STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Eastern Region Office
4601 North Monroe St., Spokane, WA 99205-1295 • 509-329-3400

April 4, 2023

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

Re: Technical Assistance for the following contaminated Site:

Site Name:	Pend