groundwater at the Study Area is not currently used as drinking water, and this is not expected to change in the future.

A screening assessment for hypothetical future residents conducted as part of the HHRA indicated that total excess cancer risks would be greater than the upper end of EPA's target risk range (10^{-4}) and non-cancer HQs for some chemicals would be greater than 1. The results of this assessment indicate that if the land use designation were to change, additional analyses would be needed. It should be noted that future residential land use is unlikely at the Study Area based on current and expected future land use designations (industrial at the Facility or open space in the wetlands). In addition, as noted in EPA guidance (EPA 1991b), the NCP states that "the assumption of future residential land use may not be justifiable if the probability that the site will support residential use in the future is small."

EPA will carefully evaluate the information presented in this RI relative to the RAOs for the Study Area to determine what next steps, if any, are necessary.

1.0 INTRODUCTION

1.1 Purpose of Report

On May 31, 2007, Portland General Electric Company, Bonneville Power Administration, Avista Corporation, NorthWestern Corporation, Union Oil Company of California, and Waste Management Disposal Services of Oregon, Inc. (which together comprise the Voluntary Group for the Harbor Oil Site RI/FS [Voluntary Group]), entered into an AOC, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Docket No.CERCLA-10-2007-0106, with the EPA for the Harbor Oil Superfund Site (Site) in Portland, Oregon. In accordance with the AOC, the Site encompasses the Harbor Oil facility (Facility), an approximately 4.1-ac parcel of property located at 11535 N Force Avenue, the adjacent wetland to the south and west of the Facility, and Force Lake. The AOC statement of work (SOW) required that the Voluntary Group prepare an RI/FS work plan. The *Remedial Investigation/Feasibility Study Work Plan for the Harbor Oil Site* (Bridgewater et al. 2008b), hereafter referred to as the RI/FS Work Plan, was completed in March 2008.

The site characterization was conducted in two phases. Areas sampled included the Site, as defined above, and a portion of North Lake. Collectively, the areas studied are referred to as the Study Area in this document. Phase 1 sampling was conducted in April and May 2008, and included the collection of surface and subsurface soil samples at the Facility and in the adjacent wetlands; installation of monitoring wells and collection of groundwater samples; and collection of lake surface water and sediment samples. Phase 2 sampling was conducted in March and April 2009, and included the collection of additional surface and subsurface soil samples at the Facility and in the wetlands; collection of another round of groundwater samples; and collection of subsurface lake sediment samples. Monthly groundwater and lake elevations were collected between May 2008 and April 2009.

This document is the RI report for the Site. The objective of the RI was to gather sufficient information regarding the Site to support informed risk management decisions regarding the remedy for the Site. In particular, sufficient information had to be collected in order to characterize site conditions, describe of the nature and extent of contamination, and assess risks to humans and ecological receptors. The RI report was prepared by Bridgewater Group, Inc. (Bridgewater); Windward Environmental LLC (Windward); GeoDesign, Inc.; and Hahn and Associates, Inc., for the Voluntary Group.

1.2 Report Organization

This RI report was prepared in accordance with the EPA-approved RI/FS Work Plan (Bridgewater et al. 2008b) and EPA RI/FS guidance (EPA, 1988). The report is organized to follow the outline provided in EPA RI/FS guidance and includes the following sections:

Section 1.0 Introduction

Section 2.0 Study Area Investigation

Section 3.0 Physical Characteristics of the Study Area

Section 4.0 Nature and Extent of Contamination

Section 5.0 Conceptual Site Model

Section 6.0 Baseline Risk Assessments

Section 7.0 Summary and Conclusions

Section 8.0 References

Appendices to the RI report include:

A Aerial Photographs

B Remedial Investigation Database

C Field Forms, Field Notes, and Chain-of-Custody Forms

D Boring Logs

E Sample Location Tables

F Well Construction Diagrams

G Slug Test Results

H Force Lake Fish Survey Memorandum

I Human Health Risk Assessment

J Ecological Risk Assessment

K Golder Associates Figures

L Groundwater Elevation Maps and Hydrographs

M Data Validation

N Data Management

O Laboratory Report Forms

1.3 Site Background

1.3.1 Site Description

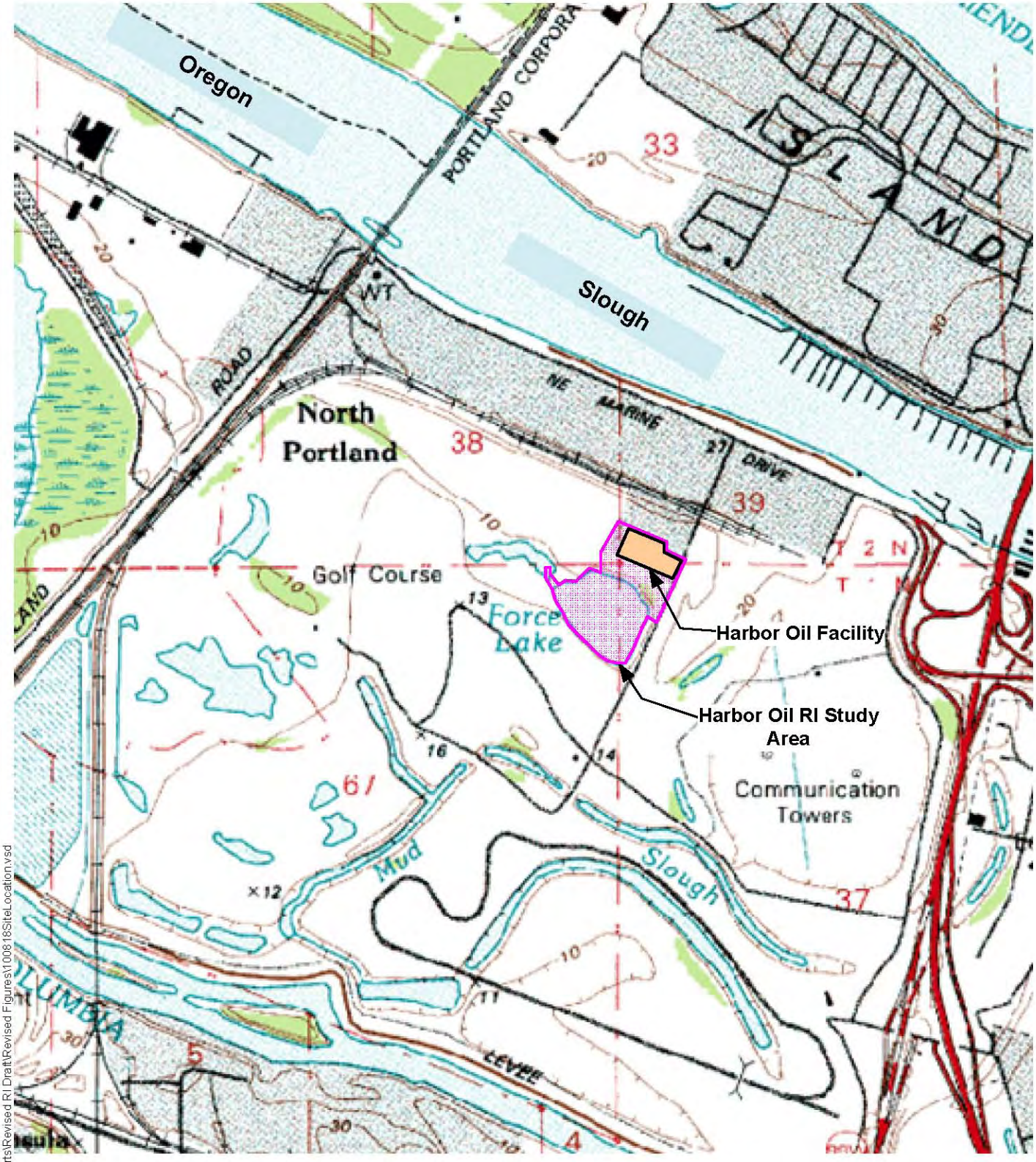
1.3.1.1 Site Location

The Site is located in north Portland, Multnomah County, Oregon. The Site is located in an industrial area of north Portland, south of Marine Drive and west of Interstate 5 (Figure 1-1).

The Oregon Slough (Figure 1-1), a side channel to the Columbia River, is located to the north of Marine Drive. The Heron Lakes Golf Club, which includes the Great Blue and Greenback Golf Courses, is located to the south of the Site.

The Site is located in Township 2 North, Range 1 East of Section 33 of the Willamette Meridian. According to Ecology and Environment (2001), the Site is located at latitude 45°36'24.5" N and longitude 122°40'59.47" W.

In accordance with the AOC, the Site encompasses the Facility, an approximately 4.1-ac parcel of property located at 11535 N Force Avenue (bounded by North Force Avenue to the east and by the Bulk Transportation facility to the north), the adjacent wetland to the south and west of the Facility and Force Lake. The term Study Area is used to refer to the entire sampled area, which includes the areas listed as part of the Site as well as a portion of North Lake. Figure 1-2 shows the location of the Facility and Force Lake; the wetlands are located to the northwest and southwest of the Facility. This figure also shows the approximately 19-acre Study Area, where soil, groundwater, sediment and surface water samples were collected during the RI.



Source: Force Lake, USGS Portland (OR,WA) Topo Map from TopoZone

N

0.5 Mile

Approximate Scale

Figure 1-1
Location Map
Harbor Oil Study Area

BRIDGEWATER GROUP, INC.

C:\Userdata\Document\Harbor Oil\Reports\Revised RI Draft\Revised Figures\100818SiteLocation.vsd

Wind Ward environmental LLC

0 100 200 Feet

0 25 50 Meters

Figure 1-2. Harbor Oil Study Area

Prepared by CEH, 08/20/2010; MAP #4348; W:\Projects\Harbor Oil\Data\GIS\R1

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

1.3.1.2 Facility Description and Conditions

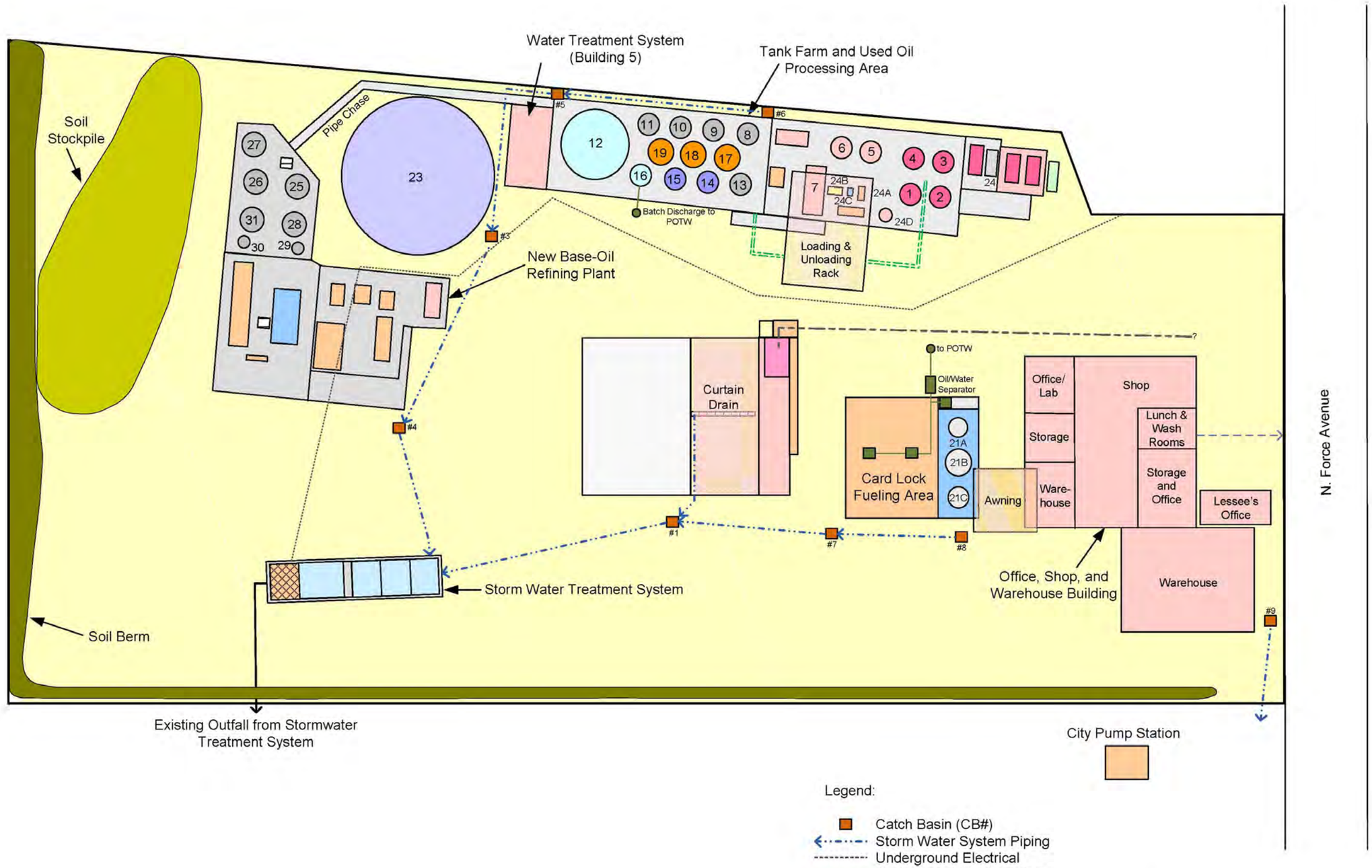
According to Coles Environmental Consulting (CEC) (2002), EMRI, currently operates a treatment and processing plant at the Facility for used oil, oily water, and other water. In 2005, EMRI processed 3.3 million gallons of raw used oil. EMRI took over the operation on October 1, 1999, after Harbor Oil, Inc., ceased doing business on the property. Under both Harbor Oil and EMRI, the Facility has processed various types of oil, off-specification fuels, and oily waters to produce refined fuel oil (RFO).

Figure 1-3 shows current features at the Facility, most of which until recently, was unpaved and covered with gravel. However, during the fall of 2011, the majority of the Facility (all areas except for the western-most portion) was paved with asphalt. The August 2011 aerial photograph included in Appendix A depicts the current extent of asphalt pavement at the Facility. EMRI's office/shop/warehouse building is located on the southeast side of the Facility, near the main entrance along N Force Avenue. As of early 2010, a portion of this building was also used by Wevco Biodiesel Products LLC for the manufacture of biodiesel. Another portion of the building is occupied by an asphalt coating business, Phoenix Asphalt. Immediately to the northwest of the building is a card lock fueling operation, which was also operated by a tenant. The locations of known underground utilities at the Facility, including underground electric, stormwater, sanitary, and fuel lines, are shown on Figure 1-3.

A tank farm and used oil processing area is located along the northeast side of the Facility. Used oil is delivered at a covered unloading rack located immediately southwest of the processing area and is stored in the tank farm. It is heated and then processed (i.e., filtered, dehydrated and blended) to produce RFO. The locations of all known underground petroleum piping at the Facility (limited to the south-central portion of the tank farm and processing area) are shown on Figure 1-3. According to D. Coles (2010c), no information concerning leak or tightness testing that may have been done on the product line or the tanks is available.

To the northwest of the tank farm and processing area is a large steel tank referred to as Tank 23. Wastewater from the RFO process was historically discharged to Tank 12 (located at the northwest end of the tank farm and used oil processing area) for storage and then to Tank 23 for treatment.

The RFO is further processed in a new base oil refining plant (constructed in 2003), which is located to the west of the tank farm and used oil processing area. A variety of petroleum products are produced by the new base oil refining plant. Soils excavated during the construction of the new base oil plant were stockpiled at the Facility to the northwest of the plant (Figure 1-3).



Source: Coles Environmental Consulting, Inc., Energy & Materials Recovery, Inc. Site Diagram (Formerly Harbor Oil, Inc.), April 2009.

Figure 1-3
Current Facility Features
Harbor Oil Facility

BRIDGEWATER GROUP, INC.

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A stormwater treatment system, which includes an oil-water separator, is located near the southwest side of the Facility. Catch basins are used to collect stormwater and convey it to the stormwater treatment system. Figure 1-3 illustrates the location of underground piping from the catch basins to the treatment system based on information provided by D. Coles (2007). According to D. Coles, piping was initially installed by 1984 at the same time as the installation of the treatment system. Additional piping was installed in 2002 when EMRI closed off the drainage ditch that ran along the northeastern property boundary and installed the two catch basins located in the area immediately north of the tank farm, and in 2006, when the catch basins near the card lock facility were installed. According to D. Coles, the system is in good condition. Treated stormwater is discharged to the wetlands at a point southwest of the Facility, under a NPDES Industrial Stormwater Discharge Permit 1200-COLS issued by the Oregon Department of Environmental Quality (DEQ). Based on DEQ file information, EMRI is required to sample stormwater four times per year, at least 14 calendar days apart. Two of the sampling events are to occur prior to December 31 each year and the remaining two are to occur between January 1 and June 30. The samples are collected at the point of discharge to the wetland and are analyzed for biochemical oxygen demand (BOD), oil and grease, pH, total phosphorus, total suspended solids (TSS), copper, lead, zinc, and *Escherichia coli*. Section 1.3.2 summarizes information found in DEQ's water quality file related to NPDES permit violations and unpermitted discharges.

A soil berm extends along the southwest and northwest sides of the Facility (Figure 1-3); the berm is intended to prevent stormwater runoff from flowing into the adjacent wetlands (Figure 1-2). Facility history information indicates that the soil berm was constructed shortly after a 1979 fire at the Facility.

According to D. Coles (2007a), the soil berm is approximately 2 to 3 ft high and 5 to 6 ft wide at its base. The soil berm is intact, covered with sparse vegetation, and there are no known areas of substantial erosion. The soil berm is effective in preventing stormwater runoff from discharging into the adjacent wetlands.

An open area to the northwest of the new base oil refining plant and stormwater treatment system is used for storage of vehicles, equipment, and materials.

A tanker truck cleaning operation was previously located in the central portion of the Facility; the western portion of the area where the former tanker truck cleaning operation was located is currently leased to the asphalt coating business and the eastern portion is used for vehicle and equipment storage.

1.3.2 Facility History

This section provides a summary of information on Facility history from CEC (2002), Ecology and Environment (2001), Golder Associates (1990), and historical aerial photos, as well as information gathered as part of a review of State of Oregon air quality, water quality, hazardous waste, and

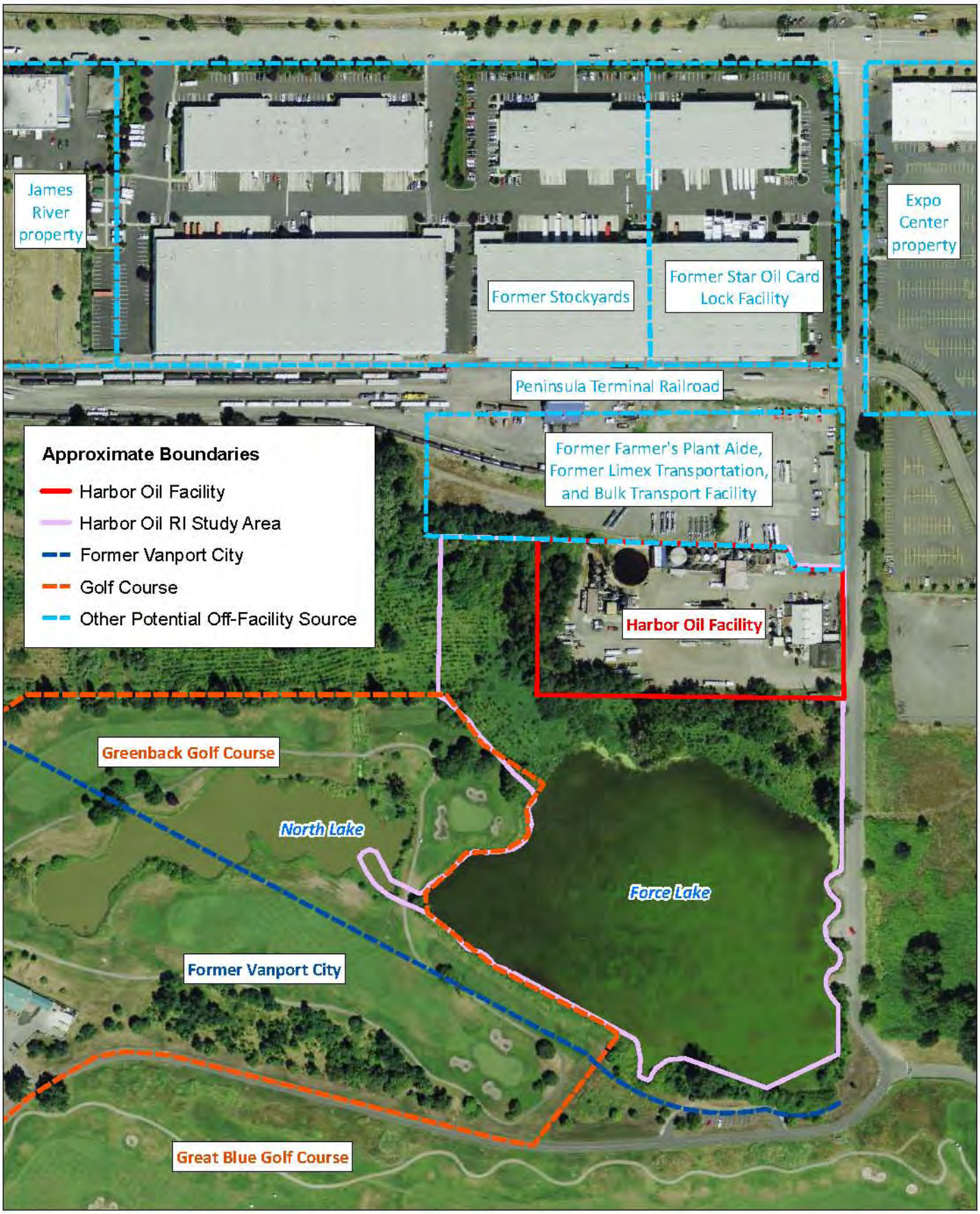
cleanup files. The file review information was gathered as required by the SOW to support preparation of the RI/FS Work Plan (Bridgewater et al. 2008b).

1.3.2.1 1940s

Based on a 1948 aerial photograph taken after the May 1948 Vanport flood, the area that is now the location of the Facility was essentially undeveloped in the late 1940s.[2] Piles of unknown materials were present at the Facility. The only other feature was a railroad spur that ran southward from what is now the Peninsula Terminal Railroad switching yard (Figure 1-4). The rail spur ran parallel to and west of Force Avenue to about the location of the current office/shop/warehouse building.

The 1948 flood destroyed Vanport City, Oregon, which was located to the southwest of Force Lake (Figure 1-4 and photograph in Appendix A). Vanport City was originally constructed in 1942 to house workers at shipyards located in Portland and in Vancouver, Washington. By the end of 1943, nearly 40,000 people lived in Vanport City. After World War II, it provided housing for returning servicemen and their families.

[2] The aerial photographs referenced in Section 1.3.2 are presented in CEC (2002) or are included in Appendix A.



Wind Ward LLC environmental

N W E S

0 200 400 Feet

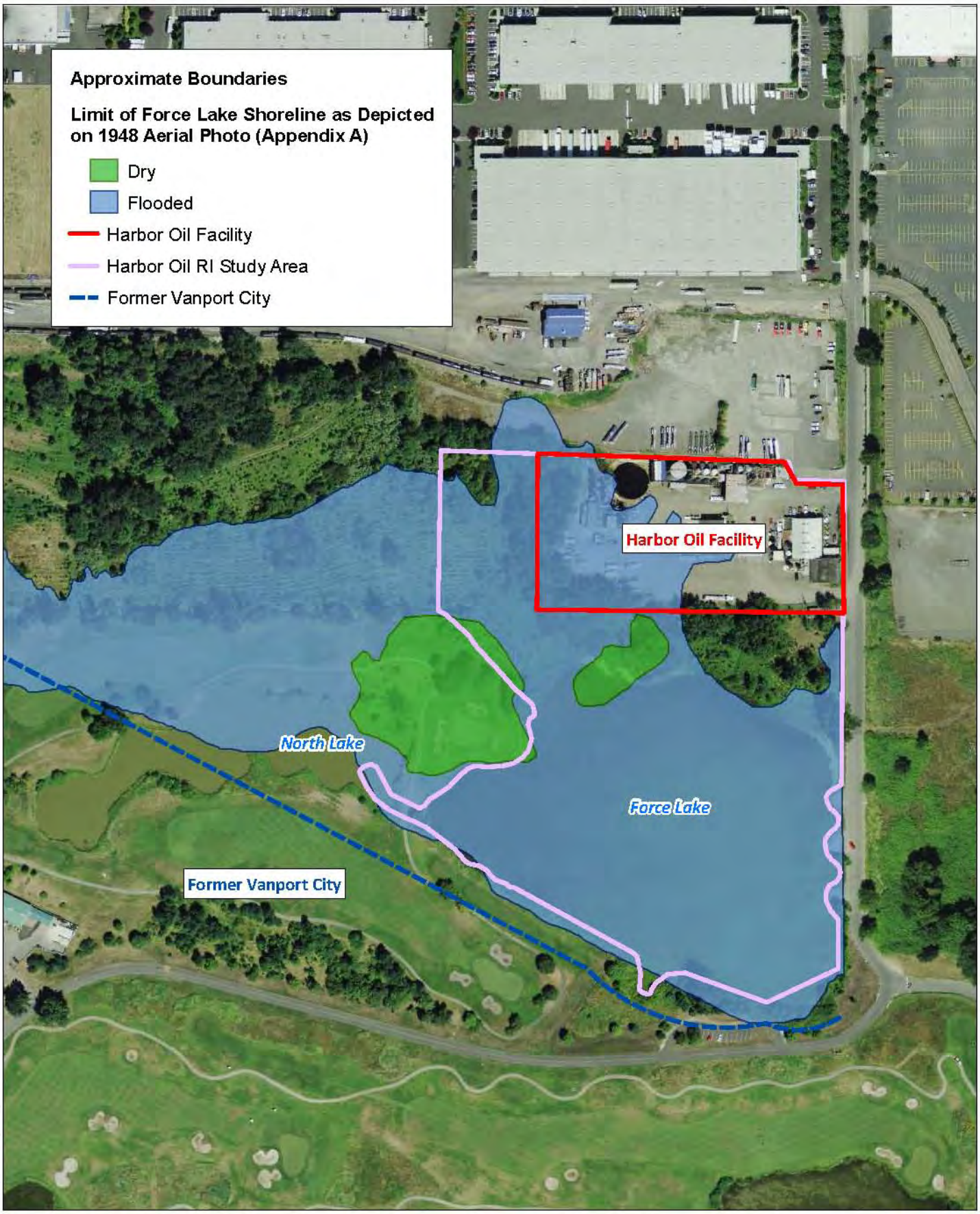
0 50 100 Meters

Figure 1-4. Potential Off-Facility Sources

Prepared by CEH, 08/19/2010; MAP #4317; W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

A 1948 aerial photograph (Appendix A) shows the topography of the Facility when flood waters covered the southern and western portions of the Facility; these areas were historically lowlands compared with the northern and eastern portions of the property. Thus, it is expected that site surface water drainage during this timeframe would have flowed from the upland areas in the north and east to the lowland areas in the south and west. The photograph also depicts vegetated areas to the south and southwest of the current Facility boundary that were above Force Lake at flood stage, providing an overall indication of topographic highs and lows in the area. Figure 1-5 shows the extent of the floodwaters depicted on the 1948 photograph as overlain on a recent aerial photograph of the Facility and surrounding Study Area. As described below, the low area identified in the 1948 photograph was subsequently filled in several stages and brought to grade with the remainder of the Facility, According to D. Coles (2010a), the property was incrementally filled in a general east to west direction as operations expanded.



WindWard environmental LLC

N E S W

0 200 400 Feet

0 50 100 Meters

Figure 1-5. Force Lake Shoreline – 1948 Post-Vanport City Flood

Prepared by CEH, 08/19/2010; MAP #4344; W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

1.3.2.2 1950s

A 1956 aerial photograph indicates that the railroad spur was no longer present at that time (Appendix A). A portion of the current office/shop/warehouse building was present, and the aerial photograph shows what appear to be tanker trucks and a concrete slab located in the area where the former tanker truck cleaning operation was later located. As discussed below, this concrete slab may have been the "cement washing basin" observed by DEQ in 1973 where cattle and tanker trucks were cleaned. Figure 1-6 shows the approximate location of the concrete slab and other former facility features.

CEC (2002) discusses a C-shaped area of apparent "dumped material" that was located to the southwest of Tank 23 in the area where the new base oil refining plant and current stormwater treatment system are located (Figure 1-6 and Appendix A [1956 photograph]). CEC (2002) suggests that the C-shaped area could have been fill material or the outline of a berm for a retention pond.

According to CEC (2002), EMRI indicated that during the 1950s, the Facility may have been occupied by a dust suppression service that used asphalt blended with lignite (waste paper mill liquor). Used oil was apparently added to thin the mixture.

The portion of the Facility that was presumably filled to current grade (and developed with structures) appears to have been limited to the eastern portion of the Facility (similar to the 1948 photograph). The C-shaped material was placed on the lower, as of yet unfilled, portion of the property.

Water Treatment System (Building 5)

Tank Farm and Used Oil Processing Area

Soil Stockpile

Pipe Chase

Loading & Unloading Rack

New Base-Oil Refining Plant

Former Tanker Truck Cleaning Operation

Former "C" Shaped Area

Former Concrete Pad

Curtain Drain

Former Tank

Former Unlined Holding Pond

Card Lock Fueling Area

Office/ Lab

Shop

Storage

Lunch & Wash Rooms

Storage and Office

Ware-house

Awning

Lessee's Office

Former Outfall from Stormwater Treatment System

Storm Water Treatment System

Office, Shop, and Warehouse Building

Warehouse

Soil Berm

Existing Outfall from Stormwater Treatment System

City Pump Station

N. Force Avenue

Legend:

Catch Basin (CB#)

Storm Water System Piping

50 ft

Approximate Scale

Source: Coles Environmental Consulting, Inc., Energy & Materials Recovery, Inc. Site Diagram (Formerly Harbor Oil, Inc.), April 2009.

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Figure 1-6
Former Facility Features
Harbor Oil Facility

BRIDGEWATER GROUP, INC.

1.3.2.3 1960s

According to Ecology and Environment (2001), Empire Industries, Inc., started oil recycling activities at the Facility in 1961. Harbor Distributing (type of business unknown) and Industrial Cleaning Systems (truck cleaning) also operated at the Facility at this time (CEC 2002).

The *Site Assessment Program Strategy Recommendation, Harbor Oil, Inc.* (DEQ 1995), hereafter referred to as the DEQ Strategy Recommendation, which DEQ prepared for the Facility, refers to a pond with oil-stained soil that was filled sometime before 1964. The location of the pond was not identified in the DEQ Strategy Recommendation (1995).

Aerial photographs from 1964 and 1966 show that development during this time frame was restricted to the southeastern half of the Facility. The office/shop/warehouse building and concrete slab were present during these years. It appears that the C-shaped area identified in CEC (2002) was also present during these years, with no apparent additional filling, although the 1966 aerial photograph is of poor quality, making interpretation difficult.

1.3.2.4 1970s

A 1972 aerial photograph (CEC 2002) shows that key facility features at that time were limited to the office/shop/warehouse building and concrete pad. Numerous trailers or tanks were located around the perimeter of the Facility, which was developed only as far west as the location of the current stormwater treatment system. A comparison of the 1966 and 1973 aerial photographs (Appendix A) suggests that the filling and working of soils extended westward during this time frame along the southern portion of the Facility to the location of the current stormwater treatment system. An upright tank was located in the location of the C-shaped area (Figure 1-6). Also visible in the 1972 photograph is a drainage ditch that starts at the north property line, approximately 250 ft northwest of N Force Avenue. The drainage ditch runs along the northeastern border and then follows the northwestern border through the wetlands. The current relationship between the drainage ditch and Facility is not obvious from the aerial photograph because fill may have been placed on the adjacent property to the north, particularly when a stormwater retention pond located immediately north of Tank 23 was filled sometime prior to 1987. The adjacent property is now several ft higher than the Facility.

1.3.2.4.1 1973 DEQ Site Visit

According to Ecology and Environment (2001), DEQ conducted a site visit in May 1973 in response to a complaint that oil was flowing off the Facility into the adjacent wetlands and Force Lake. Apparently, at that time Empire Industries repaired, stored, and cleaned trucks. Both cattle trucks and oil tankers were cleaned on a “cement washing basin” that had a curb and apron. The basin drained to an open ditch (likely the drainage ditch that was located on the northeast side of the Facility), which discharged into the wetlands. An October 16, 1979, DEQ memorandum (1979) stated that 90% of Empire Industries’ operation was washing cattle trucks. Approximately 10% of its operation was washing the inside and

outside of oil tankers. Empire Industries also had two large storage tanks for oil. Animal waste was stockpiled on the ground, as was sawdust that was being used for oil cleanup (DEQ 1973). DEQ observed that the entire yard had been oiled for dust control.

1.3.2.4.2 1974 Oil Release

In March 1974, DEQ investigated a release of oil that reportedly spread across approximately 2 ac of wetland and created a sheen on Force Lake. A DEQ report, *Investigation of Fish Kill at Force Lake, West Delta Park, Multnomah County on March 19, 1974* (DEQ 1974a), stated that during the investigation, DEQ observed a thin film of oil on Force Lake, and that thick oil (fresh and decomposed) had accumulated on the shoreline. The source was determined to be an approximately 80-by-100-yard work area used by Industrial Cleaning Systems to clean tanker trucks. Along the south edge of the work area were several small sumps filled with oil and water, which drained toward Force Lake. Based on the DEQ file information, these sumps were probably excavated unlined sumps that were not part of the later truck washing system that used trichloroethylene (TCE) (i.e., Detrex system). As discussed below, the work area was filled with sand and gravel after Chempro of Oregon (Chempro) started its operations. The location of these two sumps is unknown. Just west and slightly north of the work area was a large sump (15 by 50 ft) filled with oil and water that drained toward the wetlands. Large piles of sawdust and wood chips were distributed around the area. These materials were used to soak up oil. DEQ observed dead bullhead catfish and goldfish in Force Lake, along with a dead duck and coot.

Examination of aerial photographs from 1973 and 1977 (Appendix A) did not reveal conclusive evidence of the existence or location of the sumps identified in DEQ's March 1974 report.

An April 12, 1974, letter from Empire Industries (1974) stated that oil residue in the wetlands came from 10 to 12 years of truck cleaning operations. The letter also stated that dried grasses were not discolored by oil but by manure from the adjoining Farmer's Plant Aide or Stockyards properties. In 1974, Empire Industries placed 1,146 cubic yards of rock fill in the area between the work area and Force Lake to provide containment for wash water. Empire Industries planned to install a skimmer system in the drainage ditch to remove oil residue, and then remove contaminated soil from the drainage ditch and surrounding area.

A July 17, 1974, DEQ letter (1974b) indicated that Empire Industries had implemented a program to clean up oils and contaminated soils in the wetlands. The scope of the program implemented by Empire Industries was not described in the DEQ letter.

1.3.2.4.3 Chempro Operations

Chempro is believed to have started its operations in the mid-1970s. During this time, the Facility was owned by Canal Capital Corp. (aka United Stockyards Corp.). After Chempro started its operations, it filled the work area (where cattle trucks and oil tankers were cleaned) with sand and gravel (DEQ 1979).

According to a January 7, 1975, letter (DEQ 1975), DEQ noted that a wall surrounding the truck unloading rack (referred to in the letter as the "transfer area") had not been completed and there was evidence of discharges into the drainage ditch along the northeast side of the Facility.

In 1977, Chempro installed the "plant well," a 100-ft-deep water supply well located near the northeast corner of the office/shop/warehouse building. The use(s) of this well between 1977 and 1990 is uncertain.

1.3.2.4.4 Chempro Changes to Stormwater Management System

To address the March 1974 oil release (Section 1.3.2.4.2), DEQ ordered Chempro to make improvements to its stormwater management system. Chempro made the improvements in 1975, at which time DEQ issued an NPDES Waste Discharge Permit (File No. 16045) on October 10, 1975. The permit allowed Chempro to discharge to the "North Ditch of Force Lake" until 1977, after which discharges were to go to the City of Portland sewer system. The permit contained discharge limits for oil and grease (10 mg/L monthly average and 15 mg/L daily maximum), suspended solids (50 mg/L), and pH (6.5 to 8.5).

DEQ received a complaint in November 1978 that Chempro was discharging oily wastes into the wetlands (DEQ 1988c). DEQ found that oily and water wastes went to a large holding tank in 1978 and were then sold as a dust suppressant. Oil sludge was hauled to Arlington.

In 1978, DEQ found that the sewer system hookup had not been completed as required by the 1975 permit. Chempro had an oil-water separator on order and was coordinating with the City of Portland before installing it.

1.3.2.4.5 1979 Fire

In October 1979, a major fire destroyed the Chempro facility. The heat of the fire reportedly destroyed at least five 20,000-gallon storage tanks, resulting in the release of used oils and lesser volumes of waste paints. These materials flowed to the west and south across the Facility and into the wetlands and Force Lake (DEQ 1995).

1.3.2.5 1980s

CEC (2002) discusses a 1980 aerial photograph (Appendix A) that was taken after the fire. Based on this photograph, the office/shop/warehouse building had been expanded, the tank farm and used oil processing area had been rebuilt, and Tank 23 had been constructed. In addition, a new structure had been constructed in the area where the concrete pad was located. As discussed below, this structure housed the tanker truck cleaning operation (i.e., Detrex system).

According to Ecology and Environment (2001), the Facility was re-graded and covered with gravel when the Facility was rebuilt. A 1984 aerial photograph (Appendix A) indicates that the filling of the lowland areas on the western portion of the Facility occurred between 1977 and 1984, likely as a part of the regrading activities subsequent to the 1979 fire. This filling and regrading work brought the Facility to its present topographic expression. An unlined holding pond was constructed in the southwest corner of the Facility to serve as an oil-water separator (Figure 1-6). The

far northwestern portion of the Facility remained undeveloped. An earthen berm was constructed around the northwest and southwest sides of the Facility, apparently from soil impacted by releases caused by the fire.

1.3.2.5.1 1980 EPA Site Inspection

A March 13, 1980, memorandum (EPA 1980) described the results of a February 29, 1980, EPA site inspection. The memorandum stated that Chempro, which was headquartered in Seattle, Washington, collected waste oils from various sources including service stations. The oils were screened and filtered prior to resale to industrial customers. Some oils were used for road oiling. Chempro also collected solvents and thinners, which were shipped to Resource Recovery for reprocessing. Non-recoverable thinners and solvents were shipped to Masterwash in Vancouver, British Columbia, for use as fuel supplements. Chempro also accepted oily wastewater and some liquid chemicals from various sources. It did not knowingly accept or handle PCBs (EPA 1980).

The waste generated from operations at the Facility consisted of oily sludges from tank bottoms, oily sludges from screening and reprocessing, and asphalt sludges from the tanker truck cleaning operation. Sludges were put into barrels and stored at the Facility until they were transported to Arlington, Oregon.

Surface runoff was directed to the unlined holding pond. When the pond filled up, the water under the surface of floating oil was pumped off the Facility to a "swamp on the exposition center property." The EPA memorandum does not identify the exact location of the discharge point of water from the holding pond. It is likely that the swamp referenced by EPA refers to the wetlands adjacent to the Facility. Truck washings were collected in a sump that was vacuumed out and pumped into one the storage tanks.

According to a DEQ Hazardous Waste/Used Oil Processor Compliance Evaluation Inspection Report (DEQ 2000d), Chempro submitted a Part A permit application for hazardous waste storage to EPA in November 1980. DEQ subsequently issued hazardous waste collection site license number HWC5 (a state-issued hazardous waste storage permit) to Chempro on April 23, 1981 (DEQ 1996a). The license expired on May 1, 1983. The inspection report stated that DEQ records indicated that Harbor Oil removed all hazardous waste in storage prior to the expiration of the license.

1.3.2.5.2 1983 NPDES Permit

Chempro changed its name to Harbor Oil, Inc., on September 23, 1983, and merged with Harbor Oil, Inc. (a Washington corporation) on October 31, 1985.

On December 5, 1983, DEQ issued an NPDES Waste Discharge General Permit 1300-J to Harbor Oil. The permit covered treated stormwater runoff from bulk petroleum storage, transfer, formulation, and packaging facilities. The permit contained a 10 mg/L monthly average and 15 mg/L daily maximum oil and grease discharge limit. It required that stormwater be collected and treated through an oil-water separator.

By 1984, Harbor Oil had installed a new oil-water separator (i.e., the current stormwater treatment system), which initially discharged into the drainage ditch near the west corner of the Facility. This system is visible in a 1984 aerial photograph (Appendix A).

1.3.2.5.3 EPA 1984 and 1985 Preliminary Assessment/Site Investigation

EPA conducted a preliminary assessment (PA) of the Facility in June 1984, followed by a site investigation (SI) in 1985. As part of the SI, water in the stormwater treatment system was sampled and found to contain TCE.

1.3.2.5.4 1984 Air Contaminant Discharge Permit

On July 3, 1984, DEQ issued an Air Contaminant Discharge Permit (ACDP) No. 26-3021 to Harbor Oil. The permit established emission limits for opacity, particulates, odors, and fugitive dusts.

1.3.2.5.5 Harbor Oil Operations

According to Golder Associates (1990), Harbor Oil transported, collected, and refined used oils and asphalt and marketed virgin oils. Materials were accepted from Washington, Oregon, Idaho, and western Montana. Active operations at the time included recycling waste oils for resale to industrial burners, and re-blending oils to meet client specifications. DEQ also listed Harbor Oil as a dust suppressant provider. Active facilities during this time included the tank farm and used oil processing area, a surge tank for collection and storage of separated water, the stormwater treatment system, a waste drum storage area, and the tanker truck cleaning operation.

On December 2, 1986, DEQ issued an NPDES Waste Discharge General Permit 1300-J to Harbor Oil.

According to a February 4, 1988 spill prevention, control, and countermeasure (SPCC) plan prepared for Harbor Oil, the Facility was bermed with an earthen dike that was approximately 2 ft high (HMS Environmental Inc. 1988). Runoff drained to the southwest toward the stormwater treatment system. Stormwater collected in the treatment system was pumped to a nearby pond just west of the property line. The location of this pond was not identified in the SPCC plan. The “heated tank area” contained seven 20,000-gallon tanks with concrete containment. The truck loading and unloading rack area had a roof, was paved, and had two sump drains to collect spills and transfer them to the stormwater treatment system. A 4,000-gallon aboveground storage tank (AST) was located in a concrete secondary containment outside the boiler house. The oil storage area consisted of one 210,000-gallon tank and eight 20,000 gallon tanks with concrete containment. A 320,000-gallon “water tank” (i.e., Tank 23) did not have secondary containment and was used to store water recovered from the oil recycling operation. A 6,000-gallon vertical gasoline AST, a 20,000-gallon vertical diesel AST, and a 275-gallon gas tank were located in a concrete containment in the truck fuel tank area.

1.3.2.5.6 1988 DEQ Site Inspection and Follow-Up Sampling Activities

A March 14, 1988, DEQ memorandum (1988b) discusses observations made during a site inspection, including the potential for wash water from the tanker truck cleaning operation to go to the stormwater treatment system.

DEQ subsequently observed and confirmed that the tanker truck cleaning operation discharged to the wetlands via the stormwater treatment system (DEQ 1988c). At that time, the tanker truck cleaning operation (Detrex system) consisted of a TCE distillation unit and storage tank located on a raised concrete pad adjacent to the cleaning area. Used TCE and truck wastes were pumped into the storage tank and then into the distillation unit for reprocessing. TCE still bottoms and sludge from the distillation process were drummed and shipped off the Facility to Baron-Blakeslee in Portland for treatment.

The DEQ water quality file presented EPA Method 8270 analytical results for a sample collected on June 28, 1988 from the "bottom of the oil-water separator" (i.e., stormwater treatment system). The sample was analyzed by the DEQ laboratory. No acid-base/neutral compounds were detected. DDD, dichlorodiphenyltrichloroethane (DDT), and dichlorodiphenyldichloroethylene (DDE) were also not detected. The sample contained detectable concentrations of trans-1,2-dichloroethylene (trans-1,2-dichloroethylene) (~2.8 mg/L), 1,1,1-trichloroethane (1,1,1-trichloroethane) (0.001 mg/L), TCE (0.035 mg/L), benzene (0.003 mg/L), toluene (0.002 mg/L), and chlorobenzene (0.004 mg/L).

A sample collected from the "drain trench at the truck cleaning area" (i.e., curtain drain) contained no detectable concentrations of acid-base/neutral compounds but did contain detectable concentrations of TCE (70 mg/L), trans-1,2-dichloroethylene (6.1 mg/L), 1,1,1-trichloroethane (0.7 mg/L) and 1,1,2,2-tetrachloroethylene (0.5 mg/L).

A sample of the water layer collected from the "large oil-water tank" (i.e., Tank 23) contained detectable concentrations of phenol (1.9 mg/L), 2-methylphenol (1.3 mg/L) and 4-methylphenol (4.3 mg/L). Note that at the time these samples were collected, the stormwater treatment system discharged to the drainage ditch through a pipe located at the west corner of the property.

1.3.2.5.7 1988 NPDES Permit

On July 21, 1988, DEQ issued NPDES Waste Discharge Permit 1300-J to Harbor Oil. The permit covered the following:

- Treated stormwater runoff
- Groundwater dewatering discharges
- Water bottoms from facilities storing, transferring, formulating and/or packaging bulk petroleum products or vegetable oils; motor pools; and other facilities with oily discharges controlled by DEQ-approved oil-water separators

The monthly average oil and grease discharge limit in the permit was 10 mg/L, with a 15-mg/L daily maximum.

In August 1988, DEQ proposed to revoke Harbor Oil's stormwater discharge permit because pollutants from the tanker truck cleaning operation were entering the stormwater treatment system, which was not designed to treat them (Ecology and Environment 2001). Harbor Oil subsequently settled with DEQ and agreed to a June 1989 Stipulation and Consent Agreement (No. WQ-WQ-NWR-89-28) that allowed Harbor Oil to continue discharging stormwater to the wetlands if process wastewater was discharged to the sanitary sewer. In addition, Harbor Oil agreed to collect and pre-treat waste water from the tanker truck cleaning operation.

According to the Agreement, most of the Facility stormwater went directly to the stormwater treatment system. Some stormwater flowed into an oil collection sump located at the truck loading and unloading rack, and was then transferred to Tank 23. Wastewater or oil bottoms from the bulk used oil storage tanks were also pumped to Tank 23. When the liquid level in Tank 23 reached capacity, some of the wastewater was transferred to a flocculation tank for further polishing and then released to a storm drain that flowed to the stormwater treatment system. The settled solids in the flocculation tank were returned to Tank 23.

According to a December 12, 1988, DEQ memorandum (DEQ 1988a), discharges from the flocculation tank started in 1985. Also according to the memorandum, a 4,600-gallon AST was installed at the tanker truck cleaning operation to store truck wash water. DEQ observed that there was a storm drain located just south of the tanker truck cleaning operation that could have received spills during filling or off-loading of the wash water tank. The storm drain was connected to the stormwater treatment system.

1.3.2.5.8 Property Acquisition by Waste Management Disposal Services of Oregon

Waste Management Disposal Services of Oregon, Inc. acquired the Facility on January 31, 1989, from Canal Capital Corp.

1.3.2.6 1990s

1.3.2.6.1 Facility Wastewater Treatment System

In August 1990, Harbor Oil installed a wastewater treatment system to comply with City of Portland sanitary sewer discharge requirements and to comply with the DEQ consent order. The system was designed to treat wastewater from waste oil processing and provide pre-treatment before discharge to the City of Portland sanitary sewer system. Prior to the installation of this system, wastewater from waste oil processing was stored and treated in Tank 23 and then further treated through flocculation in Building 5 before being released to the stormwater treatment system (Figure 1-3). After August 1990, stormwater runoff flowed directly to the stormwater treatment system.

The wastewater treatment system was described in *A Condensed Process General Description, Oil/Wastewater Treatment Facility* (Advanced Treatment Systems 1993), which stated that a concrete drip containment pad collected spills that occurred during the transfer of oil and oily wastewaters from tanker trucks to a 4,000-gallon screened sump tank. The pad also collected water used to wash down trucks following

the discharge of their oily wastewater. The contents in the sump were pumped into either Tank 7 or Tank 15, or in rare cases into Tank 23. Tank 23 was only used when the water contained little oil. Oily water pumped to Tank 7 was heated to separate most of the oil from the water; following separation, the water was pumped to Tank 15. The floating oil was pumped to the oil processor for further refinement. After Tank 15 was at least half full, its contents would be pumped into the flocculator tank, where it was mixed with caustic soda and ferric chloride to form a sludge containing organic compounds and metals. The supernatant water was pumped to an oily water treatment system that included oil removal, particle filtration, and activated carbon, and was then stored in Tank 16; the sludge was pumped into a sludge tank for further separation (through settling) and treatment (through evaporation).

The Advanced Treatment Systems document (1993) indicated that Tank 23 provided active bioremediation of sediment sludges through aeration, circulation, mechanical oil skimming, periodic addition of bacteria, and maintenance of nutrients. Water was pumped from Tank 23 for additional physical treatment (i.e., flocculation) in a tank located in Building 5. The treated water was then pumped to Tank 16 where it was tested prior to discharge to the City of Portland sewer system.

The document (Advanced Treatment Systems 1993) also discussed the Detrex tanker truck-cleaning system. The Detrex system was used to clean the internal surfaces of trucks. The tanker truck-cleaning operation included a diesel-fired heater, which was used to heat a storage tank containing TCE and water. The TCE/steam mixture was used to clean tanker trucks. The spent cleaning solution was drained onto a concrete pad where it was collected in a curtain drain and pumped back to the heated storage tank. The truck cleaning operation was a closed-loop, stand-alone process that was not physically connected to the Facility wastewater treatment system.

The Advanced Treatment Systems document (1993) included a laboratory report for a sample collected from Activated Carbon Bed No. 1, in the Facility wastewater treatment system. The sample contained acenaphthene, benzene, 1,1,1-trichloroethane, 1,1-dichloroethane (1,1-dichloroethane), 2-chlorophenol, 2,4-dimethylphenol, ethylbenzene, phenol, bis(2-ethylhexyl) phthalate, butyl benzyl phthalate, di-n-butyl phthalate, diethyl phthalate, dimethyl phthalate, acenaphthylene, anthracene, fluorene, phenanthrene, tetrachloroethylene, perchloroethylene (PCE), toluene, TCE, and vinyl chloride. The document stated that any TCE found in the wastewater treatment system's activated carbon filters came from its ubiquitous nature in numerous oils and oily wastewaters processed at the Facility, not from the Detrex system.

1.3.2.6.2 Water Supply Well

In 1990, the plant well was being used to provide the water supply for emergency fire control; it was not being used as a potable water supply. The use(s) of this well between 1977 and 1990 is uncertain.

1.3.2.6.3 1991 Facility Conditions

A 1991 color infrared aerial photograph (CEC 2002) of the Facility shows the tank farm and used oil processing area with what appears to be secondary containment, as well as the covered truck loading and unloading rack. The current stormwater treatment system was in place. The far northwestern end of the Facility was still undeveloped.

1.3.2.6.4 1992 DEQ RCRA Inspection

A DEQ Resource Conservation and Recovery Act (RCRA) inspection conducted in June 1992 found an oily substance on the ground that Harbor Oil stated was lignin that was being used as a dust suppressant (DEQ 1995). DEQ determined that the Facility generated one 55-gallon drum per month of F001 hazardous waste (TCE sludge); however, because there were 170 drums (contents unspecified) at the Facility during the visit, Harbor Oil was listed as a RCRA large-quantity generator. Two of the drums were open, and at least one drum had leaked. DEQ cited Harbor Oil for storage of hazardous waste without a permit, failure to make hazardous waste determinations, and failure to retain Land Disposal Restriction forms. DEQ assessed a civil penalty of $10,777 for these violations, which Harbor Oil paid in May 1993.

1.3.2.6.5 Cessation of Dust Suppression Business and Tanker Truck Cleaning

The dust suppression business ceased operating in 1993. According to CEC (2002), the tanker truck cleaning operation ceased in 1994.

1.3.2.6.6 Stormwater Sampling

DEQ's water quality file contained stormwater sampling results submitted by Harbor Oil to DEQ between 1994 and 1999. During that period, stormwater samples were analyzed for pH, TSS, oil and grease, chemical oxygen demand (COD), total phosphorus, TOC, arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc.

1.3.2.6.7 1994 DEQ Site Inspection

A June 30, 1994 DEQ inspection report stated that Harbor Oil was processing used oil by blending and cooking (DEQ 1994). Used oil was stored in four tanks heated by two natural gas-fired boilers. Harbor Oil also had one oil-fired boiler for the Detrex system. Incoming raw materials consisted of approximately 80% used motor oil and 20% oil containing less than 50 mg/kg PCBs that was tested and separated by concentration. Oil with PCB concentrations above 8 mg/kg was stored for shipment to Ash Grove Cement. Oil with PCB concentrations below 8 mg/kg was blended by Harbor Oil into product, which contained less than 0.5 mg/kg PCBs. Harbor Oil burned some of the product in the onsite oil-fired boiler.

1.3.2.6.8 1994 Sampling of North Drainage Ditch

In August and September 1994, at the request of Jordan Schnitzer Properties, Golder Associates sampled soil from the drainage ditch, and installed and sampled a shallow monitoring well near the drainage ditch (DEQ 1995). Soil samples collected at 40-ft intervals (horizontal spacing) along the ditch at depths of between 0.5 and 1 ft contained diesel and heavy oil at concentrations ranging from 1,400 to 11,000 mg/kg. The DEQ Strategy Recommendation (1995) discussed this sampling effort but did

not mention whether the soil samples were analyzed for analytes other than diesel and heavy oil.

1.3.2.6.9 1994 Limex Diesel Release

According to the DEQ Strategy Recommendation (1995), 50 to 150 gallons of diesel were released in November 1994 by Limex Transportation, Inc., from a faulty valve on a 300-gallon AST located on the adjacent Limex property, located north of the Facility. The diesel flowed into the drainage ditch between the Limex property and the Facility, entering the wetlands. Cleanup involved product recovery and some soil removal from the most heavily impacted wetland areas. DEQ suspended soil removal activities after determining that an oily layer 16 in. below the surface represented pre-existing conditions. The DEQ Strategy Recommendation (1995) did not specify where the soil removal activities were conducted.

1.3.2.6.10 Property Sale to Harbor Oil

Waste Management Disposal Services of Oregon sold the property to Harbor Oil, Inc. on December 14, 1994.

1.3.2.6.11 1995 DEQ Notification of Site Listing

In June of 1995, DEQ notified owners and operators of the Facility of the agency's proposal to place the property on its "Confirmed Release List" and "Inventory List."

1.3.2.6.12 1996 Mutual Agreement and Order

In 1996, Harbor Oil proposed to install an off-gas/steam condensation system to reduce volatile organic and halogenated organic emissions produced from waste oil reprocessing operations. The proposal was in response to Mutual Agreement and Order (MAO) No. AQP-NWR-96-206 between DEQ and Harbor Oil. The MAO was issued because DEQ had received periodic complaints of strong, acrid odors (fugitive emissions) from the Facility. The odors were documented by DEQ on December 11, 1995, and February 14, 1996 (DEQ 1996c). The MAO required Harbor Oil to:

- Install controls adequate to abate nuisance conditions resulting from the heating of used oils or cease heating used fuel oils
- Limit production to 5.9 million gallons of used fuel oil and/or gasoline in calendar year 1996 unless satisfactory controls were installed
- Limit emissions from the re-refining Facility to no more than 9.9 tons per calendar year of any hazardous air pollutant or 24.9 tons per calendar year of any combination of hazardous air pollutants
- Submit a final control strategy to DEQ by August 29, 1996

Analyses of incoming raw waste oil and RFO indicated that they contained detectable concentrations of benzene, sec-butylbenzene, ethylbenzene, isopropylbenzene, p-isopropyltoluene, naphthalene, n-propylbenzene, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, xylenes, methylene chloride,

1,1,1-trichloroethane, TCE, and PCE. The incoming raw waste oil and RFO were not analyzed for PCBs.

1.3.2.6.13 1996 DEQ Site Inspection

A 1996 DEQ inspection report (DEQ 1996c) discussed the February 14, 1996, odor. It also described the Facility processes, which included the blending and cooking of used oil that was placed in four vented, heated tanks to evaporate water. The tanks were heated by two natural gas-fired boilers, which had the capacity to burn oil as a backup fuel. In the process of evaporating water from used oil, VOCs and possibly some hazardous air pollutants were also evaporated. At the time, the heating oil tank vents were uncontrolled. Harbor Oil also had a diesel storage tank and diesel-fired boiler for the Detrex system. The raw material received by Harbor Oil was mainly used motor oil, although they did receive and process some oil containing less than 50 mg/kg PCBs. The 1996 DEQ inspection report did not include any analytical results to substantiate that PCB concentrations were less than 50 mg/kg. The report states that "Harbor Oil's raw materials consist of mostly used motor oil. They do receive and process some PCB-contaminated oil (< 50 mg/kg)."

According to the report, the Facility also used two heated storage tanks, Tank 23, the stormwater treatment system, six 20,000-gallon oil storage tanks, two 20,000-gallon wastewater tanks, one 205,000-gallon finished oil tank, one 20,000-gallon truck fuel storage tank (for shipment off the Facility), and one truck fuel tank for use at the Facility.

1.3.2.6.14 1996 RCRA Inspection

According to DEQ's updated Strategy Recommendation (DEQ 1998b), a November 1996 RCRA inspection found that Harbor Oil received and processed used oil, off-specification fuels, and oily or petroleum-contaminated wastewater. The Facility also managed a limited quantity of used oil filters and waste antifreeze containers.

On November 19, 1996, DEQ sent Harbor Oil a notice of noncompliance for violations of Oregon's hazardous waste and used oil management regulations (DEQ 1996b), based on its November 8, 1996, DEQ inspection. At that time, Harbor Oil was a Conditionally Exempt Small Quantity Hazardous Waste Generator. Violations included:

- Storage of hazardous wastes at an un-permitted facility (specifically, Harbor Oil stored wastes from the tanker truck cleaning operation for longer than 90 days after it was generated)
- Failure to correctly file annual hazardous waste generator reports (reports were not filed for shipments made in 1992 and 1993)
- Failure to correctly develop a contingency plan designed to address potential facility releases as required under 40 CFR 279.52(b), as adopted in Oregon Administrative Rule (OAR) 340-100-002
- Failure to develop an analysis plan for used oil management

The inspection results were summarized in DEQ's November 8, 1996 Hazardous Waste/Used Oil Processor Compliance Evaluation Inspection

report (DEQ 1996a). By December 1996, Harbor Oil had taken actions to correct the violations (Harbor Oil 1996b).

A 1996 Emergency Preparedness and Contingency Plan prepared by Harbor Oil stated that the Facility stored and used the following materials: used oil, oily wastewater, used oil vapor-recovery condensate, diesel fuel, mineral spirits (laboratory solvent), toluene (laboratory stock), caustic soda, ferric chloride, antifreeze (ethylene glycol), mixed fuels (gasoline, diesel, etc.), propane (forklift fuel), oxygen (welding tanks), and acetylene (welding tanks) (Harbor Oil 1996a). Attached to the plan was a used oil and petroleum-contaminated water analysis plan, which stated that used oil was tested for total metals (arsenic, cadmium, chromium, and lead), total halogen content, PCBs, and sulfur content. Wastewater was tested for pH, ammonia, oil and grease, total metals (cadmium, chromium, nickel, and lead), flash point, and chlorinated hydrocarbons.

A 1998 aerial photograph (Appendix A) suggests facility features at that time were very similar to those that existed in 1991.

1.3.2.6.15 1998 DEQ Site Inspection

DEQ conducted a site inspection on March 19, 1998 (DEQ 1998a). Issues of concern identified during the site inspection included:

- The combustion of condensate collected from the heating tanks, which would require quantification of metals and halogen concentrations in the condensate
- The approach used to calculate air emissions
- Vapors exiting the cable outlets on cooking tanks
- Dust/fugitive emissions from truck traffic

1.3.2.6.16 EMRI Operations

EMRI took over the operation on October 1, 1999 after Harbor Oil ceased doing business on the property. That same year, DEQ issued NPDES Industrial Stormwater Discharge Permit 1200-COLS to EMRI for the stormwater treatment system.

On December 30, 1999, EMRI submitted an application to transfer ACDP No. 26-3021 from Harbor Oil effective January 1, 2000.

Under its air quality permit, EMRI indicated that it processed 1.9 million gallons of raw used oil in 1999; the report did not contain information on the actual halogen content of used oil held for processing (estimated to be about 700 mg/kg), or the PCB, metal, or halogen content of reprocessed fuel burned at the Facility.

1.3.2.7 2000 to Present

A January 27, 2000, DEQ air quality file memorandum (DEQ 2000b) discussed the numerous odor complaints that had been received by DEQ, and noted that none had been received since EMRI took over the operation. The memorandum indicated that the prior owner had failed to complete all monitoring and reporting requirements set forth in ACDP No. 26-3021. The memorandum stated that the permit set limits on the metal, PCB, and halogen content of reprocessed fuels burned at the Facility,

allowing less than 2 mg/kg PCBs and less than 1,000 mg/kg total halogens. The memorandum stated that EMRI wanted to burn oil that contained PCBs up to the allowable regulatory limit of 49 mg/kg (off-specification fuel) and increase the total halogen limit to 4,000 mg/kg.

1.3.2.7.1 2000 DEQ Site Inspection

A DEQ Northwest Region Multi-Media Checklist in the DEQ air quality file for a September 27, 2000, SI (DEQ 2000c) included the following issues and observations:

- Opacity issue, potentially as a result of startup
- Stains in the northwest corner of the truck loading and unloading rack area
- Stained soil near the northwest corner of the pad where drums were being stored outside the containment pad, with leaks from the drums being the apparent source of contamination
- Clor-D-Tect® kits and excess plastics in the FPI kiln. DEQ had concerns regarding solid waste incineration and potential releases of mercury and cadmium

In October 2000, DEQ issued a notice of non-compliance (DEQ 2000a) to the Facility for: 1) storage of drums outside the containment pad, and 2) a gap between the wall and pad along part of the south side of the used oil processing area. DEQ requested that the contaminated soil be removed and properly disposed, the gap be sealed, and a plan be submitted to prevent future releases from escaping the loading area. DEQ's findings were documented in a September 27, 2000, used oil processor inspection report (DEQ 2000d). EMRI objected to each of DEQ's requested actions in a November 27, 2000, letter to DEQ (EMRI 2000). Based on the file information, it appears that EMRI did not remove the contaminated soils.

1.3.2.7.2 ACDP Reporting

In its 2000 annual report for ACDP Permit No. 26-3021, EMRI reported that it processed 4.5 million gallons of raw used oil with a halogen content of 200 mg/kg. Maximum PCB and metal concentrations in reprocessed fuel burned at the Facility were PCBs (6.38 mg/kg) and lead (0.5 mg/kg). Cadmium, arsenic, chromium, and total halogens were not detected.

Laboratory data in the DEQ air quality file indicated that in 2001 and 2002, PCBs were present in fuel oil stored in Tank 24 at concentrations ranging from less than the detection limit of 5 mg/kg to 6.2 mg/kg. PCBs were not detected in "incoming used oil" during that time. In 2001, incoming oil contained detectable concentrations of lead (8 to 37 mg/kg), cadmium (0.2 to 0.4 mg/kg), chromium (0.6 to 1.2 mg/kg), and total halogens (200 to 600 mg/kg). In 2001, the product in Tank 24 contained lead (0.5 to 2.2 mg/kg), cadmium (not detected to 0.06 mg/kg), chromium (not detected to 0.24 mg/kg), and total halogens (not detected to 3,700 mg/kg).

Under ACDP Permit No. 26-3021, EMRI submitted its 2002 Annual Air Quality Report stating that it processed 7.2 million gallons of raw used oil that had a halogen content ranging from 200 to 500 mg/kg. Reprocessed

fuel burned at the Facility contained detectable concentrations of cadmium (0.02 mg/kg), lead (19 mg/kg), chromium (0.3 mg/kg), and total halogens (100 mg/kg). PCBs were not detected.

In 2003, 3.6 million gallons of raw used oil were processed, and 49,000 gallons of oil with less than 50 mg/kg PCBs were blended into off-specification use fuels.

EMRI's 2005 annual report issued under its ACDP stated that it processed 3.3 million gallons of raw used oil.

1.3.2.7.3 Stormwater Sampling

Between 2000 and 2006, EMRI reported exceedances of permit benchmark values for one or more of the following analytes in samples collected from the stormwater treatment system discharge: total phosphorus, TSS, *E. coli*, lead, copper, oil and grease, and BOD. During this time, stormwater discharge samples collected by EMRI were analyzed for these seven analytes and zinc.

In 2000, EMRI collected samples from the portion of the drainage ditch that ran along the northeast side of the Facility. The sampling results indicated that lead and *E. coli* were migrating onto the Facility from a source or sources located off the Facility (CEC 2000). At the time the samples were collected, drainage entered this portion of the ditch from topographically higher properties immediately adjacent to and north of the Facility (e.g., Former Farmer's Plant Aide, Former Limex Transportation, and Bulk Transportation facilities and Peninsula Terminal Railroad). The drainage would have flowed down the ditch along the northeast and northwest sides of the Facility and discharged into the wetlands near the southwest corner of the Facility; the drainage would not have discharged into the current storm water treatment system. As discussed below, this drainage pattern changed in 2002 when EMRI closed off the portion of the drainage ditch that ran along the northeast side of the Facility and instead installed catch basins connected to the current storm water treatment system.

On August 20, 2001, the City of Portland notified EMRI that it was in violation of its stormwater permit because it failed to collect a sufficient number of samples for the year July 1, 2000, through June 30, 2001.

1.3.2.7.4 Resolution of Used Oil and Hazardous Waste Compliance Issues

On November 2, 2001, DEQ stated that all operations at the Facility (Fuel Processors, Inc.; EMRI; the Oil Re-Refining Co.; and Harbor Oil) were in compliance with the facility management plan and the used oil and hazardous waste regulations and statutes (DEQ 2001b). All alleged violations cited in Notices of Noncompliance or Notices of Assessment of Civil Penalty issued by DEQ had been resolved. The letter references MAO No. WMC/HW-NWR-99-207.

1.3.2.7.5 New Base Oil Refining Plant Construction

EMRI constructed the new base oil refining plant in the northwestern portion of the Facility in 2003. The construction of the new plant required that soils be excavated from within the plant footprint. These soils are

currently stockpiled northwest of the base oil refining plant, near the northern corner of the property (Figure 1-6).

According to D. Coles (2010b), who oversaw the excavation and stockpiling of soil during the construction of the base oil plant, evidence of oil impacts was apparent. As the soil was being excavated, zones of "clean" soil (with minor or no visual indication of impact) were observed interspersed with layers or lenses of soil that had dark staining and a petroleum odor or that appeared to be saturated with oil. Coles indicated that these layers or lenses might typically be on the order of 1 inch thick by several feet in length and were not continuous over the area of excavation but instead were patchy and were interspersed with soils with no or less substantial evidence of impact. In addition, field notes related to soil sampling conducted as part of the construction (2010b), noted the presence of an oily sawdust layer, as well as the presence of coal fragments and miscellaneous debris.

According to D. Coles (2010b), wells EW-1 through EW-3 (Section 2.0) were installed within granular backfilled foundation support pits or electrical pits coincident with the new base oil refining plant construction. Specifically, these wells were reportedly installed within the existing construction-related pits based on the recognition that pits filled with granular material extending beneath the water table within the oil plant area would make excellent LNAPL collection points and that it would be remiss to not plan ahead for the removal of any potential accumulated LNAPL.

As described in Section 2.3.1.3, the presence of more than trace levels of LNAPL has never been identified in wells EW-1 through EW-3, and for that reason, they have never been used. The function of wells EW-1 through EW-3 remains entirely precautionary.

1.3.2.7.6 Drainage Ditch Modification

According to D. Coles (Coles 2007b), EMRI closed off the drainage ditch that ran along the northeastern property boundary in approximately 2002. Since that time, stormwater from this area has been captured by catch basins and conveyed to the current stormwater treatment system; it no longer flows from this area into the wetlands northwest and southwest of the Facility (CEC 2002).

1.3.2.7.7 National Priorities List Listing

The Harbor Oil Site was placed on the National Priorities List on September 29, 2003.

1.3.2.7.8 2003 ACDP

DEQ issued ACDP No. 26-3021 on October 24, 2003. The permit allowed the use of fuel containing arsenic (5 to 10 mg/kg), cadmium (2 to 4 mg/kg), chromium (10 to 20 mg/kg), lead (100 to 300 mg/kg), PCBs (2 to 49 mg/kg), and total halogens (1,000 to 4,000 mg/kg). It established plant emission limits for particulate matter (PM), PM_{10}, sulfur dioxide (SO_2), nitrogen oxides (NO_X), carbon dioxide (CO_2), and VOCs. It prohibited the processing or evaporation of any wastewater with a total halogen content greater than 1,000 mg/kg and total VOC content greater than 1,000 mg/kg.

According to the DEQ air quality file, between 2001 and 2006 DEQ received numerous complaints regarding odors potentially coming from the Facility.

1.3.2.7.9 2004 ATSDR Public Health Assessment

In 2004, the Agency for Toxic Substances and Disease Registry (ATSDR) issued a public health assessment for the Facility (ATSDR 2004a). The assessment concluded that:

- Exposure to chemicals found in the drainage area and wetlands adjacent to Force Lake represented a complete exposure pathway. Exposure to this area was not anticipated to result in adverse health effects. However, the existing data for this area were limited in sample number and geographic location.
- The level of contamination in fish tissue and information regarding populations that may consume fish from Force Lake was unknown, which limited the ability to completely characterize the risks to human health.
- Soils, groundwater, ambient air, soil vapor and surface water pathways from Facility were considered to be potential exposure pathways because of the lack of data for these pathways.
- Based on the existing environmental data, the Superfund Health Investigation and Education program considered the Study Area to be a no apparent public health hazard.

1.3.2.7.10 2004 Facility Operations

A 2004 Emergency Preparedness and Contingency Plan prepared by EMRI (2004) indicated that materials handled by the Facility included: used oil-asphalt, oily wastewater, used oil vapor recovery condensate, diesel fuel, mineral spirits (laboratory solvent), toluene (laboratory stock), caustic soda, antifreeze (ethylene glycol), mixed fuels (gasoline, diesel, etc.), propane (forklift fuel), oxygen (welding tanks), acetylene (welding tanks), boiler chemicals (Scalex, sodium sulfate, oxygen scavenger), water treatment chemicals (lime, soda ash, magnesium sulfate, magnesium oxide, sodium bicarbonate, and aluminum sulfate), water-based paints, oil-based paints, shop chemicals (WD-40 lubricant, penetrating oils, rust penetrants, never seize lubricants, cutting oils, and corrosion inhibitors and cleaners), carbon, and concrete sealers.

1.3.2.7.11 2005 Updated SPCC

In January 2005, EMRI submitted an updated SPCC plan for the Facility (EMRI 2005).

1.3.2.7.12 2006 DEQ Site Inspection

According to information in DEQ's hazardous waste file for the Facility, DEQ performed a site inspection on June 22, 2006, and returned to collect oil and water samples from Tank 23 on July 4, 2006 (DEQ 2006a). DEQ did not discover any hazardous waste regulation violations, but did request that EMRI create policies and guidance documents for crack repair and for the elimination of standing water in secondary containments. DEQ observed cracks and a small hole in the secondary containment around the oil cooker units that required repair. DEQ also

had concerns about the contents of Tank 23. These concerns prompted DEQ to return to the Facility on July 5, 2006, to collect samples from Tank 23 to determine if oil and water in the tank contained any hazardous chemicals and if EMRI could put the oil and water through their process. The samples collected by DEQ were analyzed for VOCs, SVOCs, PCBs, pesticides, toxicity characteristic leaching procedure metals, total halogenated organics, and pH. According to DEQ's July 5, 2006, site inspection report (DEQ 2006a) and subsequent letter to EMRI (DEQ 2006b), no listed hazardous chemicals were detected in the EMRI samples and DEQ decided to allow EMRI to put the oil and water through their re-refining process. DEQ also requested that EMRI prepare a sampling plan for testing sludges in the bottom of Tank 23.

1.3.2.7.13 Wevco Biodiesel Operation

In July 2006, Wevco Biodiesel notified DEQ of its intent to construct a process to convert fats and oils and greases into alternative food grade oil that would be blended with 20% of EMRI's 100N oil. The operation was to be located in the warehouse and awning area, and was projected to produce 250,000 to 300,000 gallons per month. DEQ issued air quality permit No. 26-0148 for the operation. A Notice of Approved Construction Completion was submitted to DEQ on September 1, 2006.

1.3.2.7.14 2006 NPDES Permit

According to information in DEQ's water quality file for the Facility, the current NPDES permit was issued on October 5, 2006.

On March 20, 2007, EMRI submitted a written action plan (EMRI 2007b) under their 1200-COLS permit as a result of elevated total phosphorus and TSS levels. The written action plan stated that EMRI was in the process of implementing corrective actions, including the potential use of an alternative cooling tower corrosion inhibitor and anti-algae/fungus treatment chemicals that have lower phosphorus contents. The cooling tower corrosion inhibitor and treatment chemicals were identified in EMRI's January 19, 2007, written storm water action plan (EMRI 2007a), along with runoff from truck washing operations conducted on the adjacent Bulk Transportation property.

1.3.2.7.15 Tank 23 Contents Characterization

In mid-2007, EMRI agreed with EPA to characterize the contents of Tank 23 under a separate AOC. On August 16, 2007, EMRI collected samples from four locations in Tank 23 following the procedures described in a work plan prepared by CEC (2007c). The Voluntary Group observed sample collection activities and collected split samples for analysis.

The sampling approach and analytical results for the samples, including the analytical results for the Voluntary Group split samples, were submitted to EPA in a letter report prepared by CEC (CEC 2007b). The sludge samples were analyzed for VOCs, SVOCs, PCBs, pesticides, herbicides, TPH, metals, and pH. As reported by CEC (2007b), sludge in the tank (estimated at 250,000 gallons) was found to contain approximately 2% gasoline-range TPH and approximately 21% combined diesel- and oil-range TPH. In addition, total PCBs (15.4 mg/kg) and total

chlorinated VOCs (372 mg/kg), as well as varying concentrations of PAHs, phthalates, phenols, and metals were identified in the sludge. No organochlorine pesticides or chlorinated herbicides were detected in the sludge.

In 2008, EMRI removed oil, water, and sludge from Tank 23 and transported them to the Fuel Processors facility for treatment. Some of the sludge material was taken to Coffin Buttes Landfill located near Corvallis, Oregon. Once the tank was empty, it was scraped and pressure washed, and the side of the tank was cut open for access (CEC 2008). EPA issued a notice of completion for the work on November 13, 2008 (EPA 2008).

1.3.2.7.16 2009 Facility Fire

On July 24, 2009, a fire occurred at the Facility while workers were refueling a tank that provided fuel for a burner in the northeastern corner of the used oil processing area. Fire crews were able to quickly contain the fire, which was burning the foam insulation around the tanks in this area, and were able to prevent the fire from spreading and igniting other nearby fuels. No structural damage was reported to the tanks, and there was no evidence of a release of oil or oily water to areas beyond the secondary containment of the tank farm (Salem News 2009; GeoDesign 2009; LeCocq 2009).

1.3.3 Historical Investigations

Between 1990 and 2007, when the Voluntary Group entered into the AOC, the following investigations had been conducted in the vicinity of the Study Area:

- 1990 SI and preliminary remediation plan for Portland Stockyards by Golder Associates (1990).
- 1997 surface water and sediment sampling of Force Lake by the City of Portland (City of Portland 1997)
- 2001 Harbor Oil Site PA/SI by EPA (Ecology and Environment 2001)
- 2003 soil sampling by CEC (2007b)
- 2006 City of Portland Heron Lakes Golf Club water quality sampling (Goodling 2007)

Other earlier investigations (e.g., Sweet-Edwards/EMCON 1988) are not discussed in this evaluation of historical SIs because of their incomplete documentation and uncertain data quality.

EMRI's work plan for the characterization of the contents of Tank 23 discussed various water, oil, and sludge sampling events that occurred between 1988 and 2006 (CEC 2007c). This sampling event characterized the sludge present in Tank 23 (Section 1.3.2.7.5) but is not relevant for characterizing Study Area conditions.

Figure 1-7 illustrates the locations where pre-RI soil and surface water samples were collected on the Facility. Figure 1-8 illustrates the locations

where pre-RI wetland soil and surface water samples were collected outside of the Facility but within the Study Area. Note that the City of Portland did not identify the specific locations where sediment and surface water samples were collected in Force Lake (City of Portland 1997). Figure 1-9 shows the locations of pre-RI groundwater monitoring wells, extraction wells, and the plant well located on the Facility.

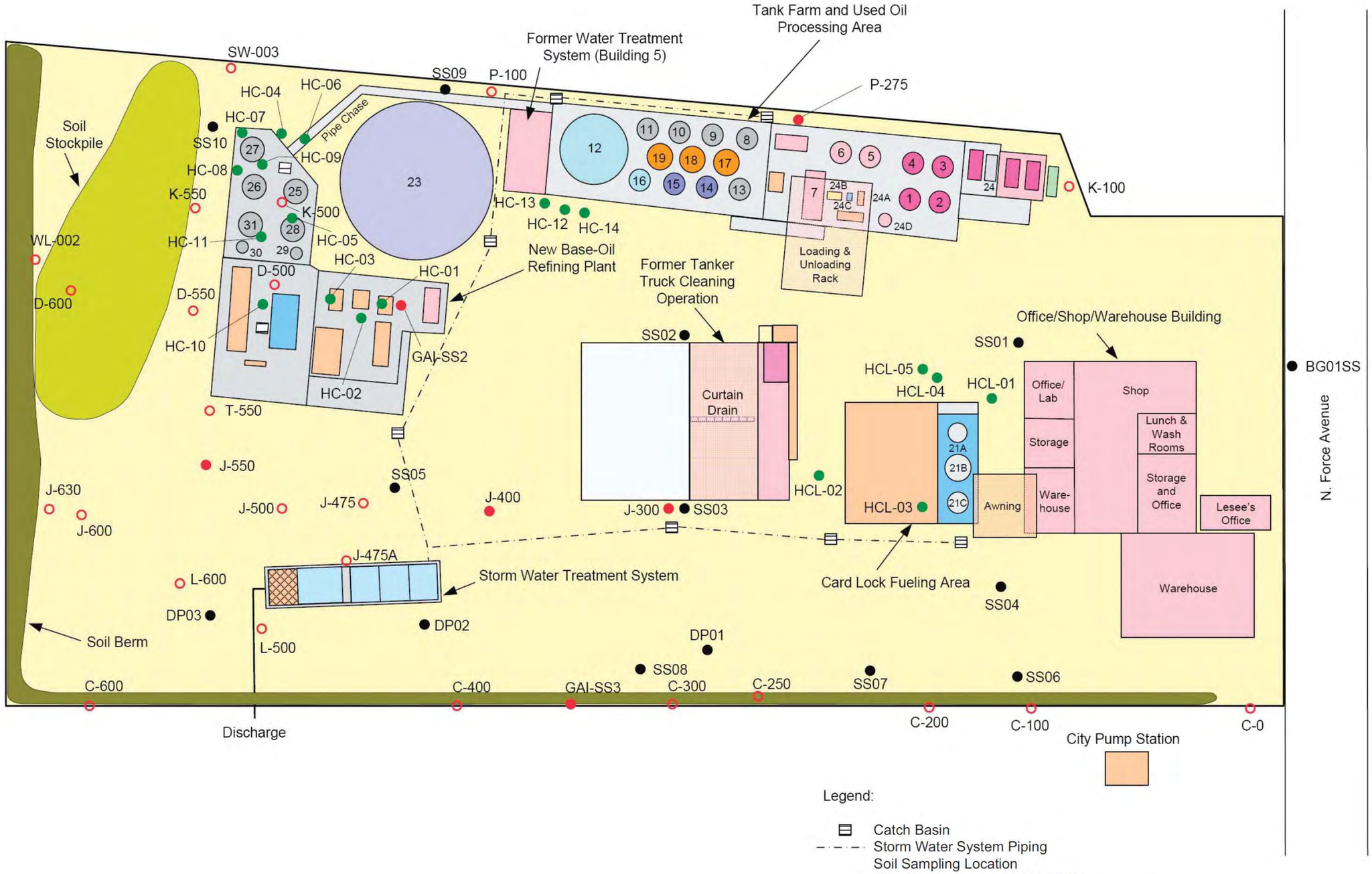
1.3.3.1 1990 Portland Stockyards Site Investigation

The 1990 Portland Stockyards SI included the collection of samples on the Facility, in the wetlands, and on a number of nearby properties (e.g., the former Portland Livestock Auction, Inc. [Stockyards], Peninsula Terminal Railroad, Star Oil, and Former Farmer's Plant Aide/Former Limex Transportation/Bulk Transportation facility) (Golder Associates 1990). With the exception of the deep regional groundwater investigations completed by Golder Associates in 1990 (Golder Associates 1990), this section summarizes the samples that were collected on the Facility and in the adjacent wetlands as part of this investigation.

Surface soil samples were collected at two locations: P-100 and P-275. Subsurface soil samples were typically collected at depths of 2.0 or 2.5 ft bgs and/or 5.0 or 6.0 ft bgs at 14 locations: P-275, K-550, D-550A, D-550B, K-500, J-550, J-600, J-630, J-650, C-0, J-400, J-475, L-500, T-550, WL-001 and WL-002 (see Figure 1-7). Deeper subsurface soil samples were collected at depths of 10 and/or 15 ft bgs at 10 locations: D-550B, K-500, J-550, K-600, J-630, J-650, J-300, J-400, J-475, and T-550. A total of 39 soil samples were analyzed in a field laboratory using gas chromatography (GC) for benzene, toluene, m,p-xylenes (and ethylbenzene), o-xylene, 1,1-dichloroethylene, trans-1,2-dichloroethylene, 1,1,1-trichloroethane, TCE, PCE, and 1,3-dichlorobenzene, and using thin-layer chromatography (TLC) for TPH. Ten of the subsurface soil samples were analyzed in the Close Analytical Support Facility in Redmond, Washington for total lead, chromium, and cadmium. Two surface soil samples (GAI-SS2 and GAI-SS3) and one subsurface soil sample (J-550 at 5.0 ft bgs) were submitted for fixed laboratory analysis of the EPA target analyte list (TAL) of inorganics. Soil samples collected from location J-300 (at a depth of 10.0 ft bgs) and from J-550 (at a depth of 5.0 ft bgs) were submitted for fixed laboratory analysis of organic compounds, including VOCs, SVOCs, pesticides, PCBs, metals and TPH.

Soil samples were collected in the wetlands west of the Facility, typically at depths of 0.0, 2.5, and 5.0 ft bgs, at 10 locations: M-150, M-300, M-450, M-600, N-150, N-300, N-600, O-000, O-100 and O-200 (Figure 1-8). A total of 29 wetland soil samples were analyzed in a field laboratory for benzene, toluene, m,p-xylenes (and ethylbenzene), o-xylene, 1,1-dichloroethylene, trans-1,2-dichloroethylene, 1,1,1-trichloroethane, TCE, PCE, and 1,3-dichlorobenzene, and TPH.

Surface water samples were also collected at six locations. Two samples were collected in the drainage ditch at the same locations as soil samples P-100 and P-275 (Figure 1-7). Three samples were collected in the wetlands to the west of the Facility (SW-003, J-650-SW, and stormwater treatment system discharge). One sample was collected from the



Source: Coles Environmental Consulting, Inc., Energy & Materials Recovery, Inc. Site Diagram (Formerly Harbor Oil, Inc.), March 2005.

Figure 1-7
Historical On-Facility Soil and Surface Water Sampling Locations
Harbor Oil Site

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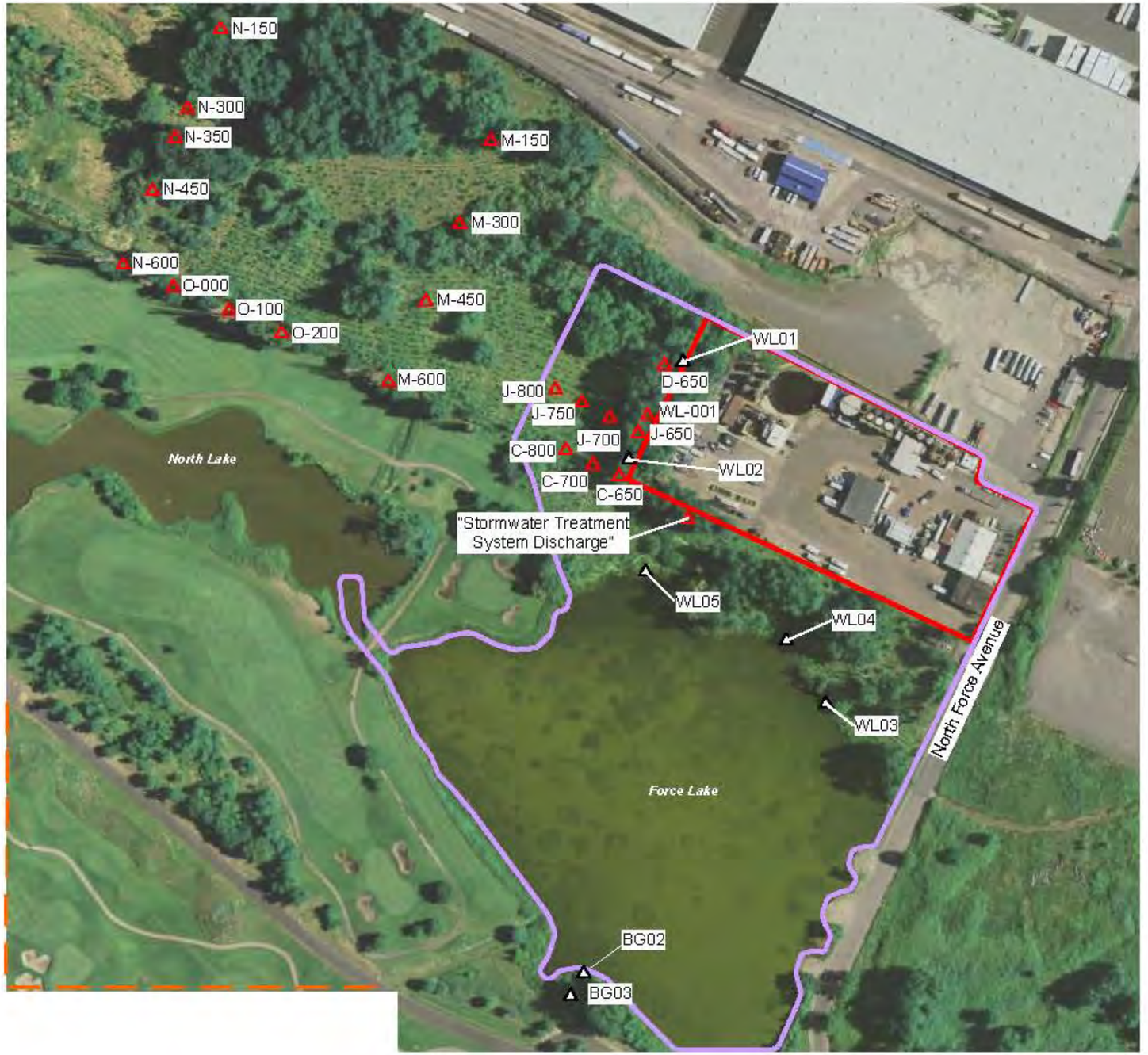

Legend:

Offsite Sampling Locations
- Golder (1990)
- E&E (2001)

Harbor Oil Facility Boundary

Harbor Oil RI Study Area Boundary

Note: Force Lake sediment sample (S-1) and water sample (W-1) collected in 1997 are not shown because sampling locations were not identified by the COP.

200 Feet
Approximate Scale

Figure 1-8
Historical Off-Facility Soil and Surface Water Sampling Locations
Harbor Oil Study Area

BRIDGEWATER GROUP, INC.

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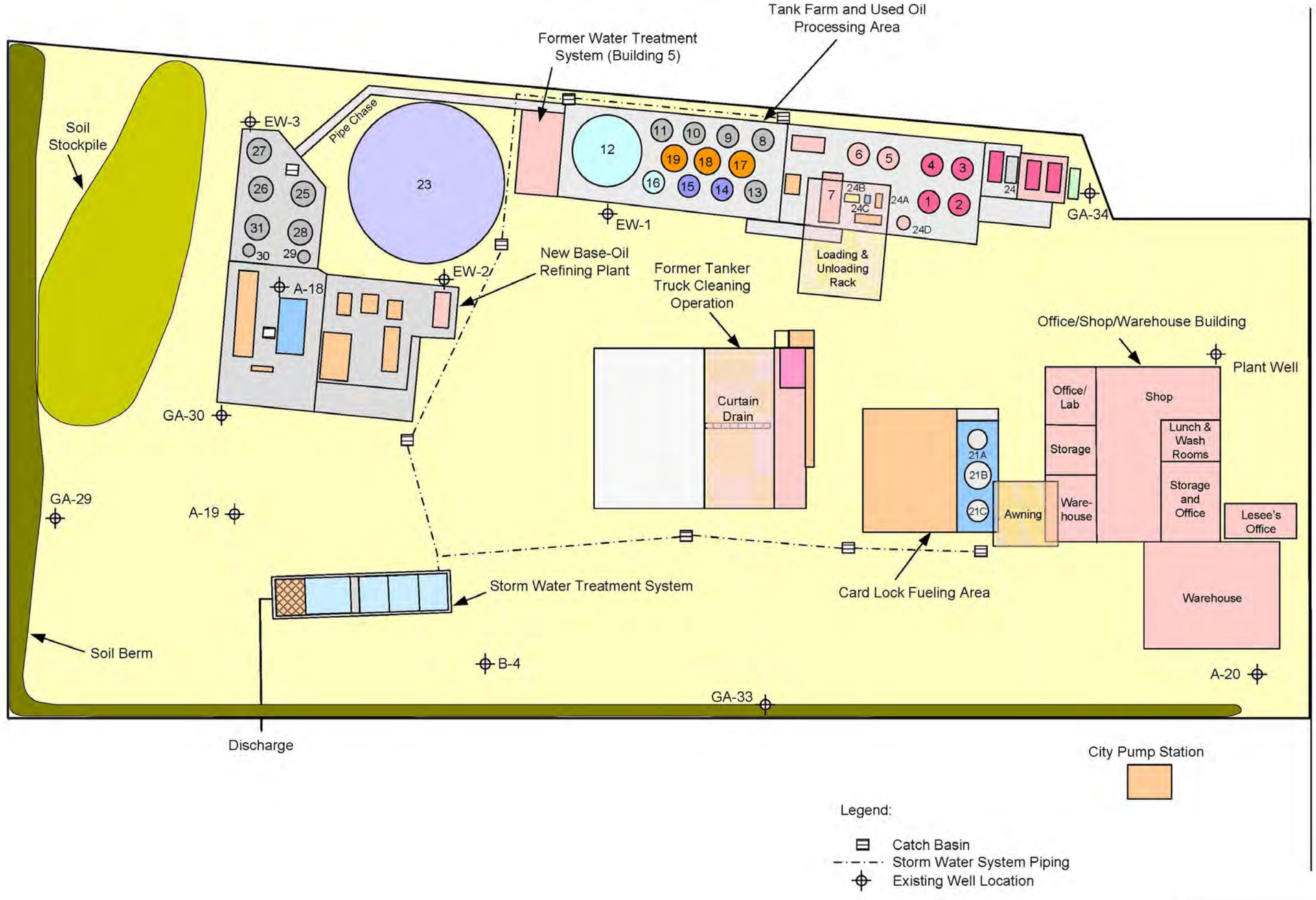

Source: Coles Environmental Consulting, Inc., Energy & Materials Recovery, Inc. Site Diagram (Formerly Harbor Oil, Inc.), March 2005.

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Figure 1-9
On-Facility (Pre-RI) Well Locations
Harbor Oil Site

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stormwater treatment system. Three surface water samples were also collected further to the west in the wetlands at locations N-600, O-100 and O-200 (Figure 1-8). They were analyzed in the field laboratory using GC for benzene, toluene, m,p-xylenes (and ethylbenzene), o-xylene, 1,1-dichloroethylene, trans-1,2-dichloroethylene, 1,1,1-trichloroethane, TCE, PCE, and 1,3-dichlorobenzene, and using TLC for TPH.

Surface water samples were also collected at six locations. Two samples were collected in the drainage ditch at the same locations as soil samples P-100 and P-275 (Figure 1-7). Three samples were collected in the wetlands to the west of the Facility (SW-003, J-650-SW, and stormwater treatment system discharge). One sample was collected from the stormwater treatment system. Three surface water samples were also collected further to the west in the wetlands at locations N-600, O-100 and O-200 (Figure 1-8). They were analyzed in the field laboratory using GC for benzene, toluene, m,p-xylenes (and ethylbenzene), o-xylene, 1,1-dichloroethylene, trans-1,2-dichloroethylene, 1,1,1-trichloroethane, TCE, PCE, and 1,3-dichlorobenzene, and using TLC for TPH.

Four groundwater monitoring wells already existed at the Harbor Oil Facility when the 1990 investigation was conducted: A-18, A-19, A-20, and B-4 (Figure 1-9). The “A” wells ranged in depth from 10 to 20 ft. Well B-2 was 91.5 ft deep. Golder Associates installed four additional wells on the Facility: GA-29, GA-30, GA-33 and GA-34 (Golder Associates 1990). All four of these wells were 16.5 ft deep.

Following well installation and development, groundwater samples were collected from all of the newly installed wells and from selected previously installed monitoring wells. Groundwater samples collected from GA-30, A-18 and B-4 were analyzed for TAL inorganics. Groundwater samples collected from GA-29, GA-30, GA-34, A-18, A-19, A-20, and B-4 and the plant well were analyzed in the field laboratory. Groundwater samples collected from A-18, GA-30, and B-4 were analyzed in the fixed laboratory for VOCs and SVOCs.

Analytical testing results of the samples referenced above, collected on or adjacent to the Study Area as part of the 1990 Portland Stockyards SI, have previously been summarized and compared with DEQ and EPA screening levels in the RI/FS Work Plan (Bridgewater et al. 2008b). As described in Section 1.3.4, these data were used to identify data gaps and to assist in the RI study design, but were not deemed to be of sufficient quality to be used in the RI.

It should be noted that pesticides, including DDT, were commonly used at livestock yards for vector and insect control, which was often accomplished by dusting, spraying, or dipping the livestock. As described in Section 4.6, elevated concentrations of DDT and its metabolites (e.g., DDD) have been identified in soil and groundwater at portions of the Harbor Oil Facility, with the greatest concentrations proximate to historical drainage leading from the former livestock truck-cleaning operations area.

Although the presence and distribution of DDT proximate to the former truck wash area is consistent with a source that could be related to the entrainment of DDT in rinse water, review of available historical

information and investigation work at the Portland Stockyards property identified no discussion concerning the use of DDT. Furthermore, no testing results for pesticides at the Portland Stockyards or the adjacent Peninsula Terminal Railroad property (livestock loading/unloading) property have been identified inasmuch as these chemicals were not identified by Golder Associates as contaminants of interest (COIs) for those properties.

DEQ reviewed the results of the 1990 Portland Stockyards SI (Golder Associates 1990), and in February 1992 added the stockyards property to the Confirmed Release List. A priority evaluation of the property was completed in November 1996. Further investigation was recommended by DEQ as a result of the priority evaluation, although the priority for further action was designated as "low." No additional actions by DEQ are known to have occurred since the completion of the priority evaluation in 1996 based on review of the DEQ project files for the property.

1.3.3.2 Regional Deep Groundwater Investigation

An investigation of regional chlorinated solvent impacts on deep groundwater was conducted as a component of the overall investigatory activities related to the Portland Stockyards as described in Section 1.3.3.1. This focused evaluation was conducted by Golder Associates as a result of the identification of TCE and PCE in groundwater samples collected from the Portland Stockyards' production well and other deep wells on or near the Portland Stockyards property.

Specifically, and as documented in the 1990 Portland Stockyards SI (Golder Associates 1990, 1991b), TCE and PCE were identified in deep zone groundwater (Pleistocene gravels, usually greater than 100 ft bgs) in samples collected from both the Harbor Oil supply well (PW-01) and the Portland Stockyards supply well.

Further investigation related to the presence of TCE and PCE in deep groundwater was documented in the report titled *Oregon Waste Systems Deep Groundwater Sampling in the Vicinity of the Portland Stockyards Property* (Golder Associates 1991a*).* This additional investigation included a well survey and subsequent deep-zone groundwater sample collection at supply wells W-5 (125 ft deep) and W-6 (86 ft deep) at the Heron Lakes Golf Club and at a supply well (166 ft deep) located at the nearby Exposition Center property. In addition, sampling results for the James River Corporation property well No.2 (163 ft deep) were identified and reported.

As summarized in Golder Associates (1990, 1991a), testing of groundwater samples collected from the wells described above identified TCE and PCE concentrations within the deep groundwater zone that were relatively uniform across the area (usually between 1 and 20 µg/L). Table 1-1 summarizes TCE and PCE concentrations in groundwater as reported by Golder Associates(1991a, b), as well as more recent data for the Harbor Oil production well. All of the off-site well locations identified in Table 1-1 are shown on Figure 1-10.

Table 1-1. Summary of Historical Regional Deep Supply Well Sampling Results for TCE and PCE

Well Location	Sampling Date	Depth (ft)	Concentration (µg/L)	
			TCE	PCE
Vanport City Well No. 5	1990	125	20	1 U
Vanport City Well No. 6	1990	86	13	1 U
Exposition Center	1990	166	9	4
James River Corporation	1989	163	7.1	20
Portland Stockyards Well	1990	215	9	6
PW-01 (Harbor Oil)	2000	97	6.1	4.2

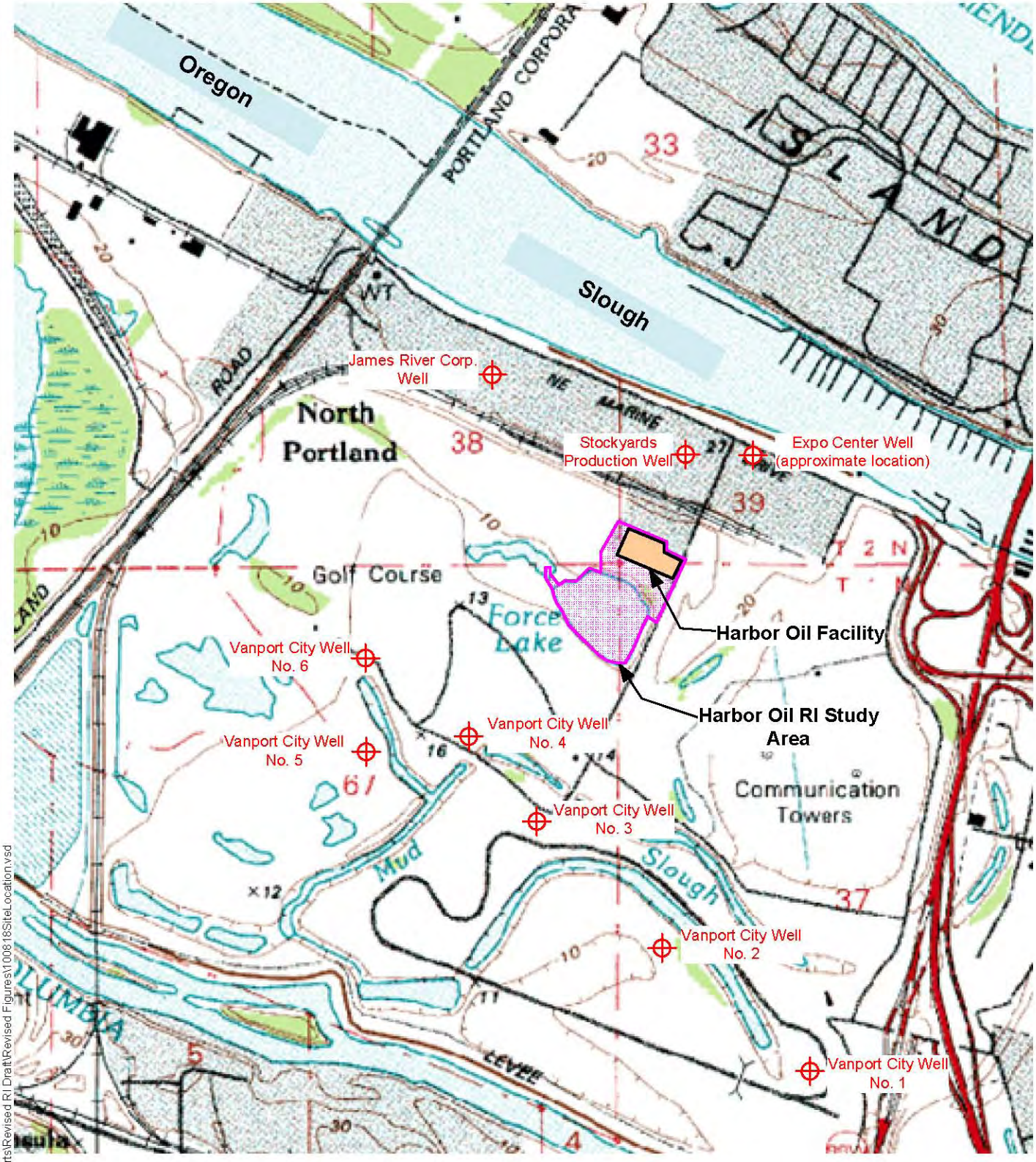
Source: Golder Associates (1991a) and CEC (2002)

PCE – perchloroethylene

TCE – trichloroethene

U – not detected at given concentration (concentration shown is the reporting limit)

As the data suggest, and as concluded by Golder Associates (1991a), the sampling results are indicative of relatively low-level regional PCE and TCE impacts on the regional aquifer (deep groundwater zone). DEQ reviewed the information as summarized in the Golder Associates reports (1990, 1991a) and added the Portland Stockyards property to the Confirmed Release List in 1992. DEQ also recommended further investigation as an outcome of a priority evaluation. The priority for further action at the property was designated by DEQ as “low,” and there is no record in DEQ files that subsequent investigations have been requested by the agency.



Sources: Force Lake, USGS Portland (OR,WA) Topo Map from TopoZone. Well locations from Golder (1990).
Note: Four more supply wells may be located on the James River Corporation facility; their locations are unknown.

N

0.5 Mile

Approximate Scale

Figure 1-10
Off-Facility Well Locations
Harbor Oil Study Area

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1.3.3.3 1997 Force Lake Sampling

As part of the development of the Peninsula Drainage District No. 1 (PEN 1) Natural Resources Management Plan (NRMP) (City of Portland 1997), the City of Portland collected a water (W-1) and a sediment (S-1) sample from Force Lake. The City of Portland also collected a water sample (W-2) and a sediment sample (S-2) from the intersection of the Midwestern Slough and Forebay Slough, and a water sample (W-3) from the northwest corner of the Forebay Slough near the road crossing (Figure 1-11). Sediment samples S-1 and S-2 were composite samples. The City of Portland report did not identify where the grab samples used to form sample S-1 were collected in Force Lake. As described in Section 1.3.4, these data were used to identify data gaps and to assist in the RI study design, but were not deemed to be of sufficient quality to be used in the RI.

The samples were analyzed for general chemistry, ammonia, total solids, total dissolved solids, TSS, total coliform, COD, BOD, TOC, oil and grease, TPH, VOCs, metals (total and toxicity characteristic leaching procedure), pesticides and PCBs, herbicides, and SVOCs.

The samples were collected on January 2, 1992, except for the VOC sediment sample, which was collected on February 6, 1992.

The following summarizes the results for the water samples:

- Oil & grease was detected at a concentration of 0.18 mg/L in sample W-1. Samples W-2 and W-3 contained 0.17 and 0.08 mg/L, respectively, of oil and grease.
- TPH was not detected in samples W-1, W-2, or W-3 using Method 418.1 at a detection limit of 0.04 mg/L.
- The following metals were detected in sample W-1: copper (0.011 mg/L), iron (0.816 mg/L), lead (0.126 mg/L) and zinc (0.019 mg/L); arsenic, chromium, mercury, and nickel were not detected in sample W-1. Sample W-2 contained detectable concentrations of copper (0.016 mg/L), iron (1.21 mg/L) and zinc (0.020 mg/L). Sample W-3 contained detectable concentrations of copper (0.015 mg/L), iron (0.746 mg/L), nickel (0.051 mg/L), and zinc (0.026 mg/L).
- No herbicides, pesticides, or PCBs were detected in sample W-1, except lindane (gamma-BHC, 0.04 µg/L). A higher lindane concentration (0.06 µg/L) was detected in sample W-2. Lindane was not detected in sample W-3 at a detection limit of 0.003 µg/L.
- No VOCs or SVOCs were detected in any of the water samples.

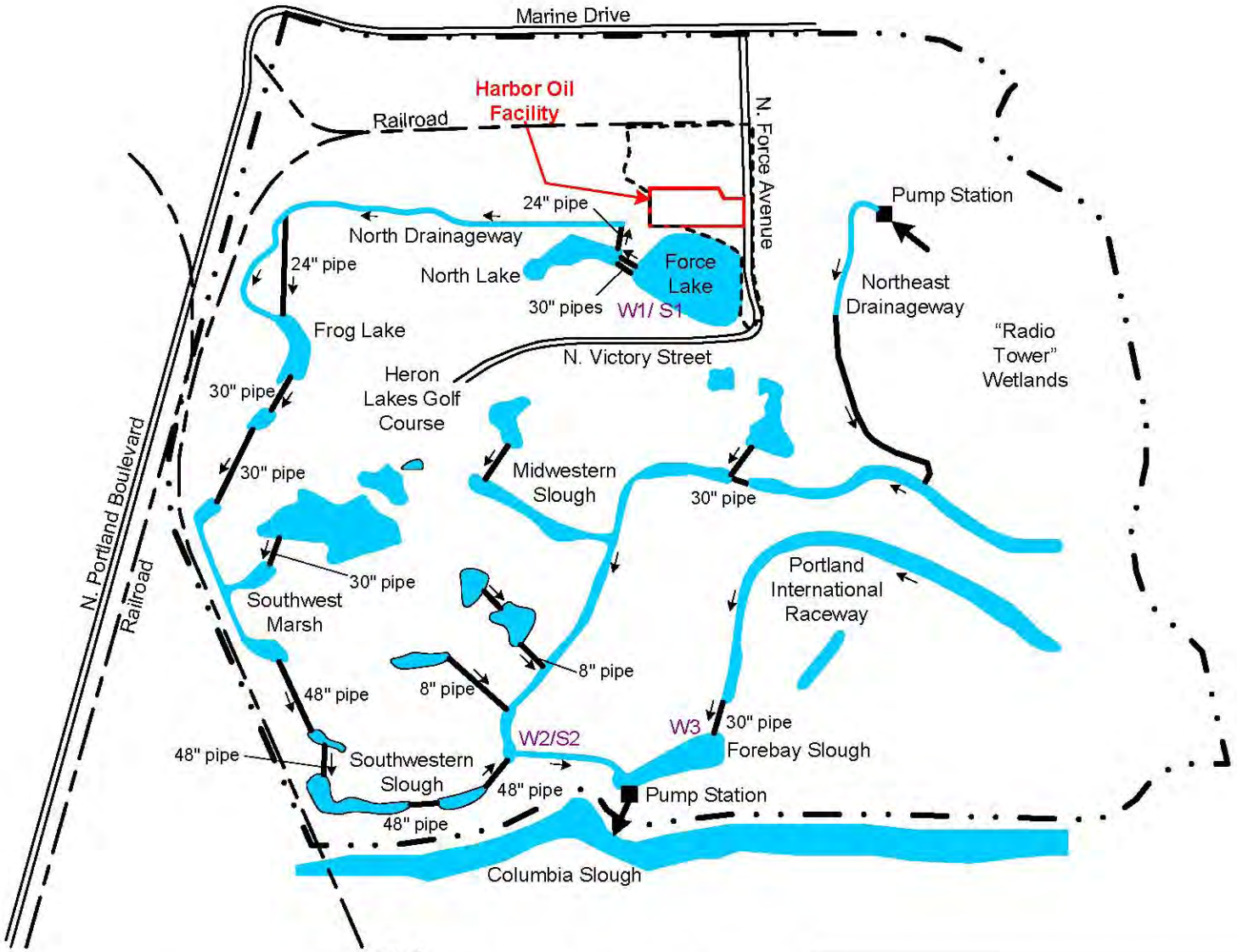

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Figure 1-11

City of Portland Sampling Locations in PEN 1 NRMP Area

Harbor Oil Study Area

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The following summarizes the results for the sediment samples:

- Oil & grease was detected in sample S-1 at a concentration of 120 mg/kg, compared to 11 mg/kg detected in sample S-2.
- TPH was detected in sample S-1, using Method 418.1 at a concentration of 180 mg/kg, compared to 10 mg/kg in sample S-2.
- Arsenic (4.1 mg/kg), chromium (6.7 mg/kg), copper (106 mg/kg), iron (15,500 mg/kg), lead (18,600 mg/kg), nickel (11.7 mg/kg), zinc (173 mg/kg) were detected in sample S-1; no mercury was detected. Sample S-2 contained detectable concentrations of arsenic (2.91 mg/kg), chromium (15.0 mg/kg), copper (19.6 mg/kg), iron (11,100 mg/kg), nickel (14.6 mg/kg), and zinc (83.9 mg/kg); lead and mercury were not detected.
- No herbicides, pesticides, or PCBs were detected in sample S-1, except 4,4′-DDD (100 µg/kg); DDD was not detected in sample S-2.
- No VOCs were detected in sample S-1; sample S-2 was not analyzed for VOCs. Sample S-1 not analyzed for SVOCs; and no SVOCs were detected in sample S-2.

1.3.3.4 2000 EPA Site Inspection

In July and August 2000, surface soil, subsurface soil, wetland soil, groundwater, and product samples were collected by EPA as part of its PA/SI (Ecology and Environment 2001).

Fifteen surface soil samples (DP01SS through DP03SS and SS01SS through SS10SS), including two samples that were referred to as "background" samples (BG01SS and BG03SS), were collected from the Study Area (Figures 1-7 and 1-8). Sample BG03SS may or may not be representative of "background" conditions because it was collected on the Heron Lakes Golf Club. As discussed below, pesticides were historically used at the Heron Lakes Golf Club and the City of Portland placed fill material south of Force Lake. In addition, as discussed below, DDT was historically used at Vanport City, which was located south of Force Lake.

The surface soil samples from the Facility were collected at depths of 12 to 26 in. bgs below the approximately 12-in. layer of hard-packed gravel.

Ten subsurface soil samples, including two background samples, were collected at locations DP01 through DP03 and BG01. The samples were collected at locations co-located with samples DP01SS, DP02SS, DP03SS, and BG01SS (Figure 1-7).

Six soil samples were collected from the wetlands south of the Facility at depths of 0 to 6 in. bgs. EPA refers to these samples as "Force Lake sediment" samples even though some of them were collected from the wetlands rather than within the lake. The samples were collected at locations WL01SD through WS05SD and BG02SD (Figure 1-8). Note that background sample BG02SD was collected from the Heron Lakes Golf Club. It may or may not be representative "background" conditions for the reasons mentioned above.

Groundwater samples were collected from monitoring wells (GA-29, GA-33, GA-34, A-18, A-19 and A-20) and the plant well (Figure 1-9). EPA sampled the plant well to represent "background" conditions; the plant well was screened deeper than most of the other wells that EPA sampled. A light non-aqueous phase liquid (LNAPL) sample was collected from monitoring well GA-30.

Some soil, groundwater and LNAPL samples were analyzed for TAL metals, pesticides, PCBs, SVOCs, TOC, TPH and VOCs.

A number of pesticides were detected in the LNAPL sample, including: alpha-BHC (110 JK µg/kg), alpha chlordane (61 JK µg/kg), beta-BHC (130 JK µg/kg), dieldrin (150 µg/kg), endosulfan sulfate (210 µg/kg), endrin aldehyde (160 µg/kg), gamma chlordane (87JK µg/kg), and heptachlor epoxide (61 JK µg/kg). PCBs were also detected as Aroclor 1242 (9,600 µg/kg) and Aroclor 1254 (5,300 JK µg/kg).

Analytical testing results of the soil and groundwater samples referenced above, collected at the Study Area as part of the 2000 EPA SI and submitted to an offsite fixed laboratory, have previously been summarized and described in the RI/FS Work Plan (Bridgewater et al. 2008b). As described in Section 1.3.4, these data were deemed to be of sufficient quality to be used in the RI and in the baseline risk assessments. Therefore, these historical data are included in the RI database (Appendix B) and discussed in Section 4.0.

1.3.3.5 2003 CEC Soil Sampling

Between February 1 and April 17, 2003, CEC collected a total of 19 soil samples in several locations as part of the new base oil plant construction and card lock fueling area projects (CEC 2007a). Sampling locations are shown on Figure 1-7. Depths of the soil samples ranged from 1.0 to 7.0 ft bgs. Samples were analyzed for diesel- and oil-range TPH and PCBs.

Eleven soil samples were collected at sampling locations HC-01 through HC-11 in the area where the new base oil plant was to be constructed in order to evaluate TPH- and PCB-contaminated soil prior to construction. The excavation depth was approximately 6 ft (until clean material had been reached). The excavated material is now stockpiled to the west of the new plant. Samples were collected from various locations within the excavations (e.g., bottom, sidewalls).

The samples from HC-04 and HC-07 had concentrations approximately one order of magnitude above those of other samples at the facility (154,125 mg/kg TPH and 1.18 mg/kg PCBs at HC-04; and 173,800 mg/kg TPH and 13.6 mg/kg PCBs at HC-07). All other HC-series samples had chemical concentrations that were the same order of magnitude as those in other Facility soil samples. Based on a review of Dave Coles's field notes (CEC 2007a), samples HC-04 and HC-07 were biased samples intended to characterize a thin zone of "black, plastic-like asphalt" (HC-07) and an "oily sawdust layer" (HC-04), which were not observed at surrounding locations. It should also be noted that nearby samples HC-06, HC-08, and HC-09 (which were collected within 10 ft of HC-04

and HC-07) were not similarly impacted (based both field notes and analytical results).

Three soil samples were collected from locations HC-12 through HC-14 to the southwest of the tank farm and used oil processing area, where new electrical equipment was installed in a vault. The samples were collected at depths ranging from 2 to 5.5 ft bgs. TPH concentrations for these samples ranged from non-detect (HC-14 at 5.5 ft bgs) to 13,360 mg/kg (HC-12 at 3.5 ft bgs). The concentration of PCBs in the HC-14 sample was 0.622 mg/kg,

Five soil samples were collected from locations HCL-01 through HCL-05 near the card lock fueling area. Sample HCL-01 was collected from a pipe trench near the laboratory for the card lock fueling area. Sample HCL-02 was collected as a composite sample from a soil stockpile generated during trench excavation. Sample HCL-03 was collected from a caisson hole near the south corner of the card lock fueling area awning. Samples HCL-04 and HCL-05 were collected from the area where an oil-water separator had been installed. The samples were collected at depths ranging from 1.5 to 6 ft bgs. TPH concentrations in these samples ranged from non-detect (HC-04 at 1.5 ft bgs) to 6,117 mg/kg (HCL-02). The PCB concentration in the HCL-02 sample was 0.0802 mg/kg.

Analytical results for the samples referenced above have previously been summarized and compared with DEQ and EPA screening levels in the RI/FS Work Plan (Bridgewater et al. 2008b). Although the Coles's data (CEC 2007a) could not be used in the RI because they did not meet minimum DQOs (as described in Section 1.3.4), these data were used to guide the selection of RI sampling locations (i.e., to ensure that samples would be collected in the same vicinity). Specifically, samples SL-30, SL-31, and SL-38 were collected from this area to refine the understanding of chemical concentrations and distributions. Note that the area beneath the concrete at the base oil plant was backfilled with clean fill (basalt) and thus was not, and could not, be re-sampled.

RI sample SL-31 was collected immediately adjacent to the base oil plant foundation, approximately 10 ft to the northeast of HC-07 and 10 ft to the north of HC-04. The boring log for SL-31 does not identify the black plastic-like asphalt layer identified at HC-07 or the sawdust layer identified at HC-04; instead, a "slight odor from 4.0 to 7.0 ft" was described. The boring log for sample SL-30, which was located approximately 15 ft north of HC-07, reported conditions similar to those for SL-31, noting a "slight odor at 6 ft."

Based on the available information from RI sampling, chemical concentrations and environmental conditions represented by the HC-04 and HC-07 samples from the 2003 Coles's data (CEC 2007a) are not representative of current conditions in the area where these samples were collected. The RI data adequately describe overall soil conditions at the northern portion of the Facility without the incorporation of the unvalidated 2003 Coles's data.

1.3.3.6 2006 Heron Lakes Golf Club Water Quality Sampling

According to J. Goodling (2007), the City of Portland Parks Department collects water samples from Force Lake (just before it discharges into the culverts that connect it to North Lake) and from the Southwestern Slough (where it exits the southern boundary of the Heron Lakes Golf Club) to compare the quality of surface water entering and leaving the Heron Lakes Golf Club. Samples have been collected twice per year since 2001 and have been analyzed for indicators of nutrient runoff and pesticides that had been applied to the golf course during the prior 6 months. The most recent results provided by J. Goodling were for samples collected on October 10, 2006. Table 1-2 summarizes the analytical results for the water samples collected from Force Lake, including field parameters measured during sample collection.

The only pesticide that has been detected in Force Lake water since 2001 was Clopyralid (Confront®) (0.42 µg/L on October 20, 2003).

Table 1-2. October 10, 2006, Heron Lakes Golf Club Water Quality Sampling Results

Parameter	Unit	Force Lake	Southwestern Slough
Field			
pH	unitless	8.22	8.50
Specific conductance	µS/cm	281	253
DO	mg/L	12.77	7.18
Laboratory			
Orthophosphate-phosphorus	mg/L	0.24	0.04
Nitrate-nitrogen	mg/L	0.1 U	0.3
Clopyralid (Confront®)	µg/L	0.08 U	0.08 U
Fludioxanil (Medallion)	µg/L	0.03 U	0.03 U
Glyphosate (Roundup®)	µg/L	10 U	10 U
Propiconazole (Banner)	µg/L	0.12 U	0.12 U
Triadimefon (Bayleton)	µg/L	0.6 U	0.6 U

Source: Goodling (2007)

DO – dissolved oxygen

U – not detected at given concentration (concentration shown is the reporting limit)

1.3.4 Evaluation of Historical Data Quality

This section summarizes the methods and results of a data quality screen that was conducted as part of the DQO process to determine whether historical data were acceptable for use in the RI, as presented in the *Remedial Investigation/Feasibility Study: Risk Assessment Scoping Memorandum for the Harbor Oil Site* (Windward and Bridgewater 2008a), hereafter referred to as the Risk Assessment Scoping Memorandum. This data quality screen ensured that data used in the RI and risk assessments were of adequate quality.

Multiple field investigations at the Facility, adjacent wetland areas, and Force Lake have been conducted since 1988 (Table 1-3). Data from these historical studies were considered for use in the RI dataset if acceptable laboratory methods were used and sufficient analytical and field documentation was available. Data were considered to be unacceptable for use in the RI dataset if field screening methods were used or if insufficient analytical and field documentation was available. Dataset acceptability was evaluated based on the criteria established in the RI/FS Work Plan (Bridgewater et al. 2008b), as discussed in Section 1.3.4.1.

1.3.4.1 Criteria for Historical Data Screen

Specific criteria were used to evaluate chemistry data collected during previous (i.e., pre-RI) sampling events to determine their acceptability for use in the RI and risk assessments. All new data collected through the RI process outlined in the RI/FS Work Plan (Bridgewater et al. 2008b) met these criteria through compliance with the methods detailed in the quality assurance project plan (QAPP).

The criteria for chemistry data use in the RI for all purposes were as follows:

- Hard copy or original electronic copy of data report must be available.
- Field coordinates must be available.
- Data must have been collected using acceptable sampling methods.
- Sample depth must be identified.
- Sample type must be clearly identified.
- Analytical methods must be identified and acceptable.
- Quality assurance/quality control (QA/QC) information must be available.
- Data validation qualifiers must be present, or derivable from laboratory qualifiers or QA information and must be applied in a manner consistent with EPA functional guidelines (EPA 1999, 2002e). For non-detected results, detection limits and appropriate qualifiers must be provided.
- Data reports should contain laboratory-generated forms (often called Form Is) with the results for each sample.
- Documentation supporting the dataset, including the analytical raw data, chain-of-custody forms, and sample handling descriptions, should be available for future reference, confirmation, and/or reproducibility by a third party.

Table 1-3. Datasets Reviewed for Data Quality and Documentation for the Harbor Oil RI

Year	Sampling Event	Data Summary
2001 to 2006	Heron Lakes Golf Club water quality sampling performed by the City of Portland (unpublished)	Samples have been collected twice per year since 2001 and analyzed for indicators of nutrient runoff and pesticides(only one year of data was provided to the Voluntary Group)
2003	Soil analysis results for the 2003 excavations required for the construction of the EMRI base oil refining plant (Coles 2007)	19 subsurface soil samples were analyzed for TPH-Dx and PCBs
2000	Harbor Oil PA/SI (Ecology and Environment 2001)	15 surface soil samples, 10 subsurface soil samples, 6 Force Lake sediment samples,[a] 7 groundwater samples, and 1 LNAPL sample were analyzed for TPH-HCID, TPH-G, TPH-Dx, metals, VOCs, SVOCs, PCBs, and pesticides
2000	Preliminary risk assessment problem formulation (Coles 2002)	4 surface soil samples, 1 wetland soil sample, and 3 groundwater samples were analyzed for TPH-HCID, TPH-G, TPH-Dx, lead, magnesium, VOCs, SVOCs, and PCBs
1992	PEN 1 NRMP (City of Portland 1997)	1 Force Lake surface water sample and 1 Force Lake sediment sample were analyzed for TPH (range not reported), metals, VOCs, SVOCs, PCBs, pesticides, and herbicides
1990	Portland Stockyards SI and preliminary remediation plan (Golder Associates 1990)	2 surface soil samples, 9 subsurface soil samples, 3 wetland soil samples, and 3 groundwater samples were analyzed for metals
1990	Black & Veatch and RZA stockyards site assessment (RZA 1990, as cited in Golder Associates 1990)	39 soil vapor samples at Merit Truck Stop, Star Oil, Harbor Oil, Rod's Truck Repair, and Stockyards facility were analyzed for VOCs; unspecified testing relating to underground storage tanks was conducted at Merit Truck Stop and the Star Oil facility
1988	Sweet-Edwards/EMCON environmental audit, field investigation, and remedial alternatives assessment (Sweet-Edwards/EMCON 1988, as cited in Golder Associates 1990)	19 shallow borings, 17 surface soil samples, and an unspecified number of groundwater samples collected at Rod's Truck Repair, Harbor Oil, Merit Truck Stop, and Farmers Plant Aid were analyzed for VOCs, PCBs, diesel, and gasoline

[a] The six samples designated as Force Lake sediment samples in the 2000 sampling event were characterized as wetland soil samples in the RI and risk assessments based on the sample locations and descriptions. In addition, one of these six samples was collected on the south side of Force Lake as a "background sample." However, because of the proximity of this sample to the golf course, this sample may not represent background concentrations. Thus, only five of these samples were appropriate for use in the RI and risk assessments.

EMRI – Energy & Material Recovery, Inc.
LNAPL – light non-aqueous phase liquid
NRMP – natural resources management plan
PA – preliminary assessment
PCB – polychlorinated biphenyl
PEN 1 – Peninsula Drainage District No. 1
RI – remedial investigation
RZA – Rittenhouse-Zeman and Associates
SI – site investigation
SVOC – semivolatile organic compound
TPH – total petroleum hydrocarbons
TPH-Dx – total petroleum hydrocarbons –diesel and oil extractable
TPH-G – total petroleum hydrocarbons – gasoline
TPH-HCID – total petroleum hydrocarbons – hydrocarbon identification
VOC – volatile organic compound

Although EPA has not established definitive guidelines specifying the level of data validation required for CERCLA, EPA Order 5360.1 and Office of Solid Waste and Emergency Response Directive 9355.9-01 (EPA 1993) require environmental measurements to be of known quality, verifiable, and defensible. For a dataset to be used for decision making, EPA's information quality guidelines (2002b) require that a historical dataset be of known quality and legally defensible and have undergone the same level of scrutiny and review as any other environmental data generated internally or externally by or for EPA.

1.3.4.2 Historical Data Screen Results

The results of the data screen are presented in Table 1-4. The data from one sampling event (Ecology and Environment 2001) were considered acceptable for use. Data from seven sampling events did not meet minimum DQOs and were determined to be unsuitable for use. These seven sampling events are listed in Table 1-4 with the rationale for their exclusion.

Table 1-4. Results of Data Screen of Historical Datasets

Sampling Year	Sampling Event	Available Documentation	Acceptability for All Uses in the RI	Rationale for Exclusion
2001 to 2006	Heron Lakes Golf Club water quality sampling conducted by the City of Portland 2006 (unpublished)	Laboratory reports provided by J Goodling to S Brown.	unacceptable	Minimum DQOs were not met; data report and supporting documentation were not available.
2003	soil analysis results for the 2003 excavations required for the construction of the EMRI base oil refining plant (Coles 2007)	Field notes, chain-of-custody forms, and laboratory report forms.	unacceptable	Minimum DQOs were not met; data report and data validation report were not available.
2000	Harbor Oil PA/site inspection (Ecology and Environment 2001)	Sampling and quality assurance plan, data report, data validation memoranda, laboratory report forms; raw data and chain-of-custody forms on file with EPA, Ecology and Environment, and/or MEL.	acceptable	Dataset was acceptable.
2000	preliminary risk assessment problem formulation (Coles 2002)	Laboratory report forms; some QA/QC information; sampling methods, sample depths, and coordinates not provided.	unacceptable	Minimum DQOs were not met; data were unvalidated; raw data were unavailable; uncertainty exists regarding sampling locations, methods, and depths.
1992	PEN 1 NRMP (City of Portland 1997)	Incomplete data report; copies of laboratory report forms and QA/QC information are not available; sampling methods, locations, and depths not provided.	unacceptable	Minimum DQOs were not met; laboratory report forms and QA/QC information were unavailable; uncertainty exists regarding sampling locations, methods, and depths.
1990	Portland Stockyards SI and preliminary remediation plan (Golder Associates 1990)	Data report.	unacceptable	Minimum DQOs were not met; laboratory report forms and QA/QC information were unavailable.
1990	Black & Veatch and RZA stockyards site assessment (RZA 1990, as cited in Golder Associates 1990)	Incomplete documentation and uncertain data quality.	unacceptable	Minimum DQOs were not met; data report and supportive documentation were not available.
1988	Sweet-Edwards/EMCON environmental audit, field Investigation, and remedial alternatives assessment (Sweet-Edwards/EMCON 1988, as cited in Golder Associates 1990)	Incomplete documentation and uncertain data quality.	unacceptable	Minimum DQOs were not met; data report and supportive documentation were not available.

DQO – data quality objective
EMRI – Energy & Material Recovery, Inc.
EPA – US Environmental Protection Agency
MEL – Manchester Environmental Laboratory
NRMP – natural resources management plan
PA – preliminary assessment
PEN 1 – Peninsula Drainage District No. 1
QA/QC – quality assurance/quality control
RI – remedial investigation
RZA – Rittenhouse-Zeman and Associates
SI – site investigation
SVOC – semivolatile organic compound
VOC – volatile organic compound

2.0 STUDY AREA INVESTIGATION

This section describes field activities conducted at the Study Area as part of the RI. A complete dataset with analytical results is provided as Appendix B.

The site characterization was conducted in two phases. Phase 1 sampling was conducted in April and May 2008 and included the collection of surface soil samples on the Facility and in the adjacent wetlands, installation of monitoring wells and collection of groundwater samples, and collection of lake surface water and sediment samples. Phase 2 sampling was conducted in March and April 2009 and included the collection of additional surface and subsurface soil samples on the Facility and in the wetlands, collection of an additional round of groundwater samples, and collection of subsurface lake sediment samples. Monthly groundwater and lake elevations were collected between May 2008 and April 2009.

Figure 2-1 shows the locations where all Phase 1 and 2 soil and sediment were collected; Figure 2-2 shows the locations where all Phase 1 and 2 groundwater and surface water samples were collected. These figures also show sampling locations from the Ecology and Environment preliminary site assessment/site inspection (2001), which was the only historical sampling event determined to be acceptable for use in the RI (Section 1.3.4). Note that surface soil samples were collected from the Facility just beneath the packed gravel cover, where present.

The RI was conducted in accordance with the DQO process developed by EPA as outlined in the document *Guidance for the Data Quality Objectives Process* (EPA 2000) and in the updated DQO guidance (EPA 2006). The DQO process is used to clarify study objectives in order to develop an appropriate data collection design to support decision making (EPA 2000, 2006). The seven-step DQO process developed by EPA was applied to identify field collection efforts needed to complete the RI/FS. Tables 30 through 33 in the RI/FS Work Plan (Bridgewater et al. 2008b) describe the seven-step DQO process that was used to define the objectives of the proposed sampling in order to support the following study objectives presented in the RI/FS Work Plan:

- Evaluate ecological risks
- Evaluate human health risks
- Characterize the nature and extent of contamination[3]
- Define the physical characteristics and hydrological system

[3] It should be noted that dioxins/furans were not analyzed in samples collected from the Harbor Oil Study Area (and were not considered to be a contaminant of interest) because according to EPA's 1980 SI (1980), Chempro did not accept or handle PCBs at the Facility. This inspection was conducted in February 1980 (several months after the October 1979 fire), and thus there is no information to indicate that PCBs were present at the time of this fire.

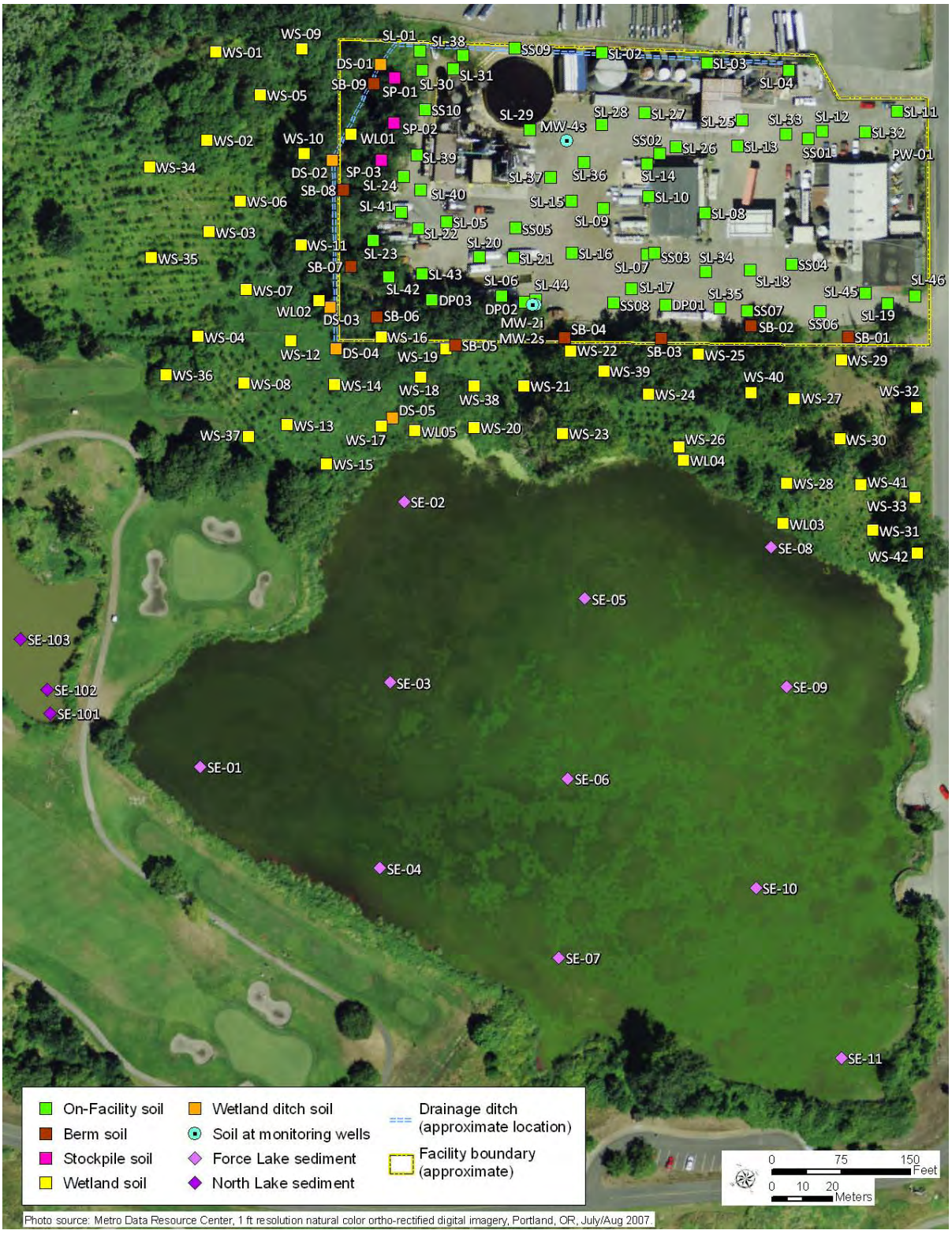


Figure 2-1. RI Soil and Lake Sediment Sampling Locations

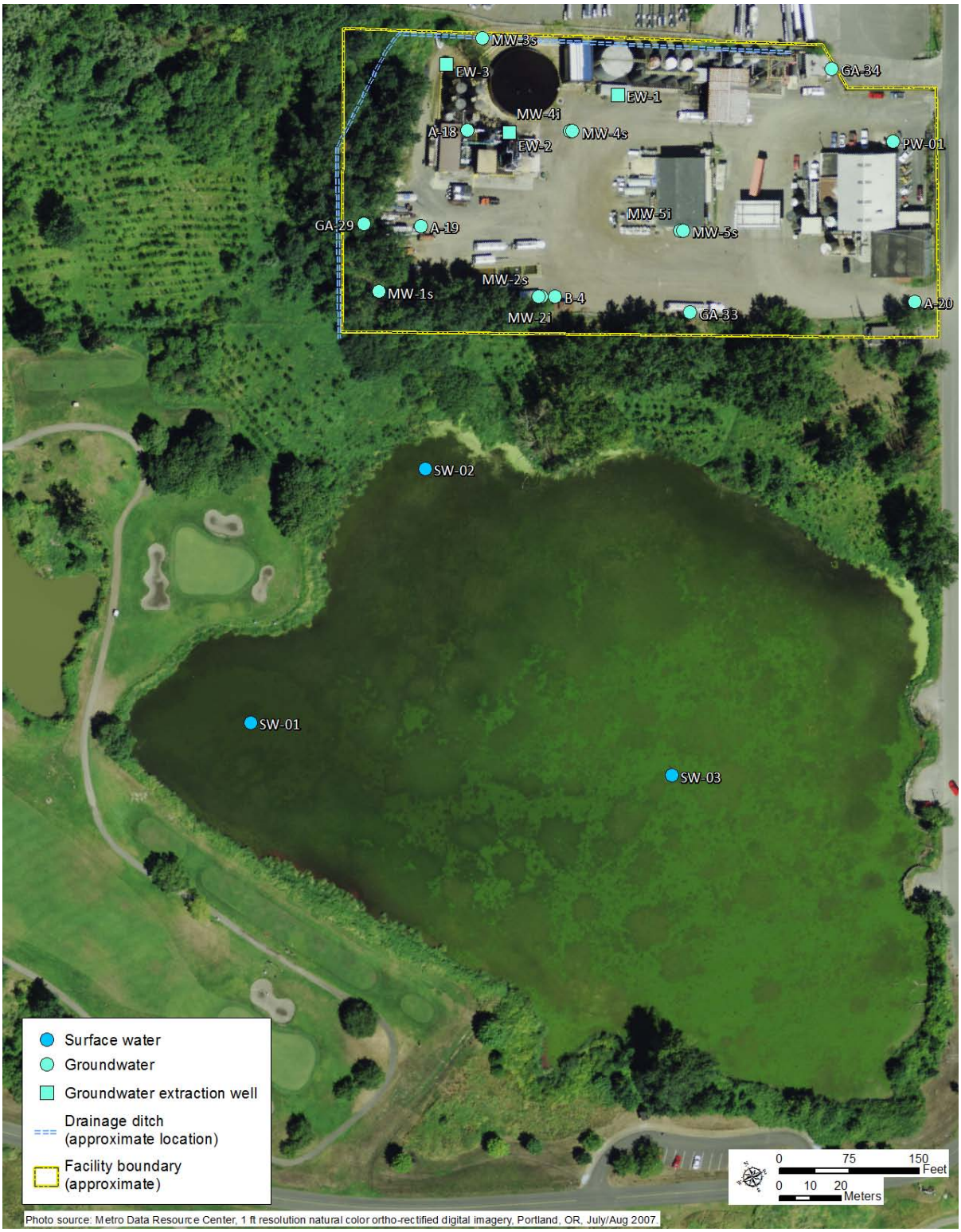


Figure 2-2. RI Groundwater Sampling, Surface Water Sampling, and Extraction Well Locations

These four elements are consistent with the general preliminary RAOs described in the SOW. As stated in the DQO tables, if unacceptable risks to humans or ecological receptors are determined, remedial alternatives will be evaluated in the FS. Step 7 of the DQO process provides a summary of the data needed to support the RI/FS.

In addition to clarifying study objectives, a data quality screen was conducted as part of the DQO process to provide all parties with a common benchmark for determining data acceptability (i.e., identifying which data could be used to estimate risks and develop risk-based goals). This data quality screen ensured that data were of a quality adequate to characterize the problems and decisions identified in the DQO process (Steps 1 and 2 of the DQO process identified in Tables 30 through 33). Data quality screening results for the historical data were presented in Section 1.3.4.

The RI/FS Work Plan (Bridgewater et al. 2008b) discussed the data gaps that were identified and the sampling design that was implemented to meet the following primary objectives defined in the SOW:

- Characterize the physical system of the Study Area by evaluating migration pathways including fluxes and rates through zones of migration.
- Determine the nature and extent of contamination at the Facility and for contaminants of potential concern (COPCs) in adjacent wetlands, Force Lake, and, if needed, downstream surface water bodies that received Facility-impacted discharges from Force Lake.
- Characterize any NAPL in soil or groundwater within the Study Area.
- Verify the preliminary CSM.
- Evaluate the human health and ecological risks posed by COPCs for all appropriate pathways and receptors.

Copies of the field logbooks, protocol modification forms, and field logs are provided in Appendix C.

The following subsections summarize the methodologies used to collect the samples, present the final sampling locations, and describe any deviations from the QAPP (Bridgewater et al. 2008a).

The field activities were conducted, with a few minor deviations, in accordance with the QAPP, and are briefly described in Sections 2.1 to 2.7.

2.1 Surface Features

All sampling locations were identified and documented using a global positioning system (GPS) unit with sub-meter accuracy.

A survey was completed on May 9, 2008 to determine the horizontal and vertical position of all Facility monitoring wells, Facility extraction wells, the Facility production well, the Force Lake observation point, and invert

elevations of the culverts located in Force Lake. The survey was completed by a professional land surveyor registered in Oregon. Each position was recorded relative to the State Plane (Oregon North) projection and City of Portland elevation datum. Each monitoring well elevation was recorded at the ground surface elevation and the well-specific groundwater measurement point (top of casing), which was located either below surface grade or above surface grade.

The May 2008 survey also included selected Facility features including property corners, building corners, concrete structures, catch basins, and ground surface elevations.

2.2 Facility Soil and Vadose Zone Investigations

Phase 1 field sampling activities were conducted from April 24 through May 2, 2008. The field sampling activities included the collection of soil samples from hand-auger and direct-push borings at 43 locations.

Phase 2 field sampling activities were conducted from April 6 through 9, 2009, at the Facility. The field sampling activities included the collection of 35 samples from hand-auger and direct-push borings at 15 locations.

For both phases of investigation, all onsite boreholes were filled with hydrated bentonite chips after the samples collected (according to the QAPP (Bridgewater et al. 2008a)), and an asphalt patch was placed in areas paved with asphalt to restore surface conditions. Soil sampling locations were documented, photographed, and logged with GPS equipment in accordance with the QAPP. Soil sampling and aquifer testing equipment was decontaminated between each location, and investigation-derived waste (IDW) was stored onsite, in accordance with the QAPP. Laboratory analytical results for IDW water and solids were submitted to Waste Management for purposes of profiling the IDW for permitted offsite land disposal or treatment. Waste Management transported drums containing IDW water and solids to their facility in Arlington, Oregon, on May 11, 2009.

The use of the term “surface” soil in this report is consistent with its use in the RI/FS Work Plan (Bridgewater et al. 2008b) (i.e., “surface” soil samples were collected just below the gravel fill layer, if present). Target “surface” soil sampling depths were identified in the RI/FS Work Plan based on limited information regarding the thickness of the gravel fill layer. When the actual thickness of the gravel fill layer deviated from the expected depth, the surface soil sample depth was revised accordingly.

The terms “intermediate” and “deep” soil are used to refer to the upper and lower subsurface samples, respectively, collected on the Facility. Most of the upper subsurface soils were collected between 4 and 6 ft bgs, consistent with the RI/FS Work Plan (Bridgewater et al. 2008b); although at some locations, samples were collected just above or below this interval based on field indicators (see Appendix D). Similarly, most of the lower subsurface samples were collected between 8 and 10 ft bgs, consistent with the RI/FS Work Plan.

The depth to groundwater at the time the soil samples were collected was not considered because the depth varies seasonally. Specifically, a review of

historical depth to groundwater data for the Study Area (see Section 2.3.1.3) indicated that uppermost groundwater ranged in depth from less than 1 ft bgs to approximately 6 ft bgs, depending on location and time of year. Thus, the surface and upper subsurface (e.g., "intermediate") sampling depths across the site may be within the vadose zone during portions of the year, while the lower subsurface (e.g., "deep") sampling depths would be expected to be below the water table year-round. Upland boring logs indicate where saturated conditions were encountered during field sampling (Appendix D).

2.2.1 Phase 1

Figure 2-1 shows the 43 locations where soil samples were collected on the Facility during the Phase 1 field sampling activities. Location information (Oregon State Plane coordinates) as well as latitude and longitude for all soil sampling locations are tabulated in Appendix E. Soil samples were collected at 17 locations (i.e., SB-01 to SB-09, SP-01 to SP-03, SL-01 to SL-04, and SL-11) using a hand auger, and at 25 locations (i.e., SL-05 to SL-10, SL-12 to SL-28, SL-30, and SL-31) using direct-push drilling equipment. Because of angle-boring limitations of the direct-push drilling equipment, soil samples were collected from a single angle-boring beneath Tank 23 (sample location SL-29) using a Rotosonic drill rig at a 45-degree angle.

Soil samples were collected from locations consistent with the QAPP (Bridgewater et al. 2008a), with the following exceptions:

- Direct-push drilling attempts at SL-11 indicated that the area was located over reinforced concrete covered by asphalt. Because of refusal, the location was moved approximately 12 ft northeast, and the soil sample was collected with a hand auger instead of the direct-push equipment due to the presence of a subsurface natural gas line. EPA approved the revised location.
- SL-26 was originally located inside the tank farm and used oil processing area inside the unloading and loading rack concrete containment. It was relocated approximately 24 ft southwest just outside the unloading and loading rack to avoid compromising the concrete containment. EPA approved the revised location.

Hand-auger soil samples were collected from the depths designated in the QAPP, with one exception. At SL-11, the hand-auger soil sample was collected at 0.5 to 1.5 ft bgs. This depth interval was sampled instead of the designated sampling interval of 0.0 to 1.0 ft bgs because of differences in the surface conditions at the new location. None of the deviations discussed affected the sampling objectives.

Soil samples from direct-push borings were usually collected at the intervals designated in the QAPP; however, some soil sample depths were altered slightly from those specified in the QAPP based on the actual fill thickness encountered in the field and based on field screening results. As detailed on the boring logs (Appendix D), sampling intervals ranged from 0.0 to 5.0 ft bgs for SL-11 to SL-19, from 0.5 to 10.0 ft bgs for SL-01 to SL-10, and from 0.0 to 10.25 ft bgs for SL-20 to SL-31. None of the deviations discussed affected the sampling objectives.

In order to provide sufficient soil volume for QA/QC samples, it was necessary to collect samples from several closely spaced borings. One hand-auger boring provided sufficient soil volume to fill the laboratory-supplied sample containers for a standard sample; two hand-auger borings were necessary at soil-sampling locations where additional QA/QC samples (i.e., splits or replicates) were collected in accordance with QAPP. The stainless steel hand auger had a 1-ft-long, 3-in.-diameter barrel with open sides. At the direct-push locations, three direct-push borings were necessary to collect a standard sample at the selected interval; five to six direct-push borings were necessary at soil sampling locations where additional QA/QC samples were collected in accordance with the QAPP.

The additional hand-auger borings completed at QA/QC locations were installed within 1 ft of the original hand-auger location. The direct-push borings were, on average, installed in a 1-to-1.5-square-foot (ft^2) area for the three-boring clusters and in a 2-to-3-ft^2area for the five- or six-boring clusters. The replicate soil sample was collected approximately 3 ft from the original soil sampling location, with the three replicate borings located within a 1 to 1.5-ft^2 area of the original replicate boring.

Additional soil samples were collected during the installation of monitoring wells MW-2s, MW-2i, and MW4s based on field screening results (see Appendix D).

Observations of soil sample characteristics and field-screening results were recorded on the soil sample collection forms, which are provided in Appendix C.

2.2.2 Phase 2

Figure 2-1 shows the locations where soil samples were collected on the Facility during the Phase 2 field sampling activities. Soil samples were collected at fifteen locations (i.e., SL-32 to SL-46) using direct-push drilling equipment. Location information (Oregon State Plane coordinates) as well as latitude and longitude for all soil sampling locations are presented in Appendix E. Soil samples were collected from locations consistent with the QAPP (Bridgewater et al. 2008a).

Soil samples from direct-push borings were usually collected at the intervals designated in the Response to EPA Comments on the Preliminary Site Characterization Report, which was provided to the Voluntary Group on September 18, 2008 (Windward et al. 2008b). An additional soil sample was collected at SL-37 (2.0 to 4.0 ft bgs), based on field screening results from this interval. As detailed on the boring logs (Appendix D), soil sampling intervals ranged from 1.0 to 2.0 ft bgs for SL-32, SL-33, SL-45 and SL-46; from 1.0 to 10.0 ft bgs for SL-34 to SL-37, SL-41, SL-42 and SL-43; from 4.0 to 6.0 ft bgs for SL-38, SL-39 and SL-40; and from 16.0 to 22.0 ft bgs for SL-44.

In order to provide sufficient soil volume for QA/QC samples, it was necessary to collect samples from several closely spaced borings. At the direct-push locations, three direct-push borings were necessary to collect a standard sample at the selected interval; five to six direct-push borings were necessary at soil sampling locations where additional QA/QC samples were

collected in accordance with the QAPP. At SL-44, two additional cores were required due to limited recovery percentages.

The direct-push borings were, on average, installed in a 1-to 1.5-ft^2 area for the three-boring clusters and in a 2- to3-ft^2area for the five- or six-boring clusters. The replicate soil sample was collected approximately 3 ft from the original soil sampling location, with the three replicate borings located within a 1- to 1.5-ft^2 area of the original replicate boring.

Observations of soil sample characteristics and field-screening results were recorded on the soil sample collection forms and boring logs, which are provided in Appendix D.

2.3 Facility Groundwater Investigations

Phase 1 field sampling activities were conducted from April 17 to May 2, 2008, and included the development/rehabilitation of monitoring wells, the collection of groundwater samples, the completion of aquifer slug tests, and the collection of water-level measurements. Phase 2 field sampling activities were conducted from March 30 to April 3, 2009, and included the collection of groundwater samples.

2.3.1 Phase 1

Phase 1 Facility groundwater field sampling activities were initiated on April 17, 2008. The field sampling activities consisted of the following:

- Development of eight existing monitoring wells, including rehabilitation of four of the eight existing monitoring well monuments and concrete pads
- Installation and development of eight new monitoring wells
- Collection of groundwater samples from the 16 existing and new monitoring wells and the plant well
- Completion of aquifer slug tests at nine of the existing and new monitoring wells
- Collection of water level measurements from the 16 existing and new monitoring wells, and from three existing precautionary extraction wells (e.g., EW-1) that were installed by EMRI, for potential future use as product recovery wells. Wells that pre-date the RI are shown on Figure 1-9; the full well network (i.e., existing and new wells) is shown on Figure 2-2).

2.3.1.1 Facility Monitoring Well Installation

Eight new monitoring wells (i.e., MW-1s, MW-2s, MW-2i, MW-3s, MW-4s, MW-4i, MW-5s and MW-5i) were installed on the Facility from May 2 to May 6, 2008 (Figure 2-2). Five new shallow wells (i.e., MW-1s, MW-2s, MW-3s, MW-4s, and MW-5s) were installed at depths ranging from 12.5 to 15 ft bgs. Three new intermediate wells (i.e., MW-2i, MW-4i, and MW-5i) were installed at depths ranging from 48 to 49.5 bgs.

Each well consisted of 2-in.-diameter polyvinyl chloride (PVC) schedule 40 casing with a 10-ft-long screen (slot size 10 or 0.01-in. openings), which was flush-mounted and installed with a Rotosonic SRO 71 drill rig using 6.25-in.-diameter casing. The 10-ft-long screen was installed at the bottom of each boring. The filter pack, consisting of 10/20 silica sand, was placed in the annular space around the screen from the bottom of the well to approximately 0.5 ft above the screen in shallow monitoring wells and approximately 2 ft above the screen in intermediate monitoring wells. The remaining annular space was filled to approximately 1 to 1.5 ft bgs with 3/8-in. hydrated bentonite chips. The final 1 to 1.5 ft of annular space was filled with a grout mixture consisting of Portland cement, sand, and bentonite (1 ft of grout at wells with smaller concrete pads with limited or no truck traffic and 1.5 ft of grout at wells with truck-proof concrete pads). Flush-mounted outer casings were set in the concrete pads installed at each well. New water-tight lockable well caps were installed on each well, with new Sherwood monuments bolted to the outer flush-mounted casing ring. Well identifications were stamped into the metal ring at each well. The wells were located, designed, constructed, and installed in accordance with the QAPP (Bridgewater et al. 2008a). The location coordinates for the new and existing groundwater monitoring wells, the Facility plant well (PW-01), and the extraction wells are provided in Appendix E. Table 2-1 summarizes well construction information for the new and existing monitoring wells and for the plant well. Well construction diagrams for Facility wells are included in Appendix F.

Table 2-1. Well Construction Details for On-Facility Wells

Well ID	Year Installed	Casing Material	Nominal Casing Dia. (in.)	Casing Elevation (ft AMSL)	Ground Surface Elevation (ft AMSL)	Total Depth (ft bgs)	Screen Interval (ft bgs)	Filter Pack Interval (ft bgs)	Seal Interval (ft bgs)
New RI Monitoring Wells[a]									
MW-1s	2008	PVC	2	13.07	13.5	13.5	3.5 – 13.5	3.0 – 13.5	0.0 – 3.0
MW-2s	2008	PVC	2	12.42	12.7	15.5	5.5 – 15.5	5.0 – 15.5	0.0 – 5.0
MW-2i	2008	PVC	2	12.38	12.7	48	38.0 – 48.0	35.0 – 48.0	0.0 – 35.0
MW-3s	2008	PVC	2	14.6	14.9	12.5	2.5 – 12.5	2.0 – 12.5	0.0 – 2.0
MW-4s	2008	PVC	2	12.79	13.1	13	3.0 – 13.0	2.5 – 13.0	0.0 – 2.5
MW-4i	2008	PVC	2	12.85	13.1	49.5	39.5 – 49.5	37.5 – 49.5	0.0 – 37.5
MW-5s	2008	PVC	2	12.01	12.3	13.5	3.5 – 13.5	3.0 – 13.5	0.0 – 3.0
MW-5i	2008	PVC	2	11.98	12.3	50	40.0 – 50.0	38.0 – 50.0	0.0 – 38.0
Existing Monitoring Wells[b]									
A-18	1989?	PVC	2	13.48	13.7	10.5	5.5 – 10.5	4.5 – 10.5	0.0 – 4.5
A-19	1989?	PVC	2	13.34	13.6	20.5	10.5 – 20.5	9.5 – 20.5	0.0 – 9.5
A-20	1989?	PVC	2	13.14	13.4	20.5	10.5 – 20.5	9.5 – 20.5	0.0 – 9.5
B-4	1989?	PVC	2	12.74	13	94.5	84.5 – 94.5	unknown	unknown
GA-29	1990	PVC	2	13.14	13.4	15.5	5.5 – 15.5	4.5 – 15.5	0.0 – 4.5
GA-30	1990	PVC	2	13.43	13.6	14	4.0 – 14.0	3.0 – 14.0	0.0 – 3.0
GA-33	1990	PVC	2	12.29	12.5	15	5.0 – 15.0	4.0 – 15.0	0.0 – 4.0
GA-34	1990	PVC	2	14.1	14.3	14.5	4.5 – 14.5	3.5 – 14.5	0.0 – 3.5
EW-1	2003	PVC	4	13.32	13.6	8.25	1.6 – 8.25	1.6 – 8.25	0.0-1.6
EW-2	2003	PVC	4	13.49	13.8	6.4	2.3 – 6.4	2.3 – 6.4	0.0 – 2.3
EW-3	2003	PVC	4	17.14	14.2	5.2	2.0 – 5.2	2.0 – 5.2	0.0 – 2.0
Plant Wells[c]									
PW-01	1977	steel	4	13.79	13.8	97	na	na	0 – 30

[a] New RI monitoring wells MW-1s, MW-2s/2i, MW-3s, MW-4s/4i and MW-5s/5i installed by GeoDesign.

[b] Existing monitoring wells A-18, A-19, A-20 and B-4 were presumably installed by Black and Veatch during a 1989 study based on available information; however, this work was never reported and documentation is not sufficient to verify. Monitoring wells GA-29, GA-30, GA-33 and GA-34 installed by Golder Associates. Extraction wells EW-1, EW-2 and EW-3 installed by CEC.

[c] Plant well PW-1 installed by Chempro.

AMSL – above mean sea level
bgs – below ground surface
CEC – Coles Environmental Consulting
Chempro – Chempro of Oregon
ID – identification
na – not available
PVC – polyvinyl chloride
RI – remedial investigation

2.3.1.2 Water Level and Free Product Measurements

In accordance with the QAPP (Bridgewater et al. 2008a), water level measurements were initially collected from the new and existing monitoring wells and from Force Lake between May 12 and May 15, 2008, during Phase 1 groundwater sampling. A complete round of water level measurements was collected from the 16 existing and new monitoring wells, the three extraction wells, and Force Lake on June 9, 2008. After that, monthly water levels and free product measurements were collected between June 2008 and April 2009. Because the sanitary seal limited access to the plant well, water level measurements were not taken at this well.

Water level measurements in the extraction wells were not included in the QAPP because even though the extraction wells were screened in the shallow groundwater zone, EMRI did not provide well construction information for these wells. Water levels were measured in the extraction wells to further characterize shallow groundwater zone elevations near the new base oil plant.

Water level and product thickness measurements were made in each well in accordance with the QAPP. A summary of water level and product thickness measurements is presented in Table 2-2. The shaded cells in Table 2-2 identify the dates on which groundwater elevations were below the top of the screen.

Floating free product (i.e., LNAPL) was present in monitoring well GA-30. Product thickness was measured during each water level monitoring event.

When the water level was consistently above the top of the well screen, it was not possible to definitively identify the presence or magnitude of LNAPL on the water column at that location because LNAPL, which floats on the groundwater surface, would have consistently been above the screen interval of the well. The evaluation of the presence of LNAPL presented below takes this circumstance into consideration, and for ease of reference, Table 2-2 includes shading where measured water levels were below the top of the well screen.

As is indicated in Table 2-2, groundwater elevations in MW-1s have consistently been below the well screen and no free product has been observed. As groundwater elevations declined during the summer and fall of 2008, water levels in five of the shallow monitoring wells and the three precautionary extraction wells (MW-1s, MW-2s, MW-3s, GA-29, GA-30, EW-1, EW-2, and EW-3) were below the tops of their screens.

Table 2-2. Summary of Groundwater Elevation and Free-Product Thickness Measurements

Date	Measuring Point Elevation (ft AMSL)[a]	Screened Interval Elevation (ft AMSL)[a]	Depth to Water (ft)	Groundwater Elevation (ft AMSL)[b]	Free Product Thickness (ft)
MW-1s					
05/15/08	13.07	0.5 to 10.5	3.80	9.27	na
06/09/08			3.76	9.31	na
07/09/08			4.86	8.21	na
08/11/08			5.93	7.14	na
09/10/08			6.42	6.65	na
10/10/08			5.58	7.49	na
11/10/08			4.93	8.14	na
12/08/08			4.37	8.70	na
01/12/09			3.78	9.29	na
02/14/09			3.94	9.13	na
03/11/09			3.89	9.18	na
04/27/09			3.77	9.30	na
MW-2s					
05/14/08	12.42	-0.3 to 9.7	2.83	9.59	na
06/09/08			2.25	10.17	na
07/09/08			2.68	9.74	na
08/11/08			3.75	8.67	na
09/10/08			4.09	8.33	na
10/10/08			3.35	9.07	na
11/10/08			2.00	10.42	na
12/08/08			2.13	10.29	na
01/12/09			1.96	10.46	na
02/14/09			2.89	9.53	na
03/11/09			2.32	10.10	na
04/27/09			2.81	9.61	na
MW-2i					
05/14/08	12.38	-35.3 to -25.3	2.24	10.14	na
06/09/08			0.99	11.39	na
07/09/08			1.20	11.18	na
08/11/08			2.68	9.70	na
09/10/08			3.32	9.06	na
10/10/08			3.98	8.40	na
11/10/08			3.76	8.62	na
12/08/08			3.46	8.92	na
01/12/09			2.65	9.73	na
02/14/09			2.24	10.14	na
03/11/09			2.73	9.65	na
04/27/09			2.14	10.24	na
MW-3s					
05/14/08	14.60	2.4 to 12.4	1.48	13.12	na
06/09/08			1.01	13.59	na
07/09/08			1.60	13.00	na
08/11/08			2.08	12.52	na
09/10/08			2.32	12.28	na

Table 2-2. Summary of Groundwater Elevation and Free-Product Thickness Measurements (cont.)

Date	Measuring Point Elevation (ft AMSL)[a]	Screened Interval Elevation (ft AMSL)[a]	Depth to Water (ft)	Groundwater Elevation (ft AMSL)[b]	Free Product Thickness (ft)
10/10/08			2.26	12.34	na
11/10/08			1.61	12.99	na
12/08/08			1.66	12.94	na
01/12/09			0.92	13.68	na
02/14/09			1.30	13.30	na
03/11/09			1.21	13.39	na
04/27/09			1.40	13.20	na
MW-4s					
05/15/08			0.97	11.82	na
06/09/08			0.78	12.01	na
07/09/08			1.03	11.76	na
08/11/08			1.67	11.12	na
09/10/08			1.67	11.12	na
10/10/08	12.79	0.6 to 10.6	1.41	11.38	na
11/10/08			0.82	11.97	na
12/08/08			1.00	11.79	na
01/12/09			0.59	12.20	na
02/14/09			0.87	11.92	na
03/11/09			0.88	11.91	na
04/27/09			0.93	11.86	na
MW-4i					
05/15/08			2.48	10.37	na
06/09/08			1.20	11.65	na
07/09/08			1.49	11.36	na
08/11/08			3.02	9.83	na
09/10/08			3.67	9.18	na
10/10/08	12.85	-35.9 to -25.9	4.34	8.51	na
11/10/08			4.15	8.70	na
12/08/08			3.86	8.99	na
01/12/09			2.88	9.97	na
02/14/09			2.63	10.22	na
03/11/09			3.10	9.75	na
04/27/09			2.44	10.41	na
MW-5s					
05/15/08			0.60	11.41	na
06/09/08			0.44	11.57	na
07/09/08			0.78	11.23	na
08/11/08			1.31	10.70	na
09/10/08			1.39	10.62	na
10/10/08	12.01	-0.7 to 9.3	1.05	10.96	na
11/10/08			0.55	11.46	na
12/08/08			0.71	11.30	na
01/12/09			0.26	11.75	na
02/14/09			0.45	11.56	na
03/11/09			0.41	11.60	na

Table 2-2. Summary of Groundwater Elevation and Free-Product Thickness Measurements (cont.)

Date	Measuring Point Elevation (ft AMSL)[a]	Screened Interval Elevation (ft AMSL)[a]	Depth to Water (ft)	Groundwater Elevation (ft AMSL)[b]	Free Product Thickness (ft)
04/27/09			0.47	11.54	na
MW-5i					
05/15/08	11.98	-37.2 to -27.2	1.36	10.62	na
06/09/08			0.33	11.65	na
07/09/08			0.51	11.47	na
08/11/08			1.98	10.00	na
09/10/08			2.57	9.41	na
10/10/08			3.23	8.75	na
11/10/08			3.03	8.95	na
12/08/08			2.75	9.23	na
01/12/09			1.90	10.08	na
02/14/09			1.52	10.46	na
03/11/09			1.98	10.00	na
04/27/09			1.43	10.55	na
A-18					
05/16/08	13.48	3.7 to 8.7	1.73	11.75	na
06/09/08			1.51	11.97	na
07/09/08			1.94	11.54	na
08/11/08			2.68	10.80	na
09/10/08			2.67	10.81	na
10/10/08			2.52	10.96	na
11/10/08			1.70	11.78	na
12/08/08			1.85	11.63	na
01/12/09			1.14	12.34	na
02/14/09			1.63	11.85	na
03/11/09			1.54	11.94	na
04/27/09			1.69	11.79	na
A-19					
05/13/08	13.34	-6.4 to 3.6	3.05	10.29	na
06/09/08			2.80	10.54	na
07/09/08			3.44	9.90	na
08/11/08			4.57	8.77	na
09/10/08			4.78	8.56	na
10/10/08			3.87	9.47	na
11/10/08			3.25	10.09	na
12/08/08			3.08	10.26	na
01/12/09			2.50	10.84	na
02/14/09			2.88	10.46	na
03/11/09			2.85	10.49	na
04/27/09			2.89	10.45	na

Table 2-2. Summary of Groundwater Elevation and Free-Product Thickness Measurements (cont.)

Date	Measuring Point Elevation (ft AMSL)[a]	Screened Interval Elevation (ft AMSL)[a]	Depth to Water (ft)	Groundwater Elevation (ft AMSL)[b]	Free Product Thickness (ft)
A-20					
05/13/08	13.14	-6.6 to 3.4	0.98	12.16	na
06/09/08			0.91	12.23	na
07/09/08			1.57	11.57	na
08/11/08			2.27	10.87	na
09/10/08			2.53	10.61	na
10/10/08			2.00	11.14	na
11/10/08			1.36	11.78	na
12/08/08			1.43	11.71	na
01/12/09			0.57	12.57	na
02/14/09			1.09	12.05	na
03/11/09			0.72	12.42	na
04/27/09			1.01	12.13	na
B-4					
05/13/08	12.74	-81.1 to -71.1	2.59	10.15	na
06/09/08			0.92	11.82	na
07/09/08			1.15	11.59	na
08/11/08			2.90	9.84	na
09/10/08			3.73	9.01	na
10/10/08			4.50	8.24	na
11/10/08			4.43	8.31	na
12/08/08			4.23	8.51	na
01/12/09			3.14	9.60	na
02/14/09			2.90	9.84	na
03/11/09			3.41	9.33	na
04/27/09			2.62	10.12	na
GA-29					
05/13/08	13.14	-1.6 to 8.4	3.56	9.58	na
06/09/08			3.36	9.78	na
07/09/08			4.41	8.73	na
08/11/08			5.65	7.49	na
09/10/08			6.14	7.00	na
10/10/08			5.48	7.66	na
11/10/08			4.50	8.64	na
12/08/08			4.01	9.13	na
01/12/09			2.96	10.18	na
02/14/09			3.47	9.67	na
03/11/09			3.40	9.74	na
04/27/09			3.41	9.73	na

Table 2-2. Summary of Groundwater Elevation and Free-Product Thickness Measurements (cont.)

