



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Eastern Region Office

4601 North Monroe St., Spokane, WA 99205-1295 • 509-329-3400

October 3, 2022

Bruce Howard
Teck Washington, Inc.
PO Box 7
Metaline Falls, WA 99153

Re: Opinion and technical assistance for the following Site:

Site Name: Pend Oreille Mine Historic Debris Field
Site Address: 1382 Pend Oreille Mine Road
Facility/Site No.: 15428546
Cleanup Site No.: 16669
VCP Project No.: EA0369

Dear Bruce Howard:

The Washington State Department of Ecology (Ecology) received your request for an opinion and technical assistance for the independent cleanup of the Pend Oreille Mine Historic Debris Field facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70A.305 RCW.

Issues Presented and Opinion

Has the Site been sufficiently characterized to select a remedial alternative to address contamination?

Yes. Ecology has determined that the Site characterization is sufficient to move forward with a Feasibility Study to select a remedial alternative. However, data gaps still remain which could impact the determination of an appropriate remedy.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70A.305 RCW, and its implementing regulations, Chapter 173-340 WAC (collectively “substantive requirements of MTCA”). The analysis is provided below.

Description of the Site

This opinion applies only to the Site described as follows. The Site is defined by the nature and extent of contamination associated with the following releases:

- Benzene, cyanide, methyl tertiary-butyl ether (MTBE), organochlorine pesticides, oil-range petroleum hydrocarbons (ORPH), polychlorinated biphenyls (PCBs), and trichloroethene (TCE) into the soil.

Enclosure A includes the description, history, and diagram of the Site, as currently known to Ecology.

Please note a parcel of real property can be affected by multiple sites. At this time, we have no information that the Property is affected by other sites.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. Teck Washington Inc., POM Present State Analysis- Historic Debris Field, June 22, 2022.
2. URS, Reclamation Plan Report, Teck American Incorporated Pend Oreille Mine, September 25, 2009.
3. GeoEngineers, Solid Waste Deposit Assessment, Pend Oreille Mine, July 26, 2006.

You can request these documents by filing a [records request](#).¹ For help making a request, contact the Public Records Officer at publicrecordsofficer@ecy.wa.gov or call (360) 407-6040. Before making a request, check whether the documents are available on the [Site webpage](#).²

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis and Technical Assistance

Characterization of the Site

Ecology has determined that your characterization is sufficient to establish cleanup standards and select a cleanup action for the Site; however, there are data gaps regarding the comprehensive nature and extent of hazardous waste as well as the current slope stability. These data gaps should be addressed during the cleanup

¹ <https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests>

² <https://apps.ecology.wa.gov/gsp/CleanupSiteDocuments.aspx?csid=16669>

process regardless of the selected remedy. The Site is described above and in **Enclosure A**.

The Site consists of a solid waste debris field that extends laterally approximately 1.5 acres and varies in vertical extent from the surface to approximately 5.5 to an estimated maximum of 20 feet below ground surface (bgs). Three test pit samples collected from 0-2 and 4-5.5 feet bgs contained TCE above the MTCA Method A cleanup level and benzene, cyanide, MTBE, organochlorine pesticides ORPH, and PCBs present in concentrations below their respective cleanup levels. Benzene, MTBE, and the pesticide endosulfan were also detected in a seepage water sample below the corresponding MTCA groundwater cleanup levels.

A geophysical survey noted evidence of a past slope failure within the middle slope of the debris layer between field stations 20 and 21 (please see Enclosure A for a diagram with field station locations). There is no evidence of failure within the underlying native soil.

Recommendations for further Site characterization

Ecology recommends addressing the following items prior to evaluating remedial action alternatives for the Site.

1. The 2006 Solid Waste Assessment estimates the thickness of the debris field at 5.5 feet bgs resulting in a volume of 6,500 cubic yards of waste. This report also states that the thickness in some locations may be as great as 20 feet bgs, resulting in a larger volume of waste. The 2009 Reclamation Plan Report estimates a volume of 9,960 cubic yards of waste. Ecology recommends calculating an estimate of the debris field volume with greater certainty to properly evaluate potential remedial action alternatives.
2. The 2006 assessment also recommends quarterly seepage water sampling and analysis for all contaminants of concern (COCs). Ecology agrees that updated sampling should occur during times of higher seasonal flow to supplement the June 2005 evaluation and monitor whether there is potential for any COCs to mobilize from soil to groundwater during cleanup.
3. An updated slope survey should be conducted to determine if additional slope failure has occurred since the 2006 assessment and evaluate the risks posed to workers during any planned remedial actions.
4. No soil or seepage water analyses were conducted for heavy metals during the 2006 assessment. Due to the presence of mine tailings within areas proximal to the Site, these should be considered COCs. Any further Site characterization or compliance sampling should also include analyses to screen for RCRA 8 metals. If results of these analyses are below MTCA Method A cleanup levels for unrestricted land use, further investigation can be discontinued. Ecology does not believe that the presence of heavy metals would affect the extent of the debris

field as it is currently known, but may impact the designation and disposal options for any wastes generated.

Recommendations for evaluating remedial action alternatives

Chapter 173-340-360 WAC states the minimum requirements for cleanup actions, including protecting human health and the environment, complying with cleanup standards and applicable state and federal laws, providing for compliance monitoring, using permanent solutions to the maximum extent practicable, providing for a reasonable restoration time frame, and considering public concerns.

