Analysis of Brownfields Cleanup Alternatives

Gold Hill Cement Powerhouse
14775 Highway 234
Gold Hill, Oregon

Prepared for:

Oregon Department of Environmental Quality

July 7, 2025
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Prepared by:

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MAUL FOSTER ALONGI

Analysis of Brownfields Cleanup Alternatives

Gold Hill Cement Powerhouse
14775 Highway 234
Gold Hill, Oregon

The material and data in this report were prepared under the supervision and direction of the undersigned.

Maul Foster & Alongi, Inc.

Justin Hansen
Project Environmental Scientist

EXPIRES: 12/31/2025
This digital seal certifies the signatory and document content.

Josh Elliott, PE
Principal Engineer

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Abbreviations

ABCA	Analysis of Brownfields Cleanup Alternatives
ACM	asbestos-containing material
Amodeo	Amodeo Structural Engineering
bgs	below ground surface
CFR	Code of Federal Regulations
the City	City of Gold Hill
DEQ	Oregon Department of Environmental Quality
E&E	Ecology and Environment, Inc.
EPA	U.S. Environmental Protection Agency
HBM	hazardous building materials
LBP	lead-based paint
MFA	Maul Foster & Alongi, Inc.
OSHA	Occupational Safety and Health Administration
PCM	phase contrast microscopy
RBC	risk-based concentration
the Site	Gold Hill Cement Powerhouse, 14775 Highway 234, Gold Hill, Oregon
TSCA	Toxic Substances Control Act
wooden structure	upper portion of the powerhouse building

1 Introduction

Maul Foster & Alongi, Inc. (MFA) has prepared this Analysis of Brownfields Cleanup Alternatives (ABCA) for the Gold Hill Cement Powerhouse located at 14775 Highway 234 in Gold Hill, Oregon (the Site) (see Figure 1-1). The Site was selected for investigation by the Oregon Department of Environmental Quality (DEQ) ahead of future redevelopment. This ABCA was prepared for DEQ under Task 4 of Task Order 067-23-14.

1.1 Purpose and Objective

The purpose of this project is to evaluate the structural integrity of the powerhouse building, the presence of hazardous building materials (HBM) associated with the powerhouse building, and sediment and surface water quality in the backwater lagoon to inform Site redevelopment plans. MFA prepared this ABCA to evaluate appropriate cleanup methods and recommend a cleanup alternative to be applied at the Site.

The objective of the ABCA and recommended cleanup alternative is to address HBM to protect human health and the environment while preparing the Site for future redevelopment.

This ABCA provides:

- Site information, identification, and delineation of hazardous and/or regulated materials, an exposure risk analysis describing contaminant sources and exposure pathways, cleanup objectives, applicable cleanup standards and regulations, and the proposed cleanup alternative.
- An analysis of each alternative (including no action) with a description of the technology, feasibility, effectiveness, and cost.
- The recommended cleanup alternative based on an evaluation of each alternative.

Cleanup alternatives are provided for the following environmental impacts:

- Asbestos-containing material (ACM) in the powerhouse building at the Site.
- Lead-based paint (LBP) in the powerhouse building at the Site.

The locations of these environmental impacts are shown on Figure 1-2.

1.2 Report Organization

Section 2 includes background and previous assessment activities at the Site.

Section 3 provides an exposure risk analysis.

Section 4 introduces applicable cleanup standards and regulations.

Section 5 evaluates cleanup alternatives for each environmental impact.

Section 6 describes the recommended alternative.

2 Background

Site background and history are described in a previous site investigation work plan (MFA 2023) and are summarized below.

2.1 Property Location, History, and Description

The Site is in section 15, township 36 south, range 3 west of the Willamette Meridian in Gold Hill, Jackson County, Oregon (see Figure 1-1). The portions of the Site that were the focus of previous site investigation activities and are the focus of this ABCA are the powerhouse building and the adjacent backwater lagoon located on the central portion of Jackson County tax parcel 363W15-600 and immediately west of the Rogue River (see Figure 1-2).

In the 1940s, the cement power plant was constructed and consisted of the existing powerhouse building and associated headgate, water diversion channel, fish screens and ladders, and penstocks/gates. The powerhouse generated power for cement plant operations and the City of Gold Hill (the City) until operations ceased in 1969. After the power plant closed, the City acquired the powerhouse and surrounding area. The diversion dam on the Rogue River, no longer required as part of the City's water system, was removed in 2008.

The concrete remnants of the powerhouse's associated features, the powerhouse building, and various abandoned water conveyance channels and pipes remain at the Site. The upper portion of the powerhouse building comprises wood framing and diagonal sheathing covered in stucco with a framework of wood and steel. For the remainder of the document, this is referred to as the wooden structure. The lower portion of the powerhouse building comprises concrete and is hydraulically connected to the diversion channel. Former power generation units and other equipment remain inside the powerhouse building. The wooden structure is deteriorating and is frequently visited and vandalized (graffiti, fire, and physical damage).

The Site is currently zoned as Public,[1] with adjacent parcels to the west zoned for low-density residential use (zoning code R-1). According to the City (2023), allowed land uses include single-family dwellings, duplexes, manufactured homes, family daycare operations, and residential care homes. Permitted public, institutional, and commercial uses may include emergency services, public parks and open space, public works utilities storage yards, schools, religious institutions, and bed and breakfasts. It is MFA's understanding that the area is not intended for significant land use changes in either current zoning code or future comprehensive planning.

2.2 Geology and Hydrology

Previous investigations at the Site indicate that silty loam is present to a depth of 12 inches below ground surface (bgs). Groundwater was not encountered during previous investigations. The *Site*

[1] City of Gold Hill. 2023. "Maps | Gold Hill Oregon". Accessed December 19, 2024. https://www.cityofgoldhill.gov/community/page/maps.

Investigation Work Plan (MFA 2023) indicated that regional groundwater may be encountered at approximately 30 to 35 feet bgs.

Topography at and near the Site slopes east towards the Rogue River, and elevation of the Site is approximately 1,070 feet above mean sea level. The Rogue River is situated east of the Site and flows to the south. Groundwater beneath the Site is inferred to flow east-southeast towards the Rogue River.

2.3 Previous Environmental Activities

2.3.1 2013 Asbestos and Lead Survey

In May 2013, First Response Environmental Services conducted an asbestos and lead survey at the Site. A total of 12 samples of suspected ACM were collected and submitted for asbestos analysis and 17 paint chip samples from various surfaces (including windows, door casings, walls, electrical equipment, piping, valves, and hand railings) were collected and analyzed for lead content. The analytical results indicated that:

- ACM were identified in joint compound, wire insulation, and transite pipe, with results ranging from 2 to 40 percent asbestos. Samples collected from the drywall, roof felt and mastic, a pump valve gasket, ceiling paper and skim coat, and mastic on an I-beam were non-detect for asbestos.
- The lead content in paint samples ranged from 0.014 percent to 20 percent by weight. Of the 17 paint samples analyzed, 11 samples (65%) were considered LBP (defined as greater than or equal to 0.5 percent lead by weight).

First Response Environmental Services recommended that ACM be removed by a licensed abatement contractor, and that LBP surfaces be removed or encapsulated.

MFA considered follow-up sampling, but our visual assessment of the wooden structure coupled with the structural assessment discussed in Section 2.3.3 led to a determination that the wooden structure was unsafe to enter.

2.3.2 2016 Targeted Brownfields Assessment

In July 2016, Ecology and Environment, Inc. (E&E) performed a targeted brownfields assessment at the Site. The assessment evaluated the following recognized environmental conditions at the Site to determine whether cleanup would be necessary:

- Potential lead-contaminated soil and sediment from LBP identified during the 2013 asbestos and lead survey that could have peeled/sluffed off and impacted environmental media at the Site.
- Former power transmission equipment including transformers that likely contained insulating oil that could have impacted surface soils.
- Electrical equipment inside the powerhouse building that may have contained insulating oil that could have been absorbed into the porous concrete floors.

E&E collected surface soil, sediment, and concrete samples to assess the above-referenced recognized environmental conditions and concluded that surface soils north and south of the powerhouse building may require cleanup based on elevated contaminant concentrations, while sediment cleanup east of the powerhouse building would not be required. Following the report, soil analytical results were screened against DEQ risk-based concentrations (RBCs) for future recreational users, DEQ background concentrations, and EPA regional screening levels (see Table 2-1), and DEQ Ecological RBCs (see Table 2-2). The EPA regional screening levels were used where there is no RBC available (e.g., thallium).

MFA developed present-day recreational RBCs using DEQ's macro-enabled site-specific RBC workbook (DEQ 2025). MFA modified the exposure duration variable to 78 days from the default 350 days (residential scenario) to calculate RBCs for future recreational use of the Site. This is consistent with the DEQ-approved approach at another site (MFA 2024) and likely reflects a conservative estimate of annual exposure based on the future redevelopment plans. Based on the updated screening results, soils near historical sampling locations BP02SS01/02, PT01SS01/02, PT02SS01/02, GH01SS01/02, and GH02SS01/02 may also require cleanup, owing to exceedances of recreational and/or ecological RBCs (see Table 2-1).

Excavation, confirmation sampling, and off-Site disposal of contaminated soil is further described in Section 5, while the excavation areas are shown in the appendix.

2.3.3 2023 Limited Structural Assessment

On June 5, 2023, Amodeo Structural Engineering (Amodeo) performed a limited structural assessment of the powerhouse building (Amodeo 2023). The structural assessment identified the powerhouse building as an approximately 1,800 square foot, single level structure with a concrete floor slab, wooden structure, and overhead crane. Amodeo concluded that the wooden structure and overhead crane should be removed, noting damage and instability due to dry rot, fire damage, and displaced and missing parts. Amodeo further concluded that the concrete foundation is solid without signs of degradation. In the absence of non-destructive testing, Amodeo calculated that the floor slab can support the proposed future public use, though additional reinforcement in the worst-case scenario would be required.

2.3.4 2024 Sediment and Surface Water Sampling

In November 2024, MFA collected sediment and surface water samples from the backwater lagoon for chemical analysis. Sediment samples were collected with stainless-steel sampling equipment including a Russian Peat Borer and a soil sampling probe. Samples were collected from 0 to 10 centimeters below mudline at 10 randomly selected locations throughout the lagoon area (see Figure 2-1). Equal sediment aliquots from the 10 locations were field-composited into one sample, processed by the laboratory, and analyzed. For quality assurance, duplicate and triplicate samples were collected adjacent to the 10 primary locations (i.e., stepped out approximately one foot), field composited, processed by the laboratory, and analyzed. One primary and one field duplicate surface water samples were collected in the lagoon area. No cultural resources were identified during sampling activities.

Sediment and surface water samples were analyzed for:

- Diesel- and oil-range hydrocarbons by Northwest Total Petroleum Hydrocarbon-Dx
- Polychlorinated biphenyls by U.S. Environmental Protection Agency (EPA) Method 8082
- Semivolatile organic compounds by EPA Method 8270

- Priority pollutant metals by EPA Method 6010/6020/7471
- Polychlorinated dibenzo-p-dioxins and dibenzofurans by EPA Method 1613

Sediment and surface water data was screened against DEQ ecological RBCs for wildlife ingestion of surface water (birds and mammals), ecological RBCs for freshwater (aquatic life and aquatic-dependent life), and ecological RBCs for sediment, freshwater. The analytical results for sediment and surface water are presented in Tables 2-3 and 2-4, respectively.

In sediment, nickel concentrations (up to 23.6 milligrams per kilogram) exceed the ecological RBC for sediment, freshwater (18 milligrams per kilogram). Several other chemicals, including constituent polychlorinated dibenzo-p-dioxins and dibenzofurans, total organic carbon, diesel- and oil-range hydrocarbons, and metals were detected in sediment at concentrations below applicable RBCs, where available. In surface water, lead concentrations (up to 1.13 micrograms per liter) exceed the ecological chronic RBC for freshwater aquatic life (0.54 micrograms per liter). All other contaminants were detected at concentrations below applicable ecological RBCs. Taken together, nickel in sediment and lead in surface water exceed ecological RBCs, while all other contaminants exist at concentrations below ecological RBCs.

3 Exposure Analysis

3.1 Evaluation

This ABCA presents an evaluation of remedial action alternatives and their respective costs, though other types of corrective actions, such as institutional controls, exist. Excess public risk requires four factors, all of which must be present to yield excess risk from environmental impacts at the Site:

- A chemical with sufficient toxicity to induce acute or chronic harm.
- A chemical in sufficient quantity to be toxic and induce harm.
- A receptor upon which to induce harm.
- A pathway along which a chemical with sufficient toxicity and quantity can reach and thereby harm a receptor.

Actions to remediate impacted areas rarely eliminate all chemicals, hazardous substances, or regulated building materials. Instead, it is often the goal to reduce the risk to human health and the environment to an acceptable threshold through removal/abatement, treatment, or immobilization/encapsulation of impacted media or materials. The degree of acceptable risk is determined through legislation and regulatory processes. For the Site, this has been accomplished through the development and implementation of federal, state, and local rules and regulations.

3.2 Potential Exposure Sources, Pathways, and Receptors

For constituents of concern to harm public health or the environment, the point of exposure must be accessible by the at-risk population. Incomplete exposure pathways (presently or in the future) do not represent a probable condition of elevated risk.

At the Site, three potential receptors were evaluated for the ABCA:

- Occupants/visitors of the redeveloped Site.
- Construction workers working on the redevelopment project.
- Ecological receptors in the backwater lagoon or the Rogue River.

ACM and LBP were confirmed in building materials during prior assessments and, if not properly managed, are possible exposure sources. For each of the potential receptors listed above, the primary exposure pathway of concern is direct contact with asbestos- and lead-impacted building materials via incidental ingestion or inhalation of particulate matter.

4 Cleanup Standards and Regulations

As discussed in Section 2.3.1, the deteriorating wooden structure presents an access safety issue. As a result, abatement of ACM and LBP cannot be completed prior to the demolition activities. Therefore, the work will require a variance from the DEQ allowing the entire wooden structure and overhead crane to be removed and disposed of as HBM.

4.1 Cleanup Standards

4.1.1 Asbestos-Containing Material

As required by DEQ's asbestos rules in Chapter 340, Division 248, the asbestos cleanup standard is removal of all ACM that may become friable when disturbed during demolition or renovation activities at the Site. All ACM must be properly removed by a DEQ-licensed asbestos abatement contractor using certified workers and supervisor(s), and then an inspection by an asbestos building inspector or abatement supervisor must be performed to obtain visual clearance. Once clearance is obtained, air samples will be collected according to the methods described in Oregon Administrative Rules 340-248-0270(8)(k) and compared against the clearance criteria of 0.01 fibers per cubic centimeter of analyzed air using National Institute of Occupational Safety and Health 7400 method, phase contrast microscopy (PCM).

4.1.2 Lead-Based Paint

The LBP cleanup standards in 24 Code of Federal Regulations (CFR) 35.1340, is visual confirmation of removal or encapsulation of all painted materials, all pre-existing dust, and all dust generated during LBP removal. Generally, LBP removal in residential or child-occupied facilities require additional regulations to confirm removal and receive clearance of the abated area.

Toxic Substances Control Act (TSCA) regulations and environmental product declaration rules establish clearance procedures for all lead abatement projects within residential or child-occupied buildings by a certified inspector or lead risk assessor. Wipe samples will be collected with results compared against the October 2024 following clearance standards:

- 5 micrograms of lead in dust per square foot of flooring.
- 40 micrograms of lead in dust per square foot of interior windowsills.
- 100 micrograms of lead in dust per square foot of window troughs.

4.2 Applicable Regulations

4.2.1 Asbestos Laws and Regulations

Asbestos is regulated by the Asbestos Hazard Emergency Response Act, TSCA, the Clean Air Act, and Oregon Administrative Rules 340-248. Asbestos abatement work must be performed in accordance with Oregon Occupational Safety and Health Administration (OSHA) asbestos regulations Chapter 437, Division 3, Subdivision Z and 29 CFR 1926.1101 to ensure protection of asbestos abatement workers. Although cancer risk from asbestos exposure is appropriately identified as a chronic concern, OSHA permissible exposure limits set short-term standards to limit worker exposure to asbestos:

- Short-term exposure limit: 1.0 fibers per cubic centimeter analyzed by PCM.
- 8-hour time weighted average: 0.1 fibers per cubic centimeter analyzed by PCM.

ACM demolition or renovation activities should include the following work practices:

- Preparation of abatement specifications based on project size (i.e., quantity of ACM to be removed), when applicable, by an U.S. Environmental Protection Agency-certified Asbestos Designer.
- Removal or abatement of all ACM prior to destructive activities associated with building demolition or renovation.
- Following approved guidance for handling and disposal of ACM (DEQ 2024, EPA 1990).
- Monitoring of asbestos abatement activities by a DEQ-certified Asbestos Abatement Supervisor.
- Performing air clearance testing upon ACM abatement completion.
- Preparation of an asbestos abatement completion report.

4.2.2 Lead-Based Paint Laws and Regulations

LBP in use prior to 1978 in housing and child-occupied buildings is regulated under TSCA 15 U.S.C. 2601 et seq. and amended by the Residential LBP Hazard Reduction Act of 1992. Collectively, this is generally referred to as Title X of the Housing and Community Act of 1992. Title X governs the training, certification, and licensing of LBP abatement contractors, inspectors, and risk assessors. Further, Title X covers the training and certification of abatement workers and abatement project designers. The relevant portions of Title X only apply to residential buildings and/or child-occupied facilities.

In Oregon, the Construction Contractors Board and Oregon Health Authority regulate and license LBP workers for work in residential and child-occupied facilities. At the Site, lead-containing debris shall be managed and handled in accordance with U.S. Environmental Protection Agency Resource Conservation and Recovery Act Hazardous Waste Regulations (40 CFR Parts 260-274) and transported consistent with applicable Department of Transportation regulations.

OSHA (29 CFR Part 1910) published General Industry regulations promoting worker safety during LBP abatement activities. OSHA's Construction Standards (29 CFR Part 1926) promulgate a permissible exposure limit for lead construction workers, including work performed during demolition, salvage, or renovation. 29 CFR Part 1926.62(c)(1) states that the employer shall assure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air averaged over an 8-hour period. Additional regulations under these chapters address other aspects of worker safety, such as respirator programs, work practices, and medical monitoring. LBP debris may be classified as hazardous waste if lead concentrations exceed the Toxicity Characteristic Rule limit of 5 milligrams per liter (40 CFR Part 261.24 and 40 CFR Part 262.11) in sample extract prepared according to the Toxicity Characteristic Leaching Procedure (EPA 1992).

5 Evaluation of Cleanup Alternatives

5.1 Alternative 1—No Action

This alternative is included solely as a baseline for comparison. This alternative assumes that exposure and risk to public health and the environment are possible because no actions are taken to address the environmental impacts at the Site. Alternative 1 does not meet the cleanup action objectives.

- Feasibility: Alternative 1 is technically feasible but would limit future redevelopment and use of the Site.
- Effectiveness: Alternative 1 is not effective because ACM and LBP remain at the Site. Further, as stated previously, the wooden structure and overhead crane are unstable due to dry rot, fire damage, and displaced or missing parts. The compromised integrity of these structural elements present unacceptable risks to future users of the Site if left in place.
- Cost: Alternative 1 has no cost.
- Climate Resilience: Alternative 1 is not a resilient remedial option that addresses the potential adverse impacts caused by increased frequency and intensity of flooding and/or extreme weather events. The deteriorating wooden structure and overhead crane may be further compromised by flooding and extreme weather events in the future.
- Other Considerations: Compared to the alternatives described below, implementation of Alternative 1 (i.e., no action) discharges fewer greenhouse gases, uses the least amount of energy, and produces the lowest volumes of wastewater and landfill materials.

5.2 Alternative 2—Wooden Structure and Overhead Crane Removal and Excavation and Off-Site Disposal of Contaminated Soil

Alternative 2 involves removal of the overhead crane and the wooden structure (including the roof and wood/plaster walls). Other features including the concrete foundation, stem walls, turbines, and flood gates are left in place and not addressed in this alternative. Alternative 2 also includes excavation of an estimated 80 bank cubic yards of contaminated soil to a depth of 1 foot bgs north and south of the powerhouse building and near the gate house, confirmation sampling, and off-Site disposal at a subtitle D landfill. Archaeological monitoring for cultural resources will be performed during soil excavation activities. Excavation and off-Site disposal may result in sediment and surface water natural attenuation in the backwater lagoon, where limited metals exceedances were previously observed.

- Feasibility: Alternative 2 is technically feasible and enables future reuse of the Site.
- Effectiveness: Alternative 2 is effective because it addresses the environmental (ACM, LBP, and contaminated soil) and structural (deteriorated wooden structure and overhead crane) issues at the Site, all of which protect future recreational users of the Site. It is possible, though unconfirmed, that the turbines at the Site contain ACM components and/or LBP.
- Cost: The estimated cost of Alternative 2 is between $157,000 and $204,000, where actual costs depend on final contractor bids.
- Resilience: Alternative 2 is judged to be more resilient than Alternative 1 because it addresses the ACM, LBP, contaminated soil, and deteriorated structural elements, including the wooden structure and overhead crane, all of which may be adversely impacted by increased flooding and/or extreme weather events. Alternative 2 is judged to be as resilient as Alternative 3 (described below).
- Other Considerations: Compared to Alternative 1, addressing the environmental conditions and deteriorating wooden structure and overhead crane through implementation of Alternative 2 requires more energy consumption and generates more waste for off-Site disposal. There is a low likelihood that ACM- and LBP-containing building materials, rotting wood, and contaminated soil can be beneficially reused or recycled.

5.3 Alternative 3—Wooden Structure, Overhead Crane, Turbine, and Flood Gate Removal, and Excavation and Off-Site Disposal of Contaminated Soil

Alternative 3 includes removal of the wooden structure and overhead crane as well as the three turbines in the powerhouse building and the adjacent flood gates associated with historical powerhouse operations. The concrete foundation and stem walls are left in place and is not addressed in this alternative. In Alternative 3, the turbines would be replaced with physical barriers (e.g., metal grates) to minimize trespassing and fall hazard risk at the Site. Following removal of the flood gates, a guard rail would be installed to minimize the fall hazard risk at this portion of the Site. Alternative 3 also includes excavation of an estimated 80 bank cubic yards of contaminated soil to a depth of 1 foot bgs north and south of the powerhouse building and near the gate house, confirmation sampling, and off-Site disposal at a subtitle D landfill. Archaeological monitoring for cultural resources will be performed during soil excavation activities. Excavation and off-Site disposal may result in sediment and surface water natural attenuation in the backwater lagoon, where limited metals exceedances were previously observed.