Date	Measuring Point Elevation (ft AMSL)[a]	Screened Interval Elevation (ft AMSL)[a]	Depth to Water (ft)	Groundwater Elevation (ft AMSL)[b]	Free Product Thickness (ft)
GA-30					
05/16/08	13.43	-0.4 to 9.6	2.68	10.84[c]	0.10
06/09/08			2.39	11.06[c]	0.02
07/09/08			3.19	10.26[c]	0.02
08/11/08			4.12	9.32[c]	0.01
09/10/08			4.32	9.13[c]	0.02
10/10/08			3.87	9.58[c]	0.02
11/10/08			3.03	10.41[c]	0.01
12/08/08			2.93	10.52[c]	0.02
01/12/09			2.11	11.32[c]	trace
02/14/09			2.54	10.91[c]	0.02
03/11/09			2.45	10.99[c]	0.01
04/27/09			2.49	10.94[c]	trace
GA-33					
05/12/08	12.29	-2.5 to 7.5	1.72	10.57	na
06/09/08			1.69	10.60	na
07/09/08			2.31	9.98	na
08/11/08			2.96	9.33	na
09/10/08			3.09	9.20	na
10/10/08			2.43	9.86	na
11/10/08			1.76	10.53	na
12/08/08			1.80	10.49	na
01/12/09			1.39	10.90	na
02/14/09			1.64	10.65	na
03/11/09			1.55	10.74	na
04/27/09			1.72	10.57	na
GA-34					
05/12/08	14.10	0.3 to 10.3	0.95	13.15	na
06/09/08			0.81	13.29	na
07/09/08			1.28	12.82	na
08/11/08			1.82	12.28	na
09/10/08			1.97	12.13	na
10/10/08			1.79	12.31	na
11/10/08			1.32	12.78	na
12/08/08			1.56	12.54	na
01/12/09			0.50	13.60	na
02/14/09			0.86	13.24	na
03/11/09			0.83	13.27	na
04/27/09			0.96	13.14	na

Table 2-2. Summary of Groundwater Elevation and Free-Product Thickness Measurements (cont.)

Date	Measuring Point Elevation (ft AMSL)[a]	Screened Interval Elevation (ft AMSL)[a]	Depth to Water (ft)	Groundwater Elevation (ft AMSL)[b]	Free Product Thickness (ft)
EW-1					
06/09/08	13.32	5.2 to 11.9	0.63	12.69	na
07/09/08			1.00	12.32	na
08/11/08			1.71	11.63[c]	0.02
09/10/08			1.74	11.59[c]	0.01
10/10/08			0.93	12.40[c]	0.01
11/10/08			0.51	12.81[c]	trace
12/08/08			0.76	12.56[c]	trace
01/12/09			0.25	13.07[c]	trace
02/14/09			0.70	12.62[c]	trace
03/11/09			0.70	12.62[c]	trace
04/27/09			0.82	12.50[c]	trace
EW-2					
06/09/08	13.49	7.4 to 11.5	1.67	11.82	na
07/09/08			na[d]	na[d]	na
08/11/08			2.53	10.96	na
09/10/08			2.45	11.04	na
10/10/08			2.34	11.15	na
11/10/08			1.63	11.86	na
12/08/08			1.78	11.71	na
01/12/09			1.44	12.05	na
02/14/09			1.67	11.82	na
03/11/09			1.66	11.83	na
04/27/09			1.77	11.72	na
EW-3					
06/09/08	17.14	9.0 to 12.0	4.87	12.27	na
07/09/08			5.41	11.73	na
08/11/08			6.04	11.11[c]	0.01
09/10/08			6.02	11.13[c]	0.01
10/10/08			5.91	11.23	na
11/10/08			4.83	12.32[c]	0.01
12/08/08			5.08	12.06[c]	trace
01/12/09			4.34	12.80[c]	trace
02/14/09			4.93	12.21[c]	trace
03/11/09			4.77	12.37[c]	trace
04/27/09			5.13	12.01[c]	trace
PW-01					
Date unknown	13.79	na[d]	na[d]	na[d]	na[d]

Table 2-2. Summary of Groundwater Elevation and Free-Product Thickness Measurements (cont.)

Date	Measuring Point Elevation (ft AMSL)[a]	Screened Interval Elevation (ft AMSL)[a]	Depth to Water (ft)	Groundwater Elevation (ft AMSL)[b]	Free Product Thickness (ft)
Force Lake					
05/13/08	12.15	na	2.81	9.34	na
05/14/08			2.90	9.25	na
06/09/08			2.87	9.28	na
07/09/08			3.33	8.82	na
08/11/08			3.89	8.26	na
09/10/08			4.12	8.03	na
10/10/08			4.18	7.97	na
11/10/08			3.88	8.27	na
12/08/08			3.49	8.66	na
01/12/09			3.08	9.07	na
02/14/09			3.11	9.04	na
03/11/09			3.10	9.05	na
04/27/09			2.90	9.25	na

Note: Shaded cells indentify the dates on which groundwater elevations were below the top of the screen.

[a] All measuring point elevations were professionally surveyed on May 9, 2008, by Thurston and Associates, Inc. Reported elevations are AMSL, City of Portland Elevation Datum.

[b] Groundwater elevations calculated using measuring point elevations and depth-to-water measurements.

[c] Free product (LNAPL) was measured. A specific gravity of 0.85 was assumed for calculating the corrected groundwater elevation.

[d] Depth-to-water measurement was not obtained because of access limitations.

AMSL – above mean sea level
ID – identification
LNAPL – light non-aqueous phase liquid
na – not applicable

Consistent with historical observations, free product has been observed in well GA-30. As noted on the April 18, 2008, well development log, the free product observed in well GA-30 was described as being a "viscous oil – black and thick." Note that prior to collecting the LNAPL sample from GA-30, there was a 0.10-ft-thick layer of product observed in the well. Six months after removing LNAPL from the well during Phase 1 sampling, the product thickness was observed to be 0.01 to 0.02 ft. In addition, no LNAPL was observed in downgradient shallow monitoring wells GA-29 or MW-1s (which had water levels below the top of screen). Furthermore, a review of the field screening results as reported on the soil boring logs and the field sampling descriptions for these wells and for surrounding borings did not identify the presence of oil product in soils.

The observed "thick and viscous" nature of the LNAPL as observed at well GA-30, the inability to gain entry into surrounding wells or re-entry into well GA-30, and the absence of LNAPL in surrounding borings would suggest that LNAPL is of limited extent and mobility potential. These findings are indicative of a limited source zone.

Monitoring results indicate that only minor amounts of LNAPL are present and that the LNAPL is localized in extent and is constrained on the Facility; no LNAPL has been observed in shallow monitoring wells MW-1s and MW-2s located along the downgradient boundary of the Facility or in shallow monitoring wells GA-29, located in the southwest corner of the Facility.

2.3.1.3 Facility Groundwater Sampling

During Phase 1, a total of 17 wells (16 monitoring wells and the plant well) were sampled from May 12 to May 16, 2008. The 16 monitoring wells consisted of 8 existing monitoring wells (i.e., A-18, A-19, A-20, GA-29, GA-30, GA-33, GA-34, and B-4) and 8 new monitoring wells (i.e., MW-1, MW-2s, MW-2i, MW-3s, MW-4s, MW-4i, MW-5s, and MW-5i). The only deviation from the QAPP during groundwater sampling was during the collection of a groundwater sample from PW-01. At this well, there was limited access because the submersible pump column and sanitary seal had been bolted to the top of casing. This well was purged prior to sampling by operating the down-hole pump for 15 minutes at approximately 45 gallons per minute (gpm) until approximately 675 gallons, or approximately three casing volumes, had been removed from the well. The well was then sampled using a peristaltic pump and 0.25-in.-diameter disposable Teflon® tubing placed approximately 15 ft bgs into the casing.

The remaining 16 wells were purged and sampled using low-flow techniques and a GeoTech peristaltic pump with 0.25-in.-diameter, disposable Teflon® tubing placed near or slightly above the center of each well screen until drawdown levels and water quality parameters had stabilized, in accordance with the QAPP (Bridgewater et al. 2008a). Water quality measurements were recorded using a calibrated YSI 556 MPS multi-parameter meter and a Hach turbidimeter.

Each well was purged at varying rates between 151 milliliters per minute (ml/min) and 442 ml/min. The selected rate was based on each well's

ability to stabilize without excessive (greater than approximately 0.33 ft) drawdown. Several wells, including A-19, B-4, GA-29, MW-2s, MW-4s, MW-5s, and MW-5i, had stable water quality parameter measurements, although drawdown exceeded the 0.33-ft target value. In these instances, the peristaltic pump was operating at the lowest possible setting.

The only well that did not stabilize, based on turbidity readings, was A-20. The first purging attempt revealed that there was relatively high turbidity and intermittent gas bubbling, consistent with what one would observe when opening a well that is under positive pressure. The gas did not have any odor. The second purging attempt (one day after the first) revealed similarly high turbidity and gas bubbling. Therefore, the groundwater sample was collected from this well without stabilized parameters. Gas did not appear to be entrained in the groundwater sample.

Table 2-3 provides a summary of stabilized water quality measurement data obtained during groundwater sampling.

2.3.1.4 Facility Well Development and Well Monument Rehabilitation

Seven of the eight existing monitoring wells and eight new monitoring wells were developed at the Facility (Figure 2-2) in accordance with the procedures described in the QAPP (Bridgewater et al. 2008a). As noted above, at the plant well (i.e., PW-01), the pump prevented sufficient access for the development equipment. GA-30 was not redeveloped because of the presence of LNAPL. The remaining 15 monitoring wells displayed adequate recovery after well development and appeared suitable for water-level measurements and groundwater sampling (although a sample was collected from A-20 without stabilized parameters as discussed in Section 2.3.1.4).

Four existing well monuments (i.e., A-19, GA-29, GA-30, and GA-34) were rehabilitated. The wells had various degrees of damage to the concrete pad and flush-mounted cover; however, none of these wells appeared to have damaged well casings or well seals. Each expandable well cap appeared water-tight (when initially removed for well development). Boart Longyear, under GeoDesign's supervision, removed the old concrete pads, flush-mounted outer casings, and monuments at all of the wells. A new Sherwood aluminum monument and a flush-mounted outer casing were installed at each well and secured with a new truck-proof concrete pad at monitoring wells A-19, GA-29, and GA-30 and with a regular pad at monitoring well GA-34 (which is located in an area that has no truck access). As added protection from stormwater runoff, 2-in.-diameter PVC risers were added to the existing PVC casings in each of the four wells.

Table 2-3. Stabilized Water Quality Measurement Data for Groundwater Samples Collected During Phase 1

Well ID	Date/Time	Temperature (°C)	DO (mg/L)	pH	Oxidation-Reduction Potential (mV)	Conductivity (µS/cm)	Turbidity (NTU)
GW-MW1s	05.15.08/1115	11.6	0.07	6.69	-54.2	479	1.6
GW300[a]	15.15.08/1130	na	na	na	na	na	na
GW-MW2s	05.14.08/1530	13.6	0.47	6.61	-46.7	1823	6.9
GW-MW2i[b]	05.14.08/1015	13.8	0.15	6.91	-135.4	979	3.2
GW-MW3s[b]	05.14.08/0815	12.5	0.21	6.57	-139.1	1,386	1.4
GW-MW4s	05.15.08/1430	16.1	0.15	6.91	-136.5	957	2.9
GW-MW4i	05.15.08/1600	15.7	0.14	7.42	-130.1	828	2.2
GW-MW5s[b]	05.15.08/0830	14.8	0.23	6.58	-82.1	1,012	2.5
GW-MW5i	05.15.08/0745	15.0	0.15	6.74	-134.4	890	1.9
GW-A18	05.15.08/0930	15.1	0.15	6.71	-130.9	893	3.0
GW-A19	05.13.08/1315	12.3	0.31	6.43	-98.6	1,858	5.8
GW-A20[c]	05.13.08/0815	12.7	0.20	6.42	-76.1	649	265
GW-B4	05.13.08/1500	13.2	0.33	6.88	-128.7	1,439	4.1
GW-GA29	05.13.08/1030	10.8	0.23	6.31	-36.7	757	1.1
GW-GA30[d]	05.16.08/1100[d]	na	na	na	na	na	na
GW-GA33	05.12.08/1445	12.0	0.22	6.53	-98.7	883	0.8
GW-GA34	05.12.08/1215	13.5	0.26	6.63	-91.5	632	1.4
GW-PW01[b]	05.14.08/1330	14.6	2.03[e]	7.53	16.7	354	1.8

[a] Replicate groundwater sample at MW-1s.

[b] EPA split samples were collected at these locations.

[c] Groundwater sample collected despite turbidity readings above 10 NTUs, as discussed in Section 2.3.1.4.

[d] Groundwater sample was not collected because of the presence of free product in GA-30. A sample of the free product (LNAPL-GA30) was collected.

[e] May not reflect actual aquifer condition because of the purging method, as discussed in Section 2.3.1.4.

C – Celsius
DO– dissolved oxygen
EPA – US Environmental Protection Agency
ID – identification
LNAPL – light non-aqueous phase liquid
na – not available
NTU – nephelometric turbidity unit

2.3.1.5 Aquifer Slug Testing

Aquifer slug tests were conducted on nine monitoring wells (MW-1s, MW-2s, MW-3s, MW-4s, MW-4i, MW-5i, GA-29, GA-34, and B-4) on May 22 and 23, 2008. The aquifer slug tests were conducted in accordance with the QAPP (Bridgewater et al. 2008a), except that each well was tested using only slug removal instead of slug injection and removal. This deviation was necessary because of the following field conditions:

- The water level in each intermediate and shallow well was approximately 1 to 3 ft bgs. These conditions would have provided approximately 0.16 gallons per foot or a slug of 0.32 gallon per well (averaging 2 ft of casing between the water table and ground surface).
- An injected slug of that size (i.e., 0.33 gallon) would have imposed only a minor, although measurable, amount of stress on the well, resulting in limited data from the slug test.
- Slug injection could have resulted in "over slugging" and the spilling of water over the top of the casing, invalidating the test.
- If the water level in any of the shallow wells was below the screened interval (i.e., greater than 3 ft bgs), the injection of a slug could have caused water to enter the screen above the water table, infiltrating the vadose zone (also invalidating the test).

As was discussed in Section 2.1.6 of the *Preliminary Site Characterization Report for the Harbor Oil Site* (Windward et al. 2008a), hereafter referred to as the Preliminary Site Characterization Report, the only slug test that could be performed on the shallow and intermediate monitoring wells was a “slug-out/rising head” test. Pre-test water levels were between 1 and 3 ft bgs. Table 2-4 lists pre-test water levels and screen elevations for the monitoring wells where slug tests were performed. Given the slug volume, the instantaneous rise in head for a “slug-in/falling head” test would have been approximately 4.3 ft and would have over-spilled the well casing. EPA approved this revision to the slug testing method specified in the QAPP.

Also, the water levels in the two intermediate wells where slug tests were performed (MW-4i and MW-5i) were not within the screened intervals of the intermediate wells; the screens for these intermediate wells were located far below the pre-test groundwater elevations (see Table 2-4). The only shallow or intermediate well where the pre-test water level elevation was within the screen was MW-1s.

Table 2-4. Slug Testing Pre-Test Water Levels

Monitoring Well	Screen Interval Elevation (ft AMSL)	Pre-Test Groundwater Elevation (ft AMSL)	Relationship of Groundwater Elevation to Screen Interval
MW-1s	0.48 to 10.48	9.13	within
MW-2s	-0.34 to 9.66	9.73	above
MW-3s	2.36 to 12.36	13.22	above
MW-4s	0.58 to 10.58	11.93	above
MW-4i	-35.88 to -25.88	11.06	above
MW-5i	-37.23 to -27.23	10.80	above
B-4	-81.05 to -71.05	10.80	above
GA-29	-1.55 to 8.45	9.74	above
GA-34	0.26 to 10.26	13.23	above

AMSL– above mean sea level

EPA approved a revision to the slug testing method specified in the QAPP. The revised procedure for slug testing was as follows:

- Water levels were measured prior to slug test implementation over an approximate 20-minute period until the water level was stable and equilibrated with the atmosphere.
- A 1.91-in.-diameter, 5-ft-long slug with weighted PVC sand-filled casing was lowered into each of the shallow wells (MW-1s, MW-2s, MW-3s, MW-4s, GA-29, and GA-34). At the intermediate and deep wells (MW-4i, MW-5i, and B-4), a 1.91-in.-diameter, 10-ft-long slug with weighted PVC sand-filled casing was lowered into each well.
- The slug remained in the well until the water level stabilized. The slug was then immediately removed from the well (within approximately 5 to 10 seconds), and the water level was measured frequently during the first minutes of the test (every 5 to 10 seconds), then more slowly (every 20 to 30 seconds, then every 1 to 5 minutes) for the remainder of the test until the water rebounded back to within 90 to 95% of the static level.

Given this deviation, slug tests were conducted on six shallow groundwater monitoring wells (MW-1s, MW-2s, MW-3s, MW-4s, GA-29 and GA-34), rather than the three wells identified in the QAPP (GA-29, GS-34 and MW-5s); MW1s, MW-2s, MW-3s and MW-4s were substituted for MW-5s to obtain hydraulic conductivity information over more of the Facility. Consistent with the QAPP, slug tests were conducted on two intermediate monitoring wells; a slug test was performed on MW-4i rather than MW-2i because the recovery at MW-2s was very slow and subsequent pre-test static water level at MW-2i would have been suspect. Also, a slug test was performed on deep monitoring well B-4 to obtain hydraulic conductivity information for the deep zone.

The time required for tested wells to rebound to within 90 to 95% of the static water level ranged from 27 seconds (MW-1s) to 86 minutes (MW-2s). Drawdown in the shallow monitoring wells ranged from 2.78 to 3.54 ft, excluding MW-1s. Recovery was so rapid in MW-1s that the first water level measurement, approximately 12 seconds after the slug was removed, was only 0.15 ft from the original static level. Drawdown in the two intermediate monitoring wells (MW-4i, MW-5i) and on deep monitoring well (B-4) ranged from 3.32 to 7.80 ft. Each well, with the exception of MW-1s, was adequately stressed by the removal of the slug to obtain the necessary data to calculate the hydraulic conductivity. Slug testing data and analyses summaries are presented in Appendix G. The calculated hydraulic conductivities from the May 2008 slug testing activities are described in Section 3.5.2.3.1.

2.3.2 Phase 2

During Phase 2, 14 monitoring wells were sampled from March 30, 2009 to April 3, 2009. The14 monitoring wells consisted of the previously installed monitoring wells (i.e., A-18, A-19, A-20, GA-29, GA-30, GA-33, GA-34, and B-4) and a subset of the new monitoring wells installed during Phase 1 (i.e., MW-1s, MW-2s, MW-2i, MW-3s, MW-4s and MW-5s).

Monitoring wells were purged and sampled using low-flow techniques and a GeoTech peristaltic pump with 0.25-in.-diameter, disposable Teflon® tubing placed near or slightly above the center of each well screen until drawdown levels and water quality parameters had stabilized, in accordance with the QAPP (Bridgewater et al. 2008a). Water quality measurements were recorded using a calibrated YSI 556 MPS multi-parameter meter and a Hach turbidimeter.

Each well was purged at varying rates between 114 ml/min and 284 ml/min. The selected rate was based on each well's ability to stabilize without excessive (greater than approximately 0.33 ft) drawdown. Several wells, including A-18, A-19, A-20, B-4, GA-29, MW-2s and MW-5s had stable water quality parameter measurements, although drawdown exceeded the approximate 0.33-ft target value. In these instances, the peristaltic pump was operating at the lowest possible setting.

Similar to the observations noted during Phase 1 groundwater sampling (Section 2.3.1), the only well that did not stabilize during Phase 2 sampling, based on turbidity readings, was A-20. Purging revealed that there was relatively high turbidity and intermittent gas bubbling, consistent with what one would observe when opening a well that is under positive pressure. The gas did not have any odor. Therefore, the groundwater sample was collected from this well without stabilized parameters. Gas did not appear to be entrained in the groundwater sample.

A subset of the oxidation-reduction potential (ORP) readings collected on April 2, 2009 (from MW-3s, A-18, and GA-29) appeared to vary significantly in comparison to the Phase I readings; several iterations of calibration for ORP were subsequently conducted on the multi-parameter meter. The stabilization criteria for ORP were realized in these wells in

accordance with the QAPP (Bridgewater et al. 2008a); however, the numerical value for ORP in these wells may not reflect actual values.

Table 2-5 provides a summary of stabilized water quality measurement data obtained during Phase 2 groundwater sampling.

Table 2-5. Stabilized Water Quality Measurement Data for Groundwater Samples Collected During Phase 2

Well ID	Date/Time	Temperature (°C)	DO (mg/L)	pH	Oxidation-Reduction Potential (mV)	Conductivity (µS/cm)	Turbidity (NTU)
GW-MW1s	04.01.09/1230	8.3	0.26	6.57	43.9	1,100	1.0
GW301[a]	04.01.09/1300	na	na	na	na	na	na
GW-MW2s	03.31.09/1030	10.3	0.30	6.97	-112.5	1,573	9.0
GW-MW2i	03.31.09/1330	12.7	0.31	7.34	-105.8	875	1.6
GW-MW3s	04.02.09/1200	10.6	0.26	6.29	520.1[c]	795	4.1
GW-MW4s	03.31.09/0815	10.5	0.42	6.87	-121.5	1,253	9.4
GW-MW5s	04.01.09/1000	9.7	0.22	6.91	-110.1	1,093	4.0
GW-A18	04.02.09/1500	10.3	0.30	6.55	715.0[c]	557	0.9
GW-A19	04.01.09/1530	10.6	0.34	6.26	-41.9	1,191	5.2
GW-A20[b]	03.30.09/1245	11.8	0.28	6.70	-70.1	574	116.3
GW-B4	03.31.09/1500	12.1	0.47	7.49	-133.1	1,478	4.3
GW-GA29	04.02.09/0930	9.4	0.42	6.04	398.1[c]	230	1.8
GW-GA30[d]	04.03.09/0830[c]	na	na	na	na	na	na
GW-GA33	03.30.09/1545	10.5	0.22	6.92	-121.8	868	2.6
GW-GA34	03.30.09/1015	10.9	0.42	6.92	-104.8	684	0.6

[a] Replicate groundwater sample at MW-1s.

[b] Groundwater sample collected despite turbidity readings above 10 NTUs, as discussed in Section 2.3.2.

[c] Numerical values of Oxidation-Reduction Potential (ORP) readings collected at this well were considered suspect and may represent field meter error, as discussed in Section 2.3.2. Stabilization criteria were realized in accordance with the QAPP.

[d] Groundwater sample was not collected because of the presence of free product in GA-30. A sample of the free product (LNAPL-GA30) was collected, but not analyzed (previously characterized).

C – Celsius
DO– dissolved oxygen
LNAPL – light non-aqueous phase liquid
na – not available
NTU – nephelometric turbidity unit

2.4 Wetland Soil Investigations

Sediment surface (0 to 6 in. bgs) and subsurface (6 to 12 in. and 24 to 36 in. bgs) samples were collected as part of the Phase 1 and Phase 2 sampling events, as discussed in the following subsections.

It should be noted that although the areas to the west and south of the Facility are referred to as wetlands throughout this document, the extent of the saturated, marshy area did not cover the entire wetland area during field sampling. In some areas, standing water was present at the sampling locations; in other areas, the subsurface soil samples were not saturated. Both sampling events occurred during the spring and similar saturated areas were observed. It is expected that the extent of the saturated area varies seasonally.

2.4.1 Phase 1

During Phase 1, surface and subsurface soil samples were collected from the wetlands adjacent to the Facility on April 23 and 24, 2008. The wetland sampling locations were accessed from either North Force Avenue or from the southwestern corner of the Facility.

2.4.1.1 Wetland Surface Soil

Thirty-eight surface soil samples (0 to 6 in. bgs) were collected from the wetlands area on April 23 and 24, 2008 (Figure 2-1). In accordance with the QAPP (Bridgewater et al. 2008a), surface soil samples were collected from the upper 6 in. with a decontaminated stainless steel spoon and bowl. A stainless steel spoon was not used to collect wetland soil samples at stations WS-17, WS-18, and WS-20 because the stations were inundated with approximately 6 to 12 in. of water. Instead, soil samples were collected with a decontaminated stainless steel hand auger. At each location, overlying vegetation and debris were removed before the sample was collected. Samples were processed in the field at the sampling location. After all sampling containers had been filled, extra material was returned to the sampling location.

Coordinates for the wetland surface soil samples are provided in Appendix E. One soil target station, WS-33, was relocated because the location at the target coordinates was on top of a small soil mound. After consultation with the EPA oversight representative, the sampling location was moved approximately 5 ft to the southeast of the target location to better characterize soils near the ditch located next to North Force Avenue (Figure 2-1); this deviation did not affect the objectives of this sample. Observations of soil sample characteristics were recorded on the surface sediment collection forms provided in Appendix C.

2.4.1.2 Wetland Subsurface Soil

Six subsurface wetland soil samples (WS-19, DS-03, WS-26, DS-02, and DS-05, and WS-06) were collected on April 23 and 24, 2008, using a hand auger (Figure 2-1). Subsurface soil samples (6 to 12 in. and 24 to 36 in. bgs) were collected at wetland locations as indicated in the QAPP

(Bridgewater et al. 2008a), with the exception of DS-03. This location was moved approximately 10 ft northwest because of continued refusal at the target location caused by cobbles and riprap located just below the surface.

The hand auger borings were advanced to the sampling depths described in the QAPP. Two hand-auger borings provided sufficient soil volume for a standard sample; three to four hand-auger borings were necessary when additional QA/QC samples (i.e., splits or replicates) were collected. Standard hand-auger sampling locations were within 1 ft of the original hand-auger location. Replicate subsurface soil samples were collected approximately 3 ft from the original subsurface soil sampling location. Coordinates for the subsurface soil samples are presented in Appendix E.

2.4.2 Phase 2

During Phase 2, surface and subsurface soil samples were collected from the wetlands adjacent to the Facility on April 7 and 8, 2009, as specified in the Response to EPA recommendations for Phase 2 sampling (Bridgewater et al. 2008c). The wetland sampling locations were accessed from either North Force Avenue or from the southwestern corner of the Facility.

2.4.2.1 Wetland Surface Soil

To further characterize the spatial extent of contamination in the wetlands, nine surface soil samples (0 to 6 in. bgs) were collected from the wetlands area on April 7, 2009 (i.e., WS-34 through WS-42; Figure 2-1). Locations WS-34 through WS-37 were collected in the northern portion of the wetlands to further characterize the spatial extent of chemical concentrations in the western and southwestern portions of the wetlands. Locations WS-38 through WS-42 were collected to refine the spatial extent of chemical concentrations in the wetlands in areas specified by EPA.[4]

In accordance with the QAPP (Bridgewater et al. 2008a), surface soil samples were collected from the upper 6 in. with a decontaminated stainless steel spoon and bowl, with one exception. Location WS-38 was inundated with approximately 6 in. of water, and thus it was necessary to use a decontaminated stainless steel hand auger to collect this sample. At each location, overlying vegetation and debris were removed before the sample was collected. Samples were processed in the field at the sampling location. After all sampling containers had been filled, extra material was returned to the sampling location.

[4] Specifically, samples were collected at WS-38 north of Phase 1 location WS-20 and west of WS-21; at WS-39 between Phase 1 locations WS-21 and WS-25 and north of WS-24; at WS-40 between WS-25 and WS-27; at WS-41 between WS-28, WS-30, WS-31 and WS-33; and at WS-42 south of WS-31 and WS-33.

With three exceptions, all samples were collected at the locations specified in the Response to EPA recommendations for Phase 2 sampling (Bridgewater et al. 2008c). The three exceptions were:

- **WS-36:** The targeted coordinates for location WS-36 were located on an elevated area, which was likely elevated as the result of fill used to construct the golf course. To better capture the intent of this location, the sample was collected approximately 15 ft from the target coordinates.
- **WS-37:** The targeted coordinates for location WS-37 were on the edge of the golf course green. This sample was moved approximately 10 ft away from the green to better capture the intent of this sample.
- **WS-42:** The target coordinates for location WS-42 were located directly between two large trees where no soil was available to collect a sample. The relocation of this sample approximately 5 ft from the target coordinates did not alter the intent of this sample.

All other wetland surface samples were collected as specified in the Response to EPA recommendations for Phase 2 sampling (Bridgewater et al. 2008c).

2.4.2.2 Wetland Subsurface Soil

To further characterize the vertical extent of contamination in the wetlands, four subsurface wetland soil samples (6 to 12 in. and 24 to 36 in. bgs) were collected on April 8, 2009 (Figure 2-1), at locations where surface soil samples were collected during the Phase 1 sampling event. Locations WS-20, WS-21, and WS-25 were sampled between the Facility and Force Lake, while location WS-11 was sampled to the west of the Facility.

All subsurface soil samples were collected at wetland locations as specified in the Response to EPA recommendations for Phase 2 sampling (Bridgewater et al. 2008c). The hand auger sampling procedures described for Phase 1 (Section 2.4.1.2) were the same for the Phase 2 samples. A minor modification to this procedure was made for only one location: at location WS-25, a shovel was used to collect the lower sampling interval (24 to 36 in. bgs) because of dense gravel starting at approximately 10 in. bgs. This modification did not alter the intent of this sample.

2.5 Lake Surface Water Investigation

During Phase 1 field activities, surface water samples were collected from Force Lake on April 21 and 22, 2008. Sampling locations in Force Lake were accessed using a canoe that was launched from the parking area on the eastern side of the lake (near North Force Avenue).

Three surface water samples, and one field duplicate sample, were collected (Figure 2-2). In accordance with the QAPP (Bridgewater et al. 2008a), water samples were collected approximately 1 ft below the water

surface using a decontaminated 5-L Niskin bottle sampler that was manually deployed from a canoe. Two to three water grabs were necessary to fill the required volume of sample containers needed by the laboratory for analysis. Samples were processed in the canoe at the location where the samples were collected so that extra water could be discarded at the sampling location.

In addition to surface water samples, *in situ* water quality measurements were collected at the three sampling locations from 1 ft below the water surface. Temperature, dissolved oxygen (DO), salinity, and conductivity were measured using a YSI meter. Water hardness was measured using a LaMotte water hardness kit. Sampling location coordinates are provided in Appendix E. Table 2-6 presents the *in situ* water quality results.

Table 2-6. *In Situ* Water Quality Data for the Three Water Samples Collected During Phase 1

Sample ID	Temperature (°C)	DO (mg/L)	Salinity (ppt)	Conductivity (mS/cm)	Hardness (mg/L)
SW-01	10.0	5.59	0.2	275.5	880
SW-02	10.4	6.34	0.2	274.8	444
SW-03[a]	11.1	6.31	0.2	283.0	460

[a] The water quality measurements at SW-03 also apply to the duplicate samples (SW-300) collected at this location.

C – Celsius

DO – dissolved oxygen

ID – identification

ppt – parts per thousand

2.6 Lake Sediment Investigations

Sediment samples were collected as part of the Phase 1 and Phase 2 sampling events, as discussed below.

2.6.1 Phase 1

During Phase 1 field activities, sediment samples were collected from Force Lake and North Lake on April 21 and 22, 2008. Sampling locations in Force Lake were accessed using a canoe that was launched from the parking area on the eastern side of the lake (near North Force Avenue). The canoe was portaged from Force Lake to access the sampling locations in North Lake.

Eleven surface sediment samples (and one field duplicate sample) were collected from Force Lake, and three surface sediment samples were collected from North Lake on April 21 and April 22, 2008 (Figure 2-1). In accordance with the QAPP (Bridgewater et al. 2008a), surface sediment samples were collected using a decontaminated 0.02-m^2 Ekman grab sampler that was manually deployed from a canoe. Grab samples were rejected if less than 8 cm (just over 3 in.) of sediment were penetrated by the Ekman sampler. For most sediment samples, only one grab was

necessary to obtain sufficient volume to fill the sample containers needed by the laboratory for analysis. Additional grab samples were necessary at locations where replicate or split samples were collected. Samples were processed in the canoe at the sampling location so that extra sediment could be discarded at the sampling location.

Force Lake sediment sampling location SE-08 was relocated approximately 20 ft away from the shoreline because the substrate at the target location adjacent to the shore was obstructed by root debris. Multiple grab attempts in the vicinity were unsuccessful at obtaining acceptable sediment recovery, and sufficient sediment volume could not be collected. It should be noted that the initial target coordinates were based on the Force Lake sampling grid, and were not intended to target a particular source. After the sample was collected, EPA was consulted to ensure that this relocation was acceptable. EPA approved the relocation of the sampling station, and thus the sample was retained and sent to the laboratory.

Lake sediment target station SE-101 was also relocated approximately 20 ft away from the target location (Figure 2-1). Multiple grab attempts at the target location were unsuccessful because the rocky substrate prevented acceptable sediment recovery and the collection of sufficient sample volume. The EPA oversight representative approved the relocation of the sampling station, and the new location met the sampling objectives.

Because of the high water content of the lake sediment samples, the standard procedures for VOC sample collection (EPA Method 5035A) were slightly modified. For lake sediment samples, a decontaminated stainless steel spoon was used to collect sediment from the Ekman sampler to fill the pre-set EasyDraw Syringe®. Caution was used to minimize disturbance to the sediment that could have resulted in the evaporative loss of VOCs. The EPA oversight representative was informed of the issue and approved the modification to the standard procedures.

Coordinates for the surface sediment samples and observations of gross sediment sample characteristics (recorded on the surface sediment collection forms) are provided in Appendix C.

2.6.2 Phase 2

During Phase 2 field activities, subsurface sediment samples were collected from Force Lake on April 8, 2009, using a vibracore sediment core sampler. Sampling locations in Force Lake were accessed using the Ross Island Sampler launched from the parking area on the eastern side of the lake (near North Force Avenue). The original plan to hand-collect sediment cores in Force Lake from a small drift boat (attempted on April 6, 2009) was unsuccessful because of consolidated sediment starting approximately 1 ft below the mudline in Force Lake.

Subsurface sediment samples were collected at three locations in Force Lake at two depth intervals (1 to 3 ft, and if feasible, 3 to 5 ft). The

rationale for selecting these three sampling locations was as follows (Bridgewater et al. 2008c):

- Locations SE-03 and SE-05 were sampled to provide data for locations on either side of the point where the drainage ditch discharges into Force Lake and where stormwater drains into the lake from the area around wetland soil sample locations WS-20, WS-21, and WS-25. Location SE-02 was not sampled because although it was closer to the entry point for the drainage ditch, it would have been difficult to sample because of the shallow water depth and relatively hard lake bottom substrate observed during Phase 1 sampling.
- Location SE-10 (in the southeast portion of the lake) was sampled to provide spatial coverage for the rest of the lake.

For each core, the vertical profile was visually logged for major and minor contacts (i.e., regions in the core where sediment characteristics noticeably changed), and photographs of each core were taken before sampling. Sediment descriptions were recorded on a core processing log (Appendix C).

A tiered approach was used to analyze subsurface sediment samples. Specifically, the upper subsurface samples collected from the 1-to-3-ft depth interval were analyzed for the same analytes as the Phase 1 surface sediment samples (i.e., metals, TPH, PAHs, organochlorine pesticides, PCBs, VOCs, moisture, grain size, and TOC). The 3-to-5-ft samples were archived until the results of the 1-to-3-ft samples were available.

In June 2009, the upper subsurface sediment sample results were submitted to EPA along with a recommendation that the lower subsurface samples not be analyzed because very few chemicals were detected in the upper subsurface samples. With one exception, no detected concentrations were above regional background levels for metals or sediment screening levels for organic compounds. 4.4′-DDE was detected in one of the three samples at a concentration of 4.5 µg/kg dw, which slightly exceeded its ecological screening level (3.2 µg/kg dw). EPA agreed that the analysis of the lower subsurface samples was not necessary.

2.7 Ecological Investigations

Two surveys of fish in Force Lake have been conducted, as discussed in this section.

2.7.1 Historical Evaluation of Force Lake Fishery

An evaluation of the Force Lake fishery was conducted by Fishman Environmental (1989) to determine the potential for the development of a warm-water fishery. Fish were collected in the fall of 1988 and in the spring of 1989, as summarized in Table 2-7. For comparison, this table

also presents the results of the 2009 fish survey (Windward 2009b), which is discussed in Section 2.7.2.

The majority of the fish caught in Force Lake during the Fishman study were small mosquitofish and juvenile sunfish, less than 2 cm (less than 1 in.) in length. Fish of this size class are usually not consumed by humans. Some of the carp, brown bullhead, and sunfish (bluegill and pumpkinseed) that were collected from the lake as part of the Fishman study were of sizes that could potentially be kept by anglers for consumption.

Based on the results of the study, Fishman characterized Force Lake as a self-sustained bullhead fishery and a stunted bluegill fishery because the bluegill captured were less than 5 cm (approximately 2 in.) in length. The Fishman study did not investigate the fishing rates of local anglers, but noted that conclusions regarding the fishery health were based on current fishing rates at that time (late 1980s).

2.7.2 Force Lake Fish Survey

A survey of the fish population in Force Lake was conducted on Tuesday, April 7, 2009 to obtain information on the types of fish present in the lake and estimate the abundance and sizes of these fish. This section provides a brief summary of this effort. Additional information, including a summary of survey methods and catch records and a discussion of results, is provided in Appendix H.

The survey was conducted in accordance with the fish survey sampling design memorandum approved by EPA (Windward 2009a). The survey objectives were met using a range of fish collection methods, including electrofishing, minnow traps, and a fyke net to ensure a more complete picture of the fish population in Force Lake.

Approximately 86% of the fish in Force Lake collected as part of the 2009 survey were small (76 of the 88 fish collected were 14 cm (5.5 in.) in length or less). Only 12 fish (all carp) greater than this size were caught, 10 of which were in the 15 to 20 cm range (approximately 6 to 8 in.), and 2 of which were in the 21-to-25-cm range (approximately 8 to 10 in.). In addition, one or two larger carp were observed but not captured.

Table 2-7. Summary of Fish Collected During Force Lake Fish Population Surveys

Fish Species	Number of Fish Collected (Fish Size Range)							
	August 5, 1988[a]			March 13, 1989[a]		April 7, 2009[b]		
	Electrofishing	Beach Seine	Trap	Beach Seine	Trap	Electrofishing	Fyke Net	Minnow Traps
Small or Juvenile Fish (5 cm or Less in Length)								
Mosquitofish	>1,000 (<2 cm)	>1,000 (<2 cm)	nc	1 (4 cm)	nc	nc[c]	nc[c]	nc[c]
Unidentified juvenile sunfish	150 to 200 (<2 cm)	>1,000 (<2 cm)	nc	25 (2.6 to 5.4 cm)	nc	nc (not targeted)	nc (not targeted)	nc (not targeted)
Bluegill	nc	21 (2.5 to 4.4 cm)	nc	nc	nc	nc (not targeted)	nc (not targeted)	nc (not targeted)
Fish Greater than 5 cm in Length								
Goldfish	2 (7.8 to 11.4 cm)	6 (5.9 to 9.5 cm)	nc	1 (8.3 cm)	nc	nc	nc	nc
Bluegill	1 (14 cm)	nc	nc	nc	nc	nc	nc	nc
Pumpkinseed	5 (8.7 to 11.1 cm)	2 (11.5 to 12.3 cm)	nc	nc	nc	1 (8.4 cm)	32 (7.6 to 10.3 cm)	nc
Brown bullhead	1 (15 cm)	14 (5.5 to 25 cm)	nc	2 (7.4 to 8.3 cm)	1 (26 cm)	nc	1 (6.7 cm)	nc
Carp	1 (39 cm)	nc	1 (30 cm)	2 (35 to 45.7 cm)	nc	6 (16.5 to 21.8 cm)	47 (6.4 to 17.6 cm)	1 (12.5 cm)

[a] Fishman (1989).

[b] Windward (2009b).

[c] According to the Multnomah County Vector Control, mosquitofish were historically released in lakes in late spring/early summer to help control mosquito populations. However, since the mid-1990s, mosquitofish are no longer released into water bodies such as Force Lake where they might escape into other water bodies and thus their presence in Force Lake was not expected (Windward 2009b).

nc – none collected

These results are consistent with the expected population of a small, shallow lake with no riparian cover, such as Force Lake. In lakes of this type, the fishery is often stunted, meaning that most of the fish are small in size because of the high competition for food and the lack of large predator fish. Only carp (all less than 22 cm [approximately 8.5 in.]), pumpkinseed (all less than 12 cm [approximately 4.7 in.]), and one small brown bullhead (6.7 cm [approximately 2.6 in.]) were caught, none of which are native to the region. No game fish (e.g., trout or bass) were observed during the survey. The 2009 survey results are consistent with the results of the Fishman study conducted in the late 1980s (Fishman 1989), during which a similarly low number of larger fish were caught (Section 2.7.1). Note that the survey methods used during the 1988/1989 Fishman study (1989) and the 2009 survey (Windward 2009b) were different. The methods employed as part of the Fishman study included electrofishing, beach seine, and traps; the 2009 survey methods included electrofishing, fyke nets, and minnow traps. These methods are not expected to be sufficiently different to significantly impact catch results.

The change in the bullhead population since the 1988/1989 Fishman study to the 2009 survey may indicate either a change in the Force Lake habitat and/or that the lake was stocked with bullhead in the past. Jesse Goodling, Heron Lakes Golf Course Superintendent, noted that since 1986, when he started working at the golf course, the water level in Force Lake during at least two different years was low enough to expose part of the lake bottom, typically at the end of a hot, dry summer. The last time this happened (4 or 5 years ago), Mr. Goodling recalled seeing a number of dead fish floating in the lake, possibly because of an algae bloom, which would depress oxygen levels in Force Lake. This type of event could have been responsible for altering the fish species present in Force Lake.[5]

The results of the 2009 survey indicate that there is a small population of carp in Force Lake and a stunted pumpkinseed fishery. Calculations done as part of the HHRA indicated that the assumed adult fish consumption rate in the risk assessment would require the annual consumption of 5 to 10 times the number of fish observed during the 2009 Force Lake survey (Windward 2009b). In addition, public access to Force Lake is limited because three sides of the lake are bordered by wetlands or the Heron Lakes Golf Club. Anglers can only access the lake along the east side (North Force Avenue) and at the southern corner of the lake. This information indicates that Force Lake could not support a significant and sustained level of fishing.

[5] Information provided to Stu Brown (Bridgewater) by Jesse Goodling in July 2009.

2.8 Background and Reference Area Concentrations

EPA guidance discusses two types of background concentrations, natural background and anthropogenic background. Natural background is defined as "naturally occurring substances present in the environment in forms that have not been influenced by human activity." Anthropogenic background is defined as "natural and human-made substances present in the environment as a result of human activities (not specifically related to the CERCLA site in question)" (EPA 2002a).

This section discusses background concentrations for metals that are available from DEQ (DEQ 2002) and reference area concentrations for organic compounds. The term reference area is used instead of background for organic compounds because no specific background concentrations that are representative of anthropogenic background have been selected or approved by EPA. Instead, concentrations from reference areas (urban areas within the vicinity of the Study Area) are presented for comparison with Study Area concentrations.

Background or reference area concentrations are discussed for contaminants determined to be either COCs in the baseline human health risk assessment (HHRA) or have effects-based hazard quotients (HQs) greater than 1.0 in the ecological risk assessment (ERA) and for which background or reference area concentrations were less than Study Area concentrations (Appendices I and J, respectively).

2.8.1 Metals

Based on the HHRA and ERA, five metals (arsenic, chromium, copper, mercury, and zinc) were determined to be either COCs in the HHRA or have effects-based HQs greater than 1.0 in the ERA and for which background concentrations were less than Study Area concentrations.

Background metals concentrations were based on values reported in DEQ's *Memorandum from the Toxicology Workgroup to DEQ Cleanup Program Managers Regarding Default Background Concentrations for Metals* (DEQ 2002) and in DEQ's Guidance for assessing bioaccumulative COCs in sediment (DEQ 2007a). DEQ (2007a) provides both soil and freshwater sediment background concentrations available for use in the Portland region. When multiple values were available, a range of values was presented in this RI.

Background values for soil and freshwater sediment for the five metals are presented in Table 2-8.

Table 2-8. Background Concentrations for Metals

Contaminant	Background Concentration (mg/kg dw)		Source
	Soil	Freshwater Sediment	
Arsenic	7	7 to 7.9	DEQ (2002) and DEQ (2007a)[a]
Chromium	42	30	DEQ (2002)
Copper	36	12	DEQ (2002)
Mercury	0.07	0.07 to 0.2	DEQ (2002) and DEQ (2007a)[a]
Zinc	86	53	DEQ (2002)

[a] A range of sediment concentrations was presented for some metals because values presented in DEQ-recommended background sources are different.

DEQ – Oregon Department of Environmental Quality

dw – dry weight

The background values presented in Table 2-8 were used in the risk assessments and in this RI to provide context for contaminant concentrations at the Study Area.

2.8.2 Total DDTs

Reference area concentrations for total DDTs in sediment and soil were available from several sources located near the Study area. These DDT concentrations were used to derive an estimate of the expected ambient concentrations near the Study Area.

- A range of DDD, DDE, and total DDT concentrations were reported in DEQ's Columbia Slough Sediment Project (2005), which represents calculated baseline maxima concentrations meant to reflect the upper end of the range of sediment concentrations throughout the slough that are not associated with a particular source.
- A range of concentrations of 4,4′-DDD, 4,4′-DDE, and total DDTs were reported for five samples collected at the Radio Tower Site as part of the preliminary soil investigation for that site (URS 2000). The highest concentration (355 µg/kg ww for total DDTs) was substantially higher than the next highest concentration (55 µg/kg ww for total DDTs). The relative difference in concentrations was similar for DDEs and DDTs. However, because of the patchy nature of DDT concentrations in the region and because there was no indication that the maximum concentration was linked to a specific source, all five samples were included as reference area concentrations in this RI.

DDT concentrations across the two sources discussed above were used to represent a range of possible reference sediment and soil concentrations that might be expected within the Study Area for each of the DDT COPCs identified in the risk assessments: 2,4′-DDD, 4,4′-DDD, 4,4′-DDE, and total DDTs. Table 2-9 presents the range of COPC

concentrations reported in the two sources. Specific background concentrations for DDTs have not been established by EPA or DEQ.

Table 2-9. Summary of DDT Reference Area Concentrations in Sediment

DDT COPC	Range of Concentrations (µg/kg dw)	
	Columbia Slough (Sediment)[a]	Radio Tower (Soil)[b]
2,4′-DDD	6.1 – 6.7[c]	5[e] – 15[f]
4,4′-DDD	6.1 – 6.7[c]	5[e] – 15
4,4′-DDE	7 – 9.8[d]	5[e] – 110
Total DDTs	16 – 19	15[e] – 355

[a] DEQ (2005)
[b] URS (2000)
[c] Concentrations for 2,4′-DDD and 4,4′-DDD are based on reported DDD concentration.
[d] Concentration for 4,4′-DDE is based on reported DDE concentration.
[e] The low end of this range is equal to the RL.
[f] Concentration for 2,4′-DDD is based on 4,4′-DDD concentration.

COPC – contaminant of potential concern
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethylene
DDT – dichlorodiphenyltrichloroethane
DEQ – Oregon Department of Environmental Quality
dw – dry weight
RL – reporting limit

In addition to the soil and sediment DDT concentrations discussed above, a Freedom of Information Act (FOIA) file review was conducted to provide additional information regarding DDT concentrations in the north Portland area. The FOIA file review was conducted at the EPA Region 10 Superfund Records Center in Seattle, Washington, on February 17 and 19, 2010. Files for eight sites were reviewed for information about DDTs in soil or sediment; relevant data are presented for three sites[6] (Table 2-10). The table includes only the most recent sampling data (i.e., historical sampling data were not included if newer data were available).

At sites with DDT information, concentrations of DDD, DDE, and DDT ranged from less than 1 µg/kg dw[7] to 100 µg/kg dw in surface soil (with the exception of some surface soil samples collected from the 1610 Pier 99 Street/Schooner Creek Boat Works facility [concentrations were as high as 2,700 µg/kg dw]), from non-detect to 310 µg/kg dw in subsurface soil, and from non-detect to 140 µg/kg dw in sediment.

[6] No DDT information was provided for Diversified Marine, Redi-Strip of Oregon, James River, and Lacamas Lab sites. In general, pesticides are not of concern at these sites according to EPA records and the DEQ Environmental Cleanup Site Information database (DEQ 2010). In addition, DDT information for the Rhône-Poulenc/Stauffer Chemical Company facility was not included because this facility was known to process DDTs and had concentrations up to 3,100,000 µg/kg dw.

[7] Units are assumed to be dry weight, although source documents did not specify this in every case.

Table 2-10. Summary of DDT Data from FOIA File Review

Facility Information	Year	Media Type	Concentrations in Soil or Sediment (µg/kg)[a]			Other Information	Source
			DDD	DDE	DDT		
Merit USA Inc. (approximately 1 mile northwest of the Study Area)							
Petroleum product refinery	2002	surface soil	2 – 3.3	0.86 JQ – 1.3	1.9 – 4.4		EPA (2002c)
	2002	subsurface soil	34 – 310	nd – 58	nd – 14		
	2002	sediment	13 – 140	3.9 – 20	10 – 51	collected from onsite wetland	
	2002	sediment	nd	nd	nd	collected from Smith Lake	
	2002	surface soil	5.1	23	100	referred to as "background" in source document	
	2002	subsurface soil	5.1	100	210	referred to as "background" in source document	
	2002	sediment	nd	nd	nd	referred to as "background" in source document	
City of Portland Saint John's Landfill (approximately 2.5 to 3 miles northwest of the Study Area)							
Former general-purpose municipal landfill now undergoing restoration (Waste from a pesticide manufacturing facility was disposed in the landfill from 1958 to 1962.)	not reported	sediment	0.7 – 3.8	0.813 – 21.3	3		EPA (2010a); Oregon Metro (2010)
1610 Pier 99 Street/Schooner Creek Boat Works (approximately 0.5 mile east of the Study Area)							
Boat building, boat repair, and machine shop since late 1930s	2008	surface soil	0.28 JQ – 2,700	0.74 JQ – 58	4.3 U – 370		Ecology and Environment (2009)
	2008	surface soil	0.39 JQ	3.4 U	1.2 JQ	one sample collected on the property but outside of the area of operations; referred to as a "background sample"	
	2008	sediment	nd	nd	nd	sediment collected from the facility dock area	
	2008	sediment	nd	nd	nd	sediment collected from the Columbia River approximately 50 to 200 ft from the facility docks	
	2008	sediment	nd	nd	nd	five samples collected from upstream of the facility and referred to as "background samples"	

[a] Units are assumed to be dry weight, although source documents did not specify this in every case.

bgs – below ground surface
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethylene
DDT – dichlorodiphenyltrichloroethane
FOIA – Freedom of Information Act
J – estimated concentration
nd – not detected (RL not provided)
Q –estimated concentration (because below the contract-required quantitation limit)
U – not detected at given concentration

2.8.3 PAHs

Reference area concentrations for PAHs in sediment and soil were available as follows:

- A range of PAH sediment concentrations as reported for DEQ's Columbia Slough Sediment Project (2005), which represents calculated baseline maxima concentrations meant to reflect the upper end of the range of sediment concentrations throughout the slough that are not associated with a particular source.
- A range of PAH soil concentrations reported for individual PAHs from five samples taken at the Radio Tower Site (URS 2000).

A range of PAH concentrations across the above two sources was used to represent reference area sediment and soil PAH concentrations at the Study Area for each PAH. Table 2-11 presents the range of PAH concentrations reported in the two sources. Specific background concentrations for PAHs have not been established by EPA or DEQ.

Table 2-11. Summary of PAH Reference Area Concentrations in Sediment and Soil

PAH	Range of Concentrations (µg/kg dw)	
	Columbia Slough (Sediment)[a]	Radio Tower Site (Soil)[b]
Benzo(a)anthracene	72 – 87	4.5 – 33
Benzo(a)pyrene	90 – 100	5.3 – 39
Chrysene	103 – 129	6.7 – 51
Fluoranthene	132 – 144	7.3 – 53
Phenanthrene	80 – 88	14 – 25
Pyrene	196 – 196	68 –427[c]
Total PAHs	1,073 – 1,078	na

[a] DEQ (2005)

[b] URS (2000)

[c] Non-detected values were treated as one-half the reporting limits for calculating sums.

DEQ – Oregon Department of Environmental Quality

dw – dry weight

na – not available

PAH – polycyclic aromatic hydrocarbon

2.8.4 PCBs

Reference area concentrations for total PCBs are available from one source, DEQ's Columbia Slough Sediment Project (2005). A range of 23 to 24 µg/kg dw (Aroclor 1254) was calculated from the data, which represents calculated baseline maxima concentrations meant to reflect the upper end of the range of sediment concentrations throughout the slough that are not associated with a particular source. This range was used to represent reference area sediment and soil total PCB concentrations for comparison to Harbor Oil data (no soil-specific values were available). Total PCBs were not analyzed in the samples collected from the Radio Tower Site. Specific background concentrations for total PCBs have not been established by EPA or DEQ.

3.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

This section presents a summary of the current physical characteristics of the Study Area, including the surface features, meteorology, hydrology, geology, hydrogeology, demography, and ecology.

3.1 Surface Features

Based on Figure 2-2 from the *Site Investigation and Preliminary Remediation Plan for Portland Stockyards* (Golder Associates 1990), the land surface of the Facility is relatively flat with a slight slope from northeast to southwest toward the wetlands. A soil berm along the northwest and southwest sides of the Facility prevents runoff from flowing into the wetlands. Figure 2-2 from Golder Associates (1990), as well as other figures from Golder Associates (1990) referenced later in this section, are presented in Appendix K.

3.2 Meteorology

The Portland area has a temperate marine climate characterized by wet winters and dry summers. According to information provided by NOAA (2010), precipitation, temperature, and wind data for the Portland area are as follows:

Precipitation	
Average annual	37 in. (mostly rain)
Average wettest month	6.1 in. (December)
Average driest month	0.6 in. (July)
Temperature	
Average annual	54 °F
Average coldest month	40 °F (January)
Average warmest month	69 °F (August)
Wind	
Average wind speed	7.9 miles per hour
Prevailing direction	East-southeast

3.3 Surface-Water Hydrology

According to the PEN 1 NRMP (City of Portland 1997), the PEN 1 drainage area is approximately 900 ac in size and is located within the Columbia River floodplain. The area was diked and drained in the early 1900s. Over time, the area has been filled to create housing sites and roads, develop the Portland International Raceway and Heron Lakes Golf Club, and to store surplus soil from other projects. The perimeter of the PEN 1 NRMP area is surrounded by a levee to protect the area from flooding by the Willamette and Columbia Rivers. All runoff generated within the area is pumped over the levee into the Columbia Slough.

Given its floodplain setting, hydrologic resources in the vicinity of the Facility include: wetlands the southwest and northwest, the "radio tower" wetlands to the southeast, Force Lake, numerous small lakes within the Heron Lakes Golf Club, and a network of sloughs, ditches, and culverts (Figure 1-11).

3.3.1 Force Lake Drainage Basin

There are only two known point discharges into Force Lake. According to J. Goodling (2007), a catch basin drains a small area along the east side of N Force Avenue, just north of its intersection with N Victory Boulevard. Stormwater captured in this catch basin is conveyed beneath N Force Avenue and discharged into Force Lake. In addition, an underdrain for one of the greens on the Greenback Golf Club drains to the lake.

All of the other discharges to Force Lake are nonpoint source discharges of stormwater. According to the PEN 1 NRMP (City of Portland 1997), Force Lake is located within drainage sub-basin A-7, which includes the Facility, properties between the Facility and the Peninsula Terminal Railroad, properties west of N Force Avenue, properties east of N Force Avenue and south of the Peninsula Terminal Railroad, and the wetlands between the Facility and Force Lake (see Figure 1-11). All of the surface water runoff south of an east-west trending topographic divide[8] that represents the northeast boundary of sub-basin A-7 drains southward toward Force Lake. In addition, the portion of the Heron Lakes Greenback Course that borders the south and west sides of Force Lake also drain into Force Lake. There are no other known surface water inflows to Force Lake.

The current stormwater treatment system located on the Facility does not discharge directly into Force Lake; it discharges into the wetlands near just south of the Facility (Figure 1-3).

During golf course construction in 1969 and 1970, the narrow west end of Force Lake was bisected by fill material to create another small lake (presumably North Lake) (DEQ 1974a). The preceding is confirmed by review of available aerial photographs of the area for 1966 and 1973 (Appendix A). The 1966 aerial photograph shows Force Lake to be one

[8] The east-west topographic divide is located north of the Site by the railroad tracks, approximately halfway between the Site and N. Marine Drive.

contiguous surface water body with what is now known as North Lake. The 1973 aerial photograph depicts the lake area after golf course construction is complete. As depicted in the 1973 photograph, the former single water body had been separated into two separate water bodies (i.e., North Lake and Force Lake) by the newly constructed golf course. As depicted in the 1948 aerial photograph (Appendix A) and on Figure 1-5, the area where the golf course was extended to create the two separate lakes was historically at a relatively high elevation as indicated by the limits of the flood waters at the time the aerial photograph was taken. The configuration of North Lake and Force Lake remains relatively unchanged as shown in aerial photographs between 1973 to the present (Appendix A).

3.3.2 Force Lake Hydraulics

According to the NRMP (City of Portland 1997), the estimated drainage area to Force Lake is 17 ac and the estimated peak flow into Force Lake during a 5-year frequency storm event is 9 cubic ft per second.

Force Lake is 590 to 890 ft in diameter and has a surface area of about 12 ac (City of Portland 1997). The estimated storage volume of the lake is about 30 acre-feet. Based on these parameters and on observations during Phase 1 and 2 sampling, the average depth of Force Lake is 2.5 ft.

The NRMP indicates that outflow volumes from Force Lake are much less than inflow volumes, and are minimal for storm events less than a 2-year event. This is due the fact that outflows from Force Lake are controlled by two, 30-in. concrete sewer pipes (CSPs) located on the west side of the lake, which have an invert elevation of about 0.8 ft higher than the water levels in other downstream water bodies located in what is referred to as the upper “A” sub-basin. The upper “A” sub-basin includes Force Lake, North Lake, the North Drainageway, Frog Lake, and an unnamed lake (see Figure 1-11). The 30-in. corrugated metal pipe (CMP) that connects the unnamed lake to the Southwest Marsh hydraulically separates the upper “A” sub-basin and controls upstream water levels everywhere except in Force Lake. Thus, until water in Force Lake rises to the elevation of the pipe invert for the two, 30-in. CSPs, no outflow occurs from the lake. According to Mr. Goodling, Force Lake discharges to North Lake about 9 or 10 months per year.

Because of the hydraulic control on outflows from Force Lake, the NRMP (City of Portland 1997) indicates that pollutants conveyed to Force Lake by runoff from sub-basin A-7 and the Heron Lakes Greenback Golf Club will remain in Force Lake and not be transported downstream. This conclusion is supported by the findings of the RI, which indicate generally low concentrations of chemicals in North Lake sediments and few detections of chemicals in Force Lake surface water.

The water elevation in Force Lake is controlled by the invert elevation of the pipes that connect Force Lake to North Lake. This hydraulic control limits the flow of water from Force Lake. Because inflows and outflows from the Lake are limited, the water velocity or current is small (i.e., the lake is a quiescent water body that behaves like a settling basin) and

suspended solids that enter the lake tend to settle to the bottom, rather than being transported downstream. Chemicals entering the lake will tend to remain because of the lake hydraulics, the tendency for solids to settle, and the fact that most of the chemicals that have been detected above screening levels have a tendency to adsorb to solids that will settle. As discussed in Section 4.0, sediment samples collected in North Lake confirm that contamination in Force Lake does not appear to have migrated to North Lake.

3.3.3 Downstream Surface Water Bodies

Force Lake discharges to North Lake, which also receives runoff from the Heron Lakes Greenback Course. North Lake discharges to the North Drainageway via a ditch and 24-in. culvert. The North Drainageway flows to the west through a wetland area and heron rookery, and then flows to the south near the northwest corner of the Greenback Course (Figure 1-11). It is at this point that drainage from the area between the levee and the railroad tracks apparently enters the North Drainageway, and where the North Drainageway flows into a 24-in. culvert that flows to the south into Frog Lake. According to J. Goodling, the 24-in. culvert has settled and is partially clogged. To overcome this problem, the City of Portland extended the North Drainageway to the west to connect to Frog Lake in approximately 1995 (Goodling 2007).

From Frog Lake, water flows to the south through a 30-in. culvert to a smaller unnamed lake and then through another 30-in. culvert, where it enters the Southwest Marsh. According to the NRMP (City of Portland 1997), the invert elevation for the second culvert controls upstream hydraulics, likely indicating that water only flows in the Southwest Marsh once upstream water levels are high enough to reach the invert for the culvert that discharges from Frog Lake.

From the Southwest Marsh, surface water flows to the south through several culverts and another unnamed lake to the Southwest Slough and then flows to the east to Forebay Slough where it is pumped over the levee into the Columbia Slough at a pumping station as shown on Figure 1-11. Because this pumping station only moves surface water from the north side of the levee to the south side of the levee, it is not expected to influence the groundwater flow regime in the Study Area.

Southwest Marsh receives runoff from a series of lakes located in the west central portion of the Heron Lakes Golf Club. Prior to entering Forebay Slough, surface water from Southwest Slough combines with surface water drainage from the central portion of the Heron Lakes Golf Club that collects in various unnamed lakes and Midwestern Slough. Note that Forebay Slough also receives runoff from the Portland International Raceway, which is located in the southeastern portion of the PEN 1 NRMP area, as well as runoff from the Northeast Drainageway, located east of the Facility. As shown on Figure 1-11 and documented in the PEN 1 NRMP (City of Portland 1997), the Northeast Drainageway receives runoff from the Excel Communications property via a small pumping station that moves surface water over the dike that separates the property from the drainageway. As with the larger surface water

pumping station described for the Forebay Slough, the Northeast Drainageway pumping station is not expected to influence the groundwater flow regime in the Study Area.

Mr. Goodling indicated that he had worked at the Heron Lakes Golf Club since 1986 and that the drainage system had not changed over that time, other than the extension of the North Drainageway to Frog Lake.

3.4 Geology

3.4.1 Regional Geology

The Study Area is located in the central part of the Portland Basin physiographic province, which is bounded by the Tualatin Mountains to the west and south and the Cascade Range to the east and north. The Study Area is located along the southern bank of the Columbia River floodplain, east of the confluence with the Willamette River (Figure 1-1).

The geologic history of the Portland Basin is described by Trimble (1957, 1963), Burns et al. (1998), and Beeson et al. (1991). A basin formed from basalt of the Columbia River Basalt Group that flowed from the northeast corner of Oregon down the ancestral Columbia River 14 to 16 million years ago and solidified in the area. Afterward, the basin was faulted and pulled apart causing the middle part to sink and the edges to uplift to form the Tualatin Mountains to the south and west and the Cascade Mountains to the north and east. Concurrent with this structural deformation, over a 12-million-year period ending about two million years ago the basin filled with up to 1,500 ft of ancestral Columbia River sediments (gravels, sands, silts, and clays) that comprise the Troutdale Formation (coarse-grained facies) and Sandy River Mudstone (fine-grained facies). Volcanic vents formed throughout the eastern part of the basin and erupted basaltic Boring Lavas during a period starting two million years ago and ending approximately 260,000 years ago. Between approximately 12,700 to 15,300 years ago, numerous catastrophic floods caused by glacial ice dam breaks in Montana inundated the Portland Basin with flood water up to an elevation over 400 ft, and after the water receded, silt deposits up to 100 ft thick were windblown onto surrounding slopes of the Tualatin Mountains forming the Portland Hills Silt Formation.

The regional stratigraphy, listed from the surface down, is as follows:

- **Poorly Consolidated Silt and Sand Alluvium:** Holocene to Pleistocene age Columbia River and catastrophic flood deposits composed of discontinuous layers of silts, silty sands, and sands that are approximately 120 ft[9] thick in the Study Area vicinity (Beeson et al. 1991; Madin 1990).
- **Troutdale Formation:** Pleistocene, Pliocene, and upper Miocene age fluvial coarse-grained deposits of the ancestral Columbia River that are composed of poorly to moderately consolidated,

[9] Logs of wells near the Study Area indicate the sand and silt extend to a depth of 130 to 135 feet bgs.

poorly graded, and sub-rounded to rounded sand and gravel with occasional cobbles. Well logs indicate the Troutdale Formation extends to approximately 300 ft bgs in the vicinity of the Study Area. The maximum thickness of the Troutdale Formation is over 600 ft and possibly up to 1,500 ft in the East Portland Well field study area (Hoffstetter 1984).

- **Sandy River Mudstone:** Miocene to Pleistocene age (1 to 5 million years old) fluvial and lacustrine fine-grained deposits of the ancestral Columbia River (Madin 1990) composed of silt and clay with some sand deposited in a broad delta in the Portland-Vancouver region. The mudstones extend beyond 980 ft bgs according to one well log in the vicinity of the Study Area, giving a combined thickness with the Troutdale Formation of approximately 1,100 ft in this area (Swanson et al. 1993).
- **Columbia River Basalt Group:** Miocene age (23 to 5 million years old) layered basalt flows that individually range in thickness from approximately 10 to 150 ft and comprises a total thickness of 100 ft to about 800 ft. The Columbia River Basalt Group is considered the geologic basement unit for this area.

3.4.2 Local Geology

Local geologic conditions described in this section are primarily based on the lithology recorded on numerous shallow (i.e., approximately 10 ft bgs) direct-push boring logs and deeper (i.e., approximately 50 ft bgs) boring logs for intermediate monitoring wells MW-2i, MW-4i, and MW-5i (see Appendix D). In addition, two boring logs presented by Redmond and Associates (2002) were used to evaluate local geologic conditions. Geologic conditions below a depth of approximately 50 ft bgs were based on lithologic information for the plant well and cross sections prepared by Golder Associates (1990) (see Appendix K).

One non-native (i.e., fill) lithologic layer and native lithologic layers are present on the Facility, as presented in the geologic cross sections (Figures 3-1 through 3-4). The native lithologic layers are consistent with a fluvial depositional environment of predominantly low energy,[10] as indicated by the high percentage of silts and clays in most of the soil samples. Occasionally, the fluvial depositional environment changed to moderate energy,[11] as indicated by the fine- to medium-grained sand layers detected in some of the soil samples. The components of and conditions within the non-native and native distinct lithologic layers are described below:

- **Approximately 0 to 3 ft bgs:** Fill, primarily rock fragments and gravel, silty/sandy matrix, trace to little brick fragments, pieces of wood or cobbles, poorly sorted, medium dense, moist.

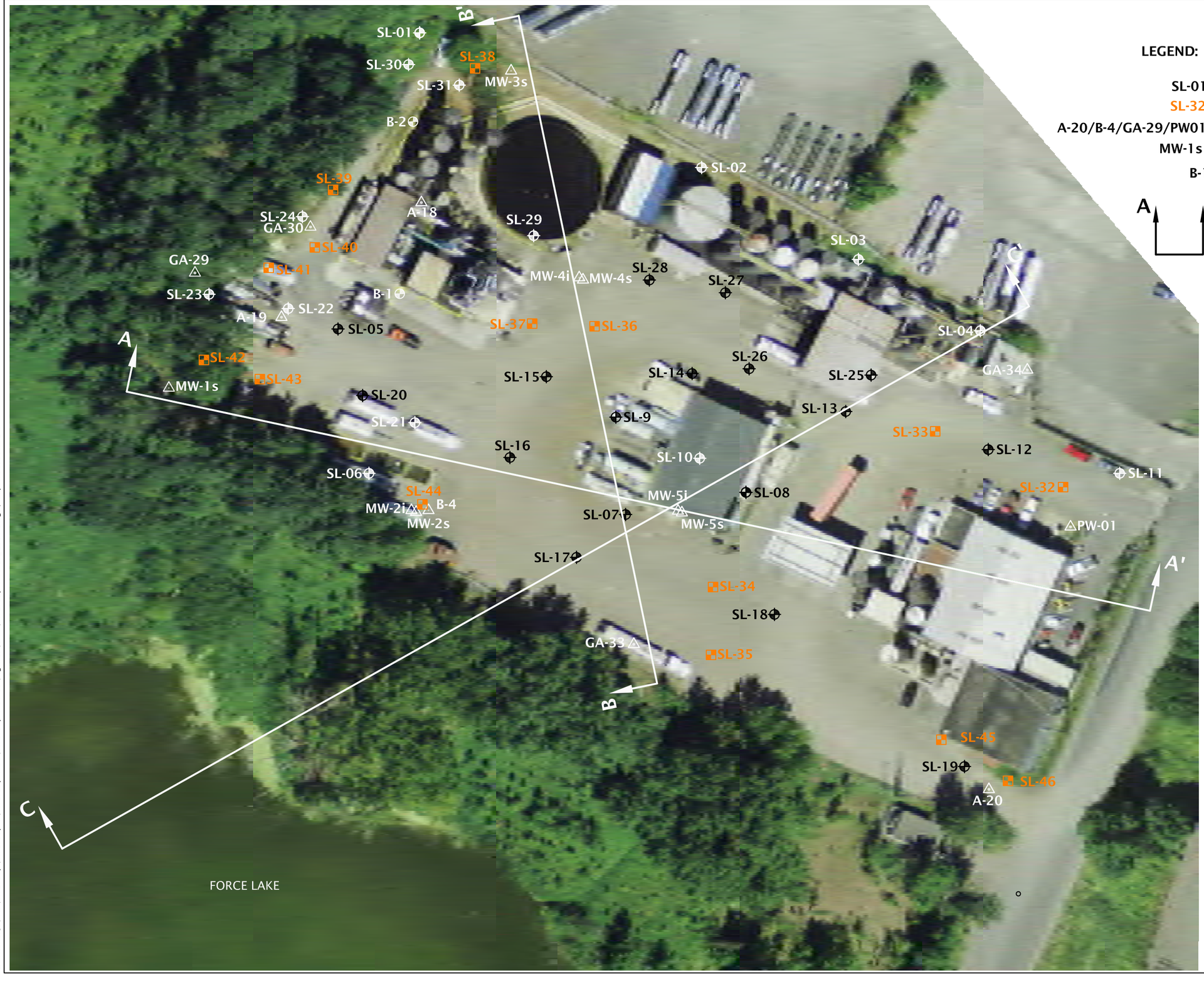
[10] Sediment deposited in lacustrine environments, swamps, marshes, deltas and lagoons.

[11] Sediments deposited in outwash plains, alluvial fans, along coasts and shorelines, and by rivers and streams by flooding and meltwater from snow and glaciers.

- **Approximately 3 to 8 ft bgs:** Very fine- to fine-grained sand, moderately sorted (some micro-stratification), trace silt, very loose to loose, gray, wet.
- **Approximately 8 to 37 ft bgs:** Silt, some clay, trace sand, moderate plasticity, olive gray to light gray to gray brown, soft to medium stiff, moist.
- **Approximately 37 to 48 ft bgs:** Fine- to medium-grained sand, trace silt, poorly graded, gray, loose to medium dense, wet.
- **Approximately 48 to 50 ft bgs:** Silt, some clay, trace sand, moderate plasticity, light gray brown to gray, soft to medium stiff, moist to wet.

Surface and subsurface soil conditions observed during Phase 1 and Phase 2 soil sampling activities, coupled with evaluation of the aerial photography of the property and field reconnaissance observations indicate that approximately 82% of the Facility ground surface was covered by packed gravel or structures at the time of the investigation. Since that time (in the fall of 2011), the majority of the Facility was paved with asphalt. Areas of the Facility that do not have a gravel or asphalt-paved surface include the following:

- The northern ditch area, which also includes a vegetated area in the vicinity of MW-3s, SL-31 and SL-38. It should be noted that gravel fill materials were observed beneath the topsoil cover layer in SL-31, SL-38 and MW-3s (Figure 2-1).
- The western margin of the site, which includes the soil stockpile area and adjacent portion of the wetland area, the western portion of the perimeter soil berm, and non-graveled areas observed near SL-42, MW-1s, and GA-29 (Figure 2-1).
- The southern site boundary and associated perimeter soil berm and wetland area (Figure 2-1).
- A portion of the eastern site boundary, adjacent to Force Avenue (Figure 2-1).



LEGEND:

SL-01	PHASE I SOIL SAMPLING LOCATION
SL-32	PHASE II SOIL SAMPLING LOCATION
A-20/B-4/GA-29/PW01	EXISTING WELL LOCATION
MW-1s	NEW WELL LOCATION
B-1	REDMOND AND ASSOCIATES BORING LOCATION (2002)
A A'	CROSS SECTION

N

0 60 120

(SCALE IN FEET)

SITE PLAN BASED ON SURVEY DATA PROVIDED BY THURSTON & ASSOCIATES, MAY 2008

SITE PLAN AND CROSS-SECTION LOCATIONS

HARBOR OIL SITE
PORTLAND, OR

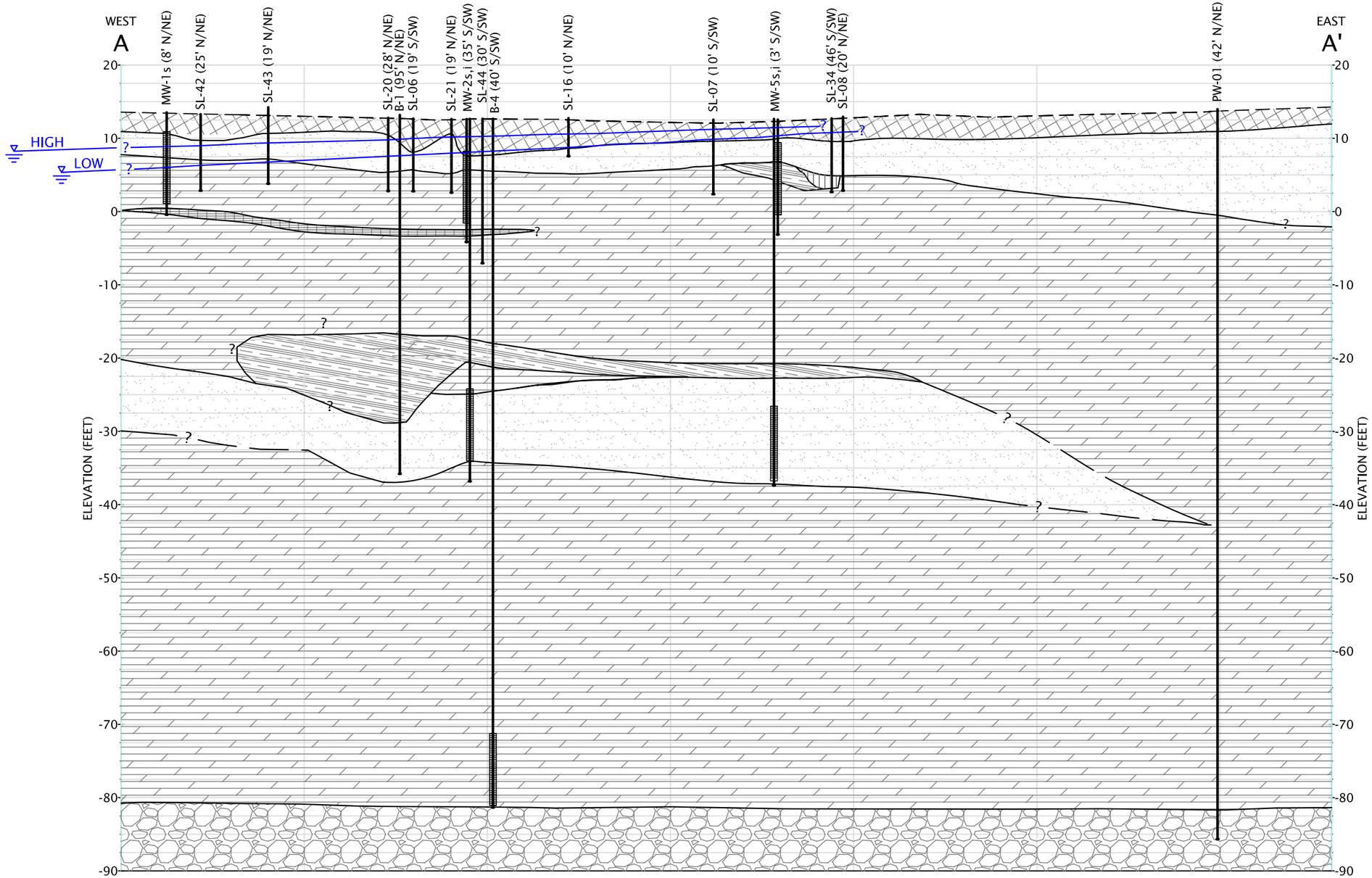
FIGURE 3-1

BWGROUP-1-01-07

JUNE 2010

GeoDesign Inc
15575 SW Sequoia Parkway - Suite 100
Portland OR 97224
Off 503.968.8787 Fax 503.968.3068

Printed By: cdavis | Print Date: 6/23/2010 2:08:40 PM
File Name: J:\A-D\BWGroup\BWGroup-1\BWGroup-1-01\BWGroup-1-01-07\Figures\CAD\BWGroup-1-07-SP_CS01.dwg | Layout: FIGURE 3-1



LEGEND:

- FILL: GRAVEL, SAND, SILT (GP)
- POORLY GRADED SAND, TRACE SILT (SP)
- CLAYEY SILT; SILT WITH CLAY (MH)
- SILT (ML)
- SILTY SAND (SM)
- CONSOLIDATED COBBLES, GRAVEL, SAND & SILT (TROUTDALE FORMATION)
- GRAVEL, SILT, ORGANICS
- INFERRED WATER TABLE ELEVATION

NOTE:

HIGH AND LOW WATER TABLE ELEVATION INFERRED FROM MONITORING WELLS MW-1s, MW-2s AND MW-5s. HIGH ELEVATIONS REFLECT JANUARY 2009 DATA AND LOW ELEVATIONS REFLECT SEPTEMBER 2008 DATA.

0 60 120
(SCALE IN FEET)

CROSS SECTION A-A'

HARBOR OIL SITE
PORTLAND, OR

FIGURE 3-2

BWGROUP-1-01-07

JUNE 2010

GeoDesign NI
15575 SW Sequoia Parkway - Suite 100
Portland OR 97224
Off 503.968.8787 Fax 503.968.3068

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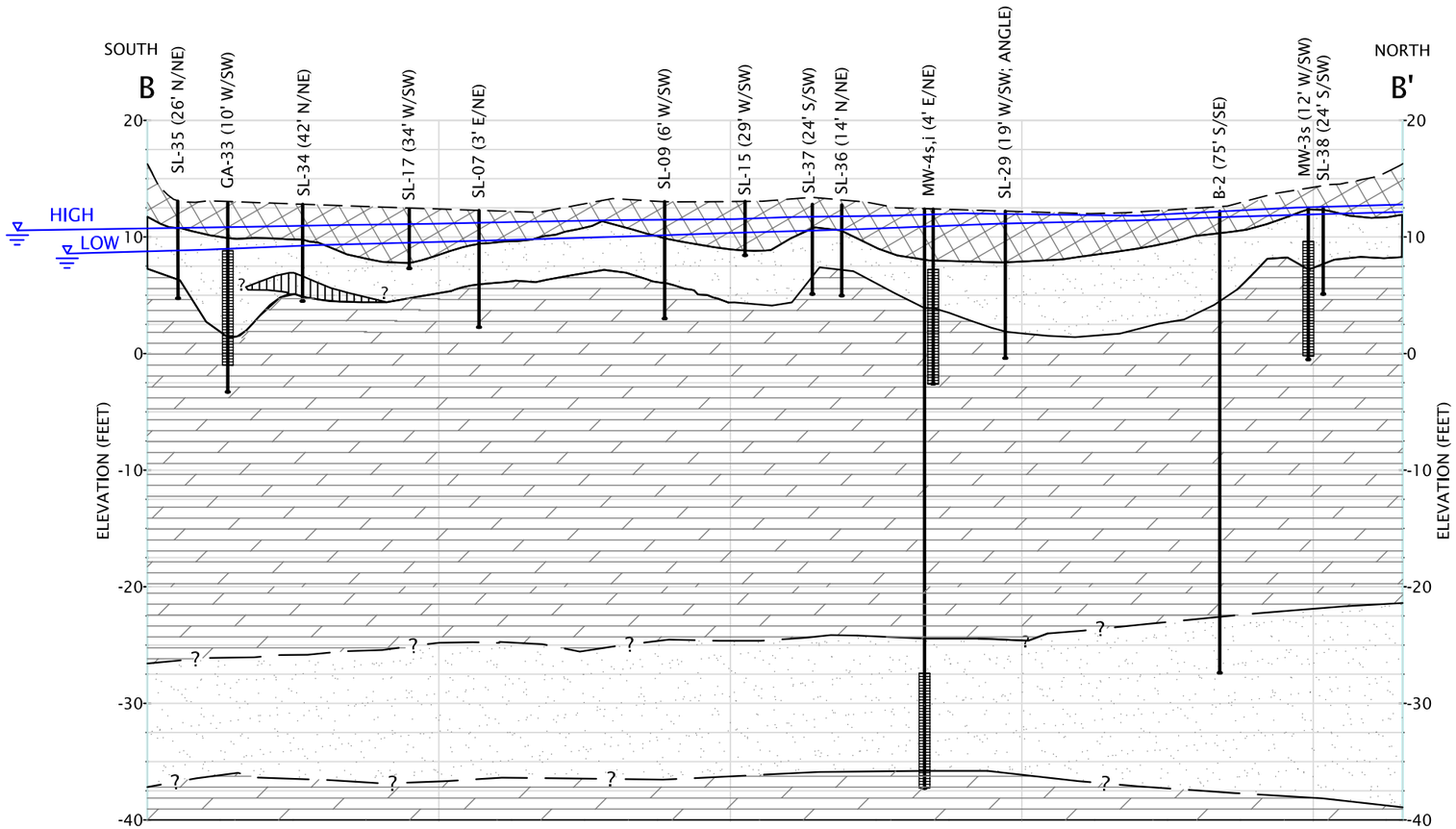
File Name: J:\A-D\BWGroup\BWGroup-1\BWGroup-1-01\BWGroup-1-01-07\Figures\CAD\BWGroup-1-07-SP_CS01.dwg | Layout: FIGURE 3-2



LEGEND:

- FILL: GRAVEL, SAND, SILT (GP)
- POORLY GRADED SAND, TRACE SILT (SP)
- CLAYEY SILT; SILT WITH CLAY (MH)
- SILT (ML)
- INFERRED WATER TABLE ELEVATION

NOTE:

HIGH AND LOW WATER TABLE ELEVATION INFERRED FROM MONITORING WELLS GA-33, MW-4s AND MW-3s. HIGH ELEVATIONS REFLECT JANUARY 2009 DATA AND LOW ELEVATIONS REFLECT SEPTEMBER 2008 DATA.

0 50 100

(SCALE IN FEET)

CROSS SECTION B-B'

HARBOR OIL SITE
PORTLAND, OR

FIGURE 3-3

BWGROUP-1-01-07

JUNE 2010

GeoDesign Inc
15575 SW Sequoia Parkway - Suite 100
Portland OR 97224
Off 503.968.8787 Fax 503.968.3068

Printed By: cdavis | Print Date: 6/23/2010 2:07:48 PM
File Name: J:\A-D\BWGroup\BWGroup-1\BWGroup-1-01\BWGroup-1-01-07\Figures\CAD\BWGroup-1-07-SP_CS01.dwg | Layout: FIGURE 3-3

SOUTHWEST

C

AVERAGE WATER SURFACE ELEVATION = 8.7 FEET

WETLAND AREA

FORCE LAKE (DEPTH 1.5-3.0 FEET)

MW-2s/2i (80' NW)

B-4 (80' NW)

BERM

SL-17 (4' NW)

GA-33 (63' SE)

SL-07 (12' NW)

MW-5s/5i (3' SE)

SL-10 (20' NW)

SL-08 (13' SE)

SL-26 (55' NW)

SL-13 (2' NW)

SL-25 (13' NW)

SL-33 (37' SE)

SL-12 (63' SE)

DITCH

SL-04 (4' NW)

GA-34 (32' SE)

PROPERTY LINE

NORTHEAST

C'

HIGH

LOW

20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90

ELEVATION (FEET)

LEGEND:

- FILL: GRAVEL, SAND, SILT (GP)
- POORLY GRADED SAND, TRACE SILT (SP)
- CLAYEY SILT; SILT WITH CLAY (MH)
- SILT (ML)
- SILTY SAND (SM)
- CONSOLIDATED COBBLES, GRAVEL, SAND & SILT (TROUTDALE FORMATION)
- GRAVEL, SILT, ORGANICS
- INFERRED WATER TABLE ELEVATION

NOTE:

HIGH AND LOW WATER TABLE ELEVATION INFERRED FROM MONITORING WELLS MW-2s, GA-33, MW-5s AND GA-34. HIGH ELEVATIONS REFLECT JANUARY 2009 DATA AND LOW ELEVATIONS REFLECT SEPTEMBER 2008 DATA.

0 60 120

(SCALE IN FEET)

CROSS SECTION C-C'

HARBOR OIL SITE
PORTLAND, OR

FIGURE 3-4

BWGROUP-1-01-07

JUNE 2010

GeoDesign Inc
15575 SW Sequoia Parkway - Suite 100
Portland OR 97224
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File Name: J:\A-D\BWGroup\BWGroup-1\BWGroup-1-01\BWGroup-1-01-07\Figures\CAD\BWGroup-1-07-SP_CS01.dwg | Layout: FIGURE 3-4

3.5 Hydrogeology

3.5.1 Regional Hydrogeology

The Study Area is located in the lowlands of PEN 1, the perimeter of which is a levee intended to protect the lands in PEN 1 from high water in the Columbia River and Willamette River (City of Portland 1997). PEN 1 and the Study Area are located within the alluvial floodplain of the Columbia River, bounded by the Oregon Slough channel of the Columbia River approximately 0.23 mile to the north and the Columbia Slough approximately 0.8 mile to the south (Figure 1-1). The Columbia Slough extends 18 miles from Fairview Lake on the east to the Willamette River at Kelley Point Park on the west. There are three sections or reaches of the Columbia Slough. The reach near the Study Area is the Lower Slough, the western reach.

Six distinct hydrogeologic units, described below, have been mapped regionally in the alluvial flood plain of the Columbia River in the Portland Basin (Hoffstetter 1984; Morgan and McFarland 1996a; Hartford and McFarland 1989). The inclusion of descriptions of these hydrogeologic units in this section does not infer that all six units underlie the Study Area.

Unconsolidated Sedimentary Aquifer: Referred to as the Overbank Deposits by Hoffstetter (1984), this aquifer consists mostly of catastrophic flood deposits of silt, clayey silt, and sand. Thickness is variable but is 65 ft thick at the western edge of the East Portland Well Field study area. The Unconsolidated Sedimentary Aquifer thickens to the north from Sandy Boulevard to the Columbia River. The horizontal hydraulic conductivity in the Unconsolidated Sedimentary Aquifer is 175 ft/day (Morgan and McFarland 1996b). A spring 1988 groundwater level of -2.2 ft mean sea level (msl) was measured in a well near the Columbia Slough south of the Study Area (Morgan and McFarland 1996a). A +1-ft change in water level was noted in this well between measurements taken in 1988 and 1989.

Troutdale Formation Hydrogeologic Units: Three major aquifers (Troutdale Gravel Aquifer [TGA], Troutdale Sandstone Aquifer [TSA], and Sand and Gravel Aquifer [SGA]) and two major aquitards (Confining Unit 1 [CU1] and Confining Unit 2 [CU2]) have been delineated within the Troutdale Formation as follows:

Troutdale Gravel Aquifer: Referred to as the Columbia River Sand Aquifer by Hofftstetter (1984), this aquifer consists of late Pleistocene and Holocene medium quartzose sand occasionally layered with silt, clay, and basalt, andesite, dacite, and quartzsite gravel zones that fill a Pleistocene Columbia River valley. The TGA attains a maximum thickness of approximately 400 ft; the TGA is approximately 195 ft thick at the western edge of the East Portland Well Field study area, not far from the Study Area. According to Ecology and Environment (2000), most municipal wells have been completed in this aquifer; the upper part of the TGA has been weathered to clay to form a discontinuous confining layer, but this

confining layer has not been confirmed in the Study Area vicinity. The horizontal hydraulic conductivity for the TGA ranges from about 7 to 16 ft/day (Morgan and McFarland 1996).

Troutdale Sandstone Aquifer: According to Hoffstetter (1984), the TSA consists of a relatively uniform deposit of conglomerate and vitric sand and sandstone that extends throughout a large portion of the Portland Basin. A thin layer of silt separates the depositional mode of the aquifer into an Upper Unit (approximately 60 ft thick) consisting of fluvial vitric sand and sandstone and a Lower Unit (approximately 35 ft thick) consisting of fluvial-lacustrine conglomerate. Well yields for the TSA are 1,000 to 2,000 gpm.

Sand and Gravel Aquifer: Referred to as Rose City Aquifer by Hoffstetter (1984), this aquifer is composed of discontinuous lenses of sand, gravel, silt, and clay. Pump tests show that the SGA is continuous throughout the East Portland Well Field study area, but each well shows a different sequence of materials. Various mixtures of gravel and sand dominate the Upper unit (approximately 120 ft thick) while thick layers of sand with occasional silt and clay beds predominate in the Lower unit (100+ ft thick). Most of the sand in the SGA is quartzose, with a minor amount of mica. Vitric sand is not as common in the SGA as in the TGA. The gravel in the SGA consists almost entirely of basalt and quartzite clasts, and the cementation of the gravel is less tight than in the TSA. The horizontal hydraulic conductivity in the SGA is 150 ft/day (Morgan and McFarland 1996b). A spring 1988 groundwater level of approximately 10 ft msl was measured in the SGA east of the Study Area (Morgan and McFarland 1996a). Well yields for the SGA are 2,000 to 3,000 gpm.

Confining Unit 1: This unit is composed of lenticular and interbedded zones of fine-grained, lacustrine deposits of consolidated sand, silt, and clay that act as hydraulic confining layers preventing rapid water movement between the CRSA and TSA. This unit is approximately 50 ft thick at the western edge of the East Portland Well Field study area. The horizontal hydraulic conductivity in CU1 and CU2 is approximately 1 ft/day (Morgan and McFarland 1996b). The horizontal hydraulic conductivity in CU1 is approximately 1 to 10 ft/day (Morgan and McFarland 1996b).

Confining Unit 2: Referred to as Rose City Aquitard by Hoffstetter (1984), this unit is composed of lenticular and interbedded zones of fine-grained, lacustrine deposits of consolidated sand, silt, and clay that act as hydraulic confining layers preventing rapid water movement between the TSA and SGA. This unit is approximately 80 ft thick at the western edge of the East Portland Well Field study area. The horizontal hydraulic conductivity in CU2 is approximately 0.5 to 4 ft/day (Morgan and McFarland 1996b).

3.5.2 Local Hydrogeology

Local hydrogeologic conditions, such as groundwater levels, flow direction, gradient, and aquifer characteristics (e.g., hydraulic conductivity, transmissivity) were initially evaluated by Golder Associates

(1990) and later summarized by Ecology and Environment (2000). In addition, Sweet-Edwards/EMCOM (1988) evaluated groundwater levels for four borings drilled at the Facility.

Based on initial investigations and studies completed for Phase 1 and Phase 2 of the RI, the local hydrogeology has been defined as containing three distinct groundwater zones beneath the Facility including:

- A shallow saturated zone that occurs at depths ranging from 1 to 6 ft bgs, depending upon location and time of year, with seasonal fluctuations ranging from 1 to 3 ft at any particular location over the course of the year. The shallow saturated zone extends to a depth of approximately 8 to 15 ft bgs within a relatively permeable sand fill material
- An intermediate saturated zone that occurs within a sand interval between approximately 37 to 48 ft bgs
- A deep saturated zone that occurs at depths greater than approximately 90 ft bgs that is associated with the TGA gravels

As described on boring logs (Appendix D), and as depicted on the hydrogeological cross-sections prepared for the Study Area (Figures 3-2 through 3-4), the three distinct water-bearing zones are separated by saturated silt deposits with varying amounts of sand and clay.

3.5.2.1 Site Vicinity Hydrogeological Studies

Golder Associates (1990) installed pressure transducers fitted with electronic data loggers in several wells, including shallow well A-19 and deep well B-4 at the Facility. A pressure transducer and data logger were also set up in the Oregon Slough to monitor the stage in the Columbia River.

The purpose of this monitoring was to determine regional groundwater gradients, flow directions, and fluctuations. Data were collected from the middle of May 1990 through the end of July 1990. The resulting data were plotted along with Oregon Slough station elevations to determine if water level fluctuations were correlated. The resulting hydrograph did not show a clear correlation between the fluctuations in Columbia River stage and fluctuations in shallow groundwater. However, a correlation did exist between fluctuations in Columbia River stage and the fluctuation in intermediate and deep groundwater (Golder Associates 1990). Such fluctuations may be due to tidal as well as seasonal influences.

Golder Associates (1990) evaluated horizontal versus vertical hydraulic gradients in shallow, intermediate depth, and deep zones. Golder Associates speculated that the interbedded silts and fine-grained sands comprising the lacustrine and overbank deposits should act hydraulically as a semi-confining stratum or an aquitard (see Figures 3-2 through 3-4). As such, the intermediate zone should exhibit a high degree of anisotropy of horizontal versus vertical hydraulic conductivities (a 10:1 to 100:1 contrast). However, following the investigation, Golder Associates (1990) concluded that the interbedded sands and silts do not appear to isolate the shallow and deep zones but act as a continuous hydraulic system,

both in terms of vertical and horizontal gradients. On the former Stockyards site, vertical gradients were downward, allowing movement of near surface groundwater to depth. Golder Associates (1990) noted that vertical gradients between the shallow and intermediate zones ranged from 0.14 to 0.17 ft/ft, and vertical gradients generally declined with depth. Slight downward vertical gradients also were noted between intermediate and deep well clusters north of the Facility. Vertical gradients were not as pronounced at the Facility (Golder Associates 1990), in part due to the recharge of the shallow groundwater system by the former stockyard production well and leaky livestock water system in place at that time.

3.5.2.2 Site Groundwater Gradients and Flow Directions

As described in Section 2.3.1.3, synchronous water level measurements were collected from all site monitoring wells on a monthly basis from May 2008 through April 2009 (Table 2-2). From these data, specific timeframes have been selected for the preparation of groundwater elevation contour maps, which are provided in Appendix L. Specifically, groundwater elevation contour maps have been prepared for the shallow and intermediate depth groundwater zones (Figures L-1 through L-6), while groundwater elevation hydrographs for all shallow zone wells (Figure L-7), intermediate zone wells (Figure L-8), and each of the three monitoring well clusters at the site (Figures L-9 through L-11) have also been prepared.

The following sections present calculated hydraulic gradients and interpreted groundwater flow directions beneath the Study Area as identified during the RI monitoring activities.

3.5.2.2.1 Horizontal Groundwater Gradients and Flow Directions

This section discusses horizontal groundwater gradients and flow directions for the shallow, intermediate, and deep groundwater zones. In addition, seasonal fluctuations for these gradients and flow directions are discussed. Figures L-1 through L-6 showing groundwater elevations are provided in Appendix L.

Shallow Groundwater Zone: As illustrated in Figures L-1, L-3, and L-5 (Appendix L), groundwater in the shallow saturated zone, which typically ranges from between 1 and 6 ft bgs, is consistently interpreted to flow in a southwestern direction beneath the Facility toward Force Lake under relatively constant horizontal gradients. Based on the depth to water, flow direction, and profile of Force Lake, shallow groundwater discharges to Force Lake. The groundwater elevation maps included here for the three monitoring periods (June 2008, September 2008, and January 2009) are deemed representative of the flow regime identified within this water-bearing zone throughout the year. The September 2008 monitoring period represents seasonal low water levels; the January 2009 monitoring period represents seasonal high water levels. The range in calculated horizontal hydraulic gradients as calculated across the site within the shallow groundwater zone was determined to be fairly consistent, ranging from 0.011 to 0.015 ft/ft.

Intermediate Groundwater Zone: In the intermediate-depth saturated zone, monitoring indicated that flow is typically toward the west, as depicted for the seasonal low water level in September 2008 (Figure L-4, Appendix L) and for the seasonal high water level in January 2009 (Figure L-6, Appendix L). A slight shift in the groundwater flow direction to the southwest was noted within this zone during June and July 2008 (Figure L-2, Appendix L). Similar to the shallow water zone (although an order of magnitude lower) the horizontal hydraulic gradient within the intermediate water-bearing zone is relatively constant, ranging from 0.0014 to 0.0019 ft/ft.

Deep Groundwater Zone: The hydrogeological evaluations completed during Phase 1 and Phase 2 of the RI largely focused on shallow and intermediate zone groundwater. However, Golder Associates (1990) noted that deep zone groundwater flows to the northwest toward the Columbia River during periods of low river flow and southwest away from Columbia River during periods of high river flow at gradients ranging from zero (during flow reversal) to a maximum of 0.002 ft/ft.

Golder Associates (1990) also demonstrated correlation between fluctuations in Columbia River stage and the fluctuation in intermediate and deep groundwater zones, with such fluctuations likely the result of tidal as well as seasonal influences. Golder Associates' (1990) conclusion is based on the a comparison of the water level elevations in a gage station on the Oregon Slough and well B-4 at the Study Area. During periods of low river flow, the groundwater elevation in B-4 is higher than the surface water elevation in the Oregon Slough, and thus flow is northward toward the Columbia River. Conversely, during periods of high river flow, the groundwater elevation in B-4 is lower than the surface water elevation in the Oregon Slough, and thus flow is southward away from the Columbia River.

Seasonal Fluctuations: As depicted on the hydrographs for the shallow zone monitoring wells (Figure L-7, Appendix L) and the intermediate zone monitoring wells (Figure L-8, Appendix L), seasonal variations of 1 to 3 ft in the groundwater elevation occur for both of these zones, with higher levels in the winter and spring and lower levels in the summer and fall.

With regard to the shallow zone (Figure L-7, Appendix L), seasonal and localized heterogeneity exists in the relationship between monitoring well locations. Although heterogeneities exist, the overall patterns depicting seasonal effects on water levels are generally similar across the Study Area, confirming that the wells are all screened in the same overall water-bearing zone (e.g., none appear screened within perched or isolated zones).

With regard to the intermediate groundwater zone, the hydrograph (Figure L-8, Appendix L) shows that all intermediate-depth wells responded uniformly to seasonal changes, with the relationship between well locations remaining relatively constant over the course of the monitoring period.

The differing responses between the shallow and the intermediate-depth groundwater zones is consistent with findings presented by Golder

Associates (1990), with water table fluctuations in shallow wells likely related to variations in rainfall (e.g., more rapid and larger scale changes), and with water levels in intermediate and deep wells more likely correlated with Columbia River stage and tidal fluctuations.

3.5.2.2.2 Vertical Groundwater Gradients and Flow Directions

This section discusses vertical hydraulic gradients as calculated between the shallow, intermediate, and deep groundwater zones, which appear to vary throughout the year. Figures L-9 through L-11 (in Appendix L), show groundwater elevation relationships between wells within each of the three well clusters at the Study Area.

Vertical gradients observed at well clusters MW-4s/4i (upgradient portion of the site) and MW-5s/5i (middle portion of the site) were largely downward (i.e., the hydraulic head in the shallow zone was larger than the intermediate zone, and theoretical groundwater flow would occur from shallow to intermediate), with the exception of the June and July 2008 monitoring periods at the MW-5s/5i cluster, for which the gradient was upward (Figure L-10 and L-11, Appendix L).

The most notable seasonal variation in vertical gradients was observed in well cluster MW-2s/MW-2i/B-4 (Figure L-9, Appendix L). The response and trends in water levels for this cluster suggested a stronger and quicker response to seasonal fluctuations in the shallow groundwater zone, and more subdued and delayed response in the intermediate and deep groundwater zones (Figure L-9, Appendix L).

Specifically, a review of the water level data at this location suggested the following:

- From June 2008 to September 2008, the vertical gradient was generally upward. This corresponds to the dry season when groundwater elevations within the shallow zone are lowest.
- From October 2008 to January 2009, the vertical gradient shifted to downward, meaning that theoretical groundwater flow would occur from shallow to intermediate to deep zones. This shift corresponds to the rainy season when groundwater elevations in the shallow zone are found to rise sharply in this area relative to the more gradual and delayed response in both the intermediate and deep groundwater zones.
- From February 2009 to April 2009, the vertical gradients appeared to vary, with two periods of mixed gradients (i.e., upward between shallow/intermediate, upward between shallow/deep, and downward between intermediate/deep zones), separated by a period of consistent downward gradients observed in March 2009.

The vertical gradients as calculated across the Study Area between the shallow and intermediate groundwater zone ranged from a low of -0.002 ft/ft (upwards) to a high of 0.09 ft/ft (downwards). The greatest downward vertical gradients were consistently identified at the MW-4s/4i well cluster (near the northeast Facility boundary and the tank farm); the greatest and most prolonged upward gradients were identified at the MW-2s/-2i/-B-4 location (near the southwest Facility boundary).

The vertical gradients as calculated between the intermediate and deep groundwater zone (MW-4i/B-4) ranged from a low of -0.009 ft/ft (upwards) to a high of 0.009 ft/ft (downwards).

The seasonal high vertical hydraulic gradient observed at the Facility (0.09 ft/ft downward) was generally consistent with the findings presented by Golder Associates (1990) for the former Stockyards: vertical gradients between the shallow and intermediate zones ranged from 0.14 to 0.17 ft/ft (downward) at the Stockyards, with less pronounced vertical gradients at the Facility.

3.5.2.3 Aquifer Characteristics

3.5.2.3.1 Slug Tests

As discussed in Section 2.3.1.6, slug tests were performed on nine monitoring wells as part of the RI. Specifically, these tests were conducted on six shallow zone wells, two intermediate zone wells, and one deep zone well. Results of the testing are summarized in Table 3-1. Also included in Table 3-1 are the results of previous slug testing in nearby monitoring wells (Golder Associates 1990).

With regard to the shallow groundwater zone, and based on the 2008 slug test results, a range in hydraulic conductivities from 3.18×10^{-5} cm/sec (MW-2s) to 1.34×10^{-3} cm/sec (MW-3s) was calculated for the Study Area. Further analysis of the results yielded an average hydraulic conductivity of approximately 4.37×10^{-4} cm/sec (1.24 ft/day) for the shallow groundwater zone (using data from MW-2s, MW-3s, MW-4s, GA-9 and GA-34).

With regard to the intermediate groundwater zone, and based on the 2008 slug test results summarized above, hydraulic conductivities of 4.55×10^{-5} cm/sec (MW-5i) and 3.30×10^{-3} cm/sec (MW-4i) were calculated for the Study Area, yielding an average hydraulic conductivity of approximately 1.57×10^{-3} cm/sec (4.44 ft/day) for the intermediate groundwater zone. The deep zone, as measured at the B-4 location, was screened primarily in the silts above the TGA, and yielded a hydraulic conductivity of 4.87×10^{-5} cm/sec (0.138 ft/day).

Golder Associates (1990) provided slug test results for several shallow wells, including one well at the Facility (GA-30) and eight wells on regional properties (Table 3-1). The test apparatus consisted of an electronic pressure transducer, data logger, and “slug,” which initiated the water level change. The slug was introduced into the well causing an instantaneous change in water level; the recovery of the water level to pretest levels was monitored using the pressure transducer/data logger. Interpretation of the data was performed in accordance with the Hvorslev method. A hydraulic conductivity of 4×10^{-3} cm/sec was reported for shallow well GA-30 at the Facility property, which falls into the range of conductivities calculated for the shallow groundwater zone as part of the RI. With regard to offsite locations, hydraulic conductivities, as calculated by Golder Associates (1990) identified a range in values for the shallow groundwater zone, with a low of 8×10^{-4} cm/sec (2.3 ft/day) at the GA-33 location to a high of 4×10^{-1} cm/sec (1,134 ft/day) at the GA-25 location.

Table 3-1. Summary of Estimated Hydraulic Conductivities from Slug Testing

Testing Well/Zone	Analysis Method	Hydraulic Conductivity Estimate (cm/sec)
May 2008 Slug Testing		
MW-1s/shallow[a]	Bouwer & Rice	1.48×10^{-2} [a]
	Hvorslev	1.91×10^{-2} [a]
MW-2s/shallow	Bouwer & Rice	3.18×10^{-5}
	Hvorslev	3.88×10^{-5}
MW-3s/shallow	Bouwer & Rice	9.71×10^{-4}
	Hvorslev	1.34×10^{-3}
MW-4s/shallow	Bouwer & Rice	3.28×10^{-4}
	Hvorslev	4.24×10^{-4}
GA-29/shallow	Bouwer & Rice	4.69×10^{-5}
	Hvorslev	6.07×10^{-5}
GA-34/shallow	Bouwer & Rice	4.94×10^{-4}
	Hvorslev	6.35×10^{-4}
MW-4i/intermediate	Cooper-Bredehoeft-Papadopulos	3.09×10^{-3}
MW-5i/intermediate	Cooper-Bredehoeft-Papadopulos	4.55×10^{-5}
B-4/deep	Cooper-Bredehoeft-Papadopulos	4.87×10^{-5}
Previous Slug Testing[b]		
Onsite Locations		
GA-30/shallow	Hvorslev	4.00×10^{-3}
Offsite Locations		
GA-25/shallow	Hvorslev	4.00×10^{-1}
GA-26/shallow	Hvorslev	3.00×10^{-1}
GA-27/shallow	Hvorslev	1.00×10^{-1}
GA-28/shallow	Hvorslev	8.00×10^{-2}
GA-30/shallow	Hvorslev	4.00×10^{-3}
GA-33/shallow	Hvorslev	8.00×10^{-4}
GB-5a/shallow	Hvorslev	9.00×10^{-3}
GB-5b/shallow	Hvorslev	1.00×10^{-3}

[a] Average hydraulic conductivities were estimated with the omission of data generated from MW-1s because this well was not stressed sufficiently during the slug testing to yield a reliable dataset.

[b] Source: Golder Associates (1990).

3.5.2.3.2 Aquifer Pumping Test

No aquifer pumping tests were performed as part of the RI, as no suitable pumping well for evaluation of shallow, intermediate, or deep groundwater zones exists at the Facility (e.g., all wells of known construction are monitoring wells, which, as a function of their construction [2-in. in diameter], are not expected to produce a sufficient yield for the regional evaluation of hydraulic conditions). The lack of an RI aquifer pumping test is not deemed to be a data need for the RI because sufficient aquifer characteristic data are available from area studies (described below) and from site-specific well installation/slug testing activities described in preceding sections.

With regard to regional aquifer testing, Golder Associates (1990) performed an aquifer pumping test using the 210-ft-deep production well at the Stockyards. The production well was located approximately 750 ft north of the northern boundary of the Facility. Prior to the pumping test in July/August 1990, the stockyard production well reportedly was being pumped continuously at a rate of 500 gpm and supplied a piping network in the stockyard pens to supply livestock watering. The majority of the surplus water not used by the livestock was diverted through a storm drain and discharged to the Columbia River (approximately 350 gpm). The remainder of the water that was leaking from pipes reportedly infiltrated into the ground (150 gpm) causing a groundwater mound in the stock watering area. Surface runoff toward the wetlands south of the Stockyards and adjacent to the Facility was reportedly negligible. Downward vertical gradients were reported for nested wells in the stock watering area due to the groundwater mound.

The purpose of the pumping test was to determine the impact of the production well on groundwater flow and provide more reliable estimates of deep aquifer hydraulic properties than had been obtained by slug tests. During the test, pressure transducers with data loggers were installed in 13 wells, including well B-4 at the Facility (Figure 1-9). An alternate water supply was provided for the Stockyards so that the production well could be started and stopped at will. The production well was shut down for 70 hours, and then the pump was restarted and pumped at a rate of about 490 gpm. Closely timed water level measurements were collected in the production well and nearby monitoring wells.

The pump test analysis was complicated by the fact that the amplitude of variations caused by tidal influences in the Oregon Slough/Columbia River in the intermediate and deep zone wells of 0.1 to 0.4 ft is greater than the measured drawdowns in the observation wells (0.1 ft in wells located 100 ft away from the test well to 0.01 ft in wells located farther away). A discussion concerning the analysis of the interpreted effects of seasonal and tidal changes in water levels in the Oregon Slough/Columbia River is presented in Section 3.5.1.

Golder Associates (1990) developed the following conclusions from the pump test analysis:

- A drawdown of 10 ft was observed in the stockyard's production well when it operated at a rate of approximately 490 gpm.

- Transmissivities for the deep zone ranged from about 2.3×10^5 to 3.5×10^6 ft/day, with a most likely value of 2×10^6 ft/day.
- Water level drawdown at the closest observation well was less than a maximum of 0.3 ft.
- Predicted maximum drawdowns in observation wells 100 ft or more away from the pumping well could have been as high as 0.25 ft but were probably only 0.03 ft.

The observed drawdown in the production well was about 10 times greater than would be expected as a result of well loss.

3.5.2.4 Groundwater Flow Velocities

A summary of calculated horizontal gradients and calculated groundwater velocities for the shallow and intermediate groundwater zones is provided in Table 3-2.

Table 3-2. Estimated Horizontal Groundwater Gradients and Velocities of Shallow and Intermediate Groundwater Zones

Groundwater Zone	Gradient (ft/ft)	Advective Velocity (ft/day)
Shallow Groundwater Zone	0.011 to 0.015	0.038 to 0.053
Intermediate Groundwater Zone	0.0014 to 0.0019	0.018 to 0.024

The horizontal hydraulic gradient values presented in Table 3-2 are based on water level measurements made on a monthly basis from May 2008 to April 2009 (see Table 2-2), and a review of resulting groundwater elevation maps (Appendix L, Figures L-1 through L-6). The estimated horizontal advective groundwater velocity was calculated using the average hydraulic conductivity values calculated for the Study Area (Section 3.5.2.3.1) and the assumed effective porosity (0.35), which was based on the lithology screened (sand).

The advective velocities presented in Table 3-2 were calculated using the following formula:

$$v = \frac{K}{n}\left(\frac{dh}{dl}\right) \qquad \textbf{Equation 3-1}$$

Where:

V	=	horizontal pore velocity of groundwater (ft/day)
K	=	horizontal hydraulic conductivity (ft/day), estimated at 1.24 ft/day for the shallow groundwater zone and 4.44 ft/day for the intermediate zone.
n	=	effective porosity (unitless), estimated at 0.35 based on the average porosity of sand (between 0.25 and 0.50 (Freeze and Cherry 1979))
dh/dl	=	hydraulic gradient (ft/ft), calculated as the observed difference in head divided by the distance between observations

A summary of the calculated vertical gradients and calculated groundwater velocities between the shallow, intermediate, and deep groundwater zones is provided in Table 3-3.

Table 3-3. Estimated Vertical Groundwater Gradients and Velocities Between Shallow, Intermediate and Deep Groundwater Zones

Groundwater Zones	Gradient (ft/ft)[a]	Advective Velocity (ft/day)
Shallow to Intermediate Zone	-0.002 to 0.09	0.0006 (up) to 0.03 (down)
Intermediate to Deep Zone	-0.009 to 0.009	0.003 (up) to 0.003 (down)

[a] Negative indicates upward gradient; positive indicates downward gradient.

The vertical hydraulic gradient values presented in Table 3-3 are based on well cluster water level measurements made on a monthly basis from May 2008 to April 2009 (see Table 2-2), and subsequent review of the direction and magnitude of hydraulic gradients calculated for each event. The vertical gradients calculated between shallow and intermediate groundwater zones were estimated by dividing the observed head differences between screened intervals (approximately 36 ft from shallow to intermediate, and 46 ft from intermediate to deep).

In calculating the estimated vertical advective groundwater velocity, the hydraulic conductivity value calculated for well B-4 was used (Section 3.5.2.3.1), as was an assumed effective porosity (0.43), based on the lithology screened (silt). Data obtained from well B-4 were screened within the silt materials deemed typical of the silts separating the respective groundwater zones (Figures 3-2 and 3-4). As such, hydraulic conductivity data from B-4 would be most representative of vertical migration, if any, through the silt layers that separate the groundwater zones.

The vertical advective velocities presented in Table 3-3 were calculated using the same formula presented above:

$$v = \frac{K}{n}\left(\frac{dh}{dl}\right) \qquad \textbf{Equation 3-2}$$

Where:

V = vertical pore velocity of groundwater (ft/day)

K = vertical hydraulic conductivity (ft/day), estimated at 0.138 ft/day based on the slug testing results for well B-4, which is screened within the silt materials separating the respective groundwater zones. This value is considered conservative because the clay content observed within this silty material is characterized by relatively lower values of vertical hydraulic conductivity compared to horizontal hydraulic conductivity.

n = effective porosity (unitless), estimated at 0.43 based on the average porosity of silt (between 0.35 and 0.50 (Freeze and Cherry 1979)

dh/dl = hydraulic gradient (ft/ft), calculated as the observed difference in head divided by the distance between observations

3.5.2.5 Report on Deep Groundwater Sampling

Golder Associates (1991b) identified several deep production wells (i.e., large capacity drinking water, industrial process, and irrigation supply wells) in the vicinity of the Study Area that were completed in the TGA. These wells include five former Vanport City wells (Well Nos. 1 through 5), a golf course domestic well (Well No. 6), an Exposition Center

irrigation well, five James River Corporation production wells, and the Stockyards production well.

Former Vanport City wells No. 1 and 2 are at the present site of the Portland International Raceway. The exact locations and condition of these 152- and 148-ft-deep wells are not known. Wells No. 1 and 2 are both constructed with 12-in.-diameter casing, which is perforated from 132 to 145 ft bgs and 125 to 142 ft bgs, respectively. At the time of the Golder Associates (1991b) report, former Vanport City Wells Nos. 3 and 4 were sealed at the surface with a metal cap. Apparently, there were plans to rehabilitate these 136- and 137-ft-deep wells to provide additional irrigation water for the expansion of the Heron Lakes Golf Club. Wells Nos. 3 and 4 were constructed of 12- and 14-in.-diameter casings, which were perforated from 122 to 132 ft bgs and 115 to 130 ft bgs, respectively. At the time of the Golder Associates (1991b) report, the 125-ft-deep former Vanport City Well No. 5 was being used by the golf course for irrigation, and the 86-ft-deep Well No. 6 was being used as a domestic supply for the club house. Well No. 5 was constructed with a 12-in.-diameter casing, which was perforated from 106 to 120 ft bgs. Well No. 6 was constructed with a 10-in.-diameter casing, but the perforation interval is not known.

According to J. Goodling, Heron Lakes Golf Club Superintendent (personal communication November 28, 2007), Vanport City Well No. 6 has been capped and is no longer used for any purpose. There are two active wells on the Heron Lakes Golf Club (i.e., Vanport City Wells No. 4 and 5), and both are used for irrigation only. The current use status and condition of the other Vanport City wells are not known.

The 166-ft-deep Exposition Center irrigation well was used periodically to irrigate land south of the Center complex. This well has a 12-in.-diameter casing that is perforated from 147 to 162 ft bgs.

Information is available for only one of the five James River wells, a process production and water supply well that is 163 ft deep and has a casing perforated from 138 to 163 ft bgs. Golder Associates (1991b) indicated that no information was found on the specific location and construction of the other four James River wells.

Approximate well locations are shown on Figure 1-10.

3.6 Demography and Land Use

This section provides information regarding City of Portland planning and zone designations, as well as current and future land uses.

3.6.1 City of Portland Comprehensive Plan Designation

According to the February 2010 City of Portland Comprehensive Plan Designations Map (2010a), the Facility has an Industrial Sanctuary designation, as do the surrounding properties to the northwest, northeast, and southeast. The Industrial Sanctuary designation, as defined in the City of Portland Comprehensive Plan (2010a), is intended for areas

where City policy is to reserve land for existing and future industrial development. Non-industrial uses are limited to prevent land use conflicts and to preserve land for industry.

Property to the southwest of the Facility has an "Open Space" designation.

3.6.2 City of Portland Zoning Designation

The City of Portland February 20102006 Zoning Designations Map (2010e) indicates that the Facility and properties to the northwest, northeast, and southeast are zoned IG2, Industrial General 2. Property to the southwest, including the wetlands and Force Lake, is zoned OS, Open Space.

The City of Portland 1/4 Section Zoning Maps 1827 and 1927 (City of Portland 2010d, c) indicate that the Study Area is located within the PEN 1 NRMP area, and the Facility is zoned as IG2dh, as are the properties immediately to the northwest, northeast, and southeast. The "d" indicates that the Study Area is located in a Design Overlay Zone, which promotes conservation, enhancement, and continued vitality of areas of the City with special scenic, architectural, or cultural value (City of Portland 2010b). The "h" indicates that the Study Area is located in the Aircraft Landing Overlay Zone for the Portland International Airport. The property to the southwest (wetlands) has a specific zoning of OShp. The "p" is reflective of an Environmental Overlay Zone, which limits development to only "rare and unusual circumstances."

3.6.3 Future Land Uses

The zoning and comprehensive plan designations for the Study Area (Sections 3.6.1 and 3.6.2) indicate that the current and likely future land uses within the Study Area are recreation and habitat for the wetlands and Force Lake and industrial for the Harbor Oil Facility, in particular because of the Facility's Industrial Sanctuary designation.

3.6.4 City of Portland Columbia Slough Fish Consumption Study

As part of the larger investigation and improvement effort for the Columbia Slough, the City of Portland conducted a study to better understand fishing habits on the slough (2009a). A study was conducted in the fall of 2008 and the spring of 2009. As part of the study, anglers that were observed fishing in the slough were interviewed regarding their fishing frequency, preferred fishing locations, and consumption habits.

Of the 25 angler interviews conducted during the survey, 2 anglers were observed fishing at Force Lake. Key conclusions from the survey were as follows:

- Most fishing in the slough occurred at the west end of the slough (Force Lake is in the west-central portion of the slough and was not indicated as a "popular" place for anglers).

- Of the 25 anglers, 12 anglers indicated that they planned to eat any fish that they caught. Of the two Force Lake anglers, one was practicing catch and release while the other indicated that he might eat any larger fish.
- Anglers indicated a preference for fishing in the spring and summer both at Force Lake and throughout the slough.
- Of the 25 anglers interviewed, 5 anglers caught fish. Three of these five anglers planned to release their fish while the other two planned to eat their catch and share it with their families (both adults and children). No fish were caught by interviewed anglers at Force Lake.

Overall, this survey indicates that while fishing occurs at Force Lake, it is relatively infrequent compared to other locations throughout the Columbia Slough.

3.7 Ecology

This section describes the ecological setting of the Study Area, along with animal species that have been observed in the area.

3.7.1 PEN 1 NRMP

The Study Area is located within the PEN 1 NRMP area, one of a number of NRMP areas established under Title 33, Planning and Zoning, Chapter 33.430 of the City of Portland planning code. NRMPs provide a means to evaluate the cumulative effects of development and mitigation within a large ecosystem.

According to the 1997 PEN 1 NRMP (City of Portland 1997), the City of Portland was planning to develop a public-access trail along North Force Avenue and around the perimeter of the Heron Lakes Golf Club to enhance opportunities for passive recreation (e.g., bird watching). This trail was to provide access to earlier improvements made to the south side of Force Lake as part of the construction of the final nine holes Heron Lakes Great Blue Course. However, as of 2010, the improvements to enhance recreational opportunities around Force Lake have not been implemented.

According to CEC (2002) and Fishman (1989), Force Lake is only 2 to 3 ft deep on average, which was confirmed based on observations during the Phase 1 and 2 RI sampling. Information regarding the fish community present in Force Lake is provided in Section 2.7 and information regarding birds and mammals that use the Study Area is provided in Section 3.7.2.

3.7.2 City of Portland Bureau of Planning Survey

During the City of Portland Bureau of Planning survey conducted in 1997 (City of Portland 1997), observations of birds and mammals were recorded. This section summarizes those findings, which are discussed in

greater detail in Sections 2.2 and 2.3 of the ERA (Appendix J). The information collected by the City of Portland in 1997 as part of the NRMP is expected to still be representative of current conditions at the Study Area based on observations during site visits and during RI/FS sampling and the fact that land use has not changed significantly over the past 15 years.

3.7.2.1 Birds

Numerous bird species inhabit Force Lake and the surrounding area. Based on the 1997 City of Portland Bureau of Planning survey, 55 bird species have been observed in or near Force Lake, and an additional 36 bird species have been observed within PEN 1.

Birds from the following general feeding guilds have been observed:

- **Herbivorous birds:** including dabbling and diving ducks
- **Insectivorous/invertivorous birds:** including sediment-probing invertivores, birds that feed on flying insects, and terrestrial birds and aquatic ducks that feed on aquatic insect larvae and aquatic benthic invertebrates, respectively
- **Piscivorous birds:** including aquatic birds that feed predominately on fish
- **Carnivorous birds:** including terrestrial birds of prey that consume species at higher trophic levels (i.e., birds and mammals)
- **Omnivorous birds:** including birds with an opportunistic diet or a non-specific diet that includes plants and various prey species

In addition, some birds are known to nest in the vicinity of the Study Area. Great blue heron and red-tailed hawk have been observed nesting in areas near Force Lake (City of Portland 1997), and a heron rookery is located approximately one-half mile west of the Study Area in the PEN 1 area. For ruddy ducks, Force Lake represents the only breeding and nesting habitat within the Portland urban growth boundary (Fishman 1989).

Two birds that are special-status species have been observed in PEN 1 (City of Portland 1997). Tri-colored blackbirds are Oregon State sensitive species and are a federal species of concern. Bald eagles are listed in Oregon as endangered and are also protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

3.7.2.2 Mammals

Several predominantly herbivorous mammal species, including Eastern cottontails, voles, beavers, and nutria, have been observed near Force Lake based on the 1997 City of Portland Bureau of Planning survey (City of Portland 1997). In addition, two opportunistic feeders, raccoon and opossum, have also been observed (City of Portland 1997).

Based on the available habitat, invertivorous rodents (e.g., shrew) may also be present in the wetland areas near Force Lake along with other

aquatic mammals (e.g., muskrats). However, these species have not been observed at the Study Area.

No special-status mammal species are known to be present at the Study Area or nearby habitat areas.

4.0 NATURE AND EXTENT OF CONTAMINATION

As discussed in the RI/FS Work Plan (Bridgewater et al. 2008b), the purpose of the RI is to discuss the nature and extent of contamination and potential sources of chemicals. This section discusses the nature and extent of contamination in the Study Area based on available data for Facility soil, groundwater, LNAPL, wetland soil, lake sediment, and lake surface water. Section 4.1 provides an overview of the data summarized in this section, and Section 4.2 provides a summary of known and suspected sources, both on and off the Facility. Sections 4.3 through 4.8 discuss the nature and extent of contamination, with a focus on chemicals or chemical groups determined to be important to the Study Area based on the results of the baseline HHRA and the baseline ERA (Section 6 and Appendices I and J) or based on historical activities at the Facility. Each chemical or chemical group is discussed with respect to known and suspected sources, chemical fate and transport, and medium-specific data.

4.1 Data Overview

This section presents an overview of data selection, reduction, and suitability for the RI. In addition, this section presents the chemicals or chemical groups discussed in greater detail in Sections 4.3 through 4.8, as well as a brief discussion of conservative screening levels used to provide context to the site-specific data. Note that the comparison to conservative screening levels on a point-by-point basis should not be viewed as a risk estimate; risks were fully assessed in the ERA and HHRA as presented in Appendices I and J and summarized in Section 6.0.

4.1.1 Data Selection, Reduction, and Suitability

This section presents a summary of the data available for the Study Area and discusses data selection, data reduction, and data suitability. The complete RI database is provided in Appendix B. In addition, the following appendices provide additional detail regarding the data used in this RI:

- Appendix M, Data Validation, provides the complete data validation reports prepared by EcoChem, Inc., for the Phase 1 and Phase 2 RI sampling events.
- Appendix N, Data Management, provides a summary of the computational methods used to aggregate the data for use in the RI.
- Appendix O, Laboratory Report Forms, provides the Form 1s for the Phase 1 and Phase 2 RI sampling events.

4.1.1.1 Data Selection

Two phases of sampling were conducted as part of the RI (Section 2.0). In addition, historical data were evaluated for their acceptability for use in the RI, as discussed in Section 1.3.4. A total of eight historical datasets were screened against DQOs. Of these datasets, only one dataset was determined to be acceptable: the 2000 Harbor Oil PA/site inspection (Ecology and Environment 2001).

Table 4-1 provides a summary of the data used in the RI by sampling event, and Table 4-2 provides a summary of the number of samples by media available for use in the RI. Data from all three years (2000, 2008, and 2009) are summarized in the data tables presented throughout Section 4.0.

Table 4-1. Summary of Data Used in the RI by Sampling Event

Sampling Event	Year	Media	No. of Locations[a]	Analytes
PA/ SI (Ecology and Environment 2001)	2000	facility soil	13	metals, PAHs, phthalates, other SVOCs, PCBs, pesticides, VOCs, petroleum
		groundwater	7	metals, PAHs, phthalates, other SVOCs, PCBs, pesticides, VOCs, petroleum
		LNAPL	1	PCBs, select pesticides
		wetland soil	5[b]	metals, PAHs, phthalates, other SVOCs, PCBs, pesticides, VOCs, petroleum, conventional parameters
RI Phase 1 sampling	2008	facility soil	34	metals, PAHs, phthalates, SVOCs, PCBs, pesticides, VOCs, petroleum, conventional parameters
		soil stockpile	3	metals, PAHs, SVOCs (excluding phthalates), PCBs, pesticides, VOCs, petroleum, conventional parameters
		soil berm	9	metals, PAHs, SVOCs (excluding phthalates), PCBs, pesticides, VOCs, petroleum, conventional parameters
		groundwater	16	metals, PAHs, SVOCs (excluding phthalates), PCBs, pesticides, VOCs, petroleum, conventional parameters
		LNAPL	1	metals, PAHs, SVOCs (excluding phthalates), PCBs, pesticides, VOCs, petroleum
		wetland soil	38	metals, PAHs, phthalates, other SVOCs, PCBs, pesticides, VOCs, petroleum, conventional parameters
		lake sediment	11	metals, PAHs, SVOCs (excluding phthalates), PCBs, pesticides, VOCs, petroleum, grain size, conventional parameters
		lake surface water	3	metals, PAHs, SVOCs (excluding phthalates), PCBs, pesticides, VOCs, petroleum, conventional parameters
RI Phase 2 sampling	2009	facility soil	15	metals, PAHs, SVOCs (excluding phthalates), PCBs, pesticides, VOCs, petroleum, conventional parameters
		groundwater	11	metals, PAHs, SVOCs (excluding phthalates), PCBs, pesticides, VOCs, petroleum, conventional parameters
		wetland soil	13	metals, PAHs, SVOCs (excluding phthalates), PCBs, pesticides, petroleum, conventional parameters
		lake sediment	3	metals, PAHs, SVOCs (excluding phthalates), PCBs, pesticides, VOCs, petroleum, conventional parameters

[a] This table presents the number of locations, not samples, available for use in the RI. See Table 4-2 for the sample count by environmental media.

[b] A total of six wetland soil samples were collected during this event, but one of these samples was collected on the south side of Force Lake as a "background" sample. This sample was excluded from the RI database.

LNAPL – light non-aqueous phase liquid
PA – preliminary assessment
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
RI – remedial investigation
SI – site inspection
SVOC – semivolatile organic compound
VOC – volatile organic compound

Table 4-2. Summary of Available Data for the RI by Medium

Medium	Sample Depth Category	Sample Depth or Depth Range (ft bgs)	No. of Samples
Facility soil	surface	0 – 5	57
	intermediate	2 – 8.5	35
	deep	6 – 22	35
	soil berm	0.5 – 2	9
	soil stockpile	0.5 – 6	3
Groundwater	shallow	10 – 20	28
	intermediate	48 – 50	3
	deep	97	3
LNAPL	shallow	2000: unknown 2008: 2.58 – 2.68	2
Wetland soil	surface	0 – 0.5	52
	intermediate	0.5 – 1	10
	deep	2 – 3	10
Force Lake sediment	surface	0 – 0.3	11
	intermediate	2 – 3	3
North Lake sediment	surface	0 – 0.3	3
Surface water	surface	1	3

bgs – below ground surface
LNAPL – light non-aqueous phase liquid
RI – remedial investigation

4.1.1.2 Data Reduction

Data reduction refers to computational methods used to aggregate the data for use in the RI. Procedures related to averaging, selection of the best data points when multiple data were available, selection of significant figures and rounding procedures, and calculating sums (i.e., PCBs, PAHs, DDTs, chlordane, and TPHs) are described in Appendix N.

4.1.1.3 Data Suitability

Several factors were considered in assessing the suitability of environmental data for the RI, in accordance with EPA (1988). Key factors included the degree to which the data adequately represent concentrations in the Study Area, the analytical methods, the level of review associated with the data, and the documentation of field and laboratory practices.

Because data from several investigations were available for the Study Area, these factors were evaluated for each dataset to determine whether each dataset was acceptable for use in this RI. These suitability determinations were performed in consultation with EPA as part of the Risk Assessment Scoping Memorandum (Windward and Bridgewater 2008a).

4.1.1.3.1 Representativeness of Data

The majority of data available for use in the RI were collected in 2008 and 2009 as part of the two phases of RI sampling. The sampling plan for these data was designed to collect representative data for use in the HHRA and the ERA based on the human health scenarios and ecological receptors to be assessed. In addition, the sampling plan was designed to characterize the nature and extent of chemical concentrations within the Study Area.

For example, the sample density within the Facility and the wetlands was quite high, as necessary to characterize the higher variability of expected chemical concentrations in these areas. The sample density within Force Lake was lower, as a function of the more homogeneous nature of the lake system and the chemical concentrations in Force Lake. In addition, to ensure complete characterization of the vertical extent of chemical concentrations, subsurface samples were collected at a subset of the soil and sediment locations.

Groundwater samples were collected in summer 2000, spring 2008, and spring 2009. The inclusion of data from multiple years and two seasons increased the likelihood that the temporal variability in chemical concentrations in groundwater was characterized.

Three surface sediment samples were also collected from North Lake. These samples were collected to determine whether chemicals had migrated from Force Lake to North Lake. As presented in the Preliminary Site Characterization Report (Windward et al. 2008a) and discussed in Sections 4.3 through 4.8, an analysis of these samples indicated that the migration of chemicals from Force Lake to North Lake was limited.

4.1.1.3.2 Analytical Methods

Methods selected to analyze the samples collected during the two phases of the RI sampling effort were approved by EPA in advance of sampling. These methods were detailed in the QAPP (Bridgewater et al. 2008a) and summarized in the Preliminary Site Characterization Report (Windward et al. 2008a). Methods used to collect samples for the Harbor Oil PA/site inspection (Ecology and Environment 2001) were described in sufficient detail to determine that they were acceptable.

4.1.1.3.3 Quality Assurance/Quality Control Results

One of the requirements for data use in the RI was for the data to be validated by the original authors of the individual studies or by outside third parties. Complete data validation reports for the Phase 1 and Phase 2 RI sampling events are included in Appendix M. Data validation for the Harbor Oil PA/site inspection conducted in 2000 (Ecology and Environment 2001) was included in that document. Any data qualified as unusable by the data validators were not used in the RI.

4.1.1.3.4 Documentation of Field and Laboratory Practices

For data to be used in the RI, information regarding the sampling method, sample depth, sample type, and sampling location had to be available. This information was clearly presented for the data collected as part of

the RI (Bridgewater et al. 2008a; Bridgewater et al. 2008c) and was available for the other study (Ecology and Environment 2001) that was accepted. Based on a review of these data, no issues were identified that would have adversely affected the usability of the data for risk assessment or site characterization purposes. Data collected by the Voluntary Group followed field and laboratory procedures that were approved by EPA.

4.1.2 Chemicals and Chemical Groups

To focus the discussion in this RI, a list of chemicals or chemical groups was developed based on the list of COCs from the HHRA and the list of contaminants with effects-based HQs greater than 1.0 in the ERA for which background or reference area concentrations were less than Study Area concentrations. In addition, chemicals known to be of interest at the Study Area based on past and present industrial activities were included in this discussion. Efforts were made to group chemicals based on the similarity of chemical properties and potential release sources.

The chemicals or chemical groups discussed in greater detail in Sections 4.3 to 4.7 are:

- **TPHs, PAHs, and associated VOCs:** TPHs, PAHs, and associated VOCs are of interest at the Study Area based on historical and current industrial activities, including oil treatment and processing, production of RFO, and tanker cleaning operations. For the HHRA, carcinogenic PAH (cPAH) TEQ and TPH-gasoline (aliphatic) were identified as a COC based on the potential exposure of future workers to Facility soil. In the ERA, total HPAH concentrations in three samples were greater than invertebrate soil screening values.
- **PCBs:** PCBs are of interest at the Study Area based on their known presence in used oils, fuels, or other petroleum hydrocarbons processed and refined at the Facility. In the HHRA, total PCBs were identified as a COC based on the potential exposure of future workers to Facility soil and potential indirect exposure of children and adults to Force Lake sediment through fish consumption.
- **Metals:** Metals are of interest at the Study Area because of their presence in used oils or fuels processed and refined at the Facility, their use in various industrial applications, and their potential source associated with truck cleaning at the Facility. In the HHRA, arsenic was identified as a COC based on the potential exposure of future workers to Facility soil. In the ERA, chromium, copper, mercury, and zinc were identified based on HQs for invertebrates, fish, and/or mammals.
- **DDTs:** Historical records of industrial activities at the Facility did not include any information documenting the use or handling of DDTs at the Facility. However, DDTs have been detected in samples collected from the Study Area, with distribution patterns

that suggest that DDTs in a portion of the Study Area may have been released from historical livestock trailer washing operations at the Facility. DDTs across the larger Study Area may have been released as a result of typical pest control applications in the area. In the HHRA, total DDTs were identified as a COC based on the potential exposure of future workers to Facility soil and potential indirect exposure of children and adults to Force Lake sediment through fish consumption. In the ERA, DDDs and DDEs were identified based on HQs for aquatic benthic invertebrates and total DDTs were identified based on HQs for birds and mammals.

- **Chlorinated solvents:** No chlorinated solvents were identified in the risk assessments as COCs. However, historical tanker cleaning operations at the Facility used TCE.

In addition to the chemicals or chemical groups listed above, Section 4.8 discusses all other chemicals detected in samples collected from the Study Area as part of the RI. In addition, as noted in Section 2.0, dioxins/furans were not considered to be a COI for the Study Area because there is no information to suggest that they are present as the result of activities conducted at the Facility.

4.1.3 Screening Levels

To aid in the discussion of the nature and extent of contamination, figures displaying chemical concentrations are presented in Sections 4.3 through 4.7. In these figures, human health and ecological screening levels from the HHRA and ERA, respectively, were used to provide a general risk context for the chemical concentrations. The specific screening levels used in this evaluation are described in Sections 4.1.3.1 (human health) and 4.1.3.2 (invertebrate). Note, however, that the comparisons with screening levels should not be viewed as risk estimates and the comparisons are not intended to identify areas that pose risk. See Section 6.0 for a summary of the Harbor Oil risk assessment results and Appendices I and J for the full risk assessments.

4.1.3.1 Human Health RSLs

The human health RSLs shown on the figures discussed in Sections 4.3 through 4.7 are the same as the screening levels used in the HHRA (Appendix I) to determine COPCs. RSLs are specific to both media (e.g., soil) and exposure type (i.e., industrial or residential/recreational), as discussed below.

Industrial Soil RSLs

Chemical concentrations in Facility soil were compared with the lowest of the following industrial exposure criteria:

- EPA regional screening values for industrial exposure to soil (2009c)
- DEQ human health occupational, construction, or excavation worker risk-based concentrations (RBCs) for the following exposure routes: 1) soil ingestion, dermal absorption, and

inhalation; 2) volatilization to outdoor air; 3) vapor intrusion into buildings; and 4) leaching to groundwater (2007b)

Residential or Recreational Soil RSLs

Chemical concentrations in Facility soil and wetland soil were compared with the lowest of the following residential criteria:

- EPA regional screening values for residential exposure to soil (2009c)
- DEQ RBCs for soil ingestion, dermal contact, and inhalation; residential exposure through volatilization to outdoor air; vapor intrusion into buildings; and residential exposure through leaching to groundwater (2007b)

Facility soil data were compared with residential RSLs to evaluate chemical concentrations relative to future hypothetical residential exposure, per EPA request (Bridgewater et al. 2008b; Windward and Bridgewater 2008a, b). However, as discussed in Section 3.6, the current and expected future land use of the Study Area does not include residential use or development.

No recreation-specific screening criteria were available for the Force Lake recreational user RME scenario. Therefore, as a health-protective approach, residential criteria were used in the comparison even though the wetlands are designated as open space and are not zoned for industrial or residential use. Use of the residential criteria as screening criteria is highly conservative because the exposure frequency for residential use is much higher than that for recreational use.

Lake Sediment RSLs

No sediment-specific RSLs were available for comparison with Force Lake sediment data. Thus, chemical concentrations in lake sediment were compared with the same residential criteria used to screen wetland and Facility soils. It should be noted that as with the wetlands, the lake is part of the PEN 1 NRMP area and is designated as open space, and thus the use of these soil-based residential screening criteria is highly conservative.

Surface Water RSLs

Chemical concentrations in surface water were compared with the lowest of the following screening criteria:

- EPA ambient water quality criteria (AWQC) for human water/ organism consumption and organism consumption (2009b)
- EPA regional screening values for water (2009c)
- DEQ human health occupational RBCs for the following pathways: 1) ingestion and inhalation from tap water, 2) volatilization to outdoor air, 3) vapor intrusion into buildings, and 4) leaching to groundwater during excavation (2007b)
- EPA non-zero MCLGs and MCLs (2009a)

Groundwater RSLs

Chemical concentrations in groundwater were compared with the lowest of the DEQ human health occupational RBCs for the following pathways: 1) ingestion and inhalation of tap water, 2) volatilization to outdoor air, 3) vapor intrusion into buildings, and 4) leaching to groundwater during excavation (2007b). Only DEQ RBCs were used because no other sources of worker-specific values were available. In addition, EPA non-zero MCLGs and MCLs were used for screening when the EPA levels were lower than the DEQ RBCs.

4.1.3.2 Invertebrate Screening Levels

For aquatic benthic invertebrates, sediment data were compared with the lower of the following screening levels to provide ecological context to the figures:

- Probable effects levels (PELs) reported by Smith et al. (1996)
- Probable effects concentrations (PECs) reported by MacDonald et al. (2000)

For terrestrial invertebrates, soil data were compared with the lowest of the following screening levels from the following sources to provide ecological context:

- EPA ecological soil screening levels (Eco-SSLs) (2007) protective of soil invertebrates
- Oak Ridge National Laboratory (ORNL) soil data for invertebrates (Efroymson et al. 1997)
- DEQ soil screening level values protective of terrestrial invertebrates (2001a)

The invertebrate soil and sediment levels are presented in the ERA (Appendix J).

Surface water data were compared with chronic AWQC, which are protective of aquatic species.

4.2 Overview of Known and Suspected Sources

This section provides a summary of Facility-related releases known to have occurred since the Facility was developed in the 1950s, potential Facility-related sources, and off-Facility sources located in the vicinity of the Study Area. This information is intended to provide a context for the chemical-specific nature and extent discussions in Sections 4.3 to 4.8.

4.2.1 Known Historical Facility-Related Releases

This section provides an overview of known Facility-related releases. Section 1.3.2 presents a more detailed discussion of historical operations at the Facility, as well as physical changes that took place at the facility over time. The primary purpose of this section is to describe the

mechanisms by which Facility-related releases may have distributed chemicals within the Study Area. The remainder of this section presents the information sequentially by time period. A timeline is presented in Figure 4-1 to provide an overview.

1950s – Initial Facility Development and Initiation of Cattle Truck and Tanker Truck Cleaning Operations

The earliest known Facility-related development occurred in the 1950s, with cattle truck and tanker truck cleaning operations taking place in the central portion of the Facility. It was also reported (CEC 2002) that during the same time frame, a dust-suppression business may have operated at the Facility and that the business reportedly mixed asphalt, lignite, and used oil to create the dust-suppression mix. Information regarding stormwater and process water management practices at the Facility is not available for this time frame, but unless intercepting devices (i.e., sumps, berms, or ponds) were present, it is likely that stormwater sheet flow and truck-cleaning rinsate flowed across the Facility to the wetlands area immediately southwest of the Facility. The aerial photographs presented in Appendix A were not conclusive regarding the absence or presence of these features.

1960s – Continuation of Cattle Truck and Tanker Truck Cleaning Operations

Cattle truck and tanker truck cleaning operations continued during the 1960s (CEC 2002). DEQ referenced a pond with oil-stained soil that was filled sometime before 1964 (DEQ 1995), although the location of this former pond was not identified. If this pond did exist, it suggests that some effort had been made to control the flow of the apparently oily surface water that resulted from operations at the Facility.

1970s – Drainage Ditch Construction and the Discharge of Oily Substances

Aerial photographs taken during the 1970s (Appendix A) show the development of a drainage ditch that runs along the northeast Facility boundary and extends along the northwest Facility boundary through the wetlands. Cattle truck and tanker truck cleaning operations described above continued through the 1970s, reportedly taking place on a “cement washing basin” that drained to an open ditch (likely the drainage ditch that was located along the northeast Facility boundary), which then discharged into the wetlands. In addition, it was noted that the Facility had been oiled for dust control (DEQ 1973), and thus stormwater flow may have included entrained oils from dust suppression. Reports and complaints to DEQ regarding oily discharges from the Facility to the adjacent wetlands were documented in 1973 (Ecology and Environment 2001) and 1974 (DEQ 1974a). DEQ inspections during this time identified the presence of several sumps on the Facility; the sumps contained oily water that reportedly discharged to the adjacent wetlands.

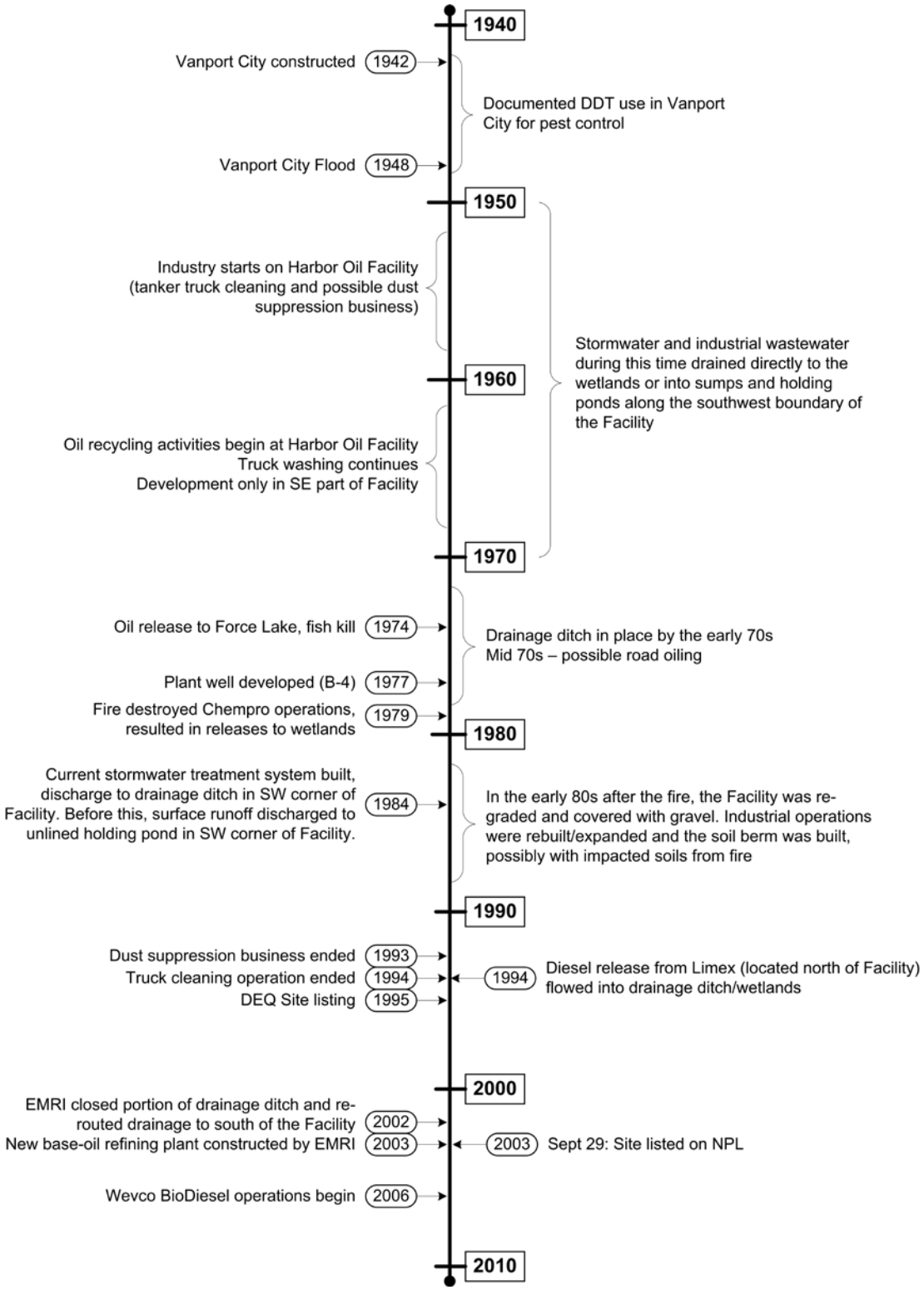


Figure 4-1. General Facility Timeline

In a 1974 letter, Empire Industries, the Facility operator at that time, stated that oil residue in the adjacent wetlands resulted from 10 to 12 years of truck cleaning operations (Empire Industries 1974). This letter also stated that during the same year, Empire Industries placed 1,146 cubic yards of rock fill in the area between the truck cleaning operation and Force Lake to provide containment of wash water. In 1975, DEQ noted that the rock containment had not been completed and there continued to be evidence of discharges into the drainage ditch along the northeast side of the Facility (DEQ 1975), which ultimately discharged to the adjacent wetlands.

In 1975, DEQ issued an NPDES Waste Discharge Permit to Chempro (the facility operator at the time) allowing Chempro to discharge to the "North Ditch of Force Lake" until 1977, after which time, discharges were to be routed to the City of Portland sewer system. In 1978, DEQ received a complaint that Chempro was discharging oily wastes into the wetlands. In 1978, DEQ discovered that the City of Portland sewer system connection had not been completed.

1979 to 1980 – Facility Fire and Post-Fire Reconstruction

In 1979, a major fire destroyed the Chempro facility and reportedly resulted in releases to the adjacent wetlands and Force Lake (DEQ 1995). As part of post-fire reconstruction effort, an earthen berm was constructed along the northwest and southwest sides of the Facility, apparently with soil that had been impacted by the fire-related releases (Ecology and Environment 2001). The soil berm has since been effective in preventing stormwater runoff from discharging into the adjacent wetlands. The Facility was also re-graded and covered with gravel. An unlined holding pond was constructed in the west corner of the Facility to receive surface water flow and act as an oil-water separator. As the pond filled, the water under the surface of floating oil was reportedly pumped off the Facility to a "swamp on the exposition center property," which was likely the wetlands to the west and south of the Facility (EPA 1980).

1983 to 1984 – Construction of Stormwater Treatment System

DEQ issued an NPDES Waste Discharge General Permit to Harbor Oil (Permit 1300-J) which required that stormwater be collected and treated by means of an oil-water separator. By 1984, Harbor Oil had installed a new oil-water separator that discharged treated water into the drainage ditch along the northwest Facility boundary near the Facility's west corner. Water in the stormwater treatment system was sampled by EPA in 1985 and found to contain TCE (Section 1.3.2.5.3).

1988 – Discharge of Truck-Cleaning Rinsate to Wetlands

During a 1988 site inspection, DEQ observed that rinsate from the tanker truck cleaning operation was discharging to the wetlands via the stormwater treatment system (DEQ 1988c). At that time, the tanker truck cleaning operation (i.e., Detrex system) consisted of a TCE-distillation unit and storage tank located on a raised concrete pad adjacent to the cleaning area. Used TCE and truck wastes were pumped into the storage tank and then into the distillation unit for reprocessing. A sample collected

in 1988 from the "bottom of the oil-water separator" (i.e., stormwater treatment system) was analyzed by DEQ. This sample contained detectable concentrations of several VOCs but no acid-base/neutral compounds, DDDs, DDEs, or DDTs were detected (DEQ 1988c). At the time these samples were collected, the stormwater treatment system discharged to the drainage ditch through a pipe located along the southwest Facility boundary near the west corner of the Facility.

Based on the 1988 site inspection, DEQ threatened to revoke Harbor Oil's stormwater discharge permit because pollutants from the tanker truck cleaning operation were entering the stormwater treatment system, which was not designed to remove these chemicals. Harbor Oil subsequently settled with DEQ and in 1989 agreed to a Stipulation and Consent Agreement that allowed Harbor Oil to continue discharging stormwater to the wetlands under the condition that process wastewater be separated and discharged to the City of Portland sanitary sewer.

1990 to 1994 – Initiation of Wastewater Discharge to Sanitary Sewer and Discussion of Detrex System

In 1990, Harbor Oil installed a new wastewater treatment system to comply with City of Portland sanitary sewer discharge requirements and with the DEQ consent order (Advanced Treatment Systems 1993). The system was designed to treat wastewater from waste oil processing and provide pre-treatment prior to discharge to the City of Portland sanitary sewer system. Prior to this, wastewater had been stored and treated in Tank 23 and then further treated through flocculation in Building 5 before being released to the stormwater treatment system.

This Advanced Treatment Systems document (1993) also discussed the Detrex system that had been used to clean the internal surfaces of trucks. The cattle and tanker truck cleaning operation included a diesel-fired heater, which was used to heat a storage tank that contained TCE and water. The TCE/steam mixture was used to clean the trucks. The spent cleaning solution was drained onto a concrete pad, where it was collected in a curtain drain and pumped back to the heated storage tank. The truck cleaning operation was reportedly a closed-loop, stand-alone process that was not physically connected to the Facility wastewater treatment system. Truck cleaning operations at the Facility ceased in 1994.

2002 to Present – Stormwater System Modifications

Use of the drainage ditch ended in approximately 2002. All stormwater from the Facility is now collected in catch basins and routed to the stormwater treatment system located in the western portion of the Facility near the southwest Facility boundary (CEC 2002). Treated stormwater is discharged to the wetlands through a pipe located on the southwest Facility boundary adjacent to the stormwater treatment system (Figure 4-2) under NPDES Industrial Stormwater Discharge Permit 1200-COLS.

Figure 4-2. Facility Features and Area Descriptions

4.2.2 Potential Facility-Related Sources

Potential sources of chemicals to soil, groundwater, surface water, or sediment at the Study Area are summarized in Section 1.3 based on the site history. Figure 4-2 shows the locations of these potential sources on the Facility property.

Briefly, these areas include:

- Former C-shaped area located in the west-central portion of the Facility (Figure 4-2). The historical purpose of this area is unknown; however, it may have collected wastewater and runoff from Facility operations, with overflow into the adjacent wetlands.
- Former unlined oil-water separator pond located in the west-central portion of the Facility (Figure 4-2). This area collected wastewater and runoff from Facility operations, with overflow into the adjacent wetlands.
- Former sumps and holding ponds along the southwest boundary of the Facility, which may have extended over the current Facility boundary into the wetlands. These areas likely collected wastewater and runoff from Facility operations during the 1950s and 1960s (Section 4.2.1), with overflow into the adjacent wetlands.
- Former tanker truck and cattle truck cleaning work area, former concrete pad, and former tanker truck cleaning operation (Detrex system)[12] in the central portion of the Facility (Figure 4-2). Wastewater from the truck cleaning operation is known to have drained directly into the wetlands, into sumps and holding ponds, and later into the wetlands via the stormwater treatment system.
- Historical discharge point for the stormwater treatment system located in the west corner of the Facility along the southwest Facility boundaries (Figure 4-2). The historical discharge point is a suspected source because of overflows and incomplete water treatment.
- Tank farm and used oil processing area located along the northeast Facility boundary (Figure 4-2). Used oil is stored in the tank farm and then heated and processed in the oil processing area to produce RFO. Spills and drips during transfers and processing may have resulted in the release of chemicals in this area.
- Tank 23 located near the north corner of the Facility (Figure 4-2). This tank was used for the storage and treatment of wastewater from waste oil processing prior to the installation of the wastewater treatment system.

[12] Note that the Detrex system consisted of a TCE distillation unit and storage tank located on a raised concrete pad adjacent to the cleaning area as discussed in Section 1.3.2.5.6.

- Soil berm located along the northwest and southwest sides of the Facility. This berm was apparently constructed from soil that was impacted by releases caused by the 1979 Facility fire.
- Soil stockpile located along the northwest Facility boundary. This stockpile was generated during the construction of the new base oil refining plant and may contain soils impacted from historical Facility surface releases in the area.
- Former drainage ditch located along the northeast and northwest boundaries of the Facility[13] that historically served as a collection conduit for the discharge of potentially impacted stormwater from the Facility into the wetlands and Force Lake.

4.2.3 Potential Off-Facility Sources

This section presents a brief overview of potential off-Facility sources. As discussed in Section 3.2.2 of the RI/FS Work Plan (Bridgewater et al. 2008b), there are a number of potential off-site sources of chemicals to the Study Area. These sources are briefly discussed below and in more detail in Section 1.3. Figure 1-4 shows the locations of these potential sources.

4.2.3.1 Heron Lakes Golf Club

The Heron Lakes Golf Club includes the Greenback Golf Course, constructed in 1969 and 1970, and the Great Blue Golf Course, constructed in 1992 (Goodling 2007). The PEN 1 NRMP (City of Portland 1997) states that the City of Portland occasionally used pesticides at the Heron Lakes Golf Club, although specific pesticides were not identified. Force Lake receives runoff and subsurface drainage from a portion of the Greenback Golf Course. Since the City of Portland began collecting twice-yearly water samples from Force Lake in 2001, only one pesticide (Clopyralid [Confront®]) has been detected (Section 1.3.3.5).

4.2.3.2 Former Vanport City Site

Vanport City, which was located immediately south of Force Lake (1943 photograph in Appendix A), was a large public housing project constructed in 1942 to house workers for shipyards located in Portland, Oregon, and Vancouver, Washington. By late 1943, it housed nearly 40,000 people. According to documentation on Vanport City (Maben 1987), residents frequently complained of pest infestations, including rodents, bedbugs, cockroaches, and other insects. Various methods were employed to address this problem without success. In 1945, an extermination company under contract with the Housing Authority of Portland began using DDT at a rate of one pint per apartment with "excellent results."

On Memorial Day 1948, floodwaters from the Columbia River breached a railroad dike along the west side of Vanport City destroying the town. The

[13] The location of the ditch is not shown in Figure 2-1 or on any of the chemical concentration figures presented in this section because the ditch is not a well-defined drainage feature in this area.

flood may have transported soils that contained DDT into Force Lake and the wetlands based on the extent of the flooding shown in a 1948 aerial photograph (Appendix A).

4.2.3.3 Nearby Industrial Properties

Industrial properties to the north and northeast of the Facility include the Peninsula Terminal Railroad, the former Farmer's Plant Aide/former Limex Transportation/Bulk Transportation facility, the former stockyards, and the Star Oil property. These properties are not considered to be important sources of chemicals to the Study Area, but are presented here for completeness.

These properties are located on or to the south of the topographic divide that forms the northeast boundary of sub-basin A-7 (which includes the Facility), and thus stormwater runoff from these properties flows to the southwest and west towards the Facility, the wetlands, and Force Lake. In addition, shallow groundwater beneath portions of these properties flows to the southwest toward the Facility, the wetlands, and Force Lake (see Appendix K, Golder Associates' Figure 6-4).

The following provides a brief description of the industrial history of these properties. Section 1.3.3.1 provides a discussion a 1990 SIs during which samples were collected from some of these properties.

- **Peninsula Terminal Railroad:** The railroad located north of the former Farmer's Plant Aid facility was constructed sometime before 1917 (Golder Associates 1990). Railroad activities included the off-loading of chemicals, cattle, and coal.
- **Former Farmer's Plant Aide/former Limex Transportation/ Bulk Transportation facility:** This property located immediately north and uphill of the Study Area (Figure 1-4) was reported by Golder Associates (1990) to have had piles of unknown substances located near the Facility's northeast boundary in 1948. Around the 1970s, a commercial fertilizer plant (J.W. Fertilizer) began operations on the property, storing and using manure from the Stockyards. Runoff from the manure piles passed through the former drainage ditch and into the wetlands and Force Lake until the 1970s. The former Farmer's Plant Aide ceased operations at the property in 1990. The property was also occupied by Limex Transportation. In November 1994, a faulty valve on a 300-gallon AST caused the release of 50 to 150 gallons of diesel by Limex Transportation (DEQ 1995) (Section 1.3.2.6). The diesel flowed into the drainage ditch between the Limex property and the Facility, entering the wetlands. Cleanup involved product recovery and some soil removal from the most heavily impacted wetland areas. DEQ suspended soil removal activities after determining that an oily layer 16 in. below the surface represented pre-existing conditions (DEQ 1995). This property is now occupied by Bulk Transportation.
- **Former Stockyards:** The Portland Union Stockyards (Portland Stockyards) were built around 1910 and consisted of livestock

pens, with an attached complex that included covered pens, a hay barn, an auction hall, and a livestock receiving area. According to CEC (2002), the stockyards were closed in 1988.

- **Star Oil Property:** During the early 1990s, Star Oil operated a card-lock fueling facility immediately north of the Peninsula Terminal Railroad tracks on the west side of North Force Avenue.

4.3 TPH, PAHs, and Petroleum-Associated VOCs

This section presents an overview of source information, fate and transport, and media-specific data for TPHs, PAHs, and petroleum-associated VOCs. These chemicals are of interest at the Study Area based on historical and current industrial activities, including oil treatment and processing, production of RFO, and tanker cleaning operations. In the HHRA, cPAH TEQ and TPH gasoline (aliphatic) were identified as COCs based on potential future worker exposure to Facility soil. In the ERA, total HPAH concentrations in three samples were greater than invertebrate soil screening values.

Chemicals to be discussed in this section include TPH (total,[14] gasoline-range fraction, diesel-range fraction, and motor oil-range fraction), cPAH TEQ, total PAHs, and VOCs referred to as petroleum-associated VOCs (i.e., 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, benzene, ethylbenzene, isopropylbenzene, n-propylbenzene, tert-butyl methyl ether, toluene, and xylenes). These VOCs were included because of their known presence in petroleum products as identified in DEQ's *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* (2003).

All cPAH data in the RI are presented as cPAH benzo(a)pyrene TEQs. The cPAH TEQ is calculated using PEFs developed by the California EPA Office of Environmental Health and Hazard Assessment (California EPA 1994). As discussed in Appendix N, for each location, the cPAH TEQ was calculated by summing the products of the concentrations of individual cPAH compounds and compound-specific potency equivalency factors (PEFs). The resulting cPAH TEQ has a toxicity equivalent to that of benzo(a)pyrene.

4.3.1 Known or Suspected Sources and Release Mechanisms

Since industrial operations began at the Facility in the 1950s and 1960s (Figure 4-1), TPH, PAHs, and petroleum-associated VOCs may have been released from waste oils and fuels brought onto the Facility for processing and refinement. Sources of these petroleum-related chemicals may have included routine handling activities such as loading and unloading operations, the tank farm located along the northwest boundary of the Facility, on-Facility road oiling for dust suppression, and the former truck cleaning operation located in the central portion of the Facility

[14] As discussed in Appendix N, total petroleum hydrocarbons are defined as the sum of TPH – gasoline-range, TPH – diesel-range, and TPH – motor oil-range.

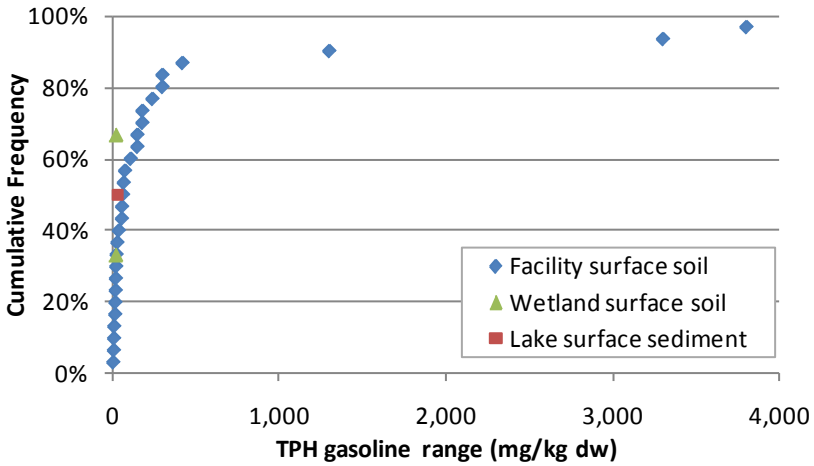
(Figure 4-2). Although TPH were detected in soils in the area where the new base oil plant is located, the plant itself is not the suspected source because of its recent construction (some soil samples were collected before the construction of the plant in 2002).

4.3.2 Concentrations by Medium

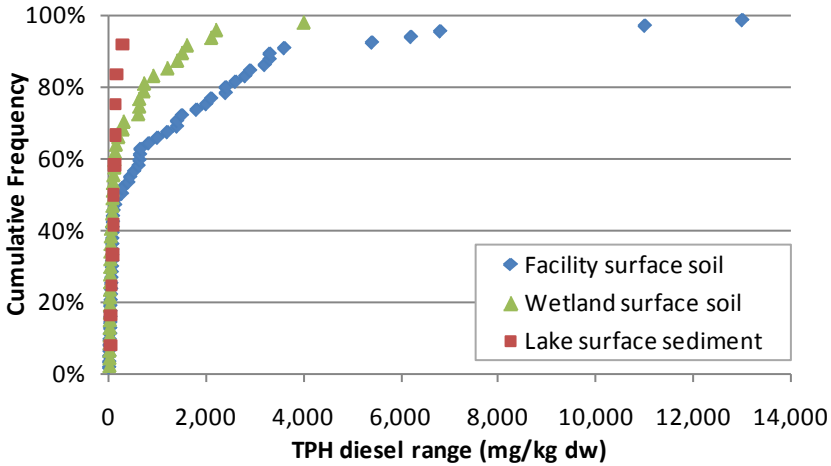
This section discusses the concentrations of TPH, PAHs, and petroleum-associated VOCs in various media within the Study Area. Summary statistics in tables are provided by location (not sample) to match the presentation in the figures. Also, duplicate samples were combined with the original sample, as described in Appendix N. The complete RI database is provided in Appendix B.

Figures were created to show the data for a subset of the chemicals discussed in this section: total TPH, TPH – gasoline range, TPH – diesel range, TPH – motor oil range, cPAH TEQ, total PAHs, and benzene. Figures were not created for other VOCs because the concentration patterns were generally the same as those for benzene, as discussed later in this section.

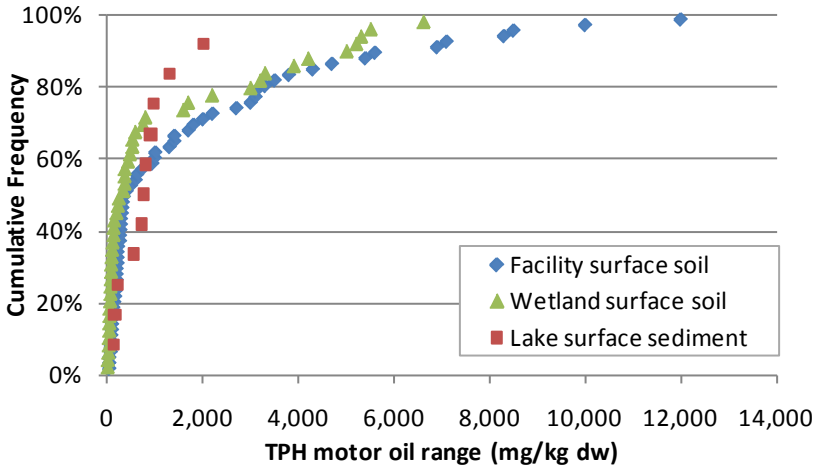
For the chemicals identified above, Figures 4-3a and 4-3b show cumulative frequency distributions of concentrations in surface soil and sediment samples collected from within the Study Area. These figures are intended to facilitate cross-media comparisons. Concentration is shown on the x-axis, and the percent rank within the dataset is shown on the y-axis. So, for example, approximately 80% of the Facility surface soil sample TPH concentrations were less than or equal to 7,500 mg/kg dw. cPAH TEQs were similar in Facility soil and wetland soil, whereas total TPH concentrations in Facility soil were usually higher than those in the wetland soil. Note that for total PAHs and benzene, a log scale was used in the cumulative frequency distribution to better display the range of concentrations.



