A PHASE I ENVIRONMENTAL SITE ASSESSMENT

Former Western States Plywood Cooperative Mill Property
Tax Lots 104, 900, and 901
Vicinity of 93639 Elk River Road
Port Orford, Curry County, Oregon

November 14, 2022

HAI Project No. 9889

HAI **HAHN AND ASSOCIATES, INC.** **ENVIRONMENTAL CONSULTANTS**
434 NW 6TH AVENUE, SUITE 203 ASSESSMENT
PORTLAND, OREGON 97209-3651 INVESTIGATION
TEL 503.796.0717 • FAX 503.227.2209 REMEDIATION
www.hahnenv.com

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Project Location:

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Tax Lots 104, 900, and 901
Vicinity of 93639 Elk River Road
Port Orford, Curry County, Oregon

Prepared For:

Wild Rivers Land Trust (Client/User)
c/o Mr. Max Beeken
PO Box 1158
Port Orford, Oregon 97465

Prepared By:	***Date:*** November 14, 2022
Hahn and Associates, Inc. 434 NW 6th Avenue, Suite 203 Portland, Oregon 97209-3651 www.hahnenv.com	***Project No.:*** 9889

Declaration of Environmental Professional:

We, Steve Evans and Gary Hahn, declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in Title 40 of the Code of Federal Regulations (CFR) Part 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 the all appropriate inquiries in conformance with the standards and practices set forth in Title 40 CFR Part 312.

Prepared By:	***Reviewed By:***
Steve Evans, R.G., E.P. Associate	Gary W. Hahn, E.P. President
Date: 11/14/2022	***Date:*** 11/14/2022

ASTM E1527 Standard Practice for Phase I Environmental Site Assessment

Viability of Report

For the purposes of Landowner Liability Protections under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), a Phase I Environmental Site Assessment conducted in conformance with the American Society for Testing and Materials Practices E1527 is valid for a period of 180 days from the date of completion of the earliest of the following four main components required for meeting *All Appropriate Inquiries* (AAI):

- Interviews with owners, operators, and occupants
- Review of government records
- Visual inspections
- Declaration by the environmental professional

For extended viability beyond 180 days, the above components may be updated within one year of the initial assessment and will be valid for an additional 180 days. If more than one year passes from the date of the initial assessment, a new Phase I Environmental Site Assessment would need to be conducted in order to qualify for the federal protections.

Dates of the Four Main *All Appropriate Inquiries* Components

Interviews with Owners, Operators, Occupants	November 11, 2022
Review of Government Records	October 24, 2022
Visual Inspection	November 4, 2022
Declaration by Environmental Professional	November 14, 2022
Viability Expiration: April 23, 2023	

In addition to the above components, the required search for recorded environmental cleanup liens and Activity and Use Limitations (which is a *User-Responsibility* and therefore is not within the scope of the Phase I Environmental Site Assessment) must also be conducted within 180 days of and prior to the date of acquisition of the subject property.

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1.0 EXECUTIVE SUMMARY

Hahn and Associates, Inc. has performed this Phase I Environmental Site Assessment in conformance with the scope and limitations of the American Society for Testing and Materials Practice E1527-21 at the request of Wild Rivers Land Trust. The Phase I Environmental Site Assessment consisted of a Site Reconnaissance, an historical and physical features evaluation of the subject property, an examination of the surrounding land uses, and an environmental database review of the property and of the surrounding land uses. Any exceptions to, or deletions from, this practice are described in Section 11.0 of this report.

As part of the Phase I Environmental Site Assessment, the information obtained was reviewed to evaluate the likely presence of contaminants of concern on the subject property or nearby properties, specifically with regard to those that are of a type that may migrate in soil, soil vapor, and/or groundwater. Further, the physical features of the surrounding area were considered in determining the potential for any such contaminants to migrate from contaminated soil, soil vapor, and/or groundwater to the subject property, or within or from the property.

Please note that this section provides a summary of the findings of the Phase I Environmental Site Assessment and some details of the report are not included or fully developed in this summary. Therefore, this report must be read in its entirety for a more complete understanding of the findings, conclusions, and recommendations contained herein.

Subject Property

Former Western States Plywood Cooperative Mill Property:

- Tax Lots 104, 900, and 901, Port Orford, Curry County, Oregon
- Tax Lot 900: 93639 Elk River Road
- Tax Lots 104 and 901: No known current or historical addresses

Site Description

- Size: 17.8 acres
- Current Use: One vacant structure (Storage/Maintenance Building) formerly used for storage; majority of property is undeveloped land covered with vegetation
- Significant Features:
  - Tax Lot 104: Concrete pad, clearings at sites of former wigwam burners

    - Tax Lot 900: Storage/Maintenance Building, former Pump House remnants, domestic water well, former Fire Pond, Bagley Creek
    - Tax Lot 901: Concrete foundations, former Log Pond
- Vicinity Characteristics: Undeveloped land, rural residential and agricultural usage, unincorporated Curry County near Port Orford, Oregon

Site History

- Prior to 1952: Undeveloped
- 1950s - 1970s: Portion of larger Western States Plywood Cooperative Mill facility - buildings and ponds constructed in early 1950s
- Late 1970s: Mill destroyed by fire
- 1980s - Present: Largely undeveloped land with the exception of vacant Storage/Maintenance Building (also used as a residence, workshop, and for storage), and some foundation remnants of various mill structures
    - Log Pond breached by the mid-1990s or earlier; now a wet marshy area
    - 2016-2020s: Three modular structures (two sheds and a cabin) placed on Tax Lot 104, subsequently removed

Site Reconnaissance

The Site Reconnaissance identified:

- One Recognized Environmental Condition

The Site Reconnaissance did not identify evidence of:

- Significant quantities of hazardous substances, petroleum products, or hazardous waste
- Controlled Recognized Environmental Conditions
- Historical Recognized Environmental Conditions

Recognized Environmental Condition

Historical Site Operations/Detection of Site Contamination

- 1950s – 1970s: Former Western States Plywood Cooperative Mill
- Early 1970s: Releases of glue and glue wastes reported
- 1988: Listed by the Oregon Department of Environmental Quality as a suspect site
- 2017 – 2022: Several rounds of investigation and evaluation conducted
    - Contaminants detected in soil, groundwater, and sediment include: petroleum hydrocarbons, metals, formaldehyde, dioxins/furans, and pentachlorophenol
- 2022: Analysis of Brownfields Cleanup Alternatives prepared, with remedial action recommendations

- The long-term history of use as a plywood mill and the related contamination represents a Recognized Environmental Condition for the property.

De Minimis **Conditions**

De Minimis Staining

- Minor *(de minimis)* oil staining noted on concrete floor slab of the vacant Storage/Maintenance Building

Significant Data Gaps

Dense Vegetation

- Dense vegetation precluded observation of portions of the subject property, including areas of interest near the Storage/Maintenance Building, the southeastern portion of the property, and the vicinity of the former Log Pond area

Other Site Features

Remnant Features:

- Concrete foundations of former buildings on Tax Lots 104 and 901
- Clearings at the site of former wigwam burners on Tax Lot 104
- Former Log Pond on Tax Lot 901
- Former Fire Pond Pump House remnant on Tax Lot 900
- Buried debris, including metal debris, identified by previous investigations

Water Supply Well:

- Domestic water well installed in 2006 on Tax Lot 900; screened at 19 feet below ground surface.

Industrial Land – Potential Low-Level Soil Contamination:

- Soil sampling and testing at the subject property has confirmed the presence of hazardous substances impacts to soils at the sampled locations. Based upon the history of industrial usage at the subject property as a former plywood mill and soil testing results, low-level hazardous substances impacts are present in soils across the property. Such impacts could disqualify the affected soils for re-use as Clean Fill for unrestricted management, reuse and/or disposal. In the event of future site construction activities that involve the excavation and removal of site soils, special management of any such impacted soils may be required.

Records Review

The review of state and federal environmental records disclosed several sites located within a 1.0-mile radius of the subject property that are currently or have previously been under review for environmental issues. However, these sites do not appear to represent a Recognized Environmental Condition for the property at this time.

Conclusions and Recommendations

This Phase I Environmental Site Assessment revealed evidence of a Recognized Environmental Condition in connection with the subject property. From the data that was assembled during the course of this investigation, it is the professional opinion of Hahn and Associates, Inc. that further remedial work appears to be necessary for the subject property.

The Recognized Environmental Condition identified at the property, along with a recommendation, is:

1. The subject property was historically developed with major features of the former Western States Plywood Cooperative Mill. Several rounds of investigation and evaluation were conducted from 2017 through 2022 that identified the presence of contamination in soil, groundwater, and sediment on the property above risk-based screening levels. The detected contaminants included petroleum hydrocarbons, metals, formaldehyde, dioxins/furans, and pentachlorophenol. Subsurface anomalies and the potential for buried fill/debris were also identified. **Recommendation**: Remedial actions should be implemented at the subject property to address the areas of identified contamination at concentrations above applicable risk-based screening levels.

In addition, while not Recognized Environmental Conditions under E1527-21, the following information is presented:

1. Based upon the history of industrial usage at the site as a former plywood mill and soil testing results, low-level hazardous substances impacts may be present in soils at the subject property. The results of soil sampling and testing confirmed the presence of hazardous substances impacts to soils at the property. Such impacts could disqualify the affected soils for re-use as Clean Fill for unrestricted management, reuse and/or disposal. In the event of future site construction activities that involve the excavation and removal of site soils, special management of any such impacted soils may be required.

Recommendation: If construction activities are planned at the subject property in the future, then it may be prudent to either utilize existing soil data to evaluate site soils or conduct a Clean Fill Determination for any soils that are slated for excavation and removal. The Oregon Department of Environmental Quality has established criteria that can be used to assist in soil management decisions.

2. The ground surface at various locations on the subject property could not be physically or visually accessed due to the presence of dense vegetation.
   Recommendation: It may be prudent to reinspect the subject property if vegetation is cleared.

3. A water supply well was present on the subject property.
   Recommendation: The Oregon Health Authority requires that a seller test any domestic well for arsenic, nitrates and total coliform bacteria in the course of the sale or exchange of real estate. The results of the testing are to be sent to the agency. Accordingly, if the well is to continue to be used for drinking water purposes, it should be sampled in accordance with Oregon Health Authority requirements. Further, if usage of the well for drinking water is to be continued, the agency also recommends yearly testing. If usage of the water well is to be discontinued, it should be properly abandoned in accordance with all applicable regulations.

   It should also be noted that the Oregon Health Division rules specify that failure of the seller to test will not interfere with the sale of a property.

4. Buildings related to the plywood mill formerly present on the subject property may have been served by on-site septic systems.
   Recommendation: If any septic tanks or cesspools are encountered during any future site excavation or redevelopment activities, it/they should be decommissioned according to the applicable regulations.

2.0 INTRODUCTION

2.1 Purpose

Wild Rivers Land Trust (the Client/User) retained the environmental consulting firm of Hahn and Associates, Inc. (HAI) to perform a Phase I Environmental Site Assessment (ESA) of the Former Western States Plywood Cooperative Mill property located at Tax Lots 104, 900, and 901, in Port Orford, Curry County, Oregon.

This Phase I ESA was undertaken by the Client/User for the purpose of identifying Recognized Environmental Conditions (RECs) at the property, that is, 1) *the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment;* (2) *the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment;* or (3) *the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment.* A Historical REC (HREC) and/or *de minimis* condition is not a REC. This report is intended to constitute *All Appropriate Inquiries* (AAI) for purposes of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

2.2 Detailed Scope-of-Services

The scope of work for this project followed the American Society for Testing and Materials (ASTM) guideline (E1527-21) entitled *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, which was approved by ASTM International on November 1, 2021 for meeting the requirements of the federal AAI Rule. This scope of work is strictly limited to the scope set forth in ASTM E1527-21, unless specifically noted herein and detailed in the services agreement for this project. The U.S. Environmental Protection Agency (EPA) has stated that the ASTM E1527standard may be used to comply with meeting the objectives and performance factors of 40 Code of Federal Regulations (CFR) Part 312 Standards for *All Appropriate Inquiries, Final Rule* (40 CFR 312.11). Agency approval of E1527-21 is pending. All appropriate inquiries must be conducted in compliance with E1527 to obtain protection from potential liability under CERCLA as an innocent landowner, a contiguous property owner, or a bona fide prospective purchaser. Any deviations to or from ASTM E1527-21 are described in Section 11.0 *Deviations.*

In accordance with E1527-21, information on the property under consideration was gathered through the following activities:

- Physical inspection (site visit)
- Observation of the physical features of the property
- Survey of the surrounding land uses
- Interviews of knowledgeable persons, when available and as pertinent, including
- Current and past owners
- Current and past operators
- Current and past occupants
- Others
- Review of the available historical documents
- Review of recorded environmental cleanup liens and Activity and Use Limitations (AULs), as provided to HAI by the Client/User, for the purpose of CERCLA Landowner Liability Protections
- Reviews of federal, tribal, state, and local government records
- Examination of other pertinent documents, such as, but not limited to, photographs and maps

In accordance with the services agreement for this project (Appendix A) and unless specifically noted herein, the Phase I ESA review and inspection activities did not include items that were outside the scope of ASTM E1527 (also known as non-scope considerations) that may exist on a property that are beyond the scope of E1527-21, but may warrant consideration by parties to a commercial real estate transaction. Non-scope considerations include certain environmental conditions such as, but not limited to, the following:

- Asbestos
- Lead-Based Paint (LBP)
- Lead in Drinking Water (LIW)
- Electromagnetic Radiation
- Cultural and/or Historical Resources
- Indoor Air Quality (e.g. Vapor Intrusion, Radon, Etc.)
- Fungi (e.g. Mold)
- Wetlands And Other Ecological Resources
- Endangered Species
- Health and Safety
- Regulatory Compliance
- Determination of the Suitability of a Property or its Structures for any Purpose
- Emerging Contaminants

    - Substances not defined as Hazardous Substances
- **NOTE**: this list is not intended to be an all-inclusive list of all possible environmental conditions that may exist on a property that are <u>outside the scope of ASTM E1527-21 and this report</u>. Further, no implication is intended as to the relative importance of inquiry into such non-scope considerations.

While issues pertaining to asbestos are <u>not</u> within the scope of ASTM E1527-21, this report does comment on the possible presence of suspect asbestos-containing materials (ACMs), based upon 1) the age(s) of the property structure(s); and 2) physical observations during the site visit of visually accessible materials. However, a formal asbestos survey was <u>not</u> performed for the subject property.

Additionally, while indoor air quality is <u>not</u> within the scope of ASTM E1527-21, the Phase I ESA review and inspection activities have included an assessment of the likelihood of an impact to the subject property and its structures from migrating hazardous substances and petroleum products in any form, including solid and liquid at the surface or subsurface, and vapor in the subsurface, in accordance with ASTM E1527-21 and *All Appropriate Inquiries*. However, a formal Vapor Intrusion Assessment was <u>not</u> within the scope of this Phase I ESA and was not performed for the subject property.

2.3 Significant Assumptions

User's Responsibilities
Unless specifically noted herein, it is the obligation of the Client/User of this Phase I ESA to provide HAI with certain information as specified in ASTM E1527-21 as the *User's Responsibilities*, including:

- A Title Report that includes the required search for recorded environmental liens and activity and use limitations (AULs), as well as any actual knowledge thereof
- Information regarding any specialized knowledge or experience, or commonly known information that may be material to identifying RECs at the subject property
- Information regarding the reason for a significantly reduced property purchase price (lower than fair market value)

Inferred Groundwater Flow Direction
For the purpose of evaluating the potential for groundwater contamination

from offsite sources to impact the subject property, or from onsite sources to impact surrounding areas, the uppermost groundwater flow has been inferred to generally follow surface topography, and to flow toward surface water bodies, unless specific information is available regarding groundwater flow direction. HAI has not field-checked any of the site hydrogeological information for accuracy, nor did HAI conduct an independent evaluation of the local geology.

Accuracy/Completeness

The accuracy and completeness of "readily available" recorded information and historical documentation varies among and within information sources, including governmental sources. Historical records and documentation are often inaccurate or incomplete, or may provide conflicting information. Similarly, the accessibility to or the ease of retrieval of such records may vary or be inconsistent.

Under ASTM E1527-21, the Client/User or Environmental Professional (EP) is not obligated to identify mistakes or insufficiencies in the information provided or obtained. HAI has made a reasonable effort to take into consideration the possible significance of any such mistakes or insufficiencies that are obvious in light of the available information of which HAI has actual knowledge.

Limitations and Exceptions

This report is not intended to be an exhaustive investigation of environmental conditions or a characterization of any contamination discovered. In performing an environmental site assessment, a balance must be struck between the desire to conduct a complete inquiry into environmental matters and the limits of time, cost and technology.

This report sets forth HAI's evaluation of the possibility of RECs based on the scope of work agreed to by the Client and within the Client's schedule and budget. HAI's limitations and exceptions are described in Section 13.0 *Limitations* and in the *Services Agreement* for this project.

Special Terms and Conditions

None.

2.4 User Reliance

Unless otherwise specified in writing, this report has been prepared solely for use by the Client and User(s), as identified in Section 2.1 *Purpose*, for use only in connection with the described property, subject to the limitations and conditions presented in Section 13.0 *Limitations* and in the *Services Agreement* for this project. Any other use by the Client/User(s) or any use by any other person shall be at the user's sole risk, and HAI shall have neither liability nor responsibility with respect to such use.

3.0 SITE BACKGROUND

3.1 Location and Legal Description

The subject property consisted of Tax Lots 104, 900, and 901 located in the W 1/2 of the SE 1/4 of Section 27, Township 32 South, Range 15 West of the Willamette Meridian (W.M.). Tax Lot 900 had the assigned street address 93599 Elk River Road. Tax Lots 104 and 901 did not have assigned street addresses.

Tax Lot	Acreage	Improvements / Features
Tax Lot 104	5.39	None; Former plywood mill wigwam burners
Tax Lot 900	5.54	Storage/Maintenance building (vacant), water well, remnant concrete for former fire pond pump house, former fire pond
Tax Lot 901	6.87	None; Former log pond and remnants foundations for several former plywood mill structures
Latitude, Longitude: 42.769723°, -124.462697°		
Owner: Elk River Partners LLC		

Source: Curry County Department of Assessment and Taxation records, prior HAI ESAs

3.2 Site and Vicinity General Characteristics

City/County/State: Outside city limits of Port Orford, Curry County, Oregon

Distance from Town Center: Approximately 2 miles NE of Port Orford (Figure 1)

Adjacent Streets / Geographic Features:
East: Elk River South-Southwest: Elk River Road

General Vicinity Characteristics: Undeveloped land, agricultural and residential usage (Figure 2). The Elk River flows generally to the north along the eastern perimeter of Tax Lot 104. Bagley Creek enters the western perimeter of Tax Lot 900 to flow into the former fire pond on Tax Lot 900 and the former log pond on Tax Lot 901, and then flows to the east-northeast across the northern portion of Tax Lot 104 to the Elk River.

3.3 Current Use of the Property

The subject property consisted mainly of currently undeveloped land. The only intact structure observed on the property was a vacant building (referred to herein as the Storage/Maintenance Building) located in the southwestern corner of Tax Lot 900. Concrete and steel remnants of old mill structures were also present on the property, including an old pump house, part of a former boiler house, and concrete pads (Figure 2).

3.4 Current Uses of the Adjoining Properties

The surrounding properties consisted of undeveloped, wooded land, agricultural fields (pasturage), and residential development, as tabulated below and shown in Figure 2.

Surrounding Properties	
Direction	**Description**
North	Agricultural land (livestock pasture)
Northeast	Bagley Creek, Elk River
East, Southeast	Elk River, undeveloped land (portion of former Western States Plywood Cooperative Mill site, along with subject property*)
South	Residences, Elk River Repair (based on reverse city directories)

Surrounding Properties	
West, Southwest	Residence, Coos-Curry Electric Co-op facility farther southwest
West, Northwest	Agricultural land (livestock pasture)

* See Section 7.0 *Site History* and Section 8.0 *Records Review*

3.5 Physical Setting Sources

3.5.1 Topography

Terrain	The majority of the subject property is relatively flat, with a very gradual slope to the northeast and east, towards the Elk River.
Elevation (Approximate)	50 to 100 feet above mean sea level (msl)
General Topographic Gradient	Variable slopes towards tributaries of the Elk River, including Bagley Creek, which flows northeastwards through the property's western and northern portions. Overall regional gradient follows the Elk River, which generally flows towards the northwest.

Source: U.S. Geological Survey 7.5-Minute Quadrangle, Sixes, Oregon, 2017 (Figure 1)

3.5.2 Geology

According to the U.S. Geological Survey *Geologic Map of Oregon*, 1991, the subsurface soils in the vicinity of the subject property are underlain by the following Geologic Units:

Portion of subject property	**Geologic Unit**	**Description**
Eastern portion of Tax Lot 104	Qal - Quaternary alluvium	Sand, gravel, and silt forming flood plains and filling channels of present streams.
Southern majority	Ks - Cretaceous sedimentary rocks	Marine graywacke, subgraywacke, conglomerate, and shale.

3.5.3 Hydrogeology

One water well was observed at the subject property, on Tax Lot 900. The well is discussed in Section 4.8 *Wells.* A review of Oregon Water Resources Department (OWRD) records revealed one water well log for the subject property (Well Log CURR 51417, included in Appendix B). The well log indicated that groundwater was encountered at 12.25 feet below ground surface (bgs). The well was installed in 2006 and was intended for domestic (drinking water) usage at Tax Lot 900 (the western portion of the subject property).

An OWRD well log report for nearby registered wells in Section 27 of Township 32 South, Range 15 West, W.M. indicated the depth to first groundwater in the vicinity of the property ranged from approximately 5 to 20 feet bgs (Appendix B). These records included push probe borings installed as part of HAI's 2018 Phase II ESA investigation[1] at the former mill property.

Groundwater was measured in temporary well points at depths typically ranging between 7.5 to 17 feet bgs, with an average depth of approximately 12 feet bgs. Groundwater flow direction was not directly measured at the site. It was inferred that groundwater flow could vary between east and northwest, and vary seasonally.

HAI did not field-check any of the site geological or hydrogeological information for accuracy as a part of this environmental site assessment.

4.0 SITE RECONNAISSANCE

Date: November 4, 2022		**Adverse Conditions:**	Heavy vegetation
Conducted By:	Mr. Ricky Ede, Environmental Scientist		
Access granted by:	Elk River Partners LLC, the subject property Owner. Mr. Ede was not accompanied during the site visit		

4.1 Methodologies and Limiting Conditions

The methodologies for conducting the Site Reconnaissance of the subject property included:

- Visual inspection of the exterior areas of the maintenance shed, and visual inspection of the shed interior via a slightly ajar door. A small room in the southeast corner of the maintenance shed was not visible and could not be inspected (Data Gap)

[1] HAI (2018). *Phase II Environmental Site Assessment Report, Log Pond Parcel and Tax Lot 104, Former Western States Plywood Cooperative Property, Port Orford, Curry County, Oregon* (HAI Project No. 9358). Hahn and Associates, Inc. Draft Report, December 18, 2018.

- Visual inspection of the property perimeter
- Visual inspection of the remainder of the property, except where the ground surface was obscured by debris or heavy vegetation, which included the field in the southeast portion of the property (Data Gap)
- Visual inspection of the adjoining properties from the subject property boundary, public rights-of-way, or other vantage points (e.g., aerial photography).

The visual inspection of the subject and adjoining properties endeavored to identify areas where hazardous substances and petroleum products may be or may have been stored, treated, handled, or disposed.

4.2 General Site Observations

The majority of the subject property was largely undeveloped and heavily vegetated, although one structure, two concrete pads, and concrete and rebar remnants of old structures were present. Bagley Creek crosses the property and flows through a small pond and a marshy former pond area. The Elk River flows along the eastern boundary of Tax Lot 104 (Figure 2).

Interior Areas

The subject property was developed with one approximately 870 square foot, one-story structure referred to as the Storage/Maintenance Building. Historical information (see Section 7.0 *Site History*) indicated that the structure was built prior to 1970. The interior of the Storage/Maintenance Building was not able to be accessed as the door was locked at the time of the site visit, but observations were able to be made through a gap in one of the sliding doors.

The vacant Storage/Maintenance Building was wood-framed and had a concrete slab foundation and a wood exterior (Photograph No. 1). The building had unfinished walls and a concrete slab floor, with *de minimis* oil staining noted in places on the concrete floor (Photograph No. 2). Fluorescent light ballasts were present throughout the structure. The building was largely empty at the time of the site visit aside from a metal file cabinet and some disassembled wooden furniture. Hazardous materials were not observed within the structure. One small room was visible, but was not able to be inspected. According to Mr. Ted Labbe of Elk River Partners LLC, the subject property Owner, hazardous materials were not present within the room (refer to Section 5.1 *Interviews with Owner, Site Manager, Occupant*.

An approximately 260 square foot awning was attached to the southeastern side of the building. The area under the awning was used to store scrap lumber, and several partially full consumer-sized (5-gallon or less) containers of anti-freeze, bleach, and other materials (without labels) were noted under the awning (refer to Section 4.5 *Hazardous Materials, Petroleum Products, Hazardous Wastes*).

A small wooden shed (approximately three feet by six feet) was attached to the northeastern side of the Storage/Maintenance Building that was empty at the time of the site visit.

Exterior Areas

The majority of the subject property was undeveloped and covered with vegetation, including tall grasses, gorse, and trees.

The Elk River flowed to the north and northwest along and across the northeastern perimeter of Tax Lot 104 (Figure 2). An approximately 0.25-acre pond, referred to as the Fire Pond, was located on the northwestern portion of Tax Lot 900. Bagley Creek flowed through a culvert from the southwest into the Fire Pond, and continued to the north-northeast towards a marsh on the north-adjacent property. The marsh was the former location of the Log Pond (see Section 7.0 *Site History*).

The EDR Radius Map report (Appendix E) provided information about wetlands that have been mapped by state and federal agencies, and a 2022 Screening Level Ecological Risk Assessment provides additional information regarding wetlands and other sensitive environments (Appendix H) .

Unpaved driveways and footpaths were present on the property (Figure 2). A gate located on a road leading to the Elk River was present in the northern portion of the property, and bridges were present at a gate on the northeastern border of the property, and also over Bagley Creek at the northern end of the Fire Pond.

Outdoor storage of household items and garbage was noted in the vicinity of the Storage/Maintenance Building, including an empty propane tank, a metal barrel containing trash and empty vehicle oil or other fluid containers, pieces of wooden furniture, and empty paint cans, with no hazardous substances noted in this area. A pile of PVC pipes was observed outside of the Storage/Maintenance Building.

Two concrete pads were observed on the subject property. One pad was approximately 30 by 40 feet, located near the center of the property, and one pad was approximately 5 by 5 feet, and located in the northern portion of the property (Figure 2). Multiple remnants of older structures were observed: concrete and steel beams remnants of an old pumphouse on the southeast bank of the fire pond (Photograph No. 4), and part of the concrete structure of an old boiler house remains near the center of the property (Figure 2, Photograph 5). Mr. Max Beeken of the Wild Rivers Land Trust (the property Owner) reported that there are remnants of an old pumphouse north of the log pond. A concrete trough was observed above Bagley Creek at this location (Photograph 6). On the eastern bank of the log pond two metal beams were observed that were likely part of a former structure (Figure 2).

Evidence of releases of hazardous substances or petroleum products, such as stains, soil discoloration, odors, distressed vegetation, or other visible indications of impairment, was not noted on the subject property.

Utilities

The subject property was served by the following utilities:

Utility	Provider / Comments
Electricity	Coos-Curry Electrical Co-operative
Water	Tax Lot 900: Onsite water well. Photographs from 2017 Phase I ESA indicated that a water pressure tank was located inside the northern portion of the Storage / Maintenance Building.
Sewer	None known (adjacent properties use septic systems)

Utilities were available in the vicinity of the subject property. Power lines were observed connected to the Maintenance Building.

Surrounding Properties

Aside from remnants of the historical mill present on and adjacent to the subject property, evidence of the usage, storage, or disposal of hazardous substances, petroleum products or RECs on the adjoining parcels and right-of-way areas was not observed from the property boundary or from the public right-of-way.

4.3 Storage Tanks

4.3.1 Underground Storage Tanks (USTs)

During the assessment activities, the subject property was inspected for visual evidence of underground storage tanks (USTs). Visual evidence of USTs would include fill caps, vent pipes, and pump islands.

In addition, the following resources were queried / reviewed regarding UST records pertaining to the subject property:

- Port Orford Fire District – This agency does not maintain records regarding USTs
- The Oregon Department of Environmental Quality's (DEQ) Registered UST Facility, Leaking Underground Storage Tank (LUST), and Heating Oil Tank (HOT) Clean Decommissioning Sites lists

Fill caps, vent pipes, pump islands or other visual evidence of USTs was not observed at the subject property.

The PBS Engineering and Environmental Inc. (PBS) Phase I ESA (PBS 2017a, refer to Section 7.2 *Previous Environmental Site Assessments*) indicated that fuel USTs and dispensers were present offsite from the current subject property, and off of the northeastern side of the plywood mill structure on Tax Lot 903. As reported in the PBS Phase I ESA report, the USTs were removed (date unknown), crushed, and then reburied on "a parcel to the north and east" of Tax Lot 901, which may refer to either Tax Lot 104 of the current subject property, or to Tax Lot 100, offsite and adjacent to the north and northeast.

The original location of the formerly operating tanks and pumps on Tax Lot 903 is not exactly known, but a shed formerly located to the northeast of the former mill building may have been the former fueling shed/area. The operating USTs and pumps were not located on the subject property, but likely were located approximately 100 to 150 feet to the east and likely downgradient of the subject property. The locations of the reburied scrapped tanks, which were reportedly crushed prior to burial, are not known.

A geophysical survey conducted in 2018 identified four subsurface features that warranted further investigation. The sites of these four features were observed by HAI, but evidence of USTs was not evident at the ground surface, and no evidence of soil contamination was observed in the field during the HAI subsurface investigation. One of the features (near the former possible office area) was not assessed at that time due to a boring being mis-located. A subsequent geophysical survey was conducted by WSP in 2020 (refer to Section 7.2 *Previous Environmental Site Assessments*). The results of this subsequent geophysical survey did not indicate the presence of USTs at the subject property, including the previously identified potential UST area.

4.3.2 Aboveground Storage Tanks (ASTs)

The subject property was visually inspected for evidence of aboveground storage tanks (ASTs). Visual evidence of ASTs would include tanks, concrete foundations or saddles, pedestals, or steel support structures.

Tanks, saddles, pedestals, steel support structures, or other evidence of ASTs was not observed on the subject property. Concrete pads were observed on the subject property at the locations of previous buildings, and are not known to have been used for ASTs. Historical information indicates that glue ASTs and possibly water storage ASTs may have been present (refer to Section 7.3 *Summary of Historical Use*).

4.4 Polychlorinated Biphenyls (PCBs)

Polychlorinated biphenyls (PCBs), EPA-regulated hazardous substances, are commonly found in electrical equipment manufactured prior to 1980, the year PCBs above 50 parts per million (ppm) were banned from commerce for most applications. Pole and pad-mounted fluid-filled electrical transformers, ballasts associated with fluorescent light fixtures and some hydraulic fluids are typical of electrical equipment that would be suspected to contain PCBs.

Typical electrical equipment that would be suspected to contain PCBs include the following:

- Pole and pad-mounted fluid-filled electrical transformers
- Ballasts associated with fluorescent light fixtures
- Hydraulic fluids
- Submersible water well pumps manufactured prior to 1979

Equipment Type	Number / Location	PCBs Likely?
Fluid-Filled Electrical Transformers	Two pole-mounted units, adjacent, south-southwest across Elk River Road	No
Hydraulic Fluids	None	NA
Fluorescent Light Ballasts	Present throughout the Maintenance Building	Possible
Onsite Well(s)	One water supply well observed near the Storage/Maintenance Building	No

Electrical Transformers

Electrical transformers were not observed on the subject property. Two pole-mounted, fluid-filled electrical transformers were located to the south-southwest of the property, across Elk River Road (Figure 2). The transformers were labeled as not containing PCBs (blue label, denoting less than 1 ppm). Coos-Curry Electrical Co-operative, the utility that owns the transformers, is responsible for the cleanup of the release of any transformer fluids. The transformer noted during the site visit did not appear to have leaked.

Fluorescent Light Ballasts

Fluorescent light ballasts (used in light fixtures) manufactured prior to 1979 typically contained PCBs. Fluorescent light fixtures were observed in the Storage Building. Based on the age of the Storage Building (pre-1970), the ballasts may contain PCBs. However, these types of units do not typically pose an environmental concern unless they leak. Ballasts that are removed for replacement and/or disposal should be evaluated for PCB content. Those not labeled with the words "No PCBs" must be assumed to contain PCBs and must be managed in accordance with the applicable regulations.

Water Well Pumps

PCBs may also be associated with submersible water well pumps manufactured prior to 1979. One water supply well was present on the subject property (Photograph No. 3). According to OWRD records (see Section 4.8 *Wells*), the well on Tax Lot 900 was installed in 2006 and likely was equipped with a submersible pump. Based on the age of the well, it was unlikely that the pump contained PCBs.

4.5 Hazardous Substances, Petroleum Products, and Hazardous Wastes

The subject property was visually inspected for signs of the storage, use or disposal of hazardous substances, petroleum products, and hazardous wastes (e.g. containers, drums, staining, leakage, etc.).

Minor (*de minimis*) oil staining was noted on the concrete slab of the Maintenance Building.

Outdoor storage of household items and garbage was noted in the vicinity of the Storage Building, which included hazardous materials containers. These containers were all 5-gallons or less in size, and were labeled as having contained typical maintenance materials such as household paints, cleaners, and antifreeze. Evidence of spills or leaks from the hazardous materials containers was not observed. Portions of the property were covered with dense vegetation, and the ground surface could not be inspected in areas of dense vegetation (Data Gap). It may be prudent to reinspect these areas in the event that the vegetation is removed.

4.6 Wastewater and Stormwater

4.6.1 Wastewater Discharge Sources

Evidence of industrial, process, or other wastewater discharge sources was not observed at the subject property.

4.6.2 Subsurface Discharge Features

The subject property was inspected for evidence of subsurface discharge features (e.g. floor drains, oil/water separators, sumps and trenches).

Evidence of subsurface discharge features was not observed at the subject property.

4.6.3 Sanitary Systems

The subject property was visually inspected for evidence of current or former onsite sanitary systems (e.g. septic tanks, cesspools).

The resources reviewed for this assessment indicated that nearby properties are served by onsite septic systems. However, there was no indication that a septic system was present at the subject property. If a septic system is discovered at the property, it should be decommissioned in accordance with applicable regulations.

4.6.4 Stormwater Discharge

Stormwater

Stormwater features, such as catch basins or bioswales, were not observed at the subject property. Accordingly, stormwater at the property would infiltrate into the ground surface and/or flow as sheet runoff downslope towards Bagley Creek, the Fire Pond, the former Log Pond, or the Elk River.

Drywells

Drywells were not observed or indicated by permits or plans to be present at the subject property.

Surface Water

Evidence of surface water (e.g. ponds, lagoons or standing surface water indicative of industrial or wastewater disposal) was not observed at the subject property. Surface water in this context does not include naturally occurring bodies of water such as rivers, lakes, streams, or wetlands (annual or perennial).

The Fire Pond, located on Tax Lot 900 in the southwestern portion of the subject property, appears to have been created by damming Bagley Creek. Evidence of industrial or wastewater disposal into the Fire Pond was not observed during the site visit or indicated by the records reviewed for this assessment. A Log Pond was also formerly present on Tax Lot 901 in the northwestern portion of the property, but an earthen dam had been breached such that standing water was not present at the time of the site visit. It is possible that surface runoff from the former plywood mill facility could have flowed into the Fire Pond and former Log Pond.

4.7 Solid Waste Disposal / Fill Materials

4.7.1 Solid Waste Disposal

Household waste was noted in the vicinity of the Storage/Maintenance Building on Tax Lot 900, including plywood, lumber, a small propane canister, windows, PVC pipes, and furniture. A wood and wire structure, which looked like a small, old chicken coop, was located north-adjacent to the Maintenance Building. Hazardous waste containers were observed (see Section 4.5 *Hazardous Materials*). Dense vegetation precluded observation of the ground surface. Aerial photographs indicated that the amount of solid waste on the ground surface in the vicinity of the Storage/Maintenance Building was greater in the past than at the time of the site visit. It would be prudent to reinspect these areas if the dense vegetation is cleared in the future.

4.7.2 Fill Materials

The presence of undocumented fill at a property could present environmental concerns. Based on observations during the Targeted Brownfields Assessment field work (refer to Section 7.2 *Previous Environmental Site Assessments*) there were indications that burned material, clinkers, and slag had been placed or buried at the subject property. The presence of industrial and burned material placed as fill, and the presence of contamination including elevated levels of dioxins/furans and metals, represents a REC for the subject property.

4.8 Wells

The subject property was inspected for evidence of wells (e.g. potable supply, irrigation, monitoring, extraction, dry injection).

An approximately 8-inch diameter metal aboveground well casing with conduits for water and electricity was observed on Tax Lot 900, approximately 40 feet to the east of the northern end of the Storage/Maintenance Building (Photograph 3). Based on the fact that the well appears to include an electric conduit and the fact that a pump was not observed at the surface, the well may be equipped with a submersible pump. The well was not in use at the time of the site visit for this Phase I ESA.

OWRD records included a well log (CURR 51417) for a water well located at 93639 Elk River Road, Port Orford, the address associated with Tax Lot 900.

CURR 51417 is presumed to be the well observed at Tax Lot 900. It was installed in 2006 for Mr. Jeffrey Fick and was intended for domestic (drinking water) use. The depth of the completed well was 23.75 feet bgs, with the static water level recorded at 12.3 feet bgs.

4.9 Additional Services

Unless specifically noted herein, the Phase I ESA review and inspection activities did not include items that are outside the scope of ASTM E1527-21 such as issues related to lead-based paint, lead in drinking water, electromagnetic radiation, cultural and/or historical resources, indoor air quality (e.g. vapor intrusion, radon, etc.), fungi (e.g. mold), wetlands and other ecological resources, and endangered species. Similarly, the review and inspection activities did not include surveys for asbestos, health and safety, regulatory compliance, or a determination of the suitability of a property or its structures for any purpose.

An asbestos survey was not within the scope of this Phase I ESA and was not performed for the subject property. However, HAI conducted a limited visual assessment for suspect asbestos-containing materials (ACMs) at the time of the site visit. This visual assessment did not constitute an asbestos survey and was not intended to identify every suspect ACM at the property.

4.9.1 Asbestos

Asbestos is a U. S. Environmental Protection Agency (EPA)-regulated toxic substance and a human carcinogen. By EPA standards, asbestos-containing material (ACM) is any material that contain more than one percent asbestos. ACMs were typically used in insulation materials, ceiling tiles, and linoleum manufactured prior to the mid-1970s. However, certain types of ACMs, including roofing felt and coatings, among others, may continue to legally be imported or produced, sold, and installed in structures today.

EPA requires that all Regulated ACM (RACM) be removed from a site prior to demolition, dismantling or renovation of structures to prevent the release of asbestos fibers to the air. RACM would include friable ACM or nonfriable ACM that will be or has been subjected to sanding, grinding, cutting or abrading, or has crumbled, or has been pulverized or reduced to powder in the course of demolition or renovation operations. Friable ACM is defined as any material with more than one percent asbestos by weight that hand pressure can crumble, pulverize or reduce to powder when dry.

State regulations further require that all ACMs be removed from a site prior to demolition, dismantling or renovation of structures, regardless if the material is friable. Additionally, DEQ also requires that an asbestos survey be conducted prior to the renovation or demolition of all non-residential buildings, regardless of date of construction, and also of residential buildings constructed prior to January 1, 2004. A copy of the asbestos report must be kept onsite and provided to the agency upon request.

Note that a waiver of DEQ's requirement for an asbestos survey can be granted if requested in writing and documentation proves to agency satisfaction that no asbestos-containing material is present. Alternatively, an asbestos survey is not required if all of the material will be handled and disposed of as ACM.

In addition, federal and state Occupational Safety and Health Administrations (OSHA) require that commercial and industrial building and facility owners communicate asbestos hazards and provide asbestos awareness training to tenants, employees, and maintenance personnel.

An asbestos survey previously conducted in 2017 (PBS 2017) for Tax Lot 900, including the Maintenance/Storage Building, did not identify the presence of asbestos-containing materials. No suspect asbestos-containing materials were noted in other portions of the subject property during the site visit for this Phase I ESA.

4.9.2 Potential for Low-Level Soil Contamination

A Clean Fill Determination was not within the scope of this Phase I ESA and was not performed for the subject property. A Clean Fill Determination would include soil sampling and quantitative analysis, none of which was performed during this Phase I ESA.

At many sites, notably those located in industrial, agricultural, and/or urban areas, previous environmental sampling and analysis has detected low levels of hazardous substances impacts in site soils. The source of these low-level hazardous substances impacts varies, but is generally related to the fact that the original soils have been altered by site construction/demolition activities, by the addition of fill materials, by the storage, usage and disposal of hazardous materials at industrial sites, by the historical usage of pesticides at agricultural sites, and/or by air and water deposition of contaminants ubiquitous in urban environments.

Typically, such low-level hazardous substances impacts in soils do not present an environmental or human health-related concern, and if left in-place, undisturbed, no actions would be necessary for these soils. However, if they are to be excavated and removed as part of future site construction activities, then such soils may not qualify for unrestricted management and reuse or disposal.

In Oregon, the criteria used to determine whether soil to be excavated at a property may have restrictions on its management and end use (i.e. reuse or disposal location) are the DEQ Clean Fill screening level values (SLVs). In 2014, DEQ prepared an internal management directive entitled *Clean Fill Determinations*[2] that can be used to assist in soil management decisions. This directive contains a "Clean Fill Table for Uplands" that lists Clean Fill SLVs for individual chemicals of concern.

In addition to the numeric Clean Fill SLVs, if any material is observed to contain quantities of putrescible wastes, construction and/or demolition wastes, or industrial solid wastes, or exhibits a chemical stain or odor, the material is not considered Clean Fill by DEQ definition. Note, however, that DEQ indicates that unpainted concrete, brick, building block, rock, or tile can qualify as Clean Fill.

Industrial Land – Potential Restrictions on Reuse or Disposal of Site Soils: Based upon the history of industrial usage at the site as a former plywood mill, low-level hazardous substances impacts may be present in soils at the subject property. The results of soil sampling and testing confirmed the presence of hazardous substances impacts to soils at the property. Such impacts could disqualify the affected soils for re-use as Clean Fill for unrestricted management, reuse and/or disposal. In the event of future site construction activities that involve the excavation and removal of site soils, special management of any such impacted soils may be required.

5.0 INTERVIEWS

5.1 Interviews with Owner, Site Manager, Occupant

Attempts were made to interview current Owner(s), the key site manager, occupants and/or major occupants, and occupants likely to use, store, treat,

[2] DEQ (2014). *Clean Fill Determinations*. Internal Management Directive. Oregon Department of Environmental Quality. February 21, 2019.

handle or dispose of hazardous substances or petroleum products at the subject property. In addition, to the extent that they have been identified, past owners, operators, and occupants likely to have information regarding the potential for contamination at the property were also interviewed. Further, a reasonable attempt has been made to interview a state and/or local government agency. Additional personnel may also be interviewed as deemed necessary. Data Gaps with regard to the referenced interviews are discussed below and in Section 9.1 *Data Gaps*.

Current Property Owner, Key Site Manager, and Occupant

Information obtained from Curry County Tax records and a *Status of Record Title* report (Appendix D) identified the following current Owner of the subject property:

Owner	**Year Acquired**
Elk River Partners LLC	2020

Mr. Ted Labbe, director of Elk River Partners LLC (the subject property Owner), was interviewed on November 11, 2022. Mr. Labbe indicated the following:

- Elk River Partners LLC acquired Tax Lot 104 of the subject property in 2019, Tax Lot 900 of the property in 2020, and Tax Lot 901 of the property in 2019. He was familiar with the property in his professional capacity for Elk River Partners LLC for a short period, of time prior to acquisition of the property.
- The only building remaining on the property was the Storage/Maintenance Building in the southwestern portion of the property
- Mr. Labbe indicated that the Storage/Maintenance Building was occupied recently by a tenant who used the building for storage. The building was largely empty after he vacated the building.
- The small room in the Storage/Maintenance Building was largely empty after the tenant moved out, with no hazardous materials present
- The well present near the Storage/Maintenance Building was out of use
- Mr. Matt Swanson of Swanson Ecological Services had conducted herbicide application to control invasive gorse, primarily on Tax Lot 104
- Environmental conditions at the former mill site on the property had been documented in numerous prior reports

Mr. Labbe indicated that he was not aware of:

- Any environmental issues or conditions at the property, aside from those previously documented in reports prepared for the property
- Any existing or former USTs, aside from any information previously documented in reports prepared for the property
- Environmental permits, notices, significantly lower property purchase price (lower than comparable), environmental liens or activity and use limitations, or RECs in association with the property, aside from environmental issues previously documented in reports prepared for the property
- Any pending, threatened or past litigation or administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the property
- Any notices from any government entity regarding possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products
- Environmental conditions that have affected or may affect the purchase or lease price of the property.
- Any specialized knowledge of the property or surrounding sites, and knew of no commonly known information about the property that would help in identifying conditions indicative of releases or threatened releases, including RECs at the property, aside from environmental issues previously documented in reports prepared for the property
- Any obvious indicators that point to the presence or likely presence of contamination at the property, aside from environmental issues previously documented in reports prepared for the property.

5.2 Interviews with Past Owners, Operators, Occupants

Past Property Owner(s), Operator(s) and Occupant(s)

Information obtained from Curry County Tax records and interviews identified the following former Owners of the subject property:

Owner	Years Owned
Tax Lot 104	
Ms. Kathy Ingram and Ms. Margaret Crowley	2016 – 2019
Mr. Donald Porior	2006 – 2016
Mr. David Griffith	1998 – 2006
Tax Lot 901	
John Galen Ohara Living Trust	2013 – 2019
Mr. Charles Case	2006 – 2013

Owner	Years Owned
Mr. David Griffith	1998 – 2006
Tax Lot 900	
Mr. Michael River Rusich	2018 – 2020
Mr. James Fredrick Fick, Mr. Michael Oliveira and Ms. Jan Oliveira	2005 – 2018
Mr. John Galen O'Hara	2002 – 2005
Undetermined	1980s – 2002
Phoenix Western, Inc.	1976
Western States Plywood	1950s – 1975
The Marsh family	Prior to 1951

Mr. Michael River Rusich, a past Owner of Tax Lot 900, was interviewed for a prior ESA on June 26, 2020 (HAI 2020). Mr. Rusich indicated the following:

- He owned the property for approximately one year.
- He primarily used the Storage/Maintenance Building to store tools and wood. He also used it as a residence. The Storage/Maintenance Building was equipped with water from the well but did not have a toilet or septic system.
- His understanding is that the building had historically been used to store tractors and equipment.
- Mr. Rusich was not aware of any underground storage tanks, spills, releases, or other environmental concerns at the subject property.

Mr. David Griffith, a past Owner of Tax Lots 104 and 901, was also interviewed for a prior ESA in 2019 (HAI 2019). Mr. Griffith stated that Mr. Porior also purchased Tax Lot 901 in approximately 2006, but that it was returned to Mr. Griffith's ownership due to a foreclosure and was subsequently sold to Mr. Charles Case. Internet searches did not yield a current telephone number for Mr. Porior or Mr. Case. Furthermore, no earlier owners were identified. Therefore, HAI was not able to interview former Owners with knowledge of the property prior to 1998.

Past Employee

- Mr. Dennis Dougherty, a former mill employee, was interviewed on March 7, 2019 for a prior ESA (HAI 2019). Mr. Dougherty indicated the following:
- Mr. Dougherty stated that he had worked at the mill during the summers of 1969, 1970, 1971, while in college
- His duties consisted of working on the green chain, dry-chain, green veneer clipper, and the mill pond conveyor, which fed unusable scrap wood and bark into the wigwam burners
- Western States Plywood Mill operations consisted solely of manufacturing plywood. Mr. Dougherty described the former mill operations and features from 1969 through 1971, as he recalled them (both on the current subject property and on the offsite portions of the mill facility), as follows:
  - Raw logs were debarked and cut to approximately 8 -foot lengths called *peeler blocks*, and stored in the Former Log Pond, where they were held until needed. During Mr. Dougherty's employment, debarking operations occurred on the southeastern portion of Tax Lot 901.
  - From the Log Pond, the peeler blocks were conveyed to the *peeler lathe* where a continuous sheet of *veneer* would be peeled from each block. Mr. Dougherty indicated that the peeler lathe was located in the northwestern extension of the main mill building, and therefore was located on Tax Lot 901.
  - The sheets of veneer were conveyed to the *veneer clipper*, where knots were clipped out, and the sheets were cut to usable widths, and fed through the *green chain* to the *dryer chain*. Mr. Dougherty indicated that the veneer clipper was also located in the northwestern extension of the main mill building, and therefore was located on Tax Lot 901.
  - The dried sheets of veneer were then conveyed to the glue press area within the main mill building (located offsite, immediately adjacent to the east), where they were assembled and glued to form finished sheets of plywood.
  - From the glue press, finished sheets of plywood were moved to a storage area within the main mill building (located offsite, immediately adjacent to the east) and stacked in piles 30 or 40 feet high.
  - The wigwam burners on Tax Lot 104 were used for burning/disposing of the large volume of waste bark and scrap wood generated by the plywood manufacturing process that was not used for fueling the steam boiler.
  - Mr. Dougherty observed household garbage also being fed into the wigwam burners on occasion.

- Fuel for the steam heat required for the glue press consisted of sawdust and scrap wood derived from plywood processing operations
- Mr. Dougherty recalled the following structures to have been located on Tax Lot 901 of the subject property during his employment (1969-1971): A millwright shop, ring debarker, and boiler house were present between the main mill building and the log pond. He further stated that the ring debarker was added in the mid- to late 1960s, to replace the original debarker. Because Mr. Dougherty's father worked in the ring debarker, he recalled it clearly.
- Mr. Dougherty also recalled the presence of tall, narrow aboveground tanks in the vicinity of the ring debarker, which he believed were used for storing glue
- Offices, a lunchroom, and restrooms were located offsite, on the second floor of the main mill building.

Mr. Dougherty indicated that he was not aware of:

- Other historical uses of the property or of any former property structures other than the former Western States mill.
- Any existing or former USTs, ASTs (aside from glue ASTs), water supply wells, septic tanks, drywells, pits, sumps, or hazardous substances and/or petroleum product usage on the property
- He was not aware of wood treatment chemicals being used onsite, and was not aware of any chemical usage other than glue

In 2017, PBS interviewed Mr. Jim Rogers, former Timber Manager of Western States Plywood Cooperative, as part of their Phase I ESA of Tax Lot 901. PBS reported the following:

- Mr. Rogers worked for the plywood mill from 1968 to 1974.
- Mr. Rogers' responsibilities included purchasing timber, getting it to the mill and managing the log yard.
- The mill made primarily plywood, but also 2" x 4" dimensional lumber.
- Mr. Rogers was not aware of any spills or leaks of any kind on the property while he worked there except for a glue spill that occurred in the 1970s.
- Mr. Rogers remembered the presence of gasoline and diesel USTs on the parcel to the east of Tax Lot 901 [likely on the immediately adjacent Tax Lot 903, and offsite from the subject property of this current Phase I ESA].
- A fire in 1976 destroyed all of the mill buildings on the east adjacent Tax Lot 903, where the main mill buildings were previously located.
- Employee household waste was regularly burned in the wigwam burner located on Tax Lot 104.

In 2017, PBS also interviewed Mr. Joe Marsh, whose grandfather had owned Tax Lot 901 (and possibly the entirety of the larger mill site) prior to the development of the mill (PBS 2017). PBS reported the following:

- Mr. Marsh had used, and continued to use in 2017 the eastern access road for access to the agricultural land to the north and west of the larger mill site

Mr. Marsh remembered that there were fuel USTs on the mill site, and that the tanks and pumps were located outside and to the northeast of the main mill building [i.e., on Tax Lot 903, offsite from the subject property of this current Phase I ESA].

5.3 Interviews with Government Officials / Others

State and/or Local Government Agency

The Oregon Department of Environmental Quality (DEQ) was contacted following the findings of a Phase II investigation conducted by HAI, as discussed further in Section 7.2. The DEQ was provided a copy of the Phase II ESA report (HAI 2018) and data summary report (HAI 2019). While written comments have not been provided to date, Ms. Mary Camarata and Mr. Anthony Chavez of the DEQ did provide feedback in a conference call on February 6, 2019. In summary, DEQ expressed concern that the currently available information was insufficient to determine whether remedial action will be necessary at the subject property, and that additional characterization would be needed, particularly with respect to dioxins. DEQ also expressed concern relating to the detection of pentachlorophenol in groundwater and the need for additional assessment at possible UST locations.

Additional subsurface investigation was subsequently conducted in 2020 (refer to Section 7.2 *Previous Environmental Site Assessments*).

Other State and County government agency records and information were readily available through Internet database searches and queries. Local agency representatives for the building and fire departments did not have additional information beyond publicly available records and plans (Section 7.1 *Historical Use Resources*). Accordingly, interviews with other state or local government agency representatives were not conducted during this assessment.

6.0 USER-PROVIDED INFORMATION

Persons (e.g. the Client/User) seeking to qualify for the innocent landowner defense, prospective purchaser or contiguous property owner liability protection under CERCLA must provide any specialized knowledge of the subject property or surrounding sites, commonly known or reasonably ascertainable information within the community regarding the subject property, and any other experience relevant to this inquiry, for the purpose of identifying conditions indicative of releases or threatened releases at the subject property. The Client/User must also consider the degree of obviousness of the presence or likely presence of contamination on the property.

Mr. Max Beeken of Wild Rivers Land Trust (the Client/User) completed a *Phase I Environmental Site Assessment User Questionnaire* (Appendix C).

6.1 Title Records

On behalf of Wild Rivers Land Trust (the Client/User), Mr. Beeken provided HAI with a *Status of Record Title* for the subject property, prepared by AmeriTitle and dated October 24, 2022 (Appendix D).

6.2 Environmental Liens or Activity and Use Limitations

Mr. Beeken indicated that he was not aware of federal, tribal, state, or local environmental liens or activity and use limitations (AULs, such as engineering or institutional controls) in association with the subject property, as borne out by the preliminary title report provided by Wild Rivers Land Trust.

6.3 Specialized Knowledge and Commonly Known or Reasonably Ascertainable Information

Mr. Beeken indicated that he had no specialized knowledge of the subject property or surrounding sites. He indicated that he was aware of commonly known information regarding the property use as a plywood mill from the 1950s through the 1970s. This included the presence or potential presence of chemicals including dioxins/furans, formaldehyde, pentachlorophenol, and metals, as well as a report of a possible glue spill indicated in EPA/DEQ records. For information regarding previous ESAs for the property that provide information regarding the presence or likely presence of contamination or RECs at the property refer to Section 7.2 *Previous Environmental Site Assessments*.

6.4 Valuation Reduction for Environmental Issues

Mr. Beeken indicated that he was not aware of:

- Environmental permits, notices, or significantly lower property purchase price (lower than fair market value)
- Any pending, threatened, or past litigation or administrative proceedings concerning hazardous substances or petroleum products in relation to the property
- Any notices from any government entity regarding possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products
- Environmental conditions that have affected or may affect the purchase or lease price of the property.

6.5 Reason for Performing Phase I ESA

Mr. Beeken indicated that Wild Rivers Land Trust was conducting the Phase I ESA for due diligence purposes in support of Landowner Liability Protections under CERCLA, in support of a lease of the property.

7.0 SITE HISTORY

7.1 Historical Use Resources

A combination of practically reviewable information (available within reasonable cost and time constraints) was obtained from publicly available records and resources. While such information is typically incomplete, the following resources were reviewed in an effort to establish the history of the subject property and surrounding land use:

Resource Type	Years Reviewed or Search Term	Source
Building Plans/Permits	Subject property address(es) and/or tax ID	Curry County (records past two years not maintained); ePermits online (no site records)
	1940, 1979, 1986	2017 ESA (PBS)

Resource Type	Years Reviewed or Search Term	Source
Historical Aerial Photographs	1951, 1992, 1997	U.S. Geological Survey Earth Explorer website
	1965, 1970, 1972	University of Oregon Map & Aerial Photography Collection, Eugene, Oregon
	1965, 1970, 1972, 1977	U.S. Army Corps of Engineers Central Map Files, Portland, Oregon
	1994, 2000, 2004, 2005, 2015, 2019	Google Earth Imagery
Historical Topographic Maps	1899, 1954, 1986, 1996	U.S. Geological Survey TopoView website
Internet Searches	Subject property address, former Owner names	Various sources
Reverse City Directories	1992, 1995, 1999, 2003, 2008, 2013	EDR City Directory Report, included in 2017 PBS Phase I ESA
Sanborn Fire Insurance Maps	Not Applicable	No Coverage
Tax Assessment Records	Subject property addresses and/or tax ID	Curry County

Aerial photographs were not available between 1977 and 1994 (Data Failure). A complete listing of all references, including sources and dates of review, is included in Section 14.0 *References*. Aerial photographs for the years 1952, 1965, 1970, 1994, and 2019 are included in the Appendix of this report.

7.2 Previous Environmental Site Assessments

The former 28-acre Western State Plywood Cooperative mill site is comprised of five current tax lots (Tax Lots 104, 900, 901, 902, and 903), with the property that is the subject of this ESA is comprised of three of these tax lots (Tax Lots 104, 900, and 901). The DEQ's Environmental Cleanup Site information (ECSI) system listing for the former plywood mill (see ECSI No. 556 in Section 8.0) covers all five tax lots. Several prior environmental assessments were prepared for one or more of the tax lots that comprised the former mill site. Mr. Ted Labbe of Elk River Partners, LLC (the subject property Owner) previously provided three reports prepared in 2017 by PBS, with other reports available on the DEQ ECSI website or provided by Mr. Max Beeken of Wild Rivers Land Trust (the Client/User). These reports are listed in the table below:

Tax Lots	Report
901	PBS (2017a). *Phase I Environmental Site Assessment, Tax Lot 3215W27 00901, Log Pond Parcel, Curry County, Oregon 97465* (PBS Project No. 90360.000). PBS Engineering and Environmental, Inc. July 2017.
900	PBS (2017b). *Phase I Environmental Site Assessment, Tax Lot 3215W27 00900, Fire Pond Parcel, Curry County, Oregon 97465* (PBS Project No. 90360.000). PBS Engineering and Environmental, Inc. July 2017.
	PBS (2017c). *Phase I ESA – Asbestos-Containing Materials Assessment, Bagley Creek Log Pond Parcel, Curry County Tax Lot 32-15-27 TL 900, Curry County Oregon, PBS Project No. 90360.000, Phase 0002.* PBS Engineering and Environmental, Inc. July 14, 2017.
104, 901	HAI (2018). *Phase II Environmental Site Assessment Report, Log Pond Parcel and Tax Lot 104, Former Western States Plywood Cooperative Property, Port Orford, Curry County, Oregon* (HAI Project No. 9358). Hahn and Associates, Inc. Draft Report, December 18, 2018.
104, 901	HAI (2019). *Elk River Data Package*. Unpublished data summary of tables, figures, charts, and laboratory report emailed to DEQ on February 1, 2019 relating to supplemental Phase II ESA testing for dioxins and furans (HAI Project No. 9358). Hahn and Associates, Inc. February 1, 2019.
104, 901	HAI (2019). *A Phase I Environmental Site Assessment Report, 12.26-Acre Former Plywood Mill Property, Tax Lots 104 and 901, Port Orford, Curry County, Oregon* (HAI Project No. 9425). Hahn and Associates, Inc., March 8, 2019.
900, 902	HAI (2020). *A Phase I Environmental Site Assessment Report, Former Western States Cooperative Plywood Mill Property, 93639 Elk River Road and Tax Lot 902, Port Orford, Curry County, Oregon* (HAI Project No. 9597). Hahn and Associates, Inc., Revised July 6, 2020.
104, 900, 901, 902 (offsite), 903 (offsite)	EPA (2020). *Former Western States Plywood Cooperative Mill Site, Targeted Brownfields Assessment (TBA), Port Orford, Oregon* (EPA Task Order, Subtask No. TO-0380-013). U.S. EPA, December 30, 2020 (Appendix G).

Tax Lots	Report
104, 900, 901	MFA (2022a). *Screening Level Ecological Risk Assessment, Former Western States Plywood Cooperative Mill* (MFA Project No. M2272.01.001). Maul Foster & Alongi, Inc., August 25, 2022 (Appendix H).
104, 900, 901	MFA (2022b). *Beneficial Land and Water Use Determination, Former Western States Plywood Cooperative Mill* (MFA Project No. M2272.01.001). Maul Foster & Alongi, Inc., August 25, 2022 (Appendix I).
104, 900, 901	MFA (2022c). *Analysis of Brownfield Cleanup Alternatives, Former Western States Plywood Cooperative Mill* (MFA Project No. M2272.01.002). Maul Foster & Alongi, Inc., November 2, 2022 (Appendix J).

Based on the findings of the various Phase I ESAs performed at the subject property that identified the potential for contamination due to former mill activities, a subsurface investigation was subsequently conducted at the property. Subsurface investigation activities were conducted in 2018-2019 by HAI, and in 2020 by WSP USA Inc. (WSP), an EPA contractor.

<u>Phase II ESA (HAI, 2018-2019)</u>
The December 2018 Phase II ESA and January 2019 supplemental investigation at Tax Lots 104 and 900 included the following:

- Targeted geophysical survey work to assess three areas of the mill site
- Collection and testing of soil and groundwater samples from 16 push probe borings
- Collection of six surface soil samples for various analytes, and follow-up collection of seven soil samples and one sediment sample for dioxin/furan testing

Four anomalies were identified during the geophysical survey, including three possible USTs and a pit or sump. Soil borings were placed by three of these features and no evidence of soil contamination was observed. The fourth feature, a possible UST in the southeast portion of Tax Lot 901, was later evaluated by the 2020 Targeted Brownfields Assessment (TBA).

Chemicals detected at concentrations above risk screening levels in soil included dioxins/furans throughout much of the Site (and in the sediment sample) and metals at one of the wigwam burners. Chemicals detected at concentrations above risk screening levels in groundwater included petroleum hydrocarbons, pentachlorophenol, and formaldehyde.

<u>Targeted Brownfields Assessment (2020, WSP)</u>
The TBA involved a comprehensive multi-media investigation to address data gaps and accomplish further site characterization. The stated goal of the TBA was to better understand the presence and extent of contamination and determine whether a cleanup would be required based on future uses and redevelopment plans. The TBA involved sampling of surface soil, subsurface soil, groundwater, sediment, and surface water related to specific areas of concern within the study area. The TBA also included a geophysical survey and Level 1 Ecological Risk Assessment (ERA). The study area of the TBA included the three tax lots comprising the subject property of this ESA, as well as adjacent offsite Tax Lot 902.

The RECs identified by WSP that were further assessed by the TBA included: potential impacts from historic operational practices, surface soil impacts at wigwam burners and the log pond dike, the presence of multiple subsurface anomalies, and the potential presence of fill and/or buried debris.

The TBA investigation included the following: a geophysical survey at three areas of the site, collection of eight 30-point incremental sampling methodology (ISM) surface soil samples, collection of subsurface soil and groundwater samples from temporary push probe borings across the site, collection of groundwater samples from two water supply wells (one onsite and one offsite), collection of nine grab surface sediment samples from the former ponds and from along Bagley Creek, and collection of four surface water samples from the former pond area and from along Bagley Creek.

The results of the TBA indicated that several analytes were identified as chemicals of potential concern (COPCs) based on detected concentrations exceeding screening level values (SVLs). For soil/sediment, the COPCs identified consisted of dioxins/furans, gasoline-range petroleum, benzene, light molecular weight polynuclear aromatic hydrocarbons (LPAHs), and metals. For groundwater, COPCs identified consisted of dioxins/furans, gasoline-range petroleum, diesel-range petroleum, pentachlorophenol, formaldehyde, and metals. For surface water, COPCs identified consisted of dioxins/furans and metals.

Area	Tax Lot	Soil/Sediment	Groundwater
Wigwam Burners & Log Pond Dike	104, 901	Dioxins, Benzene, Metals [a]	Dioxins, Gasoline, Diesel, Formaldehyde, Metals [b]
Stud Mill Area	104	Dioxins, Lead, Zinc	
Fuel Bin Area	901	Dioxins, Diesel, Benzene, Iron, Mercury, Zinc	Dioxins, Diesel, PCP, Formaldehyde, Arsenic, Manganese
Transformer Area	901	Cobalt, Lead	Formaldehyde
Log Pond	104, 901	Dioxins, Total LPAH, Lead, Mercury, Zinc	Formaldehyde
Fire Pond	900	Dioxins	--

a = antimony, arsenic, barium, cobalt, copper, lead, mercury, selenium zinc
b = arsenic, cobalt, iron, manganese

<u>Ecological Risk Assessment (2022a, MFA)</u>

The results of the ecological risk assessment indicated the following:

- Soil: Dioxins were most significantly elevated near the south wigwam burner and vicinity.
- Sediment: Dioxins were most significantly elevated in the northern end of the former Log Pond, with concentrations in the southern portion of the pond and the former Fire Pond were at concentrations not expected to result in unacceptable risk to the local benthic community and other immobile receptors in those areas. Mercury and zinc were retained as COCs to account for potential cumulative risks.
- Surface water: Detection of dioxins in surface water are likely related to concentrations present in soils/sediments, and addressing those media is anticipated to account for surface water given the hydrophobic nature of those compounds.

<u>Ecological Risk Assessment (2022a, MFA)</u>

The results of the land and water beneficial use determination indicated the following:

- Land: The current land use within the Locality of the Facility (LOF) is vacant historical industrial land, with nearby land uses including rural residential, commercial forestry, and limited agriculture. Reasonably likely future land use within the LOF include ecological habitat and recreational use.
- Groundwater: the primary beneficial use of groundwater within the LOF is presumed recharge of nearby surface water, including Bagley Creek and the Elk River. Current beneficial uses of groundwater in the area surrounding the LOF are domestic drinking water and presumed

recharge to surface water. Reasonably likely future uses of groundwater within the LOF and in the surrounding area include drinking water and discharge to surface water to support resident fish and aquatic life

- Surface water: Current beneficial uses of surface water within and surrounding the LOF include irrigation, domestic water supply, ecological habitat, and recreation. There are no current beneficial uses of Bagley Creek within the vicinity of the LOF. All current beneficial uses of Elk River surface water are considered reasonably likely future uses. Ecological habitat and recreation are considered reasonable likely future uses of Bagley Creek.

<u>Analysis of Brownfields Cleanup Alternatives (2022c, MFI)</u>

The results of the ABCA evaluation indicated that the preferred cleanup alternative to remediate soil and sediment with contaminant concentrations above RBCs is Alternative 3, which includes:

- Excavation of soil and sediment with concentrations exceeding RBCs
- Offsite disposal of soil and sediment with concentrations exceeding hot spot criteria
- Consolidation of remaining excavated soil and sediment onsite
- Capping of consolidated soil and sediment with clean site soil and/or imported clean soil.

7.3 Summary of Historical Use

Based upon the interviews and the resources that were reviewed, the history of the subject property and of the surrounding land use was determined.

Subject Property

The approximately 17.8-acre subject property was part of the larger approximately 28-acre former Western State Plywood Cooperative plywood mill site. Below is a summary of the property history.

1899 – 1951: Undeveloped

In 1899, structures were not indicated to be present on the subject property by a historical topographic map of the area. From at least 1940 through 1951, the subject property was covered with trees and grassy vegetation. A driveway crossed Tax Lot 900 to provide access to the properties to the north from Elk River Road.

Early 1950s – 1976: Western States Plywood

The Western States Plywood mill was constructed in the early 1950s. The main mill building was primarily located on Tax Lots 104, 901, and southeast-adjacent Tax Lot 903. The mill was apparently closed in 1975, and a fire destroyed the mill structures, reportedly in 1976. An aerial photograph showed the main mill structure (only small portions of which extended onto the subject property) to still be standing in 1977, but it was not present in a 1979 aerial photograph. All other structures appeared to have been removed from the site by the mid-1980s, except for one wigwam burner located on Tax Lot 104, which was removed in December 2007 (based on Curry County Assessor records), and the Storage/Maintenance Building in the southwestern portion of the property, which remained as of the date of the November 2022 site visit for this ESA. In addition, concrete remnants of the former Fire Pond Pump House also remained. Information regarding the historical operations in the Storage/Maintenance Building was not available from the resources reviewed for this assessment (Data Gap).

The sources reviewed for this Phase I ESA have indicated that the following hazardous substances, petroleum products, and hazardous wastes were or may have been associated with the former mill (which included the subject property and the southeast-adjacent properties):

- Glues, resins, and glue waste – Significant amounts of glues were used in the production of plywood. At least one release of glue waste at the former Western States Plywood Cooperative Mill site was reported (see the discussion of the Western States Plywood ECSI Site in Section 8.0 *Records Review*). Resins may have been a source of the formaldehyde identified in the groundwater in the vicinity of the subject property.

- Anti-sapstain chemicals – The use of anti-sapstain chemicals was common in lumber and plywood manufacturing in general. The types of chemicals used in anti-sapstain treatment during the era of operation of this mill would have included chlorophenols, in particular pentachlorophenol, and mercurial compounds. Pentachlorophenol was not detected in soil samples collected at the north-adjacent Tax Lots 104 and 901, but it was detected in a groundwater sample collected immediately to the north of subject property Tax Lot 900.

- Oils – An undated site map showed the presence of an Oil House to the northeast of the mill building (on offsite Tax Lot 903), which was likely used to store oils utilized in the mill operations and machinery (e.g., hydraulic, motor, cooling, lubrication, or gear oils).

- ASTs – Several ASTs were located near the eastern side of the offsite mill building, near piping for the mill's fire suppression system. It is possible that these ASTs were used to store water for use in the fire suppression system. The contents of these ASTs could not be determined with certainty from the resources available to HAI.

- Fuel USTs – Interviews have indicated that gasoline and diesel fuel were stored in USTs located somewhere on the eastern portion of the larger mill property. Previous reports suggested that the USTs may have been located to the northeast of the mill building (offsite, on Tax Lot 903). Aerial and oblique photographs showed a small building located between two driveways in the truck parking area of Tax Lot 902. A small feature, which may have been a fueling pump island, was located nearby to the northwest of the small building.

- Dioxins – Dioxins may have originated from burning of wood waste and household waste in wigwam burners. Airborne ash from the wigwam burners was likely deposited on a wide area. Waste ash may also have been placed on the northeastern portion of offsite Tax Lot 902. Sampling on the subject property confirmed the presence of dioxin compounds and some metals in surface soils above screening levels.

1976 – 1984: Bankruptcy, Destruction, Foreclosure
Curry County records indicated that the mill was in bankruptcy in 1976. A 1976 oblique aerial photograph and a 1977 aerial photograph indicated that the structures were still present, but that very little lumber was stored at the subject property, and few vehicles were present in the parking lot area.

Some sources indicated that the mill burned down in 1976. However, based on aerial photographs, it appears more likely that it closed in 1976 and burned down in 1978.

The 1979 aerial photograph indicated that the Storage Building and the Pump House remained, but the other structures at the former plywood mill had been reduced to their foundations. Curry County records indicated that the mill property (which included the subject property parcels) was foreclosed upon in 1983 and was sold at a sheriff's auction in 1984.

1985 – Present: Storage/Maintenance Building, Modular Buildings, Vegetation
The subject property has not changed significantly from the 1980s through

the present. Aerial photographs indicate that the Storage/Maintenance Building and the remains of the Pump House were the only significantly intact mill structures at the subject property during this time. The Storage/Maintenance Building was apparently occupied at some point but was vacant as of the date of the November 2022 site visit conducted for this ESA. OWRD records indicated that the well serving the Storage/Maintenance Building was installed in 2006 (Appendix B). Two modular storage sheds and a modular cabin were previously located on the northern portion of Tax Lot 104 that according to a previous ESA (HAI 2019) were placed onsite subsequent to the prior Owner's acquisition in 2016 and were used solely for recreational purposes. These modular structures were no longer present at the time of the November 2022 site visit for this ESA.

The majority of the subject property has been largely covered with vegetation, including trees, tall grasses, and dense patches of gorse from the 1980s through the present. It appears that efforts have been made periodically to control the gorse.

Surrounding Properties History

The 1899 topographic map indicated that an early version of Elk River Road was present. Rural residences were present along Elk River Road, but none were shown in the immediate vicinity of the subject property. The Elk River and Bagley Creek were noted to be present in 1899, and appear to have changed their courses somewhat over time.

From the 1940s through 1951, the surrounding properties were undeveloped or were used for rural residential and/or agricultural purposes, including crops and livestock pasturage.

Western States Plywood Cooperative Mill was constructed in the 1950s and operated through the mid-1970s. Refer to the discussion of the mill site under the *Subject Property History* subheading, above, and also the discussion of the Western States Plywood ECSI Site in Section 8.0 *Records Review* for information about the environmental concerns for the subject property related to the former mill. The bulk of the main plywood mill structure was located off-site and on the adjacent Tax Lot 903, to the southeast of the subject property of this ESA.

The mill was largely destroyed by fire in approximately 1978. This site is listed on the DEQ ECSI database and is discussed further in Section 8.0 *Records Review*.

The remainder of the surrounding properties continued to be undeveloped or used for rural residential and/or agricultural purposes through the present.

8.0 RECORDS REVIEW

As a part of this Phase I ESA of the subject property and as deemed necessary, inquiries were made to governmental agencies with jurisdiction over current and prior activities conducted at the subject property that could have affected the environment. When available and as necessary, files on nearby properties were also reviewed and agency personnel knowledgeable about activities conducted in the area of the subject property were interviewed.

Environmental Data Resources (EDR) was contracted by HAI to provide a regulatory site radius search which has been analyzed and interpreted by HAI. The *EDR Radius Map™ Report*, dated October 24, 2022, is included in Appendix E.

The following lists satisfy the requirements of ASTM E1527-21 for the review of records. As indicated by ERIS, the lists reviewed for the *Database Report* are obtained on a quarterly basis from the source agencies, and represent the most recent data available at the time of the quarterly update. When available and as necessary, information furnished by EDR was cross-referenced by HAI to DEQ's Facility Profiler and other readily available online database lists. The lists cross-referenced by HAI were the most recent lists available online as of November 10, 2022.

STANDARD ENVIRONMENTAL RECORD SOURCES

U.S. Environmental Protection Agency (EPA) Lists	Search Distance	No. of Sites
National Priorities List (NPL) and Proposed NPL Sites	1.0 mile	0
De-listed NPL Sites	0.5 mile	0
Superfund Enterprise Management System (SEMS) List*	0.5 mile	0
SEMS-Archive List**List	0.5 mile	0
Resource Conservation Recovery Act (RCRA) Corrective Action Report (CORRACTS) List	1.0 mile	0
RCRA Treatment, Storage, and Disposal (TSD) Facilities	0.5 mile	0
RCRA Handlers List	Subject and Adjoining Sites	0
Federal Engineering and Institutional Controls List	Subject Property	0
Emergency Response Notification System (ERNS) List	Subject Property	0

*SEMS replaced the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) in 2014

**SEMS-Archive replaced CERCLIS No Further Remedial Action Planned (NFRAP)

Oregon Department of Environmental Quality (DEQ) Lists	Search Distance	No. of Sites
Environmental Cleanup Site information (ECSI) System: Includes Confirmed Release (CRL), Voluntary Cleanup Program (VCP), State Brownfield, and State-registered Engineering and/or Institutional Controls Sites	1.0 mile	1 EDR 1 DEQ
Solid Waste Facilities/Landfill (SWF/LF) List	0.5 mile	1
Leaking Underground Storage Tank (LUST) Sites	0.5 mile	0 EDR 0 DEQ
Underground Storage Tank (UST) Facilities List	Subject and Adjoining Sites	0

Tribal Lists	Search Distance	No. of Sites
Indian LUST Sites	0.5 mile	0
Indian UST List	Subject and Adjoining Sites	0

The following tribal lists are not known to exist and could not be reviewed	
Tribal-Equivalent NPL List	*Tribal SWF/LF Sites*
Tribal-Equivalent CERCLIS	*Tribal Institutional /Engineering Control Registries*
Tribal-Equivalent CERCLIS	*Tribal Brownfield Sites / Voluntary Cleanup Sites*

ADDITIONAL ENVIRONMENTAL RECORD SOURCES

Federal and State Records	Search Distance	No. of Sites
Federal Brownfields Program Sites List	0.5 mile	0
Oregon EDR Spills List	Subject Property	0
Oregon State Fire Marshal's Office HSIS List	Subject Property	0
Oregon Building Codes Division Drug Lab Cleanup Program List	Subject Property	0
DEQ Underground Injection Control (UIC) Database	Subject Property	0

Subject Property

The subject property appeared on the DEQ and EDR database lists as follows:

Western States Plywood Co-operative Mill Elk River Road, Port Orford, Oregon ***29-acre site, includes the subject property and southeast-adjacent properties***	ECSI Site No. 556 EDR databases of former Hazardous Waste Sites, Landfills

Western States Plywood Cooperative Mill operated a plywood mill at this nearby site from the 1950s through the 1970s. The site of the mill and its associated activities included the subject property (Tax Lots 104, 900 and 901) and also the southeast-adjacent properties (Tax Lots 902 and 903). For the following discussion, all of these five tax lots will collectively be referred to as the mill site.

The EDR Radius Report included a search of proprietary databases, including "Recovered Government Archive State Hazardous Waste Facilities List" (RGA HWS) and "Recovered Government Archive Landfill List" (RGA LF), compiled from records formerly available from DEQ. The mill site was listed on the EPA Enforcement and Compliance History Online (ECHO) database. No Hazardous Waste Generator violations were noted in the ECHO Report for the mill site or in the EDR Radius Report.

Western States Plywood Cooperative Mill appeared on the RGA LF database. According to the EDR Radius Report, the former landfill accepted wood waste and was closed in 1979. This suggests that wood waste may have been disposed of onsite or on adjacent offsite portions of the mill site. It may also refer to the onsite incineration of wood waste in wigwam burners.

Western States Plywood Cooperative Mill appeared on the RGA HWS List from 1995 through 2012. Additional information about the former hazardous waste at the mill site was not available from the resources reviewed for this assessment.

The Western States Plywood Cooperative Mill site appeared on the DEQ ECSI database as a suspect site requiring further investigation. Ms. Jessica Clawson of DEQ stated via email on May 29, 2020 that all documents for this site, including the most recent, were scanned and were available on DEQ's website. The DEQ ECSI Site Summary Report and all of the documents available online were reviewed as a part of this ESA. The DEQ ECSI Site Summary Report for the site is included as Appendix F.

The DEQ file included a Pollution Investigation Memo prepared by the Oregon State Game Commission (OGC) on November 29, 1972. Based on a report of illicit discharges of glue waste into a ditch or drain, a representative of OGC visited the mill site on November 22, 1972. A flange at the base of a glue-waste recirculating tank had broken, spilling approximately 200 gallons of material onto the mill floor. The spilled material was reportedly flushed into a floor drain, which was piped into "the old storage sump system". A side drain, which would have allowed the material to flow into an open drainage ditch leading to the river, was closed and did not appear to have been used during that time frame. OGC determined that the spill had been adequately contained in the mill's waste storage system. Two minor areas of glue releases were noted, in the new glue delivery area and in an open drainage ditch near a leaking plastic pipe.

The mill site was added to the ECSI database in 1988, based on the 1972 Pollution Investigation Memo. In the 1990s, DEQ recommended that a Preliminary Assessment (PA) be conducted for the mill site. In July 2017, Phase I ESAs were performed for Tax Lots 900 and 901 of the former Western States Plywood Cooperative Mill site. Phase II ESA testing was completed for Tax Lots 104 and 901 during November 2018. Relatively minor concentrations of contaminants, including petroleum hydrocarbons, metals, and formaldehyde, were identified across Tax Lots 104 and 901. During January 2019, additional testing for dioxins and furans was completed in shallow soil at Tax Lots 104 and 901. Concentrations of dioxins and furans ranged from 0.81 to 244 picograms per gram. See Section 7.2 *Previous ESAs* for additional discussion of the Phase II ESA activities.

The previous detection of contaminants at concentrations above risk-based screening levels and the listing of the property on the ECSI database as a site requiring additional investigation represents a REC for the property.

Surrounding Sites

With the exception of the Western States Plywood Cooperative Mill site discussed above, the review of state and federal environmental records did not disclose any sites located within a 1.0-mile radius of the subject property that are currently or have previously been under review for environmental issues.

9.0 FINDINGS AND OPINIONS

<u>This Phase I Environmental Site Assessment revealed evidence of a Recognized Environmental Condition in connection with the subject property.</u> From the data that was assembled during the course of this investigation, it is the professional opinion of Hahn and Associates, Inc. that further remedial work appears to be necessary for the subject property.

The Recognized Environmental Condition identified at the property, along with a recommendation, is:

1. The subject property was historically developed with major features of the former Western States Plywood Cooperative Mill. Several rounds of investigation and evaluation were conducted from 2017 through 2022 that identified the presence of contamination in soil, groundwater, and sediment on the property above risk-based screening levels. The detected contaminants included petroleum hydrocarbons, metals, formaldehyde, dioxins/furans, and pentachlorophenol. Subsurface anomalies and the potential for buried fill/debris were also identified. **Recommendation**: Remedial actions should be implemented at the subject property to address the areas of identified contamination at concentrations above applicable risk-based screening levels.

In addition, while not Recognized Environmental Conditions under E1527-21, the following information is presented:

1. Based upon the history of industrial usage at the site as a former plywood mill and soil testing results, low-level hazardous substances impacts may be present in soils at the subject property. The results of soil sampling and testing confirmed the presence of hazardous substances impacts to soils at the property. Such impacts could disqualify the affected soils for re-use as Clean Fill for unrestricted management, reuse and/or disposal. In the event of future site construction activities that involve the excavation and removal of site soils, special management of any such impacted soils may be required.
   Recommendation: If construction activities are planned at the subject property in the future, then it may be prudent to either utilize existing soil data to evaluate site soils or conduct a Clean Fill Determination for any soils that are slated for excavation and removal. The Oregon Department of Environmental Quality has established criteria that can be used to assist in soil management decisions.

2. The ground surface at various locations on the subject property could not be physically or visually accessed due to the presence of dense vegetation.
   Recommendation: It may be prudent to reinspect the subject property if vegetation is cleared.

3. A water supply well was present on the subject property.
   Recommendation: The Oregon Health Authority requires that a seller test any domestic well for arsenic, nitrates and total coliform bacteria in the course of the sale or exchange of real estate. The results of the testing are to be sent to the agency. Accordingly, if the well is to continue to be used for drinking water purposes, it should be sampled in accordance with Oregon Health Authority requirements. Further, if usage of the well for drinking water is to be continued, the agency also recommends yearly testing. If usage of the water well is to be discontinued, it should be properly abandoned in accordance with all applicable regulations.

   It should also be noted that the Oregon Health Division rules specify that failure of the seller to test will not interfere with the sale of a property.

4. Buildings related to the plywood mill formerly present on the subject property may have been served by on-site septic systems.

Recommendation: If any septic tanks or cesspools are encountered during future site excavation or redevelopment activities, they should be decommissioned according to the applicable regulations.

10.0 CONCLUSIONS

Hahn and Associates, Inc. has performed this Phase I ESA in conformance with the scope and limitations of the ASTM Practice E1527-21 of the Former Western States Plywood Cooperative Mill property located at Tax Lots 104, 900, and 901, vicinitiy of Elk River Road, Port Orford, Curry County, Oregon. Any exceptions to, or deletions from, this practice are described in Section 11.0 of this report.

This Phase I Environmental Site Assessment revealed evidence of a Recognized Environmental Condition in connection with the subject property as detailed in Section 9 *Findings and Opinions*. From the data that was assembled during the course of this investigation, it is the professional opinion of Hahn and Associates, Inc. that further remedial work appears to be necessary for the subject property.

11.0 DEVIATIONS

This Phase I ESA deviates from ASTM E1527-21 as follows:

- See Data Gaps below

11.1 Data Gaps

A Data Gap is defined in ASTM E1527-21 as a lack of or inability to obtain information required by the standards and practices listed in the regulation despite good faith efforts by the environmental professional or prospective landowner to gather such information. Such Data Gaps may affect the environmental professional's ability to identify RECs at the property.

A Data Failure is defined as the failure to achieve the historical research objectives contained in ASTM E1527-21, including identifying obvious uses of the property from the present, back to the property's first developed use, or back to 1940, whichever is earlier. A Data Failure is one type of Data Gap.

The following Data Gaps were identified in association with this Phase I ESA, along with their significance and the attempts made to fill the Data Gaps:

- The interior of the Storage/Maintenance Building was not able to be entered, and one small room was therefore not able to be inspected.

However, the main interior of the Storage Building was inspected via a partially open door, and photographs of the interior were provided to HAI for review for a previous ESA in 2020. Further, Mr. Ted Labbe of Elk River Partners LLC, the subject property Owner, indicated that hazardous materials were not present in the building interior. Therefore, the lack of physical access to the interior was not considered to be a significant Data Gap.

- Portions of the property were covered with dense vegetation. The ground surface could not be inspected in areas of dense vegetation, including areas of interest near the Storage Building and in the former Log Pond area. While this was not considered to be a significant Data Gap, it may be prudent to reinspect these areas in the event that the vegetation is removed.
- The 2017 PBS Phase I ESA for Tax Lot 900 referred to the Storage Building as the Maintenance Building. Detailed information regarding historical uses of this building was not available. However, soil sampling was subsequently performed in the vicinity of this building, with analyte concentrations below risk-based screening levels. Therefore, the lack of information regarding historical uses of this building is not considered to be a significant Data Gap.

12.0 ADDITIONAL SERVICES

In addition to the basic elements of ASTM E1527-21, this report includes the following:

- A visual assessment for suspect asbestos-containing materials was conducted during the course of the Site Reconnaissance (Section 4.9.1). This visual assessment did not constitute an asbestos survey and was not intended to identify every suspect asbestos-containing material at the subject property.
- A general statement regarding site conditions that may disqualify the soils at the subject property as Clean Fill for unrestricted management and reuse or disposal in the future (Section 4.9.2). This general statement of site conditions does not constitute a Clean Fill Determination, and is not intended to indicate the actual presence or absence of hazardous substances impacts to soils at the subject property.

13.0 LIMITATIONS

The purpose of this environmental assessment is to evaluate the possibility that the specified real property contains a *Recognized Environmental Condition* (REC), as defined by the American Society for Testing and Materials (ASTM) guideline (E1527-21). In performing an environmental assessment, a balance must be struck between the desire to conduct a complete inquiry into environmental matters and the limits of time, cost and technology. This report sets forth HAI's evaluation of the possibility of RECs based on the scope of work agreed to by the Client and within the Client's schedule and budget.

No investigation is thorough enough to ensure that hazardous substances are not present on a particular property. Even if RECs have not been identified in this report, there is no guarantee that contamination or other environmental conditions are not present. If samples have been collected in connection with this assessment, our assessment is based in part on our interpretation of data from discrete sample locations that may not represent actual conditions at unsampled locations. In evaluating the potential risks associated with the subject property, we have focused on possible sources on the property and on property in the immediate vicinity. We have not attempted to assess the risk that the property may be affected by regional contamination problems, such as the possibility of widespread contamination of the groundwater from sources not associated with this property.

All conclusions, opinions, and recommendations presented in this report are based on conditions existing at the time the services were performed and the laws, practices and technology in effect and commonly used as of that time. HAI is not able to predict future events that may affect the condition of the property or that may affect the risks attendant to such conditions.

Unless otherwise specified in this report, HAI has not investigated either the conditions inside any buildings on the property or the possible presence of hazardous substances incorporated into buildings, equipment, or other improvements on the property. HAI has not investigated conditions in any area of the property not readily accessible. Except as specifically described in this report, HAI also has not investigated the presence of hazardous substances that may be naturally occurring on the property. HAI has relied on information provided by the Client and other individuals and documents and has not verified the accuracy of such information.

Unless otherwise specified in writing, this report has been prepared solely for the use by the Client and Users, as identified in this report, and for use only in connection with the described property, subject to the limitations and conditions in HAI's services agreement with its Client. Any other use by the Client/Users or any use by any other person shall be at the user's sole risk, and HAI shall have neither liability nor responsibility with respect to such use.

(02/13)

14.0 REFERENCES

Curry County Building Department, building permits (no records on file), previously reviewed June 1, 2020; ePermit online records reviewed November 10, 2022 (no records on file)

Curry County Department of Assessment and Taxation, property ownership and tax lot information, November 10, 2022

Environmental Data Resources, City Directory Abstract, June 6, 2017 (included in 2017 Phase I ESA for the nearby Western States Plywood Site)

Environmental Data Resources, *The Radius Map™ Report*, October 24, 2022

Google Map Imagery, aerial photographs for 1994, 2000, 2005, 2013, 2015, 2019, obtained May 21, 2020

Google search engine (http://www.google.com), keyword searches, various dates, October and November 2022

Oregon Department of Environmental Quality, state regulatory lists, reviewed November 10, 2022

Oregon Water Resources Department, water well logs review, November 3, 2022 (www.wrd.state.or.us)

U.S. Army Corps of Engineers Central Map Files, Portland, Oregon, aerial photograph for 1977, previously obtained January 16, 2019

U.S. Environmental Protection Agency, federal regulatory lists, reviewed November 10, 2022

U.S. Geological Earth Explorer, aerial photographs for 1951, 1992, 1997, previously obtained May 21, 2020

U.S. Geological Survey 7.5-Minute Quadrangle, Sixes, Oregon, 2017, area topography, obtained November 2022

U.S. Geological Survey TopoView website, historical topographic maps, 1899, 1954, 1982, 1988, previously obtained June 4, 2020

U.S. Geological Survey, Geologic Map of Oregon, 1991, area geology

University of Oregon Map & Aerial Photography Collection, Eugene, Oregon aerial photographs for 1940, 1965, 1970, 1972, previously obtained January 2019

15.0 GLOSSARY OF ABBREVIATIONS

ABCA	Analysis of Brownfield Cleanup Alternatives
ACM	Asbestos-Containing Materials
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
AUL	activity and use limitations
bgs	below ground surface
CCDs	Cole City Directories
CEG	Conditionally Exempt Generator
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response Compensation and Liability Information System
CFR	Code of Federal Regulations
COPC	Chemical of Potential Concern
CORRACTS	RCRA Corrective Action Report
DEQ	Oregon Department of Environmental Quality
ECHO	Enforcement and Compliance Online
ECSI	Environmental Cleanup Site Information
EPA	U.S. Environmental Protection Agency
HAI	Hahn and Associates, Inc.
ISM	Integrated Sampling Methodology
LQG	Large Quantity Generator
LOF	Locality of Facility
LPAH	Light-Molecular Weight PAH
LUST	Leaking Underground Storage Tank
MFA	Maul Foster Alongi, Inc.
MSL	Mean Sea Level
NFA	No Further Action
NFRAP	No Further Remedial Action Planned
NPL	National Priority List
OAR	Oregon Administrative Rule
OSHA	Occupational Safety and Health Administration
OWRD	Oregon Water Resources Department
PAH	Polynuclear Aromatic Hydrocarbons
PBS	PBS Engineering and Environmental
PCB	Polychlorinated Biphenyls
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
RECs	Recognized Environmental Conditions
RGA LF	Recovered Government Archive Solid Waste Facilities List
SEMS	Superfund Enterprise Management System
SFIM	Sanborn Fire Insurance Map
SLV	Screening Level Value
SQG	Small Quantity Generator of Hazardous Waste

SWDF	Solid Waste Disposal Facility
SWDS	Solid Waste Disposal Site
TBA	Targeted Brownfields Assessment
TSD	Treatment, Storage and Disposal
USGS	U.S. Geological Survey
UST	Underground Storage Tank
WSP	WSP USA Inc.
W.M.	Willamette Meridian

16.0 DESCRIPTION OF ENVIRONMENTAL DATABASES

Federal NPL Sites List: The EPA National Priority List (NPL) details the locations of hazardous substance sites that present a potential for imminent and substantial harm to the environment.

Federal De-listed NPL Sites List: The Federal De-listed NPL Site (NPL) List details the locations of hazardous substance sites where either environmentally significant quantities of hazardous waste were never confirmed at the site, or an environmentally insignificant amount of hazardous waste is all that remains at the site as a result of remediation.

Federal CERCLIS List: The Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) lists hazardous substance sites that require preliminary investigation or are undergoing EPA investigations.

Federal CERCLIS NFRAP List: This report lists all CERCLIS No Further Remedial Action Planned (NFRAP) sites, which are CERCLIS sites that have been removed from the CERCLIS List. Archived status indicates that contamination was not found at the CERCLIS NFRAP sites, the contamination has been remediated, or the contamination has been deemed to not be significant enough to require consideration under CERCLIS or NPL. The listing of a site on the CERCLIS NFRAP does not necessarily imply that contamination has been deemed insignificant or remediated based upon applicable state or local standards.

Federal Superfund Enterprise Management System: The Federal Superfund Enterprise Management System (SEMS) was developed to replace the Federal CERCLIS Public Access Database, and was made operational in 2016. SEMS includes the same data fields and content as CERCLIS. The Federal CERCLIS Public Access Database, which contained a selected set of publicly releasable Superfund program data, was retired in 2013.

Federal CORRACTS List: The Corrective Action Report (CORRACTS) List identifies hazardous waste handlers with RCRA corrective action activity.

Federal RCRA TSD Facilities List: The EPA Resource Conservation and Recovery Act (RCRA) Treatment, Storage and Disposal (TSD) Facilities List identifies sites which manage hazardous waste for the purpose of on-site treatment, interim storage, or on-site disposal.

Federal RCRA Handlers List: The EPA RCRA Handlers List identifies facilities which have given notification as current hazardous waste generators, including Large Quantity Generators (LQG), Small Quantity Generators (SQG), or Conditionally Exempt Generators (CEGs), and facilities that do not presently generate hazardous waste (Non-Generators).

Federal Engineering and Institutional Controls Lists: The EPA Federal Engineering Controls List identifies 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 affect human health. The EPA Federal Institutional Controls List identifies 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.

Federal ERNS List: The Emergency Response Notification System (ERNS) List records and stores information on reported releases of oil and hazardous substances.

DEQ ECSI List: The Oregon Department of Environmental Quality (DEQ) Environmental Cleanup Site Information (ECSI) List includes hazardous substance sites undergoing DEQ investigations, along with DEQ Voluntary Cleanup Program (VCP) sites, State Brownfield sites, and sites with State-registered engineering and/or institutional controls.

DEQ SWF/LF List: The DEQ SWF/LF list is an inventory of active permitted facilities (including landfills, waste tire storage sites and carriers) in Oregon. The types of permitted facilities include compost, municipal solid waste (disposal) landfills, material recovery, transfer stations, tire and household hazardous waste.

DEQ LUST List: The DEQ Leaking Underground Storage Tank (LUST) Database List contains an inventory of reported LUST incidents.

DEQ UST List: The UST Facilities by Zip List is compiled of all underground storage tank facilities in Oregon. The list contains the following information: Facility ID, Name, Location, City, Zip, Phone Number, Permittee, Total Number of Tanks, Number of Active Tanks, Number of Decommissioned Tanks, and Number of Permitted Tanks.

Indian LUST List: The Indian LUST List identified leaking USTs on Indian land in Alaska, Idaho, Oregon and Washington.

Indian UST List: The Indian UST List identified USTs on Indian land in Alaska, Idaho, Oregon and Washington.

Federal Brownfields Program Sites List: EPA's Brownfields Program empowers states, communities, and other stakeholders in economic development to work together to prevent, assess, safely clean up, and sustainably reuse brownfields. A Brownfield Site is 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.

Oregon State Fire Marshal's Office HSIS List: The Oregon State Fire Marshal's Office Hazardous Substance Information Survey (HSIS) identifies companies in Oregon submitting the HSIS and either reporting or not reporting hazardous substances.

Oregon ERIS Spills List: The Oregon Emergency Response Information System (ERIS) List identifies reported releases of petroleum and/or hazardous substances to land or water since 1995. DEQ discontinued usage and maintenance of this database in July 2013.

Oregon Building Codes Division Drug Lab Cleanup Program List: The Building Codes Division of the Oregon Department of Consumer & Business Services maintains a list of properties declared by law enforcement agencies to be unfit for use due to methamphetamine manufacturing and/or storage activities. The properties are considered unfit for habitation until they are certified clean in accordance with the Oregon Department of Human Services' Clandestine Drug Lab Cleanup Program, at which time they are removed from the list.

17.0 DEFINITIONS OF TERMS

Abandoned Property — property that can be presumed to be deserted, or an intent to relinquish possession or control can be inferred from the general disrepair or lack of activity thereon such that a reasonable person could believe that there was an intent on the part of the current owner to surrender rights to the property.

Activity and Use Limitation (AUL) — legal or physical restrictions or limitations on the use of, or access to, a site or facility: (1) to reduce or eliminate potential exposure to hazardous substances or petroleum products in the soil, soil vapor, groundwater, and/or surface water on the property, or (2) to prevent activities that could interfere with the effectiveness of a response action, in order to ensure maintenance of a condition of no significant risk to public health or the environment. These legal or physical restrictions, which may include institutional and/or engineering controls, are intended to prevent adverse impacts to individuals or populations that may be exposed to hazardous substances and petroleum products in the soil or groundwater on the property.

Actual Knowledge — the knowledge actually possessed by an individual who is a real person, rather than an entity. Actual knowledge is to be distinguished from constructive knowledge, that is knowledge imputed to an individual or entity.

Adjoining Properties — any real property or properties the border of which is contiguous or partially contiguous with that of the property, or that would be contiguous or partially contiguous with that of the property but for a street, road, or other public thoroughfare separating them.

Aerial Photographs — photographs taken from an aerial platform with sufficient resolution to allow identification of development and activities of areas encompassing the property.

All Appropriate Inquiries — that inquiry constituting "all appropriate inquiries into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined in CERCLA, 42 U.S.C §9601(35)(B), that will qualify a party to a commercial real estate transaction for one of threshold criteria for satisfying the landowner liability protections to CERCLA liability (42 U.S.C §9601(35)(A) & (B), §9607(b)(3), §9607(q); and §9607(r)), assuming compliance with other elements of the defense.

Approximate Minimum Search Distance — the area for which records must be obtained and reviewed under ASTM E1527-21, subject to limitations as provided in ASTM E1527-21. This distance is to be measured from the nearest subject property boundary. This term is used in lieu of radius to include irregularly shaped properties**.**

Business Environmental Risk (BER)— a risk which can have a material environmental or environmentally-driven impact on a business associated with the current or future use of commercial real estate. Consideration of BER issues may involve addressing one or more non-scope considerations and is not necessarily limited to those environmental issues required to be investigated under ASTM E1527-21, and may involve addressing considerations outside the scope of this practice (non-scope considerations).

Continuing Obligations — Continuing Obligations that the Client/User must achieve and maintain in order to qualify for one of the Landowner Liability Protections (LLPs) to CERCLA liability under the 2002 Brownfields Amendments, assuming compliance with other elements of the defense. Continuing Obligations include: (1) complying with land use restrictions and institutional controls; (2) taking reasonable steps with respect to hazardous substance releases; (3) providing full cooperation, assistance, and access to persons that are authorized to conduct response actions or natural resource restoration; (4) complying with requests for information and with administrative subpoenas; and (5) providing legally required notices.

Controlled Recognized Environmental Condition (CREC) — a REC affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (e.g., AULs or other property use limitations).

Data Failure — a failure to achieve the historical research objectives contained in ASTM E1527-21 (includes identifying obvious uses of the property from the present, back to the property's first developed use, or back to 1940, whichever is earlier), even after reviewing the standard historical sources that are reasonably ascertainable and likely to be useful. Data Failure is one type of Data Gap.

Data Gap — a lack of or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information. Data gaps may result from incompleteness in any of the activities required by this practice, including, but not limited to Site Reconnaissance (for example, an inability to conduct the site visit), and interviews (for example, an inability to interview the key site manager, regulatory officials, etc.).

***De Minimis* Condition** — a condition that generally does not present a material risk of harm 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. Conditions determined to be *de minimis* are not recognized environmental conditions or controlled recognized environmental conditions.

Drywells — underground areas where soil has been removed and replaced with pea gravel, coarse sand, or large rocks. Dry wells are used for drainage, to control storm runoff, for the collection of spilled liquids (intentional and non-intentional) and wastewater disposal (often illegal).

Environment — The term "environment" includes (A) the navigable waters, the waters of the contiguous zone, and the ocean waters of which the natural resources are under the exclusive management authority of the United States under the Magnuson-Stevens Fishery Conservation and Management Act: and (B) any other surface water, groundwater, drinking water supply, land surface or subsurface strata, or ambient air within the United States or under the jurisdiction of the United States, as defined in CERCLA 42 U.S.C. § 9601(8)).

Environmental Compliance Audit — the investigative process to determine if the operations of an existing facility are in compliance with applicable environmental laws and regulations. This term should not be used to describe this practice, although an environmental compliance audit may include an environmental site assessment or, if prior audits are available, may be part of an environmental site assessment.

Environmental Lien — a charge, security, or encumbrance upon title to a property to secure the payment of a cost, damage, debt, obligation, or duty arising out of response actions, cleanup, or other remediation of hazardous substances or petroleum products upon a property, including (but not limited to) liens imposed pursuant to CERCLA 42 U.S.C. §9607(1) & 9607(r) and similar state or local laws.

Environmental Professional — (1) a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding conditions indicative of releases or threatened releases on, at, in, or to a property, sufficient to meet the objectives and performance factors in §312.20(e) and (f).
(2) Such a person must: (i) hold a current Professional Engineer's or Professional Geologist's license or registration from a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) and have the equivalent of three (3) years of full-time relevant experience; or (ii) be licensed or certified by the federal government, a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) to perform environmental inquiries as defined in §312.21 and have the equivalent of three (3) years of full-time relevant experience; or (iii) have a Baccalaureate or higher degree from an accredited institution of higher education in a discipline of engineering or science and the equivalent of five (5) years of full-time relevant experience; or (iv) have the equivalent of ten (10) years of full-time relevant experience.
(3) An environmental professional should remain current in his or her field through participation in continuing education or other activities.
(4) The definition of environmental professional provided above does not preempt state professional licensing or registration requirements such as those for a professional geologist, engineer, or site remediation professional. Before commencing work, a person should determine the applicability of state professional licensing or registration laws to the activities to be undertaken as part of the inquiry identified in §312.21(b).
(5) A person who does not qualify as an environmental professional under the foregoing definition may assist in the conduct of all appropriate inquiries in accordance with this part if such person is under the supervision or responsible charge of a person meeting the definition of an environmental professional provided above when conducting such activities.

Environmental Site Assessment (ESA) — the process by which a person or entity seeks to determine if a particular parcel of real property (including improvements) is subject to recognized environmental conditions. At the option of the user, an environmental site assessment may include more inquiry than that constituting all appropriate inquiries or, if the user is not concerned about qualifying for the *landowne*r *liabilit*y *protection*s (LLPs), less inquiry than that constituting all appropriate inquiries. An environmental site assessment is both different from and often less rigorous than an environmental compliance audit.

Fill Dirt — dirt, soil, sand, or other earth, that is obtained off-site, that is used to fill holes or depressions, create mounds, or otherwise artificially change the grade or elevation of real property. It does not include material that is used in limited quantities for normal landscaping activities.

Good Faith — the absence of any intention to seek an unfair advantage or to defraud another party; an honest and sincere intention to fulfill one's obligations in the conduct or transaction concerned.

Hazardous Substance — Per ASTM 1527-21, a substance defined as a *hazardou*s *substanc*e pursuant to CERCLA 42 U.S.C.§9601(14), as interpreted by EPA regulations and the courts:" (A) any substance designated pursuant to section 1321(b)(2)(A) of Title 33, (B) any element, compound, mixture, solution, or substance designated pursuant to section 9602 of this title, (C) any *hazardou*s *wast*e having the characteristics identified under or listed pursuant to section 3001 of the Resource Conservation and Recovery Act of 1976 (RCRA), as amended, (42 U.S.C. §6921) (but not including any waste the regulation of which under RCRA (42 U.S.C.§6901 *e*t *seq*.) has been suspended by Act of Congress), (D) any toxic pollutant listed under section 1317(a) of Title 33, (E) any hazardous air pollutant listed under section 112 of the Clean Air Act (42 U.S.C. §7412), and (F) any imminently hazardous chemical substance or mixture with respect to which the Administrator (of EPA) has taken action pursuant to section 2606 of Title 15. The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a *hazardou*s *substanc*e under subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

Hazardous Waste — any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of RCRA, as amended, (42 U.S.C. §6921) (but not including any waste the regulation of which under RCRA (42 U.S.C. §6901-6992k) has been suspended by Act of Congress). RCRA is sometimes also identified as the Solid Waste Disposal Act. RCRA defines a hazardous waste, at 42 U.S.C. §6903, as: "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may—(A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."

Historical Recognized Environmental Condition (HREC) — a previous release of hazardous substances or petroleum products affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and meeting unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the subject property to any controls (for example, AULs or other property use limitations). An historical recognized environmental condition is not a recognized environmental condition.

IC/EC registries — databases of institutional controls or engineering controls that may be maintained by a federal, state or local environmental agency for purposes of tracking sites that may contain residual contamination and AULs. The names for these may vary from program to program and state to state, and include terms such as Declaration of Environmental Use Restriction database (Arizona), list of "deed restrictions" (California), environmental real covenants list (Colorado), brownfields site list (Indiana, Missouri) and the Pennsylvania Activity and Use Limitation (PA AUL) Registry.

Innocent Landowner Defense — (42 U.S.C. §9601(35) & 9607(b)(3)) — a person may qualify as one of three types of innocent landowners: (i) a person who “did not know and had no reason to know” that contamination existed on the property at the time the purchaser acquired the property; (ii) a government entity which acquired the property by escheat, or through any other involuntary transfer or acquisition, or through the exercise of eminent domain authority by purchase or condemnation; and (iii) a person who “acquired the facility by inheritance or bequest.” To qualify for the first type of innocent landowner LLP, such person must have made all appropriate inquiries on or before the date of purchase. Furthermore, the all appropriate inquiries must not have resulted in knowledge of the contamination. If it does, then such person did “know” or “had reason to know” of contamination and would not be eligible for the innocent landowner defense.

Institutional Controls — a legal or administrative restriction (for example, “deed restrictions,” restrictive covenants, easements, or zoning) on the use of, or access to, a site or facility to (1) reduce or eliminate potential exposure to hazardous substances or petroleum products in the soil or groundwater on the property, or (2) to prevent activities that could interfere with the effectiveness of a response action, in order to ensure maintenance of a condition of no significant risk to public health or the environment. An institutional control is a type of Activity and Use Limitation (AUL).

Key Site Manager — the person identified by the owner or operator of a property as having good knowledge of the uses and physical characteristics of the property.

Landowner Liability Protections — landowner liability protections (LLPs) include the bona fide prospective purchaser liability protection, contiguous property owner liability protection, and innocent landowner defense from CERCLA liability (42 U.S.C. §§9601(35)(A), 9601(40), 9607(b), 9607(q), 9607(r)).

Major Occupants — those tenants, subtenants, or other persons or entities each of which uses at least 40 % of the leasable area of the property or any anchor tenant when the property is a shopping center.

Material Threat — a physically observable or obvious threat which is reasonably likely to lead to a release that, in the opinion of the environmental professional, is threatening and might result in impact to public health or the environment. An example might include an aboveground storage tank system that contains a hazardous substance and which shows evidence of damage. The damage would represent a material threat if it is deemed serious enough that it may cause or contribute to tank integrity failure with a release of contents to the environment.

Migrate/Migration — the movement of hazardous substances or petroleum products in any form, including, for example, solid and liquid at the surface or subsurface, and vapor in the subsurface.

Petroleum Products — those substances included within the meaning of the petroleum exclusion to CERCLA, 42 U.S.C. §9601(14), as interpreted by the courts and EPA, that is: petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under Subparagraphs (A) through (F) of 42 U.S.C. §9601(14), natural gas, natural gas liquids, liquefied natural gas, and synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

Pits, Ponds, or Lagoons — man-made or natural depressions in a ground surface that are likely to hold liquids or sludge containing hazardous substances or petroleum products.

Practicably Reviewable — information that is practically reviewable means that the information is provided by the source in a manner and in a form that, upon examination, yields information relevant to the property without the need for extraordinary analysis of irrelevant data. The form of the information shall be such that the user can review the records for a limited geographic area. Records that cannot be feasibly retrieved by reference to the location of the property or a geographic area in which the property is located are not generally practically reviewable. Further, when so much data is generated that it cannot be feasibly reviewed for its impact on the property, it is not practically reviewable.

Property Use Limitation — limitation or restriction on current or future use of a property in connection with a response to a release, in accordance with the applicable regulatory authority or authorities that allows hazardous substances or petroleum products to remain in place at concentrations exceeding unrestricted use criteria.

Publicly Available — information that is publicly available means that the source of the information allows access to the information by anyone upon request.

Reasonably Ascertainable — for purposes of both the ASTM Phase I ESA (Practice E 1527) and the TSA (Practice E 1528) standards, information that is (1) publicly available, (2) obtainable from its source within reasonable time and cost constraints, and (3) practicably reviewable.

Recognized Environmental Condition (REC) — 1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment.

Release — any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discharging of barrels, containers, and other closed receptacles containing any hazardous substances or pollutant or contaminant).

Relevant Experience — as used in the definition of environmental professional, means: participation in the performance of environmental site assessments that may include environmental analyses, investigations, and remediation which involve the understanding of surface and subsurface environmental conditions and the processes used to evaluate these conditions and for which professional judgment was used to develop opinions regarding conditions indicative of releases or threatened releases (per §312.1(c)) to the subject property.

Significant Data Gap — a data gap that affects the ability of the environmental professional to identify a recognized environmental condition**.**

Site Reconnaissance — that part that is contained in ASTM Practice E1527 and addresses what should be done in connection with the site visit. The Site

Reconnaissance includes, but is not limited to, the site visit done in connection with a Phase I Environmental Site Assessment**.**

Site Visit — the visit to the property during which observations are made as part of the Site Reconnaissance.

Subject Property — the real property that is the subject of this Phase I ESA. Real property includes buildings and other fixtures and improvements located on the property and affixed to the land.

Sump — a pit, cistern, cesspool, or similar receptacle where liquids drain, collect, or are stored.

Underground Storage Tank (UST) — any tank, including underground piping connected to the tank, that is or has been used to contain hazardous substances or petroleum products and the volume of which is 10% or more beneath the surface of the ground.

User — the party seeking to use ASTM E1527-21 to complete a Phase I ESA of the subject property. A User may include, without limitation, a potential purchaser of property, a potential tenant of property, an owner of property, a lender, or a property manager.

User's Responsibilities — ASTM E1527-21 describes specific tasks to be performed by the Client/User that will help identify the possibility of RECs in connection with the subject property and which a) do not require the technical expertise of an environmental professional (EP) and b) are generally not performed by EPs performing a Phase I ESA. These tasks include communicating to the EP any specialized or actual knowledge or experience the Client/User may have with respect to the property, the relationship of the purchase price to the fair market value of the property, and the reason for conducting the Phase I ESA. Additionally, under ASTM E1527-21, it is the Client/User's responsibility to either: 1) engage a title company or title professional to undertake a review of reasonably ascertainable recorded land title records and lien records for environmental liens or AULs currently recorded against or relating to the property, or 2) negotiate such an engagement of a title company or title professional as an addition to the scope of the Phase I ESA activities.

Vapor Encroachment Condition (VEC) — the presence or likely presence of COC vapors in the subsurface of the subject property caused by the release of vapors from contaminated soil or groundwater or both either on or near the property.

Wastewater — water that (1) is or has been used in an industrial or manufacturing process, (2) conveys or has conveyed sewage, or (3) is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. Wastewater does not include water originating on or passing through or adjacent to a site, such as stormwater flows, that has not been used in industrial or manufacturing processes, has not been combined with sewage, or is not directly related to manufacturing, processing, or raw materials storage areas at an industrial plant.

(12/13)

18.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

Ricky Ede
Environmental Scientist

Technical Expertise
Mr. Ede is a graduate-level Geologist with experience in supporting and conducting Phase I and II Environmental Site Assessment (ESA) activities. His skills include aerial photograph analysis, graphical presentation of material, groundwater monitoring and sampling, and technical report research and writing.

Experience Summary
During 2019 and 2020, Mr. Ede supported or conducted over 50 Phase I and II ESAs for a wide variety of properties, including undeveloped land, watersheds, developed urban properties, residential properties, commercial developments and industrial properties in the Pacific NW, Mr. Ede has experience integrating Geographic Information System (GIS) data and field observations with sample characteristics to answer research questions.

During his undergraduate studies, Mr. Ede was employed as a research assistant in the physical volcanology laboratory, collecting and analyzing data from various volcanic products. He developed an independent research project over the 2018-2019 academic year that culminated in a conference poster presentation and thesis defense. Since then, Mr. Ede has completed his coursework for a M.S. in Geology at San Jose State University. As part of his graduate-level studies, he has conducted extensive geologic field mapping and data collection while overseeing a field assistant, and developed numerous maps and figures for grant proposals, papers, and poster and oral presentations. Mr. Ede also taught various introductory geology laboratories during his time at San Jose State University.

Credentials
B.S. Geology, University of Oregon
M.S. Geology (in progress), San Jose State University

Professional Training
- OSHA 40-Hour HAZMAT Training

Employment History

Hahn and Associates, Inc.	Environmental Scientist	2022 to present
San Jose State University	Teaching Associate	2020 to 2022
Hahn and Associates, Inc.	Environmental Scientist	2019 to 2020
University of Oregon	Research Assistant	2018 to 2019

(06/22)

STEVE M. EVANS, R.G., L.G.
Associate

Technical Expertise
Mr. Evans has over 30 years of experience conducting Phase I and Phase II Environmental Site Assessments (ESAs), groundwater sampling, groundwater beneficial use surveys, remedial investigation and cleanup reports, feasibility studies, Brownfield redevelopment oversight, characterization of sediments prior to dredging, compliance sampling, and completion of National Environmental Policy Act (NEPA) evaluations.

Experience Summary
Mr. Evans has conducted Phase I ESAs for a wide variety of commercial, residential, agricultural, and industrial properties. He is knowledgeable with the ASTM E1527-13 and E1527-21 standards, and is experienced in identifying potential environmental concerns. He has extensive experience with Phase II ESAs throughout Oregon, Washington, and California. He has performed Remedial Investigation and Feasibility Study projects and Brownfield redevelopment projects, and has managed construction of vapor barrier liner installation projects during site re-development. He has performed subsurface geotechnical soils investigations and his project experience includes remediation of numerous Underground Storage Tank (UST) sites, as well as sites contaminated with chlorinated solvents, metals, and other contaminants.

Credentials
Western Washington University, Bellingham, Washington – B.S. Geology

Professional Titles
- Oregon-Registered Geologist (R.G.)
- Washington-Licensed Geologist (L.G.) and Hydrogeologist

Professional Training
- OSHA 40-Hour HAZMAT Training and Annual 8-Hour Updates
- ODEQ Cleanup Training Seminar
- Midwest Geosciences Group USCS Soil Classification Seminar
- Environmental Data Resources, Inc. Upcoming Revisions to ASTM E1527
- Environmental Data Resources, Inc. Vapor Intrusion and Environmental Liability
- Hartman Environmental Geoscience Vapor Intrusion Pathway Updates and Refresher
- Various Webinars: Ongoing continuing education regarding current and newly identified potential environmental concerns

Employment History

Hahn and Associates, Inc.	Associate	2011 to present
Independent Contractor	Environmental Geologist	1999 to 2011
AGRA Earth & Environmental	Project Manager	1991 to 1999
Rittenhouse-Zeman Associates	Environmental Geologist	1988 to 1991

(0819)

GARY W. HAHN, E.P.
President, Principal

Technical Expertise
Mr. Hahn is a qualified Environmental Professional (E.P.), with technical expertise in managing the day-to-day operations of a regionally-based environmental consulting firm that specializes in site assessment, investigation, and remediation of contaminated properties.

Experience Summary
Mr. Hahn has owned and managed Hahn and Associates, Inc. since its inception in 1987, and has provided environmental regulatory assistance and site assessment activities for industry and government, as well as overseeing the design and implementation of environmental compliance programs and the management of environmental cleanup projects for over 40 years.

Credentials
B.S. Chemistry, Case Western Reserve University

Professional Titles and Affiliations
- Past Member, Board of Directors, The Wetlands Conservancy
- Past Member, Board of Directors, Oregon Association of Environmental Professionals
- Board Member, The Seva Foundation

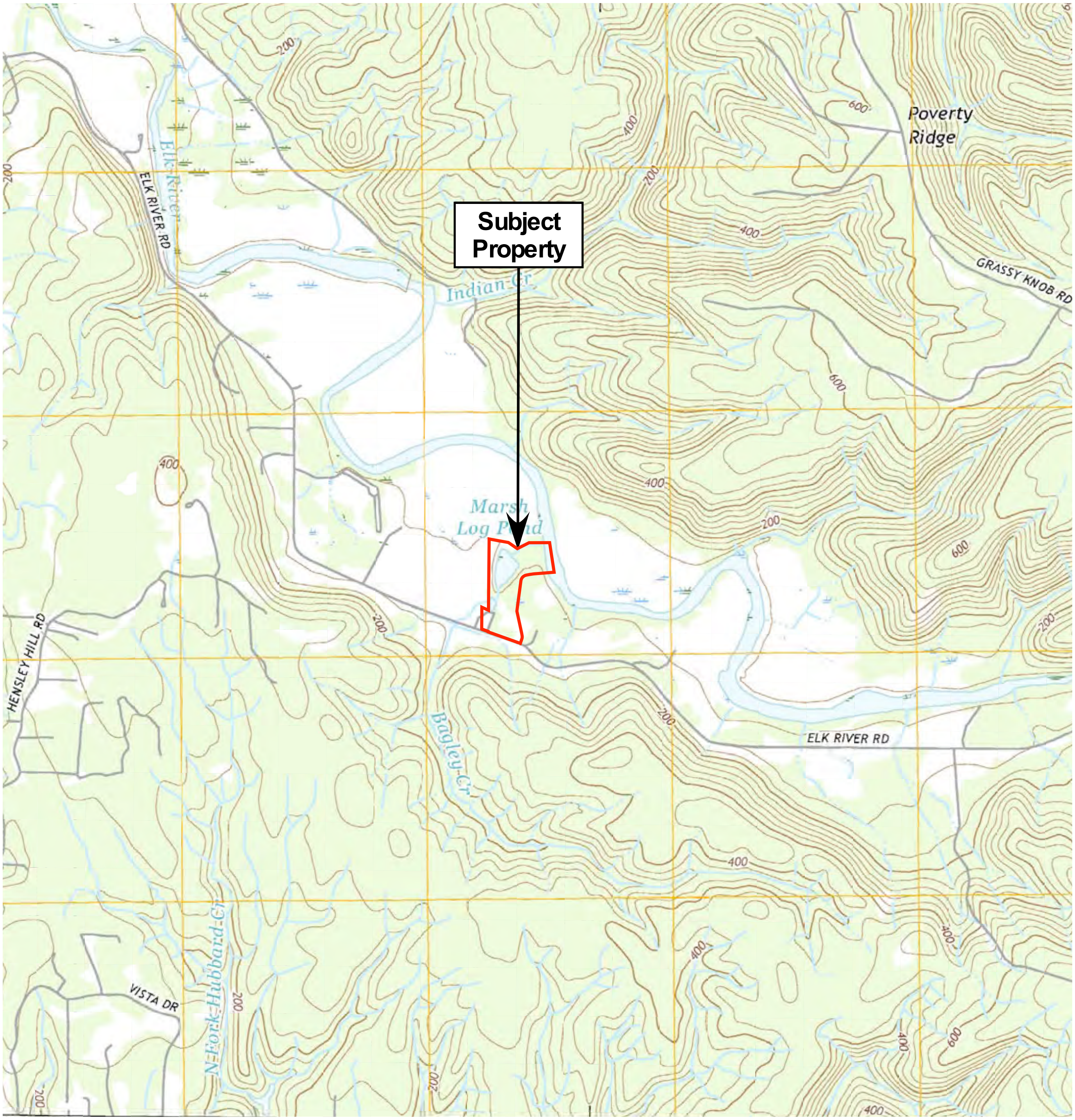
Selected Professional Training
- OSHA 40-Hour HAZMAT Training and Annual 8-Hour Updates

Employment History

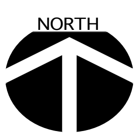
Hahn and Associates, Inc.	President	1987 to present
SRH Associates, Inc.	Environmental Scientist	1986 to 1987
McCall Oil and Chemical Corp.	Environmental Compliance Manager	1983 to 1986
Waste Management, Inc.	Remedial Action/Cleanup Manager	1981 to 1983
Oregon DEQ	Hazardous Waste Specialist	1980 to 1981
Ohio EPA	Hazardous Spill Response Manager	1976 to 1979

(0819)

FIGURES



Note: Base Map from the Sixes (2017), Oregon
USGS 7.5-Minute Quadrangle
Contour Interval: 40 Feet



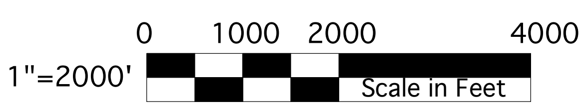


FIGURE 1 – Location Map

Phase I Environmental Site Assessment
Former Western States Plywood
Tax Lots 104, 900, 901
Elk River Road
Port Orford, Oregon

HAHN AND ASSOCIATES, INC.
Project No. 9889 November 2022

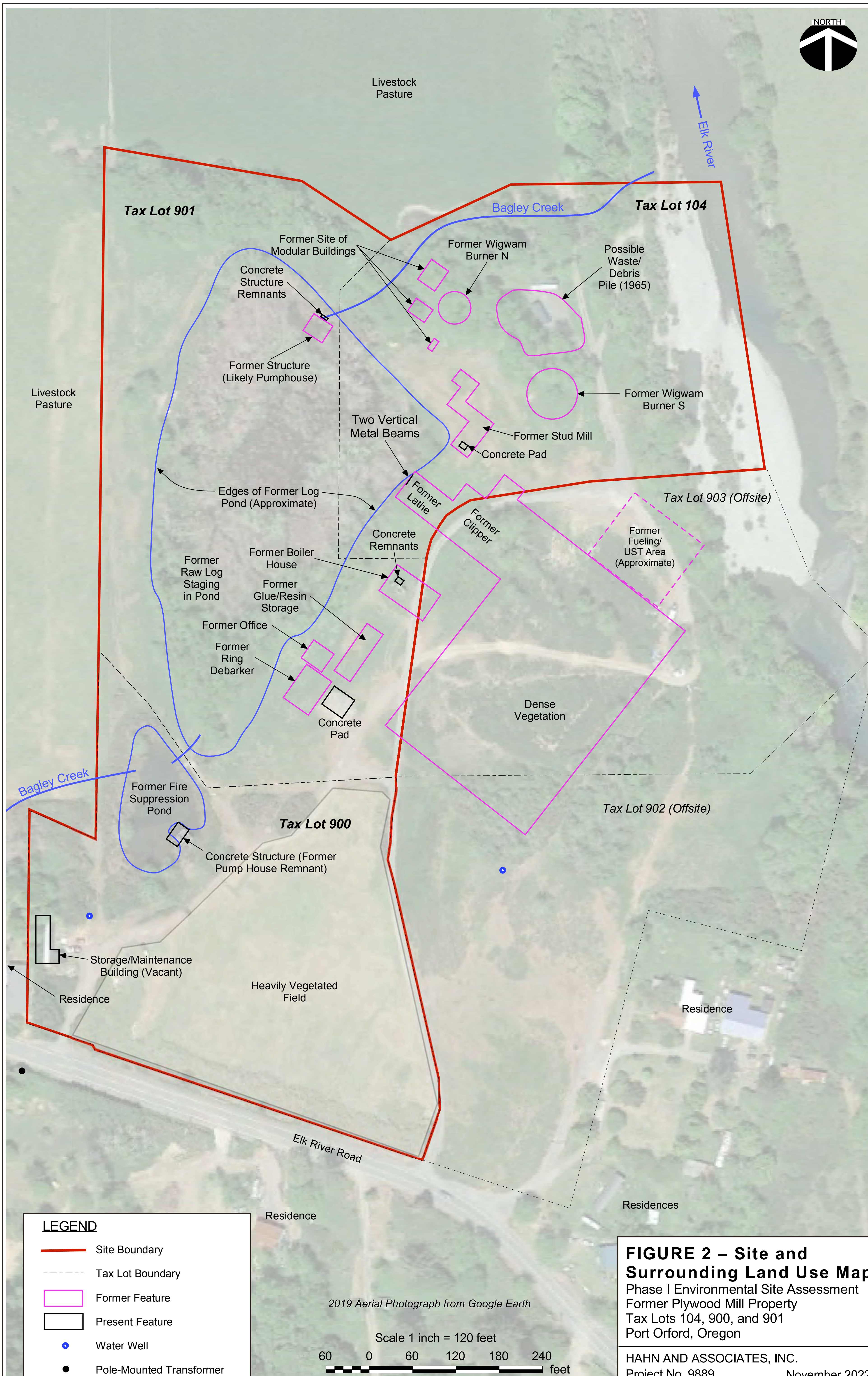


FIGURE 2 – Site and Surrounding Land Use Map

Phase I Environmental Site Assessment
Former Plywood Mill Property
Tax Lots 104, 900, and 901
Port Orford, Oregon

HAHN AND ASSOCIATES, INC.
Project No. 9889 November 2022

SITE PHOTOGRAPHS

Photograph No. 1	
Direction: West **Location:** East of the Storage / Maintenance Building on Tax Lot 900 **Comments:** View of the vacant Storage / Maintenance Building, which is becoming overgrown and difficult to access. Awning to left, shed to right. **Photo File Name:** IMG_7051.jpeg	

Photograph No. 2	
Direction: Northwest **Location:** Interior of the Storage / Maintenance Building (through partially open door) **Comments:** Nearly empty interior of Storage / Maintenance Building. Minor oil staining was observed on the concrete slab floor. **Photo File Name:** IMG_6994.JPEG	

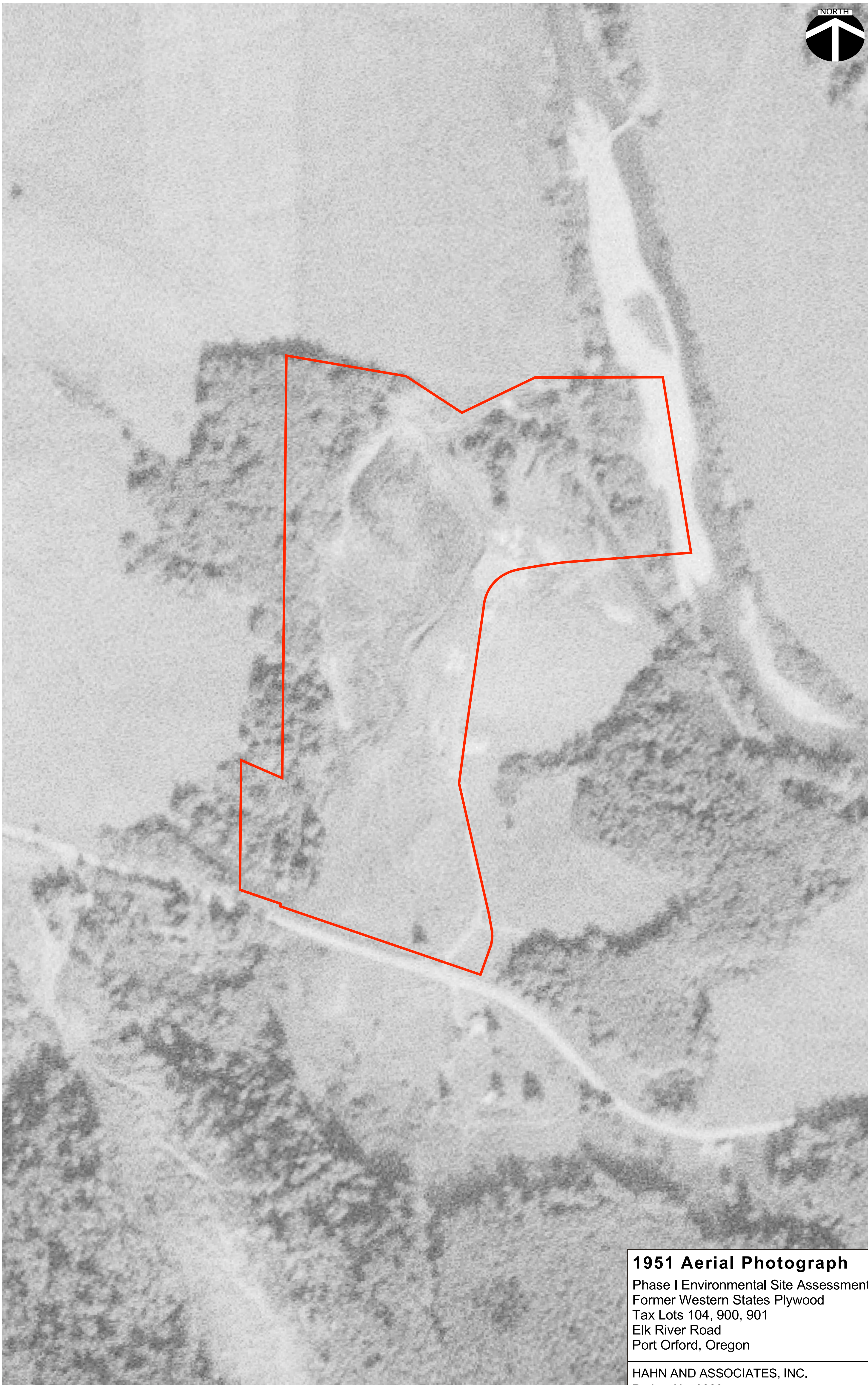
Photograph No. 3	
Location: Tax Lot 900, northeast of the Storage / Maintenance Building **Comments:** Water well with PVC piping. Not in use at time of site visit. **Photo File Name:** IMG_6967.jpeg	

Photograph No. 4	
Direction: Southwest **Location:** Tax Lot 900, east of Fire Pond **Comments:** Concrete and steel remnants of the old Fire Pond pump house. **Photo File Name:** IMG_7001.jpeg	

Photograph No. 5	
Location: Southeastern portion of Tax Lot 901 **Comments:** Concrete remnants of old boiler house. **Photo File Name:** IMG_7023.jpeg	

Photograph No. 6	
Direction: South **Location:** Northern boundary of the Log Pond **Comments:** Dense vegetation and remnants of small concrete canal located above Bagley Creek on the northern portion of the Log Pond. **Photo File Name:** IMG_7044.jpeg	

AERIAL PHOTOGRAPHS



1951 Aerial Photograph

Phase I Environmental Site Assessment
Former Western States Plywood
Tax Lots 104, 900, 901
Elk River Road
Port Orford, Oregon

HAHN AND ASSOCIATES, INC.
Project No. 9889
November 2022

1965 Aerial Photograph

Phase I Environmental Site Assessment
Former Western States Plywood
Tax Lots 104, 900, 901
Elk River Road
Port Orford, Oregon

HAHN AND ASSOCIATES, INC.
Project No. 9889
November 2022

1970 Aerial Photograph

Phase I Environmental Site Assessment
Former Western States Plywood
Tax Lots 104, 900, 901
Elk River Road
Port Orford, Oregon

HAHN AND ASSOCIATES, INC.
Project No. 9889
November 2022

1994 Aerial Photograph

Phase I Environmental Site Assessment
Former Western States Plywood
Tax Lots 104, 900, 901
Elk River Road
Port Orford, Oregon

HAHN AND ASSOCIATES, INC.
Project No. 9889
November 2022

2019 Aerial Photograph

Phase I Environmental Site Assessment
Former Western States Plywood
Tax Lots 104, 900, 901
Elk River Road
Port Orford, Oregon

HAHN AND ASSOCIATES, INC.
Project No. 9889
November 2022

Appendix A

Services Agreement

HAHN AND ASSOCIATES, INC.
CCB#71414

SERVICES AGREEMENT

Agreement No. 9889

October 17, 2022

BY AND BETWEEN	HAHN AND ASSOCIATES, INC. 434 NW 6th Avenue, Suite 203 Portland, Oregon 97209-3651	("HAI")
AND:	WILD RIVERS LAND TRUST P.O. Box 1158 Port Orford, Oregon 9797465	("Client")

HAI agrees to provide services and Client agrees to purchase services as follows:

A. SCOPE OF SERVICES AND PERFORMANCE SCHEDULE

1. HAI will conduct a review and inspection of the property located at the Approximately 17.8-Acre Western States Plywood Property, Elk River Road, Port Orford Curry County, Oregon. The review and inspection activities will meet the requirements of the American Society for Testing and Materials (ASTM) standard E 1527-21 entitled *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, as detailed in the attached *Scope of Work for Phase I Environmental Site Assessments*. Further, unless otherwise directed and as appropriate, HAI may include recommendations in the report to address any identified *Recognized Environmental Conditions* (RECs).