- Feasibility: Alternative 3 is technically feasible and enables future reuse of the Site.
- Effectiveness: Alternative 3 is effective in that it addresses the environmental (ACM, LBP, and contaminated soil) and structural (deteriorated wooden structure and overhead crane) issues at the Site, all of which protect future users of the Site. Removing the turbines further addresses components that may contain ACM and/or LBP. However, removing the turbines and flood gates creates a need to install barriers and a guard rail to minimize trespassing and mitigate fall hazards for future users.
- Cost: The estimated cost of Alternative 3 is between $195,000 and $254,000, where actual costs depend on final contractor bids. Alternative 3 is estimated to be approximately 23% more expensive than Alternative 2.
- Resilience: Alternative 3 is judged to be more resilient than Alternative 1 because it addresses ACM, LBP, contaminated soil, and deteriorated structural elements, including the wooden structure and overhead crane, which may be adversely impacted by increased flooding and/or extreme weather events. Alternative 3 is judged to be as resilient as Alternative 2 (described above).
- Other Considerations: Compared to the other alternatives, addressing the environmental conditions, deteriorating wooden structure and overhead crane, and turbines and flood gates through implementation of Alternative 3 requires the highest energy consumption and generates the most waste for off-Site disposal. As in Alternative 2, there is low likelihood that ACM- and LBP-containing building materials, rotting wood, and contaminated soil can be beneficially reused or recycled.

6 Preferred Cleanup Alternative

The recommended cleanup alternative is based on future redevelopment plans, which include demolition of the existing powerhouse building.

6.1 Recommended Alternative

The recommended cleanup alternative is **Alternative 3—Wooden Structure, Overhead Crane, Turbine, and Flood Gate Removal, and Excavation and Off-Site Disposal of Contaminated Soil**. The estimated cost to implement Alternative 3 is between $195,000 and $254,000, where actual costs depend on final contractor bids.

6.2 Remedial Cost Analysis

The goal of the project is to prepare the Site for redevelopment by addressing the areas that present unacceptable risks to human health and the environment associated with ACM, LBP, and the deteriorating wooden structure and overhead crane. The table below presents a summary of the estimated costs for the recommended alternative.

Table 6-1: Summary of Recommended Alternative Costs

Task	Range of Cost	Maximum Cost Estimate
Project Construction	$156,000 to $203,000	$203,000
Contaminated Soil Excavation and Off-Site Disposal	$24,000 to $31,000	$31,000
Cultural Resources Monitoring	$15,000 to $20,000	$20,000
Alternative 3 Subtotal	**$195,000 to $254,000**	**$254,000**
Project Management	$15,000 to $25,000	$25,000
Project Monitoring, Programmatic Monitoring, and Completion Reports	$20,000 to $25,000	$25,000
	Total:	**$304,000**

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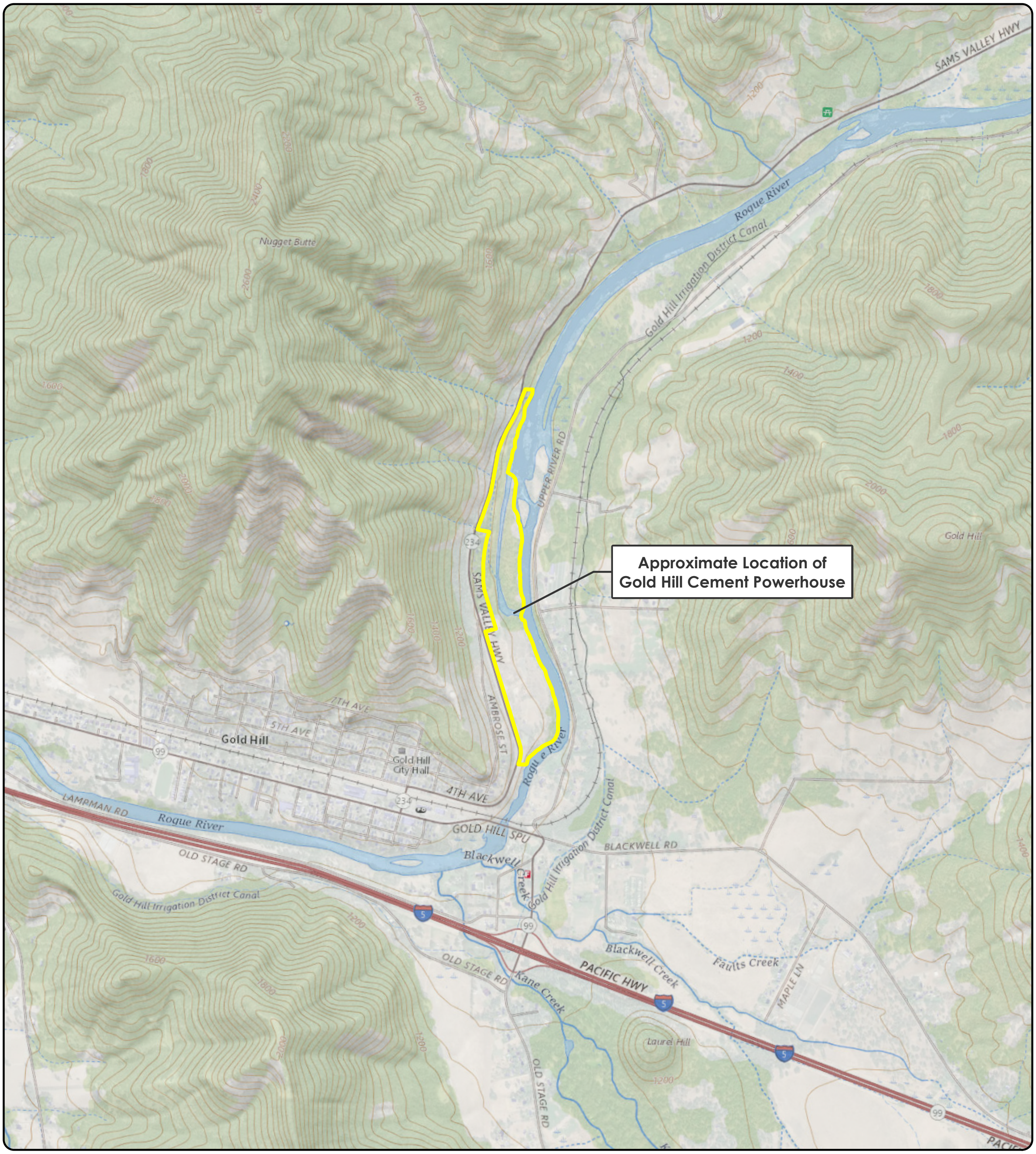
Limitations

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.

Figures



Notes
U.S. Geological Survey 7.5-minute topographic quadrangle (2020): Gold Hill.
Township 36 south, range 3 west, section 15.

Data Source
Property boundary obtained from Jackson County.

Legend
Property Boundary

Figure 1-1
Site Location

Oregon DEQ
Gold Hill Cement Powerhouse
14775 Highway 234
Gold Hill, OR

0 1,000 2,000
Feet

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Print Date: 2/24/2023
Reviewed By: ddomenighini
Produced By: sturner
Project: M0785.26.001

Figure 1-2
Site Overview and Proposed Investigation Location

Oregon DEQ
Gold Hill Cement Powerhouse
14775 Highway 234
Gold Hill, OR

Legend

- Backwater Lagoon
- Structural and HBM Survey Boundary
- Property Boundary
- Tax Lot

0 60
Feet

Data Sources
Aerial photograph obtained from Bing; tax lot data obtained from Jackson County.

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Project: M0785.26.001

Figure 2-1
Composite Sediment Sampling Locations

Oregon DEQ
Former Gold Hill Cement Powerhouse
14775 Highway 234
Gold Hill, OR

Legend

- Discrete Sample Locations for 10-Point Composite Sample
- Backwater Lagoon
- Property Boundary

0 30
Feet

Data Sources
Aerial photograph obtained from Bing; property boundary obtained from Jackson County.

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Path: X:\0_MFA_Projects\M0785\26\002\Pro\M0785_26_002_003.aprx\Fig 4-1 Composite Sediment Sampling Locations

Print Date: 12/31/2024 Reviewed By: smaloney Produced By: jroberts Project: M0785.26.002

Tables

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Table 2-1
2016 Soil Analytical Results and Recreational Risk-Based Concentrations
Gold Hill Cement Powerhouse
Gold Hill, Oregon

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Data Source:	Oregon DEQ, RBC[(1)(a)]	EPA RSLs[(2)]	DEQ Background Metals, Klamath Mountains[(3)]	Power Plant Perimeter Surface Soil Samples								Gate House Surface Soil Samples			
EPA Sample Number:				15414000	15414001	15414002	15414003	15414004	15414005	15414006	15414007	15414014	15414015	15414016	15414017
CLP Sample Number				JG9H0	JG9H1	JG9H2	JG9H3	JG9H4	JG9H5	JG9H6	JG9H7	JG9J4	JG9J5	JG9J6	JG9J7
Station Location				BP01SS01	BP01SS02	BP02SS01	BP02SS02	BP03SS01	BP03SS02	BP04SS01	BP04SS02	GH01SS01	GH01SS02	GH02SS01	GH02SS02
Sample Date:	Recreational	Residential		10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	######	10/13/2015
Sample Depth (inches bgs)				0-6	6-12	0-6	6-12	0-6	6-12	0-6	0-6	0-6	6-12	0-6	6-12
TPH (mg/kg)															
Oil-range hydrocarbons		NV	NA	230	140	98	51	220	100	6,400	52	23	25	91	28
Metals (mg/kg)															
Aluminum	NV	77,000	NV	15,400	16,900	19,700	17,300	19,500	19,200	16,700	22,400	11,100	10,600	14,700	21,000
Antimony	NV	31	0.59	1.3 JQ	0.72 JQ	0.61 JQ	0.81 JQ	4.3 JQ	1.1 JQ	11.7 J	1.5 JQ	--	--	--	--
Arsenic	1.2	NA	12	4.2 J	3.3 J	4 J	7.1 J	3.5 J	3.6 J	3.9	2.8 J	2.7 J	3 J	4.9	10 J
Barium	64,000	NA	630	125	121	153	141	295	163	393	195	85.6	87.9	88.8	81.4
Beryllium	6,400	NA	1.4	0.2 JQ	0.25 JQ	0.34 JQ	0.33 JQ	0.35 JQ	0.3 JQ	0.23 JQ	0.47	0.2 JQ	0.18 JQ	0.33	0.56
Cadmium	8,600	NA	0.52	2.4	1.5	0.87	1.4	2.9	1.6	13.3	1.7	0.53	0.52	0.84	1.5
Calcium	NV	NV	NV	9,720	8,270	11,000 J	9,180	11,300 J	9,870 J	9,960 J	12,600 J	6,160 J	5,560 J	30,100	75,500 J
Chromium	490,000[(b)]	NA	890	37.2	41.8	26.2 J	23.8	52 J	56.5 J	87.6 J	70.8 J	21.2 J	19.1 J	39.1	63.7 J
Cobalt	NV	23	NV	7.7	10.2	9.3	10	10.6	10.5	9.6	10.7	5.8	5.4	7.2	11.6
Copper	13,000	NA	110	59.7	40.8	31.9 J	30	67.3 J	52.4 J	134 J	62.6 J	20.4 J	18.5 J	41.6	62.7 J
Iron	NV	55,000	NV	41,100	25,800	25,800 J	24,800	29,700 J	29,700 J	37,600 J	32,200 J	19,800 J	19,000 J	22,300	30,500 J
Lead	400	NA	36	62	40.2	166 J	30.6	443 J	171 J	455 J	61.8 J	10.4 J	10.1 J	30.7	19 J
Magnesium	NV	NV	NV	7,950	9,670	4,680 J	4,550	8,810 J	11,600 J	9,640 J	9,910 J	3,700 J	3,740 J	7,610	12,300 J
Manganese	7,600	NA	3,000	768	671	642 J	654	600 J	577 J	566 J	548 J	423 J	343 J	692	596 J
Mercury	98	NA	0.17	0.14	0.65	0.1 U	0.12 U	0.67	0.31	1.2	1.5	0.093 U	0.09 U	0.13	0.21
Nickel	59,000	NA	630	38.7	31.9	25.9	26.6	40	34.8	48.5	44.5	20.8	18.9	32	54.7
Potassium	NV	NV	NV	4,060	4,740	1,520	1,220	3,830	4,510	3,450	4,710	1,850	1,960	2,830	4,110
Silver	1,600	NA	0.16	1.9	1.2	1.3	1.1	1.6	1.5	2.6	1.6	0.95	0.97	1.1	1.5
Sodium	NV	NV	NV	487	458	923	826	432	374 JQ	541	618	490	475	308	309 JQ
Thallium	NV	0.78	0.31	3.9	2.2	1.7 JQ	1.9 JQ	2.1	1.8 JQ	3.4	2.4	1.2 JQ	1.5 JQ	1.3	2.3
Vanadium	NV	390	290	76.8	83.2	84	73.2	81.1	88.2	74.4	85.6	64.7	61.3	58.9	68.4
Zinc	NV	23,000	140	633	378	89.9 J	60	302 J	136	506 J	108 J	48.2 J	41.3 J	83.3	84.7 J
Dioxins and Furans (pg/g)															
1,2,3,4,6,7,8-HpCDD	NV	NV	NA	--	--	--	--	958	--	424	79.4	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NV	NA	--	--	--	--	132	--	162	15.3	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NV	NA	--	--	--	--	8.74	--	9.05	1.18	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NV	NA	--	--	--	--	7.46	--	3.34	0.887 JQ	--	--	--	--
1,2,3,4,7,8-HxCDF	NV	NV	NA	--	--	--	--	10.9	--	24.6	3.7	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NV	NA	--	--	--	--	31.9	--	16.2	3.44	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NV	NA	--	--	--	--	6.43	--	7.12	1.14	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NV	NA	--	--	--	--	18	--	8.06	2.11	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NV	NA	--	--	--	--	4.45	--	3.99	0.684 JQ	--	--	--	--
1,2,3,7,8-PeCDD	NV	NV	NA	--	--	--	--	5.77	--	3.08	0.839 JQ	--	--	--	--
1,2,3,7,8-PeCDF	NV	NV	NA	--	--	--	--	2.58	--	5.52 J	1.01 J	--	--	--	--
2,3,4,6,7,8-HxCDF	NV	NV	NA	--	--	--	--	7.65	--	6.95	1.14	--	--	--	--
2,3,4,7,8-PeCDF	NV	NV	NA	--	--	--	--	3.58	--	4.14 J	0.782 JQ	--	--	--	--

Table 2-1
2016 Soil Analytical Results and Recreational Risk-Based Concentrations
Gold Hill Cement Powerhouse
Gold Hill, Oregon

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Data Source:	Oregon DEQ, RBC[1][a]	EPA RSLs[2]	DEQ Background Metals, Klamath Mountains[3]	Power Plant Perimeter Surface Soil Samples								Gate House Surface Soil Samples			
EPA Sample Number:				15414000	15414001	15414002	15414003	15414004	15414005	15414006	15414007	15414014	15414015	15414016	15414017
CLP Sample Number				JG9H0	JG9H1	JG9H2	JG9H3	JG9H4	JG9H5	JG9H6	JG9H7	JG9J4	JG9J5	JG9J6	JG9J7
Station Location				BP01SS01	BP01SS02	BP02SS01	BP02SS02	BP03SS01	BP03SS02	BP04SS01	BP04SS02	GH01SS01	GH01SS02	GH02SS01	GH02SS02
Sample Date:	Recreational	Residential		10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	######	10/13/2015
Sample Depth (inches bgs)				0-6	6-12	0-6	6-12	0-6	6-12	0-6	0-6	0-6	6-12	0-6	6-12
2,3,7,8-TCDD	14	NA	NA	--	--	--	--	29.9	--	17.5	2.55	--	--	--	--
2,3,7,8-TCDF	NV	NV	NA	--	--	--	--	1.47 J	--	3.01	0.839 JQ	--	--	--	--
OCDD	NV	NV	NA	--	--	--	--	9,850 J	--	5,490 J	796 J	--	--	--	--
OCDF	NV	NV	NA	--	--	--	--	231	--	127	15.8	--	--	--	--
Dioxin/Furan TEQ[c][4]	14	NA	NA	--	--	--	--	59.7 JT	--	37 JT	6.25 JT	--	--	--	--
Polychlorinated Biphenyls (mg/kg)															
Aroclor 1254	NV	0.24	NA	0.036 U	0.036 U	0.038 U	0.04 U	0.035 U	0.035 U	0.14 J	0.035 U	--	--	--	--
Aroclor 1260	NV	0.24	NA	--	--	--	--	--	--	--	--	--	--	--	--
SVOCs (mg/kg)															
Acenaphthylene	NV	3,600	NA	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	98,000	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	4.6	NA	NA	0.0055	0.0036 U	0.0038 U	0.004 U	0.0034 U	0.0034 U	0.0034 U	0.0017 JQ	0.0017 JQ	0.0017 JQ	0.0036	0.0035 U
Benzo(a)pyrene	0.47	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	4.7	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(ghi)perylene	NV	NV	NA	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	47	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	64	NA	NA	--	--	--	--	--	--	--	--	0.0027 JQ	0.002 JQ	0.0058	0.0035 U
Dibenzo(a,h)anthracene	0.47	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Dimethylphthalate	NV	NV	NA	0.33	0.18	0.35	0.29	0.29	0.2	0.11 JQ	0.15 JQ	0.085 JQ	0.14 JQ	0.44	0.35
Di-n-butylphthalate	NV	6,300	NA	0.19 U	0.18 U	0.2 U	0.2 U	0.13 JQ	0.18 U	0.53	0.18 U	--	--	--	--
Indeno(1,2,3-cd)pyrene	0.64	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	10,000	NA	NA	0.011	0.0036 U	0.0038	0.004 U	0.0073	0.0017 JQ	0.0034 U	0.0028 JQ	0.0037	0.0031 JQ	0.0076	0.0035 U
Pentachlorophenol	3	NA	NA	0.0074 U	0.0072 U	0.0077 U	0.008 U	0.011	0.007 U	0.03	0.007 U	0.012	0.0072	0.015	0.0071 UJ
Phenanthrene	NV	NV	NA	0.007	0.0036 U	0.0031 JQ	0.004 U	0.0038	0.0014 JQ	0.0034 U	0.0021 JQ	0.0017 JQ	0.0017 JQ	0.004	0.0035 U
Phenol	NV	19,000	NA	--	--	--	--	--	--	--	--	0.34 U	0.34 U	0.36	0.35 U
Pyrene	7,500	NA	NA	0.012	0.0036 U	0.0061	0.004 U	0.012	0.0034 U	0.0034 U	0.0042	0.0054	0.0048	0.01	0.0035 U
cPAH TEQ[d][5]	0.47	NA	NA	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
VOCs (mg/kg)															
Acetone	NV	70,000	NA	0.014 U	0.012 U	0.013 U	0.012 U	0.012 U	0.013 U	0.06	0.018 U	--	--	--	--
Methyl Acetate	NV	78,000	NA	0.0068 U	0.006 U	0.0066 U	0.0062 U	0.0062 U	0.0065 U	0.0097	0.0091 U	--		--	--
Methylene chloride	6,000	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	24,000	NA	NA	0.0037 JQ	0.006 U	0.0028 JQ	0.0062 U	0.0062 U	0.0065 U	0.014 J	0.0091 U	0.0062 JQ	0.0076 UJ	0.017	0.0055 U

Table 2-1
2016 Soil Analytical Results and Recreational Risk-Based Concentrations
Gold Hill Cement Powerhouse
Gold Hill, Oregon

Data Source:	Oregon DEQ, RBC[1][a]	EPA RSLs[2]	DEQ Background Metals, Klamath Mountains[3]	Power Transmission Surface Soil Samples											
EPA Sample Number:				15414018	15414019	15414020	15414021	15414022	15414023	15414024	15414026	15414027	15414028	15414029	15414030
CLP Sample Number				JG9J8	JG9J9	JG9K0	JG9K1	JG9K2	JG9K3	JG9K4	JG9K6	JG9K7	JG9K8	JG9K9	JG9L0
Station Location				PT01SS01	PT01SS02	PT02SS01	PT02SS02	PT03SS01	PT03SS02	PT04SS01	PT05SS01	PT05SS02	PT06SS01	PT06SS02	PT07SS01
Sample Date:	Recreational	Residential		10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015
Sample Depth (inches bgs)				0-6	6-12	0-6	6-12	0-6	6-12	0-6	0-6	6-12	0-6	6-12	0-6
TPH (mg/kg)															
Oil-range hydrocarbons		NV	NA	63	60	350	84	120	80	180	88	63	38	54	35
Metals (mg/kg)															
Aluminum	NV	77,000	NV	4,160	6,020	13,600	7,080	14,300	11,600	16,000	18,500	15,000	13,400	9,900	11,800
Antimony	NV	31	0.59	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	1.2	NA	12	2.4 J	2.4 J	4.3 J	2 J	8.2 J	5.3 J	10.4 J	5.1 J	5 J	1.6 J	4.5 J	19.4 J
Barium	64,000	NA	630	23.5	30.5	81.9	35.7	102	82.9	140	123	85.2	55.7	48.7	65.8
Beryllium	6,400	NA	1.4	0.12 JQ	0.19 JQ	0.3 JQ	0.21 JQ	0.36 JQ	0.3 JQ	0.34 JQ	0.4	0.37 JQ	0.35 JQ	0.25 JQ	0.3 JQ
Cadmium	8,600	NA	0.52	1.1	1.5	3.8	1.7	2.2	2	2.1	2.1	2.4	1.8	1.7	1.1
Calcium	NV	NV	NV	111,000	197,000	160,000	221,000	65,400	142,000	23,300	71,700 J	178,000 J	236,000 J	159,000	9,810
Chromium	490,000[b]	NA	890	20.5	25	49.3	28.3	44.4	44.8	46.4	49.6 J	42.8 J	43.2 J	32.6	41.9
Cobalt	NV	23	NV	3.1 JQ	4.8	9.4	4.5	11.3	7.1	7.8	9.8	8.4	7.8	6.1	7.5
Copper	13,000	NA	110	21.7	27.7	47	18.2	58.2	44.5	44.4	66.2 J	68.3 J	58.4 J	32.5	41.2
Iron	NV	55,000	NV	7,390	10,400	20,100	11,000	23,700	18,800	34,100	26,200 J	23,300 J	19,100 J	15,300	19,900
Lead	400	NA	36	26.7	32.2	180	51.1	69.7	41.9	55.8	67.4 J	50.5 J	25.7 J	248	31.8
Magnesium	NV	NV	NV	2,480	3,550	6,600	3,620	6,570	5,230	6,470	7,530 J	6,410 J	6,130 J	5,140	6,090
Manganese	7,600	NA	3,000	127	183	393	177	513	336	639	514 J	409 J	312 J	269	383
Mercury	98	NA	0.17	0.087 U	0.093 U	0.26	0.18	0.14	0.11 U	0.18	0.11	0.11	0.088 U	0.087 U	0.32
Nickel	59,000	NA	630	17.1	23.9	42	24.6	36.5	29.2	34.5	39.9	36.7	39.1	27.1	27.1
Potassium	NV	NV	NV	431	600	2,150	476	3,300	2,270	3,960	3,410	2,860	1,860	1,840	2,200
Silver	1,600	NA	0.16	0.48 JQ	0.51 JQ	0.99	0.41 JQ	1.1	0.85	1.5	1.2	1.1	0.73	0.64 JQ	0.95
Sodium	NV	NV	NV	34.3 JQ	56.9 JQ	188 JQ	63.9 JQ	224 JQ	169 JQ	347 JQ	331 JQ	227 JQ	144 JQ	124 JQ	206 JQ
Thallium	NV	0.78	0.31	0.56 JQ	0.49 JQ	1.3 JQ	0.5 JQ	2.1	1.3 JQ	3.2	1.7 JQ	1.1 JQ	0.77 JQ	1.2 JQ	2.1
Vanadium	NV	390	290	14.1	20.8	46.8	23.7	56.4	41	65.9	70.5	51.9	44.9	37.7	46.5
Zinc	NV	23,000	140	58.4	68.5	154	49.3	120	107	213	145 J	231 J	83 J	53.3	53.6
Dioxins and Furans (pg/g)															
1,2,3,4,6,7,8-HpCDD	NV	NV	NA	--	423	--	--	--	326	477	--	401	--	--	80.5
1,2,3,4,6,7,8-HpCDF	NV	NV	NA	--	38.9	--	--	--	37.8	69.8	--	46.2	--	--	9.61
1,2,3,4,7,8,9-HpCDF	NV	NV	NA	--	3.69	--	--	--	2.54	6.81	--	3.37	--	--	0.598 JQ
1,2,3,4,7,8-HxCDD	NV	NV	NA	--	1.57	--	--	--	6.11	4.66	--	7.73	--	--	1.57
1,2,3,4,7,8-HxCDF	NV	NV	NA	--	4.7	--	--	--	6	8.82	--	8.96	--	--	1.08 J
1,2,3,6,7,8-HxCDD	NV	NV	NA	--	9.76	--	--	--	19.1	24.9	--	21.1	--	--	4.19
1,2,3,6,7,8-HxCDF	NV	NV	NA	--	1.23 J	--	--	--	3.03	3.65	--	3.74	--	--	0.788 JQ
1,2,3,7,8,9-HxCDD	NV	NV	NA	--	3.55	--	--	--	14.3	10.4	--	17.2	--	--	3.43
1,2,3,7,8,9-HxCDF	NV	NV	NA	--	1.07	--	--	--	1.68	3.45	--	1.79	--	--	0.331 U
1,2,3,7,8-PeCDD	NV	NV	NA	--	1.02	--	--	--	5.5	4.33	--	6.71	--	--	1.43
1,2,3,7,8-PeCDF	NV	NV	NA	--	1.33 J	--	--	--	2.11	1.71	--	1.27 J	--	--	0.211 JQ
2,3,4,6,7,8-HxCDF	NV	NV	NA	--	1.5 J	--	--	--	3.21	4.59	--	3.62	--	--	1.03
2,3,4,7,8-PeCDF	NV	NV	NA	--	0.938 JQ	--	--	--	4.14	1.87	--	2.81	--	--	0.73 JQ