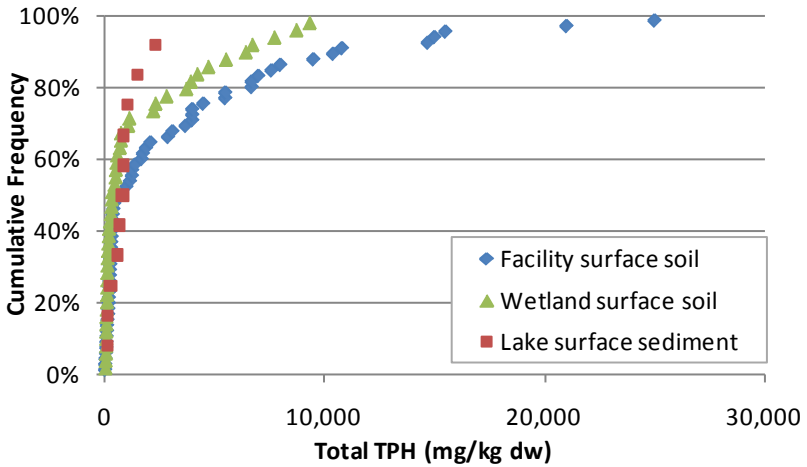
TPH – gasoline range



TPH – diesel range

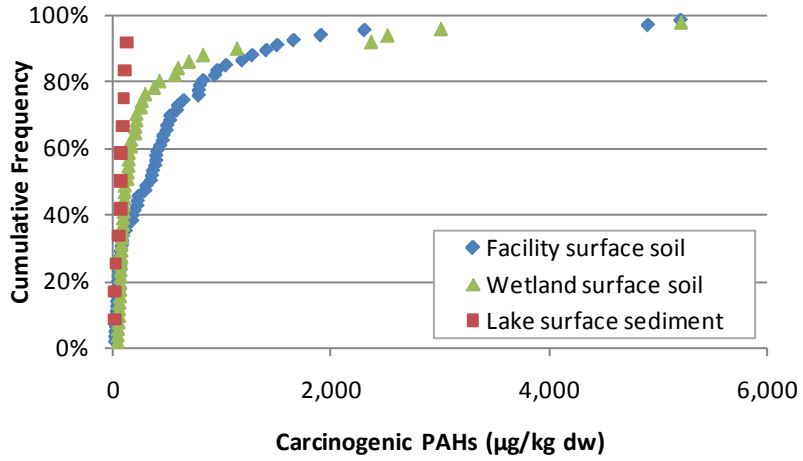


TPH – motor oil range

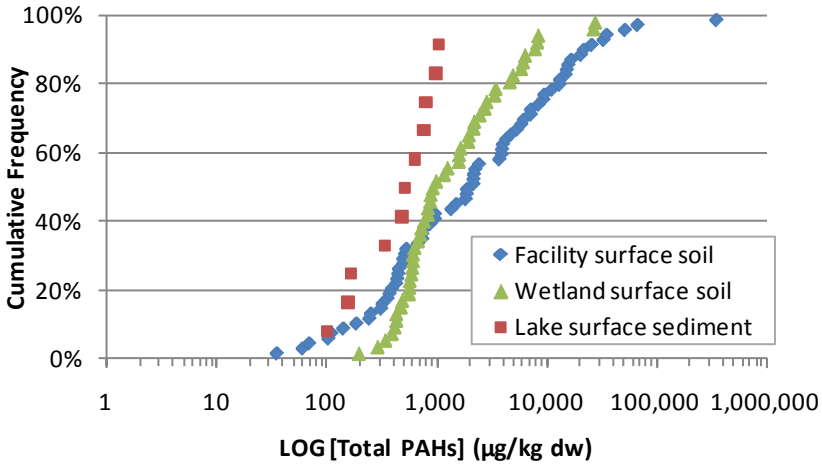


Total TPH

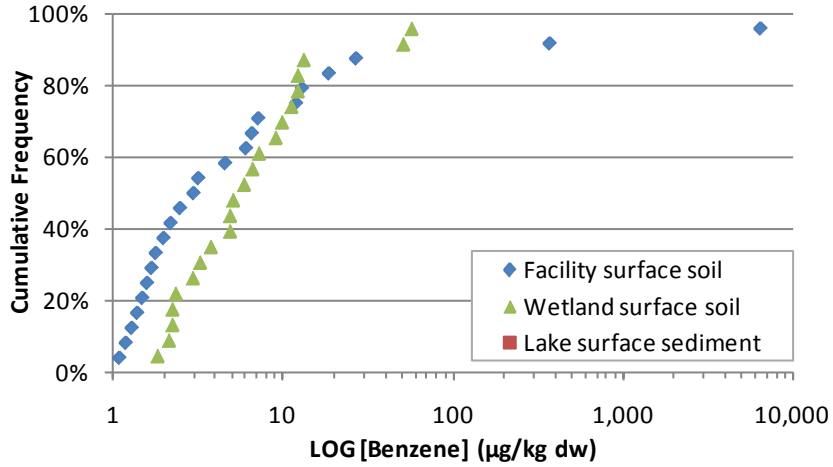
Figure 4-3a. Cumulative Frequencies for TPH Detected in Facility Surface Soil, Wetland Surface Soil, and Force Lake Surface Sediment



Carcinogenic PAHs



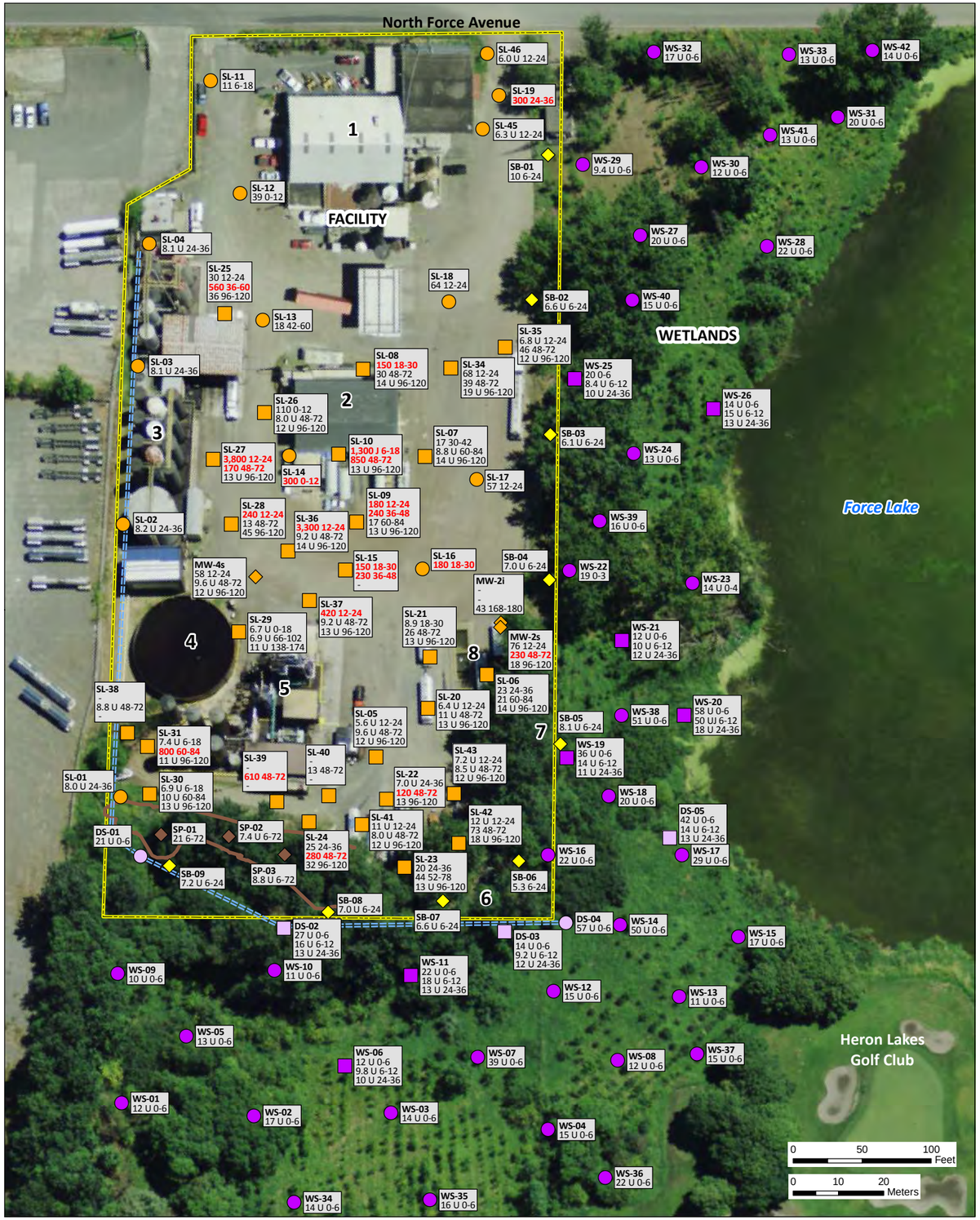
Total PAHs

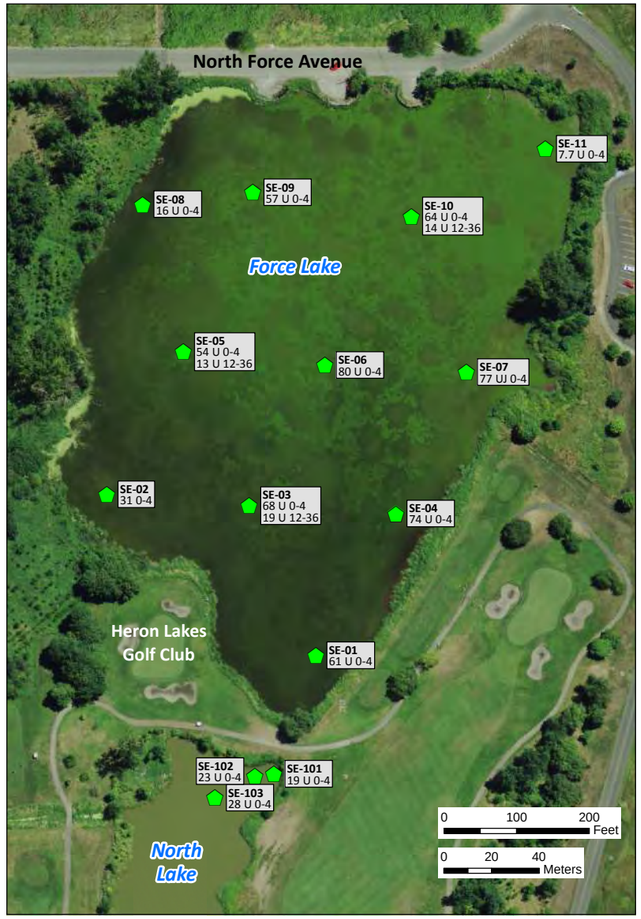


Benzene

Figure 4-3b. Cumulative Frequencies for PAHs and Benzene Detected in Facility Surface Soil, Wetland Surface Soil, and Force Lake Surface Sediment

Figures 4-4 through 4-10 present TPH (total and fractions), cPAH TEQ, total PAH, and benzene concentrations at each soil and sediment location sampled; Figures 4-11 through 4-17 present TPH (total and fractions), cPAH TEQ, total PAH, and benzene concentrations at each groundwater and surface water location sampled. These data are discussed in greater detail by media in the following subsections.





On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

THP - Gasoline-Range Screening Levels

Medium	Unit	Industrial Human Health RSL[a]	Residential Human Health RSL[a]	Invertebrate Screening Level
Facility soil	mg/kg dw	110	110	na
Wetland soil	mg/kg dw	na	110	nv
Lake sediment	mg/kg dw	na	13,000	nv

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
na - not applicable
nv - no value (i.e., no SL available for this chemical-medium combination)

Facility soil samples (mg/kg dw)[a]

- Surface soil
- Subsurface and surface soil[b]
- Soil at groundwater monitoring well[b]
- Soil berm
- Soil stockpile

Wetland and ditch soil samples (mg/kg dw)[a]

- Wetland surface soil
- Wetland surface and subsurface soil[b]
- Ditch surface soil
- Ditch surface and subsurface soil[b]

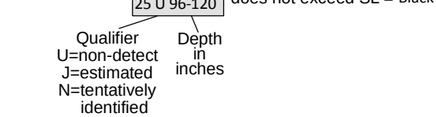
Lake sediment samples (mg/kg dw)

- Lake sediment[b]

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

[a] following locations were not analyzed for TPH - gasoline and do not appear on this map: shallow samples from DP01, DP02, DP03, SL-32, SL-33, SS01 to SS10, and WL01 to WL05; intermediate samples from DP01, DP02, and DP03; and deep samples from DP01, DP02, DP03, and SL-44.

[b] Both surface and subsurface data are shown.

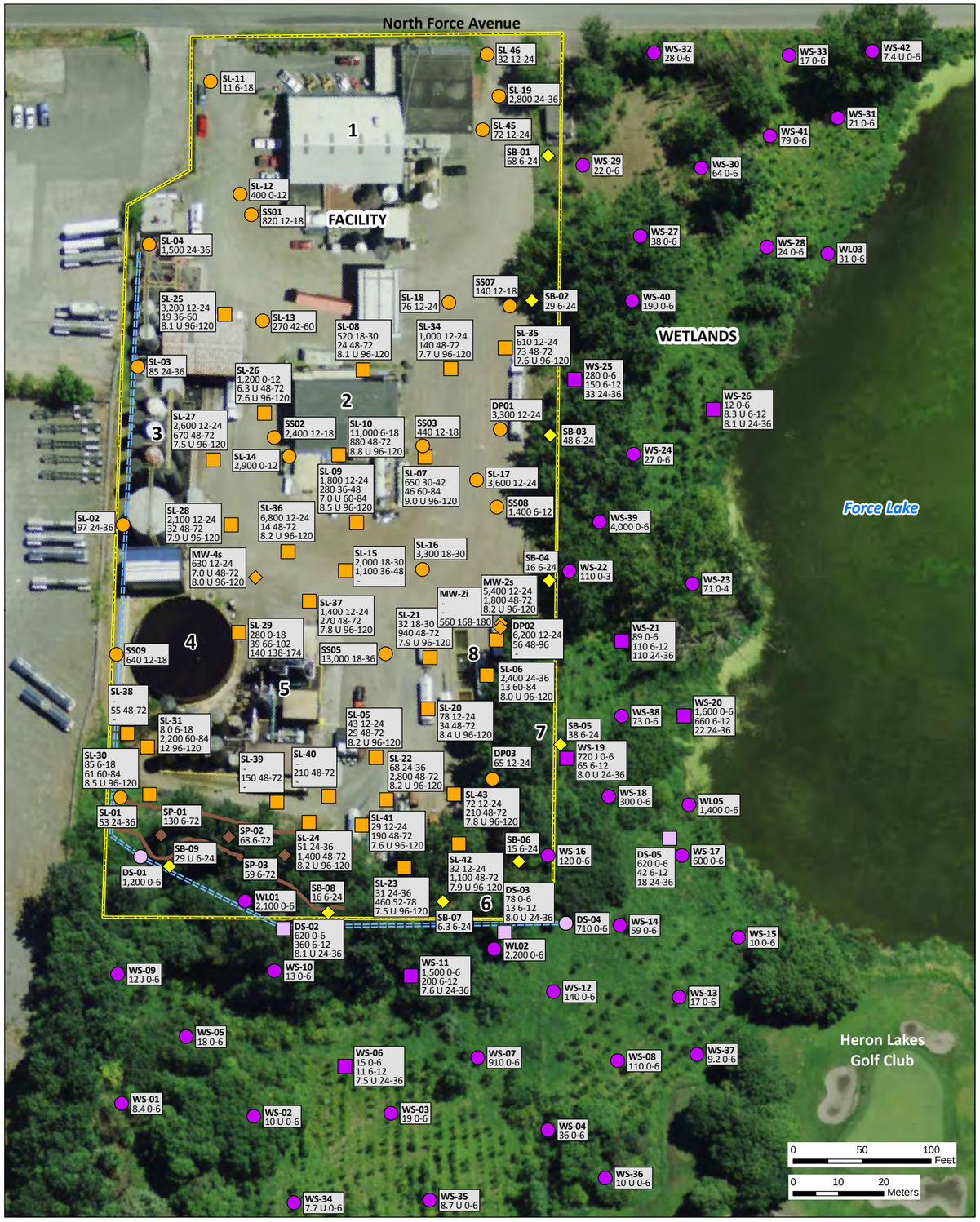


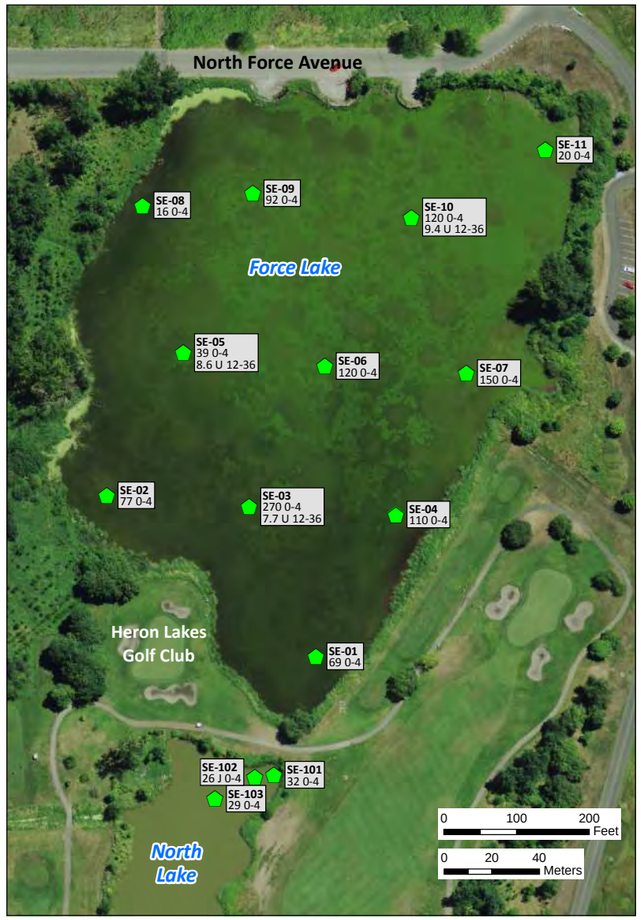
Wind Ward environmental LLC

Figure 4-4. TPH – Gasoline-Range Concentrations at Facility Soil, Wetland Soil, and Lake Sediment Sampling Locations

Prepared by: CEH, 08/31/2010; MAP #4133; W:\Projects\Harbor Oil\Data\GIS\SRI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.





On-Facility Features

1. Office/Shop/Warehouse Building
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4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

TPH - Diesel-Range Screening Levels

Medium	Unit	Industrial Human Health RSL[a]	Residential Human Health RSL[a]	Invertebrate Screening Level
Facility soil	mg/kg dw	23,000	23,000	na
Wetland soil	mg/kg dw	na	23,000	nv
Lake sediment	mg/kg dw	na	23,000	nv

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
na - not applicable
nv - no value (i.e., no SL available for this chemical-medium combination)

Facility soil samples (mg/kg dw)[a]

- Surface soil
- Subsurface and surface soil[b]
- Soil at groundwater monitoring well[b]
- Soil berm
- Soil stockpile

Wetland and ditch soil samples (mg/kg dw)[a]

- Wetland surface soil
- Wetland surface and subsurface soil[b]
- Ditch surface soil
- Ditch surface and subsurface soil[b]

Lake sediment samples (mg/kg dw)

- Lake sediment[b]

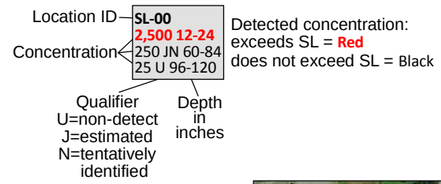
=== Drainage ditch (approximate location)

Soil stockpile (approximate boundary)

Facility boundary

[a] The following locations were not analyzed for TPH - diesel and do not appear on this map: shallow samples from SL 32, SL-33, SS04, SS06, SS10, and WL04; intermediate samples from DP01 and DP03; and deep samples from DP01, DP02, DP03, and SL-44.

[b] Both surface and subsurface data are shown.

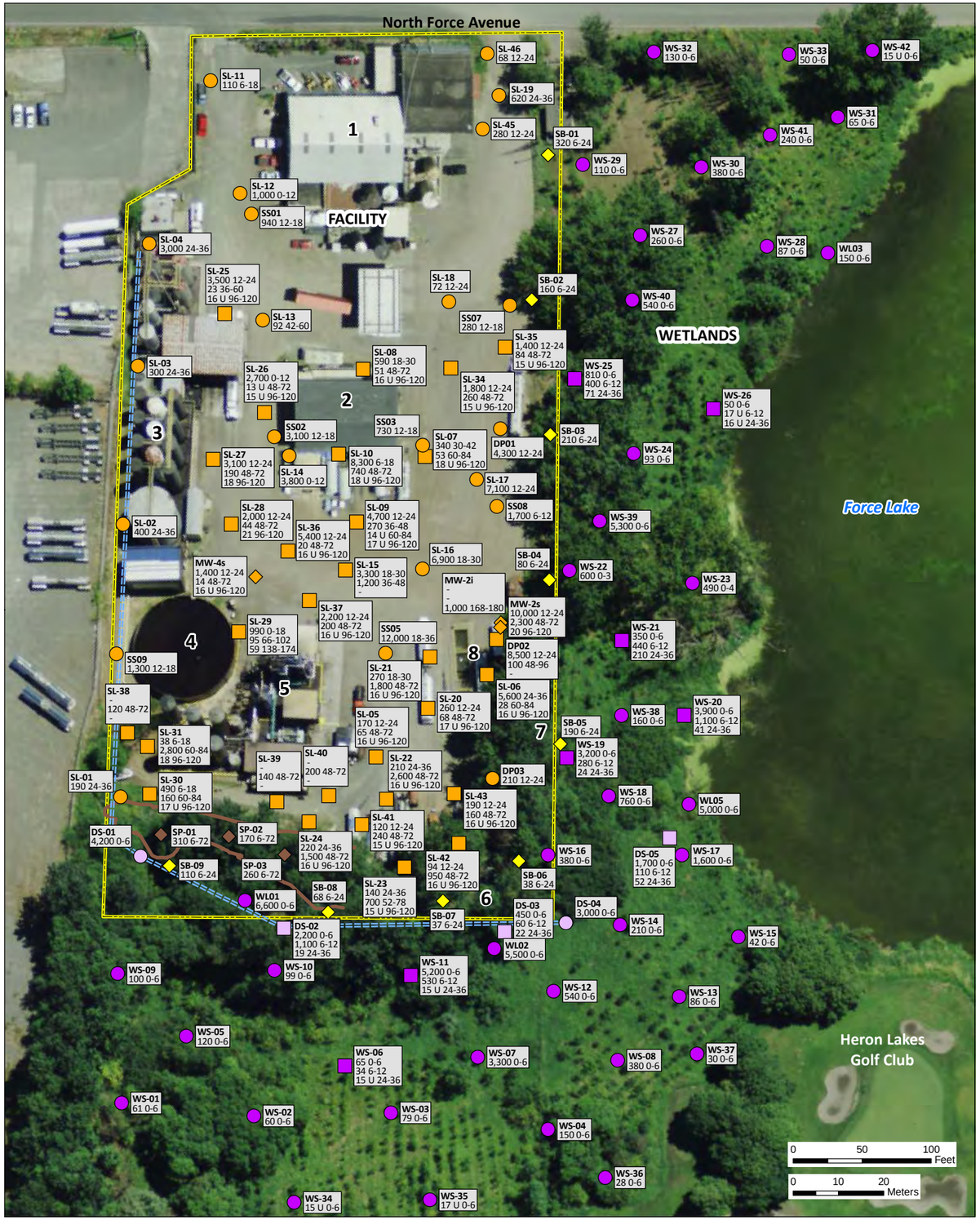


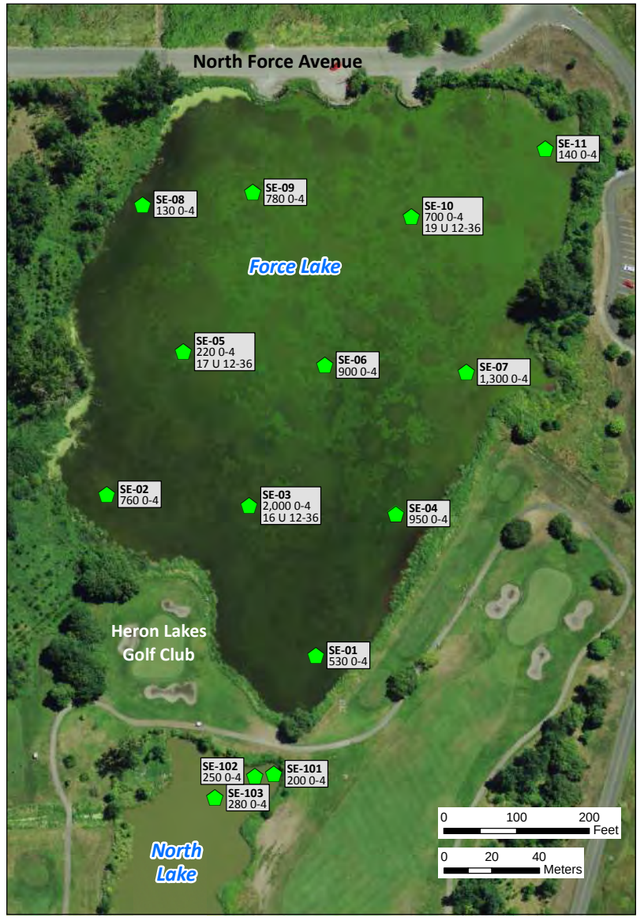
Wind Ward LLC environmental

Figure 4-5. TPH – Diesel-Range Concentrations at Facility Soil, Wetland Soil, and Lake Sediment Sampling Locations

Prepared by CEH, 08/31/2010, MAP #4134, W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.





On-Facility Features

1. Office/Shop/Warehouse Building
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3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

TPH - Motor Oil-Range Screening Levels

Medium	Unit	Industrial Human Health RSL[a]	Residential Human Health RSL[a]	Invertebrate Screening Level
Facility soil	mg/kg dw	23,000	23,000	na
Wetland soil	mg/kg dw	na	23,000	nv
Lake sediment	mg/kg dw	na	23,000	nv

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
na - not applicable
nv - no value (i.e., no SL available for this chemical-medium combination)

Facility soil samples (mg/kg dw)[a]

- Surface soil
- Subsurface and surface soil[b]
- Soil at groundwater monitoring well[b]
- Soil berm
- Soil stockpile

Wetland and ditch soil samples (mg/kg dw)[a]

- Wetland surface soil
- Wetland surface and subsurface soil[b]
- Ditch surface soil
- Ditch surface and subsurface soil[b]

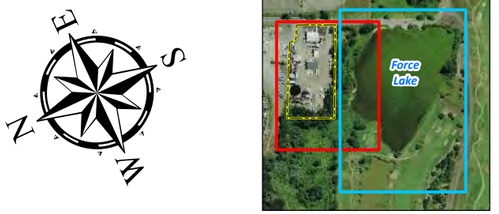
Lake sediment samples (mg/kg dw)

- Lake sediment[b]

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

[a] The following locations were not analyzed for TPH – motor oil and do not appear on this map: shallow samples from SL-32, SL-33, SS04, SS06, SS10, and WL04; intermediate samples from DP01 and DP03; and deep samples from DP01, DP02, DP03, and SL-44.

[b] Both surface and subsurface data are shown.

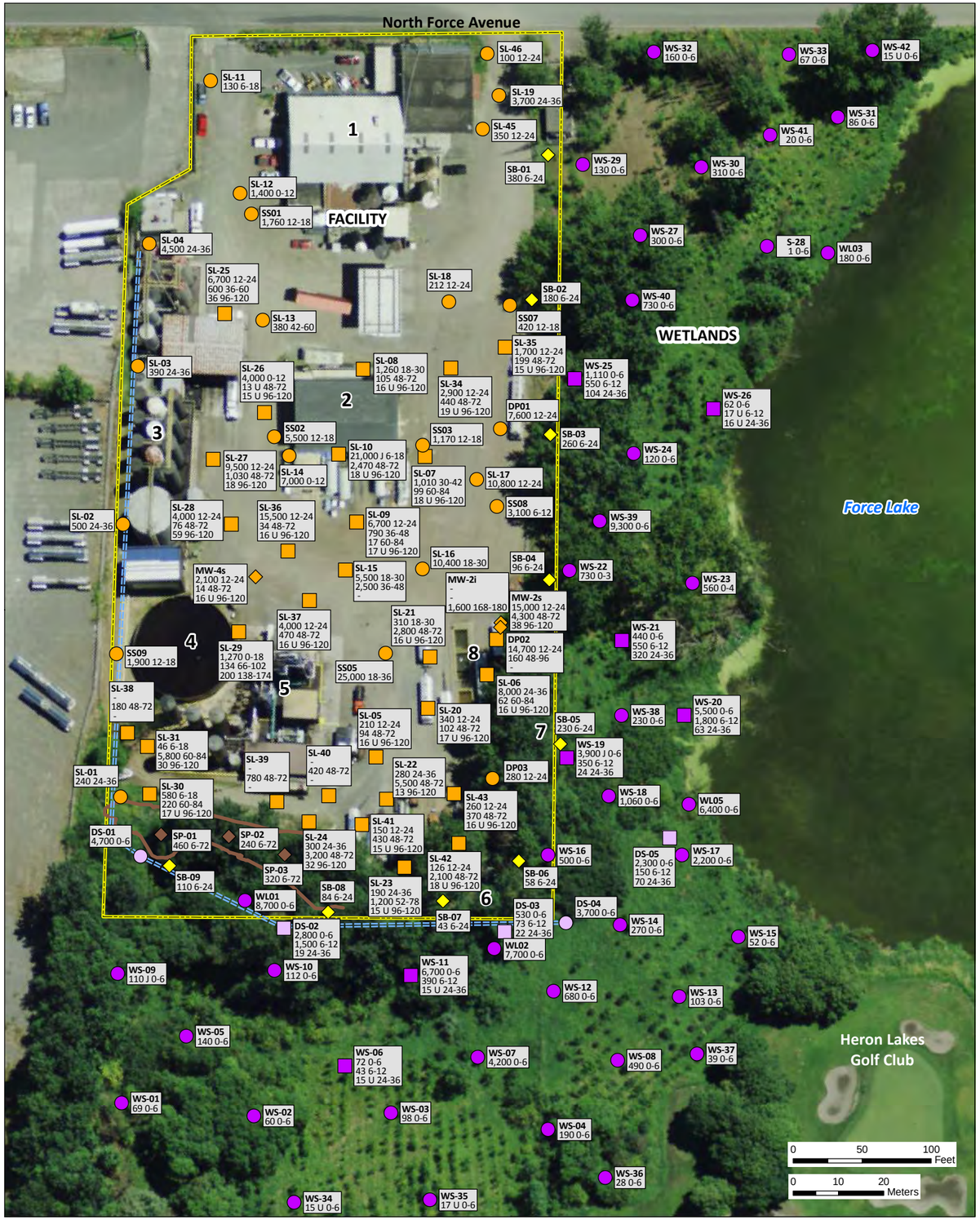


Wind Ward LLC environmental

Figure 4-6. TPH – Motor Oil-Range Concentrations at Facility Soil, Wetland Soil, and Lake Sediment Sampling Locations

Prepared by CEH, 08/31/2010, MAP #4135; W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.



On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Total Petroleum Hydrocarbon Screening Levels
No human health or ecological criteria are available for TPHs. TPH is calculated as the sum of the detected concentrations of the diesel, motor oil, and gasoline fractions.

Facility soil samples (mg/kg dw)[a]

- Surface soil
- Subsurface and surface soil[b]
- Soil at groundwater monitoring well[b]
- Soil berm
- Soil stockpile

Wetland and ditch soil samples (mg/kg dw)[a]

- Wetland surface soil
- Wetland surface and subsurface soil[b]
- Ditch surface soil
- Ditch surface and subsurface soil[b]

Lake sediment samples (mg/kg dw)

- Lake sediment[b]

=== Drainage ditch (approximate location)

Soil stockpile (approximate boundary)

Facility boundary

[a] The following locations were not analyzed for total petroleum hydrocarbons and do not appear on this map: shallow samples from SL-32, SL-33, SS04, SS06, SS10, and WL04; intermediate samples from DP01 and DP03; and deep samples from DP01, DP02, DP03, and SL-44.

[b] Both surface and subsurface data are shown.

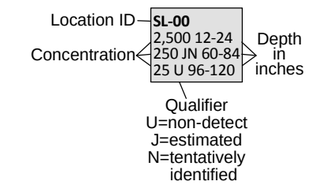


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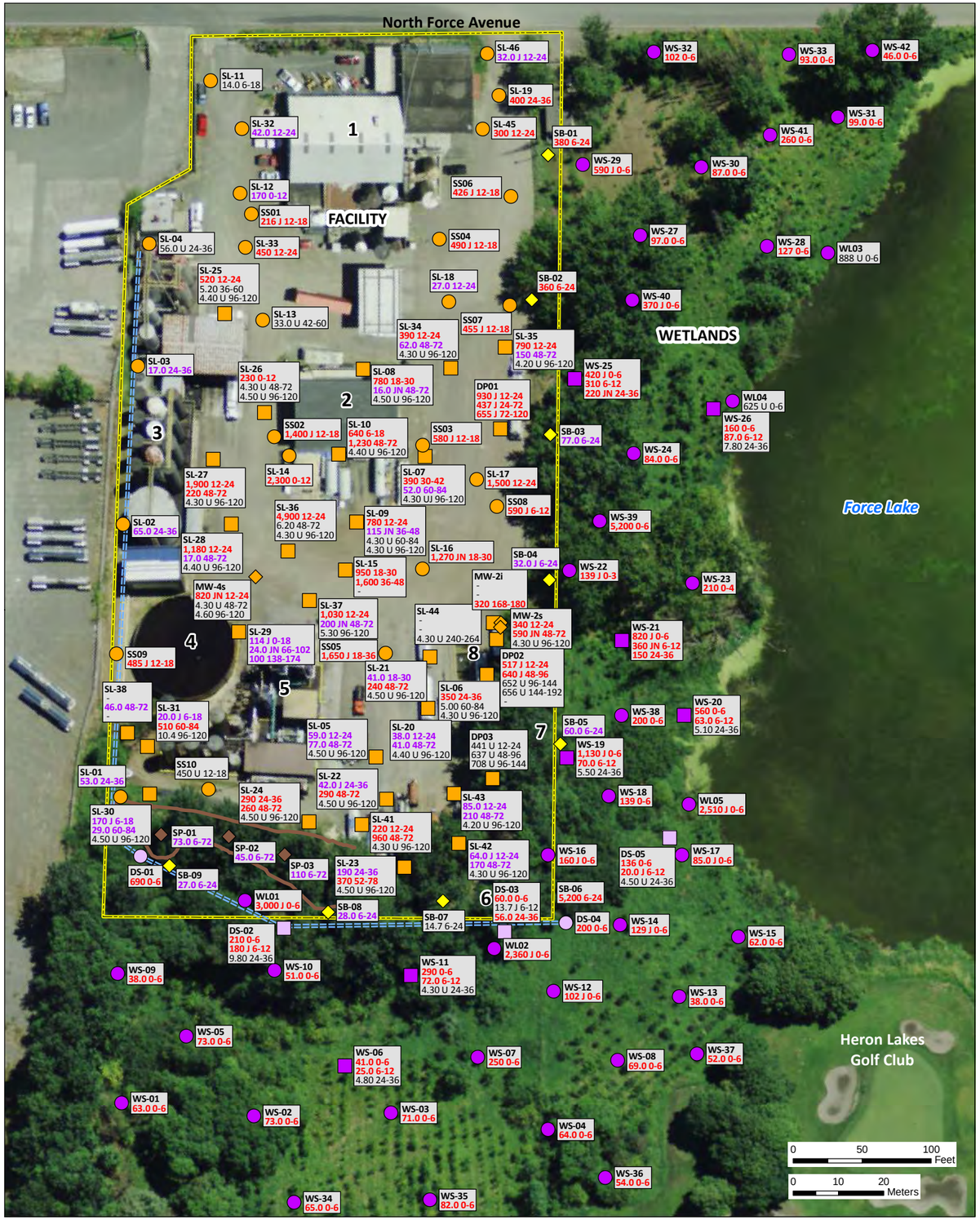
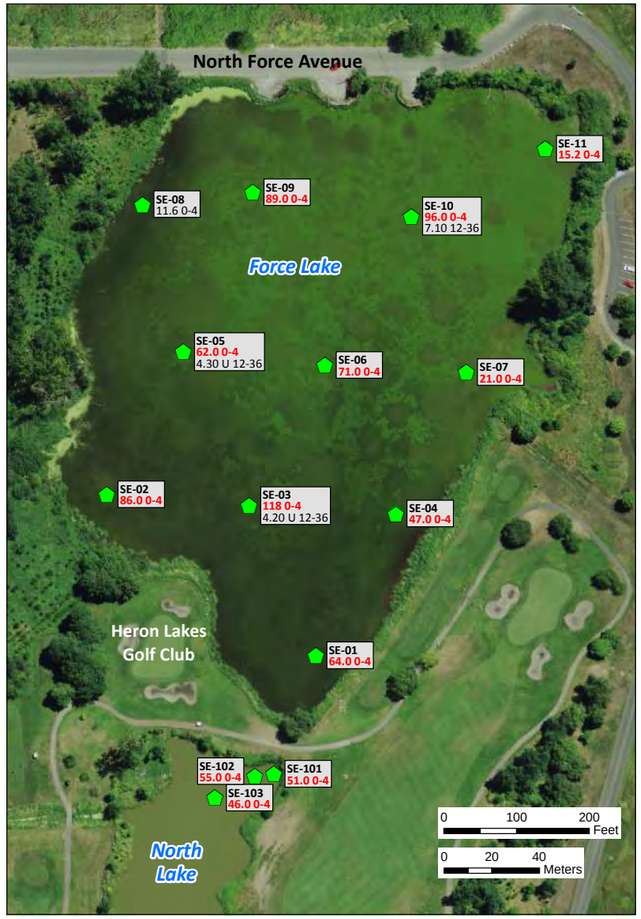
Figure 4-7. Total Petroleum Hydrocarbon Concentrations at Facility Soil, Wetland Soil, and Lake Sediment Sampling Locations

Prepared by CEH, 08/31/2010, MAP #3897; W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.





On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

cPAH TEQ Screening Levels

Medium	Unit	Industrial Human Health RSL[a]	Residential Human Health RSL[a]	Invertebrate Screening Level
Facility soil	µg/kg dw	210	15	na
Wetland soil	µg/kg dw	na	15	nv
Lake sediment	µg/kg dw	na	15	nv

Note: cPAH TEQs (i.e., benzo(a)pyrene equivalents) were calculated by summing the products of the concentrations of individual cPAH compounds and compound-specific potency equivalency factors (PEFs). Thus, RSLs are for benzo(a)pyrene, which corresponds to cPAH TEQ.
[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
na - not applicable
nv - no value (i.e., no SL available for this chemical-media combination)

Facility soil samples (µg/kg dw)[a]

- Surface soil
- Subsurface and surface soil[b]
- Soil at groundwater monitoring well[b]
- Soil berm
- Soil stockpile

Wetland and ditch soil samples (µg/kg dw)

- Wetland surface soil
- Wetland surface and subsurface soil[b]
- Ditch surface soil
- Ditch surface and subsurface soil[b]

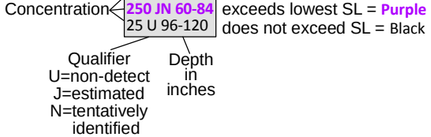
Lake sediment samples (µg/kg dw)

- Lake sediment[b]

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

[a] The following locations were not analyzed for cPAH TEQ and do not appear on this map: intermediate samples from SL-39 and SL-40.

[b] Both surface and subsurface data are shown.



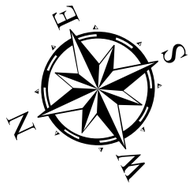


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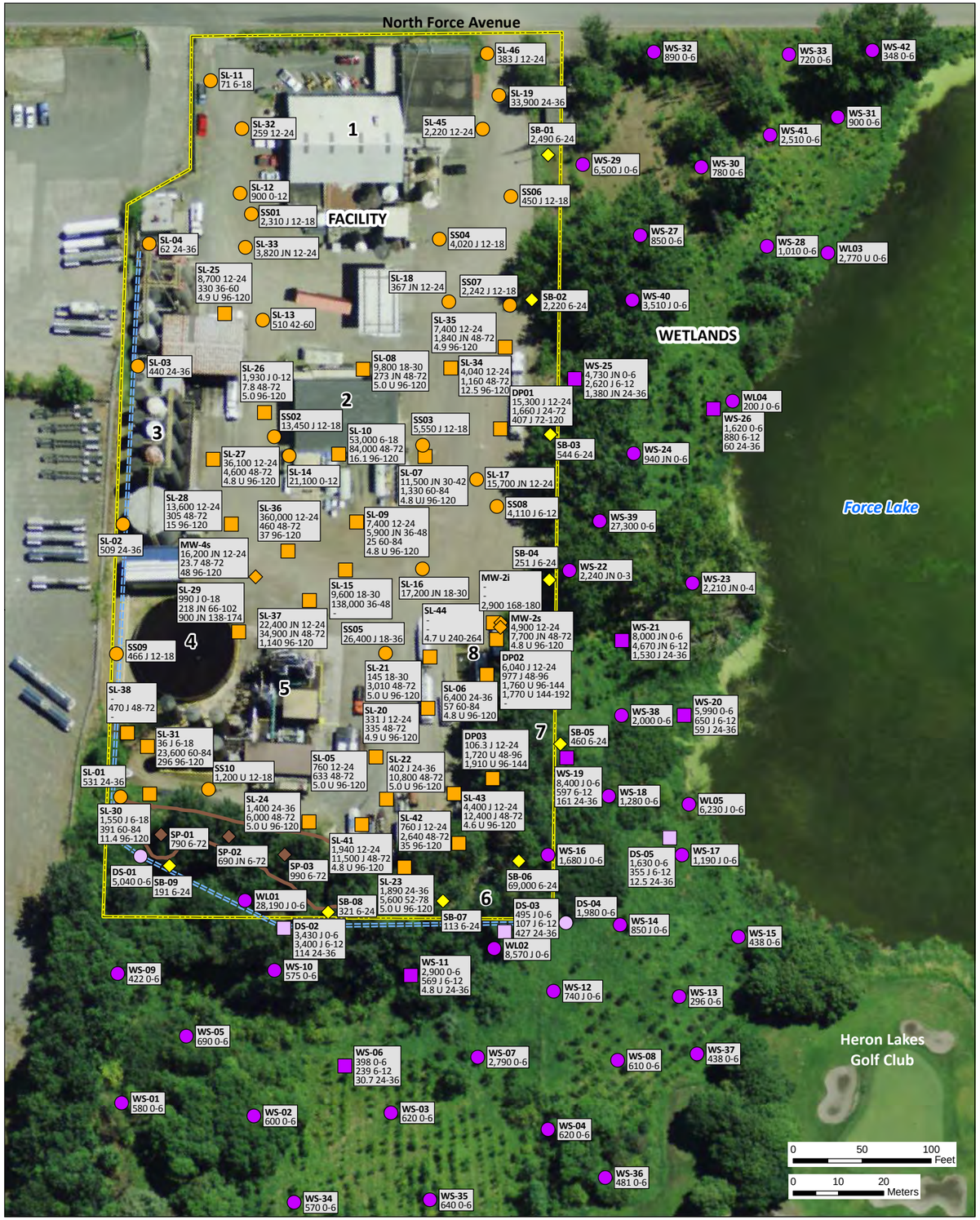
Figure 4-8. cPAH TEQs at Facility Soil, Wetland Soil, and Lake Sediment Sampling Locations

Prepared by CEH, 08/31/2010, MAP #4075, W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.



On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Total PAH Screening Levels

No human health or ecological screening levels are available for total PAH in soil or sediment. Total PAH is calculated as the sum of detected individual PAHs.

Facility soil samples (µg/kg dw)[a]

- Surface soil
- Subsurface and surface soil[b]
- Soil at groundwater monitoring well[b]
- Soil berm
- Soil stockpile

Wetland and ditch soil samples (µg/kg dw)

- Wetland surface soil
- Wetland surface and subsurface soil[b]
- Ditch surface soil
- Ditch surface and subsurface soil[b]

Lake sediment samples (µg/kg dw)

- Lake sediment[b]

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

[a] The following locations were not analyzed for total PAHs and do not appear on this map: intermediate samples from SL-39 and SL-40.

[b] Both surface and subsurface data are shown.

Location ID — **SL-00**
Concentration — 2,500 12-24 / 250 JN 60-84 / 25 U 96-120 — Depth in inches
Qualifier: U=non-detect, J=estimated, N=tentatively identified

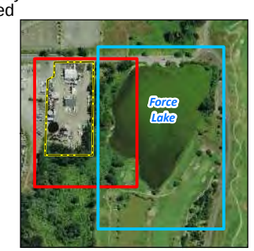


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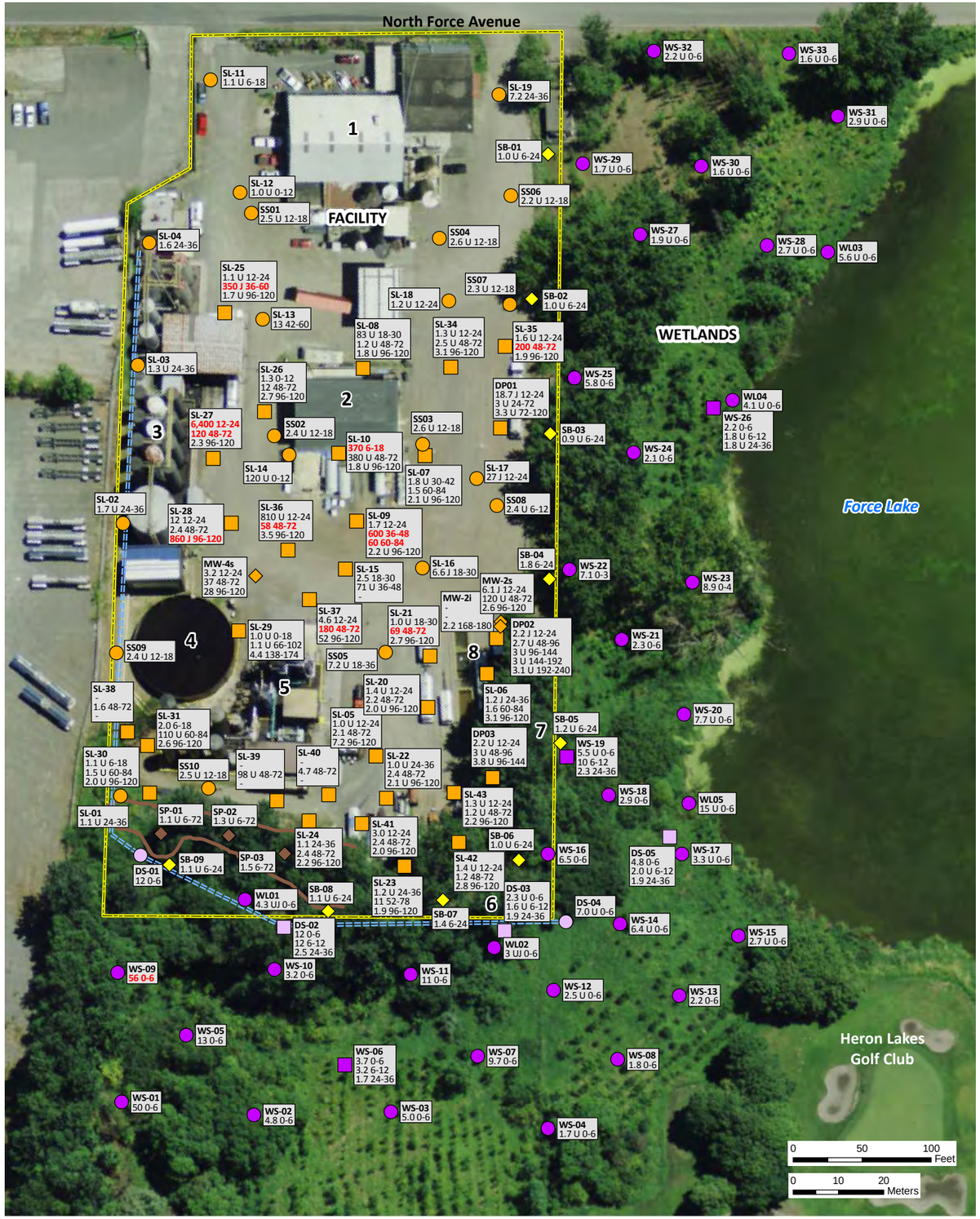
Figure 4-9. Total PAH Concentrations at Facility Soil, Wetland Soil, and Lake Sediment Sampling Locations

Prepared by CEH, 08/31/2010, MAP #4078; W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.



On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Benzene Screening Levels

Medium	Unit	Industrial Human Health RSL[a]	Residential Human Health RSL[a]	Invertebrate Screening Level
Facility soil	µg/kg dw	52	52	na
Wetland soil	µg/kg dw	na	52	nv
Lake sediment	µg/kg dw	na	660	nv

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
na - not available
nv - no value (i.e., no SL available for this chemical-medium combination)

Facility soil samples (µg/kg dw)[a]

- Surface soil
- Subsurface and surface soil[b]
- Soil at groundwater monitoring well[b]
- Soil berm
- Soil stockpile

Wetland and ditch soil samples (µg/kg dw)[a]

- Wetland surface soil
- Wetland surface and subsurface soil[b]
- Ditch surface soil
- Ditch surface and subsurface soil[b]

Lake sediment samples (µg/kg dw)

- Lake sediment[b]

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

[a] The following locations were not analyzed for benzene and do not appear on this map: shallow samples from SL-32, SL-33, SL-45, SL-46, and WS-34 to WS-42; intermediate samples from WS-11, WS-20, WS-21, and WS-25; and deep samples from SL-44, WS-11, WS-20, WS-21, and WS-25.

[b] Both surface and subsurface data are shown.

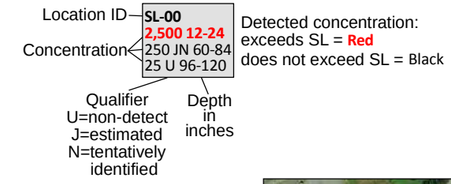


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Figure 4-10. Benzene Concentrations at Facility Soil, Wetland Soil, and Lake Sediment Sampling Locations

Prepared by CEH, 08/31/2010, MAP #3487; W:\Projects\Harbor_Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

TPH - Gasoline-Range Screening Levels

Medium	Unit	Human Health RSL[a]	Invertebrate Screening Level
Groundwater	mg/L	13	na
Surface water	mg/L	not analyzed	

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
na - not applicable

Groundwater samples (mg/L)

- Shallow groundwater
- Intermediate groundwater
- Deep groundwater

Wells where groundwater samples not collected

- Groundwater not sampled due to lack of construction details (trace to 0.02 ft of LNAPL observed)
- Groundwater not sampled due to lack of construction details
- Groundwater not sampled due to the presence of LNAPL (0.1 ft LNAPL observed here in 2008 when LNAPL sample was collected. After this time, trace to 0.02 ft of LNAPL observed).

=== Drainage ditch (approximate location)

Soil stockpile (approximate boundary)

Facility boundary

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Figure 4-11. TPH – Gasoline-Range Concentrations in Unfiltered Samples at Facility Groundwater Sampling Locations

Prepared by CEH, 08/31/2010, MAP #4133, W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

TPH - Diesel-Range Screening Levels

Medium	Unit	Human Health RSL[a]	Invertebrate Screening Level
Groundwater	mg/L	10	na
Surface water	mg/L	not detected; no comparison to screening levels	

[a] Human health regional screening levels (RSLs) are represented by the low est of the available screening levels from EPA and DEQ.
na - not applicable

Groundwater samples (mg/L)

- Shallow groundwater
- Intermediate groundwater
- Deep groundwater

Surface water samples (mg/L)[a]

- Lake surface water

Wells where groundwater samples not collected

- Groundwater not sampled due to lack of construction details (trace to 0.02 ft of LNAPL observed)
- Groundwater not sampled due to lack of construction details
- Groundwater not sampled due to the presence of LNAPL (0.1 ft LNAPL observed here in 2008 when LNAPL sample was collected. After this time, trace to 0.02 ft of LNAPL observed).

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

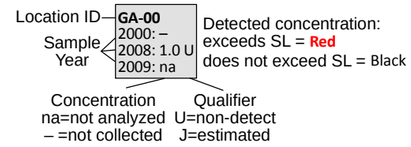

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Figure 4-12. TPH – Diesel-Range Concentrations in Unfiltered Samples at Facility Groundwater and Lake Surface Water Sampling Locations

Prepared by CEH, 08/31/2010, MAP #4134; W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

TPH - Motor Oil-Range Screening Levels

Medium	Unit	Human Health RSL[a]	Invertebrate Screening Level
Groundwater	mg/L	10	na
Surface water	mg/L	not detected; no comparison to screening levels	
LNAPL	mg/kg ww	na	

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
na - not applicable

Groundwater samples (mg/L)

- Shallow groundwater
- Intermediate groundwater
- Deep groundwater

Surface water samples (mg/L)[a]

- Lake surface water

Wells where groundwater samples not collected

- Groundwater not sampled due to lack of construction details (trace to 0.02 ft of LNAPL observed)
- Groundwater not sampled due to lack of construction details
- Groundwater not sampled due to the presence of LNAPL (0.1 ft LNAPL observed here in 2008 when LNAPL sample was collected. After this time, trace to 0.02 ft of LNAPL observed).

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

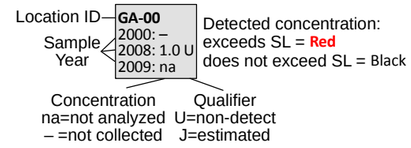

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Figure 4-13. TPH – Motor Oil-Range Concentrations in Unfiltered Samples at Facility Groundwater and Lake Surface Water Sampling Locations

Prepared by CEH, 08/31/2010, MAP #4135, W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Total Petroleum Hydrocarbon Screening Levels
No human health or ecological SLs are available for TPHs. TPH is calculated as the sum of the detected concentrations of the diesel, motor oil, and gasoline fractions.

Groundwater samples (mg/L)

- Shallow groundwater
- Intermediate groundwater
- Deep groundwater

Surface water samples (mg/L)[a]

- Lake surface water

Wells where groundwater samples not collected

- Groundwater not sampled due to lack of construction details (trace to 0.02 ft of LNAPL observed)
- Groundwater not sampled due to lack of construction details
- Groundwater not sampled due to the presence of LNAPL (0.1 ft LNAPL observed here in 2008 when LNAPL sample was collected. After this time, trace to 0.02 ft of LNAPL observed).

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

Location ID — **GA-00**
Sample Year — 2000: –
2008: 1.0 U
2009: na
Concentration: na=not analyzed, – =not collected
Qualifier: U=non-detect, J=estimated

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Figure 4-14. Total Petroleum Hydrocarbon Concentrations in Unfiltered Samples at Facility Groundwater and Lake Surface Water Sampling Locations

Prepared by CEH, 09/31/2010, MAP #3897, W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

cPAH TEQ Screening Levels

Medium	Unit	Human Health RSL[a]	Invertebrate Screening Level
Groundwater	µg/L	0.0029	na
Surface water	µg/L	not detected; no comparison to screening levels	

Note: cPAH TEQs (i.e., benzo(a)pyrene equivalents) were calculated by summing the products of the concentrations of individual cPAH compounds and compound-specific potency equivalency factors (PEFs). Thus, RSLs are for benzo(a)pyrene, which corresponds to cPAH TEQ.
[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
na - not applicable

Groundwater samples (µg/L)

- Shallow groundwater
- Intermediate groundwater
- Deep groundwater

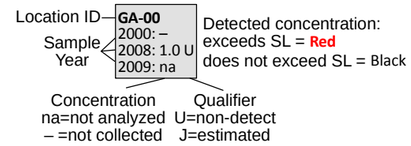
Surface water samples (µg/L)

- Lake surface water

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

Wells where groundwater samples not collected

- Groundwater not sampled due to lack of construction details (trace to 0.02 ft of LNAPL observed)
- Groundwater not sampled due to lack of construction details
- Groundwater not sampled due to the presence of LNAPL (0.1 ft LNAPL observed here in 2008 when LNAPL sample was collected. After this time, trace to 0.02 ft of LNAPL observed).



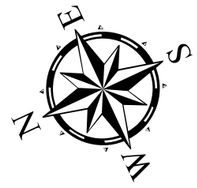


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Figure 4-15. cPAH TEQs in Unfiltered Samples at Facility Groundwater and Lake Surface Water Sampling Locations

Prepared by CEH, 08/31/2010. MAP #4075. W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Total PAH Screening Levels

No human health or ecological screening levels are available for total PAH. Total PAH is calculated as the sum of individual PAHs.

Groundwater samples (µg/L)

- Shallow groundwater
- Intermediate groundwater
- Deep groundwater

Surface water samples (µg/L)

- Lake surface water

Wells where groundwater samples not collected

- Groundwater not sampled due to lack of construction details (trace to 0.02 ft of LNAPL observed)
- Groundwater not sampled due to lack of construction details
- Groundwater not sampled due to the presence of LNAPL (0.1 ft LNAPL observed here in 2008 when LNAPL sample was collected. After this time, trace to 0.02 ft of LNAPL observed).

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

Location ID — **GA-00**
Sample Year — 2000: –
2008: 1.0 U
2009: na

Concentration: na=not analyzed, – =not collected
Qualifier: U=non-detect, J=estimated

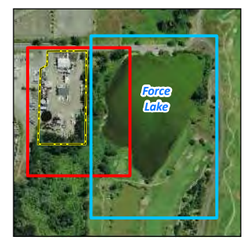

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Figure 4-16. Total PAH Concentrations in Unfiltered Samples at Facility Groundwater and Lake Surface Water Sampling Locations

Prepared by CEH, 09/31/2010, MAP #4076, W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Benzene Screening Levels

Medium	Unit	Human Health RSL[a]	Invertebrate Screening Level
Groundwater	µg/L	0.35	na
Surface water	µg/L	not detected; no comparison to screening levels	

[a] Human health regional screening levels (RSLs) are represented by the low est of the available screening levels from EPA and DEQ.
na - not applicable

Groundwater samples (µg/L)

- Shallow groundwater
- Intermediate groundwater
- Deep groundwater

Surface water samples (µg/L)

- Lake surface water

Wells where groundwater samples not collected

- Groundwater not sampled due to lack of construction details (trace to 0.02 ft of LNAPL observed)
- Groundwater not sampled due to lack of construction details
- Groundwater not sampled due to the presence of LNAPL (0.1 ft LNAPL observed here in 2008 when LNAPL sample was collected. After this time, trace to 0.02 ft of LNAPL observed).

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

Location ID — **GA-00**
Sample Year — 2000: –
2008: 1.0 U
2009: na

Detected concentration:
exceeds SL = **Red**
does not exceed SL = Black

Concentration
na=not analyzed
– =not collected

Qualifier
U=non-detect
J=estimated

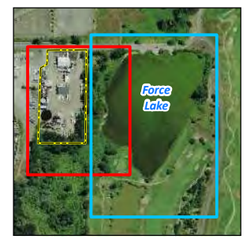

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Figure 4-17. Benzene Concentrations in Unfiltered Samples at Facility Groundwater and Lake Surface Water Sampling Locations

Prepared by CEH, 08/31/2010, MAP #3487, W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

4.3.2.1 Facility Soil

Table 4-3 summarizes concentrations of TPH, PAHs, and petroleum-associated VOCs detected in surface and subsurface soil samples collected from the Facility. The depth intervals of these samples varied depending on the sampling location, field conditions, and the sampling event (see Section 2.2). Surface soil samples at the Facility were collected just below the gravel fill layer, if present.

TPH

At least one TPH fraction was detected in all of the samples collected throughout the Facility. Concentration patterns were similar for the three TPH fractions analyzed: gasoline, diesel, and motor oil (Figure 4-4 to 4-7). The highest concentrations were detected in samples collected from the central portion of the Facility (e.g., SL-10, SL-27, SS05). The next highest diesel- and motor oil-range TPH concentrations were detected in samples collected along the southwest boundary of the Facility (e.g., SL-17 and MW-2s). Although intermediate-depth samples had higher TPH concentrations than did surface samples at some locations (e.g., SL-23 in the west corner of the Facility), concentrations in the deep samples were lower. This area with intermediate soil samples greater than surface soil samples was in an area that was filled when the Facility was expanded after the 1979 fire.

TPH concentrations were compared with conservative industrial and residential human health RSLs, which were the same for each TPH fraction. Only gasoline-range TPH concentrations were greater than the RSL, generally in the central portion of the Facility (Figure 4-4). In addition, four samples in the northwest portion of the Facility near the soil stockpile (SL-22, SL-24, SL-31, and SL-39), one sample near the southwest Facility boundary (MW-2s), and one sample near the Facility exit (SL-19) had gasoline-range TPH concentrations greater than the RSL. Note that the comparison with conservative screening levels on a point-by-point basis should not be viewed as a risk estimate; risks were fully assessed in the HHRA as presented in Appendix I and summarized in Section 6.1.

Table 4-3. Concentrations of TPH, PAHs, and Petroleum-Associated VOCs Detected in at Least One Facility Soil Sample

Chemical	Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
		Ratio	%					
Petroleum (mg/kg dw)								
TPH – gasoline range	surface	26/42	62	8.9	3,800	SL-27	260	5.6 – 12
	intermediate	20/32	62	13	850	SL-10	140	6.9 – 11
	deep	6/28	21	13	45	SL-28	12	11 – 19
	soil stockpile	1/3	33	21	21	SP-01	nc	7.4 – 8.8
	soil berm	2/9	22	5.3	10	SB-01	nc	6.1 – 8.1
TPH – diesel range	surface	52/52	100	8.0	13,000	SS05	1,700	na
	intermediate	30/33	91	13	2,800	SL-22	460	6.3 – 7.0
	deep	3/28	11	12	560	MW-2i	29	7.5 – 9.0
	soil stockpile	3/3	100	59	130	SP-01	86	na
	soil berm	8/9	89	6.3	68	SB-01	28	29
TPH – motor oil range	surface	52/52	100	38	12,000	SS05	2,200	na
	intermediate	31/33	94	14	2,800	SL-31	520	13 – 14
	deep	6/28	21	18	1,000	MW-2i	47	15 – 18
	soil stockpile	3/3	100	170	310	SP-01	250	na
	soil berm	9/9	100	37	320	SB-01	130	na
Total TPH	surface	52/52	100	46	25,000	SS05	4,100	na
	intermediate	32/33	97	14	5,800	SL-31	1,100	13
	deep	9/28	32	13	1,600	MW-2i	78	15 – 19
	soil stockpile	3/3	100	240	460	SP-01	340	na
	soil berm	9/9	100	43	380	SB-01	160	na
PAHs (µg/kg dw)								
cPAH TEQ	surface	53/57	93	14.0	4,900	SL-36	565	33.0 – 450
	intermediate	29/33	88	5.00	1,600	SL-15	270	4.30 – 637
	deep	6/34	18	4.60	655 J	DP01	63.5	4.20 – 708
	soil stockpile	3/3	100	45.0	110	SP-03	76.0	na
	soil berm	9/9	100	14.7	5,200	SB-06	687	na
Total PAHs	surface	56/57	98	36 J	360,000	SL-36	13,000	1,200
	intermediate	32/33	97	7.8	138,000	SL-15	11,000	1,720
	deep	14/34	41	4.9	2,900	MW-2i	250	4.6 – 1,910
	soil stockpile	3/3	100	690 JN	990	SP-03	820	na
	soil berm	9/9	100	113	69,000	SB-06	8,400	na
Petroleum-Associated VOCs (µg/kg dw)								
1,2,4-Trimethyl benzene	surface	23/40	57	1.9 J	40,000	SL-36	3,000	1.0 – 7.1
	intermediate	23/32	72	1.3 J	9,700	SL-31	630	1.1 – 2.5
	deep	4/28	14	6.6	2,100 J	SL-28	77	1.6 – 6.9
	soil stockpile	1/3	33	2.7	2.7	SP-03	nc	1.1 – 1.3
	soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2

Table 4-3. Concentrations of TPH, PAHs, and Petroleum-Associated VOCs Detected in at Least One Facility Soil Sample (cont.)

Chemical	Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
		Ratio	%					
1,3,5-Trimethyl benzene	surface	18/40	45	1.5	12,000	SL-27	500	1.0 – 120
	intermediate	16/32	50	1.3	3,900	SL-31	240	1.0 – 98
	deep	3/28	11	2.0	660 J	SL-28	25	1.6 – 3.5
	soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
	soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
Benzene	surface	20/53	38	1.1	6,400	SL-27	140	1.0 – 810
	intermediate	22/35	63	1.2	600	SL-09	60	1.1 – 380
	deep	20/33	61	1.9	860 J	SL-28	30	1.7 – 3.8
	soil stockpile	1/3	33	1.5	1.5	SP-03	nc	1.1 – 1.3
	soil berm	2/9	22	1.4	1.8	SB-04	nc	0.9 – 1.2
Ethylbenzene	surface	18/53	34	2.0 J	26,000	SL-27	720	1.0 – 120
	intermediate	15/35	43	1.4	1,600	SL-10	200	1.2 – 120
	deep	2/33	6	2.7	43	SL-28	nc	1.6 – 3.8
	soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
	soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
Isopropyl benzene	surface	19/51	37	1.3	2,300	SL-27	120	1.0 – 120
	intermediate	18/35	51	1.6	1,100	SL-31	100	1.1 – 120
	deep	2/33	6	14	110	SL-28	nc	1.6 – 3.8
	soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
	soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
n-Propyl benzene	surface	19/39	49	1.3	6,700	SL-27	370	1.0 – 120
	intermediate	18/32	56	1.6	2,800	SL-10/ SL-31	320	1.1 – 120
	deep	3/28	11	2.5	160	SL-28	7.1	1.6 – 3.5
	soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
	soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
tert-Butyl methyl ether	surface	3/53	6	2.2	6.9	SL-15	22	1.0 – 1,100
	intermediate	12/35	34	2.5	69	SL-08	20	1.0 – 380
	deep	19/33	58	2.0	39	MW-4s	10	1.7 – 3.8
	soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
	soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
Toluene	surface	26/53	49	1.2	49,000	SL-27	1,000	1.0 – 810
	intermediate	17/35	49	1.4	4,000	SL-09	300	1.1 – 380
	deep	3/33	9	3.9	13	SL-28	nc	1.6 – 6.7
	soil stockpile	2/3	67	2.2	4.0	SP-03	nc	1.1
	soil berm	3/9	33	1.4	1.5	SB-04	0.8	0.9 – 1.2

Table 4-3. Concentrations of TPH, PAHs, and Petroleum-Associated VOCs Detected in at Least One Facility Soil Sample (cont.)

Chemical	Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
		Ratio	%					
Total xylenes	surface	28/53	53	1.8 J	150,000 J	SL-27	3,000	1.0 – 83
	intermediate	22/35	63	1.3	7,300	SL-27	600	1.2 – 380
	deep	3/33	9	4.0	4,400 J	SL-28	nc	1.6 – 13
	soil stockpile	1/3	33	1.1 J	1.1 J	SP-01	nc	1.3
	soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2

[a] Surface soil samples were collected immediately below the gravel layer from depths of 0 to 5 ft bgs (0.5- to 1.5-ft sampling intervals for a given sample). Intermediate soil samples were collected from depths of 2 to 8.5 ft bgs (1- to 4-ft sampling intervals for a given sample). Deep soil samples were collected from depths of 6 to 22 ft bgs (1- to 4-ft sampling intervals for a given sample). All soil berm samples were collected from 0.5 to 2 ft bgs, and all soil stockpile samples were collected from 0.5 to 6 ft bgs.

[b] The mean concentration is equal to the average of all detected values and one-half of the RL for non-detected values. Means were not calculated if the detection frequency was less than 10% or if fewer than three samples had detected concentrations.

[c] RLs are for only non-detected samples.

bgs – below ground surface
cPAH – carcinogenic polycyclic aromatic hydrocarbon
dw – dry weight
J – estimated concentration
na – not applicable
nc – not calculated
nd – not detected
PAH – polycyclic aromatic hydrocarbon
RL – reporting limit
TEQ – toxic equivalent
TPH – total petroleum hydrocarbons
VOC – volatile organic compound

PAHs

cPAH TEQ and total PAHs were detected in the majority (more than 85%) of Facility surface and intermediate soil samples and in a lower percentage (18 to 41%) of Facility deep-interval soil samples. Figures 4-8 and 4-9 present Facility soil data for cPAH TEQ and total PAHs, respectively. Patterns for cPAH TEQ and total PAHs were similar, with the highest TEQs or concentrations in the central portion of the Facility near the tank farm (e.g., SL-27, SL-36, and SL-10) and in one sample collected from the soil berm in the west corner of the Facility (SB-06). While intermediate-depth samples had higher cPAH TEQ and/or total PAH concentrations than did surface soil samples at certain locations (SL-10 in the central portion of the Facility; SL-05, SL-21, SL-22, and SL-41 in the west corner of the Facility; and SL-31 in the north corner of the Facility), concentrations were generally highest in surface soil samples. With the exception of SL-10, the locations with higher intermediate-depth samples were located in areas that were later filled when the Facility was expanded (Section 4.2.1). Concentrations in deep soil samples were usually lower than in both surface and intermediate depth soil samples.

cPAH TEQs were compared with the conservative industrial and residential human health RSL for benzo(a)pyrene (210 and 15 µg/kg dw, respectively) (Figure 4-8). TEQs greater than the industrial RSL were usually located in the central portion of the Facility, along the southwest Facility boundary, and in the west corner of the Facility. The majority of detected cPAH TEQs were greater than the residential RSL. As noted above, the comparison with conservative screening levels on a point-by-point basis should not be interpreted as a risk estimate; risks were fully assessed in the HHRA as presented in Appendix I and summarized in Section 6.1. No RSL is available for total PAHs or an appropriate surrogate.

Petroleum-Associated VOCs

Concentration patterns were similar for each of the nine petroleum-associated VOCs. In general, concentrations were highest in the central portion of the Facility near the tank farm (e.g., SL-10 and SL-27), although concentrations of several VOCs (n-propylbenzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene) near the soil stockpile in the northern corner of the Facility (e.g., SL-31 and SL-39) were also higher relative to other areas on the Facility. Although the intermediate-depth samples had higher VOC concentrations than did the surface samples at some locations (e.g., SL-21 in the former C-shaped area and SL-23 in the west corner of the Facility; both areas that were later filled as the Facility was expanded after the 1979 fire), concentrations in the deep samples were generally lower.

VOC concentrations were compared with conservative industrial and residential human health RSLs, which were the same for all petroleum-associated VOCs except n-propylbenzene (although no detected concentrations were greater than either RSL for n-propylbenzene). Benzene was detected at concentrations greater than the RSL at nine

locations, which extended from the central portion of the Facility near the tank farm to the southwest Facility boundary (Figure 4-10). Xylenes were greater than the RSL at one location (SL-27 near the tank farm). Concentrations of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene were greater than the RSL at three locations in the central portion of the Facility near the tank farm (SL-10, SL-27, SL-36) and one location in the north corner of the Facility near tank 23 (SL-31). No other VOCs were detected at concentrations greater than their residential or industrial RSLs. With one exception (benzene at SL-28), no VOC concentrations in the deep samples were greater than conservative industrial or residential human health RSLs.

Facility Soil Summary

The highest concentrations of TPH, PAHs, and petroleum-associated VOCs were generally bounded both vertically and laterally in Facility soil. The available Facility soil samples indicate that the area with concentrations greater than the conservative industrial and residential human health RSLs is generally limited to the central portion of the Facility near the tank farm and extends to the southwest boundary of the Facility.

The distribution of TPH, PAHs, and petroleum-associated VOCs suggests that these chemicals may have been introduced to the Facility as a result of operations associated with the processing and refining of used waste oils and fuels. The fact that the highest concentrations of these chemicals were generally detected in the central portion of the Facility indicates that these chemicals were released in association with the tank farm and processing activities in the north and central portions of the Facility, through road oiling for dust suppression, or through activities associated with truck cleaning operations in the central portion of the Facility. Based on the concentration pattern in Facility soil, Tank 23 does not appear to be the main source of TPH, PAHs, and petroleum-associated VOCs (i.e., the highest concentrations were not located in this area). The greatest concentrations of gasoline range TPH and benzene are adjacent to the tank farm at a location (SL-27) proximate to an underground product line. The presence of these shallow impacts in the area of the product line could be a function of a release associated with the piping in this area as well as historical surface spills in the area.

4.3.2.2 Groundwater

Table 4-4 summarizes concentrations of TPH, PAHs, and petroleum-associated VOCs detected in groundwater. These chemicals were not detected in any of the intermediate or deep groundwater samples, and thus only the shallow well sample results are presented in Table 4-4.

Table 4-4. Concentrations of TPH, PAHs, and Petroleum-Associated VOCs Detected in at Least One Shallow Groundwater Sample

Chemical	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[a]	RL or Range of RLs[b]
	Ratio	%					
Petroleum (mg/L)							
TPH – gasoline range	5/22	23	0.27	0.81	A-18	0.22	0.25
TPH – diesel range	1/22	5	0.26 J	0.26 J	A-18	nc	0.25
TPH – motor oil range	0/22	0	nd	nd	nd	nc	0.50
Total TPH	5/22	23	0.27	1.07 J	A-18	0.33	0.50
PAHs (µg/L)							
cPAH TEQ	0/28	0	nd	nd	nd	nc	0.0910 – 1.50
Total PAHs	12/28	43	0.10	6.3	A-20	1	0.10 – 4
Petroleum-Associated VOCs (µg/L)							
1,2,4-Trimethylbenzene	2/22	9	3.7	7.2	A-18	nc	0.20 – 1.0
1,3,5-Trimethylbenzene	3/22	14	1.5	3.0	A-18	0.71	0.20 – 1.0
Benzene	8/28	29	0.80	140	MW-4s	6	0.20 – 6.2
Ethylbenzene	1/28	4	1.2	1.2	A-18	nc	0.20 – 1.0
Isopropylbenzene	4/28	14	0.039 J	8.3	MW-4s	0.9	0.20 – 1.0
n-Propylbenzene	4/22	18	1.8	11	MW-4s	1.3	0.20 – 1.0
tert-Butyl methyl ether	14/28	50	1.4	160	MW-5s	10	0.50 – 1
Toluene	2/28	7	0.60	4.8	MW-4s	nc	0.20 – 1.0
Total xylenes	3/28	11	1.4	20	A-18	2	0.40 – 2.0

Note: The depth of shallow groundwater wells ranged from 10 to 20 ft bgs, the depth of intermediate wells ranged from 48 to 50 ft bgs, and the depth of the deep well was 97 ft bgs.

[a] The mean concentration is equal to the average of all detected values and one-half of the RL for non-detected values. Means were not calculated if the detection frequency was less than 10% or if fewer than three samples had detected concentrations.

[b] RLs are for only non-detected samples.

bgs – below ground surface
cPAH – carcinogenic polycyclic aromatic hydrocarbon
J – estimated concentration
nc – not calculated
nd – not detected
PAH – polycyclic aromatic hydrocarbon
RL – reporting limit
TEQ – toxic equivalents
TPH – total petroleum hydrocarbons
VOC – volatile organic compound

The highest detection frequencies for shallow well samples were for total PAHs (43%), benzene (29%), tert-butyl methyl ether (50%), gasoline-range TPH (23%), and total TPH (23%).

Chemicals with concentrations greater than the conservative human health RSLs included 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, benzene, n-propylbenzene, and tert-butyl methyl ether. Samples with chemical concentrations greater than their RSLs were collected from four shallow wells: A-18, GA-34, MW-4s, and MW-5s. These wells are located near suspected source areas (Section 3.5.2.2.1), including the tank farm, former C-shaped area, and the former truck cleaning operation in the central portion of the Facility. None of these chemicals were identified in groundwater samples from shallow monitoring wells located downgradient from these sources. Note that the comparison with conservative screening levels on a point-by-point basis should not be interpreted as a risk estimate; risks were fully assessed in the HHRA, as presented in Appendix I and summarized in Section 6.0.

In addition, it should be noted that benzene was detected at a concentration greater than the MCL of 5 µg/L in one sample (140 µg/L in the sample collected from location MW-4s in 2008). In 2009, benzene was detected at a concentration of 2.9 µg/L at the same location, which is less than the MCL. No other chemicals discussed in this section were detected at concentrations greater than the MCL or non-zero MCLG.

Based on this information, the extent of groundwater contamination for these chemicals appears to be localized in areas associated with the processing and storage of petroleum products.

4.3.2.3 LNAPL

LNAPL is not a significant component at the Facility, and its presence is localized and constrained to a small portion of the Facility. Specifically, in 2008, a thin layer (0.1 ft) of LNAPL has been observed in well GA-30 (northwest portion of the Facility near the soil stockpile) and only trace thicknesses of LNAPL (0.01 ft or less) have been observed in two of the extraction wells. After the LNAPL was sampled in 2008, only 0.01 to 0.02 ft of LNAPL (described as “viscous oil – black and thick”) has been identified at the GA-30 location. No information is available regarding the thickness of the LNAPL in the sample collected at GA-30 in 2000.

With regard to extent, no LNAPL has been observed in wells MW-1s and MW-2s located along the downgradient boundary of the Facility or in shallow monitoring wells GA-29 or A-19 located between GA-30 the downgradient property boundary (see Figure 2-2 for well locations). Furthermore, LNAPL has not been identified in any of the RI boring locations, with one exception. The presence of LNAPL was noted in the shallow-depth (6 to 18 in. bgs) sample collected at the SL-10 boring location in the former truck wash area.

One LNAPL sample was collected from GA-30 by EPA in 2000 as part of its preliminary assessment/site characterization (Ecology and Environment 2001), and another sample was collected in 2008 as part of the Phase I RI activities. The 2000 LNAPL sample was not analyzed for

any of the chemicals discussed in this subsection (LNAPL sample was analyzed only for PCBs and select pesticides; see Sections 4.4 for PCB and 4.6 for pesticide data). Chemicals detected in the 2008 sample included cPAH TEQ (45,000 µg/kg ww), total PAHs (460,000 µg/kg ww), n-propylbenzene (2,800 µg/kg ww), toluene (3,800 µg/kg ww), and total xylenes (3,800 µg/kg ww). In addition, the LNAPL sample had detectable concentrations of TPH (17,000 mg/kg ww gasoline range, 480,000 mg/kg ww diesel range, and 470,000 mg/kg ww motor oil range). Follow-up monitoring including a year of monthly measurements revealed only a thin layer of LNAPL (0.02 to 0.01 ft) had returned to the GA-30 location, an insufficient volume for additional sample collection.

4.3.2.4 Wetland and Ditch Soil

Table 4-5 presents concentrations of detected TPH, PAHs, and petroleum-associated VOCs in wetland and ditch soil. Of the chemicals discussed in this section, 1,3,5-trimethylbenzene, isopropylbenzene, and n-propylbenzene were not detected in any wetland or ditch soil samples, and thus data for these chemicals are not presented in Table 4-5.

TPH

Gasoline-range TPH were detected in only two wetland and ditch surface soil samples, located southwest of the Facility (WS-22 and WS-25) (Figure 4-4). Diesel- and motor oil-range TPH were detected in 90% or more of surface soil samples and in 40 to 90% of subsurface soil samples. The distributions of these two TPH fractions were similar (Figures 4-5 and 4-6): concentrations were highest in the former drainage ditch (e.g., WL01 and WS-11), along the north shoreline of Force Lake (e.g., WL05), and southwest of the Facility boundary (e.g., WS-39). No TPH concentrations detected in wetland or ditch soil were greater than the conservative residential human health RSLs.[15] No invertebrate screening levels were available for TPH.

The distribution of TPH concentrations indicates that TPH may have reached the wetlands via stormwater runoff, either historically via the drainage ditch or directly via sheet flow prior to the construction of the soil berm, or more recently via discharges from the current stormwater treatment system. As shown in Figure 4-3a, TPH concentrations in wetland and ditch soil were generally lower than those detected in Facility soil.

[15] Wetland soil samples were not compared to conservative industrial human health RSLs.

Table 4-5. Concentrations of TPH, PAHs, and Petroleum-Associated VOCs Detected in at Least One Wetland and Ditch Soil Sample

Chemical	Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
		Ratio	%					
Petroleum (mg/kg dw)								
TPH – gasoline range	surface	2/47	4	19	20	WS-25	nc	9.4 – 58
	intermediate	0/10	0	nd	nd	nd	nc	8.4 – 50
	deep	0/10	0	nd	nd	nd	nc	10 – 18
TPH – diesel range	surface	46/51	90	8.4	4,000	WS-39	400	7.4 – 10
	intermediate	9/10	90	11	660	WS-20	160	8.3
	deep	4/10	40	18	110	WS-21	21	7.5 – 8.1
TPH – motor oil range	surface	48/51	94	28	6,600	WL01	1,200	15 – 17
	intermediate	9/10	90	34	1,100	DS-02/ WS-20	410	17
	deep	7/10	70	19	210	WS-21	46	15 – 16
Total TPH	surface	48/51	94	28	9,300	WS-39	1,500	15 – 17
	intermediate	9/10	90	43	1,800	WS-20	540	17
	deep	7/10	70	19	320	WS-21	65	15 – 16
PAHs (µg/kg dw)								
cPAH TEQ	surface	50/52	96	38.0	5,200	WS-39	438	625 – 888
	intermediate	10/10	100	13.7 J	360 JN	WS-21	120	na
	deep	8/10	80	4.80	220 JN	WS-25	46.3	4.30 – 4.50
Total PAHs	surface	51/52	98	200 J	28,190 J	WL01	3,000	2,770
	intermediate	10/10	100	107 J	4,670 JN	WS-21	1,400	na
	deep	9/10	90	12.5	1,530 J	WS-21	380	4.8
Petroleum-Associated VOCs (µg/kg dw)								
1,2,4-Trimethyl benzene	surface	3/38	8	3.6 J	9.2	WS-16	nc	1.5 – 7.7
	intermediate	1/6	17	5.8 J	5.8 J	DS-02	nc	1.6 – 2.0
	deep	0/6	0	nd	nd	nd	nc	1.5 – 1.9
Benzene	surface	22/43	51	1.8	56	WS-09	6	1.6 – 15
	intermediate	3/6	50	3.2	12	DS-02	4.7	1.6 – 2.0
	deep	5/6	83	1.7	2.5	DS-02	1.9	1.8
Ethylbenzene	surface	1/43	2	3.0	3.0	DS-01	nc	1.5 – 15
	intermediate	1/6	17	3.4	3.4	DS-02	nc	1.6 – 2.0
	deep	0/6	0	nd	nd	nd	nc	1.5 – 1.9
tert-Butyl methyl ether	surface	0/43	0	nd	nd	nd	nc	1.5 – 15
	intermediate	0/6	0	nd	nd	nd	nc	1.6 – 2.7
	deep	1/6	17	2.1	2.1	WS-19	nc	1.5 – 1.9
Toluene	surface	33/43	77	1.8	68	WS-09	10	1.6 – 15
	intermediate	3/6	50	3.2	65	DS-02	13	1.6 – 2.0
	deep	3/6	50	1.6	1.9	WS-19	1.3	1.5 – 1.9

Table 4-5. Concentrations of TPH, PAHs, and Petroleum-Associated VOCs Detected in at Least One Wetland and Ditch Soil Sample (cont.)

Chemical	Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
		Ratio	%					
Total xylenes	surface	5/43	12	2.0 J	11.5	DS-01	2.4	1.5 – 29.9
	intermediate	1/6	17	15	15	DS-02	nc	1.6 – 2.0
	deep	0/6	0	nd	nd	nd	nc	1.5 – 1.9

[a] Surface soil samples were collected from 0 to 0.5 ft bgs, intermediate soil samples were collected from 0.5 to 1 ft bgs, and deep soil samples were collected from 2 to 3 ft bgs.

[b] The mean concentration is equal to the average of all detected values and one-half of the RL for non-detected values. Means were not calculated if the detection frequency was less than 10% or if fewer than three samples had detected concentrations.

[c] RLs are for only non-detected samples.

bgs – below ground surface
cPAH – carcinogenic polycyclic aromatic hydrocarbon
J – estimated concentration
N – tentative identification
na – not applicable
nc – not calculated
nd – not detected
PAH – polycyclic aromatic hydrocarbon
RL – reporting limit
TEQ – toxic equivalents
TPH – total petroleum hydrocarbons
VOC – volatile organic compound

PAHs

cPAH TEQ and total PAHs were detected in the majority (80% or more) of wetland and ditch surface and subsurface soil samples. Figures 4-8 and 4-9 present TEQs and concentrations in wetland and ditch soil for cPAH TEQ and total PAHs, respectively. The distributions of cPAHs and total PAH TEQ were similar: TEQs or PAH concentrations were highest in the former drainage ditch (e.g., WL01 and WL02), near the current stormwater discharge point (e.g., WS-19), along the north shoreline of Force Lake (e.g., WL05), and southwest of the Facility boundary (e.g., WS-39). The likely sources of chemicals in all of these areas, except near the southwest Facility boundary, were former releases to the drainage ditch, which then discharged into the wetlands. Chemical concentrations near the southwest Facility boundary were likely the result of direct releases or stormwater runoff in to this area. At all locations where subsurface soil samples were collected, PAH concentrations were highest in the surface interval with concentrations decreasing with depth.

cPAH TEQs were compared with the conservative residential human health RSL for benzo(a)pyrene (15 µg/kg dw) (Figure 4-8). Most cPAH TEQs were greater than this RSL. Note that the comparison with conservative screening levels on a point-by-point basis should not be viewed as a risk estimate; risks were fully assessed in the HHRA as presented in Appendix I and summarized in Section 6.0. No RSL was available for total PAHs or an appropriate surrogate. No invertebrate screening levels were available for PAHs.

PAH concentration patterns indicate that PAHs may have reached the wetlands via stormwater runoff, either historically via the drainage ditch, as overland flow prior to the construction of the berm, through accumulation in historical sumps and holding ponds along the southwest Facility boundary (which may have extended into what is now considered the wetlands), or more recently via discharges from the current stormwater treatment system. As shown in Figure 4-3b, concentrations of total PAHs and cPAH TEQs were similar to or somewhat lower than those in Facility soil.

Petroleum-Associated VOCs

For the most part, VOCs were detected infrequently in wetland soil, with the exception of benzene and toluene (detected in 51% and 77% of wetland and ditch surface soil samples, respectively). The distributions of all VOCs were similar, and thus benzene was selected as a representative chemical for mapping (Figure 4-10).

The highest detected concentrations of benzene were in samples collected at the Facility, not in the wetlands, as shown in Figure 4-3b. Concentrations of detected VOCs in wetland soil were compared with conservative residential human health RSLs; only benzene was detected at a concentration higher than the RSL (in one sample). This sample was collected in the northwest portion of the wetlands (WS-09) and had a concentration that was slightly higher (56 µg/kg dw) than the RSL (52 µg/kg dw). All other detected VOC concentrations were less than the RSL. No invertebrate screening levels were available for VOCs.

Wetland and Ditch Soil Summary

Based on the information discussed above for TPH, PAHs, and petroleum-associated VOCs, higher concentrations of these chemicals were generally bounded both vertically and laterally. PAH and TPH concentration patterns were similar, with the highest concentrations located in areas that suggest that these chemicals may have migrated via stormwater runoff (i.e., the highest concentrations were located in the former drainage ditch, southwest of the Facility, and near the current and past stormwater treatment system discharge points). As expected based on the chemical properties (i.e., the tendency of VOCs to volatilize and not bind with soils or sediments), VOC concentrations were low or not-detectable in wetland soil.

4.3.2.5 Lake Sediment and Surface Water

Table 4-6 summarizes concentrations of TPH, PAHs, and petroleum-associated VOCs in lake sediment samples. Of the chemicals discussed in this section, eight VOCs (1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, benzene, ethylbenzene, isopropylbenzene, n-propylbenzene, tert-butyl methyl ether, and total xylenes) were not detected in lake sediment and are not included in this table. None of the chemicals discussed in this section were detected in surface water samples, and thus no summary statistics are presented for surface water.

TPH

Gasoline-range TPH were detected in only 1 of 11 Force Lake surface sediment samples (SE-02). Diesel-range TPH and motor oil-range TPH were detected in all surface sediment samples from both Force Lake and North Lake but not in Force Lake intermediate-depth sediment samples. None of the TPH concentrations in Force Lake or North Lake samples were greater than the conservative residential human health RSL. No invertebrate screening levels were available for TPHs.

PAHs

PAHs were detected in all Force Lake surface sediment samples, with the highest concentrations in the northwest-central portion of the lake (SE-03). Concentrations were lower or not-detected in Force Lake subsurface sediment samples and in North Lake surface sediment samples.

cPAH TEQs were compared with the conservative residential human health RSL for benzo(a)pyrene (15 µg/kg dw) (Figure 4-8). Although most Force Lake surface sediment samples had cPAH TEQs greater than this RSL, it should be noted that the comparison with conservative screening levels on a point-by-point basis should not be viewed as a risk estimate. Risks were fully assessed in the ERA and HHRA as presented in Appendices I and J and summarized in Section 6.0. No RSL was available for total PAHs or an appropriate surrogate. No invertebrate screening levels were available for PAHs.

Table 4-6. Concentrations of TPH, PAHs, and Petroleum-Associated VOCs Detected in at Least One Lake Sediment Sample

Chemical	Sampling Location	Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
			Ratio	%					
Petroleum (mg/kg dw)									
TPH – gasoline range	Force Lake	surface	1/11	9	31	31	SE-02	nc	7.7 – 80
	Force Lake	intermediate	0/3	0	nd	nd	nd	nc	13 – 19
	North Lake	surface	0/3	0	nd	nd	nd	nc	19 – 28
TPH – diesel range	Force Lake	surface	11/11	100	16	270	SE-03	98	na
	Force Lake	intermediate	0/3	0	nd	nd	nd	nc	7.7 – 9.4
	North Lake	surface	3/3	100	26 J	32	SE-101	29	na
TPH – motor oil range	Force Lake	surface	11/11	100	130	2,000	SE-03	760	na
	Force Lake	intermediate	0/3	0	nd	nd	nd	nc	16 – 19
	North Lake	surface	3/3	100	200	280	SE-103	240	na
Total TPH	Force Lake	surface	11/11	100	150	2,300	SE-03	840	na
	Force Lake	intermediate	0/3	0	nd	nd	nd	nc	17 – 19
	North Lake	surface	3/3	100	230	310	SE-103	270	na
PAHs (µg/kg dw)									
cPAH TEQ	Force Lake	surface	11/11	100	11.6	118	SE-03	61.9	na
	Force Lake	intermediate	1/3	33	7.10	7.10	SE-10	nc	4.20 – 4.30
	North Lake	surface	3/3	100	46.0	55.0	SE-102	50.7	na
Total PAHs	Force Lake	surface	11/11	100	104	1,060	SE-03	560	na
	Force Lake	intermediate	2/3	67	4.6	76	SE-10	nc	4.8
	North Lake	surface	3/3	100	340	480	SE-102	430	na
Petroleum-Associated VOCs (µg/kg dw)									
Toluene	Force Lake	surface	3/11	27	1.2	17	SE-02	4.5	6.0 – 8.2
	Force Lake	intermediate	0/3	0	nd	nd	nd	nc	2.2 – 2.7
	North Lake	surface	2/3	67	3.2	10	SE-101	nc	3.8

[a] Lake surface sediment samples were collected from 0 to 4 in. below the mudline, and lake intermediate sediment samples were collected from 2 to 3 ft below the mudline.

[b] The mean concentration is equal to the average of all detected values and one-half of the RL for non-detected values. Means were not calculated if the detection frequency was less than 10% or if fewer than three samples had detected concentrations.

[c] RLs are for only non-detected samples.

cPAH – carcinogenic polycyclic aromatic hydrocarbon
dw – dry weight
na – not applicable
nc – not calculated
nd – not detected
PAH – polycyclic aromatic hydrocarbon
RL – reporting limit
TEQ – toxic equivalents
TPH – total petroleum hydrocarbons
VOC – volatile organic compound

VOCs

Of the nine VOCs discussed in this section, only toluene was detected in lake sediment. No detected toluene concentrations were greater than the conservative residential human health RSL. No invertebrate screening levels were available for VOCs.

Lake Sediment and Surface Water Summary

In lake sediment, PAHs and TPH were detected in most surface samples; VOCs were infrequently detected (of the petroleum-associated VOCs, only toluene was detected). Chemical concentrations were low or not detected in subsurface Force Lake sediment. In addition, chemical concentrations in North Lake were usually lower than those in Force Lake, indicating that migration has been limited or has not occurred. No TPH, PAHs, or petroleum-associated VOCs were detected in lake surface water.

4.3.3 Summary for TPH, PAHs, and Petroleum-Associated VOCs

In the Study Area, the concentrations of TPH, PAHs, and petroleum-associated VOCs were usually highest in surface soil samples collected from the Facility (Figure 4-3a and 4-3b). The distributions of these chemicals in Facility soil indicate that these chemicals were likely introduced during industrial activities, including oil treatment and processing, production of RFO, road oiling for dust suppression, and tanker cleaning operations. Specifically, sources of these petroleum-related chemicals may include the tank farm located along the northeast boundary of the Facility and the former truck cleaning operation located in the central portion of the Facility. The highest concentrations of TPH, PAHs, and petroleum-associated VOCs were in these areas.

Detected TPH, cPAH TEQ, and petroleum-associated VOC concentrations in groundwater were also consistent with these potential sources because the highest concentrations were detected in shallow wells near or downgradient from the tank farm, the base oil refining plant, and the former truck cleaning operation area. For total PAHs, the highest concentrations were detected in samples collected from shallow well A-20, located near the Facility exit.

The highest concentrations of TPH and PAHs in wetland and ditch soil were detected in areas that suggest that these chemicals migrated via stormwater runoff (i.e., the highest concentrations were detected in the former drainage ditch, southwest of the Facility, and near the current and former stormwater treatment system discharge points). Concentrations of VOCs were either low or not-detected in wetland and ditch soil, indicating that the migration of these chemicals was either limited or VOCs were not persistent (e.g., VOCs may have volatilized from stormwater runoff or surface soils).

TPH, PAH, and petroleum-associated VOC concentrations in lake sediment and lake surface water were either low or the chemicals were not detected, indicating has been limited migration into or low persistence of these chemicals in Force Lake.

The distribution of the chemicals and the comparison with conservative screening levels, as shown in Figures 4-4 through 4-10, indicates that higher concentrations of TPH, PAH, and petroleum-associated VOCs were generally bounded both vertically and laterally. Thus, these chemicals have been adequately delineated and the available data meet the DQOs identified in the RI/FS Work Plan (Bridgewater et al. 2008b). The TPH, PAH, and petroleum-associated VOCs concentration patterns indicate that these chemicals were introduced by industrial activities on the Facility and may have migrated, to a limited extent, into the wetlands via stormwater runoff. The data also support the conclusion that migration of these chemicals into Force Lake has been minor or that these chemicals were not persistent in the lake.

4.4 PCBs

This section presents an overview of source information, fate and transport, and media-specific data for PCBs. PCBs are of interest at the Study Area based on their known presence in petroleum products including waste oils and fuels that have been processed and refined at the Facility. In the HHRA, total PCBs were identified as a COC based on potential future worker exposure to Facility soil and based on indirect exposure to Force Lake sediment through fish consumption.

4.4.1 Known or Suspected Sources and Release Mechanisms

PCBs are highly stable synthetic chemicals that were domestically manufactured from 1929 until their manufacture was banned in 1979. Due to their physical and chemical properties (e.g., non-flammability and electrical insulating capabilities), PCBs were used in hundreds of varied commercial applications, including insulating or dielectric fluids in electrical, heat transfer, and hydraulic equipment; as plasticizers in paints, plastics, and rubber products; in pigments, dyes, and carbonless copy paper; and many other industrial applications.

No specific PCB sources and release mechanisms associated with Harbor Oil have been identified. However, some of the petroleum products, including waste oils and fuels brought onto the Facility since the 1960s for oil re-refining and fuels blending (Section 4.2.2), were known to contain PCBs up to the allowable limits authorized under the federal TSCA program (< 50 mg/kg). It is suspected that PCBs were released at the Facility in association with the processing of these petroleum products. Sources of PCBs may also have included the former truck cleaning operation located in the central portion of the Facility and oils stored within the tank farm located along the northwest boundary of the Facility. In addition, a 1986 aerial photograph (Appendix A) shows that the roadway that extends from the Facility entrance around the former tank cleaning area may have been oiled. If true, it is possible that PCBs may have been present in that oil.

Because of their stable nature and varied historical uses, PCBs have been detected within most urban environments. Given that ubiquity,

general information regarding PCBs has been compiled to provide context in evaluating the total PCB concentrations detected in soil and sediment within the Harbor Oil Study Area. This general information and available site-specific information is presented in Section 4.4.3, along with a comparison to Study Area data.

4.4.2 Concentrations by Medium

This section discusses the concentrations of total PCBs in various media within the Study Area. Summary statistics in tables are provided by location (not sample)[16] to be consistent with the figures. The complete RI database is provided in Appendix B.

Figure 4-18 presents cumulative frequency distributions of total PCB concentrations in surface soil and sediment samples collected from within the Study Area. The data are presented by concentration on the x-axis and by percent frequency within the dataset on the y-axis. For example, the total PCB concentrations in approximately 75% of Facility surface soil samples are less than 1,000 µg/kg dw. Figure 4-18 is intended to help facilitate cross-media comparisons. Total PCB concentrations were highest in Facility soil and lowest in Force Lake surface sediment.

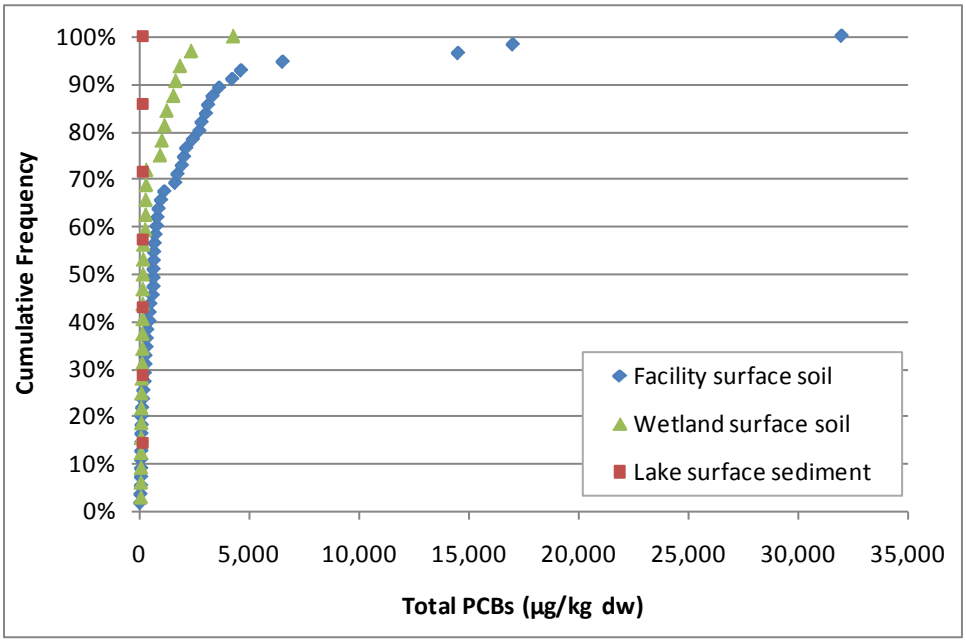
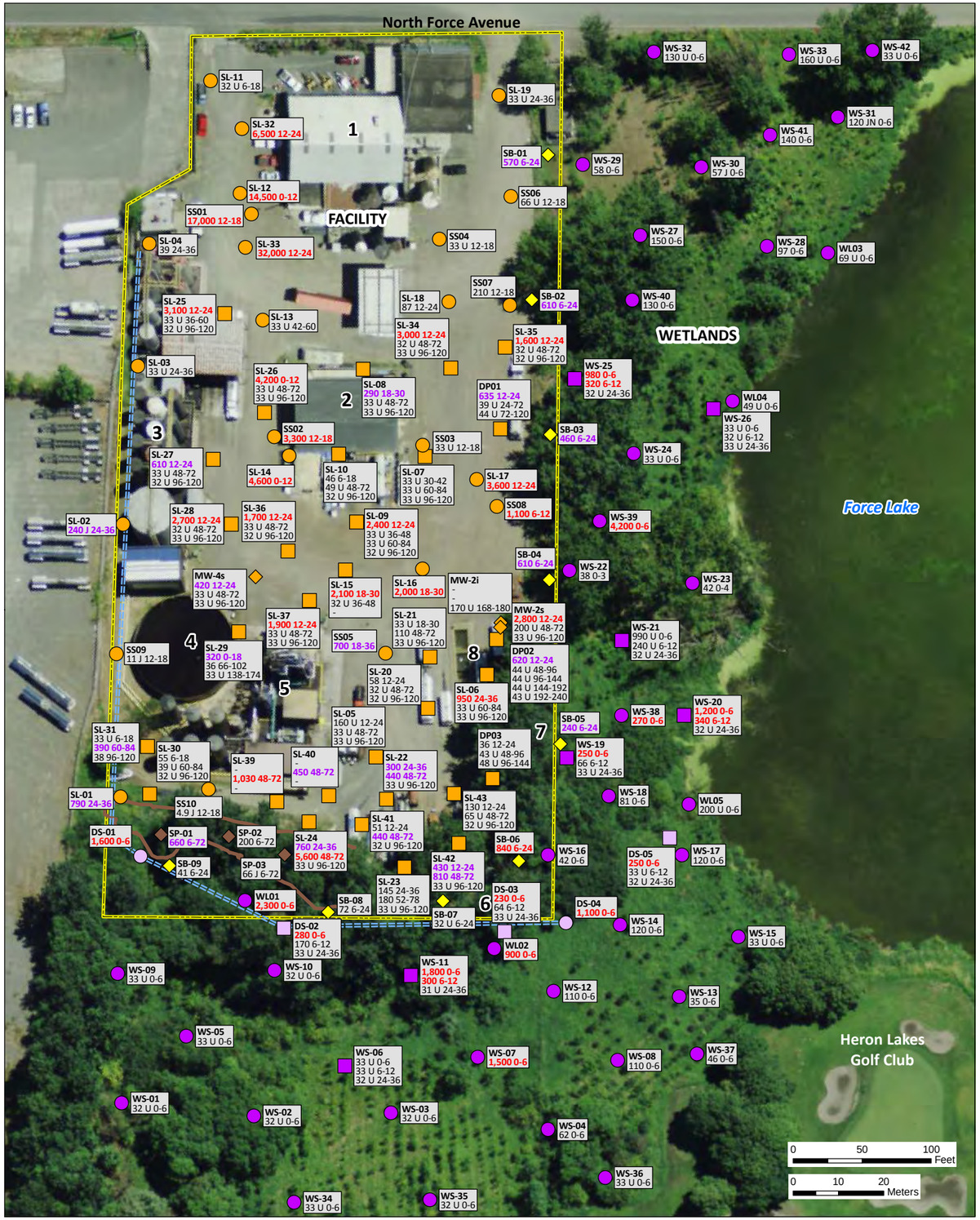
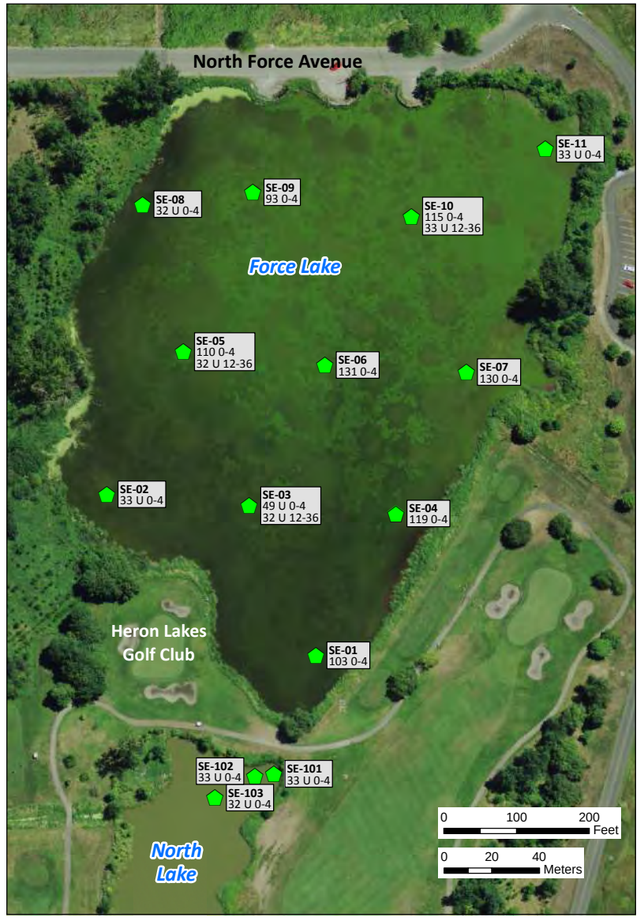


Figure 4-18. Cumulative Frequencies of Total PCBs Detected in Facility Surface Soil, Wetland Surface Soil, and Force Lake Surface Sediment

Figure 4-19 presents total PCB concentrations at each soil and sediment location sampled, whereas Figure 4-20 presents total PCB concentrations at each groundwater and surface water location sampled. These data are discussed in the following subsections.

[16] Duplicate samples were combined with the original sample, as described in Appendix N.





On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Total PCB Screening Levels

Medium	Unit	Industrial Human Health RSL[a]	Residential Human Health RSL[a]	Invertebrate Screening Level[b]
Facility soil	µg/kg dw	830	220	na
Wetland soil	µg/kg dw	na	220	nv
Lake sediment	µg/kg dw	na	220	227

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
[b] Invertebrate (ecological) sediment screening levels are represented by the lower of the probable effects concentration (PEC) and probable effects level (PEL); invertebrate screening levels in soil are represented by the lowest of EPA, DEQ, and Oak Ridge National Laboratory soil invertebrate screening levels.
na - not applicable
nv - no value (i.e., no SL available for this chemical-media combination)

Facility soil samples (µg/kg dw)[a]

- Surface soil
- Subsurface and surface soil[b]
- Soil at groundwater monitoring well[b]
- Soil berm
- Soil stockpile

Wetland and ditch soil samples (µg/kg dw)

- Wetland surface soil
- Wetland surface and subsurface soil[b]
- Ditch surface soil
- Ditch surface and subsurface soil[b]

Lake sediment samples (µg/kg dw)

- Lake sediment[b]

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

[a] The following locations were not analyzed for total PCBs and do not appear on this map: shallow samples from SL 45 and SL-46; intermediate sample from SL-38; and deep sample from SL-44.

[b] Both surface and subsurface data are shown.

Location ID — SL-00
Concentration — 2,500 12-24 / 250 JN 60-84 / 25 U 96-120
Qualifier: U=non-detect, J=estimated, N=tentatively identified
Depth in inches
Detected concentration: exceeds highest SL = Red; exceeds lowest SL = Purple; does not exceed SL = Black

WindWard environmental LLC

Figure 4-19. Total PCB Concentrations at Facility Soil, Wetland Soil, and Lake Sediment Sampling Locations

Prepared by CEH, 08/31/2010, MAP #3052, W:\Projects\Harbor_Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Total PCB Screening Levels

Medium	Unit	Human Health RSL[a]	Invertebrate Screening Level
Groundwater	µg/L	0.034	na
Surface water	µg/L	not detected; no comparison to screening levels	

[a] Human health regional screening levels (RSLs) are represented by the low est of the available screening levels from EPA and DEQ.
na - not applicable

Groundwater samples (µg/L)

- Shallow groundwater
- Intermediate groundwater
- Deep groundwater

Surface water samples (µg/L)

- Lake surface water

Wells where groundwater samples not collected

- Groundwater not sampled due to lack of construction details (trace to 0.02 ft of LNAPL observed)
- Groundwater not sampled due to lack of construction details
- Groundwater not sampled due to the presence of LNAPL (0.1 ft LNAPL observed here in 2008 when LNAPL sample was collected. After this time, trace to 0.02 ft of LNAPL observed).

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

Location ID — **GA-00**
Sample Year — 2000: –
2008: 1.0 U
2009: na

Detected concentration:
exceeds SL = **Red**
does not exceed SL = Black

Concentration
na=not analyzed
– =not collected

Qualifier
U=non-detect
J=estimated

WindWard LLC environmental

Figure 4-20. Total PCB Concentrations in Unfiltered Samples at Facility Groundwater and Lake Surface Water Sampling Locations

Prepared by CEH, 08/31/2010, MAP #3502, W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

4.4.2.1 Facility Soils

Table 4-7 summarizes total PCB concentrations in surface and subsurface soil samples collected from the Facility. The depth intervals of these samples varied depending on the sampling location, field conditions, and the sampling event (see Section 2.2). Surface soil samples at the Facility were collected just below the gravel fill layer, if present.

Table 4-7. Total PCB Concentrations in Facility Soil

Sample Type[a]	Detection Frequency		Min Detect Conc. (µg/kg dw)	Max Detect Conc. (µg/kg dw)	Location of Max Detect	Mean Conc. (µg/kg dw)[b]	RL or Range of RLs[c]
	Ratio	%					
Surface	44/55	80	4.9 J	32,000	SL-33	2,000	32 – 160
Intermediate	10/34	29	36	5,600	SL-24	290	32 – 200
Deep	1/33	3	38	38	SL-31	nc	32 – 170
Soil stockpile	3/3	100	66 J	660	SP-01	310	na
Soil berm	8/9	89	41	840	SB-06	380	32

[a] Surface soil samples were collected immediately below the gravel layer from depths of 0 to 5 ft bgs (0.5- to 1.5-ft sampling intervals for a given sample). Intermediate soil samples were collected from depths of 2 to 8.5 ft bgs (1- to 4-ft sampling intervals for a given sample). Deep soil samples were collected from depths of 6 to 22 ft bgs (1- to 4-ft sampling intervals for a given sample). Soil berm and soil stockpile samples were more consistent; all soil berm samples were collected from 0.5 to 2 ft bgs, and all soil stockpile samples were collected from 0.5 to 6 ft bgs.

[b] The mean concentration is equal to the average of all detected values and one-half of the RL for non-detected values. Means were not calculated if the detection frequency was less than 10%, or if fewer than three samples had detected concentrations.

[c] RLs are for only non-detected samples.

bgs – below ground surface
dw – dry weight
J – estimated concentration
na – not applicable
nc – not calculated
PCB – polychlorinated biphenyl
RL – reporting limit

Total PCBs were detected in 80% of surface soil samples, with detected concentrations ranging from 4.9 to 32,000 µg/kg dw and a mean concentration of 2,000 µg/kg dw. Soil stockpile and soil berm total PCB concentrations were generally lower, with mean concentrations of 310 and 380 µg/kg dw, respectively. The cumulative frequencies of total PCB concentrations in Facility surface soil (including soil berm and soil stockpile samples) are shown in Figure 4-18.

Total PCBs were detected in 29% of intermediate and 3% of deep subsurface soil samples collected at the Facility. In intermediate soil samples, the mean concentration was 290 µg/kg dw. No mean concentration could be calculated for deep soil samples because PCBs were only detected in one sample (38 µg/kg dw).

Total PCB concentrations were usually highest in the surface interval and then decreased with depth. However, a few samples on the northwest portion of the Facility (near the soil stockpile) had higher concentrations in

the intermediate interval relative to the surface and deep intervals at the same location. The most notable example was the sample at SL-24, which had an intermediate interval concentration of 5,600 µg/kg dw compared with surface and deep interval concentrations of 760 and 33 U µg/kg dw, respectively. This area was an undeveloped wetland area during early industrial activities at the Facility and was later filled to create more usable land. This history may explain the presence of higher PCB concentrations in the intermediate depth intervals in this area.

Figure 4-19 presents total PCB concentrations detected in soil samples collected at the Facility. Total PCB concentrations greater than 10,000 µg/kg dw were detected in surface soil in the east corner of the Facility near the Facility entrance. Concentrations of total PCBs greater than 1,000 µg/kg dw were detected in the central portion of the Facility, and along the previously oiled U-shaped roadway that extends from the Facility entrance around the former truck cleaning area. Total PCB concentrations in these areas were generally greater than conservative industrial human health RSL (830 µg/kg dw) and residential human health RSL (220 µg/kg dw) (Figure 4-19). However, the comparison with these screening levels on a point-by-point basis should not be viewed as a risk estimate; human health risks were fully assessed in the HHRA, as presented in Appendix I and summarized in Section 6.1.

In summary, higher concentrations of total PCBs were generally bounded both vertically and laterally in Facility soil, indicating that PCBs have been adequately delineated and the available data meet the DQOs identified in the RI/FS Work Plan (Bridgewater et al. 2008b).

4.4.2.2 Groundwater

Table 4-8 summarizes total PCB concentrations in groundwater. Total PCBs were not detected in any groundwater samples collected from the Study Area. Reporting limits (RLs) for total PCBs in groundwater ranged from 0.10 to 0.96 µg/L.

Table 4-8. Total PCB Concentrations in Groundwater

Sample Type[a]	Detection Frequency		Min Detect Conc. (µg/L)	Max Detect Conc. (µg/L)	Location of Max Detect	Mean Conc. (µg/L)[b]	RL or Range of RLs[c]
	Ratio	%					
Shallow	0/28	0	nd	nd	nd	nc	0.10 – 0.96
Intermediate	0/3	0	nd	nd	nd	nc	0.10
Deep	0/3	0	nd	nd	nd	nc	0.10 – 0.92

[a] The depths of shallow groundwater wells ranged from 10 to 20 ft bgs, the depths of intermediate wells ranged from 48 to 50 ft bgs, and the depth of the deep well was 97 ft bgs.

[b] Mean concentrations were not calculated because PCBs were not detected in any groundwater samples.

[c] RLs are for only non-detected samples.

bgs – below ground surface
nc – not calculated
nd – not detected
PCB – polychlorinated biphenyl
RL – reporting limit

4.4.2.3 LNAPL

LNAPL samples were collected from shallow well GA-30 (uppermost groundwater zone) in the northwest portion of the Facility near the soil stockpile in 2000 (layer thickness unknown), and again in 2008 when a thin layer (approximately 0.1 ft) of LNAPL was observed at that location. Total PCBs in the 2000 sample were detected at a concentration of 14,900 µg/kg ww (Aroclors 1242 and 1254), while total PCBs were detected at a concentration of 26,000 µg/kg ww in the 2008 LNAPL sample. Although total PCBs were detected in the LNAPL, PCBs were not detected in groundwater at the Facility, supporting the conclusion that PCBs do not readily partition into the aqueous phase.

Follow-up monitoring in GA-30, including a year of monthly measurements, revealed thin layers of LNAPL (0.02 to 0.01 ft), although no LNAPL was observed in downgradient wells GA-29 and MW-1s (see Figure 2-2 for well locations). Thus, the lateral extent of LNAPL appears to be limited to the immediate area surrounding well GA-30.

4.4.2.4 Wetland and Ditch Soil

Table 4-9 summarizes total PCB concentrations in wetland surface and subsurface soil.

Table 4-9. Total PCB Concentrations in Wetland and Ditch Soil

Sample Type[a]	Detection Frequency		Min Detect Conc. (µg/kg dw)	Max Detect Conc. (µg/kg dw)	Location of Max Detect	Mean Conc. (µg/kg dw)[b]	RL or Range of RLs (µg/kg dw)[c]
	Ratio	%					
Surface	32/52	62	35	4,200	WS-39	400	32 – 990
Intermediate	6/10	60	64	340	WS-20	140	32 – 240
Deep	0/10	0	nd	nd	nd	nc	31 – 33

[a] Surface soil samples were collected from 0 to 0.5 ft bgs, intermediate soil samples were collected from 0.5 to 1 ft bgs, and deep soil samples were collected from 2 to 3 ft bgs.

[b] The mean concentration is equal to the average of all detected values and one-half of the RL for non-detected values. Means were not calculated if the detection frequency was less than 10% or if fewer than three samples had detected concentrations.

[c] RLs are for only non-detected samples.

bgs – below ground surface
dw – dry weight
nc – not calculated
nd – not detected
PCB – polychlorinated biphenyl
RL – reporting limit

Total PCBs were detected in 62% of surface wetland soil samples, with detected concentrations ranging from 35 to 4,200 µg/kg dw and a mean concentration of 400 µg/kg dw. Total PCBs were detected in 60% of intermediate subsurface soil samples, with mean concentration of 140 µg/kg dw. PCBs were not detected in deep subsurface soil samples. As shown in Figure 4-19, total PCB concentrations were always highest in the surface interval and then decreased with depth.

Total PCB concentrations in the ditch and wetland soils were usually lower than those detected in the Facility soil (Figure 4-18). The highest

total PCB concentration in a wetland soil sample (4,200 µg/kg dw) was detected at location WS-39, which is just south of the Facility, approximately halfway between North Force Avenue and the drainage ditch. Total PCB concentrations greater than the residential RSL (220 µg/kg dw,) were also found in the ditch area along the northwest boundary of the Facility (e.g., DS-01, WL01, WS-07, and WS-11) and along the north shoreline of Force Lake (e.g., WS-20) (Figure 4-19). No invertebrate soil screening level was available for total PCBs.

Total PCBs were not detected in most of the samples collected from the periphery of the wetlands. The spatial distribution of the higher total PCB concentrations suggests that PCBs may have been associated with stormwater runoff or other releases that drained to the ditch. In addition, PCBs may have accumulated in historical sumps and holding ponds along the southwest Facility boundary, which likely accumulated water and oil from the truck cleaning operations.

4.4.2.5 Lake Sediment and Surface Water

Table 4-10 summarizes total PCB concentrations in lake surface and subsurface sediment and in lake surface water.

Table 4-10. Total PCB Concentrations in Lake Sediment and Surface Water

Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
	Ratio	%					
Force Lake Sediment (µg/kg dw)							
Surface	7/11	64	93	131	SE-06	80	32 – 49
Intermediate	0/3	0	nd	nd	nd	nc	32 – 33
North Lake Sediment (µg/kg dw)							
Surface	0/3	0	nd	nd	nd	nc	32 – 33
Force Lake Water (µg/L)							
Surface	0/3	0	nd	nd	nd	nc	0.10

[a] Force Lake surface sediment samples were collected from 0 to 4 in. below the mudline, and Force Lake intermediate sediment samples were collected from 2 to 3 ft below the mudline.

[b] The mean value is equal to the average of all detected values and one-half of the RL for non-detected values. Means were not calculated if the detection frequency was less than 10% or if fewer than three samples had detected concentrations.

[c] RLs from non-detected samples only.

dw – dry weight
nc – not calculated
nd – not detected
PCB – polychlorinated biphenyl
RL – reporting limit

Total PCBs were detected in 7 of the 11 surface sediment samples collected in Force Lake, with detected concentrations ranging from 93 to 131 µg/kg dw (Table 4-10). The mean total PCB concentration in Force Lake surface sediment (80 µg/kg dw) was significantly lower than the mean surface soil concentration in samples collected from the Facility (2,000 µg/kg dw), and was also significantly lower than the mean

concentration in the wetlands (400 µg/kg dw), although many of the surface sediment and wetland soil samples had similar (low) concentrations (Figure 4-19). None of the total PCB concentrations in lake sediment sediments were greater than residential RSLs or invertebrate screening levels. Total PCBs were not detected in the two Force Lake surface sediment samples that were collected closest to the Facility (SE-02 and SE-08).

Total PCBs were not detected in any of the three subsurface (1 to 3 ft below the mudline) sediment samples collected from Force Lake, indicating that the vertical extent of PCBs in Force Lake sediment was bounded. In addition, total PCBs were not detected in any of the three samples collected in North Lake, indicating that PCBs have not migrated into North Lake.

Total PCBs were not detected in any of the three surface water samples collected from Force Lake. The RL for total PCBs was 0.1 µg/L.

4.4.3 General PCB Information for Comparison to Study Area Data

Until their manufacture was banned in the United States in 1979, PCBs were widely used for commercial and industrial applications because of their stability and thermal insulating properties. Over their period of use, PCBs have been released to the environment through a number of mechanisms including, but not limited to, releases of liquids from electrical equipment, spills, waste disposal practices, and normal weathering of PCB-containing paints and caulking. To provide general context to Study Area concentrations, this section discusses concentrations associated with stormwater-related sampling efforts.

4.4.3.1 PCB Concentrations in Urban Area Stormwater

Even though PCB production and new uses are no longer authorized, PCBs are persistent in the environment because they are virtually insoluble in water, hydrophobic in nature, highly unreactive, and resistant to breakdown by acids, bases, and heat. PCBs are commonly detected in environmental samples not specifically associated with prior use activities because of the PCBs' persistence and redistribution in the environment over time through mass transport mechanisms, such as windblown dust and redeposition, and through sorption to organic matter that may have been eroded, transported, and redistributed by stormwater.

Stormwater catch basin sediment samples collected as part of the draft Portland Harbor RI (Integral et al. 2009) provide an indication of urban levels of PCBs in Portland associated with various land uses:

- Heavy industrial: 48.4 to 9,900 µg/kg dw (n = 24)
- Light industrial: 264 to 661 µg/kg dw (n = 2)
- Major transportation: 125 to 223 µg/kg dw (n = 3)
- Mixed land use: 74.5 to 696 µg/kg dw (n = 7)
- Open space: 4.13 µg/kg dw (n = 1)

- Residential: 66.7 to 377 µg/kg dw (n = 2)

As presented in DEQ's *Guidance for Evaluating the Stormwater Pathway at Upland Sites* (2009), PCB concentrations less than 100 µg/kg dw suggest the absence of a significant up-pipe PCB source to the stormwater conveyance system and are considered to be "typical" industrial stormwater concentrations.

4.4.3.2 Comparison of General PCB Information to Study Area Concentrations

Section 4.4.3.1 provides general information regarding the prevalence and concentration of PCBs in urban land use areas (based on stormwater catch basin samples). This general information is meant to provide a context for evaluating the concentrations detected in the Study Area. For example, total PCB concentrations in Force Lake surface sediment ranged from non-detect to 131 µg/kg dw (mean of 80 µg/kg dw) (Table 4-10). The total PCB concentrations in stormwater catch basin samples from Portland (Integral et al. 2009) for a residential land use basin ranged from 66.7 to 377 µg/kg dw. This comparison illustrates that the total PCB concentrations in Force Lake sediments are not atypical of the general level of PCBs found in urban residential areas. Further, the average concentration of PCBs in Force Lake, based on summary information provided by the City of Portland (City of Portland 2009b), is not such that a historical or ongoing up-pipe PCB source of significance would be suspected.

With respect to soil, total PCB concentrations were highly variable at the Facility and in the wetland, ranging from 4.9 to 32,000 µg/kg dw in Facility surface soil (mean of 2,000 µg/kg dw) and from 35 to 4,200 µg/kg dw in wetland surface soil (mean of 400 µg/kg dw) (Tables 4-7 and 4-9; Figure 4-19). The mean and maximum PCB concentrations in these media correspond with the PCB stormwater catch basin sample concentrations in industrial areas, which is consistent with the Facility setting and suspected source of PCBs to Facility and wetland soils as described in Section 4.4.3.

4.4.4 Summary for Total PCBs

In the Study Area, total PCB concentrations were highest in surface soils collected from the Facility. Patterns of PCBs in Facility soil indicate that releases from the tank farm, the truck cleaning operation, and road oiling may have contributed to PCB releases at the Facility. Total PCB concentrations were highest in the northeast corner of the Facility near the Facility entrance, in the central portion of the Facility near the former tanker truck cleaning operation, and along the U-shaped roadway that extends from the Facility entrance around the former truck cleaning operation area.

Total PCB concentrations were usually lower in samples collected from the wetlands than those collected from the Facility (Figure 4-18). The highest PCB concentrations in the wetlands were located just to the south of the Facility approximately halfway between North Force Avenue and the drainage ditch, in the former drainage ditch to the west of the Facility, and near the discharge point of the stormwater treatment system. Thus,

as discussed in Section 4.2.2, possible explanations for the distribution of PCBs in the wetlands include the following:

- PCBs may have accumulated in historical sumps and holding ponds along the southwest Facility boundary, which may have extended into what is now considered the wetlands. These sumps and holding ponds likely accumulated water and oil from the truck cleaning operations and are in an area that was subsequently filled to the current grade.
- PCBs may have migrated with sheet flow into the wetlands prior to the construction of the soil berm in the early 1980s.
- PCBs may have been released directly into the wetlands as a result of the 1979 Facility fire or other Facility-related releases before the soil berm was constructed.
- PCBs may have migrated from the Facility bound to contaminated particles transported in storm runoff via the drainage ditch before the construction of the current stormwater treatment system in the mid-1980s

Stormwater runoff is now collected and treated in the stormwater treatment system that discharged to the drainage ditch in the southwest corner of the Facility until 2002 and now discharges to the south of the Facility near location WS-19, which had a total PCB concentration of 250 µg/kg dw.

In Force Lake, concentrations of total PCBs were usually lower than those in Facility soil and were lower than or similar to concentrations in wetland soil (Figure 4-18). The concentrations of PCBs in Force Lake sediment were of similar magnitude to those identified by the City of Portland as being representative of stormwater catch basin sediment in an area of urban residential land use. Total PCBs were not detected in the two sediment samples collected closest to the Facility, and relatively low variability was observed in detected total PCB concentrations in Force Lake; thus, no clear gradient from the Facility was observed. In addition, total PCBs were not detected in subsurface sediment samples, which may indicate little historical sedimentation of contaminated particles in Force Lake (see Section 3.3.2).

The potential for migration of total PCBs from Force Lake into North Lake was evaluated through the collection of three surface sediment samples from North Lake. As noted previously, total PCBs were not detected in any of these three samples, indicating that PCBs have not migrated into North Lake.

PCBs were not detected in any groundwater or surface water samples, which is consistent with PCBs' high affinity for particles.

The comparison with conservative screening levels, as shown in Figures 4-19 and 4-20, indicates that PCBs were generally bounded both vertically and laterally. Thus PCBs have been adequately delineated and the available data meet the DQOs identified in the RI/FS Work Plan (Bridgewater et al. 2008b).

4.5 Metals

This section presents an overview of source information, fate and transport, and media-specific data for metals. These metals have been detected in samples collected from throughout the Study Area and may have been introduced to the Facility through historical and current industrial activities, including oil treatment and processing, production of RFO, and tanker cleaning operations. In the HHRA, arsenic was identified as a COC based on future worker exposure to Facility soil. In the ERA, chromium, copper, mercury, and zinc were identified because they had LOAEL-based HQs greater than 1.0 for at least one receptor (i.e., invertebrates, fish, or mammals) and had Study Area concentrations greater than background concentrations. This section discusses these five metals. Other metals are discussed in Section 4.8.

4.5.1 Known or Suspected Sources and Release Mechanisms

Metals are naturally occurring elements and so are commonly detected in the environment. Thus, a portion of the metals concentrations at the Study Area may not be related to sources or releases at the Facility. Regional background concentrations are available from DEQ for the five metals discussed in this section (see Section 2.8.1).

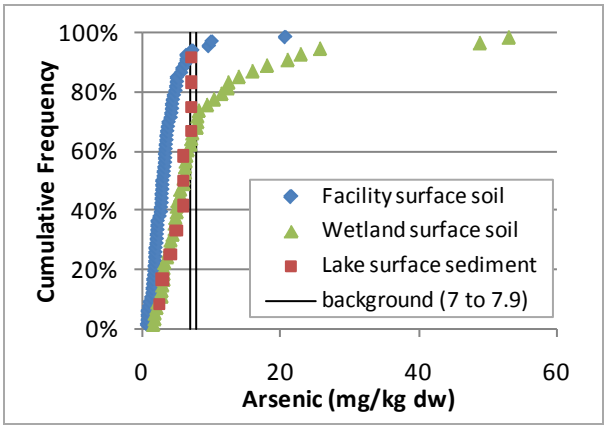
Study Area concentrations of metals higher than regional background concentrations may be associated with several different sources. Some metals, including arsenic and chromium, are known to be associated with used oils and fuels, which could have been released at the Study Area during tanker truck washing operations (in the central portion of the Facility) or during used-fuel processing and refinement. Agricultural applications that involved the use of some metals (arsenic and copper) could also account for their presence at the Facility as a result of cattle truck cleaning operations. In addition, industrial uses of all five metals (e.g., as components of paint, steel, or batteries) could have contributed to the presence of metals at the Study Area. For example, zinc is a prevalent corrosion inhibitor used on all forms of steel (e.g., building siding and roofing, piping, and tanks).

4.5.2 Concentrations by Medium

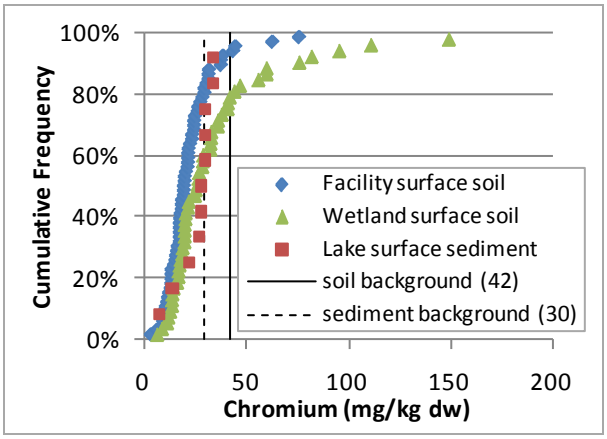
This section discusses the concentrations of arsenic, chromium, copper, mercury, and zinc in various media within the Study Area (other metals are discussed in Section 4.8). Summary statistics in tables are provided by location (not sample)[17] to be consistent with the figures. The complete RI database is provided in Appendix B.

Figure 4-21 presents cumulative frequency distributions for the five metals discussed in this section based on concentrations in surface soil and sediment samples collected from within the Study Area. Background concentrations are also shown. Concentration is presented on the x-axis, and percent rank within the dataset is presented on the y-axis. This figure

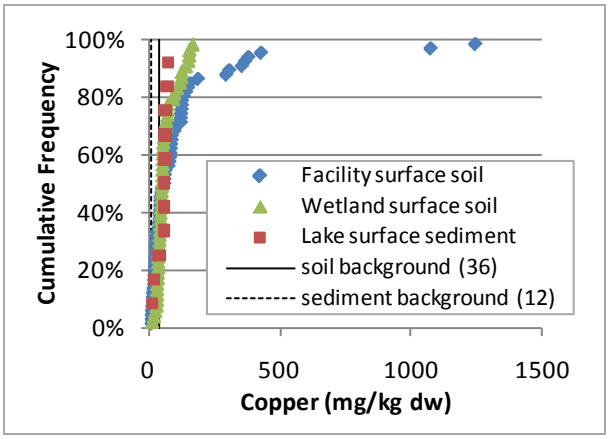
[17] Duplicate samples were combined with the original sample, as described in Appendix N.



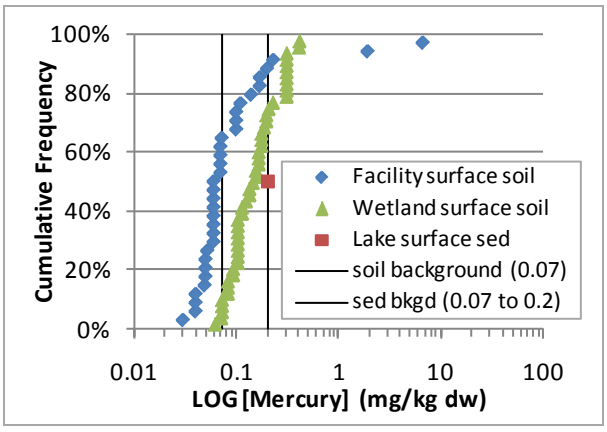
Arsenic



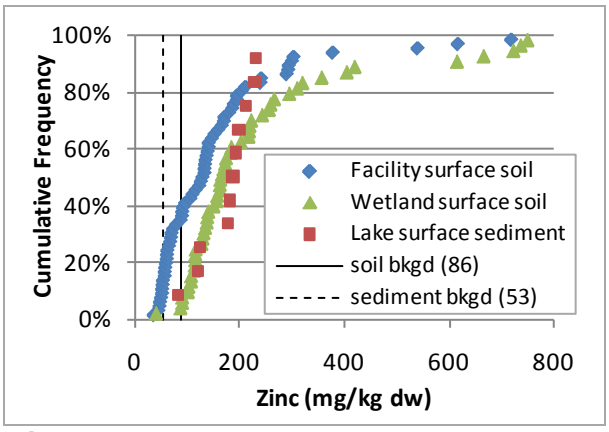
Chromium



Copper



Mercury

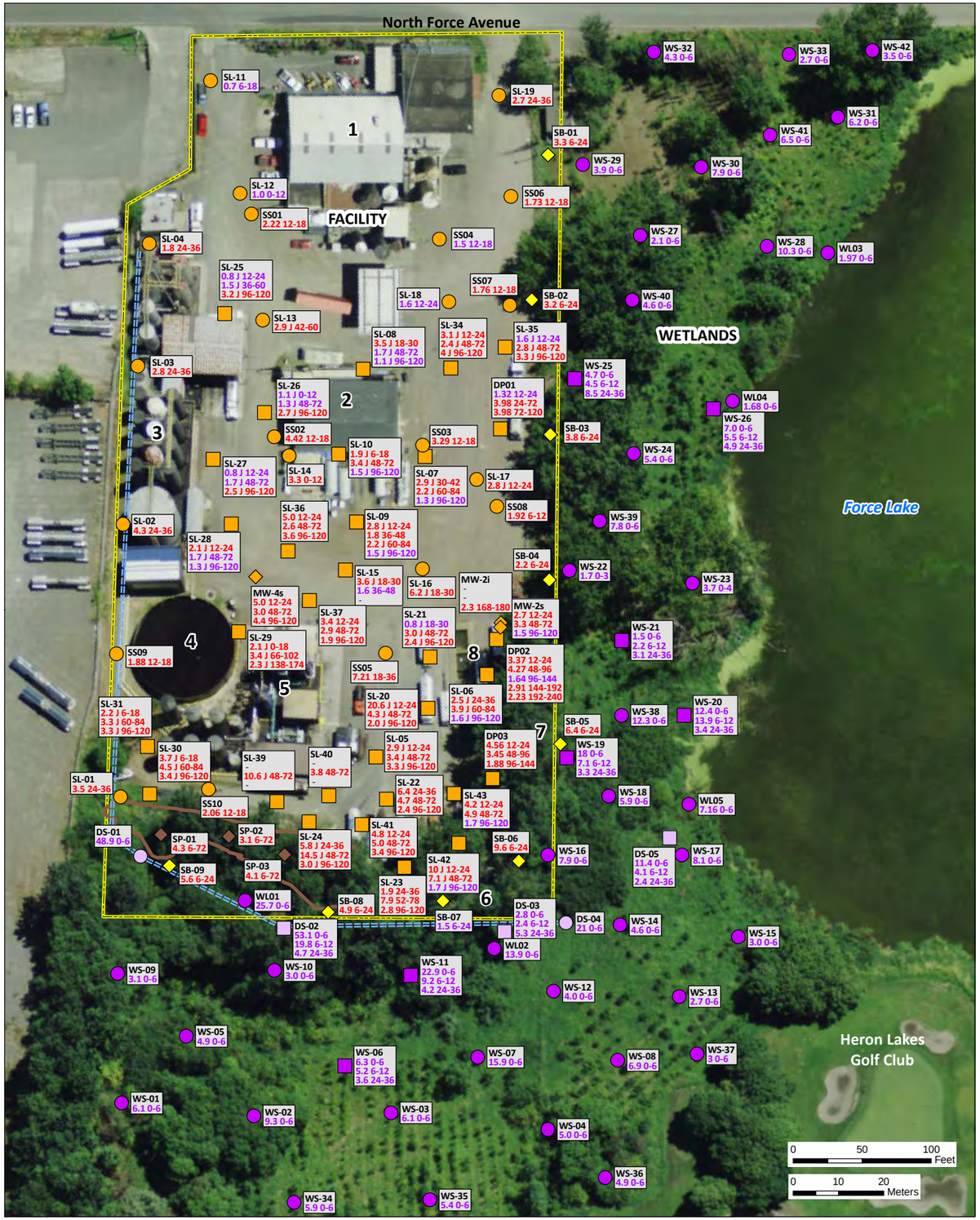


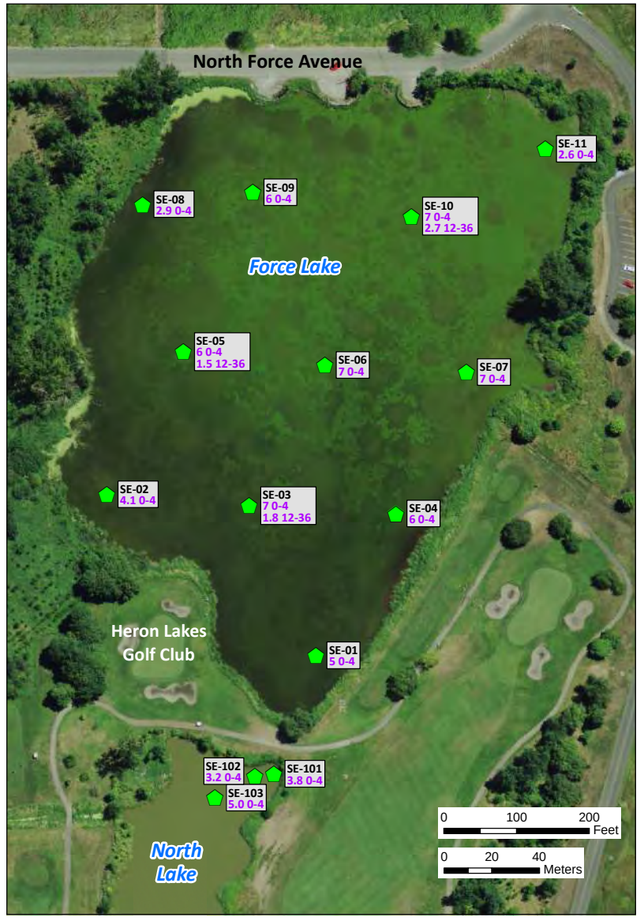
Zinc

Figure 4-21. Cumulative Frequencies for Metals Detected in Facility Surface Soil, Wetland Surface Soil, and Force Lake Surface Sediment

is intended to help facilitate cross-media comparisons and present background concentrations relative to Study Area concentrations. Maximum sediment concentrations were lower than those for Facility or wetland soil. Arsenic concentrations in approximately 90% of Facility surface soil samples were less than the background concentration. Note that for mercury, a log scale was used in the cumulative frequency distribution to better display the range of concentrations. Also note that mercury was only detected in one sediment sample.

Figures 4-22 through 4-26 present metal concentrations at each soil and sediment location sampled; Figures 4-27 through 4-31 present metal concentrations at each groundwater and surface water location sampled. These data are discussed by media in the following sections.





On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Arsenic Screening Levels

Medium	Unit	Industrial Human Health RSL[a]	Residential Human Health RSL[a]	Invertebrate Screening Level[b]
Facility soil	mg/kg dw	1.7	0.39	na
Wetland soil	mg/kg dw	na	0.39	60
Lake sediment	mg/kg dw	na	0.39	17

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
[b] Invertebrate (ecological) sediment screening levels are represented by the lower of the probable effects concentration (PEC) and probable effects level (PEL); invertebrate screening levels in soil are represented by the lowest of EPA, DEQ, and Oak Ridge National Laboratory soil invertebrate screening levels.
na - not applicable
Note: Soil background arsenic concentration: 7 mg/kg dw
Sediment background arsenic concentration: 7 to 7.9 mg/kg dw

Facility soil samples (mg/kg dw)[a]

- Surface soil
- Subsurface and surface soil[b]
- Soil at groundwater monitoring well[b]
- Soil berm
- Soil stockpile

Wetland and ditch soil samples (mg/kg dw)

- Wetland surface soil
- Wetland surface and subsurface soil[b]
- Ditch surface soil
- Ditch surface and subsurface soil[b]

Lake sediment samples (mg/kg dw)

- Lake sediment[b]

=== Drainage ditch (approximate location)

Soil stockpile (approximate boundary)

Facility boundary

[a] The following locations were not analyzed for arsenic and do not appear on this map: shallow samples from SL 32, SL 33, SL 45, and SL 46; intermediate sample from SL-38; and deep sample from SL 44.

[b] Both surface and subsurface data are shown.

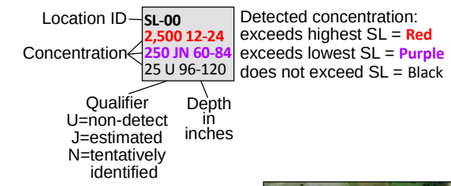


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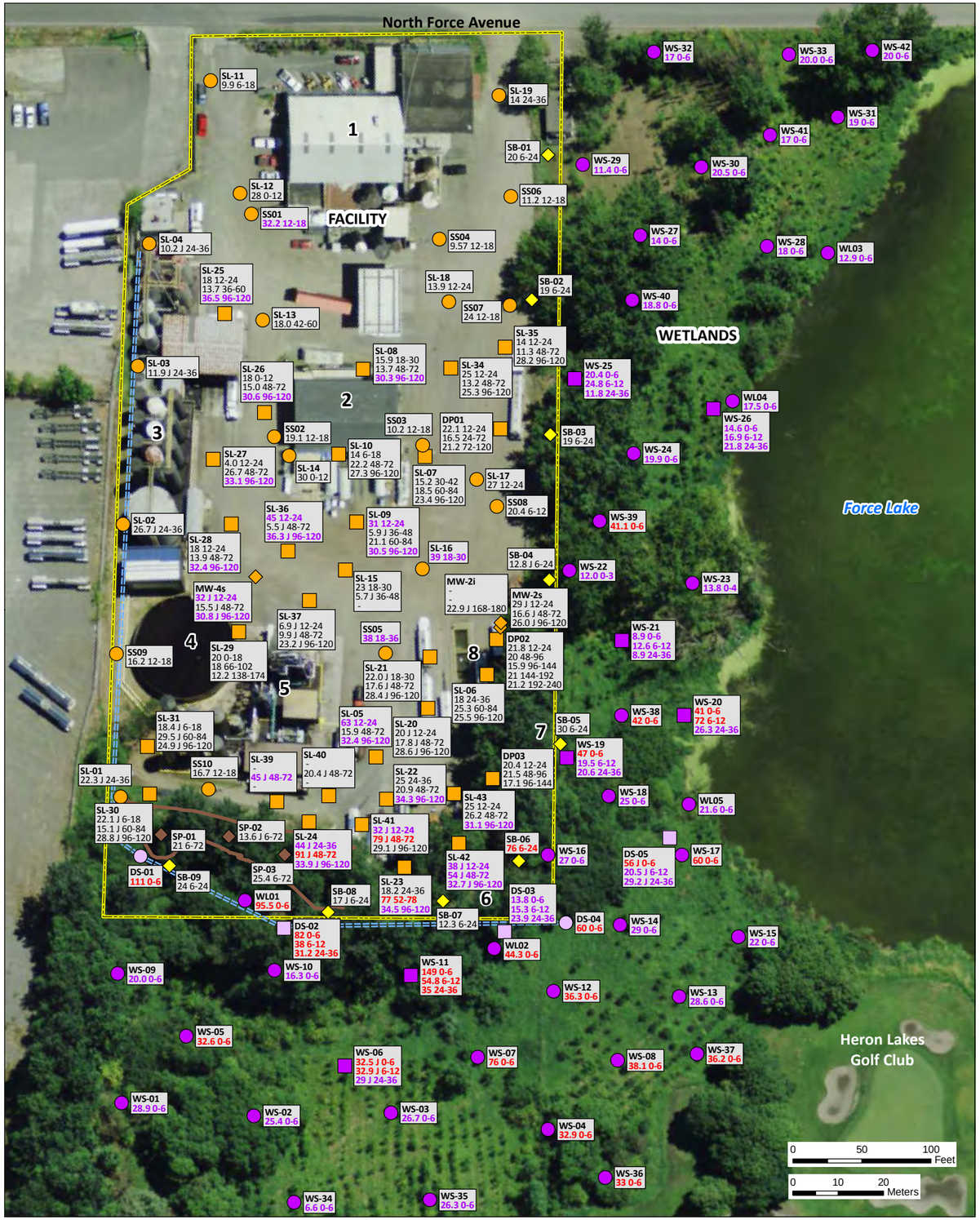
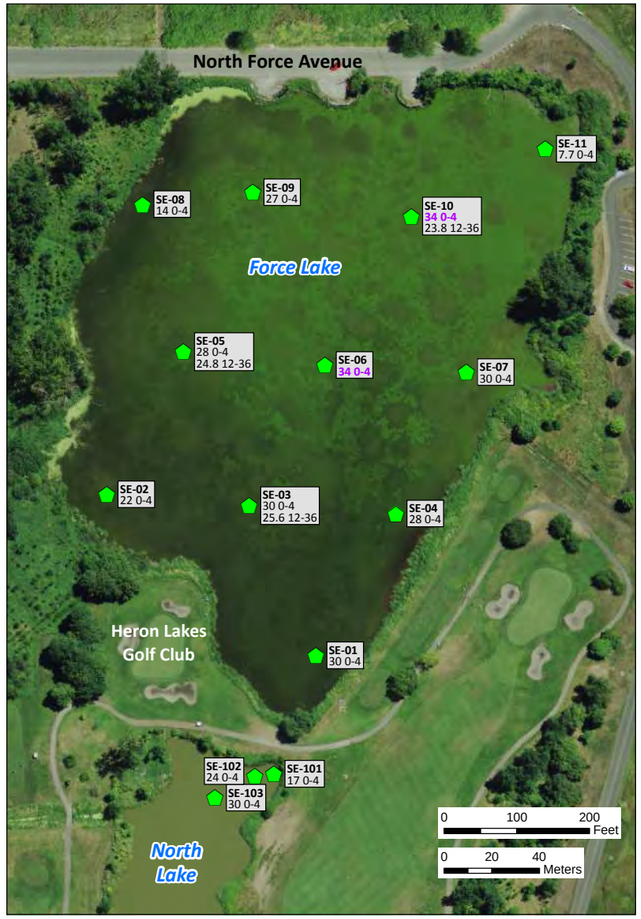
Figure 4-22. Arsenic Concentrations at Facility Soil, Wetland Soil, and Lake Sediment Sampling Locations

Prepared by CEH, 08/31/2010, MAP #4071, W:\Projects\Harbor_Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.





On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Chromium Screening Levels

Medium	Unit	Industrial Human Health RSL[a]	Residential Human Health RSL[a]	Invertebrate Screening Level[b]
Facility soil	mg/kg dw	71.2	30	na
Wetland soil	mg/kg dw	na	30	2
Lake sediment	mg/kg dw	na	30	90

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
[b] Invertebrate (ecological) sediment screening levels are represented by the lower of the probable effects concentration (PEC) and probable effects level (PEL); invertebrate screening levels in soil are represented by the lowest of EPA, DEQ, and Oak Ridge National Laboratory soil invertebrate screening levels.
na - not applicable
Note: Soil background chromium concentration: 42 mg/kg dw
Sediment background chromium concentration: 30 mg/kg dw

Facility soil samples (mg/kg dw)[a]

- Surface soil
- Subsurface and surface soil[b]
- Soil at groundwater monitoring well[b]
- Soil berm
- Soil stockpile

Wetland and ditch soil samples (mg/kg dw)

- Wetland surface soil
- Wetland surface and subsurface soil[b]
- Ditch surface soil
- Ditch surface and subsurface soil[b]

Lake sediment samples (mg/kg dw)

- Lake sediment[b]

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

[a] The following locations were not analyzed for chromium and do not appear on this map: shallow samples from SL 32, SL 33, SL 45, and SL 46; intermediate sample from SL-38; and deep sample from SL 44.

[b] Both surface and subsurface data are shown.

Location ID — SL-00
Concentration — 2,500 12-24 / 250 JN 60-84 / 25 U 96-120

Detected concentration:
exceeds highest SL = Red
exceeds lowest SL = Purple
does not exceed SL = Black

Qualifier
U=non-detect
J=estimated
N=tentatively identified

Depth in inches

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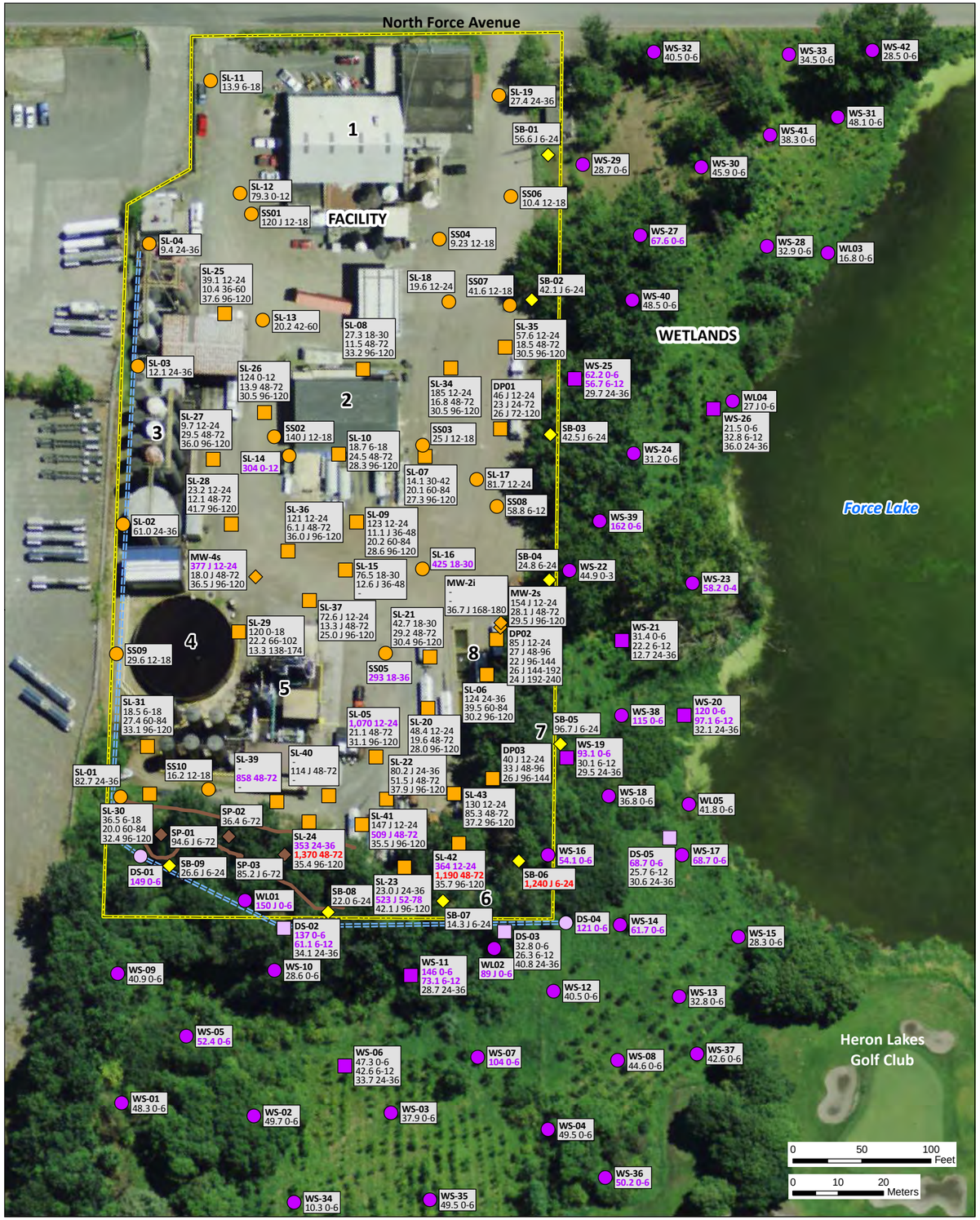
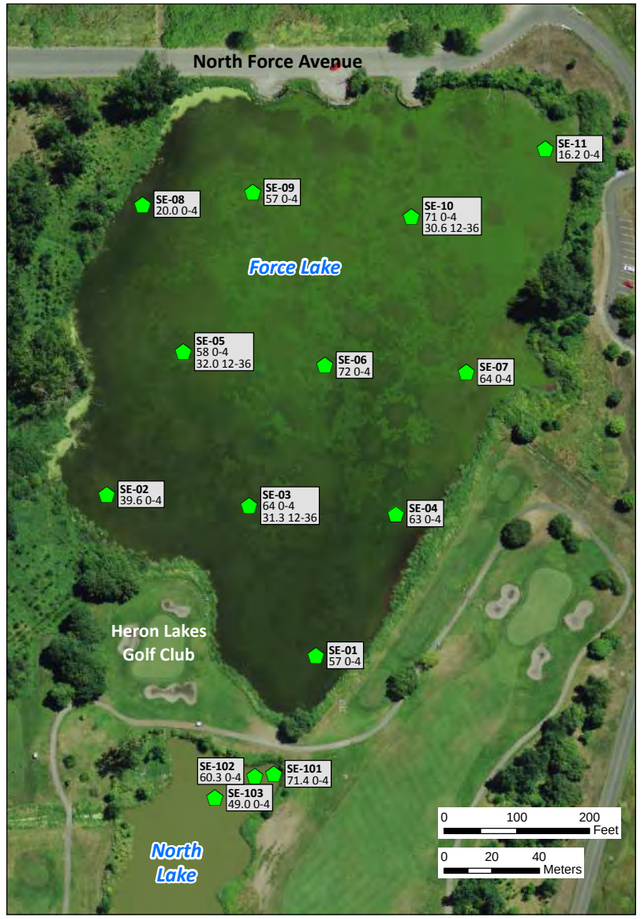
Figure 4-23. Chromium Concentrations at Facility Soil, Wetland Soil, and Lake Sediment Sampling Locations

Prepared by CEH, 12/15/2011, MAP #4073, W:\Projects\Harbor_Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.





On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Copper Screening Levels

Medium	Unit	Industrial Human Health RSL[a]	Residential Human Health RSL[a]	Invertebrate Screening Level[b]
Facility soil	mg/kg dw	1,100	291	na
Wetland soil	mg/kg dw	na	291	50
Lake sediment	mg/kg dw	na	291	149

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
[b] Invertebrate (ecological) sediment screening levels are represented by the lower of the probable effects concentration (PEC) and probable effects level (PEL); invertebrate screening levels in soil are represented by the lowest of EPA, DEQ, and Oak Ridge National Laboratory soil invertebrate screening levels.
na - not applicable
Note: Soil background copper concentration: 36 mg/kg dw
Sediment background copper concentration: 12 mg/kg dw

Facility soil samples (mg/kg dw)[a]

- Surface soil
- Subsurface and surface soil[b]
- Soil at groundwater monitoring well[b]
- Soil berm
- Soil stockpile

Wetland and ditch soil samples (mg/kg dw)

- Wetland surface soil
- Wetland surface and subsurface soil[b]
- Ditch surface soil
- Ditch surface and subsurface soil[b]

Lake sediment samples (mg/kg dw)

- Lake sediment[b]

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

[a] The following locations were not analyzed for copper and do not appear on this map: shallow samples from SL 32, SL 33, SL 45, and SL 46; intermediate sample from SL-38; and deep sample from SL 44.

[b] Both surface and subsurface data are shown.

Location ID — SL-00
Concentration — 2,500 12-24 / 250 JN 60-84 / 25 U 96-120
Qualifier: U=non-detect, J=estimated, N=tentatively identified
Depth in inches

Detected concentration:
exceeds highest SL = Red
exceeds lowest SL = Purple
does not exceed SL = Black

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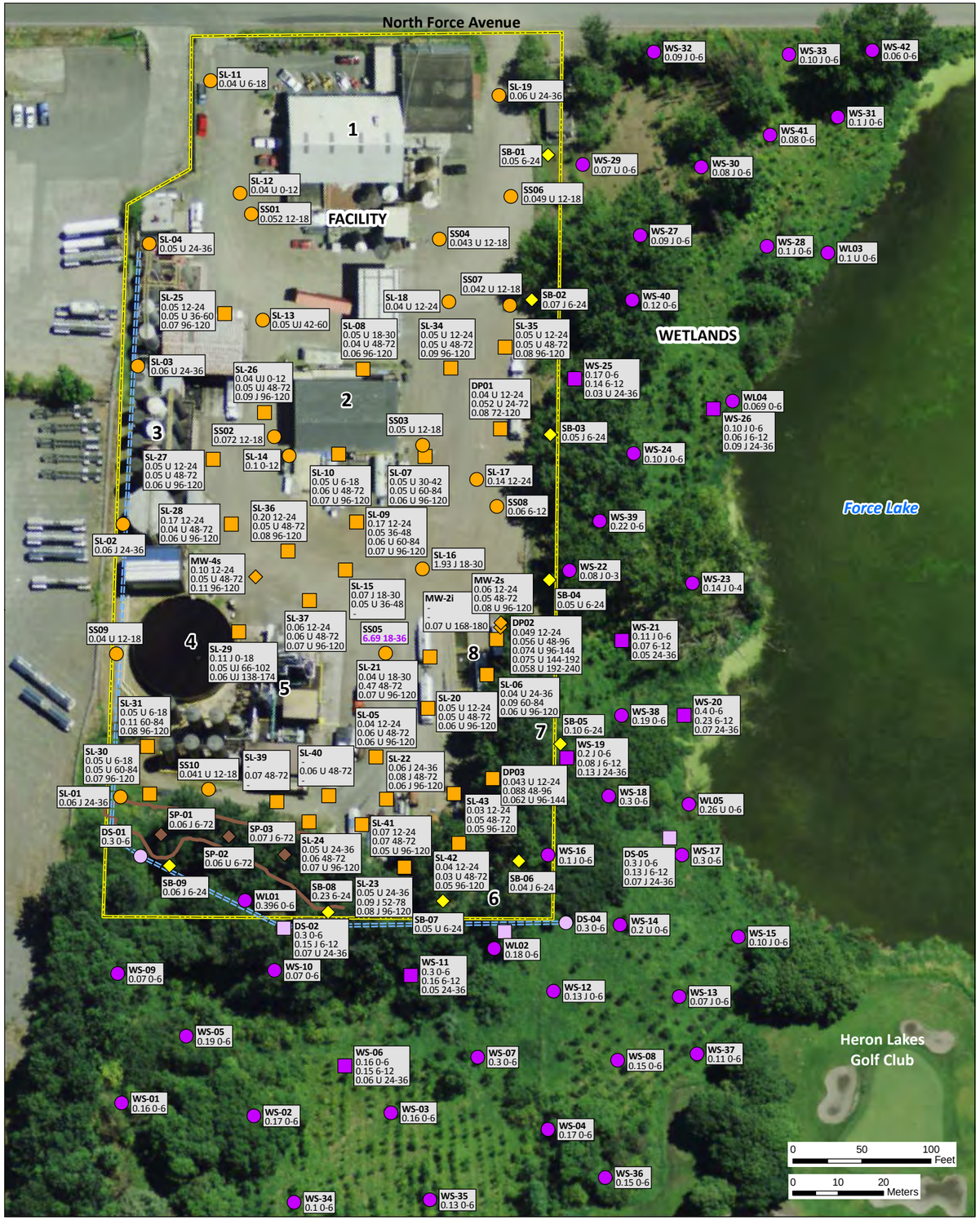
Figure 4-24. Copper Concentrations at Facility Soil, Wetland Soil, and Lake Sediment Sampling Locations

Prepared by CEH, 12/15/2011, MAP #4074, W:\Projects\Harbor_Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.



On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Mercury Screening Levels

Medium	Unit	Industrial Human Health RSL[a]	Residential Human Health RSL[a]	Invertebrate Screening Level[b]
Facility soil	mg/kg dw	9.3	2.3	na
Wetland soil	mg/kg dw	na	2.3	0.5
Lake sediment	mg/kg dw	na	2.3	0.486

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
[b] Invertebrate (ecological) sediment screening levels are represented by the lower of the probable effects concentration (PEC) and probable effects level (PEL); invertebrate screening levels in soil are represented by the lowest of EPA, DEQ, and Oak Ridge National Laboratory soil invertebrate screening levels.
na - not applicable
Note: Soil background mercury concentration: 0.07 mg/kg dw
Sediment background mercury concentration: 0.07 to 0.2 mg/kg dw

Facility soil samples (mg/kg dw)[a]

- Surface soil
- Subsurface and surface soil[b]
- Soil at groundwater monitoring well[b]
- Soil berm
- Soil stockpile

Wetland and ditch soil samples (mg/kg dw)

- Wetland surface soil
- Wetland surface and subsurface soil[b]
- Ditch surface soil
- Ditch surface and subsurface soil[b]

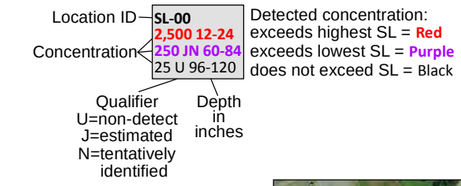
Lake sediment samples (mg/kg dw)

- Lake sediment[b]

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

[a] The following locations were not analyzed for mercury and do not appear on this map: shallow samples from SL 32, SL 33, SL 45, and SL 46; intermediate sample from SL-38; and deep sample from SL 44.

[b] Both surface and subsurface data are shown.



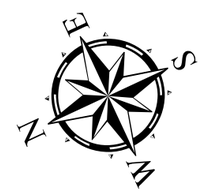


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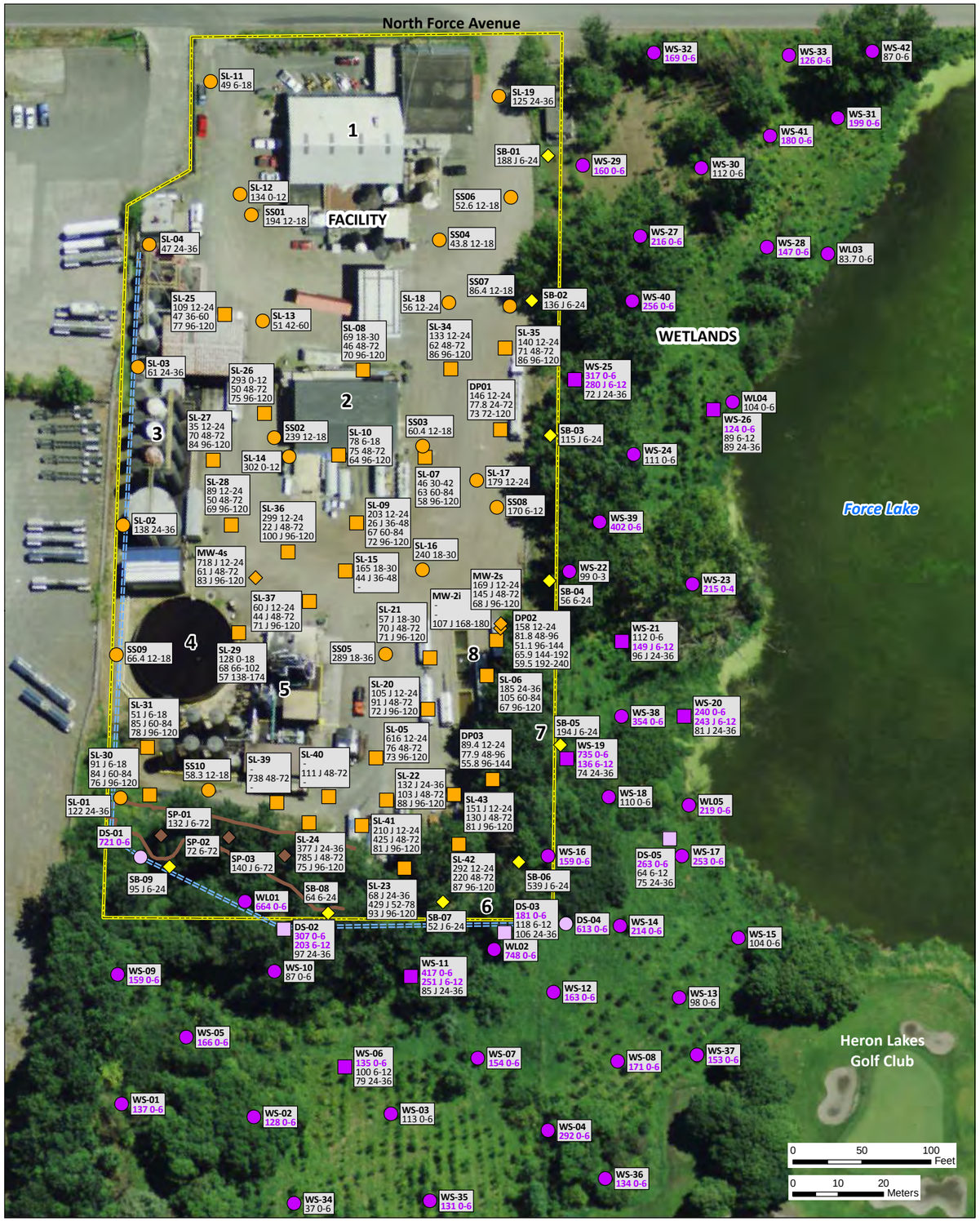
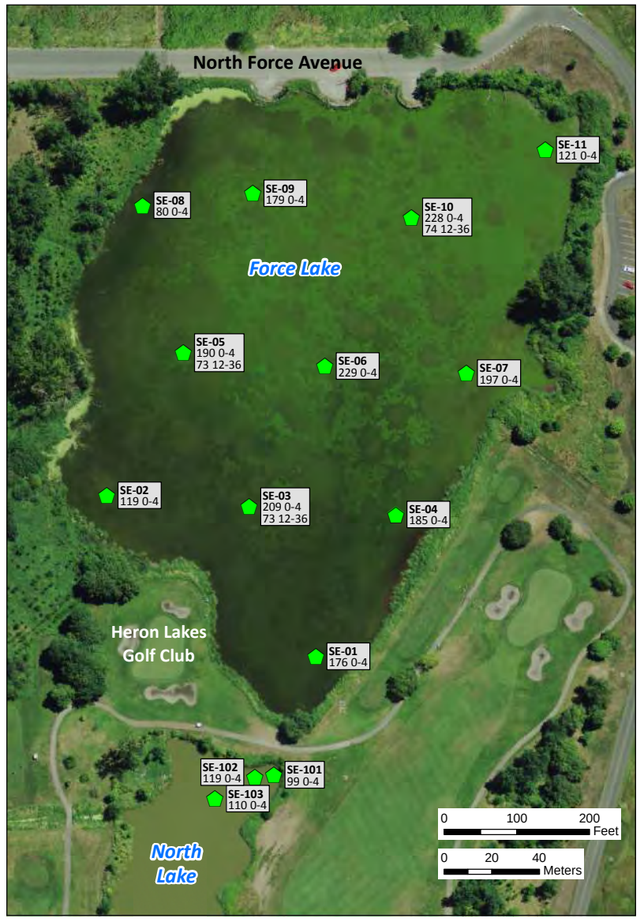
Figure 4-25. Mercury Concentrations at Facility Soil, Wetland Soil, and Lake Sediment Sampling Locations

Prepared by CEH, 12/15/2011, MAP #4077; W:\Projects\Harbor_Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.