Unless specifically noted herein, the review and inspection activities will not include items that are outside the scope of ASTM standard E1527-21 ("non-scope considerations"). Non-scope considerations include, but are not limited to, the interpretation of geological or hydrogeological information, issues related to lead-based paint, lead in drinking water, electromagnetic frequencies, cultural and/or historic resources, indoor air quality (e.g. vapor intrusion), fungi (e.g. mold), radon, wetlands, ecological resources, endangered species, and the National Environmental Policy Act (NEPA). Additional non-scope considerations also include surveys for asbestos or vapor encroachment conditions (ASTM E2600-10), imported fill materials, health and safety, industrial hygiene, geotechnical features, and regulatory compliance, or a determination of the suitability of a property or its structures for any purpose.

NOTE: the preceding list of non-scope considerations is not intended to be all-inclusive. Further, no implication is intended as to the relative importance of inquiry into such non-scope considerations.

2. Upon completion of the Services or the earlier termination of this agreement, HAI shall prepare a written report, documenting the Services performed, which will include copies of all laboratory analyses that are performed, if any.

3. Performance of the Services commenced on October 17, 2022 and shall be diligently continued until completed.

B. COMPENSATION

All Services shall be compensated in accordance with the terms and conditions of the attached General Terms and Conditions. The total cost to complete the indicated work, on a Flat Fee basis, will be $3,950, including travel-related expenses. This fee assumes the following:

- Title Report (current within the past six months) will be provided to HAI that will include the required search for recorded environmental liens and activity and use limitations (AULs).
- Report Revisions or Amendments after the reports are submitted, and as a result of information not available to HAI during the project, will be charged on a time and materials (T&M) basis, in addition to the quoted flat fee

C. SPECIAL PROVISIONS

None

D. STANDARD TERMS AND CONDITIONS

All the terms and conditions in the attached General Terms and Conditions and any attached exhibits and schedules are incorporated into this Agreement by this reference.

HAHN AND ASSOCIATES, INC. By	WILD RIVERS LAND TRUST By
Gary W. Hahn	
Gary W. Hahn, E.P.	Printed Name: SCOTT FOGARTY
President	Title: EXECUTIVE DIRECTOR
Date: October 17, 2022	Date: 10/18/22

(HAI 0518)

HAHN AND ASSOCIATES, INC.
SERVICES AGREEMENT
AGREEMENT NO. 9889

GENERAL TERMS AND CONDITIONS

1. Services Defined Hahn and Associates, Inc. (HAI) shall perform services for Client according to the scope of work and performance schedule described in Paragraph A of this Agreement (the "Services").

2. Changes to Services. The scope of work may be changed only by mutual agreement of the parties. If either party desires to change the scope of the Services or the performance schedule, the party desiring such a change shall submit a Change Order to the other party for approval pursuant to this section. A Change Order shall describe the desired change and the reason for the change. Upon execution by, and delivery to, both parties of duplicate originals of the Change Order, it shall become an amendment to this Agreement. In circumstances when both parties desire to enter into a Change Order before a written Change Order can be prepared and executed, the parties may proceed on the basis of a verbal or e-mail Change Order agreed to by both parties and to be documented in writing at the earliest time practicable.

3. Charges and Payment.

3.1 Client shall pay for all Services at the rates set forth in Paragraph B of this Agreement.

3.2 Client agrees to pay HAI for all expenses related to the Services, which expenses may include, without limitation; travel (including local travel), meals and lodging expenses; expenses for reproductions, deliveries, supplies, equipment rental, taxes and freight; and subcontractor charges. All such expenses shall be billed to Client at HAI's cost plus 15 percent.

3.3 Invoices will be submitted once per month. All invoices shall be past due 30 days after the date of the invoice. HAI may assess to Client a late-payment charge for any invoiced amount not paid within 30 days after the date of the invoice, which charge shall be equal to 1.5 percent per month (but not exceeding the maximum allowable by law) of the unpaid amount from the date of the invoice until paid. Such late-payment charge shall be in addition to, and not in lieu of, any other rights and remedies HAI may have under applicable laws or this Agreement.

3.4 In the event of a dispute to a billing, only that disputed portion will be withheld from payment, and the undisputed portion will be paid. Client will exercise reasonableness in disputing any bill or portion thereof. No interest will accrue on any disputed portion of the billing until mutually resolved.

4. Duration of Agreement and Termination.

4.1 This Agreement shall commence on the date it is executed by both parties and shall continue in effect until the Services have been performed and all payments received, unless sooner terminated by either party, with or without cause, by seven days written notice to the other. In the event the Services have been commenced prior to the execution of this Agreement, this Agreement shall be effective retroactively to the date the Services were commenced.

4.2 Upon termination of this Agreement, HAI shall prepare a final invoice for all Services performed to the date of termination, and Client shall pay such invoice pursuant to the terms of Section 2 above. If such termination is at the request of Client or is at the request of HAI because of Client's default, HAI may assess Client a termination charge for fees and expenses HAI incurs to effect the termination, which may include, without limitation, the cost of irretrievably committed resources, completion of documentation HAI considers necessary to protect its professional reputation, un-recovered proposal and presentation costs and administrative and overhead costs.

5. Warranty and Limitations of Liability

5.1 HAI warrants that the Services shall satisfy the standards of care, skill and diligence ordinarily provided by a professional in the performance of similar services as of the time HAI performs the Services. This warranty is in lieu of and excludes all other warranties, whether express or implied, by operation of law or otherwise. No other warranties or representation, either express or implied, is included or intended in any of HAI's brochures, proposals or reports. Environmental investigations are not exhaustive and uncertainty cannot be eliminated.

5.2 **HAI's liability with respect to this Agreement or the performance of the Services shall not exceed the lesser of $25,000 or the total amount paid by Client for Services under this Agreement.** HAI shall not be liable for any incidental, consequential or special damages. These limitations shall apply to any liability of HAI, whether arising under contract, tort or any other legal or equitable theory.

5.3 No action relating to Services performed under this Agreement may be brought by either party more than **one year** after the date such Services are performed, except that an action for nonpayment may be brought within two years of the date of the last payment.

6. Indemnity. Client shall defend, indemnify and hold harmless HAI and its officers, directors, employees, subcontractors and agents against and from any and all causes of action, suits, demands, costs, claims, damages, losses, liability, fines and expenses, direct or indirect, (including but not limited to attorney's fees at trial and on any appeal or petition for review) (collectively "Claims") for, or on account of, personal injury, illness or death, property damage or governmental order, relating to the Services and arising out of or attributable to any hazardous or toxic substance, waste or material or any other pollutant or contaminant. To the fullest extent permitted by law, this subsection shall apply regardless of the fault, negligence, breach of warranty or contract, or strict liability of HAI, except to the extent of HAI's gross negligence or willful misconduct.

7. Samples; Wastes. Any soil, water and other samples shall be collected by HAI as agent for Client, and Client shall be deemed the sample collector under 40 CFR Section 261.4(d). Any wastes (including without limitation, samples, drill cuttings, produced water, excavated material, and contaminated equipment and materials) generated in connection with the Services shall be deemed generated by Client, and Client shall be responsible for the proper disposal of such wastes, unless such disposal is specifically included in the description of the Services. Unless Client and HAI otherwise agree in writing, HAI may return all such wastes to Client at Client's expense, and Client shall reimburse HAI for the cost of all equipment or materials that becomes contaminated and must be disposed.

8. Hazardous Substances. Client represents and warrants that it has informed HAI in writing of any hazardous substances Client knows or suspects are present on the property to be addressed by the Services. Client agrees that HAI shall have no responsibility for any hazardous substances present on such property.

9. Responsibility for Access and Information. Client shall secure for HAI the right of access to the property upon which or for which the services are to be performed and shall provide HAI with copies of all plans, environmental records and reports, and other information and documentation in its possession that may be relevant to the performance of the Services. Client assumes responsibility for all personal injury, death and property damage that may be caused by HAI's interference with subterranean structures, utilities, tanks, wastes or conditions not accurately shown on plans provided by Client or otherwise not accurately located by written notice to HAI, unless such interference is caused by the gross negligence or willful misconduct of HAI. Client acknowledges that the nature of the Services will involve some damage or destruction of property, and that HAI shall have no responsibility or liability with respect to such damage or destruction, except to the extent caused by the gross negligence or willful misconduct of HAI.

10. Ownership of Documents. All designs, drawings, specifications, notes, data, report reproductions and other work developed by HAI shall remain HAI's property. HAI will retain all pertinent summaries and reports relating to the services performed for a period of at least two years following submission of the report, during which period the records will be made available to Client at all reasonable times. HAI reserves the right to discard at any time field notes, laboratory test sheets, calculation sheets, etc.

11. Confidentiality.

11.1 Any information disclosed under this Agreement that either party wishes to keep confidential ("Confidential Information") shall be clearly labeled and identified as Confidential Information by the disclosing party at the time of disclosure. At Client's written request, any documents, materials, information or reports collected or generated by HAI in connection with the Services shall be treated as Confidential Information.

11.2 Each party shall handle Confidential Information received from the other party in the same manner as the receiving party handles its own Confidential Information. Disclosure of Confidential Information shall be restricted to those individuals who need access to such Confidential Information as needed to ensure proper performance of the Services.

11.3 Neither party shall be liable for disclosure or use of Confidential Information which: (1) was known by the receiving party at the time of the disclosure due to circumstances or events unrelated to this Agreement: (2) is already part of the public domain; (3) is disclosed with the prior written approval of the disclosing party; (4) is required to be released by law or court order.

12. Conflict of Interest. Client acknowledges that HAI provides similar services for a broad range of other clients and agrees that HAI shall be free to work for other clients in matters that do not directly relate to the specific facts or circumstances for which the Services are provided by HAI to Client under this Agreement. In providing services for other clients, HAI will not use any Confidential information of Client without Client's consent.

13. 13. Use of Work Product for Issuance or Sale of a Security. Under no circumstances is the Client or anyone acting through, with, or on behalf of the Client, permitted to use any work product of HAI (or it employees or subconsultants under this Agreement) in connection with any sale or offering for sale of securities, including, without limitation, stock, bonds, notes, or any other instruments or transactions which call for investments, loans, or other transfers of money to Client without HAI's prior written authorization.

14. General.

14.1 HAI shall have the right to engage subcontractors (including corporations affiliated with or related to HAI) to assist it in the performance of the Services. HAI reserves the right to change at its sole discretion the personnel it assigns to the performance of the Services.

14.2 No party to this Agreement shall be considered in default in the performance of its obligations under this Agreement, except with respect to the obligations to make payments pursuant to Sections 2 and 5, to the extent that the performance of any such obligation is prevented or delayed by acts of God or a public enemy, restraints of the government, strikes or any causes of any nature, whether similar or dissimilar to the causes listed, that could not with reasonable diligence be controlled or prevented by the party whose performance is prevented or delayed.

14.3 In making and performing this Agreement, the parties are independent contractors, and at no time shall either party make any commitments or incur any charges or expenses for or in the name of the other party without prior written consent.

14.4 All notices and payments under this Agreement shall be personally delivered or sent by first-class mail, postage prepaid, addressed to the other party at the address set forth above or as otherwise designated in writing to the other party. All notices shall be in writing. Notices shall be deemed given when received and shall be deemed received when personally delivered or 48 hours after they are postmarked, if sent by mail.

14.5 If in any judicial proceeding a court shall refuse to enforce all the provisions of this Agreement, the scope of any unenforceable provision shall be deemed modified and diminished to the extent necessary to render such provision valid and enforceable. In any event, the validity or enforceability of any such provision shall not affect any other provision of this Agreement, and this Agreement shall be construed and enforced as if such provision had not been included.

14.6 This Agreement and any referenced attachments, exhibits or schedules (which are incorporated herein by this reference) are the entire agreement between the parties and supersede all previous agreements or understandings between them. This Agreement may be modified only in writing, signed by both parties, except as described in Section 2 above.

14.7 Waiver by either party of any breach of this Agreement shall not be construed as a waiver of any other breach. The parties' remedies under this Agreement are not exclusive, but are in addition to all other remedies in favor of each party as provided in this Agreement or at law or equity.

14.8 If any suit or action is filed by any party to enforce or interpret a provision of this Agreement or otherwise with respect to the subject matter of this Agreement, the prevailing party shall be entitled, in addition to other rights and remedies it may have, to reimbursement for its expenses incurred with respect to such suit or action, including court costs and reasonable attorneys' fees at trial, on appeal and in connection with any petition for review.

14.9 If HAI or any of its employees are subpoenaed or otherwise compelled by law to testify or produce documents in connection with the Services, Client agrees to compensate HAI for its staff time and expenses according to HAI's then current rates.

14.10 This Agreement gives no rights or benefits to parties other than HAI and Client and has no third party beneficiaries. All reports, recommendations and other documents prepared by HAI under this Agreement are intended solely for Client's use with respect to the property and matters specifically addressed by the Services. Any use by persons other than Client and any reuse by Client for purposes outside this Agreement shall be at the user's sole risk.

14.11 This Agreement shall be governed by and construed under the laws of the State of Oregon.

14.12 In the event that groundwater monitoring wells are to be installed, altered or abandoned, that work will be completed, if within the State of Oregon, in accordance with Oregon Groundwater Law (ORS Chapter 537) and the Rules for the Construction and Maintenance of Monitoring Wells and Other Holes in Oregon (OAR Chapter 690, Division 240).

14.13 As between Client and HAI, Client shall have the primary obligation, if any, to report to the appropriate governmental authorities the presence of contamination on the subject property. Client acknowledges, however, that HAI may be required by applicable laws to report to governmental authorities contamination of which it becomes aware during the performance of the Services. Before making any such reports, HAI will notify the Client and allow the Client at least 24 hours to make the report itself, to the extent such delay is consistent with any reporting obligations and the protection of human health, welfare and the environment.

(HAI 09/17)

HAHN AND ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS
Assessment Investigation Remediation

July 14, 2022

Mr. Max Beeken
Wild Rivers Land Trust
PO Box 1158
Port Orford, Oregon, 97465

**SUBJECT: Proposal for Phase I Environmental Site Assessment,
17.8-Acre Former Western States Plywood Property,
Tax Lots 104, 900, and 901, Elk River Road, Port Orford, Oregon**

Dear Mr. Beeken:

At your request, Hahn and Associates, Inc. (HAI) has prepared a proposal and cost estimate for Phase I Environmental Site Assessment (ESA) activities at the above-referenced property. The purpose of a Phase I ESA is to identify environmental concerns that may present a potential liability to the current owner or to a prospective purchaser of the property. Environmental concerns identified in association with the property will be presented in the report as *Recognized Environmental Conditions* (RECs), that is the presence or likely presence of contamination resulting from hazardous materials, including petroleum products at the property. Further, unless otherwise directed and as appropriate, HAI will include recommendations in the report to address any identified RECs.

Scope of Work
It is proposed that the subject property be evaluated for environmental hazards and that the Phase I ESA report be prepared for the property in accordance with the ASTM standard (E1527-13/E1527-21) entitled *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. The U.S. Environmental Protection Agency (EPA) has stated that ASTM E1527-13 may be used to comply with meeting the objectives and performance factors of 40 CFR Part 312 Standards for All Appropriate Inquiries, Final Rule (40 CRF 312.11) which became effective November 1, 2006. For more detail, refer to the attached *Scope of Work for Phase I Environmental Site Assessments* (SOW).

Additional Environmental Concerns / Non-Scope Considerations
<u>Beyond the Phase I ESA work, there may be additional environmental concerns that are associated with a property which may contribute to environmental risk but which are outside of the scope of the Phase I ESA (“non-scope considerations”)</u>. Non-scope considerations may include, but are not limited to, surveys for asbestos, lead-based paint, drinking water quality, indoor air quality (e.g. vapor intrusion) (including radon and urea formaldehyde), fungi (e.g. mold), occupational health and safety, wetlands and other ecological resources, electromagnetic radiation, cultural and/or historic resources, and environmental regulatory compliance generally. The Phase I ESA work activities also do not include surface or subsurface investigations, including sampling and analyses, which would be necessary to determine the <u>actual</u> presence of contamination on or beneath a property. However, <u>these environmental risk issues can be addressed separately and in addition to the Phase I ESA, at the request of the Client</u>.

NOTE that no implication is intended as to the relative importance of inquiry into such non-scope considerations, and that the preceding list of non-scope considerations is not intended to be all-inclusive.

Fee

The indicated Phase I ESA work can be completed for a flat fee of $**3,950**, which includes travel time and expenses, and also includes a Reliance Letter, if requested. This fee assumes the following:

- <u>Title Report</u> (current within the past six months) will be provided to HAI that will include the required search for recorded environmental liens and activity and use limitations (AULs).
- <u>Report Revisions or Amendments</u> after the report is submitted, and as a result of information not available to HAI during the project, will be charged on a time and materials (T&M) basis, in addition to the quoted flat fee

Schedule

The Phase I ESA report can be completed within approximately 20 to 25 business days of the authorization to proceed, depending upon HAI's workload at the time of assignment. One (1) electronic copy (PDF) of the report will be provided.

If the project is authorized and subsequently cancelled before the submission of the final report, there will be a minimum charge of $500, and up to the full fee amount, depending on the accrued fees and expenses.

This proposal is valid for thirty (30) days from the date of this letter. At your direction, HAI is ready to proceed with the indicated work activity. If there are any comments or questions, please contact either the undersigned or Mr. Gary Hahn (garyh@hahnenv.com), President of HAI. Thank you for the opportunity to present this information.

Sincerely,

Nora Eskes

Nora Eskes, E.P.
Principal

norae@hahnenv.com

SCOPE OF WORK FOR PHASE I ENVIRONMENTAL SITE ASSESSMENTS

(05/22)

Purpose

The purpose of a Phase I Environmental Site Assessment (ESA) is to identify potential *Recognized Environmental Conditions* (RECs) that could present a liability to a property owner. The historical and current uses of a property are researched to evaluate the need for further work.

Potential RECs that may be identified during the Phase I ESA include the following:

- Known or suspect areas of Hazardous Substances usage
- Hazardous and non-Hazardous Waste disposal
- Evidence of Underground Storage Tanks (USTs) (current or historical)
- Evidence of Polychlorinated Biphenyls (PCBs)
- Historical practices that could result in Environmental Liability
- Areas of Potential Contamination

National Standard

The task items noted below have been designed to follow the American Society for Testing and Materials (ASTM) guideline (E1527-21) entitled *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, and to meet the requirements of the federal *All Appropriate Inquiries* (AAI) rule.

Report

The product of the Phase I ESA will be a written report containing maps, diagrams, photographs and descriptions of environmental conditions encountered during the Phase I ESA, along with any RECs.

TASK 1 RECORDS REVIEW

Internal File Review – Pertinent Client and/or tenant records, if any and as made available, will be reviewed. In particular, the following types of records will be requested for review:

- Construction Plans
- Material Safety Data Sheets (MSDSs)
- Asbestos Surveys
- Environmental Regulatory Permits
- Waste Characterization / Disposal Records
- Geotechnical Studies
- Hazardous Substance Usage, Release and Remediation Reports

Physical Setting / Environmental Condition Sources — Documentation pertaining to the physical or environmental conditions on the property will be reviewed, as available from the U.S. Geological Survey (USGS), the Army Corps of Engineers, and/or city and county agencies.

Historical Review — A historical background search will be conducted, including a review of the readily available data on historical land use practices at the property and the surrounding area. The following sources may be used, if readily available:

- Facility construction plans
- Land ownership maps/land use records/building permits and plans/tax record files
- Historical aerial photographs/historical topographic maps
- Fire department records regarding UST installation or decommissioning

Agency File Review — Readily available records at local/municipal agencies and/or the local office of the state environmental agency will be reviewed, as needed, to identify inspections, permits, notifications, orders or penalties for the property.

Regulatory Database Review — Federal, state and tribal environmental databases will be reviewed for facilities listed within the ASTM-prescribed radius (1.0 mile or less) of the subject property:

- Federal National Priority List (NPL) and Delisted NPL sites lists
- Federal Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) lists
- Federal Resource Conservation Recovery Act (RCRA) list of Treatment, Storage, and Disposal (TSD) Facilities subject to corrective action under RCRA (CORRACTS)
- Federal RCRA non-CORRACTS TSD facilities and RCRA generators lists
- Federal Emergency Response Notification System (ERNS) list
- State/Tribal-equivalent NPL and CERCLIS lists; landfill/solid waste disposal sites list; Leaking Underground Storage Tank (LUST) list; registered UST list

TASK 2 SITE RECONNAISSANCE

A site reconnaissance will be conducted to identify visual indications of past or present activities which could pose a risk of contamination. The site reconnaissance will include the following:

- A physical site visit (walk-through) to identify potential on-site sources of contamination
- Evidence of USTs, suspected PCB-contaminated equipment, waste disposal areas, surface water drainages, and evidence of potential Hazardous Substance contamination
- Review of appropriate land use maps to identify known contaminated areas and USTs in the surrounding area
- Identification of potential off-site sources of contamination from surrounding land uses
- Photographs of environmental features of the property, for inclusion in the report
- Possible compliance issues that may be related to identified or suspected Underground Injection Controls (UICs)
- Visual observations of suspect asbestos-containing materials (ACMs) at the property

TASK 3 INTERVIEWS

As available, individuals likely to have knowledge of the current and/or historical operational practices at the property will be interviewed. Such knowledgeable individuals may include some or all of the following:

- Client or “User” of the Phase I ESA
- Current / Historical Owners, Tenant(s), Neighbors
- Government Agency Personnel

TASK 4 REPORT PREPARATION

A comprehensive report will be prepared upon completion of the Site Reconnaissance, Records Review, and Interview task items. The report will serve as a consolidated gathering of the data that was obtained, and will detail the resultant findings and conclusions.

EXCLUSIONS

Unless otherwise specified or requested by the Client, the Phase I ESA activities will not include additional environmental concerns that are outside of the scope of the Phase I ESA (“non-scope considerations”), No implication is intended as to the relative importance of inquiry into such non-scope considerations, and the following list of non-scope considerations is not intended to be all-inclusive:

- Interpretation of geological or hydrogeological information
- Asbestos or lead-based paint surveys, lead in drinking water, indoor air quality, fungi (e.g. mold), industrial hygiene, health and safety issues, electromagnetic radiation, radon, geotechnical or wetland surveys
- Identification of non-native materials or imported fill on a property, unless identified via interviews, the records review, or site visit
- Regulatory compliance assessment with respect to subject property activities
- Cultural and/or Historical resources, endangered species, or National Environmental Policy Act (NEPA) issues
- Chain of Title or Title Report, nor a determination of the suitability of a property or its structures for any purpose

Appendix B

Oregon Water Resources Department
Water Well Log Report

Oregon Water Resources Department
Well Report Query

Main | Help
Return | Contact Us

Well Report Query Results *GPS points, where available are at the far right of the table. Click link to view on map*

Township: 32 S, Range: 15 W, Sections: 27

Well Log	Details	T-R-S/ QQ-Q	Taxlot	Street of Well	Owner	Company	Special Standards	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	New	Abandon	Deepen	Alteration	Conversion	Domestic	Irrigation	Community	Livestock	Industrial	Injection	Thermal	Dewatering	Piezometer	Latitude/ Longitude
CURR_67	Details	32.00S-15.00W-27 NW-SW	300	BOX 110 ELK RIVER	WAGNER, GLEN BOX 110 ELK RIVER PORT ORFORD OR 97465			W	10.00	27.00	10.0	15.0	12/05/1985	12/19/1985	MILLER, ANDREW W BILL MILLER WELL DRILLING			✔							✔							
CURR_1061	Details	32.00S-15.00W-27 -			WAGNER, CLYDE PORT ORFORD OR 97465			W		34.00	14.0	21.0	06/01/1966	07/25/1966	BARRINGTON, DONALD E BARRINGTON WELL DRILLING			✔					✔									
CURR_1062	Details	32.00S-15.00W-27 SE-SW			WAGNER, CLARENCE R BOX 116 STAR RT PORT ORFORD OR 97465			W		50.00		0.0	10/03/1972	10/16/1972	MILLER, GEORGE R GEORGE R MILLER&SON WELL DRILL			✔	✔				✔									
CURR_1063	Details	32.00S-15.00W-27 SW-SW			VIOLETTE, LEO ELK RIVER RD PORT ORFORD OR 97465			W	16.00	35.00		1000.0	07/17/1956	07/30/1956	MOSBY, HOWARD HOWARD MOSBY WELL DRILLING			✔					✔									
CURR_50892	Details	32.00S-15.00W-27 SE-SE	800	2.5 MILE UP ELK RIVER ON RIGHT		COOS CURRY ELECTRIC 43050 HWY 101 PORT ORFORD OR 97465		G		0.00			08/05/2002	09/16/2002				✔	✔													
CURR_51417	Details	32.00S-15.00W-27 NW-SE	900	93639 ELK RIVER ROAD, PORT ORFORD	FICK, JEFFREY 93639 ELK RIVER ROAD PORT ORFORD OR 97465			W	12.25	23.75	-12.3	20.0	10/10/2006	10/11/2006	MACK SR, JAMES A BANDON WELL & PUMP COMPANY	1000095	80271	✔					✔									
CURR_52835	Details	32.00S-15.00W-27 SW-SE	901	93639 ELK RIVER ROAD, PORT ORFORD, OR , 97465	GRIFFITH, DAVID 93639 ELK RIVER ROAD PORT ORFORD OR 97465			G	10.00	20.00	10.0		11/13/2018	11/20/2018				✔	✔													
CURR_52836	Details	32.00S-15.00W-27 SW-SE	104	93639 ELK RIVER ROAD, PORT ORFORD, OR , 97465	GRIFFITH, DAVID 93639 ELK RIVER ROAD PORT ORFORD OR 97465			G	14.60	20.00	14.6		11/13/2018	11/20/2018				✔	✔													
CURR_52837	Details	32.00S-15.00W-27 SW-SE	901	93639 ELK RIVER ROAD, PORT ORFORD, OR , 97465	GRIFFITH, DAVID 93639 ELK RIVER ROAD PORT ORFORD OR 97465			G	10.60	15.00	10.6		11/13/2018	11/20/2018				✔	✔													
CURR_52838	Details	32.00S-15.00W-27 SW-SE	104	93639 ELK RIVER ROAD, PORT ORFORD, OR , 97465	GRIFFITH, DAVID 93639 ELK RIVER ROAD PORT ORFORD OR 97465			G	12.80	15.00	12.8		11/13/2018	11/20/2018				✔	✔													
CURR_52839	Details	32.00S-15.00W-27 SW-SE	104	93639 ELK RIVER ROAD, PORT ORFORD, OR , 97465	GRIFFITH, DAVID 93639 ELK RIVER ROAD PORT ORFORD OR 97465			G	12.10	15.00	12.1		11/13/2018	11/20/2018				✔	✔													
CURR_52840	Details	32.00S-15.00W-27 SW-SE	901	93639 ELK RIVER ROAD, PORT ORFORD, OR , 97465	GRIFFITH, DAVID 93639 ELK RIVER ROAD PORT ORFORD OR 97465			G	13.70	15.00	13.7		11/13/2018	11/20/2018				✔	✔													
CURR_52841	Details	32.00S-15.00W-27 SW-SE	901	93639 ELK RIVER ROAD, PORT ORFORD, OR , 97465	GRIFFITH, DAVID 93639 ELK RIVER ROAD PORT ORFORD OR 97465			G	9.70	15.00	9.7		11/13/2018	11/20/2018				✔	✔													
CURR_52842	Details	32.00S-15.00W-27 SW-SE	104	93639 ELK RIVER ROAD, PORT ORFORD, OR , 97465	GRIFFITH, DAVID 93639 ELK RIVER ROAD PORT ORFORD OR 97465			G	20.60	25.00	20.6		11/13/2018	11/20/2018				✔	✔													
CURR_52843	Details	32.00S-15.00W-27 SW-SE	901	93639 ELK RIVER ROAD, PORT ORFORD, OR , 97465	GRIFFITH, DAVID 93639 ELK RIVER ROAD PORT ORFORD OR 97465			G	5.90	15.00	5.9		11/13/2018	11/20/2018				✔	✔													
CURR_52844	Details	32.00S-15.00W-27 SW-SE	104	93639 ELK RIVER ROAD, PORT ORFORD, OR , 97465	GRIFFITH, DAVID 93639 ELK RIVER ROAD PORT ORFORD OR 97465			G		15.00			11/15/2018	11/20/2018				✔	✔													
CURR_52845	Details	32.00S-15.00W-27 SW-SE	104	93639 ELK RIVER ROAD, PORT ORFORD, OR , 97465	GRIFFITH, DAVID 93639 ELK RIVER ROAD PORT ORFORD OR 97465			G		15.00			11/15/2018	11/20/2018				✔	✔													
CURR_52846	Details	32.00S-15.00W-27 SW-SE	901	93639 ELK RIVER ROAD, PORT ORFORD, OR , 97465	GRIFFITH, DAVID 93639 ELK RIVER ROAD PORT ORFORD OR 97465			G		15.00			11/15/2018	11/20/2018				✔	✔													
CURR_52847	Details	32.00S-15.00W-27 SW-SE	901	93639 ELK RIVER ROAD, PORT ORFORD, OR , 97465	GRIFFITH, DAVID 93639 ELK RIVER ROAD PORT ORFORD OR 97465			G		15.00			11/15/2018	11/20/2018				✔	✔													
CURR_52848	Details	32.00S-15.00W-27 SW-SE	901	93639 ELK RIVER ROAD, PORT ORFORD, OR , 97465	GRIFFITH, DAVID 93639 ELK RIVER ROAD PORT ORFORD OR 97465			G		15.00			11/15/2018	11/20/2018				✔	✔													

1 2

Download Data

Oregon Water Resources Department
Well Report Query

Well Report Query Results *GPS points, where available are at the far right of the table. Click link to view on map*

Township: 32 S, Range: 15 W, Sections: 27

Well Log	Details	T-R-S/ QQ-Q	Taxlot	Street of Well	Owner	Company	Special Standards	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	New	Abandon	Deepen	Alteration	Conversion	Domestic	Irrigation	Community	Livestock	Industrial	Injection	Thermal	Dewatering	Piezometer	Latitude/ Longitude
CURR 52849	Details	32.00S-15.00W-27 SW-SE	901	93639 ELK RIVER ROAD, PORT ORFORD, OR , 97465	GRIFFITH, DAVID 93639 ELK RIVER ROAD PORT ORFORD OR 97465			G		15.00			11/15/2018	11/20/2018				✔	✔													
CURR 52850	Details	32.00S-15.00W-27 SW-SE	901	93639 ELK RIVER ROAD, PORT ORFORD, OR , 97465	GRIFFITH, DAVID 93639 ELK RIVER ROAD PORT ORFORD OR 97465			G		15.00			11/15/2018	11/20/2018				✔	✔													
CURR 52908	Details	32.00S-15.00W-27 SE-SE	105	93835 ELK RIVER ROAD PORT ORFORD, OREGON	MARSH, CHEREECE PO BOX 787 PORT ORFORD OR 97465			W	6.00	18.00	6.0		10/09/2019	10/21/2019	MACK SR, JAMES BANDON WELL & PUMP COMPANY	1045167		✔	✔				✔									42.7679, -124.4560
CURR 53097	Details	32.00S-15.00W-27 NW-SW	300	93363 ELK RIVER RD., PORT ORFORD, OR 97465	WAGNER, STEVE	ELK RIVER CAMPGROUND 93363 ELK RIVER RD. PORT ORFORD OR 97465		W	10.00	27.00	10.0		10/24/2022	10/27/2022	MACK SR, JAMES BANDON WELL & PUMP COMPANY	1059027	146360				✔				✔							42.7723, -124.4690

1 2

Download Data

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765 & OAR 690-205-0210)

CURR 51417
10-11-2006

WELL LABEL # L 80271
START CARD # 1000095

(1) LAND OWNER
Owner Well I.D. 1163
First Name Jeffrey Last Name Fick
Company
Address 93639 Elk River Road
City Port Orford State OR Zip 97465

(2) TYPE OF WORK
☒ New Well ☐ Deepening ☐ Conversion ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD
☐ Rotary Air ☒ Rotary Mud ☐ Cable ☐ Auger ☐ Cable Mud ☐ Reverse Rotary ☐ Other

(4) PROPOSED USE
☒ Domestic ☐ Irrigation ☐ Community ☐ Industrial/ Commericial ☐ Livestock ☐ Dewatering ☐ Thermal ☐ Injection ☐ Other

(5) BORE HOLE CONSTRUCTION
Special Standard ☐ (Attach copy)
Depth of Completed Well 23.75 ft.

BORE HOLE

Dia	From	To
10	0	24
6	24	28

SEAL

Material	From	To	Amt	sacks/ lbs
Bentonite	0	18	19	S

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☒ Other Pour from surface
Backfill placed from ft. to ft. Material
Filter pack from 18 ft. to 28 ft. Material Sand Size 10/20
Explosives used: ☐ Yes Type Amount

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
◉	○	5	☒	2	18.75	160#	○	◉	☒	☐
◉	○	6	☒	2	4	.250	◉	○	☐	☐

Shoe ☐ Inside ☐ Outside ☐ Other Location of shoe(s)
Temp casing ☐ Yes Dia From To

(7) PERFORATIONS/SCREENS
Perforations Method
Screens Type Johnson V-Wire Material Stainless Steel

Perf/ Screen	Casing/ Liner	Screen Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ pipe size
Screen		5	18.75	23.75	.021			5

(8) WELL TESTS: Minimum testing time is 1 hour
○ Pump ○ Bailer ◉ Air ○ Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
20		23	1

Temperature 52 °F Lab analysis ☒ Yes By Bandon Well & Pump Co.
Water quality concerns? ☐ Yes (describe below)

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)
County Curry Twp 32.00 S N/S Range 15.00 W E/W WM
Sec 27 NW 1/4 of the SE 1/4 Tax Lot 900
Tax Map Number Lot
Lat ° ' " or DMS or DD
Long ° ' " or DMS or DD
◉ Street address of well ○ Nearest address
93639 Elk River Road, Port Orford

(10) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Predeepening			☐	
Completed Well	10-10-2006		☒	12.3

Flowing Artesian? ☐ Dry Hole? ☐

WATER BEARING ZONES Depth water was first found 12.25

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
10-10-2006	12.25	23	20		☒	12.25

(11) WELL LOG
Ground Elevation 300

Material	From	To
Gravel sandy soil & clay brown	0	2
Clay orange brown	2	4
Sandstone gravel coarse-fine gray iron stained	4	8
Gravel fine-coarse iron stained	8	9
Boulder	9	10
Clay white w/gravel fine-coarse	10	12
Gravel fine-coarse w/cobbles brown orange	12	23
Clay orange	23	23.5
Clay gray	23.5	28

Date Started 10-10-2006 Completed 10-10-2006

(unbonded) Water 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 water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
License Number Date
Electronically Filed
Signed

(bonded) Water 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 water supply well construction standards. This report is true to the best of my knowledge and belief.
License Number 1493 Date 10-11-2006
Electronically Filed
Signed JAMES A MACK SR (E-filed)
Contact Info (optional) BANDON WELL & PUMP COMPANY (541) 347-7867

Appendix C

User Questionnaire

PHASE I ENVIRONMENTAL SITE ASSESSMENT USER QUESTIONNAIRE

(Required by ASTM E1527-13)

Property: Approximately 17.8-Acre Western States Plywood Property, Elk River Road, Port Orford, Curry County, Oregon

HAI Project No. 9889

The party who will be the *User* of the Phase I ESA should provide the following information, if available. Failure to do so could result in a determination that "All Appropriate Inquiry" is not complete, thereby putting your Landowner Liability Protections at risk. Accordingly, please fill in this form to the best of your ability. Explain any *Yes* answers to 6b, 7b, 8b, 9, 10a, b, c or d, and 11 on a separate sheet of paper. Then sign this form and return it to HAI along with copies of any of the available documents or information. This form will be made a part of the completed Phase I ESA Report to be prepared by Hahn and Associates, Inc.

Documents Provided to HAI?

Yes	No	Un-known		Yes	No
◉	○	○	1. Existence / location of water wells, fill material, drywells, sumps, pits, or drainage systems	◉	○
○	◉	○	2. Building plans (architectural, mechanical, utility, plumbing)	○	◉
◉	○	○	3. Description of current site operations, including site plans or sketches	○	◉
◉	○	○	4. Tax Assessor records (previous owner and occupants)	◉	○
◉	○	○	5. Title Report or Preliminary Title Report (which may include a search for recorded liens and *Activity and Land Use Limitations* (AULs)), and/or Chain Of Title	◉	○
◉	○	○	6. a) **Environmental Cleanup Liens**: Has a search for environmental cleanup liens filed under federal, tribal, state, or local law been conducted by a *title company* or *professional?*	◉	○
○	◉	○	6. b) Are you aware of any such liens encumbering the property*	◉	○
◉	○	○	7. a) ***Activity and Land Use Limitations* (AULs)**; Has a search for recorded AULs been conducted by a *title company* or *professional?* AULs may include engineering controls, land use restrictions or institutional controls in place at the property and/or filed or recorded in a registry under federal, tribal, state or local law.	◉	○
○	◉	○	7. b) Are you aware of any AULs in connection with the property?*	◉	○
○	◉	○	8. a) **Fair Market Value**: Does the purchase price for this property reasonably reflect the fair market value of the property?	○	◉
○	◉	○	8. b) If not, does the lower purchase price reflect known or suspected contamination to be present at the property?*	○	◉
○	◉	○	9. **Specialized Knowledge**: As the User of this ESA, do you have any specialized knowledge or experience related to the property or nearby property? For example, if you have been a tenant of the property or have been involved in the same line of business as the current or former occupant(s) you may have specialized knowledge of the chemicals and/or processes used at the property.*	○	◉
◉	○	○	10. **Common Knowledge**: Are you aware of commonly known or reasonably ascertainable information about the property that would help to identify conditions indicative of releases or threatened releases? For example, do you know (a) The historical uses of the property? Plywood mill 1950s - 1970s * (b) Of specific chemicals that are present or once were present at the property? Dioxins/furans, formaldehyde, PCP, metals * (c) Of spills or other chemical releases that have taken place at the property? Glue spill is in EPA/DEQ records but so far unsubstantiated by testing I think. * (d) Of any environmental cleanups that have taken place at the property?______ *	○	◉
◉	○	○	11. **Obvious Indicators**: Based on your knowledge of the property, are there any obvious indicators, such as spills, stains, releases, cleanups, etc., that point to the presence or likely presence of contamination at or near the property? *	○	◉
○	◉	○	12. Information concerning any pending, threatened, or past litigation or administrative proceedings relevant to hazardous substances or petroleum products	○	◉
○	◉	○	13. Notices from any governmental entity regarding possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products	○	◉

***Please explain any *Yes* answer on a separate sheet of paper**

14. Are you aware of any documents that may be pertinent to this ESA? Yes (●) No ( )
Please check the *Yes* column for all that apply, then check *Copy* column for any known documents for which copies are available. Please provide available copies to HAI:

	Yes	Copy		Yes	Copy
Prior Environmental Site Assessments (ESAs)	✓	✓	Hazardous Waste Generator Notices or Reports		
Regulatory Agency Documents/Correspondence	✓	✓			
Environmental Registrations/Permits for:			Material Safety Data Sheets		
Underground / Above-Ground Storage Tanks			Community Right-To-Know Plans		
Solid Waste Disposal			Site Safety Plans		
Hazardous Waste Disposal			Spill Prevention Plans		
Wastewater			Spill Control / Countermeasure Plans		
NPDES			Geotechnical Reports	✓	✓
Stormwater			Hydrogeologic Reports		
Drywell/UIC			Other (Specify)		

15. What type of Property Transaction are you having this ESA performed for?
A. ( ) Purchase of Property C. ( ) Exchange of Property E. ( ) Construction Loan
B. ( ) Sale of property D. ( ) Refinance F. (●) Other (Specify) Lease

16. What is the Reason for performing this ESA? (Check all that apply)
A. [✓] Due Diligence purposes in support of Landowner Liability Protections under CERCLA (i.e., Innocent Landowner, Bona Fide Prospective Purchaser, or Contiguous Owner Defenses)
NOTE: to qualify for any one of the CERCLA defenses, a *title company* or *title professional* must be engaged to conduct the required search for environmental cleanup liens and AULs.
B. [ ] Business Risk C. [ ] Other (Specify)

17. What is/are the complete and correct address(es) and/or Tax Identification Number(s) of this property, e.g., Map and Tax Lot(s)? If available, please provide a map showing the property boundaries.
T 32 S R 15 W S 27: TL 104, TL 900, TL 901. 93639 Elk River Road, Port Orford OR 97465

18. Are there any additional required scopes of service that apply to this ESA, e.g., additional Lender requirements beyond ASTM Standard Practice E 1527-13, or additional services required by a Buyer, Seller, etc.?
No

19. Are there any Lenders who will rely on this ESA? If so, please provide Lender Name(s):
No

20. Please provide the name and contact information (telephone, email, fax, etc.) for the Site Contact:
Max Beeken, 541-373-1599, max@wildriverslandtrust.org

21. Are there any special Terms and Conditions which must be agreed upon by the Environmental Professional (E.P.)?
No

I have reviewed the above list and where noted have or will provide copies of existing documents and information.

Max Beeken Digitally signed by Max Beeken Date: 2022.10.25 08:50:26 -07'00'
Signature

10/25/2022
Date

Max Beeken
Printed Name

Wild Rivers Land Trust
Company Name/Firm (if applicable)

Appendix D

Status of Record Title Report

AmeriTitle
15 Oregon Ave., Bend, OR 97703
PHONE (541)389-7711 FAX (541)389-0506

To:	Wild Rivers Land Trust PO Box 1158 Port Orford, OR 97465 Attn: Max Beeken	Date: Order No. Reference:	October 24, 2022 568257AM 93639 Elk River Road Port Orford, OR 97465

We have enclosed our Status of Record Title Report pertaining to order number 568257AM.

Thank you for the opportunity to serve you. Your business is appreciated!

If you have any questions or need further assistance, please do not hesitate to contact your Title Officer listed below.

Sincerely,

Curtis Holbert

curtis.holbert@ameritite.com
Title Officer

NOTICE: Please be aware that, due to the conflict between federal and state laws concerning the legality of the cultivation, distribution, manufacture or sale of marijuana, the Company is not able to close or insure any transaction involving land that is associated with these activities.

AmeriTitle
15 Oregon Ave., Bend, OR 97703
PHONE (541)389-7711 FAX (541)389-0506

STATUS OF RECORD TITLE

Max Beeken
Wild Rivers Land Trust
PO Box 1158
Port Orford, OR 97465

October 24, 2022
Title Number: 568257AM
Title Officer: Curtis Holbert
Fee: $400.00

We have searched the status of record title as to the following described property:

See attached Exhibit 'A'

Vestee:

Elk River Partners LLC,
an Oregon Limited Liability Company

and dated as of **October 13, 2022** at 7:30 a.m.

Said property is subject to the following on record matters:

1. Taxes assessed under Code No. 2-3 Account No. R11751 Map No. 32152700 00900
   The 2022-2023 Taxes: $65.39, plus interest, unpaid. (Includes $9.38 for Fire Patrol)
2. Taxes assessed under Code No. 1-3 Account No. R27131 Map No. 32152700 00900
   The 2022-2023 Taxes: $985.71, plus interest, unpaid. (Includes $56.88 for Fire Patrol)
3. Taxes assessed under Code No. 2-3 Account No. R34973 Map No. 32152700 00901
   The 2022-2023 Taxes: $627.06, plus interest, unpaid. (Includes $18.75 for Fire Patrol)
4. Taxes assessed under Code No. 2-3 Account No. R11559 Map No. 32152700 00104
   The 2022-2023 Taxes: $582.75, plus interest, unpaid. (Includes $18.75 for Fire Patrol)
5. Right, title and interest of the public in and to those portions of the Land lying within roads, streets or highways.
   (Parcel 1)
6. Rights of the public and governmental bodies in and to that portion of said premises now or at any time lying below the high water line of Elk River, including any ownership rights which may be claimed by the State of Oregon as to any portion now or at any time lying below the ordinary high water line.

   Such rights and easements for navigation and fishing as may exist over that portion of the property now or at any time lying beneath the waters of Elk River.

   All matters arising from any shifting in the course of Elk River including but not limited to accretion, reliction and avulsion.
   (Parcel 3)

7. An easement including the terms and provisions thereof, affecting the portion of said premises and for the purposes stated therein as reserved in instrument:
Recorded: January 11, 1961
Instrument No.: 60-446
(Parcels 2 and 3)

8. An easement including the terms and provisions thereof, affecting the portion of said premises and for the purposes stated therein as set forth in instrument:
Granted To: Coos-Curry Electric Cooperative, Inc.
Recorded: October 19, 1978
Instrument No.: 64-220

9. An easement including the terms and provisions thereof, affecting the portion of said premises and for the purposes stated therein as set forth in instrument:
Granted To: Coos-Curry Electric Cooperative, Inc.
Recorded: January 31, 1980
Instrument No.: 75-436

10. Matters as disclosed by Survey by Richard P. Roberts, Stuntzner ENgineering & Forestry, LLC,
Dated: June 1, 1998
Job No: 298-3-30
Filed as County Survey No.: 32-335
As Follows: Building and fenceline encroachment over southwest boundary
(Parcel 1)

11. Easements for Utilities, Roadway Ingress and Egress, and Trail Access to Real Property, including the terms and provisions thereof,
Recorded: January 26, 2006
Instrument No.: 2006-655

12. Mutual Ingress and Egress Road Easement and Buried Utility Easement; Road Maintenance Agreement, including the terms and provisions thereof,
Recorded: October 10, 2006
Instrument No.: 2006-5373

13. An easement including the terms and provisions thereof, affecting the portion of said premises and for the purposes stated therein as set forth in instrument:
Granted To: Myrtle Bend, Inc., an Oregon Corporation and Delores A. Mayea Trustee of the Delores A. Mayea Living Trust dated the 30th of June, 2000
Recorded: October 10, 2006
Instrument No.: 2006-5374

14. An easement including the terms and provisions thereof, affecting the portion of said premises and for the purposes stated therein as set forth in instrument:
Granted To: Jeffrey William Fick and Charles Case
Recorded: October 31, 2006
Instrument No.: 2006-5669
(Parcel 3)

NOTE: Any map or sketch enclosed as an attachment herewith is furnished for information purposes only to assist in property location with reference to streets and other parcels. No representation is made as to accuracy and the company assumes no liability for any loss occurring by reason of reliance thereon.

THIS IS NOT A TITLE REPORT, A COMMITMENT TO ISSUE TITLE INSURANCE OR A GUARANTEE OF ANY KIND. No liability is assumed with this report. The fee charged for this service does not include supplemental reports or other services. Further dissemination of the information in this report in a form purporting to insure title to the herein described land is prohibited by law.

"Superior Service with Commitment and Respect for Customers and Employees"

EXHIBIT 'A'

File No. 568257AM

Parcel 1:

A parcel of land lying in the Southeast Quarter of the Southwest Quarter (SE1/4 SW1/4) and the Southwest Quarter of the Southeast Quarter (SW1/4 SE1/4) of Section 27, Township 32 South, Range 15, West of the Willamette Meridian, Curry County, Oregon, described as follows:

Beginning at an iron rod on the property line, which is 320.14 feet North 01°05'22' East from the Southwest Corner of said Southeast Quarter (SE1/4) of Section 27, and on the Northerly line of the Elk River Market Road;
Thence North 70°41'00" West, 100 feet along the Northerly line of said Elk River Market Road to an iron rod at the Southwest corner of that certain parcel;
Thence North 00°27'06" East, 303.75 feet to an iron rod;
Thence South 66°18'07" East, 105.96 feet to an iron rod;
Thence North 00°59'00" East, 261.18 feet to an iron rod;
Thence South 42°15'38" East, 104.60 feet to an iron rod;
Thence South 35°34'20" East, 134.96 feet to an iron rod;
Thence North 86°38'39" East, 262.63 feet to an iron rod;
Thence South 08°05'24" West, 82.57 feet to an iron rod;
Thence along a 100 radius curve to the left, the long chord of which bears South 02°21'25" East, 36.25 feet to an iron rod;
Thence South 12°48'13" East, 310.61 feet to an iron rod;
Thence along a 100 foot radius curve to the right, the long chord of which bears South 03°42'23" West, 56.84 feet to an iron rod;
Thence South 20°12'59" West, 64.92 feet to an iron rod on the Northerly line of the Elk River Market Road;
Thence North 71°31'28" West, 368.49 feet along the Northerly line of said Elk River Market Road to the Point of Beginning.

Parcel 2:

The land herein described is situated in the State of Oregon, County of Curry. The land is further described in the following two surveys; Map of Survey 32-395 by Stuntzner Engineering and Forestry and Property Line Adjustment Survey 32-340 by Porior Engineering. The property is described as follows:
A parcel of land lying in the West Half of the Southeast Quarter (W1/2 SE1/4) of Section 27, Township 32 South, Range 15, West of the Willamette Meridian, Curry County, Oregon, described as follows:

Beginning at an iron rod, which is 320.14 feet North 01°05’22 East from the Southwest Corner of said West Half of the Southeast Quarter (W1/2 SE1/4), and on the Northerly line of the Elk River Market Road; thence North 00°59’00” East, 555.45 feet to an iron rod, the True point of Beginning, and the most Southwest corner of that certain parcel;
Thence North 00°59’00” East, 696.35 feet to an iron rod;
Thence South 80°23’00” East, 272.00 feet to an iron rod;
Thence South 56°48’14’ East, 150.04 feet to an iron pipe;
Thence South 45°59’43” West, 101.44 feet to an iron rod;
Thence South 00°00’00” East, 369.37 feet to an iron rod;
Thence South 90°00’00” East, 121.06 feet to an iron rod;
Thence South 08°05’25” West, 303.66 feet to an iron rod;
Thence South 86°38’39” West, 262.63 feet to an iron rod;
Thence North 35°34’20” West, 134.96 feet to an iron rod;
Thence North 42°15’38” West, 104.6 feet to the Point of Beginning.

Parcel 3:

That certain tract of land lying in the Southwest Quarter of the Southeast Quarter (Sw1/4 SE1/4) and the Northwest Quarter of the Southeast Quarter (NW1/4 SE1/4) of Section 27, Township 32 South, Range 15, West of the Willamette Meridian, Curry County, Oregon, described as follows:

Beginning at an iron rod, which is 320.14 feet North 01°05’22” East from the Southwest Corner of said Southeast Quarter (SE1/4) and on the Northerly line of the Elk River Market Road; thence North 20°16’26” East, 1,198.27 feet to an iron pipe, the True Point of Beginning, and the most Northwest Corner of that certain tract;
Thence South 45°59’43” West, 101.44 feet to an iron rod;
Thence South 00°00’00” West, 369.37 feet to an iron rod;
Thence South 90°00’00” East, 121.06 feet to an iron rod;
Thence along a 100 foot radius curve to the right, the long chord of which bears North 44°57’01” East, 119.97 feet to an iron rod;
Thence North 81°48’38” East, 125.41 feet to an iron rod;
Thence North 85°55’23” East, 261.85 feet, more or less, to the center of the channel of the Elk River;
Thence North 08°56’55” West, 402.22 feet, more or less, following the center channel of the Elk River;
Thence South 89°54’00” West, 290.00 feet, more or less, to an iron pipe;
Thence South 64°40’32” West, 183.20 feet to the Point of Beginning.

RECORDING REQUESTED BY:
TICOR TITLE Company of Oregon

1010 1st Street, Ste 215
Bandon, OR 97411

GRANTOR'S NAME:
Michael River Rusich

GRANTEE'S NAME:
Elk River Partners LLC, an Oregon limited liability company

AFTER RECORDING RETURN TO:
Order No.: 360620030070-KD
Ted Labbe
Elk River Partners LLC, an Oregon limited liability company
c/o Ted Labbe, 3011 NE Hoyt Street, Unit A
Portland, OR 97232

SEND TAX STATEMENTS TO:
Elk River Partners LLC, an Oregon limited liability company
c/o Ted Labbe, 3011 NE Hoyt Street, Unit A
Portland, OR 97232

APN: R27131
R11751
Map: 32-15-27 TL900
32-15-27 TL900
32-15-27 TL 900, Port Orford, OR 97465

CURRY COUNTY, OREGON **2020-00811**
LAND
02/28/2020 01:12:03 PM
Cnt=1 Pgs=2 **$101.00**
I Renee' Kolen, County Clerk, certify that the within document was received and duly recorded in the official records of Curry County.
Renee' Kolen - Curry County Clerk
STATE OF OREGON CURRY COUNTY CLERK

SPACE ABOVE THIS LINE FOR RECORDER'S USE

STATUTORY WARRANTY DEED

Michael River Rusich, Grantor, conveys and warrants to **Elk River Partners LLC, an Oregon limited liability company**, Grantee, the following described real property, free and clear of encumbrances except as specifically set forth below, situated in the County of Curry, State of Oregon:

A parcel of land lying in the Southeast Quarter (SE1/4) of the Southwest Quarter (SW1/4) and Southwest Quarter (SW1/4) of the Southeast Quarter (SE1/4) of Section Twenty-seven (27), Township Thirty-two (32) South, Range Fifteen (15) West, Willamette Meridian, Curry County, Oregon, described as follows:

Beginning at an iron rod on the property line, which is 320.14 feet North 01° 05' 22" East from the Southwest Corner of the said Southeast Quarter (SE1/4) of Section Twenty-seven (27), and on the Northerly line of the Elk River Market Road;
Thence Nofth 70° 41' 00" West 100 feet along the Northerly line of said Elk River Market Road to an iron rod at the Southwest Corner of that certain parcel;
Thence North 00° 27' 06" East 303.75 feet to an iron rod;
Thence South 66° 18' 07" East 105.96 feet to an iron rod;
Thence North 00° 59' 00" East 261.18 feet to an iron rod;
Thence South 42° 15' 38" East 104.60 feet to an iron rod;
Thence South 35° 34' 20" East 134.96 feet to an iron rod;
Thence North 86° 38' 39" East 262.63 feet to an iron rod;
Thence South 08° 05' 24" West 82.57 feet to an iron rod;
Thence along a 100 radius curve to the left, the long chord of which bears South 02° 21' 25" East 36.26 feet to an iron rod;
Thence South 12° 48' 13" East 310.61 feet to an iron rod;
Thence along a 100 foot radius curve to the right, the long chord of which bears South 03° 42' 23" West 56.84 feet to an iron rod;
Thence South 20° 12' 59" West 64.92 feet to an iron rod on the Northerly line of the Elk River Market Road;
Thence North 71° 31' 28" West 368.49 feet along the Northerly line of said Elk River Market Road to the point of beginning.

TOGETHER WITH an easement as disclosed by Inst. #2006-5669 recorded October 31, 2006.

THE TRUE AND ACTUAL CONSIDERATION FOR THIS CONVEYANCE IS ONE HUNDRED FIFTY THOUSAND AND NO/100 DOLLARS **($150,000.00)**. (See ORS 93.030).

Subject to:

1 . Rights of the public in and to any portion lying within the limits of public roadways, if any, and/or right of private parties over any portion lying within existing roadways or driveways not disclosed by the public records.

2. Easement, including the terms and provisions thereof;
Recorded : November 7,1964 Dv: 73 Page: 578
In Favor of : N.B. March and Catherine Marsh

STATUTORY WARRANTY DEED
(continued)

3. Easement, including the terms and provisions thereof;
Recorded : October 19, 1978 BR: 64 Page: 220
In Favor of : Coos-Curry Electric Cooperative, Inc.

4. Covenants, Easements and Restrictions, but omitting restrictions, if any, based on race, color, religion or national origin, including the terms and provisions thereof;
Recorded : January 26, 2006 Inst. #2006-655

5. Covenants, Easements and Restrictions, but omitting restrictions, if any, based on race, color, religion or national origin, including the terms and provisions thereof;
Recorded : October 10, 2006 Inst. #2006-5373

5. Covenants, Easements and Restrictions, but omitting restrictions, if any, based on race, color, religion or national origin, including the terms and provisions thereof;
Recorded : October 10, 2006 Inst. #2006-5373

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010.

IN WITNESS WHEREOF, the undersigned have executed this document on the date(s) set forth below.

Dated: 2-25-2020

Michael River Rusich

State of Arizona
County of Yavapai

This instrument was acknowledged before me on February 25, 2020 by Michael River Rusich.

Notary Public - State of Arizona

My Commission Expires: June 11, 2020

Laurie Rangel
Notary Public - Arizona
Yavapai County
My Commission Expires
June 11, 2020

RECORDING REQUESTED BY:

TICOR TITLE™ Company of Oregon

300 W Anderson, PO Box 1075
Coos Bay, OR 97420

CURRY COUNTY, OREGON **2019-00787**
LAND
03/08/2019 03:12:00 PM
Cnt=1 Pgs=3 **$106.00**

I Renee' Kolen, County Clerk, certify that the within document was received and duly recorded in the official records of Curry County.

Renee' Kolen - Curry County Clerk

GRANTOR'S NAME:
John Galen O'Hara, Trustee of The John Galen O'Hara Living Trust

GRANTEE'S NAME:
Elk River Partners, LLC, an Oregon limited liability company

AFTER RECORDING RETURN TO:
Order No.: 360618025388-SL
Elk River Partners, LLC, an Oregon limited liability company
, 3011 NE Hoyt Street, Unit A
Portland, OR 97232

SEND TAX STATEMENTS TO:
Elk River Partners, LLC, an Oregon limited liability company
3011 NE Hoyt Street, Unit A
Portland, OR 97232

APN: R34973
Map: 32-15-27 TL901
0 Elk River Road, 32-15-27 TL901, Port Orford, OR 97465

AFTER RECORDING
RETURN TO
Ticor Title Company
300 West Anderson Ave. - Box 1075
Coos Bay, OR 97420-0233

SPACE ABOVE THIS LINE FOR RECORDER'S USE

STATUTORY WARRANTY DEED

John Galen O'Hara, Trustee of The John Galen O'Hara Living Trust, Grantor, conveys and warrants to **Elk River Partners, LLC, an Oregon limited liability company**, Grantee, the following described real property, free and clear of encumbrances except as specifically set forth below, situated in the County of Curry, State of Oregon:

SEE EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF

THE TRUE AND ACTUAL CONSIDERATION FOR THIS CONVEYANCE IS ONE HUNDRED FIFTEEN THOUSAND AND NO/100 DOLLARS **($115,000.00)**. (See ORS 93.030).

Subject to:

1. An easement, including the terms and provisions thereof;
Recorded: October 19, 1978 BR: 64 Page 220
In Favor of: Coos-Curry Electric Cooperative, Inc.

2. Easements for Utilities, Roadway, Ingress, Egress and Trail Access to real property, including the terms and provisions thereof;
Recorded: January 26, 2006 Inst. # 2006-655
In Favor of: Myrtle Bend, Inc., et al

3. Mutual Ingress and Egress Road Easement and Buried Utility Easement; Road Maintenance Agreement, including the terms and provisions thereof;
Recorded: October 10, 2006 Inst. #2006-5373

4. Easement for Ingress and Egress over Road and Trail; Road Maintenance and Use Agreement, including the terms and provisions thereof;
Recorded: October 10, 2006 Int. #2006-5374

5. Buried Utility and Septeic Drain Field Easement, including the terms and provisions thereof;
Recorded: October 31, 2006 Inst #2006-5669

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010.

STATUTORY WARRANTY DEED
(continued)

IN WITNESS WHEREOF, the undersigned have executed this document on the date(s) set forth below.

Dated: March 6, 2019

John Galen O'Hara Living Trust

BY: John Galen O'Hara, Trustee

John Galen O'Hara, Trustee

State of Oregon
County of Curry

This instrument was acknowledged before me on 3-6-2019 by John ~~ohn~~ Galen O'Hara, Trustee of the ~~Joh~~ John Galen O'Hara Living Trust.

Notary Public - State of Oregon

My Commission Expires: 2-3-2020

OFFICIAL STAMP
DEBORA J OLSON
NOTARY PUBLIC-OREGON
COMMISSION NO. 947119
MY COMMISSION EXPIRES FEBRUARY 03, 2020

EXHIBIT "A"

Legal Description

The land herein described is situated in the State of Oregon, County of Curry. The land is further described in the following two surveys: Map of Survey 32-395 by Stuntzner Engineering and Foresty and Property Line Adjustment Survey 32-340 by Porior Engineering. The property is described as follows:

A parcel of land lying in the West Half (W1/2) of the Southeast Quarter (SE1/4) of Section Twenty-Seven (27), Township Thirty-Two (32) South, Range Fifteen (15) West, Willamette Meridian, Curry County, Oregon, described as follows:

Beginning at an iron rod which is 320.14 feet North 01° 05' 22" East from the Southwest corner of the said West half of the Southeast Quarter, and on the Northerly line of the Elk Rover Market Road;
Thence North 00 ° 59' 00" East 555.45 feet to an iron rod the true point of beginning and the most Southwest corner of that certain parcel;
Thence North 00 ° 59' 00" East 696.35 feet to an iron rod;
Thence South 80 ° 23' 00" East 272.00 feet to an iron rod;
Thence South 56 ° 48' 14" East 150.04 feet to an iron pipe;
Thence South 45 ° 59' 43" West 101.44 feet to an iron rod;
Thence South 00 ° 00' 00" East 369.37 feet to an iron rod;
Thence South 90 ° 00' 00" East 121.06 feet to an iron rod;
Thence South 08 ° 05' 25" West 303.66 feet to an iron rod;
Thence South 86 ° 38' 39" West 262.63 fee to an iron rod;
Thence North 35 ° 34' 20" West 134.96 feet to an iron rod;
Thence North 42 ° 15' 38" West 104.60 feet to the point of beginning.

TOGETHER WITH an appurtenant easement as discloded by Inst. #2006-655 recorded January 26, 2006.

ALSO TOGETHER WITH an appurtenant easement as discloded by Inst. #2006-5373 recorded October 10, 2006.

ALSO TOGETHER WITH an appurtenant easement as discloded by Inst. #2006-5374 recorded October 10, 2006.

ALSO TOGETHER WITH an appurtenant easement as discloded by Inst. #2006-5669 recorded October 31, 2006.

RECORDING REQUESTED BY:

TICOR TITLE™ Company of Oregon

300 W Anderson, PO Box 1075
Coos Bay, OR 97420

GRANTOR'S NAME:
Kathy R. Ingram and Margaret M. Crowley and John Paullus and Gustina Paullus

GRANTEE'S NAME:
Elk River Partners, LLC

AFTER RECORDING RETURN TO:
Order No.: 360618025385-SL
Elk River Partners, LLC
, 3011 NE Hoyt Street, Unit A
Portland, OR 97232

SEND TAX STATEMENTS TO:
Elk River Partners, LLC
3011 NE Hoyt Street, Unit A
Portland, OR 97232

APN: R11559
Map: 3215W27 TL104
Elk River Road, 3215W27 TL104, Port Orford, OR 97465

CURRY COUNTY, OREGON 2019-00786
LAND 03/08/2019 02:59:00 PM
Cnt=1 Pgs=4 $111.00
I Renee' Kolen, County Clerk, certify that the within document was received and duly recorded in the official records of Curry County.
Renee' Kolen - Curry County Clerk

STATE OF OREGON CURRY COUNTY CLERK

AFTER RECORDING
RETURN TO
Ticor Title Company
300 West Anderson Ave. - Box 1075
Coos Bay, OR 97420-0233

SPACE ABOVE THIS LINE FOR RECORDER'S USE

STATUTORY WARRANTY DEED

Kathy R. Ingram and Margaret M. Crowley, as tenants in common, as to an undivided nine-tenths interest and John Paullus and Gustina Paullus, as tenants by the entirety, as to an undivided one-tenth interest, Grantor, conveys and warrants to **Elk River Partners, LLC**, an Oregon Limited Liability Company, Grantee, the following described real property, free and clear of encumbrances except as specifically set forth below, situated in the County of Curry, State of Oregon:

SEE EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF

THE TRUE AND ACTUAL CONSIDERATION FOR THIS CONVEYANCE IS ONE HUNDRED FIFTY THOUSAND AND NO/100 DOLLARS **($150,000.00)**. (See ORS 93.030).

Subject to:

SEE EXHIBIT "B" ATTACHED HERETO AND MADE A PART HEREOF

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010.

STATUTORY WARRANTY DEED
(continued)

IN WITNESS WHEREOF, the undersigned have executed this document on the date(s) set forth below.

Dated: 5 March 2019

Kathy R. Ingram

Margaret M. Crowley

Margaret M. Crowley

John Paullus

Gustina Paullus

Gustina Paullus

OFFICIAL STAMP
MICHELLE KAY LINDSEY
NOTARY PUBLIC-OREGON
COMMISSION NO. 977091
MY COMMISSION EXPIRES JULY 15, 2022

State of Oregon
County of Coos

This instrument was acknowledged before me on March 5, 2019 by Kathy R. Ingram, Margaret M. Crowley, John Paullus and Gustina Paullus.

Michelle Kay Lindsey
Notary Public - State of Oregon

My Commission Expires: July 15, 2022

EXHIBIT "A"
LEGAL DESCRIPTION

That certain tract of land lying in the Southwest Quarter (SW¼) of the Southeast Quarter (SE¼) and Northwest Quarter (NW¼) of the Southeast Quarter (SE¼) of Section Twenty-seven (27), Township Thirty-two (32) South, Range Fifteen (15) West, Willamette Meridian, Curry County, Oregon, described as follows:

Beginning at an iron rod which is 320.14 feet North 01° 05' 22" East from the Southwest Corner of the said Southeast Quarter (SE¼) and on the Northerly line of the Elk River Market Road;

Thence North 20° 16' 26" East 1198.27 feet to an iron pipe, the true point of beginning and the most Northwest Corner of that certain tract;

Thence South 45° 59' 43" West 101.44 feet to an iron road;

Thence South 00° 00' 00" West 369.37 feet to an iron rod;

Thence South 90° 00' 00" East 121.06 feet to an iron rod;

Thence along a 100 foot radius curve to the right, the long chord of which bears North 44° 57' 01" East 119.97 feet to an iron rod;

Thence North 81° 48' 38" East 125.41 feet to an iron rod;

Thence North 85° 55' 23" East 261.85 feet, more or less, to the center of the channel of Elk River;

Thence North 08° 56' 55" West 402.22 feet, more or less following the center of the channel of Elk River;

Thence South 89° 54' 00" West 290.00 feet, more or less, to an iron pipe;

Thence South 64° 40' 32" West 183.20 feet to the point of beginning.

EXHIBIT " B"
Exceptions

Subject to:

SPECIFIC ITEMS AND EXCEPTIONS:

1. Rights of the public in and to any portion lying within the limits of public roadways, if any, and/or right of private parties over any portion lying within existing roadways or driveways not disclosed by the public records.

2. An easement created by instrument, including the terms and provisions thereof;
Recorded : November 11, 1961 DV: 60 Page: 446
In Favor of : N.B. Marsh and Catherine Marsh

3. An easement created by instrument, including the terms and provisions thereof;
Recorded : October 19, 1978 BR: 64 Page: 220
In Favor of : Coos Curry Electric Cooperative, Inc.

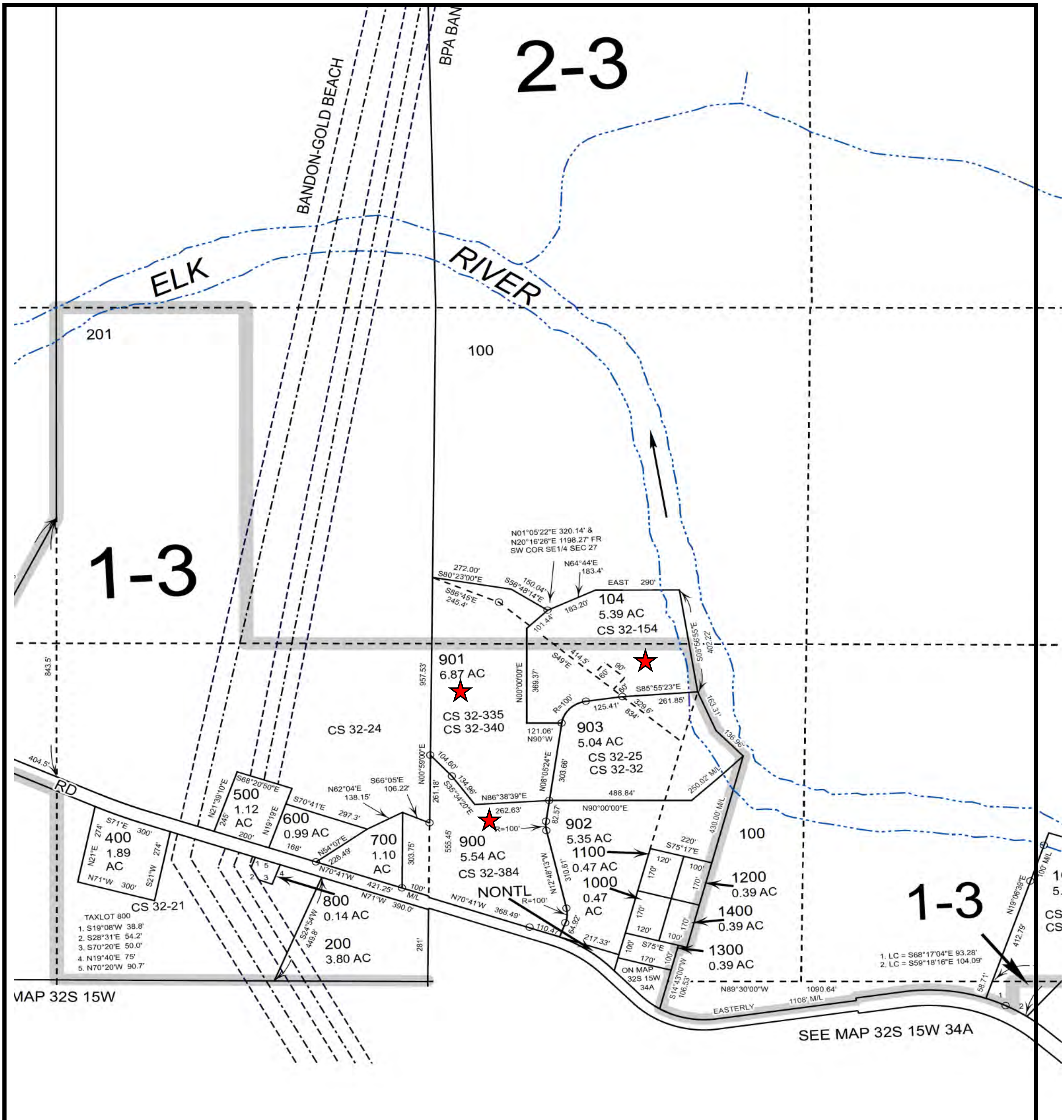
4. Any adverse claim based upon the assertion that:
(a) Said land or any part thereof is now or at any time has been below the ordinary high water mark of the Elk River.
(b) Some portion of said land has been created by artificial means or has accreted to such portion so created.
(c) Some portion of said land has been brought within the boundaries thereof by a change in the location of Elk River.

5. An easement created by instrument, including the terms and provisions thereof;
Recorded : January 31, 1980 BR: 75 Page: 436
In Favor of : Coos Curry Electric Cooperative, Inc.

6. Easement, Conditions, Covenants and Restrictions, including the terms and provisions thereof;
Recorded : January 26, 2006 Inst. #2006-655

7. Easement, Conditions, Covenants and Restrictions, including the terms and provisions thereof;
Recorded : October 10, 2006 Inst. #2006-5374

8. Easement, Conditions, Covenants and Restrictions, including the terms and provisions thereof;
Recorded : October 31, 2006 Inst. #2006-5669



AmeriTitle

32S 15W 27 TL 900, 901, 104
Port Orford, OR 97465

Appendix E

The EDR Radius Map™ Report

Three Tax Lots, Former Plywood Mill
93639 Elk River Road
Port Orford, OR 97465

Inquiry Number: 7157960.2s
October 24, 2022

The EDR Radius Map™ Report

EDR®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION | **PAGE**

GEOCHECK ADDENDUM

GeoCheck - Not Requested

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 (E1527-21), 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

93639 ELK RIVER ROAD
PORT ORFORD, OR 97465

COORDINATES

Latitude (North):	42.7697410 - 42ˆ 46' 11.06''
Longitude (West):	124.4624410 - 124ˆ 27' 44.78''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	380350.3
UTM Y (Meters):	4736068.0
Elevation:	83 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	14841931 SIXES, OR
Version Date:	2020

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140604
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
93639 ELK RIVER ROAD
PORT ORFORD, OR 97465

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	WESTERN STATES PLYWO	ELK RIVER RD	ECSI, VCP, BROWNFIELDS, HIST LF, FINDS	Higher	159, 0.030, East

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

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

Lists of Federal NPL (Superfund) sites

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

Lists of Federal Delisted NPL sites

Delisted NPL - National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY - Federal Facility Site Information listing
SEMS - Superfund Enterprise Management System

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE - Superfund Enterprise Management System Archive

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS - Corrective Action Report

Lists of Federal RCRA TSD facilities

RCRA-TSDF - RCRA - Treatment, Storage and Disposal

Lists of Federal RCRA generators

RCRA-LQG - RCRA - Large Quantity Generators
RCRA-SQG - RCRA - Small Quantity Generators
RCRA-VSQG - RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS - Land Use Control Information System

EXECUTIVE SUMMARY

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

Federal ERNS list

ERNS - Emergency Response Notification System

Lists of state- and tribal hazardous waste facilities

CRL - Confirmed Release List and Inventory

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF - Solid Waste Facilities List

Lists of state and tribal leaking storage tanks

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

Lists of state and tribal registered storage tanks

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

State and tribal institutional control / engineering control registries

ENG CONTROLS - - - - - - - - - - - - - Engineering Controls Recorded at ESCI Sites
INST CONTROL - - - - - - - - - - - - - - Institutional Controls Recorded at ESCI Sites

Lists of state and tribal voluntary cleanup sites

INDIAN VCP - - - - - - - - - - - - - - - - - - Voluntary Cleanup Priority Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS - - - - - - - - - - - A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY - Recycling Facility Location Listing
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

US HIST CDL - - - - - - - - - - - - - - - - Delisted National Clandestine Laboratory Register
AOCONCERN - - - - - - - - - - - - - - - - Columbia Slough

CDL	Uninhabitable Drug Lab Properties
US CDL	National Clandestine Laboratory Register
AQUEOUS FOAM	AFFF Contamination Site Listing
PFAS	PFAS Site Contamination Listing

Local Land Records

LIENS 2	CERCLA Lien Information

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
SPILLS	Spill Database
OR HAZMAT	Hazmat/Incidents
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated
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
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
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
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
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
FINDS	Facility Index System/Facility Registry System
ECHO	Enforcement & Compliance History Information
DOCKET HWC	Hazardous Waste Compliance Docket Listing
UXO	Unexploded Ordnance Sites

EXECUTIVE SUMMARY

FUELS PROGRAM	EPA Fuels Program Registered Listing
AIRS	Oregon Title V Facility Listing
COAL ASH	Coal Ash Disposal Sites Listing
DRYCLEANERS	Drycleaning Facilities
Enforcement	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
HSIS	Hazardous Substance Information Survey
MANIFEST	Manifest Information
NPDES	Wastewater Permits Database
UIC	Underground Injection Control Program Database
MINES MRDS	Mineral Resources Data System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR Hist Auto	EDR Exclusive Historical Auto Stations
EDR Hist Cleaner	EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS	Recovered Government Archive State Hazardous Waste Facilities List
RGA LF	Recovered Government Archive Solid Waste Facilities List
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

Lists of state- and tribal hazardous waste facilities

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 ECSI list, as provided by EDR, and dated 06/01/2022 has revealed that there is 1 ECSI site within approximately 1 mile of the target property.

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WESTERN STATES PLYWO	***ELK RIVER RD***	***E 0 - 1/8 (0.030 mi.)***	***1***	***8***

Size: 28.9 acres
Investigation: Suspect
State ID Number: 556
Decode For Further Action: Low

Lists of state and tribal voluntary cleanup sites

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

A review of the VCP list, as provided by EDR, and dated 05/24/2022 has revealed that there is 1 VCP site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WESTERN STATES PLYWO	***ELK RIVER RD***	***E 0 - 1/8 (0.030 mi.)***	***1***	***8***

Action: INDEPENDENT CLEANUP
ECS Site ID: 556
Facility Size: 28.9 acres

Lists of state and tribal brownfield sites

Brownfields investigations and/or cleanups that have been conducted in Oregon.

A review of the BROWNFIELDS list, as provided by EDR, and dated 05/01/2022 has revealed that there is 1 BROWNFIELDS site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WESTERN STATES PLYWO	***ELK RIVER RD***	***E 0 - 1/8 (0.030 mi.)***	***1***	***8***

Status: TARGETED BROWNFIELD ASSESSMENT
envid: 556

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Landfill / Solid Waste Disposal Sites

HIST LF: A list of solid waste disposal sites that have been closed for a long while.

A review of the HIST LF list, as provided by EDR, and dated 04/01/2000 has revealed that there is 1 HIST LF site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WESTERN STATES PLYWO	***ELK RIVER RD***	***E 0 - 1/8 (0.030 mi.)***	***1***	***8***

EXECUTIVE SUMMARY

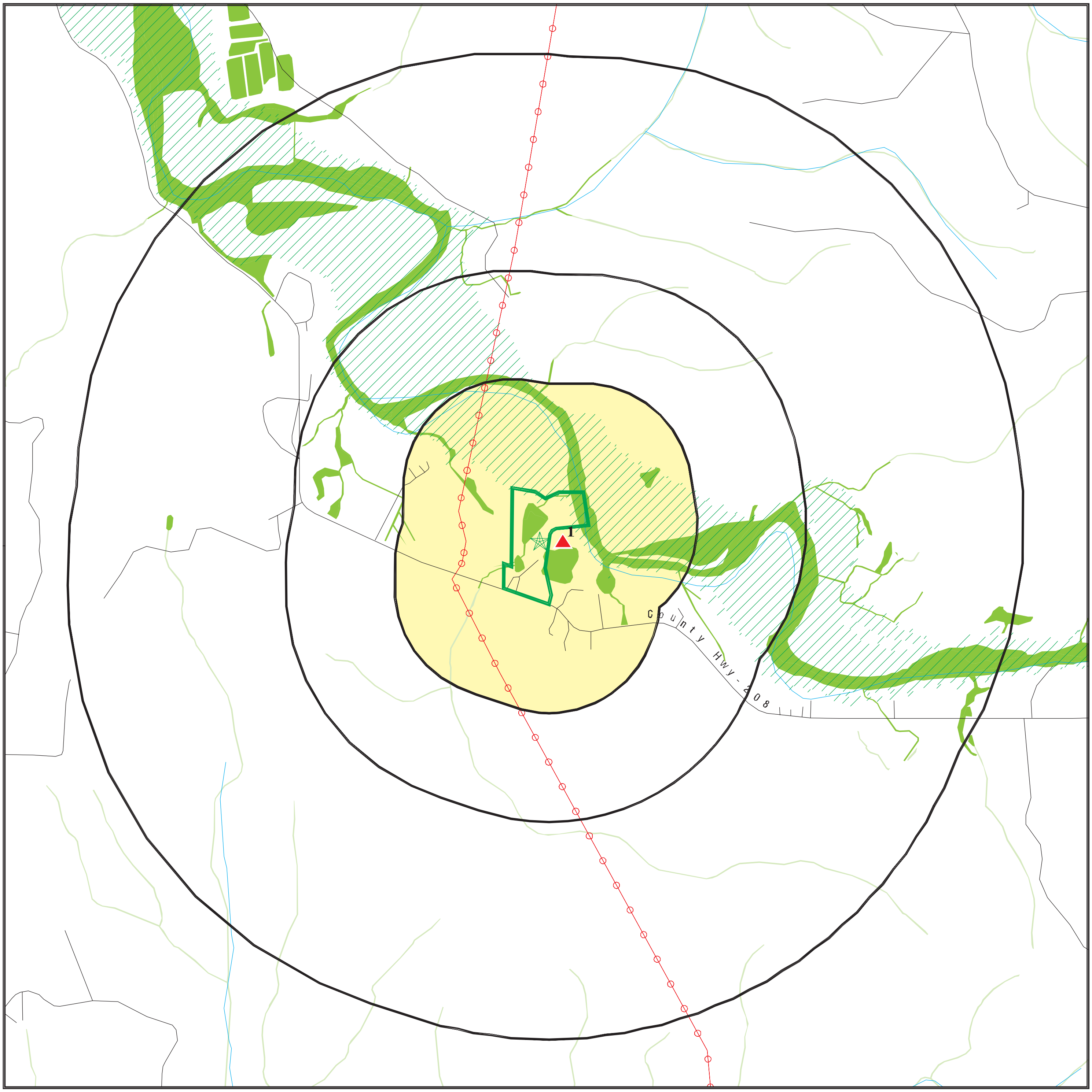
Permit Number: A127

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 2 records.

Site Name	Database(s)
FORMER WESTERN STATES COOPERATIVE	FINDS
FORMER WESTERN STATES COOPERATIVE	US BROWNFIELDS

OVERVIEW MAP - 7157960.2S



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

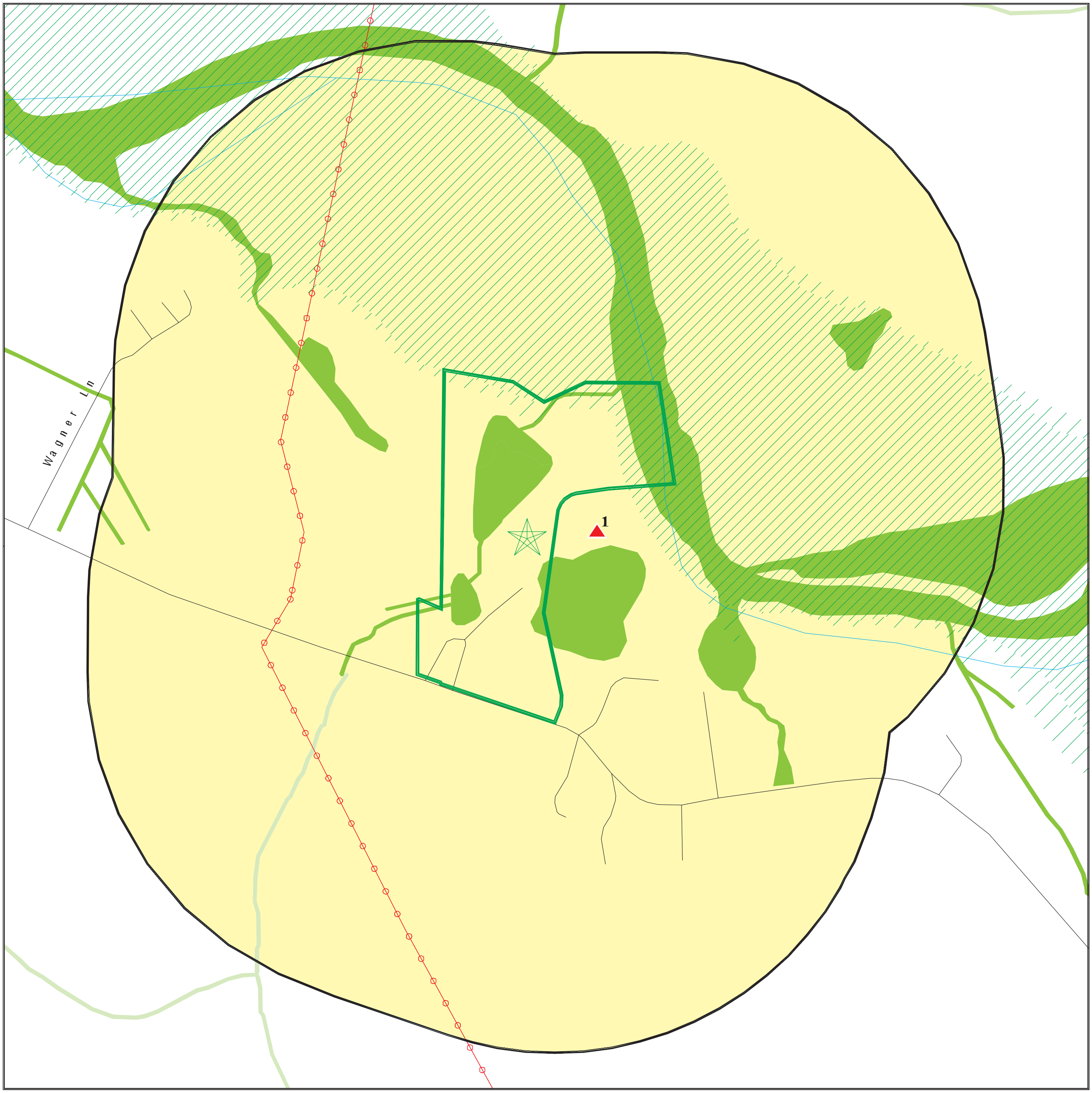
Indian Reservations BIA
Power transmission lines
Special Flood Hazard Area (1%)
0.2% Annual Chance Flood Hazard
National Wetland Inventory
State Wetlands

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: Three Tax Lots, Former Plywood Mill	CLIENT: Hahn and Associates
ADDRESS: 93639 Elk River Road	CONTACT: Nora Eskes
Port Orford OR 97465	INQUIRY #: 7157960.2s
LAT/LONG: 42.769741 / 124.462441	DATE: October 24, 2022 7:17 pm

DETAIL MAP - 7157960.2S



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
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: Three Tax Lots, Former Plywood Mill ADDRESS: 93639 Elk River Road Port Orford OR 97465 LAT/LONG: 42.769741 / 124.462441	CLIENT: Hahn and Associates CONTACT: Nora Eskes INQUIRY #: 7157960.2s DATE: October 24, 2022 7:18 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								
Lists of Federal NPL (Superfund) sites								
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
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
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 CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
Lists of state- and tribal hazardous waste facilities								
CRL	1.000		0	0	0	0	NR	0
ECSI	1.000		1	0	0	0	NR	1
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0
Lists of state and tribal leaking storage tanks								
LUST	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
INDIAN LUST	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
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								
ENG CONTROLS	0.500		0	0	0	NR	NR	0
INST CONTROL	0.500		0	0	0	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		1	0	0	NR	NR	1
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		1	0	0	NR	NR	1
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
SWRCY	0.500		0	0	0	NR	NR	0
HIST LF	0.500		1	0	0	NR	NR	1
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								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
AOCONCERN	1.000		0	0	0	0	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
AQUEOUS FOAM	0.500		0	0	0	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
Local Land Records								
LIENS 2	0.001		0	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
SPILLS	0.001		0	NR	NR	NR	NR	0
OR HAZMAT	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
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
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		0	0	0	0	NR	0
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		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
AIRS	0.001		0	NR	NR	NR	NR	0
COAL ASH	0.500		0	0	0	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
Enforcement	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HSIS	0.001		0	NR	NR	NR	NR	0
MANIFEST	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
MINES MRDS	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

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
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA HWS	0.001		0	NR	NR	NR	NR	0
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	4	0	0	0	0	4

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID Direction Distance Elevation	MAP FINDINGS Site	Database(s)	EDR ID Number EPA ID Number

1 **East** **< 1/8** **0.030 mi.** **159 ft.**	**WESTERN STATES PLYWOOD COOPERATIVE** **ELK RIVER RD** **PORT ORFORD, OR 97465**	**ECSI** **VCP** **BROWNFIELDS** **HIST LF** **FINDS**	**1006857055** **N/A**

Relative:
Higher

Actual:
87 ft.

ECSI:

Name:	WESTERN STATES PLYWOOD CO-OP
Address:	ELK RIVER RD.
City,State,Zip:	PORT ORFORD, OR 97465
State ID Number:	556
Brown ID:	Brownfield Site - Assistance From Other Public Agencies
Study Area:	False
Region ID:	3
Legislatve ID:	0
Investigation:	Suspect
FACA ID:	9172
Further Action:	260
Lat/Long (dms):	42 46 11.30 / -124 27 41.00
County Code:	8.00
Score Value:	Not reported
Cerclis ID:	Not reported
Township Coord.:	32.00
Township Zone:	S
Range Coord:	15.00
Range Zone:	W
Section Coord:	27
Qtr Section:	Not reported
Tax Lots:	900
Size:	28.9 acres
NPL:	False
Orphan:	False
Updated By:	MCAMARA
Update Date:	12/02/2020
Created Date:	11/17/1988
Decode For RegionID:	Western Region
Decode For BrownID:	Brownfield Site - Assistance from Other Public Agencies
Decode For Furtheract:	Low
Decode For Investstat:	Suspect
Decode For Legislative:	Not reported

Alias Name: Elk River Partners

Hazardous Release:

Substance ID.:	121984
Haz Release ID:	384962
Qty Released:	more than 200 gal.
Date Released:	11-20-72
Update Date:	11/17/1988
Update By:	Not reported
Substance Code:	ECD176
Substance Name:	GLUE WASTE
Substance Abbrev.:	Not reported
Comment ID:	304147
Release Code:	Data Sources
Release Comments:	investigation report; observation by Oregon State Game Commission
Decode for Relcomcd:	Data Sources
Comment ID:	304148
Release Code:	General Comments
Release Comments:	spillage onto the mill floor and into open drainage ditch
Decode for Relcomcd:	General Comments

WESTERN STATES PLYWOOD COOPERATIVE (Continued) **1006857055**

Narrative:

NARR ID: 5728176
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: (11/17/88 MMD/SAS) Piping leaks and spills. The report originated when a flange at the base of the glue-waste recirculating tank broke, spilling material onto the mill floor. A feedback line on the south side of the main mill building needed replacement. The line appears to be plastic pipe and was leaking a small amount of glue waste onto an open drainage ditch.

NARR ID: 5728177
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. DEQ WR/SW Source File. 2. Correspondence from Rik Riikula (OGC) to Jim Sheets (DEQ) -- pollution investigation.

NARR ID: 5728178
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: glue wastes

NARR ID: 5728179
NARR Code: Site Location
Created By: Not reported
Created Date: 12/17/2002
Updated By: GWISTAR
Updated Date: 03/13/2003
Decode for NarcdID: Site Location
NARR Comments: 3.5 miles east of Port Orford, between Elk River Rd. and the Elk River.

NARR ID: 5728180
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: Leaks in feedback pipeline and spills; time of release 11/20/72.

NARR ID: 5728181
NARR Code: Remedial Action
Created By: Not reported
Created Date: 12/17/2002

WESTERN STATES PLYWOOD COOPERATIVE (Continued) **1006857055**

Updated By: Not reported
Updated Date: 12/17/2002
Decode for NarcdID: Remedial Action
NARR Comments: (11/1/94 CPJ/SAS) This site is no longer active. All buildings have been removed, according to DEQ Coos Bay Office. No documentation of cleanup. Site Assessment recommends a PA to evaluate whether site presents residual risk to humans or the environment. Low priority.

NARR ID: 5757182
NARR Code: 1922
Created By: DHANSON
Created Date: 05/29/2018
Updated By: ACHAVEZ
Updated Date: 02/27/2019
Decode for NarcdID: Current Site Summary Statement
NARR Comments: (5/29/18 - DEH) This former wood products mill site was added to the database because of the reported spill of glue wastes in 1972. In 1996 DEQ submitted a file request for environmental information, and indicated DEQ's Site Assessment Program would be conducting a file review and possible site screening. It does not appear that any information was submitted and there are no records of a formal site screening by DEQ. DEQ has had involvement with this site since 1996. ***(2/27/2019 - ABC) In July 2017 Phase I ESAs were performed for tax lots 900 and 901 of the former Western States Plywood Mill site. Phase II testing was completed for tax lots 104 and 901 during November 2018. Relatively minor contaminates, including hydrocarbons, metals, and formaldehyde, were identified across the two tax lots. During January 2019, additional testing was completed in shallow soil for dioxin and furans. Concentrations of dioxins and furans ranged from 0.81 to 244 picograms per gram.

Administrative Action:
Action ID: 9425
Region: Western Region
Complete Date: 10/31/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Western Region
Category: Remedial Action
Action Code Flag: False
Action: SITE EVALUATION
Further Action: Not reported
Comments: Not reported

Action ID: 9437
Region: Western Region
Complete Date: 10/31/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Western Region
Category: Listing Action
Action Code Flag: False
Action: Listing Review completed
Further Action: Not reported

WESTERN STATES PLYWOOD COOPERATIVE (Continued) **1006857055**

Comments: Not reported

Action ID: 9449
Region: Western 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: Western Region
Category: Listing Action
Action Code Flag: False
Action: Insufficient information to list
Further Action: Not reported
Comments: Not reported

Action ID: 9496
Region: Western Region
Complete Date: 11/01/1994
Rank Value: 0
Cleanup Flag: False
Created Date: 12/17/2002
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Western Region
Category: Remedial Action
Action Code Flag: False
Action: State Basic Preliminary Assessment recommended (PA)
Further Action: Low
Comments: Not reported

Action ID: 9508
Region: Headquarters
Complete Date: 02/11/1994
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: 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

WESTERN STATES PLYWOOD COOPERATIVE (Continued) **1006857055**

Action ID: 9518
Region: Northwestern Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/02/2020
Decode for AgencyID: Environmental Protection Agency
Decode for RegionID: Northwest Region
Category: Remedial Action
Action Code Flag: False
Action: TARGETED BROWNFIELD ASSESSMENT
Further Action: 0
Comments: Not reported

Action ID: 9433
Region: Western Region
Complete Date: Not reported
Rank Value: Not reported
Cleanup Flag: False
Created Date: 12/19/2018
Decode for AgencyID: Department of Environmental Quality
Decode for RegionID: Western Region
Category: Remedial Action
Action Code Flag: False
Action: INDEPENDENT CLEANUP
Further Action: 0
Comments: Not reported

Operations:
Operation Id: 131866
Operation Status: Inactive
Common Name: Western States Plywood Cooperative
Yrs of Operation: Unknown
Comments: plywood manufacturing
Updated Date: 05/29/1996
Updated By: kpd
Decode for OpstatID: Inactive
Operations SIC Id: 195176
SIC Code: 2435
Created By: Not reported
Created Date: 12/17/2002
Operations SIC Id: 195177
SIC Code: 2436
Created By: Not reported
Created Date: 12/17/2002

VCS:
Name: WESTERN STATES PLYWOOD CO-OP
Address: ELK RIVER RD.
City,State,Zip: PORT ORFORD, OR 97465
ECS Site ID: 556
Facility Size: 28.9 acres
Action: INDEPENDENT CLEANUP
Start Date: 12/19/2018
End Date: Not reported
Program: VCP
Latitude: 42.7698

WESTERN STATES PLYWOOD COOPERATIVE (Continued) **1006857055**

Longitude: -124.4614

OR BROWNFIELDS:

Name:	WESTERN STATES PLYWOOD CO-OP
Address:	ELK RIVER RD.
City,State,Zip:	PORT ORFORD, OR 97465
Geolocation Id:	9172
Status:	TARGETED BROWNFIELD ASSESSMENT
Lat/Long:	42.7698 / -124.461

LF HIST:

Permit Number:	A127
Section/Town/Range:	S27T32SR13W
SW Type:	Wood Waste
SW Closed Date:	1979
Owner:	Western States Plywood
Operator:	Western States Plywood

FINDS:

Registry ID: 110014194745

Click Here for FRS Facility Detail Report:

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.

Count: 2 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
PORT ORFORD	1026729014	FORMER WESTERN STATES COOPERATIVE	93600 BLOCK OF ELK RIVER ROAD	97465	US BROWNFIELDS
PORT ORFORD	1027025256	FORMER WESTERN STATES COOPERATIVE	93600 BLOCK OF ELK RIVER ROAD	97465	FINDS

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

Lists of Federal NPL (Superfund) sites

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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/09/2023
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 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/09/2023
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

Lists of Federal Delisted NPL sites

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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

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: 05/25/2021
Date Data Arrived at EDR: 06/24/2021
Date Made Active in Reports: 09/20/2021
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 09/06/2022
Next Scheduled EDR Contact: 01/10/2023
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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

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

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

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

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

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

Date of Government Version: 06/20/2022	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/21/2022	Telephone: (206) 553-1200
Date Made Active in Reports: 06/28/2022	Last EDR Contact: 09/19/2022
Number of Days to Update: 7	Next Scheduled EDR Contact: 01/02/2023
	Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly 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). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/20/2022	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/21/2022	Telephone: (206) 553-1200
Date Made Active in Reports: 06/28/2022	Last EDR Contact: 09/19/2022
Number of Days to Update: 7	Next Scheduled EDR Contact: 01/02/2023
	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: 05/16/2022	Source: Department of the Navy
Date Data Arrived at EDR: 05/19/2022	Telephone: 843-820-7326
Date Made Active in Reports: 07/29/2022	Last EDR Contact: 08/03/2022
Number of Days to Update: 71	Next Scheduled EDR Contact: 11/21/2022
	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: 05/16/2022	Source: Environmental Protection Agency
Date Data Arrived at EDR: 05/24/2022	Telephone: 703-603-0695
Date Made Active in Reports: 07/29/2022	Last EDR Contact: 08/17/2022
Number of Days to Update: 66	Next Scheduled EDR Contact: 12/05/2022
	Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

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: 05/16/2022	Source: Environmental Protection Agency
Date Data Arrived at EDR: 05/24/2022	Telephone: 703-603-0695
Date Made Active in Reports: 07/29/2022	Last EDR Contact: 08/17/2022
Number of Days to Update: 66	Next Scheduled EDR Contact: 12/05/2022
	Data Release Frequency: Varies

Federal ERNS list

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

Date of Government Version: 06/14/2022
Date Data Arrived at EDR: 06/15/2022
Date Made Active in Reports: 06/21/2022
Number of Days to Update: 6

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/20/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

CRL: Confirmed Release List and Inventory
All facilities with a confirmed release.

Date of Government Version: 05/01/2022
Date Data Arrived at EDR: 05/11/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 82

Source: Department of Environmental Quality
Telephone: 503-229-6170
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Quarterly

ECSI: Environmental Cleanup Site Information System
Sites that are or may be contaminated and may require cleanup.

Date of Government Version: 06/01/2022
Date Data Arrived at EDR: 06/27/2022
Date Made Active in Reports: 09/14/2022
Number of Days to Update: 79

Source: Department of Environmental Quality
Telephone: 503-229-6629
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Quarterly

Lists of state and tribal landfills and solid waste disposal facilities

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: 07/18/2022
Date Data Arrived at EDR: 07/19/2022
Date Made Active in Reports: 10/04/2022
Number of Days to Update: 77

Source: Department of Environmental Quality
Telephone: 503-229-6299
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Semi-Annually

Lists of state and tribal leaking storage tanks

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: 04/01/2022
Date Data Arrived at EDR: 05/11/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 82

Source: Department of Environmental Quality
Telephone: 503-229-5790
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Quarterly

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

Date of Government Version: 04/28/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
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: 04/11/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
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: 04/08/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
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: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
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: 04/28/2021
Date Data Arrived at EDR: 06/11/2021
Date Made Active in Reports: 09/07/2021
Number of Days to Update: 88

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
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: 04/14/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
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: 06/02/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 79

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 02/01/2022
Number of Days to Update: 88

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

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: 04/01/2022
Date Data Arrived at EDR: 05/11/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 82

Source: Department of Environmental Quality
Telephone: 503-229-5815
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Quarterly

AST: Aboveground Storage Tanks
Aboveground storage tank locations reported to the Office of State Fire Marshal.

Date of Government Version: 07/19/2022
Date Data Arrived at EDR: 08/23/2022
Date Made Active in Reports: 09/06/2022
Number of Days to Update: 14

Source: Office of State Fire Marshal
Telephone: 503-378-3473
Last EDR Contact: 10/20/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Semi-Annually

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: 06/02/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 79

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
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: 04/08/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
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: 04/20/2022	Source: EPA Region 8
Date Data Arrived at EDR: 06/13/2022	Telephone: 303-312-6137
Date Made Active in Reports: 08/16/2022	Last EDR Contact: 10/17/2022
Number of Days to Update: 64	Next Scheduled EDR Contact: 01/30/2023
	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: 04/14/2022	Source: EPA Region 7
Date Data Arrived at EDR: 06/13/2022	Telephone: 913-551-7003
Date Made Active in Reports: 08/16/2022	Last EDR Contact: 10/17/2022
Number of Days to Update: 64	Next Scheduled EDR Contact: 01/30/2023
	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: 04/20/2022	Source: EPA Region 10
Date Data Arrived at EDR: 06/13/2022	Telephone: 206-553-2857
Date Made Active in Reports: 08/16/2022	Last EDR Contact: 10/17/2022
Number of Days to Update: 64	Next Scheduled EDR Contact: 01/30/2023
	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: 04/11/2022	Source: EPA Region 5
Date Data Arrived at EDR: 06/13/2022	Telephone: 312-886-6136
Date Made Active in Reports: 08/16/2022	Last EDR Contact: 10/17/2022
Number of Days to Update: 64	Next Scheduled EDR Contact: 01/30/2023
	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: 04/28/2022	Source: EPA Region 6
Date Data Arrived at EDR: 06/13/2022	Telephone: 214-665-7591
Date Made Active in Reports: 08/16/2022	Last EDR Contact: 10/17/2022
Number of Days to Update: 64	Next Scheduled EDR Contact: 01/30/2023
	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: 04/07/2022	Source: EPA, Region 1
Date Data Arrived at EDR: 06/13/2022	Telephone: 617-918-1313
Date Made Active in Reports: 08/16/2022	Last EDR Contact: 10/17/2022
Number of Days to Update: 64	Next Scheduled EDR Contact: 01/30/2023
	Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

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: 06/01/2022
Date Data Arrived at EDR: 06/27/2022
Date Made Active in Reports: 09/14/2022
Number of Days to Update: 79

Source: Department of Environmental Quality
Telephone: 503-229-5193
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Quarterly

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: 06/01/2022
Date Data Arrived at EDR: 06/27/2022
Date Made Active in Reports: 09/14/2022
Number of Days to Update: 79

Source: Department of Environmental Quality
Telephone: 503-229-5193
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Quarterly

Lists of state and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 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: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
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: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

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: 05/24/2022
Date Data Arrived at EDR: 06/28/2022
Date Made Active in Reports: 09/14/2022
Number of Days to Update: 78

Source: DEQ
Telephone: 503-229-5256
Last EDR Contact: 09/22/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Quarterly

Lists of state and tribal brownfield sites

BROWNFIELDS: Brownfields Projects
Brownfields investigations and/or cleanups that have been conducted in Oregon.

Date of Government Version: 05/01/2022
Date Data Arrived at EDR: 05/11/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 82

Source: Department of Environmental Quality
Telephone: 503-229-6801
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Annually

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: 02/23/2022
Date Data Arrived at EDR: 03/10/2022
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 0

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/09/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY: Recycling Facility Location Listing

A listing of recycling facility locations.

Date of Government Version: 05/24/2022
Date Data Arrived at EDR: 05/25/2022
Date Made Active in Reports: 08/12/2022
Number of Days to Update: 79

Source: Department of Environmental Quality
Telephone: 503-229-5353
Last EDR Contact: 08/22/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Quarterly

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

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: 10/20/2022
Next Scheduled EDR Contact: 02/06/2023
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: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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	Source: Environmental Protection Agency
Date Data Arrived at EDR: 08/09/2004	Telephone: 800-424-9346
Date Made Active in Reports: 09/17/2004	Last EDR Contact: 06/09/2004
Number of Days to Update: 39	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	Source: Department of Health & Human Serivces, Indian Health Service
Date Data Arrived at EDR: 08/06/2014	Telephone: 301-443-1452
Date Made Active in Reports: 01/29/2015	Last EDR Contact: 07/21/2022
Number of Days to Update: 176	Next Scheduled EDR Contact: 11/07/2022
	Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

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: 04/30/2022	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 05/24/2022	Telephone: 202-307-1000
Date Made Active in Reports: 07/29/2022	Last EDR Contact: 08/18/2022
Number of Days to Update: 66	Next Scheduled EDR Contact: 12/05/2022
	Data Release Frequency: No Update Planned

AOC MU: East Multnomah County Area

Approximate extent of TSA VOC plume February , 2002

Date of Government Version: 01/01/2002	Source: City of Portland Environmental Services
Date Data Arrived at EDR: 10/07/2002	Telephone: 503-823-5310
Date Made Active in Reports: 10/22/2002	Last EDR Contact: 03/13/2007
Number of Days to Update: 15	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

AOC COL: Columbia Slough

Columbia Slough waterway boundaries.

Date of Government Version: 08/10/2005	Source: City of Portland Environmental Services
Date Data Arrived at EDR: 05/17/2006	Telephone: 503-823-5310
Date Made Active in Reports: 06/16/2006	Last EDR Contact: 03/13/2007
Number of Days to Update: 30	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

CDL 2: Clandestine Drug Lab Site Listing

A listing of clandestine drug lab site locations included in the Incident database.

Date of Government Version: 07/01/2022	Source: Oregon State Police
Date Data Arrived at EDR: 07/26/2022	Telephone: 503-373-1540
Date Made Active in Reports: 10/12/2022	Last EDR Contact: 07/26/2022
Number of Days to Update: 78	Next Scheduled EDR Contact: 11/07/2022
	Data Release Frequency: Varies

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: 08/01/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 10/17/2022
Number of Days to Update: 76

Source: Department of Consumer & Business Services
Telephone: 503-378-4133
Last EDR Contact: 08/02/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

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: 04/30/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/18/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Quarterly

PFAS: PFAS Site Contamination Listing

Site locations where pfas contamination has been detected.

Date of Government Version: 04/05/2022
Date Data Arrived at EDR: 04/13/2022
Date Made Active in Reports: 07/08/2022
Number of Days to Update: 86

Source: Department of Environmental Quality
Telephone: 503-229-6783
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

AQUEOUS FOAM: AFFF Contamination Site Listing

Site locations with aqueous film-forming foam use and environmental impact.

Date of Government Version: 02/11/2022
Date Data Arrived at EDR: 02/28/2022
Date Made Active in Reports: 03/23/2022
Number of Days to Update: 23

Source: Department of Environmental Quality
Telephone: 503-229-6783
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/23/2023
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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/09/2023
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: 09/19/2022
Date Data Arrived at EDR: 09/19/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 11

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

SPILLS: Spill Data

Oil and hazardous material spills reported to the Environmental Response Program.

Date of Government Version: 07/01/2022
Date Data Arrived at EDR: 07/19/2022
Date Made Active in Reports: 10/04/2022
Number of Days to Update: 77

Source: Department of Environmental Quality
Telephone: 503-229-5815
Last EDR Contact: 09/29/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Semi-Annually

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: 07/01/2022
Date Data Arrived at EDR: 07/26/2022
Date Made Active in Reports: 10/12/2022
Number of Days to Update: 78

Source: State Fire Marshal's Office
Telephone: 503-373-1540
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Semi-Annually

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

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: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
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: 08/11/2022
Date Data Arrived at EDR: 08/11/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 50

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 06/07/2021	Source: USGS
Date Data Arrived at EDR: 07/13/2021	Telephone: 888-275-8747
Date Made Active in Reports: 03/09/2022	Last EDR Contact: 10/13/2022
Number of Days to Update: 239	Next Scheduled EDR Contact: 01/23/2023
	Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018	Source: U.S. Geological Survey
Date Data Arrived at EDR: 04/11/2018	Telephone: 888-275-8747
Date Made Active in Reports: 11/06/2019	Last EDR Contact: 10/03/2022
Number of Days to Update: 574	Next Scheduled EDR Contact: 01/16/2023
	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	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/03/2017	Telephone: 615-532-8599
Date Made Active in Reports: 04/07/2017	Last EDR Contact: 08/03/2022
Number of Days to Update: 63	Next Scheduled EDR Contact: 11/21/2022
	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: 06/20/2022	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/21/2022	Telephone: 202-566-1917
Date Made Active in Reports: 08/31/2022	Last EDR Contact: 09/20/2022
Number of Days to Update: 71	Next Scheduled EDR Contact: 01/02/2023
	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	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/21/2014	Telephone: 617-520-3000
Date Made Active in Reports: 06/17/2014	Last EDR Contact: 07/29/2022
Number of Days to Update: 88	Next Scheduled EDR Contact: 11/14/2022
	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: 08/04/2022
Next Scheduled EDR Contact: 11/14/2022
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: 06/17/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/12/2022
Next Scheduled EDR Contact: 12/26/2022
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: 12/31/2018
Date Data Arrived at EDR: 08/14/2020
Date Made Active in Reports: 11/04/2020
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
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: 07/18/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 11

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 10/18/2022
Next Scheduled EDR Contact: 01/30/2023
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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 12/12/2022
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: 04/27/2022
Date Data Arrived at EDR: 05/04/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 11/14/2022
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: 01/20/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 64

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
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: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
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	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/18/2017
Number of Days to Update: 25	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	Source: EPA
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/18/2017
Number of Days to Update: 25	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: 06/10/2022	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 06/14/2022	Telephone: 301-415-7169
Date Made Active in Reports: 08/22/2022	Last EDR Contact: 10/11/2022
Number of Days to Update: 69	Next Scheduled EDR Contact: 01/30/2023
	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: 12/31/2020	Source: Department of Energy
Date Data Arrived at EDR: 11/30/2021	Telephone: 202-586-8719
Date Made Active in Reports: 02/22/2022	Last EDR Contact: 08/25/2022
Number of Days to Update: 84	Next Scheduled EDR Contact: 12/12/2022
	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: 01/12/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/05/2019	Telephone: N/A
Date Made Active in Reports: 11/11/2019	Last EDR Contact: 08/25/2022
Number of Days to Update: 251	Next Scheduled EDR Contact: 12/12/2022
	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: 09/13/2019	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/06/2019	Telephone: 202-566-0517
Date Made Active in Reports: 02/10/2020	Last EDR Contact: 08/04/2022
Number of Days to Update: 96	Next Scheduled EDR Contact: 11/14/2022
	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: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
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: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 07/21/2022
Next Scheduled EDR Contact: 11/07/2022
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: 06/30/2022
Date Data Arrived at EDR: 07/21/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 71

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
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: 12/31/2019
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 23

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Biennially

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
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: 07/26/2021
Date Data Arrived at EDR: 07/27/2021
Date Made Active in Reports: 10/22/2021
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
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: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/24/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/09/2023
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

MINES VIOLATIONS: MSHA Violation Assessment Data
Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 08/01/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 59

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

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: 08/03/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 14

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
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: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
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: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
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: 06/14/2022	Source: Department of Interior
Date Data Arrived at EDR: 06/15/2022	Telephone: 202-208-2609
Date Made Active in Reports: 08/22/2022	Last EDR Contact: 09/13/2022
Number of Days to Update: 68	Next Scheduled EDR Contact: 12/19/2022
	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: 05/13/2022	Source: EPA
Date Data Arrived at EDR: 05/18/2022	Telephone: (206) 553-1200
Date Made Active in Reports: 05/31/2022	Last EDR Contact: 08/25/2022
Number of Days to Update: 13	Next Scheduled EDR Contact: 12/12/2022
	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: 05/06/2021	Source: Environmental Protection Agency
Date Data Arrived at EDR: 05/21/2021	Telephone: 202-564-0527
Date Made Active in Reports: 08/11/2021	Last EDR Contact: 08/22/2022
Number of Days to Update: 82	Next Scheduled EDR Contact: 12/05/2022
	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: 06/25/2022	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/01/2022	Telephone: 202-564-2280
Date Made Active in Reports: 09/30/2022	Last EDR Contact: 09/30/2022
Number of Days to Update: 91	Next Scheduled EDR Contact: 01/16/2023
	Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2020	Source: Department of Defense
Date Data Arrived at EDR: 01/11/2022	Telephone: 703-704-1564
Date Made Active in Reports: 02/14/2022	Last EDR Contact: 10/05/2022
Number of Days to Update: 34	Next Scheduled EDR Contact: 01/23/2023
	Data Release Frequency: Varies

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: 08/11/2022	Source: EPA
Date Data Arrived at EDR: 08/11/2022	Telephone: 800-385-6164
Date Made Active in Reports: 09/30/2022	Last EDR Contact: 08/11/2022
Number of Days to Update: 50	Next Scheduled EDR Contact: 11/28/2022
	Data Release Frequency: Quarterly

AIRS: Oregon Title V Facility Listing

A listing of Title V facility source and emissions information.

Date of Government Version: 06/24/2022
Date Data Arrived at EDR: 06/24/2022
Date Made Active in Reports: 09/09/2022
Number of Days to Update: 77

Source: Department of Environmental Quality
Telephone: 503-229-6459
Last EDR Contact: 09/22/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Annually

COAL ASH: Coal Ash Disposal Sites Listing
A listing of coal ash disposal sites.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 03/15/2022
Date Made Active in Reports: 06/08/2022
Number of Days to Update: 85

Source: Department of Environmental Quality
Telephone: 541-298-7255
Last EDR Contact: 08/24/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

DRYCLEANERS: Drycleaning Facilities
A listing of registered drycleaning facilities in Oregon.

Date of Government Version: 07/19/2022
Date Data Arrived at EDR: 07/20/2022
Date Made Active in Reports: 10/04/2022
Number of Days to Update: 76

Source: Department of Environmental Quality
Telephone: 503-229-6783
Last EDR Contact: 10/20/2022
Next Scheduled EDR Contact: 02/06/2023
Data Release Frequency: Annually

ENF: Enforcement Action Listing
Enforcement actions

Date of Government Version: 06/13/2022
Date Data Arrived at EDR: 06/14/2022
Date Made Active in Reports: 09/06/2022
Number of Days to Update: 84

Source: Department of Environmental Quality
Telephone: 503-229-5696
Last EDR Contact: 09/12/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Quarterly

Financial Assurance 1: Financial Assurance Information Listing
Financial assurance information for hazardous waste facilities.

Date of Government Version: 03/10/2022
Date Data Arrived at EDR: 06/09/2022
Date Made Active in Reports: 08/30/2022
Number of Days to Update: 82

Source: Department of Environmental Quality
Telephone: 541-633-2011
Last EDR Contact: 08/24/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Semi-Annually

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: 07/18/2022
Date Data Arrived at EDR: 07/19/2022
Date Made Active in Reports: 10/04/2022
Number of Days to Update: 77

Source: Department of Environmental Quality
Telephone: 503-229-5521
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Semi-Annually

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: 07/25/2022
Date Data Arrived at EDR: 07/26/2022
Date Made Active in Reports: 10/12/2022
Number of Days to Update: 78

Source: State Fire Marshal’s Office
Telephone: 503-373-1540
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Semi-Annually

OR MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 07/28/2021
Date Made Active in Reports: 10/21/2021
Number of Days to Update: 85

Source: Department of Environmental Quality
Telephone: N/A
Last EDR Contact: 07/27/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Annually

NPDES: Wastewater Permits Database
A listing of permitted wastewater facilities.

Date of Government Version: 06/10/2022
Date Data Arrived at EDR: 06/15/2022
Date Made Active in Reports: 06/22/2022
Number of Days to Update: 7

Source: Department of Environmental Quality
Telephone: 503-229-5657
Last EDR Contact: 08/18/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

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: 06/28/2022
Date Data Arrived at EDR: 07/06/2022
Date Made Active in Reports: 07/20/2022
Number of Days to Update: 14

Source: Department of Environmental Quality
Telephone: 503-229-5945
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

PCS ENF: Enforcement data
No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

PCS INACTIVE: Listing of Inactive PCS Permits
An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

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

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

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

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

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

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

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: 10/29/2021
Date Made Active in Reports: 01/19/2022
Number of Days to Update: 82

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 07/29/2022
Next Scheduled EDR Contact: 11/07/2022
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: 08/29/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Annually

Oil/Gas Pipelines

Source: Endeavor Business Media

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 Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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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

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 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

Appendix F

DEQ ECSI Site Summary Report: Western States Plywood Cooperative Mill Property

Environmental Cleanup Site Information (ECSI) Database Site Summary Report - Details for Site ID 556, Western States Plywood Co-op

General Site Information

Site ID: 556	Site Name: Western States Plywood Co-op		CERCLIS No:	
Address:	Elk River Rd. Port Orford 97465			
	County: Curry		Region: Western	
Other location information:	3.5 miles east of Port Orford, between Elk River Rd. and the Elk River.			
Investigation Status:	Suspect site requiring further investigation			
	Brownfield Site: Yes	NPL Site: No	Orphan Site: No	Study Area: No
Property:	Twnshp/Range/Sect: 32S , 15W , 27		Tax Lots: 900	
	Latitude: 42.7698 deg.	Longitude: -124.4614 deg.	Site Size: 28.9 acres	
Other Site Names:				
	Elk River Partners			

Site Characteristics

General Site Description:	
Site History:	
Contamination Information:	(11/17/88 MMD/SAS) Piping leaks and spills. The report originated when a flange at the base of the glue-waste recirculating tank broke, spilling material onto the mill floor. A feedback line on the south side of the main mill building needed replacement. The line appears to be plastic pipe and was leaking a small amount of glue waste onto an open drainage ditch.
Manner and Time of Release:	Leaks in feedback pipeline and spills; time of release 11/20/72.

Hazardous Substances/Waste Types:	glue wastes
Pathways:	
Environmental/Health Threats:	
Status of Investigative or Remedial Action:	(11/1/94 CPJ/SAS) This site is no longer active. All buildings have been removed, according to DEQ Coos Bay Office. No documentation of cleanup. Site Assessment recommends a PA to evaluate whether site presents residual risk to humans or the environment. Low priority.
Data Sources:	1. DEQ WR/SW Source File. 2. Correspondence from Rik Riikula (OGC) to Jim Sheets (DEQ) -- pollution investigation.