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2016 Soil Analytical Results and Recreational Risk-Based Concentrations
Gold Hill Cement Powerhouse
Gold Hill, Oregon

Data Source:	Oregon DEQ, RBC[1][a]	EPA RSLs[2]	DEQ Background Metals, Klamath Mountains[3]	Power Transmission Surface Soil Samples											
EPA Sample Number:				15414018	15414019	15414020	15414021	15414022	15414023	15414024	15414026	15414027	15414028	15414029	15414030
CLP Sample Number				JG9J8	JG9J9	JG9K0	JG9K1	JG9K2	JG9K3	JG9K4	JG9K6	JG9K7	JG9K8	JG9K9	JG9L0
Station Location				PT01SS01	PT01SS02	PT02SS01	PT02SS02	PT03SS01	PT03SS02	PT04SS01	PT05SS01	PT05SS02	PT06SS01	PT06SS02	PT07SS01
Sample Date:	Recreational	Residential		10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015
Sample Depth (inches bgs)				0-6	6-12	0-6	6-12	0-6	6-12	0-6	0-6	6-12	0-6	6-12	0-6
2,3,7,8-TCDD	14	NA	NA	--	3.88	--	--	--	14.6	36.6	--	10	--	--	0.859 JQ
2,3,7,8-TCDF	NV	NV	NA	--	1.19	--	--	--	0.884 JQ	0.834 JQ	--	0.741 JQ	--	--	0.293 JQ
OCDD	NV	NV	NA	--	7,870 J	--	--	--	2,770 J	8,060 J	--	3,360 J	--	--	559 J
OCDF	NV	NV	NA	--	68.5	--	--	--	39.8	52.5	--	50	--	--	13
Dioxin/Furan TEQ[c][4]	14	NA	NA	--	14.7 JT	--	--	--	31.3 JT	55.6 JT	--	29.6 JT	--	--	4.85 JT
Polychlorinated Biphenyls (mg/kg)															
Aroclor 1254	NV	0.24	NA	0.034 U	0.034 U	0.035 U	0.034 U	0.034 U	0.035 U	0.035 U	0.034 U	0.034 U	0.034 U	0.034 U	0.034 U
Aroclor 1260	NV	0.24	NA	0.034 U	0.034 U	0.035 U	0.034 U	0.041	0.023 JQ	0.035 U	0.037 J	0.024 JQ	0.034 U	0.034 U	0.034 U
SVOCs (mg/kg)															
Acenaphthylene	NV	3,600	NA	0.0048	0.0078	0.0007 JQ	0.0034 U	0.00069 JQ	0.001 JQ	0.0035 U	0.0017 JQ	0.0017 JQ	0.0034 U	0.00068 JQ	0.0033 U
Anthracene	98,000	NA	NA	0.0092	0.013	0.0035 U	0.0034 U	0.0034 U	0.0034 U	0.0035 U	0.0024 JQ	0.0031 JQ	0.0034 U	0.001 JQ	0.0033 U
Benzo(a)anthracene	4.6	NA	NA	0.03	0.031	0.0035 U	0.0034 U	0.0034 U	0.007	0.0035 U	0.0069	0.0061	0.0034 U	0.0061	0.0033 U
Benzo(a)pyrene	0.47	NA	NA	0.033	0.064	0.0035 U	0.0034 U	0.0034 U	0.0034 U	0.0035 U	0.0089	0.025	0.0034 U	0.0075	0.0033 U
Benzo(b)fluoranthene	4.7	NA	NA	0.13	0.17	0.0035 U	0.0034 U	0.0034 U	0.024	0.0035 U	0.039	0.029	0.0034 U	0.019	0.0033 U
Benzo(ghi)perylene	NV	NV	NA	0.054	0.081	0.0035 U	0.0034 U	0.0034 U	0.0087	0.0035 U	0.014	0.018	0.0034 U	0.0061	0.0033 U
Benzo(k)fluoranthene	47	NA	NA	0.039	0.054	0.0035 U	0.0034 U	0.0034 U	0.0034 U	0.0035 U	0.0092	0.019	0.0034 U	0.0065	0.0033 U
Chrysene	64	NA	NA	0.1	0.1	0.0035	0.0034 U	0.0073	0.02	0.0035 U	0.029	0.023	0.0031 JQ	0.016	0.0033 U
Dibenzo(a,h)anthracene	0.47	NA	NA	0.012	0.0034 U	0.0035 U	0.0034 U	0.0034 U	0.0034 U	0.0035 U	0.0034 U	0.0034 U	0.0034 U	0.0034 U	0.0033 U
Dimethylphthalate	NV	NV	NA	0.091 JQ	0.14 JQ	0.15 JQ	0.27	0.083 JQ	0.13 JQ	0.21	0.23	0.2	0.17	0.19	0.11 JQ
Di-n-butylphthalate	NV	6,300	NA	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	0.64	NA	NA	0.047	0.078	0.0035 U	0.0034 U	0.0034 U	0.0066	0.0035 U	0.01	0.014	0.0014 JQ	0.0048	0.0033 U
Fluoranthene	10,000	NA	NA	0.11	0.11	0.0056	0.0051	0.0093	0.022	0.0049	0.067	0.034	0.0041	0.029	0.002 JQ
Pentachlorophenol	3	NA	NA	0.0068 U	0.0068 U	0.0071 U	0.0069 U	0.0069 U	0.007 U	0.018	0.0058 JQ	0.0065 JQ	0.0068 UJ	0.0068 UJ	0.0068 U
Phenanthrene	NV	NV	NA	0.023	0.02	0.0032 JQ	0.0031 JQ	0.0035	0.0056	0.0025 JQ	0.039	0.015	0.002 JQ	0.0088	0.0014 JQ
Phenol	NV	19,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	7,500	NA	NA	0.1	0.11	0.0081	0.0055	0.01	0.023	0.0063	0.062	0.035	0.0048	0.027	0.0033 U
cPAH TEQ[d][5]	0.47	NA	NA	0.0662 JT	0.0942 JT	0.00405 JT	0.0034 UT	0.00393 JT	0.0072 JT	0.0035 UT	0.0163 JT	0.0318 JT	0.0039 JT	0.0123 JT	0.0033 UT
VOCs (mg/kg)															
Acetone	NV	70,000	NA	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Acetate	NV	78,000	NA	0.0053 U	0.0058 U	0.0078 U	0.0059 U	0.0059 U	0.0068 U	0.0073 U	0.0058 U	0.0067 U	0.0068 U	0.0062 U	0.04 J
Methylene chloride	6,000	NA	NA	0.0053 U	0.0058 U	0.0078 U	0.0059 U	0.0059 U	0.0068 U	0.025	0.0058 U	0.0067 U	0.0068 U	0.0062 U	0.0076 UJ
Toluene	24,000	NA	NA	--	--	--	--	--	--	--	--	--	--	--	--

MAUL FOSTER ALONGI

Table 2-1
2016 Soil Analytical Results and Recreational Risk-Based Concentrations
Gold Hill Cement Powerhouse
Gold Hill, Oregon

Data Source:	Oregon DEQ, RBC[1](a)	EPA RSLs[2]	DEQ Background Metals, Klamath Mountains[3]	Power Transmission Surface Soil Samples		
EPA Sample Number:				15414031	15414032	15414033
CLP Sample Number				JG9L1	JG9L2	JG9L3
Station Location				PT07SS02	PT08SS01	PT08SS02
Sample Date:	Recreational	Residential		10/13/2015	10/13/2015	10/13/2015
Sample Depth (inches bgs)				6-12	0-6	6-12
TPH (mg/kg)						
Oil-range hydrocarbons		NV	NA	39	58	25
Metals (mg/kg)						
Aluminum	NV	77,000	NV	19,800	17,700	15,400
Antimony	NV	31	0.59	--	--	--
Arsenic	1.2	NA	12	12.2 J	10.8 J	8.3 J
Barium	64,000	NA	630	106	107	65.2
Beryllium	6,400	NA	1.4	0.48	0.43	0.43
Cadmium	8,600	NA	0.52	2.1	1.9	1.3
Calcium	NV	NV	NV	16,300	40,700	30,200
Chromium	490,000(b)	NA	890	64.5	60	54.4
Cobalt	NV	23	NV	12.7	10.3	8.8
Copper	13,000	NA	110	66.1	110	77.9
Iron	NV	55,000	NV	32,200	28,100	24,100
Lead	400	NA	36	40.9	36.2	18.7
Magnesium	NV	NV	NV	9,740	9,250	7,670
Manganese	7,600	NA	3,000	632	566	528
Mercury	98	NA	0.17	0.3	0.24	0.28
Nickel	59,000	NA	630	47	44.4	40.9
Potassium	NV	NV	NV	3,760	3,480	2,510
Silver	1,600	NA	0.16	1.5	1.2	1.1
Sodium	NV	NV	NV	391	308 JQ	276 JQ
Thallium	NV	0.78	0.31	2.8	2.3	2.3
Vanadium	NV	390	290	73.4	65.3	52.9
Zinc	NV	23,000	140	76	72	57.7
Dioxins and Furans (pg/g)						
1,2,3,4,6,7,8-HpCDD	NV	NV	NA	--	104	--
1,2,3,4,6,7,8-HpCDF	NV	NV	NA	--	16.1	--
1,2,3,4,7,8,9-HpCDF	NV	NV	NA	--	1.17	--
1,2,3,4,7,8-HxCDD	NV	NV	NA	--	1.62	--
1,2,3,4,7,8-HxCDF	NV	NV	NA	--	1.65	--
1,2,3,6,7,8-HxCDD	NV	NV	NA	--	4.78	--
1,2,3,6,7,8-HxCDF	NV	NV	NA	--	1.02	--
1,2,3,7,8,9-HxCDD	NV	NV	NA	--	3.45	--
1,2,3,7,8,9-HxCDF	NV	NV	NA	--	0.494 JQ	--
1,2,3,7,8-PeCDD	NV	NV	NA	--	1.36	--
1,2,3,7,8-PeCDF	NV	NV	NA	--	0.721 JQ	--
2,3,4,6,7,8-HxCDF	NV	NV	NA	--	1.24	--
2,3,4,7,8-PeCDF	NV	NV	NA	--	0.869 JQ	--

Table 2-1
2016 Soil Analytical Results and Recreational Risk-Based Concentrations
Gold Hill Cement Powerhouse
Gold Hill, Oregon

MAUL FOSTER ALONGI

Data Source:	Oregon DEQ, RBC[1][a]	EPA RSLs[2]	DEQ Background Metals, Klamath Mountains[3]	Power Transmission Surface Soil Samples		
EPA Sample Number:				15414031	15414032	15414033
CLP Sample Number				JG9L1	JG9L2	JG9L3
Station Location				PT07SS02	PT08SS01	PT08SS02
Sample Date:	Recreational	Residential		10/13/2015	10/13/2015	10/13/2015
Sample Depth (inches bgs)				6-12	0-6	6-12
2,3,7,8-TCDD	14	NA	NA	--	0.855 JQ	--
2,3,7,8-TCDF	NV	NV	NA	--	0.4 JQ	--
OCDD	NV	NV	NA	--	916 J	--
OCDF	NV	NV	NA	--	33	--
Dioxin/Furan TEQ[c][4]	14	NA	NA	--	5.46 JT	--
Polychlorinated Biphenyls (mg/kg)						
Aroclor 1254	NV	0.24	NA	0.034 U	0.29	0.034 U
Aroclor 1260	NV	0.24	NA	0.015 JQ	0.15	0.034 U
SVOCs (mg/kg)						
Acenaphthylene	NV	3,600	NA	0.0034 U	0.0034 U	0.0034 U
Anthracene	98,000	NA	NA	0.0034 U	0.0034 U	0.0034 U
Benzo(a)anthracene	4.6	NA	NA	0.0014 JQ	0.0014 JQ	0.001 JQ
Benzo(a)pyrene	0.47	NA	NA	0.0034 U	0.0034 U	0.0034 U
Benzo(b)fluoranthene	4.7	NA	NA	0.0034 U	0.0034 U	0.0034 U
Benzo(ghi)perylene	NV	NV	NA	0.0027 JQ	0.0034 U	0.0034 U
Benzo(k)fluoranthene	47	NA	NA	0.0034 U	0.0034 U	0.0034 U
Chrysene	64	NA	NA	0.0031 JQ	0.0027 JQ	0.0014 JQ
Dibenzo(a,h)anthracene	0.47	NA	NA	0.0034 U	0.0034 U	0.0034 U
Dimethylphthalate	NV	NV	NA	0.17	0.1 JQ	0.14 JQ
Di-n-butylphthalate	NV	6,300	NA	--	--	--
Indeno(1,2,3-cd)pyrene	0.64	NA	NA	0.0017 JQ	0.0034 U	0.0034 U
Fluoranthene	10,000	NA	NA	0.0021 JQ	0.0024 JQ	0.0024 JQ
Pentachlorophenol	3	NA	NA	0.0069 UJ	0.0069 U	0.0069 U
Phenanthrene	NV	NV	NA	0.0034 U	0.0017 JQ	0.0021 JQ
Phenol	NV	19,000	NA	--	--	--
Pyrene	7,500	NA	NA	0.0038	0.0027 JQ	0.0034
cPAH TEQ[d][5]	0.47	NA	NA	0.0039 JT	0.0039 JT	0.00386 JT
VOCs (mg/kg)						
Acetone	NV	70,000	NA	--	--	--
Methyl Acetate	NV	78,000	NA	0.015	0.0061 U	0.006 U
Methylene chloride	6,000	NA	NA	0.0071 U	0.0061 U	0.006 U
Toluene	24,000	NA	NA	--	--	--

Table 2-1
2016 Soil Analytical Results and Recreational Risk-Based Concentrations
Gold Hill Cement Powerhouse
Gold Hill, Oregon

MAUL FOSTER ALONGI

Notes

All analytical data from: *E&E. 2016. Gold Hill Cement Power Plant (Former), Targeted Brownfields Assessment, Gold Hill, Oregon, Technical Direction Document: 15-01-0009. Prepared for the United States Environmental Protection Agency. Prepared by Ecology and Environment, Inc.: Seattle, WA. July.*

Metals results screened if results are above Oregon DEQ Background Metals values (if available). Background metals values are shown for reference only and are not shaded for exceedances.

Shading (color key below) indicates values that exceed screening criteria; non-detects (U) were not compared with screening criteria. Results are evaluated to DEQ RBCs or EPA RSLs if RBCs are not available.

Oregon DEQ RBC, Recreational.

EPA RSLs, Residential.

-- = not analyzed.

bgs = Below ground surface

CLP = Contract Laboratory Program

cPAH = carcinogenic polycyclic aromatic hydrocarbon.

DEQ = Oregon Department of Environmental Quality.

EPA = United States Environmental Protection Agency

J = result is estimated.

mg/kg = milligrams per kilogram.

NA = not applicable.

NC = not calculated since two or more constituents were unavailable.

NV = no value.

pg/g = picograms per gram.

Q = Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.

RBC = Risk Based Concentration

RSL = Regional Screening Level

SVOC = semivolatile organic compound.

TEF = toxicity equivalence factor.

TEQ = toxicity equivalence.

TPH = total petroleum hydrocarbons.

U = result is non-detect at the method reporting limit.

UJ = result is non-detect with an estimated detection limit.

VOC = volatile organic compound.

[a]Recreational RBC was calculated by adjusting the exposure duration to 10 years and the exposure frequency to 84 days per year for child.

[b]Value is for chromium III.

[c]Dioxin/furan TEQ calculated as the sum of each congener concentration multiplied by the corresponding mammalian TEF value.

[d]cPAH TEQ calculated as the sum of each constituent concentration multiplied by the corresponding TEF value.

References

[1]DEQ. 2012. Risk-based concentrations for individual chemicals. Environmental Cleanup Program. Oregon Department of Environmental Quality. June 7. Updated May 2018.

[2]EPA. 2024. *Regional Screening Level (RSL) Summary Table (TR=1E-06, HQ=1) May 2023* . U.S. Environmental Protection Agency. November.

[3]DEQ. 2013. *Development of Oregon Background Metals Concentrations in Soil.* Oregon Department of Environmental Quality, Land Quality Division Cleanup Program, Portland, Oregon. March.

[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(2): 223–241. [doi:10.1093/toxsci/kfl055]

[5]EPA. 1993. *Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons* . 600/R-93/089. U.S. Environmental Protection Agency. July.

Table 2-2
2016 Soil Analytical Results and Ecological Risk-Based Concentrations
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

MAUL FOSTER ALONGI

Sample Source:	RBC, Soil, Soil Ingestion, Dermal Contact, and Inhalation[1]			RBC, Soil, Volatilization to Outdoor Air[1]	RBC, Soil, Leaching to GW[1]	Eco Risk-Based Concentrations[2]										DEQ Background Metals, Klamath Mountains[3]	Power Plant Perimeter Surface Soil Samples			
EPA Sample Number:						Direct Toxicity		Ground Feeding				Top Consumers					15414000	15414001	15414002	15414003
CLP Sample Number:								Birds		Mammals		Birds		Mammals			JG9H0	JG9H1	JG9H2	JG9H3
Station Location:																	BP01SS01	BP01SS02	BP02SS01	BP02SS02
Sample Date:	Occ.	Con. Worker	Exc. Worker	Occ.	Occ.	Plants	Inverts	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E		10/13/2015	10/13/2015	10/13/2015	10/13/2015
Sample Depth (inches bgs):																	0-6	6-12	0-6	6-12
TPH (mg/kg)																				
Motor oil-range hydrocarbons	14,000[a]	4,600[a]	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	230	140	98	51
Total Metals (mg/kg)																				
Aluminum	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	15,400	16,900	19,700	17,300
Antimony	NV	NV	NV	NV	NV	11	78	NV	NV	0.27	2.7	NV	NV	4.9	49	0.59	1.3 JQ	0.72 JQ	0.61 JQ	0.81 JQ
Arsenic	1.9	15	420	NV	NV	18	6.8	15	32	19	31	100	1,000	170	290	12	4.2 J	3.3 J	4 J	7.1 J
Barium	220,000	69,000	NV	NV	NV	110	330	720	1,200	1,800	8,700	630	13,000	9,100	44,000	630	125	121	153	141
Beryllium	2,300	700	19,000	NV	NV	2.5	40	NV	NV	21	42	NV	NV	90	110	1.4	0.2 JQ	0.25 JQ	0.34 JQ	0.33 JQ
Cadmium	1,100	350	9,700	NV	NV	32	140	0.29	1.6	0.27	4	1.3	7.7	84	1,700	0.52	2.4	1.5	0.87	1.4
Calcium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	9,720	8,270	11,000 J	9,180
Chromium	NV	530,000[b]	NV	NV	NV	NV	NV	23	73	34	1,600	170	560	180	10,000	890	37.2	41.8	26.2 J	23.8
Cobalt	NV	NV	NV	NV	NV	13	NV	76	170	230	640	620	1400	470	3,300	NV	7.7	10.2	9.3	10
Copper	47,000	14,000	390,000	NV	NV	70	80	14	43	42	70	80	240	560	1,600	110	59.7	40.8	31.9 J	30
Iron	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	41,100	25,800	25,800 J	24,800
Lead	800	800	800	NV	30	120	1,700	11	23	56	170	83	160	460	1,600	36	62	40.2	166 J	30.6
Magnesium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	7,950	9,670	4,680 J	4,550
Manganese	25,000	8,200	230,000	NV	NV	220	450	1,300	2,700	1,400	5,400	24,000	50,000	6,200	34,000	3,000	768	671	642 J	654
Mercury	350	110	2,900	NV	NV	34	0.05	0.013	0.13	1.7	17	0.058	0.58	26	130	0.17	0.14	0.65	0.1 U	0.12 U
Nickel	22,000	7,000	190,000	NV	NV	38	280	20	81	10	21	110	440	130	580	630	38.7	31.9	25.9	26.6
Potassium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	4,060	4,740	1,520	1,220
Silver	5,800	1,800	49,000	NV	NV	560	NV	2.6	26	14	140	13	130	990	10,000	0.16	1.9	1.2	1.3	1.1
Sodium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	487	458	923	826
Thallium	NV	NV	NV	NV	NV	0.05	NV	4.5	45	0.42	4.2	48	480	5	50	0.31	3.9	2.2	1.7 JQ	1.9 JQ
Vanadium	NV	NV	NV	NV	NV	60	NV	4.7	9.5	280	610	56	110	580	1600	290	76.8	83.2	84	73.2
Zinc	NV	NV	NV	NV	NV	160	120	46	120	79	980	220	590	3,100	30,000	140	633	378	89.9 J	60
Dioxins and Furans (pg/g)																				
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	NV	NV	NV	NV	150	1,500	1	7	1,500	15,000	1.6	11	NV	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	NV	NV	NV	NV	23	230	1.6	11	230	2,300	2.5	17	NV	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	NV	NV	NV	NV	23	230	1.6	11	230	2,300	2.5	17	NV	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NV	NV	NV	NV	NV	NV	5.1	51	0.18	1.2	50	500	0.27	1.8	NV	--	--	--	--
1,2,3,4,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NV	NV	NV	NV	NV	NV	19	190	0.13	0.89	190	1,900	0.2	1.4	NV	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NV	NV	NV	NV	NV	NV	1.9	19	0.13	0.89	19	190	0.2	1.4	NV	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NV	NV	NV	NV	NV	NV	3	30	0.21	1.4	30	300	0.32	2.2	NV	--	--	--	--
1,2,3,7,8-PeCDD	NV	NV	NV	NV	NV	NV	NV	0.59	5.9	0.042	0.28	5.9	59	0.064	0.43	NV	--	--	--	--
1,2,3,7,8-PeCDF	NV	NV	NV	NV	NV	NV	NV	4.1	41	0.97	6.5	40	400	1.5	9.8	NV	--	--	--	--