On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Zinc Screening Levels

Medium	Unit	Industrial Human Health RSL[a]	Residential Human Health RSL[a]	Invertebrate Screening Level[b]
Facility soil	mg/kg dw	100,000	2,350	na
Wetland soil	mg/kg dw	na	2,350	120
Lake sediment	mg/kg dw	na	2,350	315

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
[b] Invertebrate (ecological) sediment screening levels are represented by the lower of the probable effects concentration (PEC) and probable effects level (PEL); invertebrate screening levels in soil are represented by the lowest of EPA, DEQ, and Oak Ridge National Laboratory soil invertebrate screening levels.
na - not applicable
Note: Soil background zinc concentration: 86 mg/kg dw
Sediment background zinc concentration: 53 mg/kg dw

Facility soil samples (mg/kg dw)[a]

- Surface soil
- Subsurface and surface soil[b]
- Soil at groundwater monitoring well[b]
- Soil berm
- Soil stockpile

Wetland and ditch soil samples (mg/kg dw)

- Wetland surface soil
- Wetland surface and subsurface soil[b]
- Ditch surface soil
- Ditch surface and subsurface soil[b]

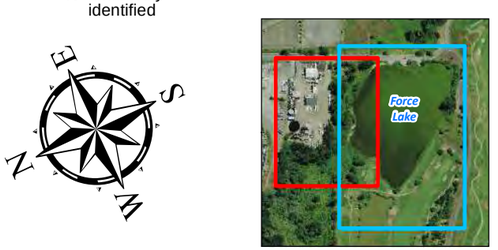
Lake sediment samples (mg/kg dw)

- Lake sediment[b]

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

[a] The following locations were not analyzed for zinc and do not appear on this map: shallow samples from SL 32, SL 33, SL 45, and SL 46; intermediate sample from SL-38; and deep sample from SL 44.

[b] Both surface and subsurface data are shown.



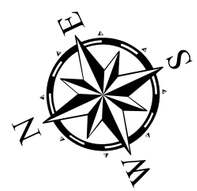


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Figure 4-26. Zinc Concentrations at Facility Soil, Wetland Soil, and Lake Sediment Sampling Locations

Prepared by: CEH, 12/15/2011; MAP #4092; W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Arsenic Screening Levels

Medium	Unit	Human Health RSL[a]	Invertebrate Screening Level[b]
Groundwater	µg/L	0.045	na
Surface water	µg/L	0.018	150

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.

[b] Ecological water screening levels are represented by EPA chronic AWQC.

na - not applicable

Groundwater samples (µg/L)

- Shallow groundwater
- Intermediate groundwater
- Deep groundwater

Surface water samples (µg/L)

- Lake surface water

Wells where groundwater samples not collected

- Groundwater not sampled due to lack of construction details (trace to 0.02 ft of LNAPL observed)
- Groundwater not sampled due to lack of construction details
- Groundwater not sampled due to the presence of LNAPL (0.1 ft LNAPL observed here in 2008 when LNAPL sample was collected. After this time, trace to 0.02 ft of LNAPL observed).

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

Location ID — **GA-00**
Sample Year — 2000: –
2008: 1.0 U
2009: na

Detected concentration:
exceeds highest SL = **Red**
exceeds lowest SL = **Purple**
does not exceed SL = Black

Concentration
na=not analyzed
– =not collected

Qualifier
U=non-detect
J=estimated

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Figure 4-27. Arsenic Concentrations in Filtered Samples at Facility Groundwater and Lake Surface Water Sampling Locations

Prepared by CEH, 12/15/2011, MAP #4071, W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Chromium Screening Levels

Medium	Unit	Human Health RSL[a]	Invertebrate Screening Level
Groundwater	µg/L	11	na
Surface water	µg/L	not detected; no comparison to screening levels	

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
na - not applicable

Groundwater samples (µg/L)

- Shallow groundwater
- Intermediate groundwater
- Deep groundwater

Surface water samples (µg/L)

- Lake surface water

Wells where groundwater samples not collected

- Groundwater not sampled due to lack of construction details (trace to 0.02 ft of LNAPL observed)
- Groundwater not sampled due to lack of construction details
- Groundwater not sampled due to the presence of LNAPL (0.1 ft LNAPL observed here in 2008 when LNAPL sample was collected. After this time, trace to 0.02 ft of LNAPL observed).

=== Drainage ditch (approximate location)

Soil stockpile (approximate boundary)

Facility boundary

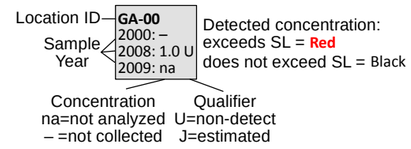

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Figure 4-28. Chromium Concentrations in Filtered Samples at Facility Groundwater and Lake Surface Water Sampling Locations

Prepared by CEH, 12/15/2011, MAP #4073, W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Copper Screening Levels

Medium	Unit	Human Health RSL[a]	Invertebrate Screening Level[b]
Groundwater	µg/L	136	na
Surface water	µg/L	460	1.3

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
[b] Ecological water screening levels are represented by EPA chronic AWQC. For copper, the AWQC value was hardness-adjusted based on the average Force Lake hardness (10.7 mg/L CaCO3).
na - not applicable

Groundwater samples (µg/L)

- Shallow groundwater
- Intermediate groundwater
- Deep groundwater

Surface water samples (µg/L)

- Lake surface water

Wells where groundwater samples not collected

- Groundwater not sampled due to lack of construction details (trace to 0.02 ft of LNAPL observed)
- Groundwater not sampled due to lack of construction details
- Groundwater not sampled due to the presence of LNAPL (0.1 ft LNAPL observed here in 2008 when LNAPL sample was collected. After this time, trace to 0.02 ft of LNAPL observed).

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

Location ID — **GA-00**
Sample Year — 2000: –
2008: 1.0 U
2009: na

Detected concentration:
exceeds highest SL = **Red**
exceeds lowest SL = **Purple**
does not exceed SL = Black

Concentration
na=not analyzed
– =not collected

Qualifier
U=non-detect
J=estimated

WindWard environmental LLC

Figure 4-29. Copper Concentrations in Filtered Samples at Facility Groundwater and Lake Surface Water Sampling Locations

Prepared by CEH, 12/15/2011, MAP #4074, W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Mercury Screening Levels

Medium	Unit	Human Health RSL[a]	Invertebrate Screening Level
Groundwater	µg/L	1.1	na
Surface water	µg/L	not detected; no comparison to screening levels	

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
na - not applicable

Groundwater samples (µg/L)

- Shallow groundwater
- Intermediate groundwater
- Deep groundwater

Surface water samples (µg/L)

- Lake surface water

Wells where groundwater samples not collected

- Groundwater not sampled due to lack of construction details (trace to 0.02 ft of LNAPL observed)
- Groundwater not sampled due to lack of construction details
- Groundwater not sampled due to the presence of LNAPL (0.1 ft LNAPL observed here in 2008 when LNAPL sample was collected. After this time, trace to 0.02 ft of LNAPL observed).

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

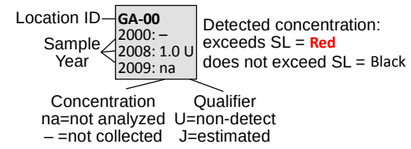

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Figure 4-30. Mercury Concentrations in Filtered Samples at Facility Groundwater and Lake Surface Water Sampling Locations

Prepared by CEH, 12/15/2011. MAP #4077; W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Zinc Screening Levels

Medium	Unit	Human Health RSL[a]	Invertebrate Screening Level
Groundwater	µg/L	1,095	na
Surface water	µg/L	not detected; no comparison to screening levels	

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
na - not applicable

Groundwater samples (µg/L)

- Shallow groundwater
- Intermediate groundwater
- Deep groundwater

Surface water samples (µg/L)

- Lake surface water

Wells where groundwater samples not collected

- Groundwater not sampled due to lack of construction details (trace to 0.02 ft of LNAPL observed)
- Groundwater not sampled due to lack of construction details
- Groundwater not sampled due to the presence of LNAPL (0.1 ft LNAPL observed here in 2008 when LNAPL sample was collected. After this time, trace to 0.02 ft of LNAPL observed).

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

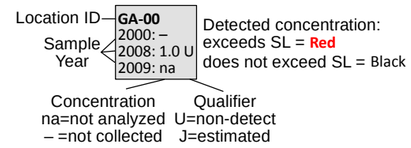

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Figure 4-31. Zinc Concentrations in Filtered Samples at Facility Groundwater and Lake Surface Water Sampling Locations

Prepared by CEH, 12/15/2011. MAP #4092. W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

4.5.2.1 Facility Soil

Table 4-11 summarizes concentrations of metals in surface and subsurface soil samples collected at the Facility. The depth intervals of these samples varied depending on the sampling location, field conditions, and the sampling event (see Section 2.2). Surface soil samples at the Facility were collected just below the gravel fill layer, if present.

Table 4-11. Concentrations of Metals Detected in at Least One Facility Soil Sample

Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
	Ratio	%					
Arsenic (mg/kg dw)							
Surface	53/53	100	0.7	20.6 J	SL-20	3	na
Intermediate	34/34	100	1.3 J	14.5 J	SL-24	3.9	na
Deep	33/33	100	1.1 J	4.4	MW-4s	2	na
Soil stockpile	3/3	100	3.1	4.3	SP-01	3.8	na
Soil berm	9/9	100	1.5	9.6	SB-06	4.5	na
Chromium (mg/kg dw)							
Surface	53/53	100	4.0	63	SL-05	20	na
Intermediate	34/34	100	5.5 J	91 J	SL-24	20	na
Deep	33/33	100	12.2	36.5	SL-25	28	na
Soil stockpile	3/3	100	13.6 J	25.4	SP-03	20	na
Soil berm	9/9	100	12.3	76	SB-06	30	na
Copper (mg/kg dw)							
Surface	53/53	100	9.23	1,070	SL-05	100	na
Intermediate	34/34	100	6.1 J	1,370	SL-24	150	na
Deep	33/33	100	13.3	42.1 J	SL-23	31	na
Soil stockpile	3/3	100	36.4	94.6 J	SP-01	72.1	na
Soil berm	9/9	100	14.3 J	1,240 J	SB-06	174	na
Mercury (mg/kg dw)							
Surface	24/53	45	0.03	6.69	SS05	0.2	0.04 – 0.06
Intermediate	12/34	35	0.05	0.47	SL-21	0.06	0.03 – 0.06
Deep	14/33	42	0.05	0.11	MW-4s	0.05	0.05 – 0.08
Soil stockpile	2/3	67	0.06 J	0.07 J	SP-03	nc	0.06
Soil berm	7/9	78	0.04 J	0.23	SB-08	0.07	0.05
Zinc (mg/kg dw)							
Surface	53/53	100	35	718 J	MW-4s	200	na
Intermediate	34/34	100	22 J	785 J	SL-24	100	na
Deep	33/33	100	51.1	107 J	MW-2i	70	na
Soil stockpile	3/3	100	72	140 J	SP-03	110	na
Soil berm	9/9	100	52 J	539 J	SB-06	160	na

Note: Other metals (i.e., those that were not identified as COCs in the HHRA or that did not have LOAEL-based HQs greater than 1.0 for at least one receptor in the ERA) are discussed in Section 4.8.

[a] Surface soil samples were collected immediately below the gravel layer from depths of 0 to 5 ft bgs (0.5- to 1.5-ft sampling intervals for a given sample). Intermediate soil samples were collected from depths of 2 to 8.5 ft bgs (1- to 4-ft sampling intervals for a given sample). Deep soil samples were collected from depths of 6 to 22 ft bgs (1- to 4-ft sampling intervals for a given sample). All soil berm samples were collected from 0.5 to 2 ft bgs, and all soil stockpile samples were collected from 0.5 to 6 ft bgs.

Table 4-11. Concentrations of Metals Detected in at Least One Facility Soil Sample (cont.)

[b] The mean concentration is equal to the average of all detected values and one-half of the RL for non-detected values. Mean concentrations were not calculated if the detection frequency was less than 10% or if fewer than three samples had detected concentrations.

[c] RLs are for only non-detected samples.

bgs – below ground surface
dw – dry weight
COC – contaminant of concern
HQ – hazard quotient
J – estimated concentration
LOAEL – lowest-observed-adverse-effect level
na – not applicable
RL – reporting limit

Arsenic, chromium, copper, and zinc were detected in 100% of Facility soil samples. Mercury was detected less frequently (in 35 to 78% of samples, depending on the sample type).

With the exception of chromium, concentrations of metals in Facility soil were usually highest in the surface soil samples (or in some cases in the intermediate sample), with lower concentrations in the deepest sample. For chromium, the depth with the highest concentrations varied by location. However, the variability of chromium concentrations was low (all chromium concentrations were within a factor of 2.2 of background [42 mg/kg dw; Section 2.8.1]).

In Facility soil, the concentrations of all metals were highest in the west corner of the Facility (e.g., SL-42 and SB-06) and in the area of the former unlined holding pond/C-shaped area (e.g., SS05 and SL-20) (Figures 4-22 to 4-26). Relative to other Facility soil samples, metals concentrations were higher in the central portion of the Facility (e.g., SL-14 for copper and zinc) and in one sample in the northwestern portion of the soil berm (SB-08 for mercury). The next highest concentrations were detected in samples collected from the soil berm and in several intermediate-depth soil samples. In general, concentrations of metals in soil stockpile and soil berm samples were lower than those in Facility surface soil samples (Table 4-11).

Concentrations of metals in Facility soil samples were compared with conservative industrial and residential human health RSLs (Figures 4-22 to 4-26). Many of the samples (105 of the 132 surface and subsurface samples) had arsenic concentrations greater than the industrial RSL (1.7 mg/kg dw), and all samples had concentrations greater than the residential RSL (0.39 mg/kg dw). However, both RSLs were lower than the regional soil background concentration of 7 mg/kg dw. Eight surface and subsurface samples in the west corner of the Facility had arsenic concentrations greater than the background concentration; all other arsenic concentrations in Facility soil samples were less than the background concentration (Figure 4-22). There were also four samples (chromium) and three samples (copper) with detected concentrations greater than the conservative industrial human health RSLs, all in the west corner of the Facility in areas where arsenic concentrations were also highest (Figures 4-23 and 4-24, respectively). In addition, 30 samples had concentrations of chromium, 13 samples had concentrations of copper, and 1 sample had a concentration of mercury greater than their respective conservative residential human health RSLs. Most of these samples were from the central portion and west corner of the Facility. Note that the comparison with conservative screening levels on a point-by-point basis should not be viewed as a risk estimate; risks were fully assessed in the HHRA as presented in Appendix I and summarized in Section 6.1.

4.5.2.2 Groundwater

Table 4-12 summarizes concentration data for metals detected in at least one filtered or unfiltered groundwater sample. Chromium, copper, and mercury were detected only in shallow well samples. Therefore, summary

statistics for intermediate and deep samples are not shown for these metals.

Table 4-12. Concentrations of Metals Detected in at Least One Groundwater Sample

Sample Type[a]	Fraction	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
		Ratio	%					
Arsenic (µg/L)								
Shallow	D	22/22	100	0.8	32.2	MW-4s	10	na
	T	28/28	100	1	31.6	MW-4s	10	na
Intermediate	D	3/3	100	2.4	4.7	MW-4i	3.5	na
	T	3/3	100	2.3	4.6	MW-4i	3.4	na
Deep	D	1/2	50	6.3	6.3	B-4	nc	0.2
	T	3/3	100	0.3	6.4	B-4	3	na
Chromium (µg/L)								
Shallow	D	0/22	0	nd	nd	na	nc	5
	T	4/28	14	6 J	8.1	A-18	4	5
Copper (µg/L)								
Shallow	D	2/22	9	3	5	MW-2s	nc	2
	T	8/28	29	2	25.1	A-18	3	2 – 4
Mercury (µg/L)								
Shallow	D	0/22	0	nd	nd	na	nc	0.1
	T	1/28	4	0.14	0.14	A-20	nc	0.1
Zinc (µg/L)								
Shallow	D	2/22	9	40	80	MW-4s	nc	10
	T	10/28	36	8.7	1,180	A-18	60	4 – 10
Intermediate	D	0/3	0	nd	nd	na	nc	10
	T	0/3	0	nd	nd	na	nc	10
Deep	D	1/2	50	9,870	9,870	PW-01	nc	10
	T	2/3	67	57.3	10,100	PW-01	nc	10

Note: Other metals (i.e., those that were not identified as COCs in the HHRA or that did not have LOAEL-based HQs greater than 1.0 for at least one receptor in the ERA) are discussed in Section 4.8.

[a] The depth of shallow groundwater wells ranged from 10 to 20 ft bgs, the depth of intermediate wells ranged from 48 to 50 ft bgs, and the depth of the deep well was 97 ft bgs.

[b] The mean concentration is equal to the average of all detected values and one-half of the RL for non-detected values. Mean concentrations were not calculated if the detection frequency was less than 10% or if fewer than three samples had detected concentrations.

[c] RLs are for only non-detected samples.

bgs – below ground surface
D – dissolved concentrations (i.e., filtered)
COC – contaminant of concern
HQ – hazard quotient
na – not applicable
LOAEL – lowest-observed-adverse-effect level
nc – not calculated
nd – not detected
RL – reporting limit
T – total concentrations (i.e., unfiltered)

With the exception of arsenic, which was detected in almost all groundwater samples, metals were detected infrequently in groundwater. The variability of metals concentrations in groundwater was relatively low and was likely the result of the natural variability of these metals in the environment, with the possible exceptions of arsenic and zinc (Table 4-12 and Figures 4-27 through 4-31).

Of the metals discussed in this section, only arsenic and zinc were detected in groundwater samples at concentrations greater than the conservative human health RSLs. All detected concentrations of arsenic were greater than the conservative human health RSL of 0.045 µg/L. The highest arsenic concentrations (concentrations greater than 26 µg/L) were detected in samples from MW-4s (a shallow well located in the north-central part of the Facility) that were collected in 2008 and 2009. In addition, arsenic was detected at concentrations greater than the MCL of 10 µg/L in 12 of 27 dissolved water samples and in 16 of 34 total (unfiltered) water samples. Concentrations were greater than the MCL or non-zero MCLG by factors ranging from 1.1 to 3.2. Similar concentrations of arsenic were detected in groundwater across the Facility, including shallow groundwater at the upgradient property boundary near the northeastern corner of the Facility (arsenic concentrations in samples from well GA-34 were approximately 19 µg/L). Arsenic concentrations in groundwater are discussed further in Section 4.5.3.

No other metals discussed in this section were detected at concentrations greater than the MCL or non-zero MCLG.

Detected zinc concentrations were greater than the conservative human health RSL (1,095 µg/L) in the filtered and unfiltered water samples collected from PW-01 (a deep well located near the Facility entrance) in 2008 and in the unfiltered water sample collected from A-18 (a shallow well located near the new base oil refining plant) in 2000. Zinc was not detected in well A-18 in 2008 or 2009 in either filtered or unfiltered water samples. PW-01 was not sampled in 2009.

4.5.2.3 LNAPL

As discussed in Section 4.3.3.3, LNAPL is not a significant component at the Facility, and its presence is localized and constrained to a small portion of the Facility.

One LNAPL sample (layer thickness unknown) was collected in 2000 from GA-30 (in the uppermost groundwater zone) in the northwest portion of the Facility near the soil stockpile and again in 2008 when a thin layer (approximately 0.1 ft) of LNAPL was observed at that location. Metals were analyzed only in the 2008 sample. Of the five metals discussed in this section, only chromium (11 µg/L), copper (9 µg/L), and zinc (120 µg/L) were detected in this sample (other metals are discussed in Section 4.8). Because of its limited extent, LNAPL is not considered to be a source of metals in groundwater.

Follow-up monitoring, which included a year of monthly measurements, revealed thin layers of LNAPL (0.02 to 0.01 ft) in GA-30, although no LNAPL was observed in downgradient wells GA-29 and MW-1s (see

Figure 2-2 for well locations). Thus, the lateral extent of LNAPL appears to be limited to the immediate area surrounding well GA-30.

4.5.2.4 Wetland and Ditch Soil

Concentrations of metals detected in wetland and ditch surface and subsurface soil samples are summarized in Table 4-13 and presented in Figures 4-22 to 4-26. Metals were detected in the 90% or more of wetland and ditch surface soil samples and were also detected frequently in subsurface soil samples.

The highest concentrations of arsenic, mercury, and zinc were generally detected in surface soil samples, with concentrations decreasing with depth. The depth interval with the highest concentrations of chromium and copper varied, but all deep samples had concentrations that were less than or similar to regional background soil concentrations.

Concentrations of all five metals discussed in this section were highest in the former drainage ditch area to the west of the Facility and in the west corner of the Facility near the current and former stormwater treatment system discharge points (Figures 4-22 to 4-26). Concentrations of many of the metals were also relatively higher to the south of the Facility midway between North Force Avenue and the drainage ditch. In these areas, concentrations of metals were greater than their respective background concentrations (as presented in Section 2.8.1), and were greater than either the conservative human health residential RSLs (arsenic) or invertebrate screening levels (chromium, copper, mercury, and zinc). Note that the comparison with conservative screening levels on a point-by-point basis should not be viewed as a risk estimate; risks were fully assessed in the ERA and HHRA as presented in Appendices I and J and summarized in Section 6.0.

Table 4-13. Concentrations of Metals Detected in at Least One Wetland and Ditch Soil Sample

Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
	Ratio	%					
Arsenic (mg/kg dw)							
Surface	52/52	100	1.5	53.1	DS-02	9	na
Intermediate	10/10	100	2.2	19.8	DS-02	7.4	na
Deep	10/10	100	2.4	8.5	WS-25	4.3	na
Chromium (mg/kg dw)							
Surface	52/52	100	6.6	149	WS-11	30	na
Intermediate	10/10	100	12.6	72	WS-20	31	na
Deep	10/10	100	8.9	35	WS-11	24	na
Copper (mg/kg dw)							
Surface	52/52	100	10.3	162	WS-39	60	na
Intermediate	10/10	100	22.2	97.1	WS-20	46.8	na
Deep	10/10	100	12.7	40.8	DS-03	30.8	na
Mercury (mg/kg dw)							
Surface	47/52	90	0.06	0.4	WS-20	0.2	0.07 – 0.26
Intermediate	10/10	100	0.06 J	0.23	WS-20	0.1	na
Deep	7/10	70	0.05	0.13 J	WS-19	0.06	0.03 – 0.07
Zinc (mg/kg dw)							
Surface	52/52	100	37	748	WL02	230	na
Intermediate	10/10	100	64	280 J	WS-25	200	na
Deep	10/10	100	72 J	106	DS-03	85	na

Note: Other metals (i.e., those that were not identified as COCs in the HHRA or that did not have LOAEL-based HQs greater than 1.0 for at least one receptor in the ERA) are discussed in Section 4.8.

[a] Surface soil samples were collected from 0 to 0.5 ft bgs, intermediate soil samples were collected from 0.5 to 1 ft bgs, and deep soil samples were collected from 2 to 3 ft bgs.

[b] The mean concentration is equal to the average of all detected values and one-half of the RL for non-detected values.

[c] RLs are for only non-detected samples.

bgs – below ground surface
dw – dry weight
COC – contaminant of concern
HQ – hazard quotient
J – estimated concentration
LOAEL – lowest-observed-adverse-effect level
na – not applicable
RL – reporting limit

4.5.2.5 Lake Sediment and Surface Water

Tables 4-14 and 4-15 summarize metals data for lake sediment and surface water, respectively.

Table 4-14. Concentrations of Metals Detected in at Least One Lake Sediment Sample

Sampling Location	Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
		Ratio	%					
Arsenic (mg/kg dw)								
Force Lake	surface	11/11	100	2.6	7	SE-03, 06, 07, 10	6	na
Force Lake	intermediate	3/3	100	1.5	2.7	SE-10	2.0	na
North Lake	surface	3/3	100	3.2	5.0	SE-103	4.0	na
Chromium (mg/kg dw)								
Force Lake	surface	11/11	100	7.7	34	SE-06, 10	30	na
Force Lake	intermediate	3/3	100	23.8	25.6	SE-03	24.7	na
North Lake	surface	3/3	100	17	30	SE-103	20	na
Copper (mg/kg dw)								
Force Lake	surface	11/11	100	16.2	72	SE-06	53	na
Force Lake	intermediate	3/3	100	30.6	32.0	SE-05	31.3	na
North Lake	surface	3/3	100	49.0	71.4	SE-101	60.2	na
Mercury (mg/kg dw)								
Force Lake	surface	1/11	9	0.2 J	0.2 J	SE-02	0.2	0.06 – 0.3
Force Lake	intermediate	1/3	33	0.05	0.05	SE-10	nc	0.03
North Lake	surface	0/3	0	nd	nd	nd	nc	0.1 – 0.2
Zinc (mg/kg dw)								
Force Lake	surface	11/11	100	80	229	SE-06	200	na
Force Lake	intermediate	3/3	100	73	74	SE-10	73	na
North Lake	surface	3/3	100	99	119	SE-102	110	na

Note: Other metals (i.e., those that were not identified as COCs in the HHRA or that did not have LOAEL-based HQs greater than 1.0 for at least one receptor in the ERA) are discussed in Section 4.8.

[a] Surface lake sediment samples were collected from 0 to 4 inches below the mudline and intermediate lake sediment samples were collected from 2 to 3 ft below the mudline.

[b] The mean concentration is equal to the average of all detected values and one-half of the RL for non-detected values. Mean concentrations were not calculated if the detection frequency was less than 10% or if fewer than three samples had detected concentrations.

[c] RLs are for only non-detected samples.

dw – dry weight
COC – contaminant of concern
HQ – hazard quotient
J – estimated concentration
na– not applicable
nc – not calculated
nd – not detected
LOAEL – lowest-observed-adverse-effect level
RL – reporting limit

Table 4-15. Concentrations of Metals Detected in at Least One Lake Surface Water Sample

Fraction	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[a]	RL or Range of RLs[b]
	Ratio	%					
Arsenic (µg/L)							
Filtered	3/3	100	0.9	1.0	SW-02, -03	1	na
Unfiltered	3/3	100	1.1	1.2	SW-01, -03	1.2	na
Copper (µg/L)							
Filtered	1/3	33	4	4	SW-01	nc	2
Unfiltered	1/3	33	6	6	SW-01	nc	2

Note: Lake surface water samples were collected from 1 ft below the water surface. Other metals (i.e., those that were not identified as COCs in the HHRA or that did not have LOAEL-based HQs greater than 1.0 for at least one receptor in the ERA) are discussed in Section 4.8.

[a] The mean concentration is equal to the average of all detected values and one-half of the RL for non-detected values. Mean concentrations were not calculated if the detection frequency was less than 10% or if fewer than three samples had detected concentrations.

[b] RLs are for only non-detected samples.

COC – contaminant of concern
HQ – hazard quotient
LOAEL – lowest-observed-adverse-effect level
na – not applicable
nc – not calculated
RL – reporting limit

Metals were detected in most of the lake sediment samples (Figures 4-22 to 4-26). Concentrations were lower or not detected in Force Lake subsurface sediment samples, indicating that the vertical extent of metals has been adequately delineated.

With the exception of copper, concentrations of metals in North Lake sediment were either lower than those in Force Lake or were similar to background sediment concentrations, indicating that there had been limited migration of metals into North Lake. Concentrations of copper were similar in North Lake and Force Lake.

When compared to conservative residential human health RSLs, only arsenic was greater than the RSL (in all lake sediment samples). However, all arsenic samples were less than or equal to the sediment background concentration (7 to 7.9 mg/kg dw). No metals were detected at concentrations greater than the invertebrate screening level. Note that the comparison with conservative screening levels on a point-by-point basis should not be viewed as a risk estimate; risks were fully assessed in the ERA and HHRA as presented in Appendices I and J and summarized in Section 6.0.

Only two of the metals discussed in this section were detected in lake surface water. Arsenic was detected in all three of the surface water samples at concentrations greater than the human health RSL, and copper was detected in one of the three samples at a concentration greater than the ecological screening level.

4.5.3 Additional Information Regarding Arsenic Concentrations in Groundwater

As discussed in Section 4.5.2.2, arsenic was detected in groundwater samples at concentrations greater than the MCL (10 µg/L) in approximately half of the shallow groundwater samples at the Facility. Dissolved arsenic concentrations in shallow groundwater samples ranged from 0.8 µg/L to a maximum detected concentration of 32.2 µg/L (Figure 4-27). Arsenic concentrations were less than the MCL in intermediate and deep groundwater samples.

The following subsections present additional information to provide perspective on the arsenic concentrations in groundwater at the Study Area. Section 4.5.3.1 discusses regional arsenic groundwater concentrations, Section 4.5.3.2 discusses the potential for arsenic concentrations in groundwater to be the result of site-related contamination, and Section 4.5.3.3 presents a summary of this information and conclusions regarding arsenic concentrations in shallow groundwater.

4.5.3.1 Regional Arsenic Concentrations in Groundwater

A literature review was conducted to further evaluate regional arsenic concentrations in groundwater. A US Geological Survey (USGS) study entitled *Arsenic in Groundwater of the Willamette Basin* provided the following information regarding arsenic concentrations in groundwater in this region (Hinkle and Polette 1999):

- Elevated arsenic concentrations, defined as concentrations greater than 50 µg/L in this report, were commonly associated with alluvial sediments and silicic volcanic rocks in the Willamette Basin. In alluvial sediments, naturally occurring arsenic is commonly sorbed by or coprecipitated with iron oxides or sorbed to clay mineral surfaces.
- "Naturally occurring" concentrations of arsenic in the groundwater of the Willamette Basin ranged from less than 1 µg/L to 2,000 µg/L at 728 spatially distinct locations.
- Arsenic concentrations in groundwater (greater than 10 µg/L but less than 50 µg/L) are widespread and found in many parts of the Willamette Basin and in a variety of geologic materials. Arsenic concentrations in groundwater greater than the MCL of 10 µg/L were detected in 21.7% of the 728 spatially distinct samples.

Additional studies conducted by DEQ were reported in the *Molalla-Pudding Sub basin Total Maximum Daily Load (TMDL) and Water Quality Management Plan (WQMP)* (DEQ 2008b), which described arsenic concentrations in groundwater of the eastern Willamette Basin. As part of these studies, arsenic was analyzed in groundwater samples collected from 18 shallow wells in the Woodburn and Canby areas (south of Portland). The median dissolved arsenic concentration reported for these samples was 6.5 µg/L; the dissolved concentrations ranged from less than 5 to 21 µg/L. Thus, the DEQ report supports the USGS study conclusion that arsenic concentrations in groundwater greater than the 10 µg/L MCL are not unusual.

For reference, Table 4-16 presents arsenic concentrations in groundwater samples collected from the Study Area compared with arsenic concentrations from the USGS and DEQ reports. Median concentrations were similar in the DEQ and Harbor Oil datasets and maximum concentrations were well within the range reported in the USGS study.

Table 4-16. Summary of Regional Arsenic Concentrations in Groundwater

Study	Fraction	Count of Samples	Arsenic Concentration (µg/L)			Percent of Samples > MCL of 10 µg/L
			Median	Minimum	Maximum	
USGS	dissolved and total[a]	728	nr	< 1	2,000	21.7%
DEQ	dissolved	18	6.5	< 5	21	nr
	total	35	5	< 5	22	nr
Harbor Oil RI	dissolved	27	10	< 0.2	32.2	44%
	total	34	9.7	< 0.3	31.6	47%

[a] Samples analyzed for dissolved and total arsenic were reported together in this report based on an analysis that indicated these concentrations were similar.

DEQ – Oregon Department of Environmental Quality

MCL – maximum contaminant level

nr – not reported

USGS – US Geological Survey

4.5.3.2 Potential for Arsenic Concentrations in Groundwater to be the Result of Site-Related Contamination

Facility groundwater data were examined to specifically assess whether arsenic concentrations could be related to Facility operations, with a focus on the following questions.

1. Could Facility-related waste oils be the source of arsenic at the Study Area?
2. Are higher arsenic concentrations in groundwater found in areas with higher arsenic concentrations in soil?
3. Are arsenic concentrations in groundwater at neighboring properties similar to those at the Study Area?
4. Can arsenic concentrations at the Study Area be explained based on geochemical and physical conditions?

In response to the first question, arsenic can be a component of waste oils. If waste oils were the source of arsenic in the Study Area, then higher arsenic concentrations would be expected to be co-located with other components of waste oils, such as TPHs and PAHs. Thus, correlation analyses were conducted for arsenic and TPHs and for arsenic and PAHs in Facility soil samples. No relationships were found between samples with high TPH or PAH concentrations and arsenic concentrations greater than the regional soil background concentration of 7 mg/kg dw (R^2 values were less than 0.006). Thus, higher arsenic concentrations in soil do not appear to be related to waste oils.

In response to the second question, the distribution of arsenic concentrations in co-located soil and shallow groundwater samples was evaluated to determine if there was a correlation. Arsenic concentrations in soil at or near all well locations were relatively homogeneous, ranging from approximately 1.8 mg/kg dw near well GA-34 to 10.6 mg/kg dw near well A-18. No relationship between soil and groundwater arsenic concentrations was apparent, indicating that concentrations of arsenic in the soil do not appear to explain the distribution of arsenic concentrations in shallow groundwater at the Facility.

In response to the third question, groundwater data from the 1990 Golder Associates investigation were examined. In this investigation, Golder Associates, Inc., completed a subsurface investigation of the nearby Stockyards property, which included the collection of arsenic data for shallow groundwater at several locations on the Stockyards property, the Peninsula Terminal property, and the Harbor Oil property. Although the data from the Golder investigation was not be used for the Harbor Oil RI based on the data quality screen (because of a lack of QA/QC documentation), the data are useful in evaluating whether the arsenic concentrations in groundwater are consistent with concentrations at nearby sites. Arsenic concentrations in shallow groundwater in the Golder Associates investigation were as follows:

- **Stockyards property**: Arsenic concentrations ranged from 2.4 to 6 µg/L (maximum concentration was detected in well A-10).

- **Peninsula Terminal property**: Arsenic concentrations ranged from 2.4 to 3.4 µg/L (maximum concentration was detected in well GA-26).
- **Harbor Oil property**: Arsenic concentrations ranged from 2.1 to 3.6 µg/L (maximum concentration was detected in well A-18, located in the northwestern portion of the Facility).

The Stockyards and the Peninsula Terminal properties are located to the north of Harbor Oil in hydraulically up-gradient locations and had concentrations that are similar to those reported at the Harbor Oil property in this RI, supporting the contention that arsenic concentrations in groundwater did not appear to have a source at the Facility prior to 1990. Available information suggests that since that time, practices at the Facility have been well regulated. Additionally, arsenic concentrations in groundwater systems can vary based on seasonal or methodological differences (Hinkle and Polette 1999), and thus the differences between current arsenic concentrations at the Study Area and those from 1990 may not be significant.

In response to the fourth question, geochemical conditions at the Study Area were considered. As a naturally occurring metal in soil, arsenic is ubiquitous in groundwater. The potential for arsenic to partition from soil to groundwater varies for different soil types and horizons depending on localized geochemical conditions (e.g., dissolved oxygen [DO] levels, redox potential, and pH). At the Facility, arsenic concentrations were higher in shallow groundwater than in deeper groundwater. This difference may be attributable to differing soil types in these horizons rather than specific Facility-related sources. The shallow wells were screened predominantly within fine sands, silts and clays, while the deeper wells were screened across zones that consisted predominantly of sands with little to no silt and clay.

With regard to geochemical conditions, the DEQ report describes the co-occurrence of higher concentrations of arsenic, iron, and manganese in groundwater where dissolved oxygen levels were low, with the highest concentrations of metals detected at locations with lower DO levels (less than 3 mg/L) (DEQ 2008b). The sample with the highest detected arsenic concentration had a DO level of less than 0.5 mg/L. The low DO levels in groundwater at the Study Area (all were less than 0.5 mg/L, regardless of depth) favor the mobilization of metals from soil matrices. Combined with a differing soil matrix in the shallow horizon, higher concentrations of arsenic in shallow groundwater relative to deeper horizons are not inconsistent with naturally occurring conditions.

To further evaluate this theory, concentrations of iron and manganese (two other redox-sensitive metals) were compared with arsenic concentrations. Concentrations of manganese and iron were also several times higher in shallow groundwater than in intermediate and deep groundwater samples. A correlation analysis found a relationship both between concentrations of arsenic and iron and between arsenic and manganese in groundwater (R^2 values were equal to 0.6 and 0.3, respectively), supporting the idea that all three metals are mobilized in

response to the low redox conditions. Thus, the distribution of arsenic at the Study Area may well be related to soil type and low redox conditions rather than a Facility-specific source.

4.5.3.3 Summary

Dissolved arsenic concentrations detected in shallow groundwater samples at the Harbor Oil Facility ranged from 0.8 µg/L to a maximum detected concentration of 32.2 µg/L. Available information regarding regional concentrations of naturally occurring arsenic in groundwater suggests that concentrations greater than 10 µg/L but less than 50 µg/L are widespread and found in many parts of the Willamette Basin (Hinkle and Polette 1999). Furthermore, geochemical and geologic conditions in shallow groundwater at the Study Area are conducive to arsenic mobilization from the soil matrix under naturally occurring conditions. Thus, based on the various lines of evidence presented in the previous subsections, it is reasonable to conclude that the arsenic concentrations detected in shallow groundwater during the RI sampling events are likely a function of naturally-occurring arsenic in shallow soils in the area, and are not attributable to Facility-related releases.

4.5.4 Summary for Metals

In the Study Area, the areas with the highest concentrations of metals included the west corner of the Facility, the area of the former unlined holding pond/C-shaped area, the former drainage ditch to the west of the Facility, and the area near the current and former stormwater treatment system discharge points near the southwest corner of the Facility (Figures 4-22 to 4-26). The portions of the Facility with the highest concentrations of metals were areas that likely collected stormwater and wastewater until they were later filled to expand the Facility.

In general, the locations of the highest metals concentrations suggest that the distribution of metals in the Study Area was influenced by stormwater or industrial waste water drainage from the Facility (Section 4.2.2). However, the highest concentrations of metals (except copper and mercury) were detected in the wetlands, indicating that either the Facility was not the primary source of these metals or the metals accumulated at greater concentrations in the wetlands than at the Facility (Figure 4-21). Detected metals concentrations in Force and North Lake sediment were lower than those for Facility or wetland soil (Figure 4-21).

Concentrations of metals were compared to the conservative screening levels and/or background concentrations. Arsenic concentrations were greater than conservative industrial and/or residential human health RSLs in the majority of samples, but only eight samples collected from the west corner of the Facility had concentrations that were greater than the background concentration. Chromium, copper, and mercury were also detected at concentrations greater than conservative industrial and/or residential human health RSLs at the Facility (also in the west corner of the Facility). In groundwater, arsenic and zinc were detected at concentrations greater than the conservative human health RSL. In wetland soil, concentrations of metals detected at concentrations greater

than conservative residential human health RSLs or invertebrate screening levels (or background concentrations for arsenic) were generally located in the former drainage ditch area to the west of the Facility and in the south corner of the Facility near the current and former stormwater treatment system discharge points. No lake sediment samples were greater than these values, but concentrations of arsenic and copper were greater than conservative invertebrate screening levels in at least one Force Lake water sample. Risks for metals were fully assessed in the ERA and HHRA as presented in Appendices I and J and summarized in Section 6.0.

The comparison of metals concentrations to conservative screening levels and background concentrations, as shown in Figures 4-22 to 4-31, indicates that higher concentrations of metals were generally bounded both vertically and laterally. Thus, metals have been adequately delineated and the available data meet the DQOs identified in the RI/FS Work Plan (Bridgewater et al. 2008b).

4.6 DDTs

This section presents an overview of source information, fate and transport, and media-specific data for DDTs. Historical records of industrial activities at the Facility did not include any information documenting the use or handling of DDTs at the Facility. However, DDTs have been detected in samples collected from the Study Area, with distribution patterns that suggest that DDTs in a portion of the Study Area may have been released from historical livestock trailer washing operations at the Facility, while DDTs across the larger Study Area may have been released as a result of typical pest control applications in the area.

In the HHRA, total DDTs were identified as a COC based on potential future worker exposure to Facility soil and based on indirect exposure to Force Lake sediment through fish consumption. In the ERA, DDD and DDE concentrations (but not total DDT concentrations) in Force Lake sediments had effects-based HQs greater than 1.0 for invertebrates, and total DDTs in wetland soil had LOAEL-based HQs greater than 1.0 for red-tailed hawk and shrew.

This section discusses total DDTs, which are calculated as the sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDD, and 4,4′-DDD (Appendix N). This section also discusses DDT metabolites, or breakdown products, which include DDD and DDE isomers.

4.6.1 Known or Suspected Sources and Release Mechanisms

No specific DDT sources associated with the Harbor Oil Facility have been identified. Although several possible explanations regarding potential sources of DDTs have been hypothesized based on the observed distribution or possible uses of DDTs, there is no definitive information available to confirm any specific source or sources.

Because no definitive source information exists, general information regarding DDTs has been compiled, per EPA request, to provide context for the total DDT concentrations detected within the Harbor Oil Study Area. This general information and available site-specific information is presented in Section 4.6.4, along with a comparison to Study Area data.

4.6.2 Concentrations by Medium

This section presents the concentrations of total DDTs and metabolites in various media within the Study Area. Summary statistics in the tables are provided by location (not sample)[18] to be consistent with the data presented on the figures. The complete RI database is provided in Appendix B.

Figure 4-32 presents cumulative frequency distributions of total DDT concentrations in surface soil and sediment samples collected from within the Study Area. The data are presented by concentration on the x-axis and by percent frequency within the dataset on the y-axis. For example, approximately 90% of Facility surface soil samples are less than 20,000 µg/kg dw. This figure is intended to help facilitate cross-media comparisons. Total DDT concentrations were highest in Facility soil and lowest in Force Lake surface sediment. Total DDT concentrations in wetland soils were intermediate.

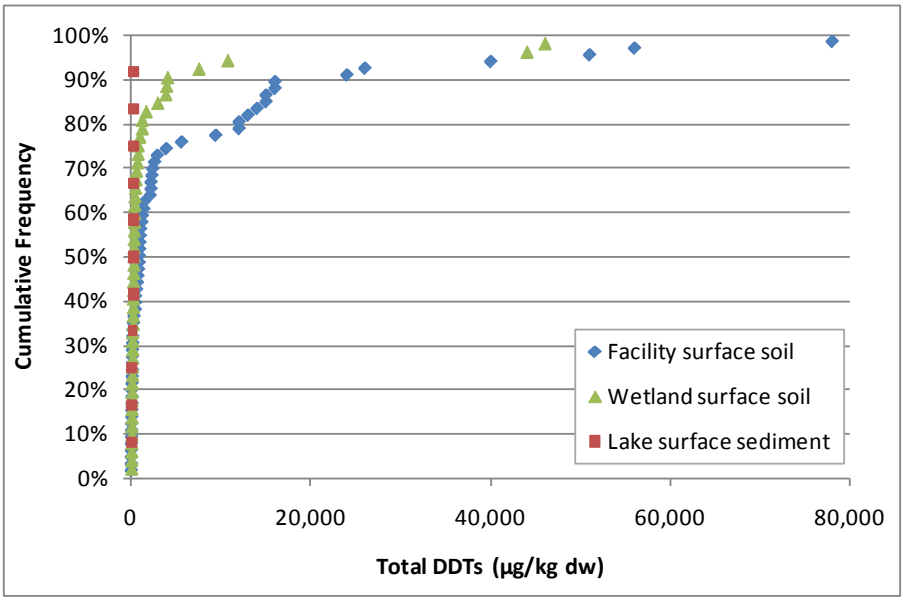
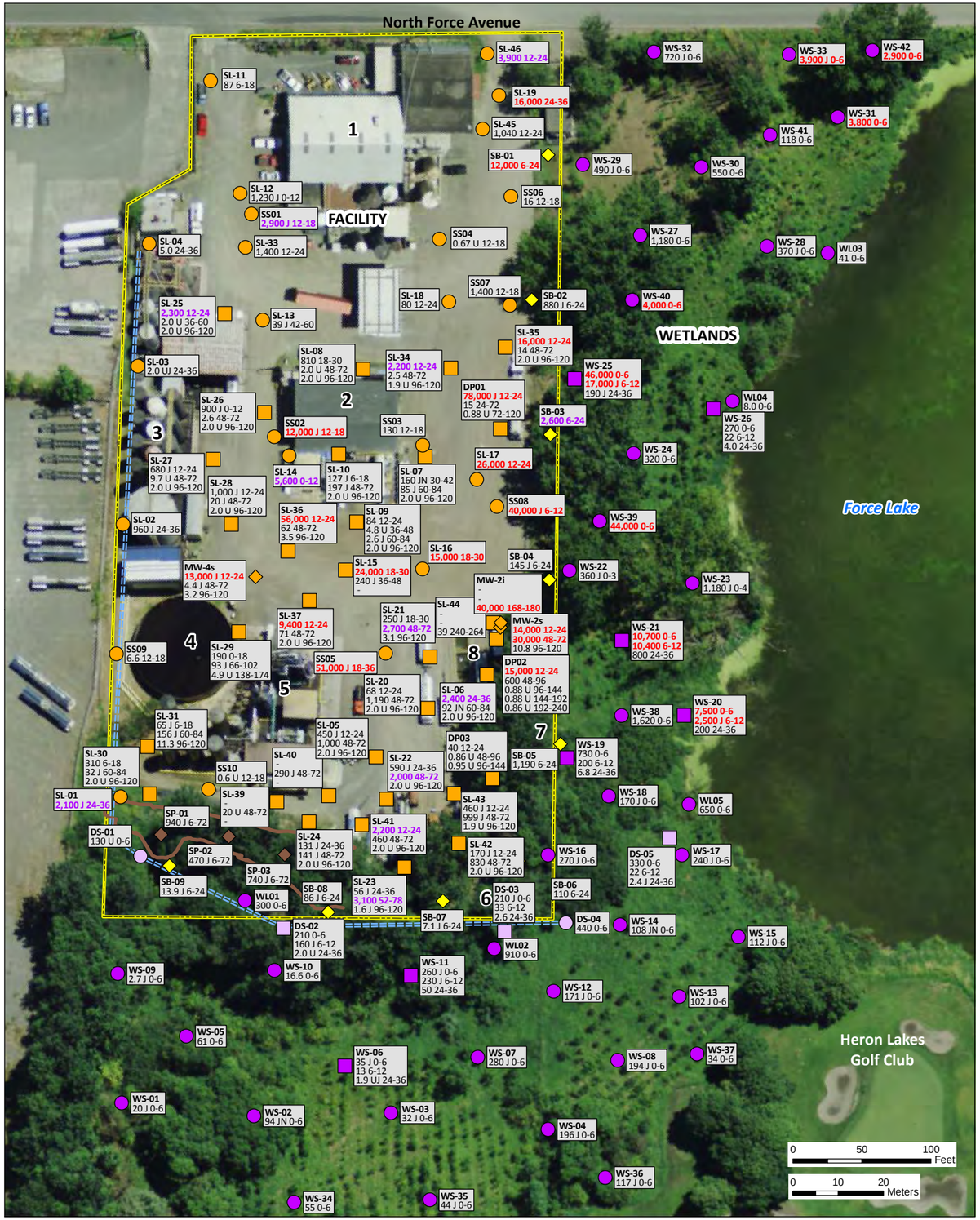
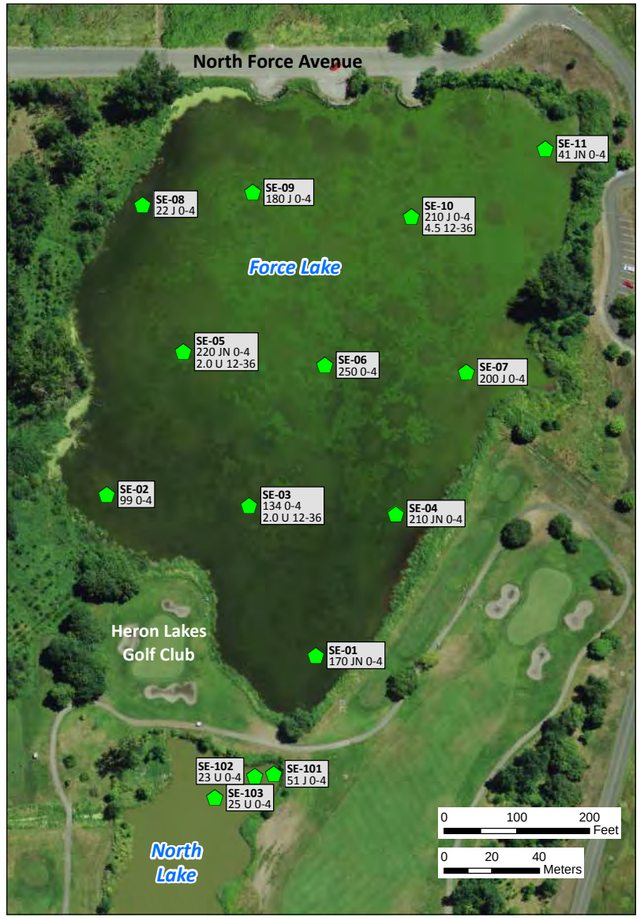


Figure 4-32. Cumulative Frequencies of Total DDTs Detected in Facility Surface Soil, Wetland Surface Soil, and Force Lake Surface Sediment

[18] Duplicate samples were combined with the original sample, as described in Appendix N.

Figure 4-33 presents total DDT concentrations at each soil and sediment location sampled; whereas Figure 4-34 presents total DDT concentrations at each groundwater and surface water location sampled. These data are discussed in the following subsections.





On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Total DDT Screening Levels

Medium	Unit	Industrial Human Health RSL[a]	Residential Human Health RSL[a]	Invertebrate Screening Level[b]
Facility soil	µg/kg dw	7,700	1,700	na
Wetland soil	µg/kg dw	na	1,700	nv
Lake sediment	µg/kg dw	na	1,700	572

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ. RSLs are based on 4,4'-DDT.
[b] Invertebrate (ecological) sediment screening levels are represented by the lower of the probable effects concentration (PEC) and probable effects level (PEL).
na - not applicable
nv - no value (i.e., no SL available for this chemical-media combination)

Facility soil samples (µg/kg dw)[a]

- Surface soil
- Subsurface and surface soil[b]
- Soil at groundwater monitoring well[b]
- Soil berm
- Soil stockpile

Wetland and ditch soil samples (µg/kg dw)

- Wetland surface soil
- Wetland surface and subsurface soil[b]
- Ditch surface soil
- Ditch surface and subsurface soil[b]

Lake sediment samples (µg/kg dw)

- Lake sediment[b]

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

[a] The following locations were not analyzed for total DDTs and do not appear on this map: shallow sample from SL 32; and intermediate sample from SL-38.

[b] Both surface and subsurface data are shown.

Location ID — SL-00
Concentration — 2,500 12-24 / 250 JN 60-84 / 25 U 96-120

Detected concentration:
exceeds highest SL = Red
exceeds lowest SL = Purple
does not exceed SL = Black

Qualifier: U=non-detect, J=estimated, N=tentatively identified
Depth in inches

WindWard environmental LLC

Figure 4-33. Total DDT Concentrations at Facility Soil, Wetland Soil, and Lake Sediment Sampling Locations

Prepared by CEH, 12/15/2011, MAP #3533, W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Total DDT Screening Levels

Medium	Unit	Human Health RSL	Invertebrate Screening Level
Groundwater	µg/L	0.20	na
Surface water	µg/L	not detected; no comparison to screening levels	

Note: Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ. RSLs are based on 4,4'-DDT.

na - not applicable

Groundwater samples (µg/L)

- Shallow groundwater
- Intermediate groundwater
- Deep groundwater

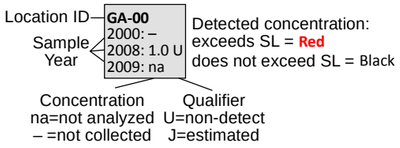
Surface water samples (µg/L)

- Lake surface water

Wells where groundwater samples not collected

- Groundwater not sampled due to lack of construction details (trace to 0.02 ft of LNAPL observed)
- Groundwater not sampled due to lack of construction details
- Groundwater not sampled due to the presence of LNAPL (0.1 ft LNAPL observed here in 2008 when LNAPL sample was collected. After this time, trace to 0.02 ft of LNAPL observed).

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary



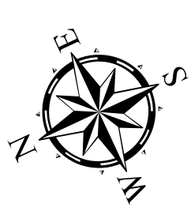


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Figure 4-34. Total DDT Concentrations in Unfiltered Samples at Facility Groundwater and Lake Surface Water Sampling Locations

Prepared by CEH, 12/15/2011; MAP #3533; W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

4.6.2.1 Facility Soil

Table 4-17 summarizes concentrations of DDTs in surface and subsurface soil samples collected at the Facility. The depth intervals of these samples varied depending on the sampling location, field conditions, and the sampling event (see Section 2.2). Surface soil samples at the Facility were collected just below the gravel fill layer, if present.

Total DDTs were detected in 95% of Facility surface soil samples, with detected concentrations ranging from 5.0 to 78,000 µg/kg dw and a mean concentration of 8,000 µg/kg dw. Soil stockpile and soil berm total DDT concentrations were generally lower, with mean concentrations of 720 and 1,900 µg/kg dw, respectively. In Facility subsurface soil samples, total DDTs were detected in 82% of intermediate and 29% of deep samples, with mean concentrations of 1,300 and 1,100 µg/kg dw, respectively. Total DDTs were usually highest in the surface interval, with concentrations decreasing with depth.

A few samples in the northwest portion of the Facility had higher concentrations in the intermediate interval relative to the surface and deep intervals of those samples (e.g., SL-21 and SL-23). At MW-2i, only a deep soil sample was collected; it had a detected concentration of 40,000 µg/kg dw total DDTs. This sample (MW-2i) was collected from an area that was undeveloped during the early history of the Facility, a low area that reportedly included unlined sumps and a possible bermed area and holding pond used for the management of surface water discharges from upland portions of the Facility. This area was filled in the late 1970s or early 1980s as the Facility was expanded to the west and southwest, which may explain the presence of higher DDT concentrations at depth in this area. In addition, this sample was collected from an area (MW-2i) where DDTs were detected in all shallow, intermediate, and deep groundwater samples, as discussed in Section 4.5.3.3.

Table 4-17. Concentrations of DDTs Detected in at Least One Facility Soil Sample

Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
	Ratio	%					
2,4′-DDD (µg/kg dw)							
Surface	34/43	79	7.4	12,000	SL-36	1,000	2.0 – 540
Intermediate	18/31	58	2.8	5,800	MW-2s	280	1.9 – 20
Deep	4/30	13	2.2	3,400	MW-2i	110	1.9 – 4.9
Soil stockpile	3/3	100	96	250	SP-01	170	na
Soil berm	6/9	67	17	950	SB-01	170	4.9 – 5.0
4,4′-DDD (µg/kg dw)							
Surface	53/56	95	5.0	64,000	DP01	6,000	0.6 – 2.0
Intermediate	28/34	82	2.5	21,000	MW-2s	940	0.86 – 9.7
Deep	10/35	29	1.6 J	14,000	MW-2i	400	0.86 – 4.9
Soil stockpile	3/3	100	310	580	SP-01	440	na
Soil berm	7/9	78	5.0 J	1,900	SB-01	350	4.9 – 27
2,4′-DDE (µg/kg dw)							
Surface	1/43	2	7.0	7.0	SL-09	nc	2.0 – 9,600
Intermediate	0/31	0	nd	nd	nd	nc	1.9 – 990
Deep	0/30	0	nd	nd	nd	nc	1.9 – 2,400
Soil stockpile	0/3	0	nd	nd	nd	nc	5.9 – 24
Soil berm	0/9	0	nd	nd	nd	nc	4.9 – 240
4,4′-DDE (µg/kg dw)							
Surface	22/56	39	1.6	5,200 J	DP01	400	0.6 – 9,600
Intermediate	12/34	35	2.2	160	SL-23	40	0.86 – 990
Deep	1/35	3	5.1	5.1	SL-31	nc	0.86 – 2,400
Soil stockpile	3/3	100	18 J	28 J	SP-01	22	na
Soil berm	4/9	44	66	580	SB-01	97	4.9 – 6.0
2,4′-DDT (µg/kg dw)							
Surface	1/43	2	3.0 J	3.0 J	SL-31	nc	2.0 – 9,600
Intermediate	0/31	0	nd	nd	nd	nc	1.9 – 990
Deep	0/30	0	nd	nd	nd	nc	1.9 – 2,400
Soil stockpile	0/3	0	nd	nd	nd	nc	5.9 – 24
Soil berm	4/9	44	94 J	920	SB-01	160	4.9 – 6.0
4,4′-DDT (µg/kg dw)							
Surface	22/56	39	5.6	8,400	DP01	600	0.6 – 9,600
Intermediate	9/34	26	0.95	2,700	MW-2s	96	0.86 – 97
Deep	1/35	3	23,000	23,000	MW-2i	nc	0.86 – 4.9
Soil stockpile	3/3	100	42 J	130	SP-03	84	na
Soil berm	9/9	100	7.1 J	7,600	SB-01	1,100	na
Total DDTs (µg/kg dw)							
Surface	53/56	95	5.0	78,000 J	DP01	8,000	0.6 – 2.0

Table 4-17. Concentrations of DDTs Detected in at Least One Facility Soil Sample (cont.)

Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
	Ratio	%					
Intermediate	28/34	82	2.5	30,000	MW-2s	1,300	0.86 – 20
Deep	10/35	29	1.6 J	40,000	MW-2i	1,100	0.86 – 4.9
Soil stockpile	3/3	100	470 J	940 J	SP-01	720	na
Soil berm	9/9	100	7.1 J	12,000	SB-01	1,900	na

[a] Surface soil samples were collected immediately below the gravel layer from depths of 0 to 5 ft bgs (0.5- to 1.5-ft sampling intervals for a given sample). Intermediate soil samples were collected from depths of 2 to 8.5 ft bgs (1- to 4-ft sampling intervals for a given sample). Deep soil samples were collected from depths of 6 to 22 ft bgs (1- to 4-ft sampling intervals for a given sample). All soil berm samples were collected from 0.5 to 2 ft bgs, and all soil stockpile samples were collected from 0.5 to 6 ft bgs.

[b] The mean concentration is equal to the average of all detected values and one-half of the RL for non-detected values. Mean concentrations were not calculated if the detection frequency was less than 10% or if fewer than three samples had detected concentrations.

[c] RLs are for only non-detected samples.

bgs – below ground surface
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethylene
DDT – dichlorodiphenyltrichloroethane
dw – dry weight
J – estimated concentration
na – not applicable
nc – not calculated
nd – not detected
RL – reporting limit

Figure 4-33 presents total DDT concentrations in soil at the Facility. Total DDT concentrations were highest (i.e., greater than 10,000 µg/kg dw) in the central portion of the Facility near the former truck cleaning operation, in the C-shaped area to the west of the former truck cleaning operation, and along the southwest boundary of the Facility. Concentrations of DDTs greater than 2,000 µg/kg dw were detected in the north corner of the Facility and in the northwest portion of the Facility near the soil stockpile. The fact that these areas had the highest DDT concentrations suggests that the former truck cleaning operation could have been a source of DDTs at the Facility. In addition, total DDTs were detected at a concentration of 40,000 µg/kg dw in the deep soil sample collected from MW-2i. This sampling location was in an area where historical documents and aerial photographs (Appendix A) suggest the presence of unlined sumps and holding ponds. As described in Section 4.6.4.5, these features, in conjunction with the predominance of livestock trailer washing activities upslope from this area, may help explain the higher DDT concentrations at depth in this area.

The available Facility soil data indicate that concentrations greater than the conservative industrial human health RSL (7,700 µg/kg dw) were limited in extent to the central portion of the Facility (e.g., SL-15 and SS05) and to the southwest boundary of the Facility (e.g., DP02 and SS08). Concentrations of DDTs were also greater than the conservative residential human health RSL (1,700 µg/kg dw) in samples near the Facility exit (SL-25 and SS01) and in samples in the west corner of the Facility (e.g., SL-22 and SL-41). Note that the comparison with conservative screening levels on a point-by-point basis should not be viewed as a risk estimate; risks were fully assessed in the HHRA as presented in Appendix I and summarized in Section 6.1. Higher concentrations of total DDTs were generally bounded both vertically and laterally in Facility soil, indicating that DDTs have been adequately delineated and the available data meet the DQOs identified in the RI/FS Work Plan (Bridgewater et al. 2008b).

4.6.2.2 Groundwater

Table 4-18 summarizes concentrations of detected DDTs in groundwater. Of the six component total DDTs, only two were detected in groundwater, including 2,4′-DDD and 4,4′-DDD.

DDTs were analyzed in unfiltered (i.e., total) water samples from all locations sampled. In addition, a subset of samples collected as part of the Phase 2 RI sampling event were analyzed for DDTs in filtered (i.e., dissolved) samples to evaluate the effect of particulates on DDT concentrations in groundwater. Samples with detectable concentrations of DDTs in unfiltered water often also had detectable DDT concentrations in the filtered water. Concentrations of DDTs in filtered water ranged from 30 to 100% of the unfiltered water concentration. The fact that DDTs were detected in filtered water samples indicates that concentrations in groundwater samples were not attributable solely to the presence of particulates.

Table 4-18. Concentrations of DDTs Detected in at Least One Groundwater Sample

Sample Type[a]	Fraction	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
		Ratio	%					
2,4′-DDD (µg/L)								
Shallow	D	1/4	25	0.014	0.014	MW-2s	nc	0.010
	T	6/22	27	0.0063 J	0.032	MW-2s	0.0082	0.010
Intermediate	D	0/1	0	nd	nd	nd	nc	0.010
	T	1/4	25	0.012	0.012	MW-2i	nc	0.010
Deep	D	0/1	0	nd	nd	nd	nc	0.010
	T	1/3	33	0.0073 J	0.0073 J	B-4	nc	0.010
4,4′-DDD (µg/L)								
Shallow	D	2/4	50	0.011	0.059 J	MW-2s	nc	0.010
	T	12/28	43	0.0071 J	0.24 J	A-20	0.027	0.010 – 0.019
Intermediate	D	1/1	100	0.017	0.017	MW-2i	nc	na
	T	2/4	50	0.015	0.036	MW-2i	nc	0.010
Deep	D	1/1	100	0.011	0.011	B-4	nc	na
	T	2/4	50	0.012	0.014	B-4	nc	0.010 – 0.018
Total DDTs (µg/L)								
Shallow	D	2/4	50	0.011	0.073 J	MW-2s	nc	0.010
	T	12/28	43	0.0071 J	0.24 J	A-20	0.030	0.010 – 0.019
Intermediate	D	1/1	100	0.017	0.017	MW-2i	nc	na
	T	2/4	50	0.015	0.048	MW-2i	nc	0.010
Deep	D	1/1	100	0.011	0.011	B-4	nc	na
	T	2/4	50	0.012	0.021 J	B-4	nc	0.010 – 0.018

[a] The depth of shallow groundwater wells ranged from 10 to 20 ft bgs, the depth of intermediate wells ranged from 48 to 50 ft bgs, and the depth of the deep well was 97 ft bgs.

[b] The mean concentration is equal to the average of all detected values and one-half of the RL for non-detected values. Mean concentrations were not calculated if the detection frequency was less than 10% or if fewer than three samples had detected concentrations.

[c] RLs are for only non-detected samples.

bgs – below ground surface
D – dissolved water concentration (i.e., filtered)
DDD – dichlorodiphenyldichloroethane
DDT – dichlorodiphenyltrichloroethane
J – estimated concentration
na – not applicable
nc – not calculated
nd – not detected
RL – reporting limit
T – total water concentration (i.e., unfiltered)

DDTs were detected in shallow groundwater samples in some of the areas where DDT concentrations in soil samples were highest (i.e., greater than 10,000 µg/kg dw) (Section 4.5.3.1), including the central portion of the Facility, the exit driveway, and along the southwest boundary of the Facility (Figure 4-34).

Concentrations of DDTs were detected in deeper groundwater samples from the MW-2s/MW-2i/B-4 well cluster in the south-central portion of the Facility but were not detected in any other groundwater samples collected from intermediate monitoring wells or the plant well (PW-01). DDTs were detected in the sample from the intermediate-depth well MW-2i in 2008 and 2009 and in the sample from the deep well B-4 in 2008 and 2009. The soil sample collected at monitoring well MW-2i had a detected total DDT concentration of 40,000 µg/kg dw at a depth of 14 to 15 ft. bgs. Given the low mobility of DDTs, one possible explanation for the presence of DDTs in intermediate and deep wells is that B-4 is an older well established prior to 1990 and may have served as a conduit for the deeper migration of DDTs from surrounding soils. However, the mobility of DDTs in soil is usually low.

No MCL or non-zero MCLG was available for DDTs.

4.6.2.3 LNAPL

In 2000, EPA collected an LNAPL sample (layer thickness unknown) from shallow well GA-30 (in the uppermost groundwater zone) in the northwest portion of the Facility near the soil stockpile. In 2008, another sample was collected from this shallow well as part of the Phase I RI activities when a thin layer (approximately 0.1 ft) of LNAPL was observed at this location. DDTs were analyzed only in the 2008 sample and DDTs were not detected.

Follow-up monitoring, including a year of monthly measurements, revealed thin layers of LNAPL (0.01 to 0.02 ft) in GA-30, although no LNAPL was observed in downgradient wells GA-29 and MW-1s (see Figure 2-2 for well locations). Thus, the lateral extent of LNAPL appears to be limited to the area immediately surrounding well GA-30.

4.6.2.4 Wetland and Ditch Soil

Table 4-19 summarizes concentrations of DDTs in wetland and ditch surface and subsurface soil samples.

Table 4-19. Concentrations of DDTs Detected in at Least One Wetland and Ditch Soil Sample

Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
	Ratio	%					
2,4′-DDD (µg/kg dw)							
Surface	32/47	68	4.2	7,700	WS-39	360	1.9 – 78
Intermediate	8/10	80	6.4	890 J	WS-25	240	2.0
Deep	5/10	50	2.2	53	WS-21	14	1.9 – 2.0
4,4′-DDD (µg/kg dw)							
Surface	49/52	94	2.4 J	27,000	WS-39	900	2.5 – 130
Intermediate	10/10	100	2.6	1,900	WS-25	560	na
Deep	7/10	70	2.4 J	140	WS-20	30	1.9 – 2.0
2,4′-DDE (µg/kg dw)							
Surface	4/47	9	4.5 J	370	WS-25	39	1.9 – 980
Intermediate	0/10	0	nd	nd	nd	nc	2.0 – 960
Deep	0/10	0	nd	nd	nd	nc	1.9 – 39
4,4′-DDE (µg/kg dw)							
Surface	40/52	77	3.8	2,700	WS-25	220	2.4 – 980
Intermediate	8/10	80	3.9	2,400	WS-21	370	2.0 – 20
Deep	5/10	50	4.0	170	WS-21	21	1.9 – 2.0
2,4′-DDT (µg/kg dw)							
Surface	20/47	43	6.6	11,000	WS-25	330	1.9 – 160
Intermediate	2/10	20	740	3,300	WS-25	nc	2.0 – 200
Deep	2/10	20	33	57	WS-21	nc	1.9 – 9.7
4,4′-DDT (µg/kg dw)							
Surface	36/52	69	2.6	27,000	WS-25	890	0.97 – 160
Intermediate	4/10	40	3.0	10,000	WS-25	1,500	2.0 – 200
Deep	2/10	20	110 J	420	WS-21	nc	1.9 – 9.7
Total DDTs (µg/kg dw)							
Surface	51/52	98	2.7 J	46,000	WS-25	3,000	130
Intermediate	10/10	100	13	17,000 J	WS-25	3,100	na
Deep	8/10	80	2.4 J	800	WS-21	130	1.9 – 2.0

[a] Surface soil samples were collected from 0 to 0.5 ft bgs, intermediate soil samples were collected from 0.5 to 1 ft bgs, and deep soil samples were collected from 2 to 3 ft bgs.

[b] The mean concentration is equal to the average of all detected values and one-half of the RL for non-detected values. Mean concentrations were not calculated if the detection frequency was less than 10% or if fewer than three samples had detected concentrations.

[c] RLs are for only non-detected samples.

bgs – below ground surface
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethylene
DDT – dichlorodiphenyltrichloroethane
dw – dry weight
J – estimated concentration
na – not applicable
nc – not calculated
nd – not detected
RL – reporting limit

Total DDTs were detected in 98% of surface wetland and ditch soil samples, with detected concentrations ranging from 2.7 to 46,000 µg/kg dw and a mean concentration of 3,000 µg/kg dw. In subsurface soil samples, total DDTs were detected in 100% of intermediate and 80% of deep soil samples, with mean concentrations of 3,100 and 130 µg/kg dw, respectively. As shown in Figure 4-33, DDT concentrations were always highest in the surface interval on a location-by-location basis, with concentrations decreasing with depth.

Figure 4-33 presents total DDT concentrations for wetland and ditch soil. Total DDT concentrations in the wetland and ditch soil were generally similar to or lower than those detected in Facility soil; the highest total DDT concentrations were detected at the Facility (Figure 4-32). The highest total DDT concentrations in the wetlands were detected at WS-25 and WS-39 (46,000 and 44,000 µg/kg dw, respectively), which are located just southwest of the Facility approximately halfway between North Force Avenue and the drainage ditch. Total DDT concentrations were greater than 1,700 µg/kg dw, the conservative residential human health RSL, at other locations in this area (WS-20, WS-21, and WS-40). Concentrations of DDTs were generally usually low in samples collected from the periphery of the wetlands, except for several sampling locations adjacent to North Force Avenue (WS-31, WS-33, and WS-42).

As discussed above, higher concentrations of total DDTs were generally bounded both vertically and laterally in wetland and ditch soil, indicating that DDTs have been adequately delineated and the available data meet the DQOs identified in the RI/FS Work Plan (Bridgewater et al. 2008b).

4.6.2.5 Lake Sediment and Surface Water

Table 4-20 summarizes concentrations of detected DDTs in lake sediment samples. Of the six components of total DDTs, three were detected in lake sediment (2,4′-DDD, 4,4′-DDD, and 4,4′-DDE).

No DDTs were detected in lake surface water samples (RLs for all samples were equal to 0.01 µg/L).

Total DDTs were detected in 100% of surface sediment samples collected from Force Lake, with concentrations ranging from 22 to 250 µg/kg dw and a mean of 160 µg/kg dw. The mean total DDT concentration in Force Lake surface sediment (160 µg/kg dw) was significantly less than the mean concentration in Facility surface soil (8,000 µg/kg dw) and was well below the mean detected concentration in wetland surface soil (3,000 µg/kg dw) (Figure 4-32).

Total DDTs were detected in one of the three subsurface (intermediate and deep) sediment samples collected from Force Lake, at a concentration of 4.5 µg/kg dw. These data indicate that the vertical extent of DDTs is limited. In addition, total DDTs were detected in one of the three surface sediment samples collected from North Lake, at a concentration of 51 µg/kg dw.

Table 4-20. Concentrations of DDTs Detected in at Least One Lake Sediment Sample

Sampling Location	Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
		Ratio	%					
2,4′-DDD (µg/kg dw)								
Force Lake	surface	8/11	73	8.6 JN	61 JN	SE-05	32	4.8 – 25
	intermediate	0/3	0	nd	nd	nd	nc	1.9 – 2.0
North Lake	surface	0/3	0	nd	nd	nd	nc	23 – 25
4,4′-DDD (µg/kg dw)								
Force Lake	surface	11/11	100	11 J	47	SE-05	37	na
	intermediate	0/3	0	nd	nd	nd	nc	1.9 – 2.0
North Lake	surface	1/3	33	25 J	25 J	SE-101	nc	23 – 25
4,4′-DDE (µg/kg dw)								
Force Lake	surface	11/11	100	9.1	150	SE-06	92	na
	intermediate	1/3	33	4.5	4.5	SE-10	nc	2.0
North Lake	surface	1/3	33	26	26	SE-101	nc	23 – 25
Total DDTs (µg/kg dw)								
Force Lake	surface	11/11	100	22 J	250	SE-06	160	na
	intermediate	1/3	33	4.5	4.5	SE-10	nc	2.0
North Lake	surface	1/3	33	51 J	51 J	SE-101	nc	23 – 25

[a] Surface lake sediment samples were collected from 0 to 4 in. below the mudline, and intermediate lake sediment samples were collected from 2 to 3 ft below the mudline.

[b] The mean concentration is equal to the average of all detected values and one-half of the RL for non-detected values. Mean concentrations were not calculated if the detection frequency was less than 10% or if fewer than three samples had detected concentrations.

[c] RLs are for only non-detected samples.

DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethylene
DDT – dichlorodiphenyltrichloroethane
dw – dry weight
J – estimated concentration
N – tentative identification
na – not applicable
nc – not calculated
nd – not detected
RL – reporting limit

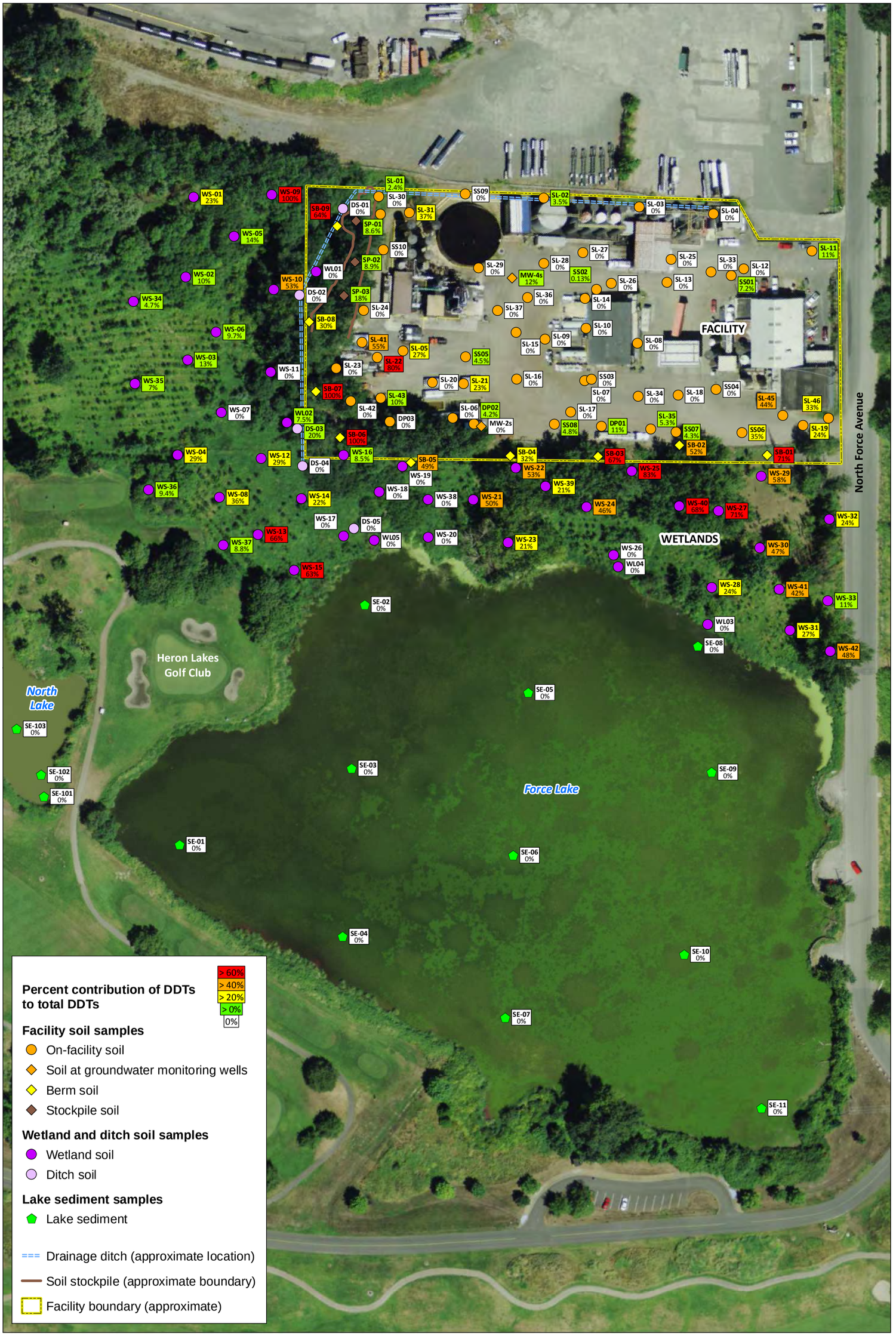
Concentrations in surface sediment were all less than the invertebrate screening level for total DDTs. However, as discussed in Section 6.2 and Appendix J (ERA), the concentrations of DDE and DDD were greater than screening levels at some of the sediment sampling locations (see Section 5.1.1 in Appendix J for a full discussion).

4.6.3 Percent Contribution of DDD, DDE, and DDT

In addition to the distribution of total DDT concentrations, the percent contribution of DDD (2,4′-DDD or 4,4′-DDD), DDE (2,4′-DDE or 4,4′-DDE), and DDT (2,4′-DDT or 4,4′-DDT) was also examined. Because of the tendency of DDT to break down into DDD and DDE (Section 4.6.2), a low percent DDT may indicate an old source or higher rates of DDT degradation.

As shown in Figure 4-35, throughout most of the Facility, in the west portion of the wetlands, and in Force Lake sediment, the percent DDT was very low (less than 20% DDT). Locations with the highest percent DDT (greater than 60%) include the soil berm and some nearby samples, one location in the northwest portion of the Facility near the stockpile (SL-22), two locations southwest of the Facility in the wetlands (WS-27 and WS-40), and two locations just west of the ditch in the wetlands (WS-13 and WS-15). With the exception of WS-25, all samples with higher percent DDT were surface soil samples. At location WS-25, the surface, intermediate, and deep wetland soil samples all contained greater than 60% DDT. These areas of high percent DDT do not correspond with areas with higher total DDT concentrations, indicating that percent DDT is not a function of total DDT concentrations.

As previously noted, areas with low percent DDTs may indicate areas impacted by an older release, although DDT degradation rates may vary greatly based on environmental conditions. The soil berm, an area with higher percent DDTs, was constructed around the northwest and southwest sides of the Facility after the 1979 Facility fire, apparently from soil impacted by releases caused by this fire.



Wind Ward LLC environmental

Figure 4-35. Percent Contribution of DDT to Total DDTs (DDD, DDE, and DDT) in Facility Surface Soil, Wetland Surface Soil, and Lake Surface Sediment Samples

Prepared by CEH, 12/15/2011, MAP #4118, W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

4.6.4 General DDT Information

Until they were banned in the United States in 1972, DDTs were widely used to control both agricultural and disease-causing pests. Thus, DDTs were released to the environment through their direct application and in association with DDT production and waste disposal. This section discusses DDT concentrations related to these pathways to provide general context for Study Area concentrations.

4.6.4.1 Soil Concentrations Associated with DDT Production or Disposal

DDTs were produced at many sites within the United States prior to their ban in 1972. Some of these sites are now Superfund sites that have data regarding residual concentrations of DDTs. Two Superfund sites were identified as having DDT concentration information, and two other sites were identified because of their regional relevance. Details regarding these sites are summarized below.

- **Baird and McGuire Superfund site (Holbrook, Massachusetts):** At this site, DDT contamination was the result of over 60 years of DDT production. In a 1985 study, average concentrations of DDD, DDE, and DDT were 70,000, 10,000, and 61,000 µg/kg dw, respectively. Summing these averages results in a total DDT concentration of 141,000 µg/kg dw (ATSDR 2002).
- **Palos Verde Shelf (Los Angeles, California):** DDT contamination at this site was the result of discharge from a DDT manufacturer. A 1996 study reported surface sediment concentrations of DDD, DDE, and DDT ranging from 10,000 to 38,000, 16,000 to 372,000, and non-detect to 8,000 µg/kg dw, respectively. Based on these numbers, approximate total DDT concentrations could have ranged from 26,000 to 418,000 µg/kg dw (ATSDR 2002).
- **Farmcraft Facility (Tigard, Oregon):** Farmcraft operated as a pesticide formulation facility between 1953 and 1983. It received raw ingredients (e.g., DDT, talc, and diesel) and then formulated, packaged, and distributed pesticides. DDT concentrations in the site soil in 1993 were as high as 4,700,000 µg/kg dw, or about 0.5% (DEQ 2008a).
- **Rhodia Facility (Portland, Oregon):** On-site disposal of pesticide wastes occurred within two ponds on this property from the 1940s through 1990. DEQ reported concentrations of 4,4′-DDT in soil at this property of up to 3,100,000 µg/kg dw. Note that no total DDT concentrations were reported.
- **Arkema Facility (Portland, Oregon):** Pennwalt, Inc., manufactured DDT at this property during the late 1940s and early 1950s. Concentrations of 4,4′-DDT in surface soils were reportedly greater than 1,200,000 µg/kg dw, with a maximum 4,4′-DDT concentration of 150,000,000 µg/kg dw reported in the DEQ database for a sample collected in 1994. Note that no total DDT concentrations were reported.

4.6.4.2 Soil Concentrations Associated with Agricultural Applications

A few studies identified through a literature search provided information related to DDT concentrations in soils following agricultural applications. A 1966 study of DDT residues in orchard soil found that three New Jersey orchards contained an average of 113 lbs of DDT per acre, most of which was in the top 4 in. of the soil (Terriere et al. 1966). Assuming loosely packed soil (75 lbs per cubic ft), this would correspond to a DDT concentration of approximately 70,000 to 100,000 µg/kg dw (DDT in the top 4 to 6 in. of soil) at the time of the study. These concentrations would likely be significantly lower now, following almost 40 years of degradation (DDT was banned in 1972).

A more recent (1998) study of DDT concentrations in soil after agricultural applications in British Columbia, Canada, reported DDT concentrations ranging from 194 to 763 µg/kg dw in silt loam soils and from 2,984 to 7,162 µg/kg dw in muck soils (Aigner et al. 1998; as cited in ATSDR 2002), indicating that the degradation rate is dependent on the soil type or environmental conditions (DDT tends to be more persistent in muck soils than in drier soils).

4.6.4.3 Soil Concentrations Associated with Pest Control

DDT was also commonly used in pest control applications throughout the United States. DDT was used in nearby Vanport City by the Housing Authority of Portland as a method of pest control in the 1940s (Maben 1987). A DDT spray (likely 5 to 10% DDT based on typical applications (Bureau of Medicine and Surgery 1944) was used at apartments to combat insect and rodent infestations. Furthermore, a July 9, 2010, discussion with Mr. Chris Wirth, program manager for Multnomah County Vector and Nuisance Control, indicated that Multnomah County would have used a DDT spray mixture in the county for mosquito control prior to the banning of DDT in 1972 (Wirth 2010). Mr. Wirth noted that the county does not have records of the volumes of pesticides that were used or the locations that were sprayed with DDT, but that the vector program would have used such a formulation because it was the standard of the day.

Although insufficient information is available to estimate soil DDT concentrations associated with the activities described above, a 1944 manual on DDT insecticide use discusses recommended DDT application rates for controlling various pests (e.g., mosquitoes and bedbugs) (Bureau of Medicine and Surgery 1944).

For mosquito control, it was recommended that 0.5 to 1 lb of DDT be applied per acre (5 to 10% DDT in kerosene or oil). Under the same assumptions as those for the New Jersey orchards described above (loosely packed soil and DDTs in the top 4 to 6 in.), concentrations of DDTs in soil would range from approximately 300 to 900 µg/kg dw at the time of application.

Similarly, for bedbug control, it was recommended that 250 cubic cm of a 5% DDT kerosene spray be used to treat each bed, which is equivalent to 0.025 lbs of DDT per bed. Assuming a high density of apartments (100 beds per acre), as was the case at Vanport City near the Study Area

(Maben 1987), this could translate into approximately 2.5 lbs of DDT per acre and a total DDT concentration in soil of approximately 2,000 µg/kg dw. With regard to the duration of application, Vanport was constructed in 1943 and was destroyed in 1948 by flooding, at which time spraying for bedbugs would have ceased. Although Vanport no longer existed after 1948, it can reasonably be assumed that the area continued to be sprayed for mosquito control, which pre-dated Vanport's existence.

The above calculations for both mosquito and bedbug control are for a single application; periodic applications were likely necessary to maintain the effectiveness of the insecticide. The *Manual on DDT Insecticide* noted that DDT was effective in preventing bedbugs for 6 months or more (Bureau of Medicine and Surgery 1944). Assuming a twice-annual application rate over 30 years (DDT was commonly used starting in 1939 until its ban in 1972), DDT concentrations in shallow soils as a result of pest control efforts could have ranged from 9,000 to 60,000 µg/kg dw.

Note that all estimated concentrations in this section are highly uncertain and are based on a number of assumptions. The duration of use or frequency of application would affect the resulting DDT concentrations in soil, as would the degradation rates and amount of time since application, among other factors.

Also of note, the Portland Union Stockyard, located to the north of the Facility, operated from 1910 to 1988 (Section 4.2.3.3). Although it is possible that DDT was used on or transferred onto this property for pest control related to livestock (e.g., the control of cattle lice or ticks), a review of available historical records and investigations at the stockyard property (Section 1.3.3.1) identified no information concerning the use of DDTs and no analysis of environmental samples for DDTs. Thus, no information is available to confirm whether DDTs were used at the stockyard. The use of DDT for pest control related to livestock was widely practiced prior to its ban in 1972. Literature suggests that DDT would typically be applied at a concentration of 0.5 to 5% in a liquid solution or 10% as a dust. For liquid application on cattle, between 0.5 and 6 gal. of the DDT mixture might be required per animal per application to sufficiently wet the animal. Although there are too many variables to estimate the resulting concentration of DDT in soil that might be tracked into a livestock transport trailer, the preceding information does describe a plausible mechanism for the identified DDT concentrations in soil proximate to the former truck cleaning operation at the Facility.

4.6.4.4 Land Use-Related DDT Concentrations in Stormwater

The above sections discussed DDT concentrations in soil associated with the production, disposal, and use of DDT prior to its ban in 1972. Even though DDT production and use are no longer authorized, DDT is persistent in the environment and is still commonly detected in environmental samples. Stormwater catch basin samples collected as part of the draft Portland Harbor RI (Integral et al. 2009) provide an indication of the typical concentrations of DDTs associated with various land uses in the vicinity of the Portland Harbor Superfund Site study area:

- Heavy industrial: 4.8 to 160,000 µg/kg dw (n = 18)

- Light industrial: 34 µg/kg dw (n = 1)
- Major transportation: 3.4 to 17 µg/kg dw (n = 2)
- Mixed land use: 6.3 to 180 µg/kg dw (n = 6)
- Open space: 3.9 µg/kg dw (n = 1)
- Residential**:** 36 to 260 µg/kg dw (n = 3)

4.6.4.5 Comparison of General DDT Information with Study Area Concentrations

General information regarding the prevalence and concentrations of DDTs in areas where they were historically produced or disposed of or where they were historically applied for agricultural or pest-control purposes, as well as in present-day urban areas (based on stormwater catch basin samples) was compiled in the previous subsections. Although this information, which is by no means exhaustive, provides a general context for the concentrations detected at the Study Area, it does not identify specific sources for those DDT concentrations. Furthermore, it should be noted that this comparison is not meant to imply that stormwater catch basin sediment is equivalent to bedded lake sediment. Instead, this comparison is meant to serve solely as a means to provide context for DDT concentrations at the Study Area.

For example, total DDT concentrations ranged from 22 to 250 µg/kg dw in Force Lake surface sediment (mean of 160 µg/kg dw) (Table 4-20). The total DDT concentrations in the vicinity of the Portland Harbor Superfund Site study area stormwater catch basin samples (Integral et al. 2009) ranged from 3.4 to 260 µg/kg dw, illustrating that total DDT concentrations in Force Lake sediments are not atypical of the concentrations of DDT present in areas that have a variety of land uses (e.g., open space, residential, transportation corridors, industrial, mixed).

With respect to soil, total DDT concentrations were highly variable at the Facility and in the wetland, ranging from 0.6 to 78,000 µg/kg dw in Facility surface soil (mean of 8,000 µg/kg dw) and from 2.7 to 46,000 µg/kg dw in wetland surface soil (mean of 3,100 µg/kg dw) (Tables 4-17 and 4-19; Figure 4-33). Even the highest of these concentrations were at the low end of the ranges reported for sites where DDTs were produced or where production-related waste was disposed (26,000 to 4,700,000 µg/kg dw).

The 1998 British Columbia study of DDT concentrations in soil resulting from historical DDT applications also reported lower concentrations (194 to 7,162 µg/kg dw, depending on the soil type); these concentrations are similar to those for the majority of samples within the Study Area. Because the adjacent Vanport City area was known to have been treated with DDT to control bedbugs, and the Study Area may have been sprayed for mosquito control, it is possible that the DDT concentrations throughout much of the Study Area are associated with these known or suspected treatments.

Explanations for the higher DDT concentrations in the central Facility area are also speculative. However, based on the Facility history, the most likely source of DDTs in this area is the former cattle truck cleaning operation. It is known that pesticides, including DDTs, were commonly

used at livestock yards for vector and insect control, typically by dusting, spraying, or dipping the animals. Trucks that were cleaned at the Facility may have been contaminated with DDTs associated with livestock applications, which could have resulted in the presence of DDTs in wash water from cleaning operations. Wash water would have migrated via sheet flow to other parts of the Facility (Section 4.2.1) and may have accumulated in sumps, holding ponds, and low-lying areas that were historically located near the southwest Facility boundary, but which have subsequently been filled. These areas likely extended into what is now considered the wetlands. This theory may best explain the distribution of DDTs in that portion of the Study Area.

4.6.5 Summary for DDTs

In the Study Area, total DDT concentrations were highest in surface soils collected at the Facility. In Facility soil, DDTs were highest in the central portion of the Facility near the former truck cleaning operation, in the C-shaped area to the west of the former truck cleaning operation, and along the southwest boundary of the Facility.

In the wetlands, total DDT concentrations were often similar to or lower than those at the Facility (Figure 4-32): the mean total DDT concentration in Facility surface soil samples was 8,000 µg/kg dw, compared with the mean concentration of 3,000 µg/kg dw in surface soil samples collected in the wetlands. The highest DDT concentrations in the wetlands were located just southwest of the Facility boundary, in close proximity to the highest DDT concentrations detected at the Facility. These higher concentrations of DDTs may be the result of the migration of wash water from the truck washing operation off of the Facility via sheet flow. This water may have accumulated in historical sumps and holding ponds along the southwest Facility boundary, which extended into what is now considered the wetlands.

Moderate DDT concentrations detected in samples near the former stormwater system discharge point and in the drainage ditch indicate that DDTs from truck washing operations also may have entered the wetlands via stormwater runoff.

Lower concentrations of DDTs (in the range 2.7 to 280 µg/kg dw) were detected in lake sediment and in the wetlands to the west of the drainage ditch. The lower DDT concentrations in this area may not be associated with the Facility, although no specific information is available to confirm this. Possible explanations for these lower concentrations of DDTs in this part of the Study Area may include the following:

- DDTs may have migrated from the former truck cleaning operation to other parts of the Study Area. Concentrations may be lower in the west wetlands because of the drainage ditch (constructed as a hydraulic control to prevent Facility stormwater from discharging into the northwestern portion of the wetlands) and may be lower in Force Lake because the wetlands acted as a buffer, preventing migration.

- The documented use of DDTs for pest control in the adjacent Vanport City and the possible use of DDT for mosquito control within the Study Area and surrounding region could explain the lower DDT concentrations (Section 4.6.1.1) at the Study Area.
- The application of DDT for agricultural or pest control purposes was common in the region from the early 1940s to 1972. As discussed in Section 4.6.4.4, DDT concentrations in Portland area stormwater catch basin samples were similar to the lower concentrations at the Study Area, potentially indicating general urban influences throughout much of the Study Area.

Thus, although there is no information to definitively identify the source of DDTs in the Study Area, based on a weight-of-evidence approach, the highest concentrations may be the result of truck cleaning operations that began in the 1950s, when DDT use was common. The history of the Facility and the concentration patterns in the Study Area indicate that the source or sources are historical and that no continuing source of DDTs exists.

4.7 Chlorinated Solvents

This section presents an overview of source information, fate and transport, and media-specific data for chlorinated solvents. None of these chemicals were identified as COCs in the HHRA or as having LOAEL-based HQs greater than 1.0 in the ERA. However, because TCE was used as part of historical tanker truck cleaning operation at the Facility, chlorinated solvents are discussed in this RI. In addition to TCE, other chlorinated solvents detected at the Study Area include 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,1-dichloroethane, chloroethane, cis-1,2-dichloroethene, PCE, and vinyl chloride.

4.7.1 Known or Suspected Sources and Release Mechanisms

The Detrex system (discussed in Sections 1.3 and 4.2) used a mixture of TCE and water to clean the internal surfaces of tanker trucks until truck cleaning operations ceased in 1994 (CEC 2002). Although tanker truck and cattle truck cleaning operations started in the 1950s, the earliest documented use of TCE as part of the Detrex system was in the late 1980s. There is no historical information suggesting that TCE or other chlorinated solvents were used in earlier truck cleaning operations.

A 1993 document (Advanced Treatment Systems 1993) indicated that the used cleaning solution was collected and then re-used in a closed-loop system (i.e., no waste products were drained to the stormwater system). However, a 1988 DEQ SI and follow-up confirmed that wash water from the truck cleaning operation drained to the wetlands via the stormwater treatment system (DEQ 1988b, c). Although the Detrex system is the only known use of TCE at the Facility, waste oils processed at the Facility may also have contained other chlorinated solvents.

Concentrations of chlorinated solvents (i.e., PCE and TCE) have been detected at relatively low and uniform concentrations in deep groundwater throughout the area. The source or sources of these chemicals have not been identified, although data do not suggest the Harbor Oil Facility to be a source, as described below. TCE was also detected in soil samples collected at the Peninsula Terminal Railroad property to the north of the Facility (Section 4.2.3).

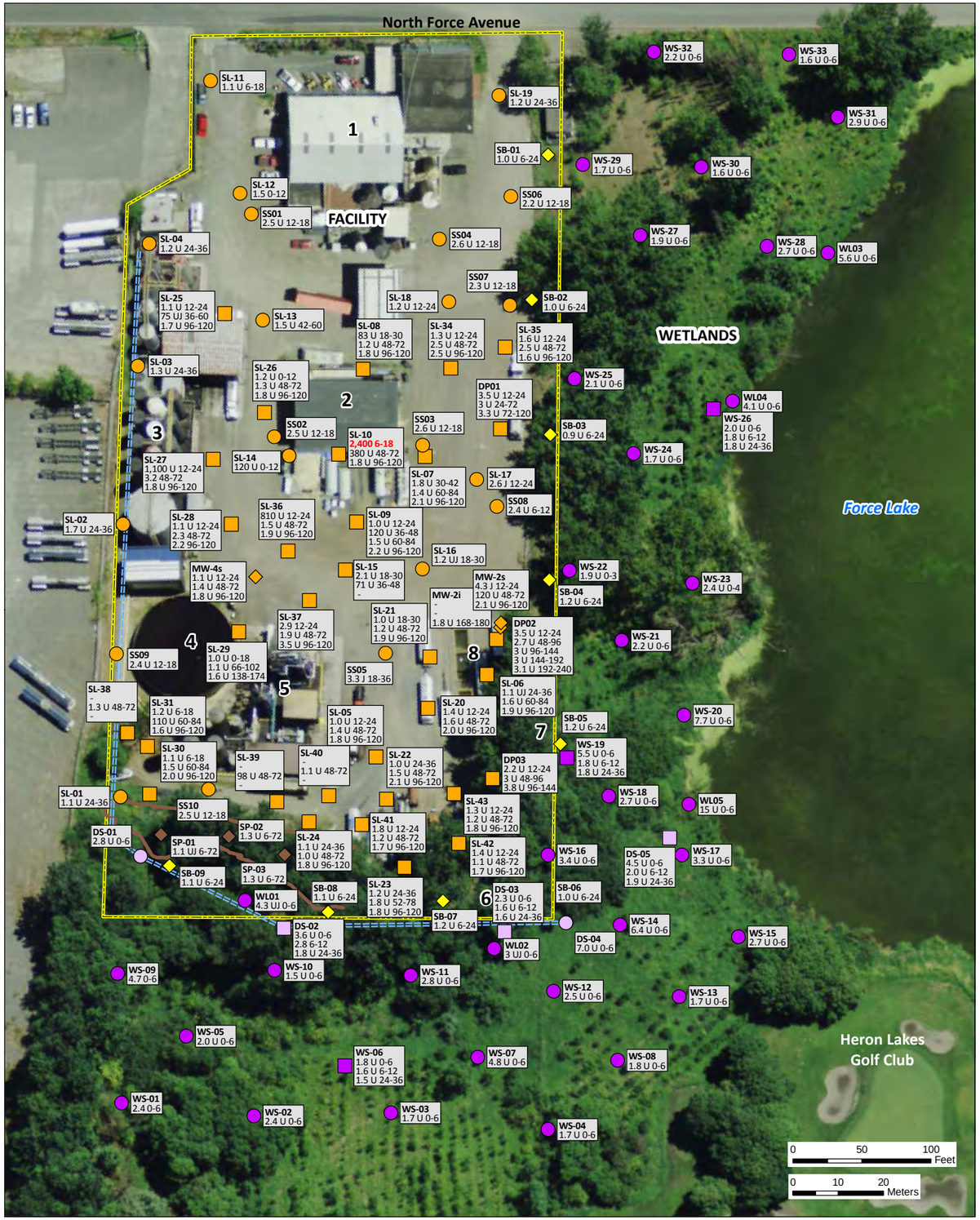
4.7.2 Concentrations by Medium

This section discusses the concentrations of chlorinated solvents in various media within the Study Area. Summary statistics in tables are provided by location (not sample)[19] to be consistent with the figures. The complete RI database is provided in Appendix B.

Cumulative frequency figures were not created for chlorinated solvents because of the low detection frequency of these chemicals. Concentrations were highest in Facility soil samples (generally in the central portion of the Facility), with detected concentrations up to 130,000 µg/kg dw (for cis-1,2-dichloroethene at SL-10). Chlorinated solvents were also detected in wetland soil and groundwater samples. No chlorinated solvents were detected in lake sediment or surface water.

Because of the low detection frequencies and the similar concentration patterns for these chemicals, concentrations were mapped for only two chlorinated solvents. TCE concentrations were mapped because of the known historical use of TCE at the Facility, and cis-1,2-dichloroethene samples were mapped at EPA's request (EPA 2010b) because of their relatively higher detection frequency at intermediate depths in soil as compared with those of other chlorinated solvents. Figures 4-36 and 4-37 present concentrations for each soil and sediment location sampled for TCE and cis-1,2-dichloroethene, respectively; Figures 4-38 and 4-39 present concentrations for each groundwater and surface water location sampled for TCE and cis-1,2-dichloroethene, respectively. In addition, Figures 4-40 and 4-41 show the sampling locations where chlorinated solvents were detected and where concentrations were greater than the applicable screening levels in soil/sediment samples and in groundwater/surface water samples, respectively. These data are discussed in the following subsections.

[19] Duplicate samples were combined with the original sample, as described in Appendix N.



On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Trichloroethene Screening Levels

Medium	Unit	Industrial Human Health RSL[a]	Residential Human Health RSL[a]	Invertebrate Screening Level
Facility soil	µg/kg dw	9.9	9.9	na
Wetland soil	µg/kg dw	na	9.9	nv
Lake sediment	µg/kg dw	na	43	nv

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
na - not applicable
nv - no value (i.e., no SL available for this chemical-medium combination)

Facility soil samples (µg/kg dw)[a]

- Surface soil
- Subsurface and surface soil[b]
- Soil at groundwater monitoring well[b]
- Soil berm
- Soil stockpile

Wetland and ditch soil samples (µg/kg dw)[a]

- Wetland surface soil
- Wetland surface and subsurface soil[b]
- Ditch surface soil
- Ditch surface and subsurface soil[b]

Lake sediment samples (µg/kg dw)

- Lake sediment[b]

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

[a] The following locations were not analyzed for TCE and do not appear on this map: shallow samples from SL-32, SL-33, SL-45, SL-46, and WS-34 to WS-42; intermediate samples from WS-11, WS-20, WS-21, and WS-25; and deep samples from SL-44, WS-11, WS-20, WS-21, and WS-25.

[b] Both surface and subsurface data are shown.

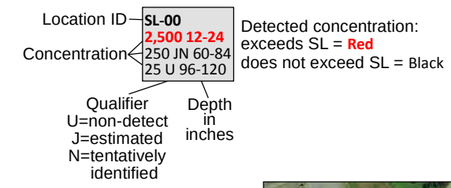


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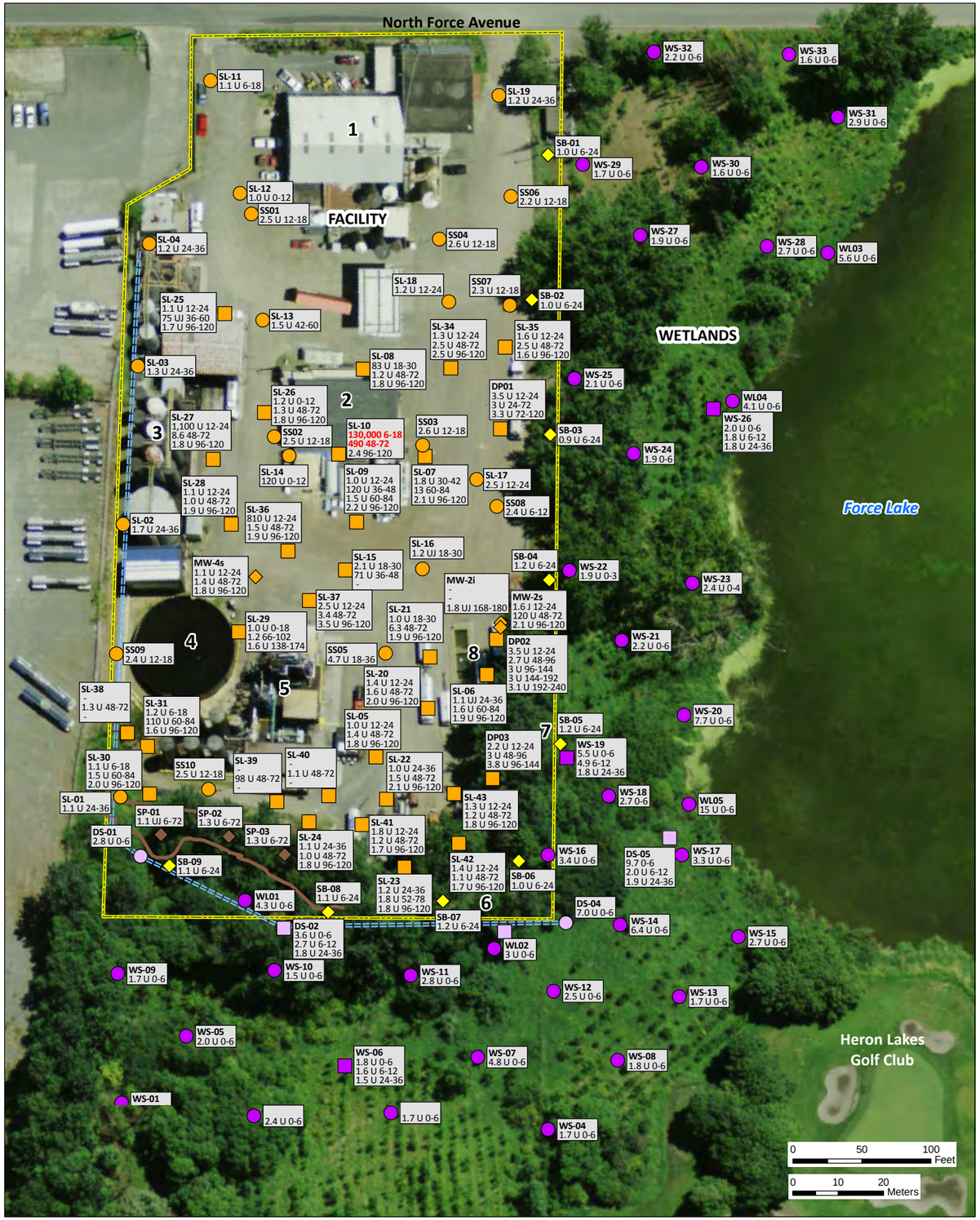
Figure 4-36. TCE Concentrations at Facility Soil, Wetland Soil, and Lake Sediment Sampling Locations

Prepared by CEH, 12/15/2011, MAP #3483, W:\Projects\Harbor_Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.



On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

				brate ning el
Wetland soil	µg/kg dw	na	400	nv
Lake sediment	µg/kg dw	na	400	nv

[a] Human health regional screening levels (RSLs) are represented by the lowest of the available screening levels from EPA and DEQ.
na - not applicable
nv - no value (i.e., no SL available for this chemical-medium combination)

Facility soil samples (mg/kg dw)[a]

- Surface soil
- Subsurface and surface soil[b]
- Soil at groundwater monitoring well[b]
- Soil berm
- Soil stockpile

Wetland and ditch soil samples (mg/kg dw)[a]

- Wetland surface soil
- Wetland surface and subsurface soil[b]
- Ditch surface soil
- Ditch surface and subsurface soil[b]

Lake sediment samples (mg/kg dw)

- Lake sediment[b]

- Drainage ditch (approximate location)
- Soil stockpile (approximate boundary)
- Facility boundary

[a] The following locations were not analyzed for cis-1,2-Dichloroethene and do not appear on this map: .

[b] Both surface and subsurface data are shown.

Location ID — **SL-00**
Concentration — **2,500 12-24** / 250 JN 60-84 / 25 U 96-120
Detected concentration: exceeds SL = **Red**, does not exceed SL = Black
Qualifier: U=non-detect, J=estimated, N=tentatively identified
Depth in inches

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Figure 4-37. cis-1,2-Dichloroethene Concentrations at Facility Soil, Wetland Soil, and Lake Sediment Sampling Locations

Prepared by cmajh, 12/15/2011, W:\Projects\Harbor Oil\Data\GIS\RI\Fig 4-37 4433 cis-1,2-dichloroethene in on- and off-facility locations soil.mxd

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

Trichloroethene Screening Levels

Medium	Unit	Human Health RSL[a]	Invertebrate Screening Level
Groundwater	µg/L	0.028	na
Surface water	µg/L	not detected; no comparison to screening levels	

[a] Human health regional screening levels (RSLs) are represented by the low est of the available screening levels from EPA and DEQ.
na - not applicable

Groundwater samples (µg/L)

- Shallow groundwater
- Intermediate groundwater
- Deep groundwater

Surface water samples (µg/L)

- Lake surface water

Wells where groundwater samples not collected

- Groundwater not sampled due to lack of construction details (trace to 0.02 ft of LNAPL observed)
- Groundwater not sampled due to lack of construction details
- Groundwater not sampled due to the presence of LNAPL (0.1 ft LNAPL observed here in 2008 when LNAPL sample was collected. After this time, trace to 0.02 ft of LNAPL observed).

=== Drainage ditch (approximate location)

Soil stockpile (approximate boundary)

Facility boundary

Location ID — **GA-00**
Sample Year — 2000: –
2008: 1.0 U
2009: na

Detected concentration:
exceeds SL = **Red**
does not exceed SL = Black

Concentration
na=not analyzed
– =not collected

Qualifier
U=non-detect
J=estimated

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Figure 4-38. TCE Concentrations in Unfiltered Samples at Facility Groundwater and Lake Surface Water Sampling Locations

Prepared by CEH, 12/15/2011. MAP #3483; W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

On-Facility Features

1. Office/Shop/Warehouse Building
2. Former Tanker Truck Cleaning Operation
3. Tank Farm and Used-Oil Processing Area
4. Tank 23
5. New Base Oil Refining Plant
6. Former Stormwater Discharge Point
7. Current Stormwater Discharge Point
8. Stormwater Treatment System

cis-1,2-Dichloroethene Screening Levels

Medium	Unit	Human Health RSL[a]	Invertebrate Screening Level
Groundwater	µg/L	6.1	na
Surface water	µg/L	not detected; no comparison	

[a] Human health regional screening levels (RSLs) are represented by

na - not applicable

Groundwater samples (mg/L)

- Shallow groundwater
- Intermediate groundwater
- Deep groundwater

Surface water samples (mg/L)

- Lake surface water

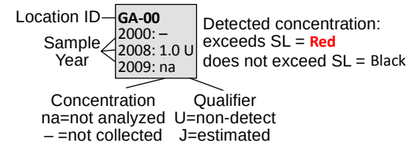
Wells where groundwater samples not collected

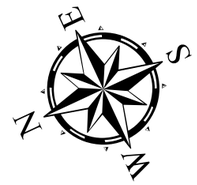
- Groundwater not sampled due to lack of construction details (trace to 0.02 ft of LNAPL observed)
- Groundwater not sampled due to lack of construction details
- Groundwater not sampled due to the presence of LNAPL (0.1 ft LNAPL observed here in 2008 when LNAPL sample was collected. After this time, trace to 0.02 ft of LNAPL observed).

=== Drainage ditch (approximate location)

Soil stockpile (approximate boundary)

Facility boundary



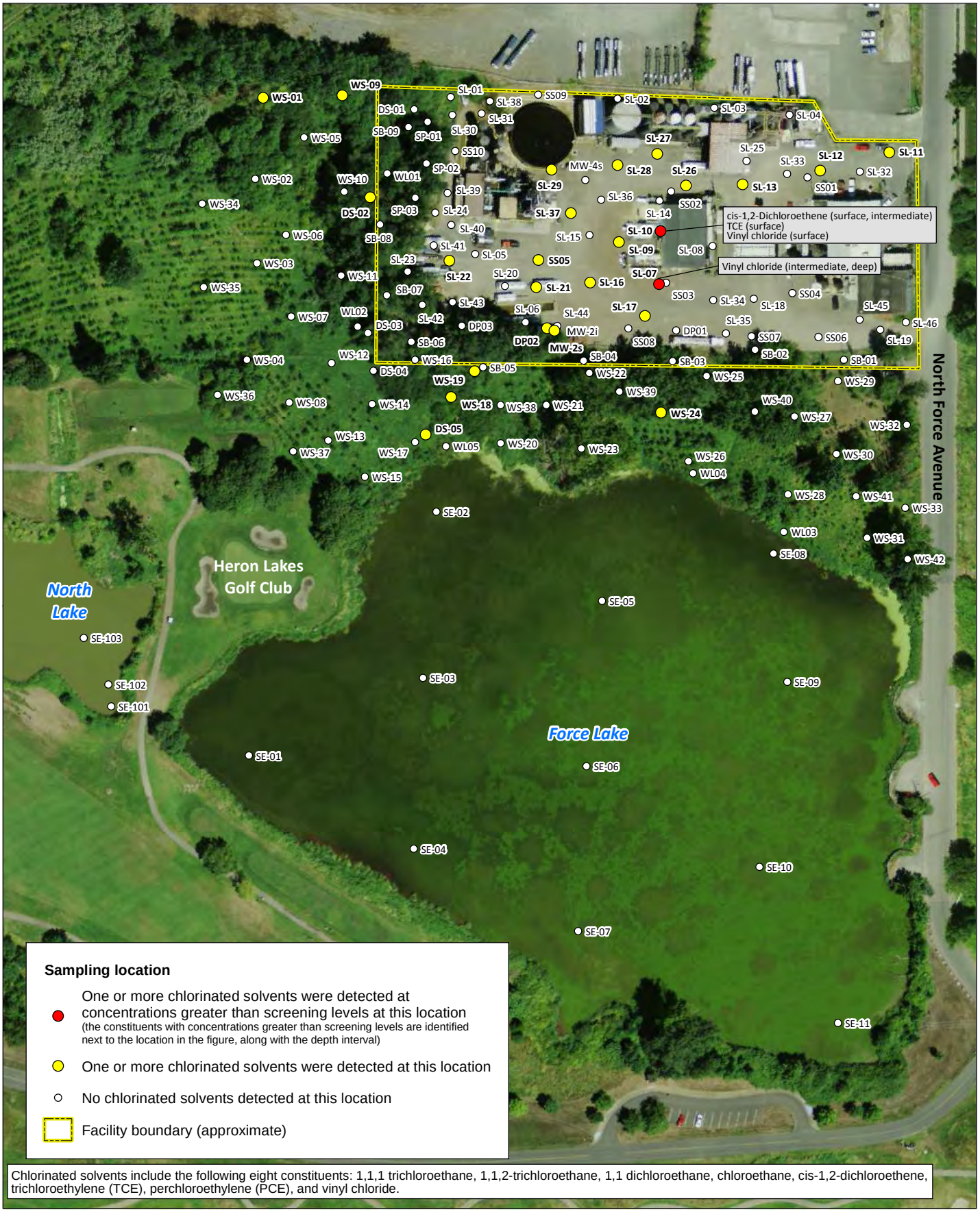


WindWard LLC environmental

Figure 4-39. cis-1,2-dichloroethene Concentrations in Unfiltered Samples at Facility Groundwater and Lake Surface Water Sampling Locations

Prepared by craigh, 12/15/2011; W:\Projects\Harbor Oil\Data\GIS\RI\Fig 4-39 4433 cis-1,2-dichloroethene in on- and off-facility locations water.mxd

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.



Chlorinated solvents include the following eight constituents: 1,1,1 trichloroethane, 1,1,2-trichloroethane, 1,1 dichloroethane, chloroethane, cis-1,2-dichloroethene, trichloroethylene (TCE), perchloroethylene (PCE), and vinyl chloride.

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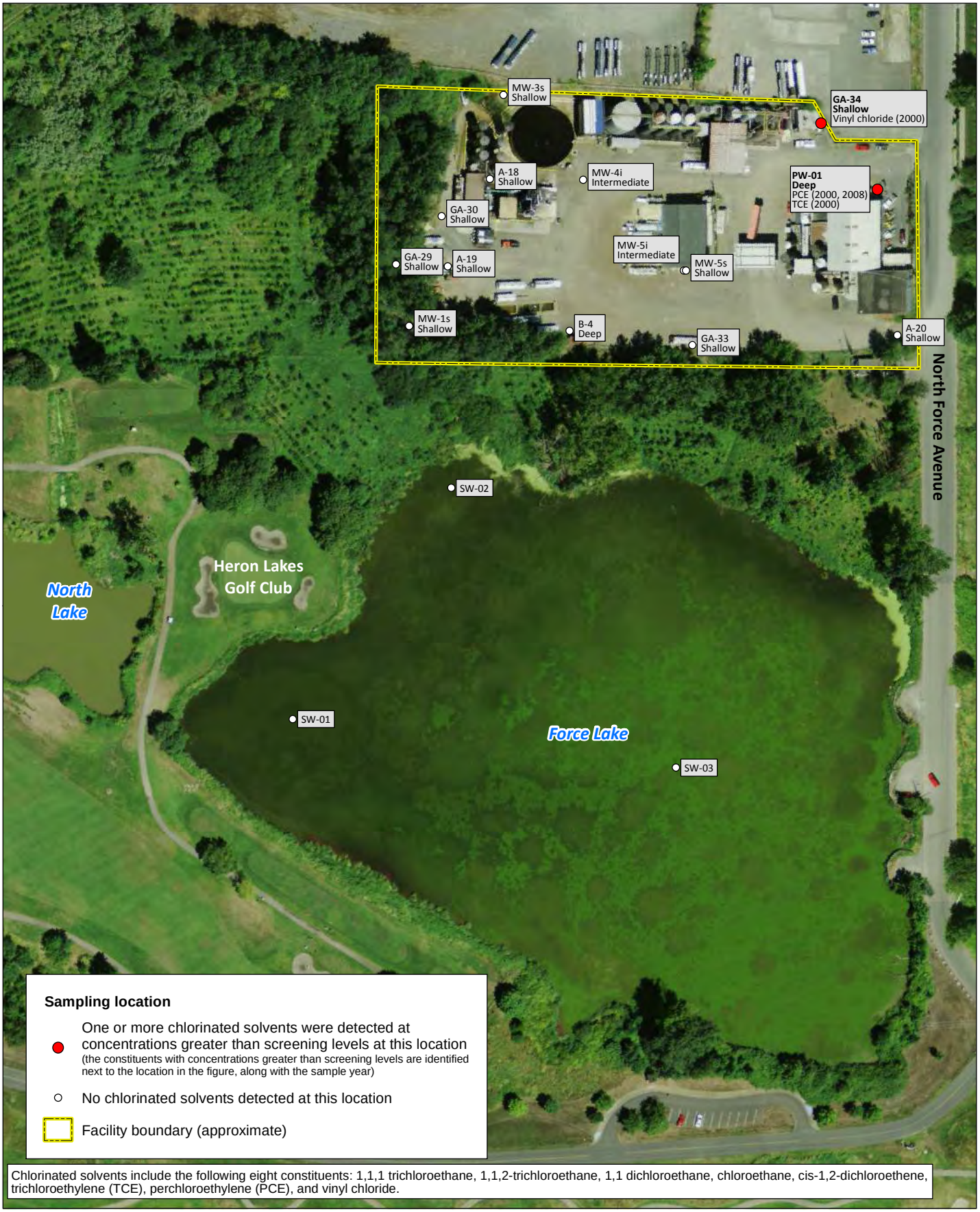
0 100 200 Feet

0 25 50 Meters

Figure 4-40. Facility Soil, Wetland Soil, and Lake Sediment Sampling Locations with Detected Concentrations of Chlorinated Solvents and Concentrations Greater than Screening Levels

Prepared by CEH, 12/15/2011; MAP #4348; W:\Projects\Harbor Oil\Data\GIS\R1

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.



Chlorinated solvents include the following eight constituents: 1,1,1 trichloroethane, 1,1,2-trichloroethane, 1,1 dichloroethane, chloroethane, cis-1,2-dichloroethene, trichloroethylene (TCE), perchloroethylene (PCE), and vinyl chloride.

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N E S W

0 100 200 Feet

0 25 50 Meters

Figure 4-41. Facility Groundwater and Lake Surface Water Sampling Locations with Detected Concentrations of Chlorinated Solvents and Concentrations Greater than Screening Levels

Prepared by CEH, 12/15/2011; MAP #4348; W:\Projects\Harbor Oil\Data\GIS\RI

Photo source: Metro Data Resource Center, 1 ft resolution natural color ortho-rectified digital imagery, Portland, OR, July/Aug 2007.

4.7.2.1 Facility Soil

Table 4-21 summarizes concentrations of chlorinated solvents in surface and subsurface soil samples collected at the Facility. The depth intervals of these samples varied depending on the sampling location, field conditions, and the sampling event (see Section 2.2). Surface soil samples at the Facility were collected just below the gravel fill layer, if present.

Table 4-21. Concentrations of Chlorinated Solvents Detected in at Least One Facility Soil Sample

Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
	Ratio	%					
1,1,1-Trichloroethane (µg/kg dw)							
Surface	1/53	2	170	170	SL-10	nc	1.0 – 1,100
Intermediate	0/35	0	nd	nd	nd	nc	1.0 – 380
Deep	0/33	0	nd	nd	nd	nc	1.6 – 3.8
Soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
Soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
1,1,2-Trichloroethane (µg/kg dw)							
Surface	2/53	4	1.5 J	41	SL-13	nc	1.0 – 1,100
Intermediate	0/35	0	nd	nd	nd	nc	1.0 – 380
Deep	0/33	0	nd	nd	nd	nc	1.6 – 3.8
Soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
Soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
1,1-Dichloroethane (µg/kg dw)							
Surface	3/53	6	1.1	680	SL-10	nc	1.0 – 1,100
Intermediate	1/35	3	1.9	1.9	SL-21	nc	1.0 – 380
Deep	0/33	0	nd	nd	nd	nc	1.6 – 3.8
Soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
Soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
Chloroethane (µg/kg dw)							
Surface	1/53	2	2.9	2.9	SL-26	nc	1.0 – 1,100
Intermediate	0/35	0	nd	nd	nd	nc	1.0 – 380
Deep	0/33	0	nd	nd	nd	nc	1.6 – 3.8
Soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
Soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
cis-1,2-Dichloroethene (µg/kg dw)							
Surface	3/53	6	1.6 J	130,000	SL-10	nc	1.0 – 1,100
Intermediate	6/35	17	1.2	490	SL-10	20	1.0 – 120
Deep	1/33	3	2.4	2.4	SL-10	nc	1.6 – 3.8
Soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
Soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
PCE (µg/kg dw)							
Surface	5/53	9	1.9	10.8 J	SS05	nc	1.0 – 1,100
Intermediate	1/35	3	3.0 J	3.0 J	SL-22	nc	1.0 – 380
Deep	0/33	0	nd	nd	nd	nc	1.6 – 3.8
Soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
Soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2

Table 4-21. Concentrations of Chlorinated Solvents Detected in at Least One Facility Soil Sample (cont.)

Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
	Ratio	%					
TCE (µg/kg dw)							
Surface	6/53	11	1.5	2,400	SL-10	66	1.0 – 1,100
Intermediate	2/35	6	2.3	3.2	SL-27	nc	1.0 – 380
Deep	1/33	3	2.2	2.2	SL-28	nc	1.6 – 3.8
Soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
Soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
Vinyl Chloride (µg/kg dw)							
Surface	1/53	2	1,200	1,200	SL-10	nc	1.0 – 1,100
Intermediate	1/35	3	13	13	SL-07	nc	1.0 – 380
Deep	1/33	3	13	13	SL-07	nc	1.6 – 3.8
Soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
Soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2

[a] Surface soil samples were collected immediately below the gravel layer from depths of 0 to 5 ft bgs (0.5- to 1.5-ft sampling intervals for a given sample). Intermediate soil samples were collected from depths of 2 to 8.5 ft bgs (1- to 4-ft sampling intervals for a given sample). Deep soil samples were collected from depths of 6 to 22 ft bgs (1- to 4-ft sampling intervals for a given sample). All soil berm samples were collected from 0.5 to 2 ft bgs, and all soil stockpile samples were collected from 0.5 to 6 ft bgs.

[b] The mean concentration is equal to the average of all detected values and one-half of the RL for non-detected values. Means were not calculated if the detection frequency was less than 10% or if fewer than three samples had detected concentrations.

[c] RLs are for only non-detected samples.

bgs – below ground surface
dw – dry weight
J – estimated concentration
nc – not calculated
nd – not detected
PCE – perchloroethylene
RL – reporting limit
TCE – trichloroethene

All eight chlorinated solvents were detected in at least one Facility soil sample, although all were detected infrequently. The highest concentrations were detected near the former truck cleaning operations located in the center of the Facility, particularly in the surface soil sample from location SL-10 (Figures 4-36, 4-37, and 4-40).

Concentrations of three chlorinated solvents were greater than the conservative industrial and residential human health RSLs (industrial and residential RSLs were the same for each chlorinated solvent): 2 of 10 samples with detected concentrations of cis-1,2-dichloroethene were greater than the RSL, 1 of 9 samples with detected concentrations of TCE was greater than the RSL, and all 3 samples with detected concentrations of vinyl chloride were greater than the RSL (Figure 4-40).[20] Concentrations of all three of these chlorinated solvents were greater than the RSL in the surface soil sample collected from SL-10, and the cis-1,2-dichloroethene concentration was greater than the RSL in the intermediate-depth sample at this location. In addition, concentrations of vinyl chloride in the intermediate and deep samples from SL-07 (13 µg/kg dw in both samples) were just above the RSL (10 µg/kg dw). SL-10 and SL-07 are both located in the central portion of the Facility near the former truck cleaning operation (Figure 4-40). Note that the comparison with conservative screening levels on a point-by-point basis should not be viewed as a risk estimate; risks were fully assessed in the HHRA as presented in Appendix I and summarized in Section 6.1.

Concentrations of chlorinated solvents were generally bounded both vertically and laterally in Facility soil, indicating that chlorinated solvents have been adequately delineated and the available data meet the DQOs identified in the RI/FS Work Plan (Bridgewater et al. 2008b).

4.7.2.2 Groundwater

Table 4-22 summarizes concentrations of chlorinated solvents detected in at least one groundwater sample (1,1,1-trichloroethane, cis-1,2-dichloroethene, PCE, TCE, and vinyl chloride).

[20] Both of the samples with cis-1,2-dichloroethene concentrations greater than the screening level were from the same location (SL-10), and two of the three samples with concentrations of vinyl chloride greater than the screening level were from the same location (SL-07) (see Figure 4-40).

Table 4-22. Concentrations of Chlorinated Solvents Detected in at Least One Groundwater Sample

Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
	Ratio	%					
1,1,1-Trichloroethane (µg/L)							
Shallow	0/28	0	nd	nd	nd	nc	0.20 – 1.0
Intermediate	0/3	0	nd	nd	nd	nc	1.0
Deep	1/3	33	0.52 J	0.52 J	PW-01	nc	1.0
cis-1,2-Dichloroethene (µg/L)							
Shallow	1/28	4	0.23 J	0.23 J	GA-34	nc	0.20 – 1.0
Intermediate	0/3	0	nd	nd	nd	nc	1.0
Deep	1/3	33	0.79 J	0.79 J	PW-01	nc	1.0
PCE (µg/L)							
Shallow	0/28	0	nd	nd	nd	nc	0.20 – 1.0
Intermediate	0/3	0	nd	nd	nd	nc	1.0
Deep	2/3	67	1.4	4.2	PW-01	nc	1.0
TCE (µg/L)							
Shallow	0/28	0	nd	nd	nd	nc	0.20 – 1.0
Intermediate	0/3	0	nd	nd	nd	nc	1.0
Deep	1/3	33	6.1	6.1	PW-01	nc	1.0
Vinyl Chloride (µg/L)							
Shallow	1/28	4	0.22 J	0.22 J	GA-34	nc	0.20 – 1.0
Intermediate	0/3	0	nd	nd	nd	nc	1.0
Deep	0/3	0	nd	nd	nd	nc	1.0

[a] The depths of shallow groundwater wells ranged from 10 to 20 ft bgs, the depths of intermediate wells ranged from 48 to 50 ft bgs, and the depth of the deep well was 97 ft bgs.

[a] Mean concentrations were not calculated because fewer than three samples for a given solvent and depth interval had detected concentrations.

[b] RLs are for only non-detected samples.

bgs – below ground surface
J – estimated concentration
nc – not calculated
nd – not detected
PCE – perchloroethylene
RL – reporting limit
TCE – trichloroethene

Cis-1,2-dichloroethene (Figure 4-39) and vinyl chloride were each detected in one groundwater sample collected in 2000 from shallow well GA-34 (located in the east corner of the Facility). Samples collected from this well in 2008 and 2009 did not contain detectable concentrations of these chemicals.

1,1,1-Trichloroethane, cis-1,2-dichloroethene (Figure 4-39), PCE, and TCE were all detected in the groundwater sample collected in 2000 from deep well PW-01 (also located in the east corner of the Facility). In the RI sample collected from this well in 2008 only TCE was detected, but at a

lower concentration (1.4 µg/L) than in the 2000 sample (4.2 µg/L) (Figure 4-38). No sample was collected from PW-01 in 2009.

Of the five chlorinated solvents that were detected in groundwater samples, detected concentrations were greater than the conservative human health RSLs in all samples with detectable concentrations of PCE (two samples from deep well PW-01), TCE (one sample from deep well PW-01), and vinyl chloride (one sample from shallow well GA-34). Note that the comparison with conservative screening levels on a point-by-point basis should not be viewed as a risk estimate; risks were fully assessed in the HHRA as presented in Appendix I and summarized in Section 6.1.

In addition, it should be noted that TCE was detected at a concentration just greater than the MCL of 5 µg/L in one sample (6.1 µg/L in the sample from location PW-01 in 2000). TCE was not detected in the sample collected at PW-01 in 2008, and the well was not sampled in 2009 (Figure 4-38). No other chemicals discussed in this section were detected at concentrations greater than the MCL or non-zero MCLG.

As noted above, chlorinated solvents were detected only in samples collected from deep well PW-01 or shallow well GA-34, both of which are located in the east corner of the Facility near the Facility entrance and office buildings (Figure 4-41).

Well GA-34 is located at the upgradient margin of the Facility based on the shallow groundwater flow direction. Vinyl chloride and cis-1,2-dichloroethylene were detected at low concentrations and in a limited number of samples (year 2000 only) at this location. In conjunction with the upgradient position of this well on the property, these data do not suggest an on-site or continuing off-site source for these VOCs.

The PCE and TCE detections in deep well samples do not appear to be site-related because neither of these chemicals were detected in samples from shallow or intermediate groundwater wells. In addition, as described in Section 1.3.3.2, chlorinated solvents have been detected in other deep groundwater monitoring wells in the general vicinity of the Study Area, indicating a regional presence.

4.7.2.3 LNAPL

One LNAPL sample (layer thickness unknown) was collected in 2000 from shallow well GA-30 (in the uppermost groundwater zone) in the northwest portion of the Facility near the soil stockpile, and again in 2008, when a thin layer (approximately 0.1 ft) of LNAPL was observed at that location. VOCs (including chlorinated solvents) were analyzed only in the 2008 sample. In this 2008 sample, none of the eight chlorinated solvents discussed in this section were detected, and only two VOCs were detected (n-butylbenzene and sec-butylbenzene; Section 4.8.2.3).

Follow-up monitoring, including a year of monthly measurements, revealed thin layers of LNAPL (0.02 to 0.01 ft) at GA-30, although no LNAPL was observed in downgradient wells GA-29 and MW-1s (see Figure 2-2 for well locations). Thus, the lateral extent of LNAPL appears to be limited to the immediate area surrounding well GA-30.

4.7.2.4 Wetland and Ditch Soil

Table 4-23 summarizes concentrations of detected chlorinated solvents in wetland and ditch surface and subsurface soil samples. Of the eight chlorinated solvents discussed in this section, only cis-1,2-dichloroethene, PCE, and TCE were detected in wetland and ditch soil.

Table 4-23. Concentrations of Chlorinated Solvents Detected in at Least One Wetland and Ditch Soil Sample

Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
	Ratio	%					
cis-1,2-Dichloroethene (µg/kg dw)							
Surface	3/43	7	1.9	9.7	DS-05	nc	1.5 – 15
Intermediate	1/6	17	4.9	4.9	WS-19	nc	1.6 – 2.7
Deep	0/6	0	nd	nd	nd	nc	1.5 – 1.9
PCE (µg/kg dw)							
Surface	2/43	5	5.1	30	WS-19	nc	1.5 – 15
Intermediate	0/6	0	nd	nd	nd	nc	1.6 – 2.7
Deep	0/6	0	nd	nd	nd	nc	1.5 – 1.9
TCE (µg/kg dw)							
Surface	2/43	5	2.4	4.7	WS-09	nc	1.5 – 15
Intermediate	1/6	17	2.8	2.8	DS-02	nc	1.6 – 2.0
Deep	0/6	0	nd	nd	nd	nc	1.5 – 1.9

[a] Surface soil samples were collected from 0 to 0.5 ft bgs, intermediate soil samples were collected from 0.5 to 1 ft bgs, and deep soil samples were collected from 2 to 3 ft bgs.

[a] Mean concentrations were not calculated because detection frequencies were either less than 10% or fewer than three samples for a given solvent and depth interval had detected concentrations.

[b] RLs are for only non-detected samples.

bgs – below ground surface
dw – dry weight
nc – not calculated
nd – not detected
PCE – perchloroethylene
RL – reporting limit
TCE – trichloroethene

Detection frequencies of the three chlorinated solvents detected in wetland and ditch soil were low. Samples with detected concentrations of chlorinated solvents were located near the current stormwater treatment discharge point (WS-18, WS-19, and DS-05), in the former drainage ditch (DS-02), in the north portion of the wetlands (WS-01 and WS-09), and southwest of the Facility approximately halfway between North Force Avenue and the drainage ditch (WS-24) (Figure 4-40). With the exception of the samples in the northwest portion of the wetlands, these samples were collected in areas that may have received runoff from the former tanker truck cleaning operations (Section 4.2).

Concentrations of chlorinated solvents in wetland and ditch soils, where detected, were significantly lower than those detected in Facility soils. As

shown in Figure 4-40, none of the detected concentrations were greater than the conservative residential human health RSLs. Chlorinated solvents were generally bounded both vertically and laterally in wetland and ditch soil, indicating that chlorinated solvents have been adequately delineated and the available data meet the DQOs identified in the RI/FS Work Plan (Bridgewater et al. 2008b).

4.7.2.5 Lake Sediment and Surface Water

No chlorinated solvents were detected in lake sediment or lake surface water (Figures 4-40 and 4-41), indicating that either the migration of these chemicals to the lake was limited or that the solvents were not persistent in the lake.

4.7.3 Summary for Chlorinated Solvents

In summary, chlorinated solvents were infrequently detected in Facility soil, groundwater, and wetland and ditch soil and were not detected in lake sediment or lake surface water (Figures 4-40 and 4-41).

Concentrations of chlorinated solvents greater than conservative industrial human health RSLs were detected only at SL-07 and SL-10 in the central portion of the Facility, near the former truck cleaning operations (Figure 4-40). This concentration pattern is consistent with the known use of TCE, and possibly other chlorinated solvents, in the former truck cleaning operation. With the exception of two samples in the central portion of the Facility, all concentrations were below the conservative industrial and residential human health screening levels.

In the wetlands, chlorinated solvent concentrations were lower than those in Facility soil samples; samples with detected concentrations of chlorinated solvents were usually located south of the Facility (Figure 4-40). All detected concentrations of chlorinated solvents in the wetlands were less than conservative residential human health RSLs (no invertebrate screening levels were available for chlorinated solvents). This pattern may indicate that some level of migration occurred into the wetlands in the past. However, no chlorinated solvents were detected in either lake sediment or surface water, indicating that either the migration of these chemicals to the lake was limited or that the solvents were not persistent in the lake.

Chlorinated solvents were detected in groundwater in only two wells: deep well PW-01 and shallow well GA-34, both of which are located in the east corner of the Facility near the Facility entrance and office buildings (Figure 4-41). The flow of shallow groundwater is to the southwest, suggesting that if groundwater was contaminated as a result of the former tanker truck cleaning operations, chlorinated solvents would have been detected in wells in the southwest portion of the Facility (e.g., MW-2s), rather than in a well in the east corner of the Facility. This suggests that these VOCs are potentially migrating onto the Facility from upgradient sources. Except for the detection of vinyl chloride in a groundwater sample collected from GA-34 in 2000, no chlorinated solvents were detected in any shallow wells.

The comparison of chlorinated solvents with conservative screening levels and the infrequent detection of these chemicals, as shown in Figures 4-36 through 4-41, indicate that higher concentrations of chlorinated solvents were generally bounded both vertically and laterally. Thus, chlorinated solvents have been adequately delineated and the available data meet the DQOs identified in the RI/FS Work Plan (Bridgewater et al. 2008b).

4.8 Other Chemicals

Sections 4.3 though 4.7 discussed a subset of chemicals identified as COCs in the HHRA or contaminants with LOAEL-based HQs greater than 1.0 in the ERA. This section discusses other chemicals that were detected in at least one media type in the Study Area, including 15 metals, 2 PAHs, 4 phthalates, 17 other SVOCs, 3 pesticides, and 16 VOCs. None of the chemicals discussed in this section were identified as COCs in the HHRA or had LOAEL-based HQs greater than 1.0 in the ERA for which background or reference area concentrations were less than Study Area concentrations. However, it should be noted that some chemicals did not have screening levels in the HHRA (see Section 3.2 and Attachment 3 of the HHRA [Appendix I]) or the ERA (see Section 2.6 of the ERA [Appendix J]), and thus risks from these chemicals could not be assessed.

The chemicals discussed in this section include the following:

- **Metals**: aluminum, antimony, barium, beryllium, cadmium, cobalt, iron, lead, magnesium, manganese, nickel, selenium, silver, thallium, and vanadium
- **PAHs**: 2-methylnaphthalene and dibenzofuran[21]
- **Phthalates**: bis(2-ethylhexyl) phthalate (BEHP), butyl benzyl phthalate, diethyl phthalate, di-n-butyl phthalate
- **Other SVOCs**: 1,2,4-trichlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 2,4-dimethylphenol, 2-chlorophenol, 2-methylphenol, 4-methylphenol, acetophenone, benzaldehyde, benzoic acid, benzyl alcohol, biphenyl, carbazole, hexachlorobenzene, pentachlorophenol, and phenol
- **Pesticides**: delta-benzene hexachloride (BHC), endrin, and methoxychlor
- **VOCs**: 1,2-dichloropropane, 2-chlorotoluene, acetone, carbon disulfide, chlorobenzene, cyclohexane, p-cymene, dichloromethane, methyl ethyl ketone, methyl isobutyl ketone, methylcyclohexane, n-butylbenzene, sec-butylbenzene, styrene, tert-butylbenzene, and trans-1,2-dichloroethene

These chemicals are discussed in the following subsections. However, because these chemicals are of lesser significance in the Study Area—

[21] These PAHs were not included in the total PAH or cPAH sums discussed in Section 4.3.

from both a risk and a historical use perspective—than those chemicals discussed in Sections 4.3 through 4.7, the discussion of these chemicals is less detailed, and the data for these chemicals were not mapped.

4.8.1 Known or Suspected Sources and Release Mechanisms

As discussed in Section 4.2, industrial operations began at the Facility in the 1950s. Although no specific sources have been identified for the chemicals discussed in this section, their presence at detectable concentrations indicates that they may be the result of industrial activities at the Facility and/or from off-Facility sources.

In addition, metals (including the 15 metals evaluated in this section) are naturally occurring elements and are thus expected to be present in the environment.

4.8.2 Concentrations by Medium

This section discusses the concentrations of "other chemicals" in the Study Area and is organized by media. Note that summary statistics in the tables in this section are provided by location (not sample)[22] to be consistent with the data shown on figures. The complete RI database is provided in Appendix B.

4.8.2.1 Facility Soils

Table 4-24 summarizes the concentrations of other chemicals detected in surface and subsurface soil samples collected from the Facility. Surface soil samples at the Facility were collected just below the gravel fill layer, if present. The depth intervals of Facility soil samples varied depending on the sampling location, field conditions, and the sampling event (see Section 2.2). Concentrations of these other chemicals in Facility soil were low from a human health risk perspective. Antimony, thallium, delta-BHC, methoxychlor, and 1,2-dichloropropane were not detected in any Facility soil samples and thus data for these chemicals are not presented in Table 4-24.

[22] Duplicate samples were combined with the original sample, as described in Appendix N.

Table 4-24. Concentrations of Other Chemicals Detected in at Least One Facility Soil Sample

Chemical	Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
		Ratio	%					
Metals (mg/kg dw)[d]								
Aluminum	surface	13/13	100	5,280	11,200	DP03	8,400	na
	intermediate	3/3	100	10,100	12,100	DP02	10,900	na
	deep	5/5	100	8,400	11,900	DP02	11,000	na
Barium	surface	53/53	100	36.5	1,170 J	SL-37	200	na
	intermediate	34/34	100	103	385	SL-24	190	na
	deep	33/33	100	122	253	SL-25	190	na
	soil stockpile	3/3	100	118 J	172 J	SP-03	141	na
	soil berm	9/9	100	76.4 J	341 J	SB-06	150	na
Beryllium	surface	13/13	100	0.29	0.601	SS08	0.4	na
	intermediate	3/3	100	0.526	0.7	DP03	0.6	na
	deep	5/5	100	0.616	0.783	DP02	0.676	na
Cadmium	surface	33/53	62	0.2 J	3.76	SS05	0.4	0.2 – 0.3
	intermediate	16/34	47	0.3 J	0.9	SL-43	0.3	0.2 – 0.3
	deep	14/33	42	0.2	0.6 J	SL-06	0.3	0.3
	soil stockpile	2/3	67	0.3	0.4	SP-01	nc	0.2
	soil berm	6/9	67	0.2	0.6	SB-01	0.3	0.2 – 0.3
Cobalt	surface	53/53	100	4.1 J	30	SL-05	10	na
	intermediate	34/34	100	2.7 J	35 J	SL-24	10	na
	deep	33/33	100	6.3	12.4	SL-25/ SL-35	9.5	na
	soil stockpile	3/3	100	7.8 J	13.8	SP-01	11	na
	soil berm	9/9	100	6.6	32	SB-06	14	na
Iron	surface	13/13	100	1,400	46,200	SS08	28,000	na
	intermediate	3/3	100	18,900	23,000	DP02	21,000	na
	deep	5/5	100	12,100	24,500	DP01	20,000	na
Lead	surface	53/53	100	3	337	SS05	50	na
	intermediate	34/34	100	4	199 J	SL-34	20	na
	deep	33/33	100	6 J	20	MW-2i	10	na
	soil stockpile	3/3	100	13	31 J	SP-01	24	na
	soil berm	9/9	100	6 J	65 J	SB-02	30	na
Magnesium	surface	13/13	100	2,880	5,370	SS07	3,800	na
	intermediate	3/3	100	4,370	4,870	DP02	4,660	na
	deep	5/5	100	3,550	5,560	DP02	4,590	na
Manganese	surface	13/13	100	158	977	SS02	470	na
	intermediate	3/3	100	306	405	DP02	340	na
	deep	5/5	100	220	382	DP01	300	na

Table 4-24. Concentrations of Other Chemicals Detected in at least one Facility Soil Sample (cont.)

Chemical	Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
		Ratio	%					
Nickel	surface	53/53	100	4	50 J	SL-21	20	na
	intermediate	34/34	100	5 J	50 J	SL-41	20	na
	deep	33/33	100	12	25	SL-35	20	na
	soil stockpile	3/3	100	13 J	20	SP-01	20	na
	soil berm	9/9	100	11	30	SB-06	20	na
Selenium	surface	4/53	8	0.1	0.7 J	SL-07	0.3	0.1 – 0.7
	intermediate	2/34	6	0.14	0.8	SL-09	nc	0.5 – 0.7
	deep	2/33	6	0.22	0.23	DP03	nc	0.5 – 0.8
	soil stockpile	0/3	0	nd	nd	nd	nc	0.6
	soil berm	0/9	0	nd	nd	nd	nc	0.5 – 0.6
Silver	surface	12/13	92	0.42	3.16	SS05	1	0.4
	intermediate	3/3	100	0.76	0.89	DP02	0.84	na
	deep	5/5	100	0.5	0.95	DP01	0.8	na
Vanadium	surface	53/53	100	29.4 J	165	SL-06	83	na
	intermediate	34/34	100	15.5 J	105 J	SL-42	53	na
	deep	33/33	100	32.2	88.4	SL-25	64	na
	soil stockpile	3/3	100	47.1 J	85.8	SP-01	63.9	na
	soil berm	9/9	100	49.7	116	SB-01	87.3	na
PAHs (µg/kg dw)								
2-Methyl-naphthalene	surface	46/57	81	14	29,000	SL-10	2,000	9.7 – 131
	intermediate	29/33	88	5.4	11,000	SL-15	1,300	4.8 – 172
	deep	7/34	21	4.9	320	MW-2i	25	4.6 – 191
	soil stockpile	3/3	100	140	260	SP-02	200	na
	soil berm	7/9	78	13	54	SB-01	22	5.0
Dibenzo-furan	surface	38/57	67	7.2	18,000	SL-36	540	9.7 – 131
	intermediate	23/33	70	6.4	12,000	SL-15	750	4.5 – 190
	deep	3/34	9	6.4	49 JN	MW-2i	15	4.6 – 191
	soil stockpile	3/3	100	35	54	SP-02	41	na
	soil berm	4/9	44	5.1	150	SB-06	25	5.0 – 14
Phthalates (µg/kg dw)								
BEHP	surface	24/30	80	11 J	5,730	SS05	1,000	56 – 133
	intermediate	1/3	33	184	184	DP01	nc	172 – 175
	deep	0/4	0	nd	nd	nd	nc	176 – 191
Butyl benzyl phthalate	surface	6/30	20	190	1,700	SL-10	300	20 – 1,440
	intermediate	0/3	0	nd	nd	nd	nc	784 – 874
	deep	0/4	0	nd	nd	nd	nc	881 – 954

Table 4-24. Concentrations of Other Chemicals Detected in at least one Facility Soil Sample (cont.)

Chemical	Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
		Ratio	%					
Diethyl phthalate	surface	1/30	3	184 J	184 J	SS02	nc	20 – 440
	intermediate	0/3	0	nd	nd	nd	nc	157 – 175
	deep	0/4	0	nd	nd	nd	nc	176 – 191
Di-n-butyl phthalate	surface	1/30	3	194	194	DP02	nc	20 – 440
	intermediate	0/3	0	nd	nd	nd	nc	157 – 175
	deep	0/4	0	nd	nd	nd	nc	176 – 191
Other SVOCs (µg/kg dw)								
1,2,4-Trichloro-benzene	surface	2/53	4	7.2 J	24 J	SL-37	nc	2.2 – 4,000
	intermediate	0/35	0	nd	nd	nd	nc	2.7 – 1,900
	deep	0/33	0	nd	nd	nd	nc	3 – 18
	soil stockpile	0/3	0	nd	nd	nd	nc	5.5 – 6.7
	soil berm	0/9	0	nd	nd	nd	nc	4.4 – 6.2
1,2-Dichloro-benzene	surface	11/52	21	1.3 JN	980	SL-36	30	1.0 – 440
	intermediate	8/35	23	1.3	290	SL-31	20	1.0 – 380
	deep	3/33	9	2.7	4.3	SL-28	1	1.6 – 3.8
	soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
	soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
1,3-Dichloro-benzene	surface	4/51	8	1.4 J	2.7 J	SS02	16	1.0 – 810
	intermediate	3/35	9	1.3	120 J	SL-25	20	1.0 – 380
	deep	1/33	3	27	27	SL-29	nc	1.6 – 3.8
	soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
	soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
1,4-Dichloro-benzene	surface	13/52	25	2.2	99	SL-08	19	1.0 – 810
	intermediate	7/35	20	1.6	490 J	SL-25	30	1.0 – 380
	deep	2/33	6	3.9	61	SL-29	nc	1.6 – 3.8
	soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
	soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
2,4-Dimethyl-phenol	surface	3/30	10	70	480	SS03	93	20 – 440
	intermediate	1/3	33	69.4 J	69.4 J	DP01	nc	172 – 175
	deep	0/4	0	nd	nd	nd	nc	176 – 191
2-Chloro-phenol	surface	0/30	0	nd	nd	nd	nc	20 – 440
	intermediate	0/3	0	nd	nd	nd	nc	157 – 175
	deep	0/4	0	nd	nd	nd	nc	176 – 191

Table 4-24. Concentrations of Other Chemicals Detected in at least one Facility Soil Sample (cont.)

Chemical	Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
		Ratio	%					
2-Methyl-phenol	surface	2/30	7	163	518	SS03	nc	20 – 440
	intermediate	1/3	33	78 J	78 J	DP01	nc	172 – 175
	deep	0/4	0	nd	nd	nd	nc	176 – 191
4-Methyl-phenol	surface	4/30	13	58	1,240	SS03	140	20 – 440
	intermediate	1/3	33	990	990	DP01	nc	172 – 175
	deep	1/4	25	194	194	DP01	nc	176 – 191
Aceto-phenone	surface	2/13	15	68.2 J	307	SS04	nc	119 – 1,730
	intermediate	0/3	0	nd	nd	nd	nc	168 – 175
	deep	0/4	0	nd	nd	nd	nc	176 – 191
Benzald-ehyde	surface	1/12	8	37.2 J	37.2 J	DP02	nc	119 – 288
	intermediate	0/3	0	nd	nd	nd	nc	157 – 175
	deep	1/4	25	49.3 J	49.3 J	DP02	nc	176 – 191
Benzoic acid	surface	0/17	0	nd	nd	nd	nc	200 – 4,400
Benzyl alcohol	surface	0/17	0	nd	nd	nd	nc	20 – 440
Biphenyl	surface	5/13	38	44.7 J	1,000	SS05	200	119 – 254
	intermediate	1/3	33	74.2 J	74.2 J	DP01	nc	172 – 175
	deep	0/4	0	nd	nd	nd	nc	176 – 191
Carbazole	surface	6/30	20	40	940	SL-10	110	20 – 440
	intermediate	0/3	0	nd	nd	nd	nc	157 – 175
	deep	0/4	0	nd	nd	nd	nc	176 – 191
Hexachloro-benzene	surface	1/56	2	230	230	SL-33	nc	0.97 – 4,800
	intermediate	1/34	3	3.2	3.2	SL-39	nc	0.97 – 500
	deep	0/34	0	nd	nd	nd	nc	0.96 – 1,200
	soil stockpile	1/3	33	18	18	SP-01	nc	2.9 – 12
	soil berm	1/9	11	42	42	SB-03	nc	2.4 – 120
Pentachloro-phenol	surface	0/30	0	nd	nd	nd	nc	98 – 2,200
	intermediate	0/3	0	nd	nd	nd	nc	784 – 874
	deep	0/4	0	nd	nd	nd	nc	881 – 954
Phenol	surface	2/30	7	156	825	SS03	nc	20 – 440
	intermediate	1/3	33	91.5 J	91.5 J	DP01	nc	172 – 175
	deep	0/4	0	nd	nd	nd	nc	176 – 191
Pesticides (µg/kg dw)[e]								
Endrin	surface	1/56	2	2.6	2.6	SS03	nc	0.6 – 9,600
	intermediate	0/34	0	nd	nd	nd	nc	0.78 – 990
	deep	0/35	0	nd	nd	nd	nc	0.86 – 2,400
	soil stockpile	0/3	0	nd	nd	nd	nc	5.9 – 24

Table 4-24. Concentrations of Other Chemicals Detected in at least one Facility Soil Sample (cont.)

Chemical	Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
		Ratio	%					
	soil berm	0/9	0	nd	nd	nd	nc	4.9 – 240
VOCs (µg/kg dw)[f]								
2-Chloro-toluene	surface	0/38	0	nd	nd	nd	nc	1.0 – 1,100
	intermediate	0/32	0	nd	nd	nd	nc	1.0 – 380
	deep	1/28	4	2.4	2.4	SL-29	1.0	1.6 – 3.5
	soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
	soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
Acetone	surface	35/53	66	11	800	SL-10	200	5.6 – 5,600
	intermediate	25/35	71	19	720	SL-09	100	39 – 1,900
	deep	28/33	85	28	240	SL-37	70	60 – 75
	soil stockpile	3/3	100	86	220	SP-03	140	na
	soil berm	9/9	100	12	220	SB-05	120	na
Carbon disulfide	surface	21/53	40	1.4	460	SL-10	30	1.0 – 1,100
	intermediate	14/35	40	1.3	11 J	SL-06	16	1.1 – 380
	deep	4/33	12	2.0 J	4.3 J	SL-06	2.2	1.6 – 15.1
	soil stockpile	1/3	33	5.1	5.1	SP-02	nc	1.1 – 1.6
	soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.6
Chloro-benzene	surface	7/53	13	1.2 JN	320	SL-10	36	1.0 – 1,100
	intermediate	16/35	46	1.5	2,900 J	SL-25	100	1.0 – 120
	deep	3/33	9	9.3	66	SL-29	4	1.6 – 3.8
	soil stockpile	1/3	33	3.6	3.6	SP-03	nc	1.1 – 1.3
	soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
Cyclohexane	surface	3/13	23	1.3 J	31.6 J	DP01	4.9	2.2 – 3.5
	intermediate	0/3	0	nd	nd	nd	nc	2.7 – 3
	deep	0/5	0	nd	nd	nd	nc	3 – 3.8
p-Cymene	surface	17/40	42	1.3	11,000 J	SL-10	430	1.0 – 83
	intermediate	10/32	31	1.4 J	620	SL-10	70	1.0 – 98
	deep	2/28	7	3.0	11	SL-28	nc	1.6 – 3.5
	soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
	soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
Dichloro-methane	surface	14/53	26	2.0	370	SL-10	59	1.9 – 2,200
	intermediate	8/35	23	2.6	29	SL-29	46	2.1 – 770
	deep	10/33	30	4.5	17	SL-37	35	3.1 – 673
	soil stockpile	0/3	0	nd	nd	nd	nc	2.2 – 2.7
	soil berm	3/9	33	2.1	2.9	SB-07	1.6	1.9 – 2.5

Table 4-24. Concentrations of Other Chemicals Detected in at least one Facility Soil Sample (cont.)

Chemical	Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
		Ratio	%					
Methyl ethyl ketone	surface	24/53	45	8.4	110 J	MW-2s	100	5.0 – 5,600
	intermediate	10/35	29	7.0	100	SL-23	83	4.8 – 1,900
	deep	24/33	73	8.7	117	DP02	21	8.7 – 12
	soil stockpile	3/3	100	13	22	SP-03	18	na
	soil berm	7/9	78	7.6	26	SB-01	12	4.9 – 5.9
Methyl isobutyl ketone	surface	2/53	4	5.2 J	18	SL-28	nc	4.8 – 5,600
	intermediate	2/35	6	30	100	MW-4s	nc	4.8 – 1,900
	deep	0/33	0	nd	nd	nd	nc	7.8 – 18
	soil stockpile	0/3	0	nd	nd	nd	nc	5.5 – 6.7
	soil berm	0/9	0	nd	nd	nd	nc	4.4 – 6.2
Methylcyclo-hexane	shallow	5/13	38	3.7	185 J	DP01	20	2.2 – 3.5
	intermediate	1/3	33	3.8	3.8	DP01	nc	2.7 – 3
	deep	0/5	0	nd	nd	nd	nc	3 – 3.8
n-Butyl-benzene	surface	19/40	48	1.4 J	12,000	SL-10	480	1.0 – 83
	intermediate	14/32	44	1.3	2,600	SL-10	260	1.1 – 2.5
	deep	1/28	4	1.9	1.9	MW-2i	nc	1.6 – 3.5
	soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
	soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
sec-Butyl-benzene	surface	11/38	29	1.2	2,000	SL-10	120	1.0 – 1,100
	intermediate	11/32	34	1.3	740	SL-10	75	1.1 – 120
	deep	0/28	0	nd	nd	nd	nc	1.6 – 3.5
	soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
	soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
Styrene	surface	1/53	2	1.9	1.9	SL-12	nc	1.0 – 1,100
	intermediate	0/35	0	nd	nd	nd	nc	1.0 – 380
	deep	0/33	0	nd	nd	nd	nc	1.6 – 3.8
	soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
	soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2
tert-Butyl-benzene	surface	0/38	0	nd	nd	nd	nc	1.0 – 1,100
	intermediate	1/32	3	2.0	2.0	SL-23	nc	1.0 – 380
	deep	0/28	0	nd	nd	nd	nc	1.6 – 3.5
	soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
	soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2

Table 4-24. Concentrations of Other Chemicals Detected in at least one Facility Soil Sample (cont.)

Chemical	Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
		Ratio	%					
trans-1,2-Dichloro-ethene	surface	1/40	2	5,500	5,500	SL-10	nc	1.0 – 1,100
	intermediate	0/32	0	nd	nd	nd	nc	1.0 – 380
	deep	0/28	0	nd	nd	nd	nc	1.6 – 3.5
	soil stockpile	0/3	0	nd	nd	nd	nc	1.1 – 1.3
	soil berm	0/9	0	nd	nd	nd	nc	0.9 – 1.2

[a] Surface soil samples were collected immediately below the gravel layer from depths of 0 to 5 ft bgs (0.5- to 1.5-ft sampling intervals for a given sample). Intermediate soil samples were collected from depths of 2 to 8.5 ft bgs (1- to 4-ft sampling intervals for a given sample). Deep soil samples were collected from depths of 6 to 22 ft bgs (1- to 4-ft sampling intervals for a given sample). All soil berm samples were collected from 0.5 to 2 ft bgs, and all soil stockpile samples were collected from 0.5 to 6 ft bgs.

[b] The mean concentration is equal to the average of all detected values and one-half of the RL for non-detected values. Means were not calculated if the detection frequency if fewer than 10% or if fewer than three samples had detected concentrations.

[c] RLs are for only non-detected samples.

[d] Concentrations of antimony and thallium are not presented because these chemicals were not detected in any Facility soil samples.

[e] Concentrations of delta-BHC and methoxychlor are not presented because these chemicals were not detected in any Facility soil samples.

[f] Concentrations of 1,2-dichloropropane are not presented because this chemical was not detected in any Facility soil samples.

BEHP – bis(2-ethylhexyl) phthalate
bgs – below ground surface
BHC – benzene hexachloride
dw – dry weight
J – estimated concentration
N – tentative identification
na – not applicable
nc – not calculated
nd – not detected
PAH – polycyclic aromatic hydrocarbon
RL – reporting limit
SVOC – semivolatile organic compound
VOC – volatile organic compound

Metals

All 15 metals had high detection frequencies in Facility soil samples, except for antimony and thallium, which were not detected in any Facility soil sample, and selenium, which was infrequently detected. Cadmium was detected in approximately half of the samples analyzed. Mean concentrations of metals were similar across all soil depth intervals. Of these metals, only lead was detected at concentrations greater than the conservative industrial human health RSL. Nearly all of the samples had lead concentrations that were greater than the RSL, with the highest concentrations (greater than 150 mg/kg dw) in samples collected from near the former C-shaped area (SL-15 and SS05) and near the southwest Facility boundary (SL-34). In addition, concentrations of some metals were greater than conservative residential human health screening levels: aluminum (16 samples), iron (20 samples), lead (131 samples), manganese (12 samples), and vanadium (113 samples). The comparison with conservative screening levels on a point-by-point basis should not be interpreted as a risk estimate; risks were fully assessed in the ERA and HHRA as presented in Appendices I and J and summarized in Section 6.0.

PAHs, Phthalates, and Other SVOCs

SVOCs were infrequently detected in Facility soil samples, with the exception of the two PAHs and BEHP. Dibenzofuran and 2-methylnaphthalene were detected in more than 65% of soil stockpile and surface and intermediate Facility soil samples and in a lower percentage of deep interval and soil berm samples. BEHP was the most commonly detected phthalate (detected in 80% of surface soil samples). No phthalates were detected in intermediate or deep soil samples, except for BEHP, which was detected in one sample. PAH and phthalate concentrations usually decreased with depth.

The other 17 SVOCs were detected in less than 33% of Facility surface or intermediate soil samples and in less than 25% of deep soil samples. Hexachlorobenzene was the only SVOC detected in stockpile and soil berm samples (in only one sample of each type).

None of these chemicals were detected at concentrations greater than the conservative industrial or residential human health RSLs. The highest concentrations of PAHs, phthalates, and other SVOCs were generally from samples collected in the central portion of the Facility (e.g., SL-10 and SL-15), near the tank farm (e.g., SL-27), and near the former C-shaped area (e.g., SS05).

Pesticides

With the exception of endrin, no pesticides were detected in any Facility surface soil samples. Endrin was detected in one sample (SS03) located in the central portion of the Facility at a concentration less than the conservative industrial and residential RSLs.

VOCs

All 16 VOCs were detected in at least one Facility soil sample, except for 1,2-dichloropropane. Similar to the PAH and TPH concentration patterns discussed in Section 4.3.3.1, the highest concentrations of individual VOCs were usually located in the central portion of the Facility, extending to the southwest boundary of the Facility. Concentrations of all VOCs were less than the conservative industrial and residential human health RSLs, with two exceptions: one sample had a detected concentration of chlorobenzene greater than the industrial and residential RSL (at SL-25, located to the southwest of the tank farm), and one sample had a detected concentration of trans-1,2-dichloroethene greater than the industrial and residential RSL (at SL-10, located in the central portion of the Facility).

4.8.2.2 Groundwater

Table 4-25 summarizes the concentrations of the other chemicals detected in groundwater. Concentrations of these chemicals in groundwater were low from a risk perspective. Seven SVOCs and nine VOCs were not detected in any groundwater samples and thus data for these chemicals are not presented in Table 4-25.

Metals

All metals were detected in at least one groundwater sample. Aluminum, barium, iron, magnesium, and manganese were frequently detected in groundwater samples at all three depth intervals (shallow, intermediate, and deep). The highest concentrations of these five metals were detected in shallow or intermediate groundwater samples. Eight metals (antimony, beryllium, cadmium, cobalt, nickel, selenium, silver, and thallium) were detected in shallow groundwater but not in intermediate or deep groundwater samples. Lead and vanadium were detected in shallow and deep groundwater samples but not in intermediate samples. The highest concentrations for each metal were often detected in shallow wells A-18, A-19, A-20, and MW-1s (Figure 2-2).

With regard to iron, and as summarized on Table 4-25, concentrations of this naturally occurring metal have been identified in shallow groundwater beneath the Facility at concentrations typically ranging from 20,000 µg/L to 65,700 µg/L, several times higher than concentrations detected in deeper groundwater zones. The extent to which iron dissolves in groundwater is primarily a function of the amount of oxygen in the water, as well as the general iron content of the materials that comprise the matrix of the water-bearing zone. When levels of DO are low (e.g., less than 1 mg/L), iron has a tendency to occur as Fe^{2+}, which dissolves in water much more readily than the form of iron that is typically present in zones of higher oxygen content (Fe^{3+}).

Table 4-25. Concentrations of Other Chemicals Detected in at Least One Groundwater Sample

Chemical[a]	Sample Type[b]	Frac-tion	Detection Frequency		Min Detect Conc. (µg/L)	Max Detect Conc. (µg/L)	Location of Max Detect	Mean Conc. (µg/L)[c]	RL or Range of RLs[d]
			Ratio	%					
Metals									
Aluminum	shallow	T	6/6	100	193	5,890	A-20	1,330	na
	deep	T	1/1	100	20	20	PW-01	nc	na
Antimony	shallow	D	5/22	23	0.2	0.6	MW-1s	0.1	0.2
		T	2/28	7	0.2	0.5	MW-1s	nc	0.2 – 1.6
	intermediate	D	0/3	0	nd	nd	nd	nc	0.2
		T	0/3	0	nd	nd	nd	nc	0.2
	deep	D	0/2	0	nd	nd	nd	nc	0.2
		T	0/3	0	nd	nd	nd	nc	0.2 – 1.6
Barium	shallow	D	22/22	100	65	389	A-19	190	na
		T	28/28	100	65	497	A-19	230	na
	intermediate	D	3/3	100	121	139	MW-5i	129	na
		T	3/3	100	123	136	MW-5i	128	na
	deep	D	2/2	100	9	202	B-4	nc	na
		T	3/3	100	9	204	B-4	70	na
Beryllium	shallow	T	1/6	17	1.5	1.5	A-20	nc	1
	deep	T	0/1	0	nd	nd	nd	nc	1
Cadmium	shallow	D	0/22	0	nd	nd	na	nc	0.2
		T	4/28	14	0.3	1.31	A-18	0.2	0.2
	Intermediate	D	0/3	0	nd	nd	na	nc	0.2
		T	0/3	0	nd	nd	na	nc	0.2
	deep	D	0/2	0	nd	nd	na	nc	0.2
		T	0/3	0	nd	nd	na	nc	0.2
Cobalt	shallow	D	9/22	41	3	25	MW-1s	5	3
		T	9/28	32	3	23	MW-1s	4	3 – 5
	intermediate	D	0/3	0	nd	nd	nd	nc	3
		T	0/3	0	nd	nd	nd	nc	3
	deep	D	0/2	0	nd	nd	nd	nc	3
		T	0/3	0	nd	nd	nd	nc	3 – 5
Iron	shallow	D	22/22	100	1,720	64,400	MW-2s	29,000	na
		T	28/28	100	3,130	65,700	MW-2s	31,000	na
	intermediate	D	3/3	100	7,920	11,600	MW-5i	9,430	na
		T	3/3	100	7,690	11,400	MW-5i	9,290	na
	deep	D	1/2	50	13,700	13,700	B-4	nc	50
		T	3/3	100	34.7	14,000	B-4	5,000	na

Table 4-25. Concentrations of Other Chemicals Detected in at least one Groundwater Sample (cont.)

Chemical[a]	Sample Type[b]	Frac-tion	Detection Frequency		Min Detect Conc. (µg/L)	Max Detect Conc. (µg/L)	Location of Max Detect	Mean Conc. (µg/L)[c]	RL or Range of RLs[d]
			Ratio	%					
Lead	shallow	D	0/22	0	nd	nd	nd	nc	1
		T	8/28	29	0.36	19.6	A-18	2	1
	intermediate	D	0/3	0	nd	nd	nd	nc	1
		T	0/3	0	nd	nd	nd	nc	1
	deep	D	1/2	50	3	3	PW-01	nc	1
		T	2/3	67	0.21	8	PW-01	nc	1
Magnesium	shallow	T	6/6	100	24,900	95,800	A-19	45,700	na
	deep	T	1/1	100	12,900	12,900	PW-01	nc	na
Manganese	shallow	D	22/22	100	724	6,510	A-19	3,100	na
		T	28/28	100	667	7,860	A-19	3,400	na
	intermediate	D	3/3	100	563	867	MW-5i	696	na
		T	3/3	100	570	849	MW-5i	690	na
	deep	D	2/2	100	122	1,590	B-4	nc	na
		T	3/3	100	3.6	1,600	B-4	580	na
Nickel	shallow	D	5/22	23	10 J	20	MW-1s/ MW-2s	7	10
		T	8/28	29	10	25	A-18	8	10
	intermediate	D	0/3	0	nd	nd	nd	nc	10
		T	0/3	0	nd	nd	nd	nc	10
	deep	D	0/2	0	nd	nd	nd	nc	10
		T	0/3	0	nd	nd	nd	nc	10
Selenium	shallow	D	8/22	36	0.5	1.2	MW-4s	0.7	0.5 – 2
		T	10/28	36	0.5	4.7	A-19	1	0.5 – 2
	intermediate	D	0/3	0	nd	nd	nd	nc	0.5
		T	0/3	0	nd	nd	nd	nc	0.5
	deep	D	0/2	0	nd	nd	nd	nc	0.5
		T	0/3	0	nd	nd	nd	nc	0.5 – 2
Silver	shallow	T	1/6	17	1	1	GA-33	nc	1
	deep	T	0/1	0	nd	nd	nd	nc	1
Thallium	shallow	T	6/6	100	0.00894	0.0527	A-18	0.0242	na
	deep	T	0/1	0	nd	nd	nd	nc	1
Vanadium	shallow	D	5/22	23	3	9	MW-1s	3	3
		T	14/28	50	3	54.4	A-20	7	3
	intermediate	D	0/3	0	nd	nd	nd	nc	3
		T	0/3	0	nd	nd	nd	nc	3
	deep	D	0/2	0	nd	nd	nd	nc	3
		T	1/3	33	11.9	11.9	PW-01	nc	3

Table 4-25. Concentrations of Other Chemicals Detected in at least one Groundwater Sample (cont.)