Substance Contamination Information

Substance	Media Contaminated	Concentration Level	Date Recorded

No information is available

Investigative, Remedial and Administrative Actions

Action	Start Date	Compl. Date	Resp. Staff	Lead Pgm
TARGETED BROWNFIELD ASSESSMENT (Primary Action)	12/23/2019		ANTHONY CHAVEZ (mailto:Anthony.CHAVEZ@deq.oregon.gov)	

View Full Report Showing Action History (ecsidetailfull.asp?seqnbr=556#actions)

Key to Certain Acronyms and Terms in this Report:

- **CERCLIS No.**: The U.S. EPA's Hazardous Waste Site identification number, shown only if EPA has been involved at the site.
- **Region**: DEQ divides the state into three regions, Eastern, Northwest, and Western; the regional office shown is responsible for site investigation/cleanup.
- **NPL Site**: Is this site on EPA's National Priority List (i.e., a federal Superfund site)? (Y/N).
- **Orphan Site**: Has DEQ's Orphan Program been active at this site? (Y/N). The Orphan Program uses state funds to clean up high-priority sites where owners and operators responsible for the contamination are absent, or are unable or unwilling to use their own resources for cleanup.
- **Study Area**: Is this site a Study Area? (Y/N). Study Areas are groupings of individual ECSI sites that may be contributing to a larger, area-wide problem. ECSI assigns unique Site ID numbers to both individual sites and to

Study Areas.
- **Pathways**: A description of human or environmental resources that site contamination could affect.
- **Lead Pgm**: This column refers to the Cleanup Program affiliation of the DEQ employee responsible for the action shown. SAS or SAP = Site Assessment; VCS or VCP = Voluntary Cleanup; ICP = Independent Cleanup; SRS or SRP = Site Response (enforcement cleanup); ORP = Orphan Program.

You may be able to obtain more information about this site by contacting ANTHONY CHAVEZ at the Western regional office (https://www.oregon.gov/DEQ/Pages/Offices.aspx) or via email at anthony.chavez@deq.oregon.gov (mailto:Anthony.CHAVEZ@deq.oregon.gov). If this does not work, you may contact Ximena Cruz Cuevas (503) 229-6811, or via email at ximena.cruzcuevas@deq.state.or.us (mailto:ximena.cruzcuevas@deq.state.or.us) or contact the Western regional office (https://www.oregon.gov/DEQ/Pages/Offices.aspx).

Oregon Department of Environmental Quality

Western States Plywood Co-op

Print

Summary Information

(5/29/18 - DEH) This former wood products mill site was added to the database because of the reported spill of glue wastes in 1972. In 1996 DEQ submitted a file request for environmental information, and indicated DEQ's Site Assessment Program would be conducting a file review and possible site screening. It does not appear that any information was submitted and there are no records of a formal site screening by DEQ. DEQ has had involvement with this site since 1996. ***(2/27/2019 - ABC) In July 2017 Phase I ESAs were performed for tax lots 900 and 901 of the former Western States Plywood Mill site. Phase II testing was completed for tax lots 104 and 901 during November 2018. Relatively minor contaminates, including hydrocarbons, metals, and formaldehyde, were identified across the two tax lots. During January 2019, additional testing was completed in shallow soil for dioxin and furans. Concentrations of dioxins and furans ranged from 0.81 to 244 picograms per gram.

General Site Information

Site:	**Western States Plywood Co-op (ECSI Site ID: 556)**	**CERCLIS (EPA) Id**	
Project Manager:	**ANTHONY CHAVEZ**	**Investigative Status:**	**Contamination Suspected**
PM Phone:	**541-687-7348**	**NPL(National Priority Listing):**	**No**
Address:	**Elk River Rd.**	**Is this site an Orphan?**	**No**
	Port Orford, 97465	**Is this site a brownfield?**	**Yes**
County:	**CURRY**	**Action Underway or Needed:**	**TARGETED BROWNFIELD ASSESSMENT**
Region:	**Western Region**	**Click for more details ...**	

Site Documents

Click the link to view the document.

File Name	Category	File Size MB	Document Date	Upload Date
PollutionInvestigationLetter112972.pdf	Miscellaneous	0.0715	11/29/1972	6/8/2017
ECSI_556_FileContents_05292018.pdf	Miscellaneous	0.2457	12/6/1996	5/29/2018
2017 Phase I TaxLot900.pdf	Reports	5.6664	7/1/2017	1/15/2019
2017 Phase I TaxLot901.pdf	Reports	4.5820	7/1/2017	1/15/2019
0556 Draft Phase II ESA Rpt.pdf	Reports	6.6760	12/18/2018	2/27/2019
0556 Draft - Dioxin Furans.pdf	Reports	2.4292	2/1/2019	2/27/2019

Appendix G

Former Western States Plywood Cooperative Mill Site
Targeted Brownfields Assessment

December 30, 2020

Brandon Perkins, Task Monitor
United States Environmental Protection Agency
1200 Sixth Avenue, Suite 155, Mail Stop 13-J07
Seattle, Washington 98101

Re: Contract Number: EP-S7-13-07
Task Order, Subtask Number: TO-0380-013
Former Western States Plywood Cooperative Mill, Targeted Brownfields Assessment

Dear Mr. Perkins:

Enclosed please find the Final Targeted Brownfields Assessment report for the Former Western States Plywood Cooperative Mill site, which is located in Port Orford, Oregon. If you have any questions regarding this submittal, please call me at (206) 624-9537.

Sincerely,
WSP USA, Inc.

Linda E Ader

Linda Ader
START-IV Team Leader

cc: Derek Pulvino, Project Manager, WSP USA, Inc., Seattle, Washington

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Former Western States Plywood Cooperative Mill Site Targeted Brownfields Assessment Port Orford, Oregon

Task Order, Subtask Number: TO-0380-013

December 2020

Prepared for:
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
1200 Sixth Avenue
Seattle, Washington 98101

Prepared by:

WSP USA INC.
720 Third Avenue, Suite 1700
Seattle, Washington 98104

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List of Abbreviations and Acronyms

Term	Definition
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
AAR	Archaeological Research, Inc.
AST	Aboveground Storage Tank
bgs	below ground surface
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
CLP	Contract Laboratory Program
COI	Contaminant of Interest
CRQL	Contract Required Quantitation Limit
DU	Decision Unit
EMI	Electromagnetic Induction
EPA	United States Environmental Protection Agency
ERA	Ecological Risk Assessment
ERP	Elk River Partners, LLC
ESA	Environmental Site Assessment
FPP	Fire Pond Parcel
GIS	Geographic Information System
GPS	Global Positioning System
GPR	Ground-Penetrating Radar
GSL	Geophysical Survey, LLC
HAI	Hahn and Associates, Inc.
Hg	mercury
IDW	Investigation-Derived Waste
ISM	Incremental Sampling Method
ITRC	Interstate Technology & Regulatory Council
JJW	JJW Sustainable Land Trust, LLC
LIDAR	light detection and ranging
MDL	Method Detection Limit
MEL	EPA Region 10 Manchester Environmental Laboratory
ng/kg	nanograms per kilogram
ODEQ	Oregon Department of Environmental Quality
OGC	Oregon State Game Commission
PAH	Polynuclear Aromatic Hydrocarbons

List of Abbreviations and Acronyms (cont.)

Term	Definition
PBS	PBS Engineering and Environmental
PCB	Polychlorinated Biphenyl
PCP	Pentachlorophenol
PID	Photoionization Detector
PM	Project Manager
ppb	parts per billion
QA/QC	Quality Assurance/Quality Control
RBC	Risk-Based Concentration
REC	Recognized Environmental Condition
SHPO	State Historic Preservation Officer
SIM	Select Ion Monitoring
site	former Western States Plywood Cooperative Mill site in Port Orford, Oregon
SLV	Screening Level Value (Ecological)
SOW	Statement of Work
SQAP	Sampling and Quality Assurance Plan
START	Superfund Technical Assessment and Response Team
SVOC	Semivolatile Organic Compound
T&E	Threatened and Endangered
TAL	Target Analyte List
TBA	Targeted Brownfields Assessment
TCDD	Tetrachlorodibenzo-p-dioxin
TDEMI	Time Domain Electromagnetic Induction
TEQ	Toxicity Equivalent Quotient
THPO	Tribal Historic Preservation Office
TM	Task Monitor
TOC	Total Organic Compound
TPH	Total Petroleum Hydrocarbons
TPH-Dx	Total Petroleum Hydrocarbons as Diesel to Heavy-Oil
TPH-Gx	Total Petroleum Hydrocarbons as Gasoline
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WRLT	Wild Rivers Land Trust
WSP	WSP USA, Inc.
WSPCM	Western States Plywood Cooperative Mill

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1 Introduction

Pursuant to the U.S. Environmental Protection Agency (EPA), Region 10 Superfund Technical Assessment and Response Team (START)-IV Contract Number EP-S7-13-07 and Task Order, Subtask Number TO-0380-013, WSP USA, Inc. (WSP), formerly Ecology and Environment, Inc., performed a Targeted Brownfields Assessment (TBA) at the former Western States Plywood Cooperative Mill (WSPCM) site in Port Orford, Oregon (referred to herein as "the site"). The EPA's Brownfields Economic Redevelopment Initiative is designed to empower states, cities, tribes, communities, and other stakeholders in economic redevelopment to work together in a timely manner to prevent, assess, safely clean up, and sustainably reuse brownfield sites (EPA 2002).

In November 2019, the Wild Rivers Land Trust (WRLT) submitted a TBA request to the EPA. This request asked for assistance with Phase II Environmental Site Assessment (ESA)-type sampling and site characterization work to better understand the presence and extent of contamination and determine whether a cleanup would be required based on future uses and redevelopment plans. The request put a primary focus on three tax lots (104, 900, and 901); however, depending WRLT's ability to arrange for access, expanding the scope of investigation to include Tax Lots 100, 902, and 903 was also requested. The EPA approved this request and the START began work in January of 2020.

WRLT has identified Bagley Creek, which traverses the study site, as an important historic fisheries habitat that has been compromised by the previous operation of a plywood mill on the site. WRLT and its partners are currently in the process of acquiring parcels associated with the mill, such that fisheries habitat can be reestablished on the subject property, and this habitat can be reconnected to the creek's forested headwaters (WRLT n.d.).

Stakeholders for this project include the WRLT, Elk River Partners, LLC (ERP), JJW Sustainable Land Trust, LLC (JJW), and the Oregon Department of Environmental Quality (Oregon DEQ). As discussed below, ERP and JJW share ownership and/or control of the various parcels that make up the site. These entities are working in partnership with the WRLT and Oregon DEQ toward both habitat restoration at the site and establishing a Prospective Purchaser Agreement that will limit WRLT's liability for environmental cleanup of the properties, once WRLT assumes title to the properties.

This assessment involved sampling surface soil, subsurface soil, groundwater, sediment, and surface water related to specific areas of concern within the study area. Field efforts also included a geophysical survey, Level 1 Ecological Risk Assessment (ERA), and cultural resource monitoring. At each step of the TBA process, the EPA sought input and concurrence from stakeholders. The objective of this TBA report is to present the results of the site sampling undertaken for site characterization purposes. This report is organized as follows:

- **Section 1 (Introduction):** Authority for performance of this work and summary of report contents.
- **Section 2 (Site Background):** Description of site conditions, history, and site concerns.
- **Section 3 (Recognized Environmental Conditions):** Description of recognized environmental conditions (RECs) investigated for this TBA.
- **Section 4 (Regulatory Standards, Analytical Methods, and Field Investigation Methods):** Discussion of the regulatory standards applied to analytical results, sampling techniques employed, and the field effort approach.
- **Section 5 (Field Investigation Summary):** Summary of TBA sampling work and analytical results.
- **Section 6 (Site Summary and Conclusions):** Summary of TBA findings and related regulatory approaches.
- **Section 6 (References):** List of references cited throughout the text.

2 Site Background

The following sections describe the site location and background, site history, general environmental setting, historical property use, previous investigations, future uses of the property, and the START site visit.

2.1 Site Description

Site Name	Former Western Plywood Cooperative Mill
Site Address	93600 block of Elk River Road Port Orford, OR 97465
Latitude/Longitude	42.769825° North / -124.462174° West
Reference Point for Coordinates	Center of Site
Horizontal Collection Method	Google Earth
Horizontal Reference Datum	World Geodetic System 1984
Legal Description	Township 32 South, Range 15 West, Section 27
Parcel Number	Map 32S15W27, Tax Lots 104, 900, 901, and 902.
Size (in acres)	28.17
Site Owners	Elk River Partners (Tax Lots 104, 900, 901) 3011 NE Hoyt St., Unit A Portland, OR 97232 JJW Sustainable Lands (Tax Lot 902) 5718 Alta Loma Ct. Mount Pleasant, WI 53403

2.2 Site Summary

Port Orford is a coastal town situated on the Pacific Ocean in Curry County, a rural area of southwest Oregon. The town and the site itself are relatively remote, situated approximately 170 miles and more than 3 hours driving distance from Eugene, Oregon (Figure 2-1). The WSPCM site as defined for this project includes five separate tax lots (Tax Lots 104, 900, 901, 902, and 903), which together make up 28.17 acres of this total area, were occupied by the WSPCM (Figures 2-2 and 2-3) (WRLT n.d.; CCA 2020). At the time of this writing, Tax Lots 104, 900, and 901 were owned by ERP, Tax Lot 902 was owned by JJW, and Tax Lot 903 is owned by a separate private party. Once the assessment efforts for this group of parcels are completed, ERP and JJW intend to convey ownership and/or control of their land to WRLT. It should be noted that during the time this project was underway, ERP/WRLT and/or their representatives were in continued discussions with the owner of Tax Lot 903 to arrange for its purchase and/or access; such access was not, however, granted prior to beginning field efforts, and while that parcel remains within the stakeholders' long-term plans for the site, it was not included in the scope of this TBA investigation.

The site is a former plywood manufacturing facility, with the historic mill building occupying portions of four of the five lots listed above. Various mill-related improvements, including wigwam burners, boilers, offices, storage buildings, a fire suppression pond, a log storage pond, and log storage areas, occupied the balance of the mill property (Figures 2-2 and 2-3) (PBS 2017a, 2017b; HAI 2018, 2019b).

Bagley Creek traverses the site in a generally north-to-south direction, flowing onto the site through a culverted channel from the hillsides to the south. In its natural state, Bagley Creek discharged directly to the Elk River, which flows to the north on the eastern side of the site; however, while the WSPCM site operated as a plywood mill, Bagley Creek was significantly altered and used as a water source for the mill's log and fire suppression ponds. The majority of the diking and dams associated with the ponds remain; however, a narrow opening was more recently excavated through the former log pond's northern earthen dam. This alteration was made to help facilitate the passage of water from the ponds and creek to Elk River. Beavers regularly rebuild a dam at this excavated opening, impounding water in the former log pond over the summer months, and functionally disconnecting the creek from Elk River for fish rearing purposes (WRLT n.d.). A second, concrete fortified dam with an intrinsic spillway is located between the former log and fire ponds and remains unaltered from the time of mill operations.

2.3 Site Ownership

As briefly mentioned in the preceding paragraph, the WSPCM comprises five separate tax lots owned by three parties: Tax Lots 104, 901, and 901, which are owned by ERP, and Tax Lot 902, which is owned by JJW. The fifth tax lot (903) is privately owned. To date, both ERP and JJW have been active partners in the WRLT's efforts to assess the potential presence of contamination, with a shared goal of restoring Bagley Creek and surrounding habitat. During the course of this project, site stakeholders were actively negotiating with the private party owner of Tax Lot 903 to either facilitate access to that lot, or arrange for its purchase by parties that support the WRLT's mission. Such an outcome was not achieved in the timeframes associated with this TBA.

The following limited ownership information for Tax Lots 104, 900, and 901 was obtained from previous Phase I ESAs, Preliminary Title Reports attached to the Phase I ESAs, and the TBA request (PBS 2017a, 2017b; HAI 2019b; CCA 2020):

Tax Lot	Owner	Purchase/Sale Year
104	Elk River Partners	2019
	Private Party	Unknown/2019
900	Elk River Partners	2020
	Private Party	Unknown/2020
	Private Party	2005/unknown

Tax Lot	Owner	Purchase/Sale Year
901	Private Party	2002/2005
	Elk River Partners	2019
	Private Party	2013/2019
	Private Party	2006/2013

Based on various letters and other communications obtained from the Curry County Assessor, the property appears to have been subdivided into the five current tax lots in the early to mid-2000s, with Tax Lot 900 being the parent parcel for this subdivision. An exact date for this subdivision could not be discerned from resources that were readily available/reasonably ascertainable at the time of this writing. Based on a Market Value Appeal letter sent to the Curry County Assessor in 1995, Tax Lot 900 had been privately owned since at least May of 1991 (Walker 1995). As this would have predated the mid-2000 subdivision of the site, this individual would have been the previous owner of the entire WSCPM site.

2.4 Environmental Setting

The site is in the alluvial plain of the Elk River, bracketed generally to the north and south by the hillsides of Oregon's coastal range. The alluvial plain materials underlying the site typically comprise mixtures of sand, gravel, and silt (Walker and MacLeod 1991). Based on a review of light detection and ranging (LIDAR) imagery covering the site and vicinity, it appears that the relatively steep slope at the northern margin of the site may represent the northern margins of an ancestral alluvial bench rather than be an artifact of fill imported to the site. This LIDAR image appears to show that this steep slope corresponds with a fairly extensive generally east/west-oriented scarp that extends approximately 3,000 feet west from the site (DOGAMI 2020). While it is likely the surface soils were modified during earth moving activity associated with construction of the historic mill, assuming the site is situated atop such an alluvial bench, it would be reasonable to conclude that much of the soils comprising the site topography may have already been in place prior to mill construction, and not imported as fill during construction.

During subsurface drilling at the site, HAI's observations confirmed such conditions, noting a mixture of sands, silts, and gravel to the full depth of exploration (25 feet below ground surface [bgs]). Groundwater was typically encountered within 10 to 15 feet bgs, exceptions being the areas near the southern and northern margins of the former log pond, where groundwater was encountered approximately 7.5- and 17-feet bgs (respectively). While the groundwater flow direction was not determined, based on topography, Hahn and Associates, Inc. (HAI) inferred that the groundwater flow direction potentially ranged from an easterly to a northwesterly direction, and likely was subject to seasonal variation (HAI 2018).

During the START's 2020 subsurface exploration, similar to HAI's findings, groundwater was encountered at depths of 7 to 15 feet bgs, closer to the ground surface in the southern and eastern portions of the site, and deeper near the northern margins of the former log pond. Groundwater was deepest at the northeast corner of the site, where it was encountered at 23 feet bgs in one boring (SP17GP), and was not encountered within the maximum depth of exploration at a second boring (SP14GP, 24 feet bgs). Soils observed by the START's project geologist during drilling activities were a mix of native alluvial sands, silts, and gravel, with the predominant water-bearing unit comprising a silty gravel underlying a medium sand.

Bagley Creek generally traverses the western portion of the site, feeding and filling the former log pond and former fire suppression pond that had been built as a part of the mill complex. Prior to this construction, Bagley Creek had connected directly to the Elk River, providing prime fish spawning habitat in both the portions of the creek located on the site, and the portions of the creek within the watershed and drainage basins further to the south. Construction of these ponds not only destroyed the onsite spawning grounds, but also severed the connection between Elk River and the upstream forested headwater spawning and rearing habitat. Bagley Creek is one of the two remaining priority tributaries within the Elk River watershed with barriers that prevent upstream salmon passage to spawning habitat (WRLT n.d.).

National Wetlands Inventory maps depicts several wetlands at low spots on the site. These include freshwater emergent and freshwater forest/shrub wetlands within the former log pond, and a freshwater emergent wetland on a portion of Tax Lots 902 and 903. A copy of the Wetland Inventory Map that includes the site is included in Appendix A (USFWS 2020). Those data are also presented on Figure 5 of the Level I ERA (see Appendix E)

Elk River is a federal and state designated Wild and Scenic River, providing habitat for steelhead and the federal-listed endangered Coho salmon. Much of the Elk River watershed is federally owned, with large areas of the U.S. Forest Service–managed river headwaters protected as designated wilderness or late successional reserve. Because of this, water quality in the river is generally good, with tree canopy helping to minimize the time duration of transient, high turbidity events. Nevertheless, addressing the lack of floodplain and the high-quality tributary channel structure is a key goal in proposed fish conservation and habitat restoration in the Elk River, of which the WSPCM is a part (WRLT n.d.).

2.5 Historical Property Use

The mill property was vacant and undeveloped land prior to construction of the mill. In 1940, the site was forested. By 1951 the site was cleared of most vegetation, and from the 1950s through 1975 it was developed and operated as a plywood mill. The exact date of the mill's construction is uncertain, and the mill was destroyed by fire in 1976. By 1980, the mill structures had mostly been removed, and by 2006 the wigwam burners and most of the foundations also had been removed (PBS 2017a, 2017b). While in operation, the mill appears to have occupied a single parcel of land; the property appears to have been subdivided into the current five individual tax lots after the mill's closure.

As a component of the background review, file records for Tax Lot 900 were obtained from the Curry County Assessor. Those records included a map that details uses of various parts of the old mill (Figure 2-4). Information shown on this map and within other site-related records indicates:

- A stud mill located on the property, appearing to confirm information that PBS Engineering and Environmental (PBS) obtained during interviews for their 2017 Phase I ESA (discussed in Section 2.6.2). The stud mill was in the structure located northwest of the plywood mill. Although it is not known whether such activity occurred on the site, mills commonly treated lumber, or studs, using pentachlorophenol (PCP) for anti-sap stain purposes.
- The location of a large transformer, compressor room, and several shops on the plywood mill property, generally on the west side of building.
- The location of an oil house on the north side of the plywood mill, in the area where the individual interviewed as part of the 2017 Phase I ESAs (discussed in Sections 2.6.2 and 2.6.3) recalled underground storage tanks (USTs). This is also in the vicinity of the potential fueling area discussed in the Phase II ESA report (see Section 2.6.4). The oil house would be a likely location for such USTs.
- The location of three tanks amidst a segment of 8-inch transite pipes. Transite is a trade name for asbestos-containing, cementitious pipes that were commonly used in water/sewer conveyances. Based on the location of both the pipes and tanks, the map indicates that a deluge (a type of sprinkler system) was located in this area, and that the accompanying Assessor notes/memo discusses 8-inch sprinkler system mains attaching to smaller diameter interior piping. These pipes and tanks may be associated with the building's sprinkler system. The map does not, however, definitively state the function of these tanks. The three aboveground storage tanks (ASTs) visible at the mapped tank location in a 1973-dated oblique aerial photograph of the site likely represent the tanks depicted on the Assessor map. The 1973 oblique aerial photograph was provided by project stakeholders at the outset of this project and is included in Appendix A.
- Operational details for the former mill interior, such as the locations of the debarker, lathes, plywood factory, offices, and dryers.

2.5.1 Aerial Photographs

As part of the previous Phase I ESAs performed on the property, assessors undertook a review of historic aerial photos. The general features and developmental changes noted in those review efforts were captured in the introductory paragraph to Section 2.2.3 of this document. In addition to earlier reviews included in those previous Phase I ESAs, the START was provided four oblique historic aerial photographs from 1971, 1973, 1975, and 1976, which span the final years that the mill was in operation. Copies of these photos are included in Appendix A.

The 1971 photograph only captures a portion of the mill site, and, based on the amount of timber present on the upland storage area and within the former log pond, these photographs show mill production winding down. The tanks east of the mill are first visible in 1973, as is the stud mill building and both wigwam burners. By 1975, the northern wigwam burner appears to have been removed. Debris and exposed soils are visible in the area of both the former northern and remaining southern burner, and only a handful of rows of timber are stored on the site. By 1976, although the buildings present in 1975 remain, no timber is stored on the site and operations appear to have ceased.

2.6 Previous Investigations

A number of investigations of the site have occurred. Previous sampling at the site has revealed the presence of various organic and inorganic contaminants in soil and groundwater at concentrations exceeding applicable Oregon human exposure related Risk-Based Concentrations (RBCs) and Ecological Screening Level Values (SLVs).

2.6.1 Site Assessment Review Notice – Oregon Department of Environmental Quality (1996)

In December of 1996, the Oregon DEQ informed the owner of the WSPCM property that they were undertaking a preliminary review of the site (Oregon DEQ 1996). This review appeared to largely rely on facility inspection summary letter prepared by the Oregon State Game Commission (OGC) in 1972. After receiving a pollution report notification, an OGC staff member inspected the WSPCM facility on November 22, 1972. The inspection followed up on anecdotal reports of a glue spill that had occurred at the facility two days prior to the inspection. The anecdotal report indicated that the spill had the potential to discharge to the Elk River. While the inspector confirmed that a glue spill had occurred at the facility, and noted several other relatively minor spill problems, the inspector did not surmise that the spill had resulted in discharge of pollutants to the Elk River. This was based on observations of the mill's internal drain network, the drain-related storage tanks, and evidence of recent operational practices, in that the valve that would allow discharge to the river was closed and did not appear to have been recently opened at the time of the inspection (OGC 1972). Apart from sending the notification letter to the property owner in December of 1996, the Oregon DEQ does not appear to have undertaken further assessment of the site at that time (Oregon DEQ 1996).

2.6.2 Phase I Environmental Site Assessment, Fire Pond Parcel – PBS Engineering and Environmental (2017a)

In July 2017, PBS performed the first of two Phase I ESAs on portions of the former WSPCM property to WRLT. This effort focused on Tax Lot 900 (referred to as the Fire Pond Parcel [FPP]), located on the southwest corner of the former mill property (Figures 2-2 and 2-3). Mill-related development on this property at the time of this Phase I ESA included the fire suppression pond, a small concrete pumphouse adjacent to the pond, and what was reported as a maintenance building. The site also had a shallow domestic water well, which was installed proximal to the maintenance building in 2006 by a previous owner. Although interviews conducted during the Phase I ESA effort revealed the potential presence of diesel and gasoline USTs on the mill property as a whole, it did not appear that those tanks had been located on the portion of the mill that became current day Tax Lot 900. Interviewees also noted that during operations, the mill primarily made plywood, although 2- by-4-inch dimensional lumber was also reportedly produced (PBS 2017a).

Based on their review, PBS identified the glue spill outlined in the Oregon DEQ's previously discussed December 1996 letter as a Recognized Environmental Condition (REC) for the site. The potential for former fire suppression pond sediment impacts from surface water runoff from the site to the pond, and soil and groundwater impacts from operations at the maintenance area, were also listed as conditions of potential concern. PBS recommended that follow-on testing of sediments in the former fire suppression pond, soils near the maintenance building, and groundwater from the onsite well be conducted (PBS 2017a).

2.6.3 Phase I ESA, Log Pond Parcel – PBS (2017b):

In conjunction with their FPP Phase I ESA, PBS also drafted a separate Phase I ESA covering Tax Lot 901 (Log Pond Parcel), located to the north of and adjacent to the FPP (Figures 2-2 and 2-3). The only mill-related features PBS noted during their reconnaissance of this parcel were the former log pond and various concrete structures that included a floor slab and other large equipment/structural supports. The former log pond was dry, but dense vegetation limited access for viewing it. PBS indicated that portions of Tax Lot 901 appeared to have been used for lumber storage, with the mill's power plant or furnace building also located on this parcel. Other than a very small portion of the mill's south/southwest corner, the footprint of the actual mill building did not extend onto this parcel (PBS 2017b).

This report came to generally similar conclusions as provided in the FPP Phase I ESA. Namely, PBS again identified the glue spill as a REC for the site, with the potential for sediment impacts in the former log pond from contaminants transported by surface water runoff. Potential contaminants included glues, petroleum products, wood-treatment chemicals, and heavy metals. The potential for UST-related impacts in this area was unknown. PBS recommended additional sampling and testing at/within the former log pond and adjacent areas (PBS 2017b).

Readers of this report should note that a comparison of the interview sections from the Phase I ESAs performed by PBS on Tax Lots 900 and 901 showed the text describing these interviews to be identical in both reports. This becomes pertinent with respect to the discussion of the USTs and fueling infrastructure, which are described in both reports as being “on the east adjacent parcel from the subject property” with “the tanks and pumps...on the northeast side of the plywood mill structure.” Although both statements could be true for Tax Lot 901, unless there were more than one set of tanks and pumps at the site, only one statement could be true for Tax Lot 900. It is possible that this incongruity is the result of an error, resulting from text written for one report being copied and pasted to the next report without thorough editing. Otherwise, the referenced relative directions from Tax Lots 900 and 901 to the UST area are difficult to reconcile with the actual site layout. Additional discussion relevant to this observation is included in Section 2.6.7 of this report.

2.6.4 Draft Phase II ESA, Log Pond Parcel and Tax Lot 104 – Hahn and Associates, Inc. (2018):

On December 18, 2018, HAI presented WRLT and ERP with a draft report summarizing the finding of their Phase II ESA of Tax Lots 901 and 104. This work appears to have been at least partially informed by the PBS Phase I ESAs summarized above, along with limited supplemental research conducted by HAI. HAI’s Phase II ESA included targeted geophysical survey work, advancing 16 borings for soil and groundwater sampling, field screening, and the collection of various discrete and composite surface soil and sediment samples (Figure 2-5) (HAI 2018).

HAI’s pre-sampling research clarified that what PBS had thought was a “power plant or furnace building” had actually been a boiler house, and identified what may have been a historic office building to the south/southwest of the boiler house. HAI also noted that a portion of the plywood mill that had been used for debarking along with two wigwam burners were present on Tax Lot 104 (HAI 2018).

HAI’s geophysical subcontractor assessed three areas of the site: the areas surrounding the potential former office (Area 1), the area surrounding the former boiler house (Area 2), and the area generally north of the mill that included both of the two former wigwam burners (Area 3). Four subsurface anomalies were identified: one potential UST near the former office, one anomaly beneath the southern former wigwam burner footprint, one potential UST on the southern margin of Area 3 near the plywood mill footprint, and one anomaly within the footprint of the former boiler house that was interpreted as a potential sump or pit (Figures 2-3 and 2-5) (HAI 2018).

During the field event, HAI collected six surface soil samples (three 3-point composite samples, and three discrete samples) ,all within 1-foot bgs. Twelve of the subsurface borings were advanced to approximately 15 feet bgs. The remaining four borings were advanced to either 20 feet bgs (three borings) or 25 feet bgs (one boring). All borings were advanced to the top of the shallow groundwater table. At least one boring was placed next to three of the four subsurface geophysical anomalies. Due to a field error, the fourth boring was placed near a piece of buried scrap metal near the former office building; HAI had intended to place the boring near the potential UST in this area (Figure 2-5) (HAI 2018).

HAI selected a total of 10 soil (six surface and four subsurface) and nine groundwater samples for fixed laboratory analysis based on field screening. Samples were submitted in varying combinations for analyses of hydrocarbon identification, total petroleum hydrocarbons (TPH) as gasoline (TPH-Gx), TPH as diesel to heavy-oil (TPH-Dx), formaldehyde, polychlorinated biphenyls (PCBs), phenols, polynuclear aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), and metals (HAI 2018).

Oil-range TPH and six metals (antimony, cadmium, copper, lead, mercury, and zinc) were identified in soil at concentrations that would preclude some soils from being used as “clean fill.” Soils sampled near the southern wigwam burner contained four of these metals (copper, lead, mercury, and zinc) at concentrations above Oregon SLVs for terrestrial ecological receptors. Gasoline and diesel range TPH, PCP, and formaldehyde were detected in one or more groundwater sample at concentrations exceeding Oregon RBCs for drinking water (HAI 2018).

A groundwater sample collected within the footprint of the southern wigwam burner contained gasoline and diesel range TPH at concentrations in excess of SLVs. As neither of these TPH products were noted during field screening of, or in a sample submitted from, overlying soils at this location, a separate upgradient source of this contamination may be indicated. Additionally, of the eight groundwater samples analyzed for PCP, this constituent was detected in sample P-1 only, which was collected near the former office building (Figure 2-5). PCP was not detected in any of the six surface soil samples analyzed for this constituent. None of the subsurface soil samples collected from the site were analyzed for PCP (HAI 2018).

Finally, formaldehyde was detected in every groundwater sample collected during the study. Formaldehyde concentrations in seven of these samples were at or below 7.4 parts per billion (ppb). The eighth sample, collected from beneath the northern wigwam burner, had the highest formaldehyde concentration (37 ppb). However, though all detections were above the RBC for tap water (0.43 ppb), concentrations were well below the ecological SLV for aquatic surface water receptors of 184,000 ppb (HAI 2018).

2.6.5 Draft Dioxin Results, Log Pond Parcel and Tax Lot 104 – Hahn and Associates, Inc. (2019a):

In January of 2019, HAI returned to the site to collect additional soil samples for dioxin and furan analysis (Figure 2-5). These supplemental samples appear to have been collected in response to a request by the Oregon DEQ after PCP was detected at the site; dioxins/furans can be an impurity/byproduct in the PCP manufacturing process. Samples were collected from a total of eight locations (SS-1 through SS-8), including one each within the two former wigwam burners, one sample from within limits of a historic debris pile north of the wigwam burners, one sample near the former office, one sample near the boiler house, and three generally along the earthen dam/dike on the northern side of the former log pond (HAI 2019a).

While dioxins were detected in all eight of these samples, only the calculated dioxin toxicity equivalent quotient (TEQ) value for the four northern-most samples exceeded the SLV value for freshwater sediment (SS-1, SS-2, SS-3, and SS-8); dioxin concentrations in two of these samples also exceeded the terrestrial ecology SLV value for bird exposure to contaminated soil (SS-2 and SS-8). Five of the TEQ values exceeded the residential soil RBC (SS-1, SS-2, SS-3, SS-6, and SS-8). The relative percentage of individual dioxin/furan congeners in seven of the eight samples appears to indicate a similar dioxin/furan source; the one non-conforming sample was collected within the footprint of the southern wigwam burner, potentially indicating dioxin/furans in this area being formed through differing processes or from different sources than at other locations on the site (HAI 2019a).

2.6.6 Phase I ESA, Tax Lots 104 and 901, Elk River Road – Hahn and Associates, Inc. (2019b):

In March of 2019, HAI presented WRLT and ERP with a Phase I ESA of Tax Lots 104 and 901. The findings from this Phase I ESA were similar to what was included in earlier Phase I ESA work, with HAI supplementing the previous research with an interview of Mr. Dennis Dougherty, a previous mill employee during the summers of 1969, 1970, and 1971. While working at the mill, Mr. Dougherty recalled:

- A ring debarker, millwright shop, and boiler house had been located southeast of the former log pond;
- The mill's glue tanks were located adjacent to the ring debarker;
- Fuel for the boiler house consisted of sawdust and scrap wood;
- Operations inside of the mill building included a peeler lathe located on the northwest corner of the building that fed a green chain and dry chain, veneer clipper, glue press, and drying/storage area, all of which were located in the eastern portion of the mill building; and
- Wigwam burners were typically used to burn excess bark and mill scraps; however, household garbage was occasionally put into the burners.

Contrary to information obtained in PBS's 2017 Phase I ESA-associated interview(s), this employee had no recollection of dimensional lumber production at the mill and was not aware of USTs, ASTs, or use of wood treatment chemicals during operations at the site.

HAI also identified two additional areas of potential waste and/or debris disposal. These included an area of debris observed in aerial photographs from 1965 and 1970 generally north of the southern wigwam burner, and what appeared to be a second area of debris disposal southeast of the mill, observed on Tax Lot 902 in a 1970-dated aerial photograph. During their site visit, HAI staff observed metallic debris and an uneven, hummocky surface in the area north of the southern wigwam burner (HAI 2019b).

The past presence of the plywood mill at the site was cited as a general REC for the site, for which HAI recommended the following work:

- Sampling and testing to better define the source and extent of dioxin impacted soil;
- Additional review of potential end-uses for groundwater at the site to determine whether consumption is a viable pathway and whether groundwater consumption–related SLVs are an appropriate standard to use during environmental assessment of the site;
- Additional subsurface exploration to establish whether subsurface geophysical anomalies are in fact tanks; and
- Additional sampling and testing proximal to the potential UST in Area 1 that had been inadvertently missed during their 2018 Phase II ESA.

Finally, HAI advised that during any further redevelopment or restoration activities at the site, soils near the southern wigwam burner will likely require remediation, and based on analysis performed to date, some soils on the site may not be eligible for reuse as clean fill (HAI 2019b).

2.6.7 Phase I ESA, 93639 Elk River Road and Tax Lot 902, HAI (2020)

On July 6, 2020, HAI presented ERP and JJW with a Phase I ESA of the property located at 93639 Elk River Road (i.e., Tax Lot 900) and Tax Lot 902. With one principal difference, the findings of this report regarding the history and use of the WSPCM mill as a whole were generally similar to what was included in earlier Phase I ESA work. The reports differed in that HAI concluded that, based on interview information contained in the Phase I ESAs performed by PBS in 2017 as well as review of historic aerial photography covering the site and vicinity, there was a potential for the USTs historically associated with the mill site to have been located on Tax Lot 902 (HAI 2020).

In reviewing conclusions regarding the potential presence of USTs on Tax Lot 902, the duplicative language used by PBS in their Phase I ESAs may have created some confusion regarding potential UST locations. As previously mentioned, during the START's review of background documents in preparation of the TBA sampling approaches, the Phase I ESAs that PBS prepared for both Tax Lot 900 and 901 were noted to contain identical interview text when describing the location of the USTs. This statement identified "…fuel USTs on the east adjacent parcel from the subject property [with] the tanks and pumps…on the northeast side of the plywood mill structures" (PBS 2017a, 2017b). Given the relative locations of Tax Lots 900 and 901, both of these statements could be true for Tax Lot 901, but not for Tax Lot 900. In follow-on communications, Mr. Dennis Terzian of PBS clarified that for Tax Lot 900, the statement would have more accurately been written by describing the UST as having been northeast of Tax Lot 900 (Terzian 2020).

Regardless, in response to HAI's findings, the START did add the area on Tax Lot 902 where USTs may have been located as a target of field work for this TBA. Additional discussion of those efforts and related findings are included in following subsections.

2.7 Projected/Proposed Site Uses

The WRLT has been working with the various property owners to obtain the mill parcels. After acquisition, WRLT is considering a number of options to restore habitat on the property, including the removal of the former log and fire suppression ponds, the various dams and spillways/weirs that serve as barriers to fish passage, reestablishing the Bagley Creek channel within the ponds, and reconnecting the lower reaches of Bagley Creek to the associated forested headwater habitat. While it is unclear whether public access to the site would be provided in the future, acquisition of Tax Lots 902 and 903 may allow the option to provide such access both to the site and to Elk River shoreline (WRLT n.d.).

This TBA was intended to better define the extent of contamination at the site in a manner that will advance redevelopment goals. Using this information, the creek reestablishment design could be finalized, allowing the selection of an optimized creek channel routing that may avoid areas of concern to the greatest possible extent. If it is not feasible for areas where contamination is identified to be avoided, the reestablishment design could also incorporate remedial work to minimize the risk of mill-related contamination impacting the reestablished creek channel and other habitat (WRLT n.d.).

2.8 START Site Visit

On March 10, 2020, a site visit was conducted at the WSPCM to better understand site conditions, access limitations, and features targeted for investigation. Participants included:

- Max Beeken, WRLT, Conservation Director;
- Matt Swanson, Swanson Ecological Services, Project Manager (PM);
- Anthony Chavez, Oregon DEQ, PM;

- Joy Wolf, JJW, LLC;
- Brandon Perkins, EPA, Task Monitor (TM); and
- Derek Pulvino, WSP, PM.

The site visit included a visual review of select, accessible portions of the site, focusing on areas where previous reviewers had either sampled, or site-specific documents identified potential sources of contamination. Given the presence of gorse, a dense, spiked, invasive, and essentially physically impenetrable vegetation, heavy equipment with a large mower was used to clear the area prior to the site visit to allow access to many of these areas. As the owner of Tax Lot 903 had not provided access to this lot prior to the site visit, the lot had not been cleared for viewing. Observations from the site visit are detailed below, with referenced photographs included in Appendix B:

- The maintenance shed on the southwest corner of Tax Lot 900, west of the former log storage yard (Photo 1), appeared to be used as a workshop. Lumber, a small covered area, a trailer, and a vehicle were all noted outside of the building (Photo 2). A small refuse area that contained vegetative waste (i.e., grass clippings, cut branches, and wood) and a 55-gallon drum used as a burn barrel was noted east of this building (Photo 4). The water supply well recently installed on this property was observed approximately 75 feet east of this building (Photo 3).
- The former fire suppression pond was ringed by the gorse plant; however, mowing performed before the site visit allowed for access to the shoreline during the site visit. Water from Bagley Creek filled this pond through a culvert that discharged to the west/southwest side of the pond. The shoreline within the pond appeared to be relatively steep (Photos 6, 7, and 9). The former pumphouse was observed on the east side of the pond (Photo 5). Although the pumphouse's walls and roof were in generally poor condition, the interior was accessible, and the foundation appeared be in good condition. Several openings were noted in the building floor, likely having functioned as sumps for the fire suppression system's pumps. No equipment remained in the building (Photo 8).
- The dam/dike on the north side of the former fire suppression pond included a concrete, stepped spillway/weir (Photo 10), where water ran from the fire suppression pond into a meandering, potentially remnant channel of Bagley Creek, then to the former log pond (Photo 11). A basic wood truss bridge fabricated with large dimensional lumber crosses the spillway (Photo 10). The pathway crossing this dike and leading to/from the bridge appeared to have been filled with angular, crushed gravel, likely indicating the material to have been sourced offsite.
- Vegetation along the meandering channel between the fire suppression pond and the former log pod included low vines (such as blackberry bushes) and other low understory vegetation beneath a deciduous tree canopy (Photo 11). Where visible, the former log pond sidewalls contained subangular to rounded

material, consistent with an alluvial deposit as mapped in the Elk River valley. As the discharge channel meanders to the standing water within the former log pond, the diking surrounding the pond steepens, and vegetation grows in marshy clumps within the pond (Photo 12). While the shoreline was readily accessible at the time of the site visit, seasonal regrowth of the vegetation around the pond may make future access more challenging.

- Evidence of the historic mill structures was noted closer to the former log pond pool, where various concrete and metal features were observed. These included several concrete foundation footings (Photos 15 and 16) and a large aboveground concrete support near the old office and ring debarker. A concrete retaining wall, along with several large metal column/trussing structures, was noted slightly north of this, where the mill's timber infeed appears to have been located. What appeared to be a large piece of sheet metal was noted within the former log pond offshore from these metal columns (Photo 17).
- A soil stockpile (Photo 14) was noted adjacent to the excavated breach in the northern wall of the former log pond dam/dike (Photo 13). While the onsite representatives could not confirm this to be the case, this stockpile may consist of material excavated from the dam to allow water to drain from the former log pond to Elk River (Photo 24).
- There was no visual evidence of the historic teepee burners. However, site representatives indicated that an area with a thick cover of blackberry bushes and other low brambles was the location of the southern/large teepee burner (Photos 18 and 19). The previously reported areas of fill or "hummocky soil" were not visually obvious during the site visit (Photos 20 through 23).
- As access to the parcel where most of the former plywood mill had been located was not provided prior to the site visit (Tax Lot 903), this area had not been cleared of vegetation for viewing. The former building footprint was completely obscured by a dense canopy of gorse and was neither visible nor accessible.
- The southeast parcel of the site (Tax Lot 902) is enclosed by a wire fence. While most of this parcel is cleared grassland with low wetland and areas of hummocky terrain (Photos 25 and 28), areas of dense, relatively low vegetation are present, partially corresponding to the former plywood mill footprint. What appeared to be a well or cistern used by the former mill was observed on the south side of this vegetation (Photo 26). During the site visit, the owner of the property directed the field reviewers to several pieces of metal in the vegetated area. These appeared to be segments of metal piping or ducting (Photo 27). An additional area of discarded metal, including a small partially buried tank (potentially water or pressure tank) and several metal conduits, was observed in a ravine on the eastern margins of this Tax Lot (Photos 29 through 31).

3 Recognized Environmental Conditions

Based on the information above and other historical site information, the following RECs and data gaps have been identified for this TBA on Tax Lots 900, 901, 902, and 104 of the WSPCM site.

3.1 Potential Impacts from Historic Operational Practices

During their review of the site, PBS noted that while no specific spills or releases had been identified as potential sources beyond the glue spill, both soils and sediments on the site had the potential to be impacted by releases of contaminants and their transport by surface water flows. Releases to soils may also present a risk of impact to groundwater. Review of other maps and historic resources documented the past presence of transformers, shop spaces, and a stud mill on the property.

Given the past operations at the site, as well as the results of recent environmental testing, sources of contamination could include industrial machinery and vehicles operated onsite, leaks or spills from oil-filled transformers or of maintenance shop-related materials stored in containers, and possible releases of wood treatment chemicals such as PCP. Potential contaminants associated with such past operations include metals (including mercury); TPH-Dx; TPH-Gx; semivolatile organic compounds (SVOCs) including PCP and PAHs; PCBs; and the TPH-Gx associated VOCs benzene, toluene, ethylbenzene, and xylene (BTEX).

3.2 Surface Soil Impacts and the Past Presence of Wigwam Burners

Two wigwam burners were present on the north side of the mill. These were reportedly used by the mill to burn wood waste; however, household waste was also reportedly burned in these structures. It is not known where or how ash or other combustion byproducts generated in these burners were disposed, or what other types of mill-related activity may have occurred in this northern portion of the site. Surface soils have been sampled from multiple locations both within and proximal to these burners, and from the clearing north of the former mill building more generally (Figure 2-5).

- Surface soil samples collected from the southern wigwam burner contained dioxins/furans, as well as copper, lead, and mercury at concentrations above ecological SLVs. A boring placed in this burner footprint adjacent to a “subsurface anomaly” identified diesel- and gasoline-range petroleum products in groundwater at concentrations in excess of RBCs. Petroleum was not detected in the one subsurface soil sample collected from this boring, likely indicating that groundwater contamination originated from a separate, presumably upgradient source, such as the oil house, fueling area, or other mill-related equipment and storage areas.

- Surface soil from the northern burner was only analyzed for dioxins/furans, which were present at concentrations below the ecological SLV. Neither subsurface soil nor groundwater were sampled at this location.
- A third surface soil sample collected from the vicinity of the northern dike/wall of the former log pond had the highest dioxins/furans concentrations of any sample collected from the site, exceeding the ecological SLVs. The source of this contamination is not clear.

Elevated concentrations of dioxins/furans and metals in surface soils from the southern wigwam burner are likely the result of past waste disposal and burning. The source of the petroleum in groundwater is unknown. Potential contaminants of concern in these areas include metals (including mercury), TPH-Dx, TPH-Gx, dioxins/furans, and the petroleum-associated BTEX compounds (i.e., VOCs).

3.3 Presence of Multiple Subsurface Anomalies

During work at the site, HAI's geophysical contractor identified multiple "subsurface anomalies" at the site, three of which may have been USTs, though this has not been confirmed. Borings were placed next to two of the anomalies, including the one within the southern wigwam burner footprint. While field screening did not indicate the potential presence of contaminants proximal to the second anomaly, none of the samples from these borings were submitted for fixed laboratory analyses. Due to a field oversight, a boring was not advanced adjacent to the southernmost anomaly; for this reason, the environmental conditions at this location are unknown. Since the subsurface anomalies have not yet been viewed to determine what they are, it is difficult to limit the list of potentially associated contaminants of concern. Given the use of the site and the possibility that some anomalies may be USTs, contaminants of concern are assumed to include metals (including mercury), TPH-Dx, TPH-Gx, the petroleum-associated BTEX compounds (i.e., VOCs), and SVOCs (including PAHs).

3.4 Potential Presence of Fill and/or Buried Debris

During review of historic aerial photographs, HAI observed what they interpreted as a potential area of debris disposal east of the mill. During the START site visit, scattered debris was observed on Tax Lot 902 east of the former mill, including partially buried debris that included a small tank in the ravine on eastern margin of this property. The full extent of areas impacted by such disposal practices, and the materials potentially buried, is not known. Potential contaminants of concern associated with such practices are assumed to include metals (including mercury), TPH-Dx, TPH-Gx, SVOCs (including PAHs), and the petroleum-associated BTEX compounds (i.e., VOCs).

3.5 Potential Environmental Concerns-Tax Lot 903

Although Tax Lot 903 was not viewed during the site visit, a review of available reports and other site-specific documents revealed several RECs and data gaps associated with this parcel. ERP and WRLT are in discussions with the owner of this property regarding its purchase. As this transaction had not been completed and access to that area had not been otherwise secured by the time of the field work performed for this TBA, no sampling or testing was performed on this lot. However, background and historic research undertaken while preparing the sampling approach for this TBA did include Tax Lot 903; RECs identified on this lot are summarized below.

- **Historic Presence of USTs:** A site map obtained during this TBA depicted an "oil house" on the north side of the mill, a feature that may be associated with USTs. This location may be the same as the UST and/or fueling area described to previous site reviewers during a Phase I ESA interview. Potential contaminants associated with fuel oil USTs include metals (including lead), TPH-Dx, TPH-Gx, SVOCs (including PAHs), and the petroleum-associated BTEX compounds (i.e., VOCs).
- **Presence of Tanks of an Unknown Use:** Assessor's records include a map that depicts several tanks on the east side of the former plywood mill building where ASTs are visible in a historic aerial photograph. While these tanks may have been associated with the building's sprinkler system, such a connection has not been well established. Given the past use of the site, it is possible that tanks may have been associated with one of the many processes employed at the mill, including storage of fuel, glues, or treatment compounds. Potential contaminants of concern associated with mill-related practices are assumed to include metals (including mercury), TPH-Dx, TPH-Gx, SVOCs (including PAHs), dioxins/furans, and the petroleum-associated BTEX compounds (i.e., VOCs).

At such time as site stakeholders are afforded access to or obtain control of Tax Lot 903, further investigation of these conditions is recommended.

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4 Regulatory Standards, Analytical Methods, and Field Investigation Methods

WSP conducted field sampling at the WSPCM site from September 9, 2020, to September 15, 2020. Fieldwork was conducted in coordination with WRLT, ERP, JJW, Oregon DEQ, EPA, the Coquille Tribe of Indians Tribal Historic Preservation Office (THPO), and the Oregon State Historic Preservation Office (SHPO), and other project stakeholders. The following subsections describe the expected contaminants at the site, the regulatory standards applied, and the types of sampling, analysis, and measurements that were conducted. Samples were collected in accordance with an approved sampling and quality assurance plan (SQAP; E & E 2020). When deviations from the SQAP were required, they were noted in the field logbook, recorded on the sample plan alteration form (Appendix C), and approved by the EPA TM. Deviations from the SQAP are also detailed within the body of this TBA report as applicable. Photographic documentation of the sample collection event is provided in Appendix B.

4.1 Potential Site Contaminants

As detailed in Section 3, potential sources of contamination and the associated RECs at the property are related to the past uses of and operations at the site. These include operation of the former plywood mill, the presence of related equipment, maintenance areas, utilities, and wigwam burners, potential use of fill from undocumented sources, and the potential past use of wood-treating compounds on the site. Contaminants related to these historic practices include metals (including mercury), TPH-Dx, TPH-Gx, SVOCs (including PAHs and PCP), PCBs, petroleum-associated BTEX products (i.e., VOCs), formaldehyde, and dioxins/furans.

Refer to Section 3 for additional context regarding past operational practices and how they relate to specific potential contamination.

4.2 Regulatory Standards

Soil and groundwater sample results are compared to a combination of regulatory and RBCs and SLVs established by the Oregon DEQ. Regulatory standards were selected in consideration of the potential for receptors to be exposed to contamination in surface soils (i.e., up to 3 feet bgs), exposure to subsurface soils as a result of future excavation and grading work (i.e., future excavation exposing soils that may currently be at depths greater than 3 feet bgs), and potential future consumption of groundwater, as well as the proposed habitat restoration efforts at the site.

More specifically, although residential use of the site is not proposed, analytical data were compared to the Oregon DEQ's residential RBCs. The residential RBCs represent the agency's most conservative human-health-based benchmark values. These values are intended to be protective where individuals may be exposed to a wide range of potential contaminants through direct contact, in scenarios where more frequent contact may be expected. When compliance with the residential values can be demonstrated, the greatest number of reuse options are available. Given that a groundwater well is present on Tax Lot 900 that draws from the shallow aquifer, soil RBCs promulgated to be protective of contaminants leaching from soils to groundwater have also been included. Soil sample results were also compared to the Oregon DEQ's Clean Fill contaminant screening levels; compliance with these screening levels is one of the threshold values that need to be met before the Oregon DEQ will allow excavated soils to be reused as clean fill material. The reader should note, however, that in the discussion of analytical result in the text that follows, these Clean Fill SLVs have been grouped with other RBCs and presented as the most conservative RBC (as applicable).

To provide additional context for metals concentrations detected in soils at the site, the soil sample analysis summary tables also include background metals concentration data. The provided value is the *Regional Default Background Concentrations for Metals in Soils*, as promulgated by the Oregon DEQ for locations within the Klamath Mountains region. The Oregon DEQ uses these background values to help determine whether cleanup of soils that include metals at concentrations above RBC values may in fact be warranted (Oregon DEQ 2018).

In accordance with Oregon DEQ guidance, the human health toxicity of PAHs (i.e., benzo(a) anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; chrysene; dibenzo(a,h)anthracene; and indeno(1,2,3-cd)pyrene), and for dioxins/furans (i.e., polychlorinated dibenzo-p-dioxins, polychlorinated dibenzofurans), was also calculated for each soil sample submitted for PAH and dioxin/furan analysis (Oregon DEQ 2010). This calculation used toxicity equivalent factors to derive TEQ values. In performing these calculations, different approaches were taken to estimate the toxicity of individual PAH and dioxin/furan constituents that were not detected by the laboratory in a given sample. In the case of PAHs, analytes that were not detected were conservatively assumed to be present in the sample at analyte-specific method detection limits (MDLs). As nearly 97.5% of the PAH constituents were not detected in Incremental Sampling Method (ISM) samples, TEQ values were not calculated for these sample/media. In the case of dioxins/furans, the TEQ for all grab subsurface samples was calculated by providing a value of zero for analytes that were not present above the MDL. Dioxin/furan TEQ values for ISM samples were calculated using both approaches.

As an additional point of comparison, and in consideration of the habitat restoration activities at the site, analytical results for sediment and surface water were compared to the Level II SLVs contained in Oregon DEQ's *Guidance for*

Ecological Risk Assessment (Oregon DEQ 1998). Analytical results for soils were compared to values included in Oregon DEQ's more recently updated *Conducting Ecological Risk Assessments* document (Oregon DEQ 2020). These Level II SLVs and Ecological RBCs are used to identify contaminant concentrations that present negligible risk for adverse health outcomes for various terrestrial and aquatic receptors, including plants, invertebrates, birds, mammals, and fish species. It should be noted that tables that compare analytical results to these Ecological SLVs/RBCs are included as a part of the Level I ERA, attached to this TBA as Appendix E.

Given the presence of the shallow well on Tax Lot 900, the residential groundwater RBCs were used given the potential for individuals to be exposed to groundwater contaminants by inhalation or ingestion of tap water.

Table 4-1 summarizes all the values listed above, including the residential soil and groundwater RBCs, Clean Fill screening values and the most conservative (i.e., lowest) Level II RBC or SLV available for a given constituent in a given media. This table also outlines the quantitation limits associated with each of the analytes included in the selected laboratory analysis groups.

As indicated in Table 4-1, some quantitation/reporting limits were not sufficiently low enough to meet criteria values using standard analytical methods. However, the best available technology was used for laboratory analysis. In accordance with EPA Contract Laboratory Program (CLP) analytical scopes, detected results were reported at or above the Contract Required Quantitation Limit (CRQL), or in the case of data furnished by the EPA Region 10 Manchester Environmental Laboratory (MEL) and the START subcontracted laboratory, and method reporting limit (MRL). It should be noted that, in nearly all cases where analytes have criteria values below the CRQL or MRL, the criteria values are very close to the CRQL/MRL, or the analyte itself is not a primary contaminant of concern within the analytical suite. For these reasons, modified detection limits were not requested under this TBA.

4.3 Analytical Methods

A total of 125 soil, sediment, and water samples, including eight quality assurance/quality control (QA/QC) samples, were collected during this TBA and were submitted for fixed laboratory analysis (Table 4-2). The samples were analyzed in varying combinations for Target Analyte List (TAL) metals, including mercury; SVOCs, including PAHs and PCP; PCBs, VOCs, Total Organic Carbon (TOC); dioxins/furans; TPH-Dx; TPH-Gx; and formaldehyde.

Copies of the QA/QC and data validation memoranda are provided in Appendix J. The following samples were submitted to fixed laboratories for analysis:

Grab Soil, Sediment, and Water Samples:

- **Metals including Mercury**. Sixty-one soil/sediment samples, 19 dissolved groundwater, four dissolved surface water, four total surface water, and five QA/QC samples were submitted to ChemTech Consulting Group in Mountainside, New Jersey, an EPA CLP laboratory, for total metals including mercury analysis using CLP statement of work (SOW) ISM02.4.
- **SVOCs by Select Ion Monitoring (SIM).** Sixty-one soil/sediment samples, 14 groundwater, four surface water samples, and five QA/QC samples were submitted to PACE Analytical Services in West Columbia, South Carolina, an EPA CLP laboratory, for SVOCs including PAHs and PCP under CLP SOW SOM02.4. Samples were analyzed using SIM in an effort to help achieve regulatory compliant detection limits.
- **PCBs:** Two soil samples, one groundwater sample, and two QA/QC samples were submitted for PCB analysis using CLP SOW SOM02.4. The samples were submitted to PACE Analytical Services in West Columbia, South Carolina, an EPA CLP laboratory.
- **VOCs.** Thirty-seven soil samples, 15 groundwater samples, and seven QA/QC samples were submitted to PACE Analytical Services in West Columbia, South Carolina, an EPA CLP laboratory, for VOC analysis under CLP SOW SOM02.4.
- **TOC.** Three soil and nine sediment samples were submitted to the EPA MEL in Port Orchard, Washington, for TOC analysis using EPA SW-846 Method 9060.
- **TPH-Dx**. Thirty-nine soil, 16 water, and four QA/QC samples were submitted to the EPA MEL in Port Orchard, Washington, for TPH-Dx analysis using Northwest TPH-Dx protocols. Samples analyzed for TPH-Dx were subjected to silica gel cleanup. While all soil samples were analyzed both with and without silica gel cleanup, the summary tables only present the silica gel cleanup results.
- **TPH-Gx:** Thirty-seven soil, 15 groundwater, and seven QA/QC samples were submitted to the EPA MEL in Port Orchard, Washington, for TPH-Gx analysis using Northwest TPH-Gx protocols.
- **Dioxins/Furans:** Forty-four soil, 14 groundwater, and four QA/QC samples were submitted to Frontier Analytical Laboratory, an EPA CLP laboratory located in El Dorado Hills, California, for dioxins/furans analysis using CLP SOW HRSM01.2. The reader should note that CLP SOWs detail analytical methods as well as contractual and technical requirements for the laboratories performing the analyses; in the case of this SOW, analysis for dioxins/furans are performed in accordance with EPA SW-846 Method 8290.
- **Formaldehyde:** Two water samples were submitted to ALS **Environmental**, a START-subcontracted laboratory, in Kelso, Washington, for formaldehyde analysis using EPA SW-846 Method 556.

Incremental Sampling Method (ISM) Soil Samples:

- **SVOCs and PAHs by SIM, Metals including Mercury, and Dioxins/Furans.** Ten soil samples were submitted to ALS Environmental, a START-subcontracted laboratory, in Kelso, Washington, for SVOCs including PAHs and PCP by SIM analysis using EPA SW-846 Method 8270; total metals analysis including mercury using EPA SW-846 Methods 3050, 6010, 6020, and 7471; and dioxins/furans analysis using EPA SW-846 Method 8290.
- **TOC:** Three samples were submitted to ALS Laboratories, a START-subcontracted laboratory, in Kelso, Washington, for TOC analysis using EPA SW-846 Method 9060.4.4.

4.4 Sampling Methodologies

This section describes the methodologies used to collected environmental samples under this TBA.

4.4.1 Incremental Sampling Method Surface Soil Sampling

Surface soil ISM sampling was conducted in accordance with *Technical and Regulatory Guidance, Incremental Sampling Methodology* prepared by the Interstate Technology & Regulatory Council (ITRC), Incremental Sampling Methodology Team (ITRC 2012). Prior to the field event, the boundaries of each Decision Unit (DU) were loaded into a global positioning system (GPS) unit for use in locating them in the field. Prior to sampling, each DU was visually inspected, documented on a plan view map, and photographed.

Thirty subsample locations were identified and placed within each DU using a simple random sampling approach as described in the ITRC guidance (ITRC 2012). Subsample locations were randomly generated using ArcGIS, assigned using a buffer zone to ensure that subsample locations did not overlap. The assigned buffer zone varied across DUs depending on the overall size of each DU. If a subsample location was inaccessible because of vegetation, debris, or other physical limitation, the subsample was collected from the nearest available location. As discussed in Section 4.6.3, the boundaries of several DUs were altered in the field based on field observations and limited accessibility.

An equal volume of soil was collected from each subsample location utilizing the Cold Regions Research and Engineering Laboratory Multi Increment Sampling Tool to remove sample cores. For the 30-part ISM samples, a 4-centimeter-diameter by 2.5-centimeter-deep core was used to collect a total of approximately 1.5 kilograms of soil per sample to assess potential surficial impacts. In areas where the core sampling tool could not be used, a dedicated stainless steel spoon was used to remove sample material. When the use of a spoon was required, care was taken to ensure that the soil was removed from the ground in a cylindrical shape. Sample materials were placed directly into a 32-ounce jar and submitted to the START-subcontracted laboratory for processing in preparation for analysis. The soil's characteristics were recorded at the time of sampling.

Field replicate and field triplicate samples were collected using the same field collection methods as the prime ISM sample. The replicate and triplicate sample locations were chosen by offsetting a specific distance and direction from the original subsample locations. The replicate sample was collected 1 foot north of the prime sample, and the triplicate was collected 1 foot east of prime sample. In accordance with the project SQAP, one field replicate and one field triplicate sample were collected.

4.4.2 Subsurface Soil Sampling

Subsurface soil samples were collected from soil borings using a Geoprobe™ hydraulic direct-push sampling system and from test pits dug with an excavator. Samples collected using the Geoprobe™ were obtained in dedicated polyvinyl chloride sleeves. Samples from test pits were collected from the center of the track hoe bucket, taking care to collect material that had not come in contact with the bucket.

All subsurface soil samples were collected using a dedicated stainless-steel spoon, transferred to dedicated stainless-steel bowls, thoroughly homogenized, and placed into pre-labeled sample containers. The VOC and TPH-Gx aliquots were removed directly from the sampling sleeve or track hoe bucket using 5-gram Core-N-One samplers (or equivalent) prior to homogenization. The VOC and TPH-Gx aliquots were either shipped on the day following sample collection, or field frozen and shipped on dry ice.

4.4.3 Groundwater Sampling

Groundwater samples were collected during this TBA from either temporary monitoring wells installed using the Geoprobe™, or from permanently installed wells located at the site.

4.4.3.1 Temporary Wells

At locations where the sampling objective was to collect soils from the interval above the saturated zone, the soil cores collected during direct push drilling were visually reviewed to identify the top of the groundwater table. At locations where the subsurface materials were sufficiently competent to keep the drilled hole open after core removal, a water level indicator was used to verify the depth to water. For locations where the Geoprobe™ was used to advance a temporary well screen to the water table without first collecting soil cores at the water table, the water table was inferred from water level depth measurements obtained at other nearby groundwater sampling locations.

In all cases where a temporary well was installed, these groundwater samples were collected using non-dedicated SP16 borehole well points (i.e., a groundwater-specific, 1.6-inch outside diameter sampling probe manufactured by

Geoprobe™). The probe was advanced into the groundwater table, then pulled back 4 feet to expose the SP16's integral groundwater sampling screen. As intercepting the groundwater at some locations required the field team to infer the depth to groundwater, the bottom of the SP16 was driven to a depth likely to be at least 4 feet below the top of the water table. This was done to allow the entire screened interval to be in contact with saturated media and maximize the productivity of the temporary well.

Groundwater samples from the temporary wells were collected using dedicated Teflon-lined tubing and a peristaltic pump. Groundwater samples collected with the peristaltic pump were purged using low-flow techniques. To limit sustained drawdown, the purging pump rate was set between 0.1 and 0.5 liters per minute; however, higher pumping rates were used as supported by the formation and well's productivity. After purging the wells for approximately 10 to 15 minutes, water quality parameter measuring began. Groundwater samples from all wells were collected once water quality parameters stabilized to the tolerances outlined below over three consecutive readings spaced at a minimum of 5-minute intervals:

- ± 0.1 standard unit for pH;
- ± 3% for temperature and specific conductance;
- ± 10% for dissolved oxygen; and
- ± 10% for turbidity or less than 10 nephelometric turbidity units.

Samples for total constituents were pumped from the sample tubing directly into the sampling bottle. To collect samples for dissolved constituents, a dedicated, certified clean 0.45-micron inline filter was attached to the end of the sample tubing. After allowing the pump to run for several minutes, water was collected into the sample bottle. Samples were pumped directly into pre-labeled sample containers and preserved as required upon sample collection completion; however, VOC and TPH-Gx samples were collected in pre-preserved vials.

4.4.3.2 Permanent Wells

Two permanent wells are installed at the site. The first is a domestic well, constructed with a downhole pump and a hose spigot installed on aboveground piping extending from the well head. The second is an approximately 30-inch-diameter concrete cased well. This well was completed with concrete casing extending approximately 2 feet above the ground surface and covered by a removable concrete lid. A polyvinyl chloride (PVC) pipe extended from this aboveground casing to an unknown depth below the water surface; however, a pump did not appear to be installed on the well.

The domestic well sample was collected from the water spigot, while the concrete cased well was sampled using dedicated Teflon-lined tubing and a peristaltic pump. Groundwater samples from these wells were collected once water quality parameters stabilized to the tolerances outlined below over three consecutive readings spaced at a minimum of 5-minute intervals:

- ± 0.1 standard unit for pH;
- ± 3% for temperature and specific conductance;
- ± 10% for dissolved oxygen; and
- ± 10% for turbidity or less than 10 nephelometric turbidity units.

For the domestic well, the START began collecting water quality parameters after approximately 35 gallons of water was discharged from the well and the pump had cycled on and off two times. Samples for total constituents were pumped from the sample tubing/water spigot directly into the sampling bottle. To collect samples for dissolved constituents at the concrete well, a dedicated, certified clean 0.45-micron inline filter was attached to the end of the sample tubing. After allowing the pump to run for several minutes, water was collected in the sample bottle. Samples were collected into pre-labeled sample containers and preserved as required upon sample collection completion; however, VOC and TPH-Gx samples were collected in pre-preserved vials

4.4.4 Surface Sediment Sampling

Grab surface sediment samples were collected from the top 10 centimeters of the sediment, moving from downstream to upstream locations. Where co-located water samples were collected, the corresponding sediment sample was collected as close as practicable to the water sample location, with care taken to collect the surface water sample at a time or from a location that would minimize the introduction of sediment into the surface water sample

To facilitate access to targeted sediment sampling locations within the former log pond, project stakeholders were able to remove the beaver dam from the pond's outlet prior to the sampling event. These sampling locations were accessed on foot, taking care to approach the location in a manner that prevented the field team from walking through the targeted sample collection area. Sediment samples were collected from these locations using dedicated stainless-steel spoons.

Sediment samples from the former fire suppression pond were collected using a non-dedicated stainless bucket hand-auger deployed from a small boat. Given the presence of debris and dense vegetation on the bottom of the pond, sample collection using a Van Veen grab sampler was not practicable. It is estimated that sediment samples from the former fire suppression pond incorporated material from the upper 12 inches of sediment; however, the dense vegetation and soft texture of the bottom sediment made it challenging for the field crew to discern when the sampler had reached the mudline, and hence limit the sampler's vertical penetration. The entire volume of sediment collected with the auger was then used to fill sample aliquots, with the sampler decontaminated between sampling locations.

In all cases, collected sediment sample material was placed into dedicated stainless-steel bowls, thoroughly homogenized, then transferred into pre-labeled containers. During homogenization, unsuitable material (e.g., rocks and organic debris) were removed. After homogenization, each sediment sample was decanted while in the sampling bowl to remove as much free water as possible prior to transferring sample material to pre-labeled sample containers.

4.4.5 Surface Water Sampling

Surface water samples were collected in a downstream to upstream order. These samples were collected using a peristaltic pump with dedicated Teflon-lined tubing, placing the sample tubing inlet at a location that minimized the entrainment of bottom sediment. All samples for dissolved constituents utilized the peristaltic pump and a dedicated 0.45-micron in-line filter. Prior to collecting the dissolved sample, a minimum of three filter-volumes of sample water was pumped through the filter. Samples were preserved as required by the analytical method upon collection.

4.5 Reporting of Sample Results

The analytical results summary tables provided in Section 4 are a condensed version of the laboratory data provided in Appendix J. Omitted data and the presentation of data in the summary tables are as follows:

- Analytes that were not detected, were detected at concentrations below contract required quantitation limits or method reporting limits, or any combination thereof, were omitted from their respective tables. Because PCP is a contaminant of concern at the site, PCP results were not omitted from the soil and groundwater summary tables.
- All detected concentrations are shown in bold type; a non-detect concentration is shown as the sample quantitation or reporting limit reported by the laboratory (e.g., 0.66 U). When an analyte was detected at a concentration above the detection limit, but below the contract-required quantitation limit or method reporting limit, those data were JQ qualified.
- The regulatory standards provided in the first columns of these tables were used as the criteria values to determine whether contamination is present in the samples. JQ qualified data were not compared to the regulatory standards.
    - Analytes detected at concentrations greater than the regulatory criteria values were considered a potential concern, and the concentration is shaded, underlined, and italicized (as applicable).
    - Analytes with no comparative regulatory criteria value are listed in the tables but could not be qualitatively evaluated.

Based on EPA Region 10 policy, evaluation of aluminum, calcium, iron, magnesium, potassium, and sodium (i.e., common earth crust metals) is generally used only in mass tracing, which is beyond the scope of this report. Furthermore, these analytes are not associated with toxicity to humans under normal circumstances (EPA 1996). For these reasons, these analytes are not evaluated or discussed here, but are provided in the analytical summary tables if they were detected above the instrument detection limit.

4.6 Sampling Design

The TBA sampling strategy was designed to fulfill the project-specific objective of preliminary site characterization by collecting environmental samples at locations that were biased toward the areas most likely to be contaminated.

The following subsections describe the types of sampling, analysis, and measurements that were conducted. Samples were collected in accordance with an approved SQAP (E & E 2020). Photographic documentation of the sample collection event is provided in Appendix B. When deviations from the SQAP were required, they were noted in the field logbook, recorded on the sample plan alteration form (Appendix C), and approved by the EPA TM. Deviations from the SQAP are also detailed below

A total of 117 field samples were collected during the field event (see Figure 4-1). A description of each sample submitted for fixed laboratory analysis is provided in Table 4-2. Table 4-3 summarizes the sample coding system used for formulating sample numbers. For example, the sample number SL02GP01 indicates the following:

- SL for the source code (in this case, for an upland subsurface soil sampling location).
- 02 for the sequential sampling location number a given source (in this case, the second subsurface soil sample).
- GP for the sample collection methodology (in this case, a sample collected using the Geoprobe™).
- 01 for the sample number collected from the given sampling location.

Summaries of analytical data are provided in Tables 4-4 through 4-10 (grab subsurface soil samples), Table 4-11 (groundwater samples), Table 4-12 (ISM surface soil samples), Table 4-13 (sediment samples), and Table 4-14 (surface water samples). Sample locations are depicted on Figure 4-1.

4.6.1 Geophysical Survey

In an attempt to relocate previously identified subsurface anomalies, and to better understand the nature of fill materials and potential for other subsurface anomalies to be present, a geophysical survey was conducted. This work was performed by Geophysical Survey, LLC (GSL) of Kennewick, Washington, on September 9 and 10, 2020. As shown on Figure 4-2, the following areas were targeted by the geophysical survey:

- The three subsurface anomalies identified on Tax Lots 901 and 104 during HAI's 2019 Phase II ESA investigation of the site. While the exact nature of those anomalies was not known, one of the anomalies was identified as a potential UST;
- The northeastern portion of Tax Lot 902 where what appeared to be a pond was identified in historic aerial photography. This area was included in the geophysical survey to better understand whether buried debris or other significant subsurface anomalies may have been used to fill the former pond; and
- A portion of the south-central cleared area of Tax Lot 902 where HAI's 2020 Phase I ESA identified a potential fueling island.

During preparation of the project SQAP, HAI provided the START with a location table that included latitude/longitude coordinates for each of their sampling locations, as well as the three previously identified subsurface anomalies. This coordinate data were provided to GSL prior to the sampling event. GSL used these coordinates during the field event to define the point of origin for geophysical survey grids at the anomaly locations.

Geophysical survey efforts utilized electromagnetic induction (EMI), time domain electromagnetic induction (TDEMI), and ground-penetrating radar (GPR) equipment. This equipment was also used to clear proposed boring locations for utilities, etc. prior to drilling. In some instances, the geophysical contractor recommended that a selected boring location be moved to minimize the chances of encountering refusal.

EMI data was collected using a Geonics EM31 terrain conductivity meter to measure lateral soil conductivity changes, as well as to detect buried metal objects. TDEMI data was collected using a Geonics EM61MK2 to generate and transmit a signal with a known frequency and voltage; the units receiver uses changes in the return signal to infer the presence of buried metal and other materials susceptible to electromagnetic induction, and is able to screen out potential interferences from metal located on the ground surface. GPR data was acquired by a Geophysical Survey Systems, Inc. SIR4000 control unit using a 350-megahertz antenna that was found capable of detecting objects in the upper 10 feet of soil. All survey locations were documented using a Trimble Pro6h GPS with sub-foot level accuracy. EMI and TDEMI data was collected at 1.0-foot intervals on approximately 10- and 5-foot transect spacings. GPR surveys were performed using two orthogonal transects spaced approximately 5 feet apart.

While the survey did not identify any USTs at the site, several subsurface anomalies were identified. These included concrete rebar associated with one approximately 6,000-square-foot and one approximately 700-square-foot buried slabs, a buried metal plate, "linear anomalies" that are likely abandoned buried utilities on Tax Lot 901, and an area revealed to include buried slag/burner clinkers and orange-discolored soil on Tax Lot 104.

Several additional GPR identified anomalies were also present on the northeast portion of Tax Lot 902. Test pits advanced at these two northeastern anomalies encountered additional slag/burner clinker type material and remnants of a crushed 55-gallon drum at one anomaly, and an intact buried 55-gallon drum at the other anomaly. Finally, GSL also identified what was characterized as a minor electromagnetic anomaly in the south-central cleared area of Tax Lot 902 in the vicinity of the structure HAI suspected may be associated with historic USTs and/or fueling activity. A test pit excavated at this location identified buried metal debris (sheet metal, cables, pipe/conduit) and petroleum contaminated soil at the groundwater interface. The findings from these test pit excavations are discussed in further detail within Section 4.6.2 of this report. For additional details with regard to geophysical survey refer to GSL's Geophysical Investigation report, included as Appendix F of this TBA report.

4.6.2 Subsurface Soil and Groundwater Assessment Efforts

To assess potential environmental impacts from historic operational procedures subsurface soil and groundwater samples were collected. These sampling and testing locations were selected based on a review of available site-related records and the findings of previous reports that discussed the subject site. Efforts to address these targeted locations are discussed in the following subsections, grouped by the feature under investigation. Appendix D presents borehole logs depicting the Project Geologist's field observations.

4.6.2.1 Former Maintenance Building

Sampling Efforts

The building located on the southwest corner of the site has been alternately referred to as a maintenance and a storage building. Under the presumption that this building was used for maintenance while the plywood mill was in operation, and given that access to the building interior was not available at the time of the START's site visit in March, two borings were advanced on the east side of the building. In both locations (SL01GP and SL02GP), soils from only the upper 4 feet of the boring were screened and sampled. Following soil sample collection, a temporary well screen was installed at SL01GP and a groundwater sample was collected (SL01GW). The domestic well (EW01) located approximately 40 feet east of the building also was sampled (EW01GW). All soil and groundwater samples collected from this area were analyzed for total metals (dissolved metals for the groundwater samples), SVOCs (including PCP and PAHs), TPH-Gx, TPH-Dx, and the petroleum associated BTEX compounds (i.e., VOCs), with groundwater from EW01 also analyzed for formaldehyde.

No stains, odors, or elevated photoionization detector (PID) screening values were noted in soils collected from these borings. Likewise, apart from some pieces of brick noted in the upper foot of location SL01GP, no debris was noted, and soils were generally characterized as a silt sand.

Findings

Arsenic was the only contaminant of concern detected at a concentration in exceedance of an RBC. While this constituent exceeded the RBC for direct contact, the concentration was below the regional background level (Table 4-4). Arsenic was not present in groundwater at a concentration above the sample quantitation limit (Table 4-11).

4.6.2.2 Former Log Pond Perimeter

Sampling Efforts

The former log pond on the northern portion of the site was constructed utilizing a perimeter berm. No records are presently available regarding the source of material used to create this berm, presenting the possibility that fill may have been imported from an offsite location. To assess the environmental quality of berm-associated material, seven test pits (SL03TP, SL04TP, SL23TP, SL24TP, SL25TP, SL26TP, and SL27TP) were excavated on the perimeter of the berm. Temporary groundwater wells were installed after completion of test pit excavation at three of these test pit locations (SL03TP/TP3GW, SL23TP/TP23GW, and SL25TP/TP25GW). Samples from all of these test pits were analyzed for total metals (dissolved metals for the groundwater samples) and SVOCs (including PCP and PAHs), with samples from test pits SL23TP through SL27TP also analyzed for dioxins/furans. With two exceptions (SL04TP and SL27TP), one shallow subsurface (1 to 3 feet bgs) and one deep subsurface soil (bottom of test pit) sample were collected from each test pit. Due to the dense, gravely nature of material at SL04TP, only a shallow subsurface soil sample was collected from this; at SL27TP, the single sample collected from this location was from the deep interval (7 to 8 feet bgs), at the interface between the overlying gravelly and lower clay/silt layers.

These test pits were excavated to depths of between 4 and 10 feet bgs, terminating when what appeared to be the underlying native or relatively undisturbed soils were encountered. In four of these locations (SL03TP, SLSL25TP, SL26TP, and SL27TP), this underlying material was identified as a clay to silty clay material. Anthropogenic debris was noted in SL24TP and SL25TP that included wood and what appeared to be ash, clinkers, and slag-like material likely associated with the wigwam burners. Test pit SL24TP contained greater amounts of such anthropogenic/industrial debris, with no apparent transition to native soils encountered within the limits of excavation (10 feet bgs).

Findings

Arsenic was the only inorganic contaminant of concern detected at a concentration in exceedance of an RBC. While this constituent exceeded the RBC for direct contact, the concentration was below the regional background level (Table 4-5). Arsenic and manganese were both present in two of the three dissolved groundwater samples (TP23 and TP25) at concentrations in excess of the drinking water RBC. Both samples were collected from the northern side of the former log pond (Table 4-11).

With respect to organic constituents, dioxins/furans and one SVOC (bis(2-ethylhexyl) phthalate) were present at concentrations above the Oregon DEQ standard for reuse of soil as clean fill. For dioxins/furans, the TEQ values for six samples (SL24TP01, SL24TP02, SL25TP01, SL25TP02, SL26TP01, and SL26TP02) exceeded the Oregon DEQ value for reuse of soils as clean fill, three of these TEQ values also exceeded the RBC for direct contact. The one detection of bis(2-ethylhexyl) phthalate also exceeded this clean fill value. No organic constituents were present in groundwater sampled from this area at concentrations above an RBC (Table 4-5). Based on observations and chemical analytical results, it would appear that dioxin/furan exceedances in these areas generally coincide with the presence of observed anthropogenic debris.

4.6.2.3 PCP in Groundwater and Potential UST

Sampling Efforts

During a previous Phase II ESA investigation at the WSCPM site by HAI, a subsurface anomaly thought to be an abandoned UST was identified on the southeastern portion of Tax Lot 901. Due to a field oversight during HAI's field work, a boring intended to assess the environmental condition of soil proximal to this anomaly was placed at the wrong location, resulting in a data gap. A groundwater sample collected in this area was also revealed to contain relatively elevated concentrations of PCP, the source for which was/is unknown.

To address these unknowns, the geophysical survey first sought to identify the location of the subsurface anomaly. Three borings were then placed bracketing the previously identified subsurface anomaly (SP05GP, SP06GP, and SP07GP). One test pit (SL08TP) was advanced in the middle of the three borings. Two soil samples were collected from each of these borings and the test pit, with groundwater samples collected from each of the three boring locations. All samples from this area were analyzed for total metals (dissolved metals for the groundwater samples), SVOCs (including PCP and PAHs), TPH-Gx, TPH-Dx, the petroleum-associated BTEX compounds (i.e., VOCs), and dioxins/furans.

As discussed in Section 4.6.1, while the geophysical survey efforts undertaken during this study were unable to identify any subsurface anomaly likely to be an abandoned UST, the presence of a large, buried, steel-reinforced concrete foundation was detected. Several "linear anomalies" were also noted running generally northeast/southwest through this area. As shown in Figure 4-3, these subsurface anomalies visually correlated with historic mill features, including demolished buildings and what appears to have been a water line associated with a sprinkler system. Given the slab's presence and the absence of a potential UST, the test pit location was selected to avoid the concrete slab and provide a means of viewing and sampling soil from this general area.

Borings SL05GP and SL07GP were both advanced through a concrete slab located at the surface and approximately 5 feet bgs (respectively). Soils in this area were laterally heterogenous, including sand, silt, gravel and clay, with these soil constituents varying in depth and relative proportion between locations. No PID detections, odors, or staining was noted in any of these borings, and, excluding the concrete slab, no anthropogenic debris was encountered. Soils observed while excavating test pit SL08TP conformed with what was observed in borings with no obvious fill/native soil contact present, and the field staff noting the material to be consistent with an alluvial type deposit.

Findings

Arsenic was the only inorganic contaminant of concern detected at a concentration in exceedance of an RBC. While this constituent exceeded the RBC for direct contact, the concentration was below the regional background level (Table 4-6). Manganese was present in the three dissolved groundwater samples from this area at concentrations in excess of the drinking water RBC (Table 4-11).

With respect to organic constituents, dioxins/furans and one VOC (benzene) were present in soil at concentrations above an RBC or clean fill screening level value. For dioxins/furans, the TEQ values for four samples (SL06GP01, SL06GP02, SL07GP01, and SL08TP01) exceeded the Oregon DEQ value for reuse of soils as clean fill. Two of these TEQ values also exceeded the RBC for direct contact (SL06GP01 and SL08TP01). The one detection of benzene (SL07GP01) exceeded the RBC for protection of groundwater quality (Table 4-6). The only organic exceedance in groundwater was the dioxin/furan TEQ for groundwater sampled from SL05GW, which was present at a concentration in excess of the drinking water RBC (Table 4-11).

4.6.2.4 Former Transformer Location

Sampling Efforts

Review of a historic building plan obtained from the office of the Curry County Assessor revealed the past presence of an electrical transformer along the southeast former log pond shoreline. This transformer was situated adjacent to a saw and what was likely a concrete loading platform. Boring locations SL09GP and SL10GP were selected to bracket the north and south sides of the transformer area. Given that any potential releases from such a transformer were likely to be in the form of spills from the transformer and at ground surface, only shallow subsurface soil samples were collected. A groundwater sample was collected from boring SL10GP. All samples from this area were analyzed for SVOCs (including PCP and PAHs), PCBs, and TPH-Dx.

Soils in this area were predominantly composed of sand, with silt and gravel present in varying proportions. At location SL09GP, the 4 feet of drilling and recovery proceeded from the ground surface. However, at location SL10GP, a 15-inch-thick buried concrete slab was encountered approximately at 2 feet bgs. No soil was recovered from the upper 4 feet of this boring. The soil sample at this location was collected from the 4 feet of material directly beneath the slab. No PID detections, odors, or staining was noted in these borings, and, excluding the concrete slab, no anthropogenic debris was encountered.

Findings

Arsenic was the only contaminant of concern detected at a concentration in exceedance of an RBC. While this constituent exceeded the RBC for direct contact, the concentration was below the regional background level (Table 4-7). No contaminant of concern where present in groundwater sampled from this area at concentrations above an RBC (Table 4-11).

4.6.2.5 Southern Wigwam Burner

Sampling Efforts

The southern wigwam burner was suspected as a potential contamination source at the site. Such impacts were assumed to be associated with the waste burning process where the ash, solids, and other non-combustible byproducts left behind could potentially have resulted in onsite contamination. Hazardous materials remaining after combustion can be determined by not only what was burnt, but also by the combustion process itself. Low temperature and/or incomplete combustion can leave ash and other remnants that have high concentrations of SVOCs and PAHs and, depending on the feedstock, include dioxins/furans. Waste burning can also result in higher concentrations of metals in the ash. It is not known how ash, solids, and other burner wastes were managed and/or disposed of at this site.

Previous sampling efforts by HAI at the site identified subsurface soil impacts by petroleum products and metals, with petroleum products identified at relatively high concentrations in groundwater in the vicinity of the southern wigwam burner. Geophysical survey work conducted during those sampling efforts also identified a subsurface anomaly of unknown provenance. During a subsequent site walk undertaken by HAI in conjunction with their 2019 Phase I ESA, reviewers noted an undulating, hummocky surface near the burner, potentially indicative of or associated with past filling and/or other disposal activities. These surface features were not visually obvious at the time of the START's site visit in March 2020.

Prior to the TBA field work, site stakeholders hired a contractor to cut and remove grass, brush, brambles, gorse, and other low-lying ground cover from targeted sampling areas. Removal of this ground cover from the southern wigwam burner footprint revealed an approximately 4- to 5-foot-tall pile of soil and debris in the area. Contrary to assumptions held prior to the field work, clearing this area did not reveal features that would otherwise have identified the perimeter of this burner, such as a concrete curbs, footings, or other structural foundation components.

As discussed in Section 4.6.1, geophysical survey efforts were undertaken in the area of the southern wigwam burner to relocate the subsurface anomaly encountered by HAI during their Phase II ESA efforts at the site. While the geophysical surveyor was unable to locate a geophysical anomaly at the coordinates provided by HAI, a subsurface anomaly was identified approximately 40 feet west/southwest of that location. Geophysical survey efforts during this current TBA also identified a significant amount of buried metal and other solid debris in the pile within the southern wigwam burner footprint.

To better understand environmental conditions in this area, four borings (SL14GP, SL15GP, SL17GP, and SL18GP) were advanced and five test pits were also excavated. Soil samples were collected from two of the test pits (SL16TP, OP02TP). Two of the remaining test pits were exploratory pits dug to visually inspect subsurface soils in the vicinity of the subsurface anomaly. The third "test pit" was dug with a shovel to observed soils on the southern margin of the raised vegetated area approximately 10 feet north of boring SL18GP.

Cores from the Geoprobe™ borings were collected for field screening and sampled from up to 16 feet bgs in SL14GP, SL15GP, and SL18GP, and a maximum depth of 24 feet bgs in SL17GP. Although evidence of fill and/or non-native deposits was generally limited to the upper 4 feet of soil, woody debris and fragments were noted to approximately 15 feet bgs in SL17GP. In addition to the wood, debris noted in the upper 4 feet of these borings included brick fragments, pieces of canvas, and charred material. Slag fragments were noted in SL17GP from 2.4 to 3.0 feet bgs and SL18GP from 1.3 to 2.1 feet bgs.

Other than a cedar-like odor and the intervals of charred materials, no staining or odors were noted in soils, nor did screening reveal soil intervals with elevated PID detections. Two soil samples were collected from each of these borings, with groundwater samples collected from SL15GP and SL18GP. Water was encountered in SL17GP; however, water at this location was too deep to be sampled using the peristaltic pump. Groundwater was not encountered at SL14GP.

Three of the four test pits advanced in this area focused on the subsurface anomaly identified by the geophysical contractor during TBA related field work. The first test pit, SL16TP, was advanced in the center of the anomaly. This pit revealed five distinct layers or intervals of material between the ground surface and the lower limits of the pit. Soil samples were collected from four of these intervals. From top to bottom, these included an approximately 10-inch interval of sand and gravel fill material; approximately 2 inches of a dark gray to black ash/charcoal layer that appeared to have high organic content (SL16TP01); approximately 5 inches of a lighter-colored tan to reddish tan, dense slag-like or consolidated ash/clinker layer with apparent vesicles (SL16TP02); approximately 18 inches of a bright orange/red silt (SL16TP03); and what appeared to be the native tannish brown silt/sand layer (SL16TP04).

Two exploratory test pits were then dug approximately 20 and 40 feet northeast of SL16TP. A very similar soil profile as that encountered in SL16TP was noted in the closer of the two test pits. In the further exploratory test pit, while some concrete pieces were noted in upper 2 feet, and a slight reddish hue was noted in soils from 2 to 4 feet bgs, the other overlying black and tan to reddish tan layers were not observed.

The fourth excavated test pit was dug on the south-central side of the soil pile within the former wigwam burner footprint. This test pit was dug to better understand the nature of metal and other buried debris identified in this area by the geophysical survey, and understand how much of the pile may include the charcoal, burnt wood, slag/clinker like solids, and other industrial debris noted on the ground surface in this area. The sample collected from this pile (OP02TP01) targeted the interval between 1 and 2 feet bgs, where the layer of ash/charred material was most prominent.

The shallow shovel test pit was advanced into the side of the blackberry/shrub overgrown area of mounded soil to the north of the southern wigwam burner area. Again, this shovel pit was placed approximately 10 feet north of soil boring SL18GP, revealing slag/clinkers, broken glass, various pieces of scrap metal, and fire brick in the pile. No sample was collected from this material. Although the full extent of this area of mounded soil could not be observed because of dense vegetation, this area is assumed to be the "hummocky terrain" observed by HAI during their 2019 Phase I ESA review of the site. As a means of preliminary estimation, the LIDAR imagery of the site available from DOGAMI does appear to capture the extent of the soil piles both at this location (approximately 1,800 square feet) and in the southern wigwam burner footprint (approximately 2,000 square feet).

Findings

Arsenic was the only inorganic contaminant of concern detected at a concentration in exceedance of an RBC. While this constituent exceeded the RBC for direct contact, the concentration was below the regional background level (Table 4-8). Arsenic and manganese were both present in one of the two dissolved groundwater samples collected from this area (SL18GW) at concentrations in excess of the drinking water RBC (Table 4-11).

With respect to organic constituents, dioxins/furans and one VOC (benzene) were present at concentrations above one or more soil RBC or the clean fill screening level used for this assessment. For dioxins/furans, the TEQ values for seven soil samples (SL14GP01, SL15GP01, SL16TP01, SL16TP02, SL17GP01, SL18GP01, and OP02TP01) exceeded the Oregon DEQ value for reuse of soils as clean fill. The dioxins/furans TEQ value in the sample collected from the test pit (OP02TP01) also exceeded the RBC for direct contact; the concentration of 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) in this sample also exceeded the clean fill reuse value. These RBC TEQ exceedances were all in soils sampled from within 4 feet of the ground surface. The one VOC exceedance was benzene detected at SL16TP01 collected from the first layer of ashy/discolored soils encountered at 10 to 12 inches bgs (Table 4-8). The only organic constituent in groundwater present above an RBC was the TEQ value for dioxins/furans sampled from both SL15GW and SL18GW (Table 4-11).

4.6.2.6 Former Stud Mill and Vicinity

Sampling Efforts

During HAI's previous Phase II ESA activity at the site, PCP was detected in groundwater samples. Interviews conducted during earlier Phase I ESA investigations of the site reported that dimensional lumber may have been produced at the site. This tentative recollection was subsequently confirmed during research for this TBA when the START obtained a site plan for the WSPCM from the Curry County Assessor depicting a stud mill at the site. Until the presence of stud mill could be confirmed, there were no known sources of, or historic onsite practices that used PCP. PCP is commonly used as an anti-sap staining treatment on dimensional lumber. Dioxins and furans had also been encountered in surface soil samples collected in the vicinity of the stud mill during earlier investigations. In addition to being a byproduct of incomplete or low-temperature organic material combustion in the presence of chlorine, dioxins/furans can also be a common chemical manufacturing byproduct. Sampling in this area was undertaken during this TBA to understand whether the stud mill may represent a potential source and/or hotspot of PCP and/or dioxins/furans, and to further assess a geophysical anomaly identified during HAI's 2019 Phase II ESA investigation a short distance south of the former stud mill footprint.

To address these unknowns, the TBA geophysical survey efforts first sought to identify the location of the subsurface anomaly. Three subsurface borings (SL20GP, SL21GP, and SL22GP) were then advanced on the margins of the stud mill footprint, and one test pit (SL19TP) was excavated at the geophysical anomaly. One soil sample was collected from 0 to 4 feet bgs in each of the borings. Two soil samples were collected from the test pit. Groundwater samples were collected from each of the three boring locations. All samples from this area were analyzed for total metals (dissolved metals for the groundwater samples), SVOCs (including PCP and PAHs), TPH-Gx, TPH-Dx, and the petroleum associated BTEX compounds (i.e., VOCs), and dioxins/furans.

As discussed in Section 4.6.1, the geophysical survey effort undertaken during this study appears to have relocated the subsurface anomaly identified during HAI's 2019 Phase II ESA efforts. During test pitting, this anomaly was identified as a metal plate buried approximately 4 feet bgs. Further excavation beneath this plate exposed an approximately 6-inch-diameter metal pipe at 6 feet bgs. By tracing a signal induced on the pipe after exposure, the geophysical surveyor was able to map the pipe as it ran approximately 60 feet northeast and southwest from the test pit. Based on a comparison of this mapped pipe to a version of the Curry County Tax Assessor site plan digitized into GoogleEarth, this pipe appears to correspond with the mill's fire suppression line. Soil samples were collected from this test pit from an approximately 6-inch interval of soil above the metal plate (SL19TP01) and from soils adjacent to and beneath the pipe (SL19TP02).

Findings

Arsenic and lead were the only inorganic contaminants of concern detected at a concentration in exceedance of an RBC. While the arsenic concentrations exceeded the RBC for direct contact in all five soil samples collected from this area, the concentrations were below the regional background level (Table 4-9). The lead concentration in one soil sample (SL19TP01) also exceeded RBC for protection of groundwater. Arsenic was present in all three groundwater samples (SL20GW, SL21GW, and SL22GW) and manganese in two of the three groundwater samples (SL20GW and SL21GW) collected from this area at concentrations in excess of the drinking water RBC. Again, in all cases these groundwater exceedances were in the filtered samples submitted for analysis of dissolved metals concentrations (Table 4-11).

With respect to organic constituents, dioxins/furans were present at concentrations above one or more RBC or clean fill screening level used for this assessment. For dioxins/furans, the TEQ values for four samples (SL19TP01, SL20GP01, SL21GP01, and SL22GP01) exceeded the Oregon DEQ value for reuse of soils as clean fill. Two of these TEQ values (SL19TP01 and SL20GP01) also exceeded the RBC for direct contact; the concentration of 2,3,7,8-TCDD also exceeded the clean fill reuse value in sample SL19TP01. Similar to the southern wigwam burner area, these screening level exceedances were all in soils collected from within 4 feet bgs (Table 4-9). The calculated dioxin/furan TEQ value was again the only organic constituents in groundwater present above an RBC, exceeding drinking water–related RBC in all three samples (Table 4-11).

4.6.2.7 Potential Eastern Waste Disposal Area and UST location

Sampling Efforts

During a review of previous Phase I ESA investigations of the site, as well as available historic aerial photography, what appeared to be a historic pond or low spot was identified on a portion of Tax Lot 902. Reviewers also noted a small structure south/southeast of the plywood mill building on Tax Lot 902, which may have been associated with the historically present USTs.

As discussed in Section 4.2.6, geophysical survey efforts were undertaken within two pre-selected polygons in this area. The first encompassed much of the northeastern cleared areas of Tax Lot 902. The second was an approximately 130- by 110-foot rectangle centered on the noted small structure. These geophysical surveys identified three relatively prominent geophysical anomalies, including two within the northeastern clearing and one area with an elevated GPR and magnetic signature in the vicinity of a suspected UST location. To investigate these anomalies, three test pits were dug in the northeastern clearing (SL11TP, SL12TP, and SL13TP), and one was dug near the historic small structure (OP01TP). Based on field observations in test pit OP01TP, one Geoprobe™ boring (OP01GP) was advanced in an inferred downgradient position, approximately 20 feet north of OP01TP. All samples from this area were analyzed for total metals (dissolved metals for the groundwater samples), SVOCs (including PCP and PAHs), TPH-Gx, TPH-Dx, and the petroleum-associated BTEX compounds (i.e., VOCs). Observations at these locations were as follows:

- **SL11TP:** This test pit was dug at the southern of the two geophysical anomalies in the northeastern cleared area, revealing significant amounts of buried debris. This included metallic industrial debris, additional slag-like material, and what appeared to be a crushed 55-gallon drum in the top 3 feet of the excavation. At 5 feet, large river cobbles were encountered limiting the full depth of excavation to 7 feet. Soil samples were collected from a dark reddish-brown layer beneath the debris (SL11TP01) and at the base of the excavation (SL11TP02).
- **SL12TP:** This pit was advanced at the northern of the two more major geophysical anomalies noted in the northeastern cleared area on Tax Lot 902, where excavation work exposed a single 55-gallon drum buried approximately 1.5 feet beneath the ground surface. The drum appeared to have been buried intact and sealed; however, a small portion of the drum (approximately 2 by 6 inches) was breached by the excavator teeth during excavation, revealing a dark purple/amber hard crystalline solid material. No obvious sign of leakage was noted in soil surrounding the drum. Two soil samples were collected from this test pit. The first sample was collected adjacent to the south side of the drum, from soils below the bottom of the drum (SL12TP01). The second was collected from 7 to 8 feet bgs, from a location approximately 10 feet west/southwest of the drum. In addition, a small portion of the contents of this drum were collected in a glass jar and returned to the EPA's Seattle warehouse for hazard categorization analysis.
- **SL13TP:** This pit was dug near the northwest corner of the northeastern cleared area. As only two geophysical anomalies were noted in this area, the sample location was selected to broadly cover the geophysical survey area, targeting an area where a slightly hummocky surface was noted. No debris or other evidence of illicit disposal activity was noted in this test pit. Soils had a relatively high clay content, with the excavation encountering the large round river rocks observed at other test pits in this area at approximately 5 feet bgs. The two soil samples were collected from 1 to 2 feet bgs (SL13TP01) and 4 to 5 feet bgs (SL13TP02).
- **OP01TP:** This test pit was advanced where additional GPR returns and relatively elevated electromagnetic signatures were noted by the geophysical surveyor. Excavation in this area encountered a significant amount of trash and debris from the ground surface up to 5 feet bgs, including wood, piping, scrap metal, broken plastic, carpet scraps, and wire. Grey discolored soils with

a petroleum odor and elevated PID readings were encountered at approximately 6 feet bgs. Soil samples were collected from the interval above the stained soil with petroleum odor (OP01TP01), from the apparently petroleum-contaminated media (OP01TP02), and below the apparently petroleum-contaminated media (OP01TP03).

- **OP01GP:** Given the findings at OP01TP, an opportunity boring was placed approximately 20 feet north of the test pit, in an inferred downgradient location. This boring was placed to assess the lateral extent of contaminated media downgradient from the impacts noted in OP01TP. While no evidence of contamination in the form of odors, staining, or elevated PID detections was noted in soils recovered from this boring, wood, brick, and charred debris was encountered between 0.8 to 4.0 feet bgs. One soil sample was collected from this boring (OP01GP01) from the soil interval immediately above the water table. One groundwater sample was collected from a temporary well installed at this location following soil screening.

Findings

Arsenic and lead were the only inorganic contaminants of concern detected at concentrations in exceedance of an RBC. While the arsenic concentration exceeded the RBC for direct contact in all 10 soil samples collected from this area, the concentrations were below the regional background level (Table 4-10). The lead concentration in one soil sample (SL11TP01) exceeded RBC for protection of groundwater. Arsenic was present in one (TP12GW) of the five dissolved groundwater samples collected from this area at a concentration in excess of the drinking water RBC (Table 4-11).

With respect to organic constituents, gasoline range organics were present at a concentration above the value allowing soils to be reused as clean fill in sample OP01TP02, collected from soils that had the strongest petroleum odors. Gasoline range organics were also detected in groundwater sample OP01GW, collected downgradient of the test pit (Table 4-11).

Finally, hazard categorization analysis of the contents of the drum encountered at SL12TP identified the material as sodium percarbonate, a material commonly used as a bleach. The START chemist determined the material to be an inorganic water-soluble salt, an oxidizer, and when dissolved in water, to create a basic solution. When heated, sodium percarbonate decomposes into sodium carbonate and hydrogen peroxide. Hazardous material identification of the charred remains of the drum contents were noted to be sodium carbonate (Criss 2020).

4.6.3 Incremental Sampling Method - Surface Soil Assessment

TBA field efforts included ISM sampling to better assess and further contextualize areas where previous sampling identified relatively high concentration of dioxins/furans in surface soils during previous environmental investigations. This ISM sampling targeted a total of eight DUs, including one "background" DU. Each ISM sample was analyzed for metals, SVOCs (including PAHs and PCP), and dioxins/furans. Samples from three DUs, including the background DU, were also analyzed for TOC.

During study planning efforts, the boundaries of six of these DUs were drawn to encompass the northern (DU2) and southern (DU6) former wigwam burner footprints. Two additional "rainbow" arc-shaped DUs were created to evaluate contaminant levels in the areas of land stepping out from each of these burners. DU3 and DU4 were created to bracket the northern wigwam burner while DU5 and DU7 were created to bracket the southern wigwam burner. A triplicate sample was collected from DU6 for QA/QC purposes.

The two remaining DUs were rectangular areas placed near the northern margin of the former log pond (DU1), and within the former log storage area (DU8). The boundary of DU1 was selected to assess surface soils in the area where HAI's sampling had identified the highest concentration of dioxins/furans in surface soil. DU8 was the "background" sample, placed in an area of the site depicted in historic aerial photographs as having been used for timber storage.

As discussed in Section 4.4.1, the limits of each DU, as well as the individual subsample locations, were plotted in ArcGIS using available historic and sampling data for guidance. Coordinates associated with each DU (i.e., DU polygon boundaries, subsample locations) were then loaded onto a geographic information system (GIS)-enabled field tablet that was then used to identify sample locations in the field. However, field staff had to modify the boundaries and subsample locations within several of these DUs to accommodate on the ground conditions. Modifications included the following:

- For DU1, the southern boundary of the DU, as mapped using aerial photographs, was found to include a portion of the downslope, northern dike wall between the targeted sampling area and the former log pond. As this area was both steep and heavily overgrown with blackberry bushes, the width of this DU was decreased to situate the entire DU on the flat, upland area; subsample locations within this DU were proportionally moved in accordance with this foreshortening. The modified limits of this DU were logged using the GPS capabilities of the field tablet.
- DU5, DU6, and DU7 were created to assess the potential presence of contaminants within and adjacent to the southern wigwam burner. As previously discussed, removal of the blackberry bushes and other low vegetation from this area prior to the field event revealed an approximately 5-foot-tall soil/debris pile. Little to no evidence of the former wigwam burner's footprint was noted after brush removal. As the full extent of these three DUs had not been cleared of vegetation, and given the presence of the debris pile, these DUs were redrawn by field staff.

  The limits of DU6 were redrawn to collect all associated subsample increments from the surface of the soil/debris pile. DU5 and DU7 were then modified to place their associated subsamples within arc-shaped strips of land extending approximately 15 feet from the east and west sides of the soil/debris pile (i.e., DU6). Although the field team attempted to document the modified boundaries of each of these DUs using the field GPS/GIS system, software and data connectivity issues resulted in these changes not being uploaded to and/or preserved in the cloud-based map server used for this project. Therefore, the limits of these DUs are interpolated boundaries that were hand-drawn after the end of the field event.

4.6.3.1 Findings

Arsenic and lead were detected in multiple ISM soil samples at concentrations in excess of one or more RBC or clean fill screening value. Arsenic exceeded the RBC for direct contact in each sample, including the background sample (DU08SS). Arsenic concentration in four of these concentration also exceeded the value that would allow for soils to be reused as clean fill (DU04SS, DU06SS, DU06SS-T, and DU07SS), with three of these values also having arsenic at concentrations in excess of the regional background value (DU06SS, DU06SS-T, and DU07SS). Lead concentrations in six of these samples (DU04SS, DU05SS, DU06SS, DU06SS-R DU06SS-T, and DU07SS) were in excess of protection of groundwater RBCs; five of these lead concentrations also exceeded the regional background metals value (DU04SS, DU05SS, DU06SS, DU06SS-R and DU06SS-T) (Table 4-12).

With respect to organic constituents, every DU sample, including the background sample (DU08SS), had concentrations of dioxins/furans, as represented by both the TEQ value and concentration of the individual 2,3,7,8-TCDD congener, above the concentration that would allow for soils to be reused as clean fill. In addition, dioxin/furan concentrations in eight of the samples, as represented by the calculated TEQ value, exceeded the RBC for both direct contact and protection of groundwater (DU01SS, DU03SS, DU04SS, DU05SS, DU06SS, DU06SS-R, DU06SS-T, and DU07SS). Finally, concentration of dibenzofuran also exceeded the value to allow for soils to be reused as clean fill in six samples (DU01SS, DU4SS, DU05SS, DU06SS, DU06SS-R, and DU06SS-T) (Table 4-12).

4.6.4 Sediment and Surface Water Sampling

Given the dearth of information regarding historic practices at the site, the centrality of the two onsite ponds to historic mill operations, and their potential to serve as receptors for contaminants transported by overland mechanisms, the former log pond and fire suppression pond were targeted for sampling during this TBA. The importance of this sampling was bolstered by the fact that stream and other wetland habitat restoration efforts would by necessity include the waters in, and footprint of, both ponds. To assess potential impacts in these areas, a total of nine sediment samples and four surface water samples were collected. These samples were analyzed for metals (total and dissolved for surface water), SVOCs (including PAHs and PCP), dioxins/furans, and TOC. Samples were collected as follows:

- Five sediment samples (PD01SD through PD05SD) were collected from the former log pond. Two co-located water samples were collected from the outlet and inlet stream to the former log pond,
    - **PD01SD/PD01SW:** These co-located sediment and surface water samples were collected where water passed through the northern dike wall of the former log pond. Sediments were noted to consist of a well-graded sand with silt. Invertebrates were noted in the sampled sediment.
    - **PD02SD:** This sample was collected from the northwest corner of the former log pond, from a location that based on the absence of vegetation, appeared to have been a surface water drainage path before beaver dam removal. Sediments were noted to be a sandy silt.
    - **PD03SD:** This sample was collected from the northeast corner of the former log pond, from a location that based on the absence of vegetation, appeared to have been beneath the water surface before beaver dam removal. Sediments were noted to be a sandy silt.
    - **PD04SD:** This sample was collected from near the center of the former log pond, from a saturated silty/muck within an area of reed grasses and cat tails.
    - **PD05SD/PD05SW:** These co-located sediment and surface water samples were collected from the creek/drainage channel between the spillway from the former fire suppression pond and what would have been the extent of standing water on the former log pond prior to beaver dam removal. Sediments were noted to be a silt with some gravel.
- Four sediment samples (PD06SD through PD09SD) were collected from the former fire suppression pond. All sediment samples from this pond were noted to consist of a silt with a high level of organic materials. Two co-located water samples were collected from the outlet and inlet to the former fire suppression pond:
    - **PD06SD/PD06SW:** These co-located sediment and surface water samples were collected within the pond, adjacent to the concrete spillway where water exits to the former log pond.
    - **PD07SD:** This sample was collected from the northeast corner of the former fire suppression pond, approximately 15 feet north of the former pumphouse.
    - **PD08SD:** This sample was collected from the southern corner of the former fire suppression pond, in an area with heavy surface vegetation and lily pad growth.
    - **PD09SD/PD09SW:** These co-located sediment and surface water samples were collected from southwest margin of the former fire

suppression pond, adjacent to the mouth of Bagley Creek's discharge culvert. As this sample was collected to represent "background" conditions, this sample had originally been proposed to be collected from a location on Bagley Creek upstream from the pond. However, during the sampling event, the culvert the Bagley Creek was noted to extend off of the subject property, with its upstream opening situated on the west adjacent property. As an alternative, the START also explored collecting this sample from a location further upstream. As dense, impenetrable vegetation was noted along the creek channel where Bagley Creek ran beneath Elk River Road, and the ownership of this area of land was uncertain, the background sample was collected from the culvert outlet.

4.6.4.1 Findings

Multiple metals were detected in sediments collected from the two ponds at concentrations in excess of RBCs. These included chromium and nickel in all nine samples, copper and zinc in the northern three former log pond samples (PD01SD, PD02SD, and PD03SD), and lead in sample PD03SD as collected from the former log pond. Of these detections, only the concentrations of lead and zinc in PD03SD, collected from the former log pond, were also above the regional background level (Table 4-13). Total aluminum and iron concentrations in one surface water samples (PD01SW) also exceeded the most restrictive SLV; however, dissolved concentrations of these metals were below these SLVs. Barium was also detected at concentrations above the most restrictive SLV in all total and dissolved surface water samples; however, given this constituent's relatively consistent concentration in all samples, this is likely to represent a background condition not necessarily attributable to site related impacts. (Table 4-11).

With respect to organic constituents, dioxins/furans were present at concentrations above the sediment RBC in three former log pond sediment samples (PD01SD, PD02SD, and PD03SD). The dioxin/furan concentrations in these samples, as represented by the calculated TEQ value, exceeded the sediment RBC (Table 4-13). One sample from the former log pond (PD02SD) also contained concentrations of benzo(a)anthracene and phenanthrene marginally above the sediment SLV. No organic constituents were detected in surface water at a concentration above an RBC (Table 4-11).

4.6.5 Level I Ecological Risk Assessment

To better understand the potential for site-related impacts to affect threatened and endangered species, sensitive environments, and other ecological receptors potentially present at the site, a Level I ERA was performed. As originally proposed in the SQAP, this assessment relied on the guidance provided in the Oregon DEQ's *Guidance for Ecological Risk Assessment* (Oregon DEQ 1998). After the conclusion of field work, the START learned that this guidance had been superseded by the Oregon DEQ's "Conducting Ecological Risk

Assessments" signed by Department on September 14, 2020 and released to the public on September 29, 2020. As the 2020 published guidance was unavailable during the planning phases of this TBA, and not released until after conclusion of the field work, ERA efforts were predominantly guided by the 1998 document. However, several modifications were made to the START's Level I ERA to incorporate aspects of the Oregon DEQ's newer guidance document.

As per a brief review of the 2020 guidance document, it appeared the guidance was updated with an eye towards streamlining and clarifying the ERA requirements. This 2020 document updated information on recommended sampling approaches, including the introduction of DUs and ISM type sampling as a recommended sampling approach; approaches to discussions on viable pathways and affected species or "guild" receptor groups (i.e., plants, invertebrates, birds, and mammals all represent "guilds); and provided additional information to use in assessing cumulative risk where more than one contaminant may be present (Beveridge & Diamond 2020). This 2020 update also revised the default screening level values used or relied on when assessing the potential for adverse health effects for various receptor guilds that may be exposed to Contaminants of Interest (COI) at a site. The 2020 update revised soil and surface water screening level values, now calling these values RBCs in concordance with terminology used for human health-based exposure standards and added an additional set of RBCs that account for bioaccumulative effects to apex bird and mammal predators. The 2020 guidance also updated the approach to be taken when selecting default RBCs to be used in the presence or absence of threatened and endangered (T&E) species at a site. An additional, more exhaustive list of resources was also provided for reference when selecting various media and receptor specific screening values.

The TBA field assessment for the Level I ERA was performed by a START biologist in conjunction with field sampling efforts. Field efforts were informed by a review of various online map-based data query portals for T&E species and sensitive and critical environments that may be present at or in the vicinity of the site. During field work, the biologist conducted a visual review and photographed site conditions as related to these criteria. These features were also recorded using a field GPS device.

Sample results from this TBA were used to outline COIs that receptors on the site may be exposed. Toward this end, a second set of analytical summary tables was created for use in comparing detected COIs to ecological RBCs and SLVs. All subsurface and surface soil analytical results were compared to the ecological RBCs provided in the 2020 updated guidance document. Surface water, groundwater, and sediment analytical results were compared to SLVs values included in Oregon DEQ's 1998 guidance. The reader should note that samples locations for this TBA were selected using a biased approach that targeted areas with the highest perceived likelihood of contamination. While this approach provides some overlap with an end goal of assessing concentrations of these COI that receptors may be exposed to, sample locations were not specifically selected to assess only such potential exposures.

The site visit and historical research associated with the Level I ERA identified no ecologically important species or habitats present within the site. Accordingly, no further work was recommended to assess the potential for adverse ecological impacts to T&E terrestrial ecological receptors at the site.

When compared to the ecological RBCs/SLVs, sampling did, however, identify multiple organic and inorganic COIs in soils at concentrations that exceed one or more ecological RBC. In general, these exceedances were relative to the most conservative available RBC, and the majority of inorganic COIs present at concentrations in excess of an RBC were, however, below the regional background concentration. For organic constituents, dioxins/furans concentrations, as represented by the calculated TEQ value were the predominant COI exceedance, with these exceedances occurring in surface soils and subsurface soils collected from a large portion of the site. Dioxin TEQ values in three sediment samples from the northern portion of the former log pond also exceeded the default freshwater sediment ecological screening level values for 2,3,7,8-TCDD.

Given the above, additional assessment was recommended to better understand the vertical extent of these RBC exceedances, the potential for soils and sediments to be part of a complete exposure pathway for ecological receptors that may be present on the site, and whether the default RBC/SLVs used in this comparison are appropriate for expected end use and/or exposure pathway related scenarios.

For more information on the efforts, findings, and conclusions associated with the Level I ERA, the reader of this report is referred to the memorandum report included as Appendix E of this report.

4.7 Historic Preservation Act Considerations

To coordinate TBA activities with the National Historic Preservation Act, the EPA, with assistance from the United States Army Corps of Engineers, consulted with the Oregon SHPO and the THPO for the Coquille Indian Tribe. The SHPO and the THPO both indicated concern that proposed TBA related investigatory tasks may impact archeological resources in the project area. The SHPO recommended that a professional archeologist conduct an archaeological survey of the project area prior to the undertaking. . The THPO went further in more specifically recommending that the archeologist/cultural observer perform a pedestrian survey, , observe ground-disturbing activities during the field event, and provide the THPO with adequate notification to allow a Tribal Cultural Resource Monitor the opportunity to be onsite to monitor excavation activity. For this reason, the START subcontracted with Applied Archaeological Research, Inc. (AAR) to provide an appropriately trained and qualified archeologist/cultural observer to observe field work, conduct a survey of sampling locations prior to disturbance, conduct shovel test pits at areas targeted for test pit excavation, and prepare a follow-up report discussing observations at the site.

If the AAR archeologist had encountered or observed artifacts or human remains, work at that location would have immediately stopped and the EPA TM would have been immediately notified. As outlined in *Results of a Cultural Resources Survey and Archaeological Monitoring for the Former Western States Plywood Cooperative Mill Targeted Brownfields Assessment, Port Orford, Oregon Report*, generated by AAR, no such artifacts or remains were encountered during drilling or excavation activities. Correspondences relating to National Historic Preservation Act coordination, as well as AAR's report, are provided in Appendix G. A copy of AAR's report was also provided to the SHPO and THPO by the EPA.

4.8 Global Positioning System

GPS coordinates of TBA sample locations were collected utilizing a Trimble™ Geo7X handheld GPS. Recorded GPS coordinates by sample point are listed in Appendix H.

4.9 Investigation Derived Waste

Investigation-derived waste (IDW) generated during the WSPCM TBA sampling event included disposable sampling supplies, disposable personal protection equipment, decontamination water, and purge water. All disposable IDW was bagged in opaque plastic bags, transported back to the EPA warehouse in Seattle, Washington, and collected by Waste Management. Materials that could be recycled (plastic, cardboard, steel, and paper) were segregated from trash at the EPA warehouse in Seattle, Washington, and collected by Waste Management for recycling.

Borehole purge water and water generated while washing/decontaminating non-dedicated sampling equipment were contained in four 55-gallon drums. All IDW drums were labeled and stored on the gravel surfaced area east of the maintenance building on Tax Lot 900. One composite water sample (ID01WT) was collected from these drums for waste characterization purposes.

The composited IDW water sample was submitted for TAL metals, SVOCs, NWTPH-Dx, NWTPH-Gx, VOC, and dioxins/furans analyses. Sample results indicated that all IDW was non-hazardous. On December 17, 2020, all drums were picked up by ACT Environmental Services and transported to Waste Management's landfill in Hillsboro, Oregon for disposal. Waste disposal related documents, along with the IDW characterization sample results summary, are included as Appendix I.

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5

Field Investigation Summary

The following investigation summary for the WSPCM site is derived from the analytical data gathered during the TBA field investigation (see Section 4). This TBA focused on a large number of contaminants of concern, including metals, SVOCs (including PAHs and PCP), PCBs, TPH-Dx and TPH-Gx, the petroleum-associated BTEX products (i.e., VOCs), formaldehyde, and dioxins/furans. As several of these analytical suites were selectively applied to specific areas of the site based on knowledge of site history, it is possible that contaminants could be present at levels exceeding applicable criteria values in additional areas of the site. It is recommended that the Oregon DEQ, along with Tribal and State Historic Preservation Officers, be consulted prior to further investigation or implementation of any remedial actions at the site.

5.1 Field Investigation Summary

The TBA field investigation focused on the following impacted media as associated with RECs that had been identified at the site:

- Contaminated Surface and Subsurface Soil,
- Groundwater Contamination, and
- Contaminated Sediments and Surface Water Features.

In review of analytical data generated during this study, dioxins/furans were identified as the primary and most widespread organic contaminant of concern detected at the site. This contaminant group, as represented by the calculated TEQ value for mammals, was present in soils across a large portion of the site at concentrations in excess of one or more soil RBC and/or clean fill screening level. Using this TEQ metric, dioxin/furan concentrations in sediments in the northern portion of the former log pond also exceeded related RBCs. Other organic constituents, including bis(2-ethylhexyl)phthalate, benzene, and TPH as gasoline were sporadically detected in soil and groundwater at concentrations above RBCs.

Of the soil/sediment samples collected from the site, the highest dioxin/furan TEQ values at the site were present in the three sediment samples collected from the northern margins of the former log pond in samples PD01SD (140 nanograms per kilogram [ng/kg]), PD02SD (120 ng/kg), and PD03SD (120 ng/kg).

For surface soils, the samples collected from the northeastern corner of the former log ponds had the highest calculated dioxin/furan TEQ value (DU01SS, 46.2 ng/kg), closely followed by the TEQ values in soils sampled from the southern wigwam burner debris pile (DU06SS-T, 35.2 ng/kg) and to the west (DU05SS, 33.85 ng/kg) and east (DU07SS, 41.44 ng/kg) side of this pile. Also, of note is the presence of dioxin/furan TEQ values in surface soils above the Oregon DEQ value that would allow for soils to be reused as clean fill surface at the background DU (DU08SS, 2.97 ng/kg).

For subsurface soils, other than generally being confined to the upper 4 feet of soil, the distribution of soils with the highest dioxin/furan TEQ values did not appear to follow a distinct pattern. Subsurface soil samples having the highest TEQ values were SL19TP01 (29 ng/kg) which would have been located beneath the mill building footprint; SL08TP01 (25 ng/kg) and SL06GP01 (23 ng/kg), which were located just north of the concrete pad present at the surface on the southeast corner of Tax Lot 901 and east of the historic “fuel bin” for the mill; and SL25TP01 (20 ng/kg), located atop a dike on the northwest corner of the former log pond. These subsurface samples with the highest detections were scattered across a relatively broad area of the site, and while three of the highest detections were encountered near buildings associated with historic site operations, these results did not appear to correlate with field observations, such as soils with apparent ash and/or slag like material having higher TEQ values.

For soils deeper than 4 feet bgs, samples with TEQ values above an RBC or clean fill screening level were most consistently collected from test pits atop the dike wall along the northwest side of the former log pond (SL24TP02, 4.8 ng/kg; SL25TP01, 3.8 ng/kg; SL26TP02, 2.5 ng/kg). One of the deeper samples collected near the concrete slab/historic fuel bin on Tax Lot 902 also had TEQ values above the clean fill guidance (SL06GP02, 0.79 ng/kg). In all cases, these exceedances in deeper soils were as compared to the clean fill reuse value.

While it’s possible that future sampling reveals a correlation between higher TEQ values and potentially past disposal practices at the site, currently available data do not clearly demonstrate this relationship. Further, the elevated dioxin/furan TEQ values in the background ISM sample (DU08) may point to multiple contaminant dispersion methods for dioxins/furans, such as airborne outfall from the wigwam burners, vehicles tracking contaminated soils, or other dispersion methods. These background conditions may also have a genesis from non-site related sources such as ashfall from both historic forest fires, or those wildfires that were ongoing during the field event.

At locations where other organic concentrations were elevated, with the exception of OP01TP, based on field observations and available sampling data, these appear to represent isolated hotspots that may not warrant further examination. Again, these constituents included bis(2-ethylhexyl)phthalate, benzene, and TPH as gasoline. In each case, these exceedances were only detected in one of the soil samples from a given location, and generally not detected in groundwater.

In the area of buried debris where petroleum impacted soils were encountered (OP01TP), soils with gasoline range organics above the RBC for protection of groundwater were encountered at the water table (OP01TP02, 180 milligrams per kilogram), but not present in detectable concentrations in soils collected above or below this sample (OP01TP01 and OP01TP03). Further, while gasoline was not detected in soils sampled from the boring placed downgradient of this location (OP01GP01), groundwater sampled at this location contained gasoline at a concentration above the drinking water RBC (OP01GW, 140 micrograms per liter [µg/L]). However, this concentration only slightly exceeds the associated RBC (110 µg/L), and gasoline was not detected in water sampled from the existing well further downgradient from this location (EW02GW). Additional sampling and testing would be required to define the full lateral and vertical extend of contamination in this area. Based on sampling data, this area may in fact have been the historic location of now removed USTs.

At the locations where benzene (SL07GP01, 24 micrograms per kilogram [µg/kg] and SL16TP01, 74 µg/kg) and bis(2-Ethylhexyl)phthalate (SL24TP01, 5200 µg/kg) were detected above the protection of groundwater RBC and/or clean fill screening level value, no other soil samples from these test pit or boring locations contained the same constituent, nor was the constituent detected in groundwater at or proximal to the soil sample location.

With respect to inorganic constituents, multiple metals were detected in soils at concentrations in excess of one or more RBC and/or clean fill screening level value. However, the vast majority of these metals were detected at concentrations at or below the expected regional background level. Exceptions include arsenic and lead. Arsenic concentration in three surface soil samples (DU06SS, DU06SS-T, and DU07SS) exceeded the RBCs for both direct contact and reuse as clean fill, but only marginally exceeded the associated regional background metals concentration. The lead concentrations in two subsurface (SL19TP01 and SL11TP01) and five surface soil samples (DU04SS, DU05SS, DU06SS, DU06SS-R, and DU06SS-T) also exceeded both the RBC for protection of groundwater and the regional metals background concentration; however, as lead was not detected in any of the groundwater samples collected as a portion of this study, soils with lead above the this RBC do not appear to be affecting groundwater quality.

Table 5-1 presents the frequency of exceedance of regulatory cleanup standards in TBA samples.

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6 Site Summary and Conclusions

The WSPCM site is located in Port Orford, Curry County, Oregon. Port Orford is a coastal town situated on the Pacific Ocean in Curry County, a rural area of southwest Oregon. The town, and the site itself, are relatively remote, situated approximately170 miles and more than 3 hours driving distance from Eugene, Oregon. The WSPCM site as defined for this project includes five separate tax lots that together comprise 28.17 acres of land. The site is a former plywood manufacturing facility, with the now-demolished, historic mill building occupying portions of four of the five lots making up the site. Various mill-related improvements, including wigwam burners, boilers, offices, storage buildings, a fire suppression pond, a log storage pond, and log storage areas occupied the balance of the mill property.

Bagley Creek traverses the site in a generally north to south direction, flowing onto the site through a culverted channel from the hillsides to the south. After crossing the site, in its natural state Bagley Creek had discharged directly to the Elk River. While the site operated as a plywood mill, Bagley Creek was used as a water source for the mill’s log and fire suppression ponds. The majority of the diking and dams associated with the ponds remain; however, a narrow opening was more recently excavated through the former log pond’s northern earthen dam to allow the waters to flow from the former log pond to the Elk River.

Given the past operations at the site, as well as the results of recent environmental testing, potential contamination sources at the site included industrial machinery and vehicles operated onsite, leaks or spills from oil-filled transformers or of maintenance shop-related materials stored in containers, and possible releases of wood treatment chemicals such as PCP. Potential contaminants associated with such past operations were identified as including metals (including mercury), TPH-Dx, TPH-Gx, SVOCs (including PCP and PAHs), PCBs, the petroleum-associated BTEX products, formaldehyde, and dioxins/furans.

Ultimately, stakeholders envision restoring Bagley Creek to its previous orientation, reestablishing wetlands and other aquatic habitat to creek-adjacent land and reconnecting the mouth of Bagley Creek to its upland habitat. The potential presence of contamination in onsite media as a result of historic mill operations present a hindrance in reaching these objectives. The WSCPM TBA was implemented to better understand the location, magnitude, and extent of such contamination on the site. Data generated by this study would then be used by stakeholders as plans are developed for reuse, with an eye to mitigating impacts to aquatic habitat from contamination that may be present, whether through incorporation of remedial activities into reclamation efforts, or designing creek/habitat restoration in a manner that avoids areas with highest contaminant concentrations.