Table 2-2
2016 Soil Analytical Results and Ecological Risk-Based Concentrations
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

Sample Source:	RBC, Soil, Soil Ingestion, Dermal Contact, and Inhalation[1]			RBC, Soil, Volatilization to Outdoor Air[1]	RBC, Soil, Leaching to GW[1]	Eco Risk-Based Concentrations[2]										DEQ Background Metals, Klamath Mountains[3]	Power Plant Perimeter Surface Soil Samples			
EPA Sample Number:						Direct Toxicity		Ground Feeding				Top Consumers					15414000	15414001	15414002	15414003
CLP Sample Number:								Birds		Mammals		Birds		Mammals			JG9H0	JG9H1	JG9H2	JG9H3
Station Location:																	BP01SS01	BP01SS02	BP02SS01	BP02SS02
Sample Date:	Occ.	Con. Worker	Exc. Worker	Occ.	Occ.	Plants	Inverts	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E		10/13/2015	10/13/2015	10/13/2015	10/13/2015
Sample Depth (inches bgs):																	0-6	6-12	0-6	6-12
2,3,4,6,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	--	--	--	--
2,3,4,7,8-PeCDF	NV	NV	NV	NV	NV	NV	NV	0.41	4.1	0.097	0.65	4	40	0.15	0.98	NV	--	--	--	--
2,3,7,8-TCDD	16	170	4,800	130,000	31	NV	5,000,000	0.52	5.2	0.037	0.25	5.2	52	0.057	0.38	NV	--	--	--	--
2,3,7,8-TCDF	NV	NV	NV	NV	NV	NV	NV	0.64	6.4	0.45	3	6.3	63	0.69	4.6	NV	--	--	--	--
OCDD	NV	NV	NV	NV	NV	NV	NV	1,900	19,000	45	300	19,000	190,000	68	460	NV	--	--	--	--
OCDF	NV	NV	NV	NV	NV	NV	NV	1,400	14,000	33	220	14,000	140,000	51	340	NV	--	--	--	--
Dioxin/Furan TEQ[(c)(4)]	16	170	4,800	130,000	31	NV	5,000,000	0.52	5.2	0.037	0.25	5.2	52	0.057	0.38	NV	--	--	--	--
Polychlorinated Biphenyls (mg/kg)																				
Aroclor 1254	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.036 U	0.036 U	0.038 U	0.04 U
Aroclor 1260	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
SVOCs (mg/kg)																				
Acenaphthylene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Anthracene	350,000	110,000	NV	NV	NV	6.8	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Benzo(a)anthracene	21	170	4800	NV	NV	18	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0055	0.0036 U	0.0038 U	0.004 U
Benzo(a)pyrene	2.1	17	490	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Benzo(b)fluoranthene	21	170	4900	NV	NV	18	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Benzo(ghi)perylene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Benzo(k)fluoranthene	210	1,700	49,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Chrysene	2,100	17,000	490,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Dibenzo(a,h)anthracene	2.1	17	490	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Dimethylphthalate	NV	NV	NV	NV	NV	NV	10	NV	NV	38	400	NV	NV	11,000	57,000	NV	0.33	0.18	0.35	0.29
Di-n-butylphthalate	NV	NV	NV	NV	NV	160	NV	0.011	0.11	180	450	0.052	0.52	21,000	50,000	NV	0.19 U	0.18 U	0.2 U	0.2 U
Indeno(1,2,3-cd)pyrene	21	170	4,900	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Fluoranthene	30,000	10,000	280,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.011	0.0036 U	0.0038	0.004 U
Pentachlorophenol	4	34	960	NV	0.17	5	31	0.36	3.6	0.81	8.1	1.7	17	32	85	NV	0.0074 U	0.0072 U	0.0077 U	0.008 U
Phenanthrene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.007	0.0036 U	0.0031 JQ	0.004 U
Phenol	NV	NV	NV	NV	NV	0.79	1.8	NV	NV	37	370	NV	NV	43,000	430,000	NV	--	--	--	--
Pyrene	23,000	7,500	210,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.012	0.0036 U	0.0061	0.004 U
cPAH TEQ[(d)(5)]	2.1	17	490	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NC	NC	NC	NC
HPAH[(e)]	NV	NV	NV	NV	NV	NV	18	0.11	0.55	1.1	5.9	6.4	64	110	550	NV	NC	NC	NC	NC
LPAH[(f)]	NV	NV	NV	NV	NV	NV	29	13	67	100	540	7,500	37,000	1,200	59,000	NV	NC	NC	NC	NC
VOCs (mg/kg)																				
Acetone	NV	NV	NV	NV	NV	NV	NV	7.5	75	1.2	6.3	840	8,400	1,800	8,900	NV	0.014 U	0.012 U	0.013 U	0.012 U
Methyl Acetate	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0068 U	0.006 U	0.0066 U	0.0062 U
Methylene chloride	1,600	2,100	58,000	NV	2.4	1,600	NV	NV	NV	2.6	22	NV	NV	1,000	8,500	NV	--	--	--	--
Toluene	88,000	28,000	770,000	NV	490	200	NV	NV	NV	23	230	NV	NV	3,300	33,000	NV	0.0037 JQ	0.006 U	0.0028 JQ	0.0062 U

MAUL FOSTER ALONGI

Table 2-2
2016 Soil Analytical Results and Ecological Risk-Based Concentrations
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

Sample Source:	RBC, Soil, Soil Ingestion, Dermal Contact, and Inhalation(1)			RBC, Soil, Volatilization to Outdoor Air(1)	RBC, Soil, Leaching to GW(1)	Eco Risk-Based Concentrations(2)										DEQ Background Metals, Klamath Mountains(3)	Power Plant Perimeter Surface Soil Samples			
EPA Sample Number:						Direct Toxicity		Ground Feeding				Top Consumers					15414004	15414005	15414006	15414007
CLP Sample Number:								Birds		Mammals		Birds		Mammals			JG9H4	JG9H5	JG9H6	JG9H7
Station Location:																	BP03SS01	BP03SS02	BP04SS01	BP04SS02
Sample Date:	Occ.	Con. Worker	Exc. Worker	Occ.	Occ.	Plants	Inverts	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E		10/13/2015	10/13/2015	10/13/2015	10/13/2015
Sample Depth (inches bgs):																	0-6	6-12	0-6	0-6
TPH (mg/kg)																				
Motor oil-range hydrocarbons	14,000(a)	4,600(a)	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	220	100	6,400	52
Total Metals (mg/kg)																				
Aluminum	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	19,500	19,200	16,700	22,400
Antimony	NV	NV	NV	NV	NV	11	78	NV	NV	0.27	2.7	NV	NV	4.9	49	0.59	4.3 JQ	1.1 JQ	11.7 J	1.5 JQ
Arsenic	1.9	15	420	NV	NV	18	6.8	15	32	19	31	100	1,000	170	290	12	3.5 J	3.6 J	3.9	2.8 J
Barium	220,000	69,000	NV	NV	NV	110	330	720	1,200	1,800	8,700	630	13,000	9,100	44,000	630	295	163	393	195
Beryllium	2,300	700	19,000	NV	NV	2.5	40	NV	NV	21	42	NV	NV	90	110	1.4	0.35 JQ	0.3 JQ	0.23 JQ	0.47
Cadmium	1,100	350	9,700	NV	NV	32	140	0.29	1.6	0.27	4	1.3	7.7	84	1,700	0.52	2.9	1.6	13.3	1.7
Calcium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	11,300 J	9,870 J	9,960 J	12,600 J
Chromium	NV	530,000(b)	NV	NV	NV	NV	NV	23	73	34	1,600	170	560	180	10,000	890	52 J	56.5 J	87.6 J	70.8 J
Cobalt	NV	NV	NV	NV	NV	13	NV	76	170	230	640	620	1400	470	3,300	NV	10.6	10.5	9.6	10.7
Copper	47,000	14,000	390,000	NV	NV	70	80	14	43	42	70	80	240	560	1,600	110	67.3 J	52.4 J	134 J	62.6 J
Iron	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	29,700 J	29,700 J	37,600 J	32,200 J
Lead	800	800	800	NV	30	120	1,700	11	23	56	170	83	160	460	1,600	36	443 J	171 J	455 J	61.8 J
Magnesium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	8,810 J	11,600 J	9,640 J	9,910 J
Manganese	25,000	8,200	230,000	NV	NV	220	450	1,300	2,700	1,400	5,400	24,000	50,000	6,200	34,000	3,000	600 J	577 J	566 J	548 J
Mercury	350	110	2,900	NV	NV	34	0.05	0.013	0.13	1.7	17	0.058	0.58	26	130	0.17	0.67	0.31	1.2	1.5
Nickel	22,000	7,000	190,000	NV	NV	38	280	20	81	10	21	110	440	130	580	630	40	34.8	48.5	44.5
Potassium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	3,830	4,510	3,450	4,710
Silver	5,800	1,800	49,000	NV	NV	560	NV	2.6	26	14	140	13	130	990	10,000	0.16	1.6	1.5	2.6	1.6
Sodium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	432	374 JQ	541	618
Thallium	NV	NV	NV	NV	NV	0.05	NV	4.5	45	0.42	4.2	48	480	5	50	0.31	2.1	1.8 JQ	3.4	2.4
Vanadium	NV	NV	NV	NV	NV	60	NV	4.7	9.5	280	610	56	110	580	1600	290	81.1	88.2	74.4	85.6
Zinc	NV	NV	NV	NV	NV	160	120	46	120	79	980	220	590	3,100	30,000	140	302 J	136	506 J	108 J
Dioxins and Furans (pg/g)																				
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	NV	NV	NV	NV	150	1,500	1	7	1,500	15,000	1.6	11	NV	958	--	424	79.4
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	NV	NV	NV	NV	23	230	1.6	11	230	2,300	2.5	17	NV	132	--	162	15.3
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	NV	NV	NV	NV	23	230	1.6	11	230	2,300	2.5	17	NV	8.74	--	9.05	1.18
1,2,3,4,7,8-HxCDD	NV	NV	NV	NV	NV	NV	NV	5.1	51	0.18	1.2	50	500	0.27	1.8	NV	7.46	--	3.34	0.887 JQ
1,2,3,4,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	10.9	--	24.6	3.7
1,2,3,6,7,8-HxCDD	NV	NV	NV	NV	NV	NV	NV	19	190	0.13	0.89	190	1,900	0.2	1.4	NV	31.9	--	16.2	3.44
1,2,3,6,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	6.43	--	7.12	1.14
1,2,3,7,8,9-HxCDD	NV	NV	NV	NV	NV	NV	NV	1.9	19	0.13	0.89	19	190	0.2	1.4	NV	18	--	8.06	2.11
1,2,3,7,8,9-HxCDF	NV	NV	NV	NV	NV	NV	NV	3	30	0.21	1.4	30	300	0.32	2.2	NV	4.45	--	3.99	0.684 JQ
1,2,3,7,8-PeCDD	NV	NV	NV	NV	NV	NV	NV	0.59	5.9	0.042	0.28	5.9	59	0.064	0.43	NV	5.77	--	3.08	0.839 JQ
1,2,3,7,8-PeCDF	NV	NV	NV	NV	NV	NV	NV	4.1	41	0.97	6.5	40	400	1.5	9.8	NV	2.58	--	5.52 J	1.01 J

Table 2-2
2016 Soil Analytical Results and Ecological Risk-Based Concentrations
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

Sample Source:	RBC, Soil, Soil Ingestion, Dermal Contact, and Inhalation[1]			RBC, Soil, Volatilization to Outdoor Air[1]	RBC, Soil, Leaching to GW[1]	Eco Risk-Based Concentrations[2]										DEQ Background Metals, Klamath Mountains[3]	Power Plant Perimeter Surface Soil Samples			
EPA Sample Number:						Direct Toxicity		Ground Feeding				Top Consumers					15414004	15414005	15414006	15414007
CLP Sample Number:								Birds		Mammals		Birds		Mammals			JG9H4	JG9H5	JG9H6	JG9H7
Station Location:																	BP03SS01	BP03SS02	BP04SS01	BP04SS02
Sample Date:	Occ.	Con. Worker	Exc. Worker	Occ.	Occ.	Plants	Inverts	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E		10/13/2015	10/13/2015	10/13/2015	10/13/2015
Sample Depth (inches bgs):																	0-6	6-12	0-6	0-6
2,3,4,6,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	7.65	--	6.95	1.14
2,3,4,7,8-PeCDF	NV	NV	NV	NV	NV	NV	NV	0.41	4.1	0.097	0.65	4	40	0.15	0.98	NV	3.58	--	4.14 J	0.782 JQ
2,3,7,8-TCDD	16	170	4,800	130,000	31	NV	5,000,000	0.52	5.2	0.037	0.25	5.2	52	0.057	0.38	NV	29.9	--	17.5	2.55
2,3,7,8-TCDF	NV	NV	NV	NV	NV	NV	NV	0.64	6.4	0.45	3	6.3	63	0.69	4.6	NV	1.47 J	--	3.01	0.839 JQ
OCDD	NV	NV	NV	NV	NV	NV	NV	1,900	19,000	45	300	19,000	190,000	68	460	NV	9,850 J	--	5,490 J	796 J
OCDF	NV	NV	NV	NV	NV	NV	NV	1,400	14,000	33	220	14,000	140,000	51	340	NV	231	--	127	15.8
Dioxin/Furan TEQ[c][4]	16	170	4,800	130,000	31	NV	5,000,000	0.52	5.2	0.037	0.25	5.2	52	0.057	0.38	NV	59.7 JT	--	37 JT	6.25 JT
Polychlorinated Biphenyls (mg/kg)																				
Aroclor 1254	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.035 U	0.035 U	0.14 J	0.035 U
Aroclor 1260	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
SVOCs (mg/kg)																				
Acenaphthylene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Anthracene	350,000	110,000	NV	NV	NV	6.8	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Benzo(a)anthracene	21	170	4800	NV	NV	18	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0034 U	0.0034 U	0.0034 U	0.0017 JQ
Benzo(a)pyrene	2.1	17	490	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Benzo(b)fluoranthene	21	170	4900	NV	NV	18	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Benzo(ghi)perylene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Benzo(k)fluoranthene	210	1,700	49,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Chrysene	2,100	17,000	490,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Dibenzo(a,h)anthracene	2.1	17	490	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Dimethylphthalate	NV	NV	NV	NV	NV	NV	10	NV	NV	38	400	NV	NV	11,000	57,000	NV	0.29	0.2	0.11 JQ	0.15 JQ
Di-n-butylphthalate	NV	NV	NV	NV	NV	160	NV	0.011	0.11	180	450	0.052	0.52	21,000	50,000	NV	0.13 JQ	0.18 U	0.53	0.18 U
Indeno(1,2,3-cd)pyrene	21	170	4,900	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Fluoranthene	30,000	10,000	280,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0073	0.0017 JQ	0.0034 U	0.0028 JQ
Pentachlorophenol	4	34	960	NV	0.17	5	31	0.36	3.6	0.81	8.1	1.7	17	32	85	NV	0.011	0.007 U	0.03	0.007 U
Phenanthrene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0038	0.0014 JQ	0.0034 U	0.0021 JQ
Phenol	NV	NV	NV	NV	NV	0.79	1.8	NV	NV	37	370	NV	NV	43,000	430,000	NV	--	--	--	--
Pyrene	23,000	7,500	210,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.012	0.0034 U	0.0034 U	0.0042
cPAH TEQ[d][5]	2.1	17	490	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NC	NC	NC	NC
HPAH[e]	NV	NV	NV	NV	NV	NV	18	0.11	0.55	1.1	5.9	6.4	64	110	550	NV	NC	NC	NC	NC
LPAH[f]	NV	NV	NV	NV	NV	NV	29	13	67	100	540	7,500	37,000	1,200	59,000	NV	NC	NC	NC	NC
VOCs (mg/kg)																				
Acetone	NV	NV	NV	NV	NV	NV	NV	7.5	75	1.2	6.3	840	8,400	1,800	8,900	NV	0.012 U	0.013 U	0.06	0.018 U
Methyl Acetate	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0062 U	0.0065 U	0.0097	0.0091 U
Methylene chloride	1,600	2,100	58,000	NV	2.4	1,600	NV	NV	NV	2.6	22	NV	NV	1,000	8,500	NV	--	--	--	--
Toluene	88,000	28,000	770,000	NV	490	200	NV	NV	NV	23	230	NV	NV	3,300	33,000	NV	0.0062 U	0.0065 U	0.014 J	0.0091 U

Table 2-2
2016 Soil Analytical Results and Ecological Risk-Based Concentrations
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

MAUL FOSTER ALONGI

Sample Source:	RBC, Soil, Soil Ingestion, Dermal Contact, and Inhalation[1]			RBC, Soil, Volatilization to Outdoor Air[1]	RBC, Soil, Leaching to GW[1]	Eco Risk-Based Concentrations[2]										DEQ Background Metals, Klamath Mountains[3]	Gate House Surface Soil Samples			
EPA Sample Number:						Direct Toxicity		Ground Feeding				Top Consumers					15414014	15414015	15414016	15414017
CLP Sample Number:								Birds		Mammals		Birds		Mammals			JG9J4	JG9J5	JG9J6	JG9J7
Station Location:																	GH01SS01	GH01SS02	GH02SS01	GH02SS02
Sample Date:	Occ.	Con. Worker	Exc. Worker	Occ.	Occ.	Plants	Inverts	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E		10/13/2015	10/13/2015	10/13/2015	10/13/2015
Sample Depth (inches bgs):																	0-6	6-12	0-6	6-12
TPH (mg/kg)																				
Motor oil-range hydrocarbons	14,000[a]	4,600[a]	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	23	25	91	28
Total Metals (mg/kg)																				
Aluminum	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	11,100	10,600	14,700	21,000
Antimony	NV	NV	NV	NV	NV	11	78	NV	NV	0.27	2.7	NV	NV	4.9	49	0.59	--	--	--	--
Arsenic	1.9	15	420	NV	NV	18	6.8	15	32	19	31	100	1,000	170	290	12	2.7 J	3 J	4.9 J	10 J
Barium	220,000	69,000	NV	NV	NV	110	330	720	1,200	1,800	8,700	630	13,000	9,100	44,000	630	85.6	87.9	88.8	81.4
Beryllium	2,300	700	19,000	NV	NV	2.5	40	NV	NV	21	42	NV	NV	90	110	1.4	0.2 JQ	0.18 JQ	0.33 JQ	0.56
Cadmium	1,100	350	9,700	NV	NV	32	140	0.29	1.6	0.27	4	1.3	7.7	84	1,700	0.52	0.53	0.52	0.84	1.5
Calcium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	6,160 J	5,560 J	30,100 J	75,500 J
Chromium	NV	530,000[b]	NV	NV	NV	NV	NV	23	73	34	1,600	170	560	180	10,000	890	21.2 J	19.1 J	39.1 J	63.7 J
Cobalt	NV	NV	NV	NV	NV	13	NV	76	170	230	640	620	1400	470	3,300	NV	5.8	5.4	7.2	11.6
Copper	47,000	14,000	390,000	NV	NV	70	80	14	43	42	70	80	240	560	1,600	110	20.4 J	18.5 J	41.6 J	62.7 J
Iron	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	19,800 J	19,000 J	22,300 J	30,500 J
Lead	800	800	800	NV	30	120	1,700	11	23	56	170	83	160	460	1,600	36	10.4 J	10.1 J	30.7 J	19 J
Magnesium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	3,700 J	3,740 J	7,610 J	12,300 J
Manganese	25,000	8,200	230,000	NV	NV	220	450	1,300	2,700	1,400	5,400	24,000	50,000	6,200	34,000	3,000	423 J	343 J	692 J	596 J
Mercury	350	110	2,900	NV	NV	34	0.05	0.013	0.13	1.7	17	0.058	0.58	26	130	0.17	0.093 U	0.09 U	0.13	0.21
Nickel	22,000	7,000	190,000	NV	NV	38	280	20	81	10	21	110	440	130	580	630	20.8	18.9	32	54.7
Potassium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	1,850	1,960	2,830	4,110
Silver	5,800	1,800	49,000	NV	NV	560	NV	2.6	26	14	140	13	130	990	10,000	0.16	0.95	0.97	1.1	1.5
Sodium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	490	475	308 JQ	309 JQ
Thallium	NV	NV	NV	NV	NV	0.05	NV	4.5	45	0.42	4.2	48	480	5	50	0.31	1.2 JQ	1.5 JQ	1.3 JQ	2.3
Vanadium	NV	NV	NV	NV	NV	60	NV	4.7	9.5	280	610	56	110	580	1600	290	64.7	61.3	58.9	68.4
Zinc	NV	NV	NV	NV	NV	160	120	46	120	79	980	220	590	3,100	30,000	140	48.2 J	41.3 J	83.3 J	84.7 J
Dioxins and Furans (pg/g)																				
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	NV	NV	NV	NV	150	1,500	1	7	1,500	15,000	1.6	11	NV	--	--	--	--
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	NV	NV	NV	NV	23	230	1.6	11	230	2,300	2.5	17	NV	--	--	--	--
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	NV	NV	NV	NV	23	230	1.6	11	230	2,300	2.5	17	NV	--	--	--	--
1,2,3,4,7,8-HxCDD	NV	NV	NV	NV	NV	NV	NV	5.1	51	0.18	1.2	50	500	0.27	1.8	NV	--	--	--	--
1,2,3,4,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	--	--	--	--
1,2,3,6,7,8-HxCDD	NV	NV	NV	NV	NV	NV	NV	19	190	0.13	0.89	190	1,900	0.2	1.4	NV	--	--	--	--
1,2,3,6,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	--	--	--	--
1,2,3,7,8,9-HxCDD	NV	NV	NV	NV	NV	NV	NV	1.9	19	0.13	0.89	19	190	0.2	1.4	NV	--	--	--	--
1,2,3,7,8,9-HxCDF	NV	NV	NV	NV	NV	NV	NV	3	30	0.21	1.4	30	300	0.32	2.2	NV	--	--	--	--
1,2,3,7,8-PeCDD	NV	NV	NV	NV	NV	NV	NV	0.59	5.9	0.042	0.28	5.9	59	0.064	0.43	NV	--	--	--	--
1,2,3,7,8-PeCDF	NV	NV	NV	NV	NV	NV	NV	4.1	41	0.97	6.5	40	400	1.5	9.8	NV	--	--	--	--