Chemical[a]	Sample Type[b]	Frac-tion	Detection Frequency		Min Detect Conc. (µg/L)	Max Detect Conc. (µg/L)	Location of Max Detect	Mean Conc. (µg/L)[c]	RL or Range of RLs[d]
			Ratio	%					
PAHs									
2-Methyl-naphthalene	shallow	na	7/28	25	0.1 J	1.8	A-18	nc	0.10 – 0.38
	intermediate	na	0/3	0	nd	nd	nd	nc	0.10 – 0.11
	deep	na	0/3	0	nd	nd	nd	nc	0.10 – 0.38
Dibenzo-furan	shallow	na	2/28	7	0.16	0.18	A-18	nc	0.10 – 0.4
	intermediate	na	0/3	0	nd	nd	nd	nc	0.10 – 0.11
	deep	na	0/3	0	nd	nd	nd	nc	0.10 – 0.38
Phthalates									
BEHP	shallow	na	5/6	83	0.59	1.8	A-18	1.0	0.38
	deep	na	0/1	0	nd	nd	nd	nc	0.38
Butyl benzyl phthalate	shallow	na	0/6	0	nd	nd	nd	nc	1.8 – 2
	deep	na	0/1	0	nd	nd	nd	nc	1.9
Diethyl phthalate	shallow	na	1/6	17	0.25 J	0.25 J	A-20	nc	0.37 – 0.4
	deep	na	0/1	0	nd	nd	nd	nc	0.38
Di-n-butyl phthalate	shallow	na	2/6	33	0.1 J	0.15 J	A-20	nc	0.37 – 0.4
	deep	na	0/1	0	nd	nd	nd	nc	0.38
Other SVOCs[e]									
1,2-Dichloro-benzene	shallow	na	2/28	7	0.22 J	0.50	A-18	nc	0.20 – 1.0
	intermediate	na	0/3	0	nd	nd	nd	nc	1.0
	deep	na	0/3	0	nd	nd	nd	nc	1.0
1,3-Dichloro-benzene	shallow	na	2/28	7	0.2 J	0.35 J	GA-34	nc	0.20 – 1.0
	intermediate	na	0/3	0	nd	nd	nd	nc	1.0
	deep	na	0/3	0	nd	nd	nd	nc	1.0
1,4-Dichloro-benzene	shallow	na	4/28	14	0.18 J	1.4	A-20	0.5	0.20 – 1.0
	intermediate	na	0/3	0	nd	nd	nd	nc	1.0
	deep	na	0/3	0	nd	nd	nd	nc	1.0
2-Chloro-phenol	shallow	na	1/6	17	0.97	0.97	GA-34	nc	0.37 – 0.38
	deep	na	0/1	0	nd	nd	nd	nc	0.38
Aceto-phenone	shallow	na	1/6	17	0.16 J	0.16 J	GA-34	nc	0.37 – 0.38
	deep	na	0/1	0	nd	nd	nd	nc	0.38
Benzald-ehyde	shallow	na	2/6	33	0.12 J	0.13 J	A-19	nc	0.37 – 0.4
	deep	na	0/1	0	nd	nd	nd	nc	0.38

Table 4-25. Concentrations of Other Chemicals Detected in at least one Groundwater Sample (cont.)

Chemical[a]	Sample Type[b]	Frac-tion	Detection Frequency		Min Detect Conc. (µg/L)	Max Detect Conc. (µg/L)	Location of Max Detect	Mean Conc. (µg/L)[c]	RL or Range of RLs[d]
			Ratio	%					
Hexachloro-benzene	shallow	D	0/4	0	nd	nd	nd	nc	0.0050
		T	0/28	0	nd	nd	nd	nc	0.0050 – 0.4
	intermediate	D	0/1	0	nd	nd	nd	nc	0.0050
		T	0/4	0	nd	nd	nd	nc	0.0050
	deep	D	1/1	100	0.0095	0.0095	B-4	nc	na
		T	0/4	0	nd	nd	nd	nc	0.0050 – 0.38
Phenol	shallow	na	5/6	83	0.095 J	0.37 J	GA-34	0.19	0.38
	deep	na	0/1	0	nd	nd	nd	nc	0.38
VOCs[f]									
1,2-Dichloro-propane	shallow	na	0/28	0	nd	nd	nd	nc	0.20 – 1.0
	intermediate	na	0/3	0	nd	nd	nd	nc	1.0
	deep	na	1/3	33	0.18 J	0.18 J	PW-01	nc	1.0
Acetone	shallow	na	11/28	39	4.4	18	MW-2s	6	2 – 15.6
	intermediate	na	1/3	33	9.4	9.4	MW-4i	nc	5.0
	deep	na	1/3	33	10	10	B-4	nc	2 – 5.0
Chloro-benzene	shallow	na	15/28	54	0.20	130	GA-34	10	0.20 – 1.0
	intermediate	na	0/3	0	nd	nd	nd	nc	1.0
	deep	na	0/3	0	nd	nd	nd	nc	1.0
p-Cymene	shallow	na	1/22	5	0.30	0.30	A-18	nc	0.20 – 1.0
	intermediate	na	0/3	0	nd	nd	nd	nc	1.0
	deep	na	0/2	0	nd	nd	nd	nc	1.0
n-Butyl-benzene	shallow	na	1/22	5	0.50	0.50	A-18	nc	0.20 – 1.0
	intermediate	na	0/3	0	nd	nd	nd	nc	1.0
	deep	na	0/2	0	nd	nd	nd	nc	1.0
sec-Butyl-benzene	shallow	na	1/22	5	0.40	0.40	A-18	nc	0.20 – 1.0
	intermediate	na	0/3	0	nd	nd	nd	nc	1.0
	deep	na	0/2	0	nd	nd	nd	nc	1.0
Styrene	shallow	na	1/28	4	0.24 J	0.24 J	GA-34	nc	0.20 – 1.0
	intermediate	na	0/3	0	nd	nd	nd	nc	1.0
	deep	na	0/3	0	nd	nd	nd	nc	1.0

[a] Concentrations of pesticides (i.e., delta-BHC, endrin, and methoxychlor) were not presented in this table because these chemicals were not detected in any groundwater sample.

[b] The depths of shallow groundwater wells ranged from 10 to 20 ft bgs, the depths of intermediate wells ranged from 48 to 50 ft bgs, and the depths of the deep well was 97 ft bgs.

[c] Mean concentrations were not calculated because fewer than three samples for a given solvent and depth interval had detected concentrations.

[d] RLs are for only non-detected samples.

Table 4-25. Concentrations of Other Chemicals Detected in at least one Groundwater Sample (cont.)

[e] Concentrations of 1,2,4-trichlorobenzene, 2,4-dimethylphenol, 2-methylphenol, 4-methylphenol, biphenyl, carbazole, and pentachlorophenol are not presented because these chemicals were not detected in any groundwater samples.

[f] Concentrations of 2-chlorotoluene, carbon disulfide, cyclohexane, dichloromethane, methyl ethyl ketone, methyl isobutyl ketone, methylcyclohexane, tert-butylbenzene, and trans-1,2-dichloroethene are not presented because these chemicals were not detected in any groundwater sample.

BEHP – bis(2-ethylhexyl) phthalate
bgs – below ground surface
BHC – benzene hexachloride
D – dissolved concentrations (i.e., filtered)
J – estimated concentration
na – not applicable
nc – not calculated
nd – not detected
PAH – polycyclic aromatic hydrocarbon
RL – reporting limit
SVOC – semivolatile organic compound
T – total water concentrations (i.e., unfiltered)
VOC – volatile organic compound

DO levels in the shallow, intermediate, and deep groundwater zones, as recorded on groundwater sampling records, were typically detected at concentrations less than 0.5 mg/L. Low DO levels are not unusual in groundwater because of the lack of atmospheric mixing. DO levels can drop even lower as a result of oxygen consumption related to the degradation of organic matter, which could occur in the presence of woody debris, petroleum, coal, sawdust, plant matter, etc., which has been documented in the shallow groundwater zone. The detected DO levels in groundwater at the Facility are typical for the region and do not suggest a unique condition at the Facility.

As reported in Table 4-24, total iron concentrations of soil samples collected from within the uppermost groundwater zone were found to have concentrations that ranged from 200,000 µg/kg to 280,000 µg/kg, which given the low DO levels, would appear to support and explain the dissolved iron levels (20,000 µg/L to 65,700 µg/L) detected in this zone.

In addition, it should be noted that lead was detected at a concentration greater than the MCL 15 µg/L in one sample (19.6 µg/L in the sample collected from location A-18 in 2000). Lead was not detected in samples collected from this well in 2008 or 2009. No other chemicals discussed in this section were detected at concentrations greater than the MCL or non-zero MCLG.

PAHs, Phthalates, and Other SVOCs

In general, SVOCs were infrequently detected in shallow groundwater, and none of the PAHs, phthalates, or 17 other SVOCs were detected in intermediate or deep groundwater, except for hexachlorobenzene, which was detected in one deep groundwater sample from well B-4 (located near the southwest Facility boundary). BEHP and phenol were the most frequently detected SVOCs in groundwater; both were detected at five out of six shallow sampling locations. The highest concentrations were detected in shallow wells A-18 near the base oil refining plant, A-20 in the south corner of the Facility, and GA-34 in the east corner of the Facility. Because shallow wells A-20 and GA-34 are upgradient monitoring wells located in the south and east corners of the Facility, respectively, detections at these locations may indicate migration onto the Facility from upgradient sources.

No chemicals discussed in this section were detected at concentrations greater than the MCL or non-zero MCLG.

Pesticides

Delta-BHC, endrin, and methoxychlor were not detected in any groundwater sample.

VOCs

Seven of sixteen VOCs were detected in at least one groundwater sample, and most of the detected concentrations occurred in shallow groundwater samples. Acetone was detected at all groundwater sample depths. However, acetone is a common laboratory contaminant. Chlorobenzene was detected in approximately half of all shallow

groundwater samples but not in any intermediate or deep samples. 1,2-Dichloropropane, p-cymene, n-butylbenzene, sec-butylbenzene, and styrene were each detected in one groundwater sample. 1,2-Dichloro-propane was detected only in plant well PW-01, located in the east corner of the Facility. p-Cymene, n-butyl-benzene, and sec-butyl-benzene were detected only in shallow well A-18, located in the north corner of the Facility near the new base oil refining plant. Concentrations were greater than conservative human health RSLs for two VOCs: the 1,2-dichloropropane concentration was greater than the RSL (0.16 µg/L) at PW-01 (0.18 µg/L), and the chlorobenzene concentration was greater than the RSL (9.1 µg/L) in samples from GA-34 and A-20 (Figure 2-2). As previously noted, these shallow wells are upgradient monitoring wells, which may indicate migration onto the Facility from upgradient sources.

In addition, it should be noted that chlorobenzene was detected at a concentration just greater than the MCL of 100 µg/L in one sample (130 µg/L in the sample collected from location GA-34 in 2009). No other detected concentrations of chlorobenzene were greater than the MCL. No other chemicals discussed in this section were detected at concentrations greater than the MCL or non-zero MCLG.

4.8.2.3 LNAPL

One LNAPL sample (layer thickness unknown) was collected in 2000 from shallow well GA-30 (in the uppermost groundwater zone) in the northwest portion of the Facility near the soil stockpile by EPA, and again in 2008 as part of the Phase I RI activities, when a thin layer (approximately 0.1 ft) of LNAPL was observed at that location. This was the only well in which LNAPL was observed.

In the 2000 sample, select pesticides and PCBs were analyzed. PCB results are described in Section 4.4 and pesticide testing results are shown in Table 4-26. Of the chemicals discussed in this subsection, only four of the metals (barium, cobalt, lead, and vanadium) and two of the VOCs (n-butylbenzene and sec-butylbenzene) were detected in the LNAPL sample collected in 2008 (Table 4-25). Pesticides were analyzed but not detected in the 2008 sample, as indicated in the table.

Follow-up monitoring, including a year of monthly measurements, revealed only a thin layer of LNAPL (0.02 to 0.01 ft) in GA-30, although no LNAPL was observed in downgradient wells GA-29 and MW-1s (see Figure 2-2 for well locations). Thus, the lateral extent of LNAPL appears to be limited to the immediate area surrounding well GA-30.

Table 4-26. Concentrations of Other Chemicals Detected in LNAPL

Chemical	LNAPL Concentration	
	2000 Sample	2008 Sample
Metals (µg/L)		
Barium	na	130
Cobalt	na	40
Lead	na	40
Vanadium	na	20
Pesticides (µg/kg ww)		
alpha-BHC	110 J	620 U
alpha-chlordane	61 J	620 U
beta-BHC	130 J	620 U
Dieldrin	150	1,200 U
Endosulfan sulfate	210	1,200 U
Endrin aldehyde	160	1,200 U
Gamma-chlordane	87 J	620 U
Heptachlor epoxide	61 J	620 U
VOCs (µg/kg ww)		
n-Butylbenzene	na	4,400
sec-Butylbenzene	na	2,700

BHC – benzene hexachloride
J – estimated concentration
LNAPL – light non-aqueous phase liquid
na – not analyzed
U – non-detect (reporting limit shown)
VOC – volatile organic compound
ww – wet weight

4.8.2.4 Wetland and Ditch Soil

Table 4-27 presents concentrations of other chemicals detected in wetland and ditch surface and subsurface soil. Concentrations of these chemicals in wetland and ditch soil were low from a risk perspective (Appendices I and J). Thallium, diethyl phthalate, 7 other SVOCs, and 10 VOCs were not detected in wetland and ditch soil samples, and thus data for these chemicals are not presented in Table 4-27.

Table 4-27. Concentrations of Other Chemicals Detected in at Least One Wetland and Ditch Soil Sample

Chemicals	Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
		Ratio	%					
Metals (mg/kg dw)[d]								
Aluminum	surface	5/5	100	5,990	12,100	WL01	9,500	na
Antimony	surface	7/52	13	0.7 J	8.4 J	WL01	0.6	0.3 – 4.5
	intermediate	0/10	0	nd	nd	nd	nc	0.3 – 0.8
	deep	0/10	0	nd	nd	nd	nc	0.3
Barium	surface	52/52	100	64.5	481	DS-01	190	na
	intermediate	10/10	100	111	299	WS-20	210	na
	deep	10/10	100	145	395	WS-25	210	na
Beryllium	surface	5/5	100	0.36	0.544	WL04	0.5	na
Cadmium	surface	48/52	92	0.3	4	DS-04	1	0.3 – 0.4
	intermediate	9/10	90	0.3	1.7	WS-20	0.8	0.3
	deep	4/10	40	0.4	0.6	DS-03	0.3	0.3
Cobalt	surface	52/52	100	3.5	34.3	WS-11	10	na
	intermediate	10/10	100	3.7	15.4	WS-11	10	na
	deep	10/10	100	3.6	15.1	DS-02	9.5	na
Iron	surface	5/5	100	17,400	56,500	WL02	29,500	na
Lead	surface	52/52	100	11.9 J	320	WS-11	70	na
	intermediate	10/10	100	13	151	WS-20	60	na
	deep	10/10	100	9	24	DS-03	10	na
Magnesium	surface	5/5	100	2,800	4,700	WL04	3,800	na
Manganese	surface	5/5	100	417	1,090	WL01	724	na
Nickel	surface	52/52	100	10	48	DS-01	20	na
	intermediate	10/10	100	10	34	WS-20	20	na
	deep	10/10	100	8	24	DS-02/ WS-11	20	na
Selenium	surface	2/52	4	0.55	1.1	WL01	nc	0.1 – 3
	intermediate	1/10	10	0.7	0.7	WS-21	nc	0.6 – 2
	deep	2/10	20	0.9	1.3	WS-25	nc	0.7 – 0.8
Silver	surface	5/5	100	0.55	1.5	WL02	0.90	na
Vanadium	surface	52/52	100	16.1	148	DS-01	70	na
	intermediate	10/10	100	24.9	91	WS-20	61	na
	deep	10/10	100	24.4	98 J	WS-06	62	na
PAHs (µg/kg dw)								
2-Methyl-naphthalene	surface	48/52	92	5.0	2,880	WL01	220	72 – 277
	intermediate	9/10	90	6.1	1,400	WS-21	210	5.0
	deep	4/10	40	6.3	510	WS-21	72	4.7 – 5.0
Dibenzofuran	surface	31/52	60	4.8	781 J	WL01	70	4.8 – 782

Table 4-27. Concentrations of Other Chemicals Detected in at least one Wetland and Ditch Soil Sample (cont.)

Chemicals	Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
		Ratio	%					
	intermediate	5/10	50	9.0	350	WS-21	56	4.7 – 24
	deep	3/10	30	9.2	120	WS-21	18	4.7 – 5.0
Phthalates (µg/kg dw)[e]								
BEHP	surface	13/15	87	22	9,100	WS-19	1,000	195 – 277
	intermediate	4/4	100	14 J	180	WS-19	88	na
	deep	1/4	25	22	22	WS-19	nc	20
Butyl benzyl phthalate	surface	1/15	7	3,140 J	3,140 J	WL01	nc	20 – 3,910
	intermediate	1/4	25	86	86	DS-02	nc	20
	deep	0/4	0	nd	nd	nd	nc	20
Di-n-butyl phthalate	surface	3/15	20	59	2,400	WS-19	270	20 – 883
	intermediate	2/4	50	22	56	DS-03	nc	20
	deep	1/4	25	31	31	WS-19	nc	20
Other SVOCs (µg/kg dw)[f]								
1,4-Dichloro-benzene	surface	2/43	5	2.3 J	19 J	WS-16	nc	1.5 – 15
	intermediate	0/6	0	nd	nd	nd	nc	1.6 – 2.7
	deep	0/6	0	nd	nd	nd	nc	1.5 – 1.9
4-Methyl-phenol	surface	4/15	27	25	190	DS-04/ DS-05	170	20 – 1,000
	intermediate	2/4	50	17 J	49	DS-05	nc	20
	deep	1/4	25	31	31	DS-05	15	20
Acetophenone	surface	1/5	20	630 J	630 J	WL01	nc	195 – 782
Benzaldehyde	surface	5/5	100	59.6 J	1,080 J	WL01	470	na
Benzoic acid	surface	8/10	80	250	28,000	WS-19	3,200	590 – 880
	intermediate	4/4	100	120 J	1,400	WS-19	480	na
	deep	2/4	50	120 J	280	WS-19	nc	200
Benzyl alcohol	surface	5/10	50	15 J	2,100	WS-19	250	20 – 99
	intermediate	2/4	50	39	180	WS-19	nc	20
	deep	0/4	0	nd	nd	nd	nc	20
Biphenyl	surface	1/5	20	836 J	836 J	WL01	nc	195 – 782
Carbazole	surface	4/15	27	12 J	66 J	WS-29	150	20 – 1,000
	intermediate	1/4	25	13 J	13 J	DS-02	nc	20
	deep	0/4	0	nd	nd	nd	nc	20
Pentachloro-phenol	surface	1/15	7	80 J	80 J	WS-22	nc	98 – 5,200
	intermediate	0/4	0	nd	nd	nd	nc	98 – 100
	deep	0/4	0	nd	nd	nd	nc	98 – 100
Phenol	surface	5/15	33	53	498 J	WL01	150	20 – 1,000
	intermediate	0/4	0	nd	nd	nd	nc	20 – 25

Table 4-27. Concentrations of Other Chemicals Detected in at least one Wetland and Ditch Soil Sample (cont.)

Chemicals	Sample Type[a]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[b]	RL or Range of RLs[c]
		Ratio	%					
	deep	0/4	0	nd	nd	nd	nc	20
Pesticides (µg/kg dw)[g]								
delta-BHC	surface	2/52	4	3.0	3.0	WS-35/ WS-36	nc	0.92 – 490
	intermediate	0/10	0	nd	nd	nd	nc	0.98 – 480
	deep	0/10	0	nd	nd	nd	nc	0.96 – 19
Methoxychlor	surface	1/52	2	4.6 J	4.6 J	WL04	nc	0.92 – 4,900
	intermediate	0/10	0	nd	nd	nd	nc	9.8 – 4,800
	deep	0/10	0	nd	nd	nd	nc	9.6 – 190
VOCs (µg/kg dw)[h]								
Acetone	surface	38/43	88	120 JN	2,300	WS-11	530	61.1 – 299
	intermediate	6/6	100	76	410	DS-02	180	na
	deep	6/6	100	21	210	WS-06	91	na
Carbon disulfide	surface	3/43	7	3.9	7.5	DS-01	3.1	1.5 – 59.8
	intermediate	0/6	0	nd	nd	nd	nc	1.6 – 2.7
	deep	0/6	0	nd	nd	nd	nc	1.5 – 1.9
p-Cymene	surface	3/38	8	3.4 J	72 J	WS-09	3.6	1.5 – 7.7
	intermediate	0/6	0	nd	nd	nd	nc	1.6 – 2.7
	deep	0/6	0	nd	nd	nd	nc	1.5 – 1.9
Dichloro-methane	surface	2/43	5	4.1	5.3	DS-03	nc	3.0 – 58.7
	intermediate	2/6	33	4.4	4.6	WS-06	nc	3.1 – 5.4
	deep	1/6	17	4.1	4.1	WS-06	nc	3.2 – 3.8
Methyl ethyl ketone	surface	38/43	88	12	260	WS-11	60	30.6 – 150
	intermediate	4/6	67	9.7	60	DS-02	21	9.0 – 9.2
	deep	3/6	50	13	30	DS-05	13	7.9 – 8.9
Methyl isobutyl ketone	surface	1/43	2	15	15	DS-01	nc	7.5 – 59.8
	intermediate	1/6	17	16	16	DS-02	nc	7.8 – 10
	deep	0/6	0	nd	nd	nd	nc	7.5 – 9.4

[a] Surface soil samples were collected from 0 to 0.5 ft bgs, intermediate soil samples were collected from 0.5 to 1 ft bgs, and deep soil samples were collected from 2 to 3 ft bgs.

[b] Mean concentrations were not calculated because detection frequencies were either less than 10%, or fewer than three samples for a given solvent and depth interval had detected concentrations.

[c] RLs are for only non-detected samples.

[d] Concentrations of thallium were not presented because these chemicals were not detected in any wetland and ditch soil samples.

[e] Concentrations of diethyl phthalate were not presented because these chemicals were not detected in any wetland and ditch soil samples.

[f] Concentrations of 1,2,4-trichlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 2,4-dimethylphenol, 2-chlorophenol, 2-methylphenol, and hexachlorobenzene were not presented because these chemicals were not detected in any wetland and ditch soil samples.

Table 4-27. Concentrations of Other Chemicals Detected in at least one Wetland and Ditch Soil Sample (cont.)

[g] Concentrations of endrin were not presented because these chemicals were not detected in any wetland and ditch soil samples.

[h] Concentrations of 1,2-dichloropropane, 2-chlorotoluene, chlorobenzene, cyclohexane, methylcyclohexane, n-butylbenzene, sec-butylbenzene, styrene, tert-butylbenzene, and trans-1,2-dichloroethene were not presented because these chemicals were not detected in any wetland and ditch soil samples.

BEHP – bis(2-ethylhexyl) phthalate
bgs – below ground surface
BHC – benzene hexachloride
dw – dry weight
J – estimated concentration
N – tentative identification
na – not applicable
nc – not calculated
nd – not detected
PAH – polycyclic aromatic hydrocarbon
RL – reporting limit
SVOC – semivolatile organic compound
VOC – volatile organic compound

Metals

All 15 metals were frequently detected in wetland and ditch surface and subsurface soil samples, except for thallium, which was not detected in any wetland and ditch soil sample, and selenium, which was infrequently detected. Mean concentrations of metals were similar across soil depth intervals. Of these metals, concentrations were greater than the conservative residential human health RSLs for aluminum (4 samples), antimony (1 sample), cadmium (1 sample), iron (5 samples), lead (72 samples), manganese (5 samples), and vanadium (66 samples). Concentrations were greater than the invertebrate screening levels for aluminum (5 samples), barium (2 samples), and manganese (5 samples). The comparison with conservative screening levels on a point-by-point basis should not be interpreted as a risk estimate; risks were fully assessed in the ERA and HHRA as presented in Appendices I and J and summarized in Section 6.0.

PAHs, Phthalates, and Other SVOCs

SVOCs were infrequently detected in wetland and ditch soil samples, with the exception of the two PAHs, BEHP, benzylaldehyde, benzoic acid, and benzyl alcohol. Dibenzofuran and 2-methylnaphthalene were detected in at least half (50 to 92%) of wetland and ditch surface- and intermediate-interval soil samples and in a lower percentage of deep-interval samples. BEHP was the most commonly detected phthalate. Concentrations of phthalates and other SVOCs (e.g., benzylaldehyde, benzoic acid, and benzyl alcohol) were highest in soil samples collected in or near the former drainage ditch. PAH, phthalate, and other SVOC concentrations decreased with depth, indicating that the nature and extent of these chemicals was bounded. Diethyl phthalate and seven of the other SVOCs were not detected in any wetland and ditch soil samples. No concentrations were greater than the available conservative residential human health RSLs or invertebrate screening levels.

Pesticides

The three pesticides were infrequently detected in wetland soil. Endrin was never detected, and delta-BHC and methoxychlor were detected in less than 5% of wetland surface soil samples. No concentrations were greater than the available conservative residential human health RSLs or invertebrate screening levels.

VOCs

Six of the sixteen VOCs were detected in at least one wetland soil sample. Acetone, dichloromethane, and methyl ethyl ketone were detected at all wetland soil sample depths. Carbon disulfide and p-cymene were detected only in wetland surface soil samples (in less than 10% of surface soil samples). Methyl isobutyl ketone had a low detection frequency in both surface- and intermediate-interval samples. VOC concentrations were highest in soil samples collected in the area of the former drainage ditch. No concentrations were greater than the available conservative residential human health RSLs or invertebrate screening levels.

4.8.2.5 Lake Sediment and Surface Water

Table 4-28 summarizes the concentrations of other chemicals detected in lake surface and subsurface sediment. Of the chemicals discussed in this section, seven metals (aluminum, beryllium, iron, magnesium, manganese, silver, and thallium), all four phthalates, and two VOCs (cyclohexane, and methylcyclohexane) were not analyzed in lake sediment samples, as discussed in the RI/FS Work Plan (Bridgewater et al. 2008b). In addition, 2 metals and 10 VOCs were not detected in lake sediment; no pesticides or other SVOCs were detected in lake sediment. Concentrations of these detected chemicals in lake sediment and surface water were low from a risk perspective (Appendices I and J). Table 4-29 summarizes the concentrations of the two chemicals (barium and acetone) that were detected in Force Lake surface water samples.

Table 4-28. Concentrations of Other Chemicals Detected in at Least One Lake Sediment Sample

Chemical[a]	Location	Sample Type[b]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[c]	RL or Range of RLs[d]
			Ratio	%					
Metals (mg/kg dw)[e]									
Barium	Force Lake	surface	11/11	100	128	220	SE-06	190	na
	Force Lake	intermediate	3/3	100	161	172	SE-05	167	na
	North Lake	surface	3/3	100	124	208	SE-103	175	na
Cadmium	Force Lake	surface	8/11	73	2	2	SE-01, 03, 04, 05, 06, 07, 09, 10	2	0.3 – 0.7
	Force Lake	intermediate	0/3	0	nd	nd	nd	nc	0.3 – 0.4
	North Lake	surface	0/3	0	nd	nd	nd	nc	0.5 – 0.7
Cobalt	Force Lake	surface	11/11	100	7.3	15	SE-06/ SE-10	13	na
	Force Lake	intermediate	3/3	100	8.6	10.2	SE-05	9.3	na
	North Lake	surface	3/3	100	10.3	12	SE-103	11	na
Lead	Force Lake	surface	11/11	100	9	56	SE-06	40	na
	Force Lake	intermediate	3/3	100	6	10	SE-10	8	na
	North Lake	surface	3/3	100	13	18	SE-103	15	na
Nickel	Force Lake	surface	11/11	100	11	31	SE-06/ SE-10	24	na
	Force Lake	intermediate	3/3	100	18	20	SE-03/ SE-05	20	na
	North Lake	surface	3/3	100	17	25	SE-103	21	na
Vanadium	Force Lake	surface	11/11	100	32.7	74	SE-06	60	na
	Force Lake	intermediate	3/3	100	57.8	61.7	SE-05	60.1	na
	North Lake	surface	3/3	100	61.8	76	SE-103	69	na
PAHs (µg/kg dw)									
2-Methyl-naphthalene	Force Lake	surface	7/11	64	7.9	31	SE-02	14	5.0 – 30
	Force Lake	intermediate	0/3	0	nd	nd	nd	nc	4.6 – 5.0
	North Lake	surface	0/3	0	nd	nd	nd	nc	19 – 20
Dibenzo-furan	Force Lake	surface	3/11	27	5.0	7.4	SE-06	6.1	5.0 – 30
	Force Lake	intermediate	0/3	0	nd	nd	nd	nc	4.6 – 5.0
	North Lake	surface	0/3	0	nd	nd	nd	nc	19 – 20
VOCs (µg/kg dw)[f]									
Acetone	Force Lake	surface	10/11	91	78 JN	1,100	SE-06	650	35
	Force Lake	intermediate	3/3	100	120 J	180	SE-10	140	na
	North Lake	surface	3/3	100	200	320	SE-101	270	na
Carbon disulfide	Force Lake	surface	11/11	100	4.9	140	SE-05	40	na
	Force Lake	intermediate	1/3	33	5.8	5.8	SE-10	nc	2.6 – 2.7
	North Lake	surface	3/3	100	5.9	9.7	SE-103	8.2	na

Table 4-28. Concentrations of Other Chemicals Detected in at Least One Lake Sediment Sample (cont.)

Chemical[a]	Location	Sample Type[b]	Detection Frequency		Min Detect Conc.	Max Detect Conc.	Location of Max Detect	Mean Conc.[c]	RL or Range of RLs[d]
			Ratio	%					
Dichloro-methane	Force Lake	surface	0/11	0	nd	nd	nd	nc	2.1 – 16
	Force Lake	intermediate	3/3	100	6.3	8.3	SE-03	nc	na
	North Lake	surface	0/3	0	nd	nd	nd	nc	5.5 – 7.6
Methyl ethyl ketone	Force Lake	surface	10/11	91	9.4	140	SE-06	78	5.3
	Force Lake	intermediate	3/3	100	14	25	SE-10	18	na
	North Lake	surface	3/3	100	29	45	SE-101	38	na

[a] Concentrations of other SVOCs and pesticides were not presented because these chemicals were not detected in any lake sediment samples. Phthalates were not analyzed in lake sediment samples.

[b] Surface lake sediment samples were collected from 0 to 4 in. below the mudline, and intermediate lake sediment samples were collected from 2 to 3 ft below the mudline.

[c] Mean concentrations were not calculated because detection frequencies were either less than 10%, or fewer than three samples for a given solvent and depth interval had detected concentrations.

[d] RLs are for only non-detected samples.

[e] Concentrations of antimony and selenium were not presented because these chemicals were not detected in any lake sediment samples. Aluminum, beryllium, iron, magnesium, manganese, silver, and thallium were not analyzed in lake sediment samples.

[f] Concentrations of 1,2-dichloropropane, 2-chlorotoluene, chlorobenzene, p-cymene, methyl isobutyl ketone, n-butylbenzene, sec-butylbenzene, styrene, tert-butylbenzene, and trans-1,2-dichloroethene were not presented because these chemicals were not detected in any lake sediment samples. Cyclohexane and methylcyclohexane were not analyzed in lake sediment samples.

BEHP – bis(2-ethylhexyl) phthalate
bgs – below ground surface
BHC – benzene hexachloride
dw – dry weight
na – not applicable
nc – not calculated
nd – not detected
J – estimated concentration
N – tentative identification
PAH – polycyclic aromatic hydrocarbon
RL – reporting limit
SVOC – semivolatile organic compound
VOC – volatile organic compound

Table 4-29. Concentrations of Other Chemicals in Force Lake Surface Water

Chemical	Fraction	Detection Frequency		Min Detect Conc. (µg/L)	Max Detect Conc. (µg/L)	Location of Max Detect	Mean Conc. (µg/L)[a]	RL or Range of RLs[b]
		Ratio	%					
Metals								
Barium	D	3/3	100	26	28	SW-02	nc	na
	T	3/3	100	30	31	SW-02	nc	na
VOCs								
Acetone	na	3/3	100	5.4	6.5	SW-03	nc	na

Note: Surface water samples were collected from 0 to 1 ft below the water surface.

[a] Mean concentrations were not calculated because detection frequencies were either less than 10%, or fewer than three samples for a given solvent and depth interval had detected concentrations.

[b] RLs are for only non-detected samples.

D – dissolved
na – not applicable
nc – not calculated
RL – reporting limit
T – total
VOC – volatile organic compound

Metals

Barium was the only metal detected in Force lake surface water and was detected in all three samples. The detected concentrations of barium in these samples were greater than the ecological screening level.

Six metals (barium, cadmium, cobalt, lead, nickel, and vanadium) were detected in all Force Lake and North Lake sediment samples, and two metals (antimony and selenium) were not detected in any lake sediment samples. Mean concentrations of metals were higher in Force Lake surface samples than in Force Lake subsurface samples or North Lake surface samples. The highest metals concentrations were detected in Force Lake surface sediments from SE-06, which was located in the center of the lake. Of these metals, concentrations of vanadium in sediment were greater than the conservative residential human health RSL (16 of 17 samples). No concentrations were greater than the available invertebrate screening levels.

PAHs, Phthalates, and Other SVOCs

Dibenzofuran and 2-methylnaphthalene were the only SVOCs detected in lake sediment; these two chemicals were detected in surface sediment samples from Force Lake, but not detected in subsurface samples from Force Lake or surface samples from North Lake. No PAHs, phthalates, or other SVOCs were detected in any lake sediment samples or in Force Lake surface water. No concentrations were greater than the available conservative residential human health RSLs or invertebrate screening levels.

Pesticides

Delta-BHC, endrin, and methoxychlor were not detected in any lake sediment or surface water samples. No concentrations were greater than the available conservative residential human health RSLs or invertebrate screening levels.

VOCs

Acetone was the only VOC detected in lake surface water and was detected in all three samples. Only 4 of the 14 VOCs analyzed in lake sediment were detected in at least one lake sediment sample. Concentrations of acetone, carbon disulfide, and methyl ethyl ketone were highest in Force Lake surface sediment, although these chemicals were also detected in subsurface sediment samples from Force Lake and surface samples from North Lake. Dichloromethane was detected only in subsurface sediment from Force Lake. No concentrations were greater than the available conservative residential human health RSLs or invertebrate screening levels.

4.8.3 Summary for Other Chemicals

The concentrations of the chemicals discussed in this section were low from human health and ecological risk perspectives. A summary of the concentrations across media for each of the chemical groups discussed in this section follows.

Metals

Most of the 15 metals discussed in this section were frequently detected in Facility soil, wetland soil, groundwater, and sediment. All of these metals are naturally occurring in the environment. In general, concentrations were not highly variable with soil depth, although metals concentrations were higher in surface sediment than in subsurface sediment. Metals concentrations in Facility soil and wetland soil were similar, except for lead, manganese, and selenium, which were slightly higher in wetland soil. Concentrations in sediment were similar to or less than both Facility and wetland soil concentrations. Groundwater metals concentrations were highest in the surface or intermediate depth samples.

PAHs, Phthalates, and Other SVOCs

Most of the PAHs, phthalates, and other SVOCs discussed in this section were infrequently detected, except for BEHP and the two PAHs (2-methylnaphthalene and dibenzofuran). These two PAHs and BEHP were most frequently detected in surface and intermediate soil samples at the Facility and in the wetlands. PAH concentrations were higher in Facility soil samples than in wetland soil samples, whereas BEHP concentrations in soil were similar between the Facility and the wetlands. In the Facility and wetland soil, PAH, phthalate, and other SVOC concentrations generally decreased with depth. In wetland soil, phthalate and other SVOC concentrations (e.g., benzylaldehyde, benzoic acid, and benzyl alcohol) were highest in samples collected in or near the wetland

ditch. SVOCs were infrequently detected in groundwater and lake sediment. No SVOCs were detected in lake surface water.

Pesticides

The three pesticides discussed in this section were infrequently detected in Facility and wetland soil and were never detected in groundwater, lake sediment, or lake surface water.

VOCs

VOCs were most frequently detected in Facility soil, where concentrations were higher than those in wetland soil and in sediment. In most cases, the highest concentrations of individual VOCs in Facility soil were detected in the central portion of the Facility, extending to the southwest boundary of the Facility. VOCs were infrequently detected in wetland soil, groundwater, lake sediment, and lake surface water; detected concentrations were low.

5.0 CONCEPTUAL SITE MODEL

This section discusses the CSM for the Study Area as it relates to fate and transport processes that affect the distribution of chemicals and the pathways through which human and ecological receptors may be exposed to impacted environmental media. Thus, this section provides a link between Section 4.0, which discussed the nature and extent of contamination, and Section 6.0, which presents a summary of the risk assessment results.

Four elements are required to establish a complete exposure pathway between a source and a receptor:

- A chemical source and mechanism of chemical release to the environment
- An environmental transport medium for a released chemical
- A point of potential contact with the impacted medium
- An exposure route (e.g., dermal contact) at the exposure point

Elements of the CSM, with an emphasis on the potential routes of chemical migration from the source area to the potential receptor, are provided in the subsections that follow. Known or suspected chemical sources and release mechanisms are briefly summarized in Section 5.1. Chemical properties related to solubility, volatility, degradation, bioaccumulation potential, and bioavailability are discussed in Section 5.2 for the chemical groups discussed in Section 4.0 (TPH, PAHs, petroleum-associated VOCs, PCBs, metals, DDTs, and chlorinated solvents). Lastly, Section 5.3 discusses the fate and transport of these chemicals through various migration pathways. Those pathways deemed potentially complete are summarized in Section 5.3.6, with distinctions made between chemical transport pathways that are likely to be more important at the Study Area versus those pathways likely to be of lesser significance.

5.1 Sources and Release Mechanisms

As described in Sections 1.3 and 4.2, known or suspected sources of chemicals to the Facility and the adjacent wetland appear to be related to the historical processing of used oils and other petroleum products, the drainage of wash water from former truck cleaning operation, spills, and the periodic oiling of the Facility road surfaces. Specifically, truck cleaning operations began in the central portion of the Facility in the 1950s and oil recycling activities began at the southeast portion of the Facility in 1961. Oil recycling operations expanded to the north portion of the property in the 1970s with the development of a tank farm and loading and unloading/processing area (Figures 1-6 and 4-2).

Known or suspected mechanisms for the release of chemicals to Facility soils included the spillage of oily rinsate from truck cleaning operations to the ground surface, as well as spillage of petroleum products stored or handled at the Facility for processing. In addition, oils may have been used on the Facility roadway for dust suppression purposes. A fire at the Facility in 1979 also likely resulted in the release of oils. Runoff from these historical spills and releases (as described in Section 1.3.2) appears to have discharged into the adjacent wetland and Force Lake to varying degrees.

In addition to areas where direct releases to the ground surface may have occurred, there were several areas where oily discharges or surface water were historically managed at the Facility. Specifically, a C-shaped bermed area, possibly used to impound surface water flow from the truck cleaning operation, was historically located along the western portion of the Facility in the 1950s and into the 1960s (Figure 4-2). In the 1980s, an unlined holding pond located near the west corner of the Facility was used to collect surface water runoff from portions of the Facility; this pond acted as an oil-water separator before the collected water was discharged to the adjacent wetland. In addition, surface soils at the Facility were used to construct a soil berm along the southwest and northwest Facility boundaries after the 1979 fire, and surface soils generated from grading for the construction of the base oil refining plant in 1983 were stockpiled near the north corner of the Facility (Figure 4-2).

With regard to release mechanisms to the wetland and Force Lake (see Section 4.2 for history), oily wash water and suspended soil particles were transported in stormwater runoff directly to the wetlands south and west of the Facility prior to the construction of a ditch in the 1970s. The ditch, located along the northeast property boundary, extended around the property to the west and discharged to the wetland near the southwest corner of the Facility. Subsequent to the ditch construction, Facility runoff was directed both to the ditch and to the adjacent wetlands to the west and south via overland flow. Based on a review of the aerial photographs, the Facility was filled to current grade in several stages in a general east to west direction corresponding to the direction of site development. A soil berm constructed along the southwest and northwest sides of the Facility in 1979 prevented overland flow from directly entering the wetland (Figure 1-6). An unlined holding pond was constructed in the southwest portion of the Facility in 1980; stormwater and tanker truck rinsate was discharged from this pond (after oil-water separation) to the adjacent wetland near the west corner of the Facility. Tanker truck rinsate was completely separated from the stormwater runoff in 1990, with the rinsate subsequently undergoing pretreatment and discharge to the sanitary sewer. Discharges of stormwater from the northern portion of the Facility to the drainage ditch continued until 2002, when the drainage ditch was closed off.

The current stormwater treatment system was constructed in 1983; since 2002, this system has collected stormwater runoff generated from the entire Facility. The system provides oil-water separation followed by

discharge of the treated stormwater to the wetland immediately south of the Facility (Figure 1-3) under a DEQ-issued NPDES permit.

A summary of the primary chemical groups described in Section 4, including known or suspected sources for these chemicals in the Study Area, is provided below:

- **TPHs, PAHs, associated VOCs:** In the Study Area, the concentrations of TPH, PAHs, and petroleum-associated VOCs were often highest in surface soil samples collected from the Facility. The distributions of these chemicals in Facility soil indicate that these chemicals were likely introduced during industrial activities, including oil treatment and processing, production of RFO, road oiling for dust suppression, and tanker cleaning operations. Specifically, sources of these petroleum-related chemicals may include the tank farm located along the northeast boundary of the Facility and the former truck cleaning operation located in the central portion of the Facility. The highest concentrations of TPH, PAHs, and petroleum-associated VOCs were in these areas.
- **PCBs:** No specific PCB sources and release mechanisms associated with Harbor Oil have been identified. However, some of the petroleum products, including waste oils and fuels brought onto the Facility for oil re-refining and fuels blending since the 1960s, were known to contain PCBs up to the allowable limits authorized under the federal TSCA program (< 50 mg/kg). It is suspected that PCBs were released at the Facility in association with the processing of these petroleum products. In the Study Area, total PCB concentrations were highest in surface soils collected from the Facility. Patterns of PCBs in Facility soil suggest that releases from the tank farm, the truck cleaning operation, and the road oiling may have contributed to PCB releases at the Facility. Total PCB concentrations were highest in the northeast corner of the Facility near the Facility entrance, in the central portion of the Facility near the former tanker truck cleaning operation, and along the U-shaped roadway that extends from the Facility entrance around the former truck cleaning operation area.
- **Metals:** Metals are naturally occurring elements and are thus commonly detected in the environment. Thus, a portion of the metals concentrations at the Study Area may not be related to chemical sources or releases at the Facility. Study Area concentrations of metals higher than background concentrations may be associated with several different sources. Some metals, including arsenic and chromium, are known to be associated with used oils and fuels, which could have been released at the Study Area during tanker truck washing operations or during used fuel processing and refinement. In the Study Area, the areas with the highest concentrations of metals included the west corner of the Facility, the area of the former unlined holding pond/C-shaped area, the former drainage ditch to the west of the Facility, and the

area near the current and former stormwater treatment system discharge points near the southwest corner of the Facility. In general, the locations of the highest metals concentrations suggest that the distribution of metals in the Study Area was influenced by stormwater or industrial waste water drainage from the Facility.

- **DDTs:** No specific DDT sources and release mechanisms associated with Harbor Oil have been identified. In the Study Area, total DDT concentrations were highest in surface soils collected at the Facility. In Facility soil, DDTs were highest in the central portion of the Facility near the former truck cleaning operation, in the C-shaped area to the west of the former truck cleaning operation, and along the southwest boundary of the Facility. The highest DDT concentrations in the wetlands were located just southwest of the Facility boundary, in close proximity to the highest DDT concentrations detected at the Facility. There is no historical information suggesting that DDTs were used or handled at the Facility; however, one potential source of DDTs in the Study Area, based on observed distribution, is the former livestock truck cleaning operation in the central portion of the Facility. Trucks that were cleaned at the Facility may have been contaminated with DDTs associated with livestock applications. Although no documentation concerning the use of DDT for livestock applications was identified at the adjacent stockyards (source for a majority of the livestock trucks), dipping, spraying, and dusting cattle with DDT were common historical practices. If DDT was present on residues within the cattle trucks at the time of cleaning, it could explain the observed distribution in Study Area soils. Lower concentrations of DDTs within soils in other areas of the Study Area are typical of concentrations found in an urban environment where DDT was used historically for pest control (e.g., spraying in the area by the Portland Housing Authority or the City of Portland Insect Control Bureau).

- **Chlorinated solvents:** In the Study Area, chlorinated solvents were infrequently detected in Facility soil, groundwater, and wetland and ditch soil and were not detected in lake sediment or lake surface water. Concentrations of chlorinated solvents greater than industrial human health RSLs were detected only in soils (not groundwater) in the central portion of the Facility, near the former truck cleaning operations. This concentration pattern is consistent with the known use of TCE in the former truck cleaning operation. The location and distribution of chlorinated VOCs detected in groundwater indicate that these chemicals are a regional concern with regard to the deep groundwater zone and are not sourced in the Study Area (because these chemicals were detected at similar concentrations in samples collected from locations upgradient of Facility operations in relation to groundwater flow direction).

5.2 Chemical Properties

This section provides a discussion of the key chemical properties and processes that control the fate and transport of the primary chemical groups. Site-specific factors that affect fate and transport (e.g., solubility, degradation rates) and bioavailability (e.g., TOC content) are also described in this section.

Chemical-specific properties that affect the ability of a chemical to sorb to soil or sediment, volatilize to air, biodegrade, or bioaccumulate are listed below:

- Water solubility
- Organic carbon-normalized partitioning coefficient (K_{OC})
- Octanol-water partitioning coefficient (log K_{OW})
- Vapor pressure
- Henry's Law constant vapor-water partitioning coefficient
- Biodegradation rate

The solubility of a chemical in water affects the extent to which partitioning between soil and groundwater may occur. Because water is a polar solvent, polar chemicals have a greater tendency to be in solution than non-polar chemicals. The solubility of a non-polar compounds is further controlled by an affinity to bind with organic carbon in soils and sediments. Both K_{OC} and K_{OW} partitioning coefficients are used to predict the degree of sorption to organic matter in soil or sediments. The higher the K_{OW}, the greater the affinity for partitioning or adhering to organic carbon. Vapor pressure and Henry's Law constant provide an indication of how readily a chemical will volatilize from water into air. The biodegradation rate, when known, provides the rate at which a chemical may be expected to break down.

The preceding properties provide important information regarding the fate of a chemical in the environment and can be used to predict mechanisms by which each chemical group may move through or be retained by the environmental media. Typical values for some of these factors are included on Table 5-1 to facilitate comparison among the different chemical groups, and solubility, vapor pressure, and biodegradation rate are discussed further below.

Table 5-1. Properties of Chemical Groups

Chemical	Water Solubility (mg/L, unless otherwise indicated)	Vapor Pressure (mm mercury)	Log K_{OW}	Log K_{OC}
PAHs				
Acenaphthylene	3.93	0.029 at 20 °C	4.07	1.40
Acenaphthene	1.93	0.0047	3.98	3.66
Anthracene	0.076	1.7×10^{-5} at 25 °C	4.45	4.15
Benzo(a)anthracene	0.010	2.2×10^{-8} at 20 °C	5.61	5.30
Benzo(a)pyrene	0.0023	5.6×10^{-9}	6.06	6.74
Benzo(b)fluoranthene	0.0012	5.0×10^{-7} at 20 to 25 °C	6.04	5.74
Benzo(g,h,i)perylene	0.00026 at 25 °C	1.03×10^{-10} at 25 °C	6.50	6.20
Benzo(k)fluoranthene	0.00076 at 25 °C	9.59×10^{-11}	6.06	5.74
Chrysene	0.0028	6.3×10^{-7} at 25 °C	5.16	5.30
Dibenzo (a,h)anthracene	0.0005	1×10^{-10} at 20 °C	6.84	6.52
Fluoranthene	0.20 to 0.26	5.0×10^{-6} at 25 °C	4.90	4.58
Fluorene	1.68 to 1.98	3.2×10^{-4} at 20 °C	4.18	3.68
Indeno(1,2,3-cd)pyrene	0.062	10^{-6} to 10^{-11} at 20 °C	6.58	6.20
Naphthalene	31.7	0.087	3.29	2.97
Phenanthrene	1.20	6.8×10^{-4} at 25 °C	4.45	4.15
Pyrene	0.077	2.5×10^{-6} at 25 °C	4.88	4.58
VOCs				
Benzene	0.19% w/w	75	2.13	1.8 to 1.9
TCE	1,370 at 25 °C	74 at 25 °C	2.42	2.03 to 2.66
PCBs[a]				
Aroclor 1242	0.10 at 24°C to 0.34 at 25 °C	4.06×10^{-4} at 25 °C	5.6	no data
Aroclor 1248	no data	no data	no data	no data
Aroclor 1254	0.012 to 0.057 at 24 °C	7.71×10^{-5} at 25 °C	6.5	no data
Aroclor 1260	0.0027 to 0.08 at 24 °C	4.05×10^{-5} at 25 °C	6.8	no data
Metals[b]				
Arsenic	insoluble	0.0075 at 280 °C	no data	no data
Chromium	insoluble	1 at 1,616 °C	no data	no data
Copper	insoluble	1 at 1,628 °C	no data	no data
Mercury	0.28 µmoles/L at 25 °C	0.002 at 25 °C	5.95	no data
Zinc	insoluble	1 at 487 °C	no data	no data
Pesticides				
4,4′-DDD	0.090	1.4×10^{-6}	5.5[c]	5.48[c]
4,4′-DDE	0.12	6.0×10^{-6}	6.51	4.70
4,4′-DDT	0.025	1.6×10^{-7}	6.2[c]	6.19[c]

Source: ATSDR toxicological profiles (ATSDR 2010), except as noted.

[a] Only the Aroclors detected at the Study Area are shown in this table.

Table 5-1. Properties of Chemical Groups (cont.)

[b] Chemical properties for multiple forms of metals are provided in the ATSDR toxicological profiles. This table presents the chemical properties for the elemental forms.

[c] The source of these values is IPEN (2005).

ATSDR – Agency for Toxic Substances and Disease Registry
C – Celsius
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethylene
DDT – dichlorodiphenyltrichloroethane
K_{OC} – organic carbon-normalized partitioning coefficient
K_{OW} – octanol-water partitioning coefficient
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
TCE – trichloroethylene
VOC – volatile organic compound

5.2.1 Solubility

The distribution of chemicals between solid particles and water is known as partitioning. The octanol-water partition coefficient (K_{OW}) is the ratio of the concentration of a chemical in octanol and in water at equilibrium. Chemicals with high K_{OW} values are much more strongly associated with solid phases, such as sediment or soils, relative to their affinity for aqueous solutions. Chemicals with high K_{OW} values, therefore, are less soluble (and less mobile) in water.

Non-polar organic compounds, such as DDTs and most PAHs, typically have a strong affinity for organic matter associated with soil and sediment particles and are therefore less soluble in water. PCBs also are highly insoluble in water (ATSDR 2000b). These non-polar chemicals also have less tendency to leach into groundwater or deeper layers of soil or sediment (ATSDR 2000b, 2002).

Many PAHs tend to have relatively high K_{OW} values (and low water solubilities), which increase with increasing molecular weight. Low-molecular-weight PAHs (LPAHs), such as naphthalene, are somewhat more mobile than high molecular-weight PAHs (HPAHS). In aquatic environments, roughly a third of PAHs are present in dissolved form (the remainder are associated with particles) (ATSDR 1995).

Metal ions form metal-ligand complexes (i.e., complexes with natural organic compounds, such as humic and fulvic acids), which can increase the solubility and mobility of metals in environments with high dissolved organic carbon concentrations. Metal ions also sorb onto clay and oxide minerals because of the negative charges on the surfaces of these particles. Ion exchange may also occur at the particle surface, where metal ions of one element replace those of another element because of different properties of the elements or environmental conditions. The oxidation state of the metal ion influences the speciation of the metal. Reduced iron and manganese species are soluble, whereas, under oxic conditions, these metals form insoluble oxides that sorb other metals to their surfaces. The solubility of metal is also dependent on metal speciation. For example, the most common organic form of mercury, methylmercury, is soluble and mobile, whereas inorganic forms of mercury can be insoluble. The solubility of methylmercury will decrease with increased dissolved organic matter content in water (ATSDR 1999a).

For several divalent metals (i.e., cadmium, copper, lead, nickel, and zinc), a key factor controlling cationic metal activity in sediment appears to be acid-volatile sulfide (AVS) (Carlson et al. 1991; DiToro et al. 1991; DiToro et al. 1992; Allen et al. 1993). As previously discussed, the presence of sulfide (especially in reducing environments such as subsurface sediments) makes these metals less bioavailable.

5.2.2 Volatility

Volatility is the tendency of a chemical to partition to air and migrate as a vapor; volatility is a function of vapor pressure. VOCs, such as benzene and TCE, are characterized by high vapor pressure and moderate to high

aqueous solubility. Therefore, they are highly volatile and have low affinities for soils and sediments. VOCs tend to be less persistent in the environment than are most PAHs, as they readily evaporate when exposed to air.

The volatility of PAHs varies. In general, LPAHs have higher vapor pressure and are present in air predominately in the vapor phase. In contrast, HPAHs have lower vapor pressure and are predominantly present in the particulate phase (ATSDR 1995).

TPH are quantified based on the molecular-weight range of the dominant hydrocarbons. TPH in the diesel and motor oil range typically consist of heavy oils and are not highly volatile. TPH in the gasoline range are more volatile inasmuch as they mostly consist of VOCs.

PCBs and DDTs can volatilize from surface soil and surface water into the atmosphere. Volatilization of DDT, DDE, and DDD can account for losses of these chemicals from soil surfaces and water (ATSDR 2002). PCBs in the atmosphere are more mobile in the vapor phase than those that are particle bound (ATSDR 2000b).

Most forms of metals in aqueous and soil environments are not highly volatile.

5.2.3 Degradation Processes

Degradation processes can play an important role in the fate of chemicals in the environment. Degradation processes for organic compounds, including PCBs and DDTs, include photodegradation, hydrolysis, and biodegradation. In aqueous systems, degradation rates are dependent upon the concentrations of nutrients, presence of PM, temperature, oxygen concentration, redox potential, microbial populations, and the concentration of the chemical (Sinkkonen and Paasivirta 2000).

Degradation processes for the various chemical groups discussed in Section 4 are summarized below:

- **DDTs and metabolites**: Bacteria and fungi can biodegrade pesticides, including DDTs. Under aerobic conditions, DDT biodegrades primarily to DDE; under anaerobic conditions (e.g., groundwater in the Study Area), DDT biodegrades to DDD. Degradation rates of DDT are also dependent on conditions in the soil. In flooded soils, the degradation rate of DDT to DDD depends on the organic content of the soil (ATSDR 2002). In soils with low concentrations of metals, DDT has been found to more slowly degrade to DDE than in soils with high metals concentrations (ATSDR 2002). DDT and its metabolites are persistent; field and laboratory studies have demonstrated that very little breakdown of DDT occurs in estuarine sediments over the course of 46 days (EXTOXNET 1996). DDTs have been found to be more persistent in muck soils than dry forest soils (ATSDR 2002). In a study of sprayed forest soils in Maine, the half-life of DDT residues was noted to be 20 to 30 years (Dimond and Owen 1996).

- **PCBs**: PCBs are stable under typical environmental conditions and thus are highly persistent. As with DDTs, biodegradation by bacteria and fungi may significantly transform PCBs, but the transformation process is slow (Alder et al. 1993). Half-lives of various PCB congeners in sediment have been estimated to range from 3 to 38 years. Half-lives in temperate regions have been reported to range from 2.3 to 16.7 years.
- **PAHs**: Degradation processes for PAHs in aqueous systems include photodegradation, hydrolysis, and biodegradation. HPAHs, which have four or more aromatic rings, tend to persist in sediment. Half-lives for HPAHs range from months to years. LPAHs tend to be less persistent. LPAHs, such as phenanthrene and anthracene, are subject to photodegradation in the water column (Nagata and Kondo 1972).
- **VOCs**: VOCs, such as benzene and TCE, are also subject to photodegradation and biodegradation. Under aerobic conditions, benzene rapidly degrades in water and soil (ATSDR 2007). The half-life for TCE is relatively short; the degradation rate of TCE in soil increases with organic matter in soil (ATSDR 1997).
- **TPHs**: Petroleum products can migrate through soil either as a bulk oil flow or as individual compounds that have separated from the bulk mixture and dissolved in air or water (ATSDR 1999b). Lower weight aliphatic and aromatic fractions of TPHs are more likely to biodegrade than heavier TPH fractions. The rate of TPH biodegradation is dependent on several factors, including oxygen content, pH, moisture content, temperature, nutrient concentrations, and the microbiota present (ATSDR 1999b).
- **Metals:** The fate and transport of metals is primarily driven by the speciation of the metal, which is a function of a number of variables, including Eh (oxidation and reduction potential), pH, temperature, and the type and concentrations of available organic and inorganic ligands (i.e., chemicals, such as sulfate, iron oxides, or natural organic matter, that bond with metal ions). Equilibrium constants and kinetics also determine whether a metal will be associated primarily with the particulate or dissolved fraction and the nature of the solid or dissolved complex. The dissolved speciation and sorption of metals to solids affect their bioavailability and subsequent toxicity. Stable elements, such as zinc, do not degrade in the environment, but instead can change forms through chemical reactions that occur under a wide range of common environmental conditions (ATSDR 2005b).

5.2.4 Bioaccumulation Potential

Bioaccumulation refers to the uptake of chemicals by organisms. DDTs, PCBs, and mercury are highly bioaccumulative chemicals. In a study of a freshwater lake, DDT was found to accumulate at higher concentrations in fattier, higher trophic level fish than in leaner, lower trophic level fish (Kidd et al. 2001). PCBs, also a lipophillic chemical, accumulate at

greater concentrations in organisms with higher lipid content (ATSDR 2000b). DDTs, PCBs, and mercury accumulate in greater concentrations at higher trophic levels (e.g., piscivorous fish). Methylmercury is accumulated in tissue to a greater extent than inorganic forms of mercury (ATSDR 1999a).

Most metals other than mercury have low or moderate bioaccumulation potential and do not biomagnify through the food chain. The bioconcentration of these metals (e.g., arsenic, copper, zinc) is higher in low trophic level organisms, such as aquatic invertebrates, than in higher trophic level organisms such as fish (ATSDR 2004b, 2005a, b).

VOCs, PAHs, and TPHs do not usually bioaccumulate. Benzene has not been found to accumulate in marine organisms and bioconcentration factors measured in studies have indicated a low tendency of TCE to bioaccumulate (ATSDR 1997, 2007). Some TPH fractions (particularly PAHs) may accumulate in aquatic organisms; however, lower weight aliphatics and aromatics do not accumulate (ATSDR 1999b). PAHs may bioaccumulate in lower trophic level aquatic organisms, such as mollusks, and to some extent in terrestrial mammals through ingestion of prey and soil; however, fish and crustaceans metabolize PAH, and therefore, PAHs (such as benzo[a]pyrene) are typically found at low levels in fish and crustaceans (ATSDR 1995).

5.2.5 Bioavailability

The bioavailability of a chemical is a measure of the availability of a chemical for uptake by an organism. The bioavailability of a chemical in sediment or soil is dependent on many factors, including the moisture content or pH of the sediment or soil; the redox potential and organic content of the sediment or soil, as well as physical properties of the chemical; and the route of exposure (ATSDR 1997, 2000a, 2005a, 1999b). The partitioning of chemical to organic matter in sediment and soil can reduce the bioavailability of certain chemical. The association of non-polar organic compounds with particles is correlated with organic carbon content (Chiou et al. 1979). Thus, soils and sediments with high TOC tend to have higher non-polar chemical concentrations, such as PAHs, DDTs, and PCBs, than do soils and sediments with lower TOC. It is common for sediment concentrations of these compounds to be compared on an organic-carbon normalized basis, thereby providing a better indication of their potential bioavailability.

Samples of Study Area soils and of sediments from Force Lake were analyzed for TOC (Table 5-2). The TOC content was relatively high in Force Lake surface sediment (average of 7.1%) and wetland surface and intermediate soil (averages of 10 and 7.9%, respectively), limiting bioavailability of non-polar chemical concentrations, such as PAHs, DDTs, and PCBs. The TOC contents were somewhat lower in Facility soil (averaging 0.98 to 4.6%), in deep subsurface wetland soils (4.6%), and in subsurface sediments (1.3%).

Table 5-2. Summary of TOC in Study Area Soil and Sediment

Media	Count	TOC (%)		
		Minimum	Maximum	Average
Facility Soil				
Surface (0 to 5 ft)	44	0.01	14.6	2.6
Intermediate (3 to 8 ft)	32	0.153	41.3	4.6
Deep (8 to 22 ft)	30	0.532	2.78	0.98
Soil stockpile (0.5 to 6 ft)	3	1.66	2.31	2.1
Soil berm (0.5 to 2 ft)	9	0.435	2.54	1.3
Wetland Soil				
Surface (0 to 0.5 ft)	51	2.09	30.2	10
Intermediate (0.5 to 1 ft)	10	1.19	29.9	7.9
Deep (2 to 3 ft)	10	0.371	18.2	4.3
Force Lake Sediment				
Surface (0 to 0.33 ft)	11	1.34	13.1	7.1
Subsurface (1 to 3 ft)	3	0.629	2.32	1.3

TOC – total organic carbon

For certain metals (e.g., cadmium, copper, lead, nickel, and zinc), the presence of sulfide (especially in reducing environments such as subsurface sediments) can reduce the bioavailability of these chemicals. Copper has also been found to bind strongly to soils with high TOC (ranging from 14 to 34% dry weight [dw]) (ATSDR 2004b).

5.3 Fate and Transport

Following the release of chemicals to surface or shallow subsurface soils at the Facility, the migration of chemicals may have historically occurred, or may occur, via the following potential pathways. The relative importance of these pathways varies for the chemicals and chemical groups discussed in Section 4.0 (TPH, PAHs, petroleum-associated VOCs, PCBs, metals, DDTs, and chlorinated solvents). The potential pathways include:

Groundwater Migration

- Vertical migration of dissolved-phase chemicals through the unsaturated zone to the shallow saturated zone as a result of rainfall infiltration and percolation
- Horizontal migration in the shallow saturated zone via advection and dispersion
- Vertical migration via advection and dispersion from the shallow saturated zone to the intermediate and, potentially, deep saturated zones

Non-Aqueous Phase Liquid Migration

- Horizontal migration of LNAPL on the water table surface
- Dissolution of LNAPL into the dissolved phase with groundwater migration via advective flow

Stormwater Migration and Erosion

- Direct runoff, soil erosion, and release to the drainage ditch and wetland
- Discharge from the former holding pond and current stormwater treatment system to the drainage ditch and wetland
- Sediment deposition into Force Lake

Surface Water and Sediment Migration from Force Lake

- Surface water and sediment migration out of Force Lake into North Lake, especially during the wet season

Vapor Phase Migration

- Vertical and horizontal migration in the unsaturated zone as a result of the volatilization of VOCs in the unsaturated zone and from the shallow saturated zone

Each of the known historical or potential pathways of chemical migration at the Study Area is described in the following subsections.

5.3.1 Groundwater Migration

Based on investigations and studies completed as part of the RI, and as described in Section 3.5.2, the hydrogeology beneath the Facility has been defined as containing three distinct groundwater zones. Each of the distinct groundwater zones is separated by saturated silt deposits with varying amounts of sand and clay. The three distinct water-bearing zones are described as follows:

- **Shallow Zone:** The shallow saturated zone has a surface that occurs at a depth ranging from 1 to 6 ft bgs, depending on the location and time of year. The bottom of the shallow saturated zone occurs at a depth of 8 to 15 ft bgs, depending on the location. Saturated soils within the shallow zone include relatively permeable sand fill material. Groundwater in this zone flows in a southwestern direction beneath the Facility toward, and with likely discharge to, Force Lake at an estimated advective pore velocity of between 0.038 and 0.053 ft per day.
- **Intermediate Zone:** An intermediate saturated zone that occurs within a sand interval from approximately 37 to 48 ft bgs. Groundwater in this zone flows in a western to southwestern direction beneath the Facility at an estimated advective pore velocity of between 0.018 and 0.024 ft per day.

- **Deep Zone:** A deep saturated zone that occurs at depths greater than approximately 90 ft bgs that is associated with the TGA gravels. Groundwater within the deep zone flows to the northwest toward the Columbia River during periods of low river flow, and southwest away from Columbia River during periods of high river flow (Golder Associates 1990).

As described in Sections 4.3 through 4.8, and as summarized below, chemicals attributable to historical Facility operations are restricted to the shallow groundwater zone. As such, the primary potential route of migration for chemicals in groundwater is a function of shallow groundwater flow toward, with ultimate discharge to, Force Lake.

5.3.1.1 Vertical Migration to the Intermediate Groundwater Zone

Vertical groundwater migration from the shallow zone to the intermediate zone is a potential pathway based on downward vertical gradients between these zones. However, based on the lack of detected chemicals in the intermediate zone, combined with the presence of an intervening lower-permeability silt deposit, migration to the intermediate zone does not appear to be a significant pathway.

Specifically, and as discussed in Sections 4.3 though 4.8, concentrations of metals in the intermediate zone were similar to or lower than those detected in the shallow zone. With the exception of acetone (a common laboratory contaminant) and DDD, no organic compounds were detected in any intermediate zone wells.

As described in Section 4.6, DDD was detected in shallow groundwater samples in some of the areas where total DDT concentrations in soil samples were highest (the central portion of the Facility, the exit driveway, and along the southwest boundary of the Facility). DDD was detected in deeper groundwater samples from the MW-2s/MW-2i/B-4 well cluster in the south-central portion of the Facility but was not detected in any other groundwater samples collected from intermediate monitoring wells or the plant well (PW-01). DDD was detected in the sample from the intermediate depth well MW-2i in 2008 and 2009 and in the sample from the deep well B-4 in 2008 and 2009.

The specific mechanism for the transport of DDD vertically from the shallow groundwater zone to the intermediate and deep groundwater zones at this single location is not known, but through a weight-of-evidence analysis, as described below, the presence would appear most likely attributable to a breach in the seal for well B-4.

In summary, total DDT (2,4-DDD + 4,4-DDD) was detected at the MW-2s/MW-2i/B-4 location in shallow groundwater at a concentration of 0.126 µg/L (total) and 0.073 µg/L (dissolved), in intermediate groundwater at a concentration of 0.015 µg/L (total) and 0.017 µg/L (dissolved), and in deep groundwater at a concentration of 0.012 µg/L (total) and 0.011 µg/L (dissolved). All detected concentrations were below the lowest human health screening level (0.20 µg/L). Gasoline-, diesel-, and oil-range petroleum hydrocarbons (hydrocarbon range of typical DDT carrier solvents) have not been detected in groundwater at the MW-2i or the B-4

well locations, and therefore it does not appear that DDD migrated to these depths within a carrier solution.

It is estimated (Section 5.3.1.2) that DDD transport in the shallow groundwater zone will experience a 14,000 times retardation factor. Using the same retardation factor for potential vertical transport, and using estimated vertical advective velocities between shallow and intermediate and intermediate and deep zones as summarized in Section 3.5.2.4, it is estimated that the time of migration for DDD to migrate through the natural system between MW-2s (shallow) and B-4 (deep) would be approximately 450,000 years. As such, the presence of DDD in the deep groundwater zone at B-4 is likely not the result of migration through the natural system.

Based on the preceding analysis, it appears that one of two scenarios, both related to well construction, may account for the groundwater results. The first scenario is that the borehole seals for wells B-4 and MW-2i were both physically breached due to a construction fault, allowing DDD in groundwater from the shallow zone to circumvent the native soils and migrate vertically through the well bore or other potential drilling-related voids into the intermediate (MW-2i; 38 to 48 ft bgs) and deep groundwater (B-4; 85 to 95 ft bgs) zones. The other possible scenario is that silty soils containing elevated DDD as documented at the MW-2 cluster location adhered to the drill casing and were advanced down the borehole during drilling and incorporated into the sandpack region of the well bore, thereby contaminating the groundwater at these well locations.

Based on data as presented and evaluated in the RI, it does not appear that chemicals have migrated from the shallow to the intermediate and deep groundwater zones via natural processes; therefore, this pathway does not appear to be complete or significant.

5.3.1.2 Lateral Migration within the Shallow Groundwater Zone

Data from four shallow monitoring wells (MW-1S, MW-2S, GA-33, and A-20) located along the south (downgradient) boundary of the Facility and data from two shallow wells (GA-29 and A-19) located at the southwest (downgradient) portion of the Facility were reviewed to assess the potential for the lateral migration of chemicals to off-Facility areas (e.g., to the wetland and Force Lake) via shallow groundwater flow. These wells are suitable sentinel wells for the evaluation of potential migration of chemicals detected in soil samples and in shallow monitoring wells located in the central and north portion of the Facility (see Figure 2-2 for well locations).

To examine this pathway, an evaluation of select chemicals with differing solubility and transport characteristics was conducted. Specifically, this evaluation was conducted for TPH – diesel range; TPH – oil range; TPH – gasoline range; benzene; and DDT, DDD, and DDE (representing total DDTs). PCBs, which also have a low solubility in groundwater and a high tendency to adsorb to soil organic matter, were not detected in groundwater beneath the Facility.

TPH – diesel range and TPH – oil range were only detected in one shallow well (A-18) during the 2008 sampling event; no TPH – diesel range or TPH – oil range were detected in any groundwater monitoring wells in 2009. TPH – gasoline range was detected in only two shallow monitoring wells in 2008 (A-18 and MW-4s) and in three shallow wells in 2009 (A-18, GA-34, and MW-4s). With regard to benzene, based on 2008 data, the highest concentration (140 µg/L) was detected in groundwater at shallow well MW-4s, and it was detected at three other locations (GA-34, MW-5s and A-18) at concentrations ranging from 2.0 to 4.2 µg/L. Similar benzene concentrations were detected at GA-34, MW-5s, and A-18 in 2009, but the benzene concentration was much lower (2.9 µg/L) at the MW-4s location in 2009 (compared with 140 µg/L in 2008).

No TPH – diesel range, TPH – oil range, or TPH – gasoline range or benzene concentrations, with the exception of certain low-level PAHs (below conservative screening levels as described in Section 4.3), have been detected in shallow monitoring wells located along the downgradient Facility boundary or in the southwest corner of the Facility, demonstrating that the migration of TPH-related chemicals off the Facility is limited or not occurring.

With regard to DDTs, DDD was detected in two shallow monitoring wells (MW-4s and MW-5s) within the Facility and in all four of the shallow monitoring wells located along the south downgradient boundary of the Facility. Because of the strong affinity of DDD to sorb to soil organic matter, groundwater migration of DDD would be very slow. The evaluation presented below demonstrates that DDD migration to Force Lake in shallow groundwater does not appear to be a significant pathway.

Based on the estimated advective velocity for shallow groundwater of 0.05 ft per day (see Table 3-2) and the 180-ft distance between the south boundary of the Facility and Force Lake, groundwater flow from the Facility to Force Lake would take approximately 10 years. DDD and DDT migration would be expected to take much longer because of their tendency to sorb to organic material in the soil matrix. One measure of the potential for an organic compound to sorb to soil is the K_{ow}. According to information provided in the *IPEN Body Burden Community Monitoring Handbook* (IPEN 2005), DDD has a log K_{ow} of 5.5 and DDT has a log K_{ow} of 6.2. Lyman et al. (1982) provides a formula for converting a log K_{ow} to a log organic carbon partition coefficient (K_{oc}) for a variety of insecticides, herbicides, and fungicides:

$$\log K_{oc} = 1.029 \log K_{ow} - 0.18 \qquad \textbf{Equation 5-1}$$

Where:

K_{oc} = organic carbon partition coefficient

K_{ow} = octanol-water partition coefficient

The calculated log K_{oc} is 5.48 (DDD) and 6.19 (DDT), and the K_{oc} would be approximately 3.0×10^5 mL/g (DDD) and 1.5×10^6 mL/g (DDT).

Using the average fraction of organic carbon (f_{oc}) of 0.0099 g organic carbon per g of soil (0.99%) measured for the lower subsurface soil

samples collected at the Facility, the soil-water partition coefficient (K_d) for DDD would be 2,970 mL/g, and for DDT would be 14,850 mL/g based on the following equation:

$$K_d = K_{oc} \times f_{oc} \qquad \textbf{Equation 5-2}$$

Where:

K_d = soil-water partition coefficient (mL/g)

K_{oc} = organic carbon partition coefficient (mL/g)

F_{oc} = fraction of organic carbon (g organic carbon/g soil)

Note that the lower subsurface soil samples were typically collected from the silt unit underlying the sand unit, which is where most of the shallow groundwater flow occurs. The average organic carbon content for the upper (i.e., intermediate) subsurface samples collected from the sand unit had an average f_{oc} of 0.046 (4.6%).

The site-specific retardation factor (R), which expresses how much slower a contaminant moves relative to groundwater, would be approximately 14,000 for DDD and approximately 70,000 for DDT based on an average soil porosity of 35% (Table 3-2) and an assumed bulk density (r_b) of 1.66 mg/cm^3 per EPA's on-line site assessment calculation (EPA 2010c).

$$R = 1 + \frac{r_b \times k_d}{q} \qquad \textbf{Equation 5-3}$$

Where:

R = retardation factor (unitless)

r_b = bulk density (mg/cm^3)

q = porosity

K_d = soil-water partition coefficient (mL/g)

Based on Equation 5-3, DDD is predicted to migrate through the shallow groundwater zone over 14,000 times slower than the estimated advective groundwater flow, resulting an estimated travel time of approximately 140,000 years for DDD and approximately 700,000 years for DDT, making DDT and the DDD metabolites essentially immobile in groundwater. Studies have shown that depending on environmental conditions, DDT metabolite half-lives can range from less than 1 month to up to 30 years (Section 4.6.2). Even at the higher end estimated half-life, by the time DDD could reach Force Lake, these DDT metabolites would have degraded.

Based on the preceding evaluation, and the discussions of the nature and extent of the shallow zone groundwater provided in Sections 4.3 through 4.8, it does not appear that the transport of chemicals to off-Facility locations (e.g., wetland and Force Lake) is a significant migration pathway. However, because shallow groundwater beneath the Facility does migrate toward, and discharges to, Force Lake, this pathway was

assessed in the uncertainty analysis of the ERA as summarized in Section 6.0 and detailed in Appendix J.

5.3.2 Non-Aqueous Phase Liquid Migration

LNAPL was first described and sampled at the site during a 2000 EPA site inspection (well GA-30). RI activities have concluded that LNAPL is not significant at the Facility, and its presence is highly localized and confined to a small portion of the Facility. Specifically, a thin layer (0.1 ft) of LNAPL was measured in well GA-30 in 2008, and trace thicknesses of LNAPL (0.01 ft or less) were observed in two of the precautionary extraction wells (EW-1 and EW-3) (Table 2-2). No LNAPL has been observed in wells MW-1s and MW-2s, which are located along the downgradient boundary of the Facility, or in shallow monitoring wells GA-29 or A-19, which are located between GA-30 the downgradient property boundary. Furthermore, field screening conducted during the RI soil sampling did not identify the presence of LNAPL at any boring locations.

After the LNAPL was removed from GA-30 during sampling in May 2008, only trace (i.e., non-measurable) to minor amounts (up to 0.02 ft) of LNAPL were measured at this location over the following year of monthly monitoring. The fact that LNAPL was not observed at GA-30 in any significant amount a year after its removal suggests that the LNAPL presence was minimal. Other than removal for sampling purposes as described above, no LNAPL extraction has occurred at the Facility. The noted extraction wells (EW-1 through EW-3), as described in Section 1.3.2.7.5, were installed for contingency/convenience purposes only and have never been used, because LNAPL has not been observed in sufficient quantity to sample.

Further, LNAPL does not appear to be a significant source of dissolved chemicals to shallow groundwater at the Facility. TPH – diesel range and TPH – oil range (a primary LNAPL component) were detected in only one shallow well (A-18) during the 2008 sampling event; no TPH – diesel range and TPH – oil range were detected in any monitoring wells in 2009. TPH – gasoline range was detected in only two shallow monitoring wells in 2008 (A-18 and MW-4s) and in three shallow wells in 2009 (A-18, GA-34, and MW-4s). Benzene was detected in only shallow groundwater at four wells in 2008 and 2009; one of these wells (A-18) was adjacent to the upgradient Facility boundary. No TPH – diesel range, TPH – oil range, TPH – gasoline range, or benzene concentrations were detected in shallow monitoring wells located along the downgradient Facility boundary or in the southwest corner of the Facility.

Based on the preceding evaluation, LNAPL (either through the migration on the water table or through the release of chemicals into groundwater) is not a significant migration pathway.

5.3.3 Stormwater Migration and Erosion

Historical stormwater migration was likely the primary mechanism for the transport of chemicals from the Facility to the adjacent wetland and Force Lake. The significance of this pathway is supported by the Facility history

and the distribution of chemicals, both at the Facility and within the wetland, as summarized in Section 4.0.

Chemicals likely migrated from the Facility bound to soil particles transported in stormwater runoff via the drainage ditch prior to the construction of the current stormwater treatment system in the mid-1980s. In addition, chemicals likely migrated from the Facility into the wetland prior to the construction of the soil berm after the 1979 fire at the Facility.

As described in Section 1.3.2, prior to construction of the drainage ditch around the northwestern margin of the Facility in the early 1970s, historical site topography would have directed surface water runoff from the operating portions of the Facility to adjacent low-lying areas to the south and west of the Facility. After ditch construction, and prior to the final period of fill placement on the western portion of the Facility between 1977 and 1984 (likely as part of reconstruction after the 1979 fire), runoff would have been directed to the south and southwestern low-lying areas, both by the ditch and by direct overland flow.

Over the course of operations, these low-lying areas included portions of the existing wetlands and Force Lake, as well as areas of the existing Facility footprint, that were lower in elevation at the time but were subsequently filled to match the existing grade. Specifically, the areas within the Facility included the former pond, reported sumps, and C-shaped area in the southwestern portion of the Facility. This drainage pattern would have resulted in particles containing bound chemicals settling at these locations, resulting in higher chemical concentrations in deeper samples than in surface samples in these areas. As discussed in Section 4, chemical concentrations detected in samples collected from the Study Area are consistent with this drainage pattern. Concentrations were generally highest in surface soil samples (both at the Facility and in the wetlands), except in now-buried low-lying areas where historical holding ponds or sumps were known to have been located. In these areas (e.g., the former pond, reported sumps, and C-shaped area in the southwestern portion of the Facility), concentrations were highest in surface or intermediate soil samples. Stormwater runoff is now collected and treated in the stormwater treatment system, which discharged to the drainage ditch in the southwest corner of the Facility until 2002 and now discharges from a pipe along the southwest boundary near the west corner of the Facility in accordance with an NPDES permit (Figure 4-2).

As described in Section 1.0, most of the Facility was covered with an approximate 12-in. layer of hard-packed gravel that was placed as part of Facility reconstruction following the 1979 fire. The gravel layer has been regularly maintained through the placement of fresh gravel on the surface, as needed. During the fall of 2011, the majority of the Facility (all areas except for the western-most portion) was paved with asphalt. The gravel and asphalt pavement layers, in conjunction with current stormwater management practices, prevents the erosion or transport of chemicals in underlying soils to the adjacent wetland and limits fugitive dust emissions.

Although several areas of the Facility are not protected from erosion by gravel or pavement, vegetation within these areas acts to prevent erosion. Therefore, these areas likely do not represent a significant migration pathway for the transport of soil particles from the Facility.

Specific areas of the Facility that do not have a gravel or pavement surface include:

- The former north ditch area, which also includes a vegetated area in the vicinity of MW-3s, SL-31 and SL-38
- The northwest portion of the Facility, which includes the soil stockpile area, the west portion of the perimeter soil berm, and non-gravel areas near SL-42, MW-1s, and GA-29
- The southwest Facility boundary and associated perimeter soil berm
- A portion of the southeast Facility boundary adjacent to North Force Avenue

Of the above, as a result of proximity and slope, the area that has the greatest potential for chemicals in Facility soils to migrate off of the Facility (via erosion) and pose a risk to ecological receptors is the soil berm located along the northwest and southwest Facility boundaries. This berm is currently intact, vegetated, and has no known areas of erosion. Thus, runoff from the berm is unlikely to present a significant migration pathway.

With regard to the wetland areas west and south of the Facility, there is a low potential for chemical migration to Force Lake from the wetland via soil erosion based on the relatively flat topography and extensive vegetative cover. An analysis presented in the ERA supports this conclusion (Appendix J).

5.3.4 Surface Water and Sediment Migration from Force Lake

As described in Section 3.3, Force Lake is 590 to 890 ft in diameter and has a surface area of about 12 ac with an average depth of approximately 2.5 ft. The estimated storage volume of the lake is about 30 ac-ft.

There are only two known inflow points into Force Lake. A catch basin drains a small area along the east side of North Force Avenue, just north of its intersection with North Victory Street (Figure 1-11) (Goodling 2007). Stormwater captured in this catch basin is conveyed beneath North Force Avenue and discharged into Force Lake. In addition, an underdrain for one of the greens on the Greenback Golf Club drains into Force Lake.

The current stormwater treatment system located at the Facility does not discharge directly into Force Lake but rather into the wetland just south of the Facility (Figure 4-2). Historical impacts on the wetland south of the Facility and on Force Lake resulting from oily wash water and stormwater discharges from the Facility (prior to the construction of the existing treatment system) have been documented, as described in Section 4.2.

During the construction at the Heron Lakes Golf Club in 1969 and 1970, the narrow west end of Force Lake was bisected (with fill material) to create North Lake. As described in the PEN 1 NRMP (City of Portland 1997), Force Lake outflows to North Lake, with outflow controlled by two culverts located on the west side of Force Lake. These culverts were installed approximately 0.8 ft higher than the previous water level, thus raising the water level that is required for water in Force Lake to flow into North Lake. As a result, outflow volumes from Force Lake are much less than inflow volumes and are often minimal for storm events (those less than a 2-year recurrence interval event).

According to the NRMP (City of Portland 1997), because of the hydraulic control on outflows from Force Lake, chemicals conveyed to Force Lake via runoff from its tributary sub-basin will remain in Force Lake and not be transported downstream. Surface water samples collected from North Lake and surface sediment samples collected from North Lake and Force Lake as part of the RI support the City of Portland's finding.

As presented in Section 4.0, TPH, PCBs, DDTs, and PAHs were not detected in surface water samples collected from Force Lake. Only four chemicals (arsenic, barium, copper, and acetone) were detected in at least one surface water sample. These metals occur naturally in the environment, and none of the identified concentrations appear to be attributed to releases from the Facility (see Section 4.5).

With regard to sediment samples, as described in Section 4.0, concentrations of PCBs, metals, and pesticides were relatively consistent throughout Force Lake. Metals concentrations (e.g., arsenic, lead, and mercury) had little spatial variability. The highest total PCB and total DDT concentrations were detected in the central portion of Force Lake; there was no gradient that indicated the presence of a source to the north of the lake. The spatial variations of PAH and TPH concentrations were slightly different. Total PAH concentrations were highest in samples from SE-02 and SE-03 in the northern portion of Force Lake, and total TPH concentrations were highest in samples from SE-03, SE-04, and SE-06 in the central western portion of Force Lake.

Detected concentrations of total PAHs, TPH, arsenic, and lead in the three sediment samples (SE-101 [11 ft from the culvert], SE-102 [38 ft from the culvert], and SE-103 [98 ft from the culvert]) collected from North Lake did not indicate the presence of a concentration gradient between the lakes. Total PCBs and mercury were not detected in any sediment samples from North Lake. Total DDTs were detected in one of the three samples collected from North Lake; the detected DDD and DDE concentrations were lower than detected concentrations in Force Lake.

In summary, because inflows and outflows from Force Lake are limited, the lake is a quiescent water body that acts as a settling basin. The water velocity or current is low, and suspended solids that enter the lake tend to settle to the bottom rather than being transported downstream. As such, chemicals that have entered the lake have usually stayed in the lake because of the hydraulics, the tendency for solids to settle, and the fact that most of the chemicals that have been detected above screening

levels (as described in Section 4.0) have a tendency to adsorb to organic matter and settleable solids. These chemicals have not been detected in filtered surface water (representative of dissolved phase transport), and thus it is unlikely that any significant migration of these chemicals from Force Lake has occurred, as was supported by the sampling conducted in North Lake as part of the RI.

Thus, in summary, chemical migration from Force Lake via the flow of water or sediment resuspension and transport does not appear to be a significant pathway based on Force Lake hydraulics, North Lake surface water sampling results, and North Lake sediment sampling results.

5.3.5 Vapor Phase Migration

VOCs from vadose zone soil and shallow groundwater can volatilize to outdoor air or into overlying or nearby structures via vapor intrusion. Certain chemicals (metals, PAHs, PCBs, and pesticides) are unlikely to volatilize and are not of concern with regard to this migration pathway. The limited extent and low concentrations of VOCs in vadose zone soil and shallow groundwater in the Study Area suggest that these pathways are not of significance. Nevertheless, these pathways were evaluated in the HHRA to be conservative (Appendix I).

5.3.6 Migration Pathway Summary

As described in Section 5.2.1, the key migration pathway for the distribution of COPCs is stormwater runoff. Specifically, chemicals may have migrated as a function of the historical direct discharge of oily rinsate and the entrainment and mass transport of chemicals contained on or sorbed to soil particles from the Facility. This migration pathway has resulted in the presence of chemicals in shallow groundwater, Facility soil, wetland soil, and Force Lake sediment. Oily rinsate and stormwater runoff from operational areas on the Facility would have flowed to low areas in the south and southwest and accumulated in historical sumps and holding ponds along the southwest Facility boundary, which may have extended into what is now considered the wetlands. These former low-lying areas were subsequently filled to current grade, and therefore these areas indicate deeper chemical presence than other areas on the Facility.

Facility modifications with regard to operations (e.g., the termination of truck cleaning operations), and stormwater management (e.g., the capture and treatment of all stormwater) have likely mitigated this pathway so that it is less likely to result in the continued transport of chemicals from the Facility.

Other pathways identified as potentially complete, but likely of lesser significance, include the following:

- Potential future erosion of soils from the soil berm located at the northwest and southwest property boundaries to the wetland
- Potential erosion of wetland soil into Force Lake

- Potential migration of chemicals in shallow groundwater to Force Lake sediment
- Potential volatilization of VOCs from Facility vadose zone soil or shallow groundwater to indoor or outdoor air

6.0 BASELINE RISK ASSESSMENTS

This section presents a summary of the baseline HHRA and ERA, which are included in this document as Appendices I and J, respectively.

6.1 Human Health Risk Assessment

The baseline HHRA presented risk estimates for humans for various scenarios involving exposure to COPCs found in soil, lake sediment, lake water, groundwater, and fish caught in Force Lake. The scenarios assessed in this HHRA were developed to be protective of the reasonable maximum level of exposure at the Study Area, and thus risk estimates, although uncertain, are intended to be health protective.

The baseline HHRA was conducted in accordance with the following guidance:

- EPA's Risk *Assessment Guidance for Superfund, Volume 1: Human Health Evaluation Manual, Part A* (1989)
- EPA's *Risk Assessment Guidance for Superfund, Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors* (1991a)
- *EPA Region 10 Supplemental Risk Assessment Guidance for Superfund* (1996)
- EPA's *Risk Assessment Guidance for Superfund. Volume 1. Human Health Evaluation Manual. Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments* (1998b)
- EPA's *Risk Assessment Guidance for Superfund, Volume 1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment)* (2004)
- DEQ's *Guidance for Conduct of Deterministic Human Health Risk Assessments (1998c)*
- DEQ's *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites (2003)*

The baseline HHRA (Appendix I) presented a data evaluation, CSM and exposure assessment, toxicity assessment, risk characterization, and uncertainty analysis, each of which is briefly summarized in the following subsections.

6.1.1 Data Evaluation

Data used in the assessment included the data collected from the Study Area during the two phases of RI data collection (April 2008 and April 2009). In addition, one of the eight historical datasets available for the Study Area was also found to be acceptable for use in this HHRA. The

historical data used in the HHRA were collected by EPA in 2000 (Ecology and Environment 2001). In total, the HHRA dataset included Facility soil samples, groundwater samples, wetland soil samples, lake sediment samples, and lake surface water samples. The available data were found to be representative of Study Area concentrations and appropriate for use in estimating potential human exposures.

6.1.2 Conceptual Site Model and Exposure Assessment

Based on the current and likely future land uses within the Study Area, the human health CSM described generalized scenarios in which people could be exposed to chemicals within the Study Area (Figure 6-1) through various pathways. Although not differentiated in Figure 6-1, exposures might occur on the Facility (workers) or in the nearby wetlands or Force Lake (recreational users or fish consumers). In addition, a screening assessment for hypothetical future residents was assessed as described in Section 6.1.5, even through residential land use is unlikely (the Facility has an Industrial Sanctuary designation, as do the surrounding properties to the northwest, northeast, and southeast).

On the Facility, exposure pathways included direct contact with Facility soil and groundwater, as well as the inhalation of soil or water vapors and soil particles during work activities. For non-Facility portions of the Study Area, exposure pathways included direct contact with wetland soil, lake sediment, or lake surface water during recreation, as well as indirect exposure through the consumption of fish from Force Lake. The human health CSM identified pathways as complete or incomplete. All complete pathways, except those with low exposure potential, were evaluated quantitatively in the HHRA.

In accordance with EPA guidance (1989), the four scenarios selected for analysis in this HHRA were parameterized as RME scenarios. RME is the highest exposure that is reasonably expected to occur at a site and is generally used by EPA to determine whether to conduct a feasibility study for potential remedial actions (EPA 1989). RME scenarios, by definition, likely overestimate exposure for many individuals but are used here to ensure that this baseline HHRA is health-protective. Risks associated with a fifth scenario, the industrial/commercial worker vapor intrusion scenario, were calculated based on a comparison of Study Area concentrations with published screening levels for the vapor intrusion pathway (EPA 2002d), and thus it was not necessary to define exposure parameters for this scenario.

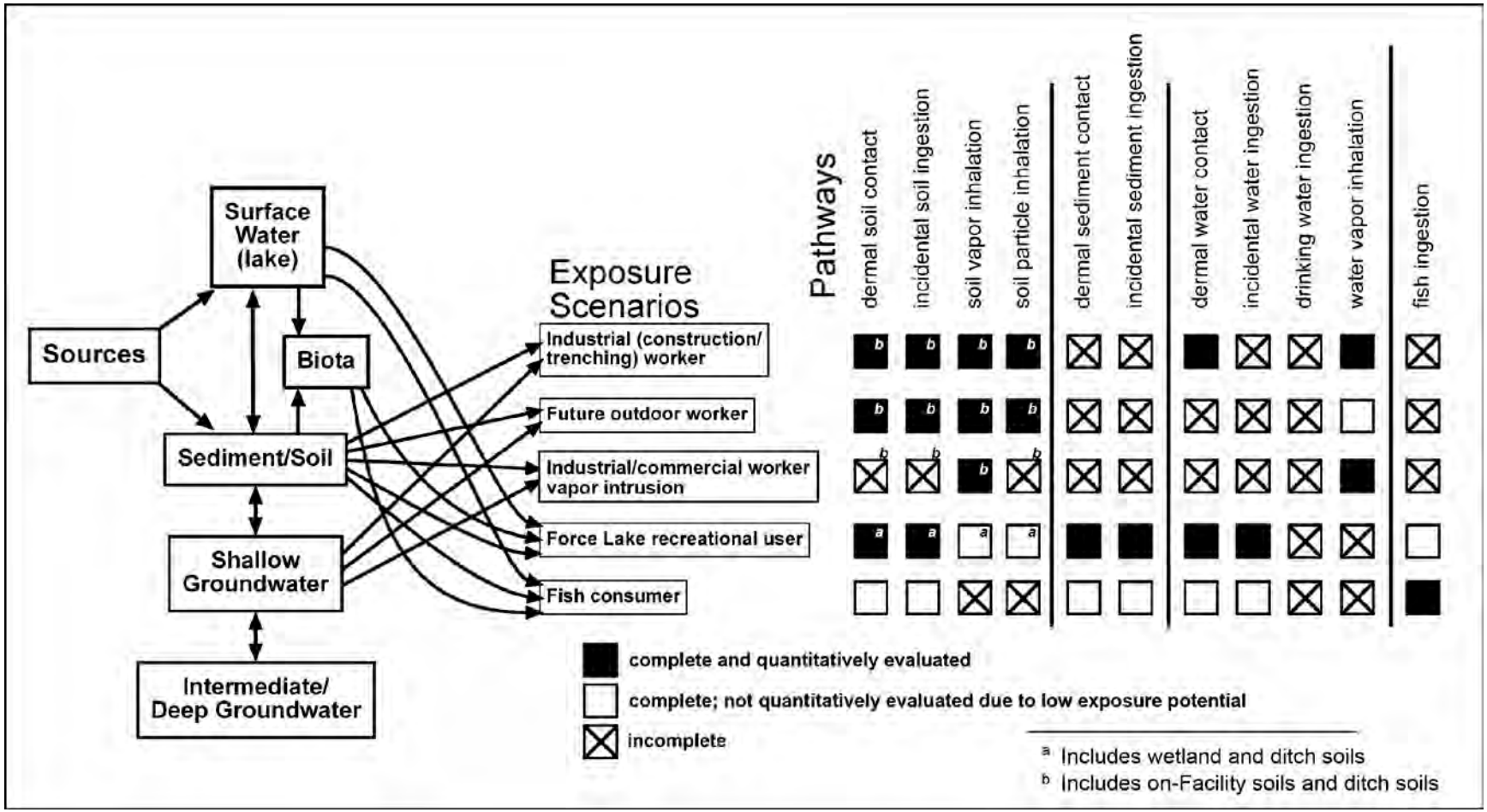

Figure 6-1. Human Health CSM

The following scenarios were evaluated for the HHRA to assess the exposure of workers to COPCs at the Facility:

- **Industrial (construction/trenching) worker RME scenario:** Current and future onsite workers may be exposed to chemicals in Facility soil via incidental ingestion, dermal absorption, inhalation of airborne soil particulates, and inhalation of volatilized chemicals. Exposure to chemicals in groundwater may occur via dermal absorption and the inhalation of volatilized chemicals.
- **Future outdoor worker RME scenario:** Future outdoor workers may be exposed to chemicals in Facility soil via incidental ingestion, dermal absorption, inhalation of airborne soil particulates, and inhalation of volatilized chemicals.
- **Industrial/commercial worker vapor intrusion scenario:** Current and future onsite workers may be exposed to chemicals in Facility soil or groundwater via the inhalation of chemicals volatilized to indoor air.

The following scenarios were evaluated in the HHRA to assess the exposure of individuals to COPCs in the non-Facility portions of the Study Area:

- **Force Lake recreational user RME scenario:** Individuals who use Force Lake as a recreational area both currently and in the future may be exposed to chemicals in wetland soil or lake sediment via incidental ingestion and dermal absorption (lake and wetland exposure were evaluated separately) and to chemicals in lake surface water through incidental ingestion and dermal absorption.
- **Force Lake fish consumer RME scenario:** Many of the chemicals found at the Study Area are persistent in the environment and can bioaccumulate in the food chain. Thus, individuals who fish recreationally at Force Lake both currently and in the future may be exposed to chemicals in fish tissue via the consumption of fish caught in Force Lake.

In the first step of the exposure assessment, a conservative risk-based screen was performed in accordance with EPA guidance (as presented in Section 6.1) to identify the media-specific COPCs to be evaluated for each scenario. A total of 34 chemicals or chemical groups were identified as COPCs for one or more scenarios, including 15 metals, 2 PAHs, 1 other SVOC, PCBs, DDTs, 14 VOCs, and 2 TPH ranges. Details of this screen are presented in Section 3.2 of the HHRA (Appendix I). The next step involved the estimation of the potential exposure of people to COPCs for each scenario. Exposures were calculated using concentration data for each COPC and health-protective assumptions.

Exposure point concentrations (EPCs) were calculated to represent estimates of COPC concentrations in soil, groundwater, lake sediment, lake surface water, and fish tissue. These EPCs were then used in the exposure equations to calculate COPC intake or exposure. The EPC was

either the maximum concentration or the UCL concentration[23] of a COPC and was intended to represent a long-term exposure concentration. In some cases, the EPC was set equal to one-half the maximum RL if this value was higher than the maximum detected concentration or if there were no detected concentrations of the COPC. EPCs for the direct exposure scenarios (i.e., worker and recreation scenarios) were calculated for the area over which the exposure could potentially occur. Literature biota-sediment accumulation factors (BSAFs) were used along with Force Lake sediment concentrations to estimate the fish tissue EPCs.

6.1.3 Toxicity Assessment

EPA toxicity values were identified for all COPCs. Toxicity values included slope factors (SFs) and inhalation unit risk factors to estimate carcinogenic risks, as well as reference doses (RfDs) and reference concentrations (RfCs) to estimate the potential for effects other than cancer. Carcinogenic toxicity values (i.e., SFs and inhalation unit risk factors) provide a health-protective means to assess risks because they represent upper-bound estimates of carcinogenic potency. Similarly, non-cancer toxicity values (i.e., RfDs and RfCs) are health-protective because they are typically based on the most sensitive endpoint and population for which adequate data are available and include uncertainty factors or extrapolations to account for sensitive sub-populations or other limitations of the toxicity study data on which they were based.

6.1.4 Risk Characterization and Uncertainty Analysis

Carcinogenic risks and non-carcinogenic health effects were evaluated separately in the HHRA because of fundamental differences in the mechanisms of these toxic effects. Carcinogenic risk estimates were calculated by multiplying the estimated chemical intake by the SF or inhalation unit risk factor. Cancer risk estimates were compared with EPA's target risk range of 10^{-6} to 10^{-4} established in the National Contingency Plan for Superfund sites (40 CFR 300). For reference, the lifetime risk of developing cancer in the US population is one in two (i.e., 5×10^{-1}) for men and one in three (i.e., 3×10^{-1}) for women (American Cancer Society 2006). A 1×10^{-6} excess cancer risk represents an additional one-in-one-million probability that an individual may develop cancer over a 70-year lifetime through exposure to COPCs at the Study Area.

Chemicals with non-carcinogenic health effects are generally not toxic below a certain threshold; a critical dose must be exceeded before adverse health effects are observed. The potential for non-carcinogenic health effects is represented by the ratio of the estimated chemical intake to the critical dose (known as an RfD) and is expressed as an HQ. Exposures resulting in an HQ less than or equal to 1 are unlikely to result in non-cancer adverse health effects. When the sum of all HQs, regardless of endpoint, exceeded 1, endpoint-specific hazard indices

[23] Data management rules for calculating EPCs are presented in Attachment 2 of the HHRA (Appendix I).

(HIs) were calculated by summing the HQs for chemicals with common toxicological endpoints (e.g., all HQs calculated for the developmental endpoint).

For worker scenarios based on exposure to COPCs at the Facility, the total excess cancer risk estimates for the future outdoor worker RME scenario and the industrial (construction/trenching) worker RME scenario were equal to 2×10^{-5} and 3×10^{-6}, respectively (Table 6-1). For scenarios evaluating risks associated with COPCs in the non-Facility portions of the Study Area (Force Lake and the wetlands), the total excess cancer risk was equal to 2×10^{-5} for the Force Lake fish consumer RME scenario and was equal to 1×10^{-5} for the Force Lake recreational user RME scenario across all media (i.e., wetland soil, lake sediment, and lake surface water).

Table 6-1. Summary of Total Excess Cancer Risks and Non-Cancer HQs

Scenario and Associated Media	Total Excess Cancer Risk	Overall HI[a]
Industrial (construction/trenching) worker RME scenario (cumulative risk across media)	3×10^{-6}	1
Future outdoor worker RME scenario	2×10^{-5}	0.6
Industrial/commercial worker vapor intrusion scenario	9×10^{-7}	ne[b]
Force Lake recreational user RME scenario (cumulative risk across media)	1×10^{-5}	0.4[c]
Force Lake fish consumer RME scenario	2×10^{-5}	3 (endpoint-specific HIs were less than or equal to 1)[c, d]

[a] The overall HI is equal to the sum of HQs across multiple exposure pathways, endpoints, and/or target organs.

[b] Risks for this scenario were calculated based on a comparison of Study Area groundwater concentrations with vapor intrusion screening levels, which are based on the more stringent of the cancer or non-cancer risks (i.e., whichever one results in lower screening levels). For this scenario, screening levels for all COPCs were based on cancer risks, and thus it was not possible to calculate non-cancer risks.

[c] The overall HI is based on children 0 to 6 years of age. This HI is higher than HIs for the integrated 0-to-30 year age group and for older age groups (i.e., 7 to 16 years and 17 to 30 years), and thus is typically used for risk management decisions.

[d] The overall HI for this scenario was equal to 3. Because this value was greater than 1, endpoint-specific HIs were calculated per EPA guidance (1989). No endpoint-specific HIs were greater than 1 (see Section 5.3.5 of the HHRA [Appendix I] for details).

COPC – contaminant of potential concern
HI – hazard index
HQ – hazard quotient
ne – not evaluated
RME – reasonable maximum exposure

The overall HI (i.e., sum of non-cancer HQs for all COPCs across all endpoints) was less than or equal to 1 for all scenarios except the Force Lake fish consumer RME scenario (Table 6-1). However, when endpoint-specific HIs were calculated for the fish consumer RME scenario, no endpoint-specific HIs were greater than 1.

Based on the risk estimates, arsenic, cPAH TEQ, total PCBs, total DDTs, and TPH-gasoline (aliphatic) were identified as COCs (i.e., COPCs with excess cancer risks greater than 10^{-6}). Figure 6-2 presents a comparison of risk estimates by COPC for each of the scenarios with a total excess cancer risk greater than or equal to 1×10^{-6}. All excess cancer risk estimates were within EPA's target risk range of 10^{-6} to 10^{-4}. This information is also presented in Table 6-2, along with risk estimates based on background or reference area concentrations.

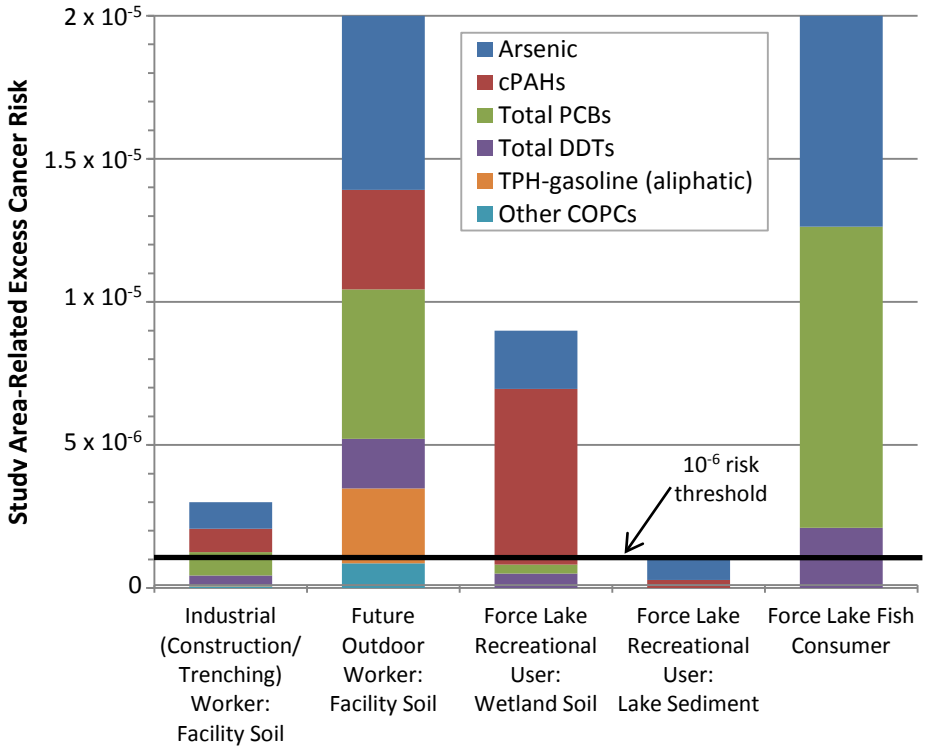

Figure 6-2. Proportion of Total Excess Cancer Risk for Each COC and for other COPCs

Table 6-2. Summary of Excess Cancer Risks for Scenarios with Total Excess Cancer Risks Greater than or Equal to 1×10^{-6}

COCs and other COPCs	Excess Cancer Risks (Percent of Total)				
	Industrial (Construction/ Trenching) Worker: Facility Soil	Future Outdoor Worker: Facility Soil	Force Lake Recreational User: Wetland Soil	Force Lake Recreational User: Lake Sediment	Force Lake Fish Consumer
Total Risk Estimates for Individual COPCs					
Arsenic	8×10^{-7} (31%)	7×10^{-6} (30%)	2×10^{-6} (23%)	1×10^{-6} (71%)	7×10^{-6} (37%)
cPAH TEQ	7×10^{-7} (27%)	4×10^{-6} (17%)	6×10^{-6} (68%)	4×10^{-7} (29%)	na
Total PCBs	7×10^{-7} (27%)	6×10^{-6} (26%)	3×10^{-7} (3%)	na	1×10^{-5} (53%)
Total DDTs	3×10^{-7} (12%)	2×10^{-6} (9%)	5×10^{-7} (6%)	na	2×10^{-6} (11%)
TPH-gasoline (aliphatic)	3×10^{-8} (1%)	3×10^{-6} (13%)	na	na	na
Other COPCs	5×10^{-8} (2%)	1×10^{-6} (5%)	2×10^{-10} (0%)	na	na
Total risk	**3×10^{-6}**	**2×10^{-5}**	**9×10^{-6}**	**1×10^{-6}**	**2×10^{-5}**
Background or Reference Area Risk Estimates[a]					
Arsenic	6×10^{-7}	4×10^{-6}	2×10^{-6}	2×10^{-6}	8×10^{-6} to 9×10^{-6}
cPAH TEQ	6×10^{-9} to 4×10^{-8}	3×10^{-8} to 2×10^{-7}	4×10^{-8} to 3×10^{-7}	7×10^{-7} to 8×10^{-7}	na
Total PCBs	5×10^{-9}	2×10^{-8}	nc	na	3×10^{-6} to 4×10^{-6}
Total DDTs	nc	2×10^{-9} to 5×10^{-8}	nc	na	2×10^{-7}

[a] Background or reference area concentrations and sources are discussed in Attachment 7 of Appendix I. Concentrations for metals are representative of background concentrations and concentrations for organic compounds are representative of reference area concentrations. No background or reference area concentrations were available for TPH gasoline (aliphatic).

cPAH – carcinogenic polycyclic aromatic hydrocarbon
COC – contaminant of concern
COPC – contaminant of potential concern
DDT – dichlorodiphenyltrichloroethane
na – not applicable (not a COPC)
nc – not calculated
PCB – polychlorinated biphenyl
TEQ – toxic equivalent
TPH – total petroleum hydrocarbons

For these COCs, background or reference area data from local and regional sources were used to estimate risks for comparison with Study Area risk estimates. Risk estimates based on background concentrations were similar to those based on Study Area concentrations for arsenic for most of the scenarios (Table 6-2). With one exception, risk estimates based on reference area concentrations were less than Study Area risk estimates for cPAH TEQ, total PCBs, or total DDTs for all scenarios (Table 6-2). The exception was for the Force Lake recreational user based on exposure to wetland soil: cPAH TEQs from reference areas were slightly higher than or similar to those at the Study Area. No background or reference area data were available for TPH-gasoline (aliphatic).

Uncertainties associated with the risk estimates for each exposure scenario were discussed in the HHRA. Because the scenarios evaluated were either RME scenarios or comparisons to conservative screening levels, the selected exposure assumptions should be protective of the workers at the Facility and the general public. The RME risk estimates likely overestimate risks for most individuals, although it is possible that risks could also be underestimated.

Risk estimates were highest for the Force Lake fish consumer RME scenario and the future outdoor worker RME scenario (equal to 2×10^{-5} for both scenarios). For the Force Lake fish consumer RME scenario, the main uncertainties included the use of BSAFs (rather than actual fish tissue data) to estimate fish tissue concentrations and the use of an estimated fish consumption rate to calculate risks (for further discussion fo these uncertainties, see Sections 6.1.4 and 6.1.5 of the HHRA [Appendix I], respectively). To ensure that the scenario was health-protective, the values selected for both of these parameters were intended to be conservative. For example, the assumed adult fish consumption rate would require the annual consumption of 5 to 10 times the number of fish observed during the 2009 Force Lake survey (Windward 2009b). If each adult was also assumed to be feeding one child, even more fish would be needed (the annual consumption of 6 to 11 times the number of fish observed during the 2009 Force Lake survey). For the future outdoor worker RME scenario, the main uncertainty was the assumption that the gravel and pavement layers that currently cover the Facility would be removed, which would increase the exposure beyond existing conditions.

Additional analyses presented in Appendix I address uncertainties associated with the chemistry data, exposure assumptions, and toxicities of the COPCs. The final risk estimates reflect uncertainties associated with using data and assumptions from multiple sources; the combined effect of those uncertainties on risk estimates cannot be quantified. However, the assessment tended to overestimate risks, consistent with the health-protective nature of risk assessment. Therefore, the baseline characterization of RME risks for the Study Area is considered to be health-protective and sufficient to support risk management decisions.

6.1.5 Screening-Level Assessment for Future Resident Scenario

In addition to the risk evaluations described in Section 6.1.4, a screening assessment was conducted to estimate risks based on the exposure of hypothetical future residents to chemicals at the Study Area (see Appendix I, Attachment 1). This scenario was based on the dermal absorption and incidental ingestion of Facility soils, wetland soils, and groundwater and on the ingestion of groundwater as drinking water. Per EPA request (Bridgewater et al. 2008b; Windward and Bridgewater 2008a, b), this screening-level assessment was included in the HHRA despite the current and expected future land use of the Study Area, which does not include residential use or development.

The screening assessment for hypothetical future residents indicated that total excess cancer risks would likely be greater than the upper end of EPA's target risk range (10^{-4}) and that HQs for some chemicals would likely be greater than 1 based on the risks calculated using residential RSLs (EPA 2009c). However, the wetlands are currently zoned as open space, and the Facility and other surrounding areas are currently zoned for industrial use. City of Portland planning documents indicate that these designations are not likely to change in the future, especially given the Industrial Sanctuary designation for the property on which the Facility is located and the fact that the non-Facility portions of the Study Area are in an NRMP area established under the City of Portland planning code. Based on this information, and as stated in the RI/FS Work Plan (Bridgewater et al. 2008b), residential development in this area is unlikely.

6.2 Ecological Risk Assessment

The baseline ERA for the Harbor Oil Superfund Site Study Area is included as Appendix J. This section presents a summary of the baseline ERA, which was conducted in accordance with the following guidance:

- EPA's *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (1997a)
- *EPA Region 10 Supplemental Ecological Risk Assessment Guidance for Superfund* (1997b)
- EPA's *Guidelines for Ecological Risk Assessment* (1998a)

The baseline ERA presents risk estimates for benthic invertebrates, terrestrial invertebrates, fish, and wildlife species that may be exposed to COPCs in wetland soil, Force Lake surface sediment, Force Lake surface water, and aquatic or terrestrial biota. The risk assessment was designed to be protective of the range of species that have been observed at or could use the Study Area. Conservative assumptions, such as the use of the lowest toxicity values and the use of UCL concentrations for estimating exposure, were used in an attempt to ensure that risk estimates, although uncertain, were protective of ecological receptors.

The baseline ERA presented a problem formulation, exposure assessment, effects assessment, risk characterization, and uncertainty analysis. Each of these elements is briefly summarized in the following subsections.

6.2.1 Problem Formulation

The ERA problem formulation established the overall scope of the assessment, which included the identification of the receptors of concern (ROCs) and COPCs that were further evaluated in the exposure and effects assessment, risk characterization, and uncertainty analysis.

A systematic process, consistent with EPA guidance (1997a, 1998a), was followed to select representative species as ROCs. This process, which was presented in the risk assessment scoping memorandum (Windward and Bridgewater 2008a) and approved by EPA, resulted in the selection of species for which the risk conclusions would be protective of other species that were not explicitly evaluated. The following ROCs representing various feeding guilds were selected for this ERA:

- **Invertebrates:** aquatic benthic invertebrate community and wetland invertebrate community
- **Fish:** brown bullhead (omnivorous fish) and pumpkinseed (invertivorous fish)
- **Birds:** ruddy duck (invertivorous bird), great blue heron (piscivorous bird), and red-tailed hawk (higher-trophic-level carnivorous bird)
- **Mammals:** shrew (invertivorous mammal) and Eastern cottontail (herbivorous mammal)

These selected ROCs are known to use the Study Area for habitat or could potentially use the Study Area based on its habitat characteristics.

The problem formulation also included a description of the data available for conducting the ERA, the suitability of the data for risk assessment purposes, and the methods for and results of using a risk-based screening process to identify COPCs. The dataset used in the baseline ERA consisted of historical data and data collected from the Study Area during two phases of RI data collection (April 2008 and April 2009). Only one of the eight historical datasets available for the Study Area was acceptable for use in the ERA. The historical data used in the ERA were collected by EPA in 2000 (Ecology and Environment 2001).

Data used in the ERA consisted of wetland surface (0 to 6 in.), intermediate (6 to 12 in.), and berm[24] (6 to 24 in.) soil chemistry data, Force Lake surface (0 to 4 in.) sediment chemistry data, Force Lake surface water chemistry data, and shallow groundwater chemistry data.[25]

[24] The soil berm is approximately 2 to 3 feet high and 5 to 6 feet wide at its base and extends along the border of the Facility to the west and south; the berm is intended to prevent stormwater runoff from flowing into the adjacent wetlands.

[25] Shallow groundwater data were evaluated only as part of an exposure assessment presented in the uncertainty analysis, wherein shallow groundwater data were compared with AWQC.

Chemical concentrations in various tissue types were estimated from abiotic concentrations. The available data were found to be representative of Study Area concentrations and appropriate for use in estimating potential ecological exposures.

For each receptor of concern (ROC) selected, COPCs were identified through a conservative risk-based screening process using no-adverse-effect levels or other protective toxicity thresholds for the following analyte groups: metals, PAHs, phthalates, other SVOCs, VOCs, pesticides, and PCBs. During the screening process, COIs, which were defined as all detected chemicals, were screened against conservative screening thresholds. COIs with maximum detected concentrations greater than conservative screening values were identified as COPCs. In accordance with EPA guidance (1997a, 2001), an additional screening step was then conducted to further refine the list of COPCs. In the refined screening step, Study Area concentrations were compared with background/reference area[26] concentrations to eliminate COPCs from the Study Area that had concentrations less than or equal to those in background/reference areas. This refinement step streamlined the baseline ERA, providing greater clarity and transparency to the assessment. Refined COPCs were evaluated further in the baseline ERA. COIs with no available screening thresholds could not be screened and were discussed in the uncertainty assessment.

The following summarizes the results of the refined COPC screening process for each receptor group:

- **Aquatic benthic invertebrates:** COIs for aquatic benthic invertebrates were defined as any chemical detected in surface sediment or surface water. Forty-eight COIs were identified for aquatic benthic invertebrates. Sediment thresholds were not available for 13 COIs (3 metals, 2-methylnaphthalene, dibenzofuran, 4 VOCs, and 4 petroleum hydrocarbon mixtures), and thus risks to aquatic benthic invertebrates from exposure to these COIs could not be evaluated. Water thresholds were available for all four surface water COIs. Twelve refined COPCs (cadmium, copper, lead, nickel, zinc, fluoranthene, phenanthrene, total PCBs, 2,4′-DDD, 4,4′-DDD, 4,4′-DDE, and total DDTs) were identified in sediment.
- **Terrestrial invertebrates:** COIs for terrestrial invertebrates were defined as any chemical detected in surface soil. Eighty-eight chemical (or chemical groups) were identified as COIs for terrestrial invertebrates. Soil thresholds were not available for 48 COIs (vanadium, PCBs, DDTs, delta-BCH, methoxychlor, 2 PAHs, 10 SVOCs, 16 VOCs, and 6 petroleum hydrocarbon mixtures), and thus risks to terrestrial invertebrates from exposure to these COIs could not be evaluated. Five refined COPCs (chromium,

[26] The term reference area is used instead of background for organic compounds because no specific background concentrations that are representative of anthropogenic background have been selected or approved by EPA. Instead, concentrations from reference areas (urban areas in the vicinity of the Study Area) area presented for comparison with Study Area concentrations.

copper, mercury, zinc, and total HPAHs) were identified in wetland soil.

- **Fish:** COIs for fish were defined as any chemical detected in surface sediment or surface water. Forty-eight chemicals (or chemical groups) were identified as COIs for fish and evaluated as dietary COIs, tissue COIs, or surface water COIs. Effects data for fish were not available for five of the dietary COIs (three metals, 2-methylnaphthalene, and dibenzofuran), and no tissue TRVs were available for eight COIs (acetone, carbon disulfide, methyl ethyl ketone, toluene, and 4 petroleum hydrocarbon mixtures), and thus risks to fish from exposure to these COIs could not be evaluated. Water thresholds were available for all four surface water COIs. Two refined COPCs (cadmium and copper) were identified for fish diet, and one refined COPC (total PCBs) was identified for fish tissue.
- **Aquatic birds:** COIs for aquatic birds were defined as any chemical detected in surface sediment. Forty-eight chemical (or chemical groups) were identified as COIs for aquatic ROCs, including ruddy duck. Effects data for birds were not available for 10 COIs (barium, 3 VOCs, 2 PAHs, and 4petroleum hydrocarbon mixtures), and thus risks to aquatic birds from exposure to these COIs could not be evaluated. Two refined COPCs (mercury and total DDTs) were identified for ruddy duck, and one refined COPC (total DDTs) was identified for great blue heron.
- **Terrestrial birds:** COIs for terrestrial birds were defined as any chemical detected in surface soil. Eighty-eight chemical (or chemical groups) were identified as COIs for terrestrial ROCs. Effects data for birds were not available for 37 COIs (5 metals, 2 PAHs, 9 SVOCs, 15 VOCs, and 6 petroleum hydrocarbon mixtures), and thus risks to terrestrial birds from exposure to these COIs could not be evaluated. One refined COPC (total DDTs) was identified for red-tailed hawk.
- **Terrestrial mammals:** COIs for terrestrial birds were defined as any chemical detected in surface soil. Eighty-eight chemicals (or chemical groups) were identified as COIs for terrestrial ROCs. Effects data for mammals were not available for 31 COIs (4 metals, 7 SVOCs, 14 VOCs, and 6 petroleum hydrocarbon mixtures), and thus risks to terrestrial mammals from exposure to these COIs could not be evaluated. Five refined COPCs (cobalt, copper, mercury, vanadium, and total PAHs) were identified for Eastern cottontail, and ten refined COPCs (arsenic, cadmium, cobalt, copper, lead, mercury, zinc, total PAHs, total PCBs, and total DDTs) were identified for shrew.

Additional details regarding the COPC screening process are provided in Section 2.6 of the ERA (Appendix J).

The problem formulation also presented the CSMs for the aquatic and terrestrial ROCs. The CSM was used to define assessment endpoints and measures of exposure and effect. The CSMs for the terrestrial and

aquatic ecological ROCs are presented as Figures 6-3 and 6-4, respectively. The significant pathways evaluated in the ERA included direct exposure to surface sediment, direct exposure to surface water, direct exposure to wetland soil, and indirect exposure through the dietary ingestion of biota. The protection and maintenance (i.e., survival, growth, and reproduction) of ROCs were the key endpoints evaluated in this assessment. Risk questions and measurement endpoints were developed for all ROCs based on the complete and significant exposure pathways identified in the CSMs. Table 6-3 presents an overview of the proposed assessment endpoints, hypotheses (phrased as questions), representative ROCs, measurement endpoints, and data that were used in the ERA.

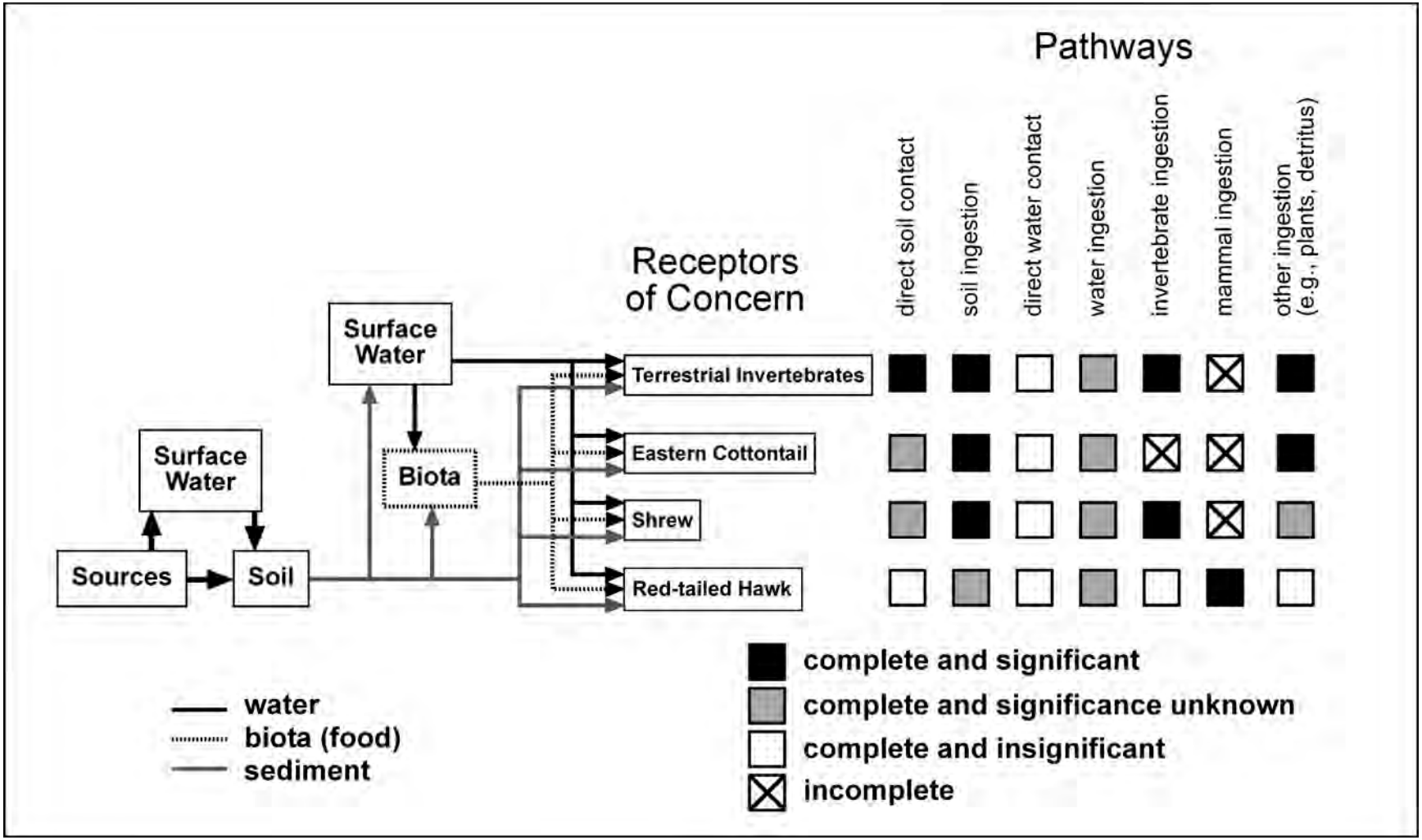

Figure 6-3. Ecological CSM – Terrestrial Receptors of Concern

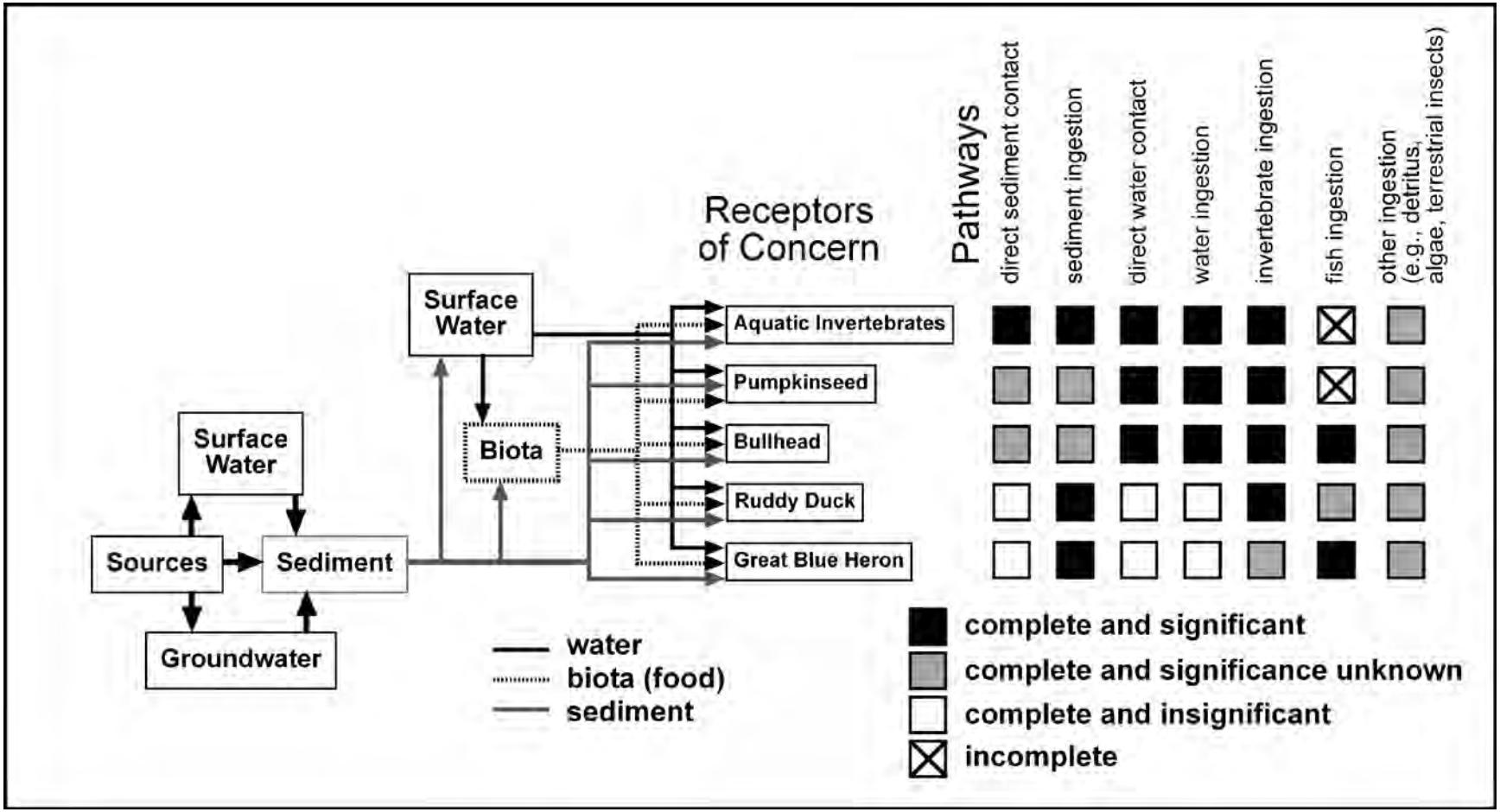

Figure 6-4. Ecological CSM – Aquatic Receptors of Concern

Table 6-3. Assessment Endpoints for ROCs and Measures of Effect and Exposure

Assessment Endpoint by ROC	Testable Risk Question	Description of Measurement Endpoint	Data to be Evaluated from the Study Area
Invertebrates			
Protection and maintenance (i.e., survival, growth, and reproduction) of the aquatic benthic invertebrate community	Are COPC concentrations in Force Lake surface sediment at levels that might cause an adverse effect on survival, growth, and/or reproduction of the Force Lake benthic invertebrate community?	concentrations in sediment compared with sediment thresholds from the literature that are protective of aquatic benthic invertebrates	concentrations in Force Lake surface sediment samples
	Are COPC concentrations in surface water from Force Lake at levels that might cause an adverse effect on survival, growth, and/or reproduction of the Force Lake aquatic benthic invertebrate community?	concentrations in surface water compared with water thresholds from the literature that are protective of aquatic benthic invertebrates	concentrations in Force Lake surface water samples
	Are COPC concentrations in shallow groundwater samples nearest to Force Lake at levels that might cause an adverse effect on survival, growth, and/or reproduction of the Force Lake benthic invertebrate community?	concentrations in groundwater compared with water thresholds from the literature that are protective of aquatic benthic invertebrates	concentrations in shallow groundwater well samples closest to Force Lake[a]
Protection and maintenance (i.e., survival, growth, and reproduction) of the terrestrial invertebrate community	Are COPC concentrations in wetland soils at levels that might cause an adverse effect on survival, growth, and/or reproduction of the terrestrial invertebrate community present at the Study Area wetlands?	concentrations in wetland soil compared with soil thresholds from the literature that are protective of terrestrial invertebrates	concentrations in wetland, ditch, and berm soil samples
Fish			
Protection and maintenance (i.e., survival, growth, and reproduction) of fish (i.e., pumpkinseed and brown bullhead)	Are estimated COPC concentrations in fish tissue at levels that might cause an adverse effect on survival, growth, and/or reproduction of populations of fish that use Force Lake?	ROC-specific estimated concentrations in fish tissue compared with literature-based tissue-residue TRVs	estimated concentrations in brown bullhead and pumpkinseed
	Are modeled dietary exposures to COPCs from Force Lake prey at levels that might cause an adverse effect on survival, growth, and/or reproduction of fish populations that use Force Lake?	ROC-specific modeled daily doses (estimated from surface sediment and invertebrate and/or fish tissue chemistry) compared with literature-based dietary-dose TRVs	estimated concentrations in aquatic benthic invertebrates and/or fish and concentrations in surface sediment
	Are COPC concentrations in surface water from Force Lake at levels that might cause an adverse effect on survival, growth, and/or reproduction of fish populations that use Force Lake?	concentrations in surface water compared with water thresholds from the literature that are protective of fish	concentrations in Force Lake surface water samples
	Are COPC concentrations in shallow groundwater samples nearest to Force Lake at levels that might cause an adverse effect on survival, growth, and/or reproduction of fish populations that use Force Lake?	concentrations in groundwater compared with water thresholds from the literature that are protective of fish	concentrations in shallow groundwater well samples closest to Force Lake[a]

Table 6-3. Assessment Endpoints for ROCs and Measures of Effect and Exposure (cont.)

Assessment Endpoint by ROC	Testable Risk Question	Description of Measurement Endpoint	Data to be Evaluated from the Study Area
Birds			
Protection and maintenance (i.e., survival, growth, and reproduction) of terrestrial (i.e., red-tailed hawk) and aquatic birds (i.e., great blue heron and ruddy duck) populations	Are modeled dietary doses of COPCs based on Force Lake sediment and biota prey at levels that might cause an adverse effect on survival, growth, and/or reproduction of ruddy duck populations that use Force Lake?	ROC-specific modeled daily doses (estimated from surface sediment and invertebrate tissue chemistry) compared with literature-based dietary-dose TRVs	estimated concentrations in aquatic benthic invertebrates and concentrations in Force Lake surface sediment
	Are modeled dietary doses of COPCs based on Force Lake sediment and biota prey at levels that might cause an adverse effect on survival, growth, and/or reproduction of great blue heron populations that use Force Lake?	ROC-specific modeled daily doses (estimated from surface sediment and invertebrate and fish tissue chemistry) compared with literature-based dietary-dose TRVs	estimated concentrations in aquatic benthic invertebrates and fish and concentrations in Force Lake surface sediment
	Are modeled dietary doses of COPCs based on wetland soils and biota prey at levels that might cause an adverse effect on survival, growth, and/or reproduction of red-tailed hawk populations that use Study Area wetlands?	ROC-specific modeled daily doses (estimated from wetland soil and mammal tissue chemistry) compared with literature-based dietary-dose TRVs	estimated concentrations in terrestrial small mammals and concentrations in wetland, ditch, and berm soil samples
Mammals			
Protection and maintenance (i.e., survival, growth, and reproduction) of terrestrial mammal (i.e., shrew and Eastern cottontail) populations	Are modeled dietary doses of COPCs based on Force Lake sediment, wetland soil, and biota prey at levels that might cause an adverse effect on survival, growth, and/or reproduction of shrew populations that use Study Area wetlands and Force Lake?	ROC-specific modeled daily doses (estimated from wetland soil, sediment, and aquatic benthic invertebrate and terrestrial invertebrate tissue chemistry) compared with literature-based dietary-dose TRVs	estimated concentrations in aquatic and terrestrial invertebrates and concentrations in Force Lake sediment and wetland, ditch, and berm soil samples
	Are modeled dietary doses of COPCs based on wetland soils and biota prey at levels that might cause an adverse effect on survival, growth, and/or reproduction of Eastern cottontail populations that use Study Area wetlands?	ROC-specific modeled daily doses (estimated from wetland soil and plant tissue chemistry) compared with literature-based dietary-dose TRVs	estimated concentrations in terrestrial plants and concentrations in wetland, ditch, and berm soil samples

[a] Based on the hydrogeology of the Study Area, only shallow groundwater is likely to recharge Force Lake. Thus, the shallow groundwater well samples closest to Force Lake (i.e., MW-1s, MW-2s, GA-33, and A-20 [see Figure 2-2]) were evaluated as part of the uncertainty analysis (Section 5.1.1 in Appendix J).

COPC – contaminant of potential concern
ROC – receptor of concern
TRV – toxicity reference value

6.2.2 Exposure Assessment

The exposure assessment estimated the potential exposure of each ROC/refined COPC pair identified in the problem formulation:

- The exposure of the aquatic benthic invertebrate community to refined COPCs was estimated based on concentrations in individual surface sediment and surface water samples.
- The exposure of the terrestrial invertebrate community to refined COPCs was estimated based on concentrations in individual wetland and berm soil samples.
- The exposure of fish to refined COPCs was characterized based on estimated concentrations in fish tissue, concentrations in surface water, and estimated dietary doses using ROC-specific exposure parameters.
- The exposure of birds and mammals to refined COPCs was characterized based on estimated dietary doses using ROC-specific exposure parameters.

In the dietary-dose evaluation for fish and wildlife ROCs, the exposure assessment presented equations and identified parameters to quantify the ingested dose. Dietary doses for fish and wildlife were estimated using available information on ROC biology and life histories, including body weight, feeding behavior, site usage, and diet. Aquatic and terrestrial tissue concentrations were estimated from sediment and wetland soil concentrations using BSAFs and bioaccumulation factors (BAFs), respectively.

6.2.3 Effects Assessment

Toxicity data for potential adverse effects (i.e., reduced survival, reduced growth, or impaired reproduction), screening thresholds, and criteria were identified as outlined in the risk assessment scoping memorandum (Windward and Bridgewater 2008a) and summarized in the effects assessment. Published effects thresholds were identified for the evaluation of the benthic invertebrate community exposure to sediment and terrestrial invertebrate community exposure to soil.

For fish, tissue-residue and dietary-dose TRVs were summarized for the identified refined COPCs based on a detailed evaluation of toxicological studies in the scientific literature that documented the effects of COPCs on the ROCs or similar species. This literature review identified concentrations in fish tissue and doses associated with no effects (i.e., safe concentrations or doses) in addition to the lowest concentrations or doses that were associated with adverse effects. Both sets (i.e., no-observed-adverse-effect level [NOAEL] and LOAEL) of TRVs were summarized, and the rationale for TRV selection was provided.

For wildlife, dietary-dose TRVs were summarized for the identified ROC-refined COPC pairs based on a detailed evaluation of toxicological

studies in the scientific literature. Both NOAEL and LOAEL TRVs were identified; the rationale for the selection of specific values was presented.

6.2.4 Risk Characterization and Uncertainty Analysis

The exposure and effects data in the risk characterization were compared to calculate HQs, which were used, along with the uncertainty analysis, to assess the potential for adverse effects from specific refined COPCs. In ERAs, HQs greater than 1.0 indicate that the exposures of some receptors are estimated to be greater than toxicological benchmarks. Such a finding is generally regarded as an indication of a potential for adverse effects, particularly if the benchmark is an effects concentration (or dose) at which adverse effects were observed (i.e., a LOAEL). HQs may also be calculated based on a NOAEL. The potential for adverse effects associated with a NOAEL HQ greater than 1.0 is uncertain unless the LOAEL is also assessed, because the true threshold for effects occurs at a concentration (or dose) somewhere between the NOAEL and LOAEL. An exposure between the NOAEL and LOAEL may or may not result in an adverse effect. Therefore, both types of HQs were calculated and presented to better describe the potential for adverse effects.

The results for each of the ROCs are summarized in Table 6-4 and discussed below. Table 6-4 provides a summary of HQs for all ecological ROCs for which the LOAEL-based, PEL- or PEC-based HQs were greater than 1.0. Table 6-4 presents HQs based on Study Area data as well as effects-based HQs derived using background concentrations (for metals) or reference area concentrations (for organic compounds). Note that although background concentrations have been recommended by DEQ for soils, sediment, and surface water for metals, similar recommendations are unavailable for organic compounds, such as DDTs and PAHs. For organic compounds, concentrations from reference areas (i.e., urban areas within the vicinity of the Study Area) were used for comparison with Study Area concentrations because specific background concentrations have not been established.

Table 6-4. COPCs and ROCs with LOAEL-Based HQs Greater than 1.0

COPC	Matrix	NOAEL-Based HQ	LOAEL-Based HQ	Background or Reference Area[a] LOAEL-Based HQ
Aquatic Benthic Invertebrate Community				
DDD	surface sediment	**2.4 – 17**[b]	1.0 **– 7.2**[c]	0.072 – 0.79[c]
DDE	surface sediment	**6.4 – 110**[b]	**1.3 – 22**[c]	1.0 – 1.5[c]
Terrestrial Invertebrate Community				
Chromium	wetland soil	**3.3 – 75**[d]		**21**[d]
Copper	wetland soil	0.21 – **25**[d]		0.72[d]
Zinc	wetland soil	0.31 – **6.2**[d]		0.72[d]
Total HPAHs	wetland soil	0.0056 **– 3.2**[d]		0.003 – 0.022[d]
Fish – Pumpkinseed				
Copper	diet	**3.5**	**1.8**	0.30
Fish – Brown Bullhead				
Copper	diet	**2.1**	**1.1**	0.18
Birds – Red-Tailed Hawk				
Total DDTs	diet	**5.8**	**1.2**	0.020 – 0.47
Mammals – Eastern Cottontail				
Mercury	diet	**5.9**	**1.2**	0.54
Mammals – Shrew				
Mercury	diet	**65**	**13**	**5.7 – 15**
Total DDTs	diet	**9.2**	**8.5**	0.053 – 0.41

[a] Background and reference area concentrations and sources are discussed in Attachment 4 of the ERA (Appendix J). Concentrations for metals are representative of background concentrations and concentrations for organic compounds are representative of reference area concentrations.

[b] HQs were developed based on a comparison to a TEL or a TEC.

[c] HQs were developed based on a comparison to a PEL or a PEC; total DDT concentrations were less than the total DDT PEL/PEC.

[d] HQs were developed based on a comparison to soil screening levels.

COPC – contaminant of potential concern
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethylene
DDT – dichlorodiphenyltrichloroethane
HPAH – high-molecular-weight polycyclic aromatic hydrocarbon
HQ – hazard quotient
LOAEL – lowest-observed-adverse-effect level
NOAEL – no-observed-adverse-effect level
PEC – probable effects concentration
PEL – probable effects level
ROC – receptor of concern
SL – screening level
TEC – threshold effects concentration
TEL – threshold effects level
TRV – toxicity reference value

Bold identifies HQs greater than 1.0.

Aquatic Benthic Invertebrate Community: Concentrations of refined COPCs (including metals, PAHs, PCBs, and total DDTs) were greater than threshold effects concentrations (TECs) or threshold effects levels (TELs) but less than PECs or PELs. Exceedances of TECs and TELs do not necessarily predict toxicity; therefore, risks to benthic invertebrates are expected to be relatively low because these COPCs had concentrations greater than TECs/TELs but less than PECs/PELs. DDD and DDE were the only COPCs with concentrations in sediment that were also greater than PECs or PELs (thresholds associated with adverse effects); however, total DDT concentrations were less than these thresholds, and the bioavailability of DDD and DDE would be limited because TOC concentrations in the sediment were high, reducing the likelihood of effects on biota. No refined COPCs were identified for surface water; therefore, no risks to the aquatic benthic invertebrate community from exposure to surface water are expected.

As part of the uncertainty analysis, the potential exposure of aquatic benthic invertebrates to chemicals detected in nearby wetland soils and in shallow groundwater wells closest to Force Lake was evaluated. It was determined that shallow groundwater along the downgradient (i.e., south) side of the Facility is not expected to be a significant pathway of exposure for aquatic benthic invertebrates. Also, the potential for unacceptable risk to aquatic benthic invertebrates from the potential erosion of wetland soil into the lake is minimal because: 1) metals and PCB concentrations in wetland soil near Force Lake were low compared with PELs and PECs, and 2) total DDT concentrations in lake sediment were much lower than those in wetland soil likely indicating that there is limited transport of wetland soil to Force Lake.

Terrestrial Invertebrate Community: Five refined COPCs (chromium, copper, mercury, zinc, and total HPAHs) were evaluated for the terrestrial invertebrate community. HQs were less than 6.5, except for copper (with HQs from 0.21 to 25 and a background HQ of 0.72) and chromium (with HQs from 3.3 to 75 and a background HQ of 21). This assessment likely overestimated risk because the soil screening levels are conservative thresholds intended only for screening (i.e., they are not intended to serve as cleanup values), and they do not take into account site-specific bioavailability. The conservative screening level used for chromium is 21 times greater than the background soil concentration. In addition, although soil concentrations were greater than soil TRVs, earthworms were frequently observed during field sampling in areas with higher concentrations of metals. The samples with concentrations greater than background concentrations and conservative screening values were relatively limited, with the highest concentrations found in wetland soil collected from or near the ditch area.

Fish: Three measures of assessment were evaluated for the two fish ROCs (pumpkinseed and brown bullhead): tissue residue, surface water, and dietary dose. Three refined COPCs were evaluated (total PCBs in tissue and cadmium and copper in diet). Of these three COPCs, only copper had an exposure concentration greater than the LOAEL TRV, indicating the potential for adverse effects. However, the LOAEL-based

HQs were low (1.8 for pumpkinseed and 1.1 for brown bullhead). Consistent with the uncertainty evaluation conducted for the aquatic benthic invertebrate community, the potential for the exposure of fish to COPCs in shallow groundwater discharging into Force Lake is not expected to be a significant pathway of exposure.

Uncertainties that may affect the fish ROC risk estimates include the use of literature-based BSAFs (effect on risk estimates is unknown) and the dietary composition selected for pumpkinseed (risks may be overestimated based on the assumption of aquatic benthic invertebrate prey).

Birds: For birds (ruddy duck, great blue heron, and red-tailed hawk), two COPCs (mercury and total DDTs) were evaluated based on the results of the refined COPC screen. Estimated dietary doses for were less than those associated with adverse effects. The LOAEL-based HQ for total DDTs for the red-tailed hawk was 1.2, indicating the potential for adverse effects.

Uncertainties that may affect the risk estimates include the use of literature-based BSAFs and BAFs (effect on risk estimates is unknown).

Mammals: For mammals (Eastern cottontail and shrew), 11 COPCs were evaluated based on the results of the COPC screen. The LOAEL-based HQ for Eastern cottontail for mercury (1.2), was greater than 1.0, indicating the potential for adverse effects. However, the background LOAEL-based HQ for mercury (0.54) was half the Study Area HQ, indicating that background contributions to the risk were significant.

For shrew, LOAEL-based HQs for mercury (13), and total DDTs (8.5) were greater than 1.0, indicating the potential for adverse effects. The background LOAEL-based HQs for mercury ranged from 5.7 to 15 (compared with a Study Area HQ of 13), indicating that background concentrations are an important consideration for mercury. Reference area LOAEL-based HQs for total PCBs and total DDTs were less than 1.0.

Uncertainties that may affect the mammal risk estimates include the use of the site by shrew and the use of literature-based BAFs and BSAFs.

To further evaluate risks to shrew from total DDTs, a map was created (Figure 6-5) to evaluate the spatial extent of areas with concentrations that resulted in LOAEL-based HQs greater than 1.0. Shrew were assumed to consume both aquatic and terrestrial invertebrates; however, the majority of their exposure to total DDTs (> 99%) can be attributed to total DDT concentrations in wetland soil (i.e., through the terrestrial food chain). Wetland areas with total DDT concentrations that resulted in area-wide HQs greater than 1.0 were limited to a few highly localized areas, generally within the central portion of the wetlands between the Facility and Force Lake.

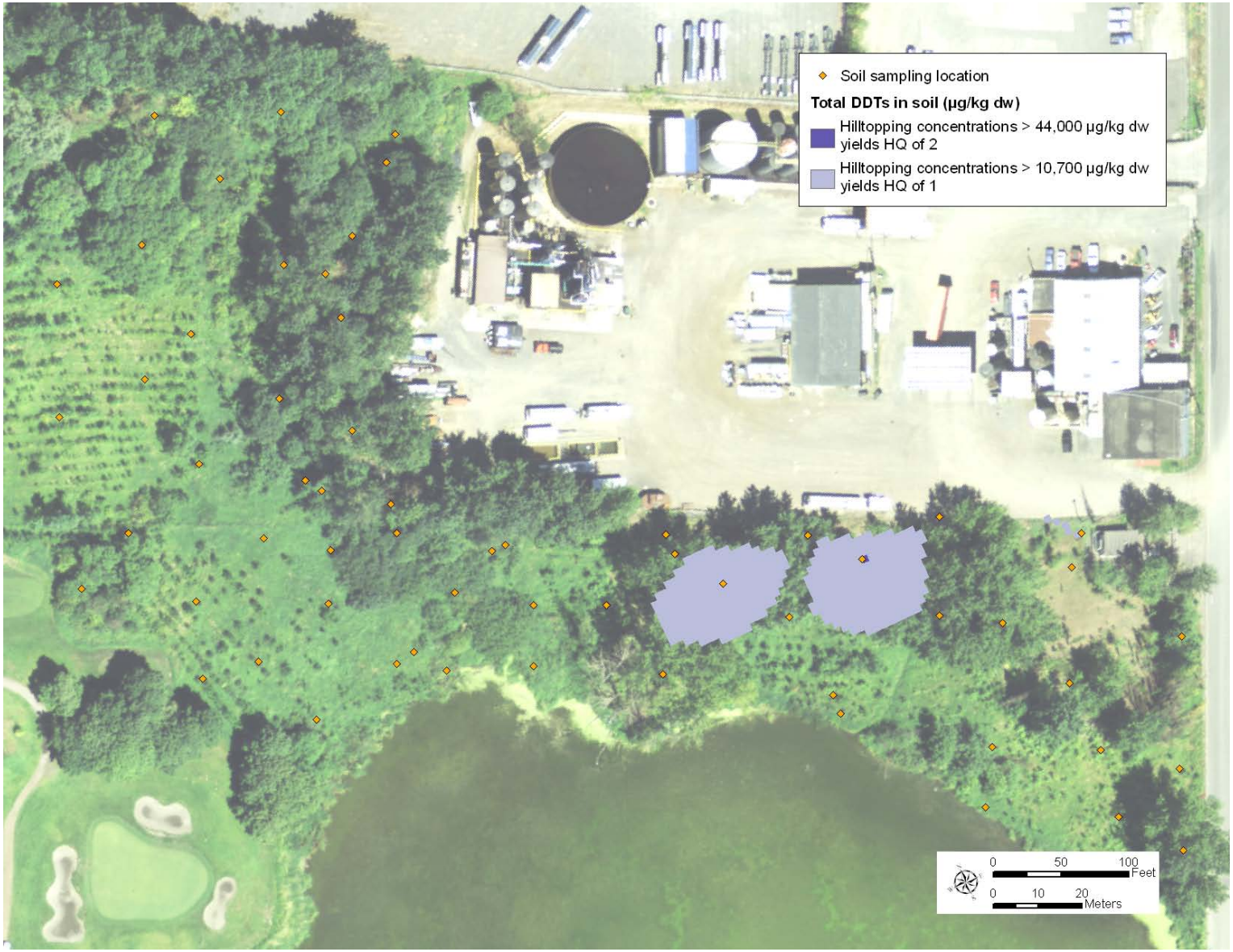

Figure 6-5. Interpolation of Total DDTs in Soil Relative to Risks to Shrew

7.0 SUMMARY AND CONCLUSIONS

This section presents a summary of the RI findings (Section 7.1), as well as a synthesis of the pathway, nature and extent, and risk conclusions for the Facility, the wetlands, and Force Lake (Section 7.2). RAOs are discussed in Section 7.3.

7.1 Summary of the RI

This section provides a brief summary of each section of the RI report.

7.1.1 Site Description and History

Section 1.0 presented an introduction to the Site, including a site description and history. In accordance with the May 2007 AOC, the Site encompasses the Facility, the adjacent wetland to the south and west of the Facility, and Force Lake. The following provide a brief overview of the Study Area (see Figure 7-1), which includes the Site and a portion of North Lake.

- The Facility is an approximately 4.1-ac parcel of land located in an industrial area of north Portland. The Study Area is approximately 19 acres. Until recently, most of the Facility was unpaved and covered with gravel. However, during the fall of 2011, the majority of the Facility (all areas except for the western-most portion) was paved with asphalt.
- EMRI (which took over the operation of the Facility in 1999 after Harbor Oil, Inc., ceased doing business on the property) currently operates a treatment and processing facility for used oil, fuels, and oily water at the Facility.
- Facility features related to the used oil processing include the tank farm and used oil processing area (located along the northeast side of the Facility), Tank 23 (located to the northwest of the tank farm), and the used-oil processing plant constructed in 2003 (located to the west of the tank farm and used oil processing area).
- Stormwater from the Facility is collected and sent to the stormwater treatment system located near the southwest Facility boundary. Treated stormwater is discharged to the wetlands, southwest of the Facility, under an NPDES Industrial Stormwater Discharge Permit. A soil berm, which extends along the southwest and northwest Facility boundaries, is intended to prevent Facility stormwater runoff from flowing into the adjacent wetlands.

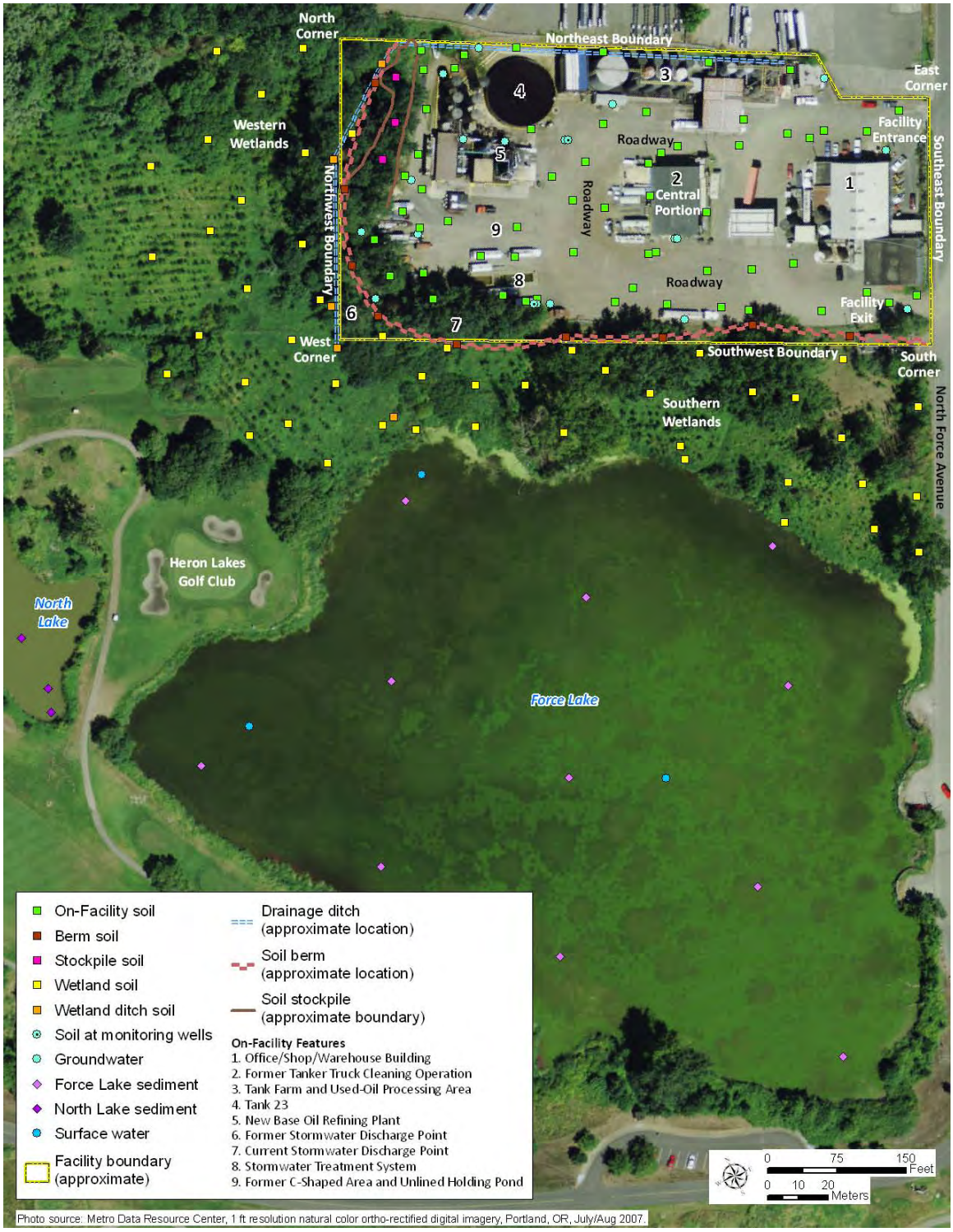

Figure 7-1. Facility Features, Area Descriptions, and RI Sampling Locations

Key points regarding the Facility history (Section 1.3) that are likely most relevant to the distribution of chemicals at the Study Area are listed below:

- **Cattle truck and tanker truck cleaning operations:** Truck cleaning operations began in the 1950s and continued until 1994. The Detrex system, which used TCE, was put in service during the mid- to late 1980s and was used until operations ceased in 1994.
- **Dust suppression business and road oiling:** Dust suppression operations started sometime in the 1950s and continued until 1993. Historical aerial photographs (Appendix A) and DEQ documentation (DEQ 1973) suggest that the Facility road was oiled in the early 1970s and mid-1980s.
- **Oil treatment and processing activities:** Empire Industries began oil recycling activities at the Facility in 1961, which continue to this day. EMRI currently treats and processes used oil, oily water, and other water at the Facility.
- **1979 Facility fire:** A fire destroyed the Facility in 1979 and reportedly resulted in releases to the adjacent wetlands and Force Lake. After the fire, the soil berm was constructed (apparently with soil that had been impacted by the fire-related releases) to prevent direct stormwater flow or other releases into the wetlands, and the Facility was expanded and reconstructed.
- **Stormwater drainage patterns:** During early operations at the Facility, stormwater and industrial wastewater likely drained to sumps and holding ponds located along the southwest Facility boundary and in the western portion of the Facility (which may have extended into what is now considered the wetlands). These features were identified in a 1974 DEQ report (DEQ 1974a), but there is no evidence of them in the aerial photographs. In the 1970s, a drainage ditch was constructed along the northeast Facility boundary that discharged Facility stormwater to the wetlands. The ditch remained open until 2002 when it was filled. The current stormwater treatment system (constructed in 1983 and 1984) discharges to the southwest of the Facility, is regulated under an NPDES permit, and incorporates an oil-water separator.

Section 1.0 of the RI also summarized multiple field investigations conducted at the Facility, adjacent wetland areas, and Force Lake since 1988. The data from one sampling event (Ecology and Environment 2001) were considered acceptable for use in the RI. Data from seven other historical sampling events did not meet DQOs and were unsuitable for use.

7.1.2 Study Area Investigation

Field sampling activities at the Study Area conducted as part of the RI were presented in Section 2.0. The RI was conducted in accordance with the EPA DQO process to clarify RI objectives and develop an appropriate

data collection design to support necessary decision making. All activities were completed in accordance with an EPA-approved RI/FS Work Plan (Bridgewater et al. 2008b). Field sampling activities supported the primary objectives developed for the RI, including characterization of the nature and extent of contamination, determination of potential migration pathways, verification of the preliminary CSMs, and evaluation of risks to human health and ecological receptors.

The RI site characterization was conducted in two phases. Phase 1 sampling was conducted in April-May 2008, and Phase 2 was completed in March-April 2009. These sampling events included the following activities:

- Collection of surface or subsurface soil samples at 61 locations at the Facility (including 9 soil berm or 3 soil stockpile locations)
- Collection of wetland and ditch soil samples at 52 surface and 10 subsurface locations
- Collection of surface sediment samples at 11 locations in Force Lake, subsurface sediment samples at 3 locations in Force Lake, and surface sediment samples at 3 locations in North Lake
- Collection of surface water samples at 3 locations in Force Lake
- Installation of 8 new monitoring wells followed by the collection of groundwater samples from the 8 new wells, 7 existing monitoring wells, and the plant well
- Aquifer slug testing at 9 monitoring well locations
- Collection of monthly groundwater and lake elevations between May 2008 and April 2009
- Completion of a fish population survey in Force Lake in April 2009 to obtain information on the types of fish present in the lake and estimate the abundance and sizes of these fish

7.1.3 Physical Characteristics of the Study Area

The physical characteristics of the Study Area, including surface features, meteorology, surface water hydrology, geology, hydrogeology, demography and land use, and ecology were presented in Section 3.0. Key points regarding the physical characteristics of the Study Area are summarized below:

- **Surface features:** The land surface of the Facility is relatively flat with a slight slope from northeast to southwest toward the wetlands and Force Lake. A soil berm extends along the northwest and southwest sides of the Harbor Oil Facility, preventing untreated runoff from entering the adjacent wetlands.
- **Meteorology:** The Study Area is in a temperate marine climate characterized by wet winters and dry summers. The average annual amount of precipitation (primarily as rain) is 37 in.; the average annual temperature is 54°F.

- **Surface water hydrology:** The Study Area is located within the Columbia River floodplain, an area with numerous wetlands and small lakes. Force Lake, the main water body in the Study Area, is approximately 12 ac in size with an average depth of 2.5 ft. Inflows and outflows from the Force Lake are limited, and thus, Force Lake acts as a settling basin. Suspended solids that enter the lake tend to settle to the bottom, rather than being transported downstream.
- **Geology:** One non-native (i.e., fill) lithologic layer and several native lithologic layers are present beneath the Facility, as observed in Facility borings. The native lithologic layers are usually consistent with a fluvial depositional environment of predominantly low energy (e.g., sediments deposited from swamps or marshes), with occasional changes to a fluvial depositional environment of moderate energy (e.g., sediments deposited from river or stream flooding).
- **Hydrogeology:** Beneath the Facility, local hydrogeology has been defined as three distinct groundwater zones (each separated by saturated silt deposits), Depth to uppermost groundwater beneath the Facility (shallow saturated zone) ranges from less than 1 ft to approximately 6 ft bgs, depending on location and the time of year. An intermediate depth saturated zone (37 to 48 ft bgs), and a deep saturated zone (greater than 90 ft bgs) are also present beneath the Facility. Based on water level measurements collected during the RI sampling events, groundwater flow is to the southwest in the shallow zone, with flow towards and discharge to, Force Lake. Groundwater flow within the intermediate zone is to the west or southwest, and alternates between the northwest and southwest in the deep zone. Vertical gradients in the upgradient and central portions of the Facility are largely downward; vertical gradients in the southern portion of the Facility tend upward during the dry season and alternate between upward and downward during the wet season.
- **Demography and land use:** The zoning and comprehensive plan designations for the Study Area indicate that the current and likely future land use designation at the Facility is industrial, particularly given its designation as an Industrial Sanctuary. The current and likely future land use of the wetlands and Force Lake is as open space, indicating that these areas will continue to be used for recreation and as habitat for ecological receptors. Current human uses at the Study Area include the daily activities of workers at the Facility, as well as recreational activities in the wetlands and Force Lake (e.g., golf ball retrieval, fishing). As part of the larger investigation and improvement effort for the Columbia Slough, the City of Portland found that although fishing occurs at Force Lake, it is relatively infrequent compared with other locations throughout the slough.
- **Ecology:** The Study Area is located within the PEN 1 NRMP area, which is one of the NRMP areas developed by the City of Portland

to evaluate the cumulative effects of development and mitigation within a large ecosystem. The Study Area provides habitat for numerous birds and several species of mammals.

7.1.4 Nature and Extent of Contamination

The nature and extent of contamination in the Study Area was presented in Section 4.0. Data that met DQOs for all chemicals analyzed in samples collected from the Study Area were summarized and discussed. To focus the discussion, chemicals or chemical groups were discussed in greater detail if they were COCs identified in the HHRA, contaminants with effects-based HQs greater than 1.0 in the ERA for which Study Area concentrations were greater than background or reference area concentrations, or chemicals known to be of interest in the Study Area based on past or present industrial activities. These chemicals or chemical groups included TPHs, PAHs, petroleum-associated VOCs, PCBs, metals, DDTs, and chlorinated solvents. Data for these chemicals were presented on a medium-specific basis and compared with conservative human health RSLs and ecological screening levels (all key chemicals) and with regional background concentrations (metals only).

Key findings of the nature and extent evaluation are summarized below. Additional details are summarized by medium and chemical or chemical group in the summary tables provided in Section 7.2.

- Chemical concentrations were generally highest at the Facility, with the exception of some metals for which the highest concentrations were in the wetlands near the west corner of the Facility. At the Facility, the highest concentrations for most chemicals were in the central portion of the Facility, near the tank farm along the northeast Facility boundary, along the southwest Facility boundary, near the Facility entrance in the east corner of the Facility, along the Facility roadway, in the area of the former unlined holding pond/C-shaped area, or in the west corner of the Facility. The locations with the highest chemical concentrations (which were usually greater than screening levels) varied by chemical:
    - The highest cPAH TEQs were detected in the central portion of the Facility (near the tank farm and former truck cleaning operation) and in one sample from the soil berm in the west corner of the Facility.
    - TPH concentrations were highest near the former truck cleaning operation and along the southwest boundary of the Facility.
    - The highest total PCB concentrations were detected near the Facility entrance, in the central portion of the Facility, and along the Facility roadway.
    - The highest total DDT concentrations were detected in the central portion of the Facility, in the former C-shaped area where the unlined holding pond was located, and along the

southwest boundary of the Facility and wetlands where historical ponds and sumps that received drainage from the truck wash were located.

  - The highest concentrations of arsenic (and other metals) were detected in the west corner of the Facility, near the C-shaped area where the unlined holding pond was located and in the former drainage ditch.

- In most cases, concentrations were highest in surface soil samples (both at the Facility and in the wetlands), except in areas where historical holding ponds or sumps were known to have been located. In these areas, concentrations were sometimes highest in intermediate soil samples but lower in deep soil samples, indicating that the extent of the highest concentrations was limited.
- Patterns of chemical concentrations in the wetlands are consistent with former drainage patterns at the Facility as well as the location of historical sumps and holding ponds along the southwest Facility boundary (which may have extended into what is now considered the wetlands).
- In general, detected concentrations of chemicals were limited to shallow groundwater, with detected concentrations low relative to screening levels and of limited lateral extent. Detections of metals, DDD, six VOCs, and one SVOC in intermediate or deep well samples were likely attributable to non-Facility-related sources because detections were located upgradient of Facility operations or, with regard to DDD, to a possible well seal breach or drilling-induced drag-down of impacted soil into the screen interval at the MW-2i/B-4 well cluster location.
- A thin layer (0.1 ft) of LNAPL was collected from well GA-30 in 2008; only trace thicknesses (0.01 to 0.02 ft) have been observed in this well during follow-up monitoring. Trace thicknesses of LNAPL (0.01 ft or less) have been observed in two of the precautionary (i.e., never used) extraction wells. Thus, the presence of LNAPL is localized and constrained to a small portion of the Facility. No LNAPL has been observed in wells located along the downgradient boundary of the Facility.
- Chemical concentrations in Force Lake sediment and surface water were usually low relative to concentrations in Facility or wetland soils and were mostly lower than screening levels or, for metals, background concentrations. No lateral concentration gradients were apparent in lake sediments. Concentrations in Force Lake surface sediment were higher than those in Force Lake subsurface sediment.
- With the exception of metals, chemical concentrations in North Lake sediment were usually lower than those in Force Lake sediment. Concentrations of metals in North Lake sediment were generally similar to those in Force Lake and to background

concentrations. These results indicate that there is minimal transport of chemicals from Force Lake.

The comparison of chemical concentrations with conservative screening levels (and background concentrations for metals) indicated that higher chemical concentrations were generally bounded both vertically and laterally. Thus, chemicals have been adequately delineated, and the available data met the DQOs identified in the RI/FS Work Plan (Bridgewater et al. 2008b).