During the TBA field sampling event conducted in September 2020, a total of 52 subsurface samples were collected from 15 borings, and 17 test pit excavations, 19 groundwater samples were collected from seventeen temporary wells and two permanent wells, 10 ISM surface soil samples were collected, nine surface sediment samples were collected, and four surface water samples were collected.

6.1 Recognized Environmental Condition Findings

Analytical results indicate the presence of dioxins/furans, as reflected in their calculated TEQ value, in soils and sediment across much of the area of the site sampled for these constituents. The highest dioxin/furan contaminant concentrations were identified in the sediments collected from the northern end of the former log pond, followed by TEQ values in the surface soil DU adjacent to the northeast corner of this pond, and then surface soils at and adjacent to the southern wigwam burner. For subsurface soils, other than several of the highest TEQ values being detected in soils near the historic mill structures, a concentration gradient was not apparent. Areas where higher TEQ values were encountered do not appear to correlate with locations where evidence of dumping or disposal was observed during field screening.

Gasoline range petroleum products were also identified in soil (OP01TP02) and groundwater (OP01GW) near the northwest corner of Tax Lot 902. Given these data, there is a possibility that USTs were historically located in this area. The full extent of these impacts is not currently known; however, in its current state, exposure to these contaminated media appears unlikely. Other organic constituents were also sporadically detected in samples collected from the site; however, these organic constituents appear to represent isolated hotspots and further characterization does not currently appear warranted.

Multiple metals were also detected in surface and subsurface soils at concentrations above one or more RBC. However, in almost every case these metals were present at concentrations that were within the expected background concentration for the area, and hence remediation based on their presence alone would likely not be warranted.

Mindful of the end use for the site, data gathered during this study was also reviewed in the context of the potential for adverse effects to terrestrial, aquatic, and other ecological receptors. To this end, a Level 1 ERA was conducted and is attached as Appendix E of this report. Referring to that document, conclusions regarding the extent of contamination on the site are generally similar to those summarized above that use human health-based RBCs. The principal difference for ecological receptors is that in many cases, RBCs for soil contamination are lower, with that being the case for dioxins/furans in particular. As a consequence, more of the soils in which contamination was found may present a risk of adverse health effects to ecological receptors.

Finally, based on the findings of this study, depending on the full scope excavation undertaken at the site, disposal of general construction debris may be required to facilitate restoration activities at the site. This would include materials such as the buried concrete slab at the surface and buried on Tax Lot 901, as well as what appears to be buried metal piping located on this lot and Tax Lot 104. Materials where slag/clinkers were observed, such as in the area of the southern wigwam burner, along the northern former log pond dike, or on the northeast corner of Tax Lot 902, may requirement management and disposal based on other non-chemical factors.

For areas where inorganic and organic contaminants were encountered in subsurface soils, given the depth at which some of these contaminants were encountered, it may be worth considering options for in-place management of contamination.

6.2 Follow-on Study Options

As a next step, the following additional characterization efforts would likely be warranted:

- Additional ISM sampling of surface soils along the northeast, northwest, and eastern sides of the former log pond to better understand the extent of dioxins/furans impacted soils in this area.
- If the northern former log pond dike is to be excavated and removed in conjunction with restoration efforts, further sampling and testing along the northern margins of the former log pond dike, especially in areas closer to scarp face on the north side of that feature where dioxin/furan TEQ were encountered at depth. While this area does appear to generally correspond to a naturally deposited alluvial valley feature, based on the dioxin/furan detections at depth in test pits excavated in this area (SL24TP, SL25TP) and the presence of some slag and other burn deposits, site operators may have disposed of burner ash over the edge of this area. Depending on the level lateral resolution required, additional sediment sampling may also be warranted to more completely understand the extent of dioxin/furan impacts in sediments. In either case, such sampling should be guided by restoration goals, targeting those areas where contact may be possible in both the current and proposed future states of development;
- Conducting further Level II and/or Level III ERA as outlined in the Oregon DEQ's 2020 Conducting Ecological Risk Assessment document to better understand the exposure risk using site specific inputs, and the related potential for adverse effects to ecological exposure risks to receptors present or potentially present at the site. Anticipating that proposed habitat restoration may reintroduce the Elk River Coho salmon, a federally listed threatened species, to Bagley Creek and the subject site, future ERA efforts should also consider threatened and endangered species related exposures.

Finally, at such time as Tax Lot 903 is fully in the control of site stakeholders, implementing the sampling and testing proposed for that lot but not completed as a part of this TBA is recommended.

7

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Figures

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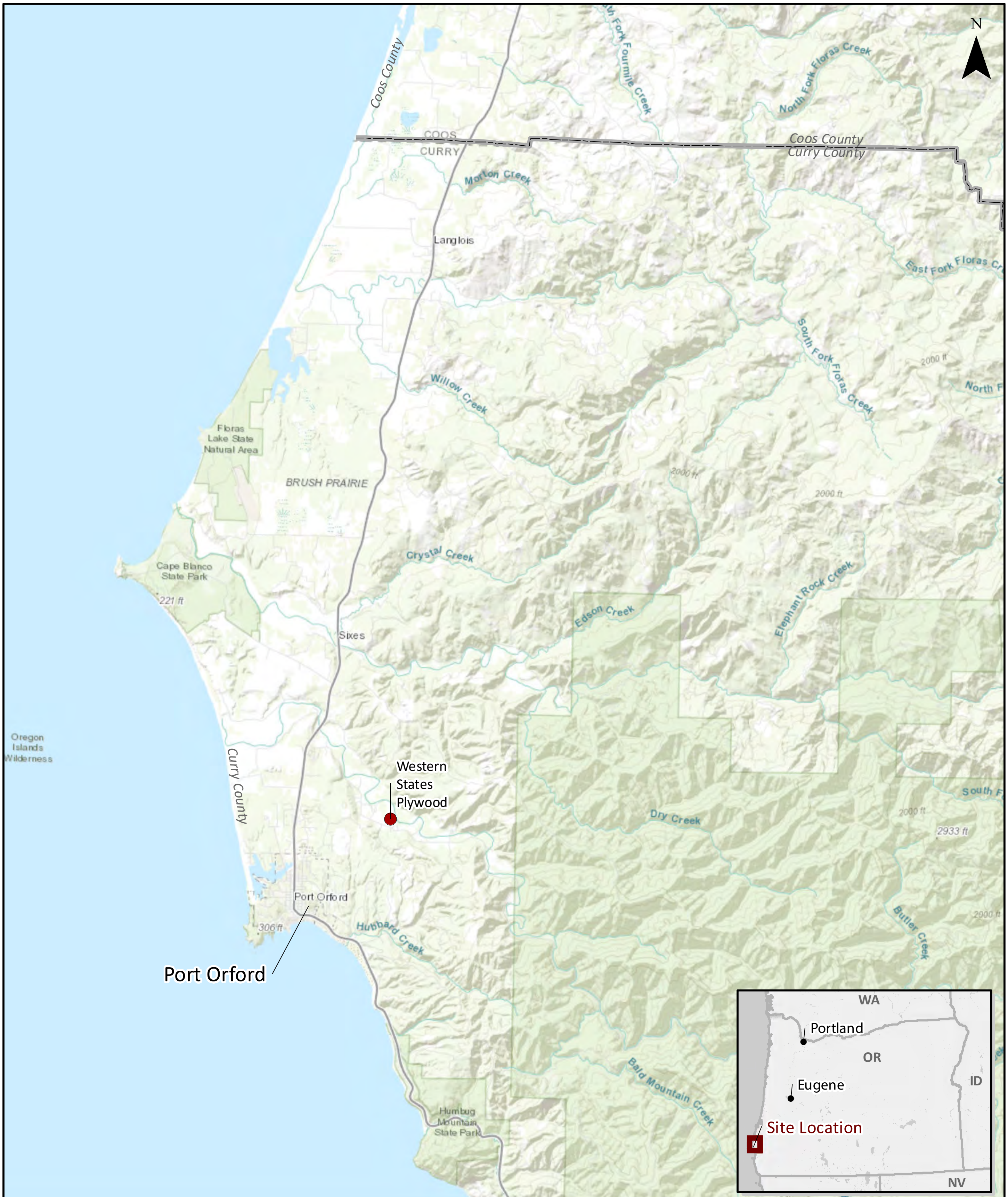

Former Western States Plywood Cooperative Mill
Port Orford, Oregon

0 0.5 1 2 3 4
Miles

Figure 2-1
Site Location Map

12/22/2020

wsp

Former Western States Plywood Cooperative Mill
Port Orford, Oregon

0 50 100 200 300 400
Feet

Sources: Esri 2020

Figure 2-2
Site Layout Map

12/22/2020

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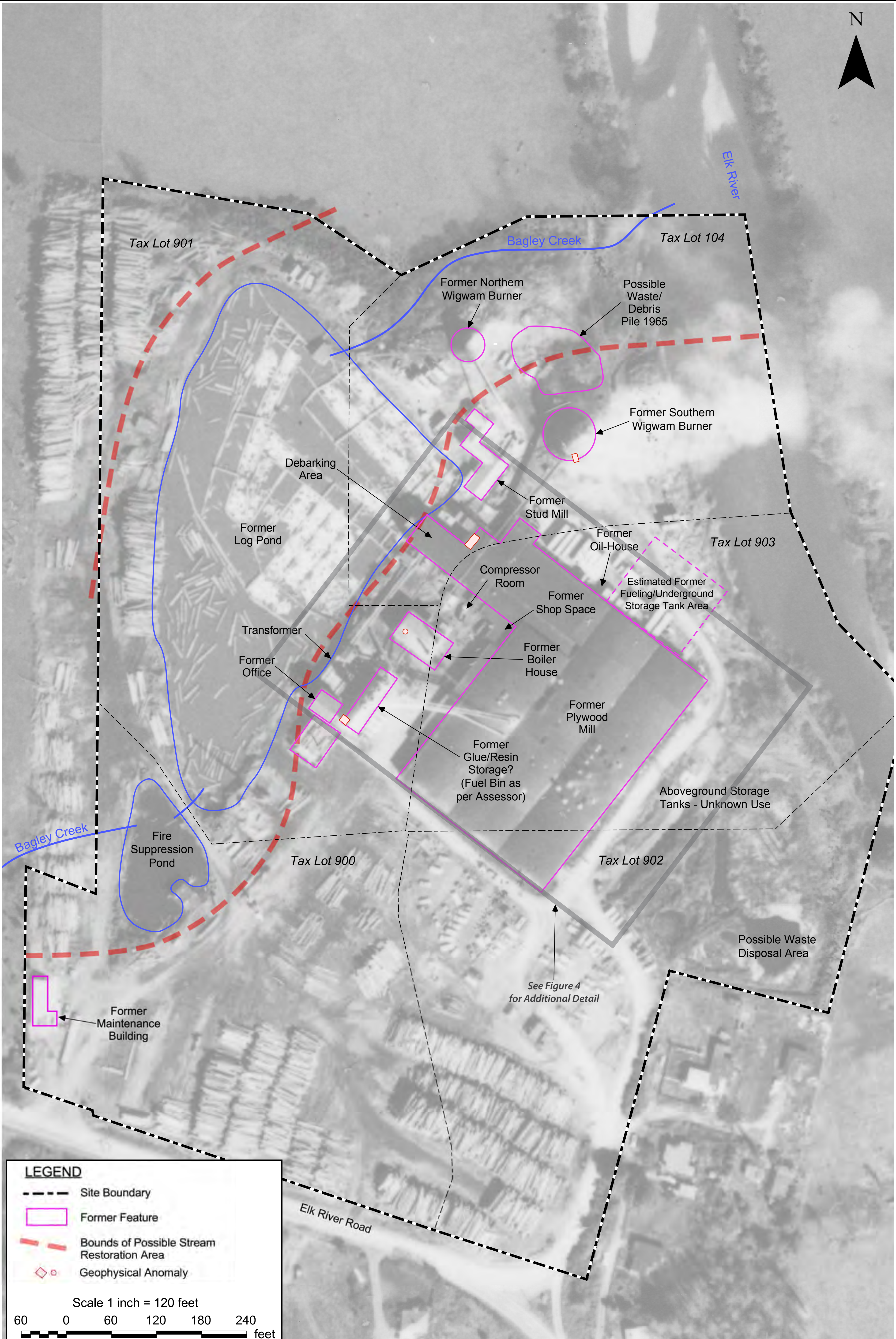
1004530.0380.013.01



Former Western States Plywood Cooperative Mill
Port Orford, Oregon

Source: HAI 2019

Figure 2-3
Site Layout Map
Historic Aerial (1970)
12/22/2020

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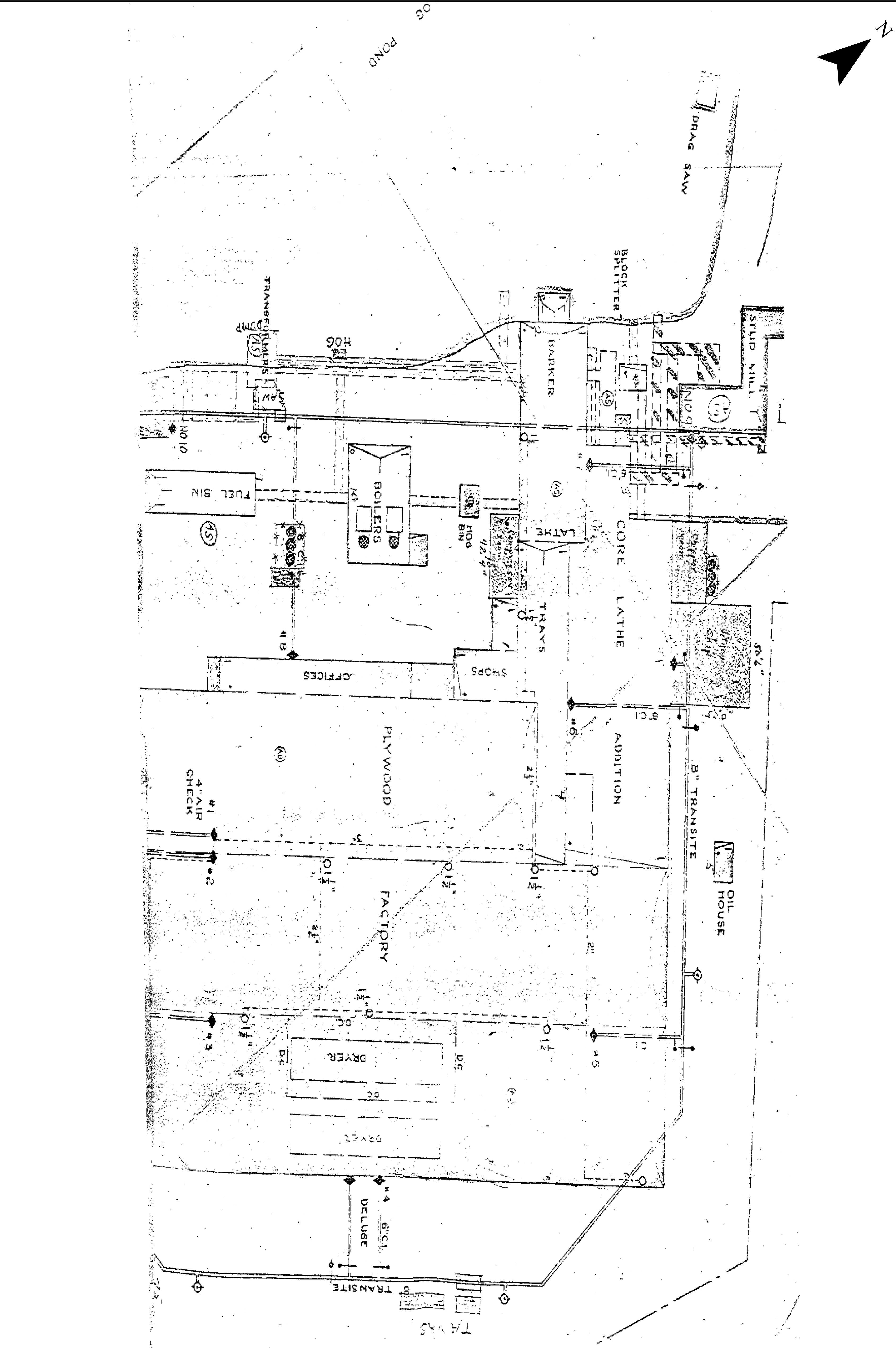

Former Western States Plywood Cooperative Mill
Port Orford, Oregon

0 25 50 100 150 200
Feet

Figure 2-4
Historic Site Plan (Assessor)

12/22/2020

Source: Curry County Assessor

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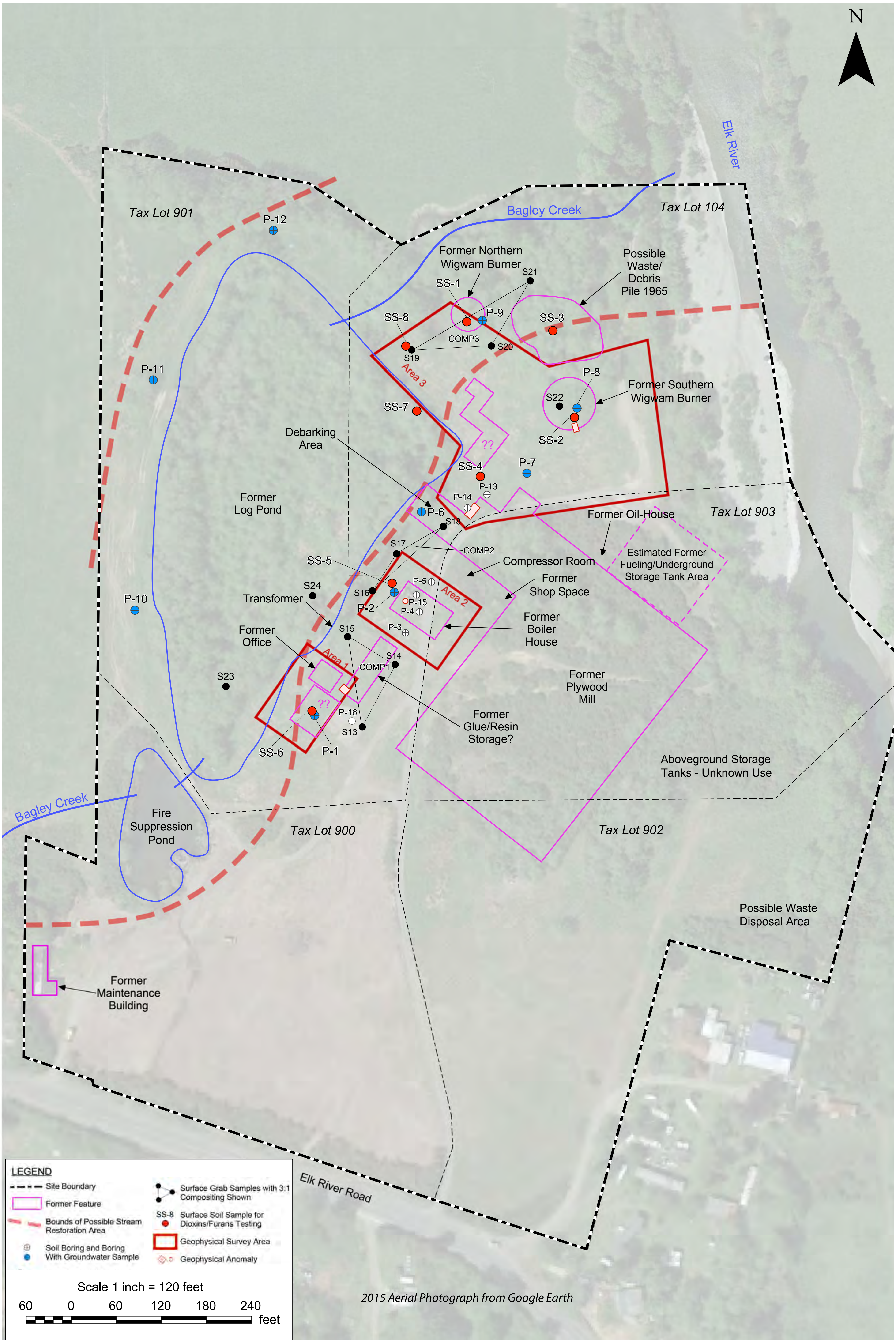
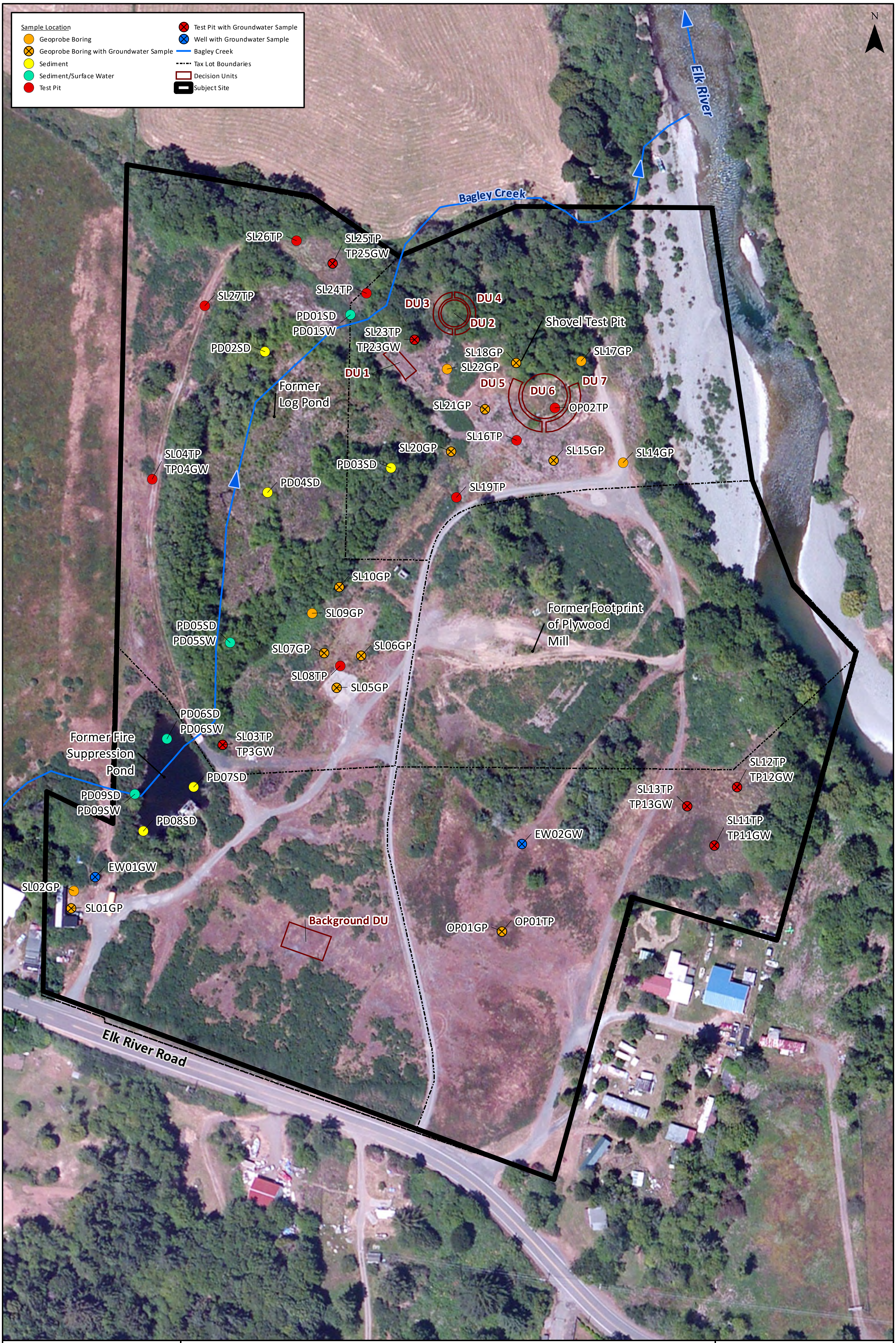
1004530.0380.013.01



Former Western States Plywood Cooperative Mill
Port Orford, Oregon

Source: HAI 2019

Figure 2-5
Previous Sampling Locations (HAI-2018)
12/22/2020



Former Western States Plywood Cooperative Mill
Port Orford, Oregon

0 50 100 200 300 400
Feet

Sources: Esri 2020

Figure 4-1
Sample Locations

12/22/2020

wsp

Former Western States Plywood Cooperative Mill
Port Orford, Oregon

0 50 100 200 300 400
Feet

Figure 4-2
Geophysical Survey

12/22/2020

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Former Western States Plywood Cooperative Mill
Port Orford, Oregon

0 50 100 200 300 400
Feet

Sources: Esri 2020, Map Overlay-Curry County Assessor 2020

Figure 4-3
Geophysical Survey Data (Historic Site Plan Overlay)

12/22/2020

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Tables

Table 4-1 Oregon Risk-Based Concentrations, Screening Level Values, and Analytical Detection Limits

Analyte	CAS #	Soil/Sediment								Water µg/L				
		Quantitation Limits by Method		Residential (RBC)		Clean Fill	Ecological (SLV)			Quantitation Limits by Method		Residential (RBC)	Ecological	
				DC	Leaching to GW		Soil*		Sediment (Freshwater)			IIT (GW)	Surface Water*	
Metals		ICP-AES (mg/kg)	ICP-MS (mg/kg)	(mg/kg)						ICP-AES (µg/L)	ICP-MS (µg/L)	(µg/L)		
Aluminum	7429-90-5	20	--	--	--	--	--		--	200	20	--	87	a
Antimony	7440-36-0	6	1	--	--	--	2.7	m	3	60	2	--	1000	m
Arsenic	7440-38-2	1	0.5	0.43	--	10	6.8	i	6	10	1	0.052	150	a
Barium	7440-39-3	20	5	1.5E+04	--	--	110	p	--	200	10	4000	4	a
Beryllium and compounds	7440-41-7	0.5	0.5	160	--	--	2.5	p	--	5	1	40	5.3	a
Cadmium (Diet)	7440-43-9	0.5	0.5	78	--	--	1.6	b	0.6	5	1	20	2.2	a
Calcium	7440-70-2	500	--	--	--	--	--		--	5000	500	--	1.2E+05	a
Chromium, Total	7440-47-3	1	1	1.2E+05	--	--	73	b	37	10	2	30000	11	a
Cobalt	7440-48-4	5	0.5	--	--	--	13	p	--	50	1	--	23	a
Copper	7440-50-8	2.5	1	3100	--	--	43	b	36	25	2	800	9	a
Iron	7439-89-6	10	--	--	--	--	--		--	100	200	--	1000	a
Lead and Compounds	7439-92-1	1	0.5	400	30	--	23	b	35	10	1	15	2.5	a
Magnesium	7439-95-4	500	--	--	--	--	--		--	5000	500	--	8.2E+04	a
Manganese	7439-96-5	1.5	0.5	--	--	--	220	p	1100	15	1	480	120	a
Mercury, Inorganic Salts	7487-94-7	0.1	0.1	--	--	23	0.05	i	--	0.2	0.2	--	--	
Nickel Soluble Salts	7440-02-0	4	0.5	--	--	--	21	m	18	40	1	--	52	a
Potassium	9/7/7440	500	--	--	--	--	--		--	5000	500	--	5.3E+04	a
Selenium	7782-49-2	3.5	2.5	--	--	--	0.52	p	--	35	5	--	5	a
Silver	7440-22-4	1	0.5	390	--	--	26	b	--	10	1	100	0.12	a
Sodium	7440-43-5	500	--	--	--	--	--		--	5000	500	--	6.8E+05	a
Thallium (Soluble Salts)	7440-28-0	2.5	0.5	--	--	0.78	--		--	25	1	--	40	a
Vanadium, Metallic	7440-62-2	5	2.5	--	--	--	9.5	b	--	50	5	--	20	a
Zinc (Metallic)	7440-66-6	6	1	--	--	--	120	b,i	123	60	2	--	120	a
SVOCs		CLP Low (µg/kg)	CLP SIM (µg/kg)	(µg/kg)						CLP Low (µg/L)	CLP SIM (µg/L)	(µg/L)		
1,1'-Biphenyl	92-52-4	170	--	--	--	520	--		--	5	--	--	14	a
1,2,4,5-Tetrachlorobenzene	95-94-3	170	--	--	--	470	--		--	5	--	--	--	
1,4-Dioxane	123-91-1	67	--	5400	2.3	2.3	3.6E+03	m	--	2	--	0.46	4.0E+03	m
2,2'-Oxybis(1-chloropropane)	108-60-1	330	--	--	--	16000	--		--	10	--	--	--	
2,3,4,6-Tetrachlorophenol	58-90-2	170	--	--	--	11000	--		--	5	--	--	--	
2-Chloronaphthalene	91-58-7	170	--	--	--	230000	--		--	5	--	--	32	a
2-Nitrophenol	88-75-5	170	--	--	--	--	--		--	5	--	--	--	
3-Methylphenol	108-39-4	na	--	--	--	690	6.9E+02	p,i	--	5	--	--	--	
3-Nitroaniline	99-09-2	330	--	--	--	70000	--		--	10	--	--	--	
4-Bromophenyl-phenyl ether	101-55-3	170	--	--	--	--	--		--	5	--	--	1.5	a
4-Chlorophenyl-phenyl ether	7005-72-3	170	--	--	--	--	--		--	5	--	--	--	
4-Nitrophenol	100-02-7	330	--	--	--	7000	--		--	10	--	--	--	
Acenaphthene	83-32-9	170	3.3	4.7E+06	--	--	2.5E+02	p	290	5	0.1	510	520	a
Acenaphthylene	208-96-8	170	3.3	--	--	--	1200000	m	--	5	0.1	--	--	
Acetophenone	98-86-2	330	--	--	--	--	--		--	10	--	--	--	

Table 4-1 Oregon Risk-Based Concentrations, Screening Level Values, and Analytical Detection Limits

Analyte	CAS #	Soil/Sediment: Quantitation Limits by Method		Soil/Sediment: Residential (RBC) DC	Soil/Sediment: Residential (RBC) Leaching to GW	Soil/Sediment: Clean Fill	Soil/Sediment: Ecological (SLV) Soil*		Soil/Sediment: Ecological (SLV) Sediment (Freshwater)	Water μg/L: Quantitation Limits by Method		Water μg/L: Residential (RBC) IIT (GW)	Water μg/L: Ecological Surface Water*	
Anthracene	120-12-7	170	3.3	2.3E+07	--	--	6800	p	57	5	0.1	--	13	a
Atrazine	1912-24-9	330	--	--	--	12	--		--	10	--	--	--	
Benz[a]anthracene	56-55-3	170	3.3	1100	1600	730	7300	b	32	5	0.1	0.03	0.027	a
Benzaldehyde	100-52-7	330	--	--	--	250	--		--	10	--	--	--	
Benzo(g,h,i)perylene	191-24-2	170	3.3	--	--	25000	250000	m	--	5	0.1	--	--	
Benzo[a]pyrene	50-32-8	170	3.3	110	4400	110	1.9E+05	m	32	5	0.1	0.0025	0.014	a
Benzo[b]fluoranthene	205-99-2	170	3.3	1100	6200	1100	1.8E+04	p	--	5	0.1	0.25	--	
Benzo[k]fluoranthene	207-08-9	170	3.3	1.1E+04	--	11000	--		27	5	0.1	--	--	
Bis(2-chloroethoxy)methane	111-91-1	170	--	--	--	780	--		--	5	--	--	--	
Bis(2-chloroethyl)ether	111-44-4	330	--	--	--	0.19	--		--	10	--	--	--	
Bis(2-ethylhexyl)phthalate	117-81-7	170	--	3.9E+04	--	20	200	b	750	5	--	5.6	3	a
Butyl Benzyl Phthalate	85-68-7	170	--	--	--	14000	9.0E+05	m	--	5	--	--	19	a
Caprolactam	105-60-2	330	--	--	--	150000	--		0	10	--	--	--	
Carbazole	86-74-8	330	--	--	--	79000	7.9E+05	m	140	10	--	--	--	
Chloroaniline, p-	106-47-8	330	--	--	--	9.6	1.0E+03	p	--	10	--	--	--	
Chlorophenol, 2-	95-57-8	170	--	--	--	390	3.9E+03	b	--	5	--	--	2000	a
Chrysene	218-01-9	170	3.3	1.1E+05	--	3100	31000	m	57	5	0.1	--	--	
Cresol, o-	95-48-7	330	--	--	--	670	670	p,i	--	10	--	--	--	
Cresol, p-	106-44-5	330	--	--	--	90000	--		--	10	--	--	--	
Cresol, p-chloro-m-	59-50-7	170	--	--	--	100000	--		--	5	--	--	--	
Dibenz[a,h]anthracene	53-70-3	170	3.3	110	2000	110	140000	m	33	5	0.1	0.025	--	
Dibenzofuran	132-64-9	170	--	--	--	2	6100	p,i	5100	5	--	--	3.7	a
Dibutyl Phthalate	84-74-2	170	--	--	--	11	110	b	110	5	--	--	35	a
Dichlorobenzidine, 3,3'-	91-94-1	330	--	1200	170	170	--		--	10	--	0.17	--	
Dichlorophenol, 2,4-	120-83-2	170	--	--	--	1400	--		--	5	--	--	3650	a
Diethyl Phthalate	84-66-2	170	--	--	--	100000	1.0E+05	p,i	--	5	--	--	--	
Dimethylphenol, 2,4-	105-67-9	170	--	--	--	20000	--		--	5	--	--	42	a
Dimethylphthalate	131-11-3	170	--	--	--	10000	1.0E+04	i	--	5	--	--	3	a
Dinitro-o-cresol, 4,6-	534-52-1	330	--	--	--	160	--		--	10	--	--	--	
Dinitrophenol, 2,4-	51-28-5	330	--	--	--	2600	--		--	10	--	--	--	
Dinitrotoluene, 2,4-	121-14-2	170	--	--	--	19	--		--	5	--	--	230	a
Dinitrotoluene, 2,6-	606-20-2	170	--	360	8.9	8.9	--		--	5	--	0.049	230	a
Di-n-octyl phthalate	117-84-0	330	--	--	--	910	4.6E+03	m	--	10	--	--	708	a
Fluoranthene	206-44-0	330	3.3	2.4E+06	--	10000	1.0E+04	i	111	10	0.1	--	6.16	a
Fluorene	86-73-7	170	3.3	3.1E+06	--	3700	3.7E+03	i	77	5	0.1	280	3.9	a
Hexachlorobenzene	118-74-1	170	--	210	18	18	7.9E+02	n	100	5	--	0.0098	--	
Hexachlorobutadiene	87-68-3	170	--	--	--	16	--		--	5	--	--	9.3	a
Hexachlorocyclopentadiene	77-47-4	330	--	--	--	78	--		--	10	--	--	5.2	a
Hexachloroethane	67-72-1	170	--	7400	22	22	--		--	5	--	0.34	5.2	a
Indeno[1,2,3-cd]pyrene	193-39-5	170	3.3	1100	--	1100	7.1E+05	m	17	5	0.1	--	--	
Isophorone	78-59-1	170	--	--	--	1600	--		--	5	--	--	--	
Methylnaphthalene, 2-	91-57-6	170	3.3	--	--	11000	1.6E+05	m	--	5	0.1	--	--	

Table 4-1 Oregon Risk-Based Concentrations, Screening Level Values, and Analytical Detection Limits

Analyte	CAS #	Soil/Sediment								Water µg/L				
		Quantitation Limits by Method		Residential (RBC)		Clean Fill	Ecological (SLV)			Quantitation Limits by Method		Residential (RBC)	Ecological	
				DC	Leaching to GW		Soil*		Sediment (Freshwater)			IIT (GW)	Surface Water*	
Naphthalene	91-20-3	170	3.3	5300	77	77	1.0E+03	p	176	5	0.1	0.17	620	a
Nitroaniline, 2-	88-74-4	170	--	--	--	4800	1.0E+04	m	--	5	--	--	--	
Nitroaniline, 4-	100-01-6	330	--	--	--	96	--		--	10	--	--	--	
Nitrobenzene	98-95-3	170	--	--	--	5.5	2200	i	--	5	--	--	540	a
Nitroso-di-N-propylamine, N-	621-64-7	170	--	--	--	0.94	--		--	5	--	0.011	117	a
Nitrosodiphenylamine, N-	86-30-6	170	--	1.1E+05	1.00E+04	1.00E+04	--		--	5	--	13	210	a
Pentachlorophenol	87-86-5	330	6.7	1000	66	66	3600	b	--	10	0.2	0.044	15	a
Phenanthrene	85-01-8	170	3.3	--	--	5500	5.5E+03	i	42	5	0.1	--	6.3	a
Phenol	108-95-2	330	--	--	--	790	7.9E+02	p	48	10	--	--	110	a
Pyrene	129-00-0	170	3.3	1.8E+06	--	10000	1.0E+04	i	53	5	0.1	110	--	
Trichlorophenol, 2,4,5-	95-95-4	170	--	--	--	4000	--		--	5	--	--	--	
Trichlorophenol, 2,4,6-	88-06-2	170	--	4.9E+04	2400	2400	--		--	5	--	4.4	970	a
VOCs		**CLP Low (µg/kg)**	**--**	**(µg/kg)**						**CLP Low (µg/L)**	**CLP Trace (µg/L)**	**(µg/L)**		
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	5	--	4.0E+08	--	1600000	--		--	5	0.5	55000	--	
1,3-Dichlorobenzene	541-73-1	5	--	--	--	--	7.4E+03	m	--	5	0.5	--	71	a
Acetone	67-64-1	10	--	--	--	--	6.3E+03	m	--	10	5	--	1500	a
Benzene	71-43-2	5	--	8200	23	--	2.4E+05	m	--	5	0.5	0.46	130	a
Bromochloromethane	74-97-5	5	--	--	--	--	--		--	5	0.5	--	--	
Bromodichloromethane	75-27-4	5	--	3400	2	--	--		--	5	0.5	0.13	--	
Bromoform	75-25-2	5	--	5.7E+04	46	--	--		--	5	0.5	3.3	--	
Bromomethane	74-83-9	5	--	4.6E+04	93	--	--		--	5	0.5	7.5	--	
Carbon Disulfide	75-15-0	5	--	--	--	810	8.1E+03	m	--	5	0.5	--	0.92	a
Carbon Tetrachloride	56-23-5	5	--	7500	13	13	9.8E+03	m	--	5	0.5	0.46	74	a
Chlorobenzene	108-90-7	5	--	5.3E+05	5800	2400	2.4E+03	i	--	5	0.5	77	50	a
Chloroethane	75-00-3	5	--	1.6E+08	3.10E+05	3.10E+05	--		--	5	0.5	21000	--	
Chloroform	67-66-3	5	--	5800	3.4	3.4	2.1E+04	m	--	5	0.5	0.22	1240	a
Chloromethane	74-87-3	5	--	1.4E+06	2200	2200	--		--	5	0.5	190	--	
cis-1,3-Dichloropropene	10061-01-5	5	--	--	--	--	--		--	5	0.5	--	--	
Cyclohexane	110-82-7	5	--	--	--	780000	--		--	5	0.5	--	--	
Dibromo-3-chloropropane, 1,2-	96-12-8	5	--	--	--	0.008	--		--	5	0.5	--	--	
Dibromochloromethane	124-48-1	5	--	3700	2.4	2.4	--		--	5	0.5	0.17	--	
Dibromoethane, 1,2-	106-93-4	5	--	160	0.12	0.12	--		--	5	0.5	0.0075	--	
Dichlorobenzene, 1,2-	95-50-1	5	--	2.2E+06	4.30E+04	9.20E+02	9.2E+03	m	--	5	0.5	300	14	a
Dichlorobenzene, 1,4-	106-46-7	5	--	1.4E+04	57	57	1.2E+03	i	--	5	0.5	0.48	15	a
Dichlorodifluoromethane	75-71-8	5	--	--	--	18000	--		--	5	0.5	--	--	
Dichloroethane, 1,1-	75-34-3	5	--	5.8E+04	44	44	2.1E+06	m	--	5	0.5	280	47	a
Dichloroethane, 1,2-	107-06-2	5	--	3600	2.8	2.8	1.6E+03	b	--	5	0.5	0.17	2.0E+04	a
Dichloroethylene, 1,1-	75-35-4	5	--	--	--	6700	6.0E+04	m	--	5	0.5	--	25	a
Dichloroethylene, 1,2-cis-	156-59-2	5	--	1.6E+05	630	630	--		--	5	0.5	36	590	a
Dichloroethylene, 1,2-trans-	156-60-5	5	--	1.6E+06	7000	7000	--		--	5	0.5	360	590	a
Dichloropropane, 1,2-	78-87-5	5	--	--	--	17	--		--	5	0.5	--	5700	a

Table 4-1 Oregon Risk-Based Concentrations, Screening Level Values, and Analytical Detection Limits

Analyte	CAS #	Soil/Sediment								Water µg/L				
		Quantitation Limits by Method		Residential (RBC)		Clean Fill	Ecological (SLV)			Quantitation Limits by Method		Residential (RBC)	Ecological	
				DC	Leaching to GW		Soil*		Sediment (Freshwater)			IIT (GW)	Surface Water*	
Ethylbenzene	100-41-4	5	--	3.4E+04	220	220	--		--	5	0.5	1.5	7.3	a
Hexanone, 2-	591-78-6	10	--	--	--	360	3.6E+03	p	--	10	5	--	99	a
Isopropylbenzene	98-82-8	5	--	3.5E+06	9.60E+04	9.60E+04	--		--	5	0.5	440	--	
Methyl Acetate	79-20-9	5	--	--	--	250000	--		--	5	0.5	--	--	
Methyl Ethyl Ketone (2-Butanone)	78-93-3	10	--	--	--	72000	9.2E+05	m	--	10	5	--	1.4E+07	m
Methyl Isobutyl Ketone	108-10-1	10	--	--	--	9700	9.7E+04	m	--	10	5	--	--	
Methyl tert-Butyl Ether (MTBE)	1634-04-4	5	--	2.5E+05	110	110	--		--	5	0.5	14	--	
Methylcyclohexane	108-87-2	5	--	--	--	--	--		--	5	0.5	--	--	
Methylene Chloride	75-09-2	5	--	7.6E+04	140	140	2.2E+04	m	--	5	0.5	11	2200	a
Styrene	100-42-5	5	--	7.9E+06	1.70E+05	1.20E+03	1.2E+03	i	--	5	0.5	1200	--	
Tetrachloroethane, 1,1,2,2-	79-34-5	5	--	--	--	1.8	--		--	5	0.5	--	2400	a
Tetrachloroethylene	127-18-4	5	--	2.2E+05	460	180	9.4E+02	m	--	5	0.5	12	840	a
Toluene	108-88-3	5	--	5.8E+06	8.40E+04	2.30E+04	2.0E+05	p	--	5	0.5	1100	9.8	a
trans-1,3-Dichloropropene	10061-02-6	5	--	--	--	--	--		--	5	0.5	--	--	
Trichlorobenzene, 1,2,3-	87-61-6	5	--	--	--	1300	--		--	5	0.5	--	--	
Trichlorobenzene, 1,2,4-	120-82-1	5	--	--	--	200	1.2E+03	i	--	5	0.5	--	--	
Trichloroethane, 1,1,1-	71-55-6	5	--	5.3E+07	2.10E+05	1.90E+05	1.3E+06	m	--	5	0.5	8000	11	a
Trichloroethane, 1,1,2-	79-00-5	5	--	3200	6.3	6.3	--		--	5	0.5	0.28	9400	a
Trichloroethylene	79-01-6	5	--	6700	13	13	4.2E+05	m	--	5	0.5	0.49	3000	m
Trichlorofluoromethane	75-69-4	5	--	7.6E+06	6.10E+04	5.20E+04	3.5E+05	m	--	5	0.5	1100	--	
Vinyl Chloride	75-01-4	5	--	360	0.57	0.57	1.2E+03	m	--	5	0.5	0.027	1300	m
Xylene, m,p-	179601-23-1	5	--	--	--	--	--		--	5	0.5	--	--	
Xylene, o-	95-47-6	5	--	--	--	1000	--		--	5	0.5	--	--	
PCBs		**CLP - Low (µg/kg)**	**--**	**(µg/kg)**						**CLP - Low (µg/L)**	**--**	**(µg/L)**		
Aroclor 1016	12674-11-2	33	--	230	240	1100	--		--	1	--	--	--	
Aroclor 1221	11104-28-2	33	--	230	240	5	--		--	1	--	--	0.28	a
Aroclor 1232	11141-16-5	33	--	230	240	5	--		--	1	--	--	0.58	a
Aroclor 1242	53469-21-9	33	--	230	240	41	--		--	1	--	--	0.053	a
Aroclor 1248	12672-29-6	33	--	230	240	7	--		21	1	--	--	0.081	a
Aroclor 1254	11097-69-1	33	--	230	240	41	--		7	1	--	--	0.033	a
Aroclor 1260	11096-82-5	33	--	230	240	240	--		--	1	--	--	94	a
Aroclor 1262	37324-23-5	33	--	230	240	--	--		--	1	--	--	--	
Aroclor 1268	11100-14-4	33	--	230	240	--	--		--	1	--	--	--	
Total PCBs	1336-36-3	33	--	230	240	--	0.73		--	1	--	0.006	0.014	a
Dioxins		**CLP - HRMS (µg/kg)**	**--**	**(µg/kg)**						**CLP - HRMS (µg/L)**		**(µg/L)**		
2,3,7,8-TCDD (dioxin equivalents)	1746-01-6	0.001	--	0.0047	0.0068	0.00029	0.00025	m	0.009	0.00001	--	0.000000091	0.0076	m
1,2,3,7,8-PeCDD	40321-76-4	0.005	--	--	--	--	0.00028	m	--	0.00005	--	--	--	
1,2,3,4,7,8-HxCDD	39227-28-6	0.005	--	--	--	--	0.0012	m	--	0.00005	--	--	--	
1,2,3,6,7,8-HxCDD	57653-85-7	0.005	--	--	--	--	0.00089	m	--	0.00005	--	--	--	
1,2,3,7,8,9-HxCDD	19408-74-3	0.005	--	--	--	--	0.00089	m	--	0.00005	--	--	--	

Table 4-1 Oregon Risk-Based Concentrations, Screening Level Values, and Analytical Detection Limits

Analyte	CAS #	Soil/Sediment							Water µg/L			
		Quantitation Limits by Method		Residential (RBC)		Clean Fill	Ecological (SLV)		Quantitation Limits by Method		Residential (RBC)	Ecological
				DC	Leaching to GW		Soil*	Sediment (Freshwater)			IIT (GW)	Surface Water*
1,2,3,4,6,7,8-HpCDD	35822-46-9	0.005	--	--	--	--	0.007 [m]	--	0.00005	--	--	--
OCDD	3268-87-9	0.01	--	--	--	--	0.3 [m]	--	0.0001	--	--	--
2,3,7,8-TCDF	51207-31-9	0.001	--	--	--	--	0.003 [m]	--	0.00001	--	--	--
1,2,3,7,8-PeCDF	57117-41-6	0.005	--	--	--	--	0.0065 [m]	--	0.00005	--	--	--
2,3,4,7,8-PeCDF	57117-31-4	0.005	--	--	--	--	0.00065 [m]	--	0.00005	--	--	--
1,2,3,4,7,8-HxCDF	70648-26-9	0.005	--	--	--	--	0.0011 [m]	--	0.00005	--	--	--
1,2,3,6,7,8-HxCDF	57117-44-9	0.005	--	--	--	--	0.0011 [m]	--	0.00005	--	--	--
1,2,3,7,8,9-HxCDF	72918-21-9	0.005	--	--	--	--	0.0014 [m]	--	0.00005	--	--	--
2,3,4,6,7,8-HxCDF	60851-34-5	0.005	--	--	--	--	0.0011 [m]	--	0.00005	--	--	--
1,2,3,4,6,7,8-HpCDF	67562-39-4	0.005	--	--	--	--	0.011 [m]	--	0.00005	--	--	--
1,2,3,4,7,8,9-HpCDF	55673-89-7	0.005	--	--	--	--	0.011 [m]	--	0.00005	--	--	--
OCDF	39001-02-0	0.01	--	--	--	--	0.22 [m]	--	0.0001	--	--	--
Formaldehyde		**SW846-556 (mg/kg)**	**--**	**(mg/kg)**					**SW846-556 (µg/L)**		**(µg/L)**	
Formaldehyde	50-00-0	0.1	--	15	0.002	0.002	19,000 [m]	--	2	--	0.43	184000 [m]
TPH		**NWTPH (mg/kg)**	**--**	**(mg/kg)**					**NWTPH (µg/L)**		**(µg/L)**	
Gasoline	GRO	10	--	--	--	31	120 [p,i]	--	250	--	--	--
Diesel	DRO	40	--	--	--	1,100	260 [p,i]	--	250	--	--	--
Lube/Fuel oil	DRO	100	--	--	--	1,100	260 [p,i]	--	500	--	--	--

Notes:

3.3 Yellow highlighting indicates MS, SIM, or Trace analysis requireed to meet regulatory screenign levels

0.002 Orange highlighting indicated that a modified analysis would be required to achieve reporting limits below regulatory screening levels

* = Value is the most restricitive Level II Screening Level Value for the given media. Letter to right of value is used to indicate associated receptor

[a] = Aquatic [i] = Invertebraes [p] = Plants

[b] = Birds [m] = Mammals

Key:

-- = No associated cleanup level or value.
µg/kg = micrograms per kilogram
µg/L = micrograms per liter
CAS = Chemical Abstracts Service
CLP = Contract Laboratory Program
DC = Direct Contact
GW = Groundwater
HPLC = High Performance Liquid Chromotography
HRMS = High Resolution Mass Spectometry
HpCDD = Heptachlorodibenzo-p-dioxin
HpCDF = Heptachlorodibenzo-furan
HxCDD = Hexachlorodibenzo-p-dioxin
HxCDF = Hexachlorodibenzo-furan
ICP-AES = Inductively coupled plasma atomic emission spectroscopy
ICP-MS = Inductively coupled plasma mass spectrometry
IIT = Ingestion and Inhalation from Tapwater
>Max = The constituent is deemed not to pose risks in this scenario due to solubility and vapor pressure limitations
mg/kg = milligrams per kilogram
NWTPH = Northwest Total Petroleum Hydrocarbon
OCDD = Octachlorodibenzodioxin
OCDF = Octachlorodibenzofuran
PeCDD = Pentachlorodibenzo-p-dioxin
PeCDF = Pentachlorodibenzo-furan
RBC = Risk Based Concentration
>S = The groundwater risk-based concentration exceeds the solubility limit.
SLV = Level II Screening Level Value
SVOCs = Semivolatile organic compounds
TPH = Total petroleum hydrocarbons
TCDD = Tetrachlorodibenzo-p-dioxin
TCDF = Tetrachlorodibenzo-furan
VI = Vapor Intrusion into Buildings
VOCs = Volatile organic compounds
VTO = Volatilization to Outdoor Air

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Table 4-2 Sample Analysis Summary

Sample Location ID	EPA Regional Tracking Number	CLP Sample Number	Sample Date	Sample Time	Sample Matrix	Sample Interval (bgs)	Sampler	Soil/Sediment								Water								ISM Soil		Description
								SVOCs-SIM & PCBs	SVOC-SIM	VOCs Low	TAL Metals AES & ICP w/Hg	Dioxins/Furans	TOC	NWTPH-Dx	NWTPH-Gx	PCBs	SVOCs - Trace + SIM	VOCs -Trace	TAL Metals AES & ICP w/Hg	Dioxins/Furans	Formaldehyde	NWTPH-Dx	NWTPH-Gx	ISM-TAL Metals Hg/SVOC-SIM/PCDD PCDF	ISM-TAL Metals Hg/SVOC-SIM/PCDD/TOC	
Former Maintenance Building																										
SL01GP01	20375600	JLTQ0	9/9/2020	9:58	Soil Subsurface	0 - 4 ft	B. Ciecko	--	X	X	X	--	--	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
SL01GW	20375677	JLTZ7	9/9/2020	12:32	GW (Total)	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	X	X	--	--	--	X	X	--	--	Groundwater sample from Geoprobe boring. See borehole log for information on depth to groundwater and screened interval.
	20375678	MJLTZ8	9/9/2020	12:32	GW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
SL02GP01	20375602	JLTQ2	9/9/2020	11:17	Soil Subsurface	0 - 4 ft	B. Ciecko	--	X	X	X	--	--	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
EW01GW	20385679	JLTZ9	9/14/2020	14:05	GW (Total)	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	X	X	--	--	X	X	X	--	--	Groundwater sample from supply well northeast of building
	20385680	MJLW00	9/14/2020	14:05	GW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
Log Pond Perimeter																										
SL03TP01	20375604	JLTQ4	9/9/2020	13:09	Soil Subsurface	1 - 2 ft	J. Leeson	--	X	--	X	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Test pit exploration. Materials went from dry poorly graded river rock and silt to a clayey poorly graded gravel with high moisture content at approximately 5 feet bgs.
SL03TP02	20375605	JLTQ5	9/9/2020	13:00	Soil Subsurface	5 - 6 ft	J. Leeson	--	X	--	X	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP3GW	20385681	JLW01	9/13/2020	9:19	GW (Total)	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	--	--	Groundwater sample collected adjacent to SL03TP using SP16 temporary well screen advanced by Geoprobe to water table. Screen set from 16 to 20 feet bgs.
	20385682	MJLW02	9/13/2020	9:19	GW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
SL04TP01	20375606	JLTQ6	9/10/2020	16:24	Soil Subsurface	1 - 2 ft	S. Wing	--	X	--	X	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Test pit exploration. Test pit reached 4 feet bgs, encountering a hard packed matrix of gravel and river rock, presenting difficulties for the excavator to dig down.
SL23TP01	20375644	JLTW4	9/10/2020	13:06	Soil Subsurface	2 -3 ft	J. Leeson	--	X	--	X	X	X	--	--	--	--	--	--	--	--	--	--	--	--	Test pit exploration. Material encountered was a relatively homogeneous clayey silt throughout with no obvious signs of human activity or fill and a more pronounced red color in the upper 2 feet of excavation.
SL23TP02	20375645	JLTW5	9/10/2020	12:59	Soil Subsurface	9 - 10 ft	S. Wing	--	X	--	X	X	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP23GW	20385715	JLW35	9/14/2020	10:35	GW (Total)	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	X	--	--	X	--	--	--	--	--	Groundwater sample collected adjacent to SL23TP using SP16 temporary well screen advanced by Geoprobe to water table. Screened set from 16 to 20 feet bgs.
	20385716	MJLW36	9/14/2020	10:35	GW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
SL24TP01	20375646	JLTW6	9/10/2020	14:15	Soil Subsurface	3 - 4 ft	S. Wing	--	X	--	X	X	--	--	--	--	--	--	--	--	--	--	--	--	--	Test pit exploration. Materials were a dark loamy soil with occasional cobbles. Industrial debris, wood, and burnt materials were found in small quantities throughout the profile. No obvious sign of native material encountered at base of excavation.
SL24TP02	20375647	JLTW7	9/10/2020	14:07	Soil Subsurface	8 - 9 ft	J. Leeson	--	X	--	X	X	--	--	--	--	--	--	--	--	--	--	--	--	--	
SL25TP01	20375648	JLTW8	9/10/2020	14:53	Soil Subsurface	2 -3 ft	J. Leeson	--	X	--	X	X	--	--	--	--	--	--	--	--	--	--	--	--	--	Test pit exploration. Gravel, soil, loam mixture, with some woody debris. Very dry, little moisture with fine root activity near surface. Minimal industrial debris. Material changed to an anaerobic silty clay with fine woody/organic debris below at 9 feet bgs.
SL25TP02	20375649	JLTW9	9/10/2020	14:41	Soil Subsurface	9 - 10 ft	J. Leeson	--	X	--	X	X	--	--	--	--	--	--	--	--	--	--	--	--	--	
TP25GW	20385717	JLW37	9/13/2020	16:20	GW (Total)	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	X	--	--	X	--	--	--	--	--	Groundwater sample collected adjacent to SL25TP using SP16 temporary well screen advanced by Geoprobe to water table. Screen set from 20 to 24 feet bgs.
	20385718	MJLW38	9/13/2020	16:20	GW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
SL26TP01	20375650	JLTX0	9/10/2020	15:29	Soil Subsurface	2 -3 ft	J. Leeson	--	X	--	X	X	--	--	--	--	--	--	--	--	--	--	--	--	--	Test pit exploration. Loamy soil with gravel, wood debris in the upper 6 feet, with significant roots near surface. Transitions to a distinct, blueish, likely anaerobic clay layer at 6 to 7 feet
SL26TP02	20375651	JLTX1	9/10/2020	15:18	Soil Subsurface	6 - 7 ft	S. Wing	--	X	--	X	X	--	--	--	--	--	--	--	--	--	--	--	--	--	
SL27TP01	20375652	JLTX2	9/10/2020	17:21	Soil Subsurface	7 - 8 ft	S. Wing	--	X	--	X	X	--	--	--	--	--	--	--	--	--	--	--	--	--	Test pit exploration. Upper 6 feet of pit was predominantly gravel with cobbles, shifting to clay at 6 to 7 feet bgs.
PCP in Groundwater and Potential UST																										
SL05GP01	20375608	JLTQ8	9/9/2020	15:51	Soil Subsurface	0 - 4 ft	B. Ciecko	--	X	X	X	X	X	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
SL05GP02	20375609	JLTQ9	9/9/2020	16:07	Soil Subsurface	4 - 8 ft	B. Ciecko	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
SL05GW	20375685	JLW05	9/9/2020	17:51	GW (Total)	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	X	X	--	X	--	X	X	--	--	Groundwater sample from Geoprobe boring. See borehole log for information on depth to groundwater and screened interval.
	20375686	MJLW06	9/9/2020	17:51	GW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
SL06GP01	20375610	JLTR0	9/9/2020	17:04	Soil Subsurface	0 - 4 ft	B. Ciecko	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
SL06GP02	20375611	JLTR1	9/9/2020	17:24	Soil Subsurface	4 - 8 ft	B. Ciecko	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
SL06GW	20375687	JLW07	9/10/2020	9:34	GW (Total)	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	X	X	--	X	--	X	X	--	--	Groundwater sample from Geoprobe boring. See borehole log for information on depth to groundwater and screened interval.
	20375688	MJLW08	9/10/2020	9:34	GW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
SL07GP01	20375612	JLTR2	9/10/2020	8:42	Soil Subsurface	0 - 4 ft	B. Ciecko	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
SL07GP02	20375613	JLTR3	9/10/2020	10:24	Soil Subsurface	8 - 12 ft	B. Ciecko	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
SL07GW	20375689	JLW09	9/10/2020	12:17	GW (Total)	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	X	X	--	X	--	X	X	--	--	Groundwater sample from Geoprobe boring. See borehole log for information on depth to groundwater and screened interval.
	20375690	MJLW10	9/10/2020	12:17	GW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
SL08TP01	20375614	JLTR4	9/9/2020	13:45	Soil Subsurface	3 - 4 ft	J. Leeson	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Test pit exploration. Soils alternated between clay, silt, and sand all the way down, with more clay starting at 3 feet bgs. Very little to no gravel or rock throughout the profile. Profile appeared to consist of alluvial deposits with no discernable evidence of fill material.
SL08TP02	20375615	JLTR5	9/9/2020	14:11	Soil Subsurface	8 - 9 ft	J. Leeson	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	
Former Transformer Location																										
SL09GP01	20375616	JLTR6	9/10/2020	11:32	Soil Subsurface	0 - 4 ft	M. Talaia-Murray	X	--	--	X	--	--	X	--	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
SL10GP01	20375618	JLTR8	9/10/2020	12:39	Soil Subsurface	4 - 8 ft	M. Talaia-Murray	X	--	--	X	--	--	X	--	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.

Table 4-2 Sample Analysis Summary

Sample Location ID	EPA Regional Tracking Number	CLP Sample Number	Sample Date	Sample Time	Sample Matrix	Sample Interval (bgs)	Sampler	Soil/Sediment								Water								ISM Soil		Description
								SVOCs-SIM & PCBs	SVOC-SIM	VOCs Low	TAL Metals AES & ICP w/Hg	Dioxins/Furans	TOC	NWTPH-Dx	NWTPH-Gx	PCBs	SVOCs - Trace + SIM	VOCs -Trace	TAL Metals AES & ICP w/Hg	Dioxins/Furans	Formaldehyde	NWTPH-Dx	NWTPH-Gx	ISM-TAL Metals Hg/SVOC-SIM/PCDD PCDF	ISM-TAL Metals Hg/SVOC-SIM/PCDD/TOC	
SL10GW	20375691	JLW11	9/10/2020	14:21	GW (Total)	NA	B. Ciecko	--	--	--	--	--	--	--	--	X	X	--	--	--	--	X	--	--	--	Groundwater sample from Geoprobe boring. See borehole log for information on depth to groundwater and screened interval.
	20375692	MJLW12	9/10/2020	14:21	GW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
Potential Eastern Waste Disposal Area and UST Location																										
SL11TP01	20375620	JLTS0	9/11/2020	10:48	Soil Subsurface	3 - 4 ft	S. Wing	--	X	X	X	--	--	X	X	--	--	--	--	--	--	--	--	--	--	Test pit exploration.. Upper 3 feet included a significant amount of metal industrial debris, including what appeared to be a crushed 55-gallon drum. Sample SL1TP01 was collected just below debris of dark reddish brown soils with some black patches. Large cobbles became dominant at 5 feet bgs, limiting full depth of excavation to 7 feet bgs.
SL11TP02	20375621	JLTS1	9/11/2020	11:33	Soil Subsurface	6 - 7 ft	J. Leeson	--	X	X	X	--	--	X	X	--	--	--	--	--	--	--	--	--	--	
TP11GW	20375693	JLW13	9/13/2020	11:06	GW (Total)	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	X	X	--	--	--	X	X	--	--	Groundwater sample collected adjacent to SL11TP using SP16 temporary well screen advanced by Geoprobe to water table. Screen set from 8 to 12 feet bgs.
	20385694	MJLW14	9/13/2020	11:06	GW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
SL12TP01	20375622	JLTS2	9/11/2020	10:03	Soil Subsurface	3 - 4 ft	S. Wing	--	X	X	X	--	--	X	X	--	--	--	--	--	--	--	--	--	--	Test pit exploration. Soils consisted of river rock, gravel, and silty loam mixed together with some woody debris. In a grassland area with significant fine root activity in the top 1 to 2 feet bgs. Very dry soil from 0 to 5 feet bgs. Intact 55-gallon drum encountered at approximately 2 feet bgs in fairly good condition, no obvious sign of leakage. Top of drum was breached (2 by 6 inch tear) by a tooth of the excavator. A hard, crystal-like, red-amber color, homogeneous material was found inside the drum from the breach. Sample SL12TP01 taken just south and below drum. Significant change in color and moisture at 7 feet bgs to a grey well-graded saturated gravel.
SL12TP02	20375623	JLTS3	9/11/2020	10:14	Soil Subsurface	7 - 8 ft	J. Leeson	--	X	X	X	--	--	X	X	--	--	--	--	--	--	--	--	--	--	
TP12GW	20385695	JLW15	9/13/2020	14:22	GW (Total)	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	X	X	--	--	--	X	X	--	--	Groundwater sample collected adjacent to SL12TP using SP16 temporary well screen advanced by Geoprobe to water table. Screen set from 8 to 12 feet bgs.
	20385696	MJLW16	9/13/2020	14:22	GW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
SL13TP01	20375624	JLTS4	9/11/2020	12:59	Soil Subsurface	1 - 2 ft	J. Leeson	--	X	X	X	--	--	X	X	--	--	--	--	--	--	--	--	--	--	Test pit exploration. Seemingly native clay for whole profile. Hit hard rocks (possibly cobbles) at 5 feet bgs, unable to excavate deeper.
SL13TP02	20375625	JLTS5	9/11/2020	12:51	Soil Subsurface	4 - 5 ft	S. Wing	--	X	X	X	--	--	X	X	--	--	--	--	--	--	--	--	--	--	
TP13GW	20385697	JLW17	9/14/2020	12:24	GW (Total)	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	X	X	--	--	--	X	X	--	--	Groundwater sample collected adjacent to SL13TP using SP16 temporary well screen advanced by Geoprobe to water table. Screen set from 8 to 12 feet bgs.
	20385698	MJLW18	9/14/2020	12:24	GW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
OP01GP01	20385601	JLTQ1	9/13/2020	10:20	Soil Subsurface	4 - 8 ft	M. Talaia-Murray	--	X	X	X	--	--	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
OP01GW	20385734	JLW54	9/13/2020	12:51	GW (Total)	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	X	X	--	--	--	X	X	--	--	Groundwater sample from Geoprobe boring. See borehole log for information on depth to groundwater and screened interval.
	20385733	MJLW53	9/13/2020	12:51	GW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
OP01TP01	20375665	JLTY5	9/11/2020	13:25	Soil Subsurface	4 - 5 ft	J. Leeson	--	X	X	X	--	--	X	X	--	--	--	--	--	--	--	--	--	--	Test pit exploration. Sand, silt, and gravel with significant amount of debris and trash encountered from 0 to 5 feet bgs. Soils with a strong tar or creosote-like odor encountered at 5 feet bgs. PID readings of up to 30,000 ppb encountered in bagged and equilibrated soil. Trash extended to the full depth of excavation (7 feet bgs). Samples collected from above (OP01TP01), at (OP01TP02), and below (OP01TP03) soils with strong odors.
OP01TP02	20375666	JLTY6	9/11/2020	13:45	Soil Subsurface	6 - 7 ft	S. Wing	--	X	X	X	--	--	X	X	--	--	--	--	--	--	--	--	--	--	
OP01TP03	20375617	JLTR7	9/11/2020	14:13	Soil Subsurface	7 - 7.5 ft	S. Wing	--	X	X	X	--	--	X	X	--	--	--	--	--	--	--	--	--	--	
EW02GW	20385699	JLW19	9/14/2020	15:35	GW (Total)	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	X	X	--	--	X	X	X	--	--	Groundwater sample from concrete-cased, large diameter well north in tree line, north of OP01TP.
	20385700	MJLW20	9/14/2020	15:35	GW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
Southern Wigwam Burner																										
SL14GP01	20375626	JLTS6	9/10/2020	13:54	Soil Subsurface	0 - 4 ft	M. Talaia-Murray	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
SL14GP02	20375627	JLTS7	9/10/2020	16:25	Soil Subsurface	12 - 6 ft	M. Talaia-Murray	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
SL15GP01	20375628	JLTS8	9/11/2020	9:16	Soil Subsurface	0 - 4 ft	M. Talaia-Murray	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
SL15GP02	20375629	JLTS9	9/11/2020	9:53	Soil Subsurface	12 - 16 ft	M. Talaia-Murray	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
SL15GW	20375703	JLW23	9/11/2020	11:16	GW (Total)	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	X	X	--	X	--	X	X	--	--	Groundwater sample from Geoprobe boring. See borehole log for information on depth to groundwater and screened interval.
	20375704	MJLW24	9/11/2020	11:16	GW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
SL16TP01	20375630	JLTT0	9/10/2020	9:25	Soil Subsurface	10 - 12 in	S. Wing	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Test pit exploration. Sample of black layer apparently related to past burning activity, very light in weight with a high organic content.
SL16TP02	20375631	JLTT1	9/10/2020	10:12	Soil Subsurface	13 - 18 in	J. Leeson	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Test pit exploration. Sample of very dense, hard, light tan material that appeared to have been a consolidated ash-like material.
SL16TP03	20375663	JLTY3	9/10/2020	9:47	Soil Subsurface	18 - 36 in	S. Wing	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Test pit exploration. Sample of bright orange/red silt.

Table 4-2 Sample Analysis Summary

Sample Location ID	EPA Regional Tracking Number	CLP Sample Number	Sample Date	Sample Time	Sample Matrix	Sample Interval (bgs)	Sampler	Soil/Sediment								Water								ISM Soil		Description
								SVOCs-SIM & PCBs	SVOC-SIM	VOCs Low	TAL Metals AES & ICP w/Hg	Dioxins/Furans	TOC	NWTPH-Dx	NWTPH-Gx	PCBs	SVOCs - Trace + SIM	VOCs -Trace	TAL Metals AES & ICP w/Hg	Dioxins/Furans	Formaldehyde	NWTPH-Dx	NWTPH-Gx	ISM-TAL Metals Hg/SVOC-SIM/PCDD PCDF	ISM-TAL Metals Hg/SVOC-SIM/PCDD/TOC	
SL16TP04	20375664	JLTY4	9/10/2020	10:25	Soil Subsurface	48 - 60 in	J. Leeson	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Test pit exploration. Silty sand layer found below orange/red silt that extended to the bottom of excavation at 10 feet bgs. Material is similar in composition to deeper soils found in nearby test pits.
SL17GP01	20375632	JLTT2	9/11/2020	10:30	Soil Subsurface	0 - 4 ft	M. Talaia-Murray	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
SL17GP02	20375633	JLTT3	9/11/2020	12:37	Soil Subsurface	20 - 24 ft	M. Talaia-Murray	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
SL18GP01	20375634	JLTT4	9/12/2020	8:52	Soil Subsurface	0 - 4 ft	M. Talaia-Murray	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
SL18GP02	20375635	JLTT5	9/12/2020	9:38	Soil Subsurface	12 - 16 ft	B. Ciecko	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
SL18GW	20375707	JLW27	9/12/2020	11:10	GW (Total)	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	X	X	--	X	--	X	X	--	--	Groundwater sample from Geoprobe boring. See borehole log for information on depth to groundwater and screened interval.
	20375708	MJLW28	9/12/2020	11:10	GW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
OP02TP01	20375619	JLTR9	9/11/2020	15:03	Soil Subsurface	1 - 2 ft	J. Leeson	--	X	--	X	X	--	--	--	--	--	--	--	--	--	--	--	--	--	Test pit exploration. Sample of soils from debris pile in southern wigwam burner footprint, collected from materials with evidence of burning and abundant charcoal, burnt woody debris, and slag-like material.
Former Stud Mill and Vicinity																										
SL19TP01	20375636	JLTT6	9/9/2020	15:14	Soil Subsurface	3 - 4 ft	J. Leeson	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Test pit exploration. Materials included a mix of river rock and poorly graded gravel with silt from the ground to approximately 3.5 feet bgs where a large metal plate was encountered. A homogeneous clay/silt was encountered below the plate to the bottom of excavation (7 feet bgs). An approximately 6-inch diameter metal pipeline was encountered at 6 feet bgs. Samples were collected from above the plate (SL19TP01) and under the pipeline (SL19TP02).
SL19TP02	20375637	JLTT7	9/9/2020	15:45	Soil Subsurface	6 - 7 ft	J. Leeson	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	
SL20GP01	20375638	JLTT8	9/11/2020	13:40	Soil Subsurface	0 - 4 ft	B. Ciecko	--	X	X	X	X	X	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
SL20GW	20375709	JLW29	9/11/2020	15:34	GW (Total)	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	X	X	--	X	--	X	X	--	--	Groundwater sample from Geoprobe boring. See borehole log for information on depth to groundwater and screened interval.
	20375710	MJLW30	9/11/2020	15:34	GW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
SL21GP01	20375640	JLTW0	9/12/2020	10:10	Soil Subsurface	0 - 4 ft	M. Talaia-Murray	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
SL21GW	20375711	JLW31	9/12/2020	12:40	GW (Total)	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	X	X	--	X	--	X	X	--	--	Groundwater sample from Geoprobe boring. See borehole log for information on depth to groundwater and screened interval.
	20375712	MJLW32	9/12/2020	12:40	GW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
SL22GP01	20375642	JLTW2	9/12/2020	10:44	Soil Subsurface	0 - 4 ft	M. Talaia-Murray	--	X	X	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	Geoprobe boring. See borehole log for soil description.
SL22GW	20375713	JLW33	9/12/2020	14:00	GW (Total)	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	X	X	--	X	--	X	X	--	--	Groundwater sample from Geoprobe boring. See borehole log for information on depth to groundwater and screened interval.
	20375714	MJLW34	9/12/2020	14:00	GW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
ISM Samples																										
DU01SS	20375667	NA	9/12/2020	17:10	Soil Surface	0 - 4 cm	S. Wing	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	X	--	ISM sample from DU01 area near northeast corner of log pond, where high dioxins concentrations had been identified.
DU02SS	20385668	NA	9/13/2020	15:26	Soil Surface	0 - 4 cm	J. Leeson	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	X	ISM sample from DU02 targeting footprint of northern wigwam burner.
DU03SS	20385669	NA	9/13/2020	14:48	Soil Surface	0 - 4 cm	J. Leeson	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	X	--	ISM sample from DU03 targeting crescent arc west of northern wigwam burner
DU04SS	20385670	NA	9/13/2020	16:41	Soil Surface	0 - 4 cm	J. Leeson	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	X	--	ISM sample from DU04 targeting crescent arc east of northern wigwam burner
DU05SS	20385671	NA	9/13/2020	10:04	Soil Surface	0 - 4 cm	J. Leeson	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	X	--	ISM sample from DU05 targeting area west of debris pile in vicinity of southern wigwam burner footprint.
DU06SS	20385672	NA	9/13/2020	11:30	Soil Surface	0 - 4 cm	J. Leeson	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	X	ISM sample DU06 targeting debris pile in vicinity of southern wigwam burner footprint.
DU06SS-R	20385675	NA	9/13/2020	11:30	Soil Surface	0 - 4 cm	J. Leeson	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	X	--	ISM sample from DU06 targeting debris pile in vicinity of southern wigwam burner footprint. Duplicate sample of DU06SS, collected 1 foot west of that sample.
DU06SS-T	20385676	NA	9/13/2020	11:30	Soil Surface	0 - 4 cm	J. Leeson	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	X	--	ISM sample from DU06 targeting debris pile in vicinity of southern wigwam burner footprint. Triplicate sample of DU06SS, collected 1 foot north of that sample.
DU07SS	20385673	NA	9/13/2020	10:45	Soil Surface	0 - 4 cm	S. Wing	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	X	--	ISM sample from DU07 targeting area east of debris pile in vicinity of southern wigwam burner footprint.
DU08SS	20375674	NA	9/12/2020	15:40	Soil Surface	0 - 4 cm	S. Wing	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	X	Background ISM sample collected from DU08 where former log storage area on southern portion of site.

Table 4-2 Sample Analysis Summary

Sample Location ID	EPA Regional Tracking Number	CLP Sample Number	Sample Date	Sample Time	Sample Matrix	Sample Interval (bgs)	Sampler	Soil/Sediment								Water								ISM Soil		Description
								SVOCs-SIM & PCBs	SVOC-SIM	VOCs Low	TAL Metals AES & ICP w/Hg	Dioxins/Furans	TOC	NWTPH-Dx	NWTPH-Gx	PCBs	SVOCs - Trace + SIM	VOCs -Trace	TAL Metals AES & ICP w/Hg	Dioxins/Furans	Formaldehyde	NWTPH-Dx	NWTPH-Gx	ISM-TAL Metals Hg/SVOC-SIM/PCDD PCDF	ISM-TAL Metals Hg/SVOC-SIM/PCDD/TOC	
Former Log Pond																										
PD01SD	20375654	JLTX4	9/9/2020	14:00	Sediment Surface	0 - 6 in	B. Ciecko	--	X	--	X	X	X	--	--	--	--	--	--	--	--	--	--	--	--	Co-located sediment and surface water sample collected from as close as practicable to the outlet from the log pond to Bagley Creek
PD01SW	20375719	JLW39	9/11/2020	17:18	SW (Total)	NA	J. Leeson	--	--	--	--	--	--	--	--	--	X	--	X	X	--	--	--	--	--	
	20375720	MJLW40	9/11/2020	17:18	SW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
PD02SD	20375655	JLTX5	9/9/2020	14:16	Sediment Surface	0 - 6 in	B. Ciecko	--	X	--	X	X	X	--	--	--	--	--	--	--	--	--	--	--	--	Sediment sample collected from northwest corner of log pond.
PD03SD	20375656	JLTX6	9/9/2020	14:34	Sediment Surface	0 - 6 in	B. Ciecko	--	X	--	X	X	X	--	--	--	--	--	--	--	--	--	--	--	--	Sediment sample collected from northeast corner of log pond.
PD04SD	20375657	JLTX7	9/12/2020	9:06	Sediment Surface	0 - 6 in	J. Leeson	--	X	--	X	X	X	--	--	--	--	--	--	--	--	--	--	--	--	Sediment sample collected near center of log pond.
PD05SD	20375658	JLTX8	9/12/2020	9:40	Sediment Surface	0 - 6 in	J. Leeson	--	X	--	X	X	X	--	--	--	--	--	--	--	--	--	--	--	--	Co-located sediment and surface water sample collected from creek channel running from the fire suppression pond to the log pond.
PD05SW	20375721	JLW41	9/12/2020	10:02	SW (Total)	NA	J. Leeson	--	--	--	--	--	--	--	--	--	X	--	X	X	--	--	--	--	--	
	20375722	MJLW42	9/12/2020	10:02	SW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
Fire Suppression Pond																										
PD06SD	20375659	JLTX9	9/12/2020	13:13	Sediment Surface	0 - 12 in	J. Leeson	--	X	--	X	X	X	--	--	--	--	--	--	--	--	--	--	--	--	Co-located sediment and surface water sample collected where water discharges from fire suppression pond to creek channel leading into standing water of log pond.
PD06SW	20375723	JLW43	9/12/2020	12:59	SW (Total)	NA	J. Leeson	--	--	--	--	--	--	--	--	--	X	--	X	X	--	--	--	--	--	
	20375724	MJLW44	9/12/2020	12:59	SW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
PD07SD	20375660	JLTY0	9/12/2020	13:28	Sediment Surface	0 - 12 in	J. Leeson	--	X	--	X	X	X	--	--	--	--	--	--	--	--	--	--	--	--	Sediment sample collected from northeast corner of fire suppression pond.
PD08SD	20375661	JLTY1	9/12/2020	13:38	Sediment Surface	0 - 12 in	J. Leeson	--	X	--	X	X	X	--	--	--	--	--	--	--	--	--	--	--	--	Sediment sample collected from southeast corner of fire suppression pond.
PD09SD	20375662	JLTY2	9/12/2020	11:48	Sediment Surface	0 - 12 in	J. Leeson	--	X	--	X	X	X	--	--	--	--	--	--	--	--	--	--	--	--	Co-located sediment and surface water sample collected where Bagley Creek culvert discharges to fire suppression pond. No accessible portions of Bagley Creek exist upriver from pond on mill property.
PD09SW	20375725	JLW45	9/12/2020	11:24	SW (Total)	NA	J. Leeson	--	--	--	--	--	--	--	--	--	X	--	X	X	--	--	--	--	--	
	20375726	MJLW46	9/12/2020	11:28	SW (Dissolved)	NA		--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	--	--	
QA/QC Samples																										
ID01WT	20385727	JLW47	9/15/2020	10:00	Water	NA	A. Jensen	--	--	--	--	--	--	--	--	--	X	X	X	X	--	X	X	--	--	IDW water sample.
RI01WT	20385728	JLW48	9/14/2020	16:55	Water	NA	S. Wing	--	--	--	--	--	--	--	--	X	X	X	X	X	--	X	X	--	--	Rinsate of temporary groundwater sampling screen.
RI02WT	20385729	JLW49	9/14/2020	17:00	Water	NA	S. Wing	--	--	--	--	--	--	--	--	X	X	X	X	X	--	X	X	--	--	Rinsate of cutting shoe.
RI03WT	20385730	JLW50	9/14/2020	17:05	Water	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	X	X	X	X	--	X	X	--	--	Rinsate of cutting shoe.
RI04WT	20385731	JLW51	9/14/2020	17:10	Water	NA	S. Wing	--	--	--	--	--	--	--	--	--	X	--	X	--	--	--	--	--	--	Rinsate of cutting shoe.
TB01WT	20375735	JLW55	9/10/2020	16:47	Water	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	X	--	--	Trip Blank.
TB02WT	20385736	JLW56	9/13/2020	18:15	Water	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	X	--	--	Trip Blank.
TB03WT	20385737	JLW57	9/13/2020	18:25	Water	NA	B. Ciecko	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--	X	--	--	Trip Blank.

Key:

-- = Sample not analyzed for consituent or analysis not applicable

AES = Atomic Emission Spectroscopy
bgs = below ground surface
CLP = Contract Laboratory Program
cm = Centimeters
DU = Decision Unit
EPA = United States Environmental Protection Agency
ft = Feet
GW = Groundwater

Hg = Mercury
ICP = Inductively Coupled Plasma
ID = Identification
in = Inches
ISM = Incremental sampling methodology
NA = Not applicable
NWTPH-Dx = Northwest Total Petroleum Hydrocarbons as Diesel Extended
NWTPH-Gx = Northwest Total Petroleum Hydrocarbon as Gasoline Extended

PCBs = Polychlorinated biphenyls
PCDD = Polychlorinated dibenzo-p-dioxins
PCDF = Polychlorinated dibenzofurans
PCP = Pentachlorophenol
PID = Photoionization Detector
ppb = Parts Per Billion
QA/QC = Quality assurance/quality control

SIM = Selective Ion Monitoring
SVOCs = Semivolatile Organic Compounds
SW = Surface Water
TAL = Target Analyte List
TOC = Total Organic Carbon
UST = Underground Storage Tank
VOCs = Volatile Organic Compounds

Table 4-3 Sample Coding

Digits	Description	Code	Example
1,2	Source Code	DU	Decision Unit
		EW	Existing Well
		OP	Opportunity Sample
		PD	Pond Location Sample
		SL	Subsurface Location
		TP	Used to designate groundwater sample from a test pit location
3,4	Consecutive Number	01	First number of source code
5,6	Matrix Code	GP	Subsurface Soil-Geoprobe
		GW	Ground Water
		SD	Sediment
		SS	Surface Soil
		SW	Surface Water
		TP	Subsurface Soil-Test Pit
		WT	Water
7,8	Consecutive Number	01	Lowest depth of sample matrix or used to designate duplicate and triplicate for ISM samples

Table 4-4 Subsurface Soil Sample Analytical Results Summary - Former Maintenance Building

EPA Sample ID Station Location Description CLP Sample Number Sample Depth (bgs)	Back-ground Metals [a]	Regulatory Cleanup Values [b]			20375600 SL01GP01 JLTQ0 0 - 4 ft	20375602 SL02GP01 JLTQ2 0 - 4 ft
		PGW	CF	DC		
Target Analyte List Metals (mg/kg)						
Aluminum	--	--	--	--	**35800**	**30600**
Arsenic	12	--	10	0.43	**<u>3.7</u>**	**<u>3.6</u>**
Barium	630	--	--	15000	**39.5**	**33.9**
Beryllium	1.4	--	--	160	**0.74**	**0.65**
Calcium	--	--	--	--	184 JQ	**1430**
Chromium	890	--	--	120000	**78.7**	**71.1**
Cobalt	--	--	--	--	**7.6**	**10.2**
Copper	110	--	--	3100	**46.7**	**68.9**
Iron	--	--	--	--	**42200**	**36800**
Lead	36	30	--	400	**10.5**	**11.7**
Magnesium	--	--	--	--	**6380**	**9400**
Manganese	3000	--	--	--	**152**	**228**
Mercury	0.17	--	23	--	**0.14**	**0.14**
Nickel	630	--	--	--	**49.6**	**64.4**
Potassium	--	--	--	--	299 JQ	**458**
Vanadium	290	--	--	--	**70.4**	**64.1**
Zinc	140	--	--	--	**61.5**	**72.4**
Volatile Organic Compounds (µg/kg)						
Acetone	--	--	--	--	10 JQ	**69**

Notes: **Bold** type indicates the sample result is above the sample quantitation limit.

<u>43.1</u> Green shaded cell with **<u>underlined and bolded type</u>** designates value above soil RBC for direct contact, ingestion, or inhalation in a residential setting, but below the regional background metals level.

a = Values are background levels of metals in soils for cleanups as provided by an ODEQ 2018 fact sheet for the Klammath Mountains region.

b = Values are RBCs protective of human health in a residential setting. Although not technically an RBC, Clean Fill values are included in this column.

Key:

-- = Not available or applicable for given constituent
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
bgs = below ground surface
CF = Clean Fill
CLP = Contract Laboratory Program
CRQL = Contract Required Quanitation Limit
DC = RBC protective of exposure through soil ingestion, dermal contact, and inhalation.
EPA = United States Environmental Protection Agency
ft = feet
ID = Identification.
J = The associated numerical value is an estimated quantity because the reported concentrations were less than the sample quantitation limits or because quality control criteria limits were not met.
ODEQ = Oregon Department of Environmental Quality
PGW = RBC designated to be protective of soil contamination negatively impacting groundwater
Q = Detected concentration is below the method reporting limit/CRQL.
RBC = Risk Based Concentration

Table 4-5 Subsurface Soil Sample Analytical Results Summary - Fomer Log Pond Perimeter

EPA Sample ID Station Location Description CLP Sample Number Sample Depth (bgs)	Back-ground Metals [a]	Regulatory Cleanup Values [b]			20375604 SL03TP01 JLTQ4 1 - 2 ft	20375605 SL03TP02 JLTQ5 5 - 6 ft	20375606 SL04TP01 JLTQ6 1 - 2 ft	20375644 SL23TP01 JLTW4 2 -3 ft	20375645 SL23TP02 JLTW5 9 - 10 ft	20375646 SL24TP01 JLTW6 3 - 4 ft	20375647 SL24TP02 JLTW7 8 - 9 ft	20375648 SL25TP01 JLTW8 2 -3 ft	20375649 SL25TP02 JLTW9 9 - 10 ft	20375650 SL26TP01 JLTX0 2 -3 ft	20375651 SL26TP02 JLTX1 6 - 7 ft	20375652 SL27TP01 JLTX2 7 - 8 ft
		PGW	CF	DC												
Dioxins/Furans (ng/kg)																
1,2,3,4,6,7,8-HpCDD	--	--	--	--	--	--	--	3.2 JQ	0.92 JQ	220	100	400	140	59	90	11
1,2,3,4,6,7,8-HpCDF	--	--	--	--	--	--	--	0.5 JQ	0.44 U	59	21	89	24	8.3	16	4.6 JQ
1,2,3,4,7,8-HxCDF	--	--	--	--	--	--	--	0.4 U	0.4 U	5.9	1.8 JQ	12	0.87 JQ	0.46 JQ	0.43 JQ	0.37 U
1,2,3,6,7,8-HxCDD	--	--	--	--	--	--	--	0.5 U	0.5 U	11	4.8 JQ	20	4.2 JQ	2.1 JQ	3.6 JQ	0.52 JQ
1,2,3,7,8,9-HxCDD	--	--	--	--	--	--	--	0.36 JQ	0.34 U	5.2	2.7 JQ	14	2.4 JQ	1.4 JQ	1.5 JQ	0.32 U
2,3,4,6,7,8-HxCDF	--	--	--	--	--	--	--	0.41 U	0.41 U	4.2 JQ	1.4 JQ	6.5	1.9 JQ	0.49 JQ	0.69 JQ	0.38 U
2,3,7,8-TCDD	--	6.8	0.29	4.7	--	--	--	0.084 U	0.096 U	1.2	0.82 JQ	2.4	0.24 JQ	0.22 JQ	0.098 U	0.092 U
OCDD	--	--	--	--	--	--	--	20	5.7 JQ	2400	920	4500 J	820	370	870	100
OCDF	--	--	--	--	--	--	--	1.4 JQ	0.87 U	130	54	200	100	32	78	16
TEQ (Bird)	--	--	--	55	--	--	--	0.046 J	0.0015 J	8.7 J	3.9 J	16 J	1.9 J	1.7 J	1.1 J	0.074 J
TEQ (Fish)	--	--	--	--	--	--	--	0.014 J	0.0015 J	8 J	3.7 J	15 J	2.1 J	1.5 J	1.5 J	0.074 J
TEQ (Mammal)	--	--	0.29	4.7	--	--	--	0.079 J	0.011 J	10 J	4.8 J	20 J	3.8 J	2.1 J	2.5 J	0.24 J
Target Analyte List Metals (mg/kg)																
Aluminum	--	--	--	--	17900	15000	20300	47200	35900	23400	23800	24600	25800	20500	31100	34800
Arsenic	12	--	10	0.43	2.6	2	1.8	5.1	3.7	3.5	4.6	3.3	4	3.1	3.4	3.2
Barium	630	--	--	15000	73.2	50.7	54.6	45.7	48.1	89.2	414	86.2	79	84	54.1	45.1
Beryllium	1.4	--	--	160	0.61	0.54	0.6	0.84	0.76	0.68	0.61	0.7	0.74	0.66	0.77	0.64
Calcium	--	--	--	--	3910	3020	3460	1570	1140	5760	17600	4680	3190	4640	2590	1100
Chromium	890	--	--	120000	56.4	41.8	63.3	113	114	64.6	64.1	71.5	74.7	79.4	106	71.3
Cobalt	--	--	--	--	19	11.4	16.6	9.1	19.5	17	15.3	24	12.9	15.4	19.2	10.1
Copper	110	--	--	3100	43.3	38.5	51.9	47.1	55.8	51.8	96	56.4	44	39.4	47.4	40.3
Iron	--	--	--	--	28000	23700	27100	54200	41400	34000	31700	33800	29800	31800	41000	35000
Lead	36	30	--	400	11.1	5.7	7.6 J	13.2 J	8.2 J	10.8	15.3	12.6	8	17.3	9.2	8.2
Magnesium	--	--	--	--	9600	8280	11400	6120	17500	11600	10100	11100	8960	10400	14400	7520
Manganese	3000	--	--	--	616	292	400	188	411	527	969	666	287	519	472	193
Mercury	0.17	--	23	--	0.11 U	0.11 U	0.11 U	0.16	0.15	0.11 U	0.12 U	0.13	0.21 U	0.15	0.15	0.11 U
Nickel	630	--	--	--	66.2	50.8	77.9	71.8	137	81.7	86.5	88.5	84	87.8	122	61.6
Potassium	--	--	--	--	405 JQ	504	600	452 U	442 JQ	707	3470	615	714 U	572	612	515 U
Sodium	--	--	--	--	434 U	481 U	37 JQ	452 U	484 U	73.6 JQ	1680	30 JQ	714 U	489 U	480 U	515 U
Vanadium	290	--	--	--	54.1	44.1	48.3 J	106 J	67.5 J	66.6	55.4	65.9	66.4	61.6	71.7	66.8
Zinc	140	--	--	--	72.7	59.3	65.2	55.8	79.1	75.2	90.8	80.6	106	69.3	72.6	61.6
Semivolatile Organic Compounds (µg/kg)																
2-Methylnaphthalene	--	--	11000	--	1.9 JQ	9.6	3.1 JQ	4.4 U	4.1 U	0.77 JQ	0.55 JQ	0.8 JQ	6.3 U	2 JQ	0.55 JQ	4.1 U
Benzo(a)anthracene	--	1600	730	1100	6.7	22 J	3.6 U	4.4 U	4.1 U	3.5 JQ	0.72 JQ	2.8 JQ	6.3 U	4 U	4.1 U	4.1 U
Benzo(b)fluoranthene	--	6200	1100	1100	2.8 JQ	4 JQ	5.2 J	0.63 JQ	4.1 U	3.1 JQ	2.5 JQ	2.4 JQ	0.95 JQ	4.9 J	2.7 JQ	0.7 JQ
Benzo(k)fluoranthene	--	--	11000	11000	3.6 U	20	3.6 U	4.4 U	4.1 U	4 U	4.3 U	3.7 U	6.3 U	4 U	4.1 U	4.1 U
bis(2-Ethylhexyl)phthalate	--	--	20	39000	190 U	220 U	190 UJ	230 UJ	210 UJ	5200 J	220 UJ	200 UJ	330 UJ	210 UJ	210 UJ	210 UJ
Chrysene	--	--	3100	110000	2.3 JQ	14 J	3.6 J	4.4 U	4.1 U	4 U	1.4 JQ	3.9 J	6.3 U	4 U	4.1 U	0.65 JQ
Fluoranthene	--	--	10000	2400000	5.3	51	6.6 J	0.62 JQ	4.1 U	1.6 JQ	1.9 JQ	2.1 JQ	4.2 JQ	7.8 J	7.9 J	4.1 U
Fluorene	--	--	3700	3100000	3.6 U	7.5	0.89 JQ	4.4 U	4.1 U	4 U	4.3 U	3.7 U	6.3 U	4 U	4.1 U	4.1 U
Naphthalene	--	77	77	5300	1.7 JQ	4.7	2.5 JQ	4.4 U	4.1 U	4 U	4.3 U	0.97 JQ	6.3 U	2.5 JQ	1 JQ	4.1 U

Table 4-5 Subsurface Soil Sample Analytical Results Summary - Fomer Log Pond Perimeter

EPA Sample ID Station Location Description CLP Sample Number Sample Depth (bgs)	Back-ground Metals [a]	Regulatory Cleanup Values [b]			20375604 SL03TP01 JLTQ4 1 - 2 ft	20375605 SL03TP02 JLTQ5 5 - 6 ft	20375606 SL04TP01 JLTQ6 1 - 2 ft	20375644 SL23TP01 JLTW4 2 -3 ft	20375645 SL23TP02 JLTW5 9 - 10 ft	20375646 SL24TP01 JLTW6 3 - 4 ft	20375647 SL24TP02 JLTW7 8 - 9 ft	20375648 SL25TP01 JLTW8 2 -3 ft	20375649 SL25TP02 JLTW9 9 - 10 ft	20375650 SL26TP01 JLTX0 2 -3 ft	20375651 SL26TP02 JLTX1 6 - 7 ft	20375652 SL27TP01 JLTX2 7 - 8 ft
		PGW	CF	DC												
Pentachlorophenol	--	66	66	1000	7.3 U	**25**	7.4 U	8.9 U	8.3 U	8.2 U	8.6 U	7.6 U	13 U	8.1 U	8.3 U	8.3 U
Phenanthrene	--	--	5500	--	**5.2**	**33**	**23**	0.57 JQ	4.1 U	**7.1**	**4.3**	**5.1**	3.8 JQ	**9.4**	2.9 JQ	1.1 JQ
Pyrene	--	--	10000	1800000	1.1 JQ	4.2 U	**5.7 J**	4.4 U	4.1 U	1.3 JQ	2 JQ	1.4 JQ	2.2 JQ	**7.1 J**	4.1 U	0.85 JQ
PAH TEQ		4400	110	110	**2.8**	**5.1**	**2.6**	**2.4**	**2.3**	**2.9**	**2.6**	**2.5**	**3.5**	**2.9**	**3.0**	**2.3**
Total Organic Carbon (mg/kg)																
Total Organic Carbon	--	--	--	--	--	--	--	**20900**	--	--	--	--	--	--	--	--

Notes: **Bold** type indicates the sample result is above the sample quantitation limit.

43.1 Green shaded cell with **underlined and bolded type** designates value above soil RBC for direct contact, ingestion, or inhalation in a residential setting, but below the regional background metals level.

44.1 Tan shaded cell with ***underlined, italicized, and bolded type*** designates value above the value allowing soils to be reused as clean fill.

a = Values are background levels of metals in soils for cleanups as provided by an ODEQ 2018 fact sheet for the Klammath Mountains region.

b = Values are RBCs protective of human health in a residential setting. Although not techncially an RBC, Clean Fill values are included in this column.

Key:

-- = Not available, applicable, or analyzed for given constituent

µg/kg = micrograms per kilogram

mg/kg = milligrams per kilogram

bgs = below ground surface

CF = Clean Fill

CLP = Contract Laboratory Program

CRQL = Contract Required Quanitation Limit

DC = RBC protective of exposure through soil ingestion, dermal contact, and inhalation.

EPA = United States Environmental Protection Agency

ft = feet

ID = Identification.

J = The associated numerical value is an estimated quantity because the reported concentrations were less than the sample quantitation limits or because quality control criteria limits were not met.

ODEQ = Oregon Department of Environmental Quality

PAH TEQ = Polycyclic aromatic hydrocarbons Toxicity Equivalent Quotient. Result compared to value for benzo(a)pyrene

PGW = RBC designated to be protective of soil contamination negatively impacting groundwater

Q = Detected concentration is below the method reporting limit/CRQL.

RBC = Risk Based Concentration in a residential setting

TEQ = Toxicity Equivalent Quotient. Values for TEQ (mammal) and TEQ (bird) are compared direct contact RBC and Level II Eco Risk Concentration for 2,3,7,8-TCDD (resepctively). See Section 4.2 for additional information on how TEQ was calculated.

U = The material was analyzed for but was not detected. For all but PAH TEQ, the associated numerical value is the CRQL or sample detection limit.

Table 4-6 Subsurface Soil Sample Analytical Results Summary- PCP In Groundwater and Potential UST

EPA Sample ID Station Location Description CLP Sample Number Sample Depth (feet bgs)	Back-ground Metals [a]	Regulatory Cleanup Values [b] PGW	CF	DC	20375608 SL05GP01 JLTQ8 0 - 4 ft	20375609 SL05GP02 JLTQ9 4 - 8 ft	20375610 SL06GP01 JLTR0 0 - 4 ft	20375611 SL06GP02 JLTR1 4 - 8 ft	20375612 SL07GP01 JLTR2 0 - 4 ft	20375613 SL07GP02 JLTR3 8 - 12 ft	20375614 SL08TP01 JLTR4 3 - 4 ft	20375615 SL08TP02 JLTR5 8 - 9 ft
Dioxins/Furans (ng/kg)												
1,2,3,4,6,7,8-HpCDD	--	--	--	--	3.1 JQ	1.7 JQ	**620**	**29**	**46**	2.4 JQ	**750**	**7.1**
1,2,3,4,6,7,8-HpCDF	--	--	--	--	0.98 JQ	0.46 JQ	**140**	**6.9**	**12**	0.44 U	**240**	2.6 JQ
1,2,3,4,7,8,9-HpCDF	--	--	--	--	0.46 U	0.46 U	**9.9**	0.49 JQ	0.88 JQ	0.46 U	**18**	0.46 U
1,2,3,4,7,8-HxCDD	--	--	--	--	0.47 U	0.47 U	**6.9**	0.52 JQ	0.94 JQ	0.47 U	**6.6**	0.47 U
1,2,3,4,7,8-HxCDF	--	--	--	--	0.4 U	0.4 U	**13**	0.65 JQ	0.91 JQ	0.4 U	**14**	0.4 U
1,2,3,6,7,8-HxCDD	--	--	--	--	0.5 U	0.5 U	**33**	1.5 JQ	2.4 JQ	0.5 U	**30**	0.5 U
1,2,3,6,7,8-HxCDF	--	--	--	--	0.47 U	0.47 U	**6.2**	0.47 U	0.55 JQ	0.47 U	**6.7**	0.47 U
1,2,3,7,8,9-HxCDD	--	--	--	--	0.34 U	0.34 U	**10**	0.8 JQ	1.5 JQ	0.34 U	**9.3**	0.34 U
2,3,4,6,7,8-HxCDF	--	--	--	--	0.41 U	0.41 U	**9**	0.41 U	0.87 JQ	0.41 U	**11**	0.41 U
2,3,4,7,8-PeCDF	--	--	--	--	0.43 U	0.43 U	**7.4**	0.43 U	0.61 JQ	0.43 U	**6.2**	0.43 U
OCDD	--	--	--	--	**39**	**18**	**5100**	**230**	**410**	**19**	**7400**	**70**
OCDF	--	--	--	--	3.6 JQ	1.9 JQ	**410**	**20**	**33**	1.5 JQ	**830**	8.4 JQ
TEQ (Bird)	--	--	--	55	**0.017 J**	**0.0083 J**	**19 J**	**0.31 J**	**2.9 J**	**0.0045 J**	**19 J**	**0.041 J**
TEQ (Fish)	--	--	--	--	**0.017 J**	**0.0083 J**	**16 J**	**0.48 J**	**2.7 J**	**0.0045 J**	**17 J**	**0.041 J**
TEQ (Mammal)	--	--	0.29	4.7	**0.054 J**	**0.028 J**	***23*** **J**	***0.79*** **J**	***3*** **J**	**0.03 J**	***25*** **J**	**0.12 J**
Target Analyte List Metals (mg/kg)												
Aluminum	--	--	--	--	**42300**	**30000**	**26800**	**41400**	**21400**	**34000**	**35500**	**22100**
Arsenic	12	--	10	0.43	***2.8***	***2.2***	***3.4***	***4.8***	***3***	***2.3***	***3.2***	***5.2***
Barium	630	--	--	15000	**59.4**	**62**	**66.4**	**43**	**78.9**	**41.9**	**51.4**	**20.1**
Beryllium	1.4	--	--	160	**0.93**	**0.76**	**0.82**	**0.8**	**0.69**	**0.99**	**0.7**	**0.76**
Calcium	--	--	--	--	**1840**	**4920**	**3290**	**1610**	**4040**	**3030**	**1890**	**2060**
Chromium	890	--	--	120000	**105**	**107**	**73.2**	**81.1**	**59.3**	**71.8**	**77.2**	**70**
Cobalt	--	--	--	--	**12.7**	**13**	**15.4**	**10**	**20.3**	**18.2**	**10.1**	**16.2**
Copper	110	--	--	3100	**45**	**40.2**	**45.4**	**37.9**	**47.8**	**51.8**	**40.9**	**41.2**
Iron	--	--	--	--	**57900**	**41600**	**41900**	**46200**	**31400**	**50300**	**39400**	**42300**
Lead	36	30	--	400	**11.9**	**9**	**25.2**	**8.3**	**11.1**	**7.9**	**11.5**	**6.2**
Magnesium	--	--	--	--	**9000**	**11600**	**9620**	**9280**	**9970**	**13500**	**7750**	**11000**
Manganese	3000	--	--	--	**193**	**261**	**423**	**253**	**648**	**313**	**250**	**287**
Mercury	0.17	--	23	--	**0.23**	0.11 U	0.12 U	**0.15**	0.11 U	**0.12**	**0.17**	0.11 U
Nickel	630	--	--	--	**79.8**	**89**	**67.8**	**63.9**	**72.3**	**96.9**	**53.5**	**92.7**
Potassium	--	--	--	--	576 U	346 JQ	486 JQ	**507**	**657**	**745**	309 JQ	433 U
Silver	0.16	--	--	390	0.92 JQ	**1.3 J**	0.51 JQ	0.7 JQ	0.38 JQ	0.62 JQ	0.46 JQ	0.56 JQ
Vanadium	290	--	--	--	**101**	**88.7**	**73**	**74.8**	**61.2**	**66**	**75.3**	**51.9 J**
Zinc	140	--	--	--	**73.6**	**66.1**	**161**	**72.6**	**70.8**	**79.7**	**76.4**	**56.7**
Semivolatile Organic Compounds (µg/kg)												
2,3,4,6-Tetrachlorophenol	--	--	11000	--	240 U	230 U	200 U	210 U	180 **U**		210 U	190 U
2-Methylnaphthalene	--	--	11000	--	0.5 JQ	0.91 JQ	**5.2**	0.46 JQ	2.7 JQ	0.51 JQ	2 JQ	3.6 U
Benzo(a)anthracene	--	1600	730	1100	4.6 U	4.4 U	1.6 JQ	4.1 U	**13 J**	3.7 U	4 JQ	3.6 U
Benzo(b)fluoranthene	--	6200	1100	1100	4.6 U	0.56 JQ	**4.6**	0.66 JQ	**7.3**	0.95 JQ	1.8 JQ	3.6 U
Chrysene	--	--	3100	110000	4.6 U	0.59 JQ	**7.3**	0.62 JQ	**3.9 J**	0.82 JQ	1.8 JQ	3.6 U

Table 4-6 Subsurface Soil Sample Analytical Results Summary- PCP In Groundwater and Potential UST

EPA Sample ID Station Location Description CLP Sample Number Sample Depth (feet bgs)	Back-ground Metals [a]	Regulatory Cleanup Values [b]			20375608 SL05GP01 JLTQ8 0 - 4 ft	20375609 SL05GP02 JLTQ9 4 - 8 ft	20375610 SL06GP01 JLTR0 0 - 4 ft	20375611 SL06GP02 JLTR1 4 - 8 ft	20375612 SL07GP01 JLTR2 0 - 4 ft	20375613 SL07GP02 JLTR3 8 - 12 ft	20375614 SL08TP01 JLTR4 3 - 4 ft	20375615 SL08TP02 JLTR5 8 - 9 ft
		PGW	CF	DC								
Fluoranthene	--	--	10000	2400000	4.6 U	4.4 U	3.8 U	4.1 U	**4.4**	0.56 JQ	2.4 JQ	3.6 U
Pentachlorophenol	--	66	66	1000	9.3 U	8.9 U	7.7 U	8.2 U	7.3 U	7.6 U	**27**	7.3 U
Phenanthrene	--	--	5500	--	0.64 JQ	1.5 JQ	**12**	1.3 JQ	**13**	1.6 JQ	**5.5**	0.37 JQ
PAH TEQ		4400	110	110	**2.5**	**2.4**	**2.7**	**2.3**	**3.9**	**2.1**	**2.7**	**2.0**
Volatile Organic Compounds (µg/kg)												
Acetone	--	--	--	--	**39**	**40**	**14**	6.2 JQ	**100**	**56**	12 JQ	**29**
Benzene	--	23	--	8200	7 U	1.3 JQ	6.9 U	0.98 JQ	**<u>24</u>**	1.3 JQ	4.4 JQ	6.6 U
Methyl acetate	--	--	250000	--	7 U	6.3 U	6.9 U	6.3 U	11 U	**7**	13 U	2.4 JQ
Total Petroleum Hydrocarbons (mg/kg)												
Diesel Range Organics	--	9500	1100	1100	55 U	51 U	**270**	50 U	46 U	47 U	45 U	45 U
Motor Oil Range Organics	--	9500	1100	1100	140 U	130 U	**150**	120 U	110 U	120 U	110 U	110 U
Total Organic Carbon (mg/kg)												
Total Organic Carbon	--	--	--	--	**6820**	--	--	--	--	--	--	--

Notes: **Bold** type indicates the sample result is above the sample quantitation limit.

<u>43.1</u> Green shaded cell with **<u>underlined and bolded type</u>** designates value above soil RBC for direct contact, ingestion, or inhalation in a residential setting, but below the regional background metals level.

<u>44.1</u> Tan shaded cell with ***<u>underlined, italicized, and bolded type</u>*** designates value above the value allowing soils to be reused as clean fill.

<u>74</u> Grey shaded cell with **<u>underlined and bolded type</u>** designates value above soil RBC for protection of groundwater quality.

a = Values are background levels of metals in soils for cleanups as provided by an ODEQ 2018 fact sheet for the Klammath Mountains region.

b = Values are RBCs protective of human health in a residential setting. Although not techncially an RBC, Clean Fill values are included in this column.

Key:

-- = Not available, applicable, or analyzed for given constituent
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
bgs = below ground surface
CF = Clean Fill
CLP = Contract Laboratory Program
CRQL = Contract Required Quantitation Limit
DC = RBC protective of exposure through soil ingestion, dermal contact, and inhalation.
EPA = United States Environmental Protection Agency
ft = feet
ID = Identification.
J = The associated numerical value is an estimated quantity because the reported concentrations were less than the sample quantitation limits or because quality control criteria limits were not met.
ODEQ = Oregon Department of Environmental Quality
PAH TEQ = Polycyclic aromatic hydrocarbons Toxicity Equivalent Quotient. Result compared to value for benzo(a)pyrene
PGW = RBC designated to be protective of soil contamination negatively impacting groundwater
Q = Detected concentration is below the method reporting limit/CRQL.
RBC = Risk Based Concentration
TEQ = Toxicity Equivalent Quotient. Values for TEQ (mammal) and TEQ (bird) are compared direct contact RBC and Level II Eco Risk Concentration for 2,3,7,8-TCDD (resepctively). See Section 4.2 for additional information on how TEQ was calculated.
U = The material was analyzed for but was not detected. For all but PAH TEQ, the associated numerical value is the CRQL or sample detection limit.

Table 4-7 Subsurface Soil Sample Analytical Results Summary - Former Transformer Location

EPA Sample ID Station Location Description CLP Sample Number Sample Depth (bgs)	Back-ground Metals [a]	Risk Based Concentrations [b]			20375616 SL09GP01 JLTR6 0 - 4 ft	20375618 SL10GP01 JLTR8 4 - 8 ft
		PGW	CF	DC		
Target Analyte List Metals (mg/kg)						
Aluminum	--	--	--	--	**23000**	**26200**
Arsenic	12	--	10	0.43	***3.8***	***3.8***
Barium	630	--	--	15000	**78.8**	**60.1**
Beryllium	1.4	--	--	160	**0.74**	**0.86**
Calcium	--	--	--	--	**3800**	**8460**
Chromium	890	--	--	120000	**65.2**	**77.1**
Cobalt	--	--	--	--	**33.6**	**25.8**
Copper	110	--	--	3100	**58.5**	**48.7**
Iron	--	--	--	--	**36400**	**45600**
Lead	36	30	--	400	**13.4 J**	**9.1 J**
Magnesium	--	--	--	--	**11800**	**12300**
Manganese	3000	--	--	--	**827**	**521**
Nickel	630	--	--	--	**86.5**	**123**
Potassium	--	--	--	--	**519**	**596**
Silver	0.16	--	--	390	**0.96**	**1**
Vanadium	290	--	--	--	**72.7 J**	**63.7 J**
Zinc	140	--	--	--	**97.6**	**75.8**
Semivolatile Organic Compounds (µg/kg)						
2-Methylnaphthalene	--	--	11000	--	**11 J**	1.9 JQ
Anthracene	--	--	6800	23000000	3.7 U	**4.2 J**
Benzo(a)anthracene	--	1600	730	1100	**29 J**	2.5 JQ
Benzo(b)fluoranthene	--	6200	1100	1100	**12**	**4.1**
Chrysene	--	--	3100	110000	3.7 U	**5.2**
Fluoranthene	--	--	10000	2400000	**4.4**	3.3 JQ
Naphthalene	--	77	77	5300	**7.1 J**	2.9 JQ
Phenanthrene	--	--	5500	--	**23 J**	**3.9 J**
PAH TEQ		4400	110	110	**6.1**	**2.7**

Table 4-7 Subsurface Soil Sample Analytical Results Summary - Former Transformer Location

EPA Sample ID Station Location Description CLP Sample Number Sample Depth (bgs)	Back-ground Metals [a]	Risk Based Concentrations [b]			20375616 SL09GP01 JLTR6 0 - 4 ft	20375618 SL10GP01 JLTR8 4 - 8 ft
		PGW	CF	DC		
Total Petroleum Hydrocarbons (mg/kg)						
Motor Oil Range Organics	--	9500	1100	1100	**160**	110 U

Notes:

Bold type indicates the sample result is above the sample quantitation limit.

<u>**43.1**</u> Green shaded cell with <u>**underlined and bolded type**</u> designates value above soil RBC for direct contact, ingestion, or inhalation in a residential setting, but below the regional background metals level.

a = Values are background levels of metals in soils for cleanups as provided by an ODEQ 2018 fact sheet for the Klammath Mountains region.

b = Values are RBCs protective of human health in a residential setting. Although not techncially an RBC, Clean Fill values are included in this column.

Key:

-- = Not available or applicable for given constituent
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
bgs = below ground surface
CF = Clean Fill
CLP = Contract Laboratory Program
CRQL = Contract Required Quanitation Limit
DC = RBC protective of exposure through soil ingestion, dermal contact, and inhalation.
EPA = United States Environmental Protection Agency
ft = feet
ID = Identification.
J = The associated numerical value is an estimated quantity because the reported concentrations were less than the sample quantitation limits or because quality control criteria limits were not met.
ODEQ = Oregon Department of Environmental Quality
PAH TEQ = Polycyclic aromatic hydrocarbons Toxicity Equivalent Quotient. Result compared to value for benzo(a)pyrene
PGW = RBC designated to be protective of soil contamination negatively impacting groundwater
Q = Detected concentration is below the method reporting limit/CRQL.
RBC = Risk Based Concentration
U = The material was analyzed for but was not detected. For all but PAH TEQ, the associated numerical value is the CRQL or sample detection limit.

Table 4-8 Subsurface Soil Sample Analytical Results Summary - Southern Wigwam Burner

EPA Sample ID Station Location Description CLP Sample Number Sample Depth (bgs)	Back-ground Metals [a]	Risk Based Concentrations [b]			20375626 SL14GP01 JLTS6 0 - 4 ft	20375627 SL14GP02 JLTS7 12 - 16 ft	20375628 SL15GP01 JLTS8 0 - 4 ft	20375629 SL15GP02 JLTS9 12 - 16 ft	20375630 SL16TP01 JLTT0 10 - 12 in	20375631 SL16TP02 JLTT1 13 - 18 in	20375663 SL16TP03 JLTY3 18 - 36 in	20375664 SL16TP04 JLTY4 48 - 60 in	20375632 SL17GP01 JLTT2 0 - 4 ft	20375633 SL17GP02 JLTT3 20 - 24 ft	20375634 SL18GP01 JLTT4 0 - 4 ft	20375635 SL18GP02 JLTT5 12 - 16 ft	20375619 OP02TP01 JLTR9 1 - 2 ft
		PGW	CF	DC													
Dioxins/Furans (ng/kg)																	
1,2,3,4,6,7,8-HpCDD	--	--	--	--	**30**	3.5 JQ	**69**	0.67 JQ	**82**	**34**	1.3 JQ	0.46 U	**13**	0.48 JQ	**53**	0.45 U	**72**
1,2,3,4,6,7,8-HpCDF	--	--	--	--	**8.2**	0.85 JQ	**5.5**	0.44 U	**6.3**	4.7 JQ	0.44 U	0.44 U	3.1 JQ	0.43 U	**8.1**	0.44 U	**8**
1,2,3,4,7,8-HxCDD	--	--	--	--	0.89 JQ	0.47 U	1.7 JQ	0.47 U	1.3 JQ	0.64 JQ	0.47 U	0.47 U	0.47 U	0.46 U	0.68 JQ	0.47 U	**5.5**
1,2,3,6,7,8-HxCDD	--	--	--	--	1.5 JQ	0.5 U	3.3 JQ	0.5 U	3.7 JQ	1.7 JQ	0.5 U	0.5 U	0.77 JQ	0.49 U	2.2 JQ	0.5 U	**11**
1,2,3,7,8,9-HxCDD	--	--	--	--	1.1 JQ	0.34 U	2.9 JQ	0.34 U	2.7 JQ	1.1 JQ	0.34 U	0.34 U	0.48 JQ	0.34 U	1.4 JQ	0.34 U	**15**
1,2,3,7,8-PeCDD	--	--	--	--	0.35 U	0.35 U	0.94 JQ	0.35 U	0.92 JQ	0.39 JQ	0.35 U	0.35 U	0.35 U	0.35 U	0.41 JQ	0.35 U	**7.9**
2,3,7,8-TCDD	--	6.8	0.29	4.7	0.18 JQ	0.09 U	0.26 JQ	0.084 U	0.25 JQ	0.15 JQ	0.11 U	0.12 U	0.084 U	0.083 U	0.2 JQ	0.084 U	**3.3**
2,3,7,8-TCDF	--	--	--	--	0.16 JQ	0.11 U	0.11 U	0.11 U	0.15 JQ	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	0.39 JQ	0.11 U	0.75 JQ
OCDD	--	--	--	--	**250**	**31**	**350**	3.9 JQ	**450**	**220**	7.2 JQ	3.1 JQ	**100**	4.5 JQ	**490**	4.3 JQ	**200**
OCDF	--	--	--	--	**23**	2.6 JQ	**20**	0.87 U	**26**	**17**	0.87 U	0.87 U	9 JQ	0.86 U	**25**	0.87 U	9.4 JQ
TEQ (Bird)	--	--	--	55	**0.79 J**	**0.015 J**	**1.8 J**	**0.001 J**	**2.1 J**	**0.85 J**	**0.002 J**	**3E-04 J**	**0.11 J**	**9E-04 J**	**2.2 J**	**4E-04 J**	**16 J**
TEQ (Fish)	--	--	--	--	**0.95 J**	**0.015 J**	**2.3 J**	**0.001 J**	**2.2 J**	**1 J**	**0.002 J**	**3E-04 J**	**0.067 J**	**9E-04 J**	**1.7 J**	**4E-04 J**	**16 J**
TEQ (Mammal)	--	--	0.29	4.7	**1.2 J**	**0.054 J**	**2.9 J**	**0.008 J**	**3.1 J**	**1.4 J**	**0.015 J**	**9E-04 J**	**0.32 J**	**0.006 J**	**2.2 J**	**0.001 J**	**16 J**
Target Analyte List Metals (mg/kg)																	
Aluminum	--	--	--	--	**18100**	**34700**	**36400**	**23200**	**17400**	**27100**	**35200**	**35200**	**27100**	**16200**	**24000**	**33800**	**24200**
Antimony	0.59	--	--	--	0.9 U	0.9 U	0.96 U	0.79 U	**1.2 J**	**4.4 J**	1 UJ	0.91 UJ	0.86 U	0.8 U	0.62 JQ	0.11 JQ	0.9 U
Arsenic	12	--	10	0.43	**2.9**	**4.9**	**3.8**	**1.6**	**3.9**	**8.6**	**1.8**	**3.4**	**3.5**	**2.1**	**3.9**	**2.9**	**3.4**
Barium	630	--	--	15000	**108**	**58.3**	**44.8**	**31.3**	**668**	**922**	**71.4**	**39.1**	**106**	**37.6**	**77**	**43.8**	**142**
Beryllium	1.4	--	--	160	**0.56**	**0.68**	**0.78**	**0.79**	0.4 JQ	**0.48**	**0.81**	**0.86**	**0.85**	**0.49**	**0.62**	**0.7**	**0.6**
Calcium	--	--	--	--	**5980**	**1180**	**1850**	**1390**	**54000**	**58200**	**4010**	**2070**	**2790**	**4760**	**4330**	**1060**	**6220**
Chromium	890	--	--	120000	**59.1**	**97.6**	**114**	**64.8**	**40**	**37**	**109**	**98.2**	**76.6**	**57.7**	**65.2**	**146**	**70.5**
Cobalt	--	--	--	--	**15.4**	**12.8**	**17.7**	**26.2**	**7.1**	**6.2**	**9**	**13.4**	**16.4**	**12.4**	**12.5**	**16.9**	**17**
Copper	110	--	--	3100	**52.5**	**40.8**	**54.2**	**64.4**	**123**	**88.5**	**30.8**	**56.4**	**46.2**	**55.4**	**61.6**	**44.8**	**73.7**
Iron	--	--	--	--	**27800**	**35500**	**43400**	**34500**	**19000**	**19900**	**48100**	**47400**	**35200**	**26200**	**32400**	**37300**	**30900**
Lead	36	30	--	400	**14.5 J**	**9.1 J**	**10.3 J**	**5.8 J**	**9.2**	**18.1**	**9.1**	**9.4**	**11 J**	**3.6 J**	**18.5**	**8.2**	**25.4 J**
Magnesium	--	--	--	--	**10800**	**5440**	**12900**	**13700**	**4970**	**5950**	**4430**	**13100**	**9220**	**12700**	**10600**	**12800**	**9600**
Manganese	3000	--	--	--	**529**	**214**	**377**	**446**	**1110**	**1630**	**234**	**373**	**507**	**314**	**414**	**283**	**744**
Mercury	0.17	--	23	--	0.11 U	**0.17**	0.12 U	0.097 U	0.13 U	0.12 U	0.13 U	0.12 U	0.12 U	0.11 U	0.12 U	**0.21**	0.1 U
Nickel	630	--	--	--	**67.5**	**94.7**	**123**	**175**	**45.3**	**34.5**	**66.1**	**105**	**85.3**	**72.2**	**88.1**	**152**	**78**
Potassium	--	--	--	--	**945**	232 JQ	329 JQ	**506**	**3830**	**5370**	**1670**	**633**	**625**	**468**	**754**	470 U	**2570**
Silver	0.16	--	--	390	0.78 JQ	**0.94**	**1**	**0.82**	0.33 JQ	0.38 JQ	0.6 JQ	0.46 JQ	**0.94**	0.64 JQ	0.51 JQ	0.54 JQ	0.84 JQ
Sodium	--	--	--	--	**481**	57.7 JQ	31.4 JQ	29.5 JQ	**2310**	**4190**	494 JQ	34.7 JQ	244 JQ	63.8 JQ	**653**	36.5 JQ	362 JQ
Vanadium	290	--	--	--	**51.3 J**	**88.6 J**	**77.8 J**	**35.9 J**	**36**	**60**	**75.9**	**76.3 J**	**64.7 J**	**32.1 J**	**70.7**	**66.7 J**	**58 J**
Zinc	140	--	--	--	**104**	**55.1**	**74.7**	**63.3**	**92.6**	**108**	**45.1**	**73**	**86.8**	**48.2**	**73.6**	**69**	**171**
Semivolatile Organic Compounds (µg/kg)																	
2-Methylnaphthalene	--	--	11000	--	37 U	0.57 JQ	4.1 U	3.7 U	4.4 U	4.1 U	4.6 U	4 U	2.1 JQ	1.6 JQ	**4.5**	4.3 U	1.2 JQ
Benzo(b)fluoranthene	--	6200	1100	1100	37 U	0.5 JQ	4.1 U	3.7 U	4.4 UJ	4.1 U	4.6 U	4 U	0.45 JQ	0.69 JQ	1.7 JQ	4.3 U	**7.8 J**
Chrysene	--	--	3100	110000	37 U	4.1 U	4.1 U	3.7 U	4.4 UJ	0.53 JQ	4.6 U	4 U	1.3 JQ	0.61 JQ	0.8 JQ	4.3 U	**9.5 J**
Fluoranthene	--	--	10000	2400000	37 U	**10**	4.1 U	3.7 U	4.4 UJ	0.5 JQ	4.6 U	0.55 JQ	**3.7**	0.66 JQ	**24**	4.3 U	**8.8 J**
Naphthalene	--	77	77	5300	37 U	4.1 U	4.1 U	3.7 U	2.1 JQ	4.1 U	4.6 U	4 U	2.2 JQ	0.9 JQ	**4.4**	4.3 U	2.6 JQ

Table 4-8 Subsurface Soil Sample Analytical Results Summary - Southern Wigwam Burner

EPA Sample ID Station Location Description CLP Sample Number Sample Depth (bgs)	Back-ground Metals [a]	Risk Based Concentrations [b]			20375626 SL14GP01 JLTS6 0 - 4 ft	20375627 SL14GP02 JLTS7 12 - 16 ft	20375628 SL15GP01 JLTS8 0 - 4 ft	20375629 SL15GP02 JLTS9 12 - 16 ft	20375630 SL16TP01 JLTT0 10 - 12 in	20375631 SL16TP02 JLTT1 13 - 18 in	20375663 SL16TP03 JLTY3 18 - 36 in	20375664 SL16TP04 JLTY4 48 - 60 in	20375632 SL17GP01 JLTT2 0 - 4 ft	20375633 SL17GP02 JLTT3 20 - 24 ft	20375634 SL18GP01 JLTT4 0 - 4 ft	20375635 SL18GP02 JLTT5 12 - 16 ft	20375619 OP02TP01 JLTR9 1 - 2 ft
		PGW	CF	DC													
Phenanthrene	--	--	5500	--	9.8 JQ	1.5 JQ	0.59 JQ	3.7 U	1.6 JQ	0.83 JQ	4.6 U	0.49 JQ	**5.1**	**4.6**	**7.1**	4.3 U	**14**
Pyrene	--	--	10000	1800000	37 U	4.1 U	4.1 U	3.7 U	4.4 UJ	4.1 U	4.6 U	4 U	2.4 JQ	3.5 U	2.7 JQ	4.3 U	**7.5 J**
PAH TEQ		4400	110	110	**20.9**	**2.3**	**2.3**	**2.1**	**2.4**	**2.3**	**2.5**	**2.2**	**2.1**	**2.0**	**2.2**	**2.4**	**4.7**
Volatile Organic Compounds (µg/kg)																	
2-Butanone	--	--	72000	--	10 JQ	**19**	15 U	11 U	41 UJ	22 U	15 U	31 U	5.5 JQ	10 U	13 U	12 U	--
Acetone	--	--	--	--	**88**	**96**	8.6 JQ	4 JQ	**320 J**	**53**	**41**	13 JQ	**78**	8.7 JQ	13 U	12 U	--
Benzene	--	23	--	8200	**10**	0.96 JQ	5.4 JQ	5.6 U	**74 J**	5.9 JQ	1.3 JQ	16 U	7.5 JQ	5.2 U	3.8 JQ	5.9 U	--
Ethylbenzene	--	220	220	34000	**13**	6.1 U	7.6 U	5.6 U	20 U	11 U	7.3 U	16 U	7.9 U	5.2 U	6.4 U	5.9 U	--
m, p-Xylene	--	--	--	--	**9.5**	6.1 U	1.2 JQ	5.6 U	20 U	11 U	7.3 U	16 U	1.3 JQ	5.2 U	6.4 U	5.9 U	--
Methyl acetate	--	--	250000	--	9 JQ	6.1 U	**16**	5.6 U	20 UJ	11 U	4.2 JQ	16 U	7.9 U	5.2 U	6.4 U	5.9 U	--
Toluene	--	84000	23000	5800000	**13**	6.1 U	2.5 JQ	5.6 U	5.7 JQ	11 U	7.3 U	16 U	2.7 JQ	5.2 U	6.4 U	5.9 U	--
Total Petroleum Hydrocarbons (mg/kg)																	
Motor Oil Range Organics	--	9500	1100	1100	**220**	130 U	120 U	110 U	130 U	130 U	140 U	120 U	120 U	110 U	120 U	130 U	--
Total Organic Carbon (mg/kg)																	
Total Organic Carbon	--	--	--	--	**48200**	--	--	--	--	--	--	--	--	--	--	--	--

Notes: **Bold** type indicates the sample result is above the sample quantitation limit.