Table 2-2
2016 Soil Analytical Results and Ecological Risk-Based Concentrations
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

MAUL FOSTER ALONGI

Sample Source:	RBC, Soil, Soil Ingestion, Dermal Contact, and Inhalation[1]			RBC, Soil, Volatilization to Outdoor Air[1]	RBC, Soil, Leaching to GW[1]	Eco Risk-Based Concentrations[2]										DEQ Background Metals, Klamath Mountains[3]	Gate House Surface Soil Samples			
EPA Sample Number:						Direct Toxicity		Ground Feeding				Top Consumers					15414014	15414015	15414016	15414017
CLP Sample Number:								Birds		Mammals		Birds		Mammals			JG9J4	JG9J5	JG9J6	JG9J7
Station Location:																	GH01SS01	GH01SS02	GH02SS01	GH02SS02
Sample Date:	Occ.	Con. Worker	Exc. Worker	Occ.	Occ.	Plants	Inverts	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E		10/13/2015	10/13/2015	10/13/2015	10/13/2015
Sample Depth (inches bgs):																	0-6	6-12	0-6	6-12
2,3,4,6,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	--	--	--	--
2,3,4,7,8-PeCDF	NV	NV	NV	NV	NV	NV	NV	0.41	4.1	0.097	0.65	4	40	0.15	0.98	NV	--	--	--	--
2,3,7,8-TCDD	16	170	4,800	130,000	31	NV	5,000,000	0.52	5.2	0.037	0.25	5.2	52	0.057	0.38	NV	--	--	--	--
2,3,7,8-TCDF	NV	NV	NV	NV	NV	NV	NV	0.64	6.4	0.45	3	6.3	63	0.69	4.6	NV	--	--	--	--
OCDD	NV	NV	NV	NV	NV	NV	NV	1,900	19,000	45	300	19,000	190,000	68	460	NV	--	--	--	--
OCDF	NV	NV	NV	NV	NV	NV	NV	1,400	14,000	33	220	14,000	140,000	51	340	NV	--	--	--	--
Dioxin/Furan TEQ[c][4]	16	170	4,800	130,000	31	NV	5,000,000	0.52	5.2	0.037	0.25	5.2	52	0.057	0.38	NV	--	--	--	--
Polychlorinated Biphenyls (mg/kg)																				
Aroclor 1254	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Aroclor 1260	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
SVOCs (mg/kg)																				
Acenaphthylene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Anthracene	350,000	110,000	NV	NV	NV	6.8	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Benzo(a)anthracene	21	170	4800	NV	NV	18	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0017 JQ	0.0017 JQ	0.0036	0.0035 U
Benzo(a)pyrene	2.1	17	490	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Benzo(b)fluoranthene	21	170	4900	NV	NV	18	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Benzo(ghi)perylene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Benzo(k)fluoranthene	210	1,700	49,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Chrysene	2,100	17,000	490,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0027 JQ	0.002 JQ	0.0058	0.0035 U
Dibenzo(a,h)anthracene	2.1	17	490	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Dimethylphthalate	NV	NV	NV	NV	NV	NV	10	NV	NV	38	400	NV	NV	11,000	57,000	NV	0.085 JQ	0.14 JQ	0.44	0.35
Di-n-butylphthalate	NV	NV	NV	NV	NV	160	NV	0.011	0.11	180	450	0.052	0.52	21,000	50,000	NV	--	--	--	--
Indeno(1,2,3-cd)pyrene	21	170	4,900	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--	--	--	--
Fluoranthene	30,000	10,000	280,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0037	0.0031 JQ	0.0076	0.0035 U
Pentachlorophenol	4	34	960	NV	0.17	5	31	0.36	3.6	0.81	8.1	1.7	17	32	85	NV	0.012	0.0072	0.015 J	0.0071 UJ
Phenanthrene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0017 JQ	0.0017 JQ	0.004	0.0035 U
Phenol	NV	NV	NV	NV	NV	0.79	1.8	NV	NV	37	370	NV	NV	43,000	430,000	NV	0.34 U	0.34 U	0.36 U	0.35 U
Pyrene	23,000	7,500	210,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0054	0.0048	0.01	0.0035 U
cPAH TEQ[d][5]	2.1	17	490	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NC	NC	NC	NC
HPAH[e]	NV	NV	NV	NV	NV	NV	18	0.11	0.55	1.1	5.9	6.4	64	110	550	NV	NC	NC	NC	NC
LPAH[f]	NV	NV	NV	NV	NV	NV	29	13	67	100	540	7,500	37,000	1,200	59,000	NV	NC	NC	NC	NC
VOCs (mg/kg)																				
Acetone	NV	NV	NV	NV	NV	NV	NV	7.5	75	1.2	6.3	840	8,400	1,800	8,900	NV	--	--	--	--
Methyl Acetate	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	--		--	--
Methylene chloride	1,600	2,100	58,000	NV	2.4	1,600	NV	NV	NV	2.6	22	NV	NV	1,000	8,500	NV	--	--	--	--
Toluene	88,000	28,000	770,000	NV	490	200	NV	NV	NV	23	230	NV	NV	3,300	33,000	NV	0.0062 JQ	0.0076 UJ	0.017 J	0.0055 U

Table 2-2
2016 Soil Analytical Results and Ecological Risk-Based Concentrations
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

MAUL FOSTER ALONGI

Sample Source:	RBC, Soil, Soil Ingestion, Dermal Contact, and Inhalation[1]			RBC, Soil, Volatilization to Outdoor Air[1]	RBC, Soil, Leaching to GW[1]	Eco Risk-Based Concentrations[2]										DEQ Background Metals, Klamath Mountains[3]	Power Transmission Surface Soil Samples			
EPA Sample Number:						Direct Toxicity		Ground Feeding				Top Consumers					15414018	15414019	15414020	15414021
CLP Sample Number:								Birds		Mammals		Birds		Mammals			JG9J8	JG9J9	JG9K0	JG9K1
Station Location:																	PT01SS01	PT01SS02	PT02SS01	PT02SS02
Sample Date:	Occ.	Con. Worker	Exc. Worker	Occ.	Occ.	Plants	Inverts	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E		10/13/2015	10/13/2015	10/13/2015	10/13/2015
Sample Depth (inches bgs):																	0-6	6-12	0-6	6-12
TPH (mg/kg)																				
Motor oil-range hydrocarbons	14,000[a]	4,600[a]	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	63	60	350	84
Total Metals (mg/kg)																				
Aluminum	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	4,160	6,020	13,600	7,080
Antimony	NV	NV	NV	NV	NV	11	78	NV	NV	0.27	2.7	NV	NV	4.9	49	0.59	--	--	--	--
Arsenic	1.9	15	420	NV	NV	18	6.8	15	32	19	31	100	1,000	170	290	12	2.4 J	2.4 J	4.3 J	2 J
Barium	220,000	69,000	NV	NV	NV	110	330	720	1,200	1,800	8,700	630	13,000	9,100	44,000	630	23.5	30.5	81.9	35.7
Beryllium	2,300	700	19,000	NV	NV	2.5	40	NV	NV	21	42	NV	NV	90	110	1.4	0.12 JQ	0.19 JQ	0.3 JQ	0.21 JQ
Cadmium	1,100	350	9,700	NV	NV	32	140	0.29	1.6	0.27	4	1.3	7.7	84	1,700	0.52	1.1	1.5	3.8	1.7
Calcium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	111,000	197,000	160,000	221,000
Chromium	NV	530,000[b]	NV	NV	NV	NV	NV	23	73	34	1,600	170	560	180	10,000	890	20.5	25	49.3	28.3
Cobalt	NV	NV	NV	NV	NV	13	NV	76	170	230	640	620	1400	470	3,300	NV	3.1 JQ	4.8	9.4	4.5
Copper	47,000	14,000	390,000	NV	NV	70	80	14	43	42	70	80	240	560	1,600	110	21.7	27.7	47	18.2
Iron	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	7,390	10,400	20,100	11,000
Lead	800	800	800	NV	30	120	1,700	11	23	56	170	83	160	460	1,600	36	26.7	32.2	180	51.1
Magnesium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	2,480	3,550	6,600	3,620
Manganese	25,000	8,200	230,000	NV	NV	220	450	1,300	2,700	1,400	5,400	24,000	50,000	6,200	34,000	3,000	127	183	393	177
Mercury	350	110	2,900	NV	NV	34	0.05	0.013	0.13	1.7	17	0.058	0.58	26	130	0.17	0.087 U	0.093 U	0.26	0.18
Nickel	22,000	7,000	190,000	NV	NV	38	280	20	81	10	21	110	440	130	580	630	17.1	23.9	42	24.6
Potassium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	431	600	2,150	476
Silver	5,800	1,800	49,000	NV	NV	560	NV	2.6	26	14	140	13	130	990	10,000	0.16	0.48 JQ	0.51 JQ	0.99	0.41 JQ
Sodium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	34.3 JQ	56.9 JQ	188 JQ	63.9 JQ
Thallium	NV	NV	NV	NV	NV	0.05	NV	4.5	45	0.42	4.2	48	480	5	50	0.31	0.56 JQ	0.49 JQ	1.3 JQ	0.5 JQ
Vanadium	NV	NV	NV	NV	NV	60	NV	4.7	9.5	280	610	56	110	580	1600	290	14.1	20.8	46.8	23.7
Zinc	NV	NV	NV	NV	NV	160	120	46	120	79	980	220	590	3,100	30,000	140	58.4	68.5	154	49.3
Dioxins and Furans (pg/g)																				
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	NV	NV	NV	NV	150	1,500	1	7	1,500	15,000	1.6	11	NV	--	423	--	--
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	NV	NV	NV	NV	23	230	1.6	11	230	2,300	2.5	17	NV	--	38.9	--	--
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	NV	NV	NV	NV	23	230	1.6	11	230	2,300	2.5	17	NV	--	3.69	--	--
1,2,3,4,7,8-HxCDD	NV	NV	NV	NV	NV	NV	NV	5.1	51	0.18	1.2	50	500	0.27	1.8	NV	--	1.57	--	--
1,2,3,4,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	--	4.7	--	--
1,2,3,6,7,8-HxCDD	NV	NV	NV	NV	NV	NV	NV	19	190	0.13	0.89	190	1,900	0.2	1.4	NV	--	9.76	--	--
1,2,3,6,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	--	1.23 J	--	--
1,2,3,7,8,9-HxCDD	NV	NV	NV	NV	NV	NV	NV	1.9	19	0.13	0.89	19	190	0.2	1.4	NV	--	3.55	--	--
1,2,3,7,8,9-HxCDF	NV	NV	NV	NV	NV	NV	NV	3	30	0.21	1.4	30	300	0.32	2.2	NV	--	1.07	--	--
1,2,3,7,8-PeCDD	NV	NV	NV	NV	NV	NV	NV	0.59	5.9	0.042	0.28	5.9	59	0.064	0.43	NV	--	1.02	--	--
1,2,3,7,8-PeCDF	NV	NV	NV	NV	NV	NV	NV	4.1	41	0.97	6.5	40	400	1.5	9.8	NV	--	1.33 J	--	--

Table 2-2
2016 Soil Analytical Results and Ecological Risk-Based Concentrations
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

MAUL FOSTER ALONGI

Sample Source:	RBC, Soil, Soil Ingestion, Dermal Contact, and Inhalation[1]			RBC, Soil, Volatilization to Outdoor Air[1]	RBC, Soil, Leaching to GW[1]	Eco Risk-Based Concentrations[2]										DEQ Background Metals, Klamath Mountains[3]	Power Transmission Surface Soil Samples			
EPA Sample Number:						Direct Toxicity		Ground Feeding				Top Consumers					15414018	15414019	15414020	15414021
CLP Sample Number:								Birds		Mammals		Birds		Mammals			JG9J8	JG9J9	JG9K0	JG9K1
Station Location:																	PT01SS01	PT01SS02	PT02SS01	PT02SS02
Sample Date:	Occ.	Con. Worker	Exc. Worker	Occ.	Occ.	Plants	Inverts	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E		10/13/2015	10/13/2015	10/13/2015	10/13/2015
Sample Depth (inches bgs):																	0-6	6-12	0-6	6-12
2,3,4,6,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	--	1.5 J	--	--
2,3,4,7,8-PeCDF	NV	NV	NV	NV	NV	NV	NV	0.41	4.1	0.097	0.65	4	40	0.15	0.98	NV	--	0.938 JQ	--	--
2,3,7,8-TCDD	16	170	4,800	130,000	31	NV	5,000,000	0.52	5.2	0.037	0.25	5.2	52	0.057	0.38	NV	--	3.88	--	--
2,3,7,8-TCDF	NV	NV	NV	NV	NV	NV	NV	0.64	6.4	0.45	3	6.3	63	0.69	4.6	NV	--	1.19	--	--
OCDD	NV	NV	NV	NV	NV	NV	NV	1,900	19,000	45	300	19,000	190,000	68	460	NV	--	7,870 J	--	--
OCDF	NV	NV	NV	NV	NV	NV	NV	1,400	14,000	33	220	14,000	140,000	51	340	NV	--	68.5	--	--
Dioxin/Furan TEQ[c][4]	16	170	4,800	130,000	31	NV	5,000,000	0.52	5.2	0.037	0.25	5.2	52	0.057	0.38	NV	--	14.7 JT	--	--
Polychlorinated Biphenyls (mg/kg)																				
Aroclor 1254	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.034 U	0.034 U	0.035 U	0.034 U
Aroclor 1260	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.034 U	0.034 U	0.035 U	0.034 U
SVOCs (mg/kg)																				
Acenaphthylene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0048	0.0078	0.0007 JQ	0.0034 U
Anthracene	350,000	110,000	NV	NV	NV	6.8	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0092	0.013	0.0035 U	0.0034 U
Benzo(a)anthracene	21	170	4800	NV	NV	18	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.03	0.031	0.0035 U	0.0034 U
Benzo(a)pyrene	2.1	17	490	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.033	0.064	0.0035 U	0.0034 U
Benzo(b)fluoranthene	21	170	4900	NV	NV	18	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.13	0.17	0.0035 U	0.0034 U
Benzo(ghi)perylene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.054	0.081	0.0035 U	0.0034 U
Benzo(k)fluoranthene	210	1,700	49,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.039	0.054	0.0035 U	0.0034 U
Chrysene	2,100	17,000	490,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.1	0.1	0.0035	0.0034 U
Dibenzo(a,h)anthracene	2.1	17	490	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.012	0.0034 U	0.0035 U	0.0034 U
Dimethylphthalate	NV	NV	NV	NV	NV	NV	10	NV	NV	38	400	NV	NV	11,000	57,000	NV	0.091 JQ	0.14 JQ	0.15 JQ	0.27
Di-n-butylphthalate	NV	NV	NV	NV	NV	160	NV	0.011	0.11	180	450	0.052	0.52	21,000	50,000	NV	--	--	--	--
Indeno(1,2,3-cd)pyrene	21	170	4,900	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.047	0.078	0.0035 U	0.0034 U
Fluoranthene	30,000	10,000	280,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.11	0.11	0.0056	0.0051
Pentachlorophenol	4	34	960	NV	0.17	5	31	0.36	3.6	0.81	8.1	1.7	17	32	85	NV	0.0068 U	0.0068 U	0.0071 U	0.0069 U
Phenanthrene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.023	0.02	0.0032 JQ	0.0031 JQ
Phenol	NV	NV	NV	NV	NV	0.79	1.8	NV	NV	37	370	NV	NV	43,000	430,000	NV	--	--	--	--
Pyrene	23,000	7,500	210,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.1	0.11	0.0081	0.0055
cPAH TEQ[d][5]	2.1	17	490	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0662 JT	0.0942 JT	0.00405 JT	0.0034 UT
HPAH[e]	NV	NV	NV	NV	NV	NV	18	0.11	0.55	1.1	5.9	6.4	64	110	550	NV	0.655 T	0.8 T	0.0295 T	0.0242 T
LPAH[f]	NV	NV	NV	NV	NV	NV	29	13	67	100	540	7,500	37,000	1,200	59,000	NV	NC	NC	NC	NC
VOCs (mg/kg)																				
Acetone	NV	NV	NV	NV	NV	NV	NV	7.5	75	1.2	6.3	840	8,400	1,800	8,900	NV	--	--	--	--
Methyl Acetate	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0053 U	0.0058 U	0.0078 U	0.0059 U
Methylene chloride	1,600	2,100	58,000	NV	2.4	1,600	NV	NV	NV	2.6	22	NV	NV	1,000	8,500	NV	0.0053 U	0.0058 U	0.0078 U	0.0059 U
Toluene	88,000	28,000	770,000	NV	490	200	NV	NV	NV	23	230	NV	NV	3,300	33,000	NV	--	--	--	--

Table 2-2
2016 Soil Analytical Results and Ecological Risk-Based Concentrations
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

MAUL FOSTER ALONGI

Sample Source:	RBC, Soil, Soil Ingestion, Dermal Contact, and Inhalation[1]			RBC, Soil, Volatilization to Outdoor Air[1]	RBC, Soil, Leaching to GW[1]	Eco Risk-Based Concentrations[2]										DEQ Background Metals, Klamath Mountains[3]	Power Transmission Surface Soil Samples			
EPA Sample Number:						Direct Toxicity		Ground Feeding				Top Consumers					15414022	15414023	15414024	15414026
CLP Sample Number:								Birds		Mammals		Birds		Mammals			JG9K2	JG9K3	JG9K4	JG9K6
Station Location:																	PT03SS01	PT03SS02	PT04SS01	PT05SS01
Sample Date:	Occ.	Con. Worker	Exc. Worker	Occ.	Occ.	Plants	Inverts	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E		10/13/2015	10/13/2015	10/13/2015	10/13/2015
Sample Depth (inches bgs):																	0-6	6-12	0-6	0-6
TPH (mg/kg)																				
Motor oil-range hydrocarbons	14,000[a]	4,600[a]	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	120	80	180	88
Total Metals (mg/kg)																				
Aluminum	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	14,300	11,600	16,000	18,500
Antimony	NV	NV	NV	NV	NV	11	78	NV	NV	0.27	2.7	NV	NV	4.9	49	0.59	--	--	--	--
Arsenic	1.9	15	420	NV	NV	18	6.8	15	32	19	31	100	1,000	170	290	12	8.2 J	5.3 J	10.4 J	5.1 J
Barium	220,000	69,000	NV	NV	NV	110	330	720	1,200	1,800	8,700	630	13,000	9,100	44,000	630	102	82.9	140	123
Beryllium	2,300	700	19,000	NV	NV	2.5	40	NV	NV	21	42	NV	NV	90	110	1.4	0.36 JQ	0.3 JQ	0.34 JQ	0.4
Cadmium	1,100	350	9,700	NV	NV	32	140	0.29	1.6	0.27	4	1.3	7.7	84	1,700	0.52	2.2	2	2.1	2.1
Calcium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	65,400	142,000	23,300	71,700 J
Chromium	NV	530,000[b]	NV	NV	NV	NV	NV	23	73	34	1,600	170	560	180	10,000	890	44.4	44.8	46.4	49.6 J
Cobalt	NV	NV	NV	NV	NV	13	NV	76	170	230	640	620	1400	470	3,300	NV	11.3	7.1	7.8	9.8
Copper	47,000	14,000	390,000	NV	NV	70	80	14	43	42	70	80	240	560	1,600	110	58.2	44.5	44.4	66.2 J
Iron	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	23,700	18,800	34,100	26,200 J
Lead	800	800	800	NV	30	120	1,700	11	23	56	170	83	160	460	1,600	36	69.7	41.9	55.8	67.4 J
Magnesium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	6,570	5,230	6,470	7,530 J
Manganese	25,000	8,200	230,000	NV	NV	220	450	1,300	2,700	1,400	5,400	24,000	50,000	6,200	34,000	3,000	513	336	639	514 J
Mercury	350	110	2,900	NV	NV	34	0.05	0.013	0.13	1.7	17	0.058	0.58	26	130	0.17	0.14	0.11 U	0.18	0.11
Nickel	22,000	7,000	190,000	NV	NV	38	280	20	81	10	21	110	440	130	580	630	36.5	29.2	34.5	39.9
Potassium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	3,300	2,270	3,960	3,410
Silver	5,800	1,800	49,000	NV	NV	560	NV	2.6	26	14	140	13	130	990	10,000	0.16	1.1	0.85	1.5	1.2
Sodium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	224 JQ	169 JQ	347 JQ	331 JQ
Thallium	NV	NV	NV	NV	NV	0.05	NV	4.5	45	0.42	4.2	48	480	5	50	0.31	2.1	1.3 JQ	3.2	1.7 JQ
Vanadium	NV	NV	NV	NV	NV	60	NV	4.7	9.5	280	610	56	110	580	1600	290	56.4	41	65.9	70.5
Zinc	NV	NV	NV	NV	NV	160	120	46	120	79	980	220	590	3,100	30,000	140	120	107	213	145 J
Dioxins and Furans (pg/g)																				
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	NV	NV	NV	NV	150	1,500	1	7	1,500	15,000	1.6	11	NV	--	326	477	--
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	NV	NV	NV	NV	23	230	1.6	11	230	2,300	2.5	17	NV	--	37.8	69.8	--
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	NV	NV	NV	NV	23	230	1.6	11	230	2,300	2.5	17	NV	--	2.54	6.81	--
1,2,3,4,7,8-HxCDD	NV	NV	NV	NV	NV	NV	NV	5.1	51	0.18	1.2	50	500	0.27	1.8	NV	--	6.11	4.66	--
1,2,3,4,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	--	6	8.82	--
1,2,3,6,7,8-HxCDD	NV	NV	NV	NV	NV	NV	NV	19	190	0.13	0.89	190	1,900	0.2	1.4	NV	--	19.1	24.9	--
1,2,3,6,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	--	3.03	3.65	--
1,2,3,7,8,9-HxCDD	NV	NV	NV	NV	NV	NV	NV	1.9	19	0.13	0.89	19	190	0.2	1.4	NV	--	14.3	10.4	--
1,2,3,7,8,9-HxCDF	NV	NV	NV	NV	NV	NV	NV	3	30	0.21	1.4	30	300	0.32	2.2	NV	--	1.68	3.45	--
1,2,3,7,8-PeCDD	NV	NV	NV	NV	NV	NV	NV	0.59	5.9	0.042	0.28	5.9	59	0.064	0.43	NV	--	5.5	4.33	--
1,2,3,7,8-PeCDF	NV	NV	NV	NV	NV	NV	NV	4.1	41	0.97	6.5	40	400	1.5	9.8	NV	--	2.11	1.71	--