7.1.5 Conceptual Site Model

The CSM for the Study Area was presented in Section 5.0 and focused on the potential environmental routes of chemical migration from the source area to potential receptors. A summary of the key components of the CSM is provided below:

- Known or suspected sources of chemicals at the Facility and in the adjacent wetland appear to be associated with the historical processing of used oils and other petroleum products, the drainage of wash water from the former truck cleaning operation, spills, and the possible periodic oiling of the Facility road surfaces.
- Known or suspected mechanisms for the release of chemicals to Facility soils include the discharge of oily rinsate from the former truck cleaning operations to the ground surface, the spillage of petroleum products stored or handled at the Facility for processing, the placement of used oils on the Facility roadway for dust suppression purposes, the release of oils and other materials present at the Facility during the 1979 fire, and the overflow or discharge of oily rinsate/stormwater from sumps or an unlined pond formerly located in the southwest portion of the Facility.

Based on the site history and nature and extent of chemicals at the Study Area, the primary migration pathway for chemicals associated with industrial activities at Facility appears to be related to historical direct discharge and transport via stormwater runoff. This historical migration pathway has resulted in the presence of chemicals in shallow groundwater beneath portions of the Facility, in wetland soil, and in Force Lake sediment.

Facility physical and operational modifications such as the termination of truck cleaning operations, installation of a stormwater collection and treatment system, and the placement of a hard-packed gravel cover and/or pavement throughout the Facility have mitigated the primary migration pathway (direct discharge and stormwater runoff). Chemicals were likely bound to soil particles that were transported in surface water runoff from the areas of spillage or discharge to low-lying areas historically located to the south and west. Over the course of operations, these low-lying areas included existing wetlands and Force Lake to the south of the Facility, as well as areas of the existing Facility footprint that were lower in elevation at the time but were subsequently filled to match the existing grade. This fill history resulted in chemical impacts deeper in soils in certain areas relative to other portions of the Facility.

This historical migration pathway has resulted in the presence of chemicals in Facility soils, shallow groundwater beneath portions of the Facility, in wetland soil, and in Force Lake sediment.

Based on the distribution of chemicals in media at the Study Area and other site-specific information, the following potential migration pathways were also assessed, though they were not found to be pathways of likely significance for chemicals migration:

- Potential future erosion of soils from the soil berm located at the northwest and southwest property boundary to the wetland
- Potential erosion of wetland soil into Force Lake
- Potential migration of chemicals in shallow groundwater to Force Lake sediment
- Potential volatilization of VOCs from Facility vadose zone soil or shallow groundwater to indoor or outdoor air

7.1.6 Baseline Risk Assessments

The baseline HHRA and ERA were summarized in Section 6.0 and are presented in Appendices I and J, respectively.

7.1.6.1 Human Health Risk Assessment

The baseline HHRA presented human health risk estimates associated with potential exposures to chemicals in soil, lake sediment, lake water, groundwater, and fish caught in Force Lake. The exposure scenarios and assumptions assessed in the HHRA are consistent with a reasonable maximum level of exposure, and thus, although uncertain, risk estimates are intended to be health protective (EPA 1989).

The following scenarios were evaluated in the HHRA to assess risks for workers at the Facility:

- **Industrial (construction/trenching) worker RME scenario:** evaluated risks to current and future workers involved in construction or excavation work conducted outdoors at the Facility
- **Future outdoor worker RME scenario:** evaluated risks to future outdoor workers in the event that different operations or activities are conducted at the Facility and/or that the surficial gravel fill material and pavement that currently covers most of the Facility are removed
- **Industrial/commercial worker vapor intrusion scenario:** evaluated risks to current and future workers performing routine activities inside buildings at the Facility

The following scenarios were evaluated in the HHRA to assess risks for recreational users and fish consumers in the non-Facility portions of the Study Area:

- **Force Lake recreational user RME scenario:** evaluated risks to current and future recreational users during recreation-associated activities at Force Lake and in the surrounding wetlands, including bird watching, remote-control boating, or golf ball retrieval
- **Force Lake fish consumer RME scenario:** evaluated risks to current and future fish consumers based on the consumption of fish caught in Force Lake

Table 7-1 summarizes the total excess cancer risk and overall HI for each of the scenarios evaluated in the HHRA. When applicable, these risk estimates are the combined risks across the relevant exposure media. All excess cancer risk estimates were within or less than EPA's target risk range of 10^{-6} to 10^{-4}. The overall HI (i.e., sum of non-cancer HQs for all COPCs across all endpoints) was less than or equal to 1 for all scenarios except the Force Lake fish consumer RME scenario (Table 7-1). However, when endpoint-specific HIs (e.g., developmental or nervous system endpoints) were calculated for this scenario, no endpoint-specific HIs were greater than 1.

Table 7-1. Summary of Total Excess Cancer Risks and Non-Cancer HIs

Scenario Name	Total Excess Cancer Risk	Overall HI[a]
Industrial (construction/trenching) worker RME scenario (cumulative risk across media)	3×10^{-6}	1
Future outdoor worker RME scenario	2×10^{-5}	0.6
Industrial/commercial worker vapor intrusion	9×10^{-7}	ne[b]
Force Lake recreational user RME scenario (cumulative risk across media)	1×10^{-5}	0.4[c]
Force Lake fish consumer RME scenario	2×10^{-5}	3 (endpoint-specific HIs were less than or equal to 1)[c, d]

[a] The overall HI is equal to the sum of HQs across multiple exposure pathways, endpoints, and/or target organs.

[b] Risks for this scenario were calculated based on a comparison of Study Area concentrations with vapor intrusion screening levels, which are based on the more stringent of the cancer or non-cancer risks (i.e., whichever one results in lower screening levels). For this scenario, screening levels for all COPCs were based on cancer risks, and thus it was not possible to calculate non-cancer risks.

[c] The overall HI is based on children 0 to 6 years of age. This HI is higher than HIs for the integrated 0-to-30 year age group and for older age groups (i.e., 7 to 16 years and 17 to 30 years), and thus are typically used for risk management decisions.

[d] The overall HI for this scenario was equal to 3. Because this value was greater than 1, endpoint-specific HIs were calculated per EPA guidance (1989). No endpoint-specific HIs were greater than 1 (see Section 5.3.5 of the HHRA [Appendix I] for details).

COPC – contaminant of potential concern
HI – hazard index
HQ – hazard quotient
ne – not evaluated
RME – reasonable maximum exposure

In addition to the scenarios shown in Table 7-1, a screening assessment was conducted to estimate risks based on the exposure of hypothetical future residents to chemicals at the Study Area (see Appendix I, Attachment 1). This assessment indicated that excess cancer risks would likely be greater than the upper end of EPA's target risk range (10^{-4}) and that some chemicals would have HQs greater than 1. The City of Portland has designated the Facility property as an Industrial Sanctuary, indicating that its industrial land-use designation is unlikely to change in the future. The non-Facility portions of the Study Area are zoned as open space and are in an NMRP area established by the City of Portland. Future residential development in the Study Area is unlikely.

Based on the results of the HHRA, arsenic, cPAH TEQ, total PCBs, total DDTs, and TPH-gasoline (aliphatic) were identified through the HHRA as COCs (i.e., COPCs with risks greater than 10^{-6}). No COPCs had HQs greater than 1. Table 7-2 presents a summary of excess cancer risks by COPC for each of the scenarios with risk estimates greater than or equal to 1×10^{-6}.

In addition, Table 7-2 presents risk estimates based on background or reference area concentrations. Note that although background concentrations have been recommended by DEQ for metals, similar recommendations are unavailable for organic compounds (DDTs, cPAH TEQ, and PCBs). For these organic compounds, concentrations from reference areas (i.e., urban areas within the vicinity of the Study Area) were used for comparison with Study Area concentrations because specific background concentrations have not been established. No background or reference area concentrations were available for TPHs for the sources used in this assessment.

Background risk estimates for arsenic were similar to those based on Study Area concentrations for most exposure scenarios (Table 7-2). With one exception, risk estimates based on reference area concentrations were less than Study Area risk estimates for cPAH TEQ, total PCBs, or total DDTs for all scenarios (Table 7-2). The exception was for the Force Lake recreational user based on exposure to wetland soil: cPAH TEQs from reference areas were slightly higher than or similar to those at the Study Area.

Table 7-2. Summary of Excess Cancer Risks for Scenarios with Total Excess Cancer Risks Greater than or Equal to 1×10^{-6}

COCs and other COPCs	Excess Cancer Risks (Percent of Total)				
	Industrial (Construction/ Trenching) Worker: Facility Soil	Future Outdoor Worker: Facility Soil	Force Lake Recreational User: Wetland Soil	Force Lake Recreational User: Lake Sediment	Force Lake Fish Consumer
Total Risk Estimates for Individual COPCs					
Arsenic	8×10^{-7} (31%)	7×10^{-6} (30%)	2×10^{-6} (23%)	1×10^{-6} (71%)	7×10^{-6} (37%)
cPAH TEQ	7×10^{-7} (27%)	4×10^{-6} (17%)	6×10^{-6} (68%)	4×10^{-7} (29%)	na
Total PCBs	7×10^{-7} (27%)	6×10^{-6} (26%)	3×10^{-7} (3%)	na	1×10^{-5} (53%)
Total DDTs	3×10^{-7} (12%)	2×10^{-6} (9%)	5×10^{-7} (6%)	na	2×10^{-6} (11%)
TPH-gasoline (aliphatic)	3×10^{-8} (1%)	3×10^{-6} (13%)	na	na	na
Other COPCs	5×10^{-8} (2%)	1×10^{-6} (5%)	2×10^{-10} (0%)	na	na
Total risk	**3×10^{-6}**	**2×10^{-5}**	**9×10^{-6}**	**1×10^{-6}**	**2×10^{-5}**
Background or Reference Area Risk Estimates[a]					
Arsenic	6×10^{-7}	4×10^{-6}	2×10^{-6}	2×10^{-6}	8×10^{-6} to 9×10^{-6}
cPAH TEQ	7×10^{-9} to 4×10^{-8}	3×10^{-8} to 2×10^{-7}	4×10^{-8} to 3×10^{-7}	7×10^{-7} to 8×10^{-7}	na
Total PCBs	5×10^{-9}	2×10^{-8}	nc	na	3×10^{-6} to 4×10^{-6}
Total DDTs	nc	2×10^{-9} to 5×10^{-8}	nc	na	2×10^{-7}

[a] Background or reference area concentrations and sources are discussed in Attachment 7 of Appendix I and in Section 2.8. Concentrations for metals are representative of background concentrations, and concentrations for organic compounds are representative of regional reference area concentrations (i.e., concentrations in urban areas within the vicinity of the Study Area). No background or reference area concentrations were available for TPH-gasoline (aliphatic).

COC – contaminant of concern
COPC – contaminant of potential concern
cPAH – carcinogenic polycyclic aromatic hydrocarbon
DDT – dichlorodiphenyltrichloroethane
HHRA – human health risk assessment
na – not applicable (not a COPC for this scenario)
nc – not calculated
PCB – polychlorinated biphenyl
TEQ – toxic equivalent
TPH – total petroleum hydrocarbons

7.1.6.2 Ecological Risk Assessment

The baseline ERA presented risk estimates for benthic invertebrates, terrestrial invertebrates, fish, and wildlife species that may be exposed to chemicals in wetland soil, Force Lake surface sediment, Force Lake surface water, and aquatic or terrestrial biota (i.e., as prey through dietary consumption). The risk assessment was designed to be protective of the range of species that have been observed at or could use the Study Area. Conservative assumptions, such as the use of the lowest toxicity values and the use of UCL concentrations for estimating exposure, were used in an attempt to ensure that risk estimates, although uncertain, were protective of ecological receptors.

The following ROCs, representing various feeding guilds, were selected:

- **Invertebrates:** aquatic benthic invertebrate community and wetland invertebrate community
- **Fish:** brown bullhead (omnivorous fish) and pumpkinseed (invertivorous fish)
- **Birds:** ruddy duck (invertivorous bird), great blue heron (piscivorous bird), and red-tailed hawk (higher-trophic-level carnivorous bird)
- **Mammals:** shrew (invertivorous mammal) and Eastern cottontail (herbivorous mammal)

Table 7-3 provides a summary of HQs for all ROC-COPC pairs with effects-based HQs that were greater than 1.0. Table 7-3 also presents HQs based on background (for metals) or reference area (for organic compounds) concentrations[27] for comparison with those based on Study Area concentrations. Note that although background concentrations have been recommended by DEQ for soils, sediment, and surface water for metals; similar recommendations are unavailable for organic compounds, such as DDTs and PAHs. For organic compounds, concentrations from reference areas (urban areas within the vicinity of the Study Area) were used for comparison with Study Area concentrations because specific background concentrations have not been established.

[27] See notes on background concentrations in Section 6.2.1. The term reference area is used instead of background for organic compounds because no specific background concentrations that are representative of anthropogenic background have been selected or approved by EPA.

Table 7-3. COPCs and ROCs with LOAEL-Based HQs Greater than 1.0

COPC	Matrix	NOAEL-Based HQ	LOAEL-Based HQ	Background or Reference Area[a] LOAEL-Based HQ
Aquatic Benthic Invertebrate Community				
DDD	surface sediment	**2.4 – 17**[b]	1.0 **– 7.2**[c]	0.072 – 0.079[c]
DDE	surface sediment	**6.4 – 110**[b]	**1.3 – 22**[c]	1.0 – **1.5**[c]
Terrestrial Invertebrate Community				
Chromium	wetland soil	**3.3 - 75**[d]		**21**[d]
Copper	wetland soil	0.21 – **25**[d]		0.72[d]
Zinc	wetland soil	0.31 – **6.2**[d]		0.72[d]
Total HPAHs	wetland soil	0.0056 **– 3.2**[d]		0.003 – 0.022[d]
Fish – Pumpkinseed				
Copper	diet	**3.5**	**1.8**	0.30
Fish – Brown Bullhead				
Copper	diet	**2.1**	**1.1**	0.18
Birds – Red-Tailed Hawk				
Total DDTs	diet	**5.8**	**1.2**	0.020 – 0.47
Mammals – Eastern Cottontail				
Mercury	diet	**5.9**	**1.2**	0.54
Mammals – Shrew				
Mercury	diet	**65**	**13**	**5.7 – 15**
Total DDTs	diet	**9.2**	**8.5**	0.0053 – 0.41

[a] Background and reference area concentrations and sources are discussed in Section 2.8 and in Attachment 4 of the ERA (Appendix J). Concentrations for metals are representative of background concentrations and concentrations for organic compounds are representative of reference area concentrations.

[b] HQs were developed based on a comparison to a TEL or a TEC; total DDT concentrations were less than the total DDT PEL/PEC.

[c] HQs were developed based on a comparison to a PEL or a PEC.

[d] HQs were developed based on a comparison to soil screening levels.

COPC – contaminant of potential concern
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethylene
DDT – dichlorodiphenyltrichloroethane
HPAH – high-molecular-weight polycyclic aromatic hydrocarbon
HQ – hazard quotient
LOAEL – lowest-observed-adverse-effect level
NOAEL – no-observed-adverse-effect level
PEC – probable effects concentration
PEL – probable effects level
ROC – receptor of concern
SL – screening level
TEC – threshold effects concentration
TEL – threshold effects level
TRV – toxicity reference value

Bold identifies HQs greater than 1.0.

LOAEL-based HQs were greater than 1.0 for metals, DDTs, and HPAHs for at least one receptor (Table 7-3). LOAEL-based HQs were greater than 5 for DDE (aquatic invertebrates), DDD (aquatic invertebrates), chromium (terrestrial invertebrates), copper (terrestrial invertebrates), total DDTs (shrew), and zinc (terrestrial invertebrates). LOAEL-based HQs were also greater than 5 for mercury, but mercury concentrations were within the range of DEQ background concentrations.

Key uncertainties in these risk estimates include the terrestrial invertebrate screening levels; the observation of earthworms in areas with higher concentrations of metals (which may indicate that invertebrate screening levels are overly protective for the Study Area); and the bioavailability of DDTs in lake sediments (the TOC was high in sediment, likely limiting the potential for toxicological effects).

7.2 Conclusions

This section presents a synthesis of pathway, nature and extent, and risk information for the Facility, groundwater, wetlands, and Force Lake. Conclusions are presented in the subsections below and also summarized in Tables 7-4 through 7-8. This information is intended to help inform EPA's risk management decisions in each part of the Study Area.

Table 7-4. Facility Soil Summary

Summary of Nature and Extent (see Section 4.0)	Summary of Risk Assessments (see Section 6.0; Appendices I and J)	Potential Migration Pathway(s)/Transport (see Sections 4.0 and 5.0)	Current Status of Potential Pathway (see Section 1.0)
TPHs, PAHs, and petroleum-associated VOCs: Concentrations were highest near the tank farm, located along the northeast boundary of the Facility, and the former truck cleaning operation, located in the central portion of the Facility.	**HHRA:** cPAH TEQ excess cancer risks of 4×10^{-6} (future outdoor worker) and 7×10^{-7} (industrial construction/trenching worker). TPH-gasoline (aliphatic) excess cancer risks of 3×10^{-6} (future outdoor worker) and 3×10^{-8} (industrial construction/trenching worker) **ERA:** No exposure pathway	Potential migration into the ditch and wetlands via stormwater runoff, direct releases from Facility-related operations, and discharge from the stormwater treatment system Potential migration from existing stormwater treatment system into the wetlands Potential erosion of soils from the soil berm located at the northwest and southwest property boundary to the wetland	Facility controls are in place to prevent these types of releases (e.g., the soil berm constructed after the 1979 fire to prevent direct discharge into the wetlands and the closure of the drainage ditch). All Facility stormwater is collected and treated by the stormwater treatment system. The treatment system has an NPDES permit with effluent limitations and ongoing monitoring of oil and grease, copper, lead, zinc, bacteria, and several conventional parameters. PCBs and pesticides are not monitored in the effluent from the treatment system. The soil berm is intact, vegetated, has no identified areas of erosion and thus is unlikely to be a significant migration pathway.
PCBs: Concentrations were highest in the northeast corner of the Facility, near the Facility entrance; in the central portion of the Facility, near the former tanker truck cleaning operation; and along the U-shaped roadway that extends from the Facility entrance around the former truck cleaning operation area.	**HHRA:** PCB excess cancer risks of 6×10^{-6} (future outdoor worker) and 7×10^{-7} (industrial construction/trenching worker) **ERA:** No exposure pathway		
Metals (arsenic, cadmium, chromium, copper, mercury, and zinc): Concentrations were highest in the west corner of the Facility and in the area of the former unlined holding pond/C-shaped area.	**HHRA:** Arsenic excess cancer risks of 7×10^{-6} (future outdoor worker) and 8×10^{-7} (industrial construction/trenching worker). Background arsenic risk estimates were 4×10^{-6} and 6×10^{-7}, respectively, for the above scenarios. **ERA:** No exposure pathway		
DDTs: Concentrations were highest in the central portion of the Facility near the former truck cleaning operation, in the unlined holding pond/C-shaped area to the west of the former truck cleaning operation, and along the southwest boundary of the Facility where sumps/ponds were apparently located.	**HHRA:** DDT excess cancer risks of 2×10^{-6} (future outdoor worker) and 3×10^{-7} (industrial construction/trenching worker) **ERA:** No exposure pathway		
Chlorinated solvents: Concentrations of TCE were highest in the central portion of the Facility in the location of the former truck cleaning operation.	**HHRA:** No COCs (excess cancer risks $<10^{-6}$ and HQs <1) **ERA:** No exposure pathway		
Other chemicals: Concentrations of these chemicals were not discussed in detail because they were low relative to human health or ecological risk thresholds.	**HHRA:** No COCs (excess cancer risks $<10^{-6}$ and HQs <1) **ERA:** No exposure pathway		

COC – contaminant of concern
cPAH – carcinogenic polycyclic aromatic hydrocarbon
DDT – dichlorodiphenyltrichloroethane
ERA – ecological risk assessment
HHRA – human health risk assessment
HQ – hazard quotient
NPDES – National Pollutant Discharge Elimination System
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
TCE – trichloroethene
TEQ – toxic equivalent
TPH – total petroleum hydrocarbons
VOC – volatile organic compound

Table 7-5. Groundwater Summary

Summary of Nature and Extent (see Section 4.0)	Summary of Risk Assessments (see Section 6.0; Appendices I and J)	Potential Migration Pathway(s)/Transport (see Sections 4.0 and 5.0)	Current Status of Potential Pathway (see Section 1.0)
TPHs, PAHs, and petroleum-associated VOCs: Concentrations were detected in groundwater, primarily in the central/western portion of the Facility near or west of the former truck cleaning/C-shaped area. The distribution of TPH, PAH, and petroleum-associated VOCs (including LNAPL, which has minimal presence at the Facility) has been delineated at the Facility; with the exception of certain PAHs, these chemicals do not extend to the downgradient (southern boundary) portion of the Facility.	**HHRA:** No COCs (excess cancer risks <10^{-6} and HQs <1) **ERA:** Concentrations in groundwater at the downgradient portion of the Facility (at the southwest boundary) were less than AWQC. These chemicals are not expected to contribute to toxicity in Force Lake.	Migration of chemicals in groundwater to Force Lake Dissolution of LNAPL chemicals into groundwater	Chemicals were generally not detected in groundwater samples from wells located on the downgradient portions of the Facility. If detected, chemicals were present at concentrations below levels of concern for ecological or human health. Concentrations of metals in groundwater were likely attributable to the fact that metals occur naturally in the environment. Because DDD was detected in downgradient Facility wells, an evaluation was performed to estimate the time required for DDD in groundwater to migrate to Force Lake. Because of DDD's strong affinity to soil matrix organic matter, DDD tends to sorb to these particles and thus is essentially immobile in groundwater (moving 14,000 times slower than groundwater). Therefore, the degradation processes would likely break down DDD in groundwater before it could reach Force Lake. The presence of LNAPL is localized and confined to a small portion of the Facility. In addition, after LNAPL was collected in 2008, follow-up monitoring revealed only trace (i.e., non-measurable) to minor amounts (up to 0.02 ft) of LNAPL.
PCBs: Not detected in groundwater samples collected at the Facility.	**HHRA:** No COCs (excess cancer risk <10^{-6} and HQ <1) **ERA:** PCBs were not detected in groundwater.		
Metals (arsenic, cadmium, chromium, copper, mercury, and zinc): Except for arsenic, metals were detected infrequently in groundwater. The variability of metals concentrations in groundwater was relatively low, except for arsenic and zinc concentrations, which were likely more variable as a result of natural variability in the environment.	**HHRA:** No COCs (excess cancer risks <10^{-6} and HQs <1) **ERA:** Concentrations of metals in groundwater at the downgradient portion of the Facility (at the southwest boundary), Force Lake surface water, and Force Lake sediment were assessed in the uncertainty analysis; these chemicals are not expected to contribute to toxicity in Force Lake from groundwater recharge.		
DDTs: DDD, a DDT metabolite, was detected in shallow groundwater samples in the central portion of the Facility and in shallow, intermediate, and deep groundwater samples from the southern downgradient portions of the Facility.	**HHRA:** No COCs (excess cancer risk <10^{-6} and HQ <1) **ERA:** Concentrations of DDD in groundwater at the downgradient portion of the Facility (at the southwest boundary), Force Lake surface water, and Force Lake sediment were assessed in the uncertainty analysis; DDD is not expected to contribute to toxicity in Force Lake from groundwater recharge.		
Chlorinated solvents: Chlorinated solvents were detected only in samples collected from deep well PW-01 or shallow well GA-34, both of which are located in the east corner of the Facility near the Facility entrance and office buildings. Solvents detected in deep well PW-01 were not identified in shallow groundwater at the Facility and are therefore not deemed to be related to activities at the Facility. Solvents detected at shallow well GA-34 were identified in 2000 and not in 2008 or 2009.	**HHRA:** No COCs (excess cancer risks <10^{-6} and HQs <1) **ERA:** Concentrations of chlorinated solvents were not identified in groundwater at the downgradient portion of the Facility (at the southwest boundary) (in 2000), and in 2008 and 2009, were not identified at any location in shallow groundwater beneath the Facility. Therefore, these contaminants are not expected to contribute to toxicity in Force Lake.		
Other chemicals: Other chemicals have been detected in groundwater but not at concentrations of concern.	**HHRA:** No COCs (excess cancer risks <10^{-6} and HQs <1) **ERA:** Concentrations of other chemicals in groundwater at the downgradient portion of the Facility (at the southwest boundary) were either not detected or were less than AWQC and therefore these chemicals are not expected to contribute to toxicity in Force Lake.		

AWQC – ambient water quality criteria
COC – contaminant of concern
DDD – dichlorodiphenyldichloroethane
DDT – dichlorodiphenyltrichloroethane
ERA – ecological risk assessment
HHRA – human health risk assessment
HQ – hazard quotient
LNAPL – light non-aqueous phase liquid
NPDES – National Pollutant Discharge Elimination System
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
TCE – trichloroethene
TPH – total petroleum hydrocarbons
VOC – volatile organic compound

Table 7-6. Wetland Soil Summary

Summary of Nature and Extent (see Section 4.0)	Summary of Risk Assessments (see Section 6.0; Appendices I and J)	Potential Migration Pathway(s)/Transport (see Sections 4.0 and 5.0)	Current Status of Potential Pathway (see Section 1.0)
TPHs, PAHs, and petroleum-associated VOCs: Highest concentrations were detected in the former drainage ditch, southwest of the Facility, and near the current and former stormwater treatment system discharge points (i.e., in areas that indicate that these chemicals have migrated via stormwater runoff).	**HHRA:** Recreational user excess cancer risk of 6×10^{-6} for cPAH TEQ **ERA:** HPAHs – HQs of 0.0056 to 3.2 as compared with invertebrate screening levels (3% of samples had HQs >1.0)	Migration of chemicals in runoff from the Facility through the drainage ditch to Force Lake Migration of chemicals via sheet flow from wetland soil to Force Lake and erosion of wetland soil into Force Lake	The drainage ditch was closed in 2002 and is no longer an active pathway. No gradient of chemicals exists in Force Lake sediment, suggesting that Facility-related releases to Force Lake are not ongoing. There is a low potential for chemical migration to Force Lake from the wetland via soil erosion based on the relatively flat topography of the wetlands and extensive vegetative cover. An analysis presented in the ERA supports this conclusion (Appendix J).
PCBs: Highest concentrations were detected just to the south of the Facility, approximately halfway between North Force Avenue and the drainage ditch, in the former drainage ditch to the west of the Facility, and near the discharge point of the stormwater treatment system.	**HHRA:** Recreational user excess cancer risk of 3×10^{-7} for PCBs **ERA:** No LOAEL-based HQs >1.0		
Metals (arsenic, cadmium, chromium, copper, mercury, and zinc): Highest concentrations were detected in the former drainage ditch to the west of the Facility and in the area near the current and former stormwater treatment system discharge points, near the west corner of the Facility.	**HHRA:** Recreational user excess cancer risks of 2×10^{-6} for arsenic. The background arsenic risk estimates was also equal to 2×10^{-6}. **ERA**: HQs for invertebrates vs. screening levels – chromium (3.3 to 75), copper (0.21 to 25), zinc (0.31 to 6.2) Eastern cottontail – LOAEL-based HQ of 1.2 for mercury (0.54 background HQ) Shrew – LOAEL-based HQ of 13 for mercury (5.7 to 15 background HQ)		
DDTs: Highest concentrations were detected just southwest of the Facility boundary (in close proximity to the highest DDT concentrations detected at the Facility).	**HHRA:** Recreational user excess cancer risk of 5×10^{-7} for DDTs. **ERA:** Red-tailed hawk – LOAEL-based HQ of 1.2 Shrew – LOAEL-based HQ of 8.5		
Chlorinated solvents: Chlorinated solvents were infrequently detected in wetland soil; detected concentrations in wetland soil were significantly lower than those in Facility soils, and samples with detected concentrations were often collected from areas that may have received runoff from the former tanker truck cleaning operations (e.g., stormwater treatment system discharge point and the former drainage ditch).	**HHRA:** No COCs (excess cancer risks $<10^{-6}$ and HQs <1) **ERA:** No LOAEL-based HQs >1.0		
Other chemicals: Concentrations of these chemicals were not discussed in detail because they were low relative to human health or ecological risk thresholds.	**HHRA:** No COCs (excess cancer risks $<10^{-6}$ and HQs <1) **ERA:** No LOAEL-based HQs >1.0		

COC – contaminant of concern
cPAH – carcinogenic polycyclic aromatic hydrocarbon
DDT – dichlorodiphenyltrichloroethane
ERA – ecological risk assessment
HHRA – human health risk assessment
HPAH – high-molecular-weight polycyclic aromatic hydrocarbon
HQ – hazard quotient
LOAEL – lowest-observed-adverse-effects level
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
TEQ – toxic equivalent
TPH – total petroleum hydrocarbons
VOC – volatile organic compound

Table 7-7. Force Lake Sediment Summary

Summary of Nature and Extent (see Section 4.0)	Summary of Risk Assessments (see Section 6.0; Appendices I and J)	Potential Migration Pathway(s)/Transport (see Sections 4.0 and 5.0)	Current Status of Potential Pathway (see Section 1.0)
TPHs, PAHs, and petroleum-associated VOCs: The highest concentrations in lake sediment were detected in the central portion of Force Lake, although the variability in sediment concentrations was low.	**HHRA:** No COCs (excess cancer risks <10^{-6} and HQs <1) **ERA:** No LOAEL-based HQs >1.0	Migration of sediment into North Lake	Force Lake acts as a settling basin because the water velocity or current is low; thus suspended solids that enter the lake tend to settle to the bottom rather than being transported downstream. As such, chemicals that have entered the lake have, for the most part, remained because of the natural hydraulic regime of the lake.
PCBs: The highest concentrations in lake sediment were detected in the central portion of Force Lake, although the variability in sediment concentrations was low.	**HHRA:** Force Lake fish consumer excess cancer risk of 1×10^{-5} for PCBs **ERA:** No LOAEL-based HQs >1.0		
Metals (arsenic, cadmium, chromium, copper, mercury, and zinc): Concentrations in Force Lake sediment were relatively uniform.	**HHRA:** Force Lake fish consumer excess cancer risk of 7×10^{-6} for arsenic. The background risk was slightly greater than Study Area risk for arsenic (8×10^{-6} to 9×10^{-6}). **ERA:** Pumpkinseed –LOAEL-based HQ of 1.8 for copper (0.3 background HQ) Brown bullhead –LOAEL-based HQ of 1.1 for copper (0.18 background HQ)		
DDTs: The highest concentrations in lake sediment were detected in the central portion of Force Lake, although the variability in sediment concentrations was low.	**HHRA:** Force Lake fish consumer excess cancer risk of 2×10^{-6} for DDTs **ERA:** Benthic invertebrates – HQs relative to effects screening levels of 1.0 to 7.2 (DDD) and 1.3 to 22 (DDE) (HQ <1.0 for total DDTs)		
Chlorinated solvents: Chlorinated solvents were not detected in lake sediment.	**HHRA:** No COCs (excess cancer risks <10^{-6} and HQs <1) **ERA:** No LOAEL-based HQs >1.0		
Other chemicals: Other chemicals, such as phthalates, other SVOCs, and VOCs, that were not otherwise included in the defined chemical groups described above, have been detected in lake sediment with generally low variability in concentrations.	**HHRA:** No COCs (excess cancer risks <10^{-6} and HQs <1) **ERA:** No LOAEL-based HQs >1.0		

COC – contaminant of concern
DDD – dichlorodiphenyldichloroethane
DDE – dichlorodiphenyldichloroethylene
DDT – dichlorodiphenyltrichloroethane
ERA – ecological risk assessment
HHRA – human health risk assessment
HQ – hazard quotient
LOAEL – lowest-observed-adverse-effects level
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
SVOC – semivolatile organic compound
TPH – total petroleum hydrocarbons
VOC – volatile organic compound

Table 7-8. Force Lake Surface Water Summary

Summary of Nature and Extent (see Section 4.0)	Summary of Risk Assessments (see Section 6.0; Appendices I and J)	Potential Migration Pathway(s)/Transport (see Sections 4.0 and 5.0)	Current Status of Potential Pathway (see Section 1.0)
TPHs, PAHs, and petroleum-associated VOCs: Not detected in surface water.	**HHRA:** No COCs (excess cancer risks <10^{-6} and HQs <1) **ERA:** No refined COPCs	Outflow of water and suspended sediments to North Lake	Concentrations in North Lake were generally lower than those in Force Lake, indicating that migration is limited or has not occurred. For several naturally occurring chemicals (e.g., copper), concentrations in North Lake sediment were similar to those in Force Lake sediment, likely indicating the presence of regional levels of a given chemical or other potential area-wide sources.
PCBs: Not detected in surface water.	**HHRA:** No COCs (excess cancer risks <10^{-6} and HQs <1) **ERA:** No refined COPCs		
Metals (arsenic, cadmium, chromium, copper, mercury, and zinc): Arsenic and copper were detected in lake surface water samples.	**HHRA:** No COCs (excess cancer risks <10^{-6} and HQs <1) **ERA:** No refined COPCs		
DDTs: Not detected in surface water.	**HHRA:** No COCs (excess cancer risks <10^{-6} and HQs <1) **ERA:** No refined COPCs		
Chlorinated solvents: Not detected in surface water.	**HHRA:** No COCs (excess cancer risks <10^{-6} and HQs <1) **ERA:** No refined COPCs		
Other chemicals: With the exception of acetone and barium, other chemicals were not detected in surface water.	**HHRA:** No COCs (excess cancer risks <10^{-6} and HQs <1) **ERA:** No refined COPCs		

AWQC – ambient water quality criteria
COC – contaminant of concern
DDT – dichlorodiphenyltrichloroethane
DEQ – Oregon Department of Environmental Quality
ERA – ecological risk assessment
HHRA – human health risk assessment
HQ – hazard quotient
LOAEL – lowest-observed-adverse-effects level
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyl
TPH – total petroleum hydrocarbons
VOC – volatile organic compound

7.2.1 Facility Soil

Key findings for Facility soil are listed below and summarized in Table 7-4.

- In the HHRA scenarios associated with current activities at the Facility, risks were within EPA's target risk range of 10^{-4} to 10^{-6} (3×10^{-6} for the industrial [construction/trenching] worker). HQs were less than or equal to 1.
- In the HHRA scenario associated with potential future activities at the Facility, risks were also within EPA's target risk range of 10^{-4} to 10^{-6} (2×10^{-5} for the future outdoor worker) but would be higher than risks for workers currently working outdoor at the Facility. HQs were less than 1. This future risk scenario assumes exposure to soils without the gravel layer and pavement that currently cover the Facility.
- Although the Facility is currently zoned for industrial use, risks to hypothetical future residents were assessed. Based on the results of this analysis (i.e., calculation of risks using the published screening levels), the total excess cancer risks would likely be greater than the upper end of EPA's target risk range (10^{-4}) and HQs for some chemicals would likely be greater than 1. However, City of Portland planning documents indicate that zoning designations for the Facility are not likely to change in the future. Thus, future residential development of the Facility is unlikely.
- The areas with the highest chemical concentrations in Facility soil varied by individual chemical or chemical group and are summarized below.
    - The highest cPAH TEQs were detected in the central portion of the Facility (near the tank farm and former truck cleaning operation) and in one sample from the soil berm in the west corner of the Facility.
    - TPH concentrations were highest near the former truck cleaning operation and along the southwest boundary of the Facility.
    - The highest total PCB concentrations were detected near the Facility entrance, in the central portion of the Facility, and along the Facility roadway.
    - The highest total DDT concentrations were detected in the central portion of the Facility, in the former C-shaped area where the unlined holding pond was located, and along the southwest boundary of the Facility where historical ponds and sumps that received drainage from the truck wash were located.
    - The highest concentrations of arsenic (and other metals) were detected in the west corner of the Facility and near

the C-shaped area where the unlined holding pond was located.

- Chemical concentration patterns are consistent with what is known regarding historical uses and releases at the Facility; ongoing activities appear to be controlled (surface water runoff is now controlled, treated, and monitored under an NPDES permit). Concentrations were usually highest in surface soil samples, except in areas where historical holding ponds or sumps were known to have been located. In these areas, concentrations were sometimes highest in intermediate soil samples, but lower in deep soil samples, indicating that the extent of the highest concentrations was limited.

7.2.2 Groundwater

Key findings for Facility groundwater are listed below and summarized in Table 7-5.

- In the HHRA scenarios associated with potential current exposure to groundwater, risks were less than EPA's target risk range of 10^{-4} to 10^{-6} (8×10^{-8} for the industrial [construction/trenching] worker and 9×10^{-7} for the industrial/commercial worker vapor intrusion scenario). HQs were less than 1.
- Although the Facility is currently zoned for industrial use, risks to hypothetical future residents were assessed as part of the HHRA. Based on the results of this analysis (i.e., calculation of risks using the published screening levels), the total excess cancer risks would likely be greater than the upper end of EPA's target risk range (10^{-4}) and HQs for some chemicals would likely be greater than 1. However, City of Portland planning documents indicate that zoning designations for the Facility are not likely to change in the future. Thus, future residential development in this area is unlikely.
- The majority of chemicals detected in groundwater were detected only in samples collected from shallow wells. Metals, DDD, six VOCs, and one SVOC were detected in intermediate or deep well samples.
- Chlorinated solvents (including 1,1,1-trichloroethane, cis-1,2-dichloroethene, PCE, TCE, and vinyl chloride) were detected in groundwater in only two wells, deep well PW-01 and shallow well GA-34, both of which are located in the east corner of the Facility near the Facility entrance and office buildings. These data suggest that these VOCs are attributable to upgradient or documented regional impacts potentially migrating onto the Facility. Despite the known use of TCE in former truck cleaning operations, TCE was not detected in any downgradient wells.
- DDD was detected in shallow groundwater samples in some of the areas where DDD concentrations in soil samples were highest. The mobility of DDD is low, and DDD is not expected to migrate

off of the Facility in groundwater to Force Lake. Furthermore, DDD was detected in deeper groundwater samples at a single well cluster location in the south-central portion of the Facility. With regard to the deeper DDD detections, and given the low mobility of DDD as demonstrated by calculations using the estimated retardation factor, it is suspected that the deeper presence is likely attributable to drilling artifacts or to a breach in the seals of the wells in this cluster and is not the result of vertical migration through natural processes.

- LNAPL is not a significant component at the Facility, and its presence is localized and constrained to a small portion of the Facility. Specifically, a thin layer (0.1 ft) of LNAPL was observed in well GA-30, which was sampled, and trace thicknesses of LNAPL (0.01 ft or less) have been observed in two of the precautionary (e.g., never used) extraction wells. No LNAPL has been observed in wells located along the downgradient boundary of the Facility. In 2009 (a year after sample collection), insufficient volume of LNAPL was available for additional sample collection at well GA-30.
- Groundwater impacts from the Facility do not appear to be widespread, and groundwater does not appear to be migrating off the Facility.

In addition, it should be noted that five chemicals were detected in groundwater samples at concentrations greater than the MCL. These MCL exceedances are summarized below by chemical:

- **Benzene (1 of 28 samples > MCL):** Detected at a concentration greater than the MCL of 5 µg/L in one sample (140 µg/L in the sample collected from location MW-4s in 2008). In 2009, benzene was detected at a concentration of 2.9 µg/L (which is less than the MCL) at the same location.
- **Arsenic (12 of 27 [filtered] and 16 of 34 [unfiltered] samples > MCL):** Detected at concentrations greater than the MCL of 10 µg/L in 12 of 27 filtered water samples and in 16 of 34 total (unfiltered) water samples (maximum detected concentrations were equal to 32.2 and 31.6 µg/L for filtered and unfiltered water samples, respectively). Concentrations were greater than the MCL or non-zero MCLG by factors ranging from 1.1 to 3.2. Similar concentrations of arsenic were detected in groundwater across the Facility, including shallow groundwater at the upgradient property boundary near the northeastern corner of the Facility (arsenic concentrations in samples from well GA-34 were approximately 19 µg/L (for both filtered and unfiltered water samples). These results suggest that the arsenic concentrations may be typical of those in shallow groundwater in the vicinity of the Study Area, including areas upgradient of the Facility
- **TCE (1 of 28 samples > MCL):** Detected at a concentration above the MCL of 5 µg/L in one sample (6.1 µg/L in the sample from location PW-01 in 2000). TCE was not detected in the

sample collected at PW-01 in 2008, and the well was not sampled in 2009.

- **Chlorobenzene (1 of 28 samples > MCL):** Detected at a concentration above the MCL of 100 µg/L in one sample (130 µg/L in the sample collected from location GA-34 in 2009)
- **Lead (1 of 28 samples > MCL):** Detected at a concentration greater than the MCL of 15 µg/L in one sample (19.6 µg/L in the sample collected from location A-18 in 2000). Lead was not detected in samples collected from this well in 2008 or 2009.

7.2.3 Wetland Soil

Key findings for wetland soil are listed below and summarized in Table Table 7-6.

- In the HHRA scenarios associated with current activities at the wetlands, risks were within EPA's target risk range of 10^{-4} to 10^{-6} for current recreational users (9×10^{-6}). HQs were less than 1.
- Although the wetlands are currently zoned as open space, risks to hypothetical future residents were assessed. Based on the results of this analysis (i.e., calculation of risks using the published screening levels), the total excess cancer risks would likely be greater than the upper end of EPA's target risk range (10^{-4}) and HQs for some contaminants would likely be greater than 1. However, City of Portland planning documents indicate that zoning designations for the wetlands are not likely to change in the future. Thus, future residential development of the wetlands is unlikely.
- In the ERA, dietary effects-based HQs were between 1 and 10 for red-tailed hawk (1.2 for total DDTs), Eastern cottontail (1.2 for mercury), and shrew (8.5 for total DDTs). All other HQs were less than 1 or within background or reference area ranges.
- Wetland soil concentrations were greater than invertebrate SLs (e.g., for earthworms) for chromium (up to 75 times the SL or up to 3.5 times background), copper (up to 25 times the SL), zinc (up to 6.2 times the SL), and HPAHs (up to 3.2 times the SL).
- Wetland areas with the highest concentrations included the former drainage ditch to the northwest of the Facility (TPH, PAHs, PCBs, metals, and DDTs), the area near the former discharge point of the stormwater treatment system (TPH, PAHs, PCBs, and metals), and the area south of the Facility between North Force Avenue and the drainage ditch (TPH, PAHs, and PCBs). Chemical concentrations generally decreased with depth in wetland soils.

- Patterns of chemical concentrations are consistent with drainage patterns from the Facility as well as the location of historical sumps and holding ponds along the southwest Facility boundary (which may have extended into what is now considered the wetlands). The migration of chemicals from the Facility into the wetlands now appears to be controlled: surface water runoff is collected, treated, and monitored under an NPDES permit.

7.2.4 Force Lake Sediment and Surface Water

Key findings for Force Lake sediment and surface water are listed below and summarized in Tables 7-7 and 7-8.

- In the HHRA scenarios associated with current activities at Force Lake, excess cancer risks were less than or equal to the low end of EPA's target risk range of 10^{-4} to 10^{-6} for recreational users (between 1×10^{-7} and 1×10^{-6} for sediment and surface water exposure by Force Lake recreational users). HQs were less than 1.
- Risks were within EPA's target risk range of 10^{-4} to 10^{-6} for current exposure via fish consumption (2×10^{-5}). HQs were less than or equal to 1. A portion of this total risk estimate is attributable to background arsenic concentrations. The risk estimate for arsenic based on the regional background concentration was greater than the Study Area risk estimate. For both PCBs and DDTs, the Study Area risk estimate was higher than the reference area risk estimate, indicating that reference area concentrations are not an important factor when considering risk for these contaminants.
- In the ERA, effects-based HQs were between 1 and 2 for pumpkinseed (1.8 for copper) and brown bullhead (1.1 for copper). Sediment concentrations were greater than dry-weight effects-based SLs for benthic invertebrates for DDD (up to 7.2 times the SL) and DDE (up to 22 times the SL); total DDT concentrations were less than the effects-based SL. TOC in the sediment was relatively high (mean of 7.1% in Force Lake), which would limit site-specific bioavailability and toxicity.
- No lateral concentration gradients were apparent in lake sediment; mean concentrations were less than those on the Facility or in wetland soil and decreased with sediment depth. In addition, sampling results indicate that there is minimal transport of chemicals from Force Lake to North Lake.
- With the exception of metals, concentrations in North Lake sediment were usually lower than those in Force Lake sediment. Concentrations of metals were generally similar to those in Force Lake and to background concentrations. These results indicate that there is minimal transport of metals from Force Lake.
- Surface water concentrations of copper and barium were greater than ecological thresholds (HQ for copper was 3.1 and for barium HQ was 7.5 to 7.8). Background copper water concentrations

were 6.9 times as high as the water threshold. Background surface water concentrations were not available for barium; however, Study Area sediment and soil concentrations of barium were less than or similar to background concentrations.

7.3 Evaluation of Preliminary RAOs

The Harbor Oil SOW identified preliminary RAOs for the Harbor Oil Study Area. These preliminary RAOs were provided in Appendix D, Remedial Action Objectives Technical Memorandum, of the RI/FS Work Plan (Bridgewater et al. 2008b).

EPA guidance states that RAOs are media-specific goals for protecting human health and the environment (EPA 1988). The SOW included the following general preliminary RAOs for the Study Area:

- Control or eliminate ongoing sources of contamination, or other Study Area COCs, to groundwater, surface water, and sediment.
- Reduce or eliminate human and ecological exposure to any Study Area-related contaminated media that may lead to potential current or future unacceptable risk.

Table 7-9 summarizes the findings and risk estimates from the RI, HHRA, and ERA, along with the preliminary media-specific RAOs that were provided in the RAOs Technical Memorandum (Bridgewater et al. 2008b). Based on work completed in the HHRA, one additional preliminary RAO was added under wetland soil in Table 7-9: control exposure to chemicals in wetland soil that may result in unacceptable risk to human health. Based on the site-specific environmental information gathered during the RI and the findings of the HHRA and ERA, the preliminary RAOs appear to be inclusive and relevant for the assessment and management of current and future risks posed by the Harbor Oil Study Area.

Based on the results of the RI and baseline risk assessments, EPA will make risk management decisions for the Study Area and will determine whether risks are unacceptable. As discussed in EPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (EPA 1988), if the baseline risk assessments determine that risks are acceptable for humans and ecological receptors, the conclusions of the risk assessments and RI may serve as the primary means of documenting this decision. EPA guidance (1991b) states that action is generally not warranted when carcinogenic risks are less than 10^{-4}, non-carcinogenic risks are less than a HQ of 1, and MCLs and non-zero MCLGs are not exceeded. This guidance also indicates that risk assessments should characterize uncertainties when determining whether risks to human health or the environment are unacceptable (EPA 1991b).

Table 7-9. Preliminary Remedial Action Objectives and Associated Remedial Investigation Findings

Preliminary RAO[a]	RI, HHRA, and ERA Findings	Summary
Facility Soil		
Reduce worker exposure to chemicals in soil that may result in unacceptable risk.	In the HHRA, risks were within EPA's target risk range of 10^{-4} to 10^{-6} for current worker exposure (3×10^{-6} for the industrial [construction/trenching] worker). Risks were less than 10^{-6} for the industrial/commercial worker vapor intrusion scenario. Risks for future outdoor worker exposure were also within EPA's target risk range of 10^{-4} to 10^{-6} (2×10^{-5}) but would be somewhat higher than the current outdoor worker scenario. The future risk estimate assumes that workers would be directly exposed to soils (i.e., without the existing gravel layer and pavement covering the Facility). All worker scenarios had HQs that were less than or equal to 1.	Risks for current and future workers were less than the upper end of EPA's target risk range (10^{-4}), and HQs were less than or equal to 1.
Control migration from the soil berm of chemicals that may result in unacceptable risks to ecological receptors or humans.	The soil berm is intact, vegetated, and has no identified areas of soil erosion. Concentrations were not necessarily higher or lower in the soil berm as compared with the surrounding wetland or Facility soil, indicating that the soil berm is not a source. In addition, no clear concentration gradient was observed (i.e., concentrations in wetland soil did not consistently decrease with distance from the soil berm).	The findings of the RI do not indicate that the soil berm is a source of contamination to wetland soil or Facility soil.
Groundwater		
Reduce worker exposure to chemicals from the Study Area in shallow saturated zone groundwater that may result in unacceptable risk.	In the HHRA, excess cancer risks were less than 10^{-6}, and HQs were less than 1 for current worker exposure to groundwater (8×10^{-8} for the industrial [construction/trenching] worker). Risks were also below these thresholds for the industrial/commercial worker vapor intrusion scenario. Detected concentrations in groundwater were greater than the chemical-specific MCL or non-zero MCLG in shallow groundwater for arsenic, lead, benzene, and chlorobenzene, and in deep groundwater for TCE. Arsenic was detected at concentrations up to 3 times greater than the MCL in about 45% of samples (both dissolved and total water samples). The other four chemicals were detected at concentrations greater than their MCLs in only 1 of the 28 samples collected at the Study Area. However, it should be noted that MCLs and non-zero MCLGs are intended to be protective of the consumption of groundwater as drinking water. Groundwater at the Study Area is not currently used for drinking water, and this is not expected to change in the future based on land use designations.	Risks based on exposure to groundwater were less than 10^{-6}, and HQs were less than 1. Although detected concentrations of five chemicals were greater than their specific MCL or non-zero MCLG, exceedances were infrequent for four of the chemicals (in only 1 of 28 samples for lead, benzene, chlorobenzene, and TCE). Arsenic concentrations were greater than the MCL more frequently, but concentrations were similar in an upgradient well, suggesting regional influences. Groundwater at the Study Area is not currently used for drinking water, and this is not expected to change in the future based on land use designations.

Table 7-9. Preliminary Remedial Action Objectives and Associated Remedial Investigation Findings (cont.)

Preliminary RAO[a]	RI, HHRA, and ERA Findings	Summary
Control migration of chemicals in shallow saturated zone groundwater that may result in unacceptable risks to ecological receptors or humans.	In the HHRA, risks from all chemicals detected in groundwater were less than 10^{-6} and had HQs less than 1. In the ERA, an analysis was done to examine risks to ecological receptors if shallow groundwater were to migrate to Force Lake. This evaluation concluded that groundwater discharging into the lake likely does not represent a significant pathway of exposure. The presence of LNAPL is localized and constrained to a small portion of the Facility in the vicinity of well GA-30. A 0.1-ft thick layer of LNAPL has been observed in well GA-30, and trace thicknesses (0.01 ft or less) have been observed in two of the extraction wells. No LNAPL has been observed in wells located along the downgradient boundary of the Facility. In 2009 (a year after sample collection), insufficient volume of LNAPL was available for collection at well GA-30.	Risks to humans from shallow groundwater were less than 10^{-6}, and HQs were less than 1. For ecological receptors, HQs are not expected to be greater than 1 based on the uncertainty analysis performed in the ERA. The migration of chemicals from shallow groundwater does not appear to be a concern based on the concentrations and extent of chemicals in both shallow groundwater and LNAPL. In addition, the observed "thick and viscous" nature of the LNAPL as seen at well GA-30, the inability to gain entry into surrounding wells or re-entry into well GA-30, and the absence of LNAPL in surrounding borings would suggest that LNAPL is of limited extent and mobility potential.
Control migration of chemicals from shallow saturated zone groundwater to the deep saturated zone that may result in unacceptable risk to humans using deep groundwater as a potential future drinking water supply.	With the exception of DDD at one location, chemicals potentially attributable to historical releases within the Study Area that were detected in the deep groundwater zone at the Facility were not detected in the shallow or intermediate groundwater zones. Detected DDD concentrations in deep groundwater were below risk-based screening levels established for drinking water and, as described below, appear to be attributable to a well construction issue. Therefore, the shallow groundwater zone is not a suspected source to the deep groundwater zone. DDD, a hydrophobic, nearly insoluble, and immobile chemical, was detected in the shallow, intermediate, and deep groundwater zones at the MW-2s/MW-2i/B-4 well cluster but at concentrations below the human health RSL. Given the low mobility of DDD, the presence of DDD is likely attributable to well construction methods or the integrity of deep well B-4 and is not a function of vertical migration. Well B-4 was developed pre-1990 and may have served as a conduit for the deeper migration of DDD from surrounding soils. The mobility of DDD is low, and thus DDD is not expected to migrate in groundwater from the Facility to Force Lake. Based on the paucity of chemicals detected in the intermediate groundwater zone, combined with the presence of intervening lower-permeability silt deposits that separate the three groundwater zones, chemicals present beneath portions of the Facility in shallow groundwater do not appear to have significant migration potential to the deep groundwater zone.	Based on the findings of the RI, the vertical migration of chemicals within groundwater from the shallow saturated zone to the deep saturated zone does not appear to be a concern. It is suggested that well B-4 be decommissioned by the property owner because of the well's lack of structural integrity.

Table 7-9. Preliminary Remedial Action Objectives and Associated Remedial Investigation Findings (cont.)

Preliminary RAO[a]	RI, HHRA, and ERA Findings	Summary
Wetland Soil		
Reduce ecological receptor exposure to chemicals in wetland soil that may result in unacceptable risk.	**Wildlife:** In the ERA, effects-based HQs were less than 1.0 for many chemicals and receptors but were estimated to be greater than 1.0 for red-tailed hawk (1.2 for total DDTs), Eastern cottontail (1.2 for mercury), and shrew (13 for mercury and 8.5 for total DDTs). HQs were equal to 1.2 for hawk and cottontail and thus were essentially equal to 1. HQs for shrew were higher but are uncertain, particularly from a population-level perspective. In addition, the background LOAEL-based HQ for mercury ranged from 5.7 to 15 (compared with a Study Area HQ of 13), indicating that background is an important consideration.	Risk estimates for most of the COPC/receptor pairs were less than or equal to 1.0 or were less than background risk estimates. Uncertainty exists regarding the likelihood that these COPCs would result in unacceptable population-level risks.
	Invertebrates: Wetland soil concentrations were greater than invertebrate SLs (e.g., for earthworms) for chromium (up to 75 times the SL or up to 3.5 times background), copper (up to 25 times the SL), zinc (up to 6.2 times the SL), and HPAHs (up to 3.2 times the SL). The highest chromium and copper concentrations were detected in the drainage ditch located to the west of the Facility. Although soil concentrations were greater than thresholds for these contaminants, earthworms were frequently observed during field sampling, including in those areas with higher concentrations of metals.	Although HQs calculated using general screening levels developed for the protection of earthworms were greater than 1.0 for five contaminants, earthworm population-level effects were not observed at the Study Area.
Control exposure to chemicals in wetland soil that may result in unacceptable risk to human health.	In the HHRA, risks were within EPA's target risk range of 10^{-4} to 10^{-6} for current Force Lake recreational users exposed to wetland soil (9×10^{-6}), and HQs were less than 1.	Risks for recreational users based on exposure to wetland soil were less than the upper end of EPA's target risk range (10^{-4}), and HQs were less than 1.
Control migration of chemicals in wetland soil that may result in unacceptable risk to ecological receptors or humans.	No lateral concentration gradients were apparent in Force Lake sediment (i.e., concentrations were not higher in the northern part of the lake or in the sediment area located near the discharge point of the ditch). Because concentrations of some chemicals were significantly higher in some wetland areas than in lake sediment, limited or no contaminated soil migration appears to have occurred from the highly vegetated wetlands to the lake.	The findings of the RI do not indicate that significant migration of chemicals is occurring.

Table 7-9. Preliminary Remedial Action Objectives and Associated Remedial Investigation Findings (cont.)

Preliminary RAO[a]	RI, HHRA, and ERA Findings	Summary
Lake Sediment		
Reduce recreational user exposure to chemicals in lake sediment that may result in unacceptable risk.	In the HHRA, risks were equal to the lower end of EPA's target risk range of 10^{-6} to 10^{-4} for current recreational users exposed to Force Lake sediment (1×10^{-6}). HQs were less than 1. Risks were within EPA's target risk range of 10^{-4} to 10^{-6} for exposure via fish consumption (2×10^{-5}), and HQs for all COPCs were less than or equal to 1. A portion of this total risk estimate is attributable to background or reference area concentrations. The risk estimate for arsenic based on the regional background concentration was greater than the Study Area risk estimate. For both PCBs and DDTs, the Study Area risk estimate was higher than the reference area risk estimate, indicating that reference area concentrations are not an important consideration.	Risks for recreational users and fish consumers based on direct or indirect exposure to lake sediment were less than the upper end of EPA's target risk range (10^{-4}). HQs for individual COPCs and endpoint-specific HIs were less than or equal to 1.
Reduce ecological receptor exposure to chemicals in lake sediment that may result in unacceptable risk.	In the ERA, effects-based HQs were estimated to be greater than 1.0 for pumpkinseed (1.8 for copper) and brown bullhead (1.1 for copper). HQs were also greater than 1.0 for aquatic invertebrates for DDD and DDE but not for total DDTs. High TOC in the lake likely limits the bioavailability of these contaminants and thus limits the potential for effects.	HQs for fish and aquatic invertebrates were greater than 1.0 for some contaminants. Uncertainty exists regarding the likelihood that these COPCs would result in unacceptable population-level risks.
If contaminated, control migration of chemicals in lake sediment to connected water bodies and exposures that may result in unacceptable risk to ecological receptors or humans.	With the exception of metals, concentrations in North Lake sediment were generally lower than those in Force Lake sediment. Concentrations of metals were generally similar to those in Force Lake and to background concentrations. These results indicate that the migration of chemicals from Force Lake has been minimal and has not resulted in the presence of higher concentrations in North Lake. In addition, Force Lake acts as a settling basin because the water velocity or current is low; thus suspended solids that enter the lake tend to settle to the bottom rather than being transported downstream. As a result, chemicals that have entered the lake have, for the most part, remained because of the natural hydraulic regime of the lake.	The findings of the RI do not indicate that significant migration of chemicals is occurring from Force Lake to North Lake.
Lake Surface Water		
Reduce recreational user exposure to chemicals in lake surface water that may result in unacceptable risk.	In the HHRA, risks were less than 10^{-6} for current recreational users exposed to Force Lake surface water (1×10^{-7}). HQs were less than 1.	Risks for recreational users based on exposure to lake surface water were less than EPA's target risk range (10^{-6} to 10^{-4}), and HQs were less than 1.
Reduce ecological receptor exposure to chemicals in lake surface water that may result in unacceptable risk.	In the ERA, no refined COPCs were identified for surface water; therefore, no risks to ecological receptors from exposure to surface water are expected.	No refined COPCs were identified for ecological receptors.

[a] Bridgewater et al. (2008b [Appendix D])

Table 7-9. Preliminary Remedial Action Objectives and Associated Remedial Investigation Findings (cont.)

AWQC – ambient water quality criteria
COPC – contaminant of potential concern
DDD – dichlorodiphenyldichloroethane
DDT – dichlorodiphenyltrichloroethane
DEQ – Oregon Department of Environmental Quality
EPA – US Environmental Protection Agency
ERA – ecological risk assessment
HHRA – human health risk assessment
HPAHs –high-molecular-weight polycyclic aromatic hydrocarbon
HQ – hazard quotient
LOAEL – lowest-observed-adverse-effect level
LNAPL –light non-aqueous phase liquid
MCL – maximum contaminant level
MCLG – maximum contaminant level goal
PCB – polychlorinated biphenyl
RAO – remedial action objective
RI – remedial investigation
RSL – regional screening level
SL – screening level
TOC – total organic carbon
TRV – toxicity reference value

Below is a summary of the results of the RI and baseline risk assessments relative to EPA guidance:

- Carcinogenic risks for current and future RME scenarios in the HHRA were less than 10^{-4}, the upper level of EPA's target risk range, which is typically used by EPA for risk management decisions (EPA 1991b).
- Non-cancer HQs for individual COPCs and endpoint-specific HIs were less than or equal to 1 for all RME scenarios.
- For ecological receptors HQs were less than 1.0 or were less than or similar to background or reference area concentrations, with the exception of two COPCs for wildlife (mercury and total DDTs), one COPCs for fish (copper), and four COPCs for terrestrial invertebrates (chromium, copper, zinc, and total HPAHs). Uncertainty exists regarding the likelihood that these COPCs would result in unacceptable population-level risks.
- Detected concentrations in groundwater were greater than the MCL or non-zero MCLG for 12 of 27 dissolved water arsenic samples and 16 of 34 total water arsenic samples (approximately 45% of samples), as well as for 1 of 28 samples each for lead, benzene, chlorobenzene, and trichloroethene (Section 7.2.2). However, the groundwater at the Study Area is not currently used as drinking water, and this is not expected to change in the future.

A screening assessment for hypothetical future residents conducted as part of the HHRA indicated that total excess cancer risks would be greater than the upper end of EPA's target risk range (10^{-4}) and non-cancer HQs for some chemicals would be greater than 1. The results of this assessment indicate that if the land use designation were to change, additional analyses would be needed. It should be noted that future residential land use is unlikely at the Study Area based on current and expected future land use designations (industrial at the Facility and open space in the wetlands). In addition, as noted in EPA guidance (EPA 1991b), the NCP states that "the assumption of future residential land use may not be justifiable if the probability that the site will support residential use in the future is small."

EPA will carefully evaluate the information presented in this RI relative to the RAOs for the Study Area to determine what next steps, if any, are necessary.

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#1505

Oregon

DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHWEST REGION

June 14, 1994

Mr. Robert S. Davis
Vice President
Peninsula Terminal Company
P.O. Box 17526
Greenville, South Carolina 29606

Re: Completion of File Review Memo,
Peninsula Terminal Railroad Site

Dear Mr. Davis:

DEQ has completed review of site investigation reports prepared for both the individual Peninsula Terminal Railroad site, and for the larger Stockyards Property which includes Peninsula Terminal Railroad. The attached File Review Memo summarizes the results of our review, and makes specific recommendations regarding what further investigative work or other measures need to be completed before a determination of No Further Action can be considered.

I would be happy to discuss any comments or questions you may have regarding information contained in the File Review Memo. Please let me know as soon as possible whether you plan to perform the recommended work.

Sincerely,

Daniel J. Hafley

Daniel J. Hafley, Project Manager
Voluntary Cleanup Section
Northwest Region, DEQ

DH:dh
Enclosure: File Review Memo

cc: Michael Rosen, VCS, NWR, DEQ (w/o enclosure)
Marilyn Daniel, VCS, WR, DEQ

Bradford W. Wyche
Wyche, Burgess, Freeman & Parham, P.A.
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#1505

State of Oregon
Department of Environmental Quality — Memorandum

Date: June 14, 1994

To: Peninsula Terminal Railroad File

From: Daniel Hafley, VCS, NWR

Subject: File Review

I. Introduction

Peninsula Terminal Railroad (PTR) is a small rail switching and unloading facility located in Portland, Oregon. Peninsula Terminal Company signed a letter agreement with DEQ's Voluntary Cleanup Section (VCS) on March 4, 1994. In signing the agreement, site owner Peninsula Terminal Company requested that VCS review site investigation reports prepared for the site by their contractor, and determine if a decision of no further action could be made for the site. Peninsula Terminal Company was informed prior to signing the Letter Agreement that VCS would need to review all available environmental information prior to making a decision.

II. Background

Setting

The Peninsula Terminal Railroad (PTR) site is located in the historic "Stockyards" area of north Portland, near the intersection of N. Marine Drive and N. Force Avenue. The general location of the site is indicated in Attachment 1. The total area of the site is approximately 5 acres. Most of the site is owned by PTR, less than 1 acre of the site is owned by Oregon Waste Systems and leased to PTR. Oregon Waste Systems (OWS) also owns most of the land surrounding PTR. The narrow, elongate PTR site consists of a set of east-west trending railroad tracks, and four small site buildings. The site is perhaps 100 feet at its widest point, but nearly 3,500 feet in length. The tracks extend from N. Force Avenue on the east to N. Portland Boulevard on the west. The west 2,000 feet of PTR consists of a single rail track. Most of the site is not paved. That portion of the PTR operation leased from Oregon Waste Systems consists of the northernmost track running from near the west end of the Locomotive House to the west end of the Portland Livestock Auction property to the north.

The PTR site is bounded on the north by Portland Livestock Auction, Inc., Star Oil Card Lock, and James River Corporation, on the east by N. Force Avenue, on the south by the former Farmers Plant Aid facility, truck trailer storage areas, and undeveloped land, and on the west by Portland Road. Other facilities located within 1,000 feet of the site include Merit Truck Stop, Rod's Truck Service, Harbor Oil, Inc., the Red Steer Restaurant, and the

Portland Union Stockyard Building. The layout of the site and surrounding parcels are illustrated in Attachment 2.

All of the above-mentioned properties excluding James River Corporation comprise a 47-acre parcel of land known as the "Stockyards" or "Portland Stockyards". OWS, which owns most of the property, first proposed in the 1970s that a solid waste transfer station be constructed on the combined 47-acre site. The facility was to be used to recover reusable materials from domestic garbage, and a transfer point for non-recyclable materials being sent to eastern Oregon. Most Stockyards buildings were to be razed. It was this proposal which initiated environmental investigations of the Stockyards by Sweet-Edwards/EMCON, Inc. and Golder Associates, Inc. from 1987 to 1991. The waste transfer station idea was later dropped.

Operational History/Facilities Description

The PTR site has been in operation since at least the early 1900s. Past activities performed at the site included off-loading of cattle and coal, and the switching of train cars and tanks. Switching (uncoupling and re-coupling of train cars) continues to be performed in the central part of the site. Since the mid-1980s the eastern part of the site has been used for the off-loading of chemicals from rail cars to tanker trucks.

Off-Loading: The PTR rail tracks are shown in a 1917 aerial photograph, and presumably were constructed around the same time as the Portland Stockyards complex located immediately north. The rail line was initially used to off-load cattle to the Stockyards, where cattle were auctioned. Some cattle went to the former Swift & Company plant (currently the site of James River Corporation) located directly to the west for slaughter and food product production. There continued to be some transport and off-loading of cattle using PTR rail lines until the early to mid-1960s. There may have also been some transport and off-loading of coal during the same time period.

Switching: Starting in the 1940s, and continuing to the present day, the central part of the PTR site was used as a switching yard for trains carrying chemical tank cars. Tank cars moving through PTR carried liquid chemical products to nearby industrial facilities including Stauffer Chemical facility (now Rhone Poulenc Basic Chemicals), James River Corporation, and Morrison Oil. This activity has continued to the present day. Materials transported through the switching yard have included industrial solvents, acids, plastics, ether, various "cleaning materials", and latexes. According to PTR General Manager Rod Stephens, tank cars have only been stored and moved around in the switching area, no off or on-loading of materials from the cars has occurred. Stephens was not aware of any spills or leaks that had taken place in this area.

Transloading: From 1987 to present the eastern part of the site has been used for the off-loading (called "transloading" by PTR) of chemicals and chemical products from rail tanks to tanker trucks. Rail cars containing product are moved to the eastern end of the two northern-most rail lines at PTR. Trucks are driven to a point adjacent to the rail cars, and product pumped from the cars into the tanker trucks.

From 1986 to August 1992 Arrow transportation off-loaded products including peroxides, plastics, and de-icers at a rate of about 70 rail cars per year. From 1988 to present Priestly Oil has off-loaded products including solvents (toluene, acetone, xylenes), petroleum, and paint products at a rate of approximately 80 rail cars per year. Product was transferred from rail car to tanker truck by means of flexible hosing. Arrow Transportation used portable pumps which apparently caused some spillage to the ground, while Priestly Oil used a vacuum method that generally prevented spills from occurring. Golder Associates stated that they witnessed several small (generally less than 50 gallon) spills while observing tanker transfers in 1990.

Site Buildings: There are four small buildings on the site: the Locomotive House, Sand House, Yard Office, and the Motor Car building. The location of each of the buildings is noted in the Site Plan included as Attachment 2. According to PTR, the Locomotive House has and continues to be used principally for locomotive engine repair. A spur from the Switching Yard extends into the building, allowing locomotives to be driven into the building. The principal feature of the building is a large concrete-floored subgrade pit from which work can be performed on the locomotives. Oil was visible in the pit/subfloor at the time of the site visit. According to Mr. Stephens, materials used in the building include greases, petroleum oils, and small quantities of cleaning solvents.

The Sand House formerly stored sand used to improved traction on rails. This building is currently used to store personal items belonging to PTR employees. The Yard Office is a small office building. The Motor Car Building is used to store a rail motor car, tools, and equipment. There is a small "boneyard" located south and southeast of the Motor Car Building.

Storage Tanks: A 12,500-gallon waste oil UST was once located adjacent to the Locomotive House. According to PTR, the tank was removed in 1988. There is now one 1,000-gallon above-ground diesel tank near the Locomotive House, and an approximately 1,000-gallon above-ground waste oil tank resting on the ground immediately west of the Sand House.

Black Soil: A black, fine-grained, soil-like substances was observed in piles and in flat ground south of the rail tracks in the area west of the Motor Car Building. According to Rod Stephens, the black soil is material they obtained from Columbia Steel Castings sometime in the 1980s to fill some low areas on the site. Columbia officials identified the

material as casting sand dust, comprised principally of olivine flour and clay minerals including bentonite.

III. Environmental Setting

According to the Preliminary Site Assessment prepared for the Stockyards site in 1991 by Golder Associates, groundwater at the site can be differentiated into shallow, intermediate, and deep regimes. The shallow system consists of the permeable sandy fill material found in the upper 15 to 20 feet of ground surface, the deep system is associated with gravels that are encountered at about 110 feet bgs. This layer, and the underlying Troutdale Formation, appear to form a major regional aquifer with a number of productive wells including the Stockyards production well. The shallow and deep aquifers are separated by a 100-foot thick layer and sands and silts with significantly (one to two orders of magnitude) lower hydraulic conductivity, so that it forms a semi-confining stratum. Shallow groundwater flow at PTR as of 1991 was to the south, influenced primarily by surface infiltration at the Stockyard watering pens to the north (forming a groundwater mound). Intermediate and deep groundwater is strongly influenced by seasonal fluctuations of the nearby Oregon Slough/Columbia River system and subject to seasonal reversals. Flow is generally to the northwest in Summer and Fall months, and to the south in Winter and Spring months. Depth to groundwater at PTR is approximately 10 feet bgs.

There are a number of nearby surface water bodies; Oregon Slough and Force Lake are both located within 1,00 feet of the site. Physical barriers including topography are present which would prevent a release to the slough, there is some small potential for a release to the lake.

A great blue heron nesting area, and the City of Portland Heron Lakes golf course are both located within 1,000 south of the west end of the site. There are no known residents in the general vicinity of the site.

IV. Regulatory Issues

No state or federal permits have been identified for the site. According to the DEQ UST records, there was one 12,500-gallon used oil located at the tank in 1986 (from DEQ Notification of UST form). According to Stephens, the tank was decommissioned in 1986 or 1987 by PTR. It is no known if any verification samples were taken or soil removed. There are no DEQ Northwest Region Source or UST files for the site, nor are there DEQ Waste Management and Cleanup Division files .

PTR is not registered as either a generator of hazardous waste, or a TSD facility. No RCRA cleanup issues have been identified for the subject site by DEQ.

VCS, represented by Dan Hafley and Marilyn Daniel, performed a site visit for the subject site on March 29, 1994 (see Attachment 3 for Site Visit Report). Rod Stephens of PTR was also present. A walking tour of the site was completed at this time. A brief second visit was performed by Dan Hafley on April 29, 1994 in which Mr., Stephens declined to participate.

V. Summary of Investigative Work

A number of environmental investigations have been completed, some specifically for the PTR site, and others for the larger Stockyards property which include work at PTR. A brief discussion of each of the investigations and their results follows.

Preliminary Environmental Site Audit, Proposed Transfer Station Site, Portland, Oregon; prepared by Sweet-Edwards/EMCON, Inc. for Waste Management of Oregon, Inc., November 18, 1987.

A site reconnaissance was performed, historical aerial photographs reviewed, current and former operational histories of site occupants evaluated, and basic hydrogeologic and surface water information collected for the entire 47-acre Stockyards site. No sampling was performed. Results of this investigative work was presented in the Environmental Site Audit report. Specific information generated on the PTR site is minimal, and generally duplicated in the later Golder Associates report.

Environmental Audit: Field Investigation and Remedial Alternatives Assessment, Proposed Transfer Station Site, Portland, Oregon; prepared by Sweet-Edwards/EMCON, Inc. for Oregon Waste Systems, Inc., April 25, 1988.

This investigation focused on the entire 47-acres Stockyards site. A total of nineteen test borings were drilled to obtain one-time groundwater samples. Seventeen surficial samples of fill and soil were collected, and one monitoring well was installed north of the PTR site. Only three soil samples were collected on the PTR property, all from within 1 foot of ground surface. PTR sampling locations and analytical results are included as Attachment 4. All samples were analyzed for halogenated and non-halogenated volatile organic compounds (VOCs), EPA Priority Pollutant metals, specific conductance, and pH. A shallow groundwater sample was taken at test boring T-7 and analyzed for VOCs, total petroleum hydrocarbons (TPH), polychlorinated biphenyls (PCBs), specific conductance, pH, and additional water quality parameters.

Soil sample RR-3 was collected from the along the southernmost track in west end of the site, an area where tank cars are commonly parked. RR-2 was collected from the west side of the Motor Car Building below some junked cans, and RR-1 from the east end of the tracks

where tank cars are commonly parked. T-7 was collected southwest of the Locomotive House.

Tetrachloroethylene (PCE) was detected at 1.2 ppb and trichloroethylene (TCE) at 0.3 ppb in the groundwater collected from boring T-7. Neither TPH or PCBs were detected in the sample, although an oily residue was noted on a sample bailer used at the location. Sweet-Edwards/EMCON recommended in their investigation report that a groundwater sample at this location be analyzed for PAHs. The following VOCs were detected in soil sample RR-1: methyl isobutyl ketone (726 ppb), PCE (581 ppb), toluene (75 ppb), and 1,1,1-trichloroethane (1,1,1-TCA) (47 ppb). 1,1,1-TCA was also detected in soil sample RR-2 (41 ppb). No VOCs were detected in RR-3. Concentrations of metals in soil sample RR-1 to RR-3 did not appear to be elevated above natural background with the exception of lead (83, 41, and 115 ppm, respectively), which appear to be slightly elevated.

Stockyards Site Assessment: Phase 2A Field Investigation; prepared by Black and Veatch Waste Science and Technology Corporation for Oregon Waste Systems, Inc., date unknown.

The purpose of this investigations was to characterize the geologic, hydrogeologic, and geotechnical site conditions at the Portland Stockyards, provide a preliminary site assessment, and briefly discuss remedial alternatives. Work performed including installing 27 groundwater monitoring wells of varying depth, analyzing 39 soil vapor samples, testing and removing a number of underground storage tanks, and geotechnical laboratory testing. All work appears to have been performed on Stockyard properties north of PTR; much of the work is either replicated or discussed in the later Golder Associates reports.

Preliminary Site Assessment for Portland Stockyards; prepared by Golder Associates, Inc. for Oregon Waste Systems, Inc., July 24, 1991

Work performed by Golder for the entire Stockyards site included: 1) developing and sampling of 23 pre-existing monitoring wells, 2) installing one intermediate, two deep, and fourteen shallow monitoring wells, 3) performing ground-penetrating radar and electromagnetic induction surveys, 4) collection and analysis of over 400 soil samples, 5) collecting and analysis of over 100 groundwater and surface water samples, and 6) preparation of a detailed hydrogeologic analysis of the site. PTR sampling locations and analytical results are included as Attachment 5.

Five monitoring wells were installed on the PTR site, four shallow (GA series), and one deep (GB-6). All wells were analyzed for VOCs and TPH. No BTEX compound were detected in any of the wells during 1990 sampling. TCE, PCE, and TCA were detected in all of the wells to maximum concentrations of 6 ppb, 6 ppb, and 2 ppb, respectively for each compound. Monitoring wells GA-25, GA-26, and GB-6 were analyzed for a wide range of

inorganic elements. With the exception of major ionic species (potassium, sodium, calcium), many of the inorganics were not detected. Of those metals detected in groundwater, arsenic ranged from 2.4 to 3.4 ppb, copper from 5.2 to 8.5 ppb, barium from 112 to 137 ppb, and zinc from 12.4 to 50.8 ppb. None of the concentrations were in excess of EPA-established Maximum Contaminant Levels (MCLs).

Numerous soil samples were collected on and adjacent to PTR. Most soil samples analyzed did not contain VOCs or TPH. Some A-series samples contained relatively high concentrations of VOCs; scattered samples contained concentrations of TPH to 10,000 ppm. VOCs detected included acetone (to 8,400 ppb), 2-butanone (to 4,200 ppb), benzene (to 250 ppb), toluene (to 210,000 ppb), xylenes (to 99,000 ppb), PCE (to 45 ppb), TPH (to 3,000 ppb), and total PAHs (to 27,000 ppb) at locations A-100, A-830, A-900, A-930, A-931, and A-1000. Total VOCs were identified to 171,100 ppb and semi-volatiles to 71,100 ppb as Tentatively Identified Compounds (TICs). Those samples containing high concentration of VOCs generally also had elevated levels of semi-volatiles. Polynuclear aromatic compounds such as chrysene and benzo(a)pyrene were detected at concentrations above Oregon Soil Cleanup Standards.

A single soil sample was collected of the so-called "black soils" present at the site, and analyzed for metals. The sample contained elevated concentrations of lead (235 ppm), chromium (104 ppm), and barium (1220 ppm); further analysis indicated that the soil was not EP Toxicity characteristic for these metals. Screening of soils collected along the northern railroad spur and near the Locomotive House showed only relatively low concentrations for lead, chromium, and cadmium (highest value 10.8 mg/Kg for lead). Concentrations detected would likely not exceed the RCRA TCLP toxicity if tested.

Soil Sampling Activities and Laboratory Analytical Report, Railroad Transloading Area, West of North Force Avenue, Portland, Oregon; prepared by Braun Intertec Northwest, Inc. for Peninsula Terminal Company, May 25, 1993.

This investigation consisted of two phases: the performance of a site reconnaissance and the collection of soil samples from two test borings. In the site reconnaissance, no obvious signs of spills or contamination beyond minor staining were noted. No odors were detected in wells GA-26 or GA-31; both wells were tested and found to contain no free product. The subgrade concrete floor of the Locomotive House was found to be covered with "oil and/or diesel fuel", and a drain was noted to extend through the foundation wall to outside. No oils were being released at the time of the visit.

Two borings were completed to a depth of 3' bgs on April 19, 1993. Both the "West Track Boring" and "East Track Boring" were completed to 3' bgs, with samples collected at 1.5' and 3' bgs (see Attachment 6 for sample locations). All samples were analyzed for VOCs;

118 ppb of toluene was detected in the 3' bgs sample collected from the "West Track Boring".

Braun recommended that the oil in the Locomotive House be removed, and the foundation drain be sealed to prevent the release of oil to surrounding soils.

Groundwater and Soil Sampling Activities & Laboratory Analytical Report, Southwest Corner of Locomotive House, Railroad Transloading Area, Portland, Oregon; prepared by Braun Intertec Northwest, Inc. for Peninsula Terminal Company, October 5, 1993.

In this investigation, a groundwater sample was collected from monitoring well (GA-31) and analyzed for TPH (EPA Method 418.1) and VOCs (EPA Method 8260). Also, a single soil sample was collected from near-surface (2.5' bgs) soils adjacent to the southwest corner of the Locomotive House (beneath drain extending through foundation), and analyzed for TPH (see Attachment 7 for sampling locations).

Petroleum hydrocarbons were detected in the soil sample at 524 ppm, and in the groundwater sample from GA-31 at 0.9 ppm. No VOCs were detected in monitoring well GA-31.

Based on this investigative work, Braun recommended that near-surface soil beneath the Locomotive House foundation drain be removed to a level of 100 ppm, and that excavated contaminated soil be disposed of off-site or remediated on-site. They further recommended that on-going monitoring of the site groundwater wells continue.

VI. Hazardous Substance Characteristics

A large quantity of chemical compounds have been and continue to be transported through, and in some cases off-loaded from, the PTR site. Tank cars containing acids, solvents, petroleum oils, latex, ethylene glycol, soda ash, wax, and other products have moved through the switching yard at PTR on the way to nearby facilities such as Stauffer Chemical/Rhone Poulenc Basic Chemicals, James River Corporation, and Morrison Oil. This activity started in the 1940s and continue to the present day. Since 1987 bulk products including solvents (toluene, xylenes, acetone), liquid latex, acids, ether, paint products, and petroleum products have been off-loaded from rail cars at the site to tanker trucks in the eastern part of the site. It is not known if any chlorinated solvents were switched through the PTR yards; they appear not to have been off-loaded from PTR.

Hazardous substances identified in soil and groundwater at the site are varied. They include petroleum hydrocarbons, halogenated and non-halogenated VOCs, and semi-volatile organic compounds. Most of the contamination probably came from releases of bulk liquids from rail cars. The toxicity of these chemicals, and the manner in which they would be expected

to interact with the environment, varies. Toxicity varies ranges from low for substances like diesel to high for compounds such as benzene and chrysene. Some would be expected to rapidly attenuate in soils, others are sufficiently mobile that they might migrate to groundwater given the proper conditions. Limited groundwater sampling data does suggest that most contaminants released at the site are confined to soils above the water table.

VII. Exposure Pathways

Land around the site is used primarily for industrial/commercial purposes. The nearest residences are located approximately 2,000 north on Hayden Island (and across Oregon Slough). Heron Lakes golf course is located approximately 0.25 miles to the south. The site is partially fenced; access could be gained from undeveloped land to the south, but is unlikely given the somewhat remote setting.

The potential for endangerment to public health or the environment from the site is low. Groundwater at the site has been impacted, but the source of the contamination is unclear. Shallow groundwater is not used for drinking or other purposes; deeper groundwater is used for commercial/industrial use. Areas of surficial soil contamination are localized, the contaminants generally low-volatility, and human or other receptors on and immediately surrounding the site minimal. There appears to be a small potential for contaminants to migrate off-site as surface water runoff.

VIII. Summary

There are five monitoring wells located on the PTR site. GA-25, 26, 31, and 32 were installed in shallow groundwater at depths from 18.7' to 23.1' bgs; well GB-6 was installed to 121.4' bgs. No BTEX compound were detected in any of the wells during 1990 sampling. TCE, PCE, and TCA were detected in all of the wells to maximum concentrations of 6 ppb, 6 ppb, and 2 ppb, respectively for each compound. Similar concentrations of the same organic compounds are found in most of the groundwater monitoring wells (shallow and deep) in the western 2/3 of the Stockyards site. The source of shallow groundwater contamination is not known, but surmised by Golder in their 1991 report to be the Portland Livestock Auction property to the north. The source of deeper groundwater contamination was characterized as an unknown off-site source. Petroleum hydrocarbons were detected in well GA-31 at 0.91 ppm during 1993 sampling; this contamination is likely associated with releases of petroleum products at/near the Locomotive House. Groundwater data for the on-site wells is limited and dated: a sampling of all monitoring wells at PTR has not been completed since 1991, and none of the wells have ever been analyzed for semi-volatile organic compounds.

Significant concentrations of petroleum hydrocarbons, VOCs, and semi-volatile organic compounds have been detected in site soils. TPH concentrations to 10,000 ppm have been detected in soils near the Locomotive House, and sporadically elsewhere on the site. Volatile and semi-volatile organic compounds including benzene (to 260 ppb), toluene (to 210,000 ppb), xylenes (to 99,000 ppb), benzo(a)anthracene (to 470 ppb), and chrysene (to 600 ppb) have been detected in PTR soils, principally in an area northwest of the Locomotive House where chemical off-loading likely occurred. Many of hazardous substance concentrations in this area exceed Oregon Soil Cleanup Standards. TCE, PCE, 1,1,1-TCA, and 1,2-DCE have also been detected at low concentrations in some scattered on-site locations. Concentrations of metals in some PTR soils are nominally elevated relative to what would be expected to be background concentrations for the area; none of the samples tested by the EP Toxicity and TCLP methodologies exhibited the toxicity characteristic of RCRA hazardous waste.

Sampling by Golder and others has shown soil and groundwater to be contaminated at a number of nearby properties (all part of the Stockyards site). BTEX compounds from leaking USTs were detected in soils and groundwater at Rod's Truck Repair and Merit Truck Stop; petroleum hydrocarbons have been detected in soil at Star Oil; BTEX, TCE, PCE, and lead have been detected in soils at Harbor Oil. Because of geographic separation and groundwater flow direction, none of these sites are thought to have impacted the PTR site.

There appears to be some potential for contaminants to be released from the site either in groundwater or entrained in surface runoff. The potential for an air release of consequence or direct contact seem quite low. Because the site is located in a primarily industrial area, and access to the site is restricted, threats posed to public health and the environment are low.

IX. Data Gaps

The following data gaps have been identified:

1. No on-site monitoring wells have been analyzed for semi-volatile organics, despite significant contamination of soils with these compounds. In addition, only one of the on-site wells has been analyzed for VOCs and TPH since 1991.

2. The vertical and horizontal extent of soil contamination in the area of samples A-830 to A-930 has not been determined. Hazardous substances including benzene, toluene, benzo(a)anthracene, and chrysene have been detected at concentrations above Oregon Soil Cleanup Standards to depths of 5' below ground surface. These and other hazardous substances present could be impacting shallow groundwater.

3. The extent of soil and groundwater contamination has not been determined for the area around the Locomotive House. TPH have been detected in soil samples to 10,000 ppm, and groundwater to 0.1 ppm. The source and extent of contamination in this area is unclear. The circumstances surrounding the removal of a UST in this area are not known, including whether contaminated soils were encountered and if verification samples were collected.

4. Contaminated soils removed from the southwest corner of the Locomotive House are being improperly land-farmed, which could lead to further contamination of the site.

X. Recommendations and Project Strategy

Depending on the results of additional soil and groundwater sampling, cleanup of contaminated soils using DEQ's Soil Cleanup Standards may be appropriate. At this time, management of the site can continue under the VCS Letter Agreement signed in February 1994. The following additional investigation work needs to be performed:

1. All on-site wells should be sampled and analyzed for TPH, VOCs, and semi-volatile organic compounds. At the same time, the direction of shallow groundwater flow should be determined.

2. Additional soil sampling should be performed to determine the vertical and horizontal extent of soil contamination along the northern part of the site in the vicinity of A-series samples A-830 to A-930. If contamination is found to extend to the water table, groundwater samples should be collected. Samples collected should be analyzed for a full range of volatile and semi-volatile organic compounds.

3. Additional soil sampling should be performed to determine the vertical and horizontal extent of soil contamination in the area of the Locomotive House. If no documentation can be found regarding the UST removal in the area, soil samples should be collected from beneath the former tank location.

4. Contaminated soils currently being "land-farmed" southwest of the Locomotive House should either be hauled off-site for disposal, or treated in-place in a manner acceptable to DEQ.

5. The PTR site should be proposed for the Confirmed Release List. Based on the results of additional investigative work, the site may also be proposed for the Inventory of hazardous substance sites.

List of Attachments

Attachment 1 -	Site Location Map
Attachment 2 -	Facility Maps including Portland Stockyards, see Attachment 5 for reference.
Attachment 3 -	DEQ Site Visit Report, March 1994
Attachment 4 -	Sampling locations and results, Environmental Field Investigation and Remedial Alternatives Assessment; Sweet Edwards/EMCON, 1988
Attachment 5 -	Various figures and tables from Preliminary Site Assessment for Portland Stockyards; Golder Associates, 1991
Attachment 6 -	Sample location map, A Report for Peninsula Terminal Company (Groundwater and Soil Sampling Activities); Braun Intertec Northwest, 1993
Attachment 7 -	Sample location map, A Report for Peninsula Terminal Company (Soil Sampling Activities); Braun Intertec Northwest, 1993

Documents Reviewed

Consultant Reports:

Preliminary Environmental Site Audit, Proposed Transfer Station Site, Portland, Oregon; prepared by Sweet-Edwards/EMCON, Inc. for Waste Management of Oregon, Inc., November 18, 1987.

Environmental Audit: Field Investigation and Remedial Alternatives Assessment, Proposed Transfer Station Site, Portland, Oregon; prepared by Sweet-Edwards/EMCON, Inc. for Oregon Waste Systems, Inc., April 25, 1988.

Preliminary Site Assessment for Portland Stockyards; prepared by Golder Associates, Inc. for Oregon Waste Systems, Inc., July 24, 1991

Soil Sampling Activities and Laboratory Analytical Report, Railroad Transloading Area, West of North Force Avenue, Portland, Oregon; prepared by Braun Intertec Northwest, Inc. for Peninsula Terminal Company, May 25, 1993.

Groundwater and Soil Sampling Activities & Laboratory Analytical Report, Southwest Corner of Locomotive House, Railroad Transloading Area, Portland, Oregon; prepared by Braun Intertec Northwest, Inc. for Peninsula Terminal Company, October 5, 1993.

DEQ Files:

No DEQ files have been found for the site

DEQ SITE ASSESSMENT PROGRAM - STRATEGY RECOMMENDATION

This Strategy Recommendation was prepared as a Federal Site Screening under a cooperative agreement with U.S. EPA. As such, DEQ may refer the site to EPA for follow-up action at any time.

Site Name:	Bulk Transportation Facility
CERCLIS Number:	[None]
DEQ ECSI Number:	5696
Site Address:	11619 N Force Avenue Portland, OR 97217-7703
Recommendation By:	Sarah Miller, Site Assessment Section, DEQ Northwest Region
Approved By:	Keith Johnson, Northwest Region Cleanup Manager
Date:	May 22, 2013

Site Owner:

Harsch Investment Properties – Stockyards LLC
Attn: Jeffrey Nudelman, Registered Agent
1121 SW Salmon Street, Suite 500
Portland, OR 97205-2022

Site Contacts:

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Background:

The Bulk Transportation Facility site is a 15.6-acre parcel (Tax Lot 1400 of Township 2 North / Range 1 East – Section 33C) that was originally part of the larger, 46-acre Oregon Waste Systems – Proposed Transfer Station site (ECSI #1091).

The 46-acre Oregon Waste Systems – Proposed Transfer Station (OWS) site was added to DEQ's ECSI database in November 1990 after environmental evaluations conducted prior to the proposed development of a solid waste transfer station at the site encountered extensive soil and groundwater contamination. The site contamination appeared likely to have originated from a variety of historic on-site and off-site source areas.

The original 46-acre OWS site (see Figure 7) was comprised of two tax lots (Tax Lots 2 and 36), that straddled the Peninsula Terminal RR site (ECSI #1505) along its north and south property lines. The OWS site included the Harbor Oil Inc. (Former) site (ECSI #24), even though the Harbor Oil site had also been separately added to DEQ's ECSI database in April 1988.

The waste transfer station development proposal was eventually dropped, and the site was subsequently subdivided into three new tracts. Two of the three new tracts were then separately redeveloped: One as a manufacturing and distribution center, and the other into an intermodal trucking center. In addition to the site being subdivided, several of the former OWS site's external property lines were also subsequently readjusted. Each of the three new parcels have had unique operating histories, so it is appropriate re-evaluate environmental concerns at each of new tracts.

The Bulk Transportation Facility site is located along the southern edge of the Peninsula Terminal RR (PTRR) site, with the Harbor Oil site now segregated as a separate tax lot at its southeast corner. The southern property line of the PTRR site was adjusted farther southward to encompass an additional 2.56-acres near the central portion of the Bulk Transportation Facility site, while a narrow, 0.37 acre segment of the railroad terminal site was incorporated into the northeast corner of the Bulk Transportation Facility site.

Property to the north of the PTRR site has now been redesignated as the Stockyards Commerce Center site (ECSI #5695).

Site Location:

The Bulk Transportation Facility site (see Figures 1 through 5) is located in North Portland, 0.50-mile west of the Interstate Highway 5 (I-5) / W Marine Drive (Oregon Highway 120) / NE Martin Luther King Jr. Blvd. (Oregon Highway 99E) overpass (I-5 Exit 307). N Force Avenue lies along the site's eastern property line. N Force Avenue intersects with N Marine Drive about 725-feet north-northeast of the site.

The PTRR site, a railroad transloading facility, forms the site's northern boundary (see Figure 4). The Stockyards Commerce Center (ECSI #5695) lies to just north of the PTRR site. A 900- to 1,100-foot wide side channel of the Columbia River, variously referred to as North Portland Harbor, or Oregon Slough, lies 900- to 1,100-feet north-northeast of the site. West Hayden Island and the Columbia River mainstem lie north of North Portland Harbor.

Heron Lakes Municipal Golf Course lies south of the site, just beyond a surface water drainage ditch known as the North Drainageway (see Figure 4). The former Harbor Oil, Inc. waste-oil recycling/re-refining facility lies at the southeast corner of the site. The Portland Metropolitan Expo Center, a regional convention, trade show, and exposition center, lies to the east, beyond N Force Avenue. An undeveloped 22-acre segment of wetlands area lies along the site's western boundary. Force Lake (9.6-acres) and North Lake (2.6-acres) lie 175- and 155-feet south of the site, respectively.

General Site Description:

The eastern ¼ of the site is a relatively level, 3-acre paved area used for parking tank trucks and cargo containers, and for materials storage (see Figure 5). An approximate 2,000 square foot office building is centrally located just inside the eastern property line. A narrow, 350-foot long, approximately 0.6-acre unpaved parking or equipment-storage area is located immediate west of the paved area. The remainder of the site is predominantly vegetated and undeveloped. An approximate 6.2-acre segment of wetlands area, which appears largely to have been revegetated in 2002-03, occupies the southern and western portions of the site (see Figure 8).

Surface elevations abruptly drop 10- to 12-feet at the southern edge of the Peninsula Terminal Railroad property (see Figure 9). A concrete retaining wall is present along the central portion of the railroad property's southern boundary. A second concrete retaining wall extends westward from the eastern extent of Harbor Oil's tank farm to about 300 feet west of the northwest corner of the Harbor Oil site. An approximately 100-foot long section of retaining wall also extends perpendicularly from the Harbor Oil tank farm retaining wall into the Bulk Transportation parking area. The eastern paved area slopes gently downward toward the south-southwest.

The far western end of the property slopes downward toward the south, while slope in the central portion of the site is downward toward the south and southwest.

Operating History:

The site is owned by Harsch Investment Properties – Stockyard LLC, and has been leased to Bulk Transportation, Inc. and its associate, DTI Associates, LLC, since about 1995. Bulk Transportation / DTI is a general and intermodal chemical transport company that uses the site as a satellite trucking terminal to serve Oregon and Washington. Liquids, gases, chemicals, and hazardous materials are unloaded from rail cars and trucked to their final destination. Other services include product mixing, liquid bulk storage, tank containers, and warehousing.

Sweet-Edwards / EMCON, Inc. reviewed historical aerial photos of the site in 1988, and Golder Associates, Inc. further examined the photos in 1990. Their reviews indicated that, prior to 1936, the western portion of the site was generally undeveloped, and may have been used for farming hay. A barn-like structure and row crops were present on the eastern portion of the site in 1940.

A 1940 aerial photo indicates that an on-site fertilizer yard received manure produced at the nearby stockyards.

A railroad spur was present on an elevated trestle along the eastern edge of the property in 1948, extending as far south as the Farmers Plant Aid facility, although the spur had been dismantled by 1952.

A 1956 photo depicts an access road entering the site from the south, and passing along the site's western property line. Near the midpoint of the western property line, the road turned toward the northeast, leading to two small structures or sheds near the north-central portion of the site. The road was mostly overgrown by 1964.

Hay farming appeared to have ceased by 1963, and brush appeared to have been growing back in this area. However, a 1963 air photo depicted an area of potential dumping along the southern edge of the site; two more dumping areas appeared to be present along the southern property line in a 1966 photo. Dumping at the two latter areas appeared to extend off-site to the south.

J.W. Fertilizer, a commercial fertilizer and soil additive facility was operating on the eastern portion of the site during the 1970's. A runoff detention pond was constructed on the eastern portion of the site between about 1977 and 1986 to prevent fertilizer runoff from reaching Force Lake, to the South. Farmers Plant Aid, a lumber yard, a barkdust mulching operation, and Portland Pacific Containerized Freight Service were operating on the eastern portion of the site by 1987. Farmers Plant Aid processed and sold soil additives, composted material, and manures. Farmers Plant Aid vacated the site in 1990.

Past Site Investigations:

1988 Phase II Site Investigation by Sweet-Edwards / EMCON:

Sweet-Edwards / EMCON, Inc. (SE/E) conducted a Field Investigation at the beginning of 1988 in preparation for redeveloping the properties into a proposed solid waste transfer station. The scope of their investigation included evaluations of environmental conditions at the current Bulk Transportation Facility site, the adjoining Harbor Oil facility, the adjoining PTRR site, and the nearby Stockyards Commerce Center site (now ECSI #5695).

At the Bulk Transportation Facility parcel, surface soils were sampled at nine points near the site's southern property line (SS-1 through SS-9); shallow groundwater and subsurface soils were sampled at two locations within the former Farmers Plant Aid area (borings T-5 and T-6) (see Figure 10).

The shallow soil samples (SS-1 through SS-9) where collected from three discrete areas that SE/E's previous review of historic aerial photographs indicated wastes may have been surface applied. One potential disposal area was first visible in a 1963 photo (Area 8B of Figure 7). Two additional areas were first noted on aerial photo from 1966 (Areas 8A and 8C of Figure 7). The two latter areas appeared to extend southward, beyond the parcel's property line.

One of the borings advanced for collecting subsurface soil and groundwater samples (T-6 of Figure 10) was located within the footprint of a former wastewater detention pond. The boring was advanced to a depth of 7.0 feet below ground surface (bgs). Subsurface soils within the boring had an odor of decaying organic matter. An oily residue was encountered at 5.5- to 7.0-feet bgs. The detention pond had been constructed by the J.W. Fertilizer operation in about 1977 to collect manure pile runoff which had previously discharged to Force Lake. Site runoff may have been reaching Force Lake through a drainage ditch that was present between about 1963 and 1966 (see Figure 7). A February 1976 letter from DEQ discusses a proposal to construct a leachate lagoon at the J.W. Fertilizer site, and to spray-irrigate the collected leachate on contoured and planted property adjacent to the fertilizer operation. It is not known if the spray-irrigation proposal was ever implemented. The pond had been backfilled by mid-1986.

A Photoionizing Detector (PID) was used to screen soils for potential organic vapors prior to laboratory sample collection. Subsurface soil samples at the former Farmers Plant Aid area were collected several feet below the top of the shallow groundwater table because of the extremely shallow groundwater table in that area (1.06-1.27 feet, bgs). Elevated PID readings were obtained from shallow soils in apparent disposal areas 8A and 8C (see Figure 11). Shallow soils in disposal area 8C had PID readings that were beyond the instrument calibration range (greater than 2,000 parts per million, or ppm). The soil PID readings in area 8C were as high, or higher, than those at any other location on the four parcels of the OWS site.

Soil samples were analyzed in the laboratory for total metals and Volatile Organic Compounds (VOCs). Although field PID readings were varied in soils from apparent disposal area 8C, surface soils from that area contained no detectable VOCs. The only soil VOC detection on the parcel was from surface soils at apparent waste area 8A: Soil sample SS-3 contained methyl isobutyl ketone (MIBK) at a concentration of 918 parts per billion (ppb), although prior field PID analysis detected no volatile organics at a detection limit of 1 ppm. Soils were not analyzed in apparent disposal area 8B as area 8B was submerged beneath standing water at the time. Soil samples were not analyzed for Total Petroleum Hydrocarbons (TPH) or Semi-Volatile Organic Compounds (SVOCs), so it is not clear if the elevated PID readings from apparent disposal areas 8A and 8C might have been attributable to heavier petroleum constituents, including Polynuclear Aromatic Hydrocarbons (PAHs) or other SVOCs.

Shallow soils in apparent waste disposal areas 8A and 8C contained somewhat elevated concentrations of several metals, including copper, lead, mercury, and silver. Copper, silver, and mercury were detected at significantly higher concentrations than those that occur naturally in this part of the state (see Figure 12). The concentrations of copper, lead, mercury, and silver detected in this area might represent a potential threat to plants and wildlife in the wetlands area. Higher concentrations of lead were encountered in shallow soils on the adjoining PTRR site, however.

Shallow groundwater contained relatively low concentrations of a variety of VOCs (see Figure 13). Groundwater from boring T-6, which was located within the footprint of the site's former wastewater detention pond, contained relatively low concentrations of gasoline and BTEX (benzene, toluene, ethylbenzene, and xylenes), although the detected concentration of benzene (8.2 ppb) exceeded both the Federal Drinking Water Maximum Contaminant Level (MCL)(5 ppb), and DEQ's Risk Based Concentration (RBC) for benzene in tapwater intended for occupational use. Shallow groundwater from boring T-5, which was located along the southern edge of the former Farmers Plant Aid production building, was contaminated with relatively low concentrations of trichloroethylene (TCE), vinyl chloride (VC), and 1,2-dichlorobenzene (1,2-DCB). The detected concentration of VC (1.8 ppb) approached the Federal Drinking Water MCL (2 ppb), but exceeded DEQ's RBC for VC in occupational tapwater (0.52 ppb). Sources for the site's groundwater VOCs are not known.

1990 Expanded Preliminary Assessment by Golder Associates, Inc.:

Golder Associates, Inc. conducted an Expanded Preliminary Assessment of the OWS site in 1990 as a follow-up to SE/E's earlier investigations. Similar to SE/E's investigation, Golder sampled various environmental media on the Bulk Transportation Facility, Harbor Oil, PTRR, and Stockyards Commerce Center parcels. Golder examined surface and shallow subsurface soils, surface water, and shallow, intermediate, and deep groundwater. A small percentage of its environmental samples were submitted to an off-site commercial laboratory for analysis, however most samples were analyzed by an on-site mobile laboratory. The on-site mobile laboratory primarily analyzed samples for TPH, BTEX, and chlorinated hydrocarbons. The off-site commercial laboratory analyzed samples for TPH, VOCs, SVOCs, and metals.

Soil Contaminants:

Most soil samples from the Bulk Transportation Facility parcel contained low to moderate concentrations of petroleum constituents. A few samples contained low concentrations of chlorinated hydrocarbons.

- Low concentrations of TPH and BTEX were detected in soils throughout most of the site (see Figure 15). Soils on the central portion of the site also contained low concentrations of perchlorethylene (PCE) and TCE.

- Mildly higher concentrations of TPH were detected in surface soils at the northern half of Bulk Transportation Facility's western property line.

- Subsurface soils within the footprint of the former Farmer's Plant Aid detention pond contained moderate concentrations of TPH.

Surface and subsurface soils along the northern and western perimeters of the Harbor Oil facility contained moderate to high concentrations of TPH and BTEX, while subsurface soils along the facility's western perimeter also contained moderate concentrations of PCE and TCE.

Soil samples from the Bulk Transportation Facility parcel were not submitted to the off-site commercial laboratory for SVOC or metals analyses. Elevated concentrations of PAHs and metals were detected in soils at the adjoining PTRR parcel, and elevated concentrations of metals were detected at the adjoining Harbor Oil parcel (see Figure 16).

Surface Water and Groundwater Contaminants:

Relatively few surface water or groundwater samples were collected on the Bulk Terminal Facility parcel, and those that were collected were generally collected along the property lines (see Figure 17). All but one of the samples contained relatively low concentrations of TPH, BTEX, and/or chlorinated hydrocarbons (see Figure 17). None of the on-site surface water or groundwater samples were submitted to the off-site commercial laboratory for analysis of metals or SVOCs (see Figure 18).

- A very low concentration of TCE was detected in shallow groundwater just west of the facility's paved parking area.

- Mildly elevated concentrations of TPH were detected in surface water along the western half of the parcel's southern property line.

- Surface waters along the Harbor Oil parcel's northern and western property lines were contaminated with low concentrations of TPH, BTEX, and/or chlorinated hydrocarbons.

- Surface waters along the retaining wall between the central portion of the Bulk Transportation Facility parcel and the PTRR parcel contained traces of TPH and very low concentrations of chlorinated hydrocarbons.

1994 Soil and Groundwater Samplings along the Harbor Oil Facility's North Drainage Ditch:

In August and September 1994, at the request of Jordan Schnitzer Properties, Golder Associates sampled soils within the drainage ditch along the northern boundary of the Harbor Oil facility and the southern boundary of the Bulk Transportation facility. Shallow groundwater was also sampled at two new monitoring wells installed just north of the drainage ditch. Records of these samples could not be readily located in DEQ files. However, a 2012 Remedial Investigation report for the Harbor Oil facility[1] states that shallow soils within the drainage ditch were found to be contaminated with diesel fuel and heavy oil at concentrations of up to 11,000 ppm. There is no indication if contaminants were detected in groundwater, or whether groundwater and soils within the drainage ditch were analyzed for other potential contaminants.

The drainage ditch was closed off in 2002.

2008 Remedial Investigation for the Former Harbor Oil Facility

In April 2008, Bridgewater Group, Inc. collected shallow wetlands soil samples at 16 locations on the southeast corner of the Bulk Transportation site as part of an EPA CERCLA Remedial Investigation of the adjoining Harbor Oil facility. The samples were analyzed for metals, TPH, VOCs, PAHs, polychlorinated biphenyls (PCBs), and pesticides. Figures 19A through 19E present some of the significant results. DEQ believes that soil samples collected to the west of the Harbor Oil facility, WS-01, -02, -05, and -09 may be detecting contamination from the Bulk Transportation site. As part of future investigations at Bulk Transportation these soil sample results should be considered.

Spills:

In November 1994, while Limex Transportation, Inc. operated at the site, approximately 50- to 150-gallons of diesel fuel was released from a faulty valve on a 300-gallon above-ground storage tank (AST)[2]. DEQ has no record of the location of the AST, but it was reported that the fuel flowed into the drainage ditch between the Bulk Transportation facility and the Harbor Oil facility, then into the wetlands area. Free product and contaminated soils were removed from the wetlands area, although the soil removal activities were terminated when an oily layer of pre-existing contamination was encountered at 16-inches bgs. DEQ has no records indicating the location of these soil removal activities.

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1 *Remedial Investigation Report for the Harbor Oil Site*, prepared for the Voluntary Group for the Harbor Oil Site RI/FS, Final, by Bridgewater Group, Inc., and Winward Environmental LLC, March 30, 2012.

2 DEQ Northwest Region Spill Number NWR290 / Oregon Emergency Management Division (EMD) spill number 94-1890, November 19, 1994. The spill was not reported until November 23, 1994.

Additional notable spills reported to DEQ are listed below:

Date	Source	Chemical	Amount	Notes	OERS #
7/12/2007	Material Transfer	Hydrogen Peroxide	700 gallons	No cleanup effort performed	07-1516
9/13/2005	Spill	CCA*(likely Chromated Copper Arsenate)*	10 gallons	Applied absorbent materials and boomed area	05-2160
11/14/2001	Dumping	Labeled Waste Oil	55 gallon drum	Noticeable ammonia odor	01-2979
12/1/1997	Material Transfer	Unknown solvent	150gal overfill; generated 60gal of cleanup	Transfer from tank to truck	97-2928

Petroleum spills are known to have flowed off the Harbor Oil site, and a major fire at the Harbor Oil facility in 1979 caused the site's high-volume storage tanks to rupture and melt. Hundreds of drums of petroleum were stored on the site at the time, and some of the drums ruptured, exploded, and became airborne during the fire.

Potential Environmental Contaminants of Concerns:

Contaminants of concern include VOCs, TPH, TCE/PCE, metals and potentially SVOCs. Generally these were detected at low concentrations throughout the site, and possible sources are not known. Spills from historic site activities and from the adjacent Harbor Oil facility may have contributed to measured contaminants in soil and groundwater.

Local Geology, Hydrology, and Hydrogeology:

A flood-control levee is located 60-feet north-northeast of, and parallel to, N Marine Drive. The crest of the levee lies at 9-feet higher elevation than N Marine Drive, and about 27-feet higher elevation than the average surface water level in North Portland Harbor.

Surface soils are comprised of Sauvie-Rafton Urban land complex, which are comprised clays and sandy silts from former river deposits, of up to several hundred feet. Sauvie-Rafton soils are considered poor to very poorly drained soils. Stormwater runoff from the site's truck parking area appears to drain toward a vegetated strip at the center of the parking area's southern boundary. Historically, a small drainage ditch drained directly south from the vegetated strip, draining across the harbor Oil site (north-to-south), and eventually discharging to Force Lake (see Figure 7). This ditch was backfilled in the 1960's, the site likely drains via overland flow but it is not known if a culvert pipe might have been installed prior to backfilling. Stormwater

flow is likely directed towards the wetlands and North Drainage Way ditch, based on topographic maps. Force Lake and North Lake outlets also drain to the North Drainage Way located along the southern border of the property. This water flows to the west and south through a series of ponds and ditches in the Heron Lakes Golf Course for approximately 0.3mile before being pumped to the Columbia Slough.

The Troutdale Formation lies beneath the surface soils and consists of partially cemented sand, sandstones, with sand and gravel. It is the primary aquifer for the region and is confined throughout most of the basin. Shallow groundwater generally flows towards to the north and the Columbia River. Groundwater is very shallow at the Bulk Transportation site (surface seeps to 2-feet bgs; and wetlands area).

Local Water Use:
Potable water is supplied by the City of Portland to the site. Deep groundwater wells have historically been used as Public and Community Drinking Water supplies at surrounding facilities (Heron Lakes Golf Course; Fort James). Wells are also present at Harbor Oil (currently for fire suppression), at a City of Portland sewage pumping station (at the southeast corner of Harbor Oil), and at the northwest corner of the Expo Center (irrigation). All of these wells are contaminated with chlorinated solvents from unknown sources.

Sensitive Species and Habitat:
The site is approximately 200ft to the south of the North Portland Harbor area of the Columbia River and is about 800ft north of Force Lake, which are both designated as wetlands. Force Lake is considered a 'priority wetland area' for Oregon Department of Fish and Wildlife's Comprehensive Wildlife Conservation Strategy. Force Lake may be exposed to groundwater, sediments and stormwater runoff from the site (Figure 17). A heronry is located approximately 1,200 feet to the west of the site.

Vulnerable Areas:
The site and nearby area contain locally significant wetlands. The area does not contain any community drinking water wells or high poverty census tracts.

Potential Pathways of Concern:
Soil contact to occupational workers, construction and excavation workers could be a potential pathway of concern. Stormwater and soils could be deposited in nearby wetlands at concentrations that could pose an ecological concern.

Summary and Recommendations:

DEQ Site Assessment recommends the following activities be performed at the site to help clarify site risk and priority for further action. Based on the results of a DEQ site assessment prioritization scoring, the priority for further action is medium.

- Soils
    - Prior characterization of waste disposal piles (potential dump area found elevated

concentrations of metals. SVOCs were never analyzed, even though PID readings were elevated. SVOCs and metals should be examined further in the waste disposal pile area.

- Characterize the full magnitude, nature, and extent of contamination in subsurface soils in the backfilled retention pond. Prior work showed elevated concentrations of petroleum constituents.

- Determine if spills were adequately cleaned up; particularly the 1994 diesel spill, 1997 unknown solvent spill and 2005 CCA spill.

- Characterize areas where any historic Harbor Oil releases that may have migrated to the site, particularly if a change of land use is considered.

- Stormwater drainage for the site should be mapped to determine where runoff is directed after entry to the vegetated strip in center of the parking area's southern boundary. If stormwater is directed towards wetlands, additional sediment characterization and source control evaluation may be needed.

- Groundwater- the southern extent of PCE/TCE groundwater contamination present on the adjacent northern properties (Stockyards Commerce Center #5695) should be defined in the Bulk Transport area.

Other:

The site is currently listed on DEQ's ECSI database; the database will be updated with information contained within this document, and to reflect Site Assessment's decision for further action at the site. The original ECSI #1091 site, which the Bulk Transport Facility is a part of, is listed on DEQ's Confirmed Release List [CRL] based on contaminants previously detected in site soils, groundwater, and surface waters.

Attachments:

Figure 1: Bulk Transportation Facility site location depicted on a USGS 1:250,000 topographic map

Figure 2: Bulk Transportation Facility site location depicted on a 7.5-minute USGS topographic map

Figure 3: Bulk Transportation Facility site location depicted on an ODOT highway map

Figure 4: Bulk Transportation Facility site depicted in a 2011 aerial photograph

Figure 5: Bulk Transportation Facility site depicted in a 2011 aerial photograph

Figure 6: Bulk Transportation Facility site location depicted on a Multnomah County Tax Lot Map

Figure 7: Subdivision of original 46-acre Oregon Waste Systems – Proposed Transfer Station site (ECSI #1091)

References:

The following general references were consulted in preparing this Strategy Recommendation:

1. Preliminary Environmental Site Audit, Waste Management of Oregon, Inc. , Proposed Transfer Station Site, Portland, Oregon, prepared for Waste Management of Oregon, Inc., by Sweet-Edwards/EMCON, November 18, 1987.

2. Environmental Audit: Field Investigation and Remedial Alternatives Assessment, Proposed Transfer Station Site, prepared for Waste Management Systems, Inc., by Sweet-Edwards/EMCON, Inc., April 25, 1988.

3. Oregon Waste Systems, Preliminary Site Assessment for Portland Stockyards, prepared by Golder Associates, Inc., July 24, 1991.

4. Oregon Waste Systems, Merit Truck Stop, Corrective Action Plan, by Golder Associates, Inc., September 13, 1991.

5. DEQ File Review Memo, Peninsula Terminal Railroad File, by Daniel Hafley, VCS, NWR, June 14, 1994 (ECSI #1505).

6. Updated Level I and Level II Environmental Site Assessment, Stockyards Site, prepared for Jordan Schnitzer Properties, by Golder Associates, Inc., October 24, 1994.

7. Updated Level I Environmental Site Assessment, Stockyards Site, North Marine Drive, Portland, Oregon, prepared for SF Property Investments, LLC / Harsch Investment Corp. / Jordan Schnitzer Properties, by Parametrix, Inc., August 22, 1997.

8. Phase II Environmental Site Assessment, Former Merit Truck Stop Site, prepared for for SF Property Investments, LLC / Harsch Investment Corp. / Jordan Schnitzer Properties, by Parametrix, Inc., May 13, 1999.

9. Remedial Investigation Report for the Harbor Oil Site, prepared for the Voluntary Group for the Harbor Oil Site RI/FS, Draft Final, by Bridgewater Group, Inc. and Windward Environmental LLC in association with Hahn and Associates, Inc. and GeoDesign, Inc., September 1, 2010.

10. Phase I Environmental Site Assessment, Property Identification: Stockyards Parcel 1, AEI Project No. 302713, prepared for Harsch Investment Properties, by AEI Consultants, January 10, 2012.

11. Geological Map of Geologic map of the Portland quadrangle, Multnomah and Washington Counties Oregon and Clark County, Washington: Oregon Department of Geology and Mineral Industries, Geological Map Series 75, scale 1:24000, by M.H. Beeson, T.L. Tolan, and I.P. Madin, 1991. http://www.oregongeology.org/pubs/GMS/gms075.pdf

12. ODOT highway maps, http://www.oregon.gov/ODOT/maps.shtml

13. OWRD well log database, http://apps2.wrd.state.or.us/apps/gw/well_log/Default.aspx

14. OWRD Water Rights Information System [WRIS] database, http://apps2.wrd.state.or.us/apps/wr/wrinfo/

15. USGS National Map Viewer, http://nmviewogc.cr.usgs.gov/viewer.htm

16. USF&W National Wetlands Inventory, Wetlands Mapper, http://www.fws.gov/wetlands/Data/mapper.html

17. ODF&W, Natural Resources Information Management Program, Fish Distribution Maps, http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishdistmaps

18. USF&W, Critical Habitat Mapper, http://crithab.fws.gov/

19. FEMA Flood Map Viewer, http://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1&userType=G

20. Oregon DEQ Vulnerable Areas Viewer, 2010 (DEQ in-house system).

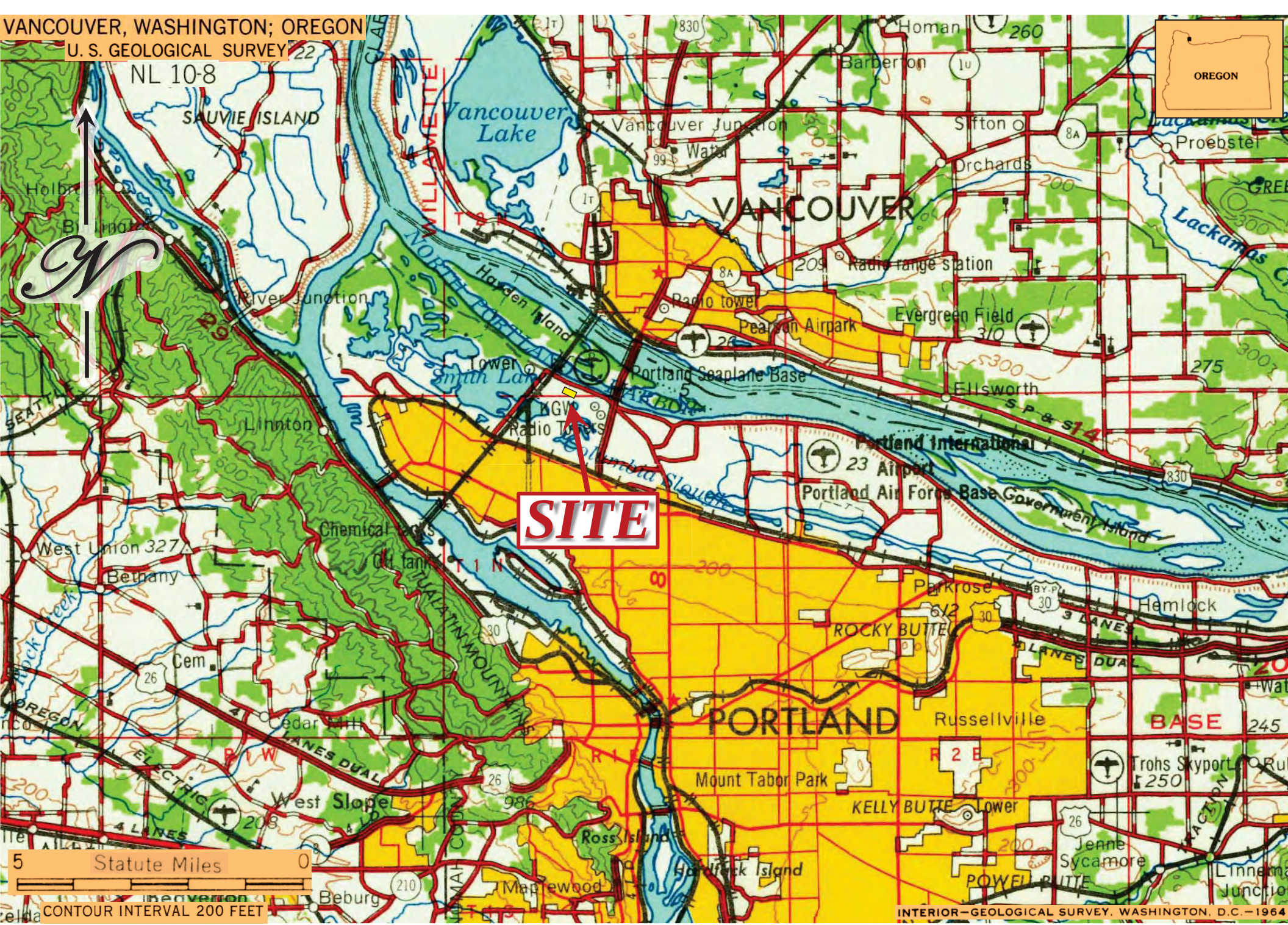


FIGURE 1: Bulk Transportation Facility site location depicted on a USGS 1:250,000 topographic map

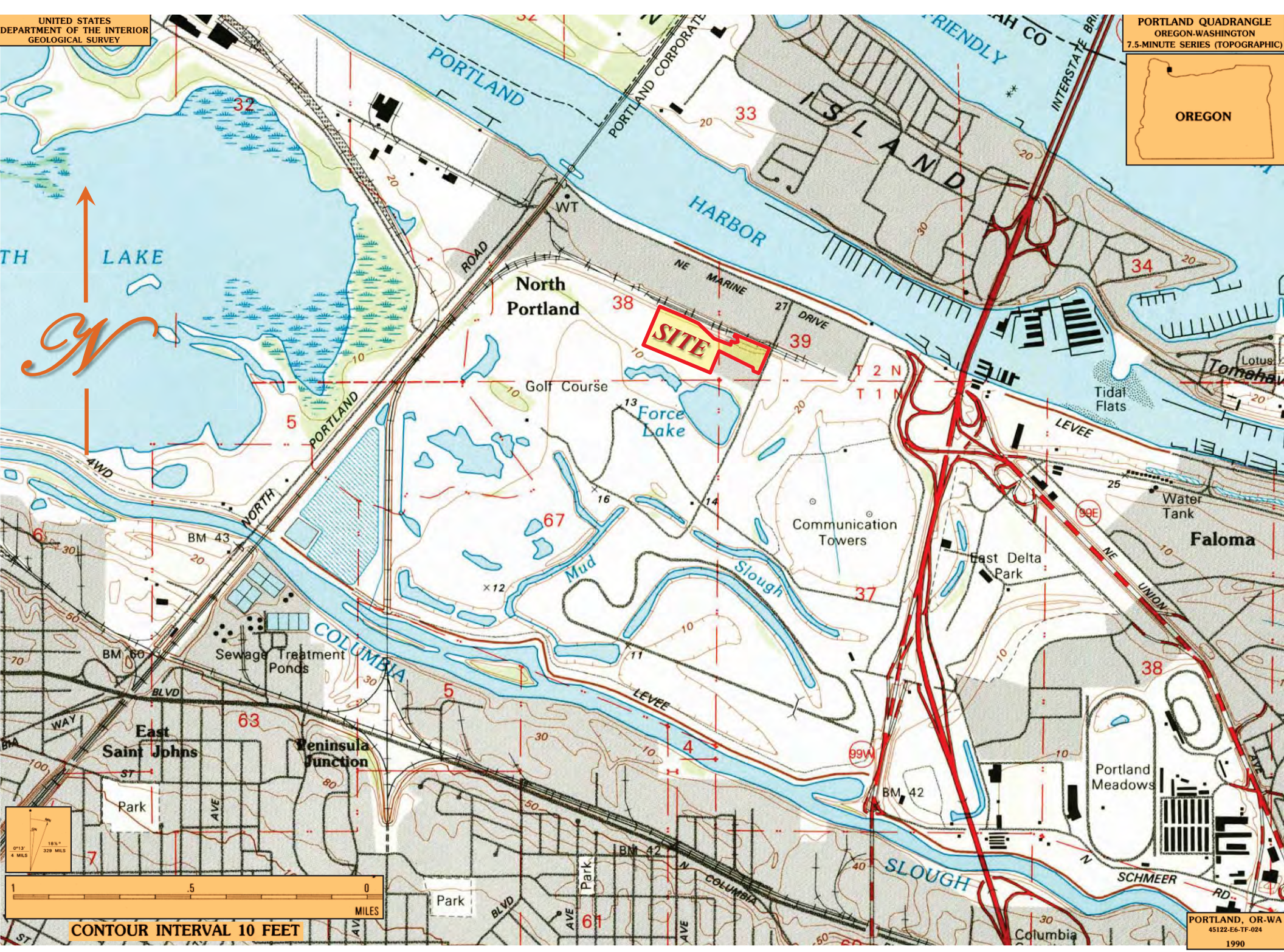


FIGURE 2: Bulk Transportation Facility site location depicted on a 7.5-minute USGS topographic map

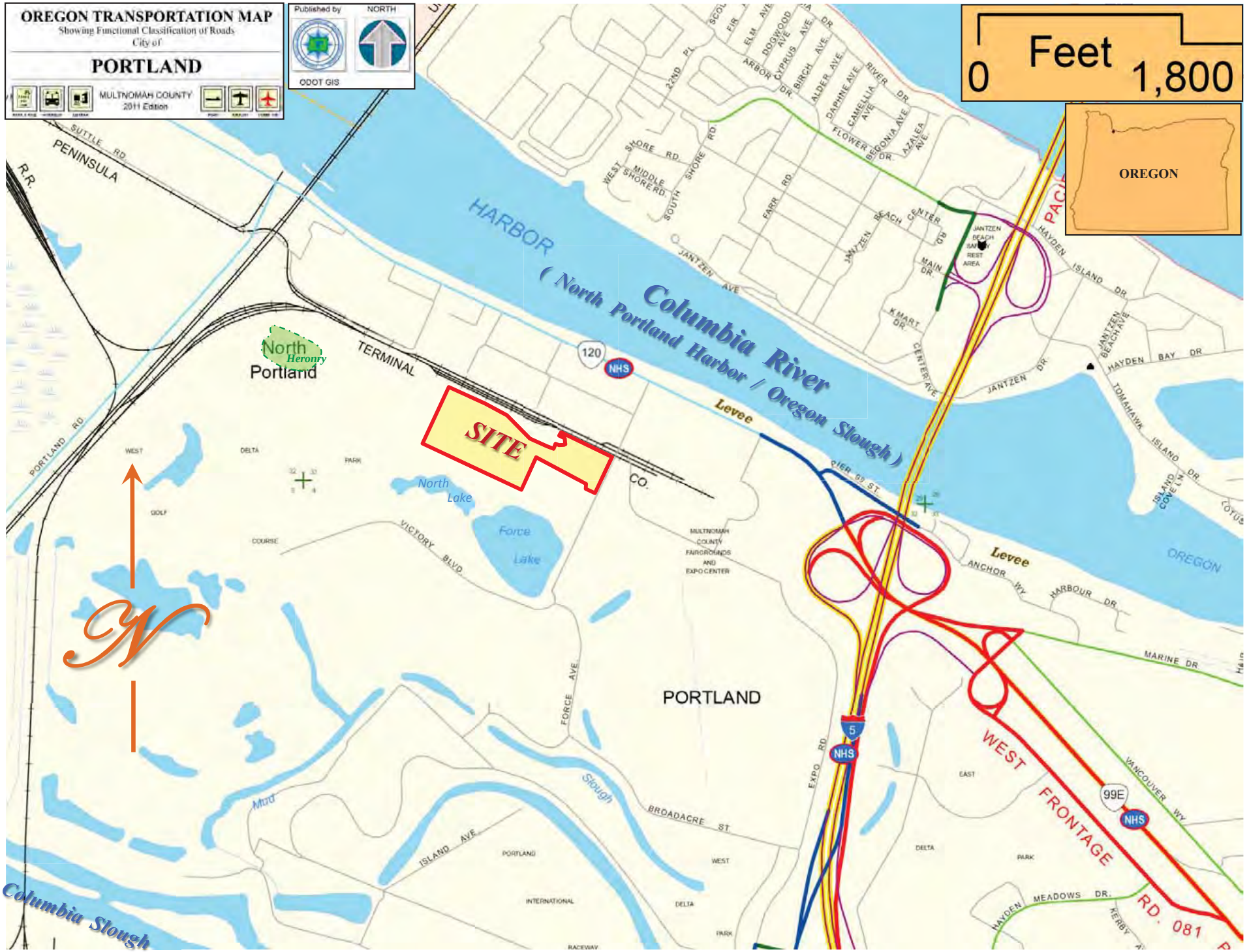


FIGURE 3: Bulk Transportation Facility site location depicted on an ODOT highway map

FIGURE 4: Bulk Transportation Facility site depicted in a 2011 aerial photograph

2012 Microsoft Corporation, Pictometry Bird's Eye, MDA Geospatial Services, Inc.

FIGURE 5: Bulk Transportation Facility site depicted in a 2011 aerial photograph

FIGURE 6: Bulk Transportation Facility site location depicted on a Multnomah County Tax Lot Map

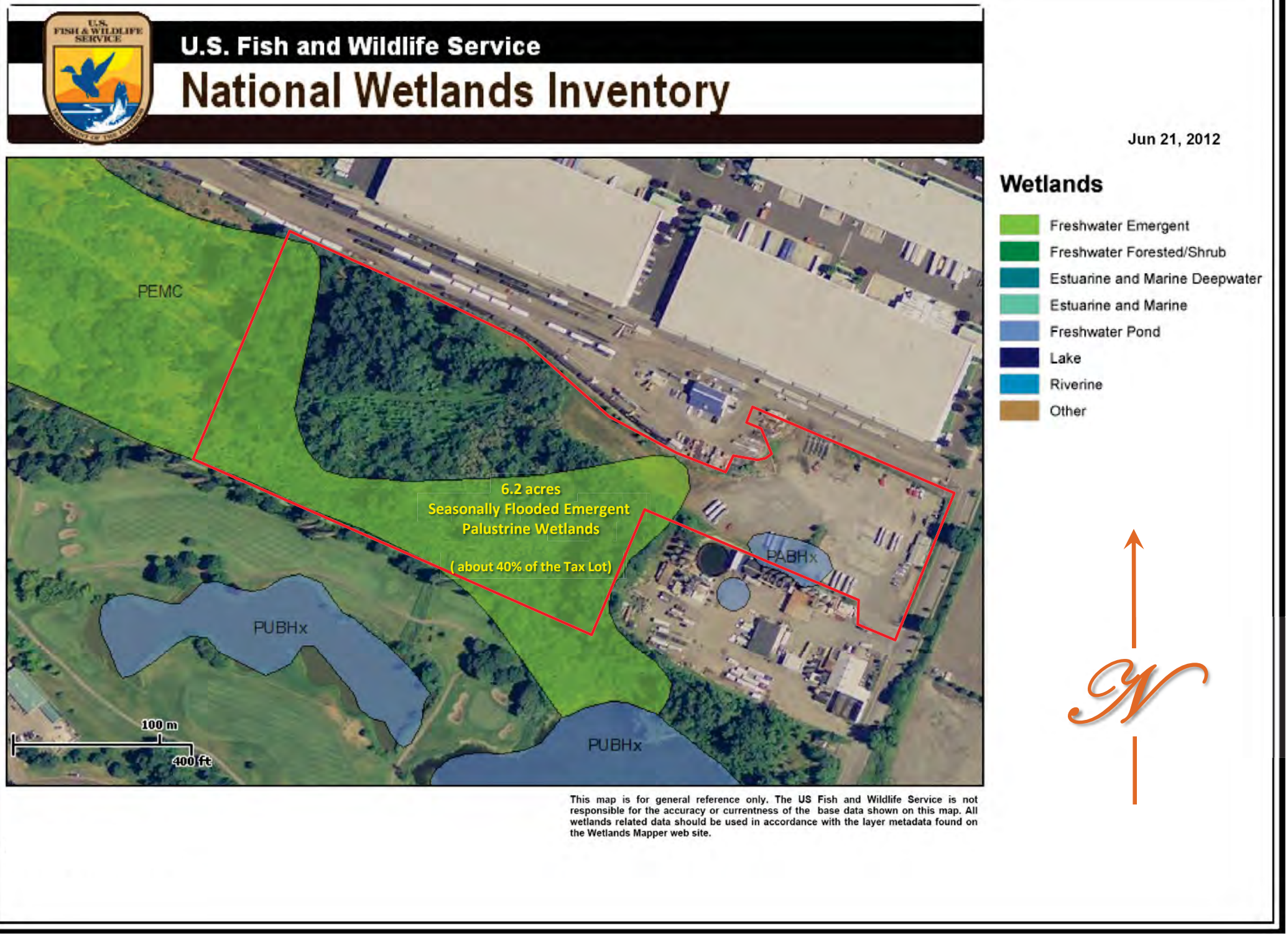


FIGURE 8: Wetlands area within the Bulk Transportation Facility site

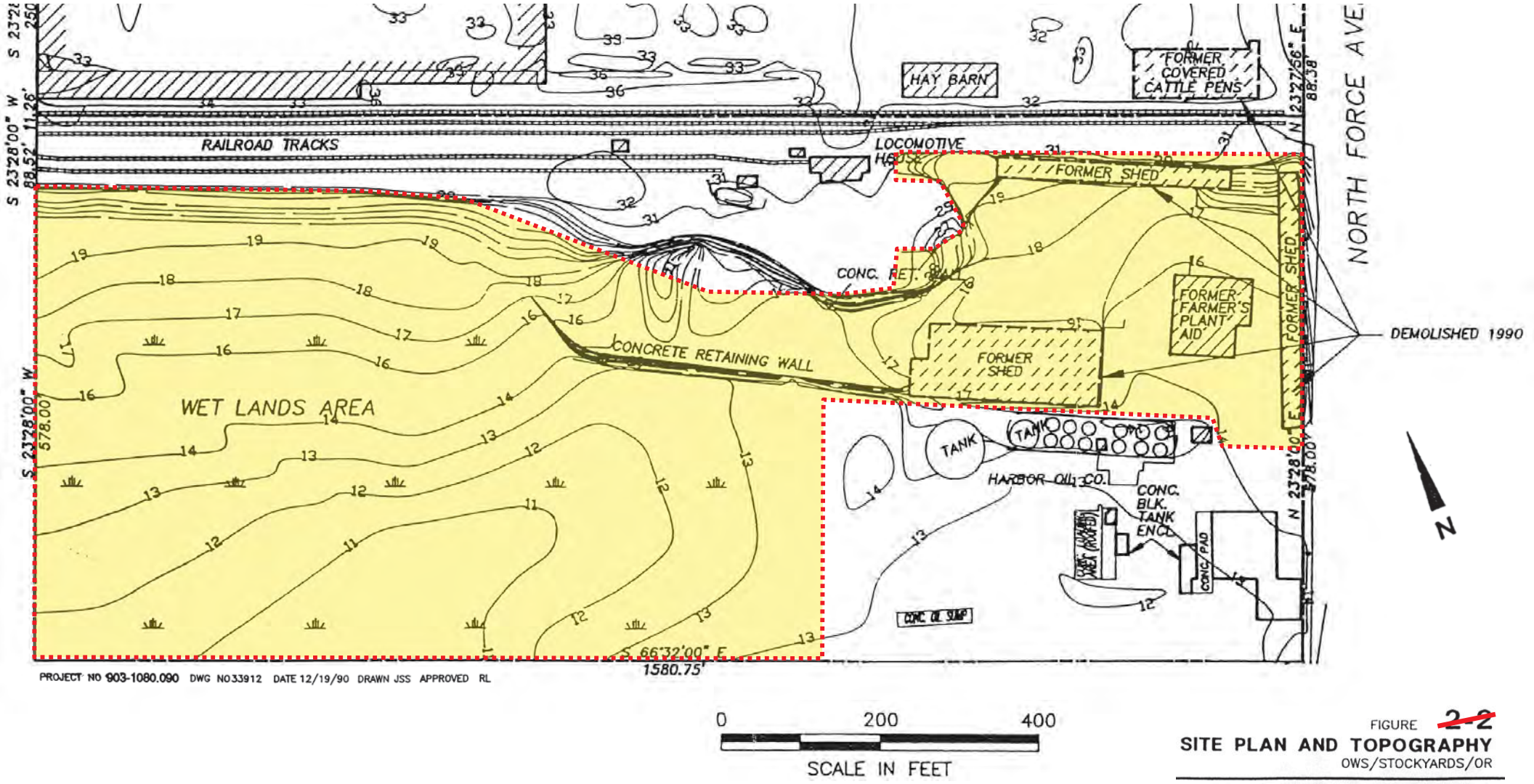


FIGURE 9: Bulk Transportation Facility site topography

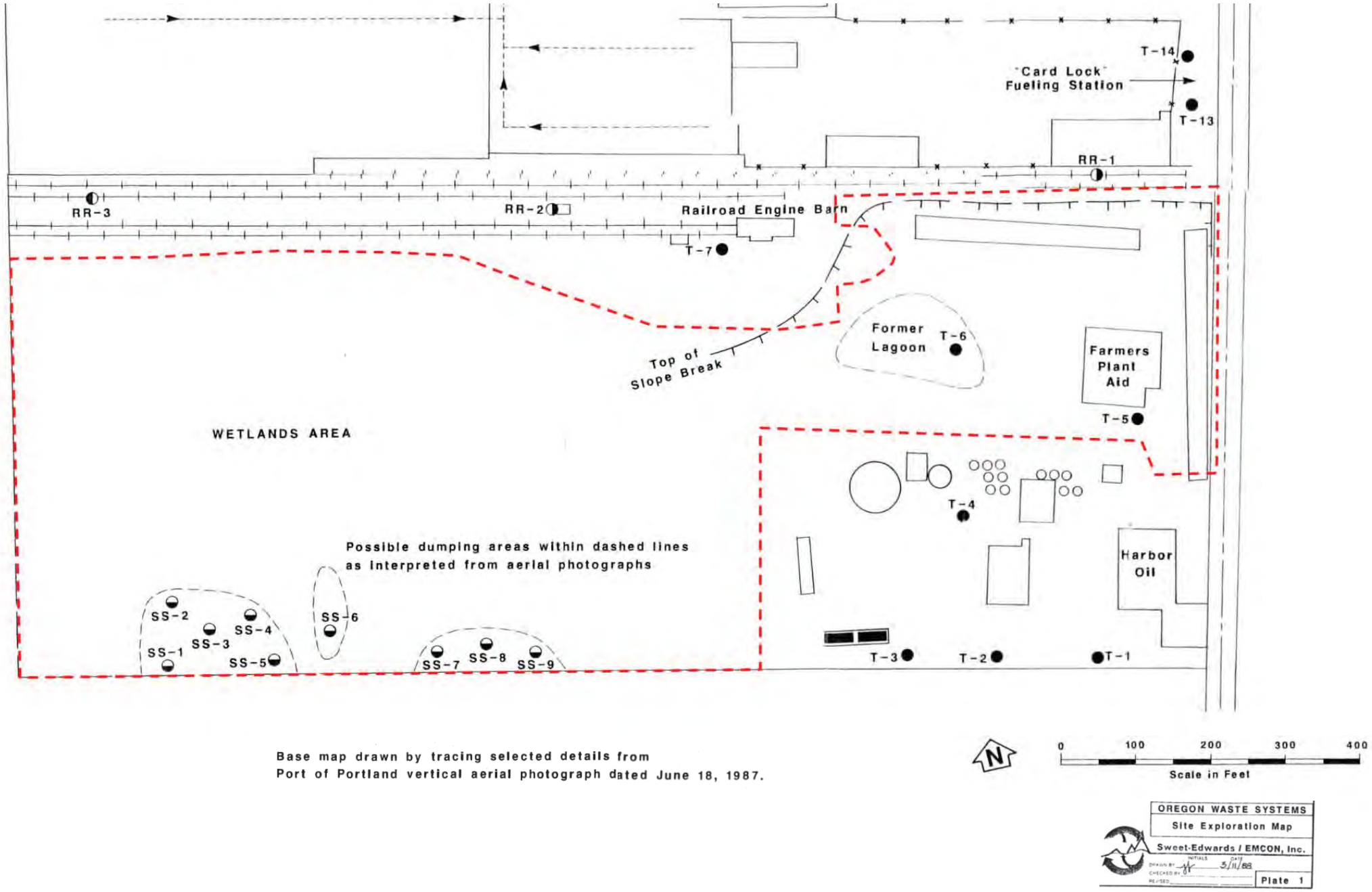
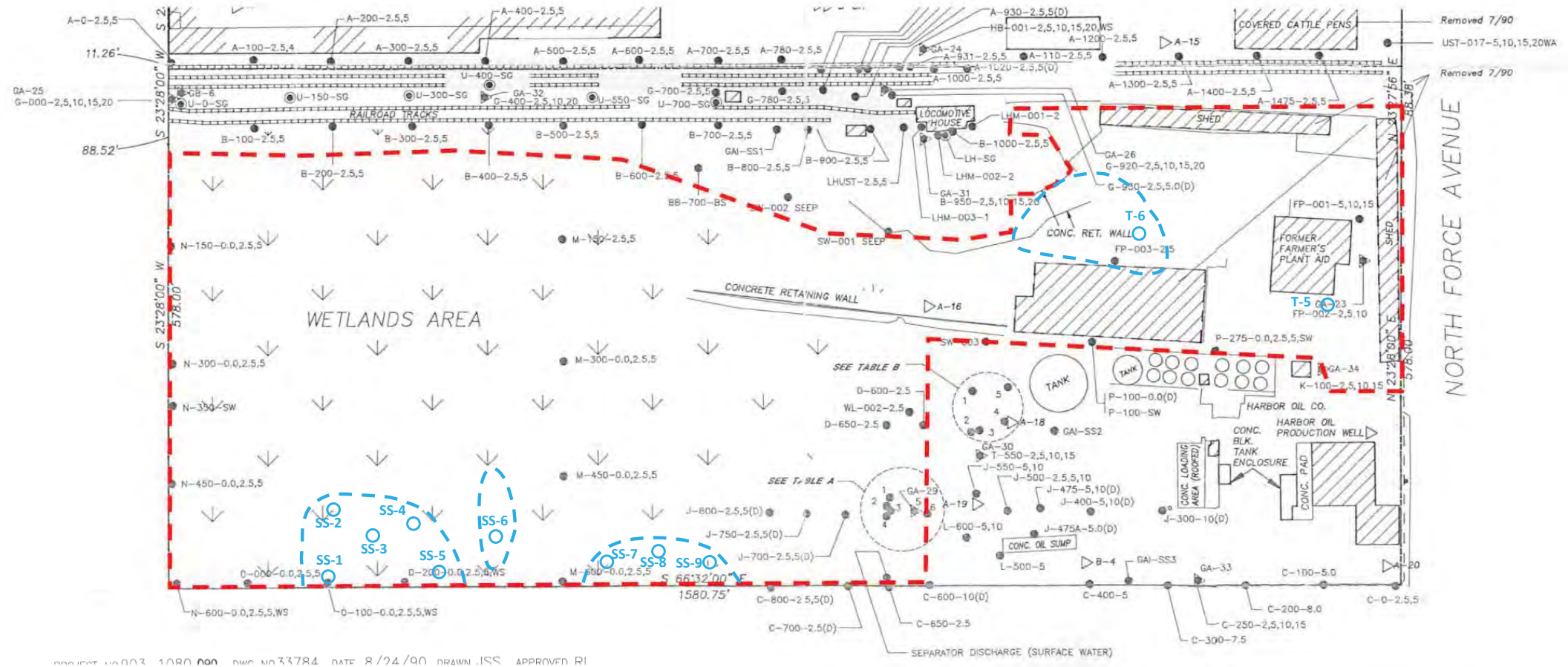


FIGURE 10: Locations on the Bulk Transportation Facility parcel where Sweet-Edwards/EMCON sampled soils and shallow groundwater in1988



Surface feature noted during 1988 Field Investigation by Sweet-Edwards/EMCON

SS-1 1988 Sampling Point by Sweet-Edwards/EMCON

▷A–16 Well sampling location and well number

J–800–2.5,5(D) ● Soil sampling location and sample number

Sample number — *Sample depths, ft bgs* — *Duplicate sample*

PLATE 1

SITE SAMPLING LOCATIONS

OWS/STOCKYARDS/OR

Golder Associates

FIGURE 14: Locations on the Bulk Transportation Facility parcel where Golder Associates sampled soils, groundwater, and surface waters in 1990.