43.1 Green shaded cell with **underlined and bolded type** designates value above soil RBC for direct contact, ingestion, or inhalation in a residential setting, but below the regional background metals level.

44.1 Tan shaded cell with ***underlined, italicized, and bolded type*** designates value above the value allowing soils to be reused as clean fill.

74 Grey shaded cell with **underlined and bolded type** designates value above soil RBC for protection of groundwater quality.

a = Values are background levels of metals in soils for cleanups as provided by an ODEQ 2018 fact sheet for the Klammath Mountains region.

b = Values are RBCs protective of human health in a residential setting. Although not techncially an RBC, Clean Fill values are included in this column.

Key:

-- = Not available, applicable, or analyzed for given constituent
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
bgs = below ground surface
CF = Clean Fill
CLP = Contract Laboratory Program
CRQL = Contract Required Quanitation Limit
DC = RBC protective of exposure through soil ingestion, dermal contact, and inhalation.
EPA = United States Environmental Protection Agency
ft = feet
ID = Identification.
J = The associated numerical value is an estimated quantity because the reported concentrations were less than the sample quantitation limits or because quality control criteria limits were not met.
PAH TEQ = Polycyclic aromatic hydrocarbons Toxicity Equivalent Quotient. Result compared to value for benzo(a)pyrene
ODEQ = Oregon Department of Environmental Quality
PGW = RBC designated to be protective of soil contamination negatively impacting groundwater
Q = Detected concentration is below the method reporting limit/CRQL.
RBC = Risk Based Concentration
TEQ = Toxicity Equivalent Quotient. Values for TEQ (mammal) and TEQ (bird) are compared direct contact RBC and Level II Eco Risk Concentration for 2,3,7,8-TCDD (resepctively). See Section 4.2 for additional information on how TEQ was calculated.
U = The material was analyzed for but was not detected. For all but PAH TEQ, the associated numerical value is the CRQL or sample detection limit.

Table 4-9 Subsurface Soil Sample Analytical Results Summary - Former Stud Mill and Vicinity

EPA Sample ID Station Location Description CLP Sample Number Sample Depth (bgs)	Back-ground Metals [a]	Risk Based Concentrations [b]			20375636 SL19TP01 JLTT6 3 - 4 ft	20375637 SL19TP02 JLTT7 6 - 7 ft	20375638 SL20GP01 JLTT8 0 - 4 ft	20375640 SL21GP01 JLTW0 0 - 4 ft	20375642 SL22GP01 JLTW2 0 - 4 ft
		PGW	CF	DC					
Dioxins/Furans (ng/kg)									
1,2,3,4,6,7,8-HpCDD	--	--	--	--	**960**	4.6 JQ	**450**	**70**	**55**
1,2,3,4,6,7,8-HpCDF	--	--	--	--	**170**	0.6 JQ	**55**	**13**	**7.3**
1,2,3,4,7,8,9-HpCDF	--	--	--	--	**9.5**	0.46 U	3.5 JQ	0.95 JQ	0.5 JQ
1,2,3,4,7,8-HxCDD	--	--	--	--	**7.1**	0.47 U	3.7 JQ	1 JQ	0.66 JQ
1,2,3,4,7,8-HxCDF	--	--	--	--	**7.8**	0.4 U	2.9 JQ	1 JQ	0.47 JQ
1,2,3,6,7,8-HxCDD	--	--	--	--	**25**	0.5 U	**13**	3 JQ	2.3 JQ
1,2,3,7,8,9-HxCDD	--	--	--	--	**13**	0.34 U	**7.3**	1.9 JQ	1.8 JQ
2,3,4,6,7,8-HxCDF	--	--	--	--	**6.7**	0.41 U	2.7 JQ	0.8 JQ	0.61 JQ
2,3,7,8-TCDD	--	6.8	0.29	4.7	***2.7***	0.12 U	0.84 JQ	0.23 JQ	0.28 JQ
2,3,7,8-TCDF	--	--	--	--	**1.4**	0.11 U	0.45 JQ	0.2 JQ	0.13 U
OCDD	--	--	--	--	**9800 J**	**44**	**4700 J**	**680**	**410**
OCDF	--	--	--	--	**580**	3.1 JQ	**220**	**41**	**29**
TEQ (Bird)	--	--	--	55	**19 J**	**0.015 J**	**8.2 J**	**2.4 J**	**1.2 J**
TEQ (Fish)	--	--	--	--	**18 J**	**0.015 J**	**8.2 J**	**2.3 J**	**1.3 J**
TEQ (Mammal)	--	--	0.29	4.7	***29* J**	**0.066 J**	***13* J**	***3* J**	***2* J**
Target Analyte List Metals (mg/kg)									
Aluminum	--	--	--	--	**20300**	**32300**	**27600**	**32200**	**37600**
Arsenic	12	--	10	0.43	***4***	***3.3***	***3.9***	***3***	***4.5***
Barium	630	--	--	15000	**74.8**	**40.8**	**66.9**	**42.3**	**56.3**
Beryllium	1.4	--	--	160	**0.65**	**0.66**	**0.65**	**0.69**	**0.82**
Calcium	--	--	--	--	**5470**	**2030**	**3450**	**2480**	**3290**
Chromium	890	--	--	120000	**65.9**	**65.6**	**82.7**	**82.1**	**107**
Cobalt	--	--	--	--	**14.7**	**9.4**	**10.7**	**13.3**	**14.6**
Copper	110	--	--	3100	**89.7**	**38.4**	**70.3**	**49.8**	**53.7**
Iron	--	--	--	--	**33100**	**39000**	**38300**	**37400**	**47900**
Lead	36	30	--	400	**42.8**	**8**	**26 J**	**12.5**	**11.8**
Magnesium	--	--	--	--	**8980**	**8150**	**6760**	**10600**	**9950**
Manganese	3000	--	--	--	**483**	**234**	**308**	**346**	**380**
Mercury	0.17	--	23	--	**0.12**	**0.13**	**0.14**	**0.14**	**0.16**

Table 4-9 Subsurface Soil Sample Analytical Results Summary - Former Stud Mill and Vicinity

EPA Sample ID Station Location Description CLP Sample Number Sample Depth (bgs)	Back-ground Metals [a]	Risk Based Concentrations [b]			20375636 SL19TP01 JLTT6 3 - 4 ft	20375637 SL19TP02 JLTT7 6 - 7 ft	20375638 SL20GP01 JLTT8 0 - 4 ft	20375640 SL21GP01 JLTW0 0 - 4 ft	20375642 SL22GP01 JLTW2 0 - 4 ft
		PGW	CF	DC					
Nickel	630	--	--	--	**73.8**	**61.8**	**61.3**	**98.3**	**96.5**
Potassium	--	--	--	--	**488**	**572**	377 JQ	**464**	**574**
Silver	0.16	--	--	390	0.43 JQ	0.53 JQ	**0.98**	0.54 JQ	0.71 JQ
Vanadium	290	--	--	--	**56.5**	**63.1**	**72.1 J**	**70.6**	**90.3**
Zinc	140	--	--	--	**255**	**68.3**	**169**	**74.9**	**73.7**
Semivolatile Organic Compounds (µg/kg)									
2-Methylnaphthalene	--	--	11000	--	**5.4**	4 U	2.2 JQ	0.64 JQ	0.52 JQ
Benzo(a)pyrene	--	4400	110	110	**4.3**	4 U	4.1 U	4 U	4.2 U
Benzo(b)fluoranthene	--	6200	1100	1100	**8.2**	4 U	2.6 JQ	4 U	4.2 U
Benzo(g,h,i)perylene	--	--	25000	--	**7.9**	4 U	4.1 U	4 U	4.2 U
Chrysene	--	--	3100	110000	**5**	4 U	1.5 JQ	0.69 JQ	0.49 JQ
Fluoranthene	--	--	10000	2400000	**12**	4 U	**4.9**	1 JQ	1.7 JQ
Naphthalene	--	77	77	5300	**4.8**	0.83 JQ	2.4 JQ	0.84 JQ	4.2 U
Pentachlorophenol	--	66	66	1000	**17**	8.2 U	2.8 JQ	8.1 U	8.5 U
Phenanthrene	--	--	5500	--	**16**	0.43 JQ	**4.4**	1.8 JQ	1.5 JQ
Pyrene	--	--	10000	1800000	**4.7**	4 U	3.8 JQ	4 U	4.2 U
PAH TEQ		4400	110	110	**7.2**	**2.2**	**2.5**	**2.2**	**2.4**
Volatile Organic Compounds (µg/kg)									
Acetone	--	--	--	--	**56**	**47**	**29**	8 JQ	12 JQ
Total Organic Carbon (mg/kg)									
Total Organic Carbon	--	--	--	--	--	**--**	**35600**	**--**	**--**

Notes: **Bold** type indicates the sample result is above the sample quantitation limit.

43.1 Green shaded cell with **underlined and bolded type** designates value above soil RBC for direct contact, ingestion, or inhalation in a residential setting, but below the regional background metals level.

44.1 Tan shaded cell with ***underlined, italicized, and bolded type*** designates value above the value allowing soils to be reused as clean fill.

74 Grey shaded cell with **underlined and bolded type** designates value above soil RBC for protection of groundwater quality but below regional background value.

a = Values are background levels of metals in soils for cleanups as provided by an ODEQ 2018 fact sheet for the Klammath Mountains region.

b = Values are RBCs protective of human health in a residential setting. Although not techncially an RBC, Clean Fill values are included in this column.

Key:

-- = Not available, applicable, or analyzed for given constituent

Table 4-9 Subsurface Soil Sample Analytical Results Summary - Former Stud Mill and Vicinity

µg/kg =	micrograms per kilogram
mg/kg =	milligrams per kilogram
bgs =	below ground surface
CF =	Clean Fill
CLP =	Contract Laboratory Program
CRQL =	Contract Required Quanitation Limit
DC =	RBC protective of exposure through soil ingestion, dermal contact, and inhalation.
EPA =	United States Environmental Protection Agency
ft =	feet
ID =	Identification.
J =	The associated numerical value is an estimated quantity because the reported concentrations were less than the sample quantitation limits or because quality control criteria limits were not met.
ODEQ =	Oregon Department of Environmental Quality
PAH TEQ =	Polycyclic aromatic hydrocarbons Toxicity Equivalent Quotient. Result compared to value for benzo(a)pyrene
PGW =	RBC designated to be protective of soil contamination negatively impacting groundwater
Q =	Detected concentration is below the method reporting limit/CRQL.
RBC =	Risk Based Concentration
TEQ =	Toxicity Equivalent Quotient. Values for TEQ (mammal) and TEQ (bird) are compared direct contact RBC and Level II Eco Risk Concentration for 2,3,7,8-TCDD (resepctively). See Section 4.2 for additional information on how TEQ was calculated.
U =	The material was analyzed for but was not detected. For all but PAH TEQ, the associated numerical value is the CRQL or sample detection limit.

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Table 4-10 Subsurface Soil Sample Analytical Results Summary - Potential Eastern Waste Disposal Area and UST Location

EPA Sample ID Station Location Description CLP Sample Number Sample Depth (bgs)	Back-ground Metals [a]	Risk Based Concentrations [b] PGW	CF	DC	20375620 SL11TP01 JLTS0 3 - 4 ft	20375621 SL11TP02 JLTS1 6 - 7 ft	20375622 SL12TP01 JLTS2 3 - 4 ft	20375623 SL12TP02 JLTS3 7 - 8 ft	20375624 SL13TP01 JLTS4 1 - 2 ft	20375625 SL13TP02 JLTS5 4 - 5 ft	20375665 OP01TP01 JLTY5 4 - 5 ft	20375666 OP01TP02 JLTY6 6 - 7 ft	20375617 OP01TP03 JLTR7 7 - 7.5 ft	20385601 OP01GP01 JLTQ1 4 - 8 ft
Target Analyte List Metals (mg/kg)														
Aluminum	--	--	--	--	**16300**	**27200**	**17900**	**14300**	**35000**	**39900**	**24100**	**31900**	**20600**	**24500**
Antimony	0.59	--	--	--	**5.5**	0.81 U	0.75 U	0.9 U	0.15 JQ	0.12 JQ	0.96 UJ	0.99 UJ	0.13 JQ	0.11 JQ
Arsenic	12	--	10	0.43	***8***	***2.8***	***2***	***1.4***	***3.5***	***3.5***	***3***	***3.4***	***2.2***	***3.2***
Barium	630	--	--	15000	**267**	**49.7**	**37.8**	**30.4**	**27.9**	**57.2**	**80**	**73**	**28.8**	**36.4**
Beryllium	1.4	--	--	160	**0.71**	**0.72**	**0.54**	0.41 JQ	**0.69**	**0.88**	**0.6**	**0.66**	**0.61**	**0.73**
Cadmium	0.52	--	--	78	0.076 JQ	0.42 U	0.37 U	0.44 U	0.53 U	0.48 U	**0.57**	0.32 JQ	0.49 U	0.41 U
Calcium	--	--	--	--	**9530**	**2400**	**4130**	**3430**	**2010**	**2380**	**2420**	**2030**	**2270**	**2320**
Chromium	890	--	--	120000	**53.7**	**81.9**	**72.9**	**61.3**	**122**	**139**	**67.5**	**86.3**	**81.1**	**102**
Cobalt	--	--	--	--	**9.7**	**21.9**	**13.9**	**9.7**	**15.6**	**22.7**	**17.5**	**11.4**	**14.4**	**13.9**
Copper	110	--	--	3100	**343**	**54.6**	**42.7**	**34**	**49.7**	**59.7**	**37**	**43.2**	**39.3**	**47.7**
Iron	--	--	--	--	**50000**	**38000**	**27900**	**20900**	**39600**	**46800**	**22800**	**26600**	**25400**	**33000**
Lead	36	30	--	400	**104 J**	**20.2 J**	**5 J**	**3.8 J**	**7.5**	**8.7**	**16.8**	**24.5**	**7.5**	**6.9**
Magnesium	--	--	--	--	**5840**	**11500**	**14100**	**10900**	**14500**	**19400**	**6780**	**7450**	**11700**	**14200**
Manganese	3000	--	--	--	**508**	**492**	**341**	**215**	**278**	**373**	**267**	**231**	**271**	**325**
Mercury	0.17	--	23	--	0.14 U	0.1 U	0.09 U	0.11 U	**0.19**	**0.16**	**0.17**	**0.15**	0.13 U	**0.12**
Nickel	630	--	--	--	**60.4**	**192**	**84.1**	**65.9**	**152**	**190**	**67.3**	**82.4**	**144**	**133**
Potassium	--	--	--	--	**1680**	**422**	**412**	351 JQ	528 U	482 U	492 U	526 U	488 U	**443**
Silver	0.16	--	--	390	**1.4**	**0.9**	0.69 JQ	0.53 JQ	0.51 JQ	0.6 JQ	0.98 U	1.1 U	0.37 JQ	0.36 JQ
Sodium	--	--	--	--	**1910**	175 JQ	40.9 JQ	48 JQ	528 U	32 JQ	492 U	58.9 JQ	30.3 JQ	30.1 JQ
Vanadium	290	--	--	--	**46.1 J**	**46.7 J**	**37.6 J**	**28.6 J**	**72.2 J**	**87.7**	**62.9**	**78.8**	**44**	**65.2**
Zinc	140	--	--	--	**304**	**80.3**	**57.8**	**46.2**	**60.8**	**77.9**	**92.1**	**113**	**59.5**	**65.9**
Semivolatile Organic Compounds (µg/kg)														
2-Methylnaphthalene	--	--	11000	--	**18**	1.9 JQ	1.5 JQ	3.7 JQ	4.7 U	4.5 U	**42**	**48**	**53**	1.7 JQ
Anthracene	--	--	6800	2.3E+07	2.3 JQ	3.9 U	3.4 U	4 U	4.7 U	4.5 U	**9.4**	4.9 U	3 JQ	0.75 JQ
Benzo(a)anthracene	--	1600	730	1100	2.5 JQ	3.9 U	3.4 U	4 U	4.7 U	4.5 U	3.5 JQ	**8.4 J**	1.1 JQ	**4.4**
Benzo(a)pyrene	--	4400	110	110	4.3 U	3.9 U	3.4 U	4 U	4.7 U	4.5 U	**4.5**	**13 J**	0.81 JQ	**4.4**
Benzo(b)fluoranthene	--	6200	1100	1100	**8.3**	1.5 JQ	0.8 JQ	4 U	4.7 U	4.5 U	**11**	**20 J**	2.2 JQ	**6.5**
Benzo(g,h,i)perylene	--	--	25000	--	3.4 JQ	3.9 U	3.4 U	4 U	4.7 U	4.5 U	2.4 JQ	**10 J**	4.4 U	2.3 JQ
Benzo(k)fluoranthene	--	--	11000	11000	**5.8**	3.9 U	3.4 U	4 U	4.7 U	4.5 U	3.1 JQ	**7.9 J**	0.67 JQ	2.9 JQ
Chrysene	--	--	3100	110000	**7.2**	0.51 JQ	0.93 JQ	1.3 JQ	4.7 U	4.5 U	**11**	**11 J**	1.7 JQ	**4.8**
Fluoranthene	--	--	10000	2400000	**8.6**	3.9 U	0.55 JQ	1.6 JQ	4.7 U	4.5 U	**11**	**21 J**	1.9 JQ	**8.2**
Fluorene	--	--	3700	3100000	2.9 JQ	3.9 U	3.4 U	2 JQ	4.7 U	4.5 U	**6.5**	**5**	4.3 JQ	0.52 JQ
Indeno(1,2,3-cd)pyrene	--	--	1100	1100	4.3 U	3.9 U	3.4 U	4 U	4.7 U	4.5 U	2.7 JQ	**8.9 J**	4.4 U	3 JQ
Naphthalene	--	77	77	5300	**7.1**	0.95 JQ	1.2 JQ	1.7 JQ	4.7 U	4.5 U	**16**	**33**	**15**	1.2 JQ
Pentachlorophenol	--	66	66	1000	4.5 JQ	7.8 U	6.8 U	**29**	9.6 U	9.1 U	8 JQ	10 U	6 JQ	7.5 U
Phenanthrene	--	--	5500	--	**32**	2.6 JQ	2.2 JQ	**4.1**	4.7 U	4.5 U	**48**	**25**	**5.8**	**4**
Pyrene	--	--	10000	1800000	**9.3**	0.94 JQ	3.4 U	4 U	4.7 U	4.5 U	**14**	**19 J**	2.7 JQ	**7.2**
PAH TEQ		4400	110	110	**3.5**	**2.2**	**1.9**	**2.2**	**2.7**	**2.5**	**8.0**	**18.8**	**3.0**	**7.3**
Volatile Organic Compounds (µg/kg)														
Acetone	--	--	--	--	**160**	**69**	**22**	12 U	9 JQ	15 U	14 JQ	1500 U	27 JQ	6.7 JQ
Benzene	--	23	--	8200	25 JQ	24 JQ	2.2 JQ	6.1 U	10 U	7.3 U	8.9 U	770 U	15 U	5.8 U

Table 4-10 Subsurface Soil Sample Analytical Results Summary - Potential Eastern Waste Disposal Area and UST Location

EPA Sample ID Station Location Description CLP Sample Number Sample Depth (bgs)	Back-ground Metals [a]	Risk Based Concentrations [b]			20375620 SL11TP01 JLTS0 3 - 4 ft	20375621 SL11TP02 JLTS1 6 - 7 ft	20375622 SL12TP01 JLTS2 3 - 4 ft	20375623 SL12TP02 JLTS3 7 - 8 ft	20375624 SL13TP01 JLTS4 1 - 2 ft	20375625 SL13TP02 JLTS5 4 - 5 ft	20375665 OP01TP01 JLTY5 4 - 5 ft	20375666 OP01TP02 JLTY6 6 - 7 ft	20375617 OP01TP03 JLTR7 7 - 7.5 ft	20385601 OP01GP01 JLTQ1 4 - 8 ft
		PGW	CF	DC										
Ethylbenzene	--	220	220	34000	65 U	28 U	7.9 U	6.1 U	10 U	7.3 U	8.9 U	770 U	7.6 JQ	5.8 U
Isopropylbenzene	--	96000	96000	3500000	65 U	28 U	7.9 U	6.1 U	10 U	7.3 U	8.9 U	210 JQ	**20**	5.8 U
m, p-Xylene	--	--	--	--	65 U	28 U	7.9 U	6.1 U	10 U	7.3 U	8.9 U	210 JQ	3 JQ	5.8 U
Methyl acetate	--	--	250000	--	**65**	22 JQ	**11**	6.1 U	10 U	7.3 U	8.9 U	770 U	15 U	5.8 U
Methylcyclohexane	--	--	--	--	65 U	28 U	7.9 U	6.1 U	10 U	7.3 U	8.9 U	**3200**	**5100**	5.8 U
o-Xylene	--	--	1000	--	65 U	28 U	7.9 U	6.1 U	10 U	7.3 U	8.9 U	120 JQ	1.5 JQ	5.8 U
Total Petroleum Hydrocarbons (mg/kg)														
Diesel Range Organics	--	9500	1100	1100	56 U	47 U	42 U	47 U	57 U	55 U	54 U	**380**	**200**	45 U
Motor Oil Range Organics	--	9500	1100	1100	**790**	120 U	100 U	120 U	140 U	140 U	140 U	**280**	120 U	110 U
Gasoline Range Organics	--	31	31	1200	33 U	22 U	7.3 U	6.7 U	16 U	17 U	13 U	<u>**180**</u>	20 U	7.9 U

Notes: **Bold** type indicates the sample result is above the sample quantitation limit.

<u>**43.1**</u> Green shaded cell with <u>**underlined and bolded type**</u> designates value above soil RBC for direct contact, ingestion, or inhalation in a residential setting, but below the regional background metals level.

<u>***44.1***</u> Tan shaded cell with <u>***underlined, italicized, and bolded type***</u> designates value above the value allowing soils to be reused as clean fill.

<u>**74**</u> Grey shaded cell with <u>**underlined and bolded type**</u> designates value above soil RBC for protection of groundwater quality.For gasoline range organics, this value is also the clean fill screening level.

a = Values are background levels of metals in soils for cleanups as provided by an ODEQ 2018 fact sheet for the Klammath Mountains region.

b = Values are RBCs protective of human health in a residential setting. Although not techncially an RBC, Clean Fill values are included in this column.

Key:

-- = Not available, applicable, or analyzed for given constituent

µg/kg = micrograms per kilogram

mg/kg = milligrams per kilogram

bgs = below ground surface

CF = Clean Fill

CLP = Contract Laboratory Program

CRQL = Contract Required Quanitation Limit

DC = RBC protective of exposure through soil ingestion, dermal contact, and inhalation.

EPA = United States Environmental Protection Agency

ft = feet

ID = Identification.

J = The associated numerical value is an estimated quantity because the reported concentrations were less than the sample quantitation limits or because quality control criteria limits were not met.

ODEQ = Oregon Department of Environmental Quality

PAH TEQ = Polycyclic aromatic hydrocarbons Toxicity Equivalent Quotient. Result compared to value for benzo(a)pyrene

PGW = RBC designated to be protective of soil contamination negatively impacting groundwater

Q = Detected concentration is below the method reporting limit/CRQL.

RBC = Risk Based Concentration

TEQ = Toxicity Equivalent Quotient. Values for TEQ (mammal) and TEQ (bird) are compared direct contact RBC and Level II Eco Risk Concentration for 2,3,7,8-TCDD (resepctively). See Section 4.2 for additional information on how TEQ was calculated.

U = The material was analyzed for but was not detected. For all but PAH TEQ, the associated numerical value is the CRQL or sample detection limit.

Table 4-11 Groundwater Sample Analytical Results Summary

EPA Sample ID Station Location Description CLP Sample Number	RBC	20375677 SL01GW JLTZ7	20375678 SL01GW-D MJLTZ8	20385679 EW01GW JLTZ9	20385680 EW01GW-D MJLW00	20375685 SL05GW JLW05	20375686 SL05GW-D MJLW06	20375687 SL06GW JLW07	20375688 SL06GW-D MJLW08	20375689 SL07GW JLW09	20375690 SL07GW-D MJLW10
Sampling Area		**Former Maintenance Bldg**				**PCP in Groundwater and Potential UST**					
Dioxins/Furans (pg/L)											
1,2,3,4,6,7,8-HpCDD	--	--	--	--	--	43 JQ	--	4.4 U	--	4.3 U	--
1,2,3,4,6,7,8-HpCDF	--	--	--	--	--	6.5 JQ	--	3.5 U	--	3.5 U	--
1,2,3,4,7,8,9-HpCDF	--	--	--	--	--	2.4 U	--	2.5 U	--	2.5 U	--
1,2,3,4,7,8-HxCDD	--	--	--	--	--	1.5 U	--	1.6 U	--	1.5 U	--
1,2,3,4,7,8-HxCDF	--	--	--	--	--	3.2 U	--	3.3 U	--	3.3 U	--
1,2,3,6,7,8-HxCDD	--	--	--	--	--	3.3 JQ	--	2.2 U	--	2.2 U	--
1,2,3,6,7,8-HxCDF	--	--	--	--	--	2.7 U	--	2.8 U	--	2.8 U	--
1,2,3,7,8,9-HxCDD	--	--	--	--	--	2.1 U	--	2.2 U	--	2.2 U	--
1,2,3,7,8,9-HxCDF	--	--	--	--	--	3.8 U	--	4 U	--	3.9 U	--
1,2,3,7,8-PeCDD	--	--	--	--	--	3.7 U	--	3.9 U	--	3.8 U	--
1,2,3,7,8-PeCDF	--	--	--	--	--	3.8 U	--	4 U	--	3.9 U	--
2,3,4,6,7,8-HxCDF	--	--	--	--	--	3.4 U	--	3.5 U	--	3.5 U	--
2,3,4,7,8-PeCDF	--	--	--	--	--	3.4 U	--	3.5 U	--	3.5 U	--
2,3,7,8-TCDD	0.091	--	--	--	--	1.1 U	--	1.1 U	--	1.1 U	--
2,3,7,8-TCDF	--	--	--	--	--	1.1 U	--	1.1 U	--	1.1 U	--
OCDD	--	--	--	--	--	**340**	--	7.9 U	--	10 JQ	--
OCDF	--	--	--	--	--	28 JQ	--	6.7 U	--	6.7 U	--
TEQ (Bird)	--	--	--	--	--	**0.18 J**	--	**0**	--	**0.001 J**	--
TEQ (Fish)	--	--	--	--	--	**0.18 J**	--	**0**	--	**0.001 J**	--
TEQ (Mammal)	0.091	--	--	--	--	**0.93 J**	--	**0**	--	**0.003 J**	--
Target Analyte List Metals (µg/L)											
Arsenic	0.052	--	1 U	--	1 U	--	0.09 JQ	--	1 U	--	1 U
Barium	4000	--	**14.6**	--	**15.1**	--	7.9 JQ	--	8.6 JQ	--	8 JQ
Calcium	--	--	2690 JQ	--	2820 JQ	--	**7180**	--	**6390**	--	**6280**
Copper	800	--	2 U	--	**5.3**	--	2 U	--	2 U	--	2 U
Iron	--	--	100 U	--	100 U	--	**1960 J**	--	100 U	--	**228 J**
Magnesium	--	--	2150 JQ	--	2490 JQ	--	4210 JQ	--	**5430**	--	4000 JQ
Manganese	480	--	**40.9**	--	**45.8**	--	**529**	--	**669**	--	**546**
Mercury	6	--	0.2 U	--	0.2 U	--	0.2 U	--	0.2 U	--	0.2 U
Sodium	--	--	**7350**	--	**7620**	--	**6770**	--	**8370**	--	**6910**
Semivolatile Organic Compounds (µg/L)											
Pentachlorophenol	0.044	0.2 U	--	0.2 U	--	0.061 JQ	--	0.2 U	--	0.21 U	--
Volatile Organic Compounds (µg/L)											
Methylcyclohexane	--	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--
Total Petroleum Hydrocarbons (µg/L)											
Gasoline Range Organics	110	50 U	--	50 U	--	50 U	--	50 U	--	50 U	--

Table 4-11 Groundwater Sample Analytical Results Summary

EPA Sample ID Station Location Description CLP Sample Number	RBC	20375691 SL10GW JLW11	20375692 SL10GW-D MJLW12	20375703 SL15GW JLW23	20375704 SL15GW-D MJLW24	20375707 SL18GW JLW27	20375708 SL18GW-D MJLW28	20375709 SL20GW JLW29	20375710 SL20GW-D MJLW30	20375711 SL21GW JLW31	20375712 SL21GW-D MJLW32	20375713 SL22GW JLW33	20375714 SL22GW-D MJLW34
Sampling Area		Former Transformer		Southern Wigwam Burner				Former Stud Mill and Vicinity					
Dioxins/Furans (pg/L)													
1,2,3,4,6,7,8-HpCDD	--	--	--	41 JQ	--	10 JQ	--	**160**	--	10 JQ	--	8.5 JQ	--
1,2,3,4,6,7,8-HpCDF	--	--	--	3.6 JQ	--	3.5 U	--	28 JQ	--	3.5 U	--	3.5 U	--
1,2,3,4,7,8,9-HpCDF	--	--	--	2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--	2.5 U	--
1,2,3,4,7,8-HxCDD	--	--	--	1.5 U	--	1.5 U	--	1.8 U	--	1.5 U	--	1.5 U	--
1,2,3,4,7,8-HxCDF	--	--	--	3.3 U	--	3.3 U	--	3.3 U	--	3.3 U	--	3.3 U	--
1,2,3,6,7,8-HxCDD	--	--	--	2.9 JQ	--	2.2 U	--	5 JQ	--	2.2 U	--	2.2 U	--
1,2,3,6,7,8-HxCDF	--	--	--	2.8 U	--	2.8 U	--	2.8 U	--	2.8 U	--	2.8 U	--
1,2,3,7,8,9-HxCDD	--	--	--	2.5 JQ	--	2.2 U	--	3.1 JQ	--	2.2 U	--	2.2 U	--
1,2,3,7,8,9-HxCDF	--	--	--	3.9 U	--	3.9 U	--	3.9 U	--	3.9 U	--	3.9 U	--
1,2,3,7,8-PeCDD	--	--	--	3.8 U	--	3.8 U	--	3.8 U	--	3.8 U	--	3.8 U	--
1,2,3,7,8-PeCDF	--	--	--	3.9 U	--	3.9 U	--	3.9 U	--	3.9 U	--	3.9 U	--
2,3,4,6,7,8-HxCDF	--	--	--	3.5 U	--	3.5 U	--	3.5 U	--	3.5 U	--	3.5 U	--
2,3,4,7,8-PeCDF	--	--	--	3.5 U	--	3.5 U	--	3.5 U	--	3.5 U	--	3.5 U	--
2,3,7,8-TCDD	0.091	--	--	1.1 U	--	0.99 U	--	1.2 U	--	1.1 U	--	1.1 U	--
2,3,7,8-TCDF	--	--	--	1.1 U	--	1.1 U	--	1.2 U	--	1.1 U	--	1.1 U	--
OCDD	--	--	--	**190**	--	83 JQ	--	**1600**	--	**120**	--	29 JQ	--
OCDF	--	--	--	13 JQ	--	8.7 JQ	--	97 JQ	--	7 JQ	--	6.6 U	--
TEQ (Bird)	--	--	--	**0.38 J**	--	**0.019 J**	--	**0.97 J**	--	**0.023 J**	--	**0.011 J**	--
TEQ (Fish)	--	--	--	**0.15 J**	--	**0.019 J**	--	**0.69 J**	--	**0.023 J**	--	**0.011 J**	--
TEQ (Mammal)	0.091	--	--	**1 J**	--	**0.13 J**	--	**3.2 J**	--	**0.14 J**	--	**0.094 J**	--
Target Analyte List Metals (µg/L)													
Arsenic	0.052	--	1 U	--	1 U	--	**1.8**	--	**2**	--	**2.6**	--	**3.2**
Barium	4000	--	8.9 JQ	--	**12.7**	--	**14.9**	--	**12.6**	--	**17.4**	--	6.5 JQ
Calcium	--	--	**9280**	--	**12400**	--	**5260**	--	**6640**	--	**5030**	--	1890 JQ
Copper	800	--	**9.1**	--	2 U	--	2 U	--	2 U	--	2 U	--	2 U
Iron	--	--	100 U	--	100 U	--	**13700 J**	--	**10900 J**	--	**14400 J**	--	**19400 J**
Magnesium	--	--	3340 JQ	--	3110 JQ	--	3210 JQ	--	2780 JQ	--	2980 JQ	--	1610 JQ
Manganese	480	--	**29**	--	**58.8**	--	**1510**	--	**640**	--	**3010**	--	**463**
Mercury	6	--	0.2 U	--	0.2 U	--	0.2 U	--	0.2 U	--	0.2 U	--	0.2 U
Sodium	--	--	**6500**	--	**8240**	--	**8230**	--	**8810**	--	**9360**	--	**7730**
Semivolatile Organic Compounds (µg/L)													
Pentachlorophenol	0.044	0.21 UJ	--	0.2 U	--	0.21 U	--	0.2 U	--	0.21 U	--	0.21 U	--
Volatile Organic Compounds (µg/L)													
Methylcyclohexane	--	--	--	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	--
Total Petroleum Hydrocarbons (µg/L)													
Gasoline Range Organics	110	--	--	50 U	--	50 U	--	50 U	--	50 U	--	50 U	--

Table 4-11 Groundwater Sample Analytical Results Summary

EPA Sample ID	RBC	20385681	20385682	20385715	20385716	20385717	20385718	20385693	20385694	20385695	20385696	20385697	20385698
Station Location Description		TP3GW	TP3GW-D	TP23GW	TP23GW-D	TP25GW	TP25GW-D	TP11GW	TP11GW-D	TP12GW	TP12GW-D	TP13GW	TP13GW-D
CLP Sample Number		JLW01	MJLW02	JLW35	MJLW36	JLW37	MJLW38	JLW13	JLW14	JLW15	MJLW16	JLW17	MJLW18
Sampling Area		Log Pond Perimeter						Potential Eastern Waste Disposal Area and UST Location					
Dioxins/Furans (pg/L)													
1,2,3,4,6,7,8-HpCDD	--	--	--	4.4 U	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	--	--	--	3.5 U	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	--	--	--	2.5 U	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	--	--	--	1.5 U	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	--	--	--	3.3 U	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	--	--	--	2.2 U	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	--	--	--	2.8 U	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	--	--	--	2.2 U	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	--	--	--	4 U	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	--	--	--	3.9 U	--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	--	--	--	4 U	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	--	--	--	3.5 U	--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	--	--	--	3.5 U	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	0.091	--	--	0.75 U	--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	--	--	--	1.1 U	--	--	--	--	--	--	--	--	--
OCDD	--	--	--	11 JQ	--	--	--	--	--	--	--	--	--
OCDF	--	--	--	6.7 U	--	--	--	--	--	--	--	--	--
TEQ (Bird)	--	--	--	**0.0011 J**	--	--	--	--	--	--	--	--	--
TEQ (Fish)	--	--	--	**0.0011 J**	--	--	--	--	--	--	--	--	--
TEQ (Mammal)	0.091	--	--	**0.0033 J**	--	--	--	--	--	--	--	--	--
Target Analyte List Metals (µg/L)													
Arsenic	0.052	--	1 U	--	**2.1**	--	**5.6**	--	1 U	--	**1.6**	--	1 U
Barium	4000	--	**32.9**	--	**15.6**	--	**360**	--	**20.4**	--	**43.9**	--	**12.2**
Calcium	--	--	3610 JQ	--	3000 JQ	--	**9150**	--	2210 JQ	--	**6010**	--	3370 JQ
Copper	800	--	2 U	--	2 U	--	2 U	--	2 U	--	2 U	--	2 U
Iron	--	--	**726 J**	--	**10600 J**	--	**160000 J**	--	100 U	--	**4460 J**	--	**223 J**
Magnesium	--	--	3200 JQ	--	3160 JQ	--	**6630**	--	1580 JQ	--	4760 JQ	--	2680 JQ
Manganese	480	--	**65.7**	--	**609**	--	**2680**	--	**25.9**	--	**104**	--	**112**
Mercury	6	--	0.2 U	--	0.2 U	--	**0.22**	--	0.2 U	--	0.2 U	--	0.2 U
Sodium	--	--	**8670**	--	**8150**	--	**12100**	--	**8150**	--	**12600**	--	**9300**
Semivolatile Organic Compounds (µg/L)													
Pentachlorophenol	0.044	0.2 U	--	0.21 U	--	0.21 U	--	0.2 U	--	0.2 U	--	0.2 U	--
Volatile Organic Compounds (µg/L)													
Methylcyclohexane	--	--	--	--	--	--	--	0.5 U	--	0.5 U	--	0.5 U	--
Total Petroleum Hydrocarbons (µg/L)													
Gasoline Range Organics	110	--	--	--	--	--	--	50 U	--	50 U	--	50 U	--

Table 4-11 Groundwater Sample Analytical Results Summary

EPA Sample ID Station Location Description CLP Sample Number	RBC	20385699 EW02GW JLW19	20385700 EW02GW-D MJLW20	20385733 OP01GW-D MJLW53	20385734 OP01GW JLW54
Sampling Area		Potential Eastern Waste Disposal Area and UST Location			
Dioxins/Furans (pg/L)					
1,2,3,4,6,7,8-HpCDD	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	--	--	--	--	--
1,2,3,4,7,8-HxCDD	--	--	--	--	--
1,2,3,4,7,8-HxCDF	--	--	--	--	--
1,2,3,6,7,8-HxCDD	--	--	--	--	--
1,2,3,6,7,8-HxCDF	--	--	--	--	--
1,2,3,7,8,9-HxCDD	--	--	--	--	--
1,2,3,7,8,9-HxCDF	--	--	--	--	--
1,2,3,7,8-PeCDD	--	--	--	--	--
1,2,3,7,8-PeCDF	--	--	--	--	--
2,3,4,6,7,8-HxCDF	--	--	--	--	--
2,3,4,7,8-PeCDF	--	--	--	--	--
2,3,7,8-TCDD	0.091	--	--	--	--
2,3,7,8-TCDF	--	--	--	--	--
OCDD	--	--	--	--	--
OCDF	--	--	--	--	--
TEQ (Bird)	--	--	--	--	--
TEQ (Fish)	--	--	--	--	--
TEQ (Mammal)	0.091	--	--	--	--
Target Analyte List Metals (µg/L)					
Arsenic	0.052	--	1 U	0.2 JQ	--
Barium	4000	--	**11.4**	**10.5**	--
Calcium	--	--	3990 JQ	2210 JQ	--
Copper	800	--	2 U	2 U	--
Iron	--	--	100 U	**1630 J**	--
Magnesium	--	--	3730 JQ	1960 JQ	--
Manganese	480	--	**42.3**	**59.8**	--
Mercury	6	--	0.2 U	0.2 U	--
Sodium	--	--	**9360**	**7830**	--
Semivolatile Organic Compounds (µg/L)					
Pentachlorophenol	0.044	0.2 U	--	--	0.21 U
Volatile Organic Compounds (µg/L)					
Methylcyclohexane	--	0.5 U	--	--	**0.77**
Total Petroleum Hydrocarbons (µg/L)					
Gasoline Range Organics	110	50 U	--	--	**140**

Notes: **Bold** type indicates the sample result is above the sample quantitation limit.

74 Grey shaded cell with **underlined and bolded type** designates value above residential groundwater RBC.

Key:

-- = Not available, applicable, or analyzed for given constituent.
CLP = Contract Laboratory Program
-D = Suffix used to designate filtered sample for dissolved consituents
EPA = United States Environmental Protection Agency
ID = Identification
J = The analyte was positively identified and the associated numerical value is an estimated quantity.
µg/L = Micrograms per liter
pg/L = Picograms per liter
PCP = Pentachlorophenol
Q = Result is estimated because the concentration is below the Contract Required Quantitation Limits.
RBC = Risk-based concentration for residential groundwater consumption.
TEQ = Toxicity Equivalent Quotient. Value for TEQ (mammal) is compared to RBC for 2,3,7,8-TCDD. See Section 4.2 for additional information on how TEQ was calculated.
U = The material was analyzed for but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.
UST = Underground Storage Tank

Table 4-12 Surface Soil Sample Analytical Results Summary - Incremental Sampling Method

EPA Sample ID Station Location Description Sample Depth (bgs)	Back-ground Metals [a]	Risk Based Concentrations [b] PGW	CF	DC	20375667 DU01SS 0-4 cm	20385668 DU02SS 0-4 cm	20385669 DU03SS 0-4 cm	20385670 DU04SS 0-4 cm	20385671 DU05SS 0-4 cm	20385672 DU06SS 0-4 cm	20385675 DU06SS-R 0-4 cm	20385676 DU06SS-T 0-4 cm	20385673 DU07SS 0-4 cm	20375674 DU08SS 0-4 cm
Dioxins/Furans (ng/kg)														
1,2,3,4,6,7,8-HpCDF	--	--	--	--	206	10.2	23.6	48.4	204	131	136	140	79.3	10.4
1,2,3,4,6,7,8-HpCDD	--	--	--	--	1260	56.4	117	205	652	479	488	556	737	41
1,2,3,4,7,8,9-HpCDF	--	--	--	--	12.5	0.88 J	2.12 J	3.84	14.9	10.9	9.73	11.6	6.56	0.73 J
1,2,3,4,7,8-HxCDF	--	--	--	--	11.5	0.922 J	1.81 J	3.85	15.9	11.7	11.6	13	6.46	0.868 J
1,2,3,4,7,8-HxCDD	--	--	--	--	11.3	0.998 J	1.37 J	2.88	7.9 U	7.72	7.39	10.6	21.1	0.811 J
1,2,3,6,7,8-HxCDF	--	--	--	--	5.34 J	0.465 J	0.933 J	2.7	12.3 J	7.25	6.88	8.3	3.8	0.679 J
1,2,3,6,7,8-HxCDD	--	--	--	--	43.3	2.66	4.7	8.5	27.5	24.2	21.6	26	29.2	2.09 J
1,2,3,7,8,9-HxCDF	--	--	--	--	4.43 J	0.4 J	0.712 J	1.11 J	5.35 J	3.92	3.68 J	4.36	2.5 J	0.33 U
1,2,3,7,8,9-HxCDD	--	--	--	--	19.9	2.18 J	2.77	6.19	17.9	18.5	17.8	26.1	30	1.54 J
1,2,3,7,8-PeCDF	--	--	--	--	2.75 J	0.398 J	0.454 J	1.12 J	6.8 J	4.6	4.02	5	1.73 J	0.353 J
1,2,3,7,8-PeCDD	--	--	--	--	5.71 J	0.889 J	1.2 U	1.98 J	5.43 J	6.33	7.1	9.8	12.6	0.61 J
2,3,4,6,7,8-HxCDF	--	--	--	--	13 U	0.787 J	2 U	4.9 U	19 U	12.5	12 U	13 U	7.7 U	1.01 J
2,3,4,7,8-PeCDF	--	--	--	--	6.22 J	0.597 J	0.955 J	2.15 J	11.1 J	8.35	7.52	9.5	3.18	0.878 J
2,3,7,8-TCDF	--	--	--	--	1 J	0.622	0.37 U	0.678	9.5	5.67	5.53	5.53	1.67	0.424 J
2,3,7,8-TCDD	--	6.8	0.29	4.7	9.45	0.544	2.79	0.984	2.71	2.59	2.94	3.27	7.74	0.669
OCDF	--	--	--	--	892	30	81.8	142	617	403	437	491	239	36
OCDD	--	--	--	--	9930	501	966	1570	5640	3740	3760	4090	5160	364
TEQ (Bird)	--	--	--	55	33.60	3.46	6.78	8.91	40.60	31.73	31.64	38.40	33.89	3.31
TEQ (Fish)	--	--	--	--	32.69	2.81	6.29	7.87	27.63	23.74	24.15	30.56	37.42	2.68
TEQ (Mammal)	--	--	0.29	4.7	46.12	3.36	7.50	9.81	33.80	28.16	28.66	35.21	41.44	2.97
Target Analyte List Metals (mg/kg)														
Aluminum	--	--	--	--	25200	34300	34600	28900	21500	23300	25600	23200	26100	22200
Antimony	0.59	--	--	--	0.184 J	0.329 J	0.221 J	0.624 J	6.07 J	2.62 J	2.2 J	16.4 J	5.15 J	0.094 J
Arsenic	12	--	10	0.43	4.29 J	8.05 J	6.5 J	10.2 J	8.69 J	15.1 J	9.2 J	12.3 J	12.2 J	4.18 J
Barium	630	--	--	15000	68.7	535	264	936	299	253	233	272	403	81.3
Beryllium	1.4	--	--	160	0.329	0.318	0.319	0.313	0.296	0.302	0.351	0.311	0.37	0.35
Cadmium	0.52	--	--	78	0.21	0.221	0.205	0.74	1.26	0.995	0.786	0.977	0.367	0.375
Calcium	--	--	--	--	3740	16500	6510	22000	8940	9910	9600	9460	12000	4340
Chromium	890	--	--	120000	78.5	93.4	94	83.4	68.8	81	83.6	89.1	72.5	67.1
Cobalt	--	--	--	--	14.6	15.3	15.8	14.8	16.1	19	17.8	18.6	16.4	23.1
Copper	110	--	--	3100	50.8	85.3	70.1	111	183	279	242	167	92.8	57.3
Iron	--	--	--	--	35000 J	39400 J	39200 J	37900 J	49000 J	57900 J	51900 J	61200 J	43400 J	30300 J
Lead	36	30	--	400	20.2 J	19.4 J	18 J	43.7 J	246 J	125 J	101 J	226 J	32.5 J	15.2 J
Magnesium	--	--	--	--	12500	14900	13700	13000	8640	9100	10500	9950	10400	11700
Manganese	3000	--	--	--	513	1340	896	2640	1070	879	799	978	1160	1140
Mercury	0.17	--	23	--	0.111	0.09	0.089	0.068	0.585	0.206	0.221	0.194	0.08	0.066
Nickel	630	--	--	--	76.3	101	98.5	84.7	72	83	86.2	83.5	73	69.8
Potassium	--	--	--	--	982	3880	2160	5230	2600	2690	2840	2540	3990	1060
Silver	0.16	--	--	390	0.06	0.412	0.181	0.991	0.439	0.309	0.234	0.366	0.167	0.067
Sodium	--	--	--	--	133	475	182	621	1410	1360	1720	1420	1560	174
Thallium	0.31	--	0.78	--	0.08	0.075	0.078	0.07	0.054	0.061	0.069	0.076	0.052	0.076
Vanadium	290	--	--	--	79.3	94.5	94.6	81.6	64	72.7	79.4	75	70.6	75.8
Zinc	140	--	--	--	150	187	178	462	383	416	382	431	148	93.1

Table 4-12 Surface Soil Sample Analytical Results Summary - Incremental Sampling Method

EPA Sample ID Station Location Description Sample Depth (bgs)	Back-ground Metals [a]	Risk Based Concentrations [b]			20375667 DU01SS 0-4 cm	20385668 DU02SS 0-4 cm	20385669 DU03SS 0-4 cm	20385670 DU04SS 0-4 cm	20385671 DU05SS 0-4 cm	20385672 DU06SS 0-4 cm	20385675 DU06SS-R 0-4 cm	20385676 DU06SS-T 0-4 cm	20385673 DU07SS 0-4 cm	20375674 DU08SS 0-4 cm
		PGW	CF	DC										
Semivolatile Organic Compounds (µg/kg)														
Methylnaphthalene, 2-	--	--	11000	--	**6.5 J**	1.8 JQ	3.2 JQ	**8.3 J**	**5.1 J**	**10 J**	**10 J**	**11 J**	**9 J**	4.7 JQ
Benzo(b)fluoranthene	--	6200	1100	1100	0.38 UJ	0.38 UJ	1.5 JQ	4.2 JQ	2.6 JQ	2.7 JQ	3.9 JQ	**5.3 J**	2.6 JQ	4.2 JQ
Benzo(g,h,i)perylene	--	--	25000	--	0.4 UJ	0.4 UJ	0.4 UJ	1.4 JQ	1 JQ	0.95 JQ	2.2 JQ	**7.6 J**	1.2 JQ	1.7 JQ
Dibenzofuran	--	--	2	--	***5*** **J**	4.5 UJ	4 UJ	***13*** **J**	***5.5*** **J**	***12*** **J**	***14*** **J**	***14*** **J**	5 UJ	3.2 UJ
Fluoranthene	--	--	10000	2E+06	**16 J**	3.7 UJ	4.6 UJ	**14 J**	**7.7 J**	**9.9 J**	**15 J**	**11 J**	**7.4 J**	**5.8 J**
Naphthalene	--	77	77	5300	**9.9 J**	**6.3 J**	**7.1 J**	**18 J**	**9.9 J**	**22 J**	**22 J**	**30 J**	**10 J**	4.6 UJ
Phenanthrene	--	--	5500	--	**33 J**	**9.5 J**	**9.5 J**	**30 J**	**13 J**	**25 J**	**34 J**	**26 J**	**20 J**	**19 J**
Pyrene	--	--	10000	2E+06	**7.7 J**	1.8 UJ	1.8 UJ	**6.1 J**	4.1 UJ	**6.1 J**	**9.4 J**	**6.3 J**	4.9 UJ	4.5 UJ
Total Organic Carbon (mg/kg)														
Total Organic Carbon	--	--	--	--		**55200**				**89900**				**115000**

Notes: **Bold** type indicates the sample result is above the sample quantitation limit.

43.1 Green shaded cell with **underlined and bolded type** designates value above soil RBC for direct contact, ingestion, or inhalation in a residential setting.

Note that for metals, these concentrations are below the regional background metals level, and for dioxins/furans, value also exceeds the clean fill standard.

44.1 Tan shaded cell with ***underlined, italicized, and bolded type*** designates value above the value allowing soils to be reused as clean fill.

32.5 Grey shaded cell with **underlined and bolded type** designates value above soil RBC for protection of groundwater quality, and for metals, below regional background metals value.

43.7 Grey shaded cell with **underlined and bolded type** designates value above soil RBC for protection of groundwater quality, but above regional background metals value.

a = Values are background levels of metals in soils for cleanups as provided by an ODEQ 2018 fact sheet for the Klammath Mountains region.

b = Values are RBCs protective of human health in a residential setting. Although not techncially an RBC, Clean Fill values are included in this column.

Key:

-- = Not available, applicable, or analyzed for given constituent

µg/kg = micrograms per kilogram

mg/kg = milligrams per kilogram

bgs = below ground surface

CF = Clean Fill

CLP = Contract Laboratory Program

CRQL = Contract Required Quanitation Limit

DC = RBC protective of exposure through soil ingestion, dermal contact, and inhalation.

EPA = United States Environmental Protection Agency

ft = feet

ID = Identification.

J = The associated numerical value is an estimated quantity because the reported concentrations were less than the sample quantitation limits or because quality control criteria limits were not met.

ODEQ = Oregon Department of Environmental Quality

PGW = RBC designated to be protective of soil contamination negatively impacting groundwater

Q = Detected concentration is below the method reporting limit/CRQL.

RBC = Risk Based Concentration in a residential setting

TEQ = Toxicity Equivalent Quotient. Values for TEQ (mammal) and TEQ (bird) are compared direct contact RBC and Level II Eco Risk Concentration for 2,3,7,8-TCDD (resepctively). See Section 4.2 for additional information on how TEQ was calculated.

U = The material was analyzed for but was not detected.

Table 4-13 Sediment Sample Analytical Results Summary - Former Log and Fire Suppresion Ponds

EPA Sample ID Station Location Description CLP Sample Number Sample Depth (bgs)	Back-ground Metals [a]	Regulatory Cleanup Value [b]	20375654 PD01SD JLTX4 0 - 6 in	20375655 PD02SD JLTX5 0 - 6 in	20375656 PD03SD JLTX6 0 - 6 in	20375657 PD04SD JLTX7 0 - 6 in	20375658 PD05SD JLTX8 0 - 6 in	20375659 PD06SD JLTX9 0 - 12 in	20375660 PD07SD JLTY0 0 - 12 in	20375661 PD08SD JLTY1 0 - 12 in	20375662 PD09SD JLTY2 0 - 12 in
Dioxins/Furans (ng/kg)											
1,2,3,4,6,7,8-HpCDD	--	--	3200	2600	2500	100	43	44	100	69	16
1,2,3,4,6,7,8-HpCDF	--	--	880	700	620	26	9.3	12	23	15	3.7 JQ
1,2,3,4,7,8,9-HpCDF	--	--	68	51	44	1.8 JQ	0.72 JQ	0.79 JQ	1.5 JQ	1 JQ	0.36 U
1,2,3,4,7,8-HxCDD	--	--	33	35	33	1.8 JQ	0.59 JQ	0.75 JQ	1.5 JQ	1.2 JQ	0.52 U
1,2,3,4,7,8-HxCDF	--	--	83	71	63	2.3 JQ	0.66 JQ	1 JQ	1.9 JQ	1.2 JQ	0.44 U
1,2,3,6,7,8-HxCDD	--	--	140	120	150	5.2	2.4 JQ	2.4 JQ	6	3.7 JQ	0.94 JQ
1,2,3,6,7,8-HxCDF	--	--	39	32	29	1.6 JQ	0.37 U	0.76 JQ	1.2 JQ	0.79 JQ	0.37 U
1,2,3,7,8,9-HxCDD	--	--	60	67	62	5.4	1.8 JQ	1.3 JQ	2.9 JQ	2.3 JQ	0.55 U
1,2,3,7,8,9-HxCDF	--	--	27	22	23	0.77 JQ	0.47 U	0.49 JQ	0.76 JQ	0.49 JQ	0.47 U
1,2,3,7,8-PeCDD	--	--	21	25	24	1 JQ	0.38 JQ	0.61 JQ	0.78 JQ	0.75 JQ	0.31 JQ
1,2,3,7,8-PeCDF	--	--	13	11	11	0.75 JQ	0.3 U	0.42 JQ	0.53 JQ	0.42 JQ	0.3 U
2,3,4,6,7,8-HxCDF	--	--	60	53	48	1.8 JQ	0.44 U	0.97 JQ	1.6 JQ	1 JQ	0.44 U
2,3,4,7,8-PeCDF	--	--	33	30	28	1.4 JQ	0.31 JQ	0.86 JQ	1.2 JQ	0.83 JQ	0.32 JQ
2,3,7,8-TCDD	--	9	7.1	4.5	4.5	0.99 JQ	1.1	3.6	0.88 JQ	1.5	0.37 JQ
2,3,7,8-TCDF	--	--	3.1	2.9	3.1	0.63 JQ	0.2 JQ	0.35 JQ	0.48 JQ	0.49 JQ	0.18 JQ
OCDD	--	--	33000 J	24000 J	24000 J	870	410	330	720	550	120
OCDF	--	--	2600	1600	1400	68	35	30	57	39	7.5 JQ
TEQ (Bird)	--	9	110	100	99	5.9 J	2.5 J	6.2 J	4.7 J	4.5 J	1.2 J
TEQ (Fish)	--	9	100	96	90	4.9 J	2.2 J	5.6 J	4.1 J	4 J	0.92 J
TEQ (Mammal)	--	9	140	120	120	5.9 J	2.8 J	6 J	5.1 J	4.7 J	1.1 J
Target Analyte List Metals (mg/kg)											
Aluminum	--	--	25200	25400	23200	20900	19100	17400	20700	20900	22000
Arsenic	12	6	2.6	2.7	3.3	3.2	2.4	3	3.9	4.5	4.9
Barium	630	--	124	137	190	129	75.7	92.8	119	101	86.9
Beryllium	1.4	--	0.74 JQ	0.73	0.81 JQ	0.85	0.68	0.6	0.77	0.72	0.81
Calcium	--	--	2780	2590	7350	1580	2920	1350	1570	1350	487 JQ
Chromium	890	37	75	74.6	78.1	49	51.3	40.9	47.7	48.5	46.2
Cobalt	--	--	13.7	13.4	15.4	15	10.6	10.6	14	11.5	13
Copper	110	36	46.1	53.6	72	33.7	32.9	25.6	30.6	30.6	30.2
Iron	--	--	32400	32400	42200	29600	29100	19100	28100	25900	32100
Lead	36	35	12.7 J	17.4 J	44.2 J	9.3	7.4	7	8.2	8.2	6.9
Magnesium	--	--	11000	9140	9030	4120	8010	3700	3820	3850	5680
Manganese	3000	1100	360	331	660	332	336	162	316	184	269
Mercury	0.17	--	0.24 U	0.19	0.28 U	0.2	0.16 U	0.13	0.14	0.16	0.18 U
Nickel	630	18	84.9	70	68.5	52.3	56.7	45	53.4	51.5	53.8
Potassium	--	--	256 JQ	510	491 JQ	253 JQ	375 JQ	432 U	492 U	492 U	371 JQ
Vanadium	290	--	53.6 J	60.7 J	56.3 J	52.2	47	53.3	58.4	69.6	56.3
Zinc	140	123	130	135	277	87.9	64.1	68.4	71.8	81.8	105

Table 4-13 Sediment Sample Analytical Results Summary - Former Log and Fire Suppresion Ponds

EPA Sample ID Station Location Description CLP Sample Number Sample Depth (bgs)	Back-ground Metals [a]	Regulatory Cleanup Value [b]	20375654 PD01SD JLTX4 0 - 6 in	20375655 PD02SD JLTX5 0 - 6 in	20375656 PD03SD JLTX6 0 - 6 in	20375657 PD04SD JLTX7 0 - 6 in	20375658 PD05SD JLTX8 0 - 6 in	20375659 PD06SD JLTX9 0 - 12 in	20375660 PD07SD JLTY0 0 - 12 in	20375661 PD08SD JLTY1 0 - 12 in	20375662 PD09SD JLTY2 0 - 12 in
Semivolatile Organic Compounds (µg/kg)											
2-Methylnaphthalene	--	--	5.6 JQ	**13**	**13**	18 U	0.81 JQ	16 U	13 U	16 U	6.8 U
Benzo(a)anthracene	--	32	5.8 JQ	**<u>32</u> J**	**12 J**	18 U	4.9 U	16 U	13 U	16 U	6.8 U
Benzo(b)fluoranthene	--	--	7.6 JQ	**24**	6.3 JQ	18 U	1 JQ	7.3 JQ	4 JQ	16 U	1.9 JQ
Chrysene	--	57	8.9 JQ	**13 J**	7.9 JQ	2.7 JQ	0.97 JQ	3.6 JQ	13 U	16 U	1.7 JQ
Fluoranthene	--	111	**18**	**45**	**18**	2.5 JQ	0.97 JQ	6.9 JQ	**28 J**	5.7 JQ	6.8 U
Naphthalene	--	176	8.9 JQ	**12**	**13**	18 U	4.9 U	16 U	13 U	16 U	6.8 U
Pentachlorophenol	--	--	**20**	14 JQ	8.9 JQ	37 U	10 U	32 U	27 U	33 U	14 U
Phenanthrene	--	42	**26**	**<u>53</u>**	**36**	4.7 JQ	3.5 JQ	5.1 JQ	4.1 JQ	4.1 JQ	3.8 JQ
Pyrene	--	53	**14**	**14 J**	7.7 JQ	18 U	0.58 JQ	4.1 JQ	13 U	16 U	6.8 U
PAH TEQ	--	32	**6.5**	**11.7**	**6.7**	**10.1**	**2.7**	**9.3**	**7.6**	**8.9**	**3.9**
Total Organic Carbon (mg/kg)											
Total Organic Carbon	--	--	**111000**	**100000**	**228000**	**178000**	**68600**	**136000**	**137000**	**153000**	**47100**

Notes: **Bold** type indicates the sample result is above the sample quantitation limit.

<u>74</u> Grey shaded cell with **<u>underlined and bolded type</u>** designates value above Level II Screening Value for Freshwater Sediment but below background metals concentration.

<u>277</u> Orange shaded cell with **<u>underlined and bolded type</u>** designates value above both Level II Screening Value for Freshwater Sediment and background metals concentration.

a = Values are background levels of metals in soils for cleanups as provided by an ODEQ 2018 fact sheet for the Klammath Mountains region.

b = Value is Level II SLV for Freshwater Sediment, non-bioacucmulative.

Key:

-- = Not available or applicable for given constituent

µg/kg = micrograms per kilogram

mg/kg = milligrams per kilogram

bgs = below ground surface

CLP = Contract Laboratory Program

CRQL = Contract Required Quanitation Limit

EPA = United States Environmental Protection Agency

ID = Identification.

in = inches

J = The associated numerical value is an estimated quantity because the reported concentrations were less than the sample quantitation limits or because quality control criteria limits were not met.

PAH = Polycyclic aromatic hydrocarbons

Q = Detected concentration is below the method reporting limit/CRQL.

SLV = Screening Level Value

TEQ = Toxicity Equivalent Quotient. All calculated TEQ values are compared to Level II SLV for 2,3,7,8-TCDD.

U = The material was analyzed for but was not detected. For all but PAH TEQ, the associated numerical value is the CRQL or sample detection limit.

Table 4-14 Surface Water Sample Analytical Results Summary - Former Log and Fire Suppression Ponds

EPA Sample ID Station Location Description CLP Sample Number	Level II SLV *	20375719 PD01SW JLW39	20375720 PD01SW-D MJLW40	20375721 PD05SW JLW41	20375722 PD05SW-D MJLW42	20375723 PD06SW JLW43	20375724 PD06SW-D MJLW44	20375725 PD09SW JLW45	20375726 PD09SW-D MJLW46
Dioxins/Furans (pg/L)									
1,2,3,4,6,7,8-HpCDD	--	13 JQ	--	4.1 U	--	4.2 U	--	8 JQ	--
1,2,3,4,6,7,8-HpCDF	--	4.3 JQ	--	3.3 U	--	3.4 U	--	3.4 U	--
1,2,3,4,7,8,9-HpCDF	--	2.4 U	--	2.4 U	--	2.4 U	--	2.8 U	--
1,2,3,4,7,8-HxCDD	--	1.5 U	--	1.4 U	--	1.5 U	--	1.4 U	--
1,2,3,4,7,8-HxCDF	--	3.2 U	--	3.2 U	--	3.2 U	--	3.2 U	--
1,2,3,6,7,8-HxCDD	--	2.1 U	--	2.1 U	--	2.1 U	--	2.1 U	--
1,2,3,6,7,8-HxCDF	--	2.7 U	--	2.7 U	--	2.7 U	--	2.7 U	--
1,2,3,7,8,9-HxCDD	--	2.1 U	--	2.1 U	--	2.1 U	--	2.1 U	--
1,2,3,7,8,9-HxCDF	--	3.8 U	--	3.7 U	--	3.8 U	--	3.7 U	--
1,2,3,7,8-PeCDD	--	3.7 U	--	3.6 U	--	3.7 U	--	3.6 U	--
1,2,3,7,8-PeCDF	--	3.8 U	--	3.7 U	--	3.8 U	--	3.7 U	--
2,3,4,6,7,8-HxCDF	--	3.4 U	--	3.3 U	--	3.4 U	--	3.4 U	--
2,3,4,7,8-PeCDF	--	3.4 U	--	3.3 U	--	3.4 U	--	3.4 U	--
2,3,7,8-TCDD	7600 [m]	0.99 U	--	1.1 U	--	0.72 U	--	0.71 U	--
2,3,7,8-TCDF	--	1.1 U	--	1.1 U	--	1.1 U	--	1.1 U	--
OCDD	--	**130**	--	24 JQ	--	16 JQ	--	94 JQ	--
OCDF	--	9.1 JQ	--	6.3 U	--	6.4 U	--	6.3 U	--
TEQ (Bird)	100000 [b]	**0.07 J**	--	**0.0024 J**	--	**0.0016 J**	--	**0.017 J**	--
TEQ (Fish)	--	**0.07 J**	--	**0.0024 J**	--	**0.0016 J**	--	**0.017 J**	--
TEQ (Mammal)	7600 [m]	**0.21 J**	--	**0.0072 J**	--	**0.0048 J**	--	**0.11 J**	--
Target Analyte List Metals (μg/L)									
Aluminum	87 [a]	**<u>343</u>**	200 U	179 JQ	200 U	196 JQ	200 U	107 JQ	200 U
Iron	1000 [a]	**<u>1780</u>**	**398**	**628**	**166**	**605**	100 U	**318**	100 U
Manganese	120 [a]	**51.2**	**36.8**	**23.6**	**16.6**	**39.1**	**23.3**	**16.7**	15 U
Sodium	--	**8170**	**8140**	**7850**	**8210**	**7910**	**8190**	**7850**	**8120**
Barium	4 [a]	**<u>12.7</u>**	**<u>12.5</u>**	**<u>14.7</u>**	**<u>14.9</u>**	**<u>14.8</u>**	**<u>13.9</u>**	**<u>12.6</u>**	**<u>13.6</u>**

Notes: **Bold** type indicates the sample result is above the sample quantitation limit.

<u>74</u> Grey shaded cell with **<u>underlined and bolded type</u>** designates value above Level II SLV.

* = Value is lowest Level II Screening Value for constituent in Surface Water. Superscript letter designates associated receptor.

a = Value for aquatic receptor

b = Value for bird receptor

m = Value for mammal receptor

Key:

-- = Not available, applicable, or analyzed for given constituent.

CLP = Contract Laboratory Program

-D = Suffix used to designate filtered sample for dissolved constituents

EPA = United States Environmental Protection Agency

ID = Identification

J = The analyte was positively identified and the associated numerical value is an estimated quantity.

μg/L = Micrograms per liter

pg/L = Picograms per liter

Q = Result is estimated because the concentration is below the Contract Required Quantitation Limits.

RBC = Risk-based Concentration

SLV = Screening Level Value

TEQ = Toxicity Equivalent Quotient. Value for TEQ (mammal) and TEQ (bird) is compared to RBC for 2,3,7,8-TCDD. See Section 4.2 for additional information on how TEQ was calculated.

U = The material was analyzed for but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

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Table 5-1 Summary of Criteria Value Exceedances

	Analyte	Range of Detected Concentrations	Frequency of Detection	Frequency of Exceedance of Criteria Value	Lowest Criteria Value Exceeded	Number of Results Above Background	Criteria Value Exceeded
Former Maintenance Building							
Subsurface Soil							
Metals (mg/kg)	Arsenic	3.6 - 3.7	2/2	2/2	0.43	0/2	a
Log Pond Perimter							
Surbsurface Soil							
Dioxins/Furans (ng/kg)	2,3,7,8-TCDD	1.2 - 2.4	2/9	2/9	0.29	--	b
	TEQ (Mammal)	0.011 J - 20 J	9/9	6/9	0.29	--	b
Metals (mg/kg)	Arsenic	1.8 - 5.1	12/12	12/12	0.43	0/12	c
SVOCs (µg/kg)	Bis(2-ehtylhexyl)phthalate	5200 J	1/12	1/12	20	--	b
PCP in Groundwater and Potential UST							
Subsurface Soil							
Dioxins/Furans (ng/kg)	TEQ (Mammal)	0.028 J - 25 J	8/8	4/8	0.28	--	b, c
Metals (mg/kg)	Arsenic	2.2 - 5.2	8/8	8/8	0.43	0/8	c
Former Transformer Location							
Subsurface Soil							
Metals (mg/kg)	Arsenic	3.8	2/2	2/2	0.43	0/2	c
Southern Wigwam Burner							
Subsurface Soil							
Dioxins/Furans (ng/kg)	2,3,7,8-TCDD	3.3	1/13	1/13	0.29	--	b
	TEQ (Mammal)	0.00093 J - 16 J	13/13	7/13	0.29	--	b
Metals (mg/kg)	Arsenic	1.6 - 8.6	13/13	13/13	0.43	0/13	c
Stud Mill							
Subsurface Soil							
Dioxins/Furans (ng/kg)	2,3,7,8-TCDD	2.7	1/5	1/5	0.29	--	b
	TEQ (Mammal)	0.066 J - 29 J	5/5	4/5	0.29	--	b
Metals (mg/kg)	Arsenic	3 - 4.5	5/5	5/5	0.43	0/5	c
Potential Eastern Waste Disposal Area and UST Location							
Subsurface Soil							
Metals (mg/kg)	Arsenic	1.4 - 8	10/10	10/10	0.43	0/10	c
TPH (mg/kg)	Gasoline Range Organics	180	1/10	1/10	31	--	c
Former Log and Fire Suppression Ponds							
Sediment							
Dioxins/Furans (ng/kg)	TEQ (bird)	1.2 J - 110	9/9	3/9	9	--	d
	TEQ (fish)	0.92 J - 100	9/9	3/9	9	--	d
	TEQ (Mammal)	1.1 J - 140	9/9	3/9	9	--	d
Metals (mg/kg)	Chromium	40.9 - 78.1	9/9	9/9	37	0/9	d
	Copper	30.2 - 72	9/9	3/9	36	0/9	d
	Nickel	45 - 84.9	9/9	9/9	19	0/9	d
	Zinc	64.1 - 277	9/9	3/9	123	1/9	d
SVOCs (µg/kg)	Benzo(a)anthracene	12 J - 32 J	2/9	1/9	32	--	d
	Phenanthrene	26 - 53	2/9	1/9	42	--	d
Groundwater							
Dioxins/Furans (pg/L)	TEQ (Mammal)	0.003 J - 3.2 J	8/19	6/19	0.091	--	e
Dissolved Metals (µg/L)	Arsenic	1.6 - 5.6	7/19	7/19	0.052	--	e
	Managanese	25.9 - 2,680	19/19	8/19	480	--	e
TPH (µg/L)	Gasoline Range Organics	140	1/16	1/16	110	--	e
Incremental Sampling Method							
Surface Soil							
Dioxins/Furans (ng/kg)	2,3,7,8-TCDD	0.544 - 9.45	10/10	10/10	0.29	--	b
	TEQ (Mammal) U = 0	2.94 - 44.82	10/10	10/10	0.29	--	b
	TEQ (Mammal) U = MRL	2.97 - 46.12	10/10	10/10	0.29	--	b
Metals (mg/kg)	Arsenic	4.18 J - 15.1 J	10/10	10/10	0.43	3	c
	Lead	15.2 J - 226 J	10/10	6/10	30	6	f, g
SVOCs (µg/kg)	Dibenzofuran	5 J - 14 J	6/10	6/10	2	--	b

Key at end of table.

Table 5-1 Summary of Criteria Value Exceedances

Analyte	Range of Detected Concentrations	Frequency of Detection	Frequency of Exceedance of Criteria Value	Lowest Criteria Value Exceeded	Number of Results Above Background	Criteria Value Exceeded

Notes:

a Oregon Department of Environmental Quality Risk-Based Concentration for direct contact.

b Oregon Department of Environmental Quality Risk-Based Concentration allowing soils to be reused as clean fill.

c Oregon Department of Environmental Quality Risk-Based Concentration for direct contact, ingestion, or inhalation in a residential setting, but below the regional background metals level.

d Level II SLV for Freshwater Sediment, non-bioaccumulative.

e Oregon Department of Environmental Quality Risk-Based Concentration.

f Background levels of metals in soils for cleanups as provided by an ODEQ 2018 fact sheet for the Klammath Mountains region.

g Oregon Department of Environmental Quality Risk-Based Concentration protective of soil contamination negatively impacting groundwater.

-- Criteria is not applicable to given analyte

Key: Add to key: PCP, ODEQ, SLV, ug/L, pg/L, pg/kg, TEQ, MRL, ng/kg. Remove PAHs, EPA, ISM.

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

µg/kg = Micrograms per kilogram

µg/L = Micrograms per liter

mg/kg = Milligrams per kilogram

MRL = Method reporting level

ng/kg = Nanograms per kilogram

ODEQ = Oregon Department of Environmental Quality

pg/kg = Picograms per kilogram

pg/L = Picograms per liter

PCP = Pentachlorophenol

SLV = Screening level value

SVOCs = Semivolatile organic compounds

TEQ = Toxicity equivalent quotient

TPHs = Total petroleum hydrocarbons

UST = Underground storage tank

Appendix H

Screening Level Ecological Risk Assessment,
Former Western States Plywood Cooperative Mill

SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT

FORMER WESTERN STATES PLYWOOD COOPERATIVE MILL

Prepared for

WILD RIVERS LAND TRUST

PORT ORFORD, OREGON

August 25, 2022

Project No. M2272.01.001

Prepared by

Maul Foster & Alongi, Inc.

1329 N State Street, Suite 301, Bellingham, WA 98225

MAUL
FOSTER
ALONGI

SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT

FORMER WESTERN STATES PLYWOOD COOPERATIVE MILL, PORT ORFORD, OREGON

The material and data in this report were prepared under the supervision and direction of the undersigned.

MAUL FOSTER & ALONGI, INC.

Phil Wiescher, PhD
Principal Environmental Scientist

Carolyn Wise, RG
Project Hydrogeologist

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ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
BSAF	biota-sediment accumulation factor
BTEX	benzene, toluene, ethylbenzene, and total xylenes
COC	ecological chemicals of concern
COI	chemicals of interest
CPEC	chemicals of potential ecological concern
CSM	conceptual site model
CTL	critical tissue level
DEQ	Department of Environmental Quality (Oregon)
DRO	diesel range organics
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
ERA	ecological risk assessment
ERP	Elk River Partners LLC
ESA	environmental site assessment
GRO	gasoline range organics
HAI	Hahn and Associates, Inc.
ISM	incremental sampling methodology
JJW	JJW Sustainable Land Trust, LLC
LANL	Los Alamos National Laboratory
LOF	locality of facility
mg/kg	milligrams per kilogram
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
ODFW	Oregon Department of Fish and Wildlife
ORO	oil range organics
PAH	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PCP	pentachlorophenol
PEC	probable effects concentrations
pg/g	picograms per gram
RBC	risk-based concentration
Site	tax lots 104, 900, and 901 in Curry County, Oregon
SL	screening level
SVOCs	semivolatile organic compounds
TBA	targeted brownfields assessment
TEF	toxic equivalency factors
TEQ	toxicity equivalents
TOC	total organic carbon
TRV	toxicity reference value
UCL	upper confidence limits
USFWS	U.S. Fish and Wildlife Service

ACRONYMS AND ABBREVIATIONS (CONTINUED)

UST	Underground storage tank
WRLT	Wild Rivers Land Trust
WSP	WSP USA, Inc.

1 INTRODUCTION

On behalf of Wild Rivers Land Trust (WRLT), Maul Foster & Alongi, Inc. has prepared this Screening Level Ecological Risk Assessment (ERA) for the Former Western States Plywood Cooperative Mill site (ECSI Site ID: 556) located at Elk River Road, in Port Orford, Oregon (see Figure 1-1) (the Site). The Site is comprised of three separate tax lots (tax lots 104, 900, and 901) in Curry County, Oregon. WRLT has identified Bagley Creek, which traverses the Site, as an important historic fisheries habitat that has been compromised by the previous operation of a plywood mill on the Site. WRLT and its partners are currently in the process of acquiring parcels associated with the former mill, such that fisheries habitat can be reestablished on the Site, and this habitat can be reconnected to the creek's forested headwaters.

The purpose of this ERA is to determine whether the Site currently poses, or is reasonably likely to pose in the future, unacceptable risks to ecological receptors. The procedures, methodologies, and reporting of this ERA are generally consistent with the Oregon Department of Environmental Quality (DEQ) and U.S. Environmental Protection Agency (EPA) guidance (DEQ 2007, 2020; EPA 1992, 1997, 2004). This ERA includes scoping, Tier I generic screening, and Tier II refined screening consistent with DEQ (2020) ERA guidance.

The ERA process consists of two major components: scoping and risk assessment (DEQ 2020). The first step in this process is a Level I Scoping ERA, the objective of which is to determine the potential for exposure of important ecological receptors to site-related chemicals that may be present. WSP USA, Inc., (WSP) conducted a Level I Scoping ERA for the Site as part of the December 2020 Targeted Brownfields Assessment (TBA) prepared for EPA (WSP 2020). The WSP Level I ERA is further discussed and expanded in Section 3 below and provided as Appendix A. More complex and higher-tiered risk assessment evaluations were performed sequentially as needed to identify ecological chemicals of concern (COCs) and risks to ecological receptors. This ERA includes Tier I and II screening level assessments which includes the standard assessment framework of comparing site concentrations to risk-based concentrations (RBCs) (Tier I), and allows for refined development of exposure point concentrations (EPCs) and adjustments to RBCs to account for site-specific conditions or receptors (Tier II) (DEQ 2020).

2 SITE SETTING

2.1 Site Location and Background

The Site is located in section 27 of township 32 south, range 15 west of the Willamette Meridian and includes Curry County tax lots 104, 900, and 901 (see Figure 1-1). The Site is currently vacant and covered with vegetation and disturbed ground from former plywood mill operations. Two ponds are present on the Site: the former log pond and the former fire suppression pond (see Figure 2-1). According to the USFWS and WSP, the former log pond comprises approximately 4.4 acres of freshwater Palustrine emergent (PEM) wetland , primarily within tax lot 901, and is currently an overgrown low-lying marshy area (see Appendix B; WSP 2020). The former fire suppression pond occupies the northwest corner of Tax Lot 900. Bagley Creek crosses the Site in a southwest-to-northeast direction, through the former fire suppression pond and former log pond and enters the Elk River near the northeast corner of the Site. A concrete fortified dam with an intrinsic spillway, an earthen dam, and seasonal beaver dams constrains the water along Bagley Creek into the two ponds. Most of the Site is relatively flat at an elevation of approximately 80 feet above mean sea level. The eastern portion of tax lot 104 contains a slight topographic slope to Elk River. The Site is bordered by agricultural land to the west and north and rural residences to the east and south (see Figure 2-1). Elk River flows along the northeast perimeter of the Site. (HAI 2008; WSP 2020)

The Site, as well as the adjacent Curry County tax lots 902 and 903, were formerly developed and operated as a plywood mill owned by Western States Plywood Cooperative. The plywood manufacturing facility operated on the Site between the 1950s until 1975. Prior to construction of the mill, the Site was vacant, undeveloped forestland. Historical features associated with the former mill are shown on Figure 2-1. The land has been largely vacant since a fire destroyed the mill in 1976. (HAI 2018; WSP 2020).

The main structure of the former plywood mill building was primarily present on an adjacent tax parcel to the east of the Site. The northwest portion of the mill building likely housed the debarking operations of the mill while the southwest portion may have been used to heat the logs prior to peeling into veneers. The locations of the gluing operations and where the phenolic resins were stored is not known. North of the debarking area in tax lot 104 was the former stud mill. Stud mills during this period commonly treated lumber with pentachlorophenol (PCP) for anti-sap staining purposes; however, it is unknown whether PCP was used at the Site. Additional details on the historical features and operational activities are provided in the 2020 TBA and 2018 Phase II environmental site assessment (ESA) (HAI 2018; WSP 2020).

2.2 Geology, Hydrogeology, and Surface Water

The Site is located on an alluvial plain of the Elk River, surrounded to the north and south by lowland hills of Oregon's coastal range. According to WSP's review of light detection and ranging imagery, there is a relatively steep slope at the northern margin of the Site consistent with an ancestral alluvial bench rather than artificial fill placement imported to raise the grade of the Site. (WSP 2020)

During previous investigations, subsurface drilling observations at the Site identified a mixture of sands, silts, and gravel to the maximum exploration depth of 25 feet below ground surface (bgs). Groundwater was typically encountered between 7 to 15 feet bgs, exceptions being the areas near the southern and northern margins of the former log pond, where groundwater was encountered approximately 7.5 and 17 feet bgs, respectively. Based on topography, HAI inferred that the groundwater flow direction ranged from an easterly to a northwesterly direction, and likely was subject to seasonal variation (HAI 2018; WSP 2020).

Bagley Creek intersects the Site through the former log pond and former fire suppression pond that were constructed as part of the former plywood mill operations. The presence of the ponds through Bagley Creek has prevented fish access to upstream portions of Bagley Creek from Elk River. National Wetlands Inventory maps depicts several wetlands at low spots on the Site (see Appendix B). These include freshwater emergent and freshwater forest/shrub wetlands within the former log pond, and a freshwater emergent wetland on adjacent tax lots 902 and 903.

2.3 Previous Investigations

Previous environmental investigations at the Site have included the following:

- July 2017: Phase I ESAs for tax lots 900 and 901 of the Site prepared for WRLT by PBS Engineering and Environmental, Inc. (PBS 2017a,b)
- December 2018: Phase II ESA for tax lots 104 and 900 of the Site on behalf of WRLT and Elk River Partners LLC (ERP) by Hahn and Associates, Inc., (HAI) (HAI 2018). The Phase II ESA included the following:
  - Targeted geophysical survey work to assess three areas of the Site. Four anomalies were identified during the survey, including one potential underground storage tank (UST) near the former office (see Figure 2-1)
  - Advancement of 16 borings for soil and groundwater sampling
  - Collection of six surface soil samples (three 3-point composite samples, and three discrete samples) within one-foot bgs across the Site
- January 2019: Supplemental surface soil investigation for dioxins/furans by HAI (HAI 2019a). This investigation included sampling eight discrete locations (SS-1 through SS-8) within one-foot bgs across the Site.
- March 2019: Phase I ESA for tax lots 104 and 901 by HAI on behalf of WRLT and ERP (HAI 2019b).
- July 2020: Phase I ESA for tax lot 900 and an adjacent tax lot to the east, Curry County tax lot 3215-27-00902 by HAI on behalf of ERP and JJW Sustainable Land Trust, LLC (JJW) (HAI 2020).
- December 2020: TBA for the Site prepared by WSP on behalf of the EPA (WSP 2020). This assessment included a Level 1 ERA. This investigation included the following:
  - Collection of eight 30-point surface soil samples via incremental sampling methodology (ISM) from eight decision units. This included one background decision unit (DU-8) and the remaining seven decision units centered around the former northern and southern wigwam burners and the former stud mill.
  - Collection of subsurface soil and groundwater samples from temporary direct-push borings across the Site.

- Collection of groundwater samples from two permanent wells on the Site, a domestic well with a downhole pump and hose spigot and an approximately 30-inch-diameter concrete cased well.
- Collection of grab surface sediment samples from the top 10 centimeters of the sediment along Bagley Creek and within the former ponds on the Site.
- Collection of surface water along Bagley Creek and within the former ponds on the Site.

The results of these investigations and assessments have identified known and suspected releases of contaminants on the Site as described below.

2.4 Known or Suspected Hazardous Substance Releases

Previous investigations identified the operation of industrial machinery and vehicles onsite, leaks or spills from oil filled transformers, leaks or spills of maintenance shop-related materials stored in containers, and releases of wood treatment chemicals such as PCP as possible sources of contamination to the Site (WSP 2020). Potential contaminants associated with these sources included:

- Metals (including mercury)
- Diesel Range Organics (DRO)
- Oil Range Organics (ORO)
- Gasoline Range Organics (GRO)
- Semivolatile organic compounds (SVOCs) including PCP and polycyclic aromatic hydrocarbons (PAHs)
- Polychlorinated biphenyls (PCBs)
- Benzene, toluene, ethylbenzene, and xylene (BTEX)
- Formaldehyde
- Dioxins/furans

Dioxin/furans in soil and sediment were identified across most of the Site (WSP 2020). Multiple metals were identified in surface and subsurface soils, sediment, and surface water.

2.5 Locality of Facility

The locality of facility (LOF) is defined in Oregon Administrative Rule (OAR) 340-122-115(35) as any point where a human or an ecological receptor contacts, or is reasonably likely to come into contact with, facility-related hazardous substances.

For purposes of this evaluation, the LOF for soil, surface water, and groundwater encompasses the entire Site and adjacent tax lots 902 and 903. Groundwater on the Site has been incompletely characterized, but likely discharges to both Bagley Creek and Elk River. The spatial distribution of available data suggests that groundwater discharging to Elk River from the Site is unlikely to be impacted by chemical constituents from Site, however in the absence of more complete groundwater characterization Elk River adjacent to the Site is included in the LOF for the purposes of this conservative evaluation.

A description of the LOF for the Site is provided in the beneficial land and water use determination include as Appendix C.

2.6 Land and Water Use

The current, reasonably likely, and future uses of land and water determine the types of ecological receptors that could potentially contact impacted environmental media. A beneficial use study is provided in Appendix C.

2.7 Sensitive Environments

Sensitive environments, as defined in OAR 340-122-115(50), are areas of particular environmental value where a hazardous substance could pose a greater threat than in other, non-sensitive areas. According to the OAR, sensitive environments include but are not limited to: critical habitat for federally listed endangered or threatened species; national parks; monuments; national marine sanctuaries; national recreational areas; national wildlife refuges; national forest campgrounds; recreational areas; game management areas; wildlife management areas; designated federal wilderness areas; wetlands (freshwater, estuarine, or coastal); wild and scenic rivers; state parks; state wildlife refuges; habitat designated for state-listed endangered species; fishery resources; state-designated natural areas; county or municipal parks; and other significant open spaces and natural resources protected under Goal 5 of Oregon's Statewide Planning Goals.

The following sensitive environments have been identified at the Site (WSP 2020):

- The Elk River is designated as a Wild and Scenic River under the National Wild and Scenic Rivers Act as well as Essential Salmonid Habitat by the Oregon Department of State Lands.
- Bagley Creek is designated as Essential Salmonid Habitat by the Oregon Department of State Lands.
- The former log pond on tax lots 104 and 901 contains freshwater emergent and freshwater forest/shrub wetlands as identified in the U.S. Fish and Wildlife National Wetlands Inventory.
- The bank of the Elk River on tax lot 104 is defined as freshwater forest/shrub wetlands in the U.S. Fish and Wildlife National Wetlands Inventory.
- The banks of the Elk River and Bagley Creek are identified as Riparian Habitat by the Oregon Department of Fish and Wildlife (ODFW) Strategy Habitats Database.

2.8 Species of Special Concern

According to DEQ guidance, the known or suspected presence of threatened and/or endangered species or their habitat in the locality of the site must be identified (DEQ 2020). Species that are classified as "threatened" or "endangered" receive special protection under the state and federal Endangered Species Act and are evaluated at the individual level (as opposed to the population level) in ERAs (DEQ 2020). State threatened and endangered species classifications are made by the Oregon Department of Fish and Wildlife. Federal threatened and endangered species classifications are made by both the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). The NMFS typically determines the status of marine and anadromous species. The federal status of other species, including plants, insects, birds, and mammals, is determined by the USFWS.

Threatened or endangered species that may occur in the area were identified by utilizing the USFWS information for planning and consultation (IPaC) database, provided as Appendix D; the Oregon Biodiversity Information Center database; ODFW[1] and USFWS[2] species information. The Oregon Explorer Database (maintained by Oregon State University) and the National Oceanic and Atmospheric Administration (NOAA) Protected Resources App were also used to identify potential fish species present in Elk River.[3] The results of these reviews are discussed below.

Four fish species may occur in the section of Elk River adjacent to the site but are unlikely to spend a substantial portion of their life cycles in Bagley Creek on the Site due to current fish barriers associated with the former log pond and fire suppression pond:

- Chinook salmon (*Oncorhynchus tshawytscha)*: The Oregon Explorer database indicates that the section of Elk River adjacent to the Site may be utilized by coho salmon in summer/fall months.
- Coho salmon (*Oncorhynchus kisutch*): The Oregon Explorer database indicates that the section of Elk River adjacent to the Site and Bagley Creek may be utilized by coho salmon in summer/fall months. In the level 1 ERA prepared by WSP, it was noted that Elk River Coho salmon, a federally listed threatened species, is present in Elk River, but is not currently present on the Site (WSP 2020).
- Steelhead (*Oncorhynchus mykiss*): The Oregon Explorer database indicates that the section of Elk River adjacent to the Site and Bagley Creek may be included in the migration pathway for winter steelhead.
- Coastal cutthroat trout (*Oncorhynchus clarki clarki):* The Oregon Explorer database indicates that the section of Elk River adjacent to the Site may be habitat for resident coastal cutthroat trout.

One listed mammal species may occur in the region but is unlikely to utilize the site:

[1] https://www.fws.gov/species
[2] https://www.fws.gov/species/search
[3] https://tools.oregonexplorer.info/OE_HtmlViewer/Index.html?viewer=oe

- Pacific Marten, Coastal Distinct Population Segment (*Martes caurina)*: The IPaC database identified the pacific marten as potentially present. The pacific marten is listed by the federal government and the State of Oregon as threatened. Pacific martens live in forested areas with particularly dense shrubbery along the Pacific coast, which are not present at the Site. According to the IPaC database, designated critical habitat for this species is not present within or adjacent to the Site.

Three listed bird species may occur in the region but are unlikely to utilize the site:

- Marbled murrelet (*Brachyramphus marmoratus*): The IPaC database identified the marbled murrelet as potentially present. The marbled murrelet is listed by the federal government and the State of Oregon as threatened. Marbled murrelets range along the entire Pacific coast from Alaska to California. They feed primarily on fish and invertebrates in nearshore marine waters and nest in mature and old-growth coastal forests, which are not present at the Site. According to the IPaC database, designated critical habitat for this species is not present within or adjacent to the Site.

- Northern spotted owl (*Strix occidentalis caurina*): The IPaC database identified the northern spotted owl as potentially present. The northern spotted owl is listed by the federal government and the State of Oregon as threatened. Northern spotted owls range along the Pacific coast from northern California to Canada. They nest primarily in mature and old-growth forests, which are not present at the Site. According to the IPaC database, designated critical habitat for this species is not present within or adjacent to the Site.

- Western snowy plover (*Charadrius nivosus nivosus)*: The IPaC database identified the western snowy plover as potentially present. The western snowy plover is listed by the federal government and the State of Oregon as threatened. Western snowy plovers breeds along the Pacific coast. Their habitat consists of barren to sparsely vegetated sand beaches, dry salt flats in lagoons, dredge spoils deposited on beach or dune habitat, levees and flats at salt-evaporation ponds, river bars, along alkaline or saline lakes, reservoirs, and ponds, which are not present at the Site. Nests are a natural or scraped depression on dry ground usually lined with pebbles, shell fragments, fish bones, mud chips, vegetation fragments, or invertebrate skeletons. According to the IPaC database, designated critical habitat for this species is not present within or adjacent to the Site.

Other ecologically important species include migratory birds that may utilize the surrounding area for breeding. This includes the bald eagle (*Haliaeetus leucocephalus*), protected under the Bald and Golden Eagle Protection Act, the black oystercatcher (*Haematopus bachmani*), the black turnstone (*Arenaria melanocephala),* the Clark's grebe (*Aechmophorus clarkia*), and the wrentit (*Chamaea fasciata*).

One listed plant species may occur in the region:

- Western lily (*Lilium occidentale)*: The IPaC database identified the western lily as potentially present. The western lily is listed by the federal government and the State of Oregon as endangered. The western lily is often found near the ocean in freshwater fens and on the edges of bogs and in coastal prairie and scrub along the southern Oregon and northern California coastline. Suitable habitat may be present near the Site. However, according to observations from the level 1 ERA, the Site is largely dominated by weedy, invasive species including grasses, gorse (*Ulex europaeus*), and Himalayan blackberry (*Rubs discolor*) and terrestrial ruderal habitat from the remains of dilapidated building foundations (WSP 2020). According to the IPaC database, designated critical habitat for this species is not currently available for this species.

The monarch butterfly (*Danaus plexippus)* was listed as a candidate listed species by the federal government and was listed as potentially present on the Site. Monarch butterfly lay their eggs on milkweed host plant and rely on the presence of milkweed to reproduce. According to the IPaC database, designated critical habitat for this species is not currently available for this species.

In summary, federally listed threatened and endangered species in the Site have not been observed and are not expected to be present. One listed salmonid (coho salmon) may be present in the adjacent Elk River during certain times of the year (e.g., while migrating); resident listed species are not present.

Anticipating that proposed habitat restoration of Bagley Creek may reintroduce Coho salmon, a federally listed threatened species, to the Site, this ERA also considers threatened salmon related exposures for future Bagley Creek conditions.

3 LEVEL 1 SCOPING SUMMARY

This section describes the results of the 2020 Level I ERA prepared by WSP. The Level I ERA included site visits to evaluate ecological features, including habitat types, ecologically important species and habitats, and exposure pathways. The Level I ERA is provided as Appendix A. The Level I ERA scoping checklist is provided as an appendix to the Level 1 ERA.

The purpose of the scoping evaluation was to gather basic site information in order to describe ecological features and evaluate exposure pathways between site-related contaminants and ecological receptors (DEQ 2020). WSP USA Inc. conducted a Level I ERA of the Site including an evaluation of existing data, a site visit, and an exposure pathways assessment as part of the 2020 TBA (WSP 2020). The information presented by WSP in their Level I ERA is summarized below. Descriptions of the location, history, known or suspected hazardous substance releases, land and water use, sensitive environments, and species of special concern are presented in Section 2 above.

3.1 Site Visit

WSP conducted a site walk on the Site from September 8, 2020 through September 13, 2020 to assess the presence or potential presence of ecological receptors and/or exposure pathways at or in the vicinity of the Site. Site photographs were included in the Level 1 ERA (see Appendix A).

3.2 Chemicals of Interest

Chemical analysis of samples collected during the 2020 TBA identified multiple COIs in soil, sediment, and surface water at concentrations above the most restrictive (i.e., lowest) ecological RBC (WSP 2020). This included dioxins/furans; various metals; GRO, DRO, ORO; bis(2-ethylhexyl)phthalate, benzo(a)anthracene, and phenanthrene.

3.3 Site Habitat

The Level I ERA identified the following habitats on the Site:

- Lentic (non-flowing) aquatic environment comprised of the former fire suppression pond (approximately 0.14 acre or 0.5 percent of Site). The vegetation in this habitat consists of hornwort, duck weed, and water lilies.
- Wetland aquatic environment, including former log pond and a couple smaller wetland areas (approximately 7.2 acres or 25.6 percent of Site). The vegetation in this habitat consists of cattail, juncus, phalaris, skunk cabbage, juncus and grass species, and willows along with dead tree stands.
- Lotic (flowing) aquatic environment comprised of Bagley Creek and Elk River, both perennial streams (approximately 0.3 acres or 1.1 percent of Site). The bed and bank within this reach of Bagley Creek is steep with undercut banks and scrub-shrub dominated riparian areas. The bed and banks of Elk River on the Site consist of gravel and cobbles and gravel floodplain and grasses.
- Terrestrial scrub/scrub/grasses dominated by weedy, invasive species including grasses, gorse (*Ulex europaeus*), and Himalayan blackberry (*Rubs discolor*) (approximately 48.8 percent of Site).
- Terrestrial ruderal consisting of remains of dilapidated industrial buildings from the former mill operations (approximately 24 percent).

Additional description of habitats and observations on the Site are provided in the Level I ERA in Appendix A.

3.4 Ecologically Important Species and Habitats

According to the USFWS and WSP, the former log pond comprises approximately 4.4 acres of freshwater Palustrine emergent wetland (see Appendix B; WSP 2020). During the Level I ERA site walk, it was observed that the pond supports a high percent coverage of invasive species; however, the habitat provides moderate quality habitat for a variety of species.

No aquatic or terrestrial species were observed within the wetland areas of the Site during the site visit. Bird species were observed throughout the wetland understory and within trees, including one raptor; however, no nests were observed.

Potential bat roosting trees and habitat, including cracks, crevices, and sloughing bark, were observed near the former fire suppression pond and within and adjacent to the former log pond. However, no bats were observed during the site walk.

Additional description of ecologically important species and habitats on the Site are provided in the Level I ERA in Appendix A.

3.5 Preliminary Exposure Pathways

The Level I scoping checklist provides a summary of potential receptor-pathway interactions (see Appendix A). COIs are currently present in soils, surface water/sediment, and groundwater at the Site. Groundwater at the Site is deeper than typical burrowing and rooting depths of up to 3 feet. Sediment samples were collected in the former log pond and former fire suppression pond to evaluate conditions adjacent to the river; surface water is often not considered a significant exposure pathway because of the nature of contaminants (preferentially partition to sediments/lipids) and because collective risk assessment experience demonstrates that risk, if present, would be driven by sediment/porewater conditions.

Therefore, the preliminary potential exposure pathways evaluated are associated with exposure to soils and sediments in the former log pond and former fire suppression pond:

- Plant, soil invertebrate, bird, and mammal direct contact and/or ingestion of surface soils
- Bird and mammal ingestion of biota (plants or prey) that has been in contact with surface soils
- Aquatic-dependent receptor sediment direct contact (ingestion) and indirect contact (ingestion of biota) in the former log pond and former fire suppression pond.

Exposure pathways are further evaluated and described as part of the ecological conceptual site model (CSM) developed in Section 4.

3.6 Recommendations

The Level I scoping ERA assessed whether important ecological receptors are present at the Site and whether there is potential for exposure to site-related chemicals. No ecologically important species (e.g., threatened and endangered species) or habitats were observed and are not expected to be currently present within the Site. Therefore, WSP concluded that no further work was necessary to assess the potential for adverse ecological impacts to threatened or endangered terrestrial ecological receptors at the Site currently (WSP 2020).

However, sampling at the Site has identified COIs in site soils above one or more ecological RBCs and dioxin/furans in sediment above the default freshwater sediment ecological screening level value.

Future restoration plans for the Site may introduce ecologically important species and potentially complete pathways for exposure to soil and sediment/porewater. Therefore, additional assessment is recommended for these areas to determine potential for unacceptable adverse impacts to future ecological receptors. These assessments are provided in Sections 4 and 5.

4 ECOLOGICAL CONCEPTUAL SITE MODEL

For exposure to chemicals and potential risks to occur, a complete exposure pathway must exist. A complete pathway requires a source and mechanism for release of constituents, a transport or retention medium, a potential environmental contact (exposure point) with the affected medium, and an exposure route at the exposure point (EPA 1997). The ecological CSM (see Figure 4-1) presents potential exposure pathways by which representative ecological receptors may come into contact with site-related chemicals. These pathways indicate how the ecological resources can co-occur or come into contact with chemicals, and include sources, fate and transport processes, and exposure routes.

4.1 Ecological Stressors

Ecological stressors include physical, chemical, and biological conditions that have the potential to adversely affect ecological receptors directly or indirectly. This ERA focuses on the potential ecological effects to populations associated with soil, sediment, and surface water. Other chemical stressors (i.e., background levels) and physical (nonchemical) stressors, such as habitat disturbance and degradation, may also contribute to adverse ecological effects.

4.2 Ecological Receptors and Assessment Endpoints

Ecological receptors that may have significant exposure to soil, sediment, or impacted biota include plants, soil invertebrates, birds, mammals, and aquatic-dependent receptors (benthic invertebrates, fish, and aquatic predators) (see Figure 4-1). OAR 340-122-115(7) states that an assessment endpoint is an explicit expression of a value deemed important to protect, operationally defined by an entity and one or more of that entity's measurable attributes. Ecologically appropriate assessment endpoints can be defined upon selection of species: (1) that are representative of the types of ecological receptors present or likely to be present at or near the site; (2) that may be exposed to or sensitive to contamination; and (3) for which toxicological and biological data are available. This approach is considered protective of less sensitive or less exposed species not selected (DEQ 2001; EPA 1997). The following have been selected as assessment endpoints:

- Protecting the survival, growth, and reproduction of local populations of plants and soil invertebrates that may be exposed to chemicals in surface soil
- Protecting the survival, growth, and reproduction of local populations of avian ground insectivores, herbivores, and carnivores exposed via ingestion of prey and incidental ingestion of surface soil

- Protecting the survival, growth, and reproduction of local populations of mammalian ground insectivores, herbivores, and carnivores exposed via ingestion of prey and incidental ingestion of surface soil

- Protecting the survival, growth, and reproduction of aquatic species and aquatic-dependent wildlife that may be exposed to chemicals in surface sediment, including salmonid individuals to account for potential future Bagley Creek conditions

4.3 Potential Exposure Pathways

Primary exposure media include surface soil, sediment, and biota (i.e., plant and prey items). Exposure pathways consist of a source, its transport, and a route of exposure at an exposure point; exposure pathways for receptor types are summarized in Figure 4-1.

It is assumed that plants and animals can contact surface soils (up to 3 feet bgs) and biota on the Site. Chemicals have the potential to impact sediment/pore water in Bagley Creek. Aquatic plants, benthic organisms, fish, piscivorous mammals, and predatory birds are ecological receptors most likely to be exposed.[4] Specifically, plants and benthic organisms may be exposed to chemicals through direct contact with and uptake from sediment. Fish may be exposed to chemicals through direct contact with sediment and through incidental ingestion (e.g., during filter feeding); chemicals also may bioaccumulate in tissue. Based on the transitory nature of salmonids and on their large ranges, assessment and protection of resident, smaller-home-range fish populations are assumed to account for protection of salmonids if these are introduced in the future. Aquatic-dependent birds, as well as mammals, may ingest chemicals in sediment; dermal exposure routes are considered insignificant because of infrequent contact and external protection, such as fur and feathers. Surface water is not considered a significant exposure pathway because of the nature of the COIs (preferentially partition to sediments/lipids) and because collective risk assessment experience demonstrates that risk, if present, would be driven by sediment/porewater conditions. Relevant exposure media include aquatic biota for receptors at higher trophic levels. Fish, birds, and mammals may accrue chemicals in tissue if they consume prey that has accumulated chemicals from sediment.

Groundwater is present starting at approximately 7 to 10 feet bgs. This is below the typical depth of plant root systems and mammal burrows (DEQ 1998), and direct exposure to groundwater is considered an incomplete pathway.

[4] For amphibians and reptiles, there is a lack of consensus-based wildlife exposure factors and toxicity reference values (TRVs) and these groups are not typically evaluated.

5 DATA TREATMENT RULES

5.1 Summation

Some chemical groups are reported as sums of individual compounds or as toxicity equivalents (TEQs). For purposes of totaling concentrations, calculated totals are the sum of all detected concentrations and non-detect results at one-half the detection limit (or estimated detection limit, in the case of dioxins) for analytes detected at least once in the RA dataset for a given medium. If none of the analytes are detected for a given sample, then the highest detection limit is the selected value for the calculated total, and a "U" qualifier is added to indicate the lack of detected values.

5.2 Toxicity Equivalent Calculations

Toxic equivalency factors (TEFs) are used in calculating dioxin TEQs. In 2005, the World Health Organization published TEFs for mammals (see Van den Berg et al. 2006) and for fish and birds (see Van den Berg et al., 1998). Relevant congener concentrations are multiplied by their associated TEFs to estimate toxicity relative to 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD). The resulting concentrations are summed. The dioxin TEQ is the sum of 17 dioxin and furan congeners weighted based on their toxicity relative to 2,3,7,8-TCDD. Dioxins are commonly regulated as dioxin TEQs, not as individual congeners. TEFs are applied to scale toxicity of other congeners, relative to the most toxic congener 2,3,7,8-TCDD, since much of the toxicological literature is based on 2,3,7,8-TCDD exposures. The use of dioxin TEQ concentrations for comparison with 2,3,7,8-TCDD screening criteria is therefore appropriate for developing risk estimates where applicable.

6 TIER I SCREENING

The purpose of the Tier I screening is to compare Site concentrations to the default ecological RBCs developed by DEQ to determine chemicals of potential ecological concern (CPECs) for further evaluation to determine ecological COCs. The approach used generally follows DEQ guidance (DEQ, 2020).

6.1 Chemicals of Interest

COIs were previously identified for evaluation at the Site and include metals, DRO, ORO, GRO, SVOCs including PCP and PAHs, PCBs, BTEX, formaldehyde, and dioxins/furans, as described in the 2020 Level I ERA (WSP 2020). The list of COIs are those that are known or suspected to be present based on prior investigations, and are identified based on site-specific sources of contamination. All data available for the Site were included in the Tier I screening assessment described in the next section.

6.2 Tier I Screening Assessment (CPEC Identification)

The screening assessment evaluates COIs that have the potential to result in unacceptable risks to the environment. CPECs are identified on the basis of background concentrations and chemical concentrations relative to conservative risk-based screening, as described below.

Background concentration—If the maximum detected concentration of a naturally occurring metal is less than the background value, the metal will not be selected as a CPEC regardless of whether its concentration exceeds an RBC. Soil concentrations are compared to the DEQ-developed background levels for the Klamath Mountains (DEQ 2013); a value was unavailable for cobalt and therefore a different literature source was used (Shacklette and Boergnen 1984). Concentrations are also compared to site-specific soil background concentrations determined by WSP using ISM samples for soil (DU8SS), and a discrete background sediment sample (PD09SD) collected by WSP upstream of the Site in Bagley Creek (WSP 2020). Metal and dioxin/furan concentrations from the site-specific soil background concentration sample were used to inform evaluations of concentrations relative to background conditions; however, if a concentration exceeded a site-specific concentration and not a regional background concentration, it was not considered an exceedance of the natural background since background sampling was limited.

Concentration-based risk screen—Ecological risk screening compares concentrations of chemicals to applicable ecological soil screening criteria. Chemicals which exceed an RBC at any location in soil or sediment are selected as CPECs for further evaluation.

Depth criteria—It is assumed that plants and animals can contact surface soils (up to 3 feet bgs) and biota on the Site consistent with DEQ ERA guidance; therefore, soil data collected from the surface to approximately 3 feet bgs were included for screening. In some cases, soil data were collected from 0 to 4 feet bgs and these data were included for evaluation.

Ecological screening criteria—RBCs identified in DEQ (2020) for soil, sediment, and surface water are applied. In addition, default bioaccumulation criteria identified in DEQ (2007) are applied for sediment.

Results—Table 6-1 provides the screening results for soil for discrete and three-point composite samples and Table 6-2 provides the screening results for soil ISM samples. Table 6-1 shows metals (antimony, barium, copper, lead, mercury, selenium, and zinc) and dioxins exceed RBCs at multiple locations. Some metals exceed RBCs but are consistent with background at all locations (e.g., chromium, cobalt, manganese, nickel, and vanadium). TPH (diesel+oil) exceed RBCs at one location (SL06GP01). Other COIs are below RBCs and are infrequently detected. All soil data are provided in Appendix E.

Table 6-2 shows ISM results for decision units developed for specific areas of interest at the Site. The results show metals and dioxins exceed RBCs at multiple locations. Some metals exceed RBCs but are consistent with background at all locations (e.g., chromium, cobalt, manganese, nickel, and vanadium). Dioxin TEQ exceeds the lowest available RBC and the site-specific background value of 2.97 picograms per gram (pg/g) in all decision units sampled.

Table 6-3 provides the screening results for sediment. Lead, mercury, and zinc exceed the sediment RBCs or background criteria protective of bioaccumulative effects in the former log pond at one to three locations. Dioxin TEQ exceeds the sediment RBC by more than ten times at three locations in the former log pond and all locations exceed bioaccumulative effects criteria. Total LPAHs marginally exceed the sediment RBC at two locations in the former log pond. Other SVOCs were largely non-detect or did not exceed RBCs.

Table 6-4 provides the screening results for surface water. Aluminum and iron total concentrations exceeded RBCs at one location (PD01SW), however, dissolved concentrations which represent the more bioavailable portion to receptors were below RBCs at all locations. Metals are therefore not further considered for surface water. Dioxin TEQ exceeded at multiple locations based on low-level detections. Other chemicals were non-detect or did not exceed RBCs.

In summary, the following CPECs are identified:

- **Soil:** metals (antimony, arsenic, barium, copper, lead, mercury, selenium, zinc), dioxins, and TPH (diesel+oil).
- **Sediment:** lead, mercury, zinc, dioxins, total LPAHs
- **Surface Water:** dioxins. Surface water is not further evaluated in this ERA. Detections of dioxins are likely related to concentrations observed in soils/sediments, and addressing these media is anticipated to account for surface water given the hydrophobic nature of these compounds. However, dioxins are considered an ecological COC for surface water.

7 TIER II SCREENING

The objective of this Tier II screening is to determine whether an area currently poses, or is reasonably likely to pose in the future, unacceptable risks to endpoint species. CPECs are further evaluated, using refined EPCs and RBCs, as appropriate, to identify ecological COCs from among the CPECs. This Tier II screening refines the conservative assumptions used in the Tier I screening assessment to provide more confident estimations of risk, provides information that supports development of any remedial actions that may be necessary, and serves as a scientific basis for regulatory actions for the site. The main components of this evaluation are problem formulation, exposure assessment, effects assessment, risk characterization, and uncertainty analysis.

7.1 Problem Formulation

Problem formulation typically identifies potential ecological stressors, ecological resources potentially at risk, and assessment endpoints for groups of ecological receptors (see Sections 3 and 4). Problem formulation supports the ecological CSM, which describes the relationship between potential exposure pathways and assessment endpoints (see Section 4).

7.2 Exposure Assessment

An exposure assessment estimates the type and magnitude of ecological exposure to CPECs. Exposure assessments include an evaluation of potential exposure pathways and the combination of EPCs and exposure factors for analysis of CPECs as discussed below.

7.2.1 Exposure Point Concentrations

EPCs should reflect the chemical exposure that ecological receptors are most likely to experience. For protection of populations, the upper-bound estimates of the mean (e.g., 90 percent upper confidence limits [UCLs]) can represent EPCs. EPCs used in soil exposure scenarios are based on 90 percent UCLs for discrete samples collected throughout Site soils. UCL outputs are provided in Appendix F.

Because discrete and ISM data cannot be effectively combined for analysis, EPCs were also developed for areas characterized using ISM. These EPCs represent average concentrations throughout the decision units sampled in specific areas of interest for the Site (i.e., where potentially significant historical operations occurred). EPCs are based on the ISM concentrations in each decision unit, wherein decision units are area-weighted based on their acreage to determine the EPCs for the areas of interest. Area-weighted concentrations are determined by calculating the product of a decision unit's relative area percentage and the analyte concentrations. The results for each decision unit are then summed to determine the overall area-weighted concentrations. In cases where ISM triplicates were collected, the average concentration is calculated for use in the area-weighted average.

EPCs used in sediment exposure scenarios are the 90 percent UCL.

EPCs calculated are summarized in Tables 7-1 and 7-2.

7.2.2 Background Screen

Based on the EPCs calculated, an initial soil and sediment background screen was conducted prior to further assessment. EPCs and background criteria are shown in Tables 7-1 and 7-2. Based on these results, EPCs for arsenic, barium, and selenium in soil are below natural background concentrations and are not further considered. Based on these results, antimony, copper, lead, mercury, zinc, dioxins, and TPH (diesel+oil) were carried forward for further evaluation for soil.

For sediment, the EPCs for lead is below natural background concentrations and is not further considered. Mercury, zinc, dioxins, and total LPAHs are further evaluated.

7.2.3 Exposure Factors

A receptor population is characterized by a number of factors, including frequency of contact with contaminated media, duration of exposure, and site use. For example, sediment direct-toxicity criteria developed for protection of benthos inherently assume that frequency of contact with impacted sediments is 100 percent, and do not account for changing conditions over time (e.g., deposition of clean sediments, biodegradation). Exposure factors for soil and sediment that are media- and receptor-specific inform refined RBCs, as further described in the following section.

7.3 Effects Assessment

Effects assessment includes an evaluation of data sources and types, and presents receptor-specific ecological effects concentrations for CPECs. Site-specific studies using site soils/sediments or resident or representative species tissue can provide most useful data on potential toxicity but are unavailable. Instead, RBCs appropriate for assessing soil and sediment toxicity and bioaccumulation potential are identified. Given the uncertainty inherent in the data and models used, multiple soil or sediment RBCs are often used to estimate adverse ecological effects. For example, lower-bound sediment criteria based on conservative (i.e., no-effects or threshold effects) toxicity criteria were applied in the Tier I screening. The direct toxicity and bioaccumulation RBCs applied here reflect more realistic predictions for ecological impacts and are considered more applicable for risk-management decisions.

7.3.1 Soil

Soil Tier II RBCs for plants, invertebrates, birds, and mammals were developed for the same receptor endpoints (plants, invertebrates, birds [American robin], mammals [shrew]) identified by DEQ (2020) for default RBC development, based on the following process. Tier II RBCs may be used for each assessment endpoint relevant to the site. If RBCs are refined, parameters modified to reflect site-specific conditions or receptors should be presented, along with documentation to support the refinement (DEQ 2020). The DEQ 2020 guidance aligns with Los Alamos National Laboratory (LANL) risk assessment procedures for RBC development, as discussed in DEQ (2020). For metals and dioxins, the default DEQ Tier I RBC for non-T&E species is based on the same methodologies for developing the Tier I RBC[5] presented in LANL (2019). LANL also provides for the development of a refined Tier II RBC as described in LANL (2017).[6] The LANL Tier II RBCs include the use of site-specific studies (bioassays, bioaccumulation) for plants, soil, invertebrates, and wildlife and the application of area use factors that are the fraction of a terrestrial animal's assessment population area potentially affected by a contaminated site to determine concentrations protective of wildlife populations.[7] LANL also provides a spreadsheet to calculate the Tier II RBCs. Based on the default assumptions provided in the spreadsheet, and an upland Site area of 2.9 hectares[8], the Tier II RBCs were calculated using the LANL-provided spreadsheet (see Appendix G).

As noted in LANL (2017), the protective assumptions used when applying Tier I RBCs are generally not characteristic of realistic wildlife population exposure or reflective of population toxicant susceptibility and these protective assumptions are inappropriate for determining cleanup goals. Cleanup goals generally correspond to chemical concentrations expected to cause minimal effects on

[5] These are termed ecological screening levels (ESLs) in LANL (2019). For example, the DEQ Tier I RBC of 0.25 ng/kg (for non-T&E species) for dioxin TEQ is based on the shrew (ground-feeding mammal) and is nearly equivalent to the lowest available LANL ESL of 0.29 ng/kg developed for the shrew.

[6] These are termed ecological preliminary remediation goals (EcoPRGs) in LANL (2017).

[7] See equation 2 in LANL (2017).

[8] The upland site area was calculated based on upland areas encompassing sampled soil locations. For example, the ponds were not included in the calculation.

populations and communities and therefore the population-based Tier II RBCs are considered appropriate and sufficiently protective.

LANL does not provide Tier II RBCs for TPH (diesel+oil). The Washington Department of Ecology developed gasoline and diesel soil concentrations that are predicted to be protective of plants and soil biota, and the diesel criteria (which apply to the sum of diesel fuels and heavy oils) were adopted for the Tier II screening. Specifically, the criteria protective of plants is 1,600 mg/kg and the criteria protective of soil invertebrates is 260 mg/kg (Ecology, 2017).

7.3.2 Sediment Direct Toxicity

Benthic criteria account for chemical toxicity related to porewater uptake and direct or inadvertent ingestion of sediments. The Tier II sediment direct-toxicity criteria applied are MacDonald, Ingersoll, and Berger (2000) probable effects concentrations (PECs), which reflect concentrations above which adverse effects in sediments are probable.[9] The PEC values are based on extensive evaluations of the predictive ability of concentrations published in other commonly used data sources. Where PECs are unavailable, NOAA freshwater sediment screening criteria based on the probable effects level are often applied (Buchman, 2008). For dioxins and LPAHs, PECs are unavailable and the NOAA probable effects level and upper effects level, respectively, were available and selected to evaluate freshwater sediment toxicity. It is assumed that direct toxicity criteria account for less mobile or immobile aquatic organisms such as benthic invertebrates and early salmonid life-history stages where close contact with sediments is more common.

7.3.3 Sediment Bioaccumulation

Benthic criteria account for direct chemical toxicity and do not consider long-term bioaccumulative effects. Bioaccumulation is typically assessed in one of two ways: (1) direct measurement through the collection and analysis of tissue, or (2) modeling expected concentrations in tissue, applying default or site-specific assumptions. Appropriate tissue data are not available; therefore, RBCs for sediment based on site-specific and default assumptions are developed using standard models for organic chemicals (DEQ 2007; EPA 1997). Model assumptions include body weight, home range, and physical data (e.g., total organic carbon [TOC]), which are needed to estimate more accurately the percentage of time an animal would spend in a contaminated area and to estimate chemical bioavailability (DEQ 2007). Site-specific and receptor-specific exposure parameters are used to develop realistic exposure assumptions and to calculate bioaccumulation RBCs, describes as screening levels (SLs) in this section. Consistent with DEQ (2007), models are not developed for metals and RBCs are based on background concentrations. Consistent with DEQ (2007), mercury and dioxins are the only sediment CPECs identified as bioacummulatives for further evaluation.

[9] The MacDonald, Ingersoll, and Berger (2000) threshold effects concentration criteria account for the threshold concentration or lower limit at which sediment toxicity to benthic invertebrates may occur.

7.3.3.1 Fish

The SL represents concentrations in sediment at and below which concentrations would not be expected to accumulate in fish tissue above acceptable tissue levels. The SL was calculated consistent with DEQ (2007) methodology as follows:

$SL_F = (f_{OC} * CTL) / (BSAF * f_L * SU)$

where:

SL_F is the fish screening level (milligrams per kilogram [mg/kg]).

f_{OC} is the fraction of total organic carbon in surface sediment (unitless). The f_{OC} is based on the 10^{th} percentile concentration detected in Site sediments, 6.43 percent TOC (WSP, 2020).

CTL is the critical tissue level for fish (mg/kg). CTLs presented in DEQ (2007) are applied and are protective of fish populations as well as individuals of threatened or endangered species. For dioxin congeners, the CTL is calculated as the DEQ (2007) reported CTL for 2,3,7,8-TCDD weighted by the congener-associated TEF for fish.

BSAF is the biota-sediment accumulation factor (kg sediment carbon/kg organism lipid). BSAFs presented in DEQ (2007) are applied.

f_L is the fraction of whole-body lipid content (unitless). Smallmouth bass lipid content was measured as part of the Lower Willamette Group's Portland Harbor remedial investigation/feasibility study (LWG 2016) and is applied as representative of resident fish. The average reported lipid content of 5.4 percent was applied (LWG 2016, Appendix G, Attachment 4b).

SU is the site use factor (unitless). SU is calculated based on the section of Bagley Creek and the ponds through the Site (approximately 1500 feet) relative to the assumed foraging range of the smallmouth bass (1.4 miles) for a ratio of 0.2, based on the median of the maximum distance traveled by smallmouth bass (LWG, 2016).

The SL development includes use of CTLs that are protective of threatened or endangered species and parameters that are expected to account for salmonids, if reintroduced to the Site. In addition, benthic criteria that account for chemical toxicity related to porewater uptake and direct or inadvertent ingestion of sediments are described in section 7.3.2. Values used in SL development and the model outputs are presented in Table 7-3.

7.3.3.2 Great Blue Heron

The SLs for the heron represent dioxin concentrations in sediment above which tissue residue levels in prey could adversely affect the health of birds that prey on fish or other aquatic organisms. Based on species presence in the general area and available toxicity and biological data, the great blue heron was the selected receptor for determining protection of piscivorous birds. Because no special-status bird species reside in the area of concern, LOAEL-based TRVs were used in SL development. SLs were calculated as follows:

$SL_B = (f_{OC} * ATL_B) / (BSAF * f_L * SU)$

where:

SL_B is the sediment bioaccumulation screening levels for piscivorous bird receptors (mg/kg).

f_{OC} is the fraction of total organic carbon in surface sediment (unitless). The f_{OC} is based on the 10^{th} percentile concentration detected in Site sediments, 6.43 percent TOC (WSP, 2020).

BSAF is the biota-sediment accumulation factor (kg sediment carbon/kg organism lipid). BSAFs presented in DEQ (2007) are applied.

f_L is the fraction of organism lipid content of whole-body wet weight (unitless). The default value (0.05) reported in DEQ (2007) is applied.

SU is the site use factor for the heron (unitless). SU is calculated as the ratio of the Bagley Creek and ponds area at the Site (approximately 5 hectares) to the heron home range. The home range reported in Butler (1991) of 1,000 hectares, is divided by an uncertainty factor of ten to arrive at a conservative home range of 100 hectares. Consideration of SU is appropriate for site-specific calculations (DEQ, 2007).

ATL_B is the acceptable tissue levels in diet (mg/kg). ATL_B represents the concentration of a chemical that a bird could consume that would result in a dose equal to a given LOAEL-based TRV (mg/kg-day) at or below which the population of bird receptors would be protected. ATL_B was calculated as follows:

$$ATL_B = LOAEL / (IR / BW)$$

where IR is the daily food ingestion rate (0.42 kg/day) and BW is body weight (2.39 kg) of the selected receptor bird (great blue heron) as reported in DEQ (2007). LOAEL-based TRVs presented for bird populations in DEQ (2007) were applied. This calculation is inherently conservative in that it assumes that herons are active year-round and that the diet consists entirely of fish.

For birds, the developing embryos are most sensitive to the effects of chemicals, including polychlorinated biphenyls and dioxins (DEQ, 2007). For these chemicals, an $ATL_{B\text{-}egg}$ (in mg/kg-egg) is developed using the population-based LOAELs for bird egg development (in mg/kg-day), based on osprey, as reported in DEQ (2007):

$$ATL_{B\text{-}egg} = LOAEL / BMF$$

where $ATL_{B\text{-}egg}$ is the acceptable tissue level in fish for protection of eggs of fish-eating birds (mg/kg) and BMF is the biomagnification factor from fish tissue to bird eggs (10 for dioxins), as reported in DEQ (2007).

Values used in SL development and the model outputs are presented in Table 7-4.

7.3.3.3 American Mink

The SLs for mammals represent concentrations in sediment above which tissue residue levels in prey could adversely affect the health of mammals that prey on fish or other aquatic organisms.

Thus, chemicals present in prey items at or below the SLs are predicted not to harm the most sensitive life stage of mammal predators. Mink was the selected receptor, based on available toxicity and biological data, for determining protection of piscivorous mammals. Because no ESA-listed mammal species reside in the area of concern, LOAEL-based TRVs were used in SL development. Their diet was assumed to consist entirely of fish. SLs were calculated as follows:

$SL_M = (f_{OC} * ATL_M) / (BSAF * f_L * SU)$

where:

SL_M is the sediment bioaccumulation SLs for piscivorous mammal receptors (mg/kg).

f_{OC} is the fraction of total organic carbon in surface sediment (unitless). The f_{OC} is based on the 10^{th} percentile concentration detected in Site sediments, 6.43 percent TOC (WSP 2020).

BSAF is the biota-sediment accumulation factor for organic chemicals (kg sediment carbon/kg organism lipid); BSAFs presented in DEQ (2007) are applied.

f_L is the fraction of organism lipid content of whole-body wet weight (unitless). The default value (0.05) reported in DEQ (2007) is applied.

SU is the site use factor for the mink (unitless). SU is calculated based on the section of Bagley Creek and the ponds through the Site (approximately 1500 feet) relative to the lower-bound linear foraging distance of mink (1.85 km, or equivalently 6,070 feet) (Sample and Suter 1994).

ATL_M is the acceptable tissue levels in diet for mammals (mg/kg). ATL_M represents the concentration of a chemical that a mammal could consume that would result in a dose equal to a given LOAEL (mg/kg-day) at or below which the population of mammal receptors would be protected.

ATL_M was calculated as follows:

$ATL_M = LOAEL / (IR / BW)$

where IR is the daily food ingestion rate (0.137 kg/day) and BW is the body weight (1 kg) of the selected receptor mammal (mink) reported in DEQ (2007). This calculation is inherently conservative in that it assumes that mink are active year-round that the diet consists entirely of fish.

Values used in SL development and the model outputs are presented in Table 7-5.

7.4 Risk Characterization

Risk characterization integrates information from the exposure and effects assessments to estimate risks to representative species. Ecological COCs are identified using the following general equation for the two types of evaluations conducted, direct-toxicity-based screening and bioaccumulation-based screening:

$RS_i = EPC_i / SL_i$

where:

RS_i is the risk score for chemical "i" (unitless).

EPC_i is the exposure point concentration for chemical "i" in soil or sediment.

SL_i is the RBC or screening level for chemical "i" in soil or sediment.

Note that higher RSs are not necessarily reflective of severity of impacts but instead suggest greater likelihood of adverse impacts.

7.4.1 Ecological COC Selection

Risk-based ecological COCs are selected under the following conditions (DEQ 2007, 2020):

- Chemicals for which RS exceeds 1 in soil are selected as COCs for exposures to populations of species.
- Chemicals for which RS exceeds 1 in sediment are selected as COCs for exposures to individual receptors or populations of species.
- The sum of the RS for chemicals exceeds 1 and the individual RS for the chemical exceeds 0.1, to account for potential cumulative effects. Note that DEQ's preference is to retain chemicals with scores greater than 0.1 for evaluation due to potential unacceptable cumulative risk, unless another approach is acceptable to the department. Chemicals that screen in for cumulative risk, but where the RS is less than 1 on an individual basis, should be retained for any future site characterization or monitoring events, and considered within the lines of evidence evaluation in risk characterization.

7.4.2 Risk Characterization Results

Risk characterization results for CPECs are described below by area, exposure media, and receptor groups. Uncertainties associated with the evaluations are discussed in Section 7.5.

7.4.3 Soil

Risk estimates are summarized in Tables 7-6 through 7-9 for terrestrial plants, invertebrates, birds, and mammals, respectively. Based on these results, dioxins are identified as an ecological soil COC for mammals. RS for other chemicals and receptors do not exceed 1.0, and these are not identified as COCs based on individual or cumulative risk potential.

EPCs are based on the area-wide concentrations for discrete samples throughout the Site and ISM samples collected in areas of interest. These results show that for dioxins, the potential for unacceptable risk is primarily driven by the elevated concentrations observed near the south wigwam burner (e.g., decision units 5 through 7; SS-7), which represents a localized area with more elevated concentrations.