Table 2-2
2016 Soil Analytical Results and Ecological Risk-Based Concentrations
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

Sample Source:	RBC, Soil, Soil Ingestion, Dermal Contact, and Inhalation[1]			RBC, Soil, Volatilization to Outdoor Air[1]	RBC, Soil, Leaching to GW[1]	Eco Risk-Based Concentrations[2]										DEQ Background Metals, Klamath Mountains[3]	Power Transmission Surface Soil Samples			
EPA Sample Number:						Direct Toxicity		Ground Feeding				Top Consumers					15414022	15414023	15414024	15414026
CLP Sample Number:								Birds		Mammals		Birds		Mammals			JG9K2	JG9K3	JG9K4	JG9K6
Station Location:																	PT03SS01	PT03SS02	PT04SS01	PT05SS01
Sample Date:	Occ.	Con. Worker	Exc. Worker	Occ.	Occ.	Plants	Inverts	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E		10/13/2015	10/13/2015	10/13/2015	10/13/2015
Sample Depth (inches bgs):																	0-6	6-12	0-6	0-6
2,3,4,6,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	--	3.21	4.59	--
2,3,4,7,8-PeCDF	NV	NV	NV	NV	NV	NV	NV	0.41	4.1	0.097	0.65	4	40	0.15	0.98	NV	--	4.14	1.87	--
2,3,7,8-TCDD	16	170	4,800	130,000	31	NV	5,000,000	0.52	5.2	0.037	0.25	5.2	52	0.057	0.38	NV	--	14.6	36.6	--
2,3,7,8-TCDF	NV	NV	NV	NV	NV	NV	NV	0.64	6.4	0.45	3	6.3	63	0.69	4.6	NV	--	0.884 JQ	0.834 JQ	--
OCDD	NV	NV	NV	NV	NV	NV	NV	1,900	19,000	45	300	19,000	190,000	68	460	NV	--	2,770 J	8,060 J	--
OCDF	NV	NV	NV	NV	NV	NV	NV	1,400	14,000	33	220	14,000	140,000	51	340	NV	--	39.8	52.5	--
Dioxin/Furan TEQ[c][4]	16	170	4,800	130,000	31	NV	5,000,000	0.52	5.2	0.037	0.25	5.2	52	0.057	0.38	NV	--	31.3 JT	55.6 JT	--
Polychlorinated Biphenyls (mg/kg)																				
Aroclor 1254	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.034 U	0.035 U	0.035 U	0.034 U
Aroclor 1260	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.041	0.023 JQ	0.035 U	0.037 J
SVOCs (mg/kg)																				
Acenaphthylene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.00069 JQ	0.001 JQ	0.0035 U	0.0017 JQ
Anthracene	350,000	110,000	NV	NV	NV	6.8	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0034 U	0.0034 U	0.0035 U	0.0024 JQ
Benzo(a)anthracene	21	170	4800	NV	NV	18	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0034 U	0.007	0.0035 U	0.0069
Benzo(a)pyrene	2.1	17	490	NV	NV	18	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0034 U	0.0034 U	0.0035 U	0.0089
Benzo(b)fluoranthene	21	170	4900	NV	NV	18	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0034 U	0.024	0.0035 U	0.039
Benzo(ghi)perylene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0034 U	0.0087	0.0035 U	0.014
Benzo(k)fluoranthene	210	1,700	49,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0034 U	0.0034 U	0.0035 U	0.0092
Chrysene	2,100	17,000	490,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0073	0.02	0.0035 U	0.029
Dibenzo(a,h)anthracene	2.1	17	490	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0034 U	0.0034 U	0.0035 U	0.0034 U
Dimethylphthalate	NV	NV	NV	NV	NV	NV	10	NV	NV	38	400	NV	NV	11,000	57,000	NV	0.083 JQ	0.13 JQ	0.21	0.23
Di-n-butylphthalate	NV	NV	NV	NV	NV	160	NV	0.011	0.11	180	450	0.052	0.52	21,000	50,000	NV	--	--	--	--
Indeno(1,2,3-cd)pyrene	21	170	4,900	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0034 U	0.0066	0.0035 U	0.01
Fluoranthene	30,000	10,000	280,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0093	0.022	0.0049	0.067
Pentachlorophenol	4	34	960	NV	0.17	5	31	0.36	3.6	0.81	8.1	1.7	17	32	85	NV	0.0069 U	0.007 U	0.018	0.0058 JQ
Phenanthrene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0035	0.0056	0.0025 JQ	0.039
Phenol	NV	NV	NV	NV	NV	0.79	1.8	NV	NV	37	370	NV	NV	43,000	430,000	NV	--	--	--	--
Pyrene	23,000	7,500	210,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.01	0.023	0.0063	0.062
cPAH TEQ[d][5]	2.1	17	490	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.00393 JT	0.0072 JT	0.0035 UT	0.0163 JT
HPAH[e]	NV	NV	NV	NV	NV	NV	18	0.11	0.55	1.1	5.9	6.4	64	110	550	NV	0.0385 T	0.116 T	0.0252 T	0.248 T
LPAH[f]	NV	NV	NV	NV	NV	NV	29	13	67	100	540	7,500	37,000	1,200	59,000	NV	NC	NC	NC	NC
VOCs (mg/kg)																				
Acetone	NV	NV	NV	NV	NV	NV	NV	7.5	75	1.2	6.3	840	8,400	1,800	8,900	NV	--	--	--	--
Methyl Acetate	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0059 U	0.0068 U	0.0073 U	0.0058 U
Methylene chloride	1,600	2,100	58,000	NV	2.4	1,600	NV	NV	NV	2.6	22	NV	NV	1,000	8,500	NV	0.0059 U	0.0068 U	0.025	0.0058 U
Toluene	88,000	28,000	770,000	NV	490	200	NV	NV	NV	23	230	NV	NV	3,300	33,000	NV	--	--	--	--

Table 2-2
2016 Soil Analytical Results and Ecological Risk-Based Concentrations
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

MAUL FOSTER ALONGI

Sample Source:	RBC, Soil, Soil Ingestion, Dermal Contact, and Inhalation[1]			RBC, Soil, Volatilization to Outdoor Air[1]	RBC, Soil, Leaching to GW[1]	Eco Risk-Based Concentrations[2]										DEQ Background Metals, Klamath Mountains[3]	Power Transmission Surface Soil Samples			
EPA Sample Number:						Direct Toxicity		Ground Feeding				Top Consumers					15414027	15414028	15414029	15414030
CLP Sample Number:								Birds		Mammals		Birds		Mammals			JG9K7	JG9K8	JG9K9	JG9L0
Station Location:	Occ.	Con. Worker	Exc. Worker	Occ.	Occ.	Plants	Inverts	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E		PT05SS02	PT06SS01	PT06SS02	PT07SS01
Sample Date:																	10/13/2015	10/13/2015	10/13/2015	10/13/2015
Sample Depth (inches bgs):																	6-12	0-6	6-12	0-6
TPH (mg/kg)																				
Motor oil-range hydrocarbons	14,000[a]	4,600[a]	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	63	38	54	35
Total Metals (mg/kg)																				
Aluminum	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	15,000	13,400	9,900	11,800
Antimony	NV	NV	NV	NV	NV	11	78	NV	NV	0.27	2.7	NV	NV	4.9	49	0.59	--	--	--	--
Arsenic	1.9	15	420	NV	NV	18	6.8	15	32	19	31	100	1,000	170	290	12	5 J	1.6 J	4.5 J	19.4 J
Barium	220,000	69,000	NV	NV	NV	110	330	720	1,200	1,800	8,700	630	13,000	9,100	44,000	630	85.2	55.7	48.7	65.8
Beryllium	2,300	700	19,000	NV	NV	2.5	40	NV	NV	21	42	NV	NV	90	110	1.4	0.37 JQ	0.35 JQ	0.25 JQ	0.3 JQ
Cadmium	1,100	350	9,700	NV	NV	32	140	0.29	1.6	0.27	4	1.3	7.7	84	1,700	0.52	2.4	1.8	1.7	1.1
Calcium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	178,000 J	236,000 J	159,000	9,810
Chromium	NV	530,000[b]	NV	NV	NV	NV	NV	23	73	34	1,600	170	560	180	10,000	890	42.8 J	43.2 J	32.6	41.9
Cobalt	NV	NV	NV	NV	NV	13	NV	76	170	230	640	620	1400	470	3,300	NV	8.4	7.8	6.1	7.5
Copper	47,000	14,000	390,000	NV	NV	70	80	14	43	42	70	80	240	560	1,600	110	68.3 J	58.4 J	32.5	41.2
Iron	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	23,300 J	19,100 J	15,300	19,900
Lead	800	800	800	NV	30	120	1,700	11	23	56	170	83	160	460	1,600	36	50.5 J	25.7 J	248	31.8
Magnesium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	6,410 J	6,130 J	5,140	6,090
Manganese	25,000	8,200	230,000	NV	NV	220	450	1,300	2,700	1,400	5,400	24,000	50,000	6,200	34,000	3,000	409 J	312 J	269	383
Mercury	350	110	2,900	NV	NV	34	0.05	0.013	0.13	1.7	17	0.058	0.58	26	130	0.17	0.11	0.088 U	0.087 U	0.32
Nickel	22,000	7,000	190,000	NV	NV	38	280	20	81	10	21	110	440	130	580	630	36.7	39.1	27.1	27.1
Potassium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	2,860	1,860	1,840	2,200
Silver	5,800	1,800	49,000	NV	NV	560	NV	2.6	26	14	140	13	130	990	10,000	0.16	1.1	0.73	0.64 JQ	0.95
Sodium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	227 JQ	144 JQ	124 JQ	206 JQ
Thallium	NV	NV	NV	NV	NV	0.05	NV	4.5	45	0.42	4.2	48	480	5	50	0.31	1.1 JQ	0.77 JQ	1.2 JQ	2.1
Vanadium	NV	NV	NV	NV	NV	60	NV	4.7	9.5	280	610	56	110	580	1600	290	51.9	44.9	37.7	46.5
Zinc	NV	NV	NV	NV	NV	160	120	46	120	79	980	220	590	3,100	30,000	140	231 J	83 J	53.3	53.6
Dioxins and Furans (pg/g)																				
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	NV	NV	NV	NV	150	1,500	1	7	1,500	15,000	1.6	11	NV	401	--	--	80.5
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	NV	NV	NV	NV	23	230	1.6	11	230	2,300	2.5	17	NV	46.2	--	--	9.61
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	NV	NV	NV	NV	23	230	1.6	11	230	2,300	2.5	17	NV	3.37	--	--	0.598 JQ
1,2,3,4,7,8-HxCDD	NV	NV	NV	NV	NV	NV	NV	5.1	51	0.18	1.2	50	500	0.27	1.8	NV	7.73	--	--	1.57
1,2,3,4,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	8.96	--	--	1.08 J
1,2,3,6,7,8-HxCDD	NV	NV	NV	NV	NV	NV	NV	19	190	0.13	0.89	190	1,900	0.2	1.4	NV	21.1	--	--	4.19
1,2,3,6,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	3.74	--	--	0.788 JQ
1,2,3,7,8,9-HxCDD	NV	NV	NV	NV	NV	NV	NV	1.9	19	0.13	0.89	19	190	0.2	1.4	NV	17.2	--	--	3.43
1,2,3,7,8,9-HxCDF	NV	NV	NV	NV	NV	NV	NV	3	30	0.21	1.4	30	300	0.32	2.2	NV	1.79	--	--	0.331 U
1,2,3,7,8-PeCDD	NV	NV	NV	NV	NV	NV	NV	0.59	5.9	0.042	0.28	5.9	59	0.064	0.43	NV	6.71	--	--	1.43
1,2,3,7,8-PeCDF	NV	NV	NV	NV	NV	NV	NV	4.1	41	0.97	6.5	40	400	1.5	9.8	NV	1.27 J	--	--	0.211 JQ

Table 2-2
2016 Soil Analytical Results and Ecological Risk-Based Concentrations
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

MAUL FOSTER ALONGI

Sample Source:	RBC, Soil, Soil Ingestion, Dermal Contact, and Inhalation[1]			RBC, Soil, Volatilization to Outdoor Air[1]	RBC, Soil, Leaching to GW[1]	Eco Risk-Based Concentrations[2]										DEQ Background Metals, Klamath Mountains[3]	Power Transmission Surface Soil Samples			
EPA Sample Number:						Direct Toxicity		Ground Feeding				Top Consumers					15414027	15414028	15414029	15414030
CLP Sample Number:								Birds		Mammals		Birds		Mammals			JG9K7	JG9K8	JG9K9	JG9L0
Station Location:																	PT05SS02	PT06SS01	PT06SS02	PT07SS01
Sample Date:	Occ.	Con. Worker	Exc. Worker	Occ.	Occ.	Plants	Inverts	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E		10/13/2015	10/13/2015	10/13/2015	10/13/2015
Sample Depth (inches bgs):																	6-12	0-6	6-12	0-6
2,3,4,6,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	3.62	--	--	1.03
2,3,4,7,8-PeCDF	NV	NV	NV	NV	NV	NV	NV	0.41	4.1	0.097	0.65	4	40	0.15	0.98	NV	2.81	--	--	0.73 JQ
2,3,7,8-TCDD	16	170	4,800	130,000	31	NV	5,000,000	0.52	5.2	0.037	0.25	5.2	52	0.057	0.38	NV	10	--	--	0.859 JQ
2,3,7,8-TCDF	NV	NV	NV	NV	NV	NV	NV	0.64	6.4	0.45	3	6.3	63	0.69	4.6	NV	0.741 JQ	--	--	0.293 JQ
OCDD	NV	NV	NV	NV	NV	NV	NV	1,900	19,000	45	300	19,000	190,000	68	460	NV	3,360 J	--	--	559 J
OCDF	NV	NV	NV	NV	NV	NV	NV	1,400	14,000	33	220	14,000	140,000	51	340	NV	50	--	--	13
Dioxin/Furan TEQ[(c)(4)]	16	170	4,800	130,000	31	NV	5,000,000	0.52	5.2	0.037	0.25	5.2	52	0.057	0.38	NV	29.6 JT	--	--	4.85 JT
Polychlorinated Biphenyls (mg/kg)																				
Aroclor 1254	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.034 U	0.034 U	0.034 U	0.034 U
Aroclor 1260	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.024 JQ	0.034 U	0.034 U	0.034 U
SVOCs (mg/kg)																				
Acenaphthylene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0017 JQ	0.0034 U	0.00068 JQ	0.0033 U
Anthracene	350,000	110,000	NV	NV	NV	6.8	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0031 JQ	0.0034 U	0.001 JQ	0.0033 U
Benzo(a)anthracene	21	170	4800	NV	NV	18	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0061	0.0034 U	0.0061	0.0033 U
Benzo(a)pyrene	2.1	17	490	NV	NV	18	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.025	0.0034 U	0.0075	0.0033 U
Benzo(b)fluoranthene	21	170	4900	NV	NV	18	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.029	0.0034 U	0.019	0.0033 U
Benzo(ghi)perylene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.018	0.0034 U	0.0061	0.0033 U
Benzo(k)fluoranthene	210	1,700	49,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.019	0.0034 U	0.0065	0.0033 U
Chrysene	2,100	17,000	490,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.023	0.0031 JQ	0.016	0.0033 U
Dibenzo(a,h)anthracene	2.1	17	490	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0034 U	0.0034 U	0.0034 U	0.0033 U
Dimethylphthalate	NV	NV	NV	NV	NV	NV	10	NV	NV	38	400	NV	NV	11,000	57,000	NV	0.2	0.17	0.19	0.11 JQ
Di-n-butylphthalate	NV	NV	NV	NV	NV	160	NV	0.011	0.11	180	450	0.052	0.52	21,000	50,000	NV	--	--	--	--
Indeno(1,2,3-cd)pyrene	21	170	4,900	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.014	0.0014 JQ	0.0048	0.0033 U
Fluoranthene	30,000	10,000	280,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.034	0.0041	0.029	0.002 JQ
Pentachlorophenol	4	34	960	NV	0.17	5	31	0.36	3.6	0.81	8.1	1.7	17	32	85	NV	0.0065 JQ	0.0068 UJ	0.0068 UJ	0.0068 U
Phenanthrene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.015	0.002 JQ	0.0088	0.0014 JQ
Phenol	NV	NV	NV	NV	NV	0.79	1.8	NV	NV	37	370	NV	NV	43,000	430,000	NV	--	--	--	--
Pyrene	23,000	7,500	210,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.035	0.0048	0.027	0.0033 U
cPAH TEQ[(d)(5)]	2.1	17	490	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0318 JT	0.0039 JT	0.0123 JT	0.0033 UT
HPAH[(e)]	NV	NV	NV	NV	NV	NV	18	0.11	0.55	1.1	5.9	6.4	64	110	550	NV	0.205 T	0.0236 JT	0.124 T	0.0169 JT
LPAH[(f)]	NV	NV	NV	NV	NV	NV	29	13	67	100	540	7,500	37,000	1,200	59,000	NV	NC	NC	NC	NC
VOCs (mg/kg)																				
Acetone	NV	NV	NV	NV	NV	NV	NV	7.5	75	1.2	6.3	840	8,400	1,800	8,900	NV	--	--	--	--
Methyl Acetate	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0067 U	0.0068 U	0.0062 U	0.04 J
Methylene chloride	1,600	2,100	58,000	NV	2.4	1,600	NV	NV	NV	2.6	22	NV	NV	1,000	8,500	NV	0.0067 U	0.0068 U	0.0062 U	0.0076 UJ
Toluene	88,000	28,000	770,000	NV	490	200	NV	NV	NV	23	230	NV	NV	3,300	33,000	NV	--	--	--	--

Table 2-2
2016 Soil Analytical Results and Ecological Risk-Based Concentrations
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

Sample Source:	RBC, Soil, Soil Ingestion, Dermal Contact, and Inhalation[1]			RBC, Soil, Volatilization to Outdoor Air[1]	RBC, Soil, Leaching to GW[1]	Eco Risk-Based Concentrations[2]										DEQ Background Metals, Klamath Mountains[3]	Power Transmission Surface Soil Samples		
EPA Sample Number:						Direct Toxicity		Ground Feeding				Top Consumers					15414031	15414032	15414033
CLP Sample Number:								Birds		Mammals		Birds		Mammals			JG9L1	JG9L2	JG9L3
Station Location:																	PT07SS02	PT08SS01	PT08SS02
Sample Date:	Occ.	Con. Worker	Exc. Worker	Occ.	Occ.	Plants	Inverts	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E		10/13/2015	10/13/2015	10/13/2015
Sample Depth (inches bgs):																	6-12	0-6	6-12
TPH (mg/kg)																			
Motor oil-range hydrocarbons	14,000[a]	4,600[a]	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	39	58	25
Total Metals (mg/kg)																			
Aluminum	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	19,800	17,700	15,400
Antimony	NV	NV	NV	NV	NV	11	78	NV	NV	0.27	2.7	NV	NV	4.9	49	0.59	--	--	--
Arsenic	1.9	15	420	NV	NV	18	6.8	15	32	19	31	100	1,000	170	290	12	12.2 J	10.8 J	8.3 J
Barium	220,000	69,000	NV	NV	NV	110	330	720	1,200	1,800	8,700	630	13,000	9,100	44,000	630	106	107	65.2
Beryllium	2,300	700	19,000	NV	NV	2.5	40	NV	NV	21	42	NV	NV	90	110	1.4	0.48	0.43	0.43
Cadmium	1,100	350	9,700	NV	NV	32	140	0.29	1.6	0.27	4	1.3	7.7	84	1,700	0.52	2.1	1.9	1.3
Calcium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	16,300	40,700	30,200
Chromium	NV	530,000[b]	NV	NV	NV	NV	NV	23	73	34	1,600	170	560	180	10,000	890	64.5	60	54.4
Cobalt	NV	NV	NV	NV	NV	13	NV	76	170	230	640	620	1400	470	3,300	NV	12.7	10.3	8.8
Copper	47,000	14,000	390,000	NV	NV	70	80	14	43	42	70	80	240	560	1,600	110	66.1	110	77.9
Iron	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	32,200	28,100	24,100
Lead	800	800	800	NV	30	120	1,700	11	23	56	170	83	160	460	1,600	36	40.9	36.2	18.7
Magnesium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	9,740	9,250	7,670
Manganese	25,000	8,200	230,000	NV	NV	220	450	1,300	2,700	1,400	5,400	24,000	50,000	6,200	34,000	3,000	632	566	528
Mercury	350	110	2,900	NV	NV	34	0.05	0.013	0.13	1.7	17	0.058	0.58	26	130	0.17	0.3	0.24	0.28
Nickel	22,000	7,000	190,000	NV	NV	38	280	20	81	10	21	110	440	130	580	630	47	44.4	40.9
Potassium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	3,760	3,480	2,510
Silver	5,800	1,800	49,000	NV	NV	560	NV	2.6	26	14	140	13	130	990	10,000	0.16	1.5	1.2	1.1
Sodium	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	391	308 JQ	276 JQ
Thallium	NV	NV	NV	NV	NV	0.05	NV	4.5	45	0.42	4.2	48	480	5	50	0.31	2.8	2.3	2.3
Vanadium	NV	NV	NV	NV	NV	60	NV	4.7	9.5	280	610	56	110	580	1600	290	73.4	65.3	52.9
Zinc	NV	NV	NV	NV	NV	160	120	46	120	79	980	220	590	3,100	30,000	140	76	72	57.7
Dioxins and Furans (pg/g)																			
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	NV	NV	NV	NV	150	1,500	1	7	1,500	15,000	1.6	11	NV	--	104	--
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	NV	NV	NV	NV	23	230	1.6	11	230	2,300	2.5	17	NV	--	16.1	--
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	NV	NV	NV	NV	23	230	1.6	11	230	2,300	2.5	17	NV	--	1.17	--
1,2,3,4,7,8-HxCDD	NV	NV	NV	NV	NV	NV	NV	5.1	51	0.18	1.2	50	500	0.27	1.8	NV	--	1.62	--
1,2,3,4,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	--	1.65	--
1,2,3,6,7,8-HxCDD	NV	NV	NV	NV	NV	NV	NV	19	190	0.13	0.89	190	1,900	0.2	1.4	NV	--	4.78	--
1,2,3,6,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	--	1.02	--
1,2,3,7,8,9-HxCDD	NV	NV	NV	NV	NV	NV	NV	1.9	19	0.13	0.89	19	190	0.2	1.4	NV	--	3.45	--
1,2,3,7,8,9-HxCDF	NV	NV	NV	NV	NV	NV	NV	3	30	0.21	1.4	30	300	0.32	2.2	NV	--	0.494 JQ	--
1,2,3,7,8-PeCDD	NV	NV	NV	NV	NV	NV	NV	0.59	5.9	0.042	0.28	5.9	59	0.064	0.43	NV	--	1.36	--
1,2,3,7,8-PeCDF	NV	NV	NV	NV	NV	NV	NV	4.1	41	0.97	6.5	40	400	1.5	9.8	NV	--	0.721 JQ	--