In addition to these requirements, Chapter 173-340-370 WAC states the expectations for cleanup action alternatives, including appropriate uses of destruction or removal of contaminated media versus containment, and applicable circumstances for preventing the migration of hazardous substances via stormwater or erosion. Based on these expectations, Ecology recommends that any remedial action alternative evaluated in the upcoming feasibility study should:

1. Not rely primarily on institutional controls and monitoring where it is technically possible to implement a more permanent cleanup action for all or a portion of the Site, and
2. Include measures to reduce stormwater infiltration through the debris field, and stabilize the slope to reduce the likelihood of continued slope failure and limit the potential migration of waste materials.

Limitations of the Opinion

Opinion does not settle liability with the state

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Change the boundaries of the Site.
- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70A.305.040(4).

Opinion does not constitute a determination of substantial equivalence

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you

proposed will be substantially equivalent. Courts make that determination. See RCW 70A.305.080 and WAC 173-340-545.

Opinion is limited to proposed cleanup

This letter does not provide an opinion on whether further remedial action will actually be necessary at the Property upon completion of your proposed cleanup. To obtain such an opinion, you must submit a report to Ecology upon completion of your cleanup and request an opinion under the VCP.

State is immune from liability

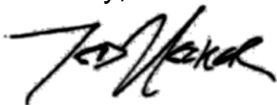
The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. See RCW 70A.305.170.

Contact Information

Thank you for choosing to clean up your Property under the Voluntary Cleanup Program (VCP). As you conduct your cleanup, please do not hesitate to request additional services. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion, please contact me by phone at 509-342-5564 or by e-mail at ted.uecker@ecy.wa.gov.

Sincerely,



Ted M. Uecker
ERO Toxics Cleanup Program

tmu:hg

Enclosures (1): A – Description, History, and Diagram of the Site

cc: Frank Wimberley, Teck
John Haney, Haley & Aldrich
Kathleen Falconer, Ecology

Enclosure A
Description, History, and Diagram of Site

Site Description

The Pend Oreille Mine Historic Debris Field (HDF) is located approximately 80 feet west of the Pend Oreille Mine (POM) near Metaline Falls in Pend Oreille County. The POM is a lead-zinc mine that was operated from the mid-1950s until 2019. The HDF site (Site) extends downslope in a heavily wooded, steep area to approximately 20-30 feet from the Pend Oreille River. The upslope portion of the Site is owned by Teck Cominco American Incorporated (TCAI), while the downslope portion is owned by Seattle City Light (SCL).

The HDF consists of metal drums, vehicle parts, machine parts, cables, hoses, sheet metal, and wood debris disposed between the early 1950s up to 1977 allegedly using a launder chute system meant to discharge mine tailings from the mill to the river. The approximate extent of contaminated soil and waste materials within the HDF is 1.5 acres (200 x 300 feet) and 5.5-20 feet thick. The approximate volume of the waste materials within the HDF is 6,500 cubic yards assuming a uniform 5.5 foot thickness, which increases if the true thickness is closer to 20 feet. The HDF extends downslope (NW-SE) with an elevation range of approximately 115 feet.

The HDF is separated into three areas based on topography; the upper slope ranges from 30-35 percent grade, the middle slope ranges from 70-90 percent grade, and the lower slope ranges from 18-20 percent grade. The native slope is inclined between 45-80 percent. There is evidence of a prior slope failure within the middle slope of the debris layer approximately 45-60 feet long perpendicular to elevation contour. This failure is not observed in the underlying native material. The Site is underlain by glaciolacustrine laminated clay, silt, and sands, while locally there are also thin deposits of gravel and sand present. Regional bedrock consists of the Ledbetter Slate and the Metaline Limestone formations.

Groundwater was not encountered in any test pits, but a seep was observed at the base of the slope discharging approximately 10 gallons per minute. The HDF is bounded by drainages to the northeast and southwest.

Site History

The Site was discovered in April 2005 during a U.S. EPA inspection of the mine property. An environmental assessment conducted between June and August 2005 included a site reconnaissance to identify waste products, five hand auger borings ranging from 1-2 feet below ground surface (bgs), four hand-shoveled test pits to depths of 2.5-5.5 feet bgs, photoionization detector (PID) screening for volatiles in soil, seep water sampling, a geophysical survey to evaluate the extent of the debris field using a portable magnetometer and ground penetrating radar (GPR), and a geologic evaluation of slope stability.

The soil and seepage water samples were analyzed for VOCs, diesel- and oil-range petroleum hydrocarbons, total cyanide, pH, PCBs, and chlorinated pesticides.

Trichloroethene (TCE) concentrations in soil within the HDF exceed the MTCA Method A cleanup level of 0.03 mg/kg, while oil-range petroleum hydrocarbons (ORPH), benzene, methyl tertiary butyl ether (MTBE), polychlorinated biphenyls (PCBs), cyanide, and organochlorine pesticides including beta-BHC, endosulfan I, DDD, DDE, and DDT were detected below their respective cleanup levels. No TCE degradation products including the three dichloroethene isomers or vinyl chloride were present in the soil samples. No analytes exceeded MTCA cleanup levels in the seepage water sample, but benzene, MTBE, and endosulfan were detected at 2.84, 1.8, and 0.0226 ug/L, respectively. No metals analyses were conducted on soil or seepage water samples.

A reclamation plan completed in 2009 identified the HDF as one of several areas to be addressed during mine closure. Potential closure activities concerning the HDF include selectively clearing vegetation, characterizing and removing dangerous and extremely hazardous wastes according to applicable regulations, and regrading and revegetating the area to stabilize the slope. This analysis also states the HDF area as 1.2 acres and approximates the waste volume as 9,960 cubic yards.

Sources: GeoEngineers, 2006; URS, 2009; Teck, 2022

Site Diagram