7.4.4 Sediment

Risk estimates are summarized in Tables 7-10 through 7-13 for sediments.

7.4.4.1 Direct-Contact Toxicity

The RS based on the EPC for dioxin TEQ in surface sediment exceeds 1.0 (see Table 7-10). These results indicate that there is potential for adverse effects to relatively immobile receptors such as benthic individuals. These results are driven by elevated concentrations in the northern end of the former log pond (PD01SD-03SD). In contrast, concentrations in the southern portion of the pond and the former fire suppression pond are well below the PEC as well as the default DEQ RBC. These results suggest that dioxins, should not be expected to result in unacceptable risk to the local benthic community and other immobile receptors in these areas. RS for mercury and zinc are less than 1.0, but are retained as COCs to account for potential cumulative risks (RS greater than 0.1).

7.4.4.2 Bioaccumulation

The RS based on EPCs for protection of fish do not exceed 1.0, and the cumulative RS is less than 1.0[10] (see Table 7-11). These results indicate that associated adverse effects should not be expected, particularly since locations other than the northern portion of the former log pond showed lower concentrations and fish are not expected to reside in a particular location for extended periods of time.

Evaluation of bioaccumulation risks to bird (see Table 7-12) and mammal (see Table 7-13) populations show qualitatively similar results. Risk estimates do not exceed 1.0, cumulative RS does not exceed 1.0, and unacceptable adverse effects to birds (including developing embryos) and mammals are not expected. As noted above, more elevated concentrations occur in the northern portion of the former log pond and birds and mammals are not expected to consume prey from a particular location for extended periods of time.

7.5 Uncertainty Evaluation

Uncertainty is inherent in all ERAs, and is often related to uncertainties in exposure assessment and effects assessment. Sampling and analysis were conducted for soil and, for the purposes of this ERA, it is assumed that the samples collected adequately represent exposure conditions typically encountered by ecological receptors. Effects data can contribute to overall uncertainty in risk characterization. The use of toxicity data that are not site-specific and the absence of site-specific data (e.g., toxicity or tissue tests) provide uncertainty with regard to risk characterization conclusions, as site-specific conditions (e.g., TOC) can play a significant role in controlling organic contaminant bioavailability and uptake. TOC at the Site is somewhat elevated, likely reflecting historical operations. At higher concentrations, TOC-based modelling may overestimate chemical binding to carbon. To help mitigate underestimates of risk, a low-end 10th percentile TOC value was used in models.

[10] Note that mercury RS was not included in the cumulative RS, since the RS is not based on risk-based criteria but rather on natural background concentration.

One source of potential uncertainty is the food web model. All modeling approaches are inherently uncertain because of the variability of values associated with input parameters such as the literature-derived uptake factors and TRVs. Because these parameters do not necessarily correlate to the site of investigation, results of the risk calculations are themselves uncertain. For example, the uptake factors tend to be species-specific and affected by environmental factors such as soil characteristics. TRVs are typically derived using 2,3,7,8-TCDD in test organisms, and it is assumed that the TEQ approach (i.e., scaling other congeners relative to 2,3,7,8-TCDD toxicity) adequately represents potential toxicity. In addition, TRVs are typically based on a relatively small number of studies and species and thus there is some uncertainty regarding the actual sensitivities of the representative species. Other assumptions, including year-round species presence, likely lead to overestimates of risk when assessing population-based effects. Selection of representative species and associated parameters (e.g., body weight, home range) provide additional uncertainty. For example, the food and soil ingestion rates that were used to estimate receptor exposure are derived from the scientific literature, rather than from site-specific studies.

Effects data can further contribute to overall uncertainty in risk characterization. Selected sediment toxicity criteria for benthic invertebrates are derived based on multiple test results for various species; however, certain organisms may be more or less sensitive than indicated by the criteria, and assessment of direct toxicity to more immobile benthic fish such as early-life stage salmonids provides some uncertainty. Use of toxicity data that are not site-specific and the absence of site-specific data (e.g., toxicity or tissue tests) provide some uncertainty with regard to risk characterization conclusions, as site-specific conditions (e.g., TOC) can play a significant role in controlling organic chemical bioavailability and uptake.

Another source of potential uncertainty is the bioaccumulation SLs. Uncertainty is also associated with use of literature-derived BSAFs, toxicity values (i.e., LOAELs), and CTLs. Because these parameters do not necessarily correlate to the site of investigation, results of the risk calculations are themselves uncertain. For example, the BSAF tends to be species-specific and affected by environmental factors such as grain size and organic carbon. However, site-specific organic carbon results were applied. For fish, the BSAF can vary as a result of food web trophic transfer, lack of equilibrium between the sediments and the water column, variation in benthic-pelagic coupling, and metabolic breakdown of chemicals. Similarly, LOAELs and CTLs are based on lower-bound toxicity thresholds, which may lead to overestimates of risk. However, the use of CTLs that are protective of individual fish were applied to help account for potential introduction of Coho under restored conditions. Other assumptions, including 100 percent fish dietary intake and year-round species presence, may lead to overestimates. Certain types of tissue data (e.g., pertaining to benthic invertebrates, fish) that can be used to further parameterize bioaccumulation models and reduce model uncertainty are unavailable; however, site-specific data were incorporated as available to reduce uncertainty.

7.6 Future Conditions

Future conditions at the Site will include restoration of fish habitat along Bagley Creek and in the vicinity of the former log pond and former fire suppression pond. Proposed habitat restoration may reintroduce Coho salmon to the Site. Based on discussions with WRLT, current plans include soil and sediment removal along the perimeter of the former log pond and removal of a beaver dam along the northern side of the former log pond (se Appendix H). Sediment and soil that are removed from these areas may be placed on upland portions of the Site to allow for restoration of the creek.

This restoration activity will result exposing subsurface soil to the surface. Based on a preliminary review of subsurface data (soil collected at depths greater than 3 feet bgs), concentrations of dioxin/furans largely decrease with depth, as observed in the data from boring locations along the northern perimeter of the former log pond (SL23TP, SL24TP, SL25TP). These results suggest that the current risk observed would not be increased by restoration activities. However, it is recommended data are reviewed once restoration plans are further refined.

Based on the results of this ERA for current conditions, it is observed that restoration activities that could mitigate elevated concentrations in localized areas (e.g., the southern wigwam upland, as well as the northern portion of the former log pond) should be considered.

8 ECOLOGICAL HOT SPOT IDENTIFICATION

Potential hot spots are defined as those ecological COCs present in concentrations exceeding RBCs corresponding to 10x the acceptable risk level for exposure to individual hazardous substances. COCs with sample locations exceeding an RS of 10 should be identified as potential hot spots in the ERA. A final determination of hot spots, for which there is a preference for removal or treatment, is typically made in a feasibility study. This determination is made after considering factors other than toxicity, such as how likely COCs are to migrate, and the extent to which they may be reliably contained. However, it is noted that sediment concentrations do not exceed 10x the sediment toxicity RBC identified (215 pg/g dioxin TEQ), and soil concentrations exceed 10x the upland soil RBC identified (110 pg/g) in limited locations at the former wigwam burner and near vicinity (SS-2 and SS-7).

9 SUMMARY

Ecological COCs identified in this ERA are summarized as follows:

- **Soil:** Dioxin TEQ for mammal populations. Dioxins are most significantly elevated near the elevated concentrations observed near the south wigwam burner and near vicinity. A point-by-point screening of Tier II dioxin TEQ soil exceedance results is shown in Figure 9-1.
- **Sediment:** Dioxin TEQ for sediment direct toxicity. Dioxins are most significantly elevated in the northern end of the former log pond (PD01SD-03SD). In contrast, concentrations in the southern portion of the pond and the former fire suppression pond are at concentrations not be expected to result in unacceptable risk to the local benthic community and other immobile receptors in these areas. Mercury and zinc are retained as

COCs to account for potential cumulative risks. A point-by-point screening of Tier II dioxin TEQ sediment exceedance results is shown in Figure 9-1.

- **Surface Water:** Dioxin TEQ. Detections of dioxins in surface water are likely related to concentrations observed in soils/sediments, and addressing these media is anticipated to account for surface water given the hydrophobic nature of these compounds.

LIMITATIONS

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

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

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TABLES

Table 6-1
Ecological Soil Analytical Results
Wild River Land Trust
Port Orford, Oregon

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	OP02TP01	S13_S14_S15-COMP	S16_S17_S18-COMP	S19_S20_S21-COMP	S22	S23	S24
Sample Name:								DU08SS	JLTR9	9358-181113-COMP-01	9358-181113-COMP-02	9358-181115-COMP-03	9358-181115-021	9358-181115-016	9358-181115-017
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/11/2020	11/13/2018	11/13/2018	11/15/2018	11/15/2018	11/15/2018	11/15/2018
Collection Depth (ft bgs):								0-4 cm	1-2	0-1	0-1	0-1	0-1	0-1	0-1
Total Metals (mg/kg)															
Aluminum	(a)	(a)	(a)	(a)	(a)	(a)	NV	22,200	24,200	--	--	--	--	--	--
Antimony	78	11	NV	2.7	NV	49	0.59	0.094	0.9 U	0.755 J	0.973 J	1.11 J	3 U	1.29 U	2.46 U
Arsenic	6.8	18	32	31	1,000	290	12	4.18	3.4	1.39	0.853 J	2.75	2.76 U	1.18 U	2.27 U
Barium	330	110	1,200	8,700	13,000	44,000	630	81.3	142	--	--	--	--	--	--
Beryllium	40	2.5	NV	42	NV	110	1.4	0.35	0.6	0.0824 U	0.0869 U	0.0831 U	0.42 U	0.18 U	0.345 U
Cadmium	140	32	1.6	4	7.7	1,700	0.52	0.375	0.17 J*	0.0824 U	0.118 J	0.0831 U	1.49	0.18 U	0.345 U
Calcium	NV	NV	NV	NV	NV	NV	NV	4340	6220	--	--	--	--	--	--
Chromium	NV	NV	73	1,600	560	10,000	890	67.1	70.5	58.5	81.7	64.2	73.7	86.9	42.5
Cobalt	NV	13	170	640	1,400	3,300	3 - 50	23.1	17	--	--	--	--	--	--
Copper	80	70	43	70	240	1,600	110	57.3	73.7	57.3	80.3	70.5	459	52.6	44.7
Iron	NV	NV	NV	NV	NV	NV	NV	30300	30,900	--	--	--	--	--	--
Lead	1,700	120	23	170	160	1,600	36	15.2	25.4 J	11	31.5	56.6	330	9.05	42.6
Magnesium	NV	NV	NV	NV	NV	NV	NV	11700	9,600	--	--	--	--	--	--
Manganese	450	220	2,700	5,400	50,000	34,000	3,000	1140	744	--	--	--	--	--	--
Mercury	0.05	34	0.13	17	0.58	130	0.17	0.066	0.1 U	0.0534	0.119	0.149	0.818 J*	0.083	0.092 J
Nickel	280	38	81	21	440	580	630	69.8	78	75.2	83.3	71.5	91.5	76.7	30.2
Potassium	NV	NV	NV	NV	NV	NV	NV	1060	2570	--	--	--	--	--	--
Selenium	4.1	0.52	1.4	1	7.5	33	0.8	NV	2.2 U	0.73 U	0.77 U	0.736 U	3.72 U	1.6 U	3.05 U
Silver	NV	560	26	140	130	10,000	0.16	0.067	0.84 J*	0.141 U	0.149 U	0.142 U	0.826 J	0.309 U	0.591 U
Sodium	NV	NV	NV	NV	NV	NV	NV	174	362 J*	--	--	--	--	--	--
Thallium	NV	0.05	45	4.2	480	50	0.31	0.076	0.45 U	0.589 U	0.621 U	0.594 U	3 U	1.29 U	2.46 U
Vanadium	NV	60	9.5	610	110	1,600	290	75.8	58 J	--	--	--	--	--	--
Zinc	120	160	120	980	590	30,000	140	93.1	171	84.7	131	162	899	93.1	49.6
PCB Aroclors (mg/kg)															
Total PCBs[b]	NV	160	0.24	0.073	1.9	6.9	NV	NV	--	0.00632 U	0.00667 U	0.00637 U	0.0507	0.0138 U	0.0265 U
Dioxins (pg/g)															
1,2,3,4,6,7,8-HpCDD	NV	NV	1,500	7	15,000	11	NV	41	72	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NV	230	11	2,300	17	NV	10.4	8	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NV	230	11	2,300	17	NV	0.73 J	0.94 J*	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NV	51	1.2	500	1.8	NV	0.811 J	5.5	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	0.868 J	1.3 J*	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NV	190	0.89	1,900	1.4	NV	2.09 J	11	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	0.679 J	1.5 J*	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NV	19	0.89	190	1.4	NV	1.54 J	15	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NV	30	1.4	300	2.2	NV	0.33 U	0.71 J*	--	--	--	--	--	--
1,2,3,7,8-PeCDD	NV	NV	5.9	0.28	59	0.43	NV	0.61 J	7.9	--	--	--	--	--	--
1,2,3,7,8-PeCDF	NV	NV	41	6.5	400	9.8	NV	0.353 J	0.71 J*	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	1.01 J	2.2 J*	--	--	--	--	--	--
2,3,4,7,8-PeCDF	NV	NV	4.1	0.65	40	0.98	NV	0.878 J	1.6 J*	--	--	--	--	--	--
2,3,7,8-TCDD	5,000,000	NV	5.2	0.25	52	0.38	NV	0.669	3.3	--	--	--	--	--	--
2,3,7,8-TCDF	NV	NV	6.4	3	63	4.6	NV	0.424 J	0.75 J*	--	--	--	--	--	--
OCDD	NV	NV	19,000	300	190,000	460	NV	364	200	--	--	--	--	--	--
OCDF	NV	NV	14,000	220	140,000	340	NV	36	9.4 J*	--	--	--	--	--	--
Dioxin/furan TEQ (avian)[c][3]	5,000,000	NV	5.2	NV	52	NV	NV	3.31	16 J*	--	--	--	--	--	--

MAUL FOSTER ALONGI

Table 6-1
Ecological Soil Analytical Results
Wild River Land Trust
Port Orford, Oregon

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	OP02TP01	S13_S14_S15-COMP	S16_S17_S18-COMP	S19_S20_S21-COMP	S22	S23	S24
Sample Name:								DU08SS	JLTR9	9358-181113-COMP-01	9358-181113-COMP-02	9358-181115-COMP-03	9358-181115-021	9358-181115-016	9358-181115-017
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/11/2020	11/13/2018	11/13/2018	11/15/2018	11/15/2018	11/15/2018	11/15/2018
Collection Depth (ft bgs):								0-4 cm	1-2	0-1	0-1	0-1	0-1	0-1	0-1
Dioxin/furan TEQ (mammal)[(d)(4)]	5,000,000	NV	NV	0.25	NV	0.38	NV	2.97	16 J*	--	--	--	--	--	--
TPH (mg/kg)															
Gasoline-Range Hydrocarbons	120	120	5,000	5,000	5,000	5,000	NV	NV	--	15.7 U	1.63 J*	1.59 J*	15.9 U	3.75 J	13.2 U
Diesel-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	--	17.3	--	--	15.9 U	--	15.7
Lube-Oil-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	--	94.8	[illegible]	--	79.3	--	42.4
Total Diesel+Oil[(e)]	260	260	6,000	6,000	6,000	6,000	NV	NV	--	112	--	--	87	--	58.1
TPH with Silica-Gel Treatment (mg/kg)															
Diesel-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	--	--	22.4 J*	14.6 J	--	3.42 U	--
Lube-Oil-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	--	--	224 J*	121	--	14.9 J	--
Total Diesel+Oil[(e)]	260	260	6,000	6,000	6,000	6,000	NV	NV	--	--	246 J*	136 J	--	16.6 J	--
SVOCs (mg/kg)															
1,1'-Biphenyl	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	--	--	--	--	--	--
1,2,4,5-Tetrachlorobenzene	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	--	--	--	--	--	--
1,4-Dioxane	NV	NV	NV	3.6	NV	180	NV	NV	0.081 UJ	--	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	--	--	--	--	--	--
2,4,5-Trichlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	0.122 U	0.129 U	0.123 U	0.125 U	0.268 U	0.512 U
2,4,6-Trichlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	0.0917 U	0.0967 U	0.0925 U	0.0934 U	0.201 U	0.384 U
2,4-Dichlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	0.0878 U	0.0926 U	0.0886 U	0.0895 U	0.192 U	0.367 U
2,4-Dimethylphenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	0.555 U	0.585 U	0.559 U	0.565 U	1.21 U	2.32 U
2,4-Dinitrophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.4 UJ	1.15 U	1.22 U	1.16 U	1.18 U	2.52 U	4.83 U
2,4-Dinitrotoluene	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	--	--	--	--	--	--
2,6-Dinitrotoluene	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	--	--	--	--	--	--
2-Chloronaphthalene	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	--	--	--	--	--	--
2-Chlorophenol	NV	NV	3.9	5.4	140	3,400	NV	NV	0.21 UJ	0.0979 U	0.103 U	0.0986 U	0.0997 U	0.214 U	0.409 U
2-Methylnaphthalene	NV	NV	NV	160	NV	49,000	NV	NV	0.21 R	--	--	--	--	--	--
2-Methylphenol	NV	0.67	NV	5,800	NV	190,000	NV	NV	0.4 UJ	0.116 U	0.122 U	0.117 U	0.118 U	0.254 U	0.486 U
2-Nitroaniline	NV	NV	NV	10	NV	4,400	NV	NV	0.21 UJ	--	--	--	--	--	--
2-Nitrophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	0.153 U	0.161 U	0.154 U	0.156 U	0.335 U	0.64 U
3- & 4-Methylphenol (m,p-Cresol)	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0922 U	0.0972 U	0.093 U	0.0939 U	0.202 U	0.386 U
3,3-Dichlorobenzidine	NV	NV	NV	NV	NV	NV	NV	NV	0.4 UJ	--	--	--	--	--	--
3-Nitroaniline	NV	NV	NV	NV	NV	NV	NV	NV	0.4 UJ	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	NV	NV	NV	NV	NV	NV	NV	NV	0.4 UJ	1.46 U	1.54 U	1.47 U	1.49 U	3.19 U	6.11 U
4-Bromophenylphenyl ether	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	--	--	--	--	--	--
4-Chloro-3-methylphenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	0.0562 U	0.0592 U	0.0566 U	0.0572 U	0.123 U	0.235 U
4-Chloroaniline	1.8	1	NV	NV	NV	NV	NV	NV	0.4 UJ	--	--	--	--	--	--
4-Chlorophenylphenyl ether	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	--	--	--	--	--	--
4-Methylphenol	NV	NV	NV	NV	NV	NV	NV	NV	0.4 UJ	--	--	--	--	--	--
4-Nitroaniline	NV	NV	NV	NV	NV	NV	NV	NV	0.4 UJ	--	--	--	--	--	--
4-Nitrophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.4 UJ	0.618 U	0.652 U	0.623 U	0.63 U	1.35 U	2.59 U
Acenaphthene	NV	0.25	NV	1,300	NV	290,000	NV	NV	0.21 R	--	--	--	--	--	--
Acenaphthylene	NV	NV	NV	1,200	NV	280,000	NV	NV	0.21 R	--	--	--	--	--	--
Acetophenone	NV	NV	NV	NV	NV	NV	NV	NV	0.4 UJ	--	--	--	--	--	--
Anthracene	NV	6.8	NV	2,100	NV	380,000	NV	NV	0.21 R	--	--	--	--	--	--
Atrazine	NV	NV	NV	NV	NV	NV	NV	NV	0.4 UJ	--	--	--	--	--	--
Benzaldehyde	NV	NV	NV	NV	NV	NV	NV	NV	0.4 UJ	--	--	--	--	--	--

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	OP02TP01	S13_S14_S15-COMP	S16_S17_S18-COMP	S19_S20_S21-COMP	S22	S23	S24
Sample Name:								DU08SS	JLTR9	9358-181113-COMP-01	9358-181113-COMP-02	9358-181115-COMP-03	9358-181115-021	9358-181115-016	9358-181115-017
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/11/2020	11/13/2018	11/13/2018	11/15/2018	11/15/2018	11/15/2018	11/15/2018
Collection Depth (ft bgs):								0-4 cm	1-2	0-1	0-1	0-1	0-1	0-1	0-1
Benzo(a)anthracene	NV	18	7.3	34	64	1,100	NV	NV	0.21 R	--	--	--	--	--	--
Benzo(a)pyrene	NV	NV	NV	190	NV	11,000	NV	NV	0.21 R	--	--	--	--	--	--
Benzo(b)fluoranthene	NV	18	NV	440	NV	24,000	NV	NV	0.21 R	--	--	--	--	--	--
Benzo(ghi)perylene	NV	NV	NV	250	NV	36,000	NV	NV	0.21 R	--	--	--	--	--	--
Benzo(k)fluoranthene	NV	NV	NV	NV	NV	NV	NV	NV	0.21 R	--	--	--	--	--	--
Bis(2-chloro-1-methylethyl)ether	NV	NV	NV	NV	NV	NV	NV	NV	0.4 UJ	--	--	--	--	--	--
Bis(2-chloroethoxy)methane	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	--	--	--	--	--	--
Bis(2-chloroethyl)ether	NV	NV	NV	NV	NV	NV	NV	NV	0.4 UJ	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	NV	NV	0.2	6	0.96	1,700	NV	NV	0.21 UJ	--	--	--	--	--	--
Butylbenzylphthalate	NV	NV	NV	900	NV	74,000	NV	NV	0.21 UJ	--	--	--	--	--	--
Caprolactam	NV	NV	NV	NV	NV	NV	NV	NV	0.4 UJ	--	--	--	--	--	--
Carbazole	NV	NV	NV	790	NV	130,000	NV	NV	0.4 UJ	--	--	--	--	--	--
Chrysene	NV	NV	NV	31	NV	1,100	NV	NV	0.21 R	--	--	--	--	--	--
Dibenzo(a,h)anthracene	NV	NV	NV	140	NV	8,500	NV	NV	0.21 R	--	--	--	--	--	--
Dibenzofuran	NV	6.1	NV	NV	NV	NV	NV	NV	0.21 UJ	--	--	--	--	--	--
Diethyl phthalate	NV	100	NV	18,000	NV	3,200,000	NV	NV	0.21 UJ	--	--	--	--	--	--
Dimethyl phthalate	10	NV	NV	400	NV	57,000	NV	NV	0.21 UJ	--	--	--	--	--	--
Di-n-butyl phthalate	NV	160	0.11	450	0.52	50,000	NV	NV	0.21 UJ	--	--	--	--	--	--
Di-n-octyl phthalate	NV	NV	NV	4.6	NV	2,300	NV	NV	0.4 UJ	--	--	--	--	--	--
Fluoranthene	10	NV	NV	220	NV	39,000	NV	NV	0.4 R	--	--	--	--	--	--
Fluorene	3.7	NV	NV	510	NV	100,000	NV	NV	0.21 R	--	--	--	--	--	--
Hexachlorobenzene	10	10	0.79	2	3.7	590	NV	NV	0.21 UJ	--	--	--	--	--	--
Hexachlorobutadiene	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	--	--	--	--	--	--
Hexachlorocyclopentadiene	NV	NV	NV	NV	NV	NV	NV	NV	0.4 UJ	--	--	--	--	--	--
Hexachloroethane	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	NV	NV	NV	710	NV	46,000	NV	NV	0.21 R	--	--	--	--	--	--
Isophorone	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	--	--	--	--	--	--
Naphthalene	NV	1	34	27	780	16,000	NV	NV	0.21 R	--	--	--	--	--	--
Nitrobenzene	2.2	NV	NV	48	NV	41,000	NV	NV	0.21 UJ	--	--	--	--	--	--
N-Nitrosodiphenylamine	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	--	--	--	--	--	--
N-Nitrosodipropylamine	NV	NV	NV	NV	NV	NV	NV	NV	0.21 UJ	--	--	--	--	--	--
Pentachlorophenol	31	5	3.6	8.1	17	85	NV	NV	0.4 R	0.565 U	0.596 U	0.57 U	0.576 U	1.24 U	2.36 U
Phenanthrene	5.5	NV	NV	110	NV	19,000	NV	NV	0.21 R	--	--	--	--	--	--
Phenol	1.8	0.79	NV	370	NV	430,000	NV	NV	0.4 UJ	0.0818 U	0.0863 U	0.0825 U	0.0833 U	0.179 U	0.342 U
Pyrene	10	NV	330	230	1,600	31,000	NV	NV	0.21 R	--	--	--	--	--	--
SVOCs by SIM (mg/kg)															
1-Methylnaphthalene	NV	NV	NV	NV	NV	NV	NV	NV		0.00293 J	0.00248 U	0.00284 J	0.00498 J	0.00515 U	0.00985 U
2-Chloronaphthalene	NV	NV	NV	NV	NV	NV	NV	NV		0.00236 U	0.00248 U	0.00237 U	0.0024 U	0.00515 U	0.00985 U
2-Methylnaphthalene	NV	NV	NV	160	NV	49,000	NV	NV	0.0012 J*	0.00413 J	0.00365 J	0.00508 J	0.00514 J	0.00515 U	0.00985 U
Acenaphthene	NV	0.25	NV	1,300	NV	290,000	NV	NV	0.004 U	0.000707 U	0.000745 U	0.000712 U	0.00072 U	0.00155 U	0.00296 U
Acenaphthylene	NV	NV	NV	1,200	NV	280,000	NV	NV	0.004 U	0.000707 U	0.000745 U	0.000712 U	0.00072 U	0.00155 U	0.00296 U
Anthracene	NV	6.8	NV	2,100	NV	380,000	NV	NV	0.004 U	0.000707 U	0.000745 U	0.000992 J	0.000899 J	0.00155 U	0.00296 U
Benzo(a)anthracene	NV	18	7.3	34	64	1,100	NV	NV	0.0035 J*	0.00139 J	0.00116 J	0.00254 J	0.00186 J	0.00155 U	0.00296 U
Benzo(a)pyrene	NV	NV	NV	190	NV	11,000	NV	NV	0.0018 J*	0.000809 J	0.00106 J	0.00212 J	0.00259 J	0.00155 U	0.00296 U
Benzo(b)fluoranthene	NV	18	NV	440	NV	24,000	NV	NV	0.0078 J	0.0026 J	0.00302 J	0.00388 J	0.00512 J	0.00155 U	0.00296 U
Benzo(ghi)perylene	NV	NV	NV	250	NV	36,000	NV	NV	0.0021 J*	0.00151 J	0.00176 J	0.00192 J	0.00411 J	0.00155 U	0.00296 U

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	OP02TP01	S13_S14_S15-COMP	S16_S17_S18-COMP	S19_S20_S21-COMP	S22	S23	S24
Sample Name:								DU08SS	JLTR9	9358-181113-COMP-01	9358-181113-COMP-02	9358-181115-COMP-03	9358-181115-021	9358-181115-016	9358-181115-017
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/11/2020	11/13/2018	11/13/2018	11/15/2018	11/15/2018	11/15/2018	11/15/2018
Collection Depth (ft bgs):								0-4 cm	1-2	0-1	0-1	0-1	0-1	0-1	0-1
Benzo(k)fluoranthene	NV	NV	NV	NV	NV	NV	NV	NV	0.004 U	0.000707 U	0.000745 U	0.00118 J	0.00121 J	0.00155 U	0.00296 U
Chrysene	NV	NV	NV	31	NV	1,100	NV	NV	0.0095 J	0.00353 J	0.00359 J	0.00438 J	0.00194 J	0.00155 U	0.0129 J
Dibenzo(a,h)anthracene	NV	NV	NV	140	NV	8,500	NV	NV	0.004 U	0.000707 U	0.000745 U	0.000712 U	0.0011 J	0.00155 U	0.00296 U
Fluoranthene	10	NV	NV	220	NV	39,000	NV	NV	0.0088 J	0.00343 J	0.00469 J	0.00648 J	0.0041 J	0.00155 U	0.00296 U
Fluorene	3.7	NV	NV	510	NV	100,000	NV	NV	0.004 U	0.000804 J	0.000745 U	0.000712 U	0.000768 J	0.00155 U	0.00296 U
Indeno(1,2,3-cd)pyrene	NV	NV	NV	710	NV	46,000	NV	NV	0.0018 J*	0.000763 J	0.000924 J	0.00119 J	0.00263 J	0.00155 U	0.00296 U
Naphthalene	NV	1	34	27	780	16,000	NV	NV	0.0026 J*	0.00656 J	0.00526 J	0.00723 J	0.0103 J	0.00548 J	0.0101 J
Pentachlorophenol	31	5	3.6	8.1	17	85	NV	NV	0.008 U	--	--	--	--	--	--
Phenanthrene	5.5	NV	NV	110	NV	19,000	NV	NV	0.014	0.00824	0.00847	0.0128	0.00923	0.00155 U	0.00695 J
Pyrene	10	NV	330	230	1,600	31,000	NV	NV	0.0075 J	0.00252 J	0.00293 J	0.00398 J	0.00242 J	0.00155 U	0.00542 J
Total LPAH[f][5]	29	NV	67	540	37,000	59,000	NV	NV	0.026 J*	0.021 J	0.019 J	0.027 J	0.027 J	0.012 J	0.028 J
Total HPAH[g][5]	18	NV	0.55	5.9	64	550	NV	NV	0.047 J*	0.017 J	0.02 J	0.028 J	0.027 J	0.0078 J	0.03 J
VOCs (mg/kg)															
1,1,1,2-Tetrachloroethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.000739 UJ*	--	--	0.00155 U	--
1,1,1-Trichloroethane	NV	NV	NV	1,300	NV	450,000	NV	NV	--	--	0.000406 UJ*	--	--	0.00085 U	--
1,1,2,2-Tetrachloroethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.000576 UJ*	--	--	0.00121 U	--
1,1,2-Trichloroethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.0013 UJ*	--	--	0.00273 U	--
1,1-Dichloroethane	NV	NV	NV	2,100	NV	2,500,000	NV	NV	--	--	0.000849 UJ*	--	--	0.00178 U	--
1,1-Dichloroethene	NV	NV	NV	60	NV	1,600	NV	NV	--	--	0.000739 UJ*	--	--	0.00155 U	--
1,1-Dichloropropene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00103 UJ*	--	--	0.00216 U	--
1,2,3-Trichlorobenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.000924 UJ*	--	--	0.00193 U	--
1,2,3-Trichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00754 UJ*	--	--	0.0158 U	--
1,2,3-Trimethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.0017 UJ*	--	--	0.00355 U	--
1,2,4-Trichlorobenzene	1.2	NV	NV	2.7	NV	1,100	NV	NV	--	--	0.00713 UJ*	--	--	0.0149 U	--
1,2,4-Trimethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00204 J*	--	--	0.00358 U	--
1,2-Dibromo-3-chloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00754 UJ*	--	--	0.0158 U	--
1,2-Dibromoethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.000776 UJ*	--	--	0.00162 U	--
1,2-Dichlorobenzene	NV	NV	NV	9.2	NV	4,800	NV	NV	--	--	0.00214 UJ*	--	--	0.00448 U	--
1,2-Dichloroethane	NV	NV	1.6	270	44	84,000	NV	NV	--	--	0.000702 UJ*	--	--	0.00147 U	--
1,2-Dichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00188 UJ*	--	--	0.00391 U	--
1,3,5-Trimethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00159 UJ*	--	--	0.00335 U	--
1,3-Dichlorobenzene	NV	NV	NV	7.4	NV	3,800	NV	NV	--	--	0.00251 UJ*	--	--	0.00525 U	--
1,3-Dichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00258 UJ*	--	--	0.00541 U	--
1,4-Dichlorobenzene	1.2	NV	NV	3.5	NV	1,800	NV	NV	--	--	0.00291 UJ*	--	--	0.00608 U	--
2,2-Dichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00117 UJ*	--	--	0.00245 U	--
2-Butanone	NV	NV	NV	920	NV	3,500,000	NV	NV	--	--	0.0185 UJ*	--	--	0.0676 J	--
2-Chlorotoluene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00135 UJ*	--	--	0.00283 U	--
2-Hexanone	NV	NV	3.6	20	17	22,000	NV	NV	--	--	--	--	--	--	--
4-Chlorotoluene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00166 UJ*	--	--	0.0035 U	--
4-Isopropyltoluene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.047 J*	--	--	0.0184	--
4-Methyl-2-pentanone	NV	NV	NV	97	NV	180,000	NV	NV	--	--	0.0148 UJ*	--	--	0.0309 U	--
Acetone	NV	NV	75	6.3	8,400	8,900	NV	NV	--	--	0.0202 UJ*	--	--	0.162	--
Acrylonitrile	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00281 UJ*	--	--	0.00587 U	--
Benzene	NV	NV	NV	240	NV	43,000	NV	NV	--	--	0.000591 UJ*	--	--	0.00659	--
Bromobenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00155 UJ*	--	--	0.00324 U	--

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	OP02TP01	S13_S14_S15-COMP	S16_S17_S18-COMP	S19_S20_S21-COMP	S22	S23	S24
Sample Name:								DU08SS	JLTR9	9358-181113-COMP-01	9358-181113-COMP-02	9358-181115-COMP-03	9358-181115-021	9358-181115-016	9358-181115-017
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/11/2020	11/13/2018	11/13/2018	11/15/2018	11/15/2018	11/15/2018	11/15/2018
Collection Depth (ft bgs):								0-4 cm	1-2	0-1	0-1	0-1	0-1	0-1	0-1
Bromodichloromethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00116 UJ*	--	--	0.00244 U	--
Bromoform	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00884 UJ*	--	--	0.0185 U	--
Bromomethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00546 UJ*	--	--	0.0114 U	--
Carbon disulfide	NV	NV	NV	8.1	NV	1,900	NV	NV	--	--	--	--	--	--	--
Carbon tetrachloride	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00159 UJ*	--	--	0.00335 U	--
Chlorobenzene	2.4	NV	NV	430	NV	250,000	NV	NV	--	--	0.000847 UJ*	--	--	0.00177 U	--
Chlorobromomethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Chloroethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00159 UJ*	--	--	0.00335 U	--
Chloroform	NV	NV	NV	21	NV	6,000	NV	NV	--	--	0.000613 UJ*	--	--	0.00128 U	--
Chloromethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00205 UJ*	--	--	0.0043 UJ*	--
cis-1,2-Dichloroethene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00102 UJ*	--	--	0.00213 U	--
cis-1,3-Dichloropropene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.001 UJ*	--	--	0.0021 U	--
Cyclohexane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Dibromochloromethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.000666 UJ*	--	--	0.00139 U	--
Dibromomethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00148 UJ*	--	--	0.00309 U	--
Dichlorodifluoromethane (Freon 12	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00121 UJ*	--	--	0.00253 U	--
Diisopropyl Ether	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.000517 UJ*	--	--	0.00108 U	--
Ethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00177 J*	--	--	0.00164 U	--
Freon 113	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.000997 UJ*	--	--	0.00209 U	--
Hexachlorobutadiene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.0188 UJ*	--	--	0.0391 U	--
Isopropylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00128 UJ*	--	--	0.00268 U	--
m,p-Xylene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00707 UJ*	--	--	0.0148 U	--
Methyl acetate	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Methyl tert-butyl ether	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.000436 UJ*	--	--	0.000912 U	--
Methylcyclohexane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Methylene chloride	NV	1,600	NV	22	NV	8,500	NV	NV	--	--	0.00981 UJ*	--	--	0.0205 U	--
Naphthalene	NV	1	34	27	780	16,000	NV	NV	--	--	0.00461 UJ*	--	--	0.00963 U	--
n-Butylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00567 UJ*	--	--	0.0119 U	--
n-Propylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00174 UJ*	--	--	0.00366 U	--
o-Xylene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
sec-Butylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00374 UJ*	--	--	0.00783 U	--
Styrene	1.2	3.2	NV	NV	NV	NV	NV	NV	--	--	0.00404 UJ*	--	--	0.00845 U	--
tert-Butylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00228 UJ*	--	--	0.00479 U	--
Tetrachloroethene	NV	10	NV	0.94	NV	210	NV	NV	--	--	0.00184 J*	--	--	0.00216 U	--
Toluene	NV	200	NV	230	NV	33,000	NV	NV	--	--	0.0187 J*	--	--	0.0522	--
trans-1,2-Dichloroethene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00211 UJ*	--	--	0.00443 U	--
trans-1,3-Dichloropropene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	0.00226 UJ*	--	--	0.00474 U	--
Trichloroethene	NV	NV	NV	420	NV	110,000	NV	NV	--	--	0.000591 UJ*	--	--	0.00124 U	--
Trichlorofluoromethane (Freon 11)	NV	NV	NV	350	NV	420,000	NV	NV	--	--	0.000739 UJ*	--	--	0.00155 U	--
Vinyl chloride	NV	NV	NV	1.2	NV	280	NV	NV	--	--	0.00101 UJ*	--	--	0.00211 U	--
Xylenes, total[h]	NV	100	410	1.8	1,900	260	NV	NV	--	--	0.00707 UJ*	--	--	0.0148 U	--

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	SL01GP01	SL02GP01	SL03TP01	SL04TP01	SL05GP01	SL06GP01	SL07GP01
Sample Name:								DU08SS	JLTQ0	JLTQ2	JLTQ4	JLTQ6	JLTQ8	JLTR0	JLTR2
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/9/2020	9/9/2020	9/9/2020	9/10/2020	9/9/2020	9/9/2020	9/10/2020
Collection Depth (ft bgs):								0-4 cm	0-4	0-4	1-2	1-2	0-4	0-4	0-4
Total Metals (mg/kg)															
Aluminum	(a)	(a)	(a)	(a)	(a)	(a)	NV	22,200	35,800	30,600	17,900	20,300	42,300	26,800	21,400
Antimony	78	11	NV	2.7	NV	49	0.59	0.094	0.9 UJ	0.89 UJ	0.79 UJ	0.79 U	1 UJ	0.83 UJ	0.85 UJ
Arsenic	6.8	18	32	31	1,000	290	12	4.18	3.7	3.6	2.6	1.8	2.8	3.4	3
Barium	330	110	1,200	8,700	13,000	44,000	630	81.3	39.5	33.9	73.2	54.6	59.4	66.4	78.9
Beryllium	40	2.5	NV	42	NV	110	1.4	0.35	0.74	0.65	0.61	0.6	0.93	0.82	0.69
Cadmium	140	32	1.6	4	7.7	1,700	0.52	0.375	0.5 U	0.41 U	0.43 U	0.038 J*	0.58 U	0.5 U	0.43 U
Calcium	NV	NV	NV	NV	NV	NV	NV	4340	184 J*	1430	3910	3460	1840	3290	4040
Chromium	NV	NV	73	1,600	560	10,000	890	67.1	78.7	71.1	56.4	63.3	105	73.2	59.3
Cobalt	NV	13	170	640	1,400	3,300	3 - 50	23.1	7.6	10.2	19	16.6	12.7	15.4	20.3
Copper	80	70	43	70	240	1,600	110	57.3	46.7	68.9	43.3	51.9	45	45.4	47.8
Iron	NV	NV	NV	NV	NV	NV	NV	30300	42,200	36,800	28,000	27,100	57,900	41,900	31,400
Lead	1,700	120	23	170	160	1,600	36	15.2	10.5	11.7	11.1	7.6 J	11.9	25.2	11.1
Magnesium	NV	NV	NV	NV	NV	NV	NV	11700	6,380	9,400	9,600	11,400	9,000	9,620	9,970
Manganese	450	220	2,700	5,400	50,000	34,000	3,000	1140	152	228	616	400	193	423	648
Mercury	0.05	34	0.13	17	0.58	130	0.17	0.066	0.14	0.14	0.11 U	0.11 U	0.23	0.12 U	0.11 U
Nickel	280	38	81	21	440	580	630	69.8	49.6	64.4	66.2	77.9	79.8	67.8	72.3
Potassium	NV	NV	NV	NV	NV	NV	NV	1060	299 J*	458	405 J*	600	576 U	486 J*	657
Selenium	4.1	0.52	1.4	1	7.5	33	0.8	NV	2.2 U	2.2 U	2 U	0.42 J*	2.6 U	0.47 J*	2.1 U
Silver	NV	560	26	140	130	10,000	0.16	0.067	0.49 J*	0.47 J*	0.33 J*	0.7 J*	0.92 J*	0.51 J*	0.38 J*
Sodium	NV	NV	NV	NV	NV	NV	NV	174	499 U	411 U	434 U	37 J*	576 U	42.7 J*	60 J*
Thallium	NV	0.05	45	4.2	480	50	0.31	0.076	0.45 U	0.44 U	0.4 U	0.4 U	0.51 U	0.42 U	0.42 U
Vanadium	NV	60	9.5	610	110	1,600	290	75.8	70.4	64.1	54.1	48.3 J	101	73	61.2
Zinc	120	160	120	980	590	30,000	140	93.1	61.5	72.4	72.7	65.2	73.6	161	70.8
PCB Aroclors (mg/kg)															
Total PCBs[b]	NV	160	0.24	0.073	1.9	6.9	NV	NV	--	--	--	--	--	--	--
Dioxins (pg/g)															
1,2,3,4,6,7,8-HpCDD	NV	NV	1,500	7	15,000	11	NV	41	--	--	--	--	3.1 J*	620	46
1,2,3,4,6,7,8-HpCDF	NV	NV	230	11	2,300	17	NV	10.4	--	--	--	--	0.98 J*	140	12
1,2,3,4,7,8,9-HpCDF	NV	NV	230	11	2,300	17	NV	0.73 J	--	--	--	--	0.46 U	9.9	0.88 J*
1,2,3,4,7,8-HxCDD	NV	NV	51	1.2	500	1.8	NV	0.811 J	--	--	--	--	0.47 U	6.9	0.94 J*
1,2,3,4,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	0.868 J	--	--	--	--	0.4 U	13	0.91 J*
1,2,3,6,7,8-HxCDD	NV	NV	190	0.89	1,900	1.4	NV	2.09 J	--	--	--	--	0.5 U	33	2.4 J*
1,2,3,6,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	0.679 J	--	--	--	--	0.47 U	6.2	0.55 J*
1,2,3,7,8,9-HxCDD	NV	NV	19	0.89	190	1.4	NV	1.54 J	--	--	--	--	0.34 U	10	1.5 J*
1,2,3,7,8,9-HxCDF	NV	NV	30	1.4	300	2.2	NV	0.33 U	--	--	--	--	0.44 U	3.3 J*	0.44 U
1,2,3,7,8-PeCDD	NV	NV	5.9	0.28	59	0.43	NV	0.61 J	--	--	--	--	0.35 U	2.5 J*	0.51 J*
1,2,3,7,8-PeCDF	NV	NV	41	6.5	400	9.8	NV	0.353 J	--	--	--	--	0.38 U	2.2 J*	0.38 U
2,3,4,6,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	1.01 J	--	--	--	--	0.41 U	9	0.87 J*
2,3,4,7,8-PeCDF	NV	NV	4.1	0.65	40	0.98	NV	0.878 J	--	--	--	--	0.43 U	7.4	0.61 J*
2,3,7,8-TCDD	5,000,000	NV	5.2	0.25	52	0.38	NV	0.669	--	--	--	--	0.13 U	0.36 J*	0.88 J*
2,3,7,8-TCDF	NV	NV	6.4	3	63	4.6	NV	0.424 J	--	--	--	--	0.11 U	0.67 J*	0.2 J*
OCDD	NV	NV	19,000	300	190,000	460	NV	364	--	--	--	--	39	5100	410
OCDF	NV	NV	14,000	220	140,000	340	NV	36	--	--	--	--	3.6 J*	410	33
Dioxin/furan TEQ (avian)[c][3]	5,000,000	NV	5.2	NV	52	NV	NV	3.31	--	--	--	--	0.67 J*	19 J*	2.9 J*

Table 6-1
Ecological Soil Analytical Results
Wild River Land Trust
Port Orford, Oregon

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	SL01GP01	SL02GP01	SL03TP01	SL04TP01	SL05GP01	SL06GP01	SL07GP01
Sample Name:								DU08SS	JLTQ0	JLTQ2	JLTQ4	JLTQ6	JLTQ8	JLTR0	JLTR2
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/9/2020	9/9/2020	9/9/2020	9/10/2020	9/9/2020	9/9/2020	9/10/2020
Collection Depth (ft bgs):								0-4 cm	0-4	0-4	1-2	1-2	0-4	0-4	0-4
Dioxin/furan TEQ (mammal)[(d)(4)]	5,000,000	NV	NV	0.25	NV	0.38	NV	2.97	--	--	--	--	0.52 J*	23 J*	3.1 J*
TPH (mg/kg)															
Gasoline-Range Hydrocarbons	120	120	5,000	5,000	5,000	5,000	NV	NV	8.1 U	6.9 U	--	--	8.6 U	8.2 U	9.3 U
Diesel-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	49 U	47 U	--	--	55 U	270	46 U
Lube-Oil-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	120 U	120 U	--	--	140 U	150	110 U
Total Diesel+Oil[(e)]	260	260	6,000	6,000	6,000	6,000	NV	NV	120 U	120 U	--	--	140 U	420	110 U
TPH with Silica-Gel Treatment (mg/kg)															
Diesel-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Lube-Oil-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Total Diesel+Oil[(e)]	260	260	6,000	6,000	6,000	6,000	NV	NV	--	--	--	--	--	--	--
SVOCs (mg/kg)															
1,1'-Biphenyl	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
1,2,4,5-Tetrachlorobenzene	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
1,4-Dioxane	NV	NV	NV	3.6	NV	180	NV	NV	0.082 U	0.08 U	0.073 U	0.074 UJ	0.093 U	0.077 UJ	0.073 UJ
2,3,4,6-Tetrachlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
2,4,5-Trichlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
2,4,6-Trichlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
2,4-Dichlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
2,4-Dimethylphenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
2,4-Dinitrophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.39 U	0.36 U	0.36 UJ	0.46 U	0.38 U	0.36 U
2,4-Dinitrotoluene	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
2,6-Dinitrotoluene	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
2-Chloronaphthalene	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
2-Chlorophenol	NV	NV	3.9	5.4	140	3,400	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
2-Methylnaphthalene	NV	NV	NV	160	NV	49,000	NV	NV	0.21 R	0.2 R	0.19 R	0.19 R	0.24 R	0.2 R	0.18 R
2-Methylphenol	NV	0.67	NV	5,800	NV	190,000	NV	NV	0.4 U	0.39 U	0.36 U	0.36 UJ	0.46 U	0.38 U	0.36 U
2-Nitroaniline	NV	NV	NV	10	NV	4,400	NV	NV	0.21 UJ	0.2 UJ	0.19 UJ	0.19 UJ	0.24 UJ	0.2 UJ	0.18 UJ
2-Nitrophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
3- & 4-Methylphenol (m,p-Cresol)	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
3,3-Dichlorobenzidine	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.39 U	0.36 U	0.36 UJ	0.46 U	0.38 U	0.36 U
3-Nitroaniline	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.39 U	0.36 U	0.36 UJ	0.46 U	0.38 U	0.36 U
4,6-Dinitro-2-methylphenol	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.39 U	0.36 U	0.36 UJ	0.46 U	0.38 U	0.36 U
4-Bromophenylphenyl ether	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
4-Chloro-3-methylphenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
4-Chloroaniline	1.8	1	NV	NV	NV	NV	NV	NV	0.4 U	0.39 U	0.36 U	0.36 UJ	0.46 U	0.38 U	0.36 U
4-Chlorophenylphenyl ether	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
4-Methylphenol	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.39 U	0.36 U	0.36 UJ	0.46 U	0.38 U	0.36 U
4-Nitroaniline	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.39 U	0.36 U	0.36 UJ	0.46 U	0.38 U	0.36 U
4-Nitrophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.39 U	0.36 U	0.36 UJ	0.46 U	0.38 U	0.36 U
Acenaphthene	NV	0.25	NV	1,300	NV	290,000	NV	NV	0.21 R	0.2 R	0.19 R	0.19 R	0.24 R	0.2 R	0.18 R
Acenaphthylene	NV	NV	NV	1,200	NV	280,000	NV	NV	0.21 R	0.2 R	0.19 R	0.19 R	0.24 R	0.2 R	0.18 R
Acetophenone	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.39 U	0.36 U	0.36 UJ	0.46 U	0.38 U	0.36 U
Anthracene	NV	6.8	NV	2,100	NV	380,000	NV	NV	0.21 R	0.2 R	0.19 R	0.19 R	0.24 R	0.2 R	0.18 R
Atrazine	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.39 U	0.36 U	0.36 UJ	0.46 U	0.38 U	0.36 U
Benzaldehyde	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.39 U	0.36 U	0.36 UJ	0.46 U	0.38 U	0.36 U

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	SL01GP01	SL02GP01	SL03TP01	SL04TP01	SL05GP01	SL06GP01	SL07GP01
Sample Name:								DU08SS	JLTQ0	JLTQ2	JLTQ4	JLTQ6	JLTQ8	JLTR0	JLTR2
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/9/2020	9/9/2020	9/9/2020	9/10/2020	9/9/2020	9/9/2020	9/10/2020
Collection Depth (ft bgs):								0-4 cm	0-4	0-4	1-2	1-2	0-4	0-4	0-4
Benzo(a)anthracene	NV	18	7.3	34	64	1,100	NV	NV	0.21 R	0.2 R	0.19 R	0.19 R	0.24 R	0.2 R	0.18 R
Benzo(a)pyrene	NV	NV	NV	190	NV	11,000	NV	NV	0.21 R	0.2 R	0.19 R	0.19 R	0.24 R	0.2 R	0.18 R
Benzo(b)fluoranthene	NV	18	NV	440	NV	24,000	NV	NV	0.21 R	0.2 R	0.19 R	0.19 R	0.24 R	0.2 R	0.18 R
Benzo(ghi)perylene	NV	NV	NV	250	NV	36,000	NV	NV	0.21 R	0.2 R	0.19 R	0.19 R	0.24 R	0.2 R	0.18 R
Benzo(k)fluoranthene	NV	NV	NV	NV	NV	NV	NV	NV	0.21 R	0.2 R	0.19 R	0.19 R	0.24 R	0.2 R	0.18 R
Bis(2-chloro-1-methylethyl)ether	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.39 U	0.36 U	0.36 UJ	0.46 U	0.38 U	0.36 U
Bis(2-chloroethoxy)methane	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
Bis(2-chloroethyl)ether	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.39 U	0.36 U	0.36 UJ	0.46 U	0.38 U	0.36 U
Bis(2-ethylhexyl)phthalate	NV	NV	0.2	6	0.96	1,700	NV	NV	0.21 U	0.047 J*	0.19 U	0.19 UJ	0.24 U	0.037 J*	0.18 U
Butylbenzylphthalate	NV	NV	NV	900	NV	74,000	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
Caprolactam	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.39 U	0.36 U	0.36 UJ	0.46 U	0.38 U	0.36 U
Carbazole	NV	NV	NV	790	NV	130,000	NV	NV	0.4 U	0.39 U	0.36 U	0.36 UJ	0.46 U	0.38 U	0.36 U
Chrysene	NV	NV	NV	31	NV	1,100	NV	NV	0.21 R	0.2 R	0.19 R	0.19 R	0.24 R	0.2 R	0.18 R
Dibenzo(a,h)anthracene	NV	NV	NV	140	NV	8,500	NV	NV	0.21 R	0.2 R	0.19 R	0.19 R	0.24 R	0.2 R	0.18 R
Dibenzofuran	NV	6.1	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
Diethyl phthalate	NV	100	NV	18,000	NV	3,200,000	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
Dimethyl phthalate	10	NV	NV	400	NV	57,000	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
Di-n-butyl phthalate	NV	160	0.11	450	0.52	50,000	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
Di-n-octyl phthalate	NV	NV	NV	4.6	NV	2,300	NV	NV	0.4 U	0.39 U	0.36 U	0.36 UJ	0.46 U	0.38 U	0.36 U
Fluoranthene	10	NV	NV	220	NV	39,000	NV	NV	0.4 R	0.39 R	0.36 R	0.36 R	0.46 R	0.38 R	0.36 R
Fluorene	3.7	NV	NV	510	NV	100,000	NV	NV	0.21 R	0.2 R	0.19 R	0.19 R	0.24 R	0.2 R	0.18 R
Hexachlorobenzene	10	10	0.79	2	3.7	590	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
Hexachlorobutadiene	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
Hexachlorocyclopentadiene	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.39 U	0.36 U	0.36 UJ	0.46 U	0.38 U	0.36 U
Hexachloroethane	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
Indeno(1,2,3-cd)pyrene	NV	NV	NV	710	NV	46,000	NV	NV	0.21 R	0.2 R	0.19 R	0.19 R	0.24 R	0.2 R	0.18 R
Isophorone	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
Naphthalene	NV	1	34	27	780	16,000	NV	NV	0.21 R	0.2 R	0.19 R	0.19 R	0.24 R	0.2 R	0.18 R
Nitrobenzene	2.2	NV	NV	48	NV	41,000	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
N-Nitrosodiphenylamine	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
N-Nitrosodipropylamine	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.2 U	0.19 U	0.19 UJ	0.24 U	0.2 U	0.18 U
Pentachlorophenol	31	5	3.6	8.1	17	85	NV	NV	0.4 R	0.39 R	0.36 R	0.36 R	0.46 R	0.38 R	0.36 R
Phenanthrene	5.5	NV	NV	110	NV	19,000	NV	NV	0.21 R	0.2 R	0.19 R	0.19 R	0.24 R	0.2 R	0.18 R
Phenol	1.8	0.79	NV	370	NV	430,000	NV	NV	0.4 U	0.39 U	0.36 U	0.36 UJ	0.46 U	0.38 U	0.36 U
Pyrene	10	NV	330	230	1,600	31,000	NV	NV	0.21 R	0.2 R	0.19 R	0.19 R	0.24 R	0.2 R	0.18 R
SVOCs by SIM (mg/kg)															
1-Methylnaphthalene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
2-Chloronaphthalene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
2-Methylnaphthalene	NV	NV	NV	160	NV	49,000	NV	NV	0.0005 J*	0.00075 J*	0.0019 J*	0.0031 J*	0.0005 J*	0.0052	0.0027 J*
Acenaphthene	NV	0.25	NV	1,300	NV	290,000	NV	NV	0.004 U	0.0039 U	0.0036 U	0.00048 J*	0.0046 U	0.0038 U	0.0036 U
Acenaphthylene	NV	NV	NV	1,200	NV	280,000	NV	NV	0.004 U	0.0039 U	0.0036 U	0.001 J*	0.0046 U	0.0038 U	0.0036 U
Anthracene	NV	6.8	NV	2,100	NV	380,000	NV	NV	0.004 U	0.0039 U	0.00045 J*	0.0036 U	0.0046 U	0.0038 U	0.0036 U
Benzo(a)anthracene	NV	18	7.3	34	64	1,100	NV	NV	0.004 U	0.0039 U	0.0067	0.0036 U	0.0046 U	0.0016 J*	0.013 J
Benzo(a)pyrene	NV	NV	NV	190	NV	11,000	NV	NV	0.004 U	0.0039 U	0.0036 U	0.00053 J*	0.0046 U	0.0038 U	0.0036 U
Benzo(b)fluoranthene	NV	18	NV	440	NV	24,000	NV	NV	0.004 U	0.00072 J*	0.0028 J*	0.0052 J	0.0046 U	0.0046	0.0073
Benzo(ghi)perylene	NV	NV	NV	250	NV	36,000	NV	NV	0.004 U	0.0039 U	0.0036 U	0.0025 J*	0.0046 U	0.0038 U	0.0036 U

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	SL01GP01	SL02GP01	SL03TP01	SL04TP01	SL05GP01	SL06GP01	SL07GP01
Sample Name:								DU08SS	JLTQ0	JLTQ2	JLTQ4	JLTQ6	JLTQ8	JLTR0	JLTR2
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/9/2020	9/9/2020	9/9/2020	9/10/2020	9/9/2020	9/9/2020	9/10/2020
Collection Depth (ft bgs):								0-4 cm	0-4	0-4	1-2	1-2	0-4	0-4	0-4
Benzo(k)fluoranthene	NV	NV	NV	NV	NV	NV	NV	NV	0.004 U	0.0039 U	0.0036 U	0.0036 U	0.0046 U	0.0006 J*	0.0036 U
Chrysene	NV	NV	NV	31	NV	1,100	NV	NV	0.004 U	0.00062 J*	0.0023 J*	0.0036 J	0.0046 U	0.0073	0.0039 J
Dibenzo(a,h)anthracene	NV	NV	NV	140	NV	8,500	NV	NV	0.004 U	0.0039 U	0.0036 U	0.0036 U	0.0046 U	0.0038 U	0.0036 U
Fluoranthene	10	NV	NV	220	NV	39,000	NV	NV	0.004 U	0.0039 U	0.0053	0.0066 J	0.0046 U	0.0038 U	0.0044
Fluorene	3.7	NV	NV	510	NV	100,000	NV	NV	0.004 U	0.0039 U	0.0036 U	0.00089 J*	0.0046 U	0.0038 U	0.00069 J*
Indeno(1,2,3-cd)pyrene	NV	NV	NV	710	NV	46,000	NV	NV	0.004 U	0.0039 U	0.0036 U	0.0036 U	0.0046 U	0.0038 U	0.0036 U
Naphthalene	NV	1	34	27	780	16,000	NV	NV	0.0011 J*	0.0011 J*	0.0017 J*	0.0025 J*	0.00096 J*	0.0035 J*	0.0026 J*
Pentachlorophenol	31	5	3.6	8.1	17	85	NV	NV	0.0082 U	0.008 U	0.0073 U	0.0074 U	0.0093 U	0.0077 U	0.0073 U
Phenanthrene	5.5	NV	NV	110	NV	19,000	NV	NV	0.00065 J*	0.0017 J*	0.0052	0.023	0.00064 J*	0.012	0.013
Pyrene	10	NV	330	230	1,600	31,000	NV	NV	0.004 U	0.0039 U	0.0011 J*	0.0057 J	0.0046 U	0.009	0.0015 J*
Total LPAH[f][5]	29	NV	67	540	37,000	59,000	NV	NV	0.01 J*	0.011 J*	0.015 J*	0.033 J*	0.011 J*	0.028 J*	0.024 J*
Total HPAH[g][5]	18	NV	0.55	5.9	64	550	NV	NV	0.02 J*	0.017 J*	0.027 J*	0.031 J*	0.023 J*	0.033 J*	0.039 J*
VOCs (mg/kg)															
1,1,1,2-Tetrachloroethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,1,1-Trichloroethane	NV	NV	NV	1,300	NV	450,000	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
1,1,2,2-Tetrachloroethane	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
1,1,2-Trichloroethane	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
1,1-Dichloroethane	NV	NV	NV	2,100	NV	2,500,000	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
1,1-Dichloroethene	NV	NV	NV	60	NV	1,600	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
1,1-Dichloropropene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
1,2,3-Trichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2,3-Trimethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	1.2	NV	NV	2.7	NV	1,100	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
1,2,4-Trimethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
1,2-Dibromoethane	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
1,2-Dichlorobenzene	NV	NV	NV	9.2	NV	4,800	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
1,2-Dichloroethane	NV	NV	1.6	270	44	84,000	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
1,2-Dichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
1,3,5-Trimethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NV	NV	7.4	NV	3,800	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
1,3-Dichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,4-Dichlorobenzene	1.2	NV	NV	3.5	NV	1,800	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
2,2-Dichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
2-Butanone	NV	NV	NV	920	NV	3,500,000	NV	NV	0.011 U	0.0075 J*	--	--	0.014 U	0.014 U	0.023 U
2-Chlorotoluene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
2-Hexanone	NV	NV	3.6	20	17	22,000	NV	NV	0.011 U	0.015 U	--	--	0.014 U	0.014 U	0.023 U
4-Chlorotoluene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
4-Isopropyltoluene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
4-Methyl-2-pentanone	NV	NV	NV	97	NV	180,000	NV	NV	0.011 U	0.015 U	--	--	0.014 U	0.014 U	0.023 U
Acetone	NV	NV	75	6.3	8,400	8,900	NV	NV	0.01 J*	0.069	--	--	0.039	0.014	0.1
Acrylonitrile	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Benzene	NV	NV	NV	240	NV	43,000	NV	NV	0.0055 U	0.0013 J*	--	--	0.007 U	0.0069 U	0.024
Bromobenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--

Table 6-1
Ecological Soil Analytical Results
Wild River Land Trust
Port Orford, Oregon

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	SL01GP01	SL02GP01	SL03TP01	SL04TP01	SL05GP01	SL06GP01	SL07GP01
Sample Name:								DU08SS	JLTQ0	JLTQ2	JLTQ4	JLTQ6	JLTQ8	JLTR0	JLTR2
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/9/2020	9/9/2020	9/9/2020	9/10/2020	9/9/2020	9/9/2020	9/10/2020
Collection Depth (ft bgs):								0-4 cm	0-4	0-4	1-2	1-2	0-4	0-4	0-4
Bromodichloromethane	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Bromoform	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Bromomethane	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Carbon disulfide	NV	NV	NV	8.1	NV	1,900	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Carbon tetrachloride	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Chlorobenzene	2.4	NV	NV	430	NV	250,000	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Chlorobromomethane	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Chloroethane	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Chloroform	NV	NV	NV	21	NV	6,000	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Chloromethane	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
cis-1,2-Dichloroethene	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
cis-1,3-Dichloropropene	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Cyclohexane	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Dibromochloromethane	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Dibromomethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon 12	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Diisopropyl Ether	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Ethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Freon 113	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Hexachlorobutadiene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Isopropylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
m,p-Xylene	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Methyl acetate	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Methyl tert-butyl ether	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Methylcyclohexane	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Methylene chloride	NV	1,600	NV	22	NV	8,500	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Naphthalene	NV	1	34	27	780	16,000	NV	NV	--	--	--	--	--	--	--
n-Butylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
n-Propylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
o-Xylene	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
sec-Butylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Styrene	1.2	3.2	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
tert-Butylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Tetrachloroethene	NV	10	NV	0.94	NV	210	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Toluene	NV	200	NV	230	NV	33,000	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.0077 J*
trans-1,2-Dichloroethene	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
trans-1,3-Dichloropropene	NV	NV	NV	NV	NV	NV	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Trichloroethene	NV	NV	NV	420	NV	110,000	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Trichlorofluoromethane (Freon 11)	NV	NV	NV	350	NV	420,000	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Vinyl chloride	NV	NV	NV	1.2	NV	280	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U
Xylenes, total[h]	NV	100	410	1.8	1,900	260	NV	NV	0.0055 U	0.0075 U	--	--	0.007 U	0.0069 U	0.011 U

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Table 6-1
Ecological Soil Analytical Results
Wild River Land Trust
Port Orford, Oregon

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	SL09GP01	SL14GP01	SL15GP01	SL16TP01	SL16TP02	SL16TP03	SL20GP01
Sample Name:								DU08SS	JLTR6	JLTS6	JLTS8	JLTT0	JLTT1	JLTY3	JLTJT8
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/10/2020	9/10/2020	9/11/2020	9/10/2020	9/10/2020	9/10/2020	9/11/2020
Collection Depth (ft bgs):								0-4 cm	0-4	0-4	0-4	0.833-1	1.0833-1.5	1.5-3	0-4
Total Metals (mg/kg)															
Aluminum	(a)	(a)	(a)	(a)	(a)	(a)	NV	22,200	23,000	18,100	36,400	17,400	27,100	35,200	27,600
Antimony	78	11	NV	2.7	NV	49	0.59	0.094	0.84 U	0.9 U	0.96 U	1.2 J	4.4 J	1 UJ	0.92 U
Arsenic	6.8	18	32	31	1,000	290	12	4.18	3.8	2.9	3.8	3.9	8.6	1.8	3.9
Barium	330	110	1,200	8,700	13,000	44,000	630	81.3	78.8	108	44.8	668	922	71.4	66.9
Beryllium	40	2.5	NV	42	NV	110	1.4	0.35	0.74	0.56	0.78	0.4 J*	0.48	0.81	0.65
Cadmium	140	32	1.6	4	7.7	1,700	0.52	0.375	0.11 J*	0.45 U	0.43 U	0.51 U	0.47 U	0.5 U	0.47 U
Calcium	NV	NV	NV	NV	NV	NV	NV	4340	3800	5980	1850	54000	58200	4010	3450
Chromium	NV	NV	73	1,600	560	10,000	890	67.1	65.2	59.1	114	40	37	109	82.7
Cobalt	NV	13	170	640	1,400	3,300	3 - 50	23.1	33.6	15.4	17.7	7.1	6.2	9	10.7
Copper	80	70	43	70	240	1,600	110	57.3	58.5	52.5	54.2	123	88.5	30.8	70.3
Iron	NV	NV	NV	NV	NV	NV	NV	30300	36,400	27,800	43,400	19,000	19,900	48,100	38,300
Lead	1,700	120	23	170	160	1,600	36	15.2	13.4 J	14.5 J	10.3 J	9.2	18.1	9.1	26 J
Magnesium	NV	NV	NV	NV	NV	NV	NV	11700	11,800	10,800	12,900	4,970	5,950	4,430	6,760
Manganese	450	220	2,700	5,400	50,000	34,000	3,000	1140	827	529	377	1110	1630	234	308
Mercury	0.05	34	0.13	17	0.58	130	0.17	0.066	0.11 U	0.11 U	0.12 U	0.13 U	0.12 U	0.13 U	0.14
Nickel	280	38	81	21	440	580	630	69.8	86.5	67.5	123	45.3	34.5	66.1	61.3
Potassium	NV	NV	NV	NV	NV	NV	NV	1060	519	945	329 J*	3830	5370	1670	377 J*
Selenium	4.1	0.52	1.4	1	7.5	33	0.8	NV	2.1 U	2.2 U	2.4 U	1 J*	2.3 U	2.6 U	0.48 J*
Silver	NV	560	26	140	130	10,000	0.16	0.067	0.96	0.78 J*	1	0.33 J*	0.38 J*	0.6 J*	0.98
Sodium	NV	NV	NV	NV	NV	NV	NV	174	45.5 J*	481	31.4 J*	2310	4190	494 J*	42 J*
Thallium	NV	0.05	45	4.2	480	50	0.31	0.076	0.42 U	0.45 U	0.48 U	0.49 U	0.46 U	0.51 U	0.46 U
Vanadium	NV	60	9.5	610	110	1,600	290	75.8	72.7 J	51.3 J	77.8 J	36	60	75.9	72.1 J
Zinc	120	160	120	980	590	30,000	140	93.1	97.6	104	74.7	92.6	108	45.1	169
PCB Aroclors (mg/kg)															
Total PCBs[b]	NV	160	0.24	0.073	1.9	6.9	NV	NV	0.011 U	--	--	--	--	--	--
Dioxins (pg/g)															
1,2,3,4,6,7,8-HpCDD	NV	NV	1,500	7	15,000	11	NV	41	--	30	69	82	34	1.3 J*	450
1,2,3,4,6,7,8-HpCDF	NV	NV	230	11	2,300	17	NV	10.4	--	8.2	5.5	6.3	4.7 J*	0.44 U	55
1,2,3,4,7,8,9-HpCDF	NV	NV	230	11	2,300	17	NV	0.73 J	--	0.68 J*	0.46 J*	0.64 J*	0.46 U	0.46 U	3.5 J*
1,2,3,4,7,8-HxCDD	NV	NV	51	1.2	500	1.8	NV	0.811 J	--	0.89 J*	1.7 J*	1.3 J*	0.64 J*	0.47 U	3.7 J*
1,2,3,4,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	0.868 J	--	0.73 J*	0.4 J*	0.7 J*	0.42 J*	0.4 U	2.9 J*
1,2,3,6,7,8-HxCDD	NV	NV	190	0.89	1,900	1.4	NV	2.09 J	--	1.5 J*	3.3 J*	3.7 J*	1.7 J*	0.5 U	13
1,2,3,6,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	0.679 J	--	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	1.7 J*
1,2,3,7,8,9-HxCDD	NV	NV	19	0.89	190	1.4	NV	1.54 J	--	1.1 J*	2.9 J*	2.7 J*	1.1 J*	0.34 U	7.3
1,2,3,7,8,9-HxCDF	NV	NV	30	1.4	300	2.2	NV	0.33 U	--	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.89 J*
1,2,3,7,8-PeCDD	NV	NV	5.9	0.28	59	0.43	NV	0.61 J	--	0.35 U	0.94 J*	0.92 J*	0.39 J*	0.35 U	2.2 J*
1,2,3,7,8-PeCDF	NV	NV	41	6.5	400	9.8	NV	0.353 J	--	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.62 J*
2,3,4,6,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	1.01 J	--	0.69 J*	0.41 U	0.47 J*	0.41 U	0.41 U	2.7 J*
2,3,4,7,8-PeCDF	NV	NV	4.1	0.65	40	0.98	NV	0.878 J	--	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	1.3 J*
2,3,7,8-TCDD	5,000,000	NV	5.2	0.25	52	0.38	NV	0.669	--	0.18 J*	0.26 J*	0.25 J*	0.15 J*	0.11 U	0.84 J*
2,3,7,8-TCDF	NV	NV	6.4	3	63	4.6	NV	0.424 J	--	0.16 J*	0.11 U	0.15 J*	0.12 U	0.11 U	0.45 J*
OCDD	NV	NV	19,000	300	190,000	460	NV	364	--	250	350	450	220	7.2 J*	4,700 J
OCDF	NV	NV	14,000	220	140,000	340	NV	36	--	23	20	26	17	0.87 U	220
Dioxin/furan TEQ (avian)[c][3]	5,000,000	NV	5.2	NV	52	NV	NV	3.31	--	1.3 J*	2.2 J*	2.3 J*	1.2 J*	0.64 J*	8.2 J*

Table 6-1
Ecological Soil Analytical Results
Wild River Land Trust
Port Orford, Oregon

Location:	DEQ Ecological RBC, Soil, Direct Toxicity(1)		DEQ Ecological RBC, Soil, Ground Feeding(1)		DEQ Ecological RBC, Soil, Top Consumer(1)		DEQ Background Metals, Klamath Mountains(2)	Site-specific Background	SL09GP01	SL14GP01	SL15GP01	SL16TP01	SL16TP02	SL16TP03	SL20GP01
Sample Name:								DU08SS	JLTR6	JLTS6	JLTS8	JLTT0	JLTT1	JLTY3	JLTJT8
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/10/2020	9/10/2020	9/11/2020	9/10/2020	9/10/2020	9/10/2020	9/11/2020
Collection Depth (ft bgs):								0-4 cm	0-4	0-4	0-4	0.833-1	1.0833-1.5	1.5-3	0-4
Dioxin/furan TEQ (mammal)(d)(4)	5,000,000	NV	NV	0.25	NV	0.38	NV	2.97	--	1.4 J*	3.0 J*	3.2 J*	1.5 J*	0.48 J*	13 J*
TPH (mg/kg)															
Gasoline-Range Hydrocarbons	120	120	5,000	5,000	5,000	5,000	NV	NV	--	9.4 U	10 U	20 U	10 U	9.3 U	9.8 U
Diesel-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	45 U	47 U	50 U	54 U	51 U	55 U	49 U
Lube-Oil-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	160	220	120 U	130 U	130 U	140 U	120 U
Total Diesel+Oil(e)	260	260	6,000	6,000	6,000	6,000	NV	NV	180	240	120 U	130 U	130 U	140 U	120 U
TPH with Silica-Gel Treatment (mg/kg)															
Diesel-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Lube-Oil-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Total Diesel+Oil(e)	260	260	6,000	6,000	6,000	6,000	NV	NV	--	--	--	--	--	--	--
SVOCs (mg/kg)															
1,1'-Biphenyl	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
1,2,4,5-Tetrachlorobenzene	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
1,4-Dioxane	NV	NV	NV	3.6	NV	180	NV	NV	0.076 U	0.075 U	0.083 U	0.088 U	0.084 U	0.092 UJ	0.084 U
2,3,4,6-Tetrachlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
2,4,5-Trichlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
2,4,6-Trichlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
2,4-Dichlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
2,4-Dimethylphenol	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 UJ	0.21 U	0.23 U	0.21 U
2,4-Dinitrophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.37 U	0.37 U	0.41 U	0.44 U	0.41 U	0.46 U	0.41 U
2,4-Dinitrotoluene	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
2,6-Dinitrotoluene	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
2-Chloronaphthalene	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
2-Chlorophenol	NV	NV	3.9	5.4	140	3,400	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
2-Methylnaphthalene	NV	NV	NV	160	NV	49,000	NV	NV	0.19 R	0.19 R	0.21 R	0.22 R	0.21 R	0.23 R	0.21 R
2-Methylphenol	NV	0.67	NV	5,800	NV	190,000	NV	NV	0.37 U	0.37 U	0.41 U	0.44 UJ	0.41 U	0.46 U	0.41 U
2-Nitroaniline	NV	NV	NV	10	NV	4,400	NV	NV	0.19 U	0.19 UJ	0.21 UJ	0.22 UJ	0.21 UJ	0.23 UJ	0.21 UJ
2-Nitrophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
3- & 4-Methylphenol (m,p-Cresol)	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
3,3-Dichlorobenzidine	NV	NV	NV	NV	NV	NV	NV	NV	0.37 U	0.37 U	0.41 U	0.44 U	0.41 U	0.46 U	0.41 U
3-Nitroaniline	NV	NV	NV	NV	NV	NV	NV	NV	0.37 U	0.37 U	0.41 U	0.44 U	0.41 U	0.46 U	0.41 U
4,6-Dinitro-2-methylphenol	NV	NV	NV	NV	NV	NV	NV	NV	0.37 U	0.37 U	0.41 U	0.44 UJ	0.41 U	0.46 U	0.41 U
4-Bromophenylphenyl ether	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
4-Chloro-3-methylphenol	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
4-Chloroaniline	1.8	1	NV	NV	NV	NV	NV	NV	0.37 U	0.37 U	0.41 U	0.44 U	0.41 U	0.46 U	0.41 U
4-Chlorophenylphenyl ether	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
4-Methylphenol	NV	NV	NV	NV	NV	NV	NV	NV	0.37 U	0.37 U	0.41 U	0.44 UJ	0.41 U	0.46 U	0.41 U
4-Nitroaniline	NV	NV	NV	NV	NV	NV	NV	NV	0.37 U	0.37 U	0.41 U	0.44 U	0.41 U	0.46 U	0.41 U
4-Nitrophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.37 U	0.37 U	0.41 U	0.44 U	0.41 U	0.46 U	0.41 U
Acenaphthene	NV	0.25	NV	1,300	NV	290,000	NV	NV	0.19 R	0.19 R	0.21 R	0.22 R	0.21 R	0.23 R	0.21 R
Acenaphthylene	NV	NV	NV	1,200	NV	280,000	NV	NV	0.19 R	0.19 R	0.21 R	0.22 R	0.21 R	0.23 R	0.21 R
Acetophenone	NV	NV	NV	NV	NV	NV	NV	NV	0.37 U	0.37 U	0.41 U	0.44 U	0.41 U	0.46 U	0.41 U
Anthracene	NV	6.8	NV	2,100	NV	380,000	NV	NV	0.19 R	0.19 R	0.21 R	0.22 R	0.21 R	0.23 R	0.21 R
Atrazine	NV	NV	NV	NV	NV	NV	NV	NV	0.37 U	0.37 U	0.41 U	0.44 U	0.41 U	0.46 U	0.41 U
Benzaldehyde	NV	NV	NV	NV	NV	NV	NV	NV	0.37 U	0.37 U	0.41 U	0.44 U	0.41 U	0.46 U	0.41 U

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	SL09GP01	SL14GP01	SL15GP01	SL16TP01	SL16TP02	SL16TP03	SL20GP01
Sample Name:								DU08SS	JLTR6	JLTS6	JLTS8	JLTT0	JLTT1	JLTY3	JLTJT8
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/10/2020	9/10/2020	9/11/2020	9/10/2020	9/10/2020	9/10/2020	9/11/2020
Collection Depth (ft bgs):								0-4 cm	0-4	0-4	0-4	0.833-1	1.0833-1.5	1.5-3	0-4
Benzo(a)anthracene	NV	18	7.3	34	64	1,100	NV	NV	0.19 R	0.19 R	0.21 R	0.22 R	0.21 R	0.23 R	0.21 R
Benzo(a)pyrene	NV	NV	NV	190	NV	11,000	NV	NV	0.19 R	0.19 R	0.21 R	0.22 R	0.21 R	0.23 R	0.21 R
Benzo(b)fluoranthene	NV	18	NV	440	NV	24,000	NV	NV	0.19 R	0.19 R	0.21 R	0.22 R	0.21 R	0.23 R	0.21 R
Benzo(ghi)perylene	NV	NV	NV	250	NV	36,000	NV	NV	0.19 R	0.19 R	0.21 R	0.22 R	0.21 R	0.23 R	0.21 R
Benzo(k)fluoranthene	NV	NV	NV	NV	NV	NV	NV	NV	0.19 R	0.19 R	0.21 R	0.22 R	0.21 R	0.23 R	0.21 R
Bis(2-chloro-1-methylethyl)ether	NV	NV	NV	NV	NV	NV	NV	NV	0.37 U	0.37 U	0.41 U	0.44 U	0.41 U	0.46 U	0.41 U
Bis(2-chloroethoxy)methane	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
Bis(2-chloroethyl)ether	NV	NV	NV	NV	NV	NV	NV	NV	0.37 U	0.37 U	0.41 U	0.44 U	0.41 U	0.46 U	0.41 U
Bis(2-ethylhexyl)phthalate	NV	NV	0.2	6	0.96	1,700	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
Butylbenzylphthalate	NV	NV	NV	900	NV	74,000	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
Caprolactam	NV	NV	NV	NV	NV	NV	NV	NV	0.37 U	0.37 U	0.41 U	0.44 U	0.41 U	0.46 U	0.41 U
Carbazole	NV	NV	NV	790	NV	130,000	NV	NV	0.37 U	0.37 U	0.41 U	0.44 U	0.41 U	0.46 U	0.41 U
Chrysene	NV	NV	NV	31	NV	1,100	NV	NV	0.19 R	0.19 R	0.21 R	0.22 R	0.21 R	0.23 R	0.21 R
Dibenzo(a,h)anthracene	NV	NV	NV	140	NV	8,500	NV	NV	0.19 R	0.19 R	0.21 R	0.22 R	0.21 R	0.23 R	0.21 R
Dibenzofuran	NV	6.1	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
Diethyl phthalate	NV	100	NV	18,000	NV	3,200,000	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
Dimethyl phthalate	10	NV	NV	400	NV	57,000	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
Di-n-butyl phthalate	NV	160	0.11	450	0.52	50,000	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
Di-n-octyl phthalate	NV	NV	NV	4.6	NV	2,300	NV	NV	0.37 U	0.37 U	0.41 U	0.44 U	0.41 U	0.46 U	0.41 U
Fluoranthene	10	NV	NV	220	NV	39,000	NV	NV	0.37 R	0.37 R	0.41 R	0.44 R	0.41 R	0.46 R	0.41 R
Fluorene	3.7	NV	NV	510	NV	100,000	NV	NV	0.19 R	0.19 R	0.21 R	0.22 R	0.21 R	0.23 R	0.21 R
Hexachlorobenzene	10	10	0.79	2	3.7	590	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
Hexachlorobutadiene	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
Hexachlorocyclopentadiene	NV	NV	NV	NV	NV	NV	NV	NV	0.37 U	0.37 U	0.41 U	0.44 U	0.41 U	0.46 U	0.41 U
Hexachloroethane	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
Indeno(1,2,3-cd)pyrene	NV	NV	NV	710	NV	46,000	NV	NV	0.19 R	0.19 R	0.21 R	0.22 R	0.21 R	0.23 R	0.21 R
Isophorone	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
Naphthalene	NV	1	34	27	780	16,000	NV	NV	0.19 R	0.19 R	0.21 R	0.22 R	0.21 R	0.23 R	0.21 R
Nitrobenzene	2.2	NV	NV	48	NV	41,000	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
N-Nitrosodiphenylamine	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
N-Nitrosodipropylamine	NV	NV	NV	NV	NV	NV	NV	NV	0.19 U	0.19 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U
Pentachlorophenol	31	5	3.6	8.1	17	85	NV	NV	0.37 R	0.37 R	0.41 R	0.44 R	0.41 R	0.46 R	0.41 R
Phenanthrene	5.5	NV	NV	110	NV	19,000	NV	NV	0.19 R	0.19 R	0.21 R	0.22 R	0.21 R	0.23 R	0.21 R
Phenol	1.8	0.79	NV	370	NV	430,000	NV	NV	0.37 U	0.37 U	0.41 U	0.44 U	0.41 U	0.46 U	0.41 U
Pyrene	10	NV	330	230	1,600	31,000	NV	NV	0.19 R	0.19 R	0.21 R	0.22 R	0.21 R	0.23 R	0.21 R
SVOCs by SIM (mg/kg)															
1-Methylnaphthalene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
2-Chloronaphthalene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
2-Methylnaphthalene	NV	NV	NV	160	NV	49,000	NV	NV	0.011 J	0.037 U	0.0041 U	0.0044 U	0.0041 U	0.0046 U	0.0022 J*
Acenaphthene	NV	0.25	NV	1,300	NV	290,000	NV	NV	0.0011 J*	0.037 U	0.0041 U	0.0044 U	0.0041 U	0.0046 U	0.0041 U
Acenaphthylene	NV	NV	NV	1,200	NV	280,000	NV	NV	0.0008 J*	0.037 U	0.0041 U	0.0044 U	0.0041 U	0.0046 U	0.00053 J*
Anthracene	NV	6.8	NV	2,100	NV	380,000	NV	NV	0.0037 U	0.0094 J*	0.0041 U	0.0044 U	0.0041 U	0.0046 U	0.0041 U
Benzo(a)anthracene	NV	18	7.3	34	64	1,100	NV	NV	0.029 J	0.037 U	0.0041 U	0.0044 UJ	0.0041 U	0.0046 U	0.00046 J*
Benzo(a)pyrene	NV	NV	NV	190	NV	11,000	NV	NV	0.0037 U	0.037 U	0.0041 U	0.0044 UJ	0.0041 U	0.0046 U	0.0041 U
Benzo(b)fluoranthene	NV	18	NV	440	NV	24,000	NV	NV	0.012	0.037 U	0.0041 U	0.0044 UJ	0.0041 U	0.0046 U	0.0026 J*
Benzo(ghi)perylene	NV	NV	NV	250	NV	36,000	NV	NV	0.0037 U	0.037 U	0.0041 U	0.0044 UJ	0.0041 U	0.0046 U	0.0041 U

Location:	DEQ Ecological RBC, Soil, Direct Toxicity(1)		DEQ Ecological RBC, Soil, Ground Feeding(1)		DEQ Ecological RBC, Soil, Top Consumer(1)		DEQ Background Metals, Klamath Mountains(2)	Site-specific Background	SL09GP01	SL14GP01	SL15GP01	SL16TP01	SL16TP02	SL16TP03	SL20GP01
Sample Name:								DU08SS	JLTR6	JLTS6	JLTS8	JLTT0	JLTT1	JLTY3	JLTJT8
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/10/2020	9/10/2020	9/11/2020	9/10/2020	9/10/2020	9/10/2020	9/11/2020
Collection Depth (ft bgs):								0-4 cm	0-4	0-4	0-4	0.833-1	1.0833-1.5	1.5-3	0-4
Benzo(k)fluoranthene	NV	NV	NV	NV	NV	NV	NV	NV	0.0037 U	0.037 U	0.0041 U	0.0044 UJ	0.0041 U	0.0046 U	0.0041 U
Chrysene	NV	NV	NV	31	NV	1,100	NV	NV	0.0037 U	0.037 U	0.0041 U	0.0044 UJ	0.00053 J*	0.0046 U	0.0015 J*
Dibenzo(a,h)anthracene	NV	NV	NV	140	NV	8,500	NV	NV	0.0037 U	0.037 U	0.0041 U	0.0044 UJ	0.0041 U	0.0046 U	0.0041 U
Fluoranthene	10	NV	NV	220	NV	39,000	NV	NV	0.0044	0.037 U	0.0041 U	0.0044 UJ	0.0005 J*	0.0046 U	0.0049
Fluorene	3.7	NV	NV	510	NV	100,000	NV	NV	0.0037 U	0.037 U	0.0041 U	0.0044 U	0.0041 U	0.0046 U	0.0041 U
Indeno(1,2,3-cd)pyrene	NV	NV	NV	710	NV	46,000	NV	NV	0.0037 U	0.037 U	0.0041 U	0.0044 UJ	0.0041 U	0.0046 U	0.0041 U
Naphthalene	NV	1	34	27	780	16,000	NV	NV	0.0071 J	0.037 U	0.0041 U	0.0021 J*	0.0041 U	0.0046 U	0.0024 J*
Pentachlorophenol	31	5	3.6	8.1	17	85	NV	NV	0.0033 J*	0.075 U	0.0083 U	0.0088 U	0.0084 U	0.0092 U	0.0028 J*
Phenanthrene	5.5	NV	NV	110	NV	19,000	NV	NV	0.023 J	0.0098 J*	0.00059 J*	0.0016 J*	0.00083 J*	0.0046 U	0.0044
Pyrene	10	NV	330	230	1,600	31,000	NV	NV	0.0037 U	0.037 U	0.0041 U	0.0044 UJ	0.0041 U	0.0046 U	0.0038 J*
Total LPAH(f)(5)	29	NV	67	540	37,000	59,000	NV	NV	0.047 J*	0.11 J*	0.013 J*	0.015 J*	0.013 J*	0.0023 U	0.016 J*
Total HPAH(g)(5)	18	NV	0.55	5.9	64	550	NV	NV	0.047 J	0.0185 U	0.00205 U	0.0022 UJ	0.017 J*	0.0023 U	0.024 J*
VOCs (mg/kg)															
1,1,1,2-Tetrachloroethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,1,1-Trichloroethane	NV	NV	NV	1,300	NV	450,000	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 U
1,1,2,2-Tetrachloroethane	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 U
1,1,2-Trichloroethane	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 U	0.011 U	0.0073 U	0.0089 U
1,1-Dichloroethane	NV	NV	NV	2,100	NV	2,500,000	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 U
1,1-Dichloroethene	NV	NV	NV	60	NV	1,600	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 UJ
1,1-Dichloropropene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 UJ	0.0073 U	0.0089 UJ
1,2,3-Trichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2,3-Trimethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	1.2	NV	NV	2.7	NV	1,100	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 UJ	0.0073 U	0.0089 UJ
1,2,4-Trimethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 U
1,2-Dibromoethane	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 U	0.011 U	0.0073 U	0.0089 U
1,2-Dichlorobenzene	NV	NV	NV	9.2	NV	4,800	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 UJ	0.0073 U	0.0089 UJ
1,2-Dichloroethane	NV	NV	1.6	270	44	84,000	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 U
1,2-Dichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 U	0.011 U	0.0073 U	0.0089 U
1,3,5-Trimethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NV	NV	7.4	NV	3,800	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 UJ	0.0073 U	0.0089 UJ
1,3-Dichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,4-Dichlorobenzene	1.2	NV	NV	3.5	NV	1,800	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 UJ	0.0073 U	0.0089 UJ
2,2-Dichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
2-Butanone	NV	NV	NV	920	NV	3,500,000	NV	NV	--	0.01 J*	0.015 U	0.041 UJ	0.022 U	0.015 U	0.018 U
2-Chlorotoluene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
2-Hexanone	NV	NV	3.6	20	17	22,000	NV	NV	--	0.019 U	0.015 U	0.041 U	0.022 U	0.015 U	0.018 U
4-Chlorotoluene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
4-Isopropyltoluene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
4-Methyl-2-pentanone	NV	NV	NV	97	NV	180,000	NV	NV	--	0.019 U	0.015 U	0.041 U	0.022 U	0.015 U	0.018 U
Acetone	NV	NV	75	6.3	8,400	8,900	NV	NV	--	0.088	0.0086 J*	0.32 J	0.053	0.041	0.029
Acrylonitrile	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Benzene	NV	NV	NV	240	NV	43,000	NV	NV	--	0.01	0.0054 J*	0.074 J	0.0059 J*	0.0013 J*	0.0089 U
Bromobenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--

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Table 6-1
Ecological Soil Analytical Results
Wild River Land Trust
Port Orford, Oregon

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	SL09GP01	SL14GP01	SL15GP01	SL16TP01	SL16TP02	SL16TP03	SL20GP01
Sample Name:								DU08SS	JLTR6	JLTS6	JLTS8	JLTT0	JLTT1	JLTY3	JLTJT8
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/10/2020	9/10/2020	9/11/2020	9/10/2020	9/10/2020	9/10/2020	9/11/2020
Collection Depth (ft bgs):								0-4 cm	0-4	0-4	0-4	0.833-1	1.0833-1.5	1.5-3	0-4
Bromodichloromethane	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 U	0.011 U	0.0073 U	0.0089 U
Bromoform	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 U
Bromomethane	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 U
Carbon disulfide	NV	NV	NV	8.1	NV	1,900	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 U
Carbon tetrachloride	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 U	0.011 U	0.0073 U	0.0089 U
Chlorobenzene	2.4	NV	NV	430	NV	250,000	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 UJ	0.0073 U	0.0089 UJ
Chlorobromomethane	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 U
Chloroethane	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 U
Chloroform	NV	NV	NV	21	NV	6,000	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 U
Chloromethane	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 U
cis-1,2-Dichloroethene	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 UJ
cis-1,3-Dichloropropene	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 U	0.011 U	0.0073 U	0.0089 U
Cyclohexane	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 U
Dibromochloromethane	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 U	0.011 U	0.0073 U	0.0089 U
Dibromomethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon 12	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 U
Diisopropyl Ether	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Ethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	0.013	0.0076 U	0.02 U	0.011 U	0.0073 U	0.0089 U
Freon 113	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 U
Hexachlorobutadiene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Isopropylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 U	0.011 U	0.0073 U	0.0089 U
m,p-Xylene	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0095	0.0012 J*	0.02 U	0.011 U	0.0073 U	0.0089 U
Methyl acetate	NV	NV	NV	NV	NV	NV	NV	NV	--	0.009 J*	0.016	0.02 UJ	0.011 U	0.0042 J*	0.0089 U
Methyl tert-butyl ether	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 U
Methylcyclohexane	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 U	0.011 U	0.0073 U	0.0089 U
Methylene chloride	NV	1,600	NV	22	NV	8,500	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 U
Naphthalene	NV	1	34	27	780	16,000	NV	NV	--	--	--	--	--	--	--
n-Butylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
n-Propylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
o-Xylene	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0034 J*	0.0076 U	0.02 U	0.011 U	0.0073 U	0.0089 U
sec-Butylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Styrene	1.2	3.2	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 U	0.011 U	0.0073 U	0.0089 U
tert-Butylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Tetrachloroethene	NV	10	NV	0.94	NV	210	NV	NV	--	0.0093 U	0.0076 U	0.02 U	0.011 U	0.0073 U	0.0089 U
Toluene	NV	200	NV	230	NV	33,000	NV	NV	--	0.013	0.0025 J*	0.0057 J*	0.011 U	0.0073 U	0.0089 U
trans-1,2-Dichloroethene	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 UJ
trans-1,3-Dichloropropene	NV	NV	NV	NV	NV	NV	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 U
Trichloroethene	NV	NV	NV	420	NV	110,000	NV	NV	--	0.0093 U	0.0076 U	0.02 U	0.011 U	0.0073 U	0.0089 U
Trichlorofluoromethane (Freon 11)	NV	NV	NV	350	NV	420,000	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 U
Vinyl chloride	NV	NV	NV	1.2	NV	280	NV	NV	--	0.0093 U	0.0076 U	0.02 UJ	0.011 U	0.0073 U	0.0089 UJ
Xylenes, total[h]	NV	100	410	1.8	1,900	260	NV	NV	--	0.0129 J*	0.005 J*	0.02 U	0.011 U	0.0073 U	0.0089 U

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Table 6-1
Ecological Soil Analytical Results
Wild River Land Trust
Port Orford, Oregon

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	SL21GP01	SL22GP01	SL23TP01	SL25TP01	SL26TP01	SS-1	SS-2
Sample Name:								DU08SS	JLTW0	JLTW2	JLTW4	JLTW8	JLTX0	9358-190122-SS-1	9358-190122-SS-2
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/12/2020	9/12/2020	9/10/2020	9/10/2020	9/10/2020	1/22/2019	1/22/2019
Collection Depth (ft bgs):								0-4 cm	0-4	0-4	2-3	2-3	2-3	0-1	0-1
Total Metals (mg/kg)															
Aluminum	(a)	(a)	(a)	(a)	(a)	(a)	NV	22,200	32,200	37,600	47,200	24,600	20,500	--	--
Antimony	78	11	NV	2.7	NV	49	0.59	0.094	0.16 J*	0.19 J*	1 U	0.21 J*	0.16 J*	--	--
Arsenic	6.8	18	32	31	1,000	290	12	4.18	3	4.5	5.1	3.3	3.1	--	--
Barium	330	110	1,200	8,700	13,000	44,000	630	81.3	42.3	56.3	45.7	86.2	84	--	--
Beryllium	40	2.5	NV	42	NV	110	1.4	0.35	0.69	0.82	0.84	0.7	0.66	--	--
Cadmium	140	32	1.6	4	7.7	1,700	0.52	0.375	0.44 U	0.47 U	0.45 U	0.5 U	0.49 U	--	--
Calcium	NV	NV	NV	NV	NV	NV	NV	4340	2480	3290	1570	4680	4640	--	--
Chromium	NV	NV	73	1,600	560	10,000	890	67.1	82.1	107	113	71.5	79.4	--	--
Cobalt	NV	13	170	640	1,400	3,300	3 - 50	23.1	13.3	14.6	9.1	24	15.4	--	--
Copper	80	70	43	70	240	1,600	110	57.3	49.8	53.7	47.1	56.4	39.4	--	--
Iron	NV	NV	NV	NV	NV	NV	NV	30300	37,400	47,900	54,200	33,800	31,800	--	--
Lead	1,700	120	23	170	160	1,600	36	15.2	12.5	11.8	13.2 J	12.6	17.3	--	--
Magnesium	NV	NV	NV	NV	NV	NV	NV	11700	10,600	9,950	6,120	11,100	10,400	--	--
Manganese	450	220	2,700	5,400	50,000	34,000	3,000	1140	346	380	188	666	519	--	--
Mercury	0.05	34	0.13	17	0.58	130	0.17	0.066	0.14	0.16	0.16	0.13	0.15	--	--
Nickel	280	38	81	21	440	580	630	69.8	98.3	96.5	71.8	88.5	87.8	--	--
Potassium	NV	NV	NV	NV	NV	NV	NV	1060	464	574	452 U	615	572	--	--
Selenium	4.1	0.52	1.4	1	7.5	33	0.8	NV	0.54 J*	0.52 J*	0.65 J*	0.54 J*	2.3 UJ	--	--
Silver	NV	560	26	140	130	10,000	0.16	0.067	0.54 J*	0.71 J*	0.81 J*	0.55 J*	0.41 J*	--	--
Sodium	NV	NV	NV	NV	NV	NV	NV	174	44.4 J*	32.5 J*	452 U	30 J*	489 U	--	--
Thallium	NV	0.05	45	4.2	480	50	0.31	0.076	0.43 U	0.49 U	0.51 U	0.46 U	0.45 U	--	--
Vanadium	NV	60	9.5	610	110	1,600	290	75.8	70.6	90.3	106 J	65.9	61.6	--	--
Zinc	120	160	120	980	590	30,000	140	93.1	74.9	73.7	55.8	80.6	69.3	--	--
PCB Aroclors (mg/kg)															
Total PCBs[b]	NV	160	0.24	0.073	1.9	6.9	NV	NV	--	--	--	--	--	--	--
Dioxins (pg/g)															
1,2,3,4,6,7,8-HpCDD	NV	NV	1,500	7	15,000	11	NV	41	70	55	3.2 J*	400	59	195	199
1,2,3,4,6,7,8-HpCDF	NV	NV	230	11	2,300	17	NV	10.4	13	7.3	0.5 J*	89	8.3	38.2	537
1,2,3,4,7,8,9-HpCDF	NV	NV	230	11	2,300	17	NV	0.73 J	0.95 J*	0.5 J*	0.46 U	7.7	0.55 J*	3.21	18.2
1,2,3,4,7,8-HxCDD	NV	NV	51	1.2	500	1.8	NV	0.811 J	1 J*	0.66 J*	0.47 U	5.2	0.6 J*	3.99	9.99
1,2,3,4,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	0.868 J	1 J*	0.47 J*	0.4 U	12	0.46 J*	6.39	273
1,2,3,6,7,8-HxCDD	NV	NV	190	0.89	1,900	1.4	NV	2.09 J	3 J*	2.3 J*	0.5 U	20	2.1 J*	8.67	24.3
1,2,3,6,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	0.679 J	0.59 J*	0.47 U	0.47 U	4.8 J*	0.47 U	3.22	127
1,2,3,7,8,9-HxCDD	NV	NV	19	0.89	190	1.4	NV	1.54 J	1.9 J*	1.8 J*	0.36 J*	14	1.4 J*	6.04	34.1
1,2,3,7,8,9-HxCDF	NV	NV	30	1.4	300	2.2	NV	0.33 U	0.48 J*	0.44 U	0.44 U	3.5 J*	0.44 U	0.877 U	4.22
1,2,3,7,8-PeCDD	NV	NV	5.9	0.28	59	0.43	NV	0.61 J	0.63 J*	0.41 J*	0.35 U	2.9 J*	0.4 J*	2.07 J	17.5
1,2,3,7,8-PeCDF	NV	NV	41	6.5	400	9.8	NV	0.353 J	0.38 U	0.38 U	0.38 U	1.6 J*	0.38 U	0.853 U	63.2
2,3,4,6,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	1.01 J	0.8 J*	0.61 J*	0.41 U	6.5	0.49 J*	3.08	145
2,3,4,7,8-PeCDF	NV	NV	4.1	0.65	40	0.98	NV	0.878 J	0.54 J*	0.43 U	0.43 U	3.9 J*	0.45 J*	0.8 U	106
2,3,7,8-TCDD	5,000,000	NV	5.2	0.25	52	0.38	NV	0.669	0.23 J*	0.28 J*	0.084 U	2.4	0.22 J*	3.97	9.26
2,3,7,8-TCDF	NV	NV	6.4	3	63	4.6	NV	0.424 J	0.2 J*	0.13 U	0.11 U	0.69 J*	0.17 J*	0.47 U	42.2
OCDD	NV	NV	19,000	300	190,000	460	NV	364	680	410	20	4,500 J	370	1830	845
OCDF	NV	NV	14,000	220	140,000	340	NV	36	41	29	1.4 J*	200	32	131	115
Dioxin/furan TEQ (avian)[c][3]	5,000,000	NV	5.2	NV	52	NV	NV	3.31	2.5 J*	1.6 J*	0.65 J*	16 J*	1.8 J*	9.73 J	246

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	SL21GP01	SL22GP01	SL23TP01	SL25TP01	SL26TP01	SS-1	SS-2
Sample Name:								DU08SS	JLTW0	JLTW2	JLTW4	JLTW8	JLTX0	9358-190122-SS-1	9358-190122-SS-2
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/12/2020	9/12/2020	9/10/2020	9/10/2020	9/10/2020	1/22/2019	1/22/2019
Collection Depth (ft bgs):								0-4 cm	0-4	0-4	2-3	2-3	2-3	0-1	0-1
Dioxin/furan TEQ (mammal)[(d)(4)]	5,000,000	NV	NV	0.25	NV	0.38	NV	2.97	3.0 J*	2.2 J*	0.51 J*	20 J*	2.1 J*	12.3 J	134
TPH (mg/kg)															
Gasoline-Range Hydrocarbons	120	120	5,000	5,000	5,000	5,000	NV	NV	11 U	13 U	--	--	--	--	--
Diesel-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	49 U	52 U	--	--	--	--	--
Lube-Oil-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	120 U	130 U	--	--	--	--	--
Total Diesel+Oil[(e)]	260	260	6,000	6,000	6,000	6,000	NV	NV	120 U	130 U	--	--	--	--	--
TPH with Silica-Gel Treatment (mg/kg)															
Diesel-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Lube-Oil-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Total Diesel+Oil[(e)]	260	260	6,000	6,000	6,000	6,000	NV	NV	--	--	--	--	--	--	--
SVOCs (mg/kg)															
1,1'-Biphenyl	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
1,2,4,5-Tetrachlorobenzene	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
1,4-Dioxane	NV	NV	NV	3.6	NV	180	NV	NV	0.081 U	0.085 U	0.089 UJ	0.078 UJ	0.081 UJ	--	--
2,3,4,6-Tetrachlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
2,4,5-Trichlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
2,4,6-Trichlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
2,4-Dichlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
2,4-Dimethylphenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
2,4-Dinitrophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.42 U	0.44 UJ	0.38 UJ	0.4 UJ	--	--
2,4-Dinitrotoluene	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
2,6-Dinitrotoluene	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
2-Chloronaphthalene	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
2-Chlorophenol	NV	NV	3.9	5.4	140	3,400	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
2-Methylnaphthalene	NV	NV	NV	160	NV	49,000	NV	NV	0.21 R	0.22 R	0.23 R	0.2 R	0.21 R	--	--
2-Methylphenol	NV	0.67	NV	5,800	NV	190,000	NV	NV	0.4 U	0.42 U	0.44 UJ	0.38 UJ	0.4 UJ		
2-Nitroaniline	NV	NV	NV	10	NV	4,400	NV	NV	0.21 UJ	0.22 UJ	0.23 UJ	0.2 UJ	0.21 UJ	--	--
2-Nitrophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ		
3- & 4-Methylphenol (m,p-Cresol)	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
3,3-Dichlorobenzidine	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.42 U	0.44 UJ	0.38 UJ	0.4 UJ	--	--
3-Nitroaniline	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.42 U	0.44 UJ	0.38 UJ	0.4 UJ	--	--
4,6-Dinitro-2-methylphenol	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.42 U	0.44 UJ	0.38 UJ	0.4 UJ		
4-Bromophenylphenyl ether	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
4-Chloro-3-methylphenol	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ		
4-Chloroaniline	1.8	1	NV	NV	NV	NV	NV	NV	0.4 U	0.42 U	0.44 UJ	0.38 UJ	0.4 UJ	--	--
4-Chlorophenylphenyl ether	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
4-Methylphenol	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.42 U	0.44 UJ	0.38 UJ	0.4 UJ	--	--
4-Nitroaniline	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.42 U	0.44 UJ	0.38 UJ	0.4 UJ	--	--
4-Nitrophenol	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.42 U	0.44 UJ	0.38 UJ	0.4 UJ		
Acenaphthene	NV	0.25	NV	1,300	NV	290,000	NV	NV	0.21 R	0.22 R	0.23 R	0.2 R	0.21 R	--	--
Acenaphthylene	NV	NV	NV	1,200	NV	280,000	NV	NV	0.21 R	0.22 R	0.23 R	0.2 R	0.21 R	--	--
Acetophenone	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.42 U	0.44 UJ	0.38 UJ	0.4 UJ	--	--
Anthracene	NV	6.8	NV	2,100	NV	380,000	NV	NV	0.21 R	0.22 R	0.23 R	0.2 R	0.21 R	--	--
Atrazine	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.42 U	0.44 UJ	0.38 UJ	0.4 UJ	--	--
Benzaldehyde	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.42 U	0.44 UJ	0.38 UJ	0.4 UJ	--	--

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Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/12/2020	9/12/2020	9/10/2020	9/10/2020	9/10/2020	1/22/2019	1/22/2019
Collection Depth (ft bgs):								0-4 cm	0-4	0-4	2-3	2-3	2-3	0-1	0-1
Benzo(a)anthracene	NV	18	7.3	34	64	1,100	NV	NV	0.21 R	0.22 R	0.23 R	0.2 R	0.21 R	--	--
Benzo(a)pyrene	NV	NV	NV	190	NV	11,000	NV	NV	0.21 R	0.22 R	0.23 R	0.2 R	0.21 R	--	--
Benzo(b)fluoranthene	NV	18	NV	440	NV	24,000	NV	NV	0.21 R	0.22 R	0.23 R	0.2 R	0.21 R	--	--
Benzo(ghi)perylene	NV	NV	NV	250	NV	36,000	NV	NV	0.21 R	0.22 R	0.23 R	0.2 R	0.21 R	--	--
Benzo(k)fluoranthene	NV	NV	NV	NV	NV	NV	NV	NV	0.21 R	0.22 R	0.23 R	0.2 R	0.21 R	--	--
Bis(2-chloro-1-methylethyl)ether	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.42 U	0.44 UJ	0.38 UJ	0.4 UJ	--	--
Bis(2-chloroethoxy)methane	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
Bis(2-chloroethyl)ether	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.42 U	0.44 UJ	0.38 UJ	0.4 UJ	--	--
Bis(2-ethylhexyl)phthalate	NV	NV	0.2	6	0.96	1,700	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
Butylbenzylphthalate	NV	NV	NV	900	NV	74,000	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
Caprolactam	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.42 U	0.44 UJ	0.38 UJ	0.4 UJ	--	--
Carbazole	NV	NV	NV	790	NV	130,000	NV	NV	0.4 U	0.42 U	0.44 UJ	0.38 UJ	0.4 UJ	--	--
Chrysene	NV	NV	NV	31	NV	1,100	NV	NV	0.21 R	0.22 R	0.23 R	0.2 R	0.21 R	--	--
Dibenzo(a,h)anthracene	NV	NV	NV	140	NV	8,500	NV	NV	0.21 R	0.22 R	0.23 R	0.2 R	0.21 R	--	--
Dibenzofuran	NV	6.1	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
Diethyl phthalate	NV	100	NV	18,000	NV	3,200,000	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
Dimethyl phthalate	10	NV	NV	400	NV	57,000	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
Di-n-butyl phthalate	NV	160	0.11	450	0.52	50,000	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
Di-n-octyl phthalate	NV	NV	NV	4.6	NV	2,300	NV	NV	0.4 U	0.42 U	0.44 UJ	0.38 UJ	0.4 UJ	--	--
Fluoranthene	10	NV	NV	220	NV	39,000	NV	NV	0.4 R	0.42 R	0.44 R	0.38 R	0.4 R	--	--
Fluorene	3.7	NV	NV	510	NV	100,000	NV	NV	0.21 R	0.22 R	0.23 R	0.2 R	0.21 R	--	--
Hexachlorobenzene	10	10	0.79	2	3.7	590	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
Hexachlorobutadiene	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
Hexachlorocyclopentadiene	NV	NV	NV	NV	NV	NV	NV	NV	0.4 U	0.42 U	0.44 UJ	0.38 UJ	0.4 UJ	--	--
Hexachloroethane	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
Indeno(1,2,3-cd)pyrene	NV	NV	NV	710	NV	46,000	NV	NV	0.21 R	0.22 R	0.23 R	0.2 R	0.21 R	--	--
Isophorone	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
Naphthalene	NV	1	34	27	780	16,000	NV	NV	0.21 R	0.22 R	0.23 R	0.2 R	0.21 R	--	--
Nitrobenzene	2.2	NV	NV	48	NV	41,000	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
N-Nitrosodiphenylamine	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
N-Nitrosodipropylamine	NV	NV	NV	NV	NV	NV	NV	NV	0.21 U	0.22 U	0.23 UJ	0.2 UJ	0.21 UJ	--	--
Pentachlorophenol	31	5	3.6	8.1	17	85	NV	NV	0.4 R	0.42 R	0.44 R	0.38 R	0.4 R	--	--
Phenanthrene	5.5	NV	NV	110	NV	19,000	NV	NV	0.21 R	0.22 R	0.23 R	0.2 R	0.21 R	--	--
Phenol	1.8	0.79	NV	370	NV	430,000	NV	NV	0.4 U	0.42 U	0.44 UJ	0.38 UJ	0.4 UJ	--	--
Pyrene	10	NV	330	230	1,600	31,000	NV	NV	0.21 R	0.22 R	0.23 R	0.2 R	0.21 R	--	--
SVOCs by SIM (mg/kg)															
1-Methylnaphthalene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
2-Chloronaphthalene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
2-Methylnaphthalene	NV	NV	NV	160	NV	49,000	NV	NV	0.00064 J*	0.00052 J*	0.0044 U	0.0008 J*	0.002 J*	--	--
Acenaphthene	NV	0.25	NV	1,300	NV	290,000	NV	NV	0.004 U	0.0042 U	0.0044 U	0.0037 U	0.004 U	--	--
Acenaphthylene	NV	NV	NV	1,200	NV	280,000	NV	NV	0.004 U	0.0042 U	0.0044 U	0.0037 U	0.004 U	--	--
Anthracene	NV	6.8	NV	2,100	NV	380,000	NV	NV	0.004 U	0.0042 U	0.0044 U	0.0037 U	0.004 U	--	--
Benzo(a)anthracene	NV	18	7.3	34	64	1,100	NV	NV	0.004 U	0.0042 U	0.0044 U	0.0028 J*	0.004 U	--	--
Benzo(a)pyrene	NV	NV	NV	190	NV	11,000	NV	NV	0.004 U	0.0042 U	0.0044 U	0.0037 U	0.00064 J*	--	--
Benzo(b)fluoranthene	NV	18	NV	440	NV	24,000	NV	NV	0.004 U	0.0042 U	0.00063 J*	0.0024 J*	0.0049 J	--	--
Benzo(ghi)perylene	NV	NV	NV	250	NV	36,000	NV	NV	0.004 U	0.0042 U	0.0044 U	0.0037 U	0.004 U	--	--

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	SL21GP01	SL22GP01	SL23TP01	SL25TP01	SL26TP01	SS-1	SS-2
Sample Name:								DU08SS	JLTW0	JLTW2	JLTW4	JLTW8	JLTX0	9358-190122-SS-1	9358-190122-SS-2
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/12/2020	9/12/2020	9/10/2020	9/10/2020	9/10/2020	1/22/2019	1/22/2019
Collection Depth (ft bgs):								0-4 cm	0-4	0-4	2-3	2-3	2-3	0-1	0-1
Benzo(k)fluoranthene	NV	NV	NV	NV	NV	NV	NV	NV	0.0009 J*	0.00072 J*	0.0044 U	0.0037 U	0.004 U	--	--
Chrysene	NV	NV	NV	31	NV	1,100	NV	NV	0.00069 J*	0.00049 J*	0.0044 U	0.0039 J	0.004 U	--	--
Dibenzo(a,h)anthracene	NV	NV	NV	140	NV	8,500	NV	NV	0.004 U	0.0042 U	0.0044 U	0.0037 U	0.004 U	--	--
Fluoranthene	10	NV	NV	220	NV	39,000	NV	NV	0.001 J*	0.0017 J*	0.00062 J*	0.0021 J*	0.0078 J	--	--
Fluorene	3.7	NV	NV	510	NV	100,000	NV	NV	0.004 U	0.0042 U	0.0044 U	0.0037 U	0.004 U	--	--
Indeno(1,2,3-cd)pyrene	NV	NV	NV	710	NV	46,000	NV	NV	0.004 U	0.0042 U	0.0044 U	0.0037 U	0.004 U	--	--
Naphthalene	NV	1	34	27	780	16,000	NV	NV	0.00084 J*	0.0042 U	0.0044 U	0.00097 J*	0.0025 J*	--	--
Pentachlorophenol	31	5	3.6	8.1	17	85	NV	NV	0.0081 U	0.0085 U	0.0089 U	0.0076 U	0.0081 U	--	--
Phenanthrene	5.5	NV	NV	110	NV	19,000	NV	NV	0.0018 J*	0.0015 J*	0.00057 J*	0.0051	0.0094	--	--
Pyrene	10	NV	330	230	1,600	31,000	NV	NV	0.004 U	0.0042 U	0.0044 U	0.0014 J*	0.0071 J	--	--
Total LPAH[f][5]	29	NV	67	540	37,000	59,000	NV	NV	0.011 J*	0.013 J*	0.014 J*	0.014 J*	0.022 J*	--	--
Total HPAH[g][5]	18	NV	0.55	5.9	64	550	NV	NV	0.017 J*	0.018 J*	0.019 J*	0.022 J*	0.032 J*	--	--
VOCs (mg/kg)															
1,1,1,2-Tetrachloroethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,1,1-Trichloroethane	NV	NV	NV	1,300	NV	450,000	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
1,1,2,2-Tetrachloroethane	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
1,1,2-Trichloroethane	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
1,1-Dichloroethane	NV	NV	NV	2,100	NV	2,500,000	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
1,1-Dichloroethene	NV	NV	NV	60	NV	1,600	NV	NV	0.0091 UJ	0.0084 UJ	--	--	--	--	--
1,1-Dichloropropene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 UJ	0.0084 UJ	--	--	--	--	--
1,2,3-Trichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2,3-Trimethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	1.2	NV	NV	2.7	NV	1,100	NV	NV	0.0091 UJ	0.0084 UJ	--	--	--	--	--
1,2,4-Trimethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
1,2-Dibromoethane	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
1,2-Dichlorobenzene	NV	NV	NV	9.2	NV	4,800	NV	NV	0.0091 UJ	0.0084 UJ	--	--	--	--	--
1,2-Dichloroethane	NV	NV	1.6	270	44	84,000	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
1,2-Dichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
1,3,5-Trimethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NV	NV	7.4	NV	3,800	NV	NV	0.0091 UJ	0.0084 UJ	--	--	--	--	--
1,3-Dichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
1,4-Dichlorobenzene	1.2	NV	NV	3.5	NV	1,800	NV	NV	0.0091 UJ	0.0084 UJ	--	--	--	--	--
2,2-Dichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
2-Butanone	NV	NV	NV	920	NV	3,500,000	NV	NV	0.018 U	0.017 U	--	--	--	--	--
2-Chlorotoluene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
2-Hexanone	NV	NV	3.6	20	17	22,000	NV	NV	0.018 U	0.017 U	--	--	--	--	--
4-Chlorotoluene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
4-Isopropyltoluene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
4-Methyl-2-pentanone	NV	NV	NV	97	NV	180,000	NV	NV	0.018 U	0.017 U	--	--	--	--	--
Acetone	NV	NV	75	6.3	8,400	8,900	NV	NV	0.008 J*	0.012 J*	--	--	--	--	--
Acrylonitrile	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Benzene	NV	NV	NV	240	NV	43,000	NV	NV	0.0042 J*	0.0054 J*	--	--	--	--	--
Bromobenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--

Table 6-1
Ecological Soil Analytical Results
Wild River Land Trust
Port Orford, Oregon

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	SL21GP01	SL22GP01	SL23TP01	SL25TP01	SL26TP01	SS-1	SS-2
Sample Name:								DU08SS	JLTW0	JLTW2	JLTW4	JLTW8	JLTX0	9358-190122-SS-1	9358-190122-SS-2
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/12/2020	9/12/2020	9/10/2020	9/10/2020	9/10/2020	1/22/2019	1/22/2019
Collection Depth (ft bgs):								0-4 cm	0-4	0-4	2-3	2-3	2-3	0-1	0-1
Bromodichloromethane	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Bromoform	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Bromomethane	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Carbon disulfide	NV	NV	NV	8.1	NV	1,900	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Carbon tetrachloride	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Chlorobenzene	2.4	NV	NV	430	NV	250,000	NV	NV	0.0091 UJ	0.0084 UJ	--	--	--	--	--
Chlorobromomethane	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Chloroethane	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Chloroform	NV	NV	NV	21	NV	6,000	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Chloromethane	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
cis-1,2-Dichloroethene	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 UJ	0.0084 UJ	--	--	--	--	--
cis-1,3-Dichloropropene	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Cyclohexane	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Dibromochloromethane	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Dibromomethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon 12	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Diisopropyl Ether	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Ethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Freon 113	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Hexachlorobutadiene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Isopropylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
m,p-Xylene	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Methyl acetate	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Methyl tert-butyl ether	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Methylcyclohexane	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Methylene chloride	NV	1,600	NV	22	NV	8,500	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Naphthalene	NV	1	34	27	780	16,000	NV	NV	--	--	--	--	--	--	--
n-Butylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
n-Propylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
o-Xylene	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
sec-Butylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Styrene	1.2	3.2	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
tert-Butylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--	--
Tetrachloroethene	NV	10	NV	0.94	NV	210	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Toluene	NV	200	NV	230	NV	33,000	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
trans-1,2-Dichloroethene	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 UJ	0.0084 UJ	--	--	--	--	--
trans-1,3-Dichloropropene	NV	NV	NV	NV	NV	NV	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Trichloroethene	NV	NV	NV	420	NV	110,000	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Trichlorofluoromethane (Freon 11)	NV	NV	NV	350	NV	420,000	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--
Vinyl chloride	NV	NV	NV	1.2	NV	280	NV	NV	0.0091 UJ	0.0084 UJ	--	--	--	--	--
Xylenes, total[h]	NV	100	410	1.8	1,900	260	NV	NV	0.0091 U	0.0084 U	--	--	--	--	--

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8
Sample Name:								DU08SS	9358-190122-SS-3	9358-190122-SS-4	9358-190122-SS-5	9358-190122-SS-6	9358-190122-SS-7	9358-190122-SS-8
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	1/22/2019	1/22/2019	1/22/2019	1/22/2019	1/22/2019	1/22/2019
Collection Depth (ft bgs):								0-4 cm	0-1	0-1	0-0.8	0-0.8	0-1	0-0.9
Total Metals (mg/kg)														
Aluminum	(a)	(a)	(a)	(a)	(a)	(a)	NV	22,200	--	--	--	--	--	--
Antimony	78	11	NV	2.7	NV	49	0.59	0.094	--	--	--	--	--	--
Arsenic	6.8	18	32	31	1,000	290	12	4.18	--	--	--	--	--	--
Barium	330	110	1,200	8,700	13,000	44,000	630	81.3	--	--	--	--	--	--
Beryllium	40	2.5	NV	42	NV	110	1.4	0.35	--	--	--	--	--	--
Cadmium	140	32	1.6	4	7.7	1,700	0.52	0.375	--	--	--	--	--	--
Calcium	NV	NV	NV	NV	NV	NV	NV	4340	--	--	--	--	--	--
Chromium	NV	NV	73	1,600	560	10,000	890	67.1	--	--	--	--	--	--
Cobalt	NV	13	170	640	1,400	3,300	3 - 50	23.1	--	--	--	--	--	--
Copper	80	70	43	70	240	1,600	110	57.3	--	--	--	--	--	--
Iron	NV	NV	NV	NV	NV	NV	NV	30300	--	--	--	--	--	--
Lead	1,700	120	23	170	160	1,600	36	15.2	--	--	--	--	--	--
Magnesium	NV	NV	NV	NV	NV	NV	NV	11700	--	--	--	--	--	--
Manganese	450	220	2,700	5,400	50,000	34,000	3,000	1140	--	--	--	--	--	--
Mercury	0.05	34	0.13	17	0.58	130	0.17	0.066	--	--	--	--	--	--
Nickel	280	38	81	21	440	580	630	69.8	--	--	--	--	--	--
Potassium	NV	NV	NV	NV	NV	NV	NV	1060	--	--	--	--	--	--
Selenium	4.1	0.52	1.4	1	7.5	33	0.8	NV	--	--	--	--	--	--
Silver	NV	560	26	140	130	10,000	0.16	0.067	--	--	--	--	--	--
Sodium	NV	NV	NV	NV	NV	NV	NV	174	--	--	--	--	--	--
Thallium	NV	0.05	45	4.2	480	50	0.31	0.076	--	--	--	--	--	--
Vanadium	NV	60	9.5	610	110	1,600	290	75.8	--	--	--	--	--	--
Zinc	120	160	120	980	590	30,000	140	93.1	--	--	--	--	--	--
PCB Aroclors (mg/kg)														
Total PCBs[b]	NV	160	0.24	0.073	1.9	6.9	NV	NV	--	--	--	--	--	--
Dioxins (pg/g)														
1,2,3,4,6,7,8-HpCDD	NV	NV	1,500	7	15,000	11	NV	41	202	59.4	56.2	110	6,030 J*	112
1,2,3,4,6,7,8-HpCDF	NV	NV	230	11	2,300	17	NV	10.4	38.5	15.3	8.78	25.2	1,310	17.3
1,2,3,4,7,8,9-HpCDF	NV	NV	230	11	2,300	17	NV	0.73 J	2.98	2.11 U	0.867 U	1.81 U	99.2	1.27 U
1,2,3,4,7,8-HxCDD	NV	NV	51	1.2	500	1.8	NV	0.811 J	3.85	1.05 U	1.43 U	1.06 U	67.5	1.42 U
1,2,3,4,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	0.868 J	6.98	1.91 J	0.655 U	1.7 J	172	1.83 J
1,2,3,6,7,8-HxCDD	NV	NV	190	0.89	1,900	1.4	NV	2.09 J	12.4	1.2 U	1.34 U	4.9	285	4.95
1,2,3,6,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	0.679 J	3.06	0.899 U	0.822 U	0.757 U	67.2	0.628 U
1,2,3,7,8,9-HxCDD	NV	NV	19	0.89	190	1.4	NV	1.54 J	7.9	1.1 U	1.34 U	3.09	160	3.33
1,2,3,7,8,9-HxCDF	NV	NV	30	1.4	300	2.2	NV	0.33 U	0.709 U	1.29 U	1.24 U	1.26 U	6.7	0.969 U
1,2,3,7,8-PeCDD	NV	NV	5.9	0.28	59	0.43	NV	0.61 J	2.38 J	0.9 U	0.604 U	0.953 J	43.5	0.68 U
1,2,3,7,8-PeCDF	NV	NV	41	6.5	400	9.8	NV	0.353 J	0.491 U	0.622 U	0.673 U	0.667 U	23.4	0.537 U
2,3,4,6,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	1.01 J	3.6	0.874 U	0.907 U	0.882 U	104	0.62 U
2,3,4,7,8-PeCDF	NV	NV	4.1	0.65	40	0.98	NV	0.878 J	1.85 J	0.54 U	0.598 U	0.608 U	21.4	0.446 U
2,3,7,8-TCDD	5,000,000	NV	5.2	0.25	52	0.38	NV	0.669	0.429 U	0.459 U	0.443 U	1.69	13.2	0.461 U
2,3,7,8-TCDF	NV	NV	6.4	3	63	4.6	NV	0.424 J	0.428 U	0.447 U	0.426 U	0.442 U	4.61	0.423 U
OCDD	NV	NV	19,000	300	190,000	460	NV	364	1,760	626	495	1,010	62,000 J*	869
OCDF	NV	NV	14,000	220	140,000	340	NV	36	139	43.9	28.3	87.7	2,540	70.3
Dioxin/furan TEQ (avian)[c][3]	5,000,000	NV	5.2	NV	52	NV	NV	3.31	8.0 J	1.93 J	1.56	4.38 J	169 J*	2.13 J

Table 6-1
Ecological Soil Analytical Results
Wild River Land Trust
Port Orford, Oregon

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8
Sample Name:								DU08SS	9358-190122-SS-3	9358-190122-SS-4	9358-190122-SS-5	9358-190122-SS-6	9358-190122-SS-7	9358-190122-SS-8
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	1/22/2019	1/22/2019	1/22/2019	1/22/2019	1/22/2019	1/22/2019
Collection Depth (ft bgs):								0-4 cm	0-1	0-1	0-0.8	0-0.8	0-1	0-0.9
Dioxin/furan TEQ (mammal)[(d)(4)]	5,000,000	NV	NV	0.25	NV	0.38	NV	2.97	10 J	2.26 J	1.84	5.62 J	244 J*	3.44 J
TPH (mg/kg)														
Gasoline-Range Hydrocarbons	120	120	5,000	5,000	5,000	5,000	NV	NV	--	--	--	--	--	--
Diesel-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Lube-Oil-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Total Diesel+Oil[(e)]	260	260	6,000	6,000	6,000	6,000	NV	NV	--	--	--	--	--	--
TPH with Silica-Gel Treatment (mg/kg)														
Diesel-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Lube-Oil-Range Hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Total Diesel+Oil[(e)]	260	260	6,000	6,000	6,000	6,000	NV	NV	--	--	--	--	--	--
SVOCs (mg/kg)														
1,1'-Biphenyl	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
1,2,4,5-Tetrachlorobenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
1,4-Dioxane	NV	NV	NV	3.6	NV	180	NV	NV	--	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
2,4,5-Trichlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
2,4,6-Trichlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
2,4-Dichlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
2,4-Dimethylphenol	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
2,4-Dinitrophenol	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
2,4-Dinitrotoluene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
2,6-Dinitrotoluene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
2-Chloronaphthalene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
2-Chlorophenol	NV	NV	3.9	5.4	140	3,400	NV	NV	--	--	--	--	--	--
2-Methylnaphthalene	NV	NV	NV	160	NV	49,000	NV	NV	--	--	--	--	--	--
2-Methylphenol	NV	0.67	NV	5,800	NV	190,000	NV	NV						
2-Nitroaniline	NV	NV	NV	10	NV	4,400	NV	NV	--	--	--	--	--	--
2-Nitrophenol	NV	NV	NV	NV	NV	NV	NV	NV						
3- & 4-Methylphenol (m,p-Cresol)	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
3,3-Dichlorobenzidine	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
3-Nitroaniline	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	NV	NV	NV	NV	NV	NV	NV	NV						
4-Bromophenylphenyl ether	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
4-Chloro-3-methylphenol	NV	NV	NV	NV	NV	NV	NV	NV						
4-Chloroaniline	1.8	1	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
4-Chlorophenylphenyl ether	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
4-Methylphenol	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
4-Nitroaniline	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
4-Nitrophenol	NV	NV	NV	NV	NV	NV	NV	NV						
Acenaphthene	NV	0.25	NV	1,300	NV	290,000	NV	NV	--	--	--	--	--	--
Acenaphthylene	NV	NV	NV	1,200	NV	280,000	NV	NV	--	--	--	--	--	--
Acetophenone	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Anthracene	NV	6.8	NV	2,100	NV	380,000	NV	NV	--	--	--	--	--	--
Atrazine	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Benzaldehyde	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8
Sample Name:								DU08SS	9358-190122-SS-3	9358-190122-SS-4	9358-190122-SS-5	9358-190122-SS-6	9358-190122-SS-7	9358-190122-SS-8
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	1/22/2019	1/22/2019	1/22/2019	1/22/2019	1/22/2019	1/22/2019
Collection Depth (ft bgs):								0-4 cm	0-1	0-1	0-0.8	0-0.8	0-1	0-0.9
Benzo(a)anthracene	NV	18	7.3	34	64	1,100	NV	NV	--	--	--	--	--	--
Benzo(a)pyrene	NV	NV	NV	190	NV	11,000	NV	NV	--	--	--	--	--	--
Benzo(b)fluoranthene	NV	18	NV	440	NV	24,000	NV	NV	--	--	--	--	--	--
Benzo(ghi)perylene	NV	NV	NV	250	NV	36,000	NV	NV	--	--	--	--	--	--
Benzo(k)fluoranthene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Bis(2-chloro-1-methylethyl)ether	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Bis(2-chloroethoxy)methane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Bis(2-chloroethyl)ether	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	NV	NV	0.2	6	0.96	1,700	NV	NV	--	--	--	--	--	--
Butylbenzylphthalate	NV	NV	NV	900	NV	74,000	NV	NV	--	--	--	--	--	--
Caprolactam	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Carbazole	NV	NV	NV	790	NV	130,000	NV	NV	--	--	--	--	--	--
Chrysene	NV	NV	NV	31	NV	1,100	NV	NV	--	--	--	--	--	--
Dibenzo(a,h)anthracene	NV	NV	NV	140	NV	8,500	NV	NV	--	--	--	--	--	--
Dibenzofuran	NV	6.1	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Diethyl phthalate	NV	100	NV	18,000	NV	3,200,000	NV	NV	--	--	--	--	--	--
Dimethyl phthalate	10	NV	NV	400	NV	57,000	NV	NV	--	--	--	--	--	--
Di-n-butyl phthalate	NV	160	0.11	450	0.52	50,000	NV	NV	--	--	--	--	--	--
Di-n-octyl phthalate	NV	NV	NV	4.6	NV	2,300	NV	NV	--	--	--	--	--	--
Fluoranthene	10	NV	NV	220	NV	39,000	NV	NV	--	--	--	--	--	--
Fluorene	3.7	NV	NV	510	NV	100,000	NV	NV	--	--	--	--	--	--
Hexachlorobenzene	10	10	0.79	2	3.7	590	NV	NV	--	--	--	--	--	--
Hexachlorobutadiene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Hexachlorocyclopentadiene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Hexachloroethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	NV	NV	NV	710	NV	46,000	NV	NV	--	--	--	--	--	--
Isophorone	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Naphthalene	NV	1	34	27	780	16,000	NV	NV	--	--	--	--	--	--
Nitrobenzene	2.2	NV	NV	48	NV	41,000	NV	NV	--	--	--	--	--	--
N-Nitrosodiphenylamine	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
N-Nitrosodipropylamine	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Pentachlorophenol	31	5	3.6	8.1	17	85	NV	NV	0.228 U	--	--	0.328 U	0.591 U	--
Phenanthrene	5.5	NV	NV	110	NV	19,000	NV	NV	--	--	--	--	--	--
Phenol	1.8	0.79	NV	370	NV	430,000	NV	NV	--	--	--	--	--	--
Pyrene	10	NV	330	230	1,600	31,000	NV	NV	--	--	--	--	--	--
SVOCs by SIM (mg/kg)														
1-Methylnaphthalene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
2-Chloronaphthalene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
2-Methylnaphthalene	NV	NV	NV	160	NV	49,000	NV	NV	--	--	--	--	--	--
Acenaphthene	NV	0.25	NV	1,300	NV	290,000	NV	NV	--	--	--	--	--	--
Acenaphthylene	NV	NV	NV	1,200	NV	280,000	NV	NV	--	--	--	--	--	--
Anthracene	NV	6.8	NV	2,100	NV	380,000	NV	NV	--	--	--	--	--	--
Benzo(a)anthracene	NV	18	7.3	34	64	1,100	NV	NV	--	--	--	--	--	--
Benzo(a)pyrene	NV	NV	NV	190	NV	11,000	NV	NV	--	--	--	--	--	--
Benzo(b)fluoranthene	NV	18	NV	440	NV	24,000	NV	NV	--	--	--	--	--	--
Benzo(ghi)perylene	NV	NV	NV	250	NV	36,000	NV	NV	--	--	--	--	--	--

Table 6-1
Ecological Soil Analytical Results
Wild River Land Trust
Port Orford, Oregon

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8
Sample Name:								DU08SS	9358-190122-SS-3	9358-190122-SS-4	9358-190122-SS-5	9358-190122-SS-6	9358-190122-SS-7	9358-190122-SS-8
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	1/22/2019	1/22/2019	1/22/2019	1/22/2019	1/22/2019	1/22/2019
Collection Depth (ft bgs):								0-4 cm	0-1	0-1	0-0.8	0-0.8	0-1	0-0.9
Benzo(k)fluoranthene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Chrysene	NV	NV	NV	31	NV	1,100	NV	NV	--	--	--	--	--	--
Dibenzo(a,h)anthracene	NV	NV	NV	140	NV	8,500	NV	NV	--	--	--	--	--	--
Fluoranthene	10	NV	NV	220	NV	39,000	NV	NV	--	--	--	--	--	--
Fluorene	3.7	NV	NV	510	NV	100,000	NV	NV	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	NV	NV	NV	710	NV	46,000	NV	NV	--	--	--	--	--	--
Naphthalene	NV	1	34	27	780	16,000	NV	NV	--	--	--	--	--	--
Pentachlorophenol	31	5	3.6	8.1	17	85	NV	NV	--	--	--	--	--	--
Phenanthrene	5.5	NV	NV	110	NV	19,000	NV	NV	--	--	--	--	--	--
Pyrene	10	NV	330	230	1,600	31,000	NV	NV	--	--	--	--	--	--
Total LPAH[f][5]	29	NV	67	540	37,000	59,000	NV	NV	--	--	--	--	--	--
Total HPAH[g][5]	18	NV	0.55	5.9	64	550	NV	NV	--	--	--	--	--	--
VOCs (mg/kg)														
1,1,1,2-Tetrachloroethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
1,1,1-Trichloroethane	NV	NV	NV	1,300	NV	450,000	NV	NV	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
1,1,2-Trichloroethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
1,1-Dichloroethane	NV	NV	NV	2,100	NV	2,500,000	NV	NV	--	--	--	--	--	--
1,1-Dichloroethene	NV	NV	NV	60	NV	1,600	NV	NV	--	--	--	--	--	--
1,1-Dichloropropene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
1,2,3-Trichlorobenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
1,2,3-Trichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
1,2,3-Trimethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
1,2,4-Trichlorobenzene	1.2	NV	NV	2.7	NV	1,100	NV	NV	--	--	--	--	--	--
1,2,4-Trimethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
1,2-Dibromoethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
1,2-Dichlorobenzene	NV	NV	NV	9.2	NV	4,800	NV	NV	--	--	--	--	--	--
1,2-Dichloroethane	NV	NV	1.6	270	44	84,000	NV	NV	--	--	--	--	--	--
1,2-Dichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
1,3,5-Trimethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
1,3-Dichlorobenzene	NV	NV	NV	7.4	NV	3,800	NV	NV	--	--	--	--	--	--
1,3-Dichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
1,4-Dichlorobenzene	1.2	NV	NV	3.5	NV	1,800	NV	NV	--	--	--	--	--	--
2,2-Dichloropropane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
2-Butanone	NV	NV	NV	920	NV	3,500,000	NV	NV	--	--	--	--	--	--
2-Chlorotoluene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
2-Hexanone	NV	NV	3.6	20	17	22,000	NV	NV	--	--	--	--	--	--
4-Chlorotoluene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
4-Isopropyltoluene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
4-Methyl-2-pentanone	NV	NV	NV	97	NV	180,000	NV	NV	--	--	--	--	--	--
Acetone	NV	NV	75	6.3	8,400	8,900	NV	NV	--	--	--	--	--	--
Acrylonitrile	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Benzene	NV	NV	NV	240	NV	43,000	NV	NV	--	--	--	--	--	--
Bromobenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--

Location:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Site-specific Background	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8
Sample Name:								DU08SS	9358-190122-SS-3	9358-190122-SS-4	9358-190122-SS-5	9358-190122-SS-6	9358-190122-SS-7	9358-190122-SS-8
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	1/22/2019	1/22/2019	1/22/2019	1/22/2019	1/22/2019	1/22/2019
Collection Depth (ft bgs):								0-4 cm	0-1	0-1	0-0.8	0-0.8	0-1	0-0.9
Bromodichloromethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Bromoform	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Bromomethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Carbon disulfide	NV	NV	NV	8.1	NV	1,900	NV	NV	--	--	--	--	--	--
Carbon tetrachloride	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Chlorobenzene	2.4	NV	NV	430	NV	250,000	NV	NV	--	--	--	--	--	--
Chlorobromomethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Chloroethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Chloroform	NV	NV	NV	21	NV	6,000	NV	NV	--	--	--	--	--	--
Chloromethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
cis-1,2-Dichloroethene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
cis-1,3-Dichloropropene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Cyclohexane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Dibromochloromethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Dibromomethane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Dichlorodifluoromethane (Freon 12	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Diisopropyl Ether	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Ethylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Freon 113	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Hexachlorobutadiene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Isopropylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
m,p-Xylene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Methyl acetate	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Methyl tert-butyl ether	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Methylcyclohexane	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Methylene chloride	NV	1,600	NV	22	NV	8,500	NV	NV	--	--	--	--	--	--
Naphthalene	NV	1	34	27	780	16,000	NV	NV	--	--	--	--	--	--
n-Butylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
n-Propylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
o-Xylene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
sec-Butylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Styrene	1.2	3.2	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
tert-Butylbenzene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Tetrachloroethene	NV	10	NV	0.94	NV	210	NV	NV	--	--	--	--	--	--
Toluene	NV	200	NV	230	NV	33,000	NV	NV	--	--	--	--	--	--
trans-1,2-Dichloroethene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
trans-1,3-Dichloropropene	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--	--	--
Trichloroethene	NV	NV	NV	420	NV	110,000	NV	NV	--	--	--	--	--	--
Trichlorofluoromethane (Freon 11)	NV	NV	NV	350	NV	420,000	NV	NV	--	--	--	--	--	--
Vinyl chloride	NV	NV	NV	1.2	NV	280	NV	NV	--	--	--	--	--	--
Xylenes, total[h]	NV	100	410	1.8	1,900	260	NV	NV	--	--	--	--	--	--

NOTES:

Analytical results from January 2019 and November 2018 were not validated.