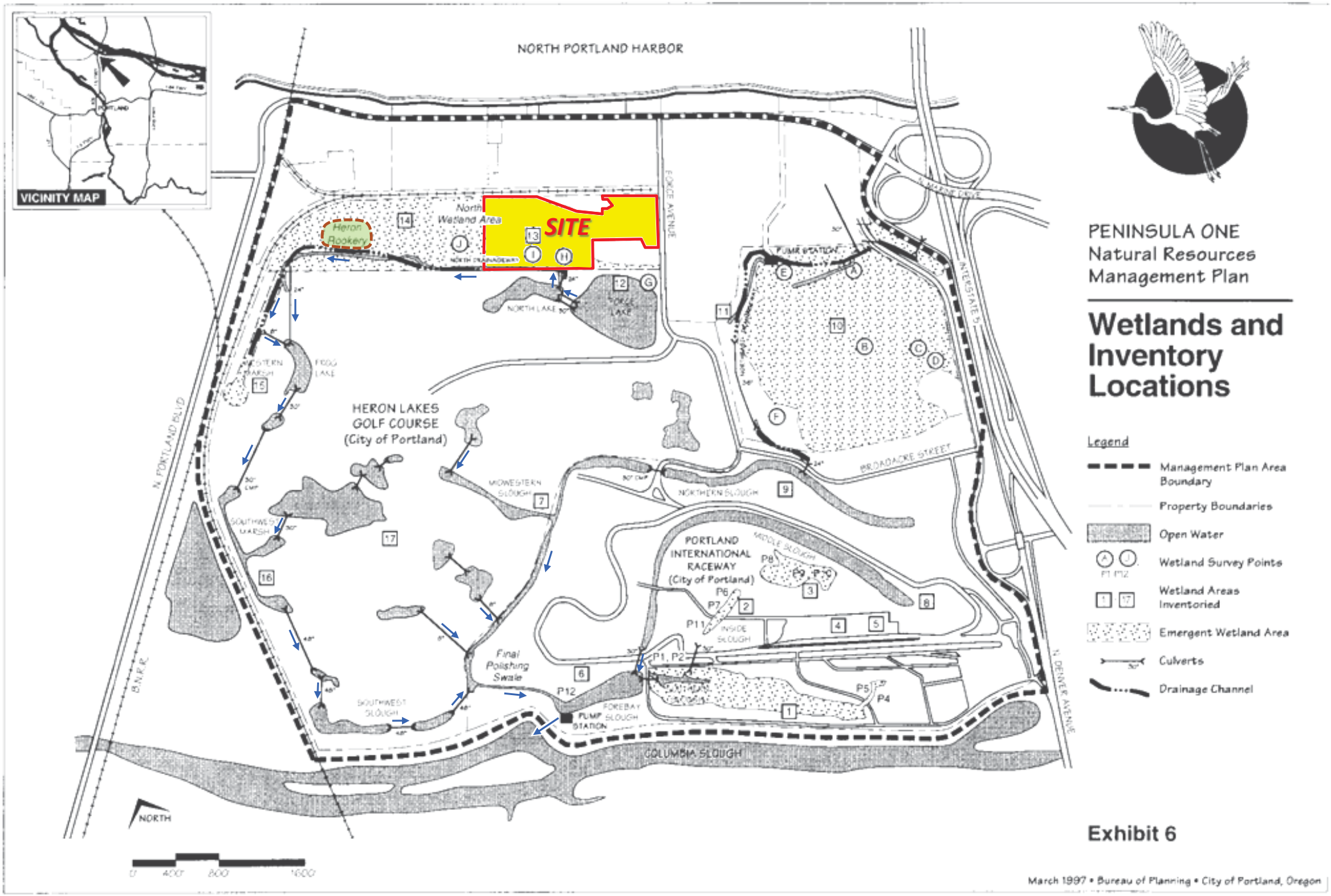
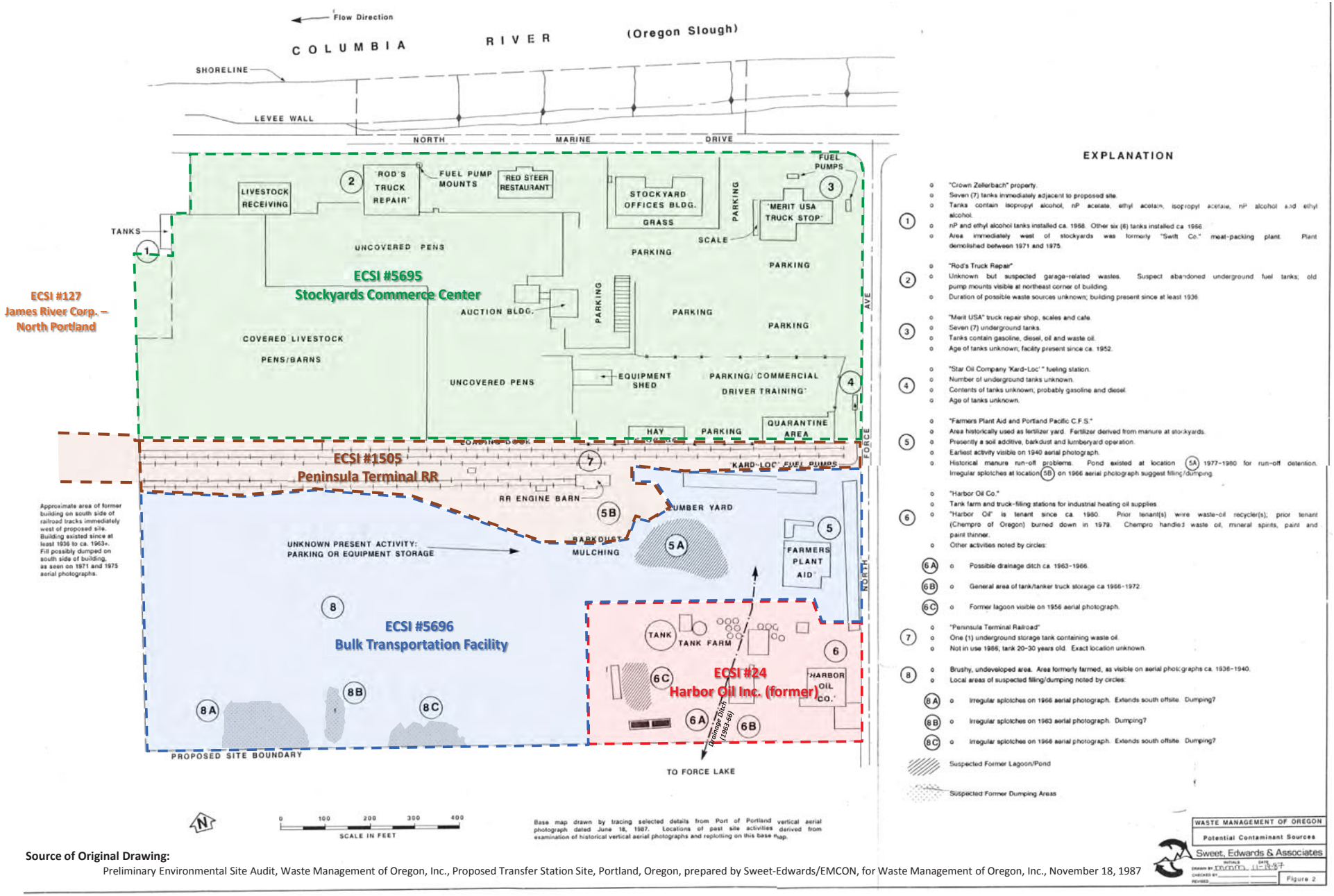


FIGURE 20: Surface Water drainage pattern and location of Heronry in relation to Bulk Transportation Facility site



Source of Original Drawing:

Preliminary Environmental Site Audit, Waste Management of Oregon, Inc., Proposed Transfer Station Site, Portland, Oregon, prepared by Sweet-Edwards/EMCON, for Waste Management of Oregon, Inc., November 18, 1987

FIGURE 7: Subdivision of original 46-acre Oregon Waste Systems – Proposed Transfer Station site (ECSI #1091)

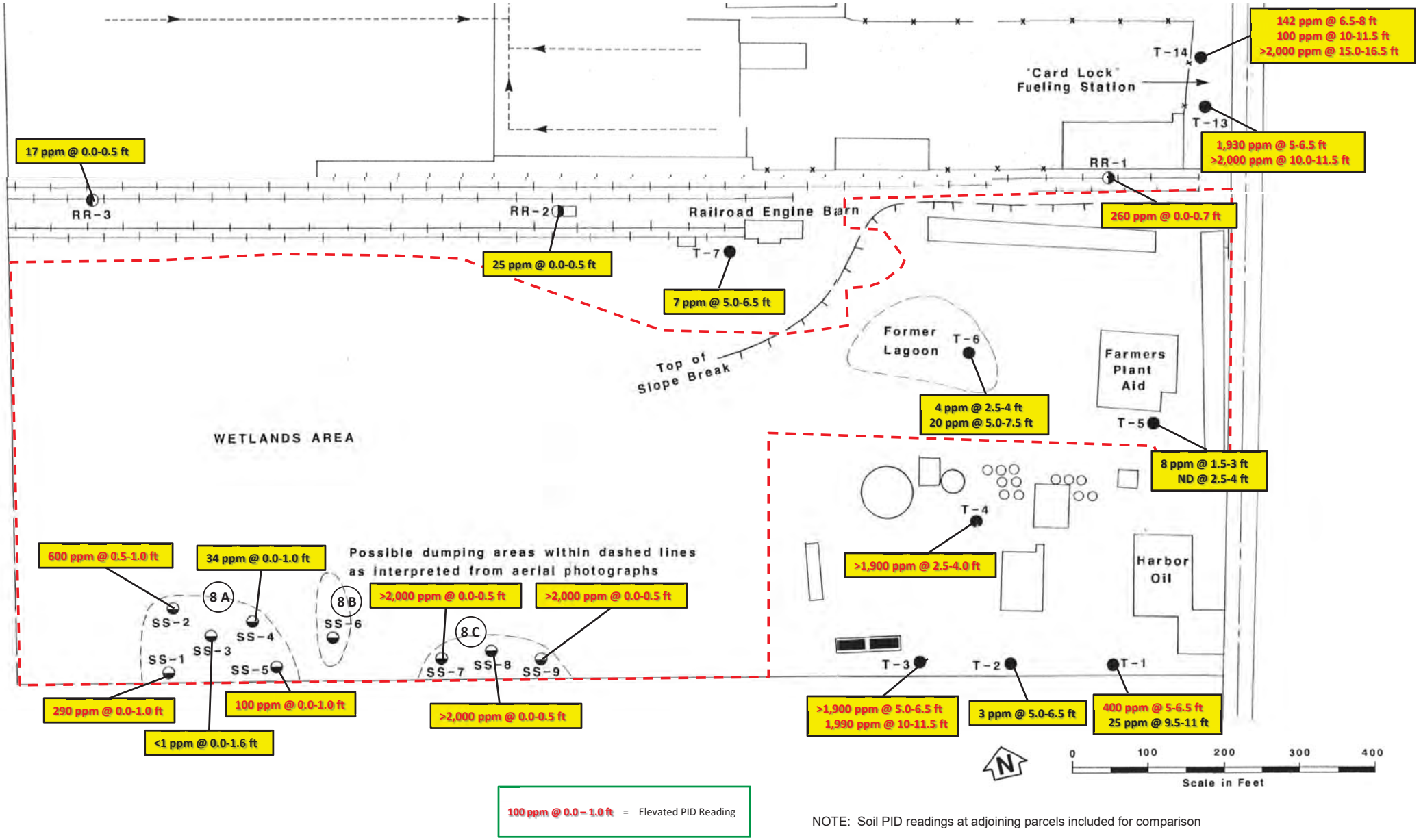
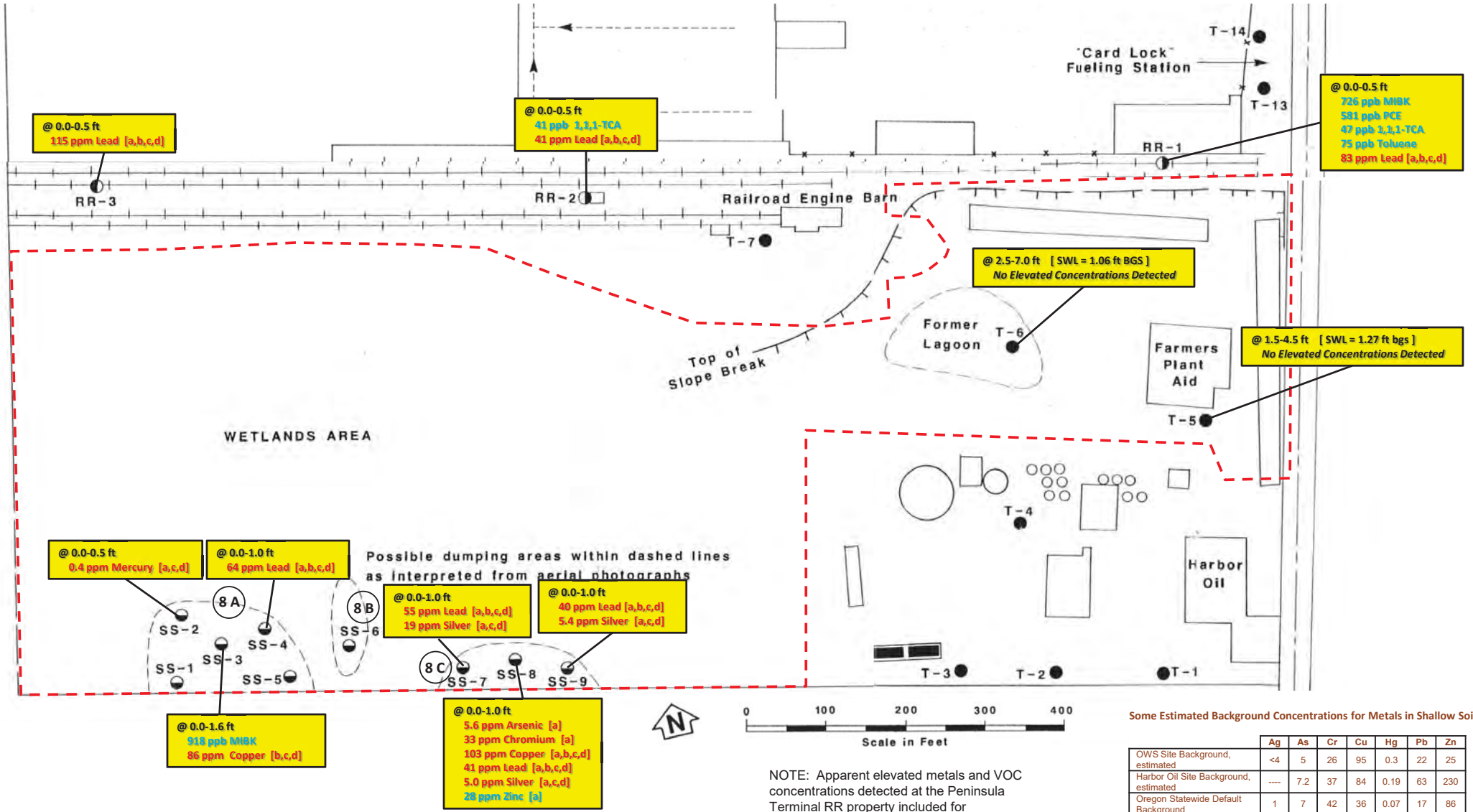


FIGURE 11: Maximum organic vapor concentrations detected by field analysis of soils at the Bulk Transportation Facility parcel by PID during Sweet-Edwards / EMCON's 1988 Environmental Investigation



NOTE: Apparent elevated metals and VOC concentrations detected at the Peninsula Terminal RR property included for comparison

Some Estimated Background Concentrations for Metals in Shallow Soils

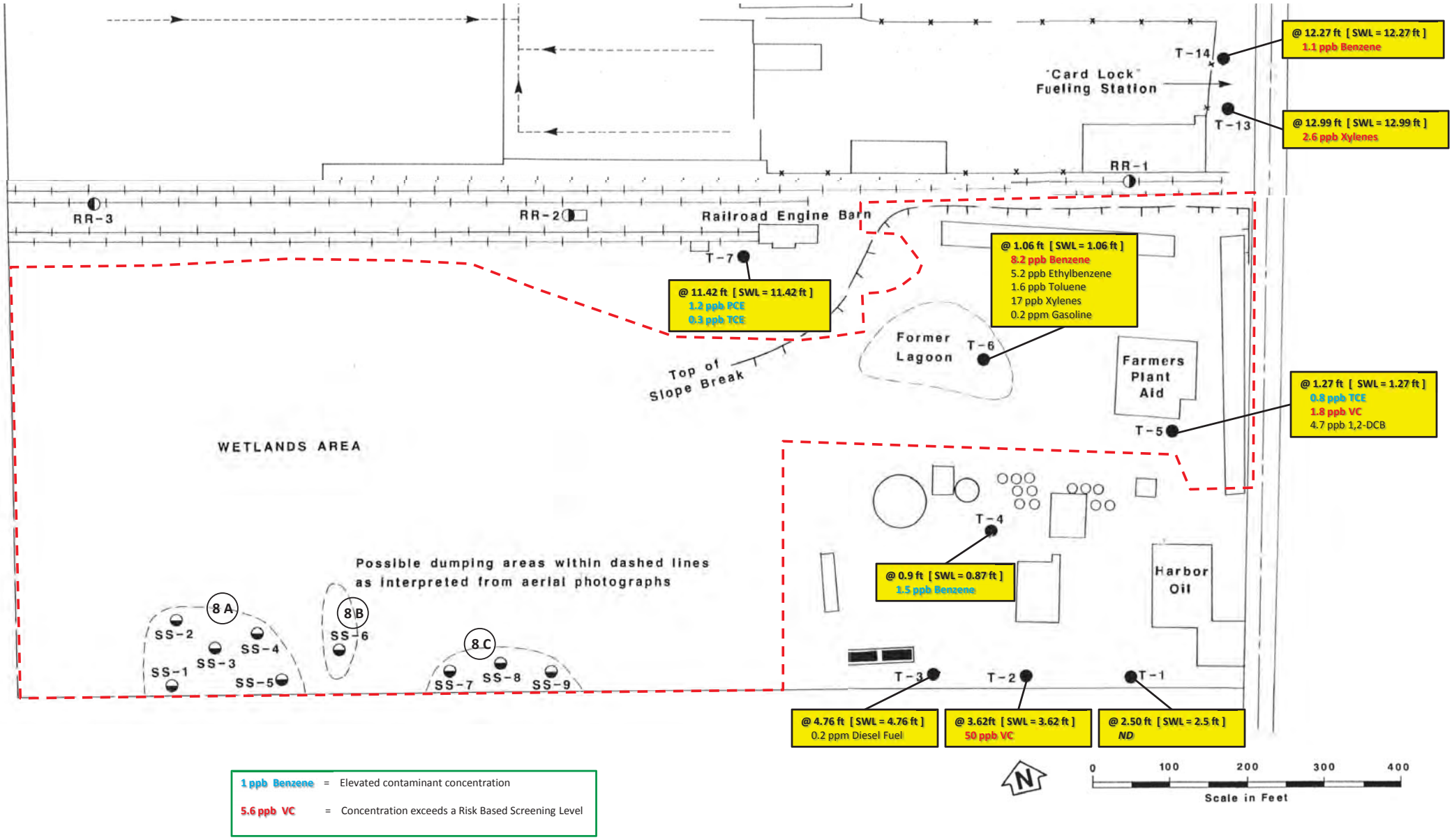
	Ag	As	Cr	Cu	Hg	Pb	Zn
OWS Site Background, estimated	<4	5	26	95	0.3	22	25
Harbor Oil Site Background, estimated	----	7.2	37	84	0.19	63	230
Oregon Statewide Default Background	1	7	42	36	0.07	17	86
Clark County (WA) and Multnomah County (OR) background, estimated	1	6.4	38	34	0.1	21	96
Willamette Valley 90% UPL, preliminary	----	----	73	60	----	37	166
Oregon Statewide 90% UPL, preliminary	0.5	12	220	76	6.3	27	146

918 ppb MIBK = Elevated contaminant concentration

5.6 ppm Arsenic [a] = Concentration exceeds a Risk Based Screening Level

[a] - Metal concentration exceeds apparent soil background concentration for site
[b] - Metal concentration exceeds 90th percentile Upper Prediction Limit for Willamette Valley soils (*preliminary data)*
[c] - Metal concentration exceeds Oregon default background concentration
[d] - Metal concentration exceeds apparent background concentrations in the Multnomah County (OR) / Clark County (WA) area

FIGURE 12: Apparent elevated concentrations of contaminants detected in soils at the Bulk Transportation Facility parcel during Sweet-Edwards / EMCON 1988 Environmental Investigation



NOTE: VOC concentrations detected in shallow groundwater at neighboring parcels included for comparison

FIGURE 13: Volatile Organic Contaminants detected in shallow groundwater at the Bulk Transportation Facility parcel during Sweet-Edwards / EMCON 1988 Environmental Investigation

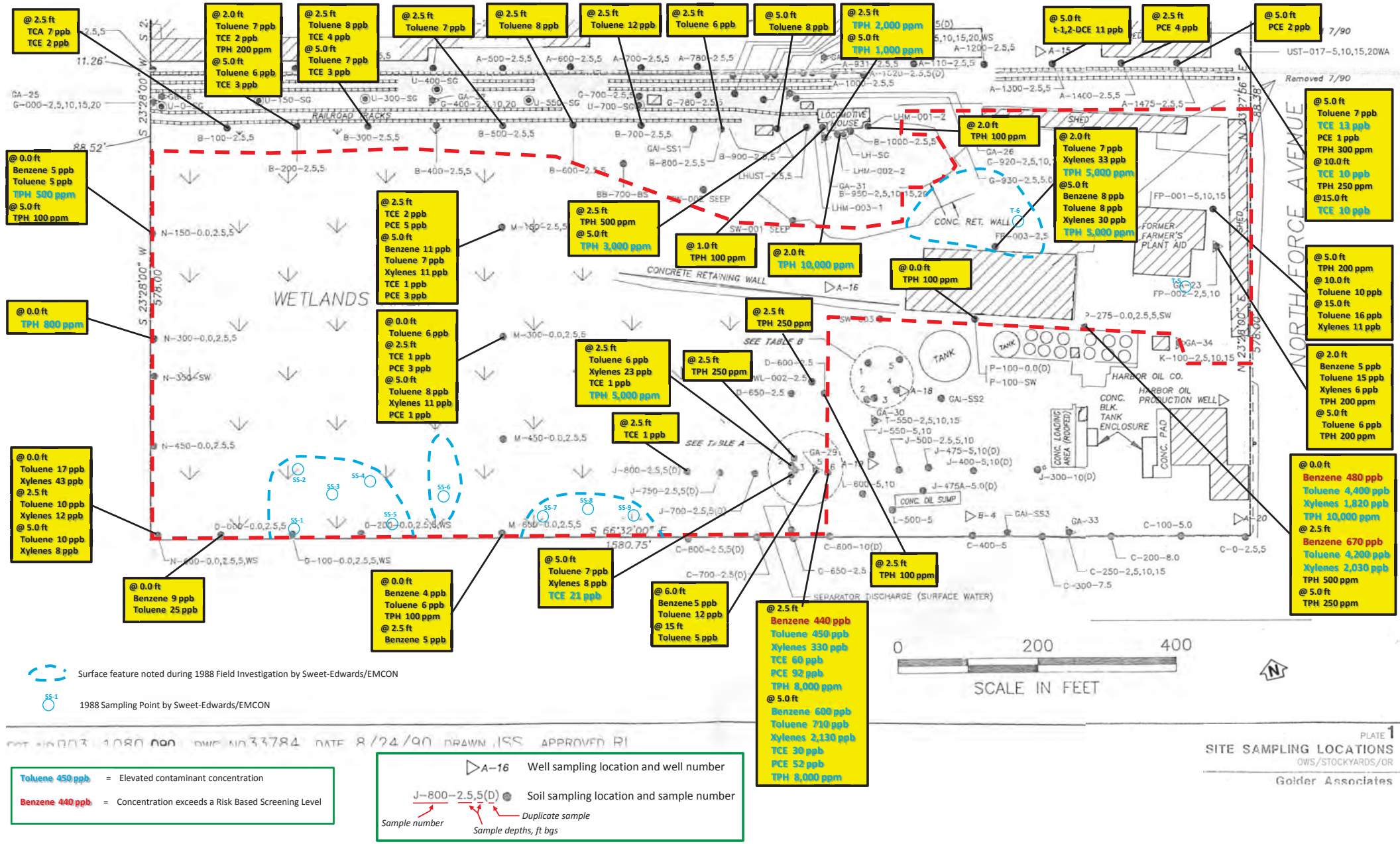


FIGURE 15: Soil contaminants detected through field laboratory analyses during Golder Associates' 1990 Expanded Preliminary Assessment

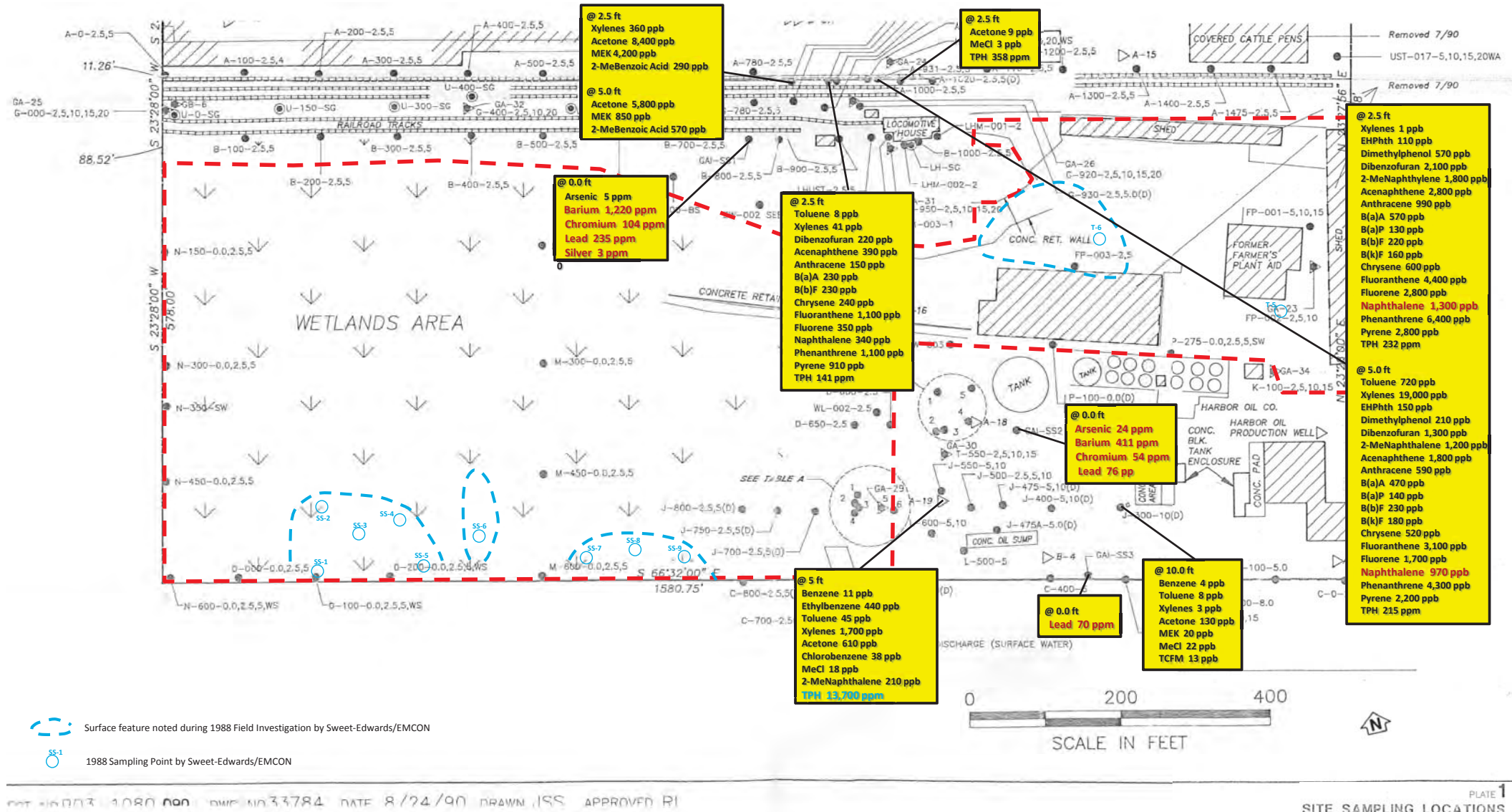
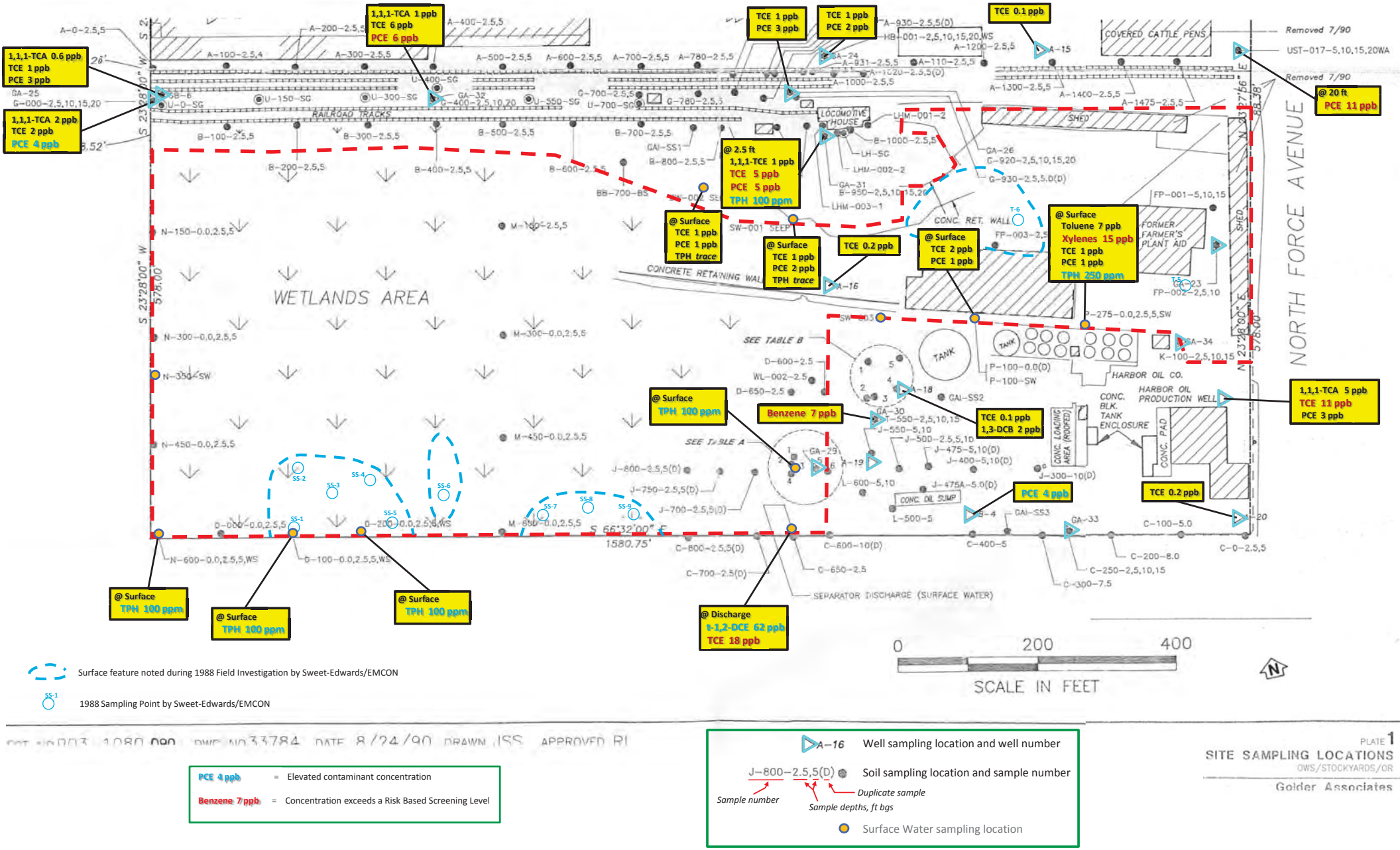


FIGURE 16: Soil contaminants detected through contract laboratory analyses during Golder Associates' 1990 Expanded Preliminary Assessment



Surface feature noted during 1988 Field Investigation by Sweet-Edwards/EMCON

SS-1 1988 Sampling Point by Sweet-Edwards/EMCON

DWG NO 33784 DATE 8/24/90 DRAWN JSS APPROVED RI

PCE 4 ppb = Elevated contaminant concentration

Benzene 7 ppb = Concentration exceeds a Risk Based Screening Level

A-16 Well sampling location and well number

J-800-2.5,5(D) Soil sampling location and sample number

Sample number

Sample depths, ft bgs

Duplicate sample

Surface Water sampling location

PLATE 1

SITE SAMPLING LOCATIONS

OWS/STOCKYARDS/OR

Golder Associates

FIGURE 17: Surface water and groundwater contaminants detected through field analyses during Golder Associates' 1990 Expanded Preliminary Assessment

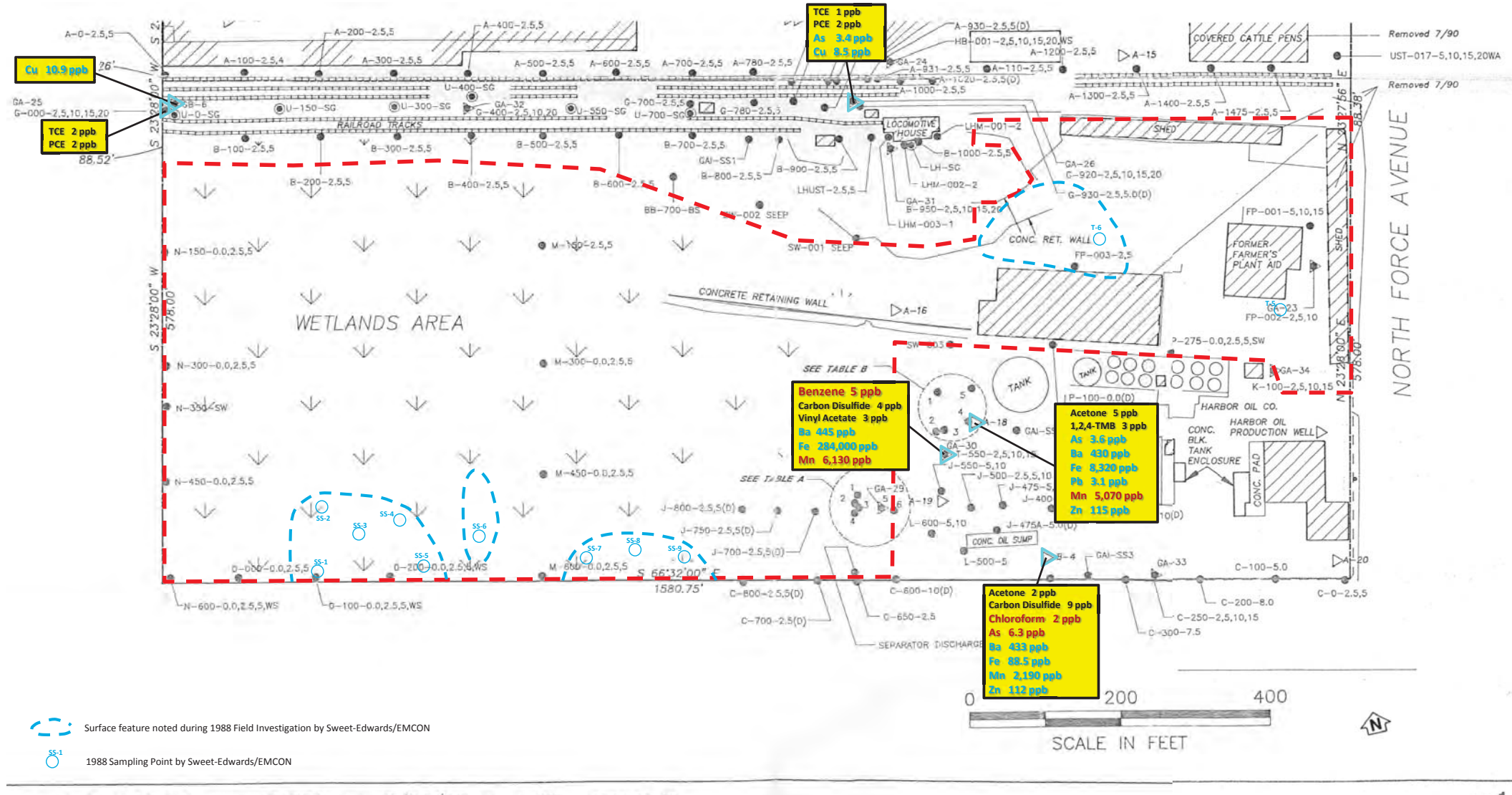
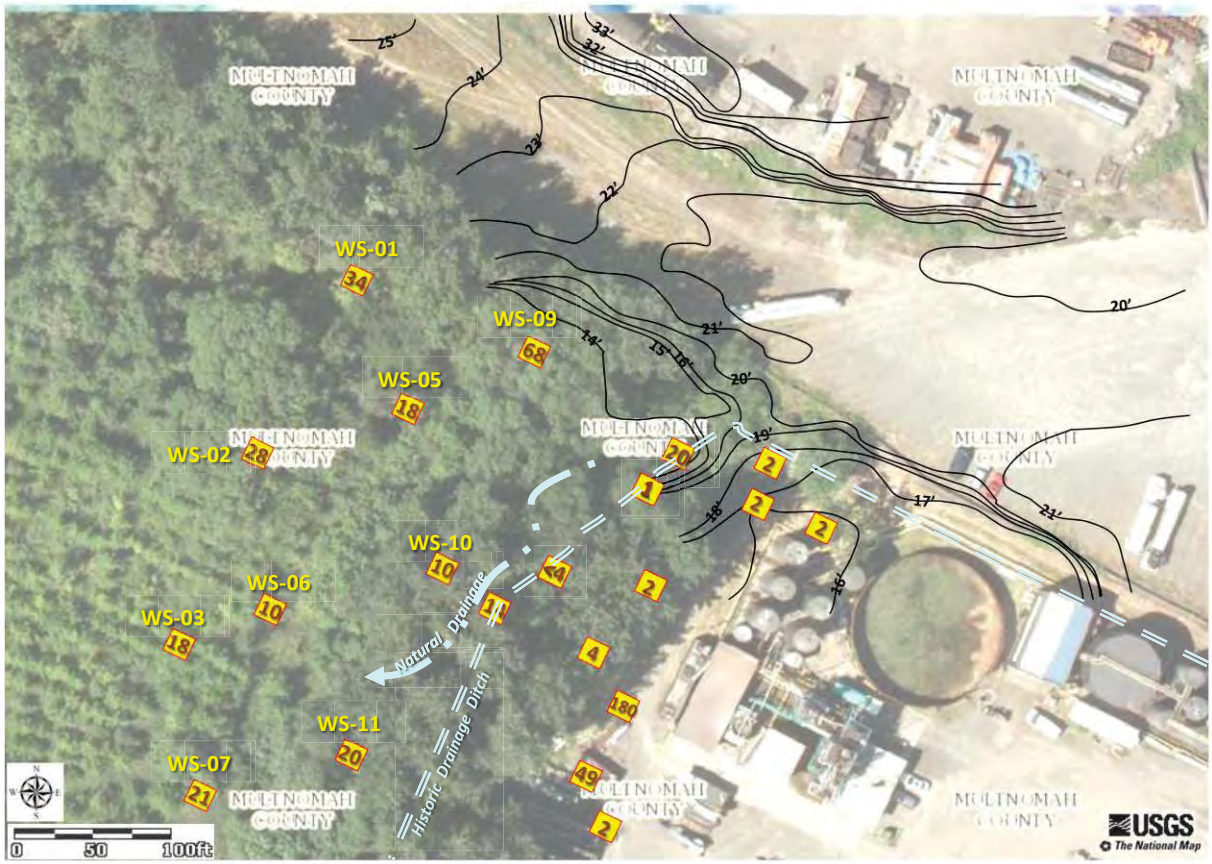


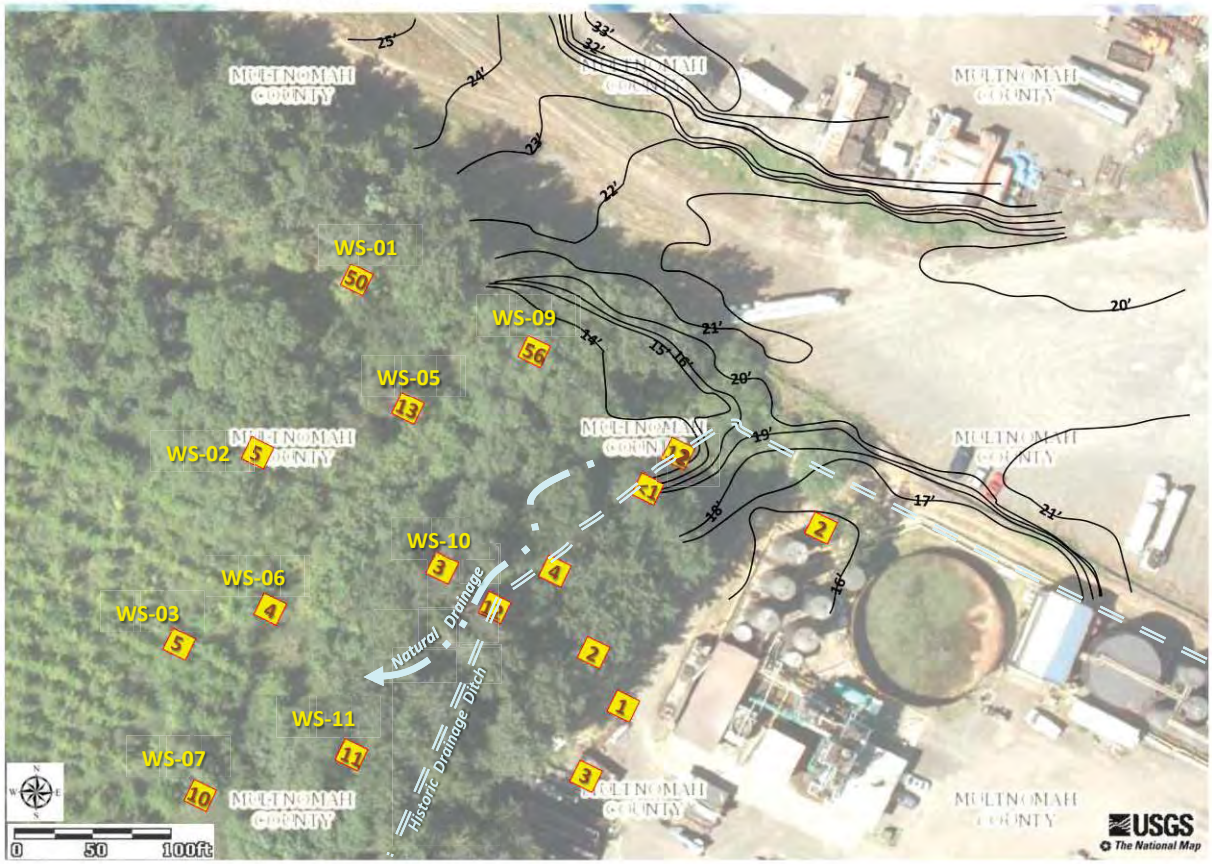
FIGURE 18: Groundwater contaminants detected through contract laboratory analyses during Golder Associates' 1990 Expanded Preliminary Assessment

A **Toluene in Shallow Soils**



Toluene concentrations in shallow soils in parts per billion (ppb)

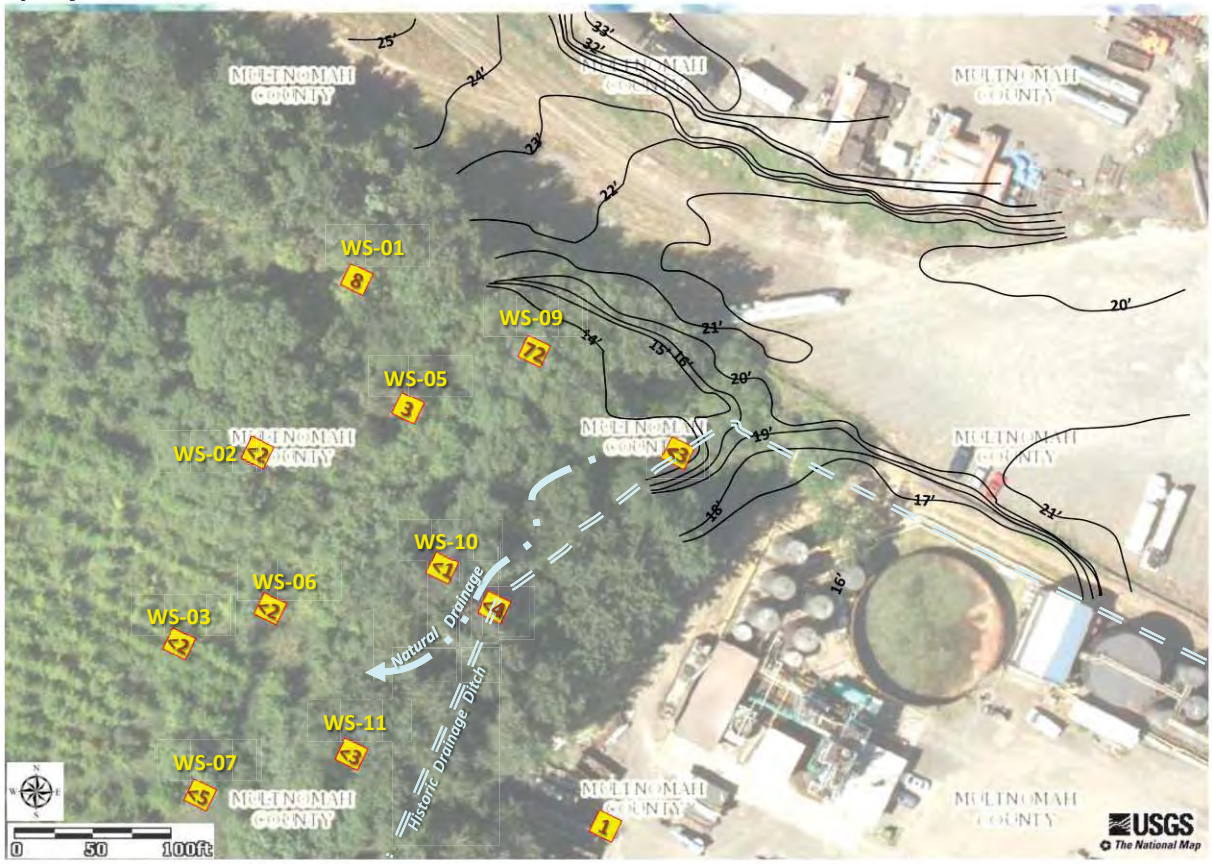
B **Benzene in Shallow Soils**



Benzene concentrations in shallow soils in parts per billion (ppb)

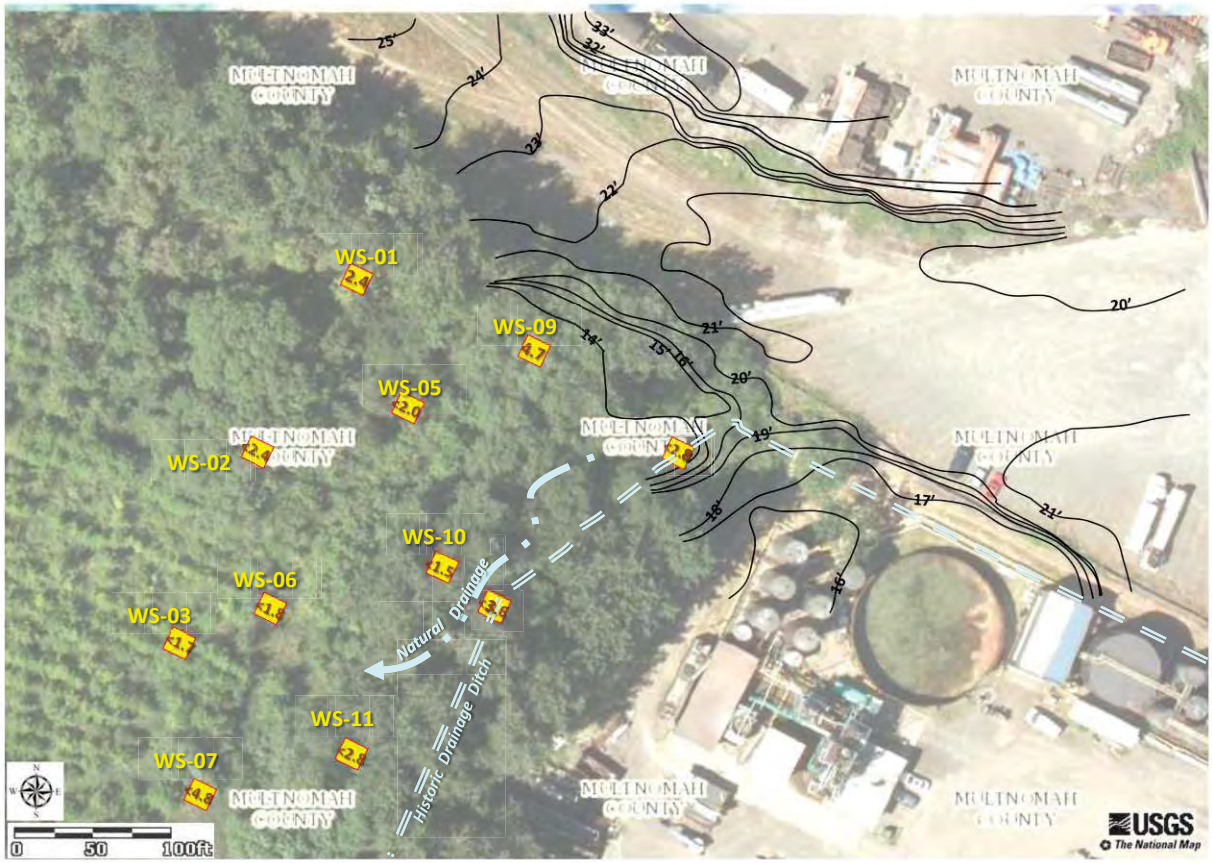
FIGURE 19: Concentrations of VOCs detected in shallow soils during 1991 CERCLA Remedial Investigation at the Former Harbor Oil Facility

C **p-Cymene in Shallow Soils**



p-Cymene concentrations in shallow soils in parts per billion (ppb)

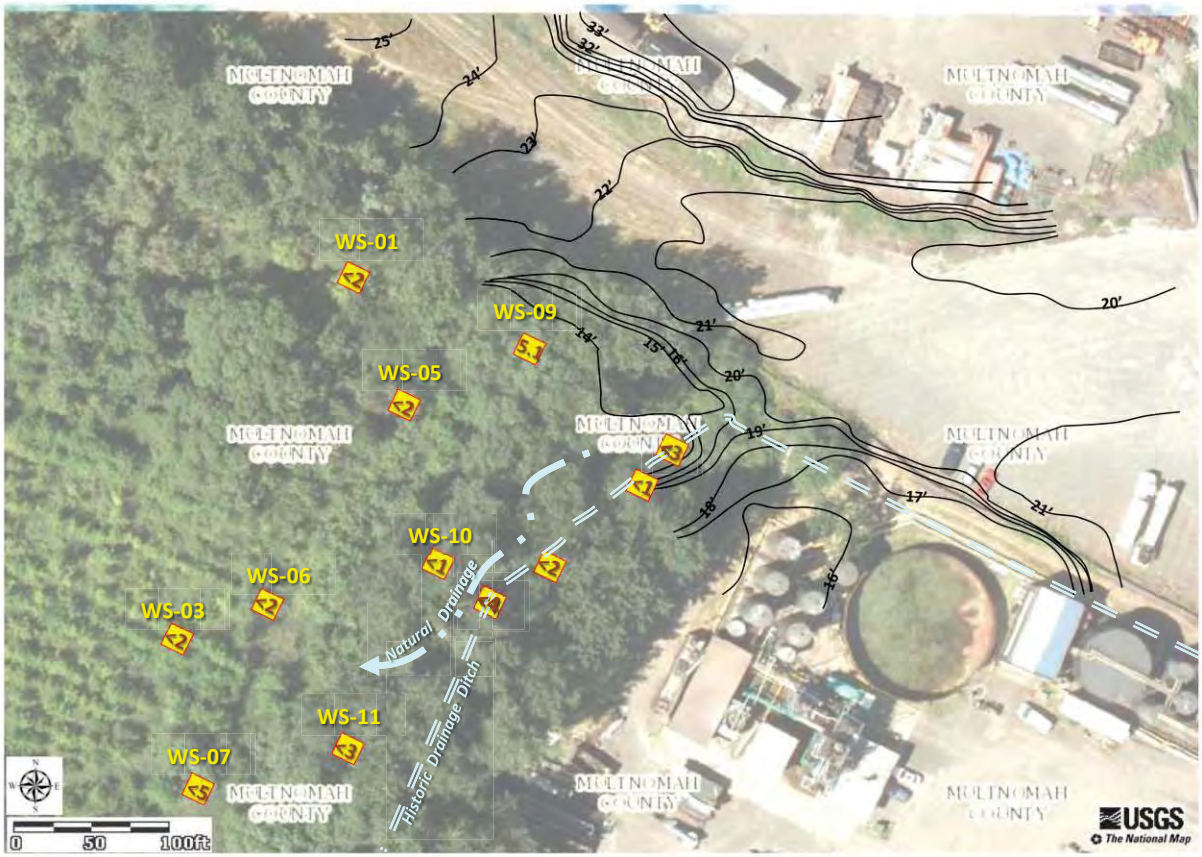
D **TCE in Shallow Soils**



TCE concentrations in shallow soils in parts per billion (ppb)

FIGURE 19: Concentrations of VOCs detected in shallow soils during 1991 CERCLA Remedial Investigation at the Former Harbor Oil Facility

E **PCE in Shallow Soils**



PCE concentrations in shallow soils in parts per billion (ppb)

FIGURE 19: Concentrations of VOCs detected in shallow soils during 1991 CERCLA Remedial Investigation at the Former Harbor Oil Facility

Oregon
Kate Brown, Governor

Department of Environmental Quality
Northwest Region
700 NE Multnomah Street, Suite 600
Portland, OR 97232
(503) 229-5263
FAX (503) 229-6945
TTY 711

December 18, 2017

Ryan Enoch
Ross Island Sand & Gravel Co.
PO Box 82249
Portland, OR 97282

RE: No Further Action Determination
for Ross Island Sand & Gravel – Vanport Plant in Portland
LUST #26-17-0101

Dear Mr. Enoch:

The Oregon Department of Environmental Quality (DEQ) has completed a review of available file information and the *UST Decommissioning and Soil Matrix Cleanup Report*, dated August 16, 2017 and submitted to DEQ on your behalf. The Ross Island Sand & Gravel – Vanport Plant address is 1835 North Marine Drive, Tax Lot 2N1E33DD 400.

DEQ has determined that remedial action to address environmental contamination at the Vanport Plant is complete, and no further action is required. This determination is based on the DEQ regulations and the facts as we now understand them, including but not limited to the following:

- A total of 17 soil samples were collected around a 10,000-gallon diesel underground storage tank (UST) and two product pipelines in January 2017 and analyzed for petroleum hydrocarbons.
- Contamination was detected in only three samples, with maximum concentrations of 115 parts per million (ppm) gasoline-range hydrocarbons, 1,530 ppm diesel-range hydrocarbons, and 591 ppm residual-range hydrocarbons.
- The 10,000-gallon diesel UST was decommissioned in-place in August 2017 with controlled density fill.
- The product pipelines were removed along with 18.56 tons of petroleum-contaminated soils (PCS).
- Three confirmation soil samples were collected at 5½ feet below ground surface (bgs). Residual-range hydrocarbons were detected in one sample at a concentration of 782 ppm.
- After additional excavation, a final confirmation soil sample was collected at 6½ feet bgs. No petroleum hydrocarbons were detected.
- No groundwater was encountered to a maximum explored depth of 25 feet bgs.

Based on the available information, the Ross Island Sand & Gravel – Vanport Plant is currently protective of public health and the environment. The site requires no further action under Oregon Administrative Rules (OAR) 340-122-0205 through 340-122-0360 unless new or previously undisclosed information becomes available, or there are changes in site development or land and water uses, or more contamination is discovered. DEQ will update the Leaking Underground Storage Tank (LUST) database to reflect this decision.

If any contaminated soil or groundwater is encountered in the future, it must be handled and disposed of in accordance with local, state and federal regulations.

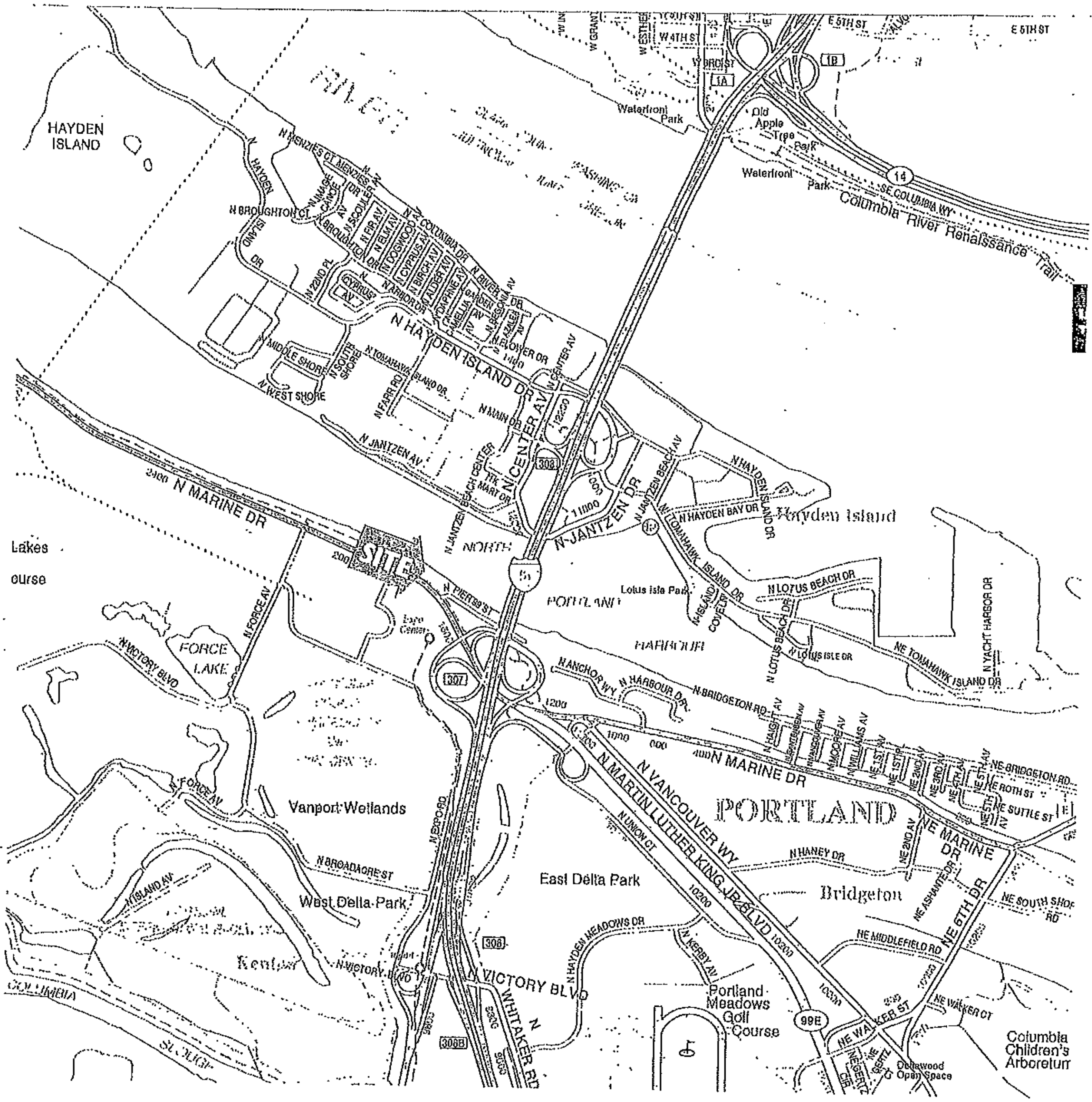
DEQ recommends keeping a copy of all of the documentation associated with this remedial action with the permanent facility records. If you have any questions, please contact Kevin Dana at 503-229-5369, or via email at dana.kevin@deq.state.or.us.

Sincerely,

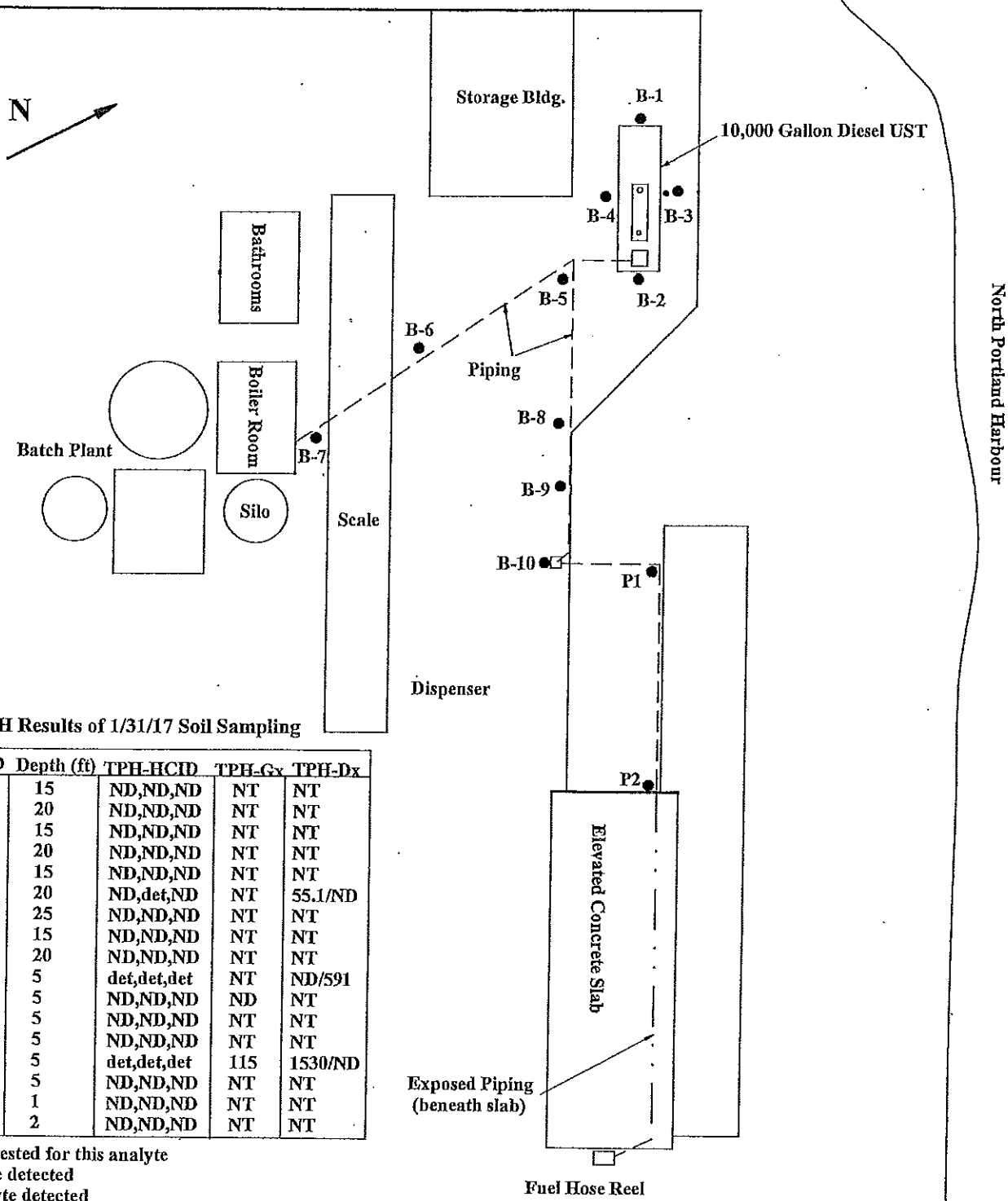
Kevin Parrett, Manager
Northwest Region Cleanup Program

Attachment: Site Maps

cc: Bill Knutson, K&S Environmental
LUST #26-17-0101 File



# Vicinity Map	***K&S Environmental Inc.***
Ross Island Sand & Gravel Van Port Facility 1835 N. Marine Drive Portland, OR	Date: 2/17/17 Project: #5744

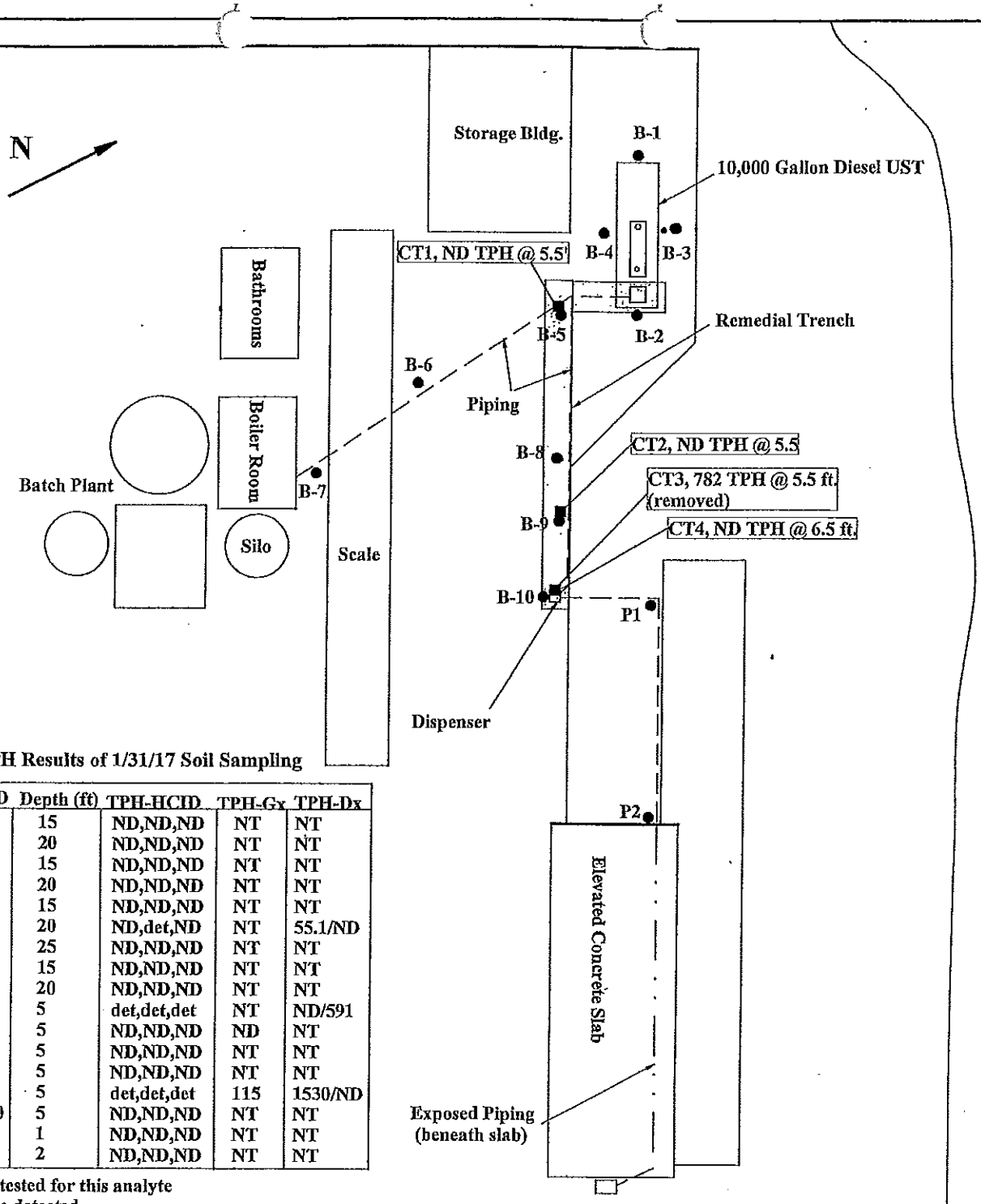


TPH Results of 1/31/17 Soil Sampling

Sample ID	Depth (ft)	TPH-HCID	TPH-Gx	TPH-Dx
#1, B-1	15	ND,ND,ND	NT	NT
#2, B-1	20	ND,ND,ND	NT	NT
#3, B-2	15	ND,ND,ND	NT	NT
#4, B-2	20	ND,ND,ND	NT	NT
#5, B-3	15	ND,ND,ND	NT	NT
#6, B-3	20	ND,det,ND	NT	55.1/ND
#7, B-3	25	ND,ND,ND	NT	NT
#8, B-4	15	ND,ND,ND	NT	NT
#9, B-4	20	ND,ND,ND	NT	NT
#10, B-5	5	det,det,det	NT	ND/591
#11, B-6	5	ND,ND,ND	ND	NT
#12, B-7	5	ND,ND,ND	NT	NT
#13, B-8	5	ND,ND,ND	NT	NT
#14, B-9	5	det,det,det	115	1530/ND
#15, B-10	5	ND,ND,ND	NT	NT
P1	1	ND,ND,ND	NT	NT
P2	2	ND,ND,ND	NT	NT

NT - Not tested for this analyte
ND - None detected
det - analyte detected

Site Map	*K&S Environmental, Inc.*	Job #5743
Ross Island S&G 1835 N. Marine Dr. Portland, OR	B-2 ● - Boring/Sample Locations	Date: 2/22/17 Scale: 1" = 30'



TPH Results of 1/31/17 Soil Sampling

Sample ID	Depth (ft)	TPH-HCID	TPH-Gx	TPH-Dx
#1, B-1	15	ND,ND,ND	NT	NT
#2, B-1	20	ND,ND,ND	NT	NT
#3, B-2	15	ND,ND,ND	NT	NT
#4, B-2	20	ND,ND,ND	NT	NT
#5, B-3	15	ND,ND,ND	NT	NT
#6, B-3	20	ND,det,ND	NT	55.1/ND
#7, B-3	25	ND,ND,ND	NT	NT
#8, B-4	15	ND,ND,ND	NT	NT
#9, B-4	20	ND,ND,ND	NT	NT
#10, B-5	5	det,det,det	NT	ND/591
#11, B-6	5	ND,ND,ND	ND	NT
#12, B-7	5	ND,ND,ND	NT	NT
#13, B-8	5	ND,ND,ND	NT	NT
#14, B-9	5	det,det,det	115	1530/ND
#15, B-10	5	ND,ND,ND	NT	NT
P1	1	ND,ND,ND	NT	NT
P2	2	ND,ND,ND	NT	NT

NT - Not tested for this analyte
ND - None detected
det - analyte detected

Site Map

Ross Island S&G
1835 N. Marine Dr.
Portland, OR

K&S Environmental, Inc.

B-2 ● - Boring/Sample Locations
CT4, ND TPH @ 6.5 ft. ■ - Sample Results from 8/01-02/17

Job #5743
Date: 8/16/17
Scale: 1" = 30'

F

Oregon

John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
Northwest Region
2020 SW Fourth Avenue
Suite 400
Portland, OR 97201-4987
(503) 229-5263 Voice
TTY (503) 229-5471

April 13, 1998

MR MIKE FITZ
STAR OIL COMPANY
232 NE MIDDLEFIELD ROAD
PORTLAND OR 97211

Re: Star Oil Company
File No. 26-97-0705

Dear Mr. Fitz:

The Department of Environmental Quality has completed its review of the information submitted to date concerning the underground storage tank (UST) decommissioning and cleanup conducted at 12301 North Force Avenue in Portland, Oregon. The Department has determined that the cleanup appears to have met the requirements of Oregon Administrative Rules (OAR) 340-122-205 through 340-122-360 and that no further action is required at this time.

This determination is a result of our evaluation and judgment based on the regulations and facts as we now understand them, including:

1. A 4,000 gallon gasoline UST and a 4,000 gallon diesel UST were decommissioned by removal at this location. One tank was taken to Practical Environmental Company in Portland, Oregon for disposal and the other was taken to B. C. Trucking in Aurora, Oregon for disposal.

2. Soil contamination was discovered during the decommissioning. Approximately 53 tons of contaminated soil were removed from the excavation and taken to TPST Soil Recyclers of Oregon in Portland, Oregon for thermal treatment.

3. A Soil Matrix Score of 32 was calculated for the site resulting in a Level II cleanup standard of 500 parts per million (ppm) of Total Petroleum Hydrocarbons (TPH) for diesel oil contaminated soil and 80 ppm for gasoline contaminated soil. Two confirmatory soil samples were taken in the bottom of the gasoline tank excavation with results of non-detect for gasoline hydrocarbons by Oregon Method HCID. Two confirmatory soil samples were taken in the bottom of the diesel tank excavation with results of non-detect to 18 ppm TPH - D by EPA Method 418.1 Modified as reported by Wy'East Environmental Sciences, Inc in Portland, Oregon.

4. Some 55 gallons of gasoline and diesel were removed from the tanks and taken to CET Environmental Services, Inc. in Portland, Oregon for recycling.

5. No groundwater was encountered in the excavation.

The Department's determination will not be applicable if new or undisclosed facts show that the cleanup does not comply with the referenced rules. The Department's determination also does not apply to any conditions at the site other than the release of the petroleum product specifically addressed in the report(s).

Please note that pursuant to OAR 340-122-360(2), a copy of your report must be retained until ten (10) years after the first transfer of the property. We recommend that a copy of this information be kept with the permanent facility records.

Your efforts to comply with the regulations to ensure that your facility has been adequately cleaned up have been appreciated. If you have any questions, please feel free to contact me at (503) 229-5474.

Sincerely,

Richard Reiter, Manager
NWR UST Compliance and Cleanup Program

cc: Bob Fisher, UST Supervisor
Universal Applicators
2357 SE 50th
Portland, OR 97215

(26970705:RPR)

APPENDIX D
Historical and Background Information

RECEIVED APR 1959 STATE ENGINEER

MULT 002024

File Original and First Copy with the STATE ENGINEER, SALEM, OREGON

WATER WELL REPORT
STATE OF OREGON

State Well No. 2N/1-33Q

State Permit No. .....

(1) OWNER:
Name Oregon Centennial Commission
Address 400 Jackson Tower
Portland, Oregon

(2) LOCATION OF WELL:
County Multnomah Owner's number, if any— None
SW ¼ SE ¼ Section 33 T. 2N R. 1E W.M.
Bearing and distance from section or subdivision corner
N. 68° W. of SE corner Sec. 33 T 2 N R1E and 2500' distant. Approximately 192' south of the NW corner of the existing P.I. building.

(3) TYPE OF WORK (check):
New Well [X] Deepening [ ] Reconditioning [ ] Abandon [ ]
If abandonment, describe material and procedure in Item 11.

(4) PROPOSED USE (check):
Domestic [ ] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [X]
Ex Fire Protection

(5) TYPE OF WELL:
Rotary [X] Driven [ ]
Cable [ ] Jetted [ ]
Dug [ ] Bored [ ]

(6) CASING INSTALLED:
Threaded [ ] Welded [X]
..... " Diam. from ..... ft. to ..... ft. Gage .....
16 " Diam. from 0 ft. to 162 ft. Gage 3/8 wall
..... " Diam. from ..... ft. to ..... ft. Gage .....

(7) PERFORATIONS:
Perforated? [X] Yes [ ] No
Type of perforator used torch
SIZE of perforations 1/8 in. by 12 in.
8 perforations per foot ..... ft. to ..... ft.
..... perforations from 147 ft. to 162 ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

(8) SCREENS:
Well screen installed [ ] Yes [X] No
Manufacturer's Name .....
Type ..... Model No. .....
..... Slot size ..... Set from ..... ft. to ..... ft.
..... Slot size ..... Set from ..... ft. to ..... ft.

(9) CONSTRUCTION:
Was well gravel packed? [ ] Yes [X] No Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.
Was a surface seal provided? [X] Yes [ ] No To what depth? 90 ft.
Material used in seal— Burlap & Bentonite
Did any strata contain unusable water? [ ] Yes [ ] No
Type of water? Depth of strata
Method of sealing strata off

(10) WATER LEVELS:
Static level 21 ft. below land surface Date 3-20-59
Artesian pressure lbs. per square inch Date

Log Accepted by:
[Signed] ..... Date ....., 19.....
(Owner)

(11) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? [X] Yes [ ] No If yes, by whom? Driller
Yield: 1080 gal./min. with 10 ft. drawdown after 8 hrs.
" " " "
" " " "
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? [X] Yes [ ] No

(12) WELL LOG:
Diameter of well 16 inches.
Depth drilled 166 ft. Depth of completed well 166 ft.
Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
sand fill	0	9
clay	9	116
gravel & Boulders	116	147
water bearing gravel	147	166

Work started 1-26-59 19 . Completed 3-20-59 19

(13) PUMP:
Manufacturer's Name .....
Type: ..... H.P. .....

Well Driller's Statement:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME A. M. Jannsen Drilling Company
(Person, firm, or corporation) (Type or print)
Address 21075 S. W. Tualatin Hiway - Aloha, Orego
Driller's well number .....
[Signed] Edward M. Jannsen
(Well Driller)
Edward M. Jannsen, Partner
License No. 79 Date 3-26-59, 19.....

(USE ADDITIONAL SHEETS IF NECESSARY)

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the STATE ENGINEER, SALEM, OREGON 97310 within 30 days from the date of well completion.

RECEIVED NOV 12 1965 STATE ENGINEER SALEM OREGON

MULT 002022

WATER WELL REPORT
STATE OF OREGON (Please type or print)

State Well No. 2N/1-33Q

State Permit No. .....

(1) OWNER:
Name New-" :Multnomah County

Address 2115 S.E.Morrison
Portland , Oregon

(2) LOCATION OF WELL:
County Multnomah Driller's well number

S.W¼ SE ¼ Section 33 T. 2W R. 1E W.M.

Bearing and distance from section or subdivision corner

N.680 W. of SE corner Sec 33T 2 N R1E and 2500 ' distant . Approximately 192 ' South of the NW corner of the existing P.I. building

(3) TYPE OF WORK (check):
New Well ☐ Deepening ☒ Reconditioning ☒ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(4) PROPOSED USE (check):
Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☒ Fire Protection

(5) TYPE OF WELL:
Rotary ☐ Driven ☐
Cable ☒ Jetted ☐
Dug ☐ Bored ☐

(6) CASING INSTALLED:
Threaded ☐ Welded ☐

Liner only 12 " Diam. from 158 ft. to 173 ft. Gage 3/8

" Diam. from ..... ft. to ..... ft. Gage .....

" Diam. from ..... ft. to ..... ft. Gage .....

(7) PERFORATIONS:
Perforated? ☒ Yes ☐ No

Type of perforator used Torch (Liner only)

Size of perforation 1/4 to3/8 in. by 4 in.

240 perforations from 159 ft. to 171 ft.

..... perforations from ..... ft. to ..... ft.

..... perforations from ..... ft. to ..... ft.

..... perforations from ..... ft. to ..... ft.

..... perforations from ..... ft. to ..... ft.

(8) SCREENS:
Well screen installed? ☐ Yes ☒ No

Manufacturer's Name .....

..... Model No. .....

Diam. ..... Slot size ..... Set from ..... ft. to ..... ft.

Diam. ..... Slot size ..... Set from ..... ft. to ..... ft.

(9) CONSTRUCTION:
Well seal—Material used in seal .....

Depth of seal ..... ft. Was a packer used? .....

Diameter of well bore to bottom of seal ..... in.

Were any loose strata cemented off? ☐ Yes ☐ No Depth .....

Was a drive shoe used? ☒ Yes ☐ No on liner

Was well gravel packed? ☐ Yes ☐ No Size of gravel: .....

Gravel placed from ..... ft. to ..... ft.

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? depth of strata

Method of sealing strata off

(10) WATER LEVELS:
Static level 20' 8" ft. below land surface Date 9/1/65

Artesian pressure ..... lbs. per square inch Date .....

(11) WELL TESTS:
Drawdown is amount water level is lowered below static level

Was a pump test made? ☒ Yes ☐ No If yes, by whom? BOTTNER DRILLING CO.

Yield: 2513 gal./min. with 27'6" ft. drawdown after 1 hrs.

" 2610, " 29'3" " 3 "

" 2805 " 34'10" " 1 "

Bailer test gal./min. with ..... ft. drawdown after ..... hrs.

Artesian flow ..... g.p.m. Date .....

Temperature of water Was a chemical analysis made? ☐ Yes ☒ No

(12) WELL LOG:
Diameter of well below casing none

Depth drilled 173 ft. Depth of completed well Back filled w/cement to 171½ ft.

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Gravel, loose water bearing 1" to 4 inches in size	161½	173

Sounded well @ 137 ' , cleaned out gravel to 161½ ' bottom of the 16" hole. Furnished liner wall 3/8 " x 15' long /with a Drive Shoe on bottom, built up and belled out top from 12-3/4" to 14-3/4" to fit the 3/8" wall 16" O.D. pipe . Perforated with torch Herringbone angles 1/4" to 3/8" widths x 4" long, installed , drilled and driven to 173', 12' of liner is perforated , the 2' from bottom and 1' from top not perforated . 12' perforated with 20 perf. to a ft. Plugged bottom of well 1½' w/cement . Developed well by surging and pumping for 6 hrs. from 1400 GPM to 2343 GPM , broke suction at 65 ft. , added 20 ft. more of pump column , surged and pumped for 2 hbours more , developed the capacity to 2805 GPM. see Inf. under Column 11 FINAL Test Pumping .

Work started Aug.18 1965 Completed Sept.1 1965

Date well drilling machine moved off of well Sept.3 1965

(13) PUMP:
Manufacturer's Name .....

Type: ..... H.P. .....

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME HAAKON BOTTNER DRILLING COMPANY (Person, firm or corporation) (Type or print)

Address 3424 S.E. 174th. AVENUE
PORTLAND OREGON 97236

Drilling Machine Operator's License No. 431 & 295

[Signed] Haakon Bottner (Water Well Contractor)

Contractor's License No. 109 Date Sept.17, 1965

(USE ADDITIONAL SHEETS IF NECESSARY)

MULT 126808

STATE OF OREGON
MONITORING WELL REPORT
(as required by ORS 537.765 & OAR 690-240-0395)

9/25/2017

WELL I.D. LABEL# L 118050

START CARD # 1035802

(1) LAND OWNER

Owner Well I.D. B-1

First Name _____ Last Name _____

Company METRO

Address 600 NE GRAND AVE

City PORTLAND State OR Zip 97232

(2) TYPE OF WORK

☒ New ☐ Deepening ☐ Conversion ☐ Alteration (repair/recondition) ☐ Abandonment

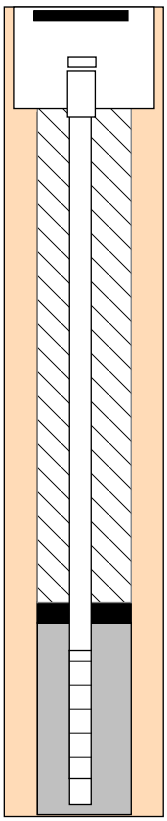
(3) DRILL METHOD

☐ Rotary Air ☒ Rotary Mud ☐ Cable ☐ Hollow Stem Auger ☐ Cable Mud ☐ Reverse Rotary ☐ Other _____

(4) CONSTRUCTION

Piezometer Well ☒

Depth of Completed Well 20.00 ft. Special Standard ☐



MONUMENT/VAULT Below Ground
From 0 To 1

BORE HOLE
Diameter 6 From 0 To 20

CASING
Dia. _____ From ☐ _____ To _____
Gauge _____ Wld Thrd
Material ◯ Steel ◯ Plastic ☐ ☐

LINER
Dia. _____ From ☐ _____ To _____
Gauge _____ Wld Thrd
Material ◯ Steel ◯ Plastic ☐ ☐

SEAL
From 1 To 8
Material Bentonite Chips
Amount 1.5 Sacks Grout weight _____

SCREEN
Casing/Liner Casing Material PVC
Diameter 2 From 10 To 20
Slot Size 0.010

FILTER
From 8 To 20 Material SILICA SAND Size of pack 10/20

(5) WELL TESTS

◯ Pump ◯ Bailer ◯ Air ◯ Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)

Temperature 53 °F Lab analysis ☐ Yes By _____

Supervising Geologist/Engineer VIOLA LIA

Water quality concerns? ☐ Yes (describe below)

From	To	Description	Amount	Units

(6) LOCATION OF WELL (legal description)

County MULTNOMAH Twp 1.00 N N/S Range 1.00 E E/W WM
Sec 4 NE 1/4 of the NW 1/4 Tax Lot 100
Tax Map Number _____ Lot _____
Lat ° ' " or _____ DMS or DD
Long ° ' " or _____ DMS or DD

◯ Street address of well ◉ Nearest address

N. FORCE AVE. AT PORTLAND EXPO CENTER

(7) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Predeepening			☐	
Completed Well			☐	

Flowing Artesian? ☐ Dry Hole? ☐

WATER BEARING ZONES Depth water was first found _____

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
					☐	
					☐	
					☐	
					☐	
					☐	

(8) WELL LOG

Ground Elevation _____

Material	From	To
SANDY SILT	0	20

Date Started 8/21/2017 Completed 8/21/2017

(unbonded) Monitor Well Constructor Certification

I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon monitoring well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

License Number 10667 Date 9/25/2017
Password : (if filing electronically) _____
Signed SAM HEUSER (E-filed)

(bonded) Monitor Well Constructor Certification

I accept responsibility for the construction, deepening, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon monitoring well construction standards. This report is true to the best of my knowledge and belief.

License Number 10646 Date 9/25/2017
Password : (if filing electronically) _____
Signed KYM VAN BERGEN (E-filed)
Contact Info (optional) KYM VANBERGEN HARD CORE DRILLING INC

ORIGINAL - WATER RESOURCES DEPARTMENT
THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK

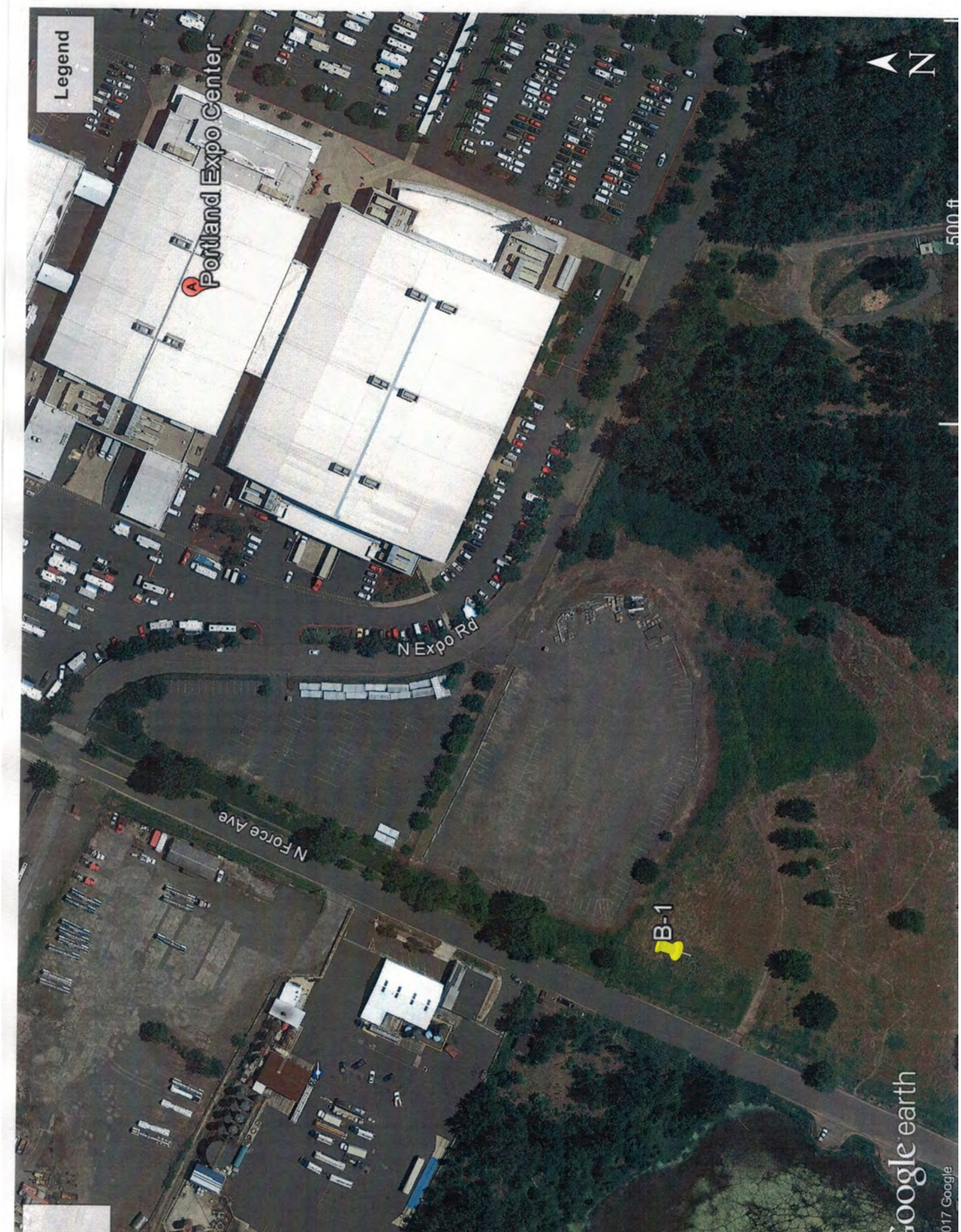
Form Version:

MONITORING WELL REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

MULT 126808

9/25/2017

Map of Hole



MULT 129410

STATE OF OREGON
MONITORING WELL REPORT
(as required by ORS 537.765 & OAR 690-240-0395)

6/21/2018

WELL I.D. LABEL# L 118050

START CARD # 1039023

(1) LAND OWNER

Owner Well I.D. B-1

First Name _____ Last Name _____

Company METRO

Address 600 NE GRAND AVE

City PORTLAND State OR Zip 97232

(2) TYPE OF WORK

☐ New ☐ Deepening ☐ Conversion ☐ Alteration (repair/recondition) ☒ Abandonment

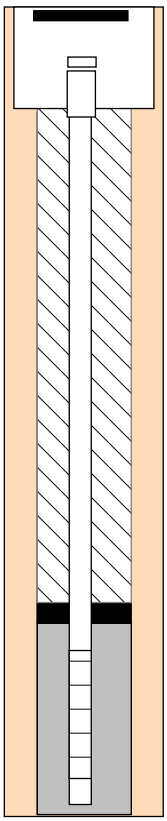
(3) DRILL METHOD

☐ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Hollow Stem Auger ☐ Cable Mud ☐ Reverse Rotary ☒ Other ABANDON IN PLACE

(4) CONSTRUCTION

Piezometer Well ☒

Depth of Completed Well 20.00 ft. Special Standard ☐



MONUMENT/VAULT Below Ground
From 0 To 1

BORE HOLE
Diameter 2 From 0 To 20

CASING
Dia. _____ From ☐ _____ To _____
Gauge _____ Wld ☐ Thrd ☐
Material ◯ Steel ◯ Plastic

LINER
Dia. _____ From ☐ _____ To _____
Gauge _____ Wld ☐ Thrd ☐
Material ◯ Steel ◯ Plastic

SEAL
From 0 To 20
Material Bentonite Chips
Amount 2 Sacks Grout weight _____

SCREEN
Casing/Liner _____ Material _____
Diameter _____ From _____ To _____
Slot Size _____

FILTER
From _____ To _____ Material _____ Size of pack _____

(5) WELL TESTS

◯ Pump ◯ Bailer ◯ Air ◯ Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)

Temperature 53 °F Lab analysis ☐ Yes By _____

Supervising Geologist/Engineer _____

Water quality concerns? ☐ Yes (describe below) TDS amount 0 ppm

From	To	Description	Amount	Units

(6) LOCATION OF WELL (legal description)

County MULTNOMAH Twp 1.00 N N/S Range 1.00 E E/W WM
Sec 4 NE 1/4 of the NW 1/4 Tax Lot 100
Tax Map Number _____ Lot _____
Lat ° ' " or 45.60513889 DMS or DD
Long ° ' " or -122.69311111 DMS or DD

◯ Street address of well ◉ Nearest address

N FORCE AVE AT PORTLAND EXPO CENTER

(7) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Predeepening			☐	
Completed Well			☐	

Flowing Artesian? ☐ Dry Hole? ☐

WATER BEARING ZONES Depth water was first found _____

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
					☐	
					☐	
					☐	
					☐	
					☐	

(8) WELL LOG

Ground Elevation _____

Material	From	To
Decommission in Place Piezometer	0	20

Date Started 6/5/2018 Completed 6/5/2018

(unbonded) Monitor Well Constructor Certification

I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon monitoring well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

License Number _____ Date _____

Password : (if filing electronically) _____

Signed _____

(bonded) Monitor Well Constructor Certification

I accept responsibility for the construction, deepening, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon monitoring well construction standards. This report is true to the best of my knowledge and belief.

License Number 10563 Date 6/21/2018

Password : (if filing electronically) _____

Signed FORD STIGALL (E-filed)

Contact Info (optional) Ford Stigall

ORIGINAL - WATER RESOURCES DEPARTMENT

THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK

Form Version:

MONITORING WELL REPORT - continuation page

MULT 129410

6/21/2018

WELL I.D. LABEL# L 118050

START CARD # 1039023

(4) CONSTRUCTION

BORE HOLE

Dia	From	To

FILTER PACK

From	To	Material	Size

SEAL

Material	From	To	Amt	sacks/ lbs	grout weight

CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd

SCREENS

Perf/ Screen	Casing/ Liner	Screen Dia	From	To	Scrn size/ slot width	Slot length	# of slots	Tele/ pipe size

(5) WELL TESTS

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)

Water Quality Concerns

From	To	Description	Amount	Units

(7) STATIC WATER LEVEL

Water Bearing Zones

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)

(8) WELL LOG

Material	From	To

Comments/Remarks

No TDS Reported on Original Well Log MULT_126808, no TDS Taken at time of abandonment.

MONITORING WELL REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

MULT 129410

6/21/2018

Map of Hole

MULT
50430

STATE OF OREGON
GEOTECHNICAL HOLE REPORT
(as required by OAR 690-240-035)

(1) OWNER/PROJECT: Hole Number _____
Name Metropolitan Expo Commission
Address 777 NE Martin Luther King Blvd
City Portland State OR Zip 97232

(2) TYPE OF WORK
☒ New ☐ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment

(3) CONSTRUCTION:
☐ Rotary Air ☐ Hand Auger ☐ Hollow Stem Auger
☒ Rotary Mud ☐ Cable Tool ☐ Push Probe ☐ Other

(4) TYPE OF HOLE:
☒ Uncased Temporary ☐ Cased Permanent
☐ Uncased Permanent ☐ Slope Stability ☐ Other

(5) USE OF HOLE: Soil pressure tests

(6) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☒ No Depth of Completed Hole 114 ft.

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds

Backfill placed from _____ ft. to _____ ft. Material _____
Filter Pack placed from _____ ft. to _____ ft. Size of pack _____

(7) CASING/SCREEN:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Screen:					☐	☐	☐	☐
					☐	☐	☐	☐

Slot size _____

(8) WELL TEST:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian
Permeability _____ Yield _____ GPM _____
Conductivity _____ PH _____
Temperature of water _____ °F/C Depth artesian flow found _____ ft.
Was water analysis done? ☐ Yes ☐ No
By whom? _____
Depth of strata analyzed. From _____ ft. to _____ ft.
Remarks: _____

(9) LOCATION OF HOLE by legal description:
County Mult. Latitude _____ Longitude _____
Township 1 (N) or S Range 1 (E) or W. WM.
Section 4 _____ 1/4 _____ 1/4
Tax Lot _____ Lot _____ Block _____ Subdivision _____
Street Address of Well (or nearest address) Expo Center N. Marine drive

Map with location indentified must be attached

(10) STATIC WATER LEVEL:
_____ ft. below land surface. Date _____
Artesian pressure _____ lb. per square inch. Date _____

(11) SUBSURFACE LOG:
Ground Elevation _____

Material Description	From	To	SWL
Fill, gravel, concrete, wood	0	8	
silty sand	8	20	
silt	20	80	
Layered sands + silts	80	114	

Date Started 2-23 Date Completed 2-23

(12) ABANDONMENT LOG:

Material Description	From	To	Sacks or Pounds
hole plug bent. grout	0	20	4 bgs
	20	114	6 bgs

RECEIVED
MAR 01 1996
WATER RESOURCES DEPT.
SALEM, OREGON

Date started 2-23 Date Completed 2-23

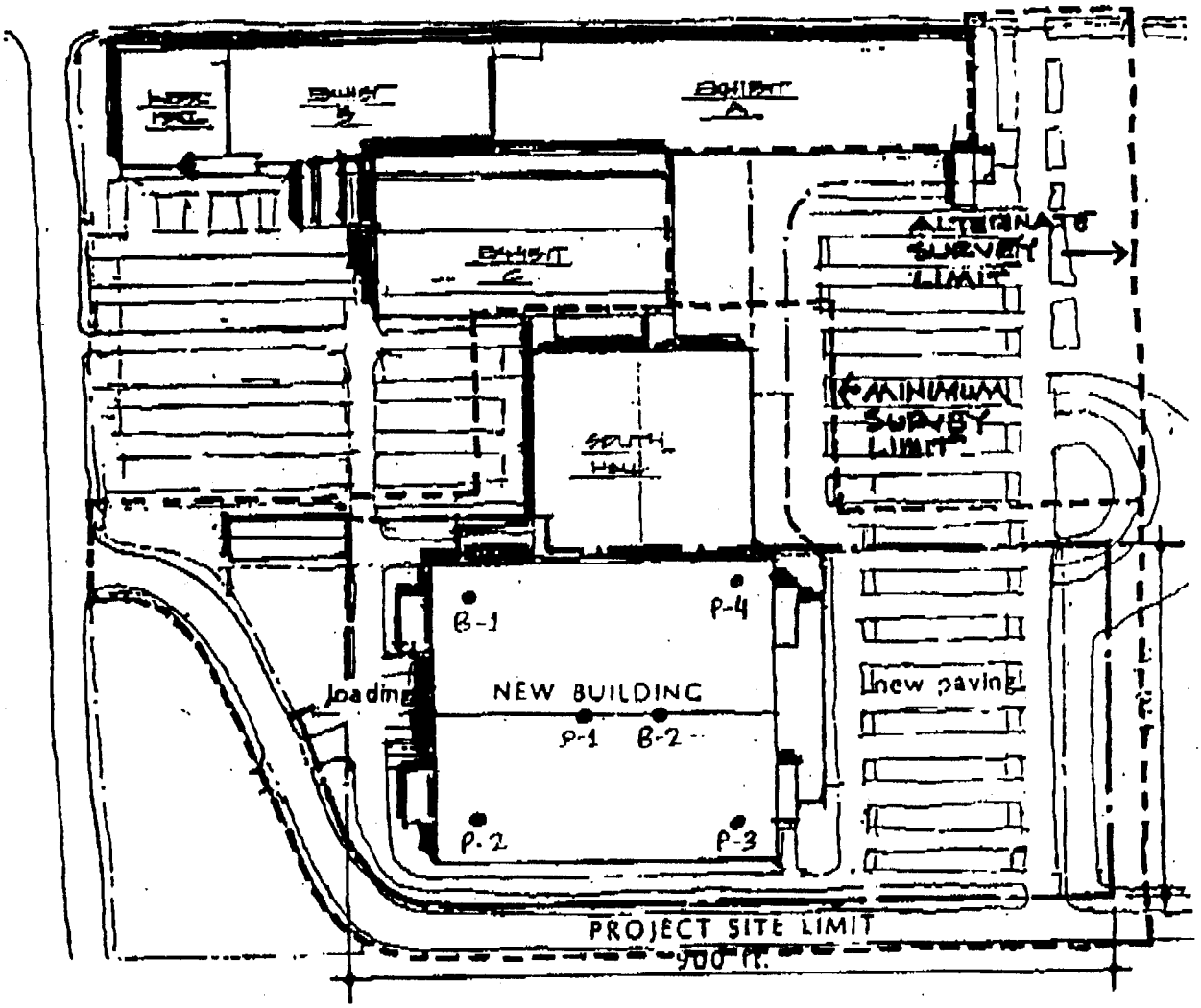
Professional Certification
(to be signed by a licensed water supply or monitoring well constructor, or registered geologist or civil engineer).

I accept responsibility for the construction, alteration, or abandonment work performed on during the construction dates reported above. All work performed during this time is in compliance with Oregon geotechnical hole construction standards. This report is true to the best of my knowledge and belief.

License or Registration Number 10033
Signed Stu Van Bergen Date 2-27
Affiliation geo-tech Exploration

THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER



SITE PLAN

----- SURVEY BOUNDARY

EXPO FACILITY ADDITION

Metropolitan Exposition-Recreation Commission
Portland, Oregon

Post-it Fax Note 7671		Date 2/89	# of pages ▸
To Steve Knight		From [illegible]	
Co./Dept. [illegible]		Co.	
Phone #		Phone #	
Fax # 620 7542		Fax # 731-7570	

STATE OF OREGON

GEOTECHNICAL HOLE REPORT

MULT 58969

Received date 09/17/1999

(as required by OAR 690-240-035)

(1) OWNER/PROJECT

Hole No.

Co.Job No. B-1

Name METRO

Street 600 NE GRAND

City PORTLAND State OR Zip 97212

(2) TYPE OF WORK

☒ New ☐ Alter (Recondition) ☐ Alter (Repair)

☐ Deepening ☒ Abandonment

(3) CONSTRUCTION

☐ Rotary Air ☐ Hand Auger ☐ Hollow Stem Auger

☒ Rotary Mud ☐ Cable Tool ☐ Push Probe Other

(4) TYPE OF HOLE

☒ Uncased Temporary ☐ Cased Permanent

☐ Uncased Permanent ☐ Slope Stability Other

(5) USE OF HOLE

(6) BORE HOLE CONSTRUCTION

Special Standards ☐ Depth of completed well 104 ft.

HOLE

Diameter	From	To
5.00	0.00	104

SEAL

From	To	Material	Amount	Seal Grout Weight	Units
0.00	104.00	Bentonite	15.00		S

Backfill placed from ft. TO ft. Material

Filter pack placed from ft. TO ft. Size in.

(7) CASING/SCREEN

Screen ☐

(8) WELL TEST

Permeability Yield GPM

Conductivity PH

Temperature of water 57 °F/C Depth artesian flow found ft.

Was water analysis done? ☐

By Whom? KLEINFELDER

Depth of strata to be analyzed. From ft. to ft.

Remarks

Name of supervising Geologist/Engineer

(9) LOCATION OF HOLE By legal description

County Multnomah Latitude Longitude

Township 1.00 N Range 1.00 E

Section 4 SE 1/4 NW 1/4

Tax lot 100 Lot Block Subdivision

Legal desc:

Street Address of Well (or nearest address)

11500 BLK OF N FORCE AVE

MAP with location indentified must be attached

(10) STATIC WATER LEVEL

1.0 Ft. below land surface. Date 08/23/1999

Artesian Pressure lb/sq. in. Date

(11) SUBSURFACE LOG

Ground Elevation ft.

Material	From	To	SWL
SILTY SAND	0	5	
SANDY SILTS	5	99	
TROUTDALE FORMATION	99	104	

Date started 08/23/1999 Completed 08/23/1999

(12) ABANDONMENT LOG

Date started Completed

Professional Certification

(to be signed by a licensed water supply or monitoring well constructor, or registered geologist or civil engineer).

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon geotechnical hole construction standards. This report is true to the best of my knowledge and belief.

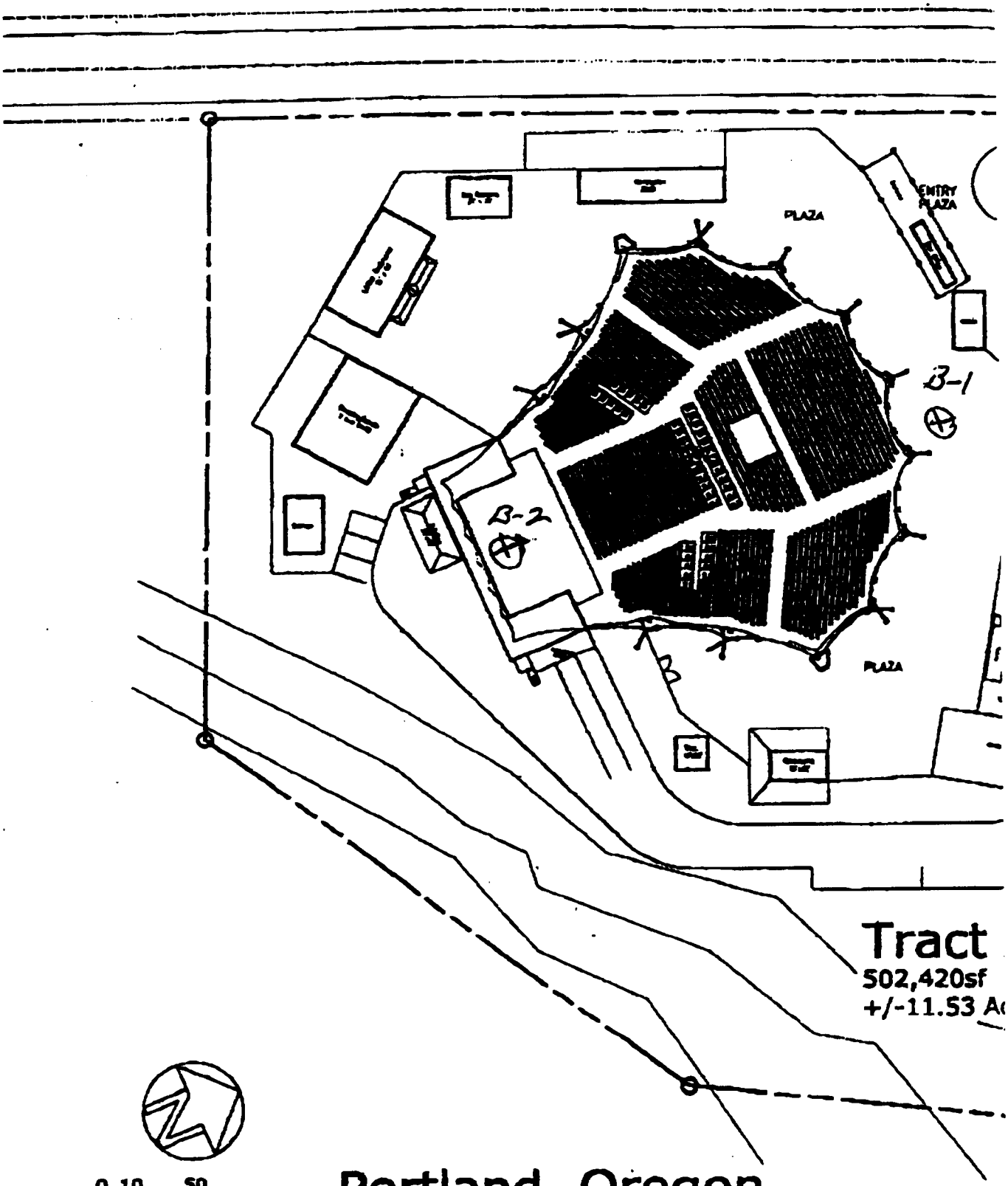
License or Registration Number 10328

Signed By JOEL WELSH Date

Affiliation GEO TECH EXPLORATIONS

THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK

Multnomah
58969-58970



Portland, Oregon
SFX Entertainment - Real Estate
Scheme A

STATE OF OREGON

GEOTECHNICAL HOLE REPORT

MULT 58970

Received date 09/17/1999

(as required by OAR 690-240-035)

(1) OWNER/PROJECT

Hole No.

Co.Job No. B-2

Name METRO

Street 600 NE GRAND

City PORTLAND State OR Zip 97212

(2) TYPE OF WORK

☒ New ☐ Alter (Recondition) ☐ Alter (Repair)

☐ Deepening ☒ Abandonment

(3) CONSTRUCTION

☐ Rotary Air ☐ Hand Auger ☐ Hollow Stem Auger

☐ Rotary Mud ☐ Cable Tool ☒ Push Probe Other

(4) TYPE OF HOLE

☒ Uncased Temporary ☐ Cased Permanent

☐ Uncased Permanent ☐ Slope Stability Other

(5) USE OF HOLE

(6) BORE HOLE CONSTRUCTION

Special Standards ☐ Depth of completed well 40 ft.

HOLE

Diameter	From	To
5.00	0.00	40

SEAL

From	To	Material	Amount	Seal Grout Weight	Units
0.00	40.00	Bentonite	7.00		S

Backfill placed from ft. TO ft. Material

Filter pack placed from ft. TO ft. Size in.

(7) CASING/SCREEN

Screen ☐

(8) WELL TEST

Permeability Yield GPM

Conductivity PH

Temperature of water 57 °F/C Depth artesian flow found ft.

Was water analysis done? ☒

By Whom? KLEINFELDER

Depth of strata to be analyzed. From ft. to ft.

Remarks

Name of supervising Geologist/Engineer

(9) LOCATION OF HOLE By legal description

County Multnomah Latitude Longitude

Township 1.00 N Range 1.00 E

Section 4 SE 1/4 NW 1/4

Tax lot 100 Lot Block Subdivision

Legal desc:

Street Address of Well (or nearest address)

1150 BLK OF N FORCE AVE

MAP with location indentified must be attached

(10) STATIC WATER LEVEL

Ft. below land surface. Date

Artesian Pressure lb/sq. in. Date

(11) SUBSURFACE LOG

Ground Elevation ft.

Material	From	To	SWL
SILTY SAND	0	5	
SANDY SILT	5	40	

Date started 08/23/1999 Completed 08/23/1999

(12) ABANDONMENT LOG

Date started Completed

Professional Certification

(to be signed by a licensed water supply or monitoring well constructor, or registered geologist or civil engineer).

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon geotechnical hole construction standards. This report is true to the best of my knowledge and belief.

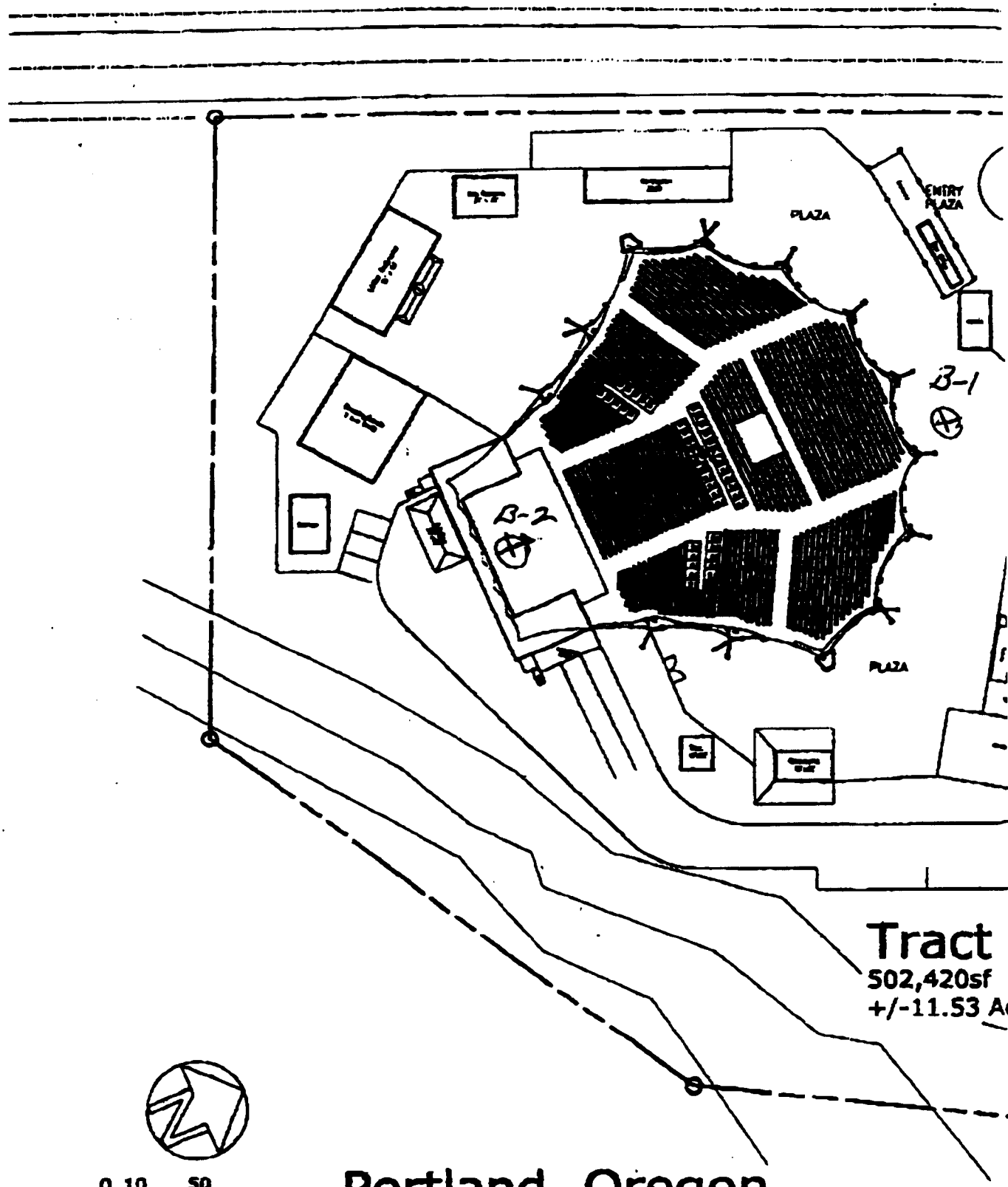
License or Registration Number 10328

Signed By JOEL WELSH Date

Affiliation GEO TECH EXPLORATIONS

THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK

Multnomah
58969-58970



Portland, Oregon
SFX Entertainment - Real Estate
Scheme A

MULT 64582

STATE OF OREGON
GEOTECHNICAL HOLE REPORT
(as required by OAR 690-240-035)

(1) OWNER/PROJECT: Hole Number 1
Name Metropolitan Exposition-Rec. Comm.
Address 777 NE Martin Luther King Jr. Blvd
City Portland State OR Zip 97232

(2) TYPE OF WORK
☒ New ☐ Deepening ☐ Alteration (repair/recondition) ☒ Abandonment

(3) CONSTRUCTION:
☐ Rotary Air ☐ Hand Auger ☐ Hollow Stem Auger
☐ Rotary Mud ☐ Cable Tool ☒ Push Probe ☐ Other

(4) TYPE OF HOLE:
☒ Uncased Temporary ☐ Cased Permanent
☐ Uncased Permanent ☐ Slope Stability ☐ Other

(5) USE OF HOLE: Soil Samples

(6) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☒ No Depth of Completed Hole 20 ft.

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
2	0	20				

Backfill placed from ____ ft. to ____ ft. Material ____
Filter Pack placed from ____ ft. to ____ ft. Size of pack ____

(7) CASING/SCREEN:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Screen:					☐	☐	☐	☐
					☐	☐	☐	☐

Slot size ____

(8) WELL TEST:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian
Permeability ____ Yield ____ GPM ____
Conductivity ____ PH ____
Temperature of water 53 °F/C Depth artesian flow found ____ ft.
Was water analysis done? ☐ Yes ☒ No
By whom? ____
Depth of strata analyzed. From ____ ft. to ____ ft.
Remarks: ____

(9) LOCATION OF HOLE by legal description:
County Mult Latitude ____ Longitude ____
Township 1 N or S Range 1 E or W. WM.
Section 4 NW 1/4 NE 1/4
Tax Lot 100 Lot ____ Block ____ Subdivision ____
Street Address of Well (or nearest address) ____
Expo Center

Map with location identified must be attached

(10) STATIC WATER LEVEL:
7 ft. below land surface. Date 8/20/01
Artesian pressure ____ lb. per square inch. Date ____

(11) SUBSURFACE LOG:
Ground Elevation ____

Material Description	From	To	SWL
Silty Sand	0	20	

Date Started 8/20/01 Date Completed 8/20/01

(12) ABANDONMENT LOG:

Material Description	From	To	Sacks or Pounds
Bent	0	20	3165

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SALEM, OREGON

Date started 8/20/01 Date Completed 8/20/01

Professional Certification
(to be signed by a licensed water supply or monitoring well constructor, or Oregon registered geologist or civil engineer).

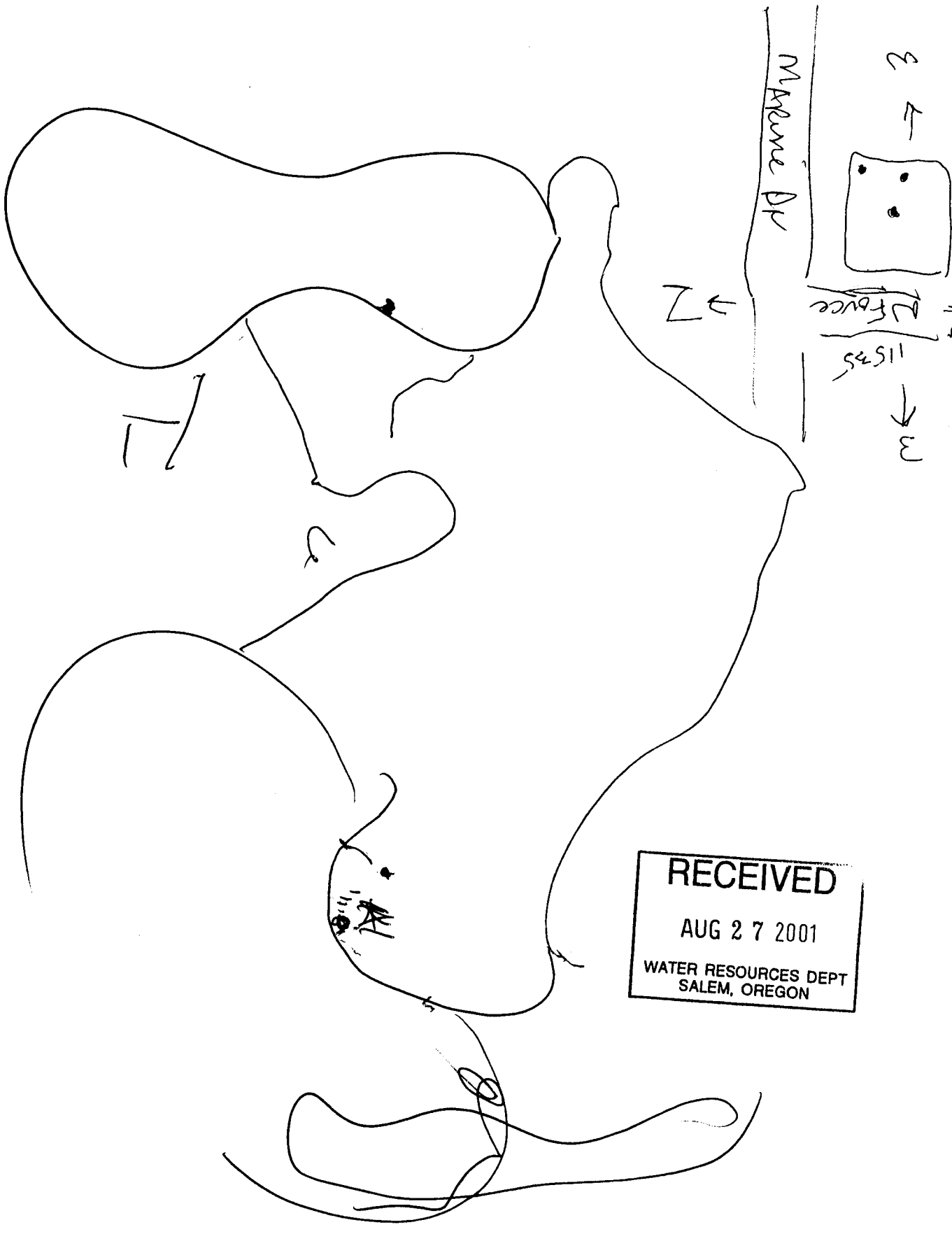
I accept responsibility for the construction, alteration, or abandonment work performed during the construction dates reported above. All work performed during this time is in compliance with Oregon's geotechnical hole construction standards. This report is true to the best of my knowledge and belief.

License or Registration Number 10495
Signed C. Swanson Date 8/24/01
Affiliation ____

THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK

ORIGINAL – WATER RESOURCES DEPARTMENT FIRST COPY – CONSTRUCTOR SECOND COPY – CUSTOMER

MULT 64582


Marine Dr
3
2
1
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AUG 2 7 2001
WATER RESOURCES DEPT
SALEM, OREGON

MULT 64583

STATE OF OREGON
GEOTECHNICAL HOLE REPORT
(as required by OAR 690-240-035)

(1) OWNER/PROJECT: Hole Number 2
Name Metro - Expo. - Rec. Ramm3.n
Address 777 NE Mlk Jr. Blvd
City Portland State OR Zip 97232

(2) TYPE OF WORK
☒ New ☐ Deepening ☐ Alteration (repair/recondition) ☒ Abandonment

(3) CONSTRUCTION:
☐ Rotary Air ☐ Hand Auger ☐ Hollow Stem Auger
☐ Rotary Mud ☐ Cable Tool ☒ Push Probe ☐ Other

(4) TYPE OF HOLE:
☒ Uncased Temporary ☐ Cased Permanent
☐ Uncased Permanent ☐ Slope Stability ☐ Other

(5) USE OF HOLE:
Soil Samples

(6) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☒ No Depth of Completed Hole 12 ft.

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
2	0	12				

Backfill placed from ____ ft. to ____ ft. Material ____
Filter Pack placed from ____ ft. to ____ ft. Size of pack ____

(7) CASING/SCREEN:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Screen:					☐	☐	☐	☐
					☐	☐	☐	☐

Slot size ____

(8) WELL TEST:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian
Permeability ____ Yield ____ GPM ____
Conductivity ____ PH ____
Temperature of water 51 °F/C Depth artesian flow found ____ ft.
Was water analysis done? ☐ Yes ☒ No
By whom? ____
Depth of strata analyzed. From ____ ft. to ____ ft.
Remarks: ____

(9) LOCATION OF HOLE by legal description:
County Mult Latitude ____ Longitude ____
Township 1 N or S Range 1 E or W. WM.
Section 4 NE 1/4 NE 1/4
Tax Lot 100 Lot ____ Block ____ Subdivision ____
Street Address of Well (or nearest address) ____
Expo Center

Map with location identified must be attached

(10) STATIC WATER LEVEL:
7 ft. below land surface. Date ____
Artesian pressure ____ lb. per square inch. Date ____

(11) SUBSURFACE LOG:
Ground Elevation ____

Material Description	From	To	SWL
Silty Sand	0	12	7

Date Started 8/20/01 Date Completed 8/20/01

(12) ABANDONMENT LOG:

Material Description	From	To	Sacks or Pounds
Bent	0	12	2 1/2 lbs

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SALEM, OREGON

Date started 8/20/01 Date Completed 8/20/01

Professional Certification
(to be signed by a licensed water supply or monitoring well constructor, or Oregon registered geologist or civil engineer).

I accept responsibility for the construction, alteration, or abandonment work performed during the construction dates reported above. All work performed during this time is in compliance with Oregon's geotechnical hole construction standards. This report is true to the best of my knowledge and belief.

License or Registration Number 1049S
Signed C Ramm Date 8/24/01
Affiliation ____

THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK

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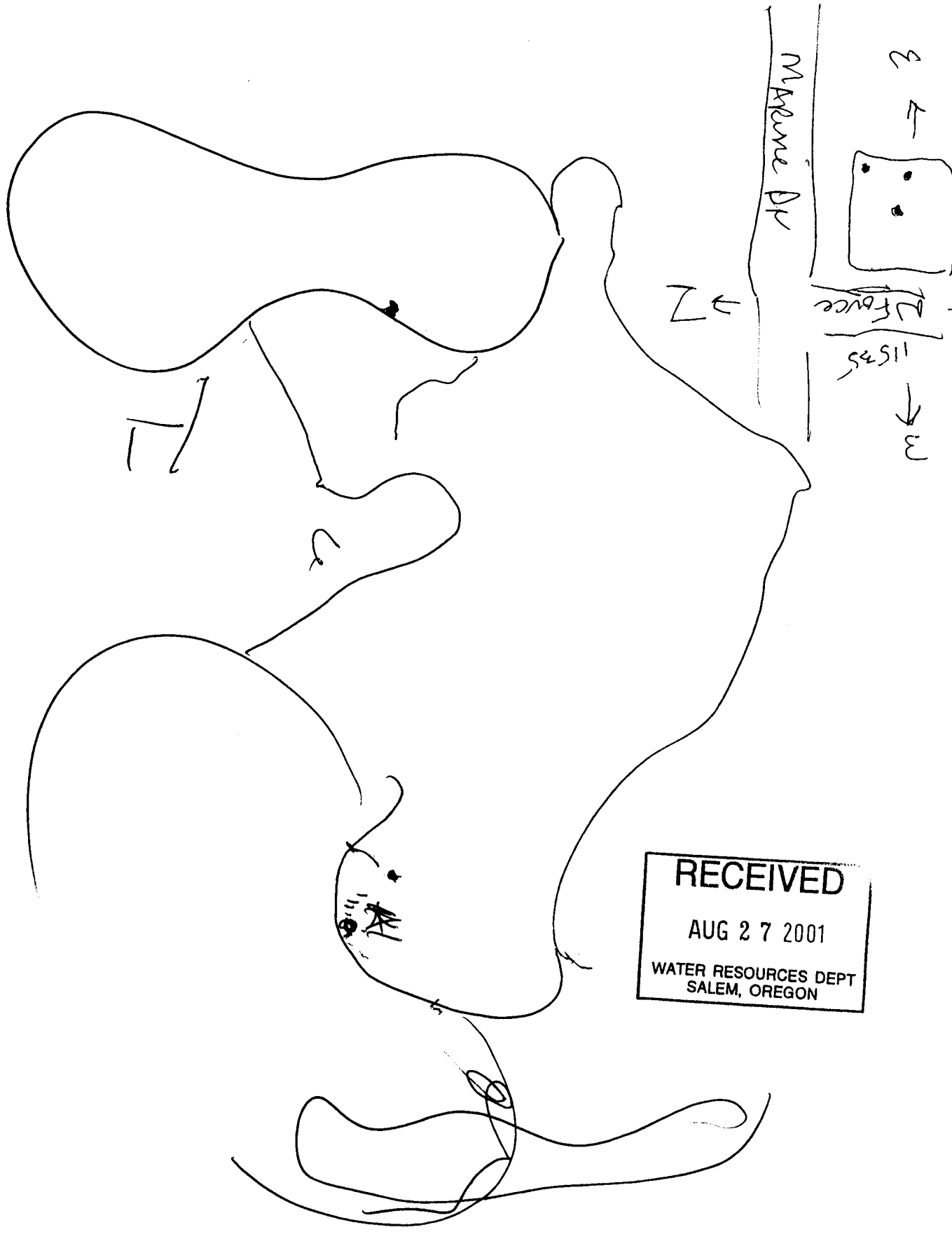
Marine Dr
Bruce
1545
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AUG 2 7 2001
WATER RESOURCES DEPT
SALEM, OREGON

MULT 64584

STATE OF OREGON
GEOTECHNICAL HOLE REPORT
(as required by OAR 690-240-035)

(1) OWNER/PROJECT: Hole Number 3
Name Metro
Address 777 NE Multnomah Blvd
City Portland State OR Zip 97232

(2) TYPE OF WORK
☒ New ☐ Deepening ☐ Alteration (repair/recondition) ☒ Abandonment

(3) CONSTRUCTION:
☐ Rotary Air ☐ Hand Auger ☐ Hollow Stem Auger
☐ Rotary Mud ☐ Cable Tool ☒ Push Probe ☐ Other

(4) TYPE OF HOLE:
☒ Uncased Temporary ☐ Cased Permanent
☐ Uncased Permanent ☐ Slope Stability ☐ Other

(5) USE OF HOLE:
Soil Samples

(6) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☒ No Depth of Completed Hole 20 ft.

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
2	0	20				
				X		

Backfill placed from ____ ft. to ____ ft. Material ____
Filter Pack placed from ____ ft. to ____ ft. Size of pack ____

(7) CASING/SCREEN:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
			X		☐	☐	☐	☐
Screen:					☐	☐	☐	☐
					☐	☐	☐	☐

Slot size ____

(8) WELL TEST:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian
Permeability ____ Yield ____ GPM ____
Conductivity ____ PH ____
Temperature of water 51 °F/C Depth artesian flow found ____ ft.
Was water analysis done? ☐ Yes ☒ No
By whom? ____
Depth of strata analyzed. From ____ ft. to ____ ft.
Remarks: ____

(9) LOCATION OF HOLE by legal description:
County Mult Latitude ____ Longitude ____
Township 1 N or S Range 1 E or W. WM.
Section 4 NW 1/4 NE 1/4
Tax Lot 100 Lot ____ Block ____ Subdivision ____
Street Address of Well (or nearest address) ____
Expo Center

Map with location identified must be attached

(10) STATIC WATER LEVEL:
16 ft. below land surface. Date 8/20/01
Artesian pressure ____ lb. per square inch. Date ____

(11) SUBSURFACE LOG:
Ground Elevation ____

Material Description	From	To	SWL
Silty Sand	0	20	16

Date Started 8/20/01 Date Completed 8/20/01

(12) ABANDONMENT LOG:

Material Description	From	To	Sacks or Pounds
Bent	0	20	3 1/2 lbs

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WATER RESOURCES DEPT
SALEM, OREGON

Date started 8/20/01 Date Completed 8/20/01

Professional Certification
(to be signed by a licensed water supply or monitoring well constructor, or Oregon registered geologist or civil engineer).

I accept responsibility for the construction, alteration, or abandonment work performed during the construction dates reported above. All work performed during this time is in compliance with Oregon's geotechnical hole construction standards. This report is true to the best of my knowledge and belief.

License or Registration Number 10495
Signed C. Marcafi Date 8/24/01
Affiliation ____

THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK

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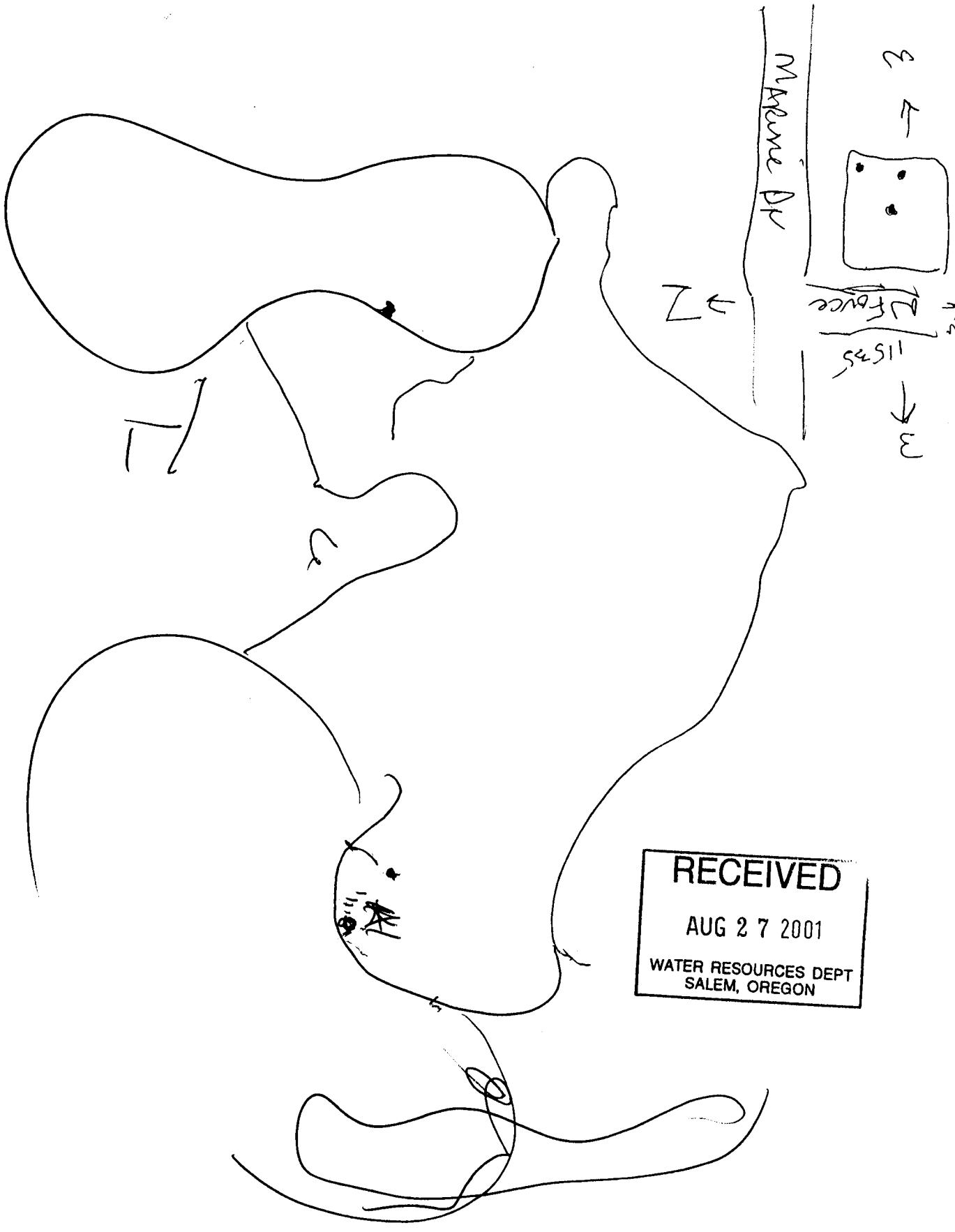
MULT 64584


Marine Dr
Fence
115th
RECEIVED
AUG 2 7 2001
WATER RESOURCES DEPT
SALEM, OREGON

MULT 64585

STATE OF OREGON
GEOTECHNICAL HOLE REPORT
(as required by OAR 690-240-035)

(1) OWNER/PROJECT: Hole Number 4
Name Metro
Address 777 NE Multnomah Blvd
City Portland State OR Zip 97232

(2) TYPE OF WORK
☒ New ☐ Deepening ☐ Alteration (repair/recondition) ☒ Abandonment

(3) CONSTRUCTION:
☐ Rotary Air ☐ Hand Auger ☐ Hollow Stem Auger
☐ Rotary Mud ☐ Cable Tool ☒ Push Probe ☐ Other

(4) TYPE OF HOLE:
☒ Uncased Temporary ☐ Cased Permanent
☐ Uncased Permanent ☐ Slope Stability ☐ Other

(5) USE OF HOLE:
Soil Samples

(6) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☒ No Depth of Completed Hole 16 ft.

HOLE			SEAL			
Diameter	From	To	Material	From	To	Sacks or pounds
2	0	16				
				X		

Backfill placed from ____ ft. to ____ ft. Material ____
Filter Pack placed from ____ ft. to ____ ft. Size of pack ____

(7) CASING/SCREEN:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Screen:				X	☐	☐	☐	☐
					☐	☐	☐	☐

Slot size ____

(8) WELL TEST:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian
Permeability ____ Yield ____ GPM ____
Conductivity ____ PH ____
Temperature of water 54 °F/C Depth artesian flow found ____ ft.
Was water analysis done? ☐ Yes ☒ No
By whom? ____
Depth of strata analyzed. From ____ ft. to ____ ft.
Remarks: ____

(9) LOCATION OF HOLE by legal description:
County Mult Latitude ____ Longitude ____
Township 1 N or S Range 1 E or W. WM.
Section 4 NE 1/4 NE 1/4
Tax Lot 100 Lot ____ Block ____ Subdivision ____
Street Address of Well (or nearest address) Expo Center

Map with location identified must be attached

(10) STATIC WATER LEVEL:
14 ft. below land surface. Date 8/20/01
Artesian pressure ____ lb. per square inch. Date ____

(11) SUBSURFACE LOG:
Ground Elevation ____

Material Description	From	To	SWL
Silty Sand	0	16	14

Date Started 8/20/01 Date Completed 8/20/01

(12) ABANDONMENT LOG:

Material Description	From	To	Sacks or Pounds
Bent	0	16	31 lbs

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SALEM, OREGON

Date started 8/20/01 Date Completed 8/20/01

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License or Registration Number 10495
Signed C Hanson Date 8/24/01
Affiliation ____

THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK

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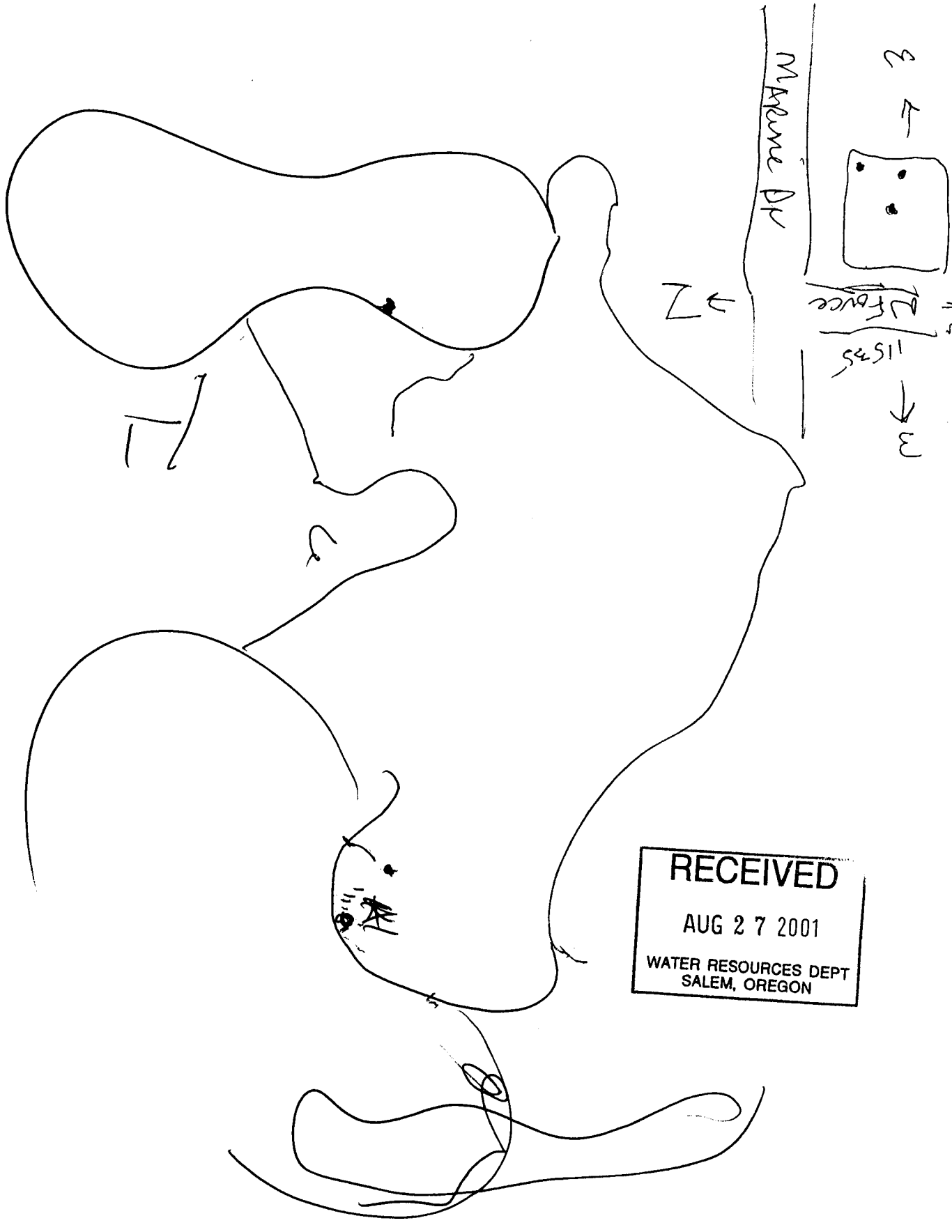
MULT 64585



MULT 64586

STATE OF OREGON
GEOTECHNICAL HOLE REPORT
(as required by OAR 690-240-035)

(1) OWNER/PROJECT: Hole Number 5
Name Metro
Address 777 NE MLK Jr. Blvd
City Portland State OR Zip 97232

(2) TYPE OF WORK
☒ New ☐ Deepening ☐ Alteration (repair/recondition) ☒ Abandonment

(3) CONSTRUCTION:
☐ Rotary Air ☐ Hand Auger ☐ Hollow Stem Auger
☐ Rotary Mud ☐ Cable Tool ☒ Push Probe ☐ Other

(4) TYPE OF HOLE:
☒ Uncased Temporary ☐ Cased Permanent
☐ Uncased Permanent ☐ Slope Stability ☐ Other

(5) USE OF HOLE:
Soil Samples

(6) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☒ No Depth of Completed Hole 24 ft.

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
2	0	24				

Backfill placed from ____ ft. to ____ ft. Material ____
Filter Pack placed from ____ ft. to ____ ft. Size of pack ____

(7) CASING/SCREEN:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Screen:					☐	☐	☐	☐
					☐	☐	☐	☐

Slot size ____

(8) WELL TEST:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian
Permeability ____ Yield ____ GPM ____
Conductivity ____ PH ____
Temperature of water 51 °F/C Depth artesian flow found ____ ft.
Was water analysis done? ☐ Yes ☒ No
By whom? ____
Depth of strata analyzed. From ____ ft. to ____ ft.
Remarks: ____

(9) LOCATION OF HOLE by legal description:
County Mult Latitude ____ Longitude ____
Township 1 N or S Range 1 E or W. WM.
Section 4 NE 1/4 NE 1/4
Tax Lot 100 Lot ____ Block ____ Subdivision ____
Street Address of Well (or nearest address) ____
Expo Center

Map with location identified must be attached

(10) STATIC WATER LEVEL:
14 ft. below land surface. Date 8/20/01
Artesian pressure ____ lb. per square inch. Date ____

(11) SUBSURFACE LOG:
Ground Elevation ____

Material Description	From	To	SWL
Silty Sand	0	24	14

Date Started 8/20/01 Date Completed 8/20/01

(12) ABANDONMENT LOG:

Material Description	From	To	Sacks or Pounds
Bent	0	24	3 1/2

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AUG 27 2001
WATER RESOURCES DEPT
SALEM, OREGON

Date started 8/20/01 Date Completed 8/20/01

Professional Certification
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License or Registration Number 10495
Signed C. Swanson Date 8/24/01
Affiliation ____

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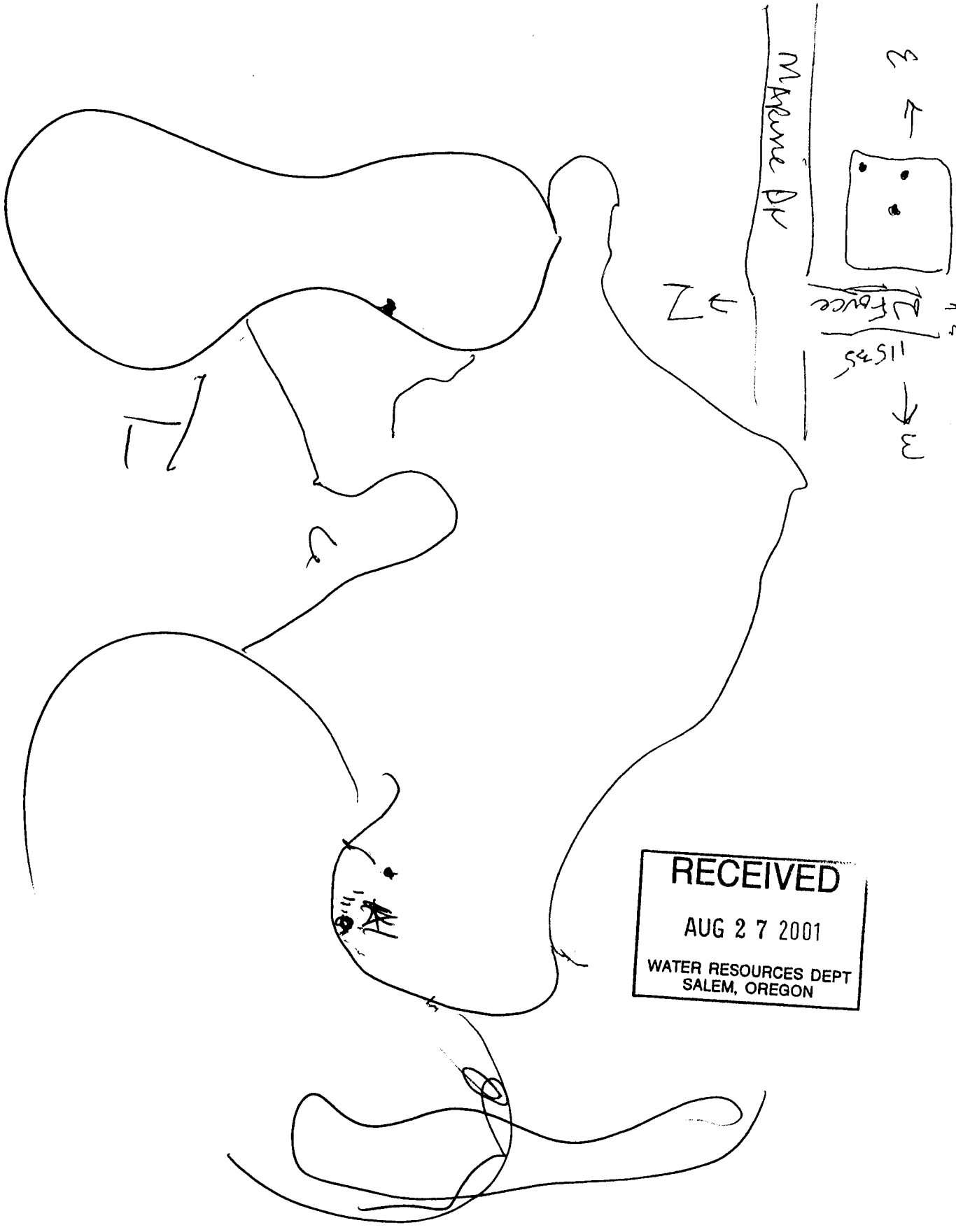
MULT 64586



Portland Expo Center

2060 N Marine Drive

Portland, OR 97217

Inquiry Number: 5782459.8

September 10, 2019

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

09/10/19

Site Name:

Portland Expo Center
2060 N Marine Drive
Portland, OR 97217
EDR Inquiry # 5782459.8

Client Name:

Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008
Contact: Theresa Lydick

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	Scale	Details	Source
2017	1"=500'	Flight Year: 2017	USDA/NAIP
2014	1"=500'	Flight Year: 2014	USDA/NAIP
2011	1"=500'	Flight Year: 2011	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
2000	1"=500'	Acquisition Date: July 29, 2000	USGS/DOQQ
1994	1"=500'	Flight Date: June 20, 1994	USGS
1990	1"=1000'	Flight Date: June 21, 1990	USGS
1981	1"=500'	Flight Date: July 26, 1981	USDA
1975	1"=500'	Flight Date: September 13, 1975	USGS
1970	1"=500'	Flight Date: July 05, 1970	USGS
1960	1"=500'	Flight Date: July 17, 1960	USGS
1955	1"=500'	Flight Date: August 06, 1955	USDA
1951	1"=500'	Flight Date: July 27, 1951	USGS
1948	1"=500'	Flight Date: July 24, 1948	USDA
1935	1"=500'	Flight Date: January 01, 1935	ACOE

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INQUIRY #: 5782459.8
YEAR: 2017
= 500'
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EDR


INQUIRY #: 5782459.8
YEAR: 2014
= 500'
N
EDR


INQUIRY #: 5782459.8
YEAR: 2011
= 500'
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EDR


INQUIRY #: 5782459.8
YEAR: 2006
= 500'
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EDR


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YEAR: 2000
= 500'
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EDR


INQUIRY #: 5782459.8
YEAR: 1994
= 500'
N
EDR

INQUIRY #: 5782459.8

YEAR: 1990

= 1000'

N

EDR

Subject boundary not shown because it exceeds image extent or image is not georeferenced.


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EDR


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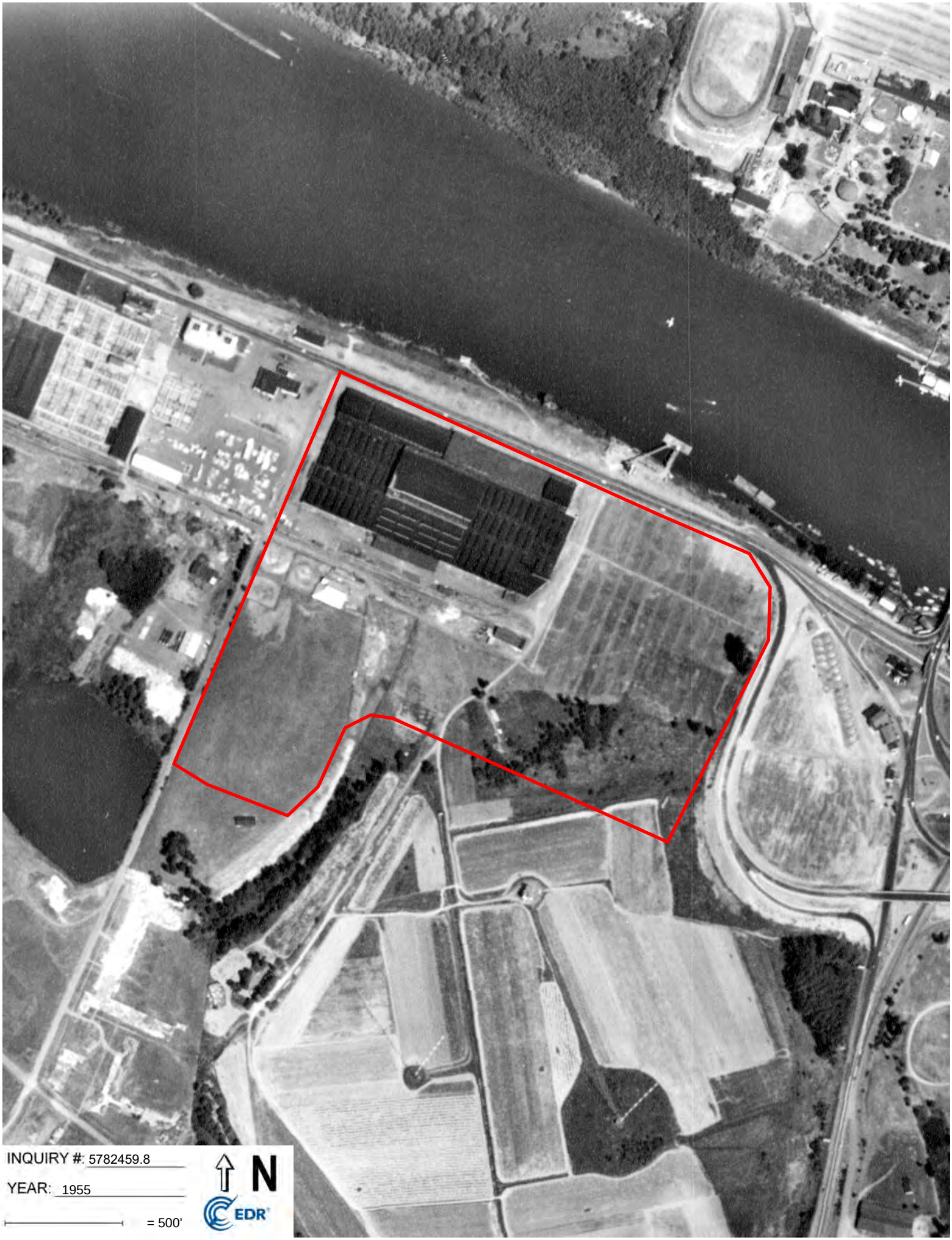
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EDR


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YEAR: 1951
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EDR


INQUIRY #: 5782459.8
YEAR: 1948
= 500'
N
EDR


INQUIRY #: 5782459.8
YEAR: 1935
= 500'
N
EDR

Portland Expo Center
2060 N Marine Drive
Portland, OR 97217

Inquiry Number: 5782459.3
September 10, 2019

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

09/10/19

Site Name:

Portland Expo Center
2060 N Marine Drive
Portland, OR 97217
EDR Inquiry # 5782459.3

Client Name:

Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008
Contact: Theresa Lydick

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The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 3E31-4EF1-8D2C

PO # NA

Project Portland Expo Center

Maps Provided:

1966
1952
1950
1924

Sanborn® Library search results

Certification #: 3E31-4EF1-8D2C

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

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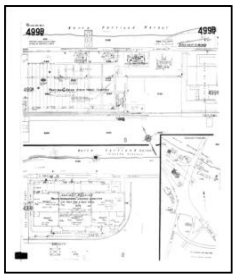
Sanborn Sheet Key

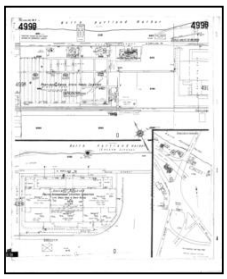
This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1952 Source Sheets



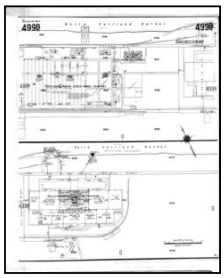
Volume 4, Sheet 499b
1952

1950 Source Sheets

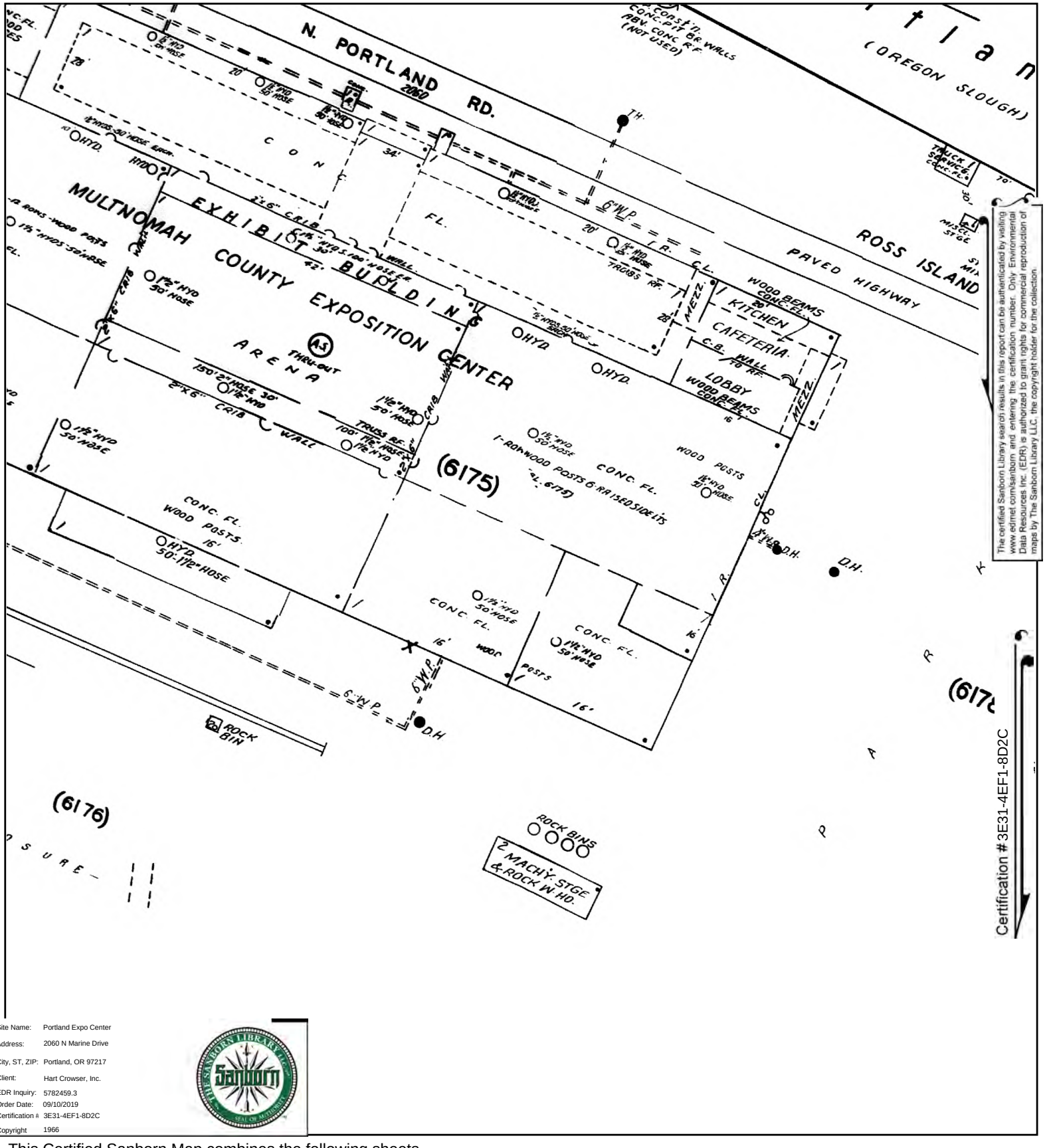


Volume 4, Sheet 499b
1950

1924 Source Sheets



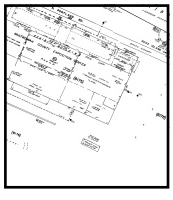
Volume 4, Sheet 499b
1924

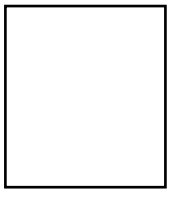


Site Name:	Portland Expo Center
Address:	2060 N Marine Drive
City, ST, ZIP:	Portland, OR 97217
Client:	Hart Crowser, Inc.
EDR Inquiry:	5782459.3
Order Date:	09/10/2019
Certification #	3E31-4EF1-8D2C
Copyright	1966

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

0 Feet 150 300 600





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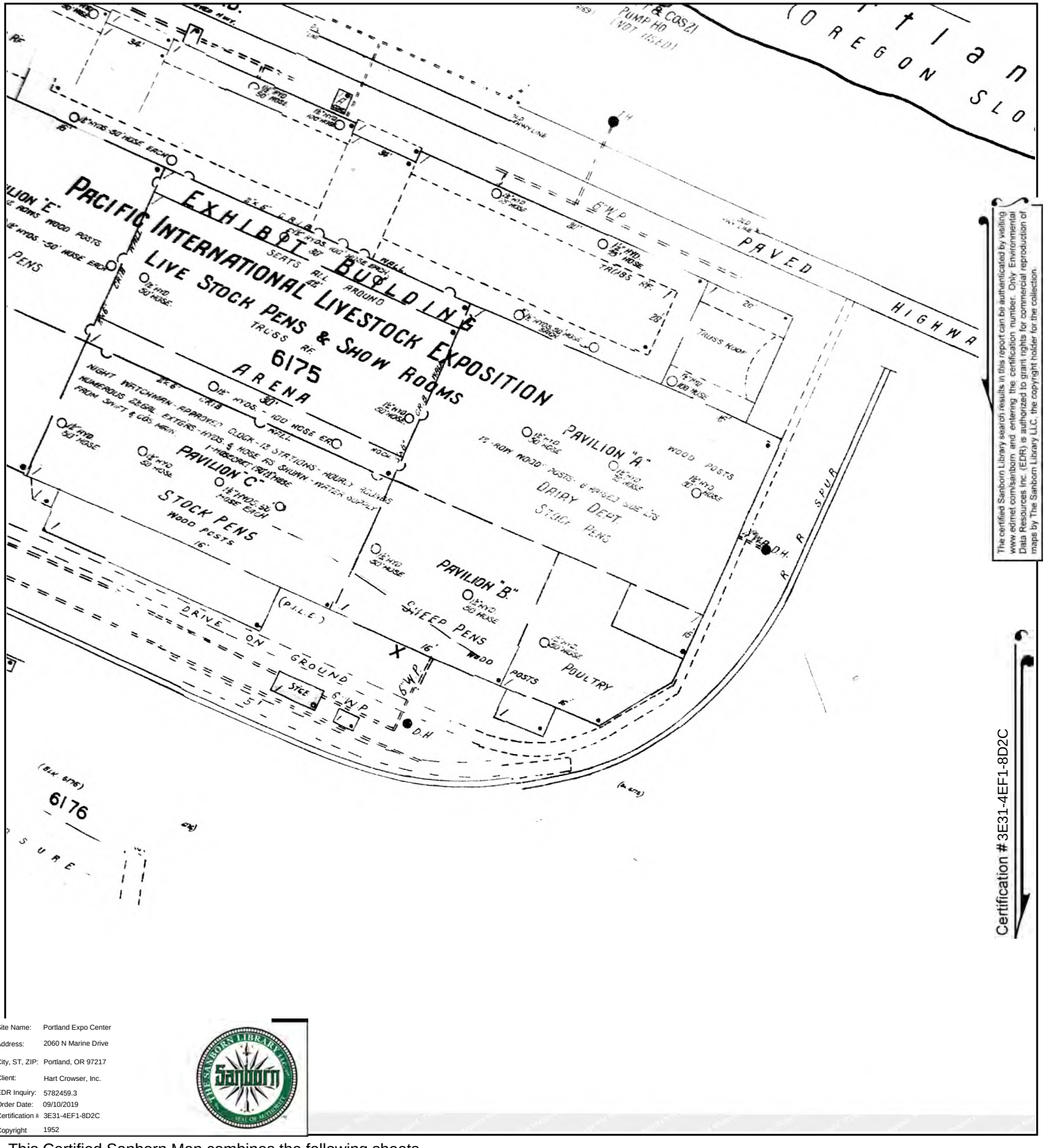

Certification # 3E31-4EF1-8D2C

Site Name:	Portland Expo Center
Address:	2060 N Marine Drive
City, ST, ZIP:	Portland, OR 97217
Client:	Hart Crowser, Inc.
EDR Inquiry:	5782459.3
Order Date:	09/10/2019
Certification #	3E31-4EF1-8D2C
Copyright	1952

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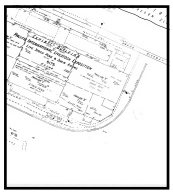

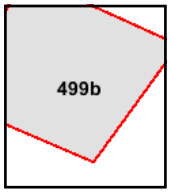

Volume 4, Sheet 499b

0 Feet 150 300 600

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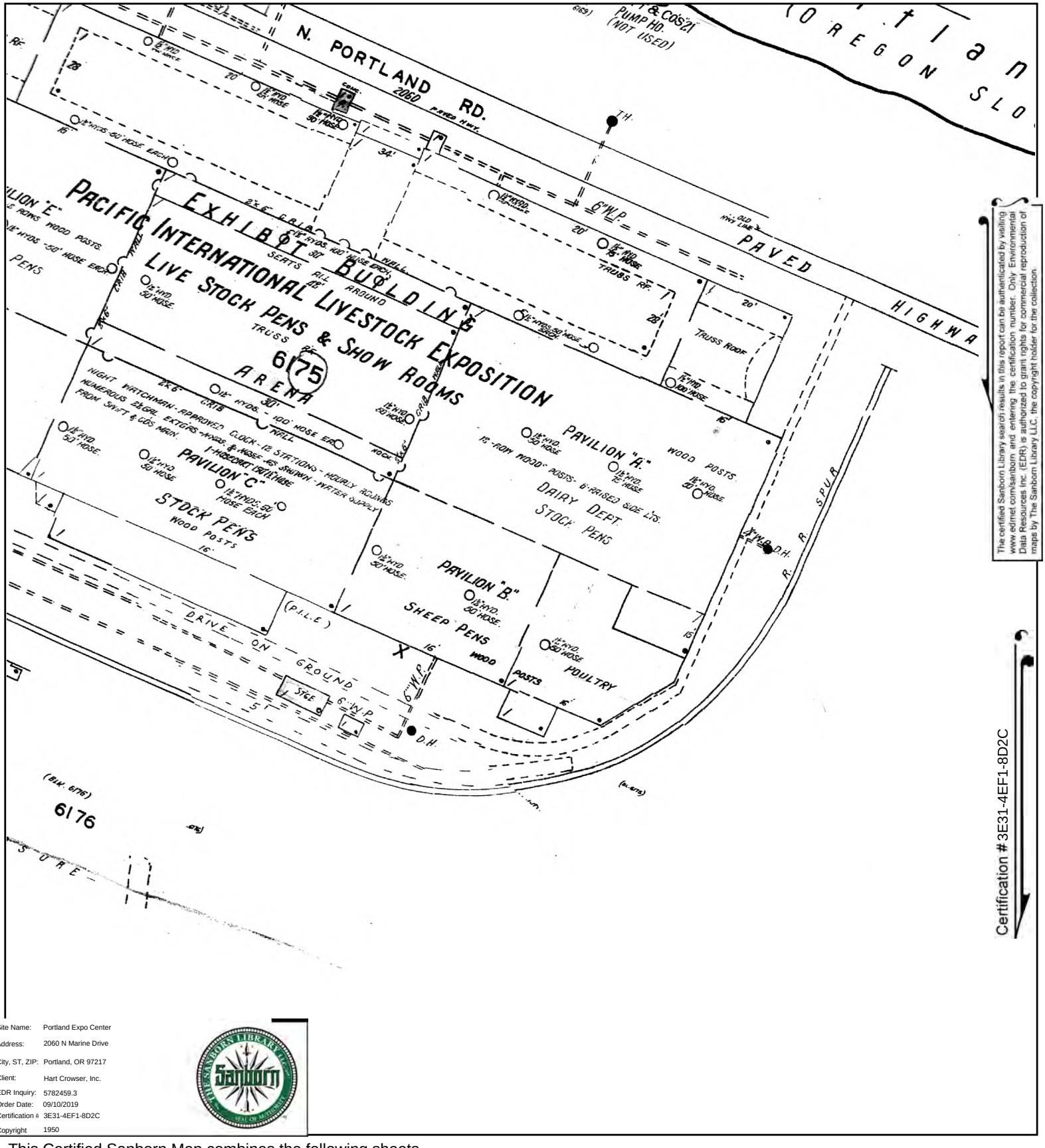

Certification # 3E31-4EF1-8D2C

Site Name:	Portland Expo Center
Address:	2060 N Marine Drive
City, ST, ZIP:	Portland, OR 97217
Client:	Hart Crowser, Inc.
EDR Inquiry:	5782459.3
Order Date:	09/10/2019
Certification #	3E31-4EF1-8D2C
Copyright	1950

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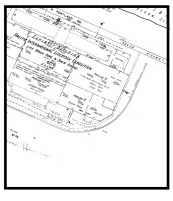

Volume 4, Sheet 499b

0 Feet 150 300 600

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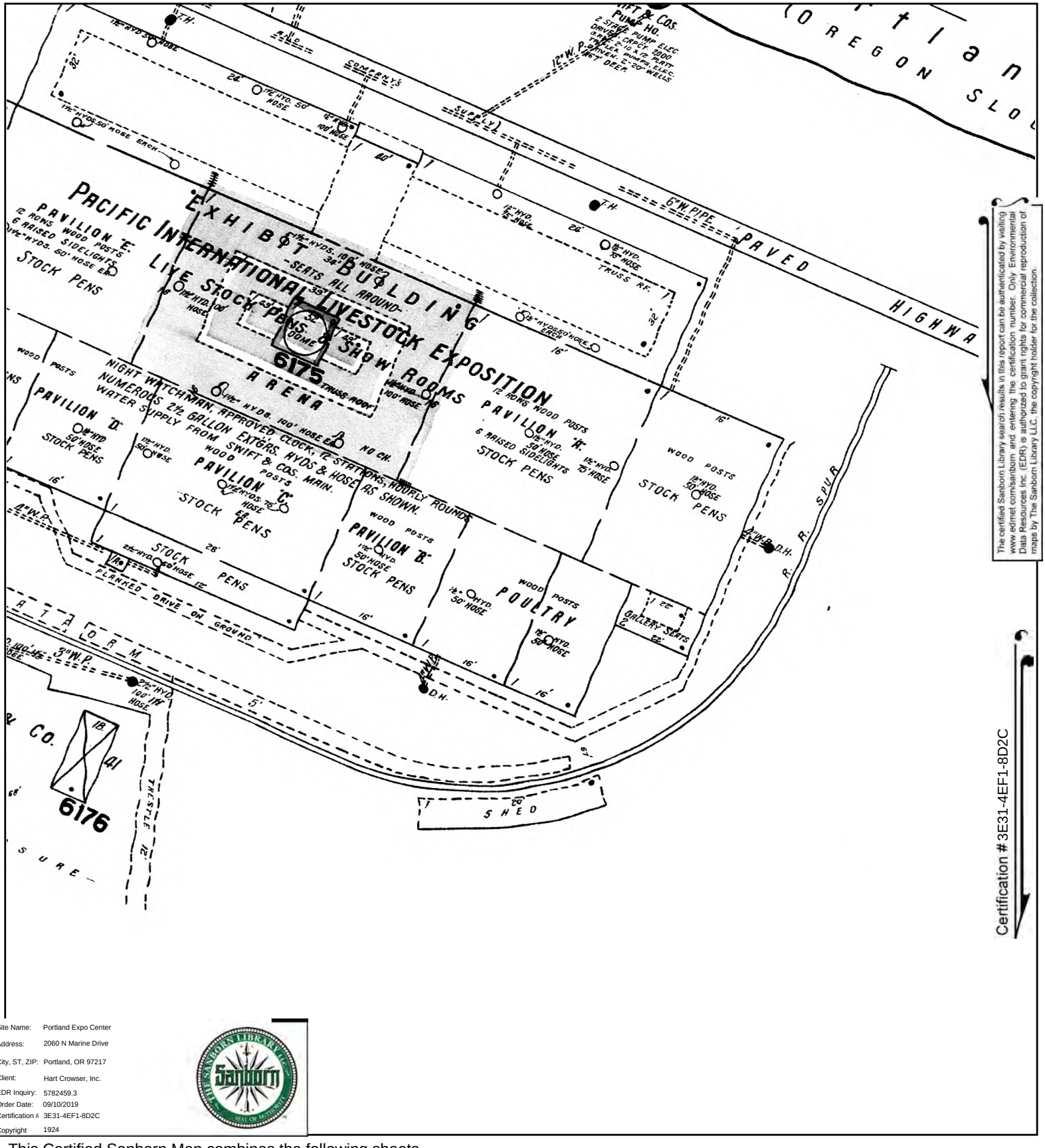

Certification #3E31-4EF1-8D2C

Site Name:	Portland Expo Center
Address:	2060 N Marine Drive
City, ST, ZIP:	Portland, OR 97217
Client:	Hart Crowser, Inc.
EDR Inquiry:	5782459.3
Order Date:	09/10/2019
Certification #	3E31-4EF1-8D2C
Copyright	1924

This Certified Sanborn Map combines the following sheets.
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Volume 4, Sheet 499b

0 Feet 150 300 600

N

Portland Expo Center
2060 N Marine Drive
Portland, OR 97217

Inquiry Number: 5782459.3
September 10, 2019

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Site Name:

Portland Expo Center
2060 N Marine Drive
Portland, OR 97217
EDR Inquiry # 5782459.3

Client Name:

Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008
Contact: Theresa Lydick

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Certified Sanborn Results:

Certification # 3E31-4EF1-8D2C

PO # NA

Project Portland Expo Center

Maps Provided:

1966
1952
1950
1924

Sanborn® Library search results

Certification #: 3E31-4EF1-8D2C

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Sanborn Sheet Key

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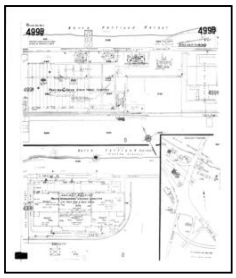
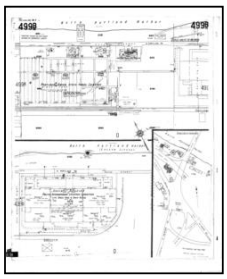
1952 Source Sheets



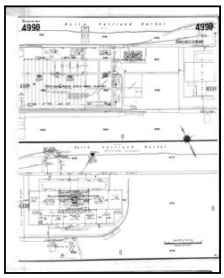
Volume 4, Sheet 499b
1952

1950 Source Sheets



Volume 4, Sheet 499b
1950

1924 Source Sheets

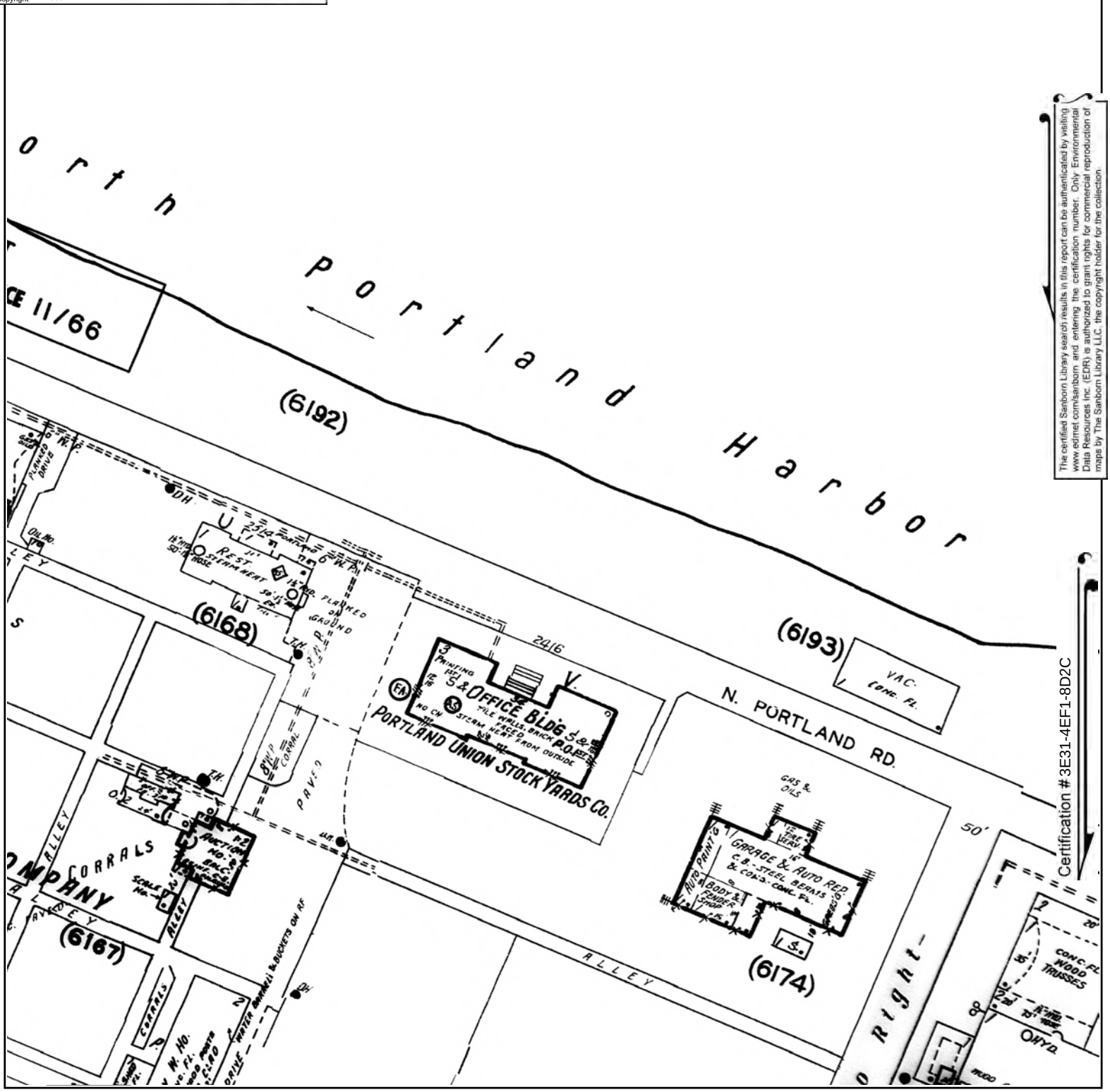


Volume 4, Sheet 499b
1924

Certified Sanborn® Map

1966

Site Name: Portland Expo Center
Address: 2060 N Marine Drive
City, ST, ZIP: Portland, OR 97217
Client: Hart Crowser, Inc.
EDR Inquiry: 5782459.3
Order Date: 09/10/2019
Certification #: 3E31-4EF1-8D2C
Copyright: 1966



Certification # 3E31-4EF1-8D2C

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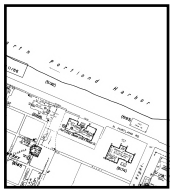
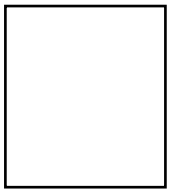


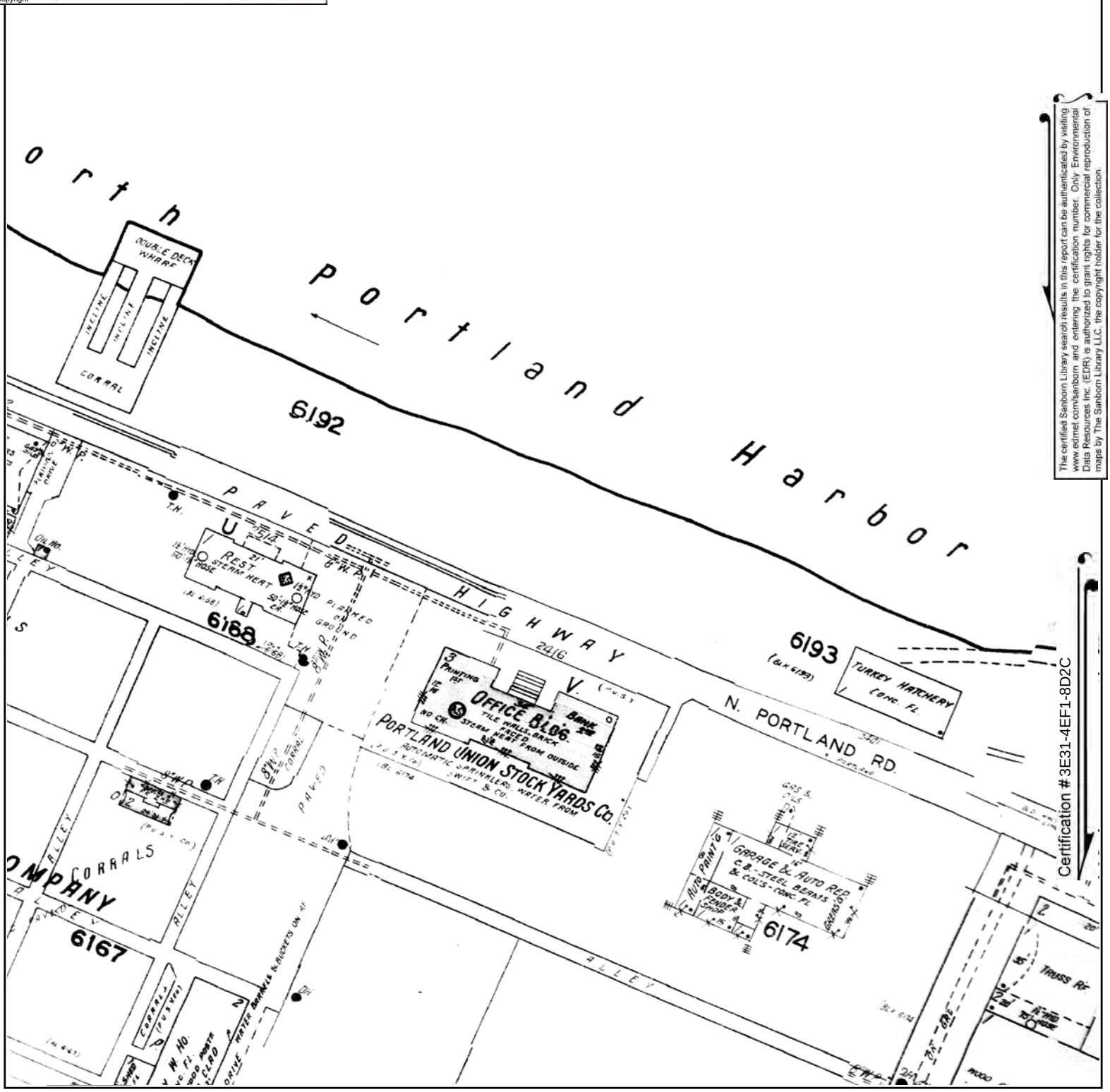


N

Certified Sanborn® Map

1952

Site Name: Portland Expo Center
Address: 2060 N Marine Drive
City, ST, ZIP: Portland, OR 97217
Client: Hart Crowser, Inc.
EDR Inquiry: 5782459.3
Order Date: 09/10/2019
Certification #: 3E31-4EF1-8D2C
Copyright 1952



Certification #3E31-4EF1-8D2C

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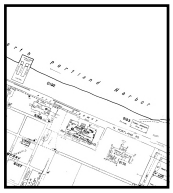
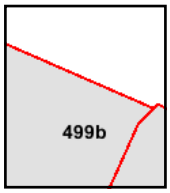




Volume 4, Sheet 499b

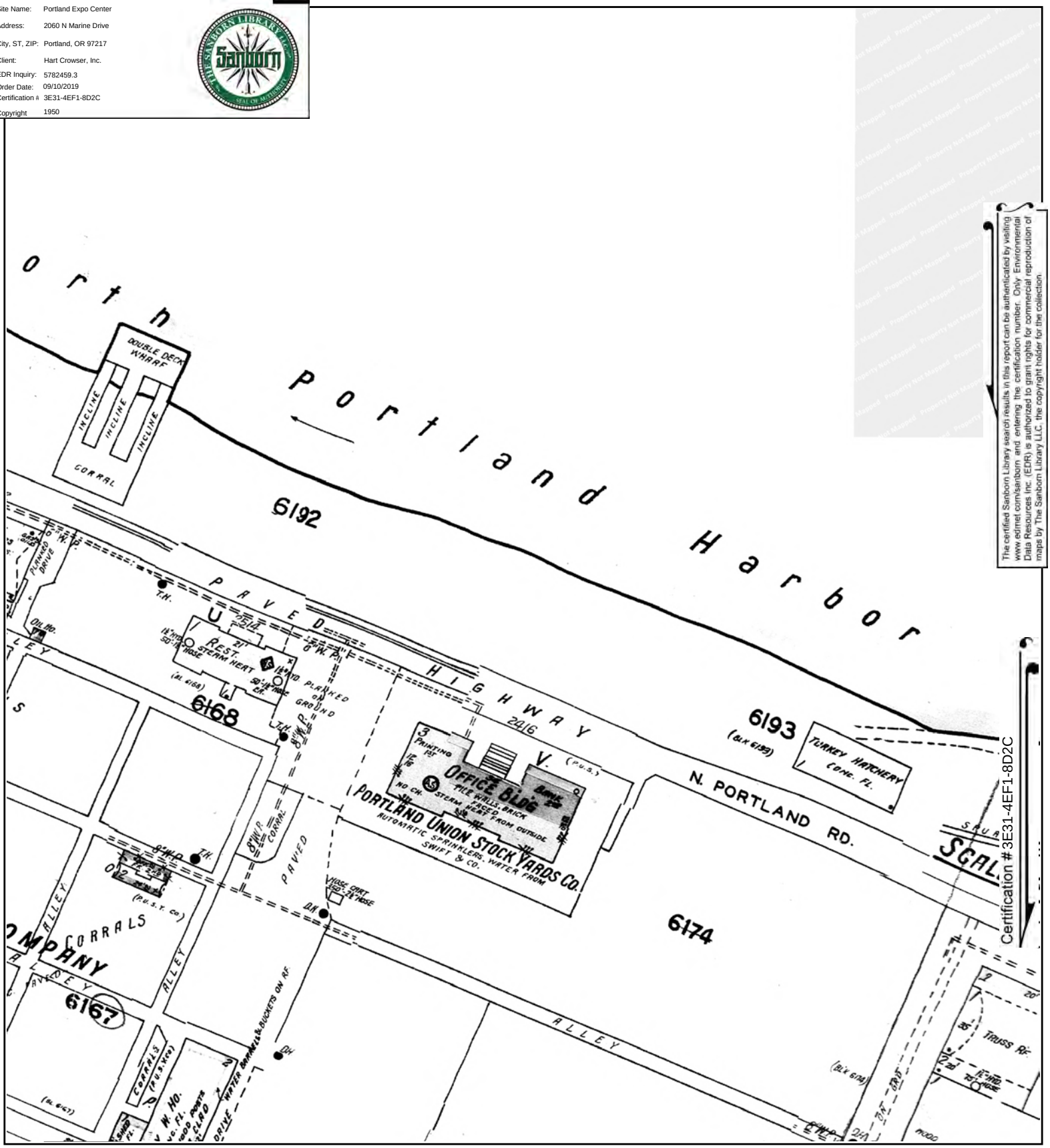
0 Feet 150 300 600

N

Certified Sanborn® Map

1950

Site Name: Portland Expo Center
Address: 2060 N Marine Drive
City, ST, ZIP: Portland, OR 97217
Client: Hart Crowser, Inc.
EDR Inquiry: 5782459.3
Order Date: 09/10/2019
Certification #: 3E31-4EF1-8D2C
Copyright: 1950



Certification # 3E31-4EF1-8D2C

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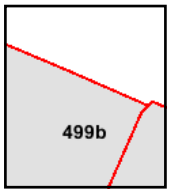
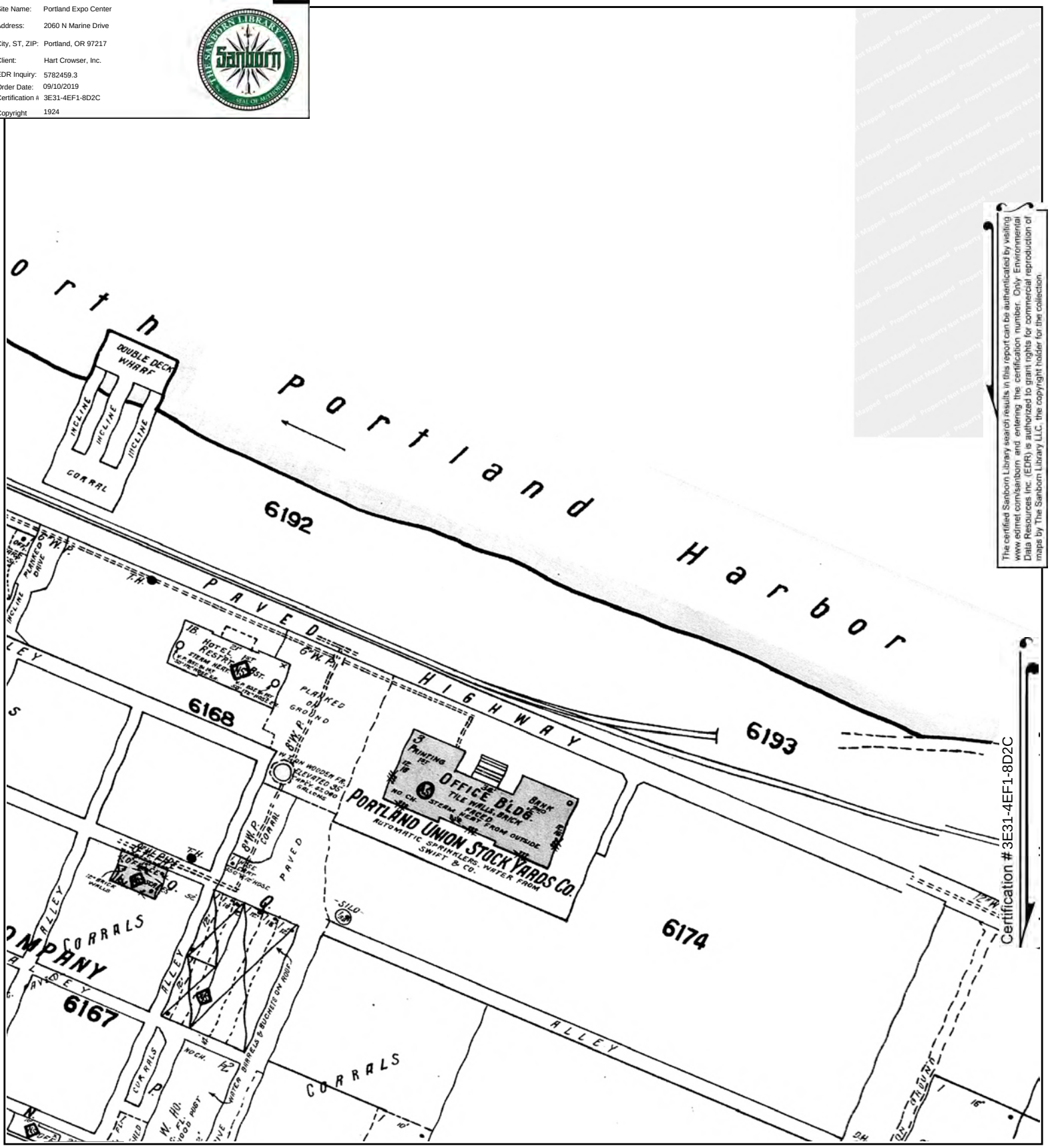