Table 2-2
2016 Soil Analytical Results and Ecological Risk-Based Concentrations
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

MAUL FOSTER ALONGI

Sample Source:	RBC, Soil, Soil Ingestion, Dermal Contact, and Inhalation[1]			RBC, Soil, Volatilization to Outdoor Air[1]	RBC, Soil, Leaching to GW[1]	Eco Risk-Based Concentrations[2]										DEQ Background Metals, Klamath Mountains[3]	Power Transmission Surface Soil Samples		
EPA Sample Number:						Direct Toxicity		Ground Feeding				Top Consumers					15414031	15414032	15414033
CLP Sample Number:								Birds		Mammals		Birds		Mammals			JG9L1	JG9L2	JG9L3
Station Location:																	PT07SS02	PT08SS01	PT08SS02
Sample Date:	Occ.	Con. Worker	Exc. Worker	Occ.	Occ.	Plants	Inverts	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E	T&E	Non T&E		10/13/2015	10/13/2015	10/13/2015
Sample Depth (inches bgs):																	6-12	0-6	6-12
2,3,4,6,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	2.3	23	0.16	1.1	23	230	0.25	1.7	NV	--	1.24	--
2,3,4,7,8-PeCDF	NV	NV	NV	NV	NV	NV	NV	0.41	4.1	0.097	0.65	4	40	0.15	0.98	NV	--	0.869 JQ	--
2,3,7,8-TCDD	16	170	4,800	130,000	31	NV	5,000,000	0.52	5.2	0.037	0.25	5.2	52	0.057	0.38	NV	--	0.855 JQ	--
2,3,7,8-TCDF	NV	NV	NV	NV	NV	NV	NV	0.64	6.4	0.45	3	6.3	63	0.69	4.6	NV	--	0.4 JQ	--
OCDD	NV	NV	NV	NV	NV	NV	NV	1,900	19,000	45	300	19,000	190,000	68	460	NV	--	916 J	--
OCDF	NV	NV	NV	NV	NV	NV	NV	1,400	14,000	33	220	14,000	140,000	51	340	NV	--	33	--
Dioxin/Furan TEQ[c][4]	16	170	4,800	130,000	31	NV	5,000,000	0.52	5.2	0.037	0.25	5.2	52	0.057	0.38	NV	--	5.46 JT	--
Polychlorinated Biphenyls (mg/kg)																			
Aroclor 1254	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.034 U	0.29	0.034 U
Aroclor 1260	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.015 JQ	0.15	0.034 U
SVOCs (mg/kg)																			
Acenaphthylene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0034 U	0.0034 U	0.0034 U
Anthracene	350,000	110,000	NV	NV	NV	6.8	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0034 U	0.0034 U	0.0034 U
Benzo(a)anthracene	21	170	4800	NV	NV	18	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0014 JQ	0.0014 JQ	0.001 JQ
Benzo(a)pyrene	2.1	17	490	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0034 U	0.0034 U	0.0034 U
Benzo(b)fluoranthene	21	170	4900	NV	NV	18	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0034 U	0.0034 U	0.0034 U
Benzo(ghi)perylene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0027 JQ	0.0034 U	0.0034 U
Benzo(k)fluoranthene	210	1,700	49,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0034 U	0.0034 U	0.0034 U
Chrysene	2,100	17,000	490,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0031 JQ	0.0027 JQ	0.0014 JQ
Dibenzo(a,h)anthracene	2.1	17	490	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0034 U	0.0034 U	0.0034 U
Dimethylphthalate	NV	NV	NV	NV	NV	NV	10	NV	NV	38	400	NV	NV	11,000	57,000	NV	0.17	0.1 JQ	0.14 JQ
Di-n-butylphthalate	NV	NV	NV	NV	NV	160	NV	0.011	0.11	180	450	0.052	0.52	21,000	50,000	NV	--	--	--
Indeno(1,2,3-cd)pyrene	21	170	4,900	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0017 JQ	0.0034 U	0.0034 U
Fluoranthene	30,000	10,000	280,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0021 JQ	0.0024 JQ	0.0024 JQ
Pentachlorophenol	4	34	960	NV	0.17	5	31	0.36	3.6	0.81	8.1	1.7	17	32	85	NV	0.0069 UJ	0.0069 U	0.0069 U
Phenanthrene	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0034 U	0.0017 JQ	0.0021 JQ
Phenol	NV	NV	NV	NV	NV	0.79	1.8	NV	NV	37	370	NV	NV	43,000	430,000	NV	--	--	--
Pyrene	23,000	7,500	210,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0038	0.0027 JQ	0.0034
cPAH TEQ[d][5]	2.1	17	490	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.0039 JT	0.0039 JT	0.00386 JT
HPAH[e]	NV	NV	NV	NV	NV	NV	18	0.11	0.55	1.1	5.9	6.4	64	110	550	NV	0.0216 JT	0.0194 JT	0.0184 JT
LPAH[f]	NV	NV	NV	NV	NV	NV	29	13	67	100	540	7,500	37,000	1,200	59,000	NV	NC	NC	NC
VOCs (mg/kg)																			
Acetone	NV	NV	NV	NV	NV	NV	NV	7.5	75	1.2	6.3	840	8,400	1,800	8,900	NV	--	--	--
Methyl Acetate	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	0.015	0.0061 U	0.006 U
Methylene chloride	1,600	2,100	58,000	NV	2.4	1,600	NV	NV	NV	2.6	22	NV	NV	1,000	8,500	NV	0.0071 U	0.0061 U	0.006 U
Toluene	88,000	28,000	770,000	NV	490	200	NV	NV	NV	23	230	NV	NV	3,300	33,000	NV	--	--	--

Table 2-2
2016 Soil Analytical Results and Ecological Risk-Based Concentrations
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

MAUL FOSTER ALONGI

Notes

All analytical data from: *E&E. 2016. Gold Hill Cement Power Plant (Former), Targeted Brownfields Assessment, Gold Hill, Oregon, Technical Direction Document: 15-01-0009. Prepared for the United States Environmental Protection Agency. Prepared by Ecology and Environment, Inc.: Seattle, WA. July.*

Data summation rules are as follows: non-detect results are multiplied by one-half when used for sums or TEQ calculations. When all results are non-detect, the highest reporting limit is provided as the sum or TEQ.

Metals results screened to RBCs only if results are above Oregon DEQ Background Metals values (if available). Background metals values are shown for reference only and are not shaded for exceedances.

Shading (color key below) indicates values that exceed RBCs; non-detects (U, UJ) were not compared with screening criteria. When multiple criteria are exceeded, results are shaded based on the highest value. When multiple criteria of the same value are exceeded, the result is shaded based on the criterion presented to the right. Sample results were compared to screening criteria based on the significant figures of the screening criteria.

RBC, Soil, Ingestion, Dermal Contact, and Inhalation, Occupational	Eco RBC, Soil, Ground-Feeding Threatened and Endangered Mammals
RBC, Soil, Ingestion, Dermal Contact, and Inhalation, Construction Worker	Eco RBC, Soil, Ground-Feeding Non-Threatened and Endangered Mammals
RBC, Soil, Leaching to Groundwater, Occupational	Eco RBC, Soil, Top Consumers Threatened and Endangered Birds
Eco RBC, Soil, Direct Toxicity, Plants	Eco RBC, Soil, Top Consumer Non-Threatened and Endangered Birds
Eco RBC, Soil, Direct Toxicity, Inverts	Eco RBC, Soil, Top Consumers Threatened and Endangered Mammals
Eco RBC, Soil, Ground-Feeding Threatened and Endangered Birds	Eco RBC, Soil, Top Consumer Non-Threatened and Endangered Mammals
Eco RBC, Soil, Ground-Feeding Non-Threatened and Endangered Birds	

-- = not analyzed.
bgs = below ground surface.
CLP = Contract Laboratory Program.
Con. = construction.
cPAH = carcinogenic polycyclic aromatic hydrocarbon.
DEQ = Oregon Department of Environmental Quality.
EPA = United States Environmental Protection Agency.
Exc. = excavation.
GW = groundwater.
HPAH = high-molecular-weight polycyclic aromatic hydrocarbon.
J = result is estimated.
LPAH = low-molecular-weight polycyclic aromatic hydrocarbon.
mg/kg = milligrams per kilogram.
NC = not calculated since two or more constituents were unavailable.
NV = no value.
Occ. = occupational.
pg/g = picograms per gram.
Q = Detected concentration is below the method reporting limit/Contract Required Quantitation Limit, but is above the method quantitation limit.
RBC = risk based concentration.
T = result is calculated.
T&E = threatened and endangered.
TEF = toxicity equivalence factor.
TEQ = toxicity equivalence.
TPH = total petroleum hydrocarbons.
SVOC = semivolatile organic compound.
U = result is non-detect at the method reporting limit.
UJ = result is non-detect with an estimated detection limit.
VOC = volatile organic compound.

[a]Value is for generic diesel/heating oil, since generic residual-range hydrocarbon values are not available.
[b]Value is for chromium (III).
[c]Dioxin/furan TEQ calculated as the sum of each congener concentration multiplied by the corresponding mammalian TEF value.
[d]cPAH TEQ calculated as the sum of each constituent concentration multiplied by the corresponding TEF value.
[e]HPAH is the sum of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene.
[f]LPAH is the sum of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene.

References

[1]DEQ. 2023. Table: *Risk-Based Concentrations for Individual Chemicals.* Oregon Department of Environmental Quality, Environmental Cleanup Program. August.
[2]DEQ. 2020. *Conducting Ecological Risk Assessments* . Table 1a: Risk Based Concentrations for Plants, Invertebrates, and Wildlife Exposed to Soil. Oregon Department of Environmental Quality, Land Quality Division. September.
[3]DEQ. 2013. *Development of Oregon Background Metals Concentrations in Soil.* Oregon Department of Environmental Quality, Land Quality Division Cleanup Program, Portland, Oregon. March.
[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(2): 223–241. [doi:10.1093/toxsci/kfl055]
[5]EPA. 1993. *Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons* . 600/R-93/089. U.S. Environmental Protection Agency. July.

Table 2-3
Summary of Sediment Analytical Results
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

MAUL FOSTER ALONGI

Location:	Eco RBC for Sediment, Freshwater[1]	Sediment Bioaccumulation SLVs[2]								SS-1		
Sample Name:		Birds		Mammals		Fish		Humans	Inorganic Background	SS-1-20241114	SS-DUP-20241114	SS-TRIP-20241114
Collection Date:		Individual	Population	Individual	Population	Freshwater	Marine	General	Freshwater	11/14/2024	11/14/2024	11/14/2024
Collection Depth (ft bml):										0.33	0.33	0.33
Dioxins/Furans (mg/kg)												
1,2,3,4,6,7,8-HpCDD	NV	0.53	2.7	0.0039	0.11	0.43	0.43	0.00069	NA	**8.90E-06**	**9.50E-06**	**1.30E-05**
1,2,3,4,6,7,8-HpCDF	NV	0.053	0.27	0.0039	0.11	0.043	0.043	0.00069	NA	**5.10E-06**	4.90E-06 U	**8.20E-06**
1,2,3,4,7,8,9-HpCDF	NV	0.053	0.27	0.0039	0.11	0.043	0.043	0.00069	NA	4.40E-06 U	4.90E-06 U	4.40E-06 U
1,2,3,4,7,8-HxCDD	NV	0.00042	0.0021	0.000015	0.00042	0.000034	0.000034	0.0000027	NA	4.40E-06 U	4.90E-06 U	4.40E-06 U
1,2,3,4,7,8-HxCDF	NV	0.00021	0.0011	0.000015	0.00042	0.00017	0.00017	0.0000027	NA	4.40E-06 U	4.90E-06 U	4.40E-06 U
1,2,3,6,7,8-HxCDD	NV	0.0021	0.011	0.000015	0.00042	0.0017	0.0017	0.0000027	NA	4.40E-06 U	4.90E-06 U	4.40E-06 U
1,2,3,6,7,8-HxCDF	NV	0.00021	0.0011	0.000015	0.00042	0.00017	0.00017	0.0000027	NA	4.40E-06 U	4.90E-06 U	4.40E-06 U
1,2,3,7,8,9-HxCDD	NV	0.00021	0.0011	0.000015	0.00042	0.0017	0.0017	0.0000027	NA	4.40E-06 U	4.90E-06 U	4.40E-06 U
1,2,3,7,8,9-HxCDF	NV	0.00021	0.0011	0.000015	0.00042	0.00017	0.00017	0.0000027	NA	4.40E-06 U	4.90E-06 U	4.40E-06 U
1,2,3,7,8-PeCDD	NV	0.000021	0.00011	0.0000015	0.000042	0.000017	0.000017	0.00000027	NA	4.40E-06 U	4.90E-06 U	4.40E-06 U
1,2,3,7,8-PeCDF	NV	0.000059	0.0003	0.000014	0.0004	0.000095	0.000095	0.0000026	NA	4.40E-06 U	4.90E-06 U	4.40E-06 U
2,3,4,6,7,8-HxCDF	NV	0.00021	0.0011	0.000015	0.00042	0.00017	0.00017	0.0000027	NA	4.40E-06 U	4.90E-06 U	4.40E-06 U
2,3,4,7,8-PeCDF	NV	0.0000007	0.0000035	0.00000017	0.0000047	0.0000011	0.0000011	0.00000003	NA	4.40E-06 U	4.90E-06 U	4.40E-06 U
2,3,7,8-TCDD	0.000009	0.0000007[a]	0.0000035[a]	0.000000052	0.0000014	0.00000056	0.00000056	9.1E-09	NA	8.70E-07 U	9.70E-07 U	8.80E-07 U
2,3,7,8-TCDF	NV	0.0000059	0.00003	0.0000043	0.00012	0.000095	0.000095	0.00000077	NA	8.70E-07 U	9.70E-07 U	8.80E-07 U
OCDD	NV	5.3	27	0.13	3.6	4.3	4.3	0.023	NA	**9.30E-05**	**9.40E-05**	**0.00013**
OCDF	NV	5.3	27	0.13	3.6	4.3	4.3	0.023	NA	8.70E-06 U	9.70E-06 U	**1.20E-05**
Total HpCDDs	NV	NV	NV	NV	NV	NV	NV	NV	NA	**1.80E-05**	**2.00E-05**	**2.50E-05**
Total HpCDFs	NV	NV	NV	NV	NV	NV	NV	NV	NA	**1.00E-05**	**5.40E-06**	**1.80E-05**
Total HxCDDs	NV	NV	NV	NV	NV	NV	NV	NV	NA	4.40E-06 U	4.90E-06 U	4.40E-06 U
Total HxCDFs	NV	NV	NV	NV	NV	NV	NV	NV	NA	4.40E-06 U	4.90E-06 U	4.40E-06 U
Total PeCDDs	NV	NV	NV	NV	NV	NV	NV	NV	NA	4.40E-06 U	4.90E-06 U	4.40E-06 U
Total PeCDFs	NV	NV	NV	NV	NV	NV	NV	NV	NA	4.40E-06 U	4.90E-06 U	4.40E-06 U
Total TCDDs	NV	NV	NV	NV	NV	NV	NV	NV	NA	8.70E-07 U	9.70E-07 U	8.80E-07 U
Total TCDF	NV	NV	NV	NV	NV	NV	NV	NV	NA	8.70E-07 U	9.70E-07 U	8.80E-07 U
Dioxin/Furan TEQ[b]	0.000009	NV	NV	NV	NV	NV	NV	NV	NA	**0.0000051**	**0.0000057**	**0.0000052**
PCB Aroclors (mg/kg)												
Aroclor 1016	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.025 U	0.0271 U	0.0264 U
Aroclor 1221	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.025 U	0.0271 U	0.0264 U
Aroclor 1232	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.025 U	0.0271 U	0.0264 U
Aroclor 1242	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.025 U	0.0271 U	0.0264 U
Aroclor 1248	0.021	NV	NV	NV	NV	NV	NV	NV	NA	0.0157 U	0.017 U	0.0166 U
Aroclor 1254	0.007	NV	NV	NV	NV	NV	NV	NV	NA	0.0157 U	0.017 U	0.0166 U
Aroclor 1260	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.0157 U	0.017 U	0.0166 U
Aroclor 1262	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.0157 U	0.017 U	0.0166 U
Aroclor 1268	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.0157 U	0.017 U	0.0166 U
Total PCBs[c]	0.034	0.0018[a]	0.091[a]	0.044	0.084	0.022	0.047	0.00039	NA	0.025 U	0.0271 U	0.0264 U
SVOCs (mg/kg)												
1,2,4-Trichlorobenzene	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.11 U	0.12 U	0.117 U
2,4,5-Trichlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.119 U	0.13 U	0.127 U
2,4,6-Trichlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.113 U	0.123 U	0.12 U
2,4-Dichlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.103 U	0.112 U	0.109 U
2,4-Dimethylphenol	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.092 U	0.1 U	0.0975 U
2,4-Dinitrophenol	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.824 U	0.896 U	0.873 U
2,4-Dinitrotoluene	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.101 U	0.11 U	0.107 U

Table 2-3
Summary of Sediment Analytical Results
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

MAUL FOSTER ALONGI

Location:	Eco RBC for Sediment, Freshwater[1]	Sediment Bioaccumulation SLVs[2]								SS-1		
Sample Name:		Birds		Mammals		Fish		Humans	Inorganic Background	SS-1-20241114	SS-DUP-20241114	SS-TRIP-20241114
Collection Date:		Individual	Population	Individual	Population	Freshwater	Marine	General	Freshwater	11/14/2024	11/14/2024	11/14/2024
Collection Depth (ft bml):										0.33	0.33	0.33
2,6-Dinitrotoluene	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.115 U	0.125 U	0.122 U
2-Chloronaphthalene	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.0619 U	0.0673 U	0.0656 U
2-Chlorophenol	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.116 U	0.126 U	0.123 U
2-Methylphenol	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.106 U	0.115 U	0.112 U
2-Nitrophenol	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.126 U	0.137 U	0.133 U
3- & 4-Methylphenol (m,p-Cresol)	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.11 U	0.12 U	0.117 U
3,3'-Dichlorobenzidine	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.13 U	0.141 U	0.138 U
4,6-Dinitro-2-methylphenol	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.798 U	0.868 U	0.846 U
4-Bromophenyl phenyl ether	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.124 U	0.135 U	0.131 U
4-Chloro-3-methylphenol	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.114 U	0.124 U	0.121 U
4-Chlorophenyl phenyl ether	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.123 U	0.133 U	0.13 U
4-Nitrophenol	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.11 U	0.12 U	0.117 U
Acenaphthene	0.29	NV	NV	NV	NV	NV	NV	NV	NA	0.057 U	0.062 U	0.0604 U
Acenaphthylene	0.16	NV	NV	NV	NV	NV	NV	NV	NA	0.0496 U	0.0539 U	0.0526 U
Anthracene	0.057	NV	NV	NV	NV	NV	NV	NV	NA	0.0627 U	0.0682 U	0.0665 U
Benzo(a)anthracene	0.032	NV	NV	NV	NV	NV	NV	NV	NA	0.0621 U	0.0675 U	0.0658 U
Benzo(a)pyrene	0.032	NV	NV	NV	NV	NV	NV	NV	NA	0.0655 U	0.0712 U	0.0694 U
Benzo(b)fluoranthene	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.0657 U	0.0714 U	0.0696 U
Benzo(ghi)perylene	0.3	NV	NV	NV	NV	NV	NV	NV	NA	0.0644 U	0.07 U	0.0682 U
Benzo(k)fluoranthene	0.027	NV	NV	NV	NV	NV	NV	NV	NA	0.0626 U	0.0681 U	0.0663 U
Bis(2-chloro-1-methylethyl) ether	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.152 U	0.166 U	0.161 U
Bis(2-chloroethoxy)methane	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.106 U	0.115 U	0.112 U
Bis(2-chloroethyl) ether	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.116 U	0.126 U	0.123 U
Bis(2-ethylhexyl) phthalate	0.75	NV	NV	NV	NV	NV	NV	NV	NA	0.446 U	0.485 U	0.473 U
Butylbenzyl phthalate	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.11 U	0.12 U	0.117 U
Chrysene	0.057	NV	NV	NV	NV	NV	NV	NV	NA	0.07 U	0.0761 U	0.0742 U
Dibenzo(a,h)anthracene	0.033	NV	NV	NV	NV	NV	NV	NV	NA	0.0976 U	0.106 U	0.103 U
Diethyl phthalate	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.116 U	0.126 U	0.123 U
Dimethyl phthalate	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.747 U	0.812 U	0.791 U
Di-n-butyl phthalate	0.11	NV	NV	NV	NV	NV	NV	NV	NA	0.121 U	0.131 U	0.128 U
Di-n-octyl phthalate	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.238 U	0.259 U	0.252 U
Fluoranthene	0.111	NA	NA	360	1,800	37	37	510	NA	0.0636 U	0.0691 U	0.0674 U
Fluorene	0.077	NV	NV	NV	NV	NV	NV	NV	NA	0.0573 U	0.0623 U	0.0607 U
Hexachlorobenzene	0.1	NA	NA	NA	NA	61	61	0.019	NA	0.125 U	0.136 U	0.132 U
Hexachlorobutadiene	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.118 U	0.129 U	0.126 U
Hexachlorocyclopentadiene	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.185 U	0.201 U	0.196 U
Hexachloroethane	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.139 U	0.151 U	0.147 U
Indeno(1,2,3-cd)pyrene	0.017	NV	NV	NV	NV	NV	NV	NV	NA	0.0995 U	0.108 U	0.105 U
Isophorone	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.108 U	0.117 U	0.114 U
Naphthalene	0.176	NV	NV	NV	NV	NV	NV	NV	NA	0.0884 U	0.0961 U	0.0937 U
Nitrobenzene	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.123 U	0.133 U	0.13 U
N-Nitrosodimethylamine	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.522 U	0.568 U	0.554 U
N-Nitrosodiphenylamine	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.266 U	0.29 U	0.282 U
N-Nitrosodipropylamine	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.117 U	0.128 U	0.124 U
Pentachlorophenol	NV	NA	NA	0.33	3.3	0.31	0.17	0.25	NA	0.0947 U	0.103 U	0.1 U
Phenanthrene	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.0699 U	0.076 U	0.0741 U
Phenol	0.048	NV	NV	NV	NV	NV	NV	NV	NA	0.142 U	0.154 U	0.15 U