Consistent with DEQ guidance, it is assumed that plants and animals can contact surface soils (up to 3 feet bgs) and biota on the Site; therefore, only data collected from approximately the top 3 feet of soil were screened.

Shading (color key below) indicates an exceedance of screening criteria; non-detects (U or UJ) and rejected results (R) were not compared with screening levels. Metals results below background concentrations were not compared with screening levels.

Site-specific background values and natural background values from the Klamath Mountains were evaluated. Chemicals that exceeded the higher of the two natural background concentrations were considered above natural background levels.

When multiple screening levels are exceeded, the result is shaded with the color associated with the highest exceeded screening level.

DEQ Ecological RBC, Soil, Direct Toxicity, Invertebrates

DEQ Ecological RBC, Soil, Direct Toxicity, Plants

DEQ Ecological RBC, Soil, Ground Feeding, Bird, Non-TE

DEQ Ecological RBC, Soil, Ground Feeding, Mammal, Non-TE

DEQ Ecological RBC, Soil, Top Consumer, Bird, Non-TE

DEQ Ecological RBC, Soil, Top Consumer, Mammal, Non-TE

-- = not analyzed or no data provided.

DEQ = Oregon Department of Environmental Quality.

ft bgs = feet below ground surface.

HPAH = high molecular weight polycyclic aromatic hydrocarbon.

J = the result is estimated.

J* = data source provides a variety of laboratory or validation qualifiers. Data are assumed to be estimated for screening purposes.

LPAH = low molecular weight polycyclic aromatic hydrocarbon.

mg/kg = milligrams per kilogram.

NC = not calculated.

ND = non-detect.

NV = no value.

PCB = polycyclic aromatic hydrocarbon.

pg/g = picograms per gram.

R = the data is rejected and unusable for all purposes.

RBC = risk-based concentration.

SIM = selected ion monitoring.

SVOC = semivolatile organic compound.

TE = threatened and endangered species.

TEQ = toxicity equivalence.

TPH = total petroleum hydrocarbon.

U = the result is non-detect.

U* = data source provides a variety of laboratory qualifiers. These data are assumed to be non-detect with estimated detection or reporting limits for screening purposes.

UJ = the result is non-detect with an estimated detection limit or reporting limit.

VOC = volatile organic compound.

[(a)]Toxic if soil pH <5.5.

[(b)]Total PCBs is the sum of all detected PCB Aroclors. Non-detect results are not included in the summation. When all results are non-detect, the highest detection limit or reporting limit is provided.

[(c)]Dioxin/furan TEQs calculated as the sum of each detected congener concentration multiplied by the corresponding avian TEF value with non-detect results also multiplied by one-half.

[(d)]Dioxin/furan TEQs calculated as the sum of each detected congener concentration multiplied by the corresponding mammal TEF value with non-detect results also multiplied by one-half.

[(e)]Total diesel and oil is the sum of diesel- and lube-oil-range hydrocarbon results. Non-detect results are multiplied by one-half. When both results are non-detect, the highest detection limit or reporting limit is provided.

[(f)]LPAHs are the sum of 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene,and phenanthrene. Non-detect results are multiplied by one-half. When all results are non-detect the highest detection limit or reporting limit is provided.

[(g)]HPAHs are the sum of benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzofluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3,cd)pyrene, and pyrene. Non-detect results are multiplied by one-half. When all results are non-detect the highest

[h]Total xylenes are the sum of m,p- and o-xylene results. Non-detect results are multiplied by one-half. When both results are non-detect, the highest detection limit is provided.

REFERENCES:

[1]DEQ. 2020. *Conducting Ecological Risk Assessments.* Table 1a. Oregon Department of Environmental Quality. September.

[2]DEQ. 2013. *Development of Oregon Background Metals Concentrations in Soil.* Oregon Department of Environmental Quality. March.

[3]Van den Berg, M. et al. 1998. *Toxic equivalency factors (TEFs) for PCBs, PCDDs, PCDFs for humans and wildlife.* Environmental Health Perspectives. 106 No. 12:775–792.

[4]Van den Berg, M. et al. 2006. *The 2005 World Health Organization reevaluation of human and mammalian toxic equivalency factors for dioxins and dioxin-like compounds.* Toxicological Sciences. 93 No. 2:223–241.

[5]LPAHs and HPAHs are identified based on definition provided in the October 2017 DEQ Upriver Reach Sediment Characterization Workplan for the Lower Willamette River prepared by DEQ.

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Table 6-2
Ecological ISM Soil Analytical Results
Wild River Land Trust
Port Orford, Oregon

Area of Interest:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Background	Berm	North Wigwam Burner		
Location:								20375674	20375667	20385668	20385669	20385670
Sample Name:								DU08SS	DU01SS	DU02SS	DU03SS	DU04SS
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/12/2020	9/13/2020	9/13/2020	9/13/2020
Collection Depth (cm bgs):								0 - 4	0 - 4	0 - 4	0 - 4	0 - 4
Total Metals (mg/kg)												
Aluminum	(a)	(a)	(a)	(a)	(a)	(a)	NV	22,200	25,200	34,300	34,600	28,900
Antimony	78	11	NV	2.7	NV	49	0.59	0.094 J	0.184 J	0.329 J	0.221 J	0.624 J
Arsenic	6.8	18	32	31	1,000	290	12	4.18 J	4.29 J	8.05 J	6.5 J	10.2 J
Barium	330	110	1,200	8,700	13,000	44,000	630	81.3	68.7	535	264	936
Beryllium	40	2.5	NV	42	NV	110	1.4	0.35	0.329	0.318	0.319	0.313
Cadmium	140	32	1.6	4	7.7	1,700	0.52	0.375	0.21	0.221	0.205	0.74
Calcium	NV	NV	NV	NV	NV	NV	NV	4,340	3,740	16,500	6,510	22,000
Chromium	NV	NV	73	1,600	560	10,000	890	67.1	78.5	93.4	94	83.4
Cobalt	NV	13	170	640	1,400	3,300	3 - 50	23.1	14.6	15.3	15.8	14.8
Copper	80	70	43	70	240	1,600	110	57.3	50.8	85.3	70.1	111
Iron	NV	NV	NV	NV	NV	NV	NV	30,300 J	35,000 J	39,400 J	39,200 J	37,900 J
Lead	1,700	120	23	170	160	1,600	36	15.2 J	20.2 J	19.4 J	18 J	43.7 J
Magnesium	NV	NV	NV	NV	NV	NV	NV	11,700	12,500	14,900	13,700	13,000
Manganese	450	220	2,700	5,400	50,000	34,000	3,000	1,140	513	1,340	896	2,640
Mercury	0.05	34	0.13	17	0.58	130	0.17	0.066	0.111	0.09	0.089	0.068
Nickel	280	38	81	21	440	580	630	69.8	76.3	101	98.5	84.7
Potassium	NV	NV	NV	NV	NV	NV	NV	1,060	982	3,880	2,160	5,230
Silver	NV	560	26	140	130	10,000	0.16	0.067	0.06	0.412	0.181	0.991
Sodium	NV	NV	NV	NV	NV	NV	NV	174	133	475	182	621
Thallium	NV	0.05	45	4.2	480	50	0.31	0.076	0.08	0.075	0.078	0.07
Vanadium	NV	60	9.5	610	110	1,600	290	75.8	79.3	94.5	94.6	81.6
Zinc	120	160	120	980	590	30,000	140	93.1	150	187	178	462
Dioxins (pg/g)												
1,2,3,4,6,7,8-HpCDD	NV	NV	1,500	7	15,000	11	NV	41	1,260	56.4	117	205
1,2,3,4,6,7,8-HpCDF	NV	NV	230	11	2,300	17	NV	10.4	206	10.2	23.6	48.4
1,2,3,4,7,8,9-HpCDF	NV	NV	230	11	2,300	17	NV	0.73 J	12.5	0.88 J	2.12 J	3.84
1,2,3,4,7,8-HxCDD	NV	NV	51	1.2	500	1.8	NV	0.811 J	11.3	0.998 J	1.37 J	2.88
1,2,3,4,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	0.868 J	11.5	0.922 J	1.81 J	3.85
1,2,3,6,7,8-HxCDD	NV	NV	190	0.89	1,900	1.4	NV	2.09 J	43.3	2.66	4.7	8.5
1,2,3,6,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	0.679 J	5.34 J	0.465 J	0.933 J	2.7
1,2,3,7,8,9-HxCDD	NV	NV	19	0.89	190	1.4	NV	1.54 J	19.9	2.18 J	2.77	6.19
1,2,3,7,8,9-HxCDF	NV	NV	30	1.4	300	2.2	NV	0.33 U	4.43 J	0.4 J	0.712 J	1.11 J
1,2,3,7,8-PeCDD	NV	NV	5.9	0.28	59	0.43	NV	0.61 J	5.71 J	0.889 J	1.2 U	1.98 J

Area of Interest:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	Background	Berm	North Wigwam Burner		
Location:								20375674	20375667	20385668	20385669	20385670
Sample Name:								DU08SS	DU01SS	DU02SS	DU03SS	DU04SS
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/12/2020	9/12/2020	9/13/2020	9/13/2020	9/13/2020
Collection Depth (cm bgs):								0 - 4	0 - 4	0 - 4	0 - 4	0 - 4
1,2,3,7,8-PeCDF	NV	NV	41	6.5	400	9.8	NV	0.353 J	2.75 J	0.398 J	0.454 J	1.12 J
2,3,4,6,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	1.01 J	13 U	0.787 J	2 U	4.9 U
2,3,4,7,8-PeCDF	NV	NV	4.1	0.65	40	0.98	NV	0.878 J	6.22 J	0.597 J	0.955 J	2.15 J
2,3,7,8-TCDD	5,000,000	NV	5.2	0.25	52	0.38	NV	0.669	9.45	0.544	2.79	0.984
2,3,7,8-TCDF	NV	NV	6.4	3	63	4.6	NV	0.424 J	1 J	0.622	0.37 U	0.678
OCDD	NV	NV	19,000	300	190,000	460	NV	364	9,930	501	966	1,570
OCDF	NV	NV	14,000	220	140,000	340	NV	36	892	30	81.8	142
Dioxin/furan TEQ (avian)[b][3]	5,000,000	NV	5.2	NV	52	NV	NV	3.31	33.6	3.46	6.78	8.91
Dioxin/furan TEQ (mammal)[c][4]	5,000,000	NV	NV	0.25	NV	0.38	NV	2.97	46.12	3.36	7.5	9.81
SVOCs (mg/kg)												
2-Methylnaphthalene	NV	NV	NV	160	NV	49,000	NV	0.0047 JQ	0.0065 J	0.0018 JQ	0.0032 JQ	0.0083 J
Benzo(b)fluoranthene	NV	18	NV	440	NV	24,000	NV	0.0042 JQ	0.00038 UJ	0.00038 UJ	0.0015 JQ	0.0042 JQ
Benzo(ghi)perylene	NV	NV	NV	250	NV	36,000	NV	0.0017 JQ	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0014 JQ
Dibenzofuran	NV	6.1	NV	NV	NV	NV	NV	0.0032 UJ	0.005 J	0.0045 UJ	0.004 UJ	0.013 J
Fluoranthene	10	NV	NV	220	NV	39,000	NV	0.0058 J	0.016 J	0.0037 UJ	0.0046 UJ	0.014 J
Naphthalene	NV	1	34	27	780	16,000	NV	0.0046 UJ	0.0099 J	0.0063 J	0.0071 J	0.018 J
Phenanthrene	5.5	NV	NV	110	NV	19,000	NV	0.019 J	0.033 J	0.0095 J	0.0095 J	0.03 J
Pyrene	10	NV	330	230	1,600	31,000	NV	0.0045 UJ	0.0077 J	0.0018 UJ	0.0018 UJ	0.0061 J

Area of Interest:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	South Wigwam Burner				
Location:								20385671	20385672	20385675	20385676	20385673
Sample Name:								DU05SS	DU06SS	DU06SS-R	DU06SS-T	DU07SS
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/13/2020	9/13/2020	9/13/2020	9/13/2020	9/13/2020
Collection Depth (cm bgs):								0 - 4	0 - 4	0 - 4	0 - 4	0 - 4
Total Metals (mg/kg)												
Aluminum	(a)	(a)	(a)	(a)	(a)	(a)	NV	21,500	23,300	25,600	23,200	26,100
Antimony	78	11	NV	2.7	NV	49	0.59	6.07 J	2.62 J	2.2 J	16.4 J	5.15 J
Arsenic	6.8	18	32	31	1,000	290	12	8.69 J	15.1 J	9.2 J	12.3 J	12.2 J
Barium	330	110	1,200	8,700	13,000	44,000	630	299	253	233	272	403
Beryllium	40	2.5	NV	42	NV	110	1.4	0.296	0.302	0.351	0.311	0.37
Cadmium	140	32	1.6	4	7.7	1,700	0.52	1.26	0.995	0.786	0.977	0.367
Calcium	NV	NV	NV	NV	NV	NV	NV	8,940	9,910	9,600	9,460	12,000
Chromium	NV	NV	73	1,600	560	10,000	890	68.8	81	83.6	89.1	72.5
Cobalt	NV	13	170	640	1,400	3,300	3 - 50	16.1	19	17.8	18.6	16.4
Copper	80	70	43	70	240	1,600	110	183	279	242	167	92.8
Iron	NV	NV	NV	NV	NV	NV	NV	49,000 J	57,900 J	51,900 J	61,200 J	43,400 J
Lead	1,700	120	23	170	160	1,600	36	246 J	125 J	101 J	226 J	32.5 J
Magnesium	NV	NV	NV	NV	NV	NV	NV	8,640	9,100	10,500	9,950	10,400
Manganese	450	220	2,700	5,400	50,000	34,000	3,000	1,070	879	799	978	1,160
Mercury	0.05	34	0.13	17	0.58	130	0.17	0.585	0.206	0.221	0.194	0.08
Nickel	280	38	81	21	440	580	630	72	83	86.2	83.5	73
Potassium	NV	NV	NV	NV	NV	NV	NV	2,600	2,690	2,840	2,540	3,990
Silver	NV	560	26	140	130	10,000	0.16	0.439	0.309	0.234	0.366	0.167
Sodium	NV	NV	NV	NV	NV	NV	NV	1,410	1,360	1,720	1,420	1,560
Thallium	NV	0.05	45	4.2	480	50	0.31	0.054	0.061	0.069	0.076	0.052
Vanadium	NV	60	9.5	610	110	1,600	290	64	72.7	79.4	75	70.6
Zinc	120	160	120	980	590	30,000	140	383	416	382	431	148
Dioxins (pg/g)												
1,2,3,4,6,7,8-HpCDD	NV	NV	1,500	7	15,000	11	NV	652	479	488	556	737
1,2,3,4,6,7,8-HpCDF	NV	NV	230	11	2,300	17	NV	204	131	136	140	79.3
1,2,3,4,7,8,9-HpCDF	NV	NV	230	11	2,300	17	NV	14.9	10.9	9.73	11.6	6.56
1,2,3,4,7,8-HxCDD	NV	NV	51	1.2	500	1.8	NV	7.9 U	7.72	7.39	10.6	21.1
1,2,3,4,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	15.9	11.7	11.6	13	6.46
1,2,3,6,7,8-HxCDD	NV	NV	190	0.89	1,900	1.4	NV	27.5	24.2	21.6	26	29.2
1,2,3,6,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	12.3 J	7.25	6.88	8.3	3.8
1,2,3,7,8,9-HxCDD	NV	NV	19	0.89	190	1.4	NV	17.9	18.5	17.8	26.1	30
1,2,3,7,8,9-HxCDF	NV	NV	30	1.4	300	2.2	NV	5.35 J	3.92	3.68 J	4.36	2.5 J
1,2,3,7,8-PeCDD	NV	NV	5.9	0.28	59	0.43	NV	5.43 J	6.33	7.1	9.8	12.6

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Table 6-2
Ecological ISM Soil Analytical Results
Wild River Land Trust
Port Orford, Oregon

Area of Interest:	DEQ Ecological RBC, Soil, Direct Toxicity[1]		DEQ Ecological RBC, Soil, Ground Feeding[1]		DEQ Ecological RBC, Soil, Top Consumer[1]		DEQ Background Metals, Klamath Mountains[2]	South Wigwam Burner				
Location:								20385671	20385672	20385675	20385676	20385673
Sample Name:								DU05SS	DU06SS	DU06SS-R	DU06SS-T	DU07SS
Collection Date:	Invertebrates	Plants	Bird, Non-TE	Mammal, Non-TE	Bird, Non-TE	Mammal, Non-TE		9/13/2020	9/13/2020	9/13/2020	9/13/2020	9/13/2020
Collection Depth (cm bgs):								0 - 4	0 - 4	0 - 4	0 - 4	0 - 4
1,2,3,7,8-PeCDF	NV	NV	41	6.5	400	9.8	NV	6.8 J	4.6	4.02	5	1.73 J
2,3,4,6,7,8-HxCDF	NV	NV	23	1.1	230	1.7	NV	19 U	12.5	12 U	13 U	7.7 U
2,3,4,7,8-PeCDF	NV	NV	4.1	0.65	40	0.98	NV	11.1 J	8.35	7.52	9.5	3.18
2,3,7,8-TCDD	5,000,000	NV	5.2	0.25	52	0.38	NV	2.71	2.59	2.94	3.27	7.74
2,3,7,8-TCDF	NV	NV	6.4	3	63	4.6	NV	9.5	5.67	5.53	5.53	1.67
OCDD	NV	NV	19,000	300	190,000	460	NV	5,640	3,740	3,760	4,090	5,160
OCDF	NV	NV	14,000	220	140,000	340	NV	617	403	437	491	239
Dioxin/furan TEQ (avian)[b][3]	5,000,000	NV	5.2	NV	52	NV	NV	40.6	31.73	31.64	38.4	33.89
Dioxin/furan TEQ (mammal)[c][4]	5,000,000	NV	NV	0.25	NV	0.38	NV	33.8	28.16	28.66	35.21	41.44
SVOCs (mg/kg)												
2-Methylnaphthalene	NV	NV	NV	160	NV	49,000	NV	0.0051 J	0.01 J	0.01 J	0.011 J	0.009 J
Benzo(b)fluoranthene	NV	18	NV	440	NV	24,000	NV	0.0026 JQ	0.0027 JQ	0.0039 JQ	0.0053 J	0.0026 JQ
Benzo(ghi)perylene	NV	NV	NV	250	NV	36,000	NV	0.001 JQ	0.00095 JQ	0.0022 JQ	0.0076 J	0.0012 JQ
Dibenzofuran	NV	6.1	NV	NV	NV	NV	NV	0.0055 J	0.012 J	0.014 J	0.014 J	0.005 UJ
Fluoranthene	10	NV	NV	220	NV	39,000	NV	0.0077 J	0.0099 J	0.015 J	0.011 J	0.0074 J
Naphthalene	NV	1	34	27	780	16,000	NV	0.0099 J	0.022 J	0.022 J	0.03 J	0.01 J
Phenanthrene	5.5	NV	NV	110	NV	19,000	NV	0.013 J	0.025 J	0.034 J	0.026 J	0.02 J
Pyrene	10	NV	330	230	1,600	31,000	NV	0.0041 UJ	0.0061 J	0.0094 J	0.0063 J	0.0049 UJ

NOTES:

Analytical results were not validated.

Shading (color key below) indicates an exceedance of screening criteria; non-detects (U or UJ) were not compared with screening levels. Metals results below background concentrations were not compared with screening levels.

When multiple screening levels are exceeded, the result is shaded with the color associated with the highest exceeded screening level.

DEQ Ecological RBC, Soil, Direct Toxicity, Invertebrates

DEQ Ecological RBC, Soil, Direct Toxicity, Plants

DEQ Ecological RBC, Soil, Ground Feeding, Bird, Non-TE

DEQ Ecological RBC, Soil, Ground Feeding, Mammal, Non-TE

DEQ Ecological RBC, Soil, Top Consumer, Bird, Non-TE

DEQ Ecological RBC, Soil, Top Consumer, Mammal, Non-TE

-- = not analyzed or no data provided.

cm bgs = centimeters below ground surface.

DEQ = Oregon Department of Environmental Quality.

J = the result is estimated.

JQ = result detected above the detection limit but below the contract-required method reporting limit or quantitation limit.

mg/kg = milligrams per kilogram.

NV = no value.

pg/g = picograms per gram.

RBC = risk-based concentration.

SVOC = semivolatile organic compound.

TE = threatened and endangered species.

TEQ = toxicity equivalence.

U = the result is non-detect.

U* = data source provides a variety of laboratory qualifiers. These data are assumed to be non-detect with estimated detection or reporting limits for screening purposes.

UJ = the result is non-detect with an estimated detection limit or reporting limit.

VOC = volatile organic compound.

[a]Toxic if soil pH <5.5.

[b]Dioxin/furan TEQs calculated as the sum of each detected congener concentration multiplied by the corresponding avian TEF value with non-detect results also multiplied by one-half.

[c]Dioxin/furan TEQs calculated as the sum of each detected congener concentration multiplied by the corresponding mammal TEF value with non-detect results also multiplied by one-half.

REFERENCES:

[1]DEQ. 2020. *Conducting Ecological Risk Assessments.* Table 1a. Oregon Department of Environmental Quality. September.

[2]DEQ. 2013. *Development of Oregon Background Metals Concentrations in Soil.* Oregon Department of Environmental Quality. March.

[3]Van den Berg, M. et al. 1998. *Toxic equivalency factors (TEFs) for PCBs, PCDDs, PCDFs for humans and wildlife.* Environmental Health Perspectives. 106 No. 12:775–792.

[4]Van den Berg, M. et al. 2006. *The 2005 World Health Organization reevaluation of human and mammalian toxic equivalency factors for dioxins and dioxin-like compounds.* Toxicological Sciences. 93 No. 2:223–241.

Table 6-3
Sediment Analytical Results
Wild River Land Trust
Port Orford, Oregon

Area of Interest:	DEQ Sediment Bioaccumulative Screening Level Value[1]				DEQ Ecological RBC[2]	DEQ Background Metals, Klamath Mountains[3]	Site-Specific Background	Former Log Pond						Former Fire Suppression Pond	
Location:							PD09SD	PD01SD	PD02SD	PD03SD	PD04SD	PD05SD	PD06SD	PD07SD	PD08SD
Sample Name:	Birds	Mammals	Fish	Inorganic Background	Sediment		JLTY2	JLTX4	JLTX5	JLTX6	JLTX7	JLTX8	JLTX9	JLTY0	JLTY1
Collection Date:	Population	Population	Freshwater		Freshwater		9/12/2020	9/9/2020	9/9/2020	9/9/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020
Collection Depth (ft bgs):							0-1	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-1	0-1	0-1
Total metals (mg/kg)															
Aluminum	NV	NV	NV	NV	NV	NV	22,000	25,200	25,400	23,200	20,900	19,100	17,400	20,700	20,900
Antimony	NV	NV	NV	NV	3	0.59	0.13 JQ	2 U	0.73 U	2.3 U	0.11 JQ	1.2 UJ	0.093 JQ	0.11 JQ	0.12 JQ
Arsenic	NV	NV	NV	7	NV	12	4.9	2.6	2.7	3.3	3.2	2.4	3	3.9	4.5
Barium	NV	NV	NV	NV	NV	630	86.9	124	137	190	129	75.7	92.8	119	101
Beryllium	NV	NV	NV	NV	NV	1.4	0.81	0.74 JQ	0.73	0.81 JQ	0.85	0.68	0.6	0.77	0.72
Cadmium	NV	NV	NV	1	0.6	0.52	0.66 U	1 U	0.48 U	0.14 JQ	0.49 U	0.62 U	0.43 U	0.49 U	0.49 U
Calcium	NV	NV	NV	NV	NV	NV	487 JQ	2780	2590	7350	1580	2920	1350	1570	1350
Chromium	NV	NV	NV	NV	37	890	46.2	75	74.6	78.1	49	51.3	40.9	47.7	48.5
Cobalt	NV	NV	NV	NV	NV	NV	13	13.7	13.4	15.4	15	10.6	10.6	14	11.5
Copper	NV	NV	NV	NV	36	110	30.2	46.1	53.6	72	33.7	32.9	25.6	30.6	30.6
Iron	NV	NV	NV	NV	NV	NV	32,100	32,400	32,400	42,200	29,600	29,100	19,100	28,100	25,900
Lead	NV	NV	NV	17	35	36	6.9	12.7 J	17.4 J	44.2 J	9.3	7.4	7	8.2	8.2
Magnesium	NV	NV	NV	NV	NV	NV	5,680	11,000	9,140	9,030	4,120	8,010	3,700	3,820	3,850
Manganese	NV	NV	NV	NV	1,100	3,000	269	360	331	660	332	336	162	316	184
Mercury	NV	NV	NV	0.07	0.2	0.17	0.18 U	0.24 U	0.19	0.28 U	0.2	0.16 U	0.13	0.14	0.16
Nickel	NV	NV	NV	NV	18	630	53.8	84.9	70	68.5	52.3	56.7	45	53.4	51.5
Potassium	NV	NV	NV	NV	NV	NV	371 JQ	256 JQ	510	491 JQ	253 JQ	375 JQ	432 U	492 U	492 U
Selenium	NV	NV	NV	2	NV	0.8	1 JQ	4.9 U	1.8 U	1.3 JQ	0.9 JQ	3 U	0.82 JQ	1.2 JQ	0.54 JQ
Silver	NV	NV	NV	NV	4.5	0.16	0.43 JQ	0.85 JQ	0.86 JQ	1.2 JQ	0.46 JQ	0.32 JQ	0.38 JQ	0.51 JQ	0.51 JQ
Sodium	NV	NV	NV	NV	NV	NV	663 U	1030 U	106 JQ	132 JQ	52.3 JQ	83.9 JQ	61.5 JQ	35.1 JQ	39.3 JQ
Thallium	NV	NV	NV	NV	NV	0.31	0.7 U	0.98 U	0.37 U	1.1 U	0.36 U	0.6 U	0.37 U	0.36 U	0.37 U
Vanadium	NV	NV	NV	NV	NV	290	56.3	53.6 J	60.7 J	56.3 J	52.2	47	53.3	58.4	69.6
Zinc	NV	NV	NV	NV	123	140	105	130	135	277	87.9	64.1	68.4	71.8	81.8
Dioxins/Furans (pg/g)															
1,2,3,4,6,7,8-HpCDD	2,700,000	110,000	430,000	NV	NV	NV	16	3,200	2,600	2,500	100	43	44	100	69
1,2,3,4,6,7,8-HpCDF	270,000	110,000	43,000	NV	NV	NV	3.7 JQ	880	700	620	26	9.3	12	23	15
1,2,3,4,7,8,9-HpCDF	270,000	110,000	43,000	NV	NV	NV	0.36 U	68	51	44	1.8 JQ	0.72 JQ	0.79 JQ	1.5 JQ	1 JQ
1,2,3,4,7,8-HxCDD	2,100	420	34	NV	NV	NV	0.52 U	33	35	33	1.8 JQ	0.59 JQ	0.75 JQ	1.5 JQ	1.2 JQ
1,2,3,4,7,8-HxCDF	1,100	420	170	NV	NV	NV	0.44 U	83	71	63	2.3 JQ	0.66 JQ	1 JQ	1.9 JQ	1.2 JQ
1,2,3,6,7,8-HxCDD	11,000	420	1,700	NV	NV	NV	0.94 JQ	140	120	150	5.2	2.4 JQ	2.4 JQ	6	3.7 JQ
1,2,3,6,7,8-HxCDF	1,100	420	170	NV	NV	NV	0.37 U	39	32	29	1.6 JQ	0.37 U	0.76 JQ	1.2 JQ	0.79 JQ
1,2,3,7,8,9-HxCDD	1,100	420	1,700	NV	NV	NV	0.55 U	60	67	62	5.4	1.8 JQ	1.3 JQ	2.9 JQ	2.3 JQ
1,2,3,7,8,9-HxCDF	1,100	420	170	NV	NV	NV	0.47 U	27	22	23	0.77 JQ	0.47 U	0.49 JQ	0.76 JQ	0.49 JQ
1,2,3,7,8-PeCDD	110	42	17	NV	NV	NV	0.31 JQ	21	25	24	1 JQ	0.38 JQ	0.61 JQ	0.78 JQ	0.75 JQ
1,2,3,7,8-PeCDF	300	400	95	NV	NV	NV	0.3 U	13	11	11	0.75 JQ	0.3 U	0.42 JQ	0.53 JQ	0.42 JQ
2,3,4,6,7,8-HxCDF	1,100	420	170	NV	NV	NV	0.44 U	60	53	48	1.8 JQ	0.44 U	0.97 JQ	1.6 JQ	1 JQ
2,3,4,7,8-PeCDF	3.5	4.7	1.1	NV	NV	NV	0.32 JQ	33	30	28	1.4 JQ	0.31 JQ	0.86 JQ	1.2 JQ	0.83 JQ
2,3,7,8-TCDD	3.5	1.4	0.56	NV	9	NV	0.37 JQ	7.1	4.5	4.5	0.99 JQ	1.1	3.6	0.88 JQ	1.5
2,3,7,8-TCDF	30	120	95	NV	NV	NV	0.18 JQ	3.1	2.9	3.1	0.63 JQ	0.2 JQ	0.35 JQ	0.48 JQ	0.49 JQ
OCDD	27,000,000	3,600,000	4,300,000	NV	NV	NV	120	33000 J	24000 J	24000 J	870	410	330	720	550
OCDF	27,000,000	3,600,000	4,300,000	NV	NV	NV	7.5 JQ	2,600	1,600	1,400	68	35	30	57	39
Dioxin/furan TEQ (Bird)[(a)(b)(4)]	3.5	1.4	0.56	NV	9	NV	1.4 J	110 J	100 J	98 J	5.9 J	2.6 J	6.2 J	4.8 J	4.6 J

Area of Interest:	DEQ Sediment Bioaccumulative Screening Level Value[1]				DEQ Ecological RBC[2]	DEQ Background Metals, Klamath Mountains[3]	Site-Specific Background	Former Log Pond						Former Fire Suppression Pond	
Location:							PD09SD	PD01SD	PD02SD	PD03SD	PD04SD	PD05SD	PD06SD	PD07SD	PD08SD
Sample Name:	Birds	Mammals	Fish	Inorganic Background	Sediment		JLTY2	JLTX4	JLTX5	JLTX6	JLTX7	JLTX8	JLTX9	JLTY0	JLTY1
Collection Date:	Population	Population	Freshwater		Freshwater		9/12/2020	9/9/2020	9/9/2020	9/9/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020
Collection Depth (ft bgs):							0-1	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-1	0-1	0-1
Dioxin/furan TEQ (Fish)[(a)(b)(4)]	3.5	1.4	0.56	NV	9	NV	1.2 J	100 J	95 J	90 J	4.9 J	2.3 J	5.6 J	4.1 J	4 J
Dioxin/furan TEQ (Mammal)[(a)(b)(4)]	3.5	1.4	0.56	NV	9	NV	1.3 J	140 J	120 J	120 J	5.9 J	2.9 J	6 J	5.1 J	4.7 J
SVOCs (mg/kg)															
1,1'-Biphenyl	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
1,2,4,5-Tetrachlorobenzene	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
1,4-Dioxane	NV	NV	NV	NV	NV	NV	0.14 U	0.19 U	0.23 R	0.19 U	0.37 UJ	0.1 UJ	0.32 UJ	0.27 U	0.33 U
2,3,4,6-Tetrachlorophenol	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
2,4,5-Trichlorophenol	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
2,4,6-Trichlorophenol	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
2,4-Dichlorophenol	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
2,4-Dimethylphenol	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
2,4-Dinitrophenol	NV	NV	NV	NV	NV	NV	0.68 U	0.96 U	1.1 U	0.92 U	1.8 UJ	0.5 UJ	1.6 UJ	1.3 U	1.6 U
2,4-Dinitrotoluene	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
2,6-Dinitrotoluene	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
2-Chloronaphthalene	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
2-Chlorophenol	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
2-Methylnaphthalene	NV	NV	NV	NV	NV	NV	0.35 R	0.49 R	0.59 R	0.47 R	0.95 R	0.26 R	0.81 R	0.69 R	0.83 R
2-Methylphenol	NV	NV	NV	NV	NV	NV	0.68 U	0.96 U	1.1 U	0.92 U	1.8 UJ	0.5 UJ	1.6 UJ	1.3 U	1.6 U
2-Nitroaniline	NV	NV	NV	NV	NV	NV	0.35 U	0.49 UJ	0.59 UJ	0.47 UJ	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
2-Nitrophenol	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
3,3-Dichlorobenzidine	NV	NV	NV	NV	NV	NV	0.68 U	0.96 U	1.1 U	0.92 U	1.8 UJ	0.5 UJ	1.6 UJ	1.3 U	1.6 U
3-Nitroaniline	NV	NV	NV	NV	NV	NV	0.68 U	0.96 U	1.1 U	0.92 U	1.8 UJ	0.5 UJ	1.6 UJ	1.3 U	1.6 U
4,6-Dinitro-2-methylphenol	NV	NV	NV	NV	NV	NV	0.68 U	0.96 U	1.1 U	0.92 U	1.8 UJ	0.5 UJ	1.6 UJ	1.3 U	1.6 U
4-Bromophenylphenyl ether	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
4-Chloro-3-methylphenol	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
4-Chloroaniline	NV	NV	NV	NV	NV	NV	0.68 U	0.96 U	1.1 U	0.92 U	1.8 UJ	0.5 UJ	1.6 UJ	1.3 U	1.6 U
4-Chlorophenylphenyl ether	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
4-Methylphenol	NV	NV	NV	NV	NV	NV	0.68 U	0.96 U	1.1 U	0.92 U	1.8 UJ	0.5 UJ	1.6 UJ	1.3 U	1.6 U
4-Nitroaniline	NV	NV	NV	NV	NV	NV	0.68 U	0.96 U	1.1 U	0.92 U	1.8 UJ	0.5 UJ	1.6 UJ	1.3 U	1.6 U
4-Nitrophenol	NV	NV	NV	NV	NV	NV	0.68 U	0.96 U	1.1 U	0.92 U	1.8 UJ	0.5 UJ	1.6 UJ	1.3 U	1.6 U
Acenaphthene	NV	NV	NV	NV	0.29	NV	0.35 R	0.49 R	0.59 R	0.47 R	0.95 R	0.26 R	0.81 R	0.69 R	0.83 R
Acenaphthylene	NV	NV	NV	NV	0.16	NV	0.35 R	0.49 R	0.59 R	0.47 R	0.95 R	0.26 R	0.81 R	0.69 R	0.83 R
Acetophenone	NV	NV	NV	NV	NV	NV	0.68 U	0.96 U	1.1 U	0.92 U	1.8 UJ	0.5 UJ	1.6 UJ	1.3 U	1.6 U
Anthracene	NV	NV	NV	NV	0.057	NV	0.35 R	0.49 R	0.59 R	0.47 R	0.95 R	0.26 R	0.81 R	0.69 R	0.83 R
Atrazine	NV	NV	NV	NV	NV	NV	0.68 U	0.96 U	1.1 U	0.92 U	1.8 UJ	0.5 UJ	1.6 UJ	1.3 U	1.6 U
Benzaldehyde	NV	NV	NV	NV	NV	NV	0.68 U	0.96 U	1.1 U	0.92 U	1.8 UJ	0.5 UJ	1.6 UJ	1.3 U	1.6 U
Benzo(a)anthracene	NV	NV	NV	NV	0.032	NV	0.35 R	0.49 R	0.59 R	0.47 R	0.95 R	0.26 R	0.81 R	0.69 R	0.83 R
Benzo(a)pyrene	NV	NV	NV	NV	0.032	NV	0.35 R	0.49 R	0.59 R	0.47 R	0.95 R	0.26 R	0.81 R	0.69 R	0.83 R
Benzo(b)fluoranthene	NV	NV	NV	NV	NV	NV	0.35 R	0.49 R	0.59 R	0.47 R	0.95 R	0.26 R	0.81 R	0.69 R	0.83 R
Benzo(ghi)perylene	NV	NV	NV	NV	0.3	NV	0.35 R	0.49 R	0.59 R	0.47 R	0.95 R	0.26 R	0.81 R	0.69 R	0.83 R
Benzo(k)fluoranthene	NV	NV	NV	NV	0.027	NV	0.35 R	0.49 R	0.59 R	0.47 R	0.95 R	0.26 R	0.81 R	0.69 R	0.83 R
Bis(2-chloro-1-methylethyl)ether	NV	NV	NV	NV	NV	NV	0.68 U	0.96 U	1.1 U	0.92 U	1.8 UJ	0.5 UJ	1.6 UJ	1.3 U	1.6 U
Bis(2-chloroethoxy)methane	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U

Table 6-3
Sediment Analytical Results
Wild River Land Trust
Port Orford, Oregon

Area of Interest:	DEQ Sediment Bioaccumulative Screening Level Value[1]				DEQ Ecological RBC[2]	DEQ Background Metals, Klamath Mountains[3]	Site-Specific Background	Former Log Pond						Former Fire Suppression Pond	
Location:							PD09SD	PD01SD	PD02SD	PD03SD	PD04SD	PD05SD	PD06SD	PD07SD	PD08SD
Sample Name:	Birds	Mammals	Fish	Inorganic Background	Sediment		JLTY2	JLTX4	JLTX5	JLTX6	JLTX7	JLTX8	JLTX9	JLTY0	JLTY1
Collection Date:	Population	Population	Freshwater		Freshwater		9/12/2020	9/9/2020	9/9/2020	9/9/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020
Collection Depth (ft bgs):							0-1	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-1	0-1	0-1
Bis(2-chloroethyl)ether	NV	NV	NV	NV	NV	NV	0.68 U	0.96 U	1.1 U	0.92 U	1.8 UJ	0.5 UJ	1.6 UJ	1.3 U	1.6 U
Bis(2-ethylhexyl)phthalate	NV	NV	NV	NV	0.75	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.31 JQ	0.83 U
Butylbenzylphthalate	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
Caprolactam	NV	NV	NV	NV	NV	NV	0.68 U	0.96 U	1.1 U	0.92 U	1.8 UJ	0.5 UJ	1.6 UJ	1.3 U	1.6 U
Carbazole	NV	NV	NV	NV	0.14	NV	0.68 U	0.96 U	1.1 U	0.92 U	1.8 UJ	0.5 UJ	1.6 UJ	1.3 U	1.6 U
Chrysene	NV	NV	NV	NV	0.057	NV	0.35 R	0.49 R	0.59 R	0.47 R	0.95 R	0.26 R	0.81 R	0.69 R	0.83 R
Dibenzo(a,h)anthracene	NV	NV	NV	NV	0.033	NV	0.35 R	0.49 R	0.59 R	0.47 R	0.95 R	0.26 R	0.81 R	0.69 R	0.83 R
Dibenzofuran	NV	NV	NV	NV	5.1	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
Diethyl phthalate	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
Dimethyl phthalate	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
Di-n-butyl phthalate	NV	NV	NV	NV	0.11	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
Di-n-octyl phthalate	NV	NV	NV	NV	NV	NV	0.68 U	0.96 U	1.1 U	0.92 U	1.8 UJ	0.5 UJ	1.6 UJ	1.3 U	1.6 U
Fluoranthene	NV	1,800	37	NV	0.111	NV	0.68 R	0.96 R	1.1 R	0.92 R	1.8 R	0.5 R	1.6 R	1.3 R	1.6 R
Fluorene	NV	NV	NV	NV	0.077	NV	0.35 R	0.49 R	0.59 R	0.47 R	0.95 R	0.26 R	0.81 R	0.69 R	0.83 R
Hexachlorobenzene	NV	NV	61	NV	0.1	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
Hexachlorobutadiene	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
Hexachlorocyclopentadiene	NV	NV	NV	NV	NV	NV	0.68 U	0.96 U	1.1 U	0.92 U	1.8 UJ	0.5 UJ	1.6 UJ	1.3 U	1.6 U
Hexachloroethane	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
Indeno(1,2,3-cd)pyrene	NV	NV	NV	NV	0.017	NV	0.35 R	0.49 R	0.59 R	0.47 R	0.95 R	0.26 R	0.81 R	0.69 R	0.83 R
Isophorone	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
Naphthalene	NV	NV	NV	NV	0.176	NV	0.35 R	0.49 R	0.59 R	0.47 R	0.95 R	0.26 R	0.81 R	0.69 R	0.83 R
Nitrobenzene	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
N-Nitrosodiphenylamine	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
N-Nitrosodipropylamine	NV	NV	NV	NV	NV	NV	0.35 U	0.49 U	0.59 U	0.47 U	0.95 UJ	0.26 UJ	0.81 UJ	0.69 U	0.83 U
Pentachlorophenol	NV	3.3	0.31	NV	NV	NV	0.68 R	0.96 R	1.1 R	0.92 R	1.8 R	0.5 R	1.6 R	1.3 R	1.6 R
Phenanthrene	NV	NV	NV	NV	NV	NV	0.35 R	0.49 R	0.59 R	0.47 R	0.95 R	0.26 R	0.81 R	0.69 R	0.83 R
Phenol	NV	NV	NV	NV	0.048	NV	0.68 U	0.96 U	1.1 U	0.92 U	1.8 UJ	0.5 UJ	1.6 UJ	1.3 U	1.6 U
Pyrene	NV	90,000	1.9	NV	0.053	NV	0.35 R	0.49 R	0.59 R	0.47 R	0.95 R	0.26 R	0.81 R	0.69 R	0.83 R
SVOCs by SIM (mg/kg)															
2-Methylnaphthalene	NV	NV	NV	NV	NV	NV	0.0068 U	0.0056 JQ	0.013	0.013	0.018 U	0.00081 JQ	0.016 U	0.013 U	0.016 U
Acenaphthene	NV	NV	NV	NV	0.29	NV	0.0068 U	0.0019 JQ	0.0039 JQ	0.0039 JQ	0.018 U	0.0049 U	0.016 U	0.013 U	0.016 U
Acenaphthylene	NV	NV	NV	NV	0.16	NV	0.0068 U	0.0058 JQ	0.0043 JQ	0.0034 JQ	0.018 U	0.0049 U	0.016 U	0.013 U	0.016 U
Anthracene	NV	NV	NV	NV	0.057	NV	0.0068 U	0.0096 U	0.011 U	0.0092 U	0.018 U	0.0049 U	0.016 U	0.013 U	0.016 U
Benzo(a)anthracene	NV	NV	NV	NV	0.032	NV	0.0068 U	0.0058 JQ	0.032 J	0.012 J	0.018 U	0.0049 U	0.016 U	0.013 U	0.016 U
Benzo(a)pyrene	NV	NV	NV	NV	0.032	NV	0.0068 U	0.0096 U	0.011 U	0.0092 U	0.018 U	0.0049 U	0.016 U	0.013 U	0.016 U
Benzo(b)fluoranthene	NV	NV	NV	NV	NV	NV	0.0019 JQ	0.0076 JQ	0.024	0.0063 JQ	0.018 U	0.001 JQ	0.0073 JQ	0.004 JQ	0.016 U
Benzo(ghi)perylene	NV	NV	NV	NV	0.3	NV	0.0068 U	0.0096 U	0.011 U	0.0092 U	0.018 U	0.0049 U	0.016 U	0.013 U	0.016 U
Benzo(k)fluoranthene	NV	NV	NV	NV	0.027	NV	0.0016 JQ	0.0096 U	0.011 U	0.0092 U	0.018 U	0.0011 JQ	0.0042 JQ	0.0035 JQ	0.0041 JQ
Chrysene	NV	NV	NV	NV	0.057	NV	0.0017 JQ	0.0089 JQ	0.013 J	0.0079 JQ	0.0027 JQ	0.00097 JQ	0.0036 JQ	0.013 U	0.016 U
Dibenzo(a,h)anthracene	NV	NV	NV	NV	0.033	NV	0.0068 U	0.0096 U	0.011 U	0.0092 U	0.018 U	0.0049 U	0.016 U	0.013 U	0.016 U
Fluoranthene	NV	1,800	37	NV	0.111	NV	0.0068 U	0.018	0.045	0.018	0.0025 JQ	0.00097 JQ	0.0069 JQ	0.028 J	0.0057 JQ
Fluorene	NV	NV	NV	NV	0.077	NV	0.0068 U	0.0031 JQ	0.0042 JQ	0.0041 JQ	0.018 U	0.0049 U	0.016 U	0.013 U	0.016 U
Indeno(1,2,3-cd)pyrene	NV	NV	NV	NV	0.017	NV	0.0068 U	0.0096 U	0.011 U	0.0092 U	0.018 U	0.0049 U	0.016 U	0.013 U	0.016 U

Table 6-3
Sediment Analytical Results
Wild River Land Trust
Port Orford, Oregon

Area of Interest:	DEQ Sediment Bioaccumulative Screening Level Value[1]				DEQ Ecological RBC[2]	DEQ Background Metals, Klamath Mountains[3]	Site-Specific Background	Former Log Pond						Former Fire Suppression Pond	
Location:							PD09SD	PD01SD	PD02SD	PD03SD	PD04SD	PD05SD	PD06SD	PD07SD	PD08SD
Sample Name:	Birds	Mammals	Fish	Inorganic Background	Sediment		JLTY2	JLTX4	JLTX5	JLTX6	JLTX7	JLTX8	JLTX9	JLTY0	JLTY1
Collection Date:	Population	Population	Freshwater		Freshwater		9/12/2020	9/9/2020	9/9/2020	9/9/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020
Collection Depth (ft bgs):							0-1	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-1	0-1	0-1
Naphthalene	NV	NV	NV	NV	0.176	NV	0.0068 U	0.0089 JQ	0.012	0.013	0.018 U	0.0049 U	0.016 U	0.013 U	0.016 U
Pentachlorophenol	NV	3.3	0.31	NV	NV	NV	0.014 U	0.02	0.014 JQ	0.0089 JQ	0.037 U	0.01 U	0.032 U	0.027 U	0.033 U
Phenanthrene	NV	NV	NV	NV	NV	NV	0.0038 JQ	0.026	0.053	0.036	0.0047 JQ	0.0035 JQ	0.0051 JQ	0.0041 JQ	0.0041 JQ
Pyrene	NV	90,000	1.9	NV	0.053	NV	0.0068 U	0.014	0.014 J	0.0077 JQ	0.018 U	0.00058 JQ	0.0041 JQ	0.013 U	0.016 U
Total PAH[c]	NV	NV	NV	NV	1.61	NV	0.053 J	0.13 J	0.25 J	0.15 J	0.14 J	0.033 J	0.12 J	0.12 J	0.13 J
Total LPAH[d][5]	NV	NV	NV	NV	0.076	NV	0.024 J	0.056 J	0.096 J	0.078 J	0.059 J	0.017 J	0.053 J	0.043 J	0.052 J
Total HPAH[e][5]	NV	NV	NV	NV	0.193	NV	0.029 J	0.078 J	0.16 J	0.075 J	0.077 J	0.017 J	0.066 J	0.081 J	0.074 J

Notes

Shading (color key below) indicates an exceedance of screening criteria; non-detects (U or UJ) and rejected results (R) were not compared with screening levels. Metals results below background concentrations were not compared with screening levels.

When multiple screening levels are exceeded, the result is shaded with the color associated with the highest exceeded screening level.

DEQ Sediment Bioaccumulative SLV, Birds, Population

DEQ Sediment Bioaccumulative SLV, Mammals, Population

DEQ Sediment Bioaccumulative SLV, Fish, Freshwater

DEQ Sediment Bioaccumulative SLV, Inorganic Background

DEQ Ecological RBC, Sediment, Freshwater

DEQ = Oregon Department of Environmental Quality.

ft bgs = feet below ground surface.

HPAH = high molecular weight polycyclic aromatic hydrocarbon.

J = the result is estimated.

JQ = result detected above the detection limit but below the contract-required method reporting limit or quantitation limit.

LPAH = low molecular weight polycyclic aromatic hydrocarbon.

mg/kg = milligrams per kilogram.

NV = no value.

pg/g = picograms per gram.

R = the data are rejected and unusable for all purposes.

RBC = risk-based concentration.

SIM = selected ion monitoring.

SLV = screening level value.

SVOC = semivolatile organic compound.

TEQ = toxicity equivalence.

U = the result is non-detect.

UJ = the result is non-detect with an estimated detection limit or reporting limit.

[a]Dioxin/furan TEQs calculated as the sum of each congener concentration multiplied by the corresponding TEF value (avian, fish, or mammal) with each non-detect result also multiplied by one-half.

[b]Dioxin/furan TEQs are compared to bioaccumulative sediment screening levels for the same organism group.

[c]Total PAHs are the sum of all LPAHs and HPAHs. Non-detect results are multiplied by one-half.

[d]LPAHs are the sum of 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene,and phenanthrene. Non-detect results are multiplied by one-half.

[e]HPAHs are the sum of benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzofluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3,cd)pyrene, and pyrene. Non-detect results are multiplied by one-half.

References

[1]DEQ. 2020. *Guidance for Assessing Bioaccumulative Chemicals of Concern in Sediment.* Table A-1. Oregon Department of Environmental Quality. October.

[2]DEQ. 2020. *Conducting Ecological Risk Assessments.* Table 3. Oregon Department of Environmental Quality. September.

[3]DEQ. 2013. *Development of Oregon Background Metals Concentrations in Soil.* Oregon Department of Environmental Quality. March.

[4]DEQ. 2020. *Guidance for Assessing Bioaccumulative Chemicals of Concern in Sediment.* Table A-5b. Oregon Department of Environmental Quality. October.

[5]LPAHs and HPAH compounds are identified based on October 2017 DEQ Upriver Reach Sediment Characterization Workplan for the Lower Willamette River.

Table 6-4
Surface Water Analytical Results
Wild River Land Trust
Port Orford, Oregon

Location:	DEQ RBC for Freshwater[a](1)		PD01SW	PD01SW	PD05SW	PD05SW	PD06SW	PD06SW	PD09SW	PD09SW
Sample Name:			JLW39	JLW40	JLW41	JLW42	JLW43	JLW44	JLW45	JLW46
Sample Type:			Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Collection Date:	RBC Chronic	RBC Chronic, Wildlife	9/11/2020	9/11/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020
Metals (ug/L)										
Aluminum	320	NV	343	200 U	179 JQ	200 U	196 JQ	200 U	107 JQ	200 U
Antimony	190	NV	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U
Arsenic	150	NV	0.52 JQ	0.21 JQ	0.25 JQ	0.09 JQ	0.18 JQ	0.11 JQ	0.14 JQ	1 U
Barium	220	NV	12.7	12.5	14.7	14.9	14.8	13.9	12.6	13.6
Beryllium	11	NV	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cadmium	0.094	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Calcium	120,000	NV	1,650 JQ	1,550 JQ	1,530 JQ	1,540 JQ	1,510 JQ	1,470 JQ	1,470 JQ	1,440 JQ
Chromium	24[b]	NV	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Cobalt	19	NV	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Copper	1.4	NV	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Iron	1,000	NV	1,780	398	628	166	605	100 U	318	100 U
Lead	0.54	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Magnesium	82,000	NV	1,640 JQ	1,480 JQ	1,630 JQ	1,580 JQ	1,600 JQ	1,530 JQ	1,590 JQ	1,530 JQ
Manganese	93	NV	51.2	36.8	23.6	16.6	39.1	23.3	16.7	15 U
Mercury	0.012	0.0013	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	16	NV	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U
Potassium	53,000	NV	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U
Selenium	4.6	NV	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Silver	0.1	NV	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Sodium	680,000	NV	8,170	8,140	7,850	8,210	7,910	8,190	7,850	8,120
Thallium	6	NV	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Vanadium	27	NV	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Zinc	36	NV	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U
Dioxins/Furans (pg/L)										
1,2,3,4,6,7,8-HpCDD	NV	NV	13 JQ	--	4.1 U	--	4.2 U	--	8 JQ	--
1,2,3,4,6,7,8-HpCDF	NV	NV	4.3 JQ	--	3.3 U	--	3.4 U	--	3.4 U	--
1,2,3,4,7,8,9-HpCDF	NV	NV	2.4 U	--	2.4 U	--	2.4 U	--	2.8 U	--
1,2,3,4,7,8-HxCDD	NV	NV	1.5 U	--	1.4 U	--	1.5 U	--	1.4 U	--
1,2,3,4,7,8-HxCDF	NV	NV	3.2 U	--	3.2 U	--	3.2 U	--	3.2 U	--
1,2,3,6,7,8-HxCDD	NV	NV	2.1 U	--	2.1 U	--	2.1 U	--	2.1 U	--
1,2,3,6,7,8-HxCDF	NV	NV	2.7 U	--	2.7 U	--	2.7 U	--	2.7 U	--
1,2,3,7,8,9-HxCDD	NV	NV	2.1 U	--	2.1 U	--	2.1 U	--	2.1 U	--
1,2,3,7,8,9-HxCDF	NV	NV	3.8 U	--	3.7 U	--	3.8 U	--	3.7 U	--
1,2,3,7,8-PeCDD	NV	NV	3.7 U	--	3.6 U	--	3.7 U	--	3.6 U	--
1,2,3,7,8-PeCDF	NV	NV	3.8 U	--	3.7 U	--	3.8 U	--	3.7 U	--
2,3,4,6,7,8-HxCDF	NV	NV	3.4 U	--	3.3 U	--	3.4 U	--	3.4 U	--
2,3,4,7,8-PeCDF	NV	NV	3.4 U	--	3.3 U	--	3.4 U	--	3.4 U	--
2,3,7,8-TCDD	NV	NV	0.99 U	--	1.1 U	--	0.72 U	--	0.71 U	--
2,3,7,8-TCDF	NV	NV	1.1 U	--	1.1 U	--	1.1 U	--	1.1 U	--
OCDD	NV	NV	130	--	24 JQ	--	16 JQ	--	94 JQ	--
OCDF	NV	NV	9.1 JQ	--	6.3 U	--	6.4 U	--	6.3 U	--
Dioxin/furan TEQ (Bird)[c](2)	0.0031	0.0031	5.7 JQ	--	5.6 JQ	--	5.5 JQ	--	5.4 JQ	--
Dioxin/furan TEQ (Fish)[c](2)	0.0031	0.0031	4.5 JQ	--	4.3 JQ	--	4.3 JQ	--	4.2 JQ	--

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Table 6-4
Surface Water Analytical Results
Wild River Land Trust
Port Orford, Oregon

Location:	DEQ RBC for Freshwater[a][1]		PD01SW	PD01SW	PD05SW	PD05SW	PD06SW	PD06SW	PD09SW	PD09SW
Sample Name:			JLW39	JLW40	JLW41	JLW42	JLW43	JLW44	JLW45	JLW46
Sample Type:			Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Collection Date:	RBC Chronic	RBC Chronic, Wildlife	9/11/2020	9/11/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020
Dioxin/furan TEQ (Mammal)[c][3]	0.0031	0.0031	4.1 JQ	--	3.9 JQ	--	3.8 JQ	--	3.8 JQ	--

Table 6-4
Surface Water Analytical Results
Wild River Land Trust
Port Orford, Oregon

Location:	DEQ RBC for Freshwater[(a)(1)]		PD01SW	PD01SW	PD05SW	PD05SW	PD06SW	PD06SW	PD09SW	PD09SW
Sample Name:			JLW39	JLW40	JLW41	JLW42	JLW43	JLW44	JLW45	JLW46
Sample Type:			Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Collection Date:	RBC Chronic	RBC Chronic, Wildlife	9/11/2020	9/11/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020
SVOCs (ug/L)										
1,1'-Biphenyl	6.5	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
1,2,4,5-Tetrachlorobenzene	8.3	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
1,4-Dioxane	22,000	NV	2 UJ	--	2 UJ	--	2 UJ	--	2 UJ	--
2,3,4,6-Tetrachlorophenol	1	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
2,4,5-Trichlorophenol	1.9	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
2,4,6-Trichlorophenol	4.9	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
2,4-Dichlorophenol	11	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
2,4-Dimethylphenol	15	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
2,4-Dinitrophenol	71	NV	10 UJ	--	10 UJ	--	10 UJ	--	10 UJ	--
2,4-Dinitrotoluene	44	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
2,6-Dinitrotoluene	81	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
2-Chloronaphthalene	NV	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
2-Chlorophenol	18	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
2-Methylnaphthalene	4.7	NV	5 R	--	5 R	--	5 R	--	5 R	--
2-Methylphenol	67	NV	10 UJ	--	10 UJ	--	10 UJ	--	10 UJ	--
2-Nitroaniline	17	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
2-Nitrophenol	73	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
3,3-Dichlorobenzidine	4.5	NV	10 UJ	--	10 UJ	--	10 UJ	--	10 UJ	--
3-Nitroaniline	NV	NV	10 UJ	--	10 UJ	--	10 UJ	--	10 UJ	--
4,6-Dinitro-2-methylphenol	NA	NV	10 UJ	--	10 UJ	--	10 UJ	--	10 UJ	--
4-Bromophenylphenyl ether	1.5	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
4-Chloro-3-methylphenol	1	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
4-Chloroaniline	0.8	NV	10 UJ	--	10 UJ	--	10 UJ	--	10 UJ	--
4-Chlorophenylphenyl ether	NV	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
4-Methylphenol	53	NV	10 UJ	--	10 UJ	--	10 UJ	--	10 UJ	--
4-Nitroaniline	NV	NV	10 UJ	--	10 UJ	--	10 UJ	--	10 UJ	--
4-Nitrophenol	58	NV	10 UJ	--	10 UJ	--	10 UJ	--	10 UJ	--
Acenaphthene	15	NV	5 R	--	5 R	--	5 R	--	5 R	--
Acenaphthylene	13	NV	5 R	--	5 R	--	5 R	--	5 R	--
Acetophenone	NV	NV	10 UJ	--	10 UJ	--	10 UJ	--	10 UJ	--
Anthracene	0.02	NV	5 R	--	5 R	--	5 R	--	5 R	--
Atrazine	0.03	NV	10 UJ	--	10 UJ	--	10 UJ	--	10 UJ	--
Benzaldehyde	140	NV	10 UJ	--	10 UJ	--	10 UJ	--	10 UJ	--
Benzo(a)anthracene	4.7	NV	5 R	--	5 R	--	5 R	--	5 R	--
Benzo(a)pyrene	0.06	NV	5 R	--	5 R	--	5 R	--	5 R	--
Benzo(b)fluoranthene	2.6	NV	5 R	--	5 R	--	5 R	--	5 R	--
Benzo(ghi)perylene	0.012	NV	5 R	--	5 R	--	5 R	--	5 R	--
Benzo(k)fluoranthene	0.06	NV	5 R	--	5 R	--	5 R	--	5 R	--
Bis(2-chloro-1-methylethyl)ether	NV	NV	10 UJ	--	10 UJ	--	10 UJ	--	10 UJ	--
Bis(2-chloroethoxy)methane	NV	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
Bis(2-chloroethyl)ether	NV	NV	10 UJ	--	10 UJ	--	10 UJ	--	10 UJ	--
Bis(2-ethylhexyl)phthalate	8	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
Butylbenzylphthalate	23	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
Caprolactam	NV	NV	10 UJ	--	10 UJ	--	10 UJ	--	10 UJ	--

Location:	DEQ RBC for Freshwater[a][1]		PD01SW	PD01SW	PD05SW	PD05SW	PD06SW	PD06SW	PD09SW	PD09SW
Sample Name:			JLW39	JLW40	JLW41	JLW42	JLW43	JLW44	JLW45	JLW46
Sample Type:			Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Collection Date:	RBC Chronic	RBC Chronic, Wildlife	9/11/2020	9/11/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020	9/12/2020
Carbazole	4	NV	10 UJ	--	10 UJ	--	10 UJ	--	10 UJ	--
Chrysene	4.7	NV	5 R	--	5 R	--	5 R	--	5 R	--
Dibenzo(a,h)anthracene	0.012	NV	5 R	--	5 R	--	5 R	--	5 R	--
Dibenzofuran	4	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
Diethyl phthalate	220	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
Dimethyl phthalate	1100	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
Di-n-butyl phthalate	19	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
Di-n-octyl phthalate	220	NV	10 UJ	--	10 UJ	--	10 UJ	--	10 UJ	--
Fluoranthene	0.8	NV	10 R	--	10 R	--	10 R	--	10 R	--
Fluorene	19	NV	5 R	--	5 R	--	5 R	--	5 R	--
Hexachlorobenzene	0.15	0.0003	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
Hexachlorobutadiene	1	1	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
Hexachlorocyclopentadiene	0.45	NV	10 UJ	--	10 UJ	--	10 UJ	--	10 UJ	--
Hexachloroethane	12	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
Indeno(1,2,3-cd)pyrene	0.012	NV	5 R	--	5 R	--	5 R	--	5 R	--
Isophorone	920	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
Naphthalene	21	NV	5 R	--	5 R	--	5 R	--	5 R	--
Nitrobenzene	230	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
N-Nitrosodiphenylamine	25	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
N-Nitrosodipropylamine	NV	NV	5 UJ	--	5 UJ	--	5 UJ	--	5 UJ	--
Pentachlorophenol	6.7	NV	10 R	--	10 R	--	10 R	--	10 R	--
Phenanthrene	2.3	NV	5 R	--	5 R	--	5 R	--	5 R	--
Phenol	160	NV	10 UJ	--	10 UJ	--	10 UJ	--	10 UJ	--
Pyrene	4.6	NV	5 R	--	5 R	--	5 R	--	5 R	--
SVOCs by SIM (ug/L)										
2-Methylnaphthalene	4.7	NV	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--
Acenaphthene	15	NV	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--
Acenaphthylene	13	NV	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--
Anthracene	0.02	NV	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--
Benzo(a)anthracene	4.7	NV	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--
Benzo(a)pyrene	0.06	NV	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--
Benzo(b)fluoranthene	2.6	NV	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--
Benzo(ghi)perylene	0.012	NV	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--
Benzo(k)fluoranthene	0.06	NV	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--
Chrysene	4.7	NV	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--
Dibenzo(a,h)anthracene	0.012	NV	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--
Fluoranthene	0.8	NV	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--
Fluorene	19	NV	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--
Indeno(1,2,3-cd)pyrene	0.012	NV	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--
Naphthalene	21	NV	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--
Pentachlorophenol	6.7	NV	0.2 U	--	0.2 U	--	0.2 U	--	0.2 U	--
Phenanthrene	2.3	NV	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--
Pyrene	4.6	NV	0.1 U	--	0.1 U	--	0.1 U	--	0.1 U	--

Notes

Shading (color key below) indicates an exceedance of screening criteria; non-detects (U or UJ) and rejected results (R) were not compared with screening levels. Metals results below background concentrations were not compared with screening levels.

When multiple screening levels are exceeded, the result is shaded with the color associated with the highest exceeded screening level.

RBC, freshwater, chronic

RBC, freshwater, chronic, wildlife

-- = not analyzed.

DEQ = Oregon Department of Environmental Quality.

J = the result is estimated.

JQ = result detected above the detection limit but below the contract-required method reporting limit or quantitation limit.

NP = result not provided by data source.

NV = no value.

pg/L = picograms per liter.

R = the data are rejected and unusable for all purposes.

RBC = risk-based concentration.

SIM = selected ion monitoring.

SVOC = semivolatile organic compound.

TEQ = toxicity equivalence.

U = the result is non-detect.

ug/L = micrograms per liter.

UJ = the result is non-detect with an estimated detection limit or reporting limit.

[a]Metals RBCs are adjusted using defaults generally applicable to the Willamette Valley. These include a hardness of 25 mg/L, DOC of 1.25 mg/L, and a pH of 7.0.

[b]Value is for trivalent chromium.

[c]Dioxin/furan TEQs calculated as the sum of each congener concentration multiplied by the corresponding TEF value (avian, fish, or mammal) with each non-detect result also multiplied by one-half.

Reference

[1]DEQ. 2020. *Conducting Ecological Risk Assessments* . Table 2. Oregon Department of Environmental Quality. September.

[2]Van den Berg, M. et al. 1998. *Toxic equivalency factors (TEFs) for PCBs, PCDDs, PCDFs for humans and wildlife.* Environmental Health Perspectives.. 106 No. 12:775–792.

[3]Van den Berg, M. et al. 2006. *The 2005 World Health Organization reevaluation of human and mammalian toxic equivalency factors for dioxins and dioxin-like compounds.* Toxicological Sciences. 93 No. 2:223–241.

Table 7-1
Exposure Point Concentrations - Soil
Wild Rivers Land Trust
Port Orford, Oregon

MAUL FOSTER ALONGI

CPEC	Regional Background[1]	Site-Specific Background Value[a]	EPC (ISM Areas of Interest)	EPC (Discrete)	UCL Method (Discrete)
Metals (mg/kg)					
Antimony	0.59	0.094	4.2	0.886	Gamma Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)
Arsenic	12	4.18	9.88	NC[b]	--
Barium	630	81.3	348.3	276.1	90% Chebyshev (Mean, Sd) UCL
Copper	110	57.3	149.4	91.46	90% Student's-t UCL
Lead	36	15.2	102.2	62.39	90% Chebyshev (Mean, Sd) UCL
Mercury	0.17	0.066	0.2	0.216	90% KM (Chebyshev) UCL
Selenium	0.8	NV	NA	0.63	90% KM (t) UCL
Zinc	140	93.1	306	209.3	90% Chebyshev (Mean, Sd) UCL
Dioxins (pg/g)					
Dioxin/furan TEQ (avian)[c][2]	NV	3.31	27.3	55.4	90% Chebyshev (Mean, Sd) UCL
Dioxin/furan TEQ (mammal)[d][3]	NV	2.97	30.0	52.5	90% KM (Chebyshev) UCL
TPH (mg/kg)					
Total Diesel+Oil[e]	--	NV	NA	147.6	90% KM (t) UCL

Table 7-1
Exposure Point Concentrations - Soil
Wild Rivers Land Trust
Port Orford, Oregon

NOTES:

Areas of decision units are as follows: DU-1 (0.021 acres), DU-2 (0.027 acres), DU-3 (0.014 acres), DU-4 (0.016 acres), DU-5 (0.03 acres), DU-6 (0.077 acres), DU-7 (0.029 acres).

-- = not applicable.

CPEC = chemical of potential ecological concern.

EPC = exposure point concentration.

mg/kg = milligrams per kilogram.

NA = not analyzed.

NC = not calculated.

NV = no value.

pg/g = picograms per gram.

TEQ = toxicity equivalent.

UCL = upper confidence limit.

[a]Site-specific natural background values were obtained from sample DU08SS.

[b]Discrete arsenic concentrations did not exceed the regional background value; therefore, an EPC was not calculated.

[c]Dioxin/furan TEQs calculated as the sum of each detected congener concentration multiplied by the corresponding avian TEF value with non-detect results also multiplied by one-half.

[d]Dioxin/furan TEQs calculated as the sum of each detected congener concentration multiplied by the corresponding mammal TEF value with non-detect results also multiplied by one-half.

[e]Total diesel and oil is the sum of diesel- and lube-oil-range hydrocarbon results.

REFERENCES:

[1]DEQ. 2013. *Development of Oregon Background Metals Concentrations in Soil.* Oregon Department of Environmental Quality. March.

[2]Van den Berg, M. et al. 1998. *Toxic equivalency factors (TEFs) for PCBs, PCDDs, PCDFs for humans and wildlife.* Environmental Health Perspectives. 106 No. 12:775–792.

[3]Van den Berg, M. et al. 2006. *The 2005 World Health Organization reevaluation of human and mammalian toxic equivalency factors for dioxins and dioxin-like compounds.* Toxicological Sciences. 93 No. 2:223–241.

Table 7-2
Exposure Point Concentrations - Sediment
Wild Rivers Land Trust
Port Orford, Oregon

CPEC	Regional Background[1]	Site-Specific Background Value[a]	EPC	UCL Method
Metals (mg/kg)				
Lead	36	6.9	23.36	90% Adjusted Gamma UCL
Mercury	0.17	0.18 U	0.177	90% KM (t) UCL
Zinc	140	105	150	90% Student's-t UCL
Dioxins (pg/g)				
2,3,7,8-TCDD	--	0.37 JQ	4.16	90% Student's-t UCL
1,2,3,7,8-PeCDD	--	0.31 JQ	12.8	90% Hall's Bootstrap UCL
1,2,3,4,7,8-HxCDD	--	0.52 U	18.7	90% Hall's Bootstrap UCL
1,2,3,6,7,8-HxCDD	--	0.94 JQ	75.6	90% Hall's Bootstrap UCL
1,2,3,7,8,9-HxCDD	--	0.55 U	76.9	90% Adjusted Gamma UCL
1,2,3,4,6,7,8-HpCDD	--	16	1,545	90% Hall's Bootstrap UCL
OCDD	--	120	15,068	90% Hall's Bootstrap UCL
2,3,7,8-TCDF	--	0.18 JQ	2.98	90% Adjusted Gamma UCL
1,2,3,7,8-PeCDF	--	0.3 U	10.92	90% KM (Chebyshev) UCL
2,3,4,7,8-PeCDF	--	0.32 JQ	16.8	90% Hall's Bootstrap UCL
1,2,3,4,7,8-HxCDF	--	0.44 U	40.04	90% Hall's Bootstrap UCL
1,2,3,6,7,8-HxCDF	--	0.37 U	31.3	90% KM (Chebyshev) UCL
1,2,3,7,8,9-HxCDF	--	0.47 U	22.44	90% KM (Chebyshev) UCL
2,3,4,6,7,8-HxCDF	--	0.44 U	37.06	KM Bootstrap t UCL
1,2,3,4,6,7,8-HpCDF	--	3.7 JQ	410.8	90% Hall's Bootstrap UCL
1,2,3,4,7,8,9-HpCDF	--	0.36 U	30.8	90% Hall's Bootstrap UCL
OCDF	--	7.5 JQ	1153	90% Hall's Bootstrap UCL
Dioxin/furan TEQ (Bird)[b, c][2]	--	1.4 J	57.16	90% Hall's Bootstrap UCL
Dioxin/furan TEQ (Fish)[b,c][2]	--	1.2 J	53.07	90% Hall's Bootstrap UCL
Dioxin/furan TEQ (Mammal)[b,c][2]	--	1.3 J	69.72	90% Hall's Bootstrap UCL

Table 7-2
Exposure Point Concentrations - Sediment
Wild Rivers Land Trust
Port Orford, Oregon

CPEC	Regional Background[1]	Site-Specific Background Value[a]	EPC	UCL Method
SVOCs by SIM (mg/kg)				
Total LPAH	--	0.024 J	0.0684	90% Student's-t UCL

NOTES:

-- = not applicable.

CPEC = chemical of potential ecological concern.

EPC = exposure point concentration.

mg/kg = milligrams per kilogram.

pg/g = picograms per gram.

TEQ = toxicity equivalent.

[a]Site-specific natural background values were obtained from sample PD09SD.

[b]Dioxin/furan TEQs calculated as the sum of each congener concentration multiplied by the corresponding TEF value (avian, fish, or mammal) with each non-detect result also multiplied by one-half.

[c]Dioxin/furan TEQs are compared to bioaccumulative sediment screening levels for the same organism group.

REFERENCES:

[1]DEQ. 2013. *Development of Oregon Background Metals Concentrations in Soil.* Oregon Department of Environmental Quality. March.

[2]DEQ. 2020. Guidance for Assessing Bioaccumulative Chemicals of Concern in Sediment. Table A-5b. Oregon Department of Environmental Quality. October.

Table 7-3
Fish Risk Model—Sediment Bioaccumulation
Wild Rivers Land Trust
Port Orford, Oregon

MAUL FOSTER ALONG

CPEC	SLf (mg/kg)	
	Bagley Creek and Ponds	
Model Results		
2,3,7,8-TCDD	1.7E-05	
1,2,3,7,8-PeCDD	5.0E-04	
1,2,3,4,7,8-HxCDD	1.0E-03	
1,2,3,6,7,8-HxCDD	5.0E-02	
1,2,3,7,8,9-HxCDD	5.0E-02	
1,2,3,4,6,7,8-HpCDD	1.3E+01	
OCDD	1.3E+02	
2,3,7,8-TCDF	2.8E-03	
1,2,3,7,8-PeCDF	2.8E-03	
2,3,4,7,8-PeCDF	3.4E-05	
1,2,3,4,7,8-HxCDF	5.0E-03	
1,2,3,6,7,8-HxCDF	5.0E-03	
1,2,3,7,8,9-HxCDF	5.0E-03	
2,3,4,6,7,8-HxCDF	5.0E-03	
1,2,3,4,6,7,8-HpCDF	1.3E+00	
1,2,3,4,7,8,9-HpCDF	1.3E+00	
OCDF	1.3E+02	
General Model Parameters		
Parameter	Description	Value
SLf	Sediment bioaccumulation SL for fish (mg/kg)	See table above
SU	Site-use factor of representative fish species	0.2
f(oc)	Fraction of total organic carbon in sediment (unitless)	0.0643
f(l)—whole	Fraction of organism lipid content of whole body wet weight (unitless)	0.054

Table 7-3
Fish Risk Model—Sediment Bioaccumulation
Wild Rivers Land Trust
Port Orford, Oregon

MAUL FOSTER ALONG

Chemical-Specific Model Parameters

CPEC	CTL (mg/kg)[(a)]	Biota-sediment accumulation factor (kg sediment organic carbon / kg organism lipid)	Toxic Equivalency Factor (Fish)
2,3,7,8-TCDD	6.4E-06	2.268	1
1,2,3,7,8-PeCDD	6.4E-06	0.076	1
1,2,3,4,7,8-HxCDD	1.3E-05	0.076	0.5
1,2,3,6,7,8-HxCDD	6.4E-04	0.076	0.01
1,2,3,7,8,9-HxCDD	6.4E-04	0.076	0.01
1,2,3,4,6,7,8-HpCDD	6.4E-03	0.003	0.001
OCDD	6.4E-02	0.003	0.0001
2,3,7,8-TCDF	1.3E-04	0.27	0.05
1,2,3,7,8-PeCDF	1.3E-04	0.27	0.05
2,3,4,7,8-PeCDF	1.3E-05	2.268	0.5
1,2,3,4,7,8-HxCDF	6.4E-05	0.076	0.1
1,2,3,6,7,8-HxCDF	6.4E-05	0.076	0.1
1,2,3,7,8,9-HxCDF	6.4E-05	0.076	0.1
2,3,4,6,7,8-HxCDF	6.4E-05	0.076	0.1
1,2,3,4,6,7,8-HpCDF	6.4E-04	0.003	0.01
1,2,3,4,7,8,9-HpCDF	6.4E-04	0.003	0.01
OCDF	6.4E-02	0.003	0.0001

NOTES:
-- = not evaluated.
CPEC = chemical of potential ecological concern.
CTL = critical tissue level.
kg = kilogram(s).
mg/kg = milligrams per kilogram.
SL = screening level.
[(a)]For dioxins, the CTL is calculated as the CTL for 2,3,7,8-TCDD divided by the toxic equivalency factor.

Table 7-4
Bird Risk Model—Sediment Bioaccumulation
Wild Rivers Land Trust
Port Orford, Oregon

MAUL FOSTER ALONGI

CPEC	Acceptable tissue level (mg/kg)	Acceptable tissue level for developing egg (mg/kg)[a]	SLb (mg/kg)[b]
			Bagley Creek and Ponds
Model Results			
2,3,7,8-TCDD	4.0E-05	4.0E-05	4.5E-04
1,2,3,7,8-PeCDD	4.0E-05	4.0E-05	1.3E-02
1,2,3,4,7,8-HxCDD	8.0E-04	8.0E-04	2.7E-01
1,2,3,6,7,8-HxCDD	4.0E-03	4.0E-03	1.3E+00
1,2,3,7,8,9-HxCDD	4.0E-04	4.0E-04	1.3E-01
1,2,3,4,6,7,8-HpCDD	4.0E-02	4.0E-02	3.4E+02
OCDD	4.0E-01	4.0E-01	3.4E+03
2,3,7,8-TCDF	4.0E-05	4.0E-05	3.8E-03
1,2,3,7,8-PeCDF	4.0E-04	4.0E-04	3.8E-02
2,3,4,7,8-PeCDF	4.0E-05	4.0E-05	4.5E-04
1,2,3,4,7,8-HxCDF	4.0E-04	4.0E-04	1.3E-01
1,2,3,6,7,8-HxCDF	4.0E-04	4.0E-04	1.3E-01
1,2,3,7,8,9-HxCDF	4.0E-04	4.0E-04	1.3E-01
2,3,4,6,7,8-HxCDF	4.0E-04	4.0E-04	1.3E-01
1,2,3,4,6,7,8-HpCDF	4.0E-03	4.0E-03	3.4E+01
1,2,3,4,7,8,9-HpCDF	4.0E-03	4.0E-03	3.4E+01
OCDF	4.0E-01	4.0E-01	3.4E+03

Table 7-4
Bird Risk Model—Sediment Bioaccumulation
Wild Rivers Land Trust
Port Orford, Oregon

MAUL FOSTER ALONGI

General Model Parameters		
Parameter	Description	Value
SLb	Sediment bioaccumulation SL for birds (mg/kg)	See table above
IR	Fish ingestion rate for heron (kg/day)	0.42
BW	Body weight for heron (kg)	2.39
SU	Site-use factor of representative bird species	0.05
f(oc)	Fraction of total organic carbon in sediment (unitless)	0.0643
f(l)—whole	Fraction of organism lipid content of whole body wet weight (unitless)	0.05

Table 7-4
Bird Risk Model—Sediment Bioaccumulation
Wild Rivers Land Trust
Port Orford, Oregon

MAUL FOSTER ALONGI

Chemical-Specific Model Parameters				
CPEC	Lowest observed adverse effects level (mg/kg-day)	Lowest observed adverse effects level for egg development (mg/kg-day)[c]	Biota-sediment accumulation factor (kg sediment organic carbon / kg organism lipid)	Toxic Equivalency Factor (Bird)
2,3,7,8-TCDD	7.0E-06	4.0E-04	2.268	1
1,2,3,7,8-PeCDD	7.0E-06	4.0E-04	0.076	1
1,2,3,4,7,8-HxCDD	1.4E-04	8.0E-03	0.076	0.05
1,2,3,6,7,8-HxCDD	7.0E-04	4.0E-02	0.076	0.01
1,2,3,7,8,9-HxCDD	7.0E-05	4.0E-03	0.076	0.1
1,2,3,4,6,7,8-HpCDD	7.0E-03	4.0E-01	0.003	0.001
OCDD	7.0E-02	4.0E+00	0.003	0.0001
2,3,7,8-TCDF	7.0E-06	4.0E-04	0.27	1
1,2,3,7,8-PeCDF	7.0E-05	4.0E-03	0.27	0.1
2,3,4,7,8-PeCDF	7.0E-06	4.0E-04	2.268	1
1,2,3,4,7,8-HxCDF	7.0E-05	4.0E-03	0.076	0.1
1,2,3,6,7,8-HxCDF	7.0E-05	4.0E-03	0.076	0.1
1,2,3,7,8,9-HxCDF	7.0E-05	4.0E-03	0.076	0.1
2,3,4,6,7,8-HxCDF	7.0E-05	4.0E-03	0.076	0.1
1,2,3,4,6,7,8-HpCDF	7.0E-04	4.0E-02	0.003	0.01
1,2,3,4,7,8,9-HpCDF	7.0E-04	4.0E-02	0.003	0.01
OCDF	7.0E-02	4.0E+00	0.003	0.0001

Table 7-4
Bird Risk Model—Sediment Bioaccumulation
Wild Rivers Land Trust
Port Orford, Oregon

NOTES:
-- = not evaluated.
CPEC = chemical of potential ecological concern.
kg = kilogram(s).
kg/day = kilograms per day.
mg/kg = milligrams per kilogram.
mg/kg-day = milligrams per kilogram per day.
SL = screening level.
[a]See text for derivation.
[b]Calculated using the acceptable tissue level for developing eggs, where available.
[c]For dioxins, the values are calculated as the value for 2,3,7,8-TCDD divided by the toxic equivalency factor.

Table 7-5
Mammal Risk Model—Sediment Bioaccumulation
Wild Rivers Land Trust
Port Orford, Oregon

CPEC	Acceptable tissue level (mg/kg)	SLb (mg/kg)
		Bagley Creek and Ponds
Model Results		
2,3,7,8-TCDD	1.6E-05	3.7E-05
1,2,3,7,8-PeCDD	1.6E-05	1.1E-03
1,2,3,4,7,8-HxCDD	1.6E-04	1.1E-02
1,2,3,6,7,8-HxCDD	1.6E-04	1.1E-02
1,2,3,7,8,9-HxCDD	1.6E-04	1.1E-02
1,2,3,4,6,7,8-HpCDD	1.6E-03	2.8E+00
OCDD	5.4E-02	9.3E+01
2,3,7,8-TCDF	1.6E-04	3.1E-03
1,2,3,7,8-PeCDF	5.4E-04	1.0E-02
2,3,4,7,8-PeCDF	5.4E-05	1.2E-04
1,2,3,4,7,8-HxCDF	1.6E-04	1.1E-02
1,2,3,6,7,8-HxCDF	1.6E-04	1.1E-02
1,2,3,7,8,9-HxCDF	1.6E-04	1.1E-02
2,3,4,6,7,8-HxCDF	1.6E-04	1.1E-02
1,2,3,4,6,7,8-HpCDF	1.6E-03	2.8E+00
1,2,3,4,7,8,9-HpCDF	1.6E-03	2.8E+00
OCDF	5.4E-02	9.3E+01

Table 7-5
Mammal Risk Model—Sediment Bioaccumulation
Wild Rivers Land Trust
Port Orford, Oregon

MAUL FOSTER ALONGI

General Model Parameters		
Parameter	Description	Value
SLb	Sediment bioaccumulation SL for mammals (mg/kg)	See table above
IR	Fish ingestion rate for mink (kg/day)	0.137
BW	Body weight for mink (kg)	1
SU	Site-use factor of representative bird species	0.25
f(oc)	Fraction of total organic carbon in sediment (unitless)	0.0643
f(l)—whole	Fraction of organism lipid content of whole body wet weight (unitless)	0.05

Table 7-5
Mammal Risk Model—Sediment Bioaccumulation
Wild Rivers Land Trust
Port Orford, Oregon

Chemical-Specific Model Parameters

CPEC	Lowest observed adverse effects level (mg/kg-day)	Biota-sediment accumulation factor (kg sediment organic carbon / kg organism lipid)	Toxic Equivalency Factor (Mammals)
2,3,7,8-TCDD	2.2E-06	2.268	1
1,2,3,7,8-PeCDD	2.2E-06	0.076	1
1,2,3,4,7,8-HxCDD	2.2E-05	0.076	0.1
1,2,3,6,7,8-HxCDD	2.2E-05	0.076	0.1
1,2,3,7,8,9-HxCDD	2.2E-05	0.076	0.1
1,2,3,4,6,7,8-HpCDD	2.2E-04	0.003	0.01
OCDD	7.3E-03	0.003	0.0003
2,3,7,8-TCDF	2.2E-05	0.27	0.1
1,2,3,7,8-PeCDF	7.3E-05	0.27	0.03
2,3,4,7,8-PeCDF	7.3E-06	2.268	0.3
1,2,3,4,7,8-HxCDF	2.2E-05	0.076	0.1
1,2,3,6,7,8-HxCDF	2.2E-05	0.076	0.1
1,2,3,7,8,9-HxCDF	2.2E-05	0.076	0.1
2,3,4,6,7,8-HxCDF	2.2E-05	0.076	0.1
1,2,3,4,6,7,8-HpCDF	2.2E-04	0.003	0.01
1,2,3,4,7,8,9-HpCDF	2.2E-04	0.003	0.01
OCDF	7.3E-03	0.003	0.0003

Table 7-5
Mammal Risk Model—Sediment Bioaccumulation
Wild Rivers Land Trust
Port Orford, Oregon

NOTES:
-- = not evaluated.
CPEC = chemical of potential ecological concern.
kg = kilogram(s).
kg/day = kilograms per day.
mg/kg = milligrams per kilogram.
mg/kg-day = milligrams per kilogram per day.
SL = screening level.

Table 7-6
Risk Estimates—Soil Exposure (Plants)
Wild Rivers Land Trust
Port Orford, Oregon

MAUL FOSTER ALONG

CPEC	Soil Screening Level (Plants)	EPC[a]	RS	Exceeds Acceptable Risk Level
Discrete Samples				
Metals (mg/kg)				
Antimony	58	0.886	1.5E-02	No
Copper	490	91.46	1.9E-01	No
Lead	570	62.39	1.1E-01	No
Mercury	64	0.216	3.4E-03	No
Zinc	810	209.3	2.6E-01	No
Dioxins (pg/g)				
TCDD TEQ	--	--	--	--
TPH (mg/kg)				
Total Diesel+Oil	1600	147.6	9.2E-02	No
		Cumulative RS	6.7E-01	
ISM Samples (Areas of Interest)				
Metals (mg/kg)				
Antimony	58	4.2	7.3E-02	No
Copper	490	149.4	3.0E-01	No
Lead	570	102.2	1.8E-01	No
Mercury	64	0.2	3.1E-03	No
Zinc	810	305.7	3.8E-01	No
Dioxins (pg/g)				
TCDD TEQ	--	--	--	--
		Cumulative RS	9.4E-01	

NOTES:
-- = not available.
CPEC = chemical of potential ecological concern.
EPC = exposure point concentration.
mg/kg = milligrams per kilogram.
RS = risk score.
pg/g = picograms per gram.
TEQ = toxicity equivalence.
[a]See text for basis.

Table 7-7
Risk Estimates—Soil Exposure (Invertebrates)
Wild Rivers Land Trust
Port Orford, Oregon

CPEC	Soil Screening Level (Invertebrates)	EPC[a]	RS	Exceeds Acceptable Risk Level
Discrete Samples				
Metals (mg/kg)				
Antimony	780	0.847	1.1E-03	No
Copper	530	90.02	1.7E-01	No
Lead	8400	60.54	7.2E-03	No
Mercury	390	0.215	5.5E-04	No
Zinc	930	204.4	2.2E-01	No
Dioxins (pg/g)				
TCDD TEQ	10000000	52.5	5.3E-06	No
TPH (mg/kg)				
Total Diesel+Oil	260	147.6	5.7E-01	No
		Cumulative RS	9.7E-01	
ISM Samples (Areas of Interest)				
Metals (mg/kg)				
Antimony	780	4.2	5.4E-03	No
Copper	530	149.4	2.8E-01	No
Lead	8400	102.2	1.2E-02	No
Mercury	390	0.2	5.2E-04	No
Zinc	930	305.7	3.3E-01	No
Dioxins (pg/g)				
TCDD TEQ	10000000	30	3.0E-06	No
		Cumulative RS	6.3E-01	

NOTES:
-- = not available.
CPEC = chemical of potential ecological concern.
EPC = exposure point concentration.
mg/kg = milligrams per kilogram.
RS = risk score.
pg/g = picograms per gram.
TEQ = toxicity equivalence.
[a]See text for details.

Table 7-8
Risk Estimates—Soil Exposure (Birds)
Wild Rivers Land Trust
Port Orford, Oregon

CPEC	Soil Screening Level (Birds)	EPC[a]	RS	Exceeds Acceptable Risk Level
Discrete Samples				
Metals (mg/kg)				
Antimony	--	--	--	--
Copper	2200	90.02	4.1E-02	No
Lead	1600	60.54	3.8E-02	No
Mercury	14	0.215	1.5E-02	No
Zinc	1900	204.4	1.1E-01	No
Dioxins (pg/g)				
TCDD TEQ	--	--	--	--
TPH (mg/kg)				
Total Diesel+Oil	6000	147.6	2.5E-02	No
		Cumulative RS	2.3E-01	
ISM Samples (Areas of Interest)				
Metals (mg/kg)				
Antimony	--	--	--	--
Copper	2200	149.4	6.8E-02	No
Lead	1600	102.2	6.4E-02	No
Mercury	14	0.2	1.4E-02	No
Zinc	1900	305.7	1.6E-01	No
Dioxins (pg/g)				
TCDD TEQ	--	--	--	--
		Cumulative RS	3.1E-01	

NOTES:
-- = not available.
CPEC = chemical of potential ecological concern.
EPC = exposure point concentration.
mg/kg = milligrams per kilogram.
RS = risk score.
pg/g = picograms per gram.
TEQ = toxicity equivalence.
[a]See text for basis.

Table 7-9
Risk Estimates—Soil Exposure (Mammals)
Wild Rivers Land Trust
Port Orford, Oregon

CPEC	Soil Screening Level (Mammals)	EPC[(a)]	RS	Exceeds Acceptable Risk Level
Discrete Samples				
Metals (mg/kg)				
Antimony	95000	0.847	8.9E-06	No
Copper	6700	90.02	1.3E-02	No
Lead	16000	60.54	3.8E-03	No
Mercury	820	0.215	2.6E-04	No
Zinc	5400	204.4	3.8E-02	No
Dioxins (pg/g)				
TCDD TEQ	11	52.5	4.8E+00	**Yes**
TPH (mg/kg)				
Total Diesel+Oil	6000	147.6	2.5E-02	No
		Cumulative RS	4.9E+00	
ISM Samples (Areas of Interest)				
Metals (mg/kg)				
Antimony	95000	4.2	4.4E-05	No
Copper	6700	149.4	2.2E-02	No
Lead	16000	102.2	6.4E-03	No
Mercury	820	0.2	2.5E-04	No
Zinc	5400	305.7	5.7E-02	No
Dioxins (pg/g)				
TCDD TEQ	11	30	2.7E+00	**Yes**
		Cumulative RS	2.8E+00	

NOTES:
-- = not available.
CPEC = chemical of potential ecological concern.
EPC = exposure point concentration.
mg/kg = milligrams per kilogram.
RS = risk score.
pg/g = picograms per gram.
TEQ = toxicity equivalence.
[(a)]See text for basis.

Table 7-10
Risk Estimates—Sediment Direct-Contact Toxicity
Wild Rivers Land Trust
Port Orford, Oregon

Analyte	Probable Effects Sediment Screening Level	Basis	EPC	RS	Exceeds Acceptable Risk Level
Metals (mg/kg)					
Mercury	1.06	MacDonald (2000) PEC	0.177	1.7E-01	Yes, Cumulative Risk
Zinc	459	MacDonald (2000) PEC	150	3.3E-01	Yes, Cumulative Risk
Dioxins (pg/g)					
TCDD TEQ	21.5	NOAA SQUIRT probable effects level	69.7	3.2E+00	**Yes**
SVOCs by SIM (mg/kg)					
Total LPAH	5.3	NOAA SQUIRT upper effects level	0.1	1.3E-02	No
			Cumulative RS	3.7E+00	

NOTES:
EPC = exposure point concentration.
pg/g = picograms per gram.
RS = risk score.
TEQ = toxicity equivalence.

Table 7-11
Risk Estimates—Bioaccumulation (Fish)
Wild Rivers Land Trust
Port Orford, Oregon

CPEC	Bioaccumulation Screening Level	EPC	RS	Exceeds Acceptable Risk Level
Metals (mg/kg)				
Mercury	0.17	0.177	1.0E+00	No
PCDDs/Fs (pg/g)				
2,3,7,8-TCDD	1.7E+01	4.2E+00	2.5E-01	No
1,2,3,7,8-PeCDD	5.0E+02	1.3E+01	2.6E-02	No
1,2,3,4,7,8-HxCDD	1.0E+03	1.9E+01	1.9E-02	No
1,2,3,6,7,8-HxCDD	5.0E+04	7.6E+01	1.5E-03	No
1,2,3,7,8,9-HxCDD	5.0E+04	7.7E+01	1.5E-03	No
1,2,3,4,6,7,8-HpCDD	1.3E+07	1.5E+03	1.2E-04	No
OCDD	1.3E+08	1.5E+04	1.2E-04	No
2,3,7,8-TCDF	2.8E+03	3.0E+00	1.1E-03	No
1,2,3,7,8-PeCDF	2.8E+03	1.1E+01	3.9E-03	No
2,3,4,7,8-PeCDF	3.4E+01	1.7E+01	5.0E-01	No
1,2,3,4,7,8-HxCDF	5.0E+03	4.0E+01	8.0E-03	No
1,2,3,6,7,8-HxCDF	5.0E+03	3.1E+01	6.2E-03	No
1,2,3,7,8,9-HxCDF	5.0E+03	2.2E+01	4.5E-03	No
2,3,4,6,7,8-HxCDF	5.0E+03	3.7E+01	7.4E-03	No
1,2,3,4,6,7,8-HpCDF	1.3E+06	4.1E+02	3.2E-04	No
1,2,3,4,7,8,9-HpCDF	1.3E+06	3.1E+01	2.4E-05	No
OCDF	1.3E+08	1.2E+03	9.1E-06	No
Cumulative Risk Estimate				
Cumulative RS	8.3E-01			

NOTES:
-- = not evaluated.
CPEC = chemical of potential ecological concern.
EPC = exposure point concentration.
MDL = method detection limit.
mg/kg = milligrams per kilogram.
PCDDs/Fs = polychlorinated dibenzodioxins/furans.
pg/g = picograms per gram.
RS = risk score.
U = non-detect.

Table 7-12
Risk Estimates—Bioaccumulation (Birds)
Wild Rivers Land Trust
Port Orford, Oregon

CPEC	Bioaccumulation Screening Level	EPC	RS	Exceeds Acceptable Risk Level
Metals (mg/kg)				
Mercury	0.17	0.177	1.0E+00	No
PCDDs/Fs (pg/g)				
2,3,7,8-TCDD	4.5E+02	4.2E+00	9.2E-03	No
1,2,3,7,8-PeCDD	1.3E+04	1.3E+01	9.5E-04	No
1,2,3,4,7,8-HxCDD	2.7E+05	1.9E+01	6.9E-05	No
1,2,3,6,7,8-HxCDD	1.3E+06	7.6E+01	5.6E-05	No
1,2,3,7,8,9-HxCDD	1.3E+05	7.7E+01	5.7E-04	No
1,2,3,4,6,7,8-HpCDD	3.4E+08	1.5E+03	4.5E-06	No
OCDD	3.4E+09	1.5E+04	4.4E-06	No
2,3,7,8-TCDF	3.8E+03	3.0E+00	7.8E-04	No
1,2,3,7,8-PeCDF	3.8E+04	1.1E+01	2.9E-04	No
2,3,4,7,8-PeCDF	4.5E+02	1.7E+01	3.7E-02	No
1,2,3,4,7,8-HxCDF	1.3E+05	4.0E+01	3.0E-04	No
1,2,3,6,7,8-HxCDF	1.3E+05	3.1E+01	2.3E-04	No
1,2,3,7,8,9-HxCDF	1.3E+05	2.2E+01	1.7E-04	No
2,3,4,6,7,8-HxCDF	1.3E+05	3.7E+01	2.7E-04	No
1,2,3,4,6,7,8-HpCDF	3.4E+07	4.1E+02	1.2E-05	No
1,2,3,4,7,8,9-HpCDF	3.4E+07	3.1E+01	9.0E-07	No
OCDF	3.4E+09	1.2E+03	3.4E-07	No
Cumulative Risk Estimate				
Cumulative RS	5.0E-02			

NOTES:

-- = not evaluated.

CPEC = chemical of potential ecological concern.

EPC = exposure point concentration.

MDL = method detection limit.

mg/kg = milligrams per kilogram.

PCDDs/Fs = polychlorinated dibenzodioxins/furans.

pg/g = picograms per gram.

RS = risk score.

U = non-detect.

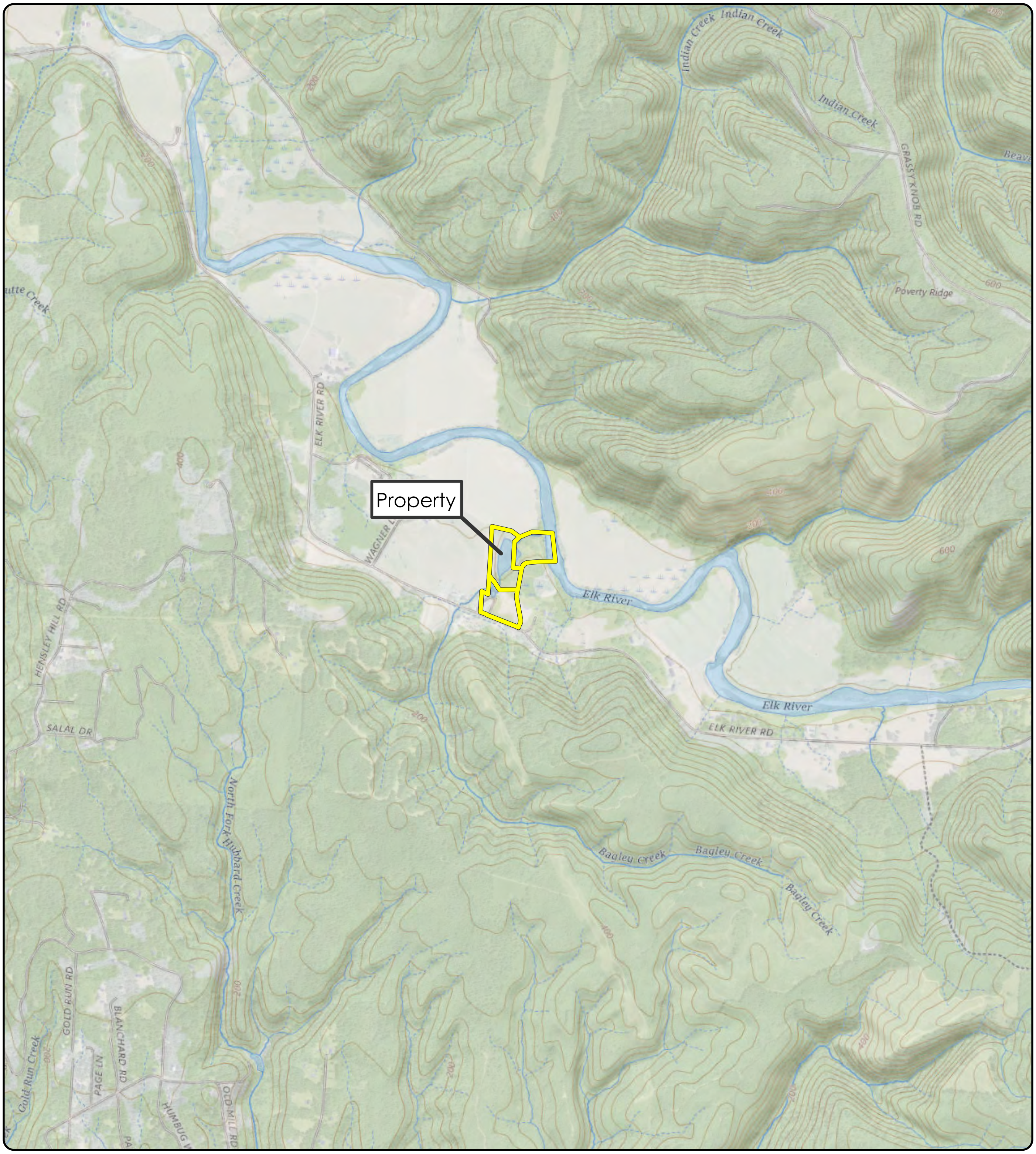
Table 7-13
Risk Estimates—Bioaccumulation (Mammals)
Wild Rivers Land Trust
Port Orford, Oregon

CPEC	Bioaccumulation Screening Level	EPC	RS	Exceeds Acceptable Risk Level
Metals (mg/kg)				
Mercury	0.17	0.177	1.0E+00	No
PCDDs/Fs (pg/g)				
2,3,7,8-TCDD	3.7E+01	4.2E+00	1.1E-01	No
1,2,3,7,8-PeCDD	1.1E+03	1.3E+01	1.2E-02	No
1,2,3,4,7,8-HxCDD	1.1E+04	1.9E+01	1.7E-03	No
1,2,3,6,7,8-HxCDD	1.1E+04	7.6E+01	6.9E-03	No
1,2,3,7,8,9-HxCDD	1.1E+04	7.7E+01	7.0E-03	No
1,2,3,4,6,7,8-HpCDD	2.8E+06	1.5E+03	5.5E-04	No
OCDD	9.3E+07	1.5E+04	1.6E-04	No
2,3,7,8-TCDF	3.1E+03	3.0E+00	9.6E-04	No
1,2,3,7,8-PeCDF	1.0E+04	1.1E+01	1.1E-03	No
2,3,4,7,8-PeCDF	1.2E+02	1.7E+01	1.4E-01	No
1,2,3,4,7,8-HxCDF	1.1E+04	4.0E+01	3.6E-03	No
1,2,3,6,7,8-HxCDF	1.1E+04	3.1E+01	2.8E-03	No
1,2,3,7,8,9-HxCDF	1.1E+04	2.2E+01	2.0E-03	No
2,3,4,6,7,8-HxCDF	1.1E+04	3.7E+01	3.4E-03	No
1,2,3,4,6,7,8-HpCDF	2.8E+06	4.1E+02	1.5E-04	No
1,2,3,4,7,8,9-HpCDF	2.8E+06	3.1E+01	1.1E-05	No
OCDF	9.3E+07	1.2E+03	1.2E-05	No
Cumulative Risk Estimate				
Cumulative RS	2.9E-01			

Table 7-13
Risk Estimates—Bioaccumulation (Mammals)
Wild Rivers Land Trust
Port Orford, Oregon

NOTES:
-- = not evaluated.
CPEC = chemical of potential ecological concern.
EPC = exposure point concentration.
MDL = method detection limit.
mg/kg = milligrams per kilogram.
PCDDs/Fs = polychlorinated dibenzodioxins/furans.
pg/g = picograms per gram.
RS = risk score.
U = non-detect.

FIGURES



Notes:
U.S. Geological Survey 7.5-minute topographic quadrangle: Sixes. Township 32 south, range 15 west, section 27.

Data Source:
Property boundary obtained from Curry County.

Legend

Property Boundary

Figure 1-1
Vicinity Map

Wild Rivers Land Trust
Port Orford, OR

0 1,000 2,000
Feet

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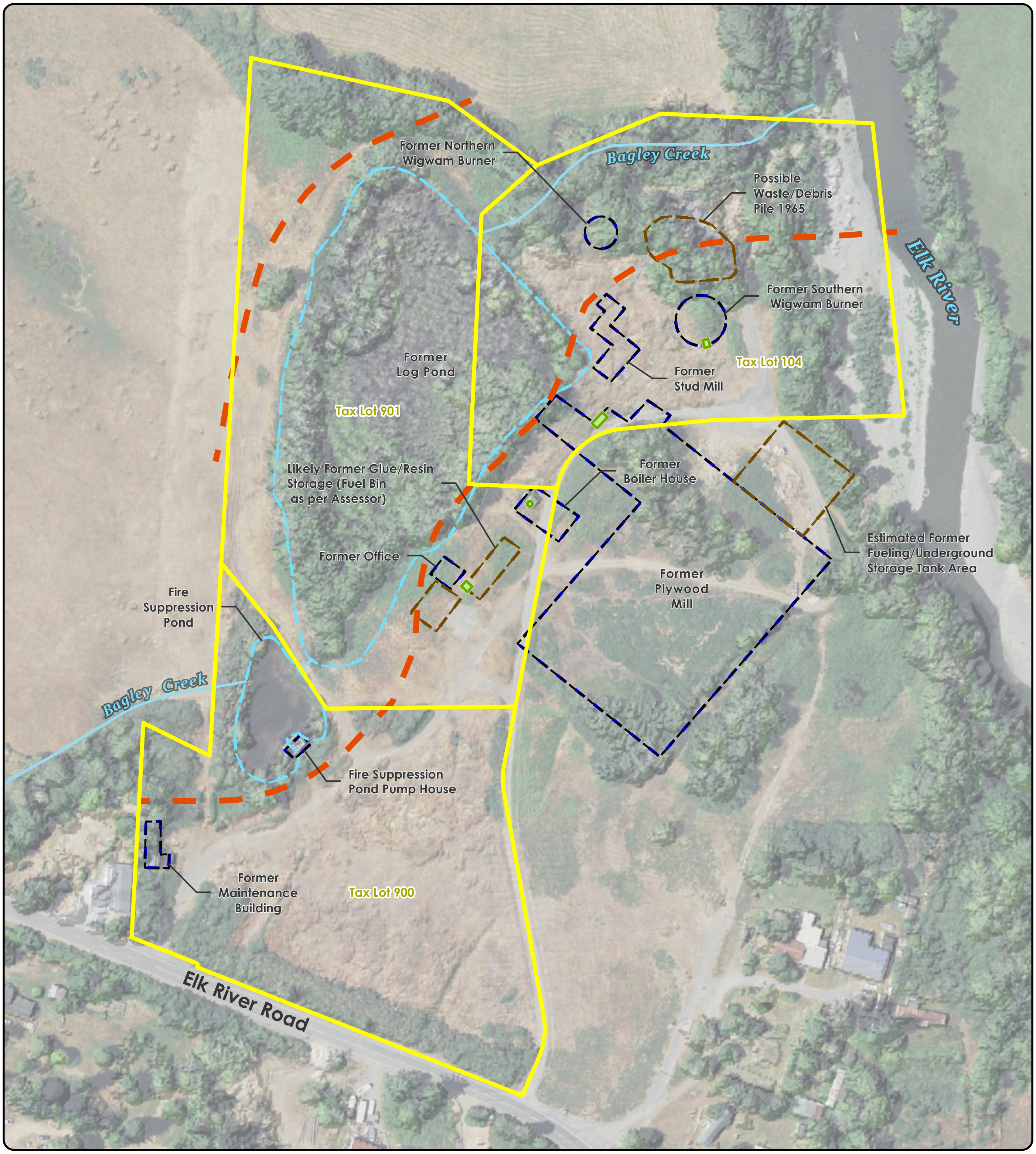
Path: X:\0_MFA_Projects\M2272\01\001\Projects\Pro\M2272_01_001.aprx
Print Date: 7/25/2022
Reviewed By: cwise
Produced By: jroberts
Project: M2272.01.001



Notes:
All site features are approximate.

Data Sources:
Creek, possible restoration area, geophysical anomalies, and historic site features from HAI (2019). Property boundary obtained from Oregon Department of Revenue (2019).

Legend

- Geophysical Anomaly
- Building
- Other
- Pond
- Creek
- Possible Restoration Area
- Site Tax Lots

Figure 2-1
Historical Site Features

Wild Rivers Land Trust
Port Orford, OR

0 100 200
Feet

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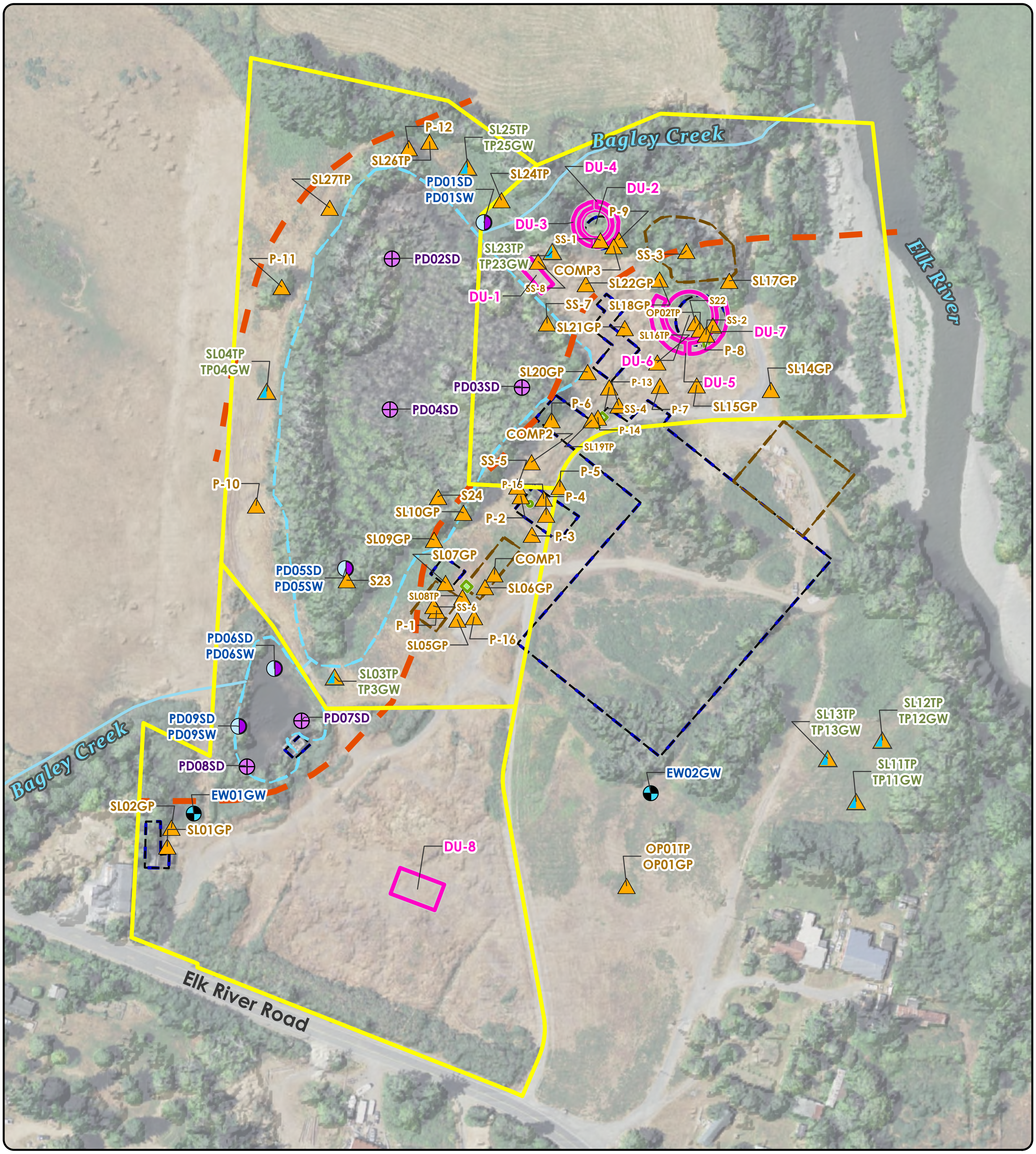

Notes:
All site features are approximate.

Data Sources:
Historic sample locations from WSP (2020) and Hahn and Associates (2018). Creek, possible restoration area, geophysical anomalies, and historic site features from HAI (2019). Property boundary obtained from Oregon Department of Revenue (2019).

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Legend

- Soil Sample
- Sediment Sample
- Groundwater Sample
- Soil and Groundwater Sample
- Sediment and Surface Water Sample
- Decision Units
- Site Tax Lots
- Creek
- Possible Restoration Area

Historical Site Features

- Geophysical Anomaly
- Building
- Other
- Pond

0 100 200
Feet

Figure 2-2
Historical Sample Locations

Wild Rivers Land Trust
Port Orford, OR

Path: X:\0_MFA_Projects\M2272\01\001\Projects\Pro\M2272_01_001.aprx
Print Date: 7/28/2022
Reviewed By: cwise
Produced By: jroberts
Project: M2272.01.001

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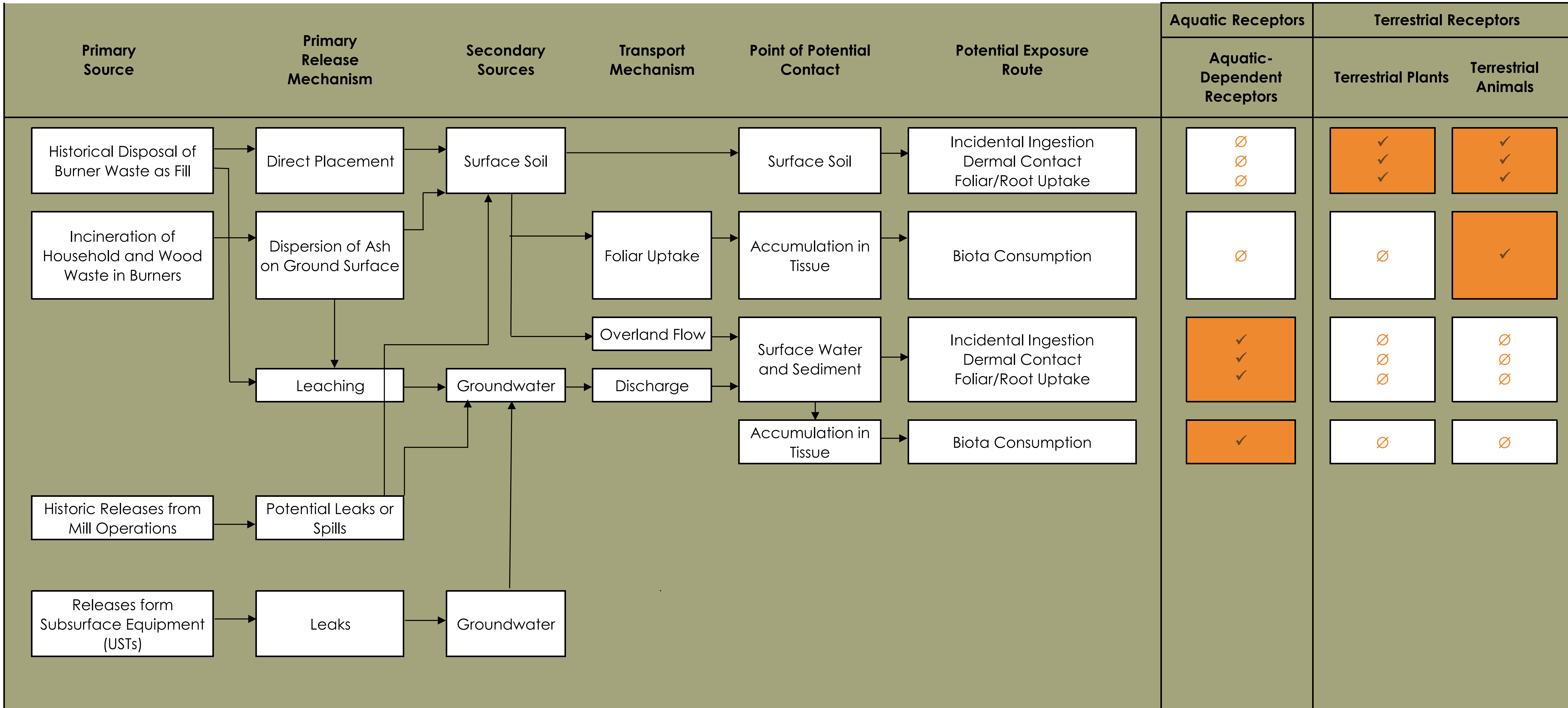
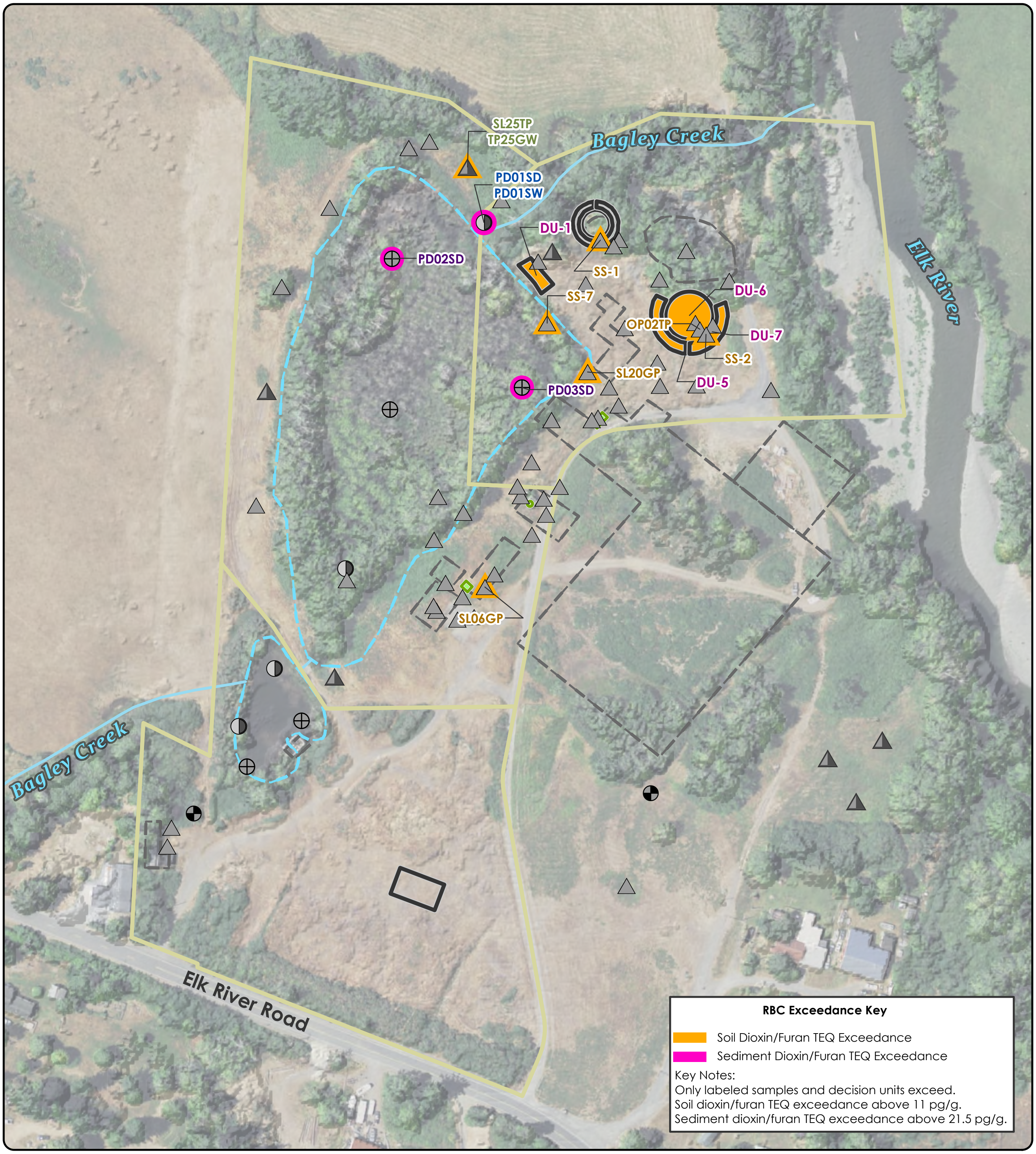
Figure 4-1
Ecological Conceptual Site Model
Wild River Land Trust
Port Orford, Oregon



Notes:
→ = Potential pathway.
✓ = Potentially complete exposure route.
I = Insignificant exposure route.
∅ = Incomplete exposure route.