Volume 4, Sheet 499b

N

Site Name: Portland Expo Center
Address: 2060 N Marine Drive
City, ST, ZIP: Portland, OR 97217
Client: Hart Crowser, Inc.
EDR Inquiry: 5782459.3
Order Date: 09/10/2019
Certification #: 3E31-4EF1-8D2C
Copyright 1924



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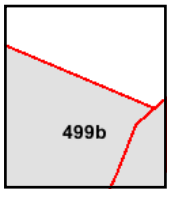
0 Feet 150 300 600

Volume 4, Sheet 499b



N

Portland Expo Center
2060 N Marine Drive
Portland, OR 97217

Inquiry Number: 5782459.3
September 10, 2019

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09/10/19

Site Name:

Portland Expo Center
2060 N Marine Drive
Portland, OR 97217
EDR Inquiry # 5782459.3

Client Name:

Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008
Contact: Theresa Lydick

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Certified Sanborn Results:

Certification # 3E31-4EF1-8D2C

PO # NA

Project Portland Expo Center

Maps Provided:

1966
1952
1950
1924

Sanborn® Library search results

Certification #: 3E31-4EF1-8D2C

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Sanborn Sheet Key

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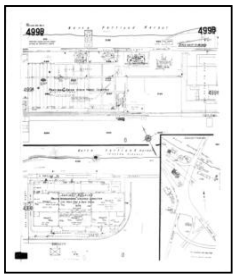
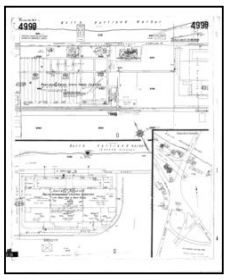
1952 Source Sheets



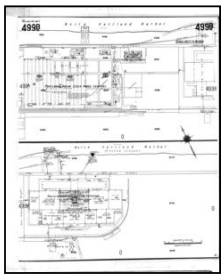
Volume 4, Sheet 499b
1952

1950 Source Sheets



Volume 4, Sheet 499b
1950

1924 Source Sheets



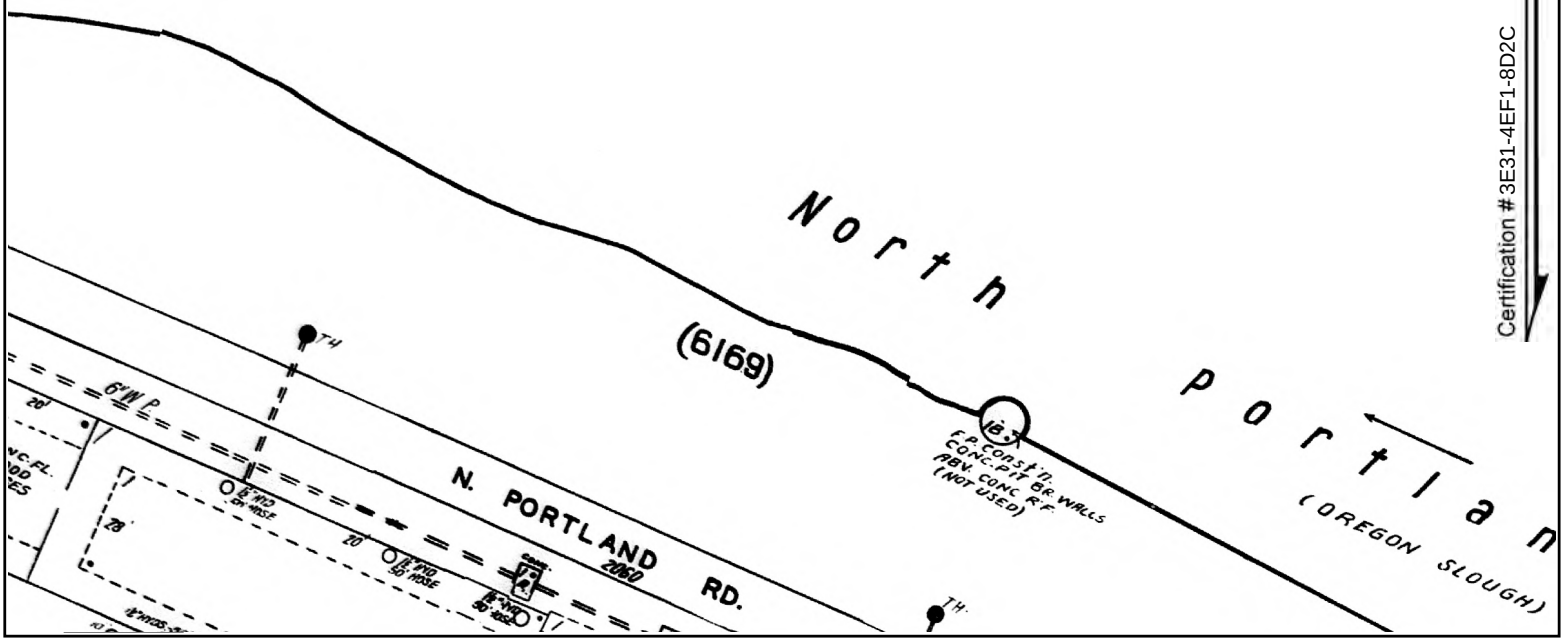
Volume 4, Sheet 499b
1924

Certified Sanborn® Map

1966

Site Name:	Portland Expo Center
Address:	2060 N Marine Drive
City, ST, ZIP:	Portland, OR 97217
Client:	Hart Crowser, Inc.
EDR Inquiry:	5782459.3
Order Date:	09/10/2019
Certification #	3E31-4EF1-8D2C
Copyright	1966

Certification #3E31-4EF1-8D2C



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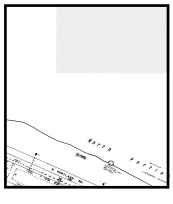
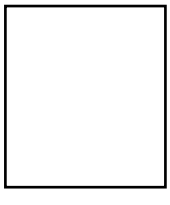
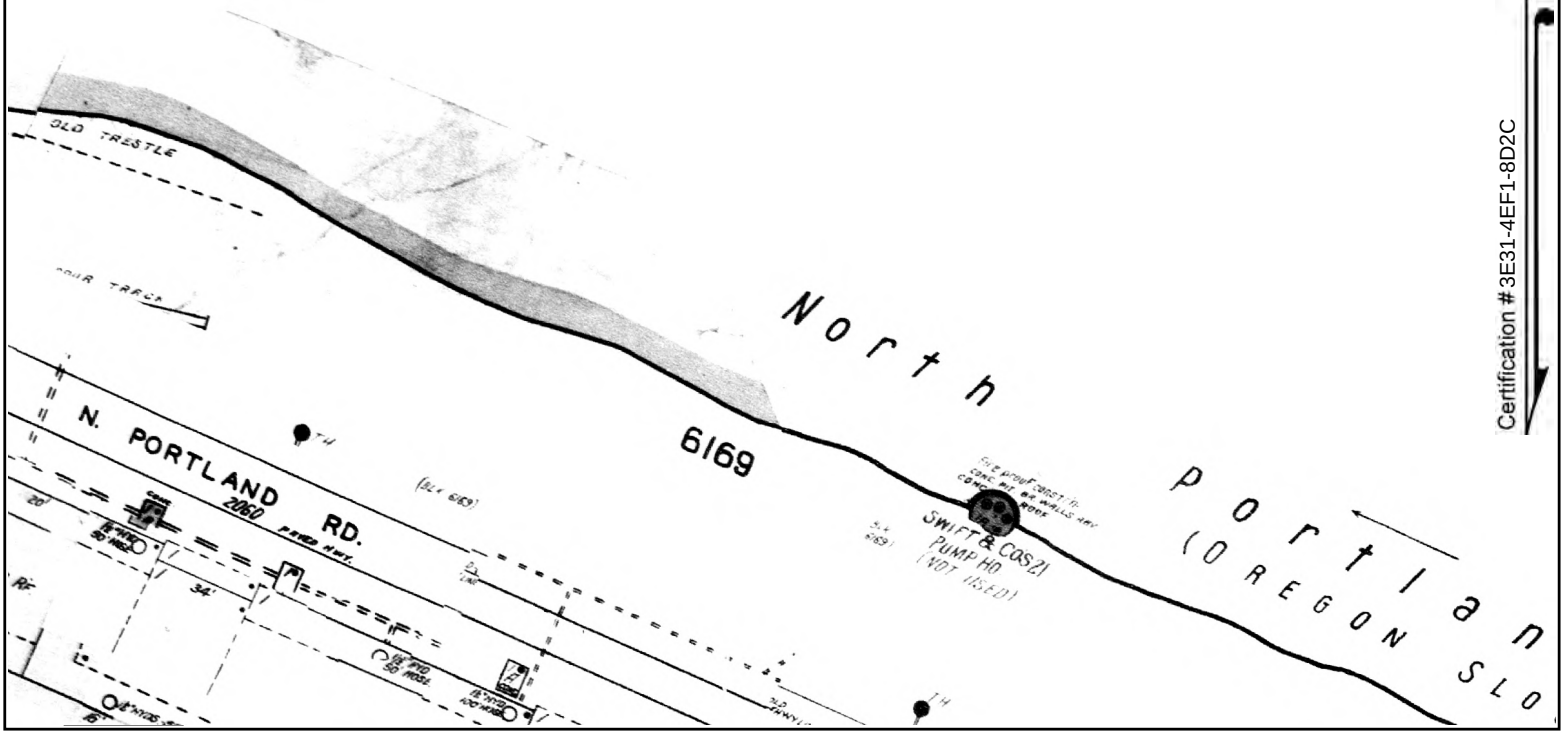




N

Site Name: Portland Expo Center
Address: 2060 N Marine Drive
City, ST, ZIP: Portland, OR 97217
Client: Hart Crowser, Inc.
EDR Inquiry: 5782459.3
Order Date: 09/10/2019
Certification #: 3E31-4EF1-8D2C
Copyright: 1952

Certification #3E31-4EF1-8D2C



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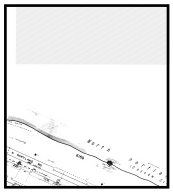
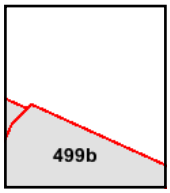
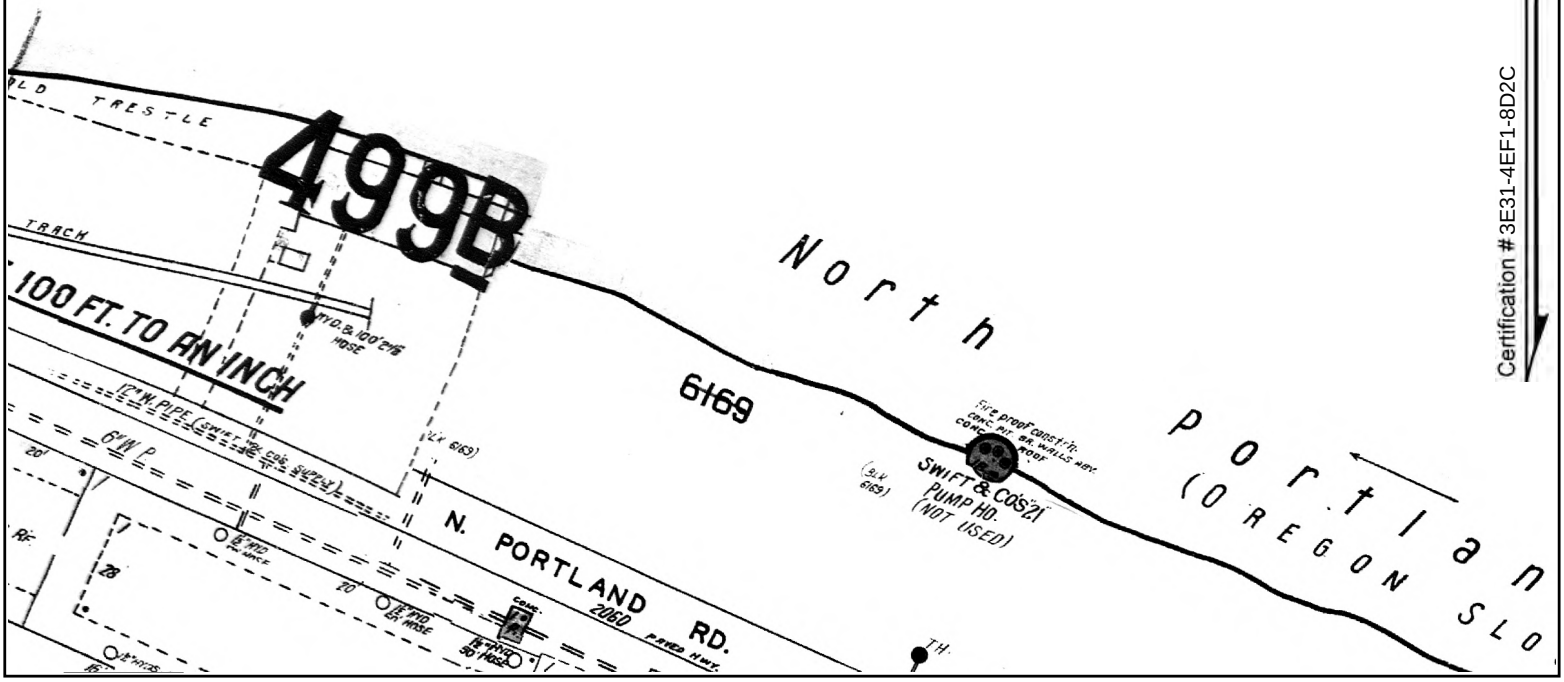




Volume 4, Sheet 499b

N

Site Name: Portland Expo Center
Address: 2060 N Marine Drive
City, ST, ZIP: Portland, OR 97217
Client: Hart Crowser, Inc.
EDR Inquiry: 5782459.3
Order Date: 09/10/2019
Certification #: 3E31-4EF1-8D2C
Copyright: 1950



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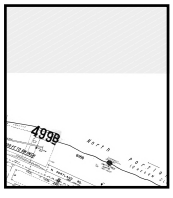
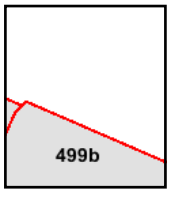
Volume 4, Sheet 499b





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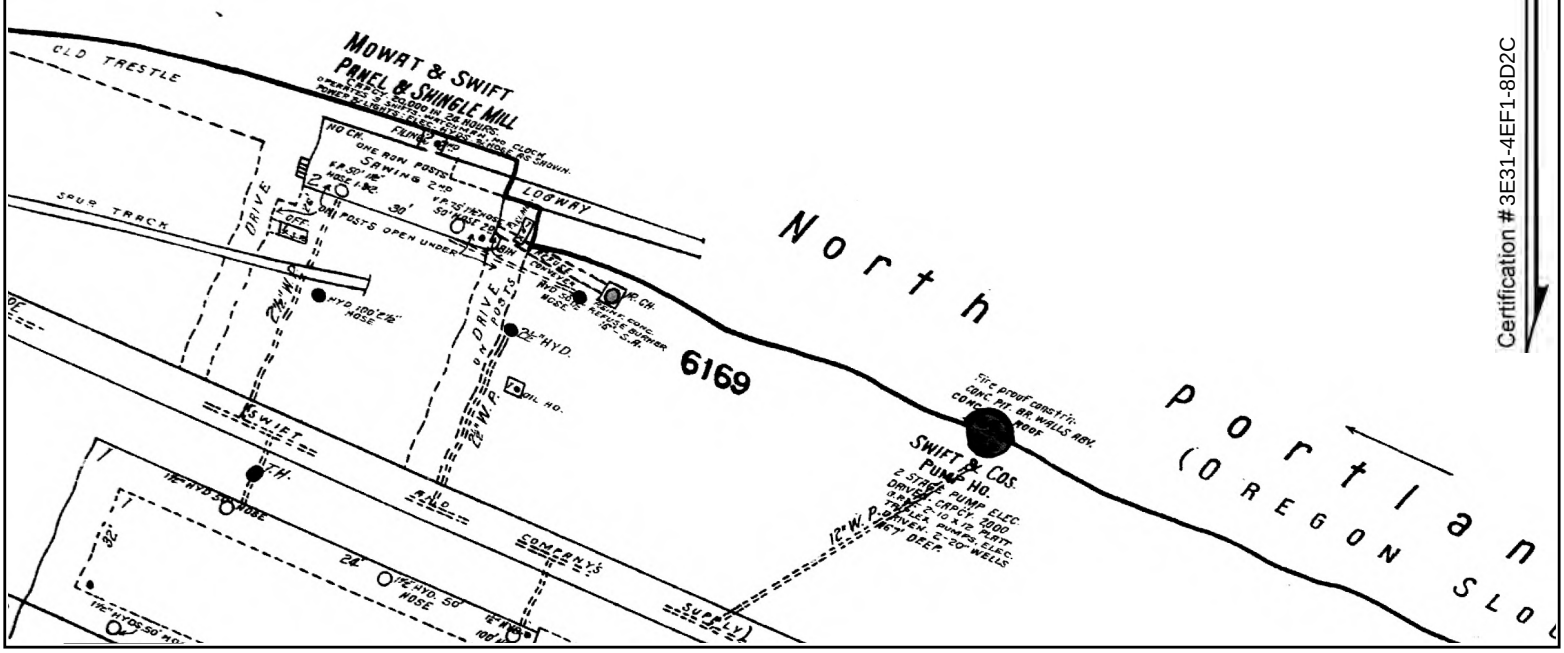
Site Name: Portland Expo Center
Address: 2060 N Marine Drive
City, ST, ZIP: Portland, OR 97217
Client: Hart Crowser, Inc.
EDR Inquiry: 5782459.3
Order Date: 09/10/2019
Certification #: 3E31-4EF1-8D2C
Copyright: 1924



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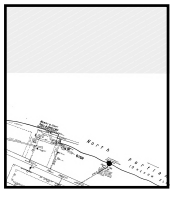

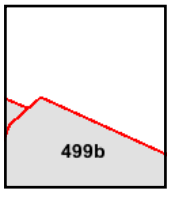

Volume 4, Sheet 499b

0 Feet 150 300 600

N

Portland Expo Center
2060 N Marine Drive
Portland, OR 97217

Inquiry Number: 5782459.3
September 10, 2019

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Certified Sanborn® Map Report

09/10/19

Site Name:

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Certified Sanborn Results:

Certification # 3E31-4EF1-8D2C

PO # NA

Project Portland Expo Center

Maps Provided:

1966
1952
1950
1924

Sanborn® Library search results

Certification #: 3E31-4EF1-8D2C

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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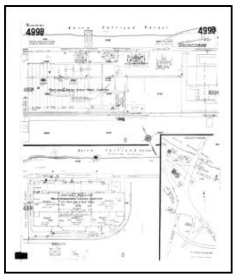
Sanborn Sheet Key

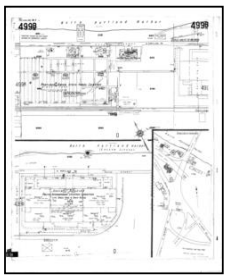
This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1952 Source Sheets



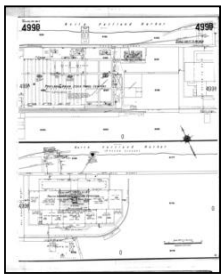
Volume 4, Sheet 499b
1952

1950 Source Sheets

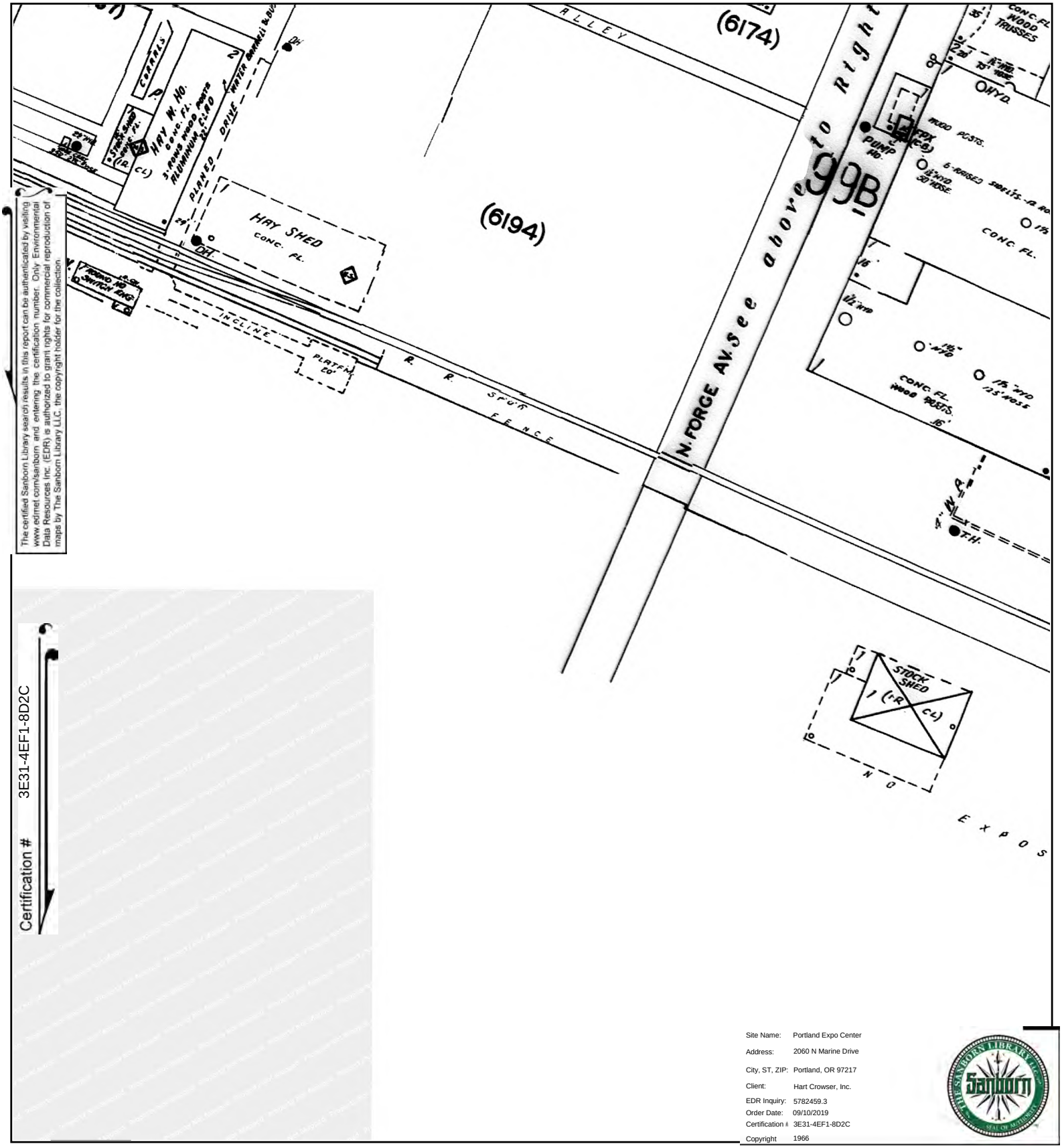


Volume 4, Sheet 499b
1950

1924 Source Sheets



Volume 4, Sheet 499b
1924

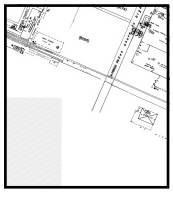


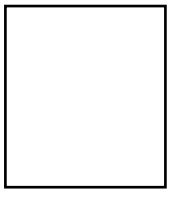
Certification # 3E31-4EF1-8D2C

Site Name:	Portland Expo Center
Address:	2060 N Marine Drive
City, ST, ZIP:	Portland, OR 97217
Client:	Hart Crowser, Inc.
EDR Inquiry:	5782459.3
Order Date:	09/10/2019
Certification #:	3E31-4EF1-8D2C
Copyright	1966

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

0 Feet 150 300 600





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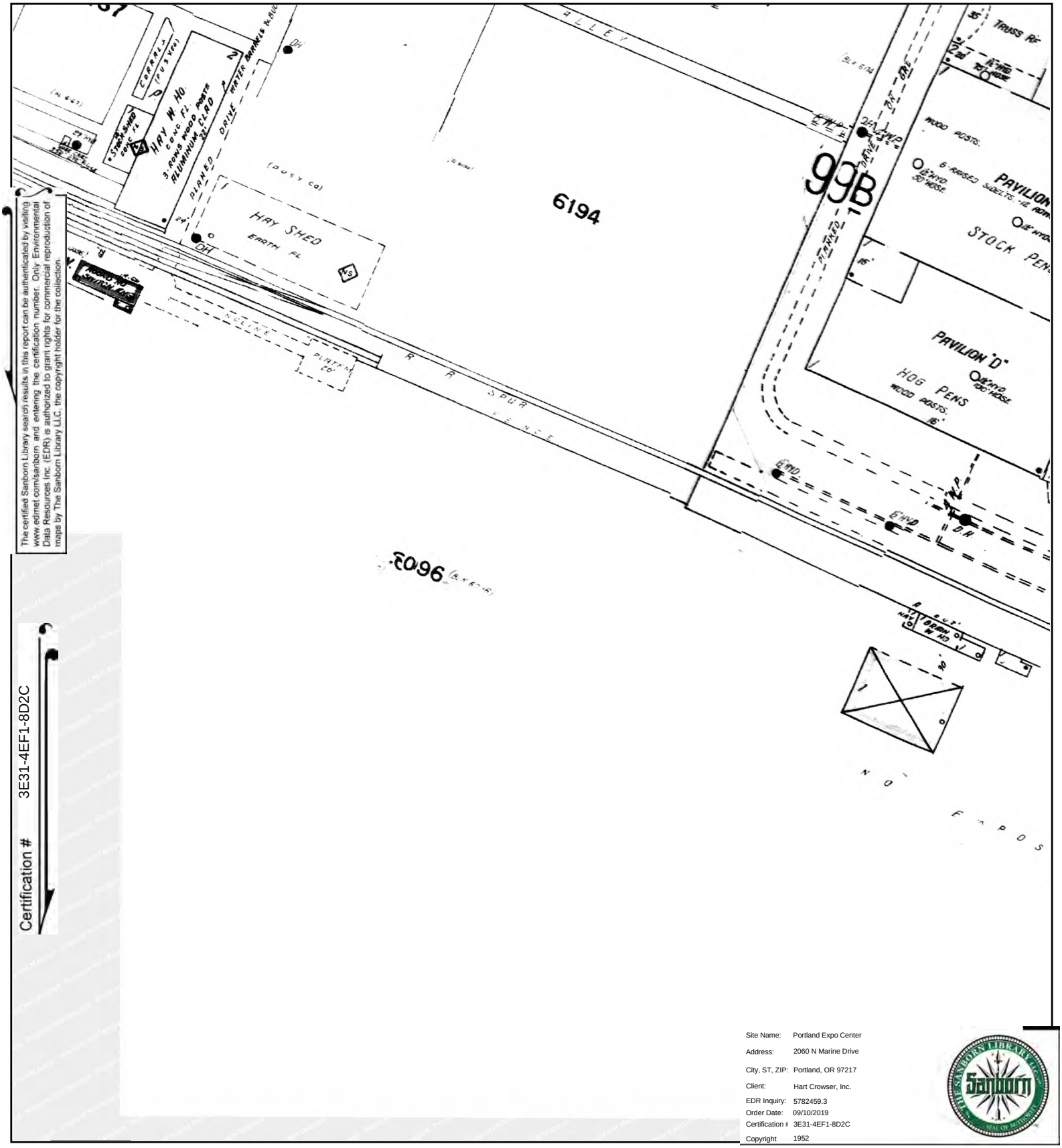
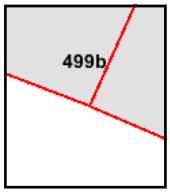


Certification # 3E31-4EF1-8D2C

Site Name:	Portland Expo Center
Address:	2060 N Marine Drive
City, ST, ZIP:	Portland, OR 97217
Client:	Hart Crowser, Inc.
EDR Inquiry:	5782459.3
Order Date:	09/10/2019
Certification #	3E31-4EF1-8D2C
Copyright	1952

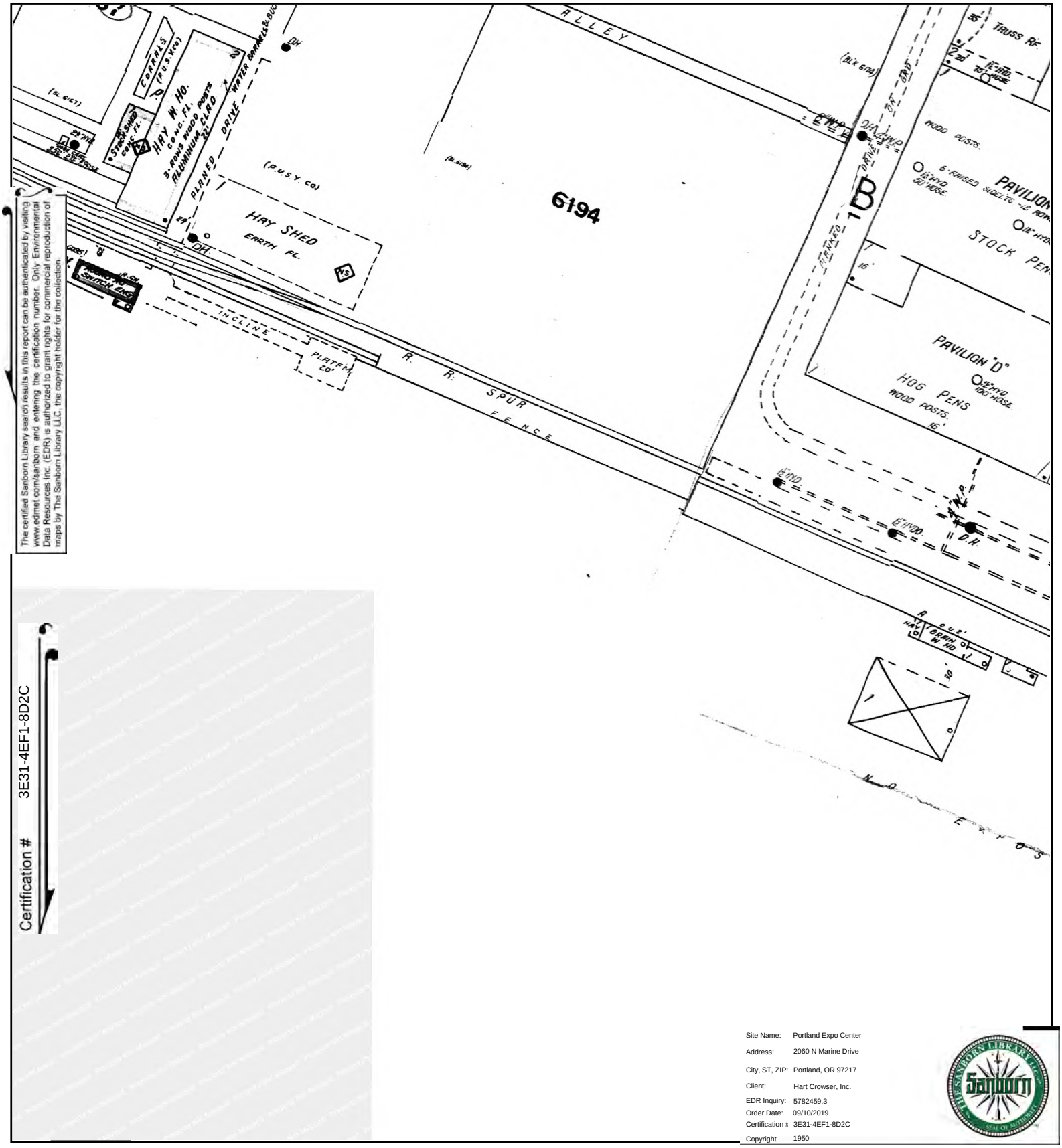
This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.



Volume 4, Sheet 499b

0 Feet 150 300 600

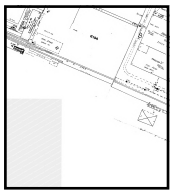
N

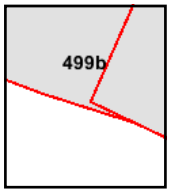


Certification # 3E31-4EF1-8D2C

Site Name:	Portland Expo Center
Address:	2060 N Marine Drive
City, ST, ZIP:	Portland, OR 97217
Client:	Hart Crowser, Inc.
EDR Inquiry:	5782459.3
Order Date:	09/10/2019
Certification #:	3E31-4EF1-8D2C
Copyright	1950

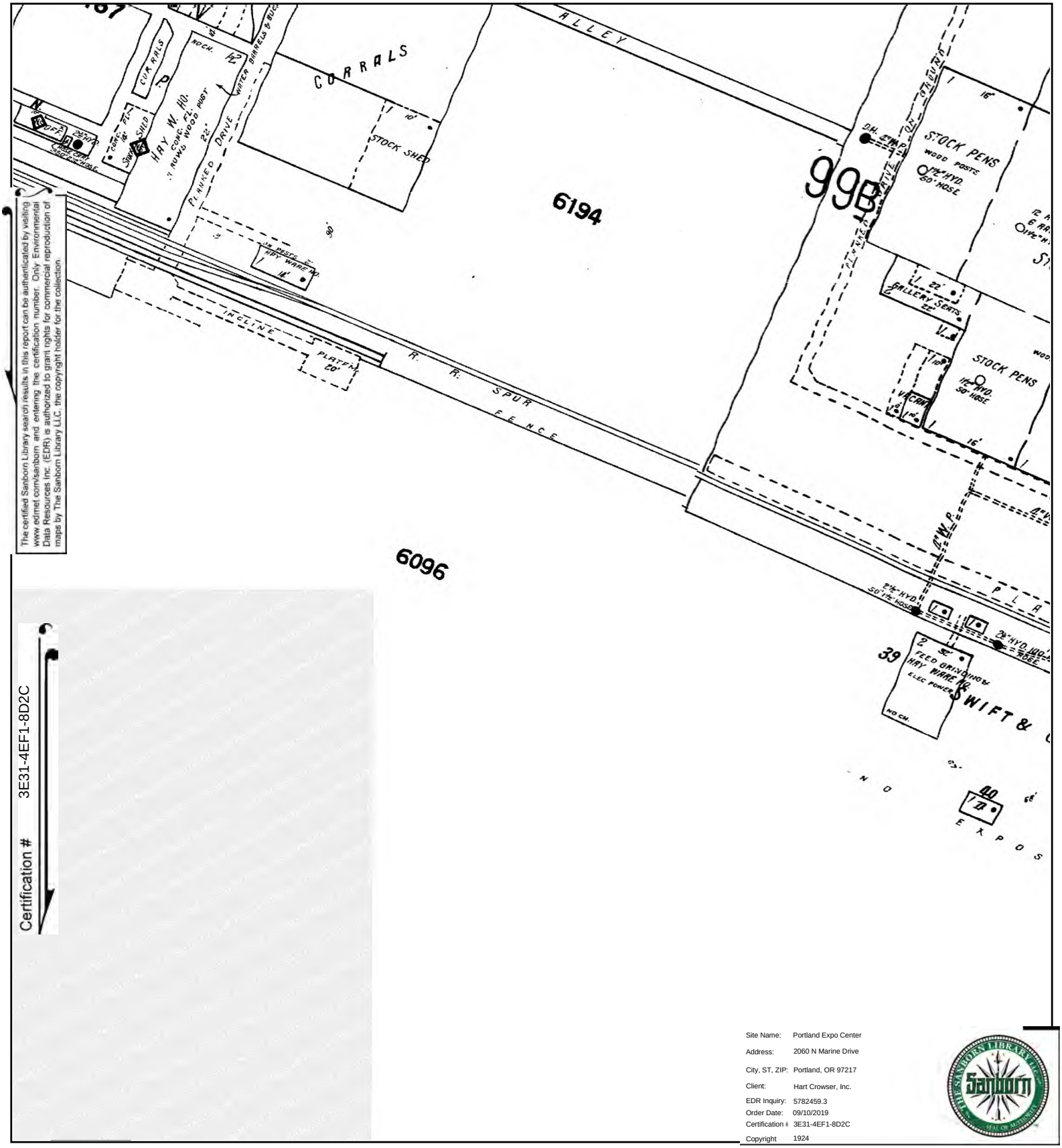
This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.





Volume 4, Sheet 499b

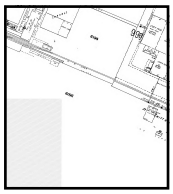
0 Feet 150 300 600

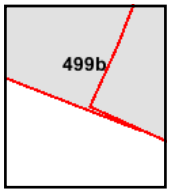


Certification # 3E31-4EF1-8D2C

Site Name:	Portland Expo Center
Address:	2060 N Marine Drive
City, ST, ZIP:	Portland, OR 97217
Client:	Hart Crowser, Inc.
EDR Inquiry:	5782459.3
Order Date:	09/10/2019
Certification #:	3E31-4EF1-8D2C
Copyright	1924

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.





Volume 4, Sheet 499b

0 Feet 150 300 600

N

Portland Expo Center
2060 N Marine Drive
Portland, OR 97217

Inquiry Number: 5782459.3
September 10, 2019

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

09/10/19

Site Name:

Portland Expo Center
2060 N Marine Drive
Portland, OR 97217
EDR Inquiry # 5782459.3

Client Name:

Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008
Contact: Theresa Lydick

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Certified Sanborn Results:

Certification # 3E31-4EF1-8D2C

PO # NA

Project Portland Expo Center

Maps Provided:

1966
1952
1950
1924

Sanborn® Library search results

Certification #: 3E31-4EF1-8D2C

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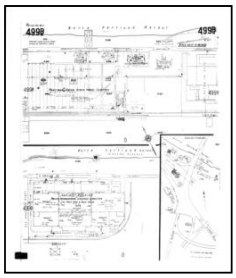
Sanborn Sheet Key

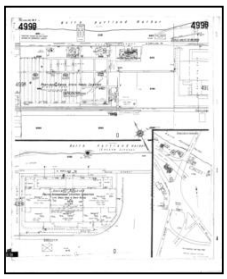
This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1952 Source Sheets



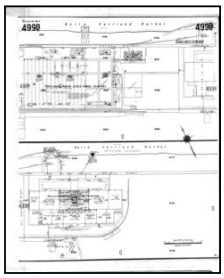
Volume 4, Sheet 499b
1952

1950 Source Sheets

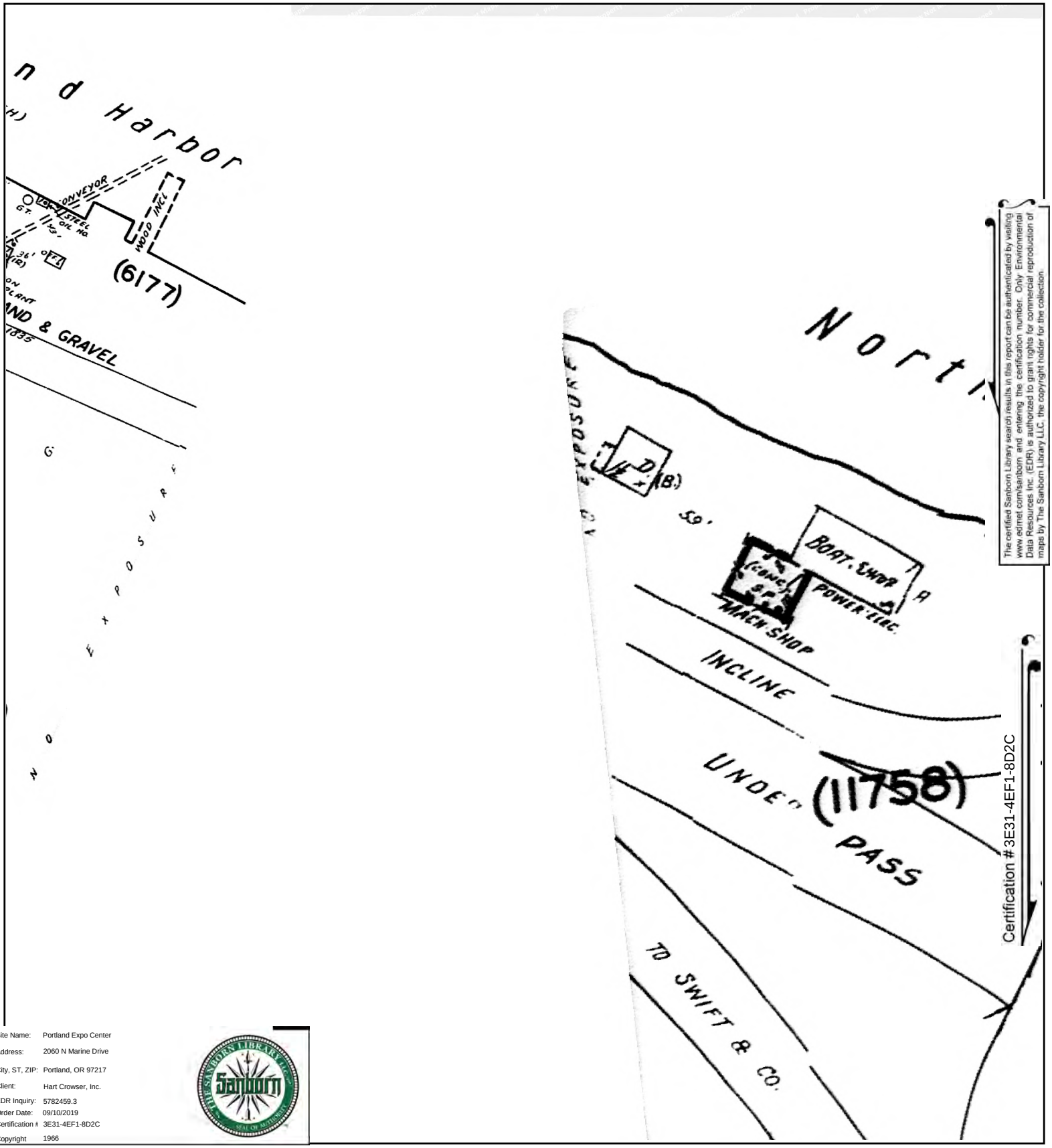


Volume 4, Sheet 499b
1950

1924 Source Sheets



Volume 4, Sheet 499b
1924

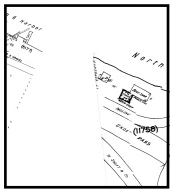


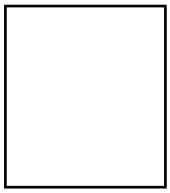
Certification # 3E31-4EF1-8D2C

Site Name:	Portland Expo Center
Address:	2060 N Marine Drive
City, ST, ZIP:	Portland, OR 97217
Client:	Hart Crowser, Inc.
EDR Inquiry:	5782459.3
Order Date:	09/10/2019
Certification #	3E31-4EF1-8D2C
Copyright	1966

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

0 Feet 150 300 600





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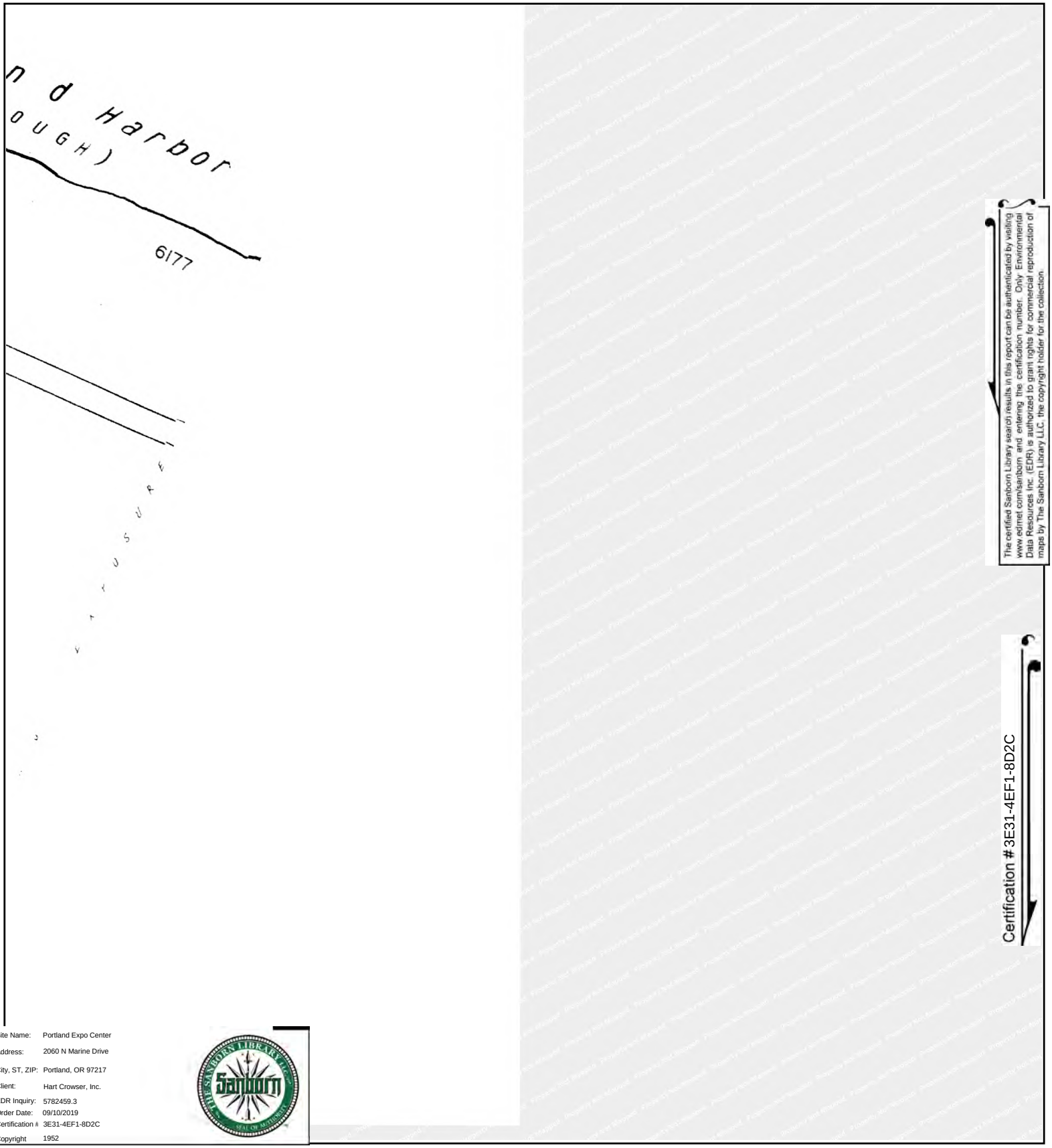

Certification # 3E31-4EF1-8D2C

Site Name: Portland Expo Center
Address: 2060 N Marine Drive
City, ST, ZIP: Portland, OR 97217
Client: Hart Crowser, Inc.
EDR Inquiry: 5782459.3
Order Date: 09/10/2019
Certification #: 3E31-4EF1-8D2C
Copyright: 1952

This Certified Sanborn Map combines the following sheets.
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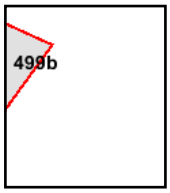
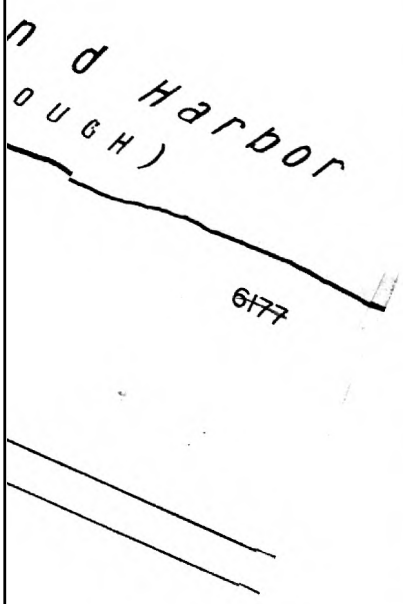


Volume 4, Sheet 499b

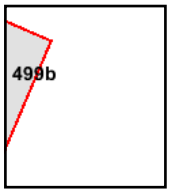
0 Feet 150 300 600

N



Site Name: Portland Expo Center
Address: 2060 N Marine Drive
City, ST, ZIP: Portland, OR 97217
Client: Hart Crowser, Inc.
EDR Inquiry: 5782459.3
Order Date: 09/10/2019
Certification #: 3E31-4EF1-8D2C
Copyright: 1950

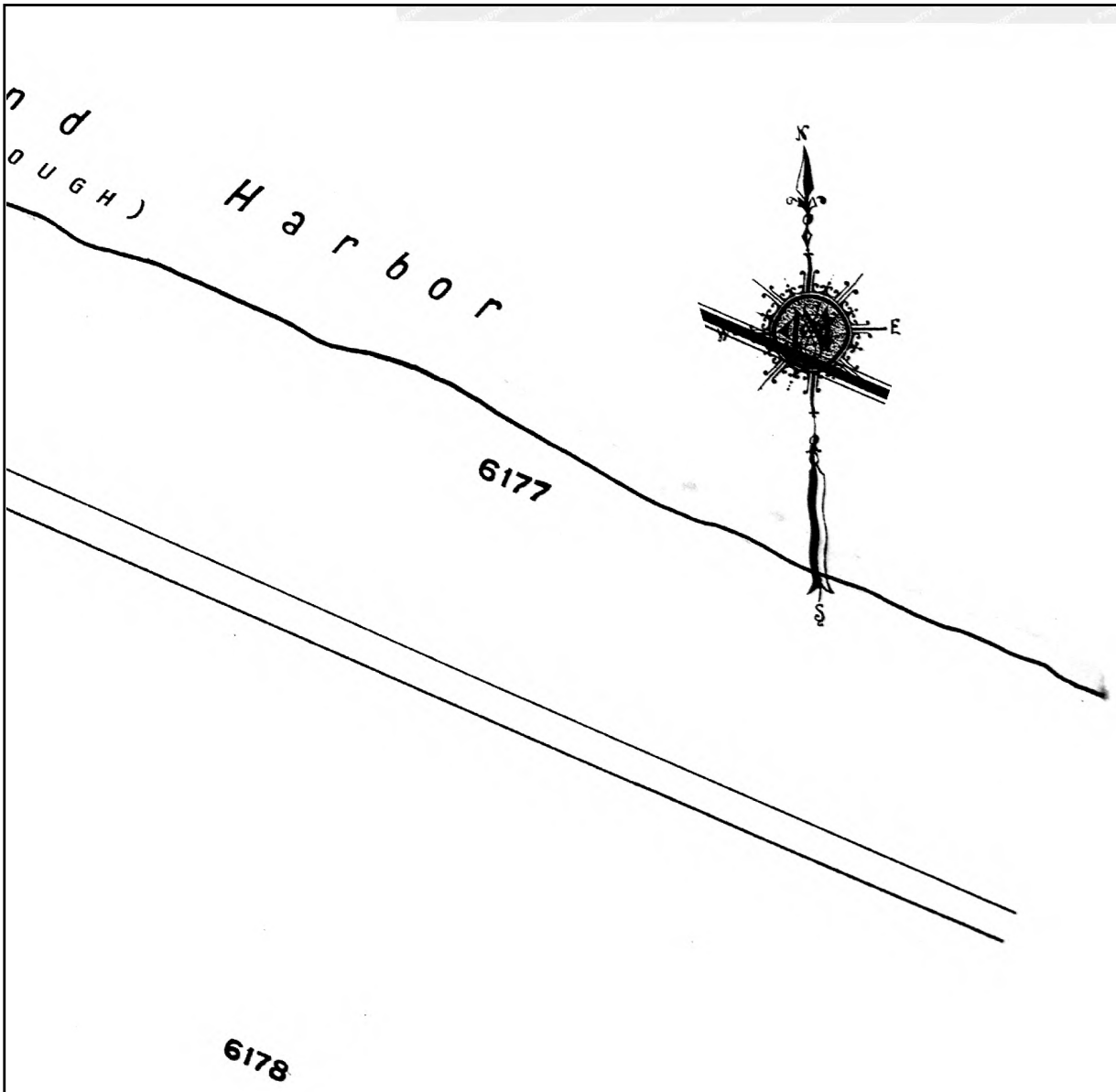
This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.



Volume 4, Sheet 499b

0 Feet 150 300 600

N



Certification # 3E31-4EF1-8D2C

Site Name: Portland Expo Center
Address: 2060 N Marine Drive
City, ST, ZIP: Portland, OR 97217
Client: Hart Crowser, Inc.
EDR Inquiry: 5782459.3
Order Date: 09/10/2019
Certification #: 3E31-4EF1-8D2C
Copyright: 1924

This Certified Sanborn Map combines the following sheets.
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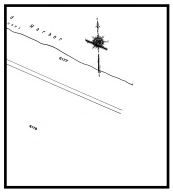
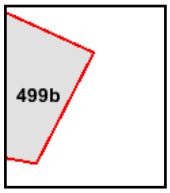




Volume 4, Sheet 499b

0 Feet 150 300 600

N

Portland Expo Center
2060 N Marine Drive
Portland, OR 97217

Inquiry Number: 5782459.4
September 09, 2019

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

09/09/19

Site Name:	Client Name:
Portland Expo Center	Hart Crowser, Inc.
2060 N Marine Drive	8910 SW Gemini Drive
Portland, OR 97217	Beaverton, OR 97008
EDR Inquiry # 5782459.4	Contact: Theresa Lydick

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Hart Crowser, Inc. were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:		*Coordinates:*	
P.O.#	NA	**Latitude:**	45.60659 45° 36' 24" North
Project:	Portland Expo Center	**Longitude:**	-122.688456 -122° 41' 18" West
		UTM Zone:	Zone 10 North
		UTM X Meters:	524293.97
		UTM Y Meters:	5050385.65
		Elevation:	21.17' above sea level

Maps Provided:

2014	1897
1995	
1977, 1978	
1970	
1961	
1954	
1940	
1905	

Topo Sheet Key

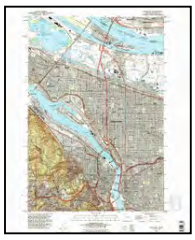
This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2014 Source Sheets

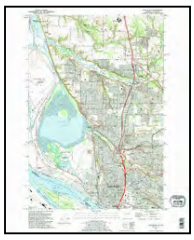
Vancouver
2014
7.5-minute, 24000

Portland
2014
7.5-minute, 24000

1995 Source Sheets



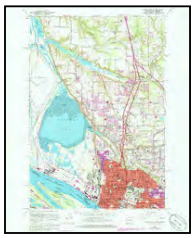
Portland
1995
7.5-minute, 24000
Aerial Photo Revised 1990



Vancouver
1995
7.5-minute, 24000
Aerial Photo Revised 1990

1977, 1978 Source Sheets

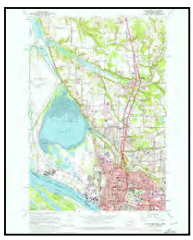
Portland
1977
7.5-minute, 24000
Aerial Photo Revised 1975



Vancouver
1978
7.5-minute, 24000
Aerial Photo Revised 1975

1970 Source Sheets

Portland
1970
7.5-minute, 24000
Aerial Photo Revised 1970

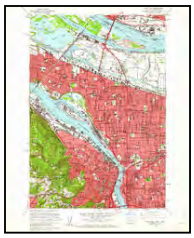


Vancouver
1970
7.5-minute, 24000
Aerial Photo Revised 1970

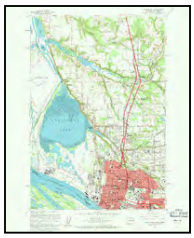
Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1961 Source Sheets



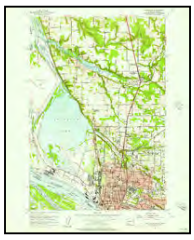
Portland
1961
7.5-minute, 24000
Aerial Photo Revised 1960



Vancouver
1961
7.5-minute, 24000
Aerial Photo Revised 1960

1954 Source Sheets

Portland
1954
7.5-minute, 24000
Aerial Photo Revised 1951



Vancouver
1954
7.5-minute, 24000
Aerial Photo Revised 1951

1940 Source Sheets

PORTLAND
1940
15-minute, 50000

1905 Source Sheets

Portland
1905
15-minute, 62500

Topo Sheet Key

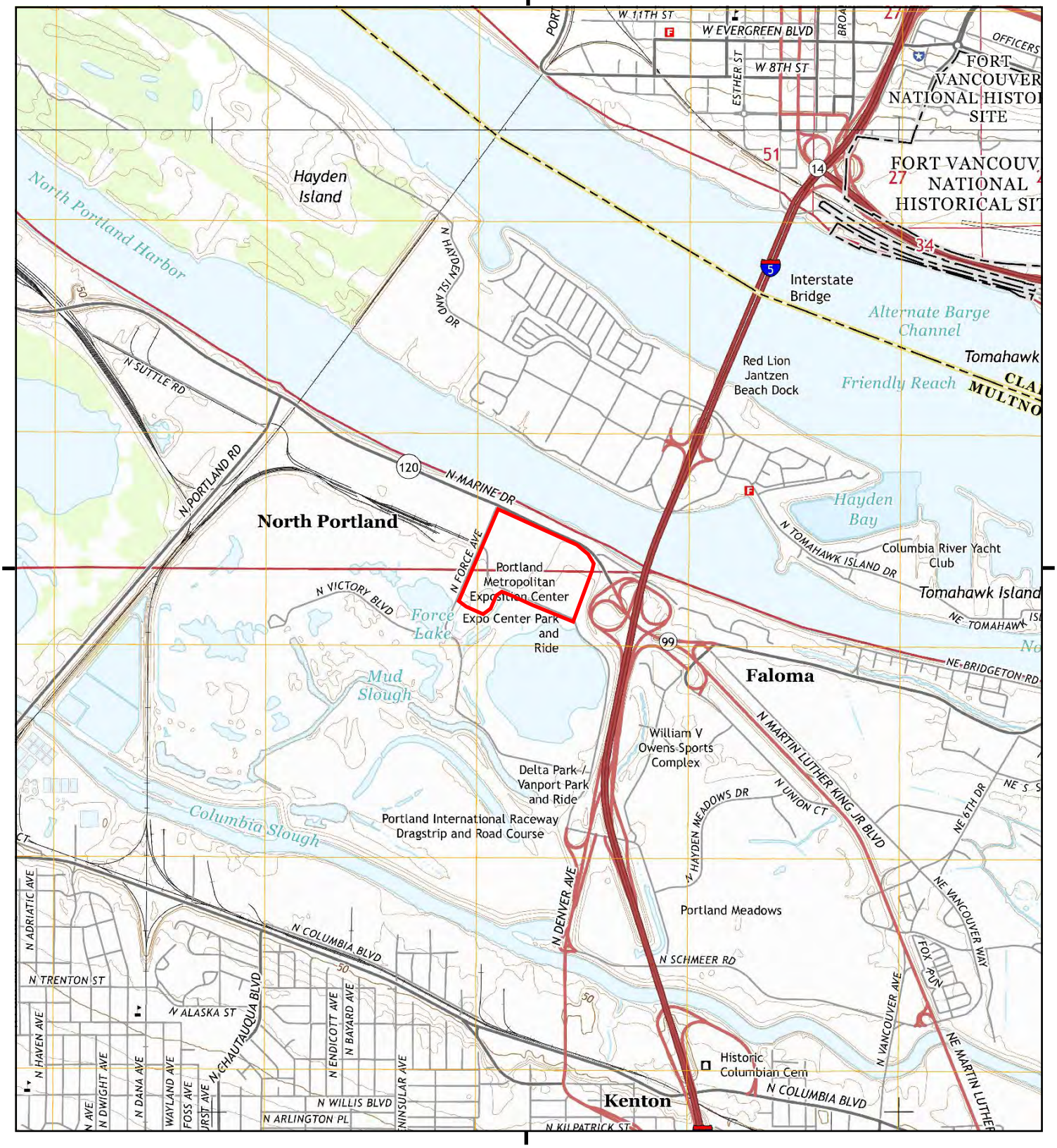
This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1897 Source Sheets

Portland
1897
15-minute, 62500

Historical Topo Map

2014



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

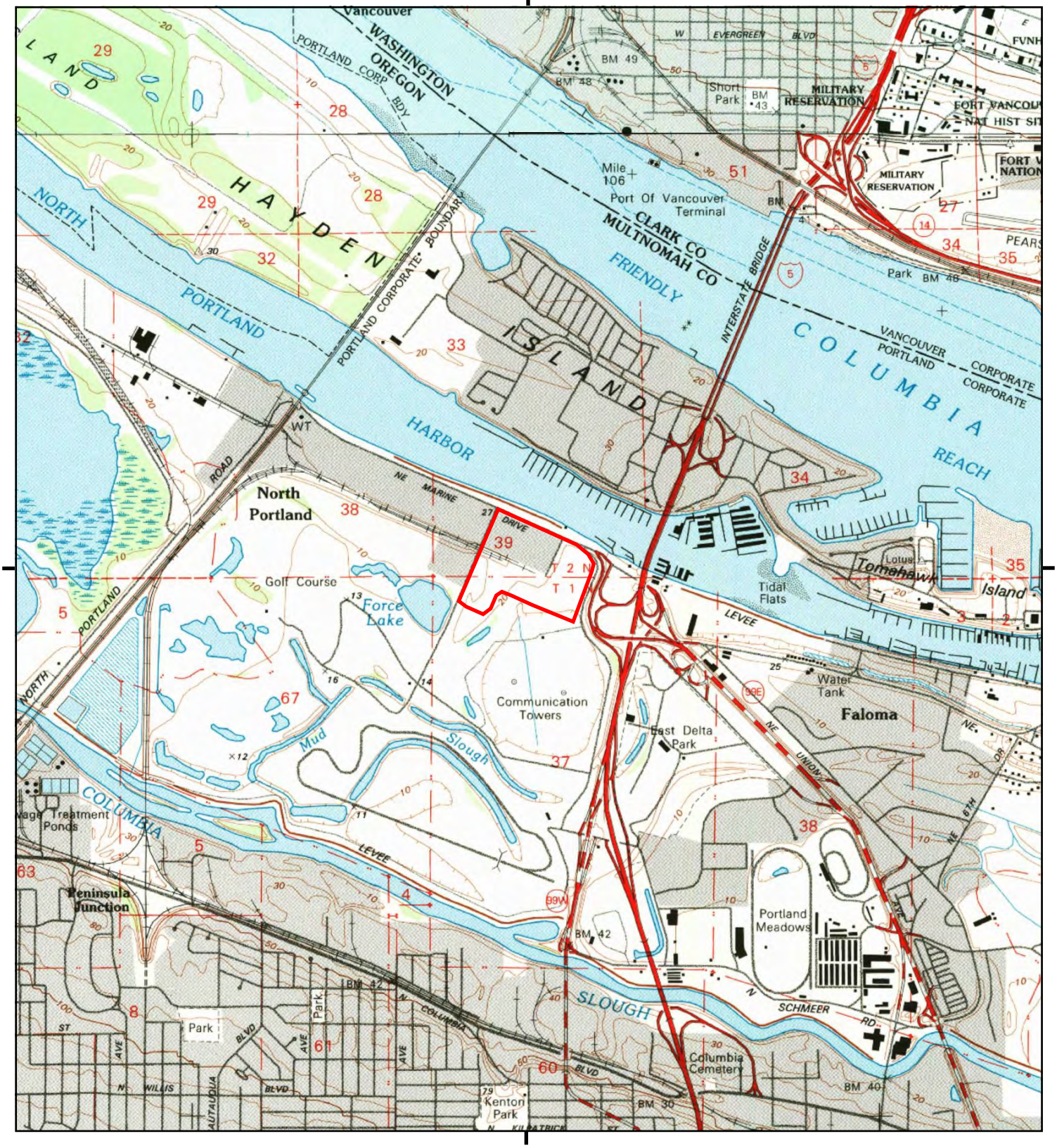
TP, Portland, 2014, 7.5-minute
N, Vancouver, 2014, 7.5-minute

SITE NAME: Portland Expo Center
ADDRESS: 2060 N Marine Drive
Portland, OR 97217
CLIENT: Hart Crowser, Inc.

N

Historical Topo Map

1995



This report includes information from the following map sheet(s).

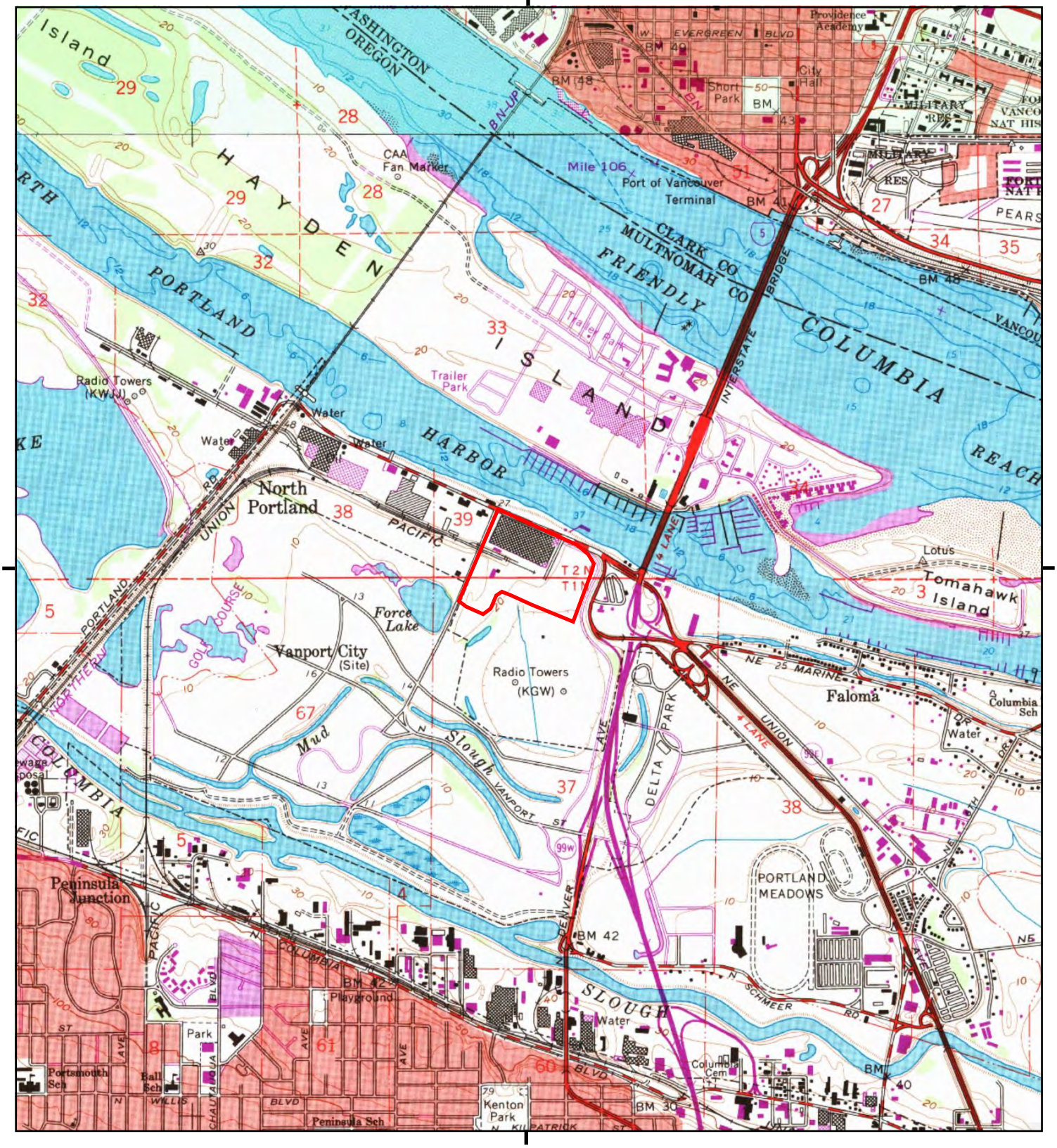
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Portland, 1995, 7.5-minute
N, Vancouver, 1995, 7.5-minute

SITE NAME: Portland Expo Center
ADDRESS: 2060 N Marine Drive
Portland, OR 97217
CLIENT: Hart Crowser, Inc.

N



This report includes information from the following map sheet(s).

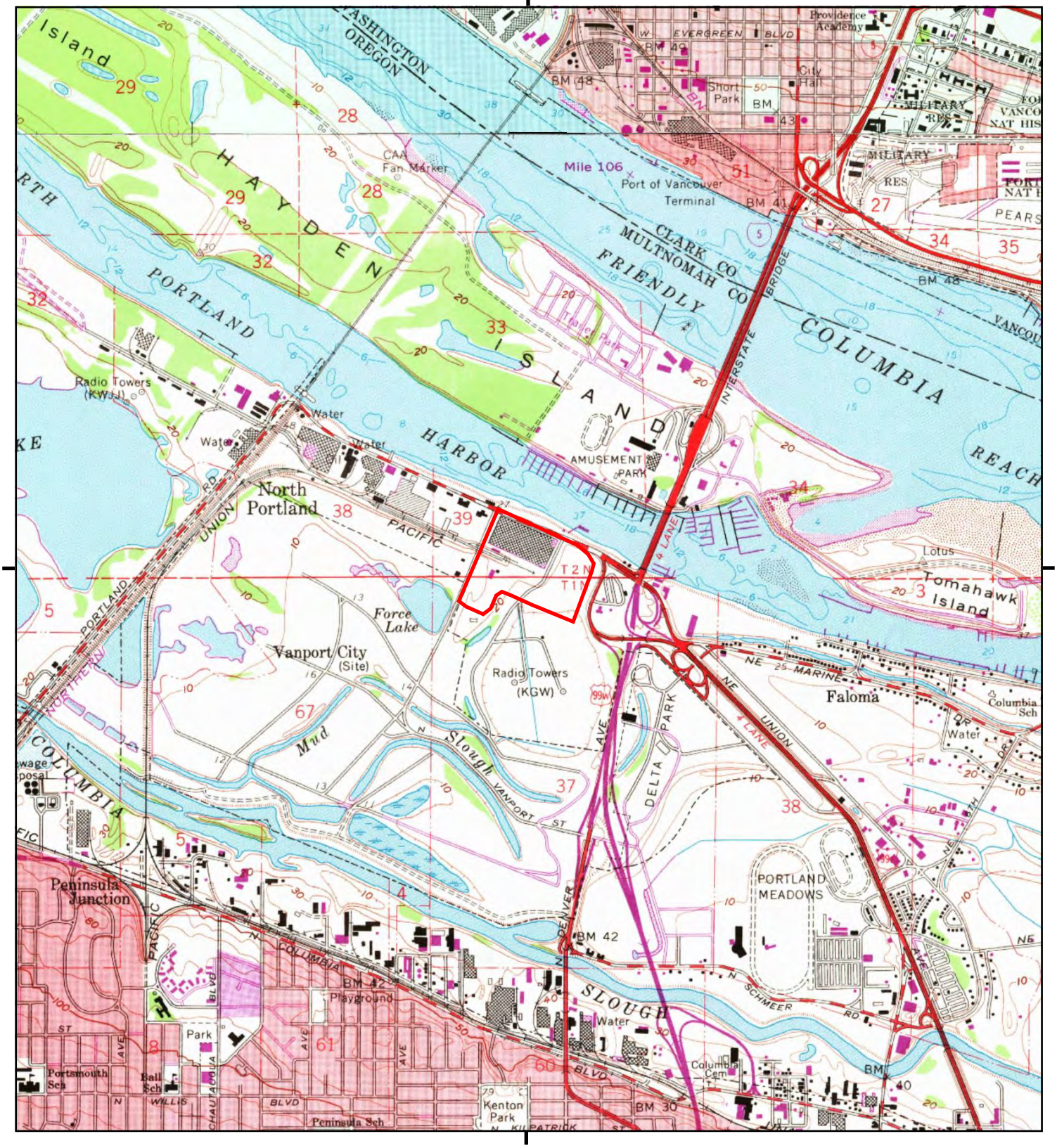
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Portland, 1977, 7.5-minute
N, Vancouver, 1978, 7.5-minute

SITE NAME: Portland Expo Center
ADDRESS: 2060 N Marine Drive
Portland, OR 97217
CLIENT: Hart Crowser, Inc.

N



This report includes information from the following map sheet(s).

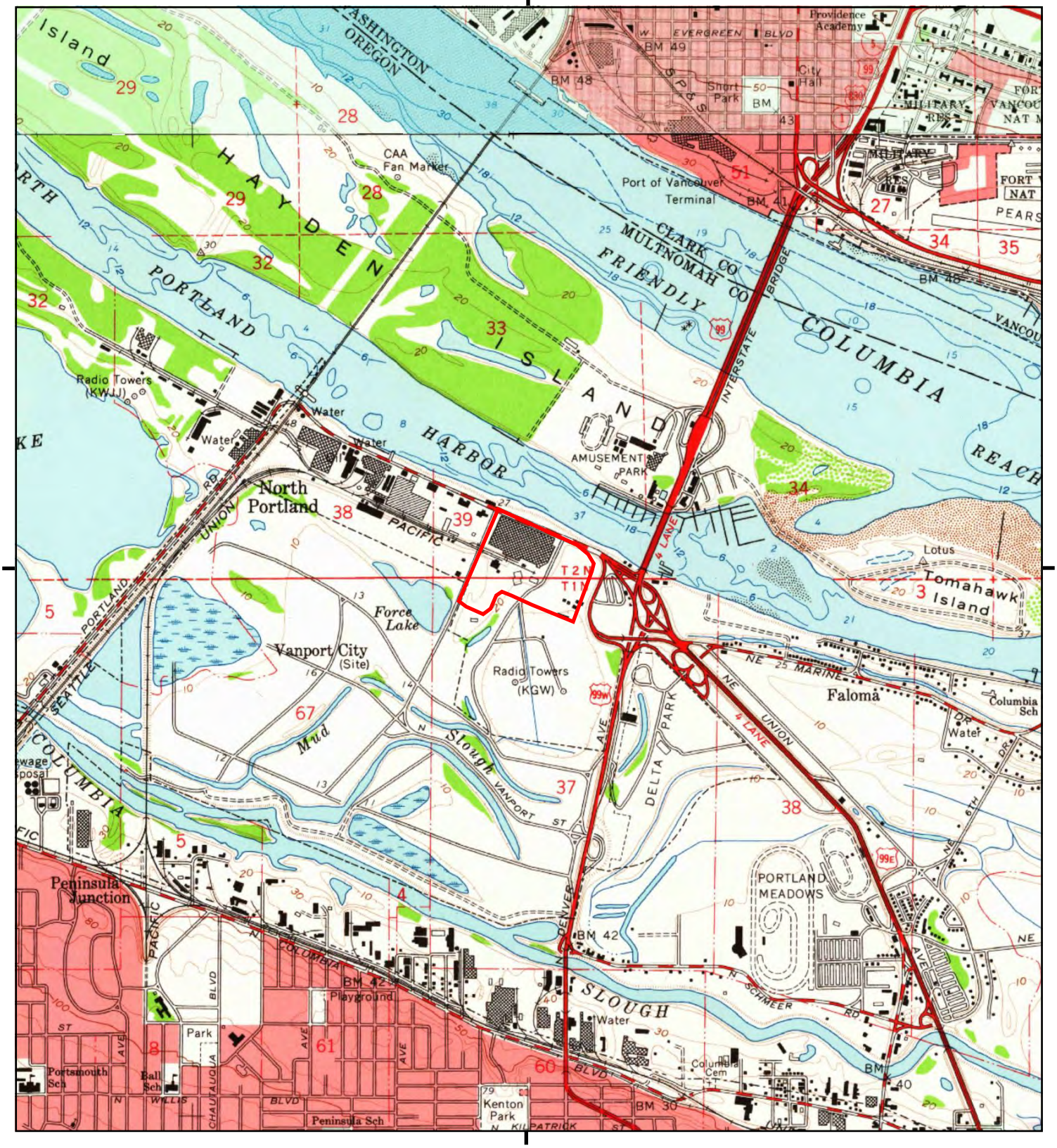
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Portland, 1970, 7.5-minute
N, Vancouver, 1970, 7.5-minute

SITE NAME: Portland Expo Center
ADDRESS: 2060 N Marine Drive
Portland, OR 97217
CLIENT: Hart Crowser, Inc.

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

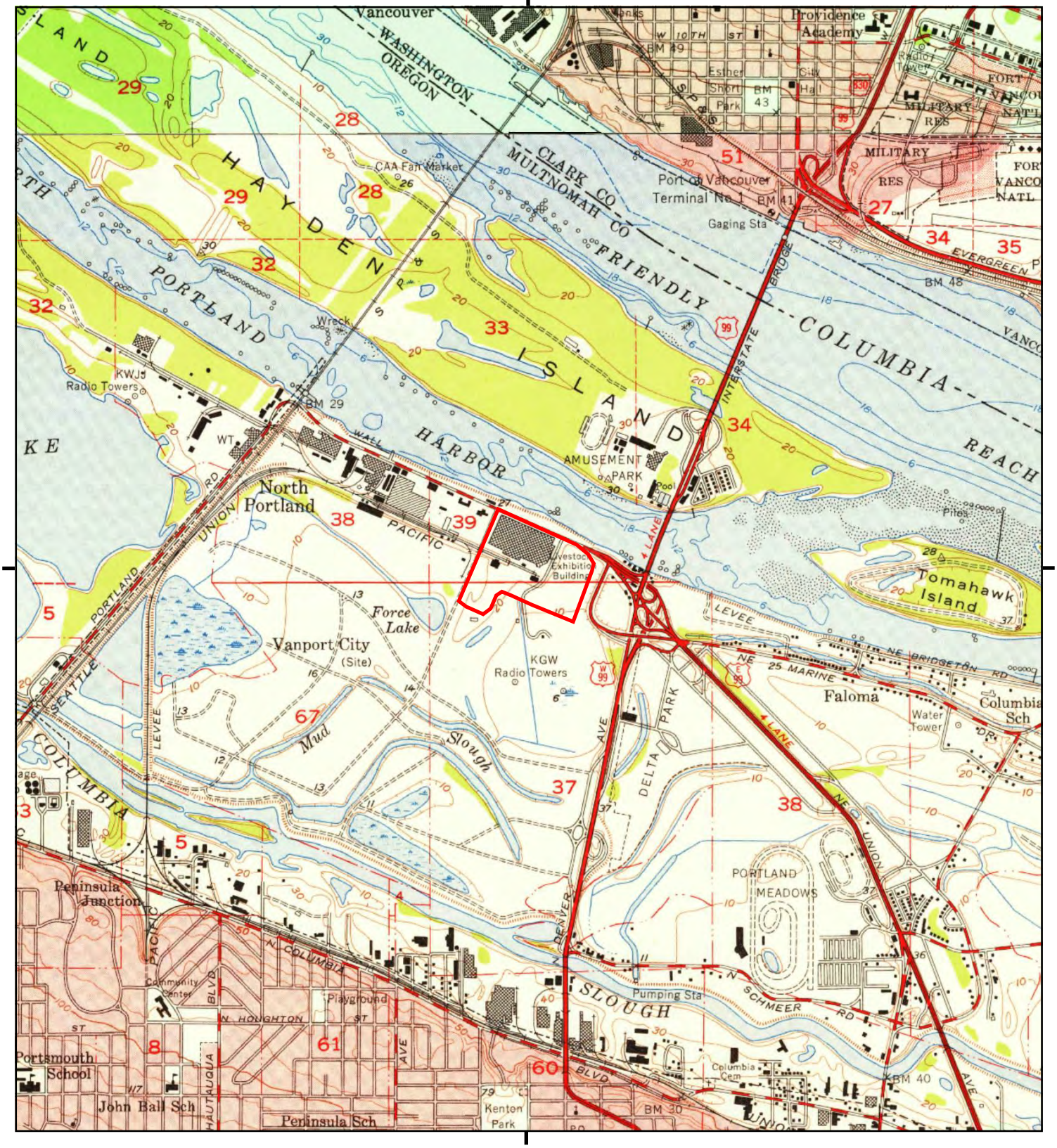
TP, Portland, 1961, 7.5-minute
N, Vancouver, 1961, 7.5-minute

SITE NAME: Portland Expo Center
ADDRESS: 2060 N Marine Drive
Portland, OR 97217
CLIENT: Hart Crowser, Inc.

N

Historical Topo Map

1954



This report includes information from the following map sheet(s).

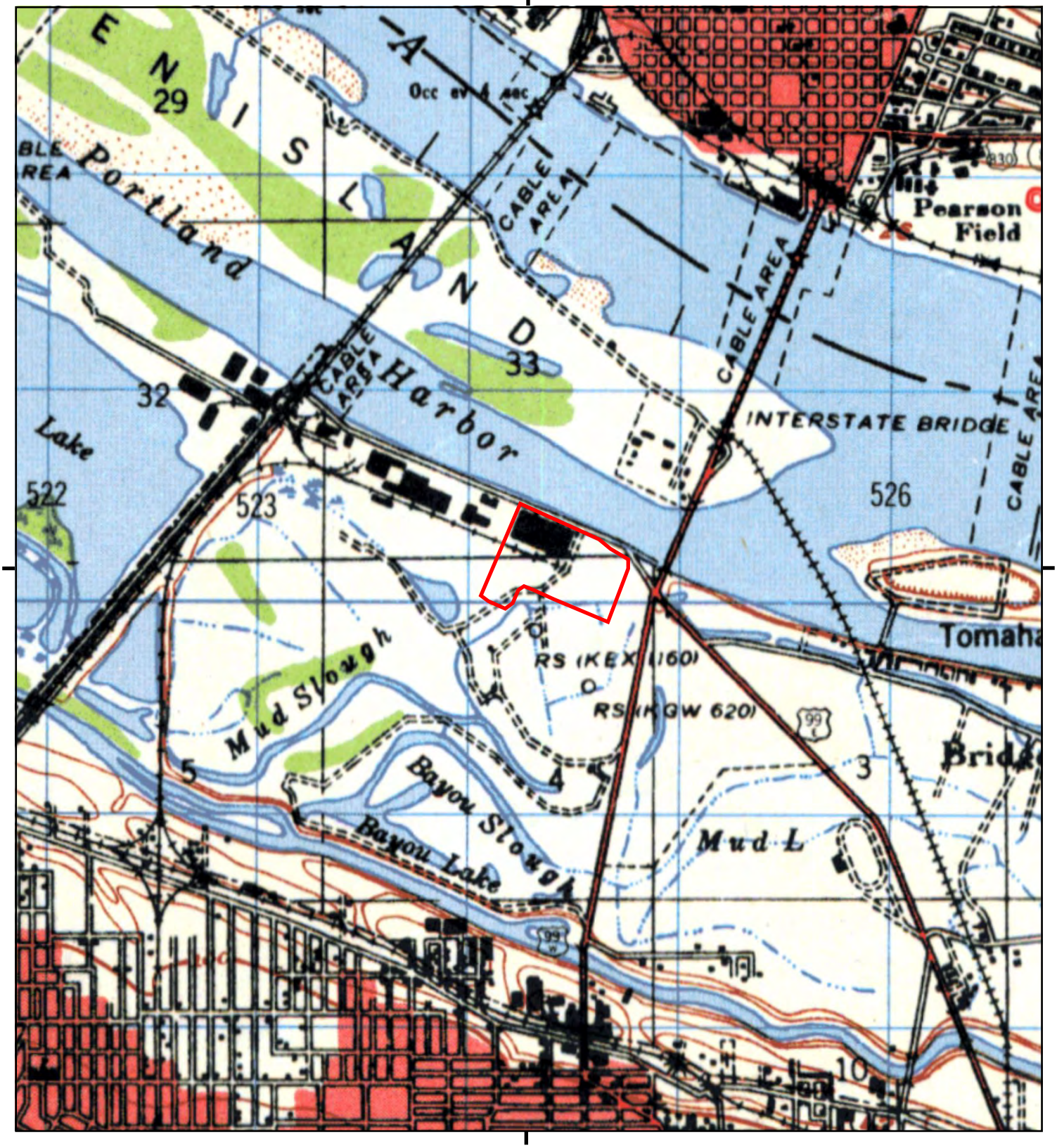
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Portland, 1954, 7.5-minute
N, Vancouver, 1954, 7.5-minute

SITE NAME: Portland Expo Center
ADDRESS: 2060 N Marine Drive
Portland, OR 97217
CLIENT: Hart Crowser, Inc.

N



This report includes information from the following map sheet(s).

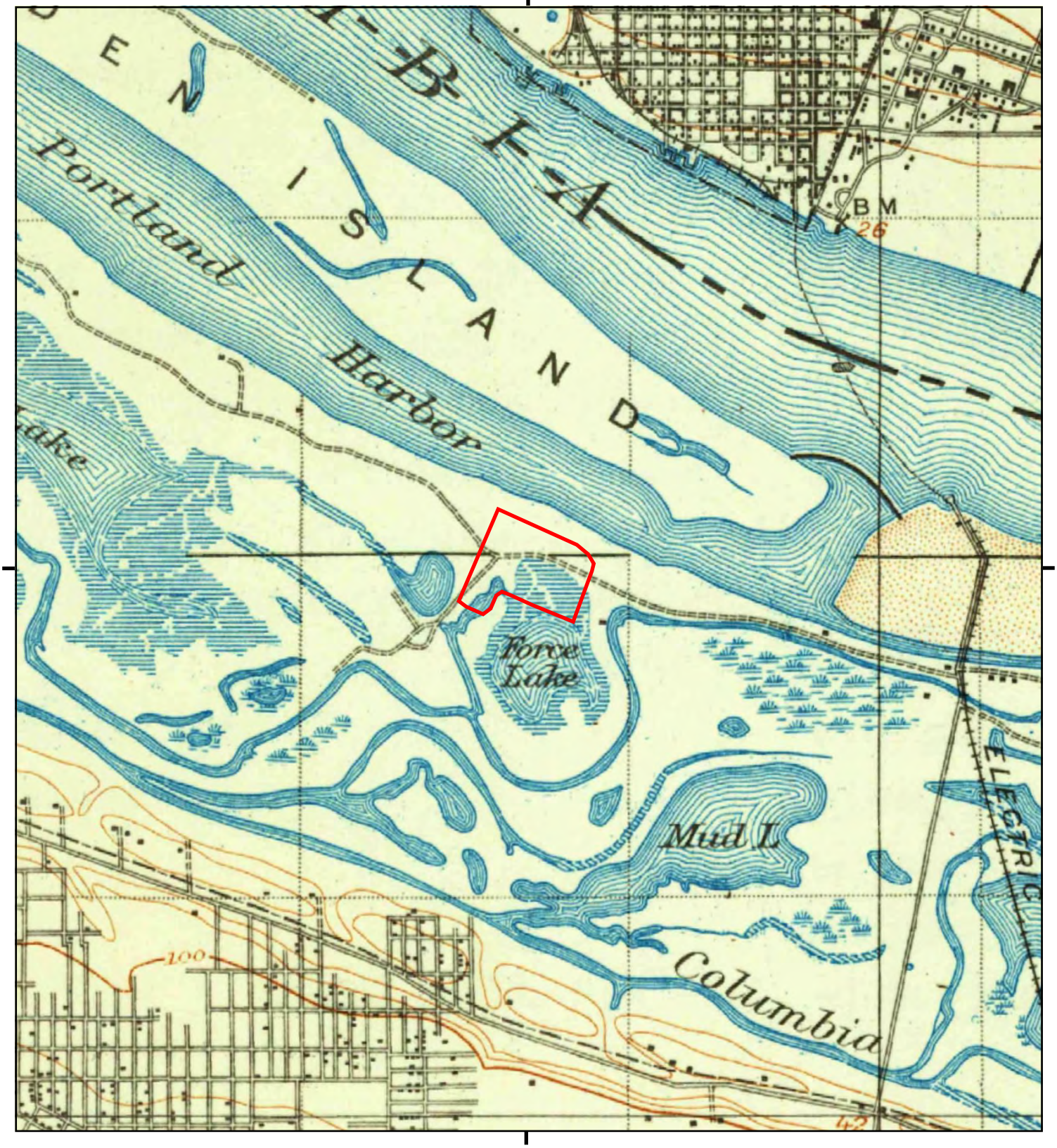
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, PORTLAND, 1940, 15-minute

SITE NAME: Portland Expo Center
ADDRESS: 2060 N Marine Drive
Portland, OR 97217
CLIENT: Hart Crowser, Inc.

N



This report includes information from the following map sheet(s).

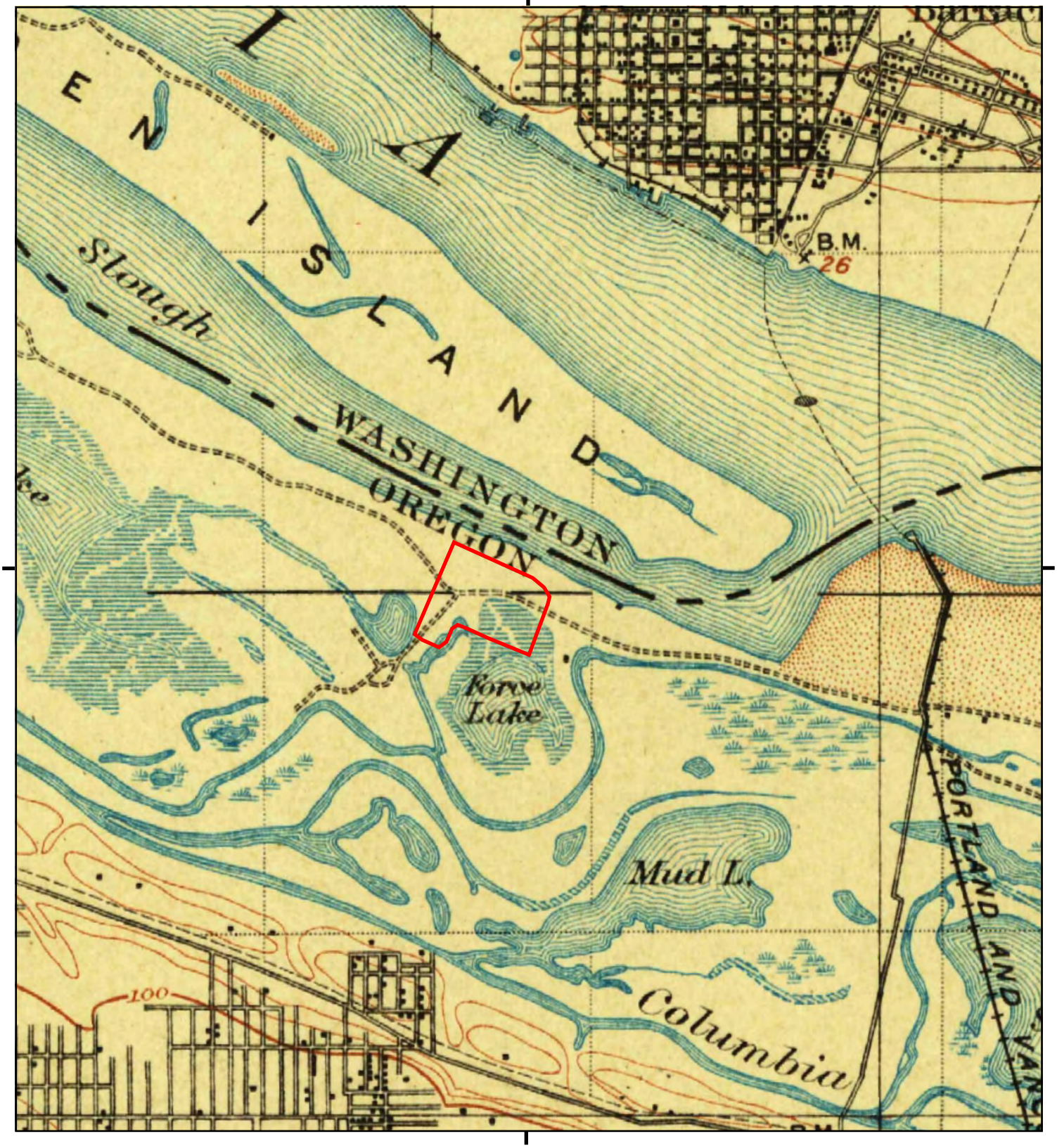
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Portland, 1905, 15-minute

SITE NAME: Portland Expo Center
ADDRESS: 2060 N Marine Drive
Portland, OR 97217
CLIENT: Hart Crowser, Inc.

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Portland, 1897, 15-minute

SITE NAME: Portland Expo Center
ADDRESS: 2060 N Marine Drive
Portland, OR 97217
CLIENT: Hart Crowser, Inc.

N

Portland Expo Center
2060 N Marine Drive
Portland, OR 97217

Inquiry Number: 5782459.5
September 11, 2019

The EDR-City Directory Abstract

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

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

EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1924 through 2014. This report compiles information gathered in this review by geocoding the latitude and longitude of properties identified and gathering information about properties within 1320 feet of the target property.

A summary of the information obtained is provided in the text of this report.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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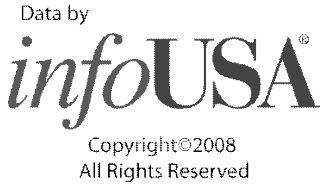

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

Year	Source	TP	Adjoining	Text Abstract	Source Image
2014	EDR Digital Archive	X	-	X	-
2010	EDR Digital Archive	X	-	X	-
2005	Cole Information Services	-	X	X	X
	Cole Information Services	X	X	X	X
1992	US WEST DIRECT	-	X	X	-
1985	R. L. Polk and Co. Publishers	-	-	-	-
1981	R.L. Polk Co. Publishers	-	-	-	-
1980	R.L. Polk Co. Publishers	-	-	-	-
1977	R.L. Polk Co. Publishers	-	-	-	-
1975	R. L. Polk and Co. Publishers	-	-	-	-
1970	R.L.Polk Co.	-	-	-	-
1967	R.L.Polk Co.	-	-	-	-

EXECUTIVE SUMMARY

Year	Source	TP	Adjoining	Text Abstract	Source Image
1965	R.L.Polk Co.	-	-	-	-
1960	R. L. Polk Co. Publishers	-	-	-	-
1955	R. L. Polk Co. Publishers	-	-	-	-
1950	R. L. Polk Co. Publisher	-	-	-	-
1946	The Pacific Telephone and Telegraph Company	-	-	-	-
1940	R.L. Polk Co., Inc.	-	-	-	-
1935	R.L. Polk Co., Inc.	-	-	-	-
1930	R.L. Polk Co., Inc.	-	-	-	-
1924	R.L. Polk Co., Inc.	-	-	-	-

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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Data by
infoUSA®

EXECUTIVE SUMMARY

SELECTED ADDRESSES

The following addresses were selected by the client, for EDR to research. An "X" indicates where information was identified.

Address	***Type***	***Findings***
2500 Marine Drive	Client Entered	X
11699 N Force Ave	Client Entered	
11535 N Force Ave	Client Entered	X
11415 N Force Ave	Client Entered	
10799 N Expo Road	Client Entered	
1835 N Marine Drive	Client Entered	
1801 N Pier 99 St	Client Entered	

FINDINGS

TARGET PROPERTY INFORMATION

ADDRESS

2060 N Marine Drive
Portland, OR 97217

FINDINGS DETAIL

Target Property research detail.

Marine Drive

2500 Marine Drive

Year	Uses	Source	
2005	Building	Cole Information Services	Image pg. A1
	DFed Ex Home Delivery	Cole Information Services	Image pg. A1

N Marine Dr

2060 N Marine Dr

Year	Uses	Source
2014	ARAMARK SPT & ENTRMT GROUP LLC	EDR Digital Archive
	BETTER LIVING SHOW	EDR Digital Archive
	CIRC DU SOLIEL	EDR Digital Archive
	PORTLAND METROPOLITAN EXPO CTR	EDR Digital Archive
2010	ARAMARK SPT & ENTRMT GROUP LLC	EDR Digital Archive
	NORTHWEST PET & COMPANION FAIR	EDR Digital Archive
	PORTLAND METROPOLITAN EXPO CTR	EDR Digital Archive

FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

N Force Ave

11535 N Force Ave

Year	Uses	Source	
2005	Energy& Materal Recovery Inc	Cole Information Services	Image pg. A2
	regon Biodlesel	Cole Information Services	Image pg. A2
	Oregon Biofuels	Cole Information Services	Image pg. A2

N MARINE DR

1801 N MARINE DR

Year	Uses	Source
1992	PIERCE William	US WEST DIRECT

NW MARINE DR

2060 NW MARINE DR

Year	Uses	Source	
2005	Expo Center	Cole Information Services	Image pg. A1
	Porttand Metropolitan Exposition Cen	Cole Information Services	Image pg. A1
	occupant	Cole Information Services	Image pg. A1
	Aramark Sports & Entertainment Servi	Cole Information Services	Image pg. A1
	Portland Metro RV Dealers Inc	Cole Information Services	Image pg. A1

FINDINGS

ADJOINING PROPERTY: ADDRESSES NOT IDENTIFIED IN RESEARCH SOURCE

The following Adjoining Property addresses were researched for this report, and the addresses were not identified in research source.

Address Researched	Address Not Identified in Research Source
10799 N Expo Road	2014, 2010, 2005, 1992, 1985, 1981, 1980, 1977, 1975, 1970, 1967, 1965, 1960, 1955, 1950, 1946, 1940, 1935, 1930, 1924
11415 N Force Ave	2014, 2010, 2005, 1992, 1985, 1981, 1980, 1977, 1975, 1970, 1967, 1965, 1960, 1955, 1950, 1946, 1940, 1935, 1930, 1924
11535 N Force Ave	2014, 2010, 1992, 1985, 1981, 1980, 1977, 1975, 1970, 1967, 1965, 1960, 1955, 1950, 1946, 1940, 1935, 1930, 1924
11699 N Force Ave	2014, 2010, 2005, 1992, 1985, 1981, 1980, 1977, 1975, 1970, 1967, 1965, 1960, 1955, 1950, 1946, 1940, 1935, 1930, 1924
1801 N MARINE DR	2014, 2010, 2005, 1985, 1981, 1980, 1977, 1975, 1970, 1967, 1965, 1960, 1955, 1950, 1946, 1940, 1935, 1930, 1924
1801 N Pier 99 St	2014, 2010, 2005, 1992, 1985, 1981, 1980, 1977, 1975, 1970, 1967, 1965, 1960, 1955, 1950, 1946, 1940, 1935, 1930, 1924
1835 N Marine Drive	2014, 2010, 2005, 1992, 1985, 1981, 1980, 1977, 1975, 1970, 1967, 1965, 1960, 1955, 1950, 1946, 1940, 1935, 1930, 1924
2060 NW MARINE DR	2014, 2010, 1992, 1985, 1981, 1980, 1977, 1975, 1970, 1967, 1965, 1960, 1955, 1950, 1946, 1940, 1935, 1930, 1924

TARGET PROPERTY: ADDRESS NOT IDENTIFIED IN RESEARCH SOURCE

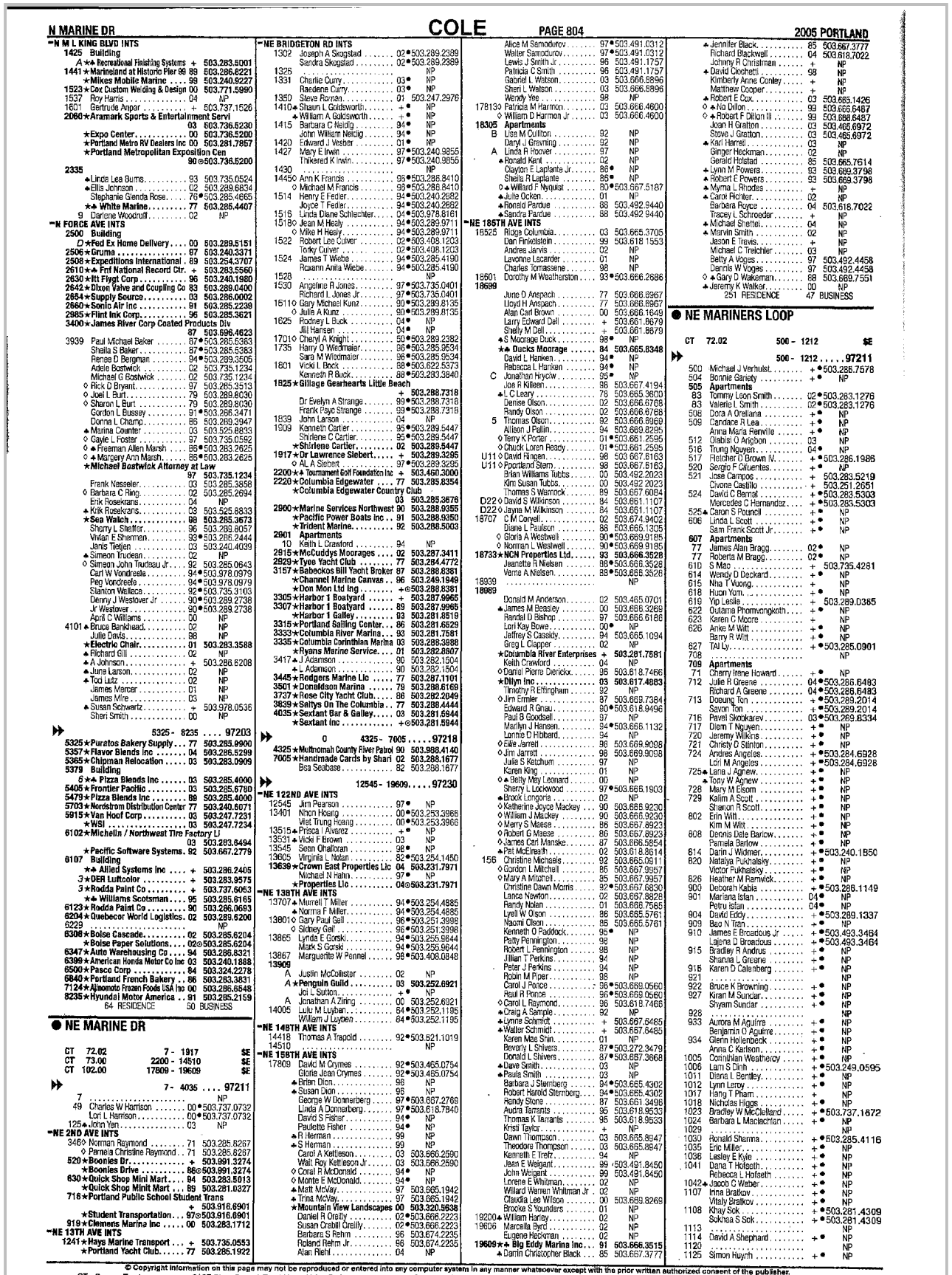
The following Target Property addresses were researched for this report, and the addresses were not identified in the research source.

Address Researched	Address Not Identified in Research Source
2060 N Marine Drive	1992, 1985, 1981, 1980, 1977, 1975, 1970, 1967, 1965, 1960, 1955, 1950, 1946, 1940, 1935, 1930, 1924

Source Page Images Appendix

TP	Adjoining	Source
✓	✓	Cole Information Services

Marine Drive 2005



N MARINE DR

N M L KING BLVD INTS

1425 Building
A ★♣ Recreational Finishing Systems + 503.283.5001
1441 ★Marineland at Historic Pier 99 89 503.286.6221
★Mikes Mobile Marine 99 503.240.9227
1523 ★Cox Custom Welding & Design 00 503.771.5990
1537 Roy Harris .... 04 NP
1601 Gertrude Anpar .... + 503.797.1526
2060 ★Aramark Sports & Entertainment Servi
03 503.736.5230
★Expo Center 00 503.736.5200
★Portland Metro RV Dealers Inc 00 503.281.7857
★Portland Metropolitan Exposition Cen
90 ⊙503.736.5200
2335
♣Linda Lea Burns 93 503.735.0524
♣Ellis Johnson 02 503.286.6834
Stephanie Glenda Rose .... 76 ⊙503.286.4665
♣♣ White Marine 77 503.285.4407
9 Darlene Woodruff .... 02 NP

N FORCE AVE INTS

2500 Building
D ★Fed Ex Home Delivery 00 503.289.5151
2506 ★Gruma 67 503.240.3371
2508 ★Expeditions International . 89 503.254.3707
2610 ★♣ Frf National Record Ctr. + 503.283.5580
2630 ★Itt Flygt Corp 96 503.240.1980
2642 ★Dixon Valve and Coupling Co 83 503.289.0400
2654 ★Supply Source 03 503.286.0002
2660 ★Sonic Air Inc 91 503.285.2239
2985 ★Flint Ink Corp 96 503.285.3621
3400 ★James River Corp Coated Products Div
87 503.696.4623
3939 Paul Michael Baker .... 87 ⊙503.285.5383
Sheila S Baker .... 87 ⊙503.285.5383
Renee D Bergman .... 94 ⊙503.289.3505
Adele Bostwick 02 503.735.1234
Michael G Bostwick 02 503.735.1234
◊ Rick D Bryant 97 503.285.3513
◊ Joel L Burt 79 503.289.8030
◊ Sharon L Burt 79 503.289.8030
Gordon L Bussey .... 91 ⊙503.286.3471
Donna L Champ 86 503.289.3947
♣ Marina Counter 03 503.525.8833
◊ Gayle L Foster 97 503.735.0592
◊ ♣ Freeman Allen Marsh .... 86 ⊙503.283.2625
◊ ♣ Margery Ann Marsh .... 86 ⊙503.283.2625
★Michael Bostwick Attorney at Law
97 503.735.1234
Frank Nasseler 03 503.285.3858
◊ Barbara C Ring 02 503.285.2694
Erik Rosekrans .... 04 NP
♣ Erik Rosekrans 03 503.525.8833
★Sea Watch 98 503.285.3673
Sherry L Sheffer 96 503.289.8037
Vivian E Sherman .... 92 ⊙503.286.2444
Janis Tietjen 03 503.240.4039
♣ Simeon Trudeau .... 02 NP
◊ Simeon John Trudeau Jr 92 503.285.0643
Carl W Vondreele .... 94 ⊙503.978.0979
Peg Vondreele .... 94 ⊙503.978.0979
Stanton Wallace .... 92 ⊙503.735.3103
Denny J Westover Jr .... 90 ⊙503.289.2738
Jr Westover .... 90 ⊙503.289.2738
April C Williams .... 00 NP
4101 ♣ Bruce Bankhead .... 02 NP
Julie Davis .... 98 NP
★Electric Chair 01 503.283.3588
♣ Richard Gill .... 02 NP
♣ A Johnson .... + 503.286.8208
♣ Jane Larson .... 02 NP
♣ Tod Lutz .... 02 NP
James Mercer .... 01 NP
James Mire .... 03 NP
♣ Susan Schwartz .... + 503.978.0536
Sheri Smith .... 00 NP

5325 - 8235 97203

5325 ★Puratos Bakery Supply 77 503.285.9900
5357 ★Flavor Blends Inc 04 503.286.5299
5365 ★Chipman Relocation 03 503.283.0909
5379 Building
6 ★♣ Pizza Blends Inc 03 503.285.4000
5405 ★Frontier Pacific 03 503.285.6780
5479 ★Pizza Blends Inc 89 503.285.4000
5703 ★Nordstrom Distribution Center 77 503.240.8571
5915 ★Van Hoof Corp 03 503.247.7231
★WSI 03 503.247.7234
6102 ★Michelin / Northwest Tire Factory Ll
03 503.283.6494
★Pacific Software Systems . 92 503.667.2779
6107 Building
★♣ Allied Systems Inc .... + 503.286.2405
3 ★DER Luftcolor .... + 503.283.9575
3 ★Rodda Paint Co .... + 503.737.6053
★♣ Williams Scotsman 95 503.285.6165
6123 ★Rodda Paint Co 90 503.286.0693
6204 ★Quebecor World Logistics . 02 503.289.6200
6229 NP
6308 ★Boise Cascade 02 503.285.6204
★Boise Paper Solutions .... 02 ⊙503.285.6204
6347 ★Auto Warehousing Co 94 503.286.8321
6396 ★American Honda Motor Co Inc 03 503.240.1988
6500 ★Pasco Corp 84 503.324.2278
6840 ★Portland French Bakery .. 86 503.283.3831
7124 ★Ajinomoto Frozen Foods USA Inc 00 503.286.6548
8235 ★Hyundai Motor America .. 91 503.285.2159
64 RESIDENCE 50 BUSINESS

● NE MARINE DR

CT 72.02 7 - 1917 $E
CT 73.00 2200 - 14510 $E
CT 102.00 17809 - 19609 $E

7 - 4035 97211

7 NP
49 Charles W Harrison .... 00 ⊙503.737.0732
Lori L Harrison .... 00 ⊙503.737.0732
125 ♣ John Yen .... 03 NP

NE 2ND AVE INTS

346◊ Norman Raymond 71 503.285.8267
◊ Pamela Christine Raymond .. 71 503.285.8267
520 ★Boonies Dr .... + 503.991.3274
★Boonies Drive .... 86 ⊙503.991.3274
630 ★Quick Stop Mini Mart 94 503.283.5013
★Quick Stop Minit Mart 89 503.281.0327
716 ★Portland Public School Student Trans
+ 503.916.6901
★Student Transportation .. 97 ⊙503.916.6901
919 ★Clemens Marina Inc 00 503.283.1712

NE 13TH AVE INTS

1241 ★Hays Marine Transport .. + 503.735.0553
★Portland Yacht Club 77 503.285.1922

NE BRIDGETON RD INTS

1302 Joseph A Skogstad .... 02 ●503.289.2389
Sandra Skogstad .... 02 ●503.289.2389
1325 .... NP
1331 Charlie Curry .... 03 ● NP
Raedene Curry .... 03 ● NP
1350 Steve Roman 01 503.247.2976
1410 ♣ Shaun L Goldsworth .... + ● NP
♣ William A Goldsworth .... + ● NP
1415 Barbara C Neidig .... 94 ● NP
John William Neidig .... 94 ● NP
1420 Edward J Vesber .... 01 ● NP
1427 Mary E Irwin .... 97 ●503.240.9855
Thikered K Irwin .... 97 ●503.240.9855
1430 .... NP
1445◊ Ann K Francis .... 96 ●503.286.8410
◊ Michael M Francis .... 96 ●503.286.8410
1514 Henry E Fedler .... 94 ●503.240.2682
Joyce T Fedler .... 94 ●503.240.2682
1515 Linda Diane Schlechter .... 04 ●503.978.8161
1518◊ Jean M Healy .... 94 ●503.289.9711
◊ Mike H Healy .... 94 ●503.289.9711
1522 Robert Lee Culver .... 02 ●503.408.1203
Torky Culver .... 02 ●503.408.1203
1524 Lyonne L Wiebe .... 94 ●503.286.4190
Roxann Anita Wiebe .... 94 ●503.286.4190
1528 .... NP
1530 Angeline R Jones .... 97 ●503.735.0401
Richard L Jones Jr .... 97 ●503.735.0401
1611◊ Gary Michael Kunz .... 90 ●503.289.8135
◊ Julie A Kunz .... 90 ●503.289.8135
1625 Rodney L Buck .... 04 ● NP
Jill Hansen .... 04 ● NP
1701◊ Cheryl A Knight .... 50 ●503.289.2382
1735 Harry O Wiedmaier .... 96 ●503.285.9534
Sara M Wiedmaier .... 96 ●503.285.9534
1801 Vicki L Bock .... 88 ●503.622.5373
Kenneth R Buck .... 88 ●503.293.3840
1825 ★Gillage Gearhearts Little Beach
+ 503.288.7318
Dr Evelyn A Strange .... 99 ●503.288.7318
Frank Psyc Strange .... 99 ●503.288.7318
1839 John Larson .... 04 NP
1909 Kenneth Cartier .... 95 ●503.289.5447
Shirlene C Cartier .... 95 ●503.289.5447
★Shirlene Cartier 02 503.289.5447
1917 ★Dr Lawrence Siebert .... + 503.289.3295
◊ AL A Siebert .... 97 ●503.289.3295
2200 ★♣ Tournament Golf Foundation Inc + 503.460.3000
2220 ★Columbia Edgewater 77 503.285.8354
★Columbia Edgewater Country Club
03 503.285.3676
2900 ★Marine Services Northwest 90 503.288.9355
★Pacific Power Boats Inc .. 91 503.288.9350
★Trident Marine 92 503.288.5003
2901 Apartments
10 Keith L Crawford .... 94 NP
2915 ★McCuddys Moorages 02 503.287.3411
2929 ★Tyee Yacht Club 77 503.284.4772
3157 ★Babeckos Bill Yacht Broker 87 503.288.8361
★Channel Marine Canvas .. 96 503.249.1949
★Don Mon Ltd Ing .... +⊙503.288.8381
3305 ★Harbor 1 Boatyard .... + 503.287.9965
3307 ★Harbor 1 Boatyard 89 503.287.9965
★Harbor 1 Galley 83 503.281.8519
3315 ★Portland Sailing Center .. 86 503.281.6529
3333 ★Columbia River Marina .. 93 503.281.7581
3335 ★Columbia Corinthian Marina 03 503.288.9888
★Hyams Marine Service 01 503.282.8807
3417 ♣ J Adamson 90 503.282.1504
♣ L Adamson 90 503.282.1504
3445 ★Rodgers Marine Llc 77 503.287.1101
3501 ★Donaldson Marina 79 503.288.6169
3737 ★Rose City Yacht Club 86 503.282.2049
3839 ★Saltys On The Columbia .. 77 503.288.4444
4035 ★Sextant Bar & Galley 03 503.281.5944
★Sextant Inc .... +⊙503.281.5944

0 4325 - 7605 97218

4325 ★Multnomah County River Patrol 90 503.988.4140
7005 ★Handmade Cards by Shari 02 503.288.1677
Sea Seabase 82 503.288.1677

12545 - 19609 97230

NE 122ND AVE INTS

12545 Jim Pearson .... 97 ● NP
13401 Nhon Hoang .... 00 ●503.253.3966
Viet Trung Hoang .... 00 ●503.253.3966
13515 ♣ Prisca I Alvarez .... + ● NP
13531 ♣ Vicki F Brown .... 03 NP
13545 Sean Ghalloran .... 98 ● NP
13605 Virginia L Nolan .... 82 ●503.254.1450
13639 ★Crown East Properties Llc 04 503.231.7971
Michael N Hahn .... 97 ● NP
★Properties Llc .... 04 ⊙503.231.7971

NE 138TH AVE INTS

13707 ♣ Murrell T Miller .... 94 ●503.254.4885
♣ Norma F Miller .... 94 ●503.254.4885
13801 ◊ Gary Paul Gall .... 96 ●503.251.3998
◊ Sidney Gall .... 96 ●503.251.3998
13865 Lynda E Gorski .... 94 ●503.255.9644
Mark S Gorski .... 94 ●503.255.9644
13867 Marguerite W Pennel .... 98 ●503.408.0848
13909
A Justin McCollister .... 02 NP
A ★Penguin Guild 03 503.252.6921
Joi L Sutton .... + ● NP
A Jonathan A Zining 00 503.252.6921
14005 Lulu M Luyben .... 64 ●503.252.1195
William J Luyben .... 64 ●503.252.1195

NE 148TH AVE INTS

14418 Thomas A Trapold .... 92 ●503.621.1019
14510 .... NP

NE 158TH AVE INTS

17809 David M Crymes .... 92 ●503.465.0754
Gloria Jean Crymes .... 92 ●503.465.0754
♣ Brian Dion .... 96 NP
♣ Susan Dion .... 96 NP
George W Donnerberg .... 97 ●503.667.2769
Linda A Donnerberg .... 97 ●503.618.7840
David S Fisher .... 94 ● NP
Paulette Fisher .... 94 ● NP
♣ R Herman .... 99 NP
♣ S Herman .... 99 NP
Carol A Kettleson 03 503.666.2590
Walt Roy Kettleson Jr 03 503.666.2590
◊ Coral R McDonald .... 94 ● NP
◊ Monte E McDonald .... 94 ● NP
♣ Matt McKay 97 503.665.1942
♣ Trina McKay 97 503.665.1942
★Mountain View Landscapes 00 503.320.5638
Daniel R Oreilly .... 02 ●503.666.2223
Susan Crabill Oreilly .... 02 ●503.666.2223
Barbara S Rehm 96 503.674.2235
Roland Rehm Jr 96 503.674.2235
Alan Riehl .... 04 NP
Alice M Samodurov .... 97 ●503.491.0312
Walter Samodurov .... 97 ●503.491.0312
Lewis J Smith Jr 96 503.491.1757
Patricia C Smith 96 503.491.1757
Gabriel L Watson 03 503.666.8896
Sheri L Watson 03 503.666.8896
Wendy Yee .... 98 NP
17813◊ Patricia M Harmon 03 503.666.4600
◊ William D Harmon Jr 03 503.666.4600

16305 Apartments

B Lisa M Cullifton .... 92 NP
Daryl J Gravning .... 92 NP
A Linda R Hoover .... 97 NP
♣ Ronald Kent .... 02 NP
Clayton E Laplante Jr .... 86 ● NP
Sheila R Laplante .... 86 ● NP
◊ ♣ Willard F Nyquist .... 00 ●503.667.5187
♣ Julie Ocken .... 01 NP
♣ Ronald Pardue 88 503.492.9440
♣ Sandra Pardue 88 503.492.9440

NE 185TH AVE INTS

16525 Ridge Columbia 03 503.665.3705
Dan Finkelstein 99 503.618.1553
Andrea Jarvis .... 02 NP
Lavonne Lizander .... 01 NP
Charles Tomassene .... 98 NP
18501 Dorothy M Weatherston .... 93 ●503.666.2686

18699

June D Anspach 77 503.666.8967
Lloyd H Anspach 77 503.666.8967
Alan Carl Brown 00 503.666.1649
Larry Edward Dall .... + 503.661.8679
Shelly M Dall .... + 503.661.8679
♣ S Macrage Duck .... 98 ● NP
★♣ Ducks Moorage 84 503.665.8348
David L Hanken .... 94 ● NP
Rebecca L Hanken .... 94 ● NP
C Jonathan Hryciw .... 95 ● NP
Joe R Killeen 96 503.667.4194
L C Leary 79 503.665.3600
Denise Olson 02 503.666.6768
Randy Olson 02 503.666.6768
5 Thomas Olson 92 503.666.8969
Allison J Pallin 94 503.669.8295
◊ Terry K Porter .... 01 ●503.661.2595
◊ Chuck Loren Reacy .... 01 ●503.661.2595
U11 ◊ David Ringen 98 503.667.6163
U11 ◊ Portland Stern 98 503.667.6163
Brian Williams Tubbs 00 503.492.2023
Kim Susan Tubbs 00 503.492.2023
Thomas S Warnock 89 503.667.6084
D22 ◊ David S Wilkinson 84 503.661.1107
D22 ◊ Jayna M Wilkinson 84 503.661.1107
18707 C M Conell 02 503.674.9402
Diane L Paulson 88 503.665.1305
◊ Gloria A Westwell .... 90 ●503.669.9185
◊ Norman L Westwell .... 90 ●503.669.9185
18733 ★NCN Properties Ltd 93 503.666.3528
Jeanette R Nielsen .... 88 ●503.666.3526
Verne A Nielsen .... 88 ●503.666.3526
18939 .... NP
19869 .... NP
Donald M Anderson 02 503.465.0701
♣ James M Beasley 00 503.666.3269
Randal D Bishop 97 503.666.6186
Lori Kay Bowe .... 00 ● NP
Jeffrey S Cassidy 94 503.665.1094
Greg L Clapper .... 02 NP
★Columbia River Entrprises + 503.281.7581
Keith Crawford .... 04 NP
◊ Daniel Pierre Derickx 98 503.617.7466
★Dilyn Inc 03 503.617.4883
Timothy R Effingham .... 92 NP
◊ Jim Ermler 97 503.669.7384
Edward R Gnau .... 90 ●503.618.9496
Paul B Goodsell .... 97 NP
Marilyn J Hansen .... 94 ●503.666.1132
Lennie D Hibbard .... 94 NP
◊ Elle Jarrett 98 503.669.9098
◊ Jim Jarrett 98 503.669.9098
Julie S Ketchum .... 97 NP
Karen King .... 01 NP
◊ ♣ Betty May Leonard .... 00 NP
Sherry L Lockwood .... 97 ●503.665.1903
♣ Brock Longoria .... 02 NP
◊ Katherine Joyce Mackey 90 503.666.9230
◊ William J Mackey 90 503.666.9230
◊ Merry S Maese 86 503.667.8923
◊ Robert G Maese 86 503.667.8923
◊ James Carl Manske 87 503.666.5854
♣ Pat McElreath 02 503.618.8614
156 Christine Michaels 92 503.665.0911
◊ Gordon L Mitchell 86 503.667.9957
◊ Mary A Mitchell 55 503.667.9957
Christine Dawn Morris .... 92 ●503.667.6830
Lance Newton 02 503.667.8826
Randy Nolan 01 503.666.7565
Lyell W Olson 86 503.665.5761
Naomi Olson 85 503.665.5761
Kenneth O Paddock .... 95 ● NP
Patty Pennington .... 98 NP
Robert L Pennington .... 98 NP
Jillian T Perkins .... 94 NP
Peter J Perkins .... 94 NP
Robin M Piper .... 98 NP
Carol J Ponce .... 96 ●503.689.0560
Raul R Ponce .... 96 ●503.659.0560
◊ Carol L Raymond 96 503.618.7466
◊ Craig A Sample .... 92 NP
♣ Lynne Schmidt .... + 503.667.6485
♣ Walter Schmidt .... + 503.667.6485
Karen Mae Shin .... 01 NP
Beverly L Shivers .... 87 ●503.272.3479
Donald L Shivers .... 87 ●503.667.3668
♣ Dave Smith .... 03 NP
♣ Paula Smith .... 03 NP
Barbara J Sternberg .... 94 ●503.665.4302
Robert Harold Sternberg .... 94 ●503.665.4302
Randy Stone 87 503.661.3496
Audra Tarrants 95 503.618.9533
Thomas K Tarrants 95 503.618.9533
Kristi Taylor .... + NP
Dawn Thompson 03 503.665.8947
Theodore Thompson 03 503.665.8947
Kenneth E Trefz .... 94 NP
Jean E Weigant .... 99 ●503.491.8450
John Weigant 99 503.491.8450
Lorene E Whitman .... 02 NP
Willard Warren Whitman Jr .... 02 NP
Claudia Lee Wilson 00 503.699.8269
Brooke S Youndans .... 01 NP
19200 ♣ William Harley .... 02 NP
19606 Marcella Byrd .... 02 NP
Eugene Heckman .... 02 NP
19609 ★♣ Big Eddy Marina Inc 91 503.666.3515
♣ Darrin Christopher Black 85 503.667.3777
♣ Jennifer Black 85 503.667.3777
Richard Blackwell 04 503.618.7022
Johnny R Christman .... + NP
♣ David Ciocchetti .... 98 NP
Kimberly Anne Conley .... + NP
Matthew Cooper .... + NP
♣ Robert E Cox 03 503.665.1426
◊ ♣ No Dillon 99 503.666.6487
◊ ♣ Robert F Dillon III 99 503.666.6487
Joan H Gratton 03 503.465.6972
Steve J Gratton 03 503.465.6972
♣ Karl Harrell .... 03 NP
Ginger Heckman .... 02 NP
Gerald Holstad 85 503.665.7614
♣ Lynn M Powers 93 503.669.3798
♣ Robert E Powers 93 503.669.3798
♣ Myrna L Rhodes .... + NP
♣ Carol Richter .... 02 NP
Barbara Royce 04 503.618.7022
Tracey L Schroeder .... + NP
♣ Michael Shettel .... 04 NP
♣ Marvin Smith .... 02 NP
Jason E Travis .... + NP
Michael C Treichler .... 03 NP
Betty A Vogas 97 503.492.4458
Dennis W Voges 97 503.492.4458
◊ ♣ Gary D Wakeman 88 503.669.7551
♣ Jeremy K Walker .... 00 NP
251 RESIDENCE 47 BUSINESS

● NE MARINERS LOOP

CT 72.02 500 - 1212 $E

500 - 1212 97211

500 Michael J Verhulst .... + ●503.286.7578
504 Bonnie Gariety .... + ● NP
505 Apartments
83 Tommy Leon Smith .... 02 ●503.283.1276
83 Valerie L Smith .... 02 ●503.283.1276
508 Dora A Orellana .... + ● NP
509 Candace R Lea .... + ● NP
Anna Maria Renville .... + ● NP
512 Olabisi O Arigbon .... 03 NP
516 Trung Nguyen .... 04 ● NP
517 Fletcher D Brown IV .... + ●503.286.1988
520 Sergio F Cifuentes .... + ● NP
521 Jose Campos .... + 503.283.5219
Divone Castillo .... + 503.251.2651
524 David C Bernal .... + ●503.283.5303
Mercedes C Hernandez .... + ●503.283.5303
525 ♣ Caron S Pouncil .... + ● NP
606 Linda L Scott .... + ● NP
Sam Frank Scott Jr .... + ● NP
607 Apartments
77 James Alan Bragg .... 02 ● NP
77 Roberta M Bragg .... 02 ● NP
610 S Mac .... + 503.735.4281
614 Wendy D Deckard .... + ● NP
615 Nha T Vuong .... + ● NP
616 Huon Yoni .... + ● NP
619 Yip Leslie .... + 503.289.0385
622 Oudama Phommengkoth .... + ● NP
623 Karen C Moore .... + ● NP
626 Anke M Witt .... + ● NP
Barry R Witt .... + ● NP
627 Tai Ly .... + ●503.285.0901
708 .... NP
709 Apartments
71 Cherry Irene Howard .... + ● NP
712 Julie R Greene .... 04 ●503.286.6483
Richard A Greene .... 04 ●503.286.6483
713 Doeung Ton .... + ●503.289.2014
Savon Ton .... + ●503.289.2014
716 Pavel Skookarev .... 03 ●503.289.8334
717 Diem T Nguyen .... + ● NP
720 Jeremy Wilkins .... + ● NP
721 Christy D Stinton .... + ● NP
724 Andres Angeles .... + ●503.284.6928
Lori M Angeles .... + ●503.284.6928
725 ♣ Lana J Agnew .... + ● NP
♣ Tony W Agnew .... + ● NP
728 Mary M Elsom .... + ● NP
729 Kalim A Scott .... + ● NP
Sharon R Scott .... + ● NP
802 Erin Witt .... + ● NP
Kim M Witt .... + ● NP
808 Dennis Dale Barlow .... + ● NP
Pamela Barlow .... + ● NP
814 Darin J Widmer .... + ●503.240.1850
820 Natalya Pukhalsky .... + ● NP
Victor Pukhalsky .... + ● NP
826 Heather M Remwick .... + ● NP
900 Deborah Kabel .... + ●503.286.1149
901 Mariana Isfan .... 04 ● NP
Petru Isfan .... 04 ● NP
904 David Eddy .... + ●503.289.1337
909 Bao N Tran .... + ● NP
910 James E Broadous Jr .... + ●503.493.3464
Lajena D Broadous .... + ●503.493.3464
915 Bradley R Andrus .... + ● NP
Shanaa L Greene .... + ● NP
916 Karen D Calenberg .... + ● NP
921 .... NP
922 Bruce K Browning .... + ● NP
927 Kiran M Sundar .... + ● NP
Shyam Sundar .... + ● NP
928 .... NP
933 Aurora M Aguirre .... + ● NP
Benjamin O Aguirre .... + ● NP
934 Glenn Hollenbeck .... + ● NP
Anna C Karlson .... + ● NP
1005 Corinthian Weatherby .... + ● NP
1006 Lam S Dinh .... + ●503.249.0595
1011 Diana L Bentley .... + ● NP
1012 Lynn Leroy .... + ● NP
1017 Hang T Pham .... + ● NP
1018 Nicholas Higgs .... + ● NP
1023 Bradley W McClelland .... + ●503.737.1672
1024 Barbara L Maclachlan .... + ● NP
1029 .... NP
1030 Ronald Sharma .... + ●503.285.4116
1035 Eric Miller .... + ● NP
1036 Lesley E Kyle .... + ● NP
1041 Dana T Hofseth .... + ● NP
Rebecca L Hofseth .... + ● NP
1042 ♣ Jacob C Weber .... + ● NP
1107 Irina Bratkov .... + ● NP
Vitaly Bratkov .... + ● NP
1108 Khay Sok .... + ●503.281.4309
Sokhaa S Sok .... + ●503.281.4309
1113 .... NP
1114 David A Shephard .... + ● NP
1120 .... NP
1125 Simon Huynh .... + ● NP

CT - Census Tract $ASB,Etc. - Census Tract Home Value Rating ★ - Business Listing ⊙ - Duplicate Phone Number At This Business Address ◊ - No Mail Solicitation

N Force Ave 2005

SW FLOWER ST

4134 Alisa B Pye ..... 94● NP
William R Pye ..... 94● NP
-SW 45TH AVE INTS
4310 Catherine A Dummer ..... 02●503.244.3812
John F Dummer ..... 02●503.244.3812
4315 Louise Mesher ..... +● NP
43270 David William Elliott ..... 50●503.246.6542
◊ Nancy E Elliott ..... 50●503.246.6542
43300 Pamela J Sawtell ..... 50●503.246.8059
4347 Marjorie S Arvidson ..... 77●503.246.8690
Peter G Arvidson ..... 77●503.246.8690
-SW 42ND AVE INTS
4402 John W McCaffrey ..... 01● NP
44180 Chad Ryan Daul ..... 98● NP
◊ Molly M Daul ..... 99● NP
44190 Kathy M Duffy ..... 96● NP
4440 Frederick W Krug ..... 98●503.977.6340
Leslie R Krug ..... 98●503.977.6340
4441 Margie B Walling ..... 67●503.246.1228
4443 ..... NP
4445 Constance C Smith ..... 00 NP
-SW DOVER ST INTS
6245 Dana M Schwartz ..... 86●503.977.0523
Jerry D Schwartz ..... 86●503.977.0523
63010 Spencer M Snow ..... 94●503.244.8165
◊ Vivienne B Snow ..... 94●503.355.2878
63090 Catherine Lawrence ..... 94●503.768.4091
◊ Robert Lawrence ..... 94●503.245.9076
6312 Brenda Rebecca Katz 92 503.452.1658
★Lambda Resources 03 503.245.5130
★Metron Technology Distribution Corp 01 503.452.1658
6315 Marshal P Spector ..... 02●503.892.4992
Sharon P Spector ..... 02●503.892.4992
63180 Brenda E Crowley ..... 97● NP
◊ William Crowley ..... 97● NP
6323 Cameron L Staudh ..... 95● NP
6324 Charles Eugene Rosell ..... 94●503.246.7152
6331 Maria L Borowski ..... 95● NP
Mark O Borowski Jr ..... 95● NP
6339 Joel A Parker ..... 03● NP
Jennifer Joyce Roof ..... 03● NP
6408 Philippe D Boulot ..... 94●503.293.2324
Susan Kay Boulot ..... 94●503.293.2324
64160 Joanne Van Menash ..... 94●503.293.1264
◊ Joe Menashe ..... 94●503.293.1264
6417 Deena M McNeil ..... 92● NP
Kenneth W McNeil ..... 92● NP
6424 Mark U Schiele ..... 95● NP
Mary Elizabeth Schiele ..... 95● NP
6429 Cynthia Ann Melbo ..... 97●503.246.0799
Sven Melbo ..... 97●503.246.0799
64320 Ian J Griswold ..... 03●503.293.8981
◊ Roxanne R Griswold ..... 03●503.293.8981
6435 James A Afremow ..... 93●503.245.2048
Nancy Ann Afremow ..... 93●503.245.2048
6438 ..... NP
74 RESIDENCE 8 BUSINESS

SW FLOWER TER

CT 68.02 3000 - 3084 $A

3000 - 3084 97239

3000 John Gage Greisser ..... 94●503.977.3719
3003 Adrienne R Roe ..... 92●503.293.0648
Christopher Robert Roe ..... 92●503.293.0648
3006 Sarah E Hurley ..... 00●503.892.1957
3007 Nancy H Bacon ..... 90●503.246.8841
Todd C Bacon ..... 90●503.246.8841
3010 Liliana H Smith ..... 97● NP
3011 Nancy J Weber ..... 95 NP
Niel T Weber ..... 95 NP
3014 Meghan Mackenzie 03 503.293.8070
3015 Steven C Anasim ..... 86●503.977.2658
Cheryl J Grandy ..... 86●503.977.2658
3018 Grant C Gentry ..... 97● NP
3019 James Dallas Barr ..... +●503.452.0038
Kay Ann Barr ..... +●503.452.0038
3024 Nancy C Campbell ..... 00● NP
30250 Costa Columbus ..... 85● NP
◊ Marjorie Daum Columbus ..... 85● NP
3026 David E Quarterman ..... 98● NP
Meredith M Quarterman ..... 98● NP
3029 ..... NP
3033★Barry Emard Construction 93 503.246.1070
Barry Wayne Emard ..... 97●503.246.1070
Sylvia G Emard ..... 97●503.246.1070
3034 Susan M Blevins ..... 94●503.452.9637
3037 Michael John McGee ..... 95●503.892.2961
3041 Lana M McArthur ..... 89●503.244.2983
3044 Leslie Constans ..... 97●503.892.8992
Schnieder H Schnieder ..... 97●503.892.8992
3045 Dua A Ewers ..... 78●503.245.3236
Sharon L Ewers ..... 78●503.245.3236
3049 Alfred Colling ..... 86●503.246.8981
Julie A Colling ..... 86●503.246.8981
3053 Tracy M Aue 03 503.274.1532
3056 Scott E Musicant ..... 01● NP
3057 Virginia A Dansie 03 503.245.2549
3061 Jill Ann Leithner ..... 96●503.977.3429
3062 Michael G McCaskey Jr ..... 96● NP
3065 Jeanette Wassgren ..... 50●503.246.5607
Victor J Wassgren ..... 50●503.246.5607
30660 Kehrah A Pennington ..... 67●503.244.9122
◊ Philip R Pennington ..... 67●503.244.9122
3071 Colette C Krol ..... 04● NP
Michael R Krol ..... 04● NP
★Phorium Llc 02 503.888.1500
3072 Arthur A Ansin 98 503.246.3372
Ruth F Ansin 98 503.246.3372
3075 Johan F Eriksson ..... 00●503.244.7137
Xan M Eriksson ..... 00●503.244.7137
3076 Hilldred Louise Landauer ..... 78● NP
3079 ..... NP
3080 Stephen C Bush ..... 04 NP
3084 Gregory W Mallek ..... 02●503.892.5382
51 RESIDENCE 2 BUSINESS

NW FOLEY CT

CT 70.00 1604 - 1630 $A

1604 - 1630 97229

-NW WOOD ROSE LOOP INTS
1604 Bonnie M Fazio ..... 00●503.284.4837
John Frank Fazio ..... 00●503.284.4837
16090 David W Enstrom ..... 98●503.296.9635
◊ Niloofar Khiabani ..... 98●503.296.9635
16150 Ye C Kim ..... 00●503.296.0660
◊ Young Kuk Kim ..... 00●503.296.0660
1616★Mopiko Inc 01 503.297.7617
Jackie Chi Wu ..... 99●503.297.7617
Kar Wai Wu ..... 99●503.297.7617

1622 Susan So Lee ..... 91● NP
1625 Carol A Warren ..... 91●503.292.5893
Noelle M Warren ..... 91●503.292.5893
1630 Erica B Williams ..... 02●503.292.2527
Kerry B Williams ..... 02●503.292.2527
13 RESIDENCE 1 BUSINESS

SW FONNER ST

CT 319.04 10675 - 12020 $B

10675 - 12020 97223

-SW TIEDEMAN AVE INTS
10675 Brian E Hall ..... 94●503.639.8336
◊ Irana M Hall ..... 94●503.639.8336
10680 Dorothy W Worrall ..... 79●503.620.0952
◊ Kenneth W Worrall ..... 79●503.620.0952
10685★Melvin R Sunday ..... 89●503.639.1368
10690 ..... NP
-SW 107TH CT INTS
10700 Homa Sakhitab ..... 94●503.639.8559
10705 Cindy F Daily ..... 94● NP
John D Daily ..... 94● NP
10720 Jerry Clark Blakely ..... 87● NP
Season M Blakely ..... 87● NP
10725 Evelia V Dominguez ..... 03●503.684.5720
10765 ..... NP
10805 Kathy J Kornowski ..... 98● NP
Ted W Kornowski ..... 98● NP
10825 Alice M Miles ..... 79●503.620.8126
10855 ..... NP
-SW 111TH PL INTS
10915 Clyde A Routon ..... 92●503.639.3365
10935 Joseph A Bridlin Jr ..... 80●503.639.5184
Linda W Bridlin ..... 80●503.639.5184
11010 Dennis Lavan Desanno ..... 96● NP
Karen A Desanno ..... 96● NP
110500 Joseph Bushell ..... 90●503.624.1403
◊ Diane Elaine Fegan ..... 90●503.624.1403
11090 Jean Mary Merrigan ..... 87●503.684.9798
Michael B Merrigan ..... 87●503.684.9798
11160 Colin N Mortensen ..... 78●503.620.3072
Louise Ane Mortensen ..... 78●503.620.3072
11175 George W Erickson Jr ..... 67●503.639.2791
Marlene I Erickson ..... 67●503.639.2791
11180★Key of Dreams Llc ..... + 503.624.1605
◊ Colleen Y Schultheis ..... 94●503.624.1605
◊ Eric M Schultheis ..... 94●503.624.1605
-SW 113TH PL INTS
11200★Neugamut 04 503.598.8859
Donna J Neumann ..... 96●503.598.8859
William J Neumann ..... 96●503.598.8859
11221 Larry McCain Emme ..... 86● NP
11227 Allen Fleming ..... 87●503.620.4554
David L Fleming ..... 87●503.620.4554
11235 Adele J Stombaugh ..... 92●503.684.6663
11245 Barbara T Oak ..... 93●503.624.9486
Rick J Oak ..... 93●503.624.9486
11340 Janet L Thompson ..... 01● NP
11350 James Frederick Burgess ..... 98●503.620.1387
Mary Bridget Burgess ..... 98●503.620.1387
11370 Dominique Scott 01 503.635.3015
Errol T Scott 01 503.693.9016
113850 Christina Lynn Rouse ..... 02●503.639.0270
◊ Dan K Rouse ..... 02●503.639.0270
11397 Ilya Kravchenko ..... 02● NP
Sergei S Kravchenko ..... 02● NP
11399 Robert Lowell Carnagey ..... 02● NP
11441 Julie M Greco ..... 95●503.603.0914
Leonard R Greco ..... 95●503.603.0914
11445 Ryan James Denno ..... 02 NP
11465 Sean M Duffy ..... + NP
11480 Jeanette Kreutzer ..... + 503.430.5645
-SW HOWARD DR INTS
115000 David E Filler ..... 78●503.620.1912
◊ Mary C Filler ..... 78●503.620.1912
11550 Jeffrey W Glanola ..... 97● NP
Shannon L Glanola ..... 97● NP
11580 Sara L Kintz ..... + NP
11565 Nicole L Bryant ..... 03●503.530.8859
Ty Derek Bryant ..... 03●503.530.8859
★Northwest Lights Distributing 99 503.524.7739
★NW Lights Distributing ... +⊙503.524.7739
11590 Cassandra B Woodley ..... 94●503.590.5404
Michael J Woodley ..... 94●503.590.5404
11660 Holly Ann Norsworthy ..... 94●503.590.6315
11675 James Ronald Baldwin Jr ..... 75●503.590.2425
11720 Kirk Patrick Caudill ..... 00● NP
11725 Cheri L Vawter 02 503.579.6889
11780 Anna L Nichol ..... 91●503.590.4572
Dr Richard E Nichol ..... 91●503.590.4572
★RE Nichol DMD 98 503.590.4572
117850 Joyce E Ochsner ..... 85●503.590.1998
◊ Michael A Ochsner ..... 85●503.590.1998
11788 Daniel D Parker ..... 91● NP
Kelly K Parker ..... 91● NP
118150 Janet A Bruno ..... 81●503.590.7848
◊ Richard J Bruno ..... 81●503.590.7848
11865 Patricia A Adams ..... 86●503.590.8090
Paul T Adams Sr ..... 86●503.590.8090
-SW 121ST AVE INTS
11905 Justin P Crawford ..... 03● NP
Brenda M Joseph ..... 03● NP
119350 Patricia M Lofgren ..... 94●503.590.4666
◊ Richard W Lofgren ..... 94●503.590.4666
12020 Greg E Venada ..... 99●503.590.9872
Rebecca M Venada ..... 99●503.590.9872
84 RESIDENCE 5 BUSINESS

SW FONNER POND PL

CT 319.04 12835 - 12900 $B

12835 - 12900 97223

12835 ..... NP
12850 Kathleen M Norbo ..... 03● NP
12860 Jeffry T McCulloch ..... 03● NP
128700 David F Haidle ..... +● NP
◊ Helen C Haidle ..... +● NP
12880 Laurie D Weyhrauch ..... 03●503.598.3024
Michael A Weyhrauch ..... 03●503.598.3024
12890 Zhaohui Dong ..... 03● NP
12900 Danese L White ..... + NP
George Steven White ..... + NP
10 RESIDENCE

SW FOOTHILL DR

CT 302.00 11150 - 11467 $A
CT 314.04 11580 - 12485 $D
CT 314.03 12500 - 13185 $D

11150 - 13185 97225

11150 Roy J Schoffstoll ..... 93●503.646.7019
Valerie L Schoffstoll ..... 93●503.646.7019
111850 Dan J Donahue ..... 01●503.672.9746
◊ Karen M Donahue ..... 01●503.672.9746
11190 ..... NP
112150 Richard L Hurley ..... 74●503.644.8079
11260 Jonathan R Hammack ..... 78●503.644.4945
Linda L Hammack ..... 78●503.644.4945
11275 ..... NP
11290 Kerry M Ashe ..... 02 NP
-SW PARKWOOD DR INTS
113000 Scott A Peterson ..... 98● NP
113100 Mary Carol Schnell ..... 90●503.644.6823
113200 Karen Twain ..... 02● NP
113300 Jeffrey David Oltmann ..... 90●503.644.6433
◊ Phyllis Hoesman Oltmann ..... 90●503.644.6433
113350 Lane R Finley ..... 94●503.526.9323
◊ Sandy M Finley ..... 94●503.526.9323
11340 John E Hopper ..... 77●503.648.3353
Richard J Hopper ..... 77●503.648.3353
11365 ..... NP
11380 Gabriel J McNassar ..... + 503.360.3902
113900 Harry William Remitz ..... 97●503.644.3668
11395 Dr Donald P Dobson ..... 88●503.644.7221
Mary M Dobson ..... 88●503.644.7221
-SW CEDAR HILLS BLVD INTS
11400 Ruth V Cummings ..... 78●503.641.6484
114050 John F Dodson ..... 96●503.626.5740
◊ Judith L Dodson ..... 96●503.626.5740
11467 Robyn L Joseph ..... 02●503.641.2453
Steven W Joseph ..... 02●503.641.9210
11580 ..... NP
116050 Lucinda A Barrett ..... 93● NP
◊ Robert E Barrett ..... 93● NP
11610 Tracey R Andres ..... 94●503.350.1704
11635 Lan N Do ..... +● NP
Tong D Ho ..... +● NP
11640 ..... NP
11670 Miroslava Vassileva ..... 04 NP
-SW HILLCROFT AVE INTS
11700 John Kenneth Sherwood ..... 82●503.646.0814
Mary G Sherwood ..... 82●503.368.7611
11705 11730 ..... NP
11735 Bruce W Steele ..... 95● NP
Kathleen D Steele ..... 95● NP
11760 D Caldwell 03 503.644.6646
Kathryn Wharton 03 503.644.6646
117650 Janet D Faurot ..... 61●503.644.1584
◊ Joseph W Faurot ..... 61●503.644.1584
117900 Brad E Lee 96 503.644.7499
◊ Vanessa M Lee 96 503.644.7499
11820 Margaret C Schulz ..... 90●503.644.9633
Richard E Schulz ..... 90●503.644.9633
11845 Mary M Hill ..... 01●503.469.8837
11850 Marika Brodigan ..... 00● NP
Patrick J Brodigan ..... 00● NP
118750 Anne M Thompson ..... 94●503.626.6261
11880 ..... NP
11895 Rusdiana S Parish ..... 95●503.644.9675
William Henry Parish ..... 95●503.644.9675
-SW HILLDALE AVE INTS
119100 Anne Wallace ..... 94● NP
◊ Edward Paul Wallace ..... 94● NP
119150 Bettie Portwood ..... 83●503.641.8739
◊ Bettie F Portwood ..... 83●503.641.8739
119350 Edward D Mittelstadt ..... 84●503.646.6565
◊ Nancy M Mittelstadt ..... 84●503.646.6565
11940 Christina M Morantte ..... 94● NP
David M Morantte ..... 94● NP
11965 James Walker Dalton ..... 94●503.641.8336
11970 James E Benaughan ..... 96●503.643.1254
Eugene E Burden ..... 86●503.643.1254
11985 12000 ..... NP
12005 Allen C Stephens Jr ..... 00● NP
Joan A Stephens ..... 00● NP
120250 Edward Leonard Hershberg ..... 85●503.626.6128
◊ Karina P Hershberg ..... 85●503.626.6128
12030 12055 ..... NP
12060 L Brown ..... +●503.641.2121
Neil K Brown ..... +●503.641.2121
12085 Osborne Peter Laird Atty ... 77●503.646.3422
Terry E Osborne ..... 77●503.646.3422
12090 Bob G Geyer ..... 83●503.626.7411
Debra M Geyer ..... 83●503.626.7411
12120 Vicki L Takahashi ..... 96●503.626.8731
12145 ..... NP
12150 Kenneth M Russell ..... 90● NP
Zaferia J Russell ..... 90● NP
12230 Rosemary F Brumley ..... 81●503.644.2320
Charles Rambo ..... 81●503.644.2320
★Toland Audio Design 03 503.526.3869
12255 Susan H Greenseth ..... 86●503.626.9377
William A Greenseth ..... 86●503.626.9377
★Webcarrier 99 503.626.9377
122800 Myrna Ruth Mahler ..... 75● NP
12285 Dana S Scheele ..... 02● NP
Todd Curry Scheele ..... 02● NP
12290 Andrew W Snyder Cpa ..... 78●503.646.6462
Doris Lynne Snyder ..... 78●503.646.6462
12315 K Bond ..... + 503.526.1909
12345 Dane R Vinson ..... 94●503.520.9629
Lynda Kathleen Vinson ..... 94●503.520.9629
12350 Anna Victoria Conley ..... 90●503.644.2332
Michael E Conley ..... 90●503.644.2332
12375 Megan Nicole Paleu ..... 98●503.643.7375
Stephen Bruce Paleu ..... 98●503.643.7375
12380 Pamela A Petrin ..... 03● NP
-SW HUNTINGTON AVE INTS
12405 Barbara A Stark ..... 90●503.526.0925
Steven E Stark ..... 90●503.526.0925
12410 Dan Lucero ..... 99●503.644.9338
Mary Cervantes Lucero ..... 99●503.644.9338
12435 Judy A Ortiz ..... +● NP
William E Ortiz Jr ..... +● NP
12440 ..... NP
12465 Silvia D Seitz ..... 99●503.644.0398
Thomas R Seitz ..... 99●503.644.0398
-SW DELLWOOD AVE INTS
12500 Elisabeth J Moore ..... 98●503.646.1539
Robert J Moore ..... 98●503.646.1539
12505 12525 ..... NP
12530 Daniel A Waritz ..... 90●503.644.2583
Sally Ann Waritz ..... 90●503.644.2583
12560 Haydar H Kutuk ..... 99● NP
12565 Mike R Bonde ..... 92●503.350.3987
12590 Gayle A Potter ..... 98● NP
Robert L Potter ..... 98● NP

12595 ..... NP
12620★Columbia Medical Alarm Inc 02 503.826.1684
126250 Darlene Marie Paintar ..... 98● NP
12650 Nikki J Dworznicki ..... 95●503.326.8761
12665 James David Osterman ..... 00●503.520.0844
M Osterman ..... 00●503.646.9624
12680 Denny E Payton ..... 90●503.641.7527
Katherine S Payton ..... 90●503.641.7527
12685 ..... NP
12710 Eric A Lindermauer 01 503.344.1712
12715 Edward T Meyer ..... 92●503.641.8661
Frances B Meyer ..... 92●503.641.8661
12740 Charles W Priest ..... 99●503.643.0564
Leah F Priest ..... 99●503.643.0564
12745 Albert H Chenoweth ..... 75●503.643.4268
Dolores E Chenoweth ..... 75●503.643.4268
★Invescom 03 503.468.0338
127750 Richard J Ulbricht ..... 86●503.643.1812
◊ Susan Ann Ulbricht ..... 86●503.643.1812
12800 Corey Knowles ..... 99●503.641.3565
Darlene L Knowles ..... 93●503.641.3565
12805 George E Day ..... + NP
Susan Christine Day ..... + NP
12825 Ervin L Miller ..... 97●503.643.7997
Mary H Miller ..... 97●503.643.7997
12830 Charles R Parks ..... 02●503.574.4911
Kristan Scheffler Parks ..... 02●503.574.4911
12855 ..... NP
12860 Karen Lynn Buckley ..... 93●503.644.9348
Ross Brian Buckley ..... 93●503.644.9348
12885 Lee D Rockford ..... 00● NP
12890 ..... NP
12915 Harold D Christy ..... 74●503.646.5852
Mary Kathleen Christy ..... 74●503.646.9852
★Kathy Christy Realtor .... + 503.646.9852
12920 Greg A Burnett ..... +● NP
12950★Eagle Pdx Inc 90 503.241.0105
★Pdx Eagle ..... +⊙503.241.0105

-SW WYNNWOOD AVE INTS
13000 Kennedy Payne ..... +● NP
Roxanne Payne ..... +● NP
13005 ..... NP
13035 Loretta M Lyda ..... 84●503.644.9440
13060 Donald Lamb ..... 84●503.644.8041
13090 David L Hodge ..... 87● NP
Joan L Hodge ..... 87● NP
13095 June W Koopman ..... 02●503.520.1666
Richard H Koopman ..... 02●503.520.1666
131150 Arthur M Larsen Jr ..... 79●503.644.2001
◊ Joan L Larsen ..... 79●503.644.2001
13120 Jane F Elliott ..... 96●503.626.6084
Mick Elliott ..... 98●503.626.6084
13150 Phillip J Charette ..... 02●503.626.2375
Vicki S McConnell ..... 02●503.626.2375
13155 Kristina M Pearl 04 503.286.8824
13180 Mira Kuckovic ..... 01●503.644.8101
Rasim L Kuckovic ..... 01●503.644.6101
13185 Don L Waggoner ..... 65●503.644.4736
Ruth C Waggoner ..... 65●503.644.4736
176 RESIDENCE 7 BUSINESS

N FORCE AVE

CT 72.02 0 11535 - 11645 $E

0 11535 - 11645 97217

11535★Energy & Material Recovery Inc 03 503.286.8353
★Oregon Biodiesel ..... + 503.286.0798
★Oregon Biofuels ..... 03⊙503.286.0798
11619★Bulk Transportation 02 503.283.5684
★Pacific Rim Transport Inc 92 503.286.5250
11645★Peninsula Terminal Co ... 81 503.285.5023
6 BUSINESS

FORD FRD

CT 57.00 E 340 - 340 $A

E 340 - 340 97251

340★♣ Centricata ..... + 503.883.2000
1 BUSINESS

FORD ST

CT 57.00 E 340 - 340 $A

E 340 - 340 97251

340★♣ Onlinemac ..... + 503.883.9200
1 BUSINESS

SW FORD STREET DR

CT 48.02 0 1615 - 1615 $A

0 1615 - 1615 ..., 97201

1615 Sandra S Michael ..... 82●503.228.4408
1 RESIDENCE

NW FOREST LN

CT 70.00 3355 - 3460 $A

3355 - 3460 97229

3355 Paula B Sauvageau ..... 98●503.297.4655
3460 ..... NP
2 RESIDENCE

NW FOREST SPRING LN

CT 315.10 12504 - 12897 $A

12504 - 12897 97229

12504 Jiange Li 00 503.468.0856
12509 ..... NP
12527 Yin Wang ..... 01●503.533.8857
12536 Mindy A Gimarelli ..... 00● NP
Vincent R Gimarelli ..... 00● NP
12543 Abraham Nicholas Lagmay . 00● NP
Kimberly S Lagmay ..... 00● NP
12558★Eptagon Group 03 503.645.6630
★Play Groups of Portland .. + 503.550.3714
Jodi S Reinhardt ..... 00●503.645.6630
Jeff A Vanlom ..... 00●503.645.6630
12569 ..... NP
12576 Agnes Wu ..... 99●503.466.2818
Daniel D Wu ..... 99●503.466.2818
12581 Pallea Lee ..... 02● NP
Harry Wong ..... 02● NP
12592 David Dien Huynh ..... 02●503.645.6420

CT - Census Tract $ASB,Etc. - Census Tract Home Value Rating ★ - Business Listing ⊙ - Duplicate Phone Number At This Business Address ◊ - No Mail Solicitation

OREGON CENTENNIAL EXPOSITION AND INTERNATIONAL TRADE FAIR

June 10 to Sept. 17 ★ 1959 Portland


RAILROADS

APPENDIX E
Resumes

RICHARD D. ERNST, RG, LG/LHG

Principal Geologist

EDUCATION

MS, Geosciences, University of Arizona, 1989

BA, Geology and Anthropology, University of Colorado/Boulder, 1987

Post-Baccalaureate Degree in Accounting, Portland State University, 1998

CREDENTIALS

Registered Geologist, OR, 1994, #G1129

Licensed Geologist and Hydrogeologist, WA, 2002, #627

Hazwoper Training, 1990 (Annual Refresher Course)

Rick has 29 years of experience managing, planning, and implementing hundreds of environmental projects in Oregon and southwest Washington. His expertise encompasses all stages of environmental consulting including Phase I and Phase II environmental site assessments (ESAs), site characterizations, risk assessments, underground storage tank (UST) site investigations and closures, remedial investigations and feasibility studies (RI/FS), and remedial actions. He is also very adept with regulatory analysis and compliance issues. This experience gives him a broad-based understanding of potential site issues and methods to address contamination posing unacceptable risks and achieve site closure in a cost-effective manner. He is the Program Manager for Hart Crowser's flexible services contracts with the Oregon Department of Environmental Quality (DEQ), Prosper Portland, City of Portland, and Port of Portland. Rick also performs Principal review for environmental-related deliverables generated by the Portland, Oregon, and Vancouver, Washington, regional offices.

REPRESENTATIVE PROJECT EXPERIENCE

Phase I Environmental Site Assessments, OR and WA. Rick has performed or reviewed nearly 100 Phase I ESAs in accordance with ASTM E1527 standards and the All Appropriate Inquiry (AAI) rule. These assessments have included undeveloped land (up to 22 acres) and the following developed uses: agricultural, residential, military (a former base), commercial (aircraft-related, TV stations, former gas stations, banks, and flour mill), industrial (metal cast parts, former sawmill), and two Superfund Sites (sawmill and former aluminum smelter). He provided information on site history, current condition, and environmental regulatory status, which could have had a bearing on the legal or financial liabilities associated with the property. The scope of work included researching the history of the property through historical aerial photographs, interviews, and reverse directories; reviewing regulatory agency databases and files for the subject property and nearby sites that could pose an environmental threat to the subject property; and visiting the subject property to look for possible environmental impacts.

Former Reynolds Metals Company Superfund Site, Troutdale, OR. As Project Manager, Rick supported the Port of Portland with environmental due diligence for acquisition of a 700-acre property that included an abandoned 80-acre aluminum processing facility, a Superfund site. Rick prepared a comprehensive Phase I ESA for the property and managed oversight and reporting activities during the demolition and cleanup activities. Data gaps were addressed through additional Phase II investigation. Rick has also provided on-call support to the Port for development of the Troutdale Reynolds Industrial Park by assessing residual risk issues and water rights; review of work plans and regulatory agreements; preparing future environmental cost estimates and summary memoranda; and reviewing work plans and ESAs by other parties seeking to acquire portions of the property.

Fanno Creek Place Redevelopment, Tigard, OR. Rick was the Project Manager for Phase I/II due diligence ESAs of several commercial properties formerly occupied by a lumberyard, service station, and landscaping business. Several areas of petroleum contamination, an UST, drywells, and regulated building materials were identified. Remedial cost estimates were developed and used by the client in negotiating a price for the properties. Rick developed a Remedial Action Plan (RAP), which was approved by the DEQ, and oversaw implementation of the RAP as part of the initial redevelopment activities at the site. Petroleum-contaminated soil, one drywell, and two USTs were removed. Residual risk screening shows the property does not pose an unacceptable risk to human health or the environment. Rick also prepared a Closure Report, DEQ issued a No Further Action (NFA) determination, and the site has been redeveloped as an office park.

Willamette Cove, Portland, OR. Rick investigated 24 acres of vacant property along the northeast bank of the Willamette River in the St. Johns section of Portland. Historically, the site was developed for a plywood mill, a dry dock facility, and a cooperage manufacturing plant. A detailed historical review of the property was performed to identify areas of potential concern that could pose a potential risk to human health or the Willamette River. An RI was completed that determined that surficial soils were contaminated with polycyclic aromatic hydrocarbons (PAHs) and metals. The RI also included installation and monitoring of seven groundwater monitoring wells at the top of bank to assess for potential impacts to the Willamette River, land and beneficial water use surveys, and a cultural resources survey. Human health and ecological risk screening evaluations were performed. All activities were performed under an agreement with the DEQ.

Eastbank Riverfront Project, Portland, OR. Rick was responsible for coordinating, overseeing, and reporting characterization activities at a 16-acre site (18 land parcels) along the east bank of the Willamette River across from downtown Portland. The project involved review of historical documentation to identify site-wide and localized areas of concern and to scope characterization of these areas. Site characterization activities included performing geophysical surveys for buried objects such as USTs, completing asbestos and lead-based paint surveys of buildings, sampling soil and groundwater from push probes and test pits, and chemically analyzing samples. Risk screening of the data identified acceptable human health risk for some parcels and showed that additional investigation of other parcels would be necessary. Future environmental costs were estimated to prepare the site for development. On review by the DEQ, seven parcels received NFA status. For the remaining parcels, the property owner performed further assessment work, and Rick provided review of the work for our client, a potential buyer.

Toyota Logistics Services Parcels, Portland, OR. In preparation for Toyota Logistics Services moving their processing facility to the Terminal 4 waterfront, Rick completed Phase I ESAs and audits on their existing facility from Lombard Street (Upper Parcel) and the proposed facility location which consisted of their waterfront auto storage facility (Lower Parcel). To assess potential environmental concerns identified for the Lower Parcel, Rick performed a subsurface assessment that included using push probes to collect soil and groundwater samples for analysis. Results indicated low concentrations of PAHs in soil and groundwater at scattered locations across the parcel (not likely to pose a risk to human health). To assess for ecological effects from groundwater emerging into the Willamette River, four monitoring wells were installed along the riverbank. Groundwater data indicated that ecological concerns were unlikely. Reports for the Lower Parcel were submitted to the DEQ, which, upon review and concurrence from the EPA, agreed that no further action was required for this Lower Willamette River property.

Centennial Mills, Portland, OR. In 1999, Rick completed the ESA I and II as part of Prosper Portland's due diligence for purchase of this flour mill property. As Project Manager, Rick oversaw environmental activities for the Mounted Patrol Unit construction in 2003, which included an UST removal. Since 2008, Rick has designed and overseen data gap and upland source control investigations, removal of another UST/contaminated soil, and a backfill assessment of the Tanner Creek Sewer (identified impacts from off the site). Rick prepared the Source Control Evaluation, Human Health Risk Assessment, and Focused Feasibility Study, working with DEQ's VCP to move the site toward closure. In March 2014, DEQ issued a Source Control Decision based on Rick's work, concluding the site is not a current or likely future source of contamination to the Willamette River.

Block 76/67, Portland, OR. Rick completed an RI of almost two city blocks on East Burnside Street slated for redevelopment. He developed an RI Work Plan to address data gaps identified during a review of previous data from site investigations and remedial actions. In addition to obtaining data for risk assessment purposes, the RI also focused on determining the extent of soils with chemical contamination, as soils would likely be excavated for subgrade parking structures. The RI included push probes, sampling and analysis, a geophysical survey, and a land and beneficial water use survey. Data analysis showed minor soil contamination and two separate tetrachloroethene (PCE) and PAH groundwater plumes. Based on a risk assessment of the data for current and future use scenarios identified in the Conceptual Site Model, the site does not pose an unacceptable risk to human or ecological receptors. The DEQ agreed with this conclusion and issued an NFA determination for this site. The property has since been redeveloped.

View-Master Reel Manufacturing Facility, Beaverton, OR. Rick was the technical project manager for investigation activities at a toy manufacturing facility in Beaverton. After trichloroethene was detected in groundwater from the facility's water well, Rick managed the preliminary site investigation, which included an extensive historical review of the 50-year-old facility, sampling and analysis of the facility's water system, and assessment of both the shallow silt and regional basalt aquifers. Results identified a former degreaser and former drain field as possible sources, and delineated the extent of shallow groundwater contamination at the facility. Other smaller projects included assessing the film processing wastewater drain line, rooms where equipment or piping had leaked petroleum products, and transformer banks. All activities were completed under oversight of the DEQ Voluntary Cleanup and Site Response sections. Because our work also identified a past and still viable potentially responsible party who assumed responsibility for cleanup of deep groundwater contamination, our client saved millions of dollars in environmental assessment and remediation costs.

Scrap Metal Yard, Vancouver, WA. Rick completed a Phase I ESA and managed a Phase II ESA of a 7.5-acre former scrap metal yard. Historically, the site was developed with residences and orchards. Potential environmental concerns identified during the Phase I ESA were the potential historical use or presence of lead arsenate and PCBs, scrap metal storage, and the presence of septic systems and stormwater drywells. Phase II site investigation activities identified polychlorinated biphenyls (PCBs) in surface soils above the applicable State of Washington Model Toxic Control Act cleanup levels. Additional sampling using a grid-based approach was performed to delineate the extent of PCBs. Rick developed a self-implementing cleanup plan per 40 CFR 761.61 under the Toxic Substance Control Act that was approved by EPA and performed by the owner. Following review of the cleanup action, the EPA provided a NFA letter. We assisted our client in joining the Washington Department of Ecology Voluntary Cleanup Program, which then reviewed our reports for the site and also reached an NFA finding. The site has since undergone commercial redevelopment.

TESS LYDICK
Staff Geologist

EDUCATION

BS, Environmental Geology, University of Kansas, 2017

REGISTRATIONS

ASTM E1527

OSHA HAZWOPER Regulations

Tess is an environmental staff geologist at Hart Crowser's Portland, Oregon office. Tess's primary responsibilities are Phase I and Phase II work. Tess has significant experience in extensive water and soil sampling, filed observation, technical design, report writing, research and data collection experience. Her chief interests include site assessment, quality control, field work and technical report writing. Tess has 3 years of working experience in biological, geological and hydrogeological field operations, lab processing and analysis of sediment and core samples, mapping and groundwater and contaminant modeling.

REPRESENTATIVE PROJECT EXPERIENCE

McCormick and Baxter Superfund Site, Portland, OR
Tess provides technical assistance on the ODEQ Orphan Site Contract, McCormick & Baxter Superfund Site, a former wood treatment facility (1940s to 1990s) within the reach of the Portland Harbor Superfund Site. Extensive remedial activities have been previously conducted including encapsulating soil and groundwater contamination with a subsurface barrier wall and an engineered cap. A 23-acre sediment cap was also installed. Hart Crowser and our teaming partner have conducted maintenance and monitoring activities at the site since 2008. Sediment cap monitoring of water within and above the cap is routinely performed using divers and Henry samplers. Tess performs maintenance, monitoring activities and sampling events for the site.

II Site Investigation and Monitoring, Multiple Sites, OR
Tess has provided technical assistance for phase II site investigations at many gas stations, dry cleaners, and landfills throughout Oregon for the DEQ. Project tasks typically included coordinating utility locations services, contractor services, and overseeing drilling operations. Monitoring activities included low flow groundwater sampling, soil vapor gas sampling and soil sampling. Tess's responsibilities included detailed documentation of construction activities, borehole logging, surveying, and collecting samples that meet quality assurance (QA) / quality control (QC) standards.

Technology Pilot Study for Groundwater Remediation, Spokane Valley, WA
Tess provided field efforts for multiple treatment technologies for treating polychlorinated biphenyls (PCB)-contaminated groundwater at this industrial facility. She provided environmental services under a 22-year consulting contract. The work has been done under 126 task orders totaling $7 million in revenues using multiple task order managers. In a recent discussion with the client's attorney regarding our performance, Hart Crowser received an "A+" for overall performance on the project.

Phase I Site Assessment for Innovative Housing (150-026-001) and Portland EXPO Center (150-016-002), Portland, OR
Tess conducted environmental site assessment for multiple type of sites; industrial, commercial and residential. The goal of the processes is to establish a recognize environmental condition. For several sites, Tess has gone through the process of recognizing an environmental condition and performing a Phase II Site Assessment. She knows what to look for in the field as well as the process to go through if there is an environmental concern.