Table 2-3
Summary of Sediment Analytical Results
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

MAUL FOSTER ALONGI

Location:	Eco RBC for Sediment, Freshwater[1]	Sediment Bioaccumulation SLVs[2]								SS-1		
Sample Name:		Birds		Mammals		Fish		Humans	Inorganic Background	SS-1-20241114	SS-DUP-20241114	SS-TRIP-20241114
Collection Date:		Individual	Population	Individual	Population	Freshwater	Marine	General	Freshwater	11/14/2024	11/14/2024	11/14/2024
Collection Depth (ft bml):										0.33	0.33	0.33
Pyrene	0.053	NA	NA	18,000	90,000	1.9	1.9	380	NA	0.0685 U	0.0745 U	0.0726 U
Pyridine	NV	NV	NV	NV	NV	NV	NV	NV	NA	0.233 U	0.253 U	0.247 U
Total PAH[d]	1.61	NV	NV	NV	NV	NV	NV	NV	NA	0.0995 U	0.108 U	0.105 U
Total HPAH[e]	0.193	NV	NV	NV	NV	NV	NV	NV	NA	0.0995 U	0.108 U	0.105 U
Total LPAH[f]	0.076	NV	NV	NV	NV	NV	NV	NV	NA	0.0884 U	0.0961 U	0.0937 U
Total organic carbon (mg/kg)												
Total organic carbon	NV	NV	NV	NV	NV	NV	NV	NV	NA	**15,600**	**20,400**	**21,400**
TPH (mg/kg)												
Diesel-range hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	NA	**5.71 J**	**3.93 J**	**3.37 J**
Oil-range hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	NA	**47.6**	**39.4**	**33.3**
Total metals (mg/kg)												
Antimony	3	NV	NV	NV	NV	NV	NV	NV	NV	**2.39**	**2.11 J+**	**2.03 J+**
Arsenic	6[g]	NV[h]	NV[h]	NV[h]	NV[h]	NV[h]	NV[h]	NV[h]	7	**3.47**	**3.47**	**2.94**
Beryllium	NV	NV	NV	NV	NV	NV	NV	NV	NV	**0.196 J**	**0.214 J**	**0.226**
Cadmium	0.6	NV[h]	NV[h]	NV[h]	NV[h]	NV[h]	NV[h]	NV[h]	1	**0.11 J**	0.0542 U	**0.0862 J**
Chromium	37	NV	NV	NV	NV	NV	NV	NV	NV	**25.2**	**26.7**	**28**
Copper	36	NV	NV	NV	NV	NV	NV	NV	NV	**24.3**	**26.4**	**28.3**
Lead	35	NV[h]	NV[h]	NV[h]	NV[h]	NV[h]	NV[h]	NV[h]	17	**14.8**	**14.1**	**16.3**
Mercury	0.2	NV[h][i]	NV[h][i]	NV[h][i]	NV[h][i]	NV[h]	NV[h]	NV[h]	0.07	**0.0244 J**	**0.0242 J**	**0.033 J**
Nickel	18	NV	NV	NV	NV	NV	NV	NV	NV	**22.1**	**22.7**	**23.6**
Selenium	NV	NV[h]	NV[h]	NV[h]	NV[h]	NV[h]	NV[h]	NV[h]	2	0.808 U	0.878 U	0.856 U
Silver	4.5	NV	NV	NV	NV	NV	NV	NV	NV	1.06 U	1.15 U	1.12 U
Thallium	NV	NV	NV	NV	NV	NV	NV	NV	NV	**1.68 J**	**0.801 J**	**1.85 J**
Zinc	123	NV	NV	NV	NV	NV	NV	NV	NV	62.4	63.1	81.5

Table 2-3
Summary of Sediment Analytical Results
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

Notes

BOLD values indicate concentrations detected above the method detection limit or method reporting limit.

Data summation rules are as follows: non-detect results are multiplied by one-half when used for sums or TEQ calculations. When all results are non-detect, the highest reporting limit is provided as the sum or TEQ.

Shading (color key below) indicates values that exceed screening criteria; non-detects (U and UJ) were not compared with screening criteria.

Ecological RBC Sediment, Freshwater

ft bml = feet below mudline.

HPAH = high-molecular-weight polycyclic aromatic hydrocarbon.

J = result is estimated.

J+ = result is estimated, but the result may be biased high.

LPAH = low-molecular-weight polycyclic aromatic hydrocarbon.

mg/kg = milligrams per kilogram.

NV = no value.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyl.

RBC = risk-based concentration.

SLV = screening level value.

SVOC = semivolatile organic compound.

TEQ = toxicity equivalency.

TPH = total petroleum hydrocarbons.

U = result is non-detect at method detection limit or method reporting limit.

[a]Where bird egg development SLVs are also available, the lower SLV is selected for use.

[b]Dioxin/furan TEQ calculated as the sum of each congener concentration multiplied by the corresponding mammalian toxicity equivalence factor. Non-detect values are multiplied by one-half.

[c]Total PCBs is the sum of all PCB Aroclors. When all Aroclors are non-detect, the highest detection limit is provided as the sum.

[d]Total PAHs is the sum of acenaphthene, acenaphthylene, anthracene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, chrysene, dibenz(ah)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. 1-methylnaphthalene and 2-methylnaphthalene were not reported by the laboratory and so were not included in the sum.

[e]HPAH is the sum of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene.

[f]LPAH is the sum of acenapthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. 1-methylnaphthalene and 2-methylnaphthalene were not reported by the laboratory and so were not included in the sum.

[g]RBC for arsenic-III.

[h]SLV is the default regional background concentration.

[i]Sites with mercury contamination should collect actual fish tissue data at the site. Site-specific conditions regulate the methylization process form sediment or water into aquatic receptors.

Reference

[1]DEQ. 2020. *Conducting Ecological Risk Assessments* . Table 3: Risk Based Concentrations for Sediment. Oregon Department of Environmental Quality, Land Quality

[2]DEQ. 2020. *Bioaccumulative Chemicals of Concern in Sediment* . Table A-1: Sediment Bioaccumulation Screening Level Values. Oregon Department of

Table 2-4
Summary of Surface Water Analytical Results
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

Location:	Ecological RBC for Wildlife Ingestion of Surface Water[1]				Ecological RBC for Freshwater[2]				SW-1	SW-1
Sample Name:	Birds		Mammal		Aquatic Life		Aquatic-Dependant Wildlife		SW-1-20241113	SW-DUP-20241113
Collection Date:	T&E	Non-T&E	T&E	Non-T&E	Chronic	Acute	Chronic	Acute	11/13/2024	11/13/2024
Dioxins and Furans (pg/L)										
1,2,3,4,6,7,8-HpCDD	NV	NV	NV	NV	NV	NV	NV	NV	4.90E-05 U	5.10E-05 U
1,2,3,4,6,7,8-HpCDF	NV	NV	NV	NV	NV	NV	NV	NV	4.90E-05 U	5.10E-05 U
1,2,3,4,7,8,9-HpCDF	NV	NV	NV	NV	NV	NV	NV	NV	4.90E-05 U	5.10E-05 U
1,2,3,4,7,8-HxCDD	NV	NV	NV	NV	NV	NV	NV	NV	4.90E-05 U	5.10E-05 U
1,2,3,4,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	NV	4.90E-05 U	5.10E-05 U
1,2,3,6,7,8-HxCDD	NV	NV	NV	NV	NV	NV	NV	NV	4.90E-05 U	5.10E-05 U
1,2,3,6,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	NV	4.90E-05 U	5.10E-05 U
1,2,3,7,8,9-HxCDD	NV	NV	NV	NV	NV	NV	NV	NV	4.90E-05 U	5.10E-05 U
1,2,3,7,8,9-HxCDF	NV	NV	NV	NV	NV	NV	NV	NV	4.90E-05 U	5.10E-05 U
1,2,3,7,8-PeCDD	NV	NV	NV	NV	NV	NV	NV	NV	4.90E-05 U	5.10E-05 U
1,2,3,7,8-PeCDF	NV	NV	NV	NV	NV	NV	NV	NV	4.90E-05 U	5.10E-05 U
2,3,4,6,7,8-HxCDF	NV	NV	NV	NV	NV	NV	NV	NV	4.90E-05 U	5.10E-05 U
2,3,4,7,8-PeCDF	NV	NV	NV	NV	NV	NV	NV	NV	4.90E-05 U	5.10E-05 U
2,3,7,8-TCDD	NV	NV	NV	NV	3.1E-09	0.01	3.1E-09	NV	9.90E-06 U	1.00E-05 U
2,3,7,8-TCDF	NV	NV	NV	NV	NV	NV	NV	NV	9.90E-06 U	1.00E-05 U
OCDD	NV	NV	NV	NV	NV	NV	NV	NV	9.90E-05 U	0.0001 U
OCDF	NV	NV	NV	NV	NV	NV	NV	NV	9.90E-05 U	0.0001 U
Total HpCDDs	NV	NV	NV	NV	NV	NV	NV	NV	4.90E-05 U	5.10E-05 U
Total HpCDFs	NV	NV	NV	NV	NV	NV	NV	NV	4.90E-05 U	5.10E-05 U
Total HxCDDs	NV	NV	NV	NV	NV	NV	NV	NV	4.90E-05 U	5.10E-05 U
Total HxCDFs	NV	NV	NV	NV	NV	NV	NV	NV	4.90E-05 U	5.10E-05 U
Total PeCDDs	NV	NV	NV	NV	NV	NV	NV	NV	4.90E-05 U	5.10E-05 U
Total PeCDFs	NV	NV	NV	NV	NV	NV	NV	NV	4.90E-05 U	5.10E-05 U
Total TCDDs	NV	NV	NV	NV	NV	NV	NV	NV	9.90E-06 U	1.00E-05 U
Total TCDF	NV	NV	NV	NV	NV	NV	NV	NV	9.90E-06 U	1.00E-05 U
Dioxin/Furan TEQ	NV	NV	0.004	0.04	3.1E-09	0.01	3.1E-09	NV	9.90E-06 U	1.00E-05 U
PCB Aroclors (ug/L)										
Aroclor 1016	NV	NV	NV	NV	NV	NV	NV	NV	0.27 U	0.27 U
Aroclor 1221	NV	NV	NV	NV	NV	NV	NV	NV	0.27 U	0.27 U
Aroclor 1232	NV	NV	NV	NV	NV	NV	NV	NV	0.27 U	0.27 U
Aroclor 1242	NV	NV	NV	NV	NV	NV	NV	NV	0.27 U	0.27 U
Aroclor 1248	NV	NV	NV	NV	NV	NV	NV	NV	0.173 U	0.173 U
Aroclor 1254	NV	NV	NV	NV	NV	NV	NV	NV	0.173 U	0.173 U
Aroclor 1260	NV	NV	NV	NV	NV	NV	NV	NV	0.173 U	0.173 U
Aroclor 1262	NV	NV	NV	NV	NV	NV	NV	NV	0.173 U	0.173 U
Aroclor 1268	NV	NV	NV	NV	NV	NV	NV	NV	0.173 U	0.173 U
Total PCBs	410	4,100	44	440	0.014	2	0.00012	NV	0.27 U	0.27 U
SVOCs (ug/L)										
1,2,4-Trichlorobenzene	NV	NV	6,600	66,000	130	420	NV	NV	0.0705 U	0.0712 U
2,4,5-Trichlorophenol	NV	NV	NV	NV	1.9	17	NV	NV	0.11 U	0.111 U
2,4,6-Trichlorophenol	NV	NV	NV	NV	4.9	39	NV	NV	0.101 U	0.102 U
2,4-Dichlorophenol	NV	NV	NV	NV	11	92	NV	NV	0.103 U	0.104 U
2,4-Dimethylphenol	NV	NV	NV	NV	15	140	NV	NV	0.0642 U	0.0649 U
2,4-Dinitrophenol	NV	NV	NV	NV	71	380	NV	NV	5.99 U	6.05 U
2,4-Dinitrotoluene	NV	NV	NV	NV	44	390	NV	NV	0.0993 U	0.1 U
2,6-Dinitrotoluene	NV	NV	NV	NV	81	730	NV	NV	0.253 U	0.255 U

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Table 2-4
Summary of Surface Water Analytical Results
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

Location:	Ecological RBC for Wildlife Ingestion of Surface Water[1]				Ecological RBC for Freshwater[2]				SW-1	SW-1
Sample Name:	Birds		Mammal		Aquatic Life		Aquatic-Dependant Wildlife		SW-1-20241113	SW-DUP-20241113
Collection Date:	T&E	Non-T&E	T&E	Non-T&E	Chronic	Acute	Chronic	Acute	11/13/2024	11/13/2024
2-Chloronaphthalene	NV	NV	NV	NV	NV	NV	NV	NV	0.0654 U	0.0661 U
2-Chlorophenol	4,600	46,000	2,200	22,000	18	160	NV	NV	0.134 U	0.136 U
2-Methylphenol	NV	NV	NV	NV	67	600	NV	NV	0.0938 U	0.0948 U
2-Nitrophenol	NV	NV	NV	NV	73	650	NV	NV	0.118 U	0.119 U
3- & 4-Methylphenol (m,p-Cresol)	NV	NV	NV	NV	NV	NV	NV	NV	0.17 U	0.171 U
3,3'-Dichlorobenzidine	NV	NV	NV	NV	4.5	41	NV	NV	0.214 U	0.216 U
4,6-Dinitro-2-methylphenol	NV	NV	NV	NV	NV	NV	NV	NV	1.13 U	1.14 U
4-Bromophenyl phenyl ether	NV	NV	NV	NV	1.5	12	NV	NV	0.0886 U	0.0895 U
4-Chloro-3-methylphenol	NV	NV	NV	NV	1	67	NV	NV	0.132 U	0.134 U
4-Chlorophenyl phenyl ether	NV	NV	NV	NV	NV	NV	NV	NV	0.0935 U	0.0945 U
4-Nitrophenol	NV	NV	NV	NV	58	530	NV	NV	0.144 U	0.146 U
Acenaphthene	NV	NV	310,000	3,100,000	15	19	NV	NV	0.0895 U	0.0904 U
Acenaphthylene	NV	NV	310,000	3,100,000	13	120	NV	NV	0.093 U	0.0939 U
Anthracene	NV	NV	440,000	4,400,000	0.02	0.18	NV	NV	0.0812 U	0.082 U
Benzo(a)anthracene	NV	NV	760	7,600	4.7	42	NV	NV	0.201 U	0.203 U
Benzo(a)pyrene	NV	NV	4,400	44,000	0.06	0.54	NV	NV	0.0385 U	0.0389 U
Benzo(b)fluoranthene	NV	NV	17,000	170,000	2.6	23	NV	NV	0.131 U	0.133 U
Benzo(ghi)perylene	NV	NV	32,000	320,000	0.012	0.19	NV	NV	0.122 U	0.123 U
Benzo(k)fluoranthene	NV	NV	32,000	320,000	0.06	1.3	NV	NV	0.121 U	0.122 U
Bis(2-chloro-1-methylethyl) ether	NV	NV	NV	NV	NV	NV	NV	NV	0.212 U	0.214 U
Bis(2-chloroethoxy)methane	NV	NV	NV	NV	NV	NV	NV	NV	0.117 U	0.118 U
Bis(2-chloroethyl) ether	NV	NV	NV	NV	NV	NV	NV	NV	0.138 U	0.14 U
Bis(2-ethylhexyl) phthalate	4,500	45,000	82,000	820,000	8	1,100	NV	NV	0.904 U	0.913 U
Butylbenzyl phthalate	NV	NV	710,000	7,100,000	23	130	NV	NV	0.773 U	0.78 U
Chrysene	NV	NV	760	7,600	4.7	42	NV	NV	0.131 U	0.133 U
Dibenzo(a,h)anthracene	NV	NV	5,900	59,000	0.012	0.28	NV	NV	0.065 U	0.0657 U
Diethyl phthalate	NV	NV	NV	NV	220	980	NV	NV	0.29 U	0.293 U
Dimethyl phthalate	NV	NV	300,000	3,000,000	1,100	3,200	NV	NV	0.263 U	0.265 U
Di-n-butyl phthalate	570	5,700	2,600,000	8,900,000	19	34	NV	NV	0.458 U	0.462 U
Di-n-octyl phthalate	NV	NV	290,000	2,900,000	220	890	NV	NV	0.941 U	0.951 U
Fluoranthene	NV	NV	56,000	560,000	0.8	3.7	NV	NV	0.103 U	0.104 U
Fluorene	NV	NV	560,000	1,100,000	19	110	NV	NV	0.0852 U	0.0861 U
Hexachlorobenzene	NV	NV	NV	NV	0.15	2.8	0.0003	NV	0.0763 U	0.077 U
Hexachlorobutadiene	NV	NV	NV	NV	1	10	1	10	0.0978 U	0.0987 U
Hexachlorocyclopentadiene	NV	NV	NV	NV	0.45	4.5	NV	NV	0.0604 U	0.061 U
Hexachloroethane	NV	NV	NV	NV	12	210	NV	NV	0.128 U	0.13 U
Indeno(1,2,3-cd)pyrene	NV	NV	32,000	320,000	0.012	0.27	NV	NV	0.282 U	0.285 U
Isophorone	NV	NV	NV	NV	920	7,500	NV	NV	0.144 U	0.146 U
Naphthalene	57	570	2,200	22,000	21	170	NV	NV	0.161 U	0.162 U
Nitrobenzene	NV	NV	NV	NV	230	1,000	NV	NV	0.3 U	0.303 U
N-Nitrosodimethylamine	NV	NV	NV	NV	NV	NV	NV	NV	1.01 U	1.02 U
N-Nitrosodiphenylamine	NV	NV	NV	NV	25	220	NV	NV	2.39 U	2.42 U
N-Nitrosodipropylamine	NV	NV	NV	NV	NV	NV	NV	NV	10.1 U	10.2 U
Pentachlorophenol	13,000	130,000	1,000	10,000	6.7	8.7	NV	NV	0.316 U	0.319 U
Phenanthrene	NV	NV	23,000	230,000	2.3	31	NV	NV	0.113 U	0.114 U
Phenol	NV	NV	260,000	2,600,000	160	4,700	NV	NV	4.37 U	4.42 U
Pyrene	NV	NV	33,000	330,000	4.6	42	NV	NV	0.108 U	0.109 U

Table 2-4
Summary of Surface Water Analytical Results
Former Gold Hill Cement Powerhouse
Gold Hill, Oregon

Location:	Ecological RBC for Wildlife Ingestion of Surface Water[1]				Ecological RBC for Freshwater[2]				SW-1	SW-1
Sample Name:	Birds		Mammal		Aquatic Life		Aquatic-Dependant Wildlife		SW-1-20241113	SW-DUP-20241113
Collection Date:	T&E	Non-T&E	T&E	Non-T&E	Chronic	Acute	Chronic	Acute	11/13/2024	11/13/2024
Pyridine	NV	NV	NV	NV	NV	NV	NV	NV	0.633 U	0.64 U
Total Metals (ug/L)										
Antimony	NV	NV	690	2,300	190	900	NV	NV	4 U	4 U
Arsenic	21,000	52,000	560	5,600	150	340	NV	NV	**1.95 J**	**1.9 J**
Beryllium	NV	NV	2,900	29,000	11	93	NV	NV	0.2 U	0.2 U
Cadmium	5,900	82,000	4,800	17,000	0.094	0.49	NV	NV	0.12 U	0.12 U
Chromium[a]	7,100	71,000	160,000	630,000	11	16	NV	NV	0.9 U	0.9 U
Copper	12,000	130,000	22,000	33,000	1.4	2.3	NV	NV	5 U	5 U
Lead	64,000	640,000	4,300	16,000	0.54	14	NV	NV	**0.979 J**	**1.13 J**
Mercury	78	780	6,300	63,000	0.012	1.4	0.0013	0.012	0.07 U	0.07 U
Nickel	110,000	160,000	300	3,000	16	140	NV	NV	**3.04**	**2.96**
Selenium	1,800	6,100	890	1,400	4.6	20	NV	NV	0.25 U	0.25 U
Silver	22,000	220,000	85,000	850,000	0.1	0.3	NV	NV	0.11 U	0.11 U
Thallium	1,400	14,000	31	310	6	54	NV	NV	0.13 U	0.13 U
Zinc	490,000	4,900,000	560,000	4,400,000	36	36	NV	NV	**15.8 J**	**16.1 J**
TPH (ug/L)										
Diesel-range organics	NV	NV	NV	NV	640	NV	NV	NV	**185**	**152**
Residual-range hydrocarbons	NV	NV	NV	NV	NV	NV	NV	NV	**186 J**	**109 J**

Notes

BOLD values indicate concentrations detected above the method detection limit or method reporting limit.

Data summation rules are as follows: non-detect results are multiplied by one-half when used for sums or TEQ calculations. When all results are non-detect, the highest reporting limit is provided as the sum or TEQ.

Shading (color key below) indicates values that exceed screening criteria; non-detects (U and UJ) were not compared with screening criteria.

Ecological RBC Aquatic Life, Chronic

J = result is estimated.

NV = no value.

PCB = polychlorinated biphenyl.

RBC = risk-based concentration.

SVOC = semivolatile organic compound.

T&E = threatened and endangered.

TEQ = toxicity equivalency.

TPH = total petroleum hydrocarbons.

U = result is non-detect at method detection limit or method reporting limit.

ug/L = micrograms per liter.

[a]RBC values for trivalent chromium provided when total chromium values are not available.

References

[1]DEQ. 2020. *Conducting Ecological Risk Assessments* . Table 1b: Risk Based Concentrations for Wildlife Ingestion of Surface Water. Oregon Department of Environmental Quality, Land Quality Division. September.

[2]DEQ. 2021. *Conducting Ecological Risk Assessments* . Table 2: Risk Based Concentrations for Water. Oregon Department of Environmental Quality, Land Quality Division. April.

Appendix

2016 Ecology and Environment Excavation Figure

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Modified by Maul Foster & Alongi, Inc. (5/16/2025) to show expanded excavation areas.

Document Path: L:\Projects\ACTIVE\4 Start 4\Gold Hill Cement Power Plant\02 Execution\GIS\Maps\mxd\2016_1_27\GoldHill_SampleLocs.mxd_edited in Illustrator

Concrete Sample Locations
Sediment Sample Locations
Surface Soil Sample Locations
Excavation Area
Additional Excavation Area

Image Source: Bing/Microsoft 2015

Note: Figure created by Ecology & Environment, Inc. (2016) and modified by MFA to show additional excavation areas.

ecology and environment, inc.
Global Environmental Specialists
Seattle, Washington

GOLD HILL CEMENT POWER PLANT (FORMER)
Gold Hill, Oregon

0 25 50 100 Feet

Figure 6-1
EXCAVATION AREA

Date: 7/21/16
Drawn by:
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