Notes:
All site features are approximate.
RBC = risk based concentrations.
TEQ = toxicity equivalents.

Data Sources:
Historic sample locations from WSP (2020) and Hahn and Associates (2018). Creek, possible restoration area, geophysical anomalies, and historic site features from HAI (2019). Property boundary obtained from Oregon Department of Revenue (2019).

Legend

- Soil Sample
- Sediment Sample
- Groundwater Sample
- Soil and Groundwater Sample
- Sediment and Surface Water Sample
- Decision Units
- Site Tax Lots
- Creek

Historical Site Features

- Geophysical Anomaly
- Building
- Other
- Pond

0 100 200
Feet

Figure 9-1
Dioxin Tier II
RBC Exceedances

Wild Rivers Land Trust
Port Orford, OR

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Path: X:\0_MFA_Projects\M2272\01\001\Projects\Pro\M2272_01_001.aprx
Print Date: 8/25/2022
Reviewed By: cwise
Produced By: sturner
Project: M2272.01.001

Appendix I

Beneficial Land and Water Use Determination,
Former Western States Plywood Cooperative Mill

MEMORANDUM

To:	Max Beeken, Wild Rivers Land Trust	Date:	August 25, 2022
From:	Carolyn Wise, RG	Project No.:	M2272.01.001

RE: Beneficial Land and Water Use Determination
Former Western States Plywood Cooperative Mill

On behalf of Wild Rivers Land Trust, Maul Foster & Alongi, Inc. (MFA) has prepared this beneficial land and water use determination (BLWUD) for the Former Western States Plywood Cooperative Mill (ECSI Site ID: 556) located at Elk River Road in Port Orford, Oregon (the Site). The Site consists of three tax lots (104, 900, and 901) in Curry County, Oregon (see Figure 1 and Figure 2).

SITE SETTING

The Site, as well as the adjacent Curry County tax lots 902 and 903, were formerly developed and operated as a plywood mill owned by Western States Plywood Cooperative. The mill was built in 1951 and operated until 1975. Historical features associated with the former mill are shown on Figure 2. The land has been vacant since a fire destroyed the mill in 1976. (WSP 2020)

Surface water on the Site includes former log and fire suppression ponds associated with historical mill operations, and Bagley Creek, which flows approximately south to north across the eastern side of the Site (Figure 2). Prior to the construction of the plywood mill, Bagley Creek discharged to Elk River. Historical plywood mill operations significantly disrupted the natural flow of Bagley Creek, and the majority of the diking and dams altering Bagley Creek remain in place. (WSP 2020)

Groundwater on the Site is typically present at depths between 10 and 15 feet below ground surface. The groundwater flow direction is inferred to range from an easterly to northwesterly direction based on topography and is likely subject to seasonal variation. (WSP 2020; HAI 2018).

LOCALITY OF FACILITY

The locality of facility (LOF) is any point where a human or an ecological receptor contacts or is reasonably likely to come into contact with chemical constituents from a facility (i.e., the Site). The LOF considers the likelihood of the chemical constituents migrating over time. Chemical data from the Site investigations are typically used to approximate the LOF. Historical data from previous environmental investigations at the Site were reviewed to determine the approximate LOF (WSP 2020; HAI 2018). Samples of multiple environmental media were collected on the Site and one adjoining tax lots (902) that encompassed the operational area of the former Western States Plywood Cooperative Mill (see Figure 3). Tax lot 903 was also part of the former Western States Plywood Cooperative Mill, however previous environmental investigations have not been able to access this property (WSP 2020).

Based on previous environmental investigations, recognized environmental conditions present at the Site include the following:

- The presence of dioxins/furans in Site soils and sediments at concentrations exceeding DEQ risk based concentrations (RBCs).

- The presence of dioxins/furans, pentachlorophenol, formaldehyde, and manganese in Site groundwater at concentrations exceeding DEQ RBCs.

- Sporadic detections of other organic compounds, including bis(2-ethyhexyl)phthalate, benzene, and total petroleum hydrocarbons in soil at concentrations exceeding DEQ RBCs.

- The presence of gasoline range petroleum hydrocarbons in one groundwater location at concentrations exceeding DEQ RBCs. The extent of the groundwater contamination associated with this location has not been fully characterized, but is likely to be spatially limited and is located off-Site.

There a number of metals are present in Site soils and sediments at concentrations that exceed DEB RBCs, but are below background concentrations. There are also a number of potential environmental concerns associated tax lot 903, including the historical presence of underground storage tanks (USTs) potentially associated with a former fueling area, and the presence of above ground storage tanks with unknown uses. (WSP 2020)

For purposes of this evaluation, the LOF for soil, surface water, and groundwater encompasses the entire Site and adjacent tax lots 902 and 903. Groundwater on the Site has been incompletely characterized, but likely discharges to both Bagley Creek and Elk River. The spatial distribution of available data suggests that groundwater discharging to Elk River from the Site is unlikely to be impacted by chemical constituents from Site, however in the absence of more complete groundwater characterization Elk River adjacent to the Site is included in the LOF for the purposes of this conservative evaluation.

METHODOLOGY

The beneficial water use determination (BWUD) is based on an understanding of the hydrogeologic setting of the Site based on previous investigations (WSP 2020; HAI 2018), regional data from published literature, and current land and water use on or near the Site consistent with the DEQ's guidance document for BWUDs.

The evaluation of land use within the LOF was conducted consistent with the DEQ's guidance document for land use (DEQ, 1998) and includes:

- Current land uses;
- Zoning, comprehensive plan, and other land use designations;
- Land use regulations from any governmental body having jurisdiction;
- Concerns of the facility owner, the neighboring owners, and the community; and,
- Other relevant factors

LAND USE

A land use survey was performed for the LOF in general accordance with the DEQ guidance for consideration of land use (DEQ 1998a). The current and reasonably anticipated future land use of the LOF was evaluated in accordance with Oregon Administrative Rule (OAR) 340-122-080(3)(e).

Current Zoning and Land Use

Curry County zoning for the Site and adjoining properties is shown in Figure 4. The Site is currently zoned as Rural Residential, which allows for low density residential development outside of rural communities and urban growth boundaries (Curry County 2018). While the Site zoning allows for residential development, there are currently no residences on the Site.

The Site is directly bordered to the north and west by properties designated as Forest Grazing Zones. Forest Grazing Zones are resource areas of the County where the primary land use is commercial forestry with some intermixed agricultural uses for livestock uses. Forest Grazing Zones do not allow residential use with the exception of caretaker residences for public parks and fish hatcheries (Curry County 2018). To the south and east the Site is bordered by properties zoned as Rural Residential, including tax lots 902 and 903 which are within the LOF. No residences are currently located on tax lots 902 and 903, however there are residences currently present on other lots which adjoin the Site to the south and east.

Reasonably Likely Future Land Use

Wild Rivers Land Trust (WRLT) has identified Bagley Creek, which crosses the Site as important historical fish habitat that has been compromised by the historical operation of the plywood mill. The proposed future land use for the Site is to restore the fish habitat along Bagley Creek by removal of the ponds, dams and spillways that prohibit fish from traveling up Bagley Creek to historic spawning grounds. The most likely future use of the Site is ecological habitat. Recreational use, including recreational access to surface water is also a reasonably likely future use.

The most likely future uses for nearby properties include rural residential use, as well as forestry and agricultural use. Tax lots 902 and 903 are not currently included in the proposed habitat restoration, however those properties may be incorporated into future habitat restoration work, so ecological restoration and recreation are both considered reasonably likely future uses for those properties.

GROUNDWATER USE

A water use survey was performed for the LOF in general accordance with the DEQ guidance for beneficial water use (DEQ 1998b). This includes consideration of the following OARs:

- OAR 340-122-080(3)(f): the current and likely future beneficial uses of groundwater and surface water,
- OAR 340-122-080(6): hazardous substances having significant adverse effects on beneficial uses of water, and
- OAR 340-122-085(5): feasibility of reasonable treatments needed to restore or protect beneficial uses of water within a reasonable timeframe.

Table 1 summarizes current, historical, and reasonably likely future beneficial uses of groundwater near the Site. The primary current beneficial uses of groundwater in the area are domestic drinking water and presumed recharge to surface water including Bagley Creek and Elk River.

A search of the Oregon Water Resources Department (OWRD) Well Report Mapping Tool identified eight water wells within an approximate 0.5-mile radius of the LOF (Figure 5). Well logs for these wells are presented in Attachment A. Two of these wells have been abandoned and are no longer in use. Five of the active wells list the primary water use as domestic. The final active well is associated with Well Log CURR 067, which lists the proposed use as Municipal, and the OWRD database lists the primary water use as Community. No water right certificate or permit is associated with this well. Review of aerial imagery through the OWRD Well Report Mapping Tool suggests that this well may be associated with a RV park.

In addition to the wells identified in OWRD records, previous Site investigations identified two wells located on the Site, designated as EW01 and EW02 (WSP 2020). No OWRD records associated with these wells were identified during review of OWRD databases. In WSP's Targeted Brownfields Assessment Report, EW01 is described as "a domestic well, constructed with a downhole pump and a hose spigot installed on aboveground piping extending from the well head." EW02 is described as "an approximately 30-inch diameter concrete cased well." (WSP 2020). These wells were sampled as part of previous environmental investigations, but are otherwise not currently in use for any purpose.

OWRD is responsible for apportioning water rights in Oregon and maintains an online database of water rights, the Water Rights Information System (WRIS) and a Water Rights Mapping tool. The WRIS provides information about water rights applications and locations of points of diversion and points of use. A search of the OWRD Water Rights Mapping Tool did not identify any water rights certificates or permits for diversion or use of groundwater within an approximate 0.5 miles radius of the LOF (Figure 6).

Based on the land use zoning of the LOF (rural residential), as well as common nearby uses of groundwater, and the proposed use of the Site as ecological habitat, reasonably likely future uses of groundwater within the LOF include drinking water and discharge to surface water to support resident fish and aquatic life.

SURFACE WATER USE

Table 2 summarizes the current, historical, and reasonably likely futures uses of surface water within 0.5 miles of the LOF. Current beneficial uses of surface water from Elk River include irrigation, domestic water supply, ecological habitat, and recreation. There are no current beneficial uses of Bagley Creek on or within 0.5 miles of the LOF.

Review of the OWRD Water Rights Mapping Tool identified one active water right certificate for diversion and use of surface water within the LOF (Figure 6). Water rights transfer T-4147 was recorded by OWRD in 1979 and approves a change in use for water rights certificate 23957 previously issued to Western States Plywood Cooperative. Transfer T-4147 approves the change in water use from manufacturing and maintenance of a log pond to fish rearing, including pond maintenance and fish culture in tanks (Attachment B). No fish culture operations are currently present on the Site, so this is not considered a current beneficial water use. No other current surface water rights are recorded within the LOF.

Review of the OWRD Water Rights Mapping Tool identifies seven other points of diversion for surface water rights within the LOF (Figure 6). One of these points along the Elk River directly north of the Site is associated with the water rights Transfer T-4147 described above. The other points of diversion are associated with the following uses:

- Two points of diversion are associated with water rights permit S 44337, which diverts water from an unnamed stream south of the Site and uses the water for domestic use and livestock watering.
- One point of diversion is associated with water right certificate 26303, which diverts water from Elk River upstream of the Site, and uses the water for irrigation.
- Three points of diversion are located in Elk River downstream of the Site, and are associated with water rights certificates 26428, 42388, and 79433. All three water rights divert water from Elk creek for irrigation.

All current beneficial water uses of Elk River surface water are considered reasonably likely future uses. Ecological habitat and recreation are considered reasonably likely future uses of Bagley Creek.

SUMMARY OF BENEFICIAL LAND AND WATER USES

Current land use within the LOF is vacant historical industrial land. Current land uses within 0.5 mile of the Site include rural residential land and commercial forestry and limited agriculture. Reasonably likely future land use within the LOF include ecological habitat and recreational use.

The primary current beneficial uses of groundwater within the LOF is presumed recharge of surface water, including Bagley Creek and Elk River. Current beneficial uses of groundwater in the area surrounding the LOF are domestic drinking water and presumed recharge to surface water including Bagley Creek and Elk River. Reasonably likely future uses of groundwater within the LOF and in the surrounding area include drinking water and discharge to surface water to support resident fish and aquatic life.

Current beneficial uses of surface water from Elk River within and surrounding the LOF include irrigation, domestic water supply, ecological habitat, and recreation. There are no current beneficial uses of Bagley Creek on or within 0.5 miles of the LOF. All current beneficial water uses of Elk River surface water are considered reasonably likely future uses. Ecological habitat and recreation are considered reasonably likely future uses of Bagley Creek.

REFERENCES

Curry County. 2018. *Curry County Zoning Ordinance.* August.

DEQ. 1998a. *Consideration of land use in environmental remedial actions.* Oregon Department of Environmental Quality. July 1. Updated October 2017.

DEQ. 1998b. *Guidance for conducting beneficial water use determinations at environmental cleanup sites.* Oregon Department of Environmental Quality. July 1. Updated November 2017.

HAI. 2018. *Draft Phase II Environmental Site Assessment Report. Log Pond Parcel and Tax Lot 104, Former Western States Plywood Cooperative Property, Port Orford, Curry County, Oregon.* Hahn and Associates, Inc. December 18.

WSP. 2020. *USA Inc. Former Western States Plywood Cooperative Mill Site Target Brownfield Assessment, Port Orford, Oregon*. December.

ATTACHMENTS

Figures
Attachments:
- A – Well Logs
- B – Water Rights Transfer Documents

TABLES

Table 1
Groundwater Use
Former Western States Cooperative Plywood Mill
Port Orford, Oregon

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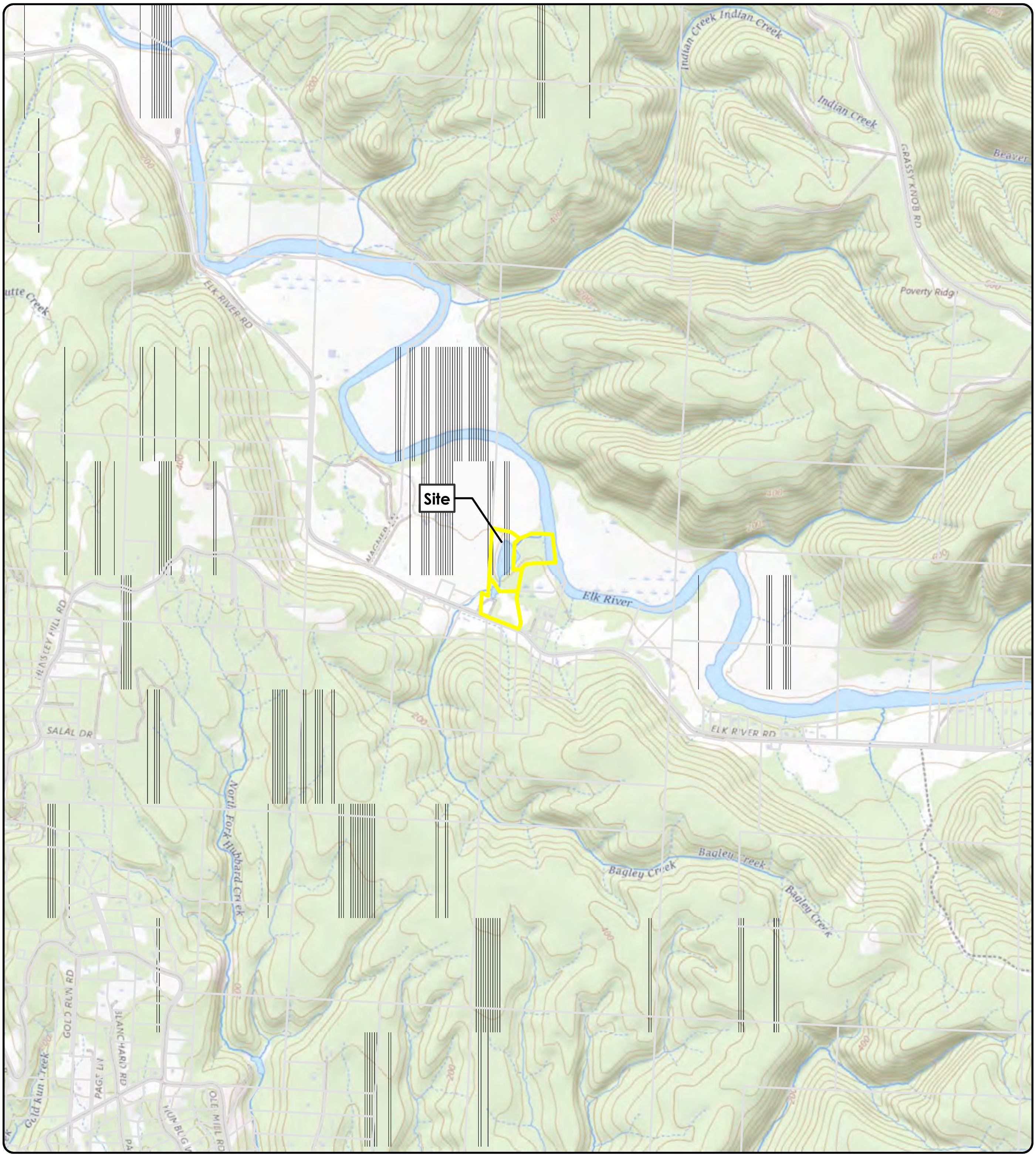
Beneficial Use	Historical	Current	Reasonably Likely Future
Public Domestic Water Supply	Yes	Yes	Yes
Private Domestic Water Supply	Yes	Yes	Yes
Industrial Water Supply	Yes	No	No
Irrigation	No	No	Yes
Livestock Watering	No	No	Yes
Resident Fish and Aquatic Life	Yes	Yes	Yes
Recreation	Yes	Yes	Yes
Aesthetic Quality	Yes	Yes	Yes
Surface Water Recharge	Yes	Yes	Yes
Engineering	No	No	No

Table 2
Surface Water Use
Former Western States Cooperative Plywood Mill
Port Orford, Oregon

Beneficial Use	Historical	Current	Reasonably Likely Future
Public Domestic Water Supply	No	No	No
Private Domestic Water Supply	Yes	Yes	Yes
Industrial Water Supply	Yes	No	No
Irrigation	Yes	Yes	Yes
Livestock Watering	Yes	Yes	Yes
Anadromous Fish Passage	Yes	Yes	Yes
Salmonid Fish Spawning	Yes	Yes	Yes
Resident Fish and Aquatic Life	Yes	Yes	Yes
Wildlife Habitat	Yes	Yes	Yes
Fishing	Yes	Yes	Yes
Boating	Yes	Yes	Yes
Water Contact Recreation	Yes	Yes	Yes
Aesthetic Quality	Yes	Yes	Yes
Hydro Power	No	No	No
Commercial Navigation and Transportation	No	No	No
Engineering	No	No	No

FIGURES



NOTES:
U.S. Geological Survey 7.5-minute
topographic quadrangle: Sixes.
Township 32 south, range 15 west, section 27.

Data Source:
Property boundary obtained from Curry County.

Legend

Property Boundary

Figure 1
Property Location

Wild Rivers Land Trust
Port Orford, Oregon

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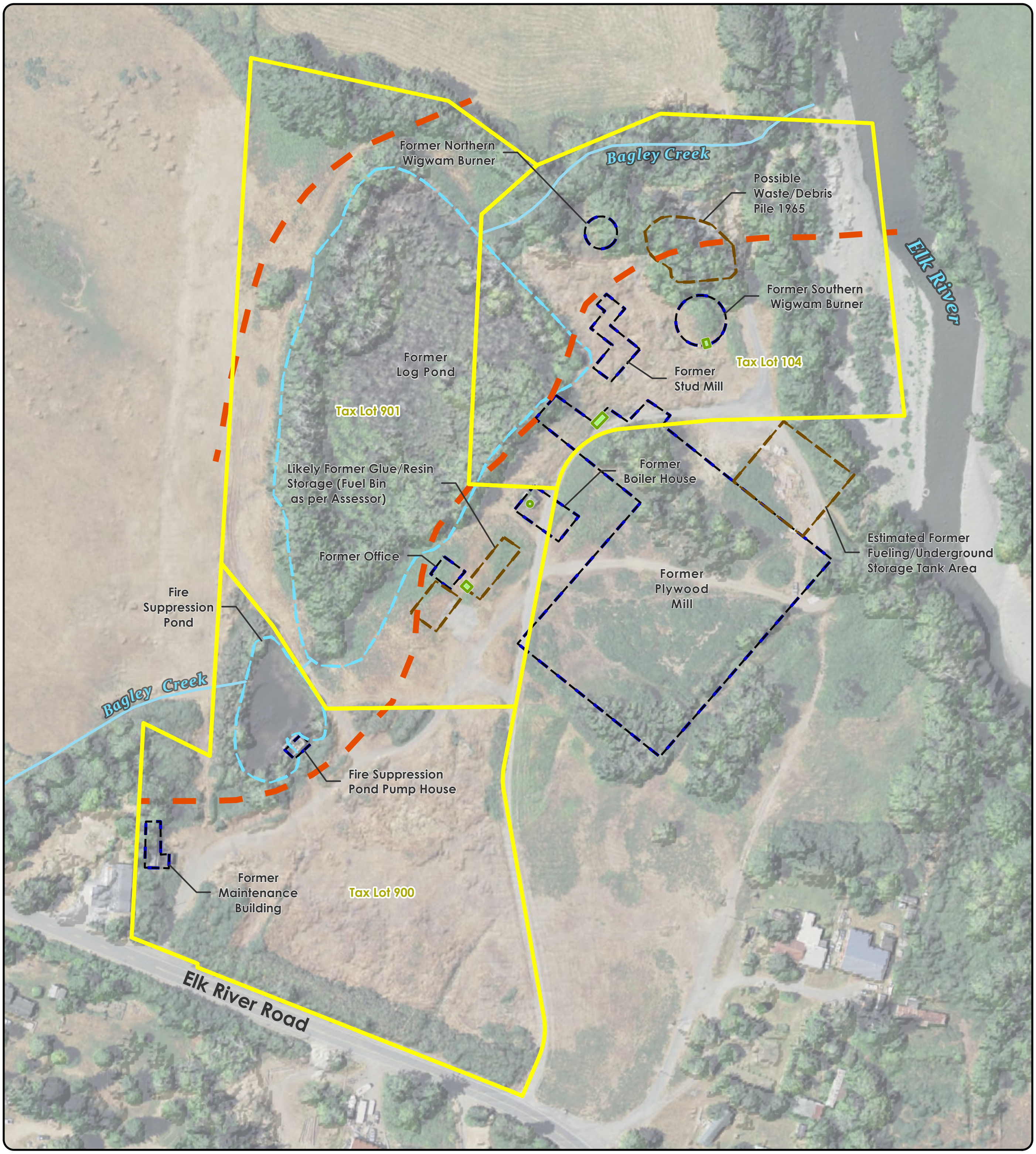
0 1,000 2,000
Feet

Path: X:\0_MFA_Projects\M2272\01\001\Fig1_1_Property_Location.mxd
Print Date: 6/3/2022
Reviewed By:
Produced By: csifford
Project: M2272.01.001



Notes:
All site features are approximate.

Data Sources:
Creek, possible restoration area, geophysical anomalies, and historic site features from HAI (2019). Property boundary obtained from Oregon Department of Revenue (2019).

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Legend

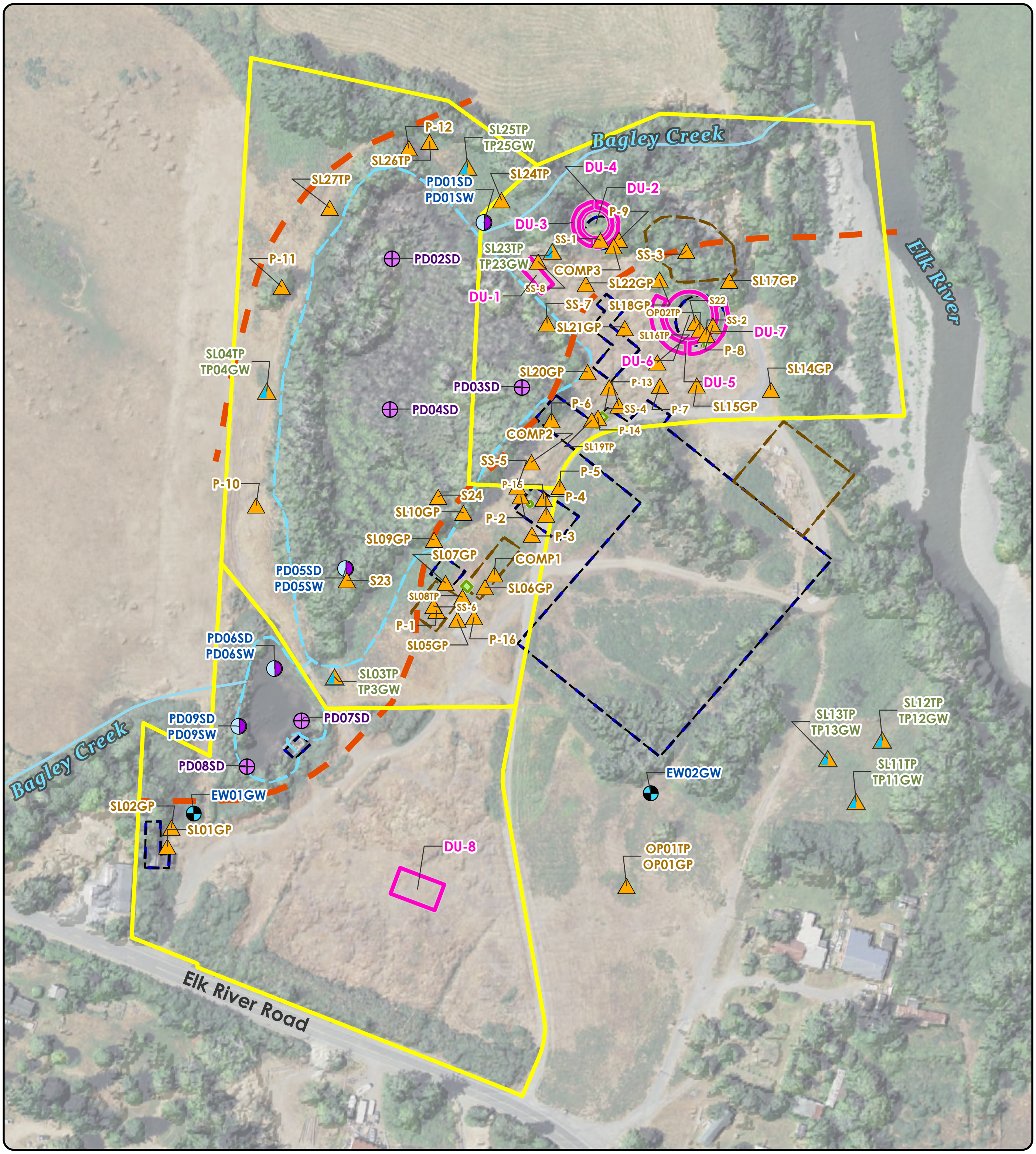
- Geophysical Anomaly
- Building
- Other
- Pond
- Creek
- Possible Restoration Area
- Site Tax Lots

Figure 2
Historical Site Features

Wild Rivers Land Trust
Port Orford, OR

0 100 200
Feet

Path: X:\0_MFA_Projects\M2272\01\001\Projects\Pro\M2272_01_001.aprx
Print Date: 7/25/2022
Reviewed By: csifford
Produced By: jroberts
Project: M2272.01.001



Notes:
All site features are approximate.

Data Sources:
Historic sample locations from WSP (2020) and Hahn and Associates (2018). Creek, possible restoration area, geophysical anomalies, and historic site features from HAI (2019). Property boundary obtained from Oregon Department of Revenue (2019).

Legend

- Soil Sample
- Sediment Sample
- Groundwater Sample
- Soil and Groundwater Sample
- Sediment and Surface Water Sample
- Decision Units
- Site Tax Lots
- Creek
- Possible Restoration Area

Historical Site Features

- Geophysical Anomaly
- Building
- Other
- Pond

0 100 200
Feet

Figure 3
Historical Sample Locations

Wild Rivers Land Trust
Port Orford, OR

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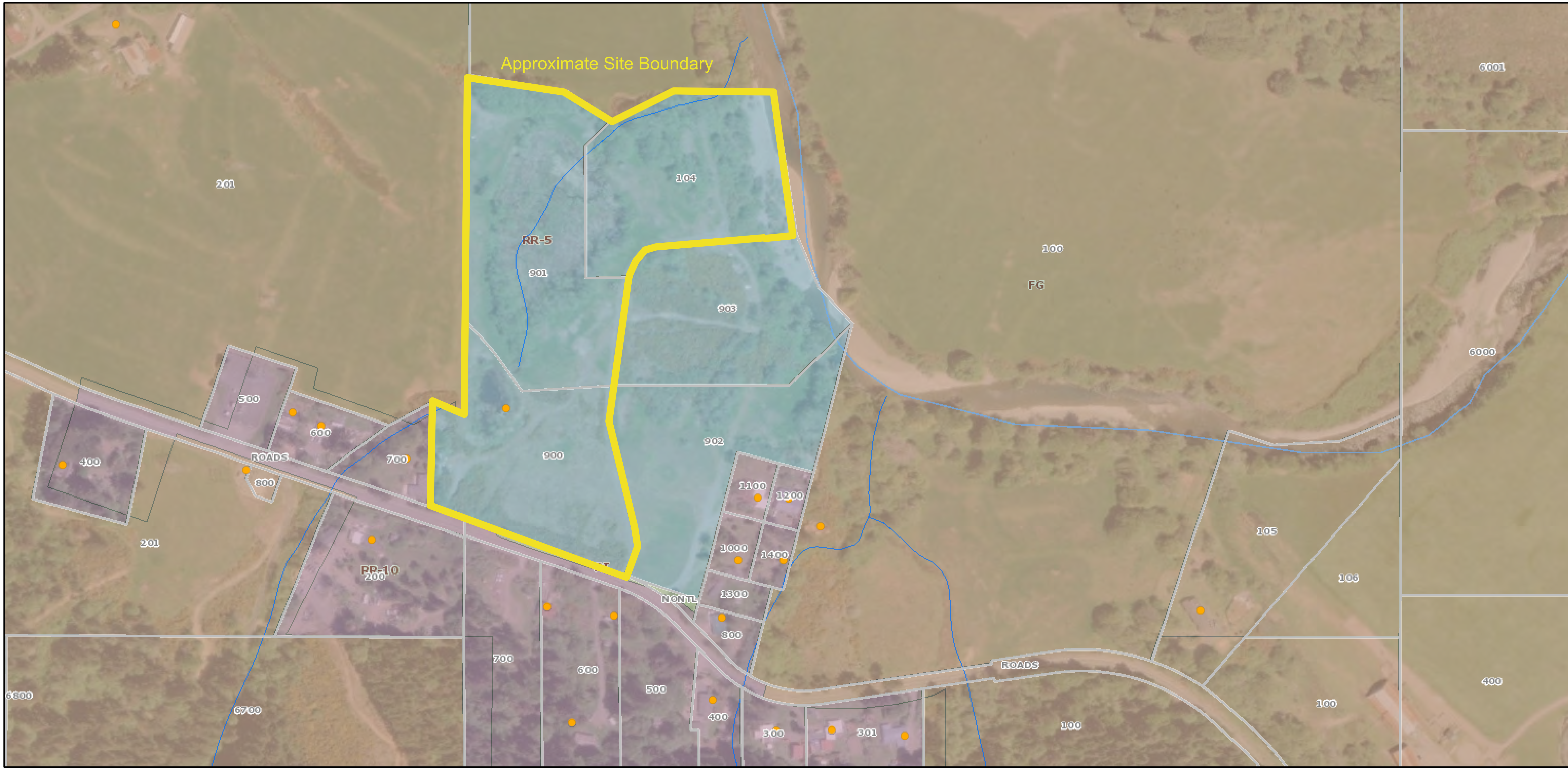
Path: X:\0_MFA_Projects\M2272\01\001\Projects\Pro\M2272_01_001.aprx
Print Date: 7/28/2022
Reviewed By: cwise
Produced By: jroberts
Project: M2272.01.001

Figure 4. Curry County Zoning



7/22/2022, 10:32:10 AM

World Imagery
Low Resolution 15m Imagery
High Resolution 60cm Imagery
High Resolution 30cm Imagery
Citations
1.2m Resolution Metadata
Parcels

Parcel Labels
Situs Address (Current)
Rivers (NHD)
Streams

County Zoning
AFD
C-1
C-2
CON
EFU
FG
I
MA
MPA/FG
PF
R-1
R-2
R-3
RC
RC-10
RCR-1
RCR-10
RCR-2.5
RCR-5
RI
RR-10
RR-5
RRC
SW
T
NOT ZONED

1:4,514

0 0.04 0.08 0.16 mi

0 0.05 0.1 0.2 km

Bureau of Land Management, State of Oregon, State of Oregon DOT, State of Oregon GEO, Esri Canada, Esri, HERE, Garmin, USGS, EPA, USDA, Maxar

Note: RR-5 and RR-10 are both designations indicating rural residential zoning.

Created by LCOG for Curry County

MAUL FOSTER ALONGI

Figure 5
Well Reports
Wild Rivers Land Trust
Port Orford, Oregon

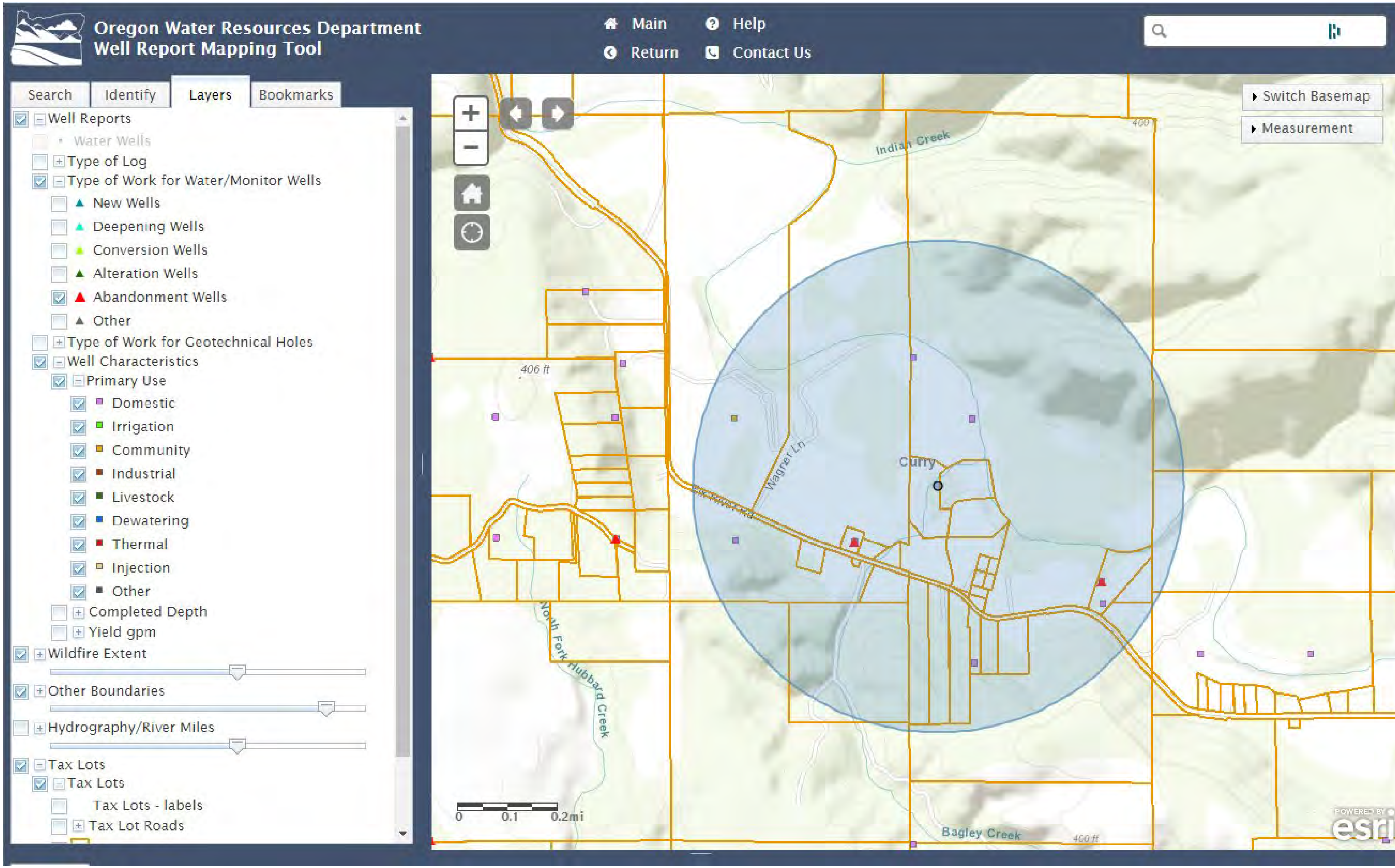


Image obtained from Oregon Water Resources Department Well Report Mapping Tool July 22, 2022

Figure 6
Water Rights Features
Wild Rivers Land Trust
Port Orford, Oregon

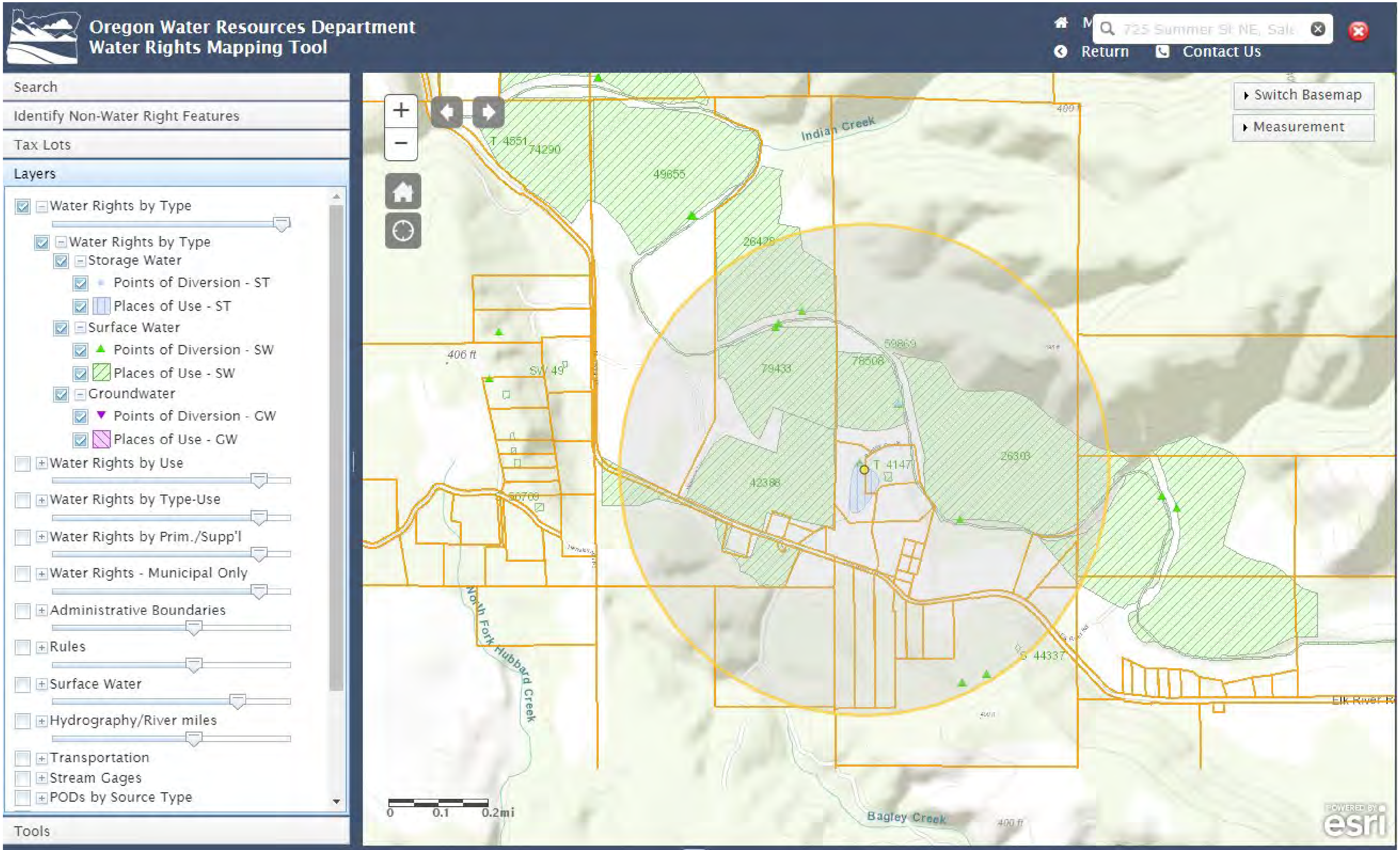


Image obtained from Oregon Water Resources Department Water Rights Mapping Tool July 22, 2022

ATTACHMENT A

WELL LOGS

STATE OF OREGON
WATER WELL REPORT
(as required by ORS 537.765)

RECEIVED
DEC 1 9 1985
WATER RESOURCES DEPT
SALEM, OREGON

PLEASE TYPE or PRINT IN INK

CURR 867

32S/15W-27cb
(for official use only)

(1) OWNER:
Name Glen Wagner
Address Box 110 Elk River
City Port Orford State Ore

(2) TYPE OF WORK (check):
New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary Air ☐ Driven ☐
Rotary Mud ☐ Dug ☐
Cable ☒ Bored ☐

(4) PROPOSED USE (check):
Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Thermal: Withdrawal ☐ Reinjection ☐
Other: Piezometric ☐ Grounding ☐ Test ☐

(5) CASING INSTALLED: Steel ☒ Plastic ☐ Threaded ☐ Welded ☒
6" Diam. from +1 ft. to 27 ft. Gauge .250
" Diam. from ft. to ft. Gauge

LINER INSTALLED: Steel ☐ Plastic ☐ Threaded ☐ Welded ☐
NO
" Diam. from ft. to ft. Gauge

(6) PERFORATIONS: Perforated? ☐ Yes ☒ No
Size of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS: Well screen installed? ☐ Yes ☒ No
Manufacturer's Name
Type Model No.
Diam. Slot Size Set from ft. to ft.
Diam. Slot Size Set from ft. to ft.

(8) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? ☒ Yes ☐ No If yes, by whom?
Yield: 15 gal./min. with 15 ft. drawdown after 2 hrs.
" " "
Air test gal./min. with drill stem at ft. hrs.
Bailer test 20 gal./min. with 18 ft. drawdown after 1 hrs.
Artesian flow g.p.m.
Temperature of water 52 Depth artesian flow encountered ft.

(9) CONSTRUCTION: Special standards: Yes ☐ No ☒
Well seal—Material used Cement
Well sealed from land surface to 20 ft.
Diameter of well bore to bottom of seal 10 in.
Diameter of well bore below seal 6 in.
Amount of sealing material 11 sacks ☒ pounds ☐
How was cement grout placed? Pumped via tremie pipe

Was pump installed? NO Type HP Depth ft.
Was a drive shoe used? ☐ Yes ☒ No Plugs Size: location ft.
Did any strata contain unusable water? ☐ Yes ☒ No
Type of Water? depth of strata
Method of sealing strata off
Was well gravel packed? ☐ Yes ☒ No Size of gravel:
Gravel placed from ft. to ft.

(10) LOCATION OF WELL by legal description:
County Curry NW ¼ SW ¼ of Section 27 of
Township 32s (Township is North or South), Range 15w (Range is East or West), WM.
Tax Lot 300 Lot Block Subdivision
MAILING ADDRESS OF WELL (or nearest address)
SAME

(11) WATER LEVEL of COMPLETED WELL:
Depth at which water was first found 10 ft.
Static level 10 ft. below land surface. Date 12-5-85
Artesian pressure lbs. per square inch. Date

(12) WELL LOG: Diameter of well below casing 0
Depth drilled 40 ft. Depth of completed well 27 ft.
Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Clay soil black	0	1	
Clay brown	1	4	
Clay and gravel brown	4	16	
Gravel brown medium	16	27	
Clay and gravel brown	27	31	
Silty clay blue	31	40	

Date work started 12-3-85 /completed 12-5-85
Date well drilling machine moved off of well 12-5-85 19

(unbonded) Water Well Constructor Certification (if applicable):
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Date , 19

(bonded) Water Well Constructor Certification:
Bond 28042900 (number) Issued by: Western Surety (Surety Company Name)
On behalf of Bill Miller Well Drilling (type or print name of Water Well Constructor)
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief:
(Signed) Andrew A Miller (Water Well Constructor)
(Dated) 12-17-85

NOTICE TO WATER WELL CONSTRUCTOR
The original and first copy of this report are to be filed with the
WATER RESOURCES DEPARTMENT, SALEM, OREGON 97310
within 30 days from the date of well completion.

SP*46866-690

RECEIVED JUN 20 1966 STATE ENGINEER SALEM, OREGON

RECEIVED JUL 25 1966 STATE ENGINEER SALEM, OREGON

1061 CURR

00.1061

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.

WATER WELL REPORT
STATE OF OREGON
(Please type or print)

State Well No. 32/15w-27
State Permit No.

(1) OWNER:

Name Clyde Wagner
Address Port Orford Ore

(2) LOCATION OF WELL:

County Curry Driller's well number
¼ ¼ Section 27 T. 32S R. 15W W.M.
Bearing and distance from section or subdivision corner

(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 ☐

(5) TYPE OF WELL:

Rotary ☐ Driven ☐
Cable ☑ Jetted ☐
Dug ☐ Bored ☐

(6) CASING INSTALLED: Threaded ☐ Welded ☑

6" Diam. from 0 ft. to 37 ft. Gage 250
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

(7) PERFORATIONS: Perforated? ☑ Yes ☐ No

Type of perforator used Torch
Size of perforations 1/4 in. by 3 in.
3 Feet perforations from 30 ft. to 37 ft.
21 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
Type 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 Bentonite
Depth of seal 18 ft. Was a packer used? No
Diameter of well bore to bottom of seal 10 in.
Were any loose strata cemented off? ☐ Yes ☑ No Depth
Was a drive shoe used? ☑ Yes ☐ No
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 14 ft. below land surface Date June 1
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?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "
Bailer test 1260 gal./hr. with 2 ft. drawdown after 1 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 6

Depth drilled 34 ft. Depth of completed well 34 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
Brown Clay	0	27
River Gravel Course	27	29
Brown Clay	29	31
Red Clay & River Gravel Cemented Dry	31	34

Work started May 28 1966 Completed June 1 1966
Date well drilling machine moved off of well June 1 1966

(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 Barrington Well Drilling
(Person, firm or corporation) (Type or print)
Address North Bend Ore
Drilling Machine Operator's License No. 325
[Signed] Donald C Barrington
(Water Well Contractor)
Contractor's License No. 501 Date June 18, 1966

(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
OCT 16 1972
STATE ENGINEER
SALEM OREGON

NC

WATER WELL REPORT
STATE OF OREGON
(Please type or print)
(Do not write above this line)

001062
CURR

State Well No. 32S/15W-27 cd

State Permit No.

(1) OWNER:

Name Clarence R. Wagner

Address Box 116 Star Route Port Orford, Oregon

(2) TYPE OF WORK (check):

New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☒

If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:

Rotary ☐ Driven ☐
Cable ☒ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):

Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) CASING INSTALLED: Threaded ☐ Welded ☐

None

" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

(6) PERFORATIONS: Perforated? ☐ Yes ☒ No.

Type of perforator used

Size of perforations in. by in.

perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS: Well screen installed? ☐ Yes ☒ No

Manufacturer's Name

Type Model No.

Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom?

Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Bailer test None gal./min. with ft. drawdown after hrs.

Artesian flow g.p.m.

Temperature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:

Well seal—Material used Puddled clay & Cement

Well sealed from land surface to 50 ft.

Diameter of well bore to bottom of seal 6 in.

Diameter of well bore below seal 0 in.

Number of sacks of cement used in well seal 1/2 sacks

Number of sacks of bentonite used in well seal 0 sacks

Brand name of bentonite XX

Number of pounds of bentonite per 100 gallons of water XX lbs./100 gals.

Was a drive shoe used? ☐ Yes ☒ No Plugs Size: location ft.

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? depth of strata

Method of sealing strata off

Was well gravel packed? ☐ Yes ☒ No Size of gravel:

Gravel placed from ft. to ft.

(10) LOCATION OF WELL:

County Curry Driller's well number

SE ¼ SW ¼ Section 27 T. 32S R. 15W W.M.

Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.

Depth at which water was first found None ft.

Static level XX ft. below land surface. Date 10-3-72

Artesian pressure lbs. per square inch. Date

(12) WELL LOG: Diameter of well below casing 0

Depth drilled 50 ft. Depth of completed well 50 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. *Report each change in position of Static Water Level and indicate principal water-bearing strata.*

MATERIAL	From	To	SWL
Soil brown	0	1½	
Clay gray	1½	21	
Clay with gravel gray	21	36	
Serpentine claystone gray	36	50	

No water encountered. Bore hole filled with puddled clay and capped with cement.

Work started Oct 2 72 19 Completed Oct 3 1972

Date well drilling machine moved off of well Oct 3 1972

Drilling Machine Operator's Certification:

This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.

[Signed] Andrew W. Miller Date Oct. 14, 19 72
(Drilling Machine Operator)

Drilling Machine Operator's License No. 469

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 George R. Miller & Son Welll Drilling
(Person, firm or corporation) (Type or print)

Address Route 1, Box 561 Bandon, Oregon

[Signed] George R Miller
(Water Well Contractor)

Contractor's License No. 322 Date October 14 1972

(USE ADDITIONAL SHEETS IF NECESSARY)

ORIGINAL
File Original, and Duplicate with the STATE ENGINEER SALEM, OREGON

RECEIVED JUL 30 1956 STATE ENGINEER SALEM, OREGON

CURR 0010633

WATER WELL DRILLERS REPORT
STATE OF OREGON

Do Not Fill In — State Well No. 32/15-27 N(1) w — State Permit No.

(1) OWNER:
Name Leo V iolette
Address Elk River Road, Port Orford, Oregon.

(2) LOCATION OF WELL:
County Curry Owner's number, if any—
R. F. D. or Street No.
Bearing and distance from section or subdivision corner
See letter in Mosbys file for loc.

(3) TYPE OF WORK (check):
New well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 11.

(4) PROPOSED USE (check):
Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) EQUIPMENT:
Rotary ☐
Cable ☒
Dug Well ☐

(6) CASING INSTALLED:
Threaded ☐ Welded ☒

FROM	ft. to		Diam.	Gage or Wall
1	31' 6"		6"	

Type and size of shoe or well ring 6"
Describe joint We lded

If gravel packed

Diameter of Bore	from ft.	to ft.

Size of gravel:

(7) PERFORATIONS:
Type of perforator used C utting Torch
SIZE of perforations 3" in., length, by in.
FROM ft. to 16 ft. 2 perf per foot 4 No. of rows

SCREENS:
Give Manufacturer's Name, Model No. and Size

(8) CONSTRUCTION:
Was a surface sanitary seal provided? ☐ Yes ☐ No To what depth ft.
Were any strata sealed against pollution? ☐ Yes ☐ No
If yes, note depth of strata
FROM ft. to ft.
METHOD OF SEALING Mud

(9) WATER LEVELS:
Depth at which water was first found 16 ft.
Standing level before perforating ft.
Standing level after perforating ft.

Log Accepted by:
[Signed] .... Dated ...., 19....
Owner

(10) WELL TESTS:
Was a pump test made? ☐ Yes ☐ No If yes, by whom?
Yield: gal./min. with ft. draw down after hrs.
Artesian flow g.p.m.
Shut-in pressure lbs. per square inch.
Bailer test 1000 g.p.m. with Bottom ft. drawdown
Temperature of water Was a chemical analysis made? ☐ Yes ☐ No
Was electric log made of well? ☐ Yes ☐ No

(11) WELL LOG:
Diameter of well, 6" inches.
Total depth 35 ft. Depth of completed well 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.*

ft.	to ft.	Formation
1	16	Sand & Gravel
16"	35	Light Gre y S and Ston e

Ground elevation at well site .... feet above mean sea level.
Work started JULY 16 1956 Completed July 17 1956

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 Howard Mosby We ll D rilling
(Person, firm, or corporation) (Typed or printed)
Address 140 Willona Dr . Eugene, Oregon.
Driller's well number
[Signed] Howard Mosby
(Well Driller)
License No. 98 Dated July 25, 1956

CURR 50905

RECEIVED
OCT 1 6 2002
WATER RESOURCES DEPT
SALEM, OREGON

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)
Instructions for completing this report are on the last page of this form.

32-15-34
WELL I.D. # L 51196
START CARD # 136010

(1) LAND OWNER Well Number 857
Name Kenneth Aytes
Address 598 W Plumb Lane
City Reno State NV Zip 89509

(2) TYPE OF WORK
☒ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:
☐ Rotary Air ☒ Rotary Mud ☐ Cable ☐ Auger
☐ Other

(4) PROPOSED USE:
☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Livestock ☐ Other

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☒ No Depth of Completed Well 52'8" ft. (TOC)
Explosives used ☐ Yes ☒ No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
10"	0	52	Bentonite	0	35	47 sx

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☒ Other Poured from Surface
Backfill placed from ft. to ft. Material
Gravel placed from 35 ft. to 52 ft. Size of gravel 10/20

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	5"	+1	46.5	160#	☐	☒	☒	☐
					☐	☐	☐	☐
	6"	+1'4	4'	.250	☒	☐	☐	☐
	(Protective Casing)				☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Drive Shoe used ☐ Inside ☐ Outside ☐ None
Final location of shoe(s)

(7) PERFORATIONS/SCREENS:
☐ Perforations Method Attached to Casing
☒ Screens Type Najicka V-wire Material SS

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
46.5	51'8"	.016		5"	Pipe	☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour
☒ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
12	19'		1 hr.
11.16 GPM Actual Production w/ stable drawdown			

Temperature of water 52° Depth Artesian Flow Found
Was a water analysis done? ☒ Yes By whom BW+S
Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other
Depth of strata:

Bandon Well & Septic Co., Inc.

(9) LOCATION OF WELL by legal description:
County Curry Latitude Longitude
Township 32 N or S Range 15 E or W. WM.
Section 34 NW 1/4 NE 1/4
Tax Lot 400 Lot Block Subdivision
Street Address of Well (or nearest address) 93722 Elk River Rd. Sixes

(10) STATIC WATER LEVEL:
27'6" ft. below land surface. Date 10/10/02
Artesian pressure lb. per square inch Date

(11) WATER BEARING ZONES:
Depth at which water was first found 27'6

From	To	Estimated Flow Rate	SWL
27'6	51	+/- 12	27'6"

(12) WELL LOG:
Ground Elevation +/- 300'

Material	From	To	SWL
TopSoil Brown	0	1	
Sandy Clay Tan	1	2	
Conglomerate - Clay, Gravel Sand etc	2	13	
Clay Orange	13	15	
Clay Gray	15	17	
wood	17	18	
Wood w/ Clay + gravel Gray	18	20	
Gravel Fine-Crs Brown	20	28	27'6
Gravel Fine-med w/ Clay + wood (Loss Circulation)	28	33	
Gravel Fine-Crs w/ Large Cobbles (Loss Circulation)	33	36	
Wood w/ gravel + Cobbles + Clay Gray brown	36	39	
Cobbles Lrg-small w/ Gravel Crs-Fine + Clay lenses Gray	39	51	
Claystone black	51	52	

Date started 10/9/02 Completed 10/11/02

(unbonded) Water Well Constructor Certification:
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
WWC Number 1759
Signed Chris Kessay Date 10/14/02

(bonded) Water Well Constructor Certification:
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 water supply well construction standards. This report is true to the best of my knowledge and belief.
WWC Number 1493
Signed Jim Mack Sr MCWC Date 10/14/02

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765 & OAR 690-205-0210)

CURR 52908
10/21/2019

WELL I.D. LABEL# L
START CARD # 1045167
ORIGINAL LOG #

(1) LAND OWNER

Owner Well I.D. 1837
First Name CHEREECE Last Name MARSH
Company
Address PO BOX 787
City PORT ORFORD State OR Zip 97465

(2) TYPE OF WORK

[X] New Well [ ] Deepening [ ] Conversion
[ ] Alteration (complete 2a & 10) [X] Abandonment(complete 5a)

(2a) PRE-ALTERATION

Casing: Dia + From To Gauge Stl Plstc Wld Thrd

Seal: Material From To Amt sacks/lbs

(3) DRILL METHOD

[ ] Rotary Air [X] Rotary Mud [ ] Cable [ ] Auger [ ] Cable Mud
[ ] Reverse Rotary [ ] Other

(4) PROPOSED USE

[X] Domestic [ ] Irrigation [ ] Community
[ ] Industrial/ Commericial [ ] Livestock [ ] Dewatering
[ ] Thermal [ ] Injection [ ] Other

(5) BORE HOLE CONSTRUCTION

Special Standard [ ] (Attach copy)
Depth of Completed Well 18.00 ft.

BORE HOLE

Dia	From	To
10	0	18

SEAL

Material	From	To	Amt	sacks/ lbs
Bentonite Chips	0	18	14	S
		Calculated	12.24	
		Calculated		

How was seal placed: Method [ ] A [ ] B [ ] C [ ] D [ ] E
[X] Other POUR FROM SURFACE
Backfill placed from ft. to ft. Material
Filter pack from ft. to ft. Material Size
Explosives used: [ ] Yes Type Amount

(5a) ABANDONMENT USING UNHYDRATED BENTONITE

Proposed Amount 12.24 Sacks Actual Amount 14.00 Sacks

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd

Shoe [ ] Inside [ ] Outside [ ] Other Location of shoe(s)
Temp casing [ ] Yes Dia From + [ ] To

(7) PERFORATIONS/SCREENS

Perforations Method
Screens Type Material

Perf/ Screen	Casing/ Liner	Screen Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ pipe size

(8) WELL TESTS: Minimum testing time is 1 hour

( ) Pump ( ) Bailer ( ) Air ( ) Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)

Temperature 54 °F Lab analysis [ ] Yes By
Water quality concerns? [ ] Yes (describe below) TDS amount 72 ppm

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)

County CURRY Twp 32.00 S N/S Range 15.00 W E/W WM
Sec 27 SE 1/4 of the SE 1/4 Tax Lot 105
Tax Map Number Lot
Lat ° ' " or 42.76786442 DMS or DD
Long ° ' " or -124.45598622 DMS or DD
(•) Street address of well ( ) Nearest address
93835 ELK RIVER ROAD PORT ORFORD, OREGON

(10) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Pre-Alteration				
Completed Well	10/9/2019			6

Flowing Artesian? [ ] Dry Hole? [ ]

WATER BEARING ZONES Depth water was first found 6.00

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
10/9/2019	6	12.5	3			6

(11) WELL LOG

Ground Elevation 49.00

Material	From	To
Silty clay brown	0	2
Silty clay tan	2	5
Silty clay w/gravel f tan	5	6
Gravel c-f brown	6	12
Gravel c-f w/clay orange	12	12.5
Clay gray	12.5	13
Basalt hblack h	13	18
Hole abandon due to shallow depth	13	18

Date Started 10/9/2019 Completed 10/9/2019

(unbonded) Water 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 water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

License Number 1759 Date 10/21/2019
Signed CHRISTOPHER KERSEY (E-filed)

(bonded) Water 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 water supply well construction standards. This report is true to the best of my knowledge and belief.

License Number 1493 Date 10/21/2019
Signed JAMES MACK SR (E-filed)
Contact Info (optional) Bandon Well & Pump Co. (541) 347-7867

WATER SUPPLY WELL REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

CURR 52908

10/21/2019

Map of Hole

STATE OF OREGON
WELL LOCATION MAP

This map is supplemental to the WATER SUPPLY WELL REPORT

Oregon Water Resources Department
725 Summer St NE, Salem OR 97301
(503)986-0900

LOCATION OF WELL

Latitude: 42.7678644178 Datum: WGS84
Longitude: -124.45598621591
Township/Range/Section/Quarter-Quarter Section:
WM 32S 15W 27 SESE
Address of Well:
93835 ELK RIVER ROAD PORT ORFORD, OREGON

Hole Nbr: 1837

Printed: October 21, 2019

DISCLAIMER: This map is intended to represent the approximate location the well. It is not intended to be construed as survey accurate in any manner.

Provided by well constructor

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765 & OAR 690-205-0210)

CURR 52909
10/21/2019

WELL I.D. LABEL# L 134955
START CARD # 1045207
ORIGINAL LOG #

(1) LAND OWNER

Owner Well I.D. 1838
First Name CHEREECE Last Name MARSH
Company
Address 93835 ELK RIVER ROAD PORT ORFORD, O
City PORT ORFORD State OR Zip 97465

(2) TYPE OF WORK

[X] New Well [ ] Deepening [ ] Conversion
[ ] Alteration (complete 2a & 10) [ ] Abandonment(complete 5a)

(2a) PRE-ALTERATION

Casing:	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd

Seal:	Material	From	To	Amt	sacks/lbs

(3) DRILL METHOD

[X] Rotary Air [X] Rotary Mud [ ] Cable [ ] Auger [ ] Cable Mud
[ ] Reverse Rotary [ ] Other

(4) PROPOSED USE

[X] Domestic [ ] Irrigation [ ] Community
[ ] Industrial/ Commericial [ ] Livestock [ ] Dewatering
[ ] Thermal [ ] Injection [ ] Other

(5) BORE HOLE CONSTRUCTION

Special Standard [X] (Attach copy)
Depth of Completed Well 80.50 ft.

BORE HOLE Dia	From	To	SEAL Material	From	To	Amt	sacks/ lbs
10	0	10	Bentonite	0	8	4	S
8	10	18			Calculated	3.76	
6	18	166	Cement	80.5	166	11	S
					Calculated	10	

How was seal placed: Method [ ] A [ ] B [X] C [ ] D [ ] E
[X] Other POUR FROM SURFACE
Backfill placed from ____ ft. to ____ ft. Material
Filter pack from 8 ft. to 18 ft. Material GRAVEL Size pea gravel
Explosives used: [ ] Yes Type ____ Amount ____

(5a) ABANDONMENT USING UNHYDRATED BENTONITE

Proposed Amount Actual Amount

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
(●)	( )	6	[X]	1.5	18.66	.250	(●)	( )	[X]	[ ]
( )	( )		[ ]				( )	( )	[ ]	[ ]
( )	( )		[ ]				( )	( )	[ ]	[ ]
( )	( )		[ ]				( )	( )	[ ]	[ ]
( )	( )		[ ]				( )	( )	[ ]	[ ]

Shoe [ ] Inside [X] Outside [ ] Other Location of shoe(s) 18.75
Temp casing [ ] Yes Dia ____ From + [ ] ____ To ____

(7) PERFORATIONS/SCREENS

Perforations Method Mills Knife
Screens Type ____ Material ____

Perf/ Screen	Casing/ Liner	Screen Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ pipe size
Perf	Casing	6	9	17	.25	3	27	6

(8) WELL TESTS: Minimum testing time is 1 hour

(●) Pump ( ) Bailer ( ) Air ( ) Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
7.3	13	70	1

Temperature 53 °F Lab analysis [X] Yes By BW&P
Water quality concerns? [X] Yes (describe below) TDS amount 62 ppm

From	To	Description	Amount	Units
110	166	Total Disolved Solids	800	ppm

(9) LOCATION OF WELL (legal description)

County CURRY Twp 32.00 S N/S Range 15.00 W E/W WM
Sec 34 NE 1/4 of the NE 1/4 Tax Lot 105
Tax Map Number ____ Lot ____
Lat ___°___'___" or 42.76719662 DMS or DD
Long ___°___'___" or -124.45592839 DMS or DD
(●) Street address of well ( ) Nearest address
93835 ELK RIVER ROAD PORT ORFORD, OREGON

(10) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Pre-Alteration			[ ]	
Completed Well	10/17/2019		[ ]	8

Flowing Artesian? [ ] Dry Hole? [ ]

WATER BEARING ZONES Depth water was first found 9.00

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
10/10/2019	9	11	7.3		[ ]	8
10/15/2019	110	166	0.1		[ ]	116
					[ ]	
					[ ]	
					[ ]	

(11) WELL LOG

Ground Elevation 62.00

Material	From	To
Clay brown	0	3
Gravel c-f w/clay brown	3	7
Clay orange w/gravel f-m brown	7	9
Gravel c-f brown orangw	9	11
Basalt black	11	14
Basalt black iron stained	14	15
Basalt black w/quartz h	15	26
Basalt black w/claystone lenses	26	31
Basalt black w/quartz h	31	56
Basalt w/sandstone lenses black h	56	62
Basalt w/sandstone lenses black & quartz	62	79
Sandstone w/basalt lenses black & quartz	79	104
Basalt w/sandstone & claystone lenses& q	104	166
Hole cemented from 80.5'-166' high TDS	104	166

Date Started 10/9/2019 Completed 10/17/2019

(unbonded) Water 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 water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

License Number 1759 Date 10/21/2019

Signed CHRISTOPHER KERSEY (E-filed)

(bonded) Water 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 water supply well construction standards. This report is true to the best of my knowledge and belief.

License Number 1493 Date 10/21/2019

Signed JAMES MACK SR (E-filed)

Contact Info (optional) Bandon Well & Pump Co. (541) 347-7867

WATER SUPPLY WELL REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

CURR 52909

10/21/2019

Map of Hole

STATE OF OREGON
WELL LOCATION MAP

This map is supplemental to the WATER SUPPLY WELL REPORT

Oregon Water Resources Department
725 Summer St NE, Salem OR 97301
(503)986-0900

LOCATION OF WELL

Latitude: 42.7671966222 Datum: WGS84
Longitude: -124.45592838705
Township/Range/Section/Quarter-Quarter Section:
WM 32S 15W 34 NENE
Address of Well:
93835 ELK RIVER ROAD PORT ORFORD, OREGON

Well Label: 134955

Printed: October 21, 2019

DISCLAIMER: This map is intended to represent the approximate location the well. It is not intended to be construed as survey accurate in any manner.

Provided by well constructor

ATTACHMENT B
WATER RIGHTS TRANSFER DOCUMENTS

BEFORE THE WATER RESOURCES DIRECTOR OF OREGON

CURRY COUNTY

IN THE MATTER OF THE APPLICATION)
OF PHOENIX WESTERN, INC., FOR AP-)
PROVAL OF A CHANGE IN USE OF)
WATER FROM BAGLEY CREEK)

ORDER APPROVING
TRANSFER NO. 4147

On January 26, 1979, an application was filed in the office of the Water Resources Director by Phoenix Western, Inc., for approval of a change in use heretofore made of water from Bagley Creek, pursuant to the provisions of ORS 540.510 to 540.530.

The certificate recorded at page 23957, Volume 17, State Record of Water Right Certificates, in the name of Western States Plywood Cooperative, describes a right for the use of not to exceed 0.20 cubic foot per second from Bagley Creek, Marsh Log Pond and reservoir, being 0.10 cubic foot per second for maintenance of log pond and 0.10 cubic foot per second for manufacturing, located in SW¼ SE¼ and NW¼ SE¼ of Section 27, Township 32 South, Range 15 West, W.M., with a date of priority of September 25, 1951.

Water for the said right is diverted from a point located 1230 feet South and 2300 feet West from the East Quarter Corner of Section 27, being within the NW¼ SE¼ of Section 27, Township 32 South, Range 15 West, W.M.

The applicant proposes to change the use heretofore made of water, without loss of priority, to fish rearing, being 0.10 cubic foot per second for pond maintenance and fish culture and 0.10 cubic foot per second for fish rearing in tanks, located in said SW¼ SE¼ and NW¼ SE¼ of said Section 27.

The certificate recorded at page 23956, Volume 17 of said record, in the name of Western States Plywood Cooperative, describes a right for storage of not to exceed 31.8 acre feet from Bagley Creek for a log pond, with a date of priority of September 25, 1951.

The reservoir is located in SW¼ SE¼ and NW¼ SE¼ of Section 27, Township 32 South, Range 15 West, W.M.

The applicant proposes to change the use heretofore made of water, without loss of priority, and to use said reservoir for fish rearing purposes.

Notice of the application, pursuant to ORS 540.520(2), was published in the Port Orford News, a newspaper printed and having general circulation in Curry County, Oregon, for a period of three weeks in the issues of September 13, 20 and 27, 1979.

Mr. M. John Youngquist, Watermaster, has filed a statement to the effect that the proposed change in use heretofore made of water may be made without injury to existing rights.

No objections having been filed and it appearing that the proposed change in use heretofore made may be made without injury to existing rights, the application should be approved.

NOW, THEREFORE, it hereby is ORDERED that the requested change in use heretofore made of water, as described herein, without loss of priority, is approved.

It is FURTHER ORDERED that the construction work shall be completed and that the water so transferred shall be applied to beneficial use on or before October 1, 1981.

It is FURTHER ORDERED that the certificates recorded at pages 23956 and 23957, Volume 17, State Record of Water Right Certificates, are canceled; and upon proof satisfactory to the Water Resources Director of completion of works and beneficial use of water to the extent intended under the provisions of this order, confirming certificates of water right shall be issued to the applicant herein.

Dated at Salem, Oregon, this 13th day of November, 1979.

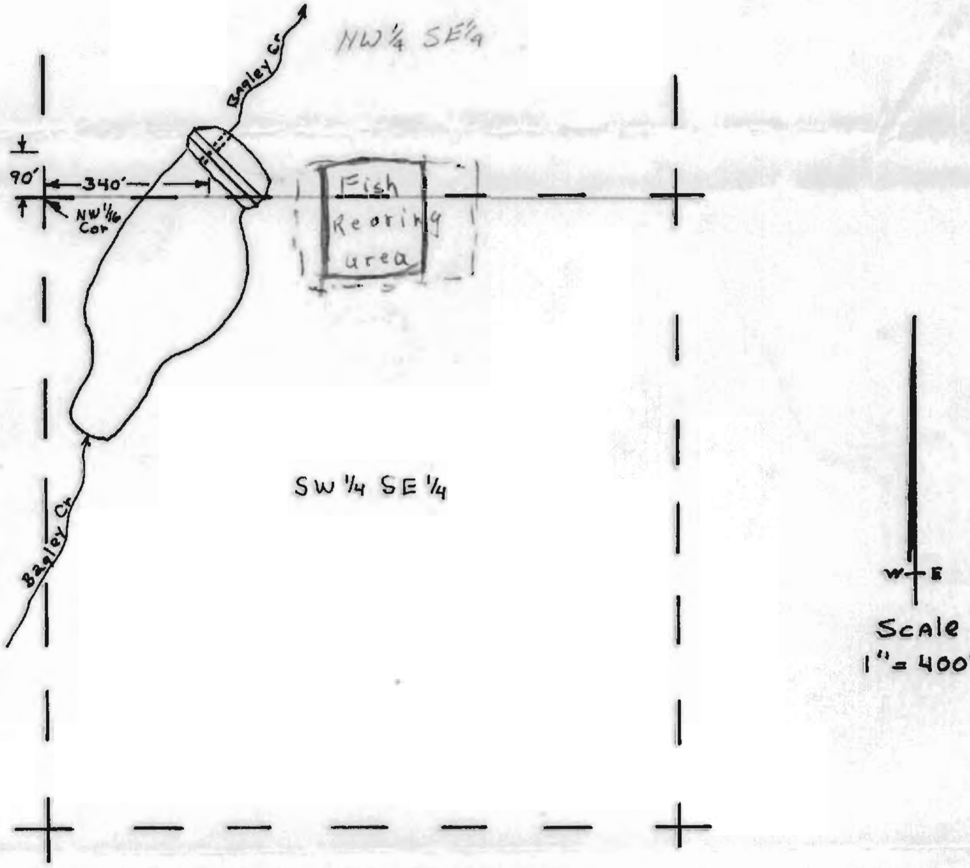
James E. Sexson
James E. Sexson
Director

T-4147

RECEIVED
JUL 23 1979
WATER RESOURCES DEPT
SALEM, OREGON

T32S R15W
SW 1/4 SE 1/4
Sec 27

RECEIVED
JAN 26 1979
WATER RESOURCES DEPT.
SALEM, OREGON



Appendix J

Analysis of Brownfield Cleanup Alternatives,
Former Western States Plywood Cooperative Mill

ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES

FORMER WESTERN STATES PLYWOOD COOPERATIVE MILL

Prepared for

WILD RIVERS LAND TRUST

PORT ORFORD, OREGON

November 2, 2022

Project No. M2272.01.002

Prepared by

Maul Foster & Alongi, Inc.

6 Centerpointe Drive, Suite 360, Lake Oswego, OR 97035

MAUL FOSTER ALONGI

ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES

FORMER WESTERN STATES PLYWOOD COOPERATIVE MILL, PORT ORFORD, OREGON

The material and data in this report were prepared under the supervision and direction of the undersigned.

MAUL FOSTER & ALONGI, INC.

Joshua Elliott, PE
Senior Engineer

Phil Wiescher, PhD
Principal Environmental Scientist

CONTENTS

TABLES AND ILLUSTRATIONS

FOLLOWING REPORT:

ACRONYMS AND ABBREVIATIONS

ABCA	Analysis of Brownfield Cleanup Alternatives
bgs	below ground surface
CFR	Code of Federal Regulations
COC	contaminant of concern
CWA	Clean Water Act
DEQ	Department of Environmental Quality (Oregon)
DSL	Department of State Lands (Oregon)
EPA	U.S. Environmental Protection Agency
ERA	ecological risk assessment
ESA	environmental site assessment
ESCP	erosion- and sediment-control plan
ERP	Elk River Partners LLC
HAI	Hahn and Associates, Inc.
JPA	joint permit application
MFA	Maul Foster & Alongi, Inc.
NMFS	National Marine Fisheries Service
OAR	Oregon Administrative Rule
PCP	pentachlorophenol
pg/g	picograms per gram
RBC	risk-based concentration
TEQ	toxicity equivalent quotient
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WRLT	Wild Rivers Land Trust
WSP	WSP USA, Inc.

1 INTRODUCTION

On behalf of Wild Rivers Land Trust (WRLT), Maul Foster & Alongi, Inc. (MFA) prepared this Analysis of Brownfield Cleanup Alternatives (ABCA) report for the Former Western States Plywood Cooperative Mill (the Site), located along the Elk River in Port Orford, Oregon. This ABCA focuses on the remediation of dioxin/furan-impacted soil and sediments which were identified as posing an unacceptable risk to ecological receptors (MFA 2022).

1.1 Purpose and Objectives

MFA completed this ABCA to meet the requirements of the U.S. Environmental Protection Agency (EPA) Brownfield Cleanup Grants program. This ABCA report includes:

- Information about the project site and planned habitat restoration activities
- Summary of previous investigations and known contaminants, and applicable regulations and cleanup standards
- Evaluation of effectiveness, long-term reliability, implementability, implementation risk, and cost of the evaluated cleanup alternatives, as well as climate change and sustainability considerations
- Selection of a preferred cleanup alternative

2 BACKGROUND

2.1 Site Description

The Site is located in section 27 of township 32 south, range 15 west of the Willamette Meridian and includes Curry County tax lots 104, 900, and 901 (see Figure 2-1). The Site is currently vacant and is covered with vegetation and disturbed ground from former plywood mill operations. Two ponds are present on the Site: the former log pond and the former fire suppression pond (see Figure 2-2). The former log pond comprises approximately 4.4 acres of freshwater Palustrine emergent wetland, primarily within tax lot 901, and is currently an overgrown low-lying marshy area (see Appendix B; WSP 2020). The former fire suppression pond occupies the northwest corner of Tax Lot 900. Bagley Creek crosses the Site in a southwest-to-northeast direction, through the former fire suppression pond and former log pond and enters the Elk River near the northeast corner of the Site. A concrete-fortified dam with an intrinsic spillway, an earthen dam, and seasonal beaver dams constrain the water along Bagley Creek into the two ponds. Most of the Site is relatively flat at an elevation of approximately 80 feet above mean sea level. The eastern portion of tax lot 104 contains a slight topographic slope to Elk River. The Site is bordered by agricultural land to the west and north and rural residences to the east and south (see Figure 2-2). The Elk River flows along the northeast perimeter of the Site.

The Site, as well as the adjacent Curry County tax lots 902 and 903, were formerly developed and operated as a plywood mill owned by Western States Plywood Cooperative. The plywood manufacturing facility operated on the Site between approximately the 1950s until 1975. Prior to construction of the mill, the Site was vacant, undeveloped forestland. Historical features associated with the former mill are shown on Figure 2-2. The land has been largely vacant since a fire destroyed the mill in 1976. (HAI 2018; WSP 2020).

The main structure of the former plywood mill building was primarily present on an adjacent tax parcel to the east of the Site. The northwest portion of the mill building likely housed the debarking operations of the mill while the southwest portion may have been used to heat the logs prior to peeling into veneers. The locations of the gluing operations and phenolic resins storage are not known. North of the debarking area in tax lot 104 was the former stud mill. Stud mills during this period commonly treated lumber with pentachlorophenol (PCP) for anti-sap staining purposes; however, it is unknown whether PCP was used at the Site. Additional details on the historical features and operational activities are provided in the 2020 Targeted Brownfields Assessment and 2018 Phase II Environmental Site Assessment (HAI 2018; WSP 2020).

The following sensitive environments have been identified at the Site (WSP 2020):

- The Elk River is designated as a Wild and Scenic River under the National Wild and Scenic Rivers Act as well as Essential Salmonid Habitat by the Oregon Department of State Lands (DSL).
- Bagley Creek is designated as Essential Salmonid Habitat by DSL.
- The former log pond on tax lots 104 and 901 contains freshwater emergent and freshwater forest/shrub wetlands as identified in the U.S. Fish and Wildlife National Wetlands Inventory.
- The bank of the Elk River on tax lot 104 is defined as freshwater forest/shrub wetlands in the U.S. Fish and Wildlife National Wetlands Inventory.
- The banks of the Elk River and Bagley Creek are identified as Riparian Habitat by the Oregon Department of Fish and Wildlife Strategy Habitats Database.

Federally listed threatened species (i.e., Coho salmon) may be present in the adjacent Elk River during certain times of the year (e.g., while migrating) and the proposed habitat restoration of Bagley Creek is being conducted to support reintroduction of Coho salmon.

2.2 Geology, Hydrogeology, and Surface Water

The Site is located on an alluvial plain of the Elk River, surrounded to the north and south by lowland hills of Oregon's coastal range. According to WSP USA, Inc.'s, (WSP's) review of light detection and ranging imagery, there is a relatively steep slope at the northern margin of the Site consistent with an ancestral alluvial bench rather than artificial fill placement imported to raise the grade of the Site (WSP 2020).

During previous investigations, subsurface drilling observations at the Site identified a mixture of sands, silts, and gravel to the maximum exploration depth of 25 feet below ground surface (bgs). Groundwater was typically encountered between 7 to 15 feet bgs, exceptions being the areas near the southern and northern margins of the former log pond, where groundwater was encountered approximately 7.5 and 17 feet bgs, respectively. Based on topography, Hahn and Associates, Inc. (HAI) inferred that the groundwater flow direction ranged from an easterly to a northwesterly direction, and likely was subject to seasonal variation (HAI 2018; WSP 2020).

Bagley Creek intersects the Site through the former log pond and former fire suppression pond that were constructed as part of the former plywood mill operations. The presence of the ponds and dams through Bagley Creek has prevented fish access to upstream portions of Bagley Creek from Elk River. National Wetlands Inventory maps depicts several wetlands at low spots on the Site (see Appendix B). These include freshwater emergent and freshwater forest/shrub wetlands within the former log pond, and a freshwater emergent wetland on adjacent tax lots 902 and 903.

2.3 Previous Investigations

Previous environmental investigations at the Site have included the following:

- July 2017: Phase I Environmental Site Assessments (ESAs) for tax lots 900 and 901 of the Site prepared for WRLT by PBS Engineering and Environmental, Inc. (PBS 2017a,b).
- December 2018: Phase II ESA for tax lots 104 and 900 of the Site on behalf of WRLT and Elk River Partners LLC (ERP) by HAI (HAI 2018). The Phase II ESA included the following:
  - Targeted geophysical survey work to assess three areas of the Site. Four subsurface anomalies were identified during the survey, including one potential underground storage tank (UST) near the former office (see Figure 2-2).
  - Advancement of 16 borings for soil and groundwater sampling.
  - Collection of six surface soil samples (three 3-point composite samples and three discrete samples) within the top foot of soil across the Site.
- January 2019: supplemental surface soil investigation for dioxins/furans on behalf of WRLT and ERP by HAI (HAI 2019a). This investigation included sampling eight discrete locations (SS-1 through SS-8) within the top foot of soil across the Site.
- March 2019: Phase I ESA for tax lots 104 and 901 by HAI on behalf of WRLT and ERP (HAI 2019b).
- July 2020: Phase I ESA for tax lot 900 and an adjacent tax lot to the east, Curry County tax lot 3215-27-00902 by HAI on behalf of ERP and JJW Sustainable Land Trust, LLC (HAI 2020).

- December 2020: Targeted Brownfields Assessment for the Site prepared on behalf of EPA by WSP (WSP 2020). This assessment included a Level 1 ecological risk assessment (ERA). This investigation included the following:
  - Collection of eight 30-point surface soil samples via incremental sampling methodology (ISM) from eight decision units. This included one background decision unit (DU-8) and the remaining seven decision units centered around the former northern and southern wigwam burners and the former stud mill.
  - Collection of subsurface soil and groundwater samples from temporary direct-push borings across the Site.
  - Collection of groundwater samples from two permanent wells on the Site, a domestic well with a downhole pump and hose spigot and an approximately 30-inch-diameter concrete cased well.
  - Collection of grab surface sediment samples from the upper 10 centimeters of the sediment along Bagley Creek and within the former ponds on the Site.
  - Collection of surface water along Bagley Creek and within the former ponds on the Site.
- August 2022: Screening level ERA and Beneficial Land and Water Use Determination for the Site prepared by MFA on behalf of WRLT. The ERA determined potential for unacceptable risk to ecological receptors at the Site. Reasonably likely future land use at the Site includes ecological habitat and recreational use. Beneficial uses of ground and surface water at the Site and surrounding area include drinking water, discharge to surface water to support fish and aquatic life, irrigation, domestic water supply, ecological habitat, and recreation.

2.3.1 Known Contaminants

Previous environmental investigations identified the operation of industrial machinery and vehicles onsite, leaks or spills from oil filled transformers, leaks or spills of maintenance shop-related materials stored in containers, and releases of wood treatment chemicals, such as PCP, as possible sources of contamination to the Site (WSP 2020). Potential contaminants associated with these sources included:

- Metals (including mercury)
- Diesel Range Organics
- Oil Range Organics
- Gasoline Range Organics
- Semivolatile organic compounds, including PCP and polycyclic aromatic hydrocarbons
- Polychlorinated biphenyls
- Benzene, toluene, ethylbenzene, and xylene
- Formaldehyde
- Dioxins/furans

Based on the investigations conducted, MFA prepared an ERA consistent with Oregon Department of Environmental Quality (DEQ) methodologies to determine whether contaminants at the Site currently pose, or are reasonably likely to pose in the future, unacceptable risks to ecological receptors including threatened Coho salmon under proposed future restored conditions (MFA 2022). MFA performed higher-tiered risk assessment evaluations, building on the Level 1 Scoping ERA that was previously prepared for EPA (WSP 2020), to identify ecological chemicals of concern (COCs). COCs were identified as follows and in the areas shown on Figure 2-3.

- **Soil:** Dioxin/furans for mammal populations based on a risk-based concentration (RBC) of 11 picograms per gram (pg/g) and an associated hot spot criterion of 110 pg/g for dioxin toxicity equivalent quotient (TEQ).[1]

- **Sediment:** Dioxin/furans for sediment direct toxicity based on a RBC of 21.5 pg/g and an associated hot spot criterion of 215 pg/g for dioxin TEQ.

- **Surface Water:** Elevated detections of dioxins in surface water are likely related to elevated concentrations observed in soils/sediments, and addressing these media is anticipated to account for surface water given the hydrophobic nature of these compounds.

2.4 Planned Habitat Restoration

The planned reuse for the Site is as habitat for fish and wildlife, including reintroduction of Coho salmon, a federally listed threatened species. The project will include the removal of existing barriers to fish passage and reconnection of over 1 mile of upstream habitat on Bagley Creek, a tributary to the Elk River. The project supports several plans (especially the Elk River Coho Business Plan[2]) to restore habitat for threatened and endangered fish species in the Elk River.

The former log pond, smaller fire pond, and riparian areas along Bagley Creek will be restored to a more natural ecological condition by re-establishing hydrologic connectivity and native vegetation. The upland portions of the Site will be planted with native vegetation.

2.5 Regional and Site Vulnerabilities

According to the Fourth National Climate Assessment (May, et al. 2018), trends for the northwest region of the United States include: increased temperatures during all seasons under all future scenarios; decreased snowpack; increased wildfires and insect infestations; decreased rainfall and water availability during the dry season; increased flooding during the wet season; a rising sea level; increased storm surge events; more frequent heat waves; and increased risk of landslide and erosion. The most applicable climate related vulnerability to the cleanup of the site is increased precipitation that may affect flood waters.

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[1] Concentrations of dioxins/furans congeners are multiplied by their toxicity equivalent factors to estimate the toxicity of these congeners relative to 2,3,7,8-tetrachlorodibenzo-p-dioxin; the resulting concentrations may be summed into a total 2 2,3,7,8-tetrachlorodibenzo-p-dioxin TEQ concentration.

[2] The Elk River Coho Partnership, 2022. Strategic Action Plan for Coho Salmon Recovery, The Elk River.

According to the Federal Emergency Management Agency flood zone map 41015C0190F (see Appendix), the very northern and eastern boundaries of the Site are located within Zone AE, but the majority of the site is within Zone X, where minimal flooding is expected during the current 500-year recurrence interval event. The planned remediation and ecological restoration work will take place partially within Zone X.

Increased storm frequency and intensity, along with increased precipitation in the wet months, may result in more frequent and powerful flood waters within the Elk River, which may result in changes to the flood zone and increased risk of flooding of the Site. The remediation and ecological restoration of the Site is designed with these factors in mind. Based on the nature of the Site and its proposed reuse, other climate change impacts are not likely to significantly affect the Site.

3 APPLICABLE REGULATIONS AND CLEANUP STANDARDS

3.1 State Cleanup Oversight and Regulations

DEQ is responsible for overseeing cleanup at the Site. Documents prepared for the Site are submitted to DEQ under state Environmental Cleanup Site Information number 556. The site is expected to be governed under Oregon Administrative Rule (OAR) Chapter 340 Division 122—Hazardous Substance and Remedial Action Rules. These rules require that any removal or remedial action address a release or threat of release of hazardous substances in a manner that assures protection of present and future public health, safety, and welfare and the environment. The rules also provide a framework for the development of RBCs to which concentrations of contaminants are compared to evaluate the need for remediation.

3.2 Joint Permit Application

The joint permit application (JPA) is administered by the U.S. Army Corps of Engineers (USACE) to facilitate application for federal and state permits for projects impacting waters of the U.S. and state waters. The regulations relevant to cleanup at the Site are summarized in the following subsections.

3.2.1 USACE Section 404 Permit

USACE requires that a permit be obtained for the discharge of dredged or fill materials in waters of the U.S., consistent with the Clean Water Act (CWA). The permit also requires that the state issue a water quality certification for the project under CWA Section 401. Discharges of dredged or fill materials are not permitted unless there is no practicable alternative that will have less adverse impact on the aquatic ecosystem.

WRLT will prepare permit documents fulfilling the requirements of CWA Section 404. It is expected that the proposed work will be permitted under Nationwide Permit 38—Cleanup of Hazardous and

Toxic Waste. This general action permit provides for a streamlined effort for specific activities required to affect the containment, stabilization, or removal of hazardous or toxic waste materials that are performed, ordered, or sponsored by a government agency with established legal or regulatory authority.

3.2.2 Endangered Species Act and Biological Opinion

USACE permitting may prompt an Endangered Species Act determination by USACE and subsequent consultation (informal concurrence or formal consultation) with the National Marine Fisheries Service (NMFS) for coho salmon and the U.S. Fish and Wildlife Service (USFWS) for pacific marten, marbled murrelet, northern spotted owl, western snowy plover, monarch butterfly, and western lily.

These consultations would result in biological opinions in which NMFS and the USFWS would document their opinions as to whether an in-water project or action is likely to jeopardize the existence of an Endangered Species Act-listed species or to result in the destruction or improper modification of the habitat of that species. WRLT will prepare a biological evaluation or assessment, to evaluate whether adverse or negative impacts to endangered species and their critical habitats during or resulting from sediment remediation should be anticipated, to be submitted with the JPA.

Alternatively, USACE may directly evaluate whether the proposed in-water project or action is likely to jeopardize the existence of a species recorded on the Endangered Species Act list or to result in the destruction or improper modification of the habitat of that protected species. USACE may then ask the NMFS and USFWS for concurrence with their evaluation (an informal consultation).

3.2.3 CWA Section 401 Certification

The CWA requires the development of regulations to protect the quality of the nation's waters. Section 401 requires that applicants for a federal license or permit to conduct work that may result in discharges into navigable U.S. waters provide the licensing or permitting agency a certification from the state that the discharge will comply with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the CWA. This program has been delegated to the State of Oregon.

The objective of the CWA (33 U.S. Code 1251-1376 and 40 CFR 129 and 131) is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Sections 303 and 304 of the CWA require the EPA to issue ambient surface water quality criteria for the protection of aquatic life and human health. The federal water quality criteria, as specified in Title 40 Part 131 of the Code of Federal Regulations (CFR), are nonenforceable guidelines to be used by states to set water quality standards for surface water. Federal water quality criteria, based on chronic and acute effects to aquatic life, have been developed for 120 priority toxic pollutants and 45 nonpriority pollutants for marine waters and freshwaters.

At least 30 days prior to submitting the JPA to DEQ's 401 program, WRLT will prepare a pre-filing request to allow DEQ to determine whether a pre-filing meeting is required. Following notification of whether a pre-filing meeting is required, WRLT and DEQ will either attend a pre-filing meeting or, if a meeting is not required, submit the application for the 401 certification. A project-specific water quality plan and monitoring plan will be prepared, as necessary, following feedback from DEQ's 401 program.

3.2.4 Cultural Resources

The National Historic Preservation Act, passed in 1966 (16 U.S. Code 470 et seq.), established a national policy for the protection of important historic buildings and archaeological sites and outlined responsibilities for federal and state governments. Under Section 106 of the National Historic Preservation Act, each agency must consult with Oregon's State Historic Preservation Office and Indian Tribes to ensure that cultural resources are identified, and to obtain the formal opinion of the office on each site's significance and the impact of its action upon the site. The responsibilities of all parties in the Section 106 review process are set forth in federal regulations developed by the Advisory Council on Historic Preservation as 36 CFR 800. Section 106 compliance is required, as activities requiring a permit from USACE will be conducted.

Prior to submitting the JPA, WRLT will subcontract with a cultural resources firm to provide an assessment of potential cultural resources within the remedial action area. This assessment will include an inadvertent discovery plan should cultural resources be disturbed/encountered during cleanup implementation.

3.2.5 Oregon Removal/Fill Law

Oregon Revised Statute 196.795-990 requires that a permit be obtained from DSL for removal of material from or the placement of fill within waters of the state; this permit will be applied for as part of the JPA. DSL will review the application for completeness and, if so, initiate a public review period. Following completion of the public comment period and the resolution of any technical issues, DSL will evaluate the entire record against the criteria for permit issuance and either approve or deny the application.

OAR 141-145 provides the rules governing "the granting and renewal of access authorizations, leases, and easements issued to facilitate remediation conducted pursuant to an order issued by DEQ or United States Environmental Protection Agency and habitat restoration activities in, on, under, or over state-owned submerged and submersible land." This OAR requires that an easement be obtained for the construction of a sediment cap. It is expected that the proposed work will require a removal/fill permit and access authorization from DSL.

3.2.6 National Pollutant Discharge Elimination System 1200-C Permit

The National Pollutant Discharge Elimination System 1200-C permit is administered by DEQ to regulate construction activities that disturb one or more acres of land through clearing, grading, excavating, or stockpiling of fill material and where the possibility exists that stormwater could run off the Site into surface waters or conveyance systems leading to surface waters of the state during construction. To obtain a permit, applicants must prepare an erosion- and sediment-control plan (ESCP) and incorporate best management practices into their land-disturbing construction work. A complete application packet includes an application form, Land Use Compatibility Statement, and the ESCP.

3.3 County Permits

The Site is in an unincorporated portion of Curry County. The selected cleanup alternative will require a county erosion and sediment control permit. As the cleanup will include the existing log pond (part of Bagley Creek), the project may require a floodplain development permit, also administered by Curry County. WRLT will coordinate with Curry County to identify which permits will be required and obtain those required permits.

4 CLEANUP ALTERNATIVES

The purpose of this ABCA is to identify and evaluate the most appropriate remedial alternative that reduces contaminant exposure to levels below RBCs protective of human health and the environment. This ABCA was completed in general accordance with EPA guidelines for conducting an ABCA and Oregon regulations for conducting a feasibility study (OAR 340-122-0085). This document is a draft and will be presented for public comment.

The remedial action area consists of soil/sediment with elevated concentrations of contaminants described in section 2.3.1.

4.1 Remedial Alternatives Considered

Typically, under DEQ removal authority (OAR 340-122-0090), remedial alternatives are evaluated using the following criteria:

- Effectiveness
- Long-term reliability
- Implementability
- Implementation risk
- Reasonableness of cost

The above factors are discussed below, along with a discussion of climate change and sustainability related to resilience per EPA guidance (EPA 2014).

The objective of the remedial alternatives is to mitigate risk from chemical concentrations present at a site, such that any potential exposures do not exceed levels protective of human health and the environment.

4.1.1 Alternative 1—No Action

This alternative is included as a baseline condition only and is not considered a long-term solution for remediation of the site. This alternative would not include any activities to remove, treat, monitor, or manage site contamination. If impacted soil and sediments are left in place, human and ecological exposure to soil and sediments is likely and the potential for contaminant migration via erosion would remain. This alternative is not protective of human health and the environment, and reduction of contaminant concentrations below RBCs would not be achieved. This alternative is not evaluated further.

4.1.2 Alternative 2—Excavation and Off-Site Disposal

The first remediation and restoration scenario (Alternative 2) assumes that the existing log pond dike and impacted sediments within the northern end of the log pond (adjacent to the dike) will be excavated. Excavated soil and sediment that exceeds RBCs would be disposed of offsite as nonhazardous waste in a permitted Subtitle D landfill. A 6-inch-thick residuals cover would be placed over excavated areas to stabilize the post-excavation surface and provide suitable habitat substrate. The residuals cover and all disturbed areas would be planted with native plants; planted areas would be maintained for three years.

4.1.3 Alternative 3—Excavation and Protective Cap Installation

The second remediation and restoration scenario (Alternative 3) assumes that the existing log pond dike and impacted sediments within the northern end of the log pond (adjacent to the dike) will be excavated. Excavated soil and sediment that exceeds RBCs but that does not exceed hot spot criteria (estimated to be 40% of all excavated material) would be placed upland and capped with a high-visibility geotextile and at least two feet of other soil/sediment from the Site that does not exceed RBCs. Excavated soil and sediment that exceeds hot spot criteria (estimated to be 10% of soil/sediment exceeding RBCs) would be disposed of offsite as nonhazardous waste in a permitted Subtitle D landfill. A 6-inch-thick residuals cover would be placed over excavated areas to stabilize the post-excavation surface and provide suitable habitat substrate. The residuals cover and all disturbed areas would be planted with native plants; planted areas would be maintained for three years.

4.2 Evaluation of Cleanup Alternatives

4.2.1 Effectiveness

Both Alternative 2 and Alternative 3 are judged to be effective, as they would eliminate the exposure of contaminated soil/sediment to human and ecological receptors.

4.2.2 Long-Term Reliability

Alternative 3 requires the use of institutional controls (e.g., soil management plan) and the maintenance of engineering controls (a cap) to prevent exposure of human and ecological receptors to contaminated soil.

Alternative 2 would remove all contaminated soil and sediments from the site and would not rely on either institutional controls or engineering controls. Alternative 2 is judged to be more reliable in the long term.

4.2.3 Implementability

Both proposed alternatives are considered implementable, as they utilize common construction practices. Alternative 2 is judged to be slightly more implementable as it would not require consolidation and capping of excavated soil/sediment onsite.

4.2.4 Implementation Risk

The implementation risks for the two alternatives are similar. The impact on the community would be minimized, as the cleanup site is in a rural area and not directly adjacent to residences. The nearby community would be primarily impacted by haul routes. Worker risk would be minimized by adherence to a health and safety plan. The required permits would reduce risk to the environment during construction through engineering and institutional controls.

4.2.5 Climate Change Concerns

The Elk River drainage is a rain-dominated basin, with much of the streamflow occurring between October and April. As the effects of climate change advance through midcentury and beyond, this general pattern is expected to continue. However, the frequency and magnitude of flood events are expected to increase during the rainy season, followed by decreased summer stream flows. Both Alternatives would remove contaminated sediment from the Bagley Creek drainage. While contaminated sediment would remain on site under Alternative 3, it would be capped and located well outside the floodplain of even the current 500-year event (Zone X of the flood insurance rate map).

4.2.6 Sustainability

Alternative 3 is judged to be more sustainable than Alternative 2, as it would require much less trucking of material from the Site. Alternative 2 would require trucking of all contaminated soil to a permitted landfill as well as the trucking of landfill cover materials. While the soil cover included in Alternative 3 is expected to require periodic maintenance in the long term, the additional emissions from hauling a much larger quantity of material to the landfill during initial construction (Alternative 2) are more significant that the emissions related to minor long-term maintenance activities (Alternative 3).

4.2.7 Cost

The conceptual-level cost estimate to implement Alternative 2 is approximately $2,614,000 (see Table 4-1). The conceptual-level cost estimate to implement Alternative 3 is approximately $1,787,000 (see Table 4-2).

4.3 Public Participation

The ABCA process mandates that public comments and concerns be addressed during the selection of a cleanup alternative. This ABCA report will be included in the EPA grant application to be presented for public comment. Additional public comment period(s) will be included during permitted of the cleanup action.

5 PREFERRED CLEANUP ALTERNATIVE

The preferred cleanup alternative to remediate soil and sediment with concentrations of contaminants above RBCs is Alternative 3, which includes:

- Excavation of soil and sediment with concentrations exceeding RBCs
- Off-site disposal of soil and sediment with concentrations exceeding hot-spot criteria
- Consolidation of remaining excavated soil and sediment on site
- Capping of consolidated soil and sediment with clean site soil and/or imported clean soil

Alternative 1 cannot be recommended since it does not address site risks. While Alternative 2 ranks slightly higher in long-term reliability and implementability, it ranks lower in sustainability and is nearly 50% more expensive than Alternative 3. The long-term reliability and implementability concerns of Alternative 3 can be well managed. Environmental caps are proven technologies and upland soil caps can be easily and effectively monitored. For these reasons, Alternative 3 is the preferred alternative.

LIMITATIONS

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

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

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TABLES

Table 4-1
Alternative 2 Conceptual Cost Estimate
Former Western States Plywood Cooperative Mill - Impacted Soil and Sediment Remediation
Wild Rivers Land Trust
Port Orford, Oregon

Alternative 2—Sediment and Soil Off-Site Disposal	MAUL FOSTER ALONGI
Project: Former Western States Plywood Cooperative Mill	
Client: Wild Rivers Land Trust	
Project #: M2272.01.001	6 Centerpointe Drive, Suite 360
Prepared By: Josh Elliott, PE	Lake Oswego, OR 97035
Checked By:	www.maulfoster.com
Date: 10/31/2022	
Revision #: 0	

Primary Assumptions:

In-place unit weight for soil (import and disposal) assumed at 1.5 tons/cubic yard.

Construction Cost	**Units**	**Unit Cost**	**No. of Units**	**Cost**
Direct Construction Costs				
Mobilization[(1)]	LS	10%	1	$179,000
Preliminary Site Work				
Erosion & Sediment Controls	LS	$3,000	1	$3,000
Private Utility Locate	LS	$500	1	$500
Construction-Phase Surveying	LS	$15,000	1	$15,000
Sediment and Soil Excavation and Placement				
Soil and Sediment Excavation	CY	$20	17,000	$340,000
Transportation and Disposal	TON	$100	10,200	$1,020,000
Upland Placement (non-cap)	CY	$10	10,200	$102,000
Sediment Residuals Cover				
Material Purchase and Import	TON	$50	1,500	$75,000
Material Placement	CY	$10	1,000	$10,000
Site Restoration				
Restoration Plantings	SY	$36	6,000	$216,000
Planting Maintenance (3 years)	LS	$50,000	1	$50,000
Direct Construction Costs Subtotal				**$2,010,500**
Contingency (20%)				$402,100
Design and Permitting (10%)				$201,050
CONSTRUCTION TOTAL (rounded to nearest thousand)				**$2,614,000**

NOTES:
CY = cubic yard.
LS = lump sum.
SY = square yard.
TON = ton.
[(1)]Calculated as 10 percent of direct construction costs excluding planting maintenance.

Table 4-2
Alternative 3 Conceptual Cost Estimate
Former Western States Plywood Cooperative Mill - Impacted Soil and Sediment Remediation
Wild Rivers Land Trust
Portl Orford, Oregon

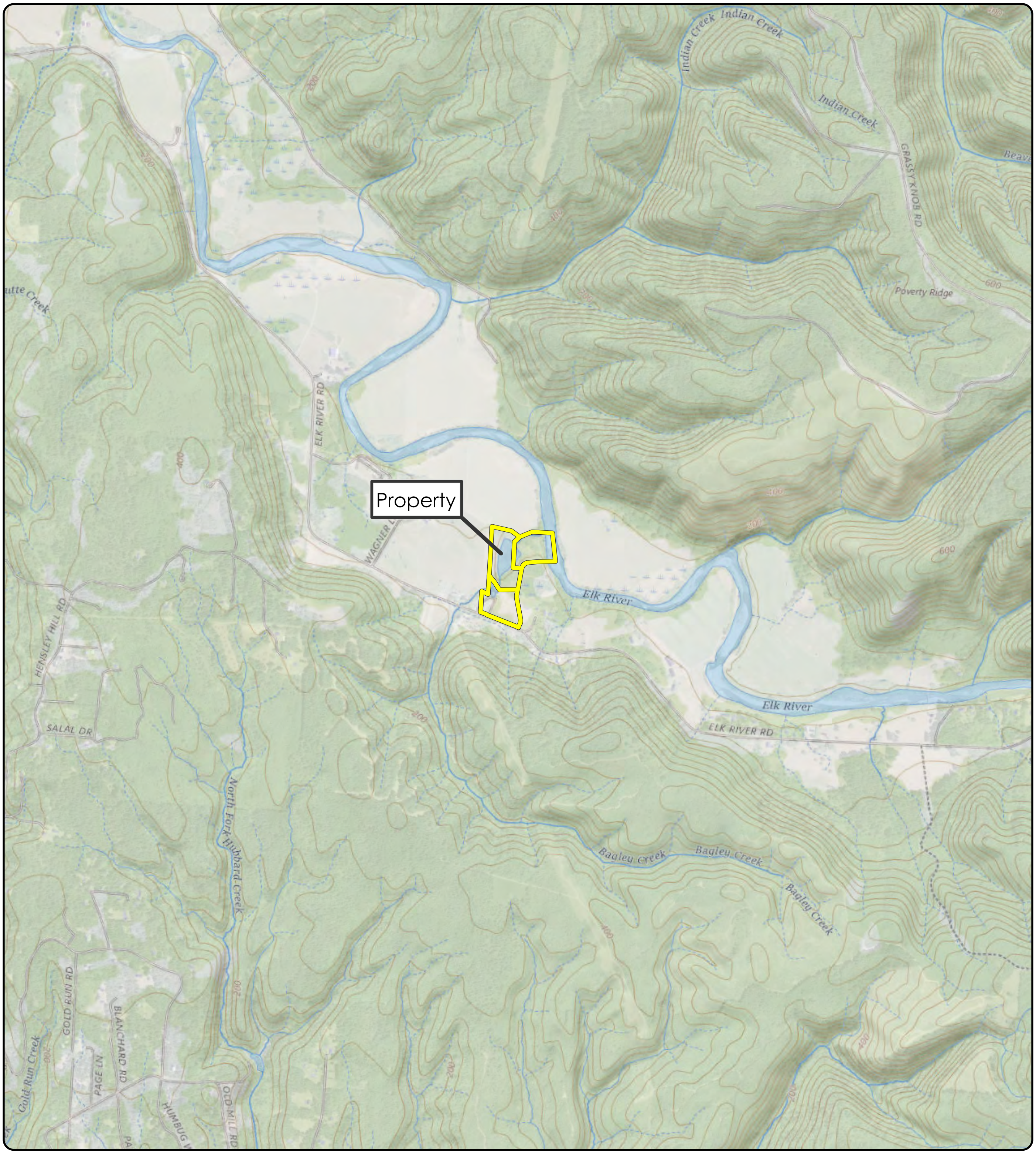
Alternative 3—Sediment and Soil Capping On Site	MAUL FOSTER ALONGI
Project: Former Western States Plywood Cooperative Mill	
Client: Wild Rivers Land Trust	
Project #: M2272.01.001	6 Centerpointe Drive, Suite 360
Prepared By: Josh Elliott, PE	Lake Oswego, OR 97035
Checked By:	www.maulfoster.com
Date: 10/31/2022	
Revision #: 0	

Primary Assumptions:
In-place unit weight for soil (import and disposal) assumed at 1.5 tons/cubic yard.

Construction Cost	**Units**	**Unit Cost**	**No. of Units**	**Cost**
Direct Construction Costs				
Mobilization[1]	LS	10%	1	$121,000
Preliminary Site Work				
Erosion & Sediment Controls	LS	$5,000	1	$5,000
Private Utility Locate	LS	$500	1	$500
Construction-Phase Surveying	LS	$25,000	1	$25,000
Sediment and Soil Excavation				
Contaminated Soil and Sediment Excavation	CY	$20	6,800	$136,000
Uncontaminated Soil and Sediment Excavation	CY	$20	10,200	$204,000
Upland Soil and Sediment Placement	CY	$25	17,000	$425,000
Transport and Disposal (Hot Spot Soil/Sediment)	TON	$100	1,020	$102,000
Sediment Residuals Cover				
Material Purchase and Import	TON	$50	1,500	$75,000
Material Placement	CY	$15	1,000	$15,000
Site Restoration				
Restoration Plantings	SY	$36	6,000	$216,000
Planting Maintenance (3 years)	LS	$50,000	1	$50,000
Direct Construction Costs Subtotal				**$1,374,500**
Contingency (20%)				$274,900
Design and Permitting (10%)				$137,450
CONSTRUCTION TOTAL (rounded to nearest thousand)				**$1,787,000**

NOTES:
CY = cubic yard.
LS = lump sum.
SY = square yards.
TON = ton.
[1]Calculated as 10 percent of direct construction costs excluding planting maintenance.

FIGURES



Notes:
U.S. Geological Survey 7.5-minute topographic quadrangle: Sixes. Township 32 south, range 15 west, section 27.

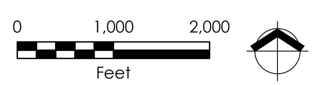
Data Source:
Property boundary obtained from Curry County.

Legend

Property Boundary

Figure 2-1
Vicinity Map

Wild Rivers Land Trust
Port Orford, OR



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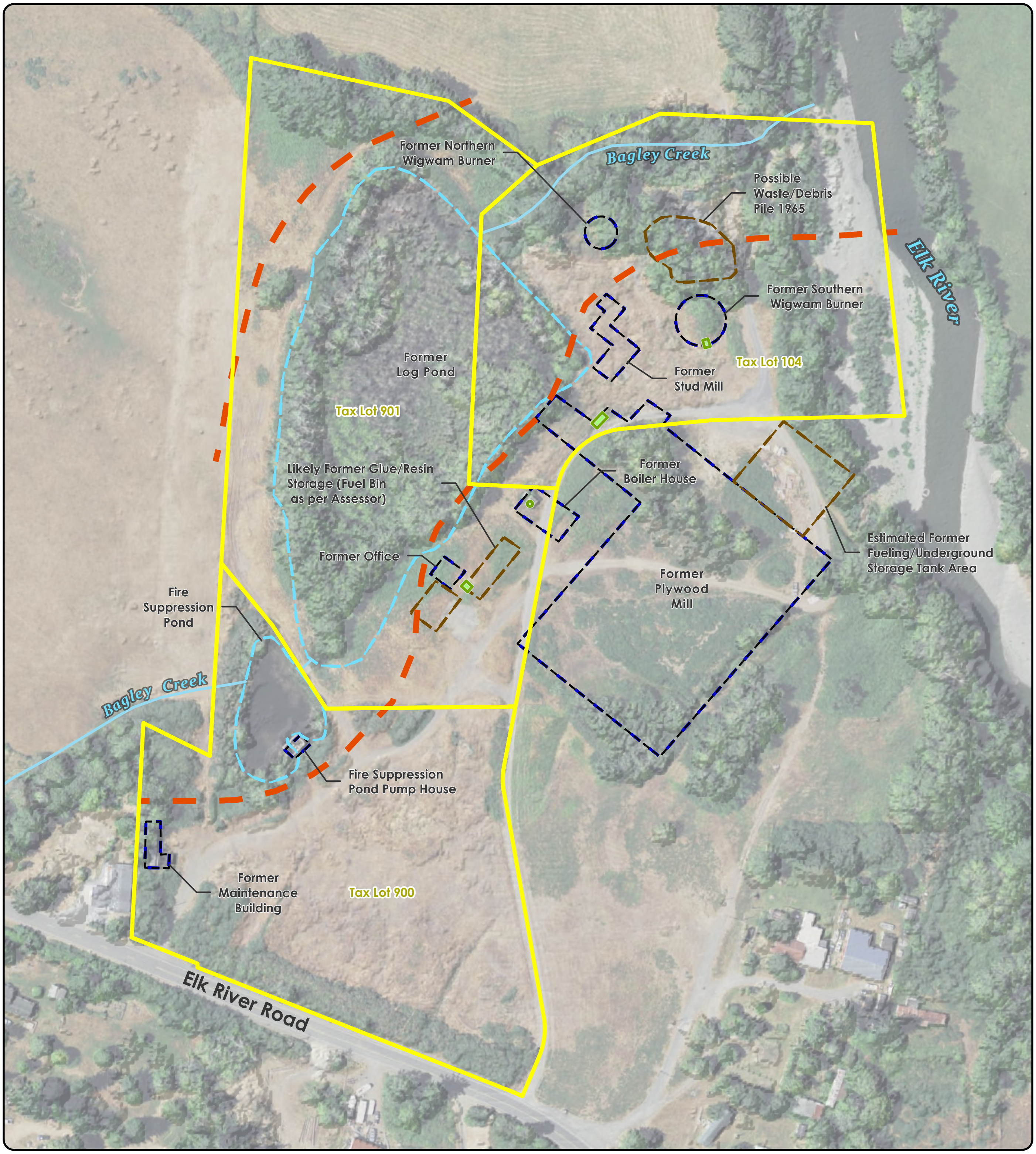
Print Date: 7/25/2022
Reviewed By: cwise
Produced By: jroberts
Project: M2272.01.001



Notes:
All site features are approximate.

Data Sources:
Creek, possible restoration area, geophysical anomalies, and historic site features from HAI (2019). Property boundary obtained from Oregon Department of Revenue (2019).

Legend

- Geophysical Anomaly
- Building
- Other
- Pond
- Creek
- Possible Restoration Area
- Site Tax Lots

Figure 2-2 Historical Site Features

Wild Rivers Land Trust
Port Orford, OR

0 100 200
Feet

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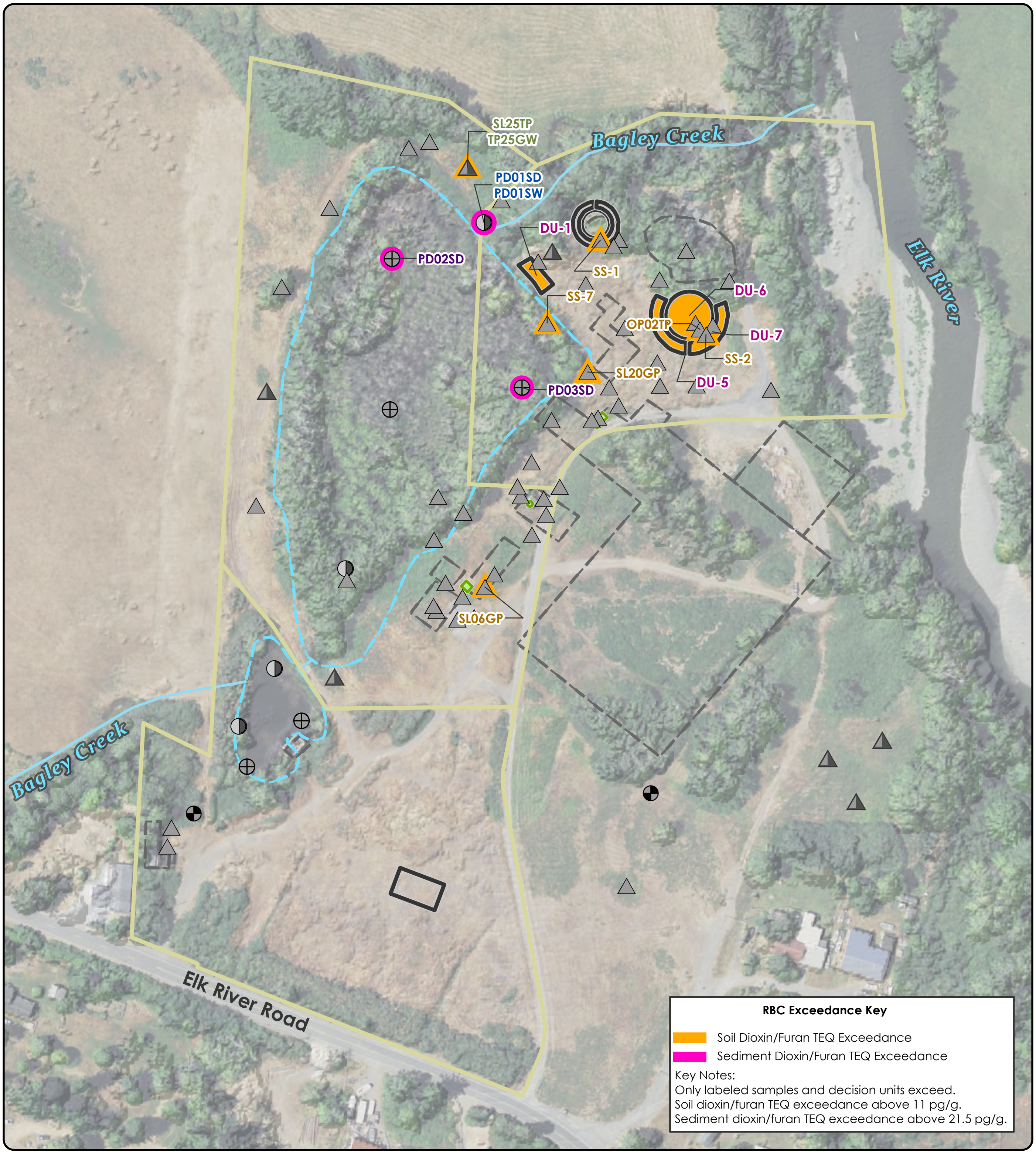
Path: X:\0_MFA_Projects\M2272\01\001\Projects\Pro\M2272_01_001.aprx
Print Date: 7/25/2022
Reviewed By: csifford
Produced By: jroberts
Project: M2272.01.001



Notes:
All site features are approximate.
RBC = risk based concentrations.
TEQ = toxicity equivalents.

Data Sources:
Historic sample locations from WSP (2020) and Hahn and Associates (2018). Creek, possible restoration area, geophysical anomalies, and historic site features from HAI (2019). Property boundary obtained from Oregon Department of Revenue (2019).

Legend

- Soil Sample
- Sediment Sample
- Groundwater Sample
- Soil and Groundwater Sample
- Sediment and Surface Water Sample
- Decision Units
- Site Tax Lots
- Creek

Historical Site Features

- Geophysical Anomaly
- Building
- Other
- Pond

Figure 2-3
Dioxin Tier II RBC Exceedances

Wild Rivers Land Trust
Port Orford, OR

0 100 200
Feet

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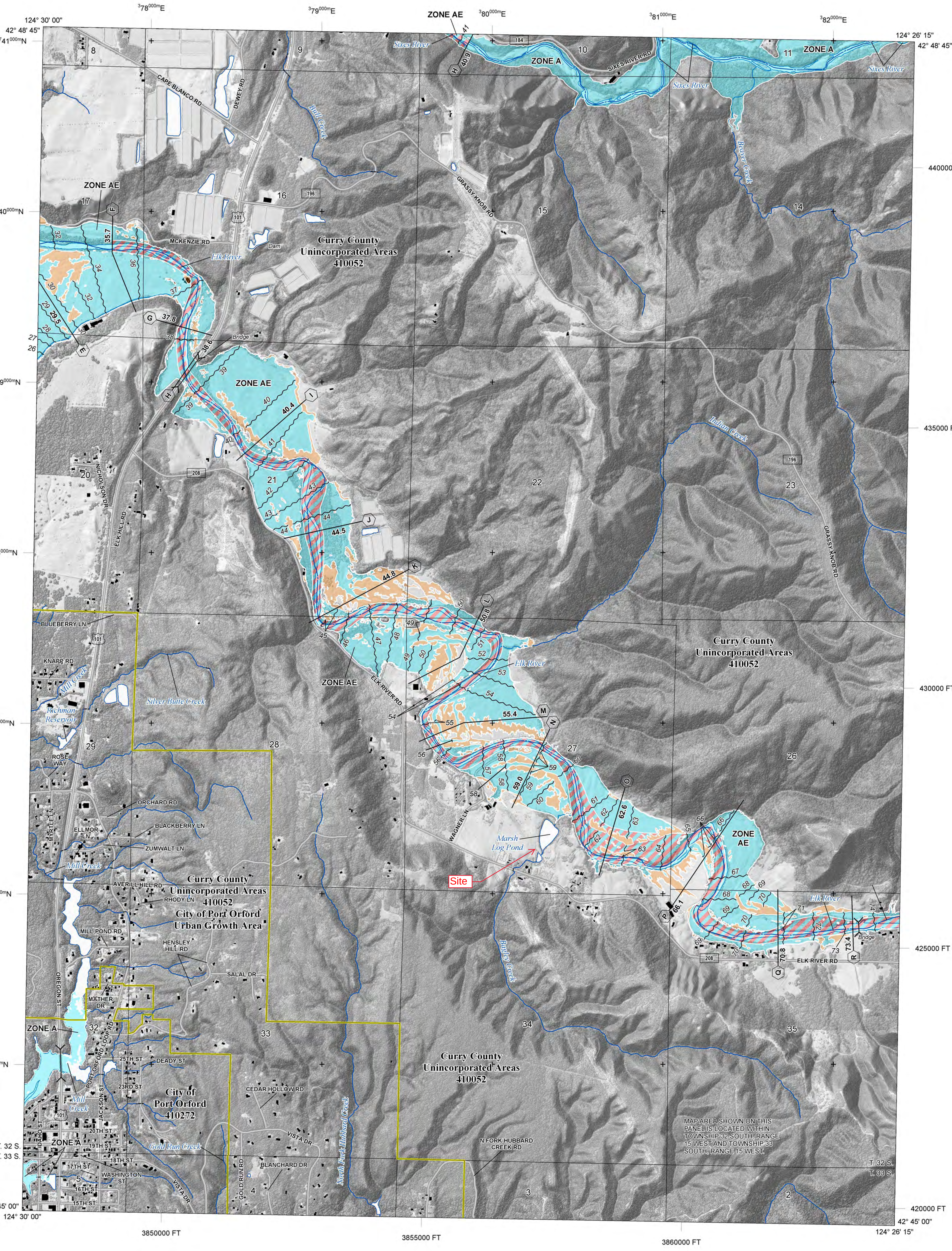
Print Date: 8/25/2022
Reviewed By: cwise
Produced By: sturner
Project: M2272.01.001

APPENDIX

FEMA FLOOD INSURANCE RATE MAP



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR ZONE DESCRIPTIONS AND INDEX MAP

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT HTTP://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes. *Zone X*

OTHER AREAS
- NO SCREEN Areas Determined to be Outside the 0.2% Annual Chance Floodplain *Zone X*
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- E 18.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)
- 8 Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information eXchange.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in the community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this work map was developed and/or compiled in digital format by the Oregon Department of Geology and Mineral Industries (DOGAMI). Data sources include DOGAMI, Oregon Lidar Consortium, Bureau of Land Management, U.S. Geological Survey, Oregon Department of Fish and Wildlife, Oregon Department of Transportation, Oregon Water Resources Department, Oregon Department of Administrative Services Geospatial Enterprise Office, and Curry County. Base map information was rectified to 3-foot resolution lidar topographic data acquired in 2008.

SCALE

Map Projection:
Universal Transverse Mercator Zone 10N; North American Datum 1983; Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 1,000 feet 1:12,000

0 1,000 2,000 4,000 Feet
0 255 510 1,020 Meters

PANEL LOCATOR

* PANEL NOT PRINTED

FEMA
National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

CURRY COUNTY, OREGON
and Incorporated Areas

PANEL **190** OF **1475**

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
CURRY COUNTY	410052	0190	F
PORT ORFORD, CITY OF	410272	0190	F

VERSION NUMBER
2.3.2.1

MAP NUMBER
41015C0190F

MAP REVISED
NOVEMBER 16, 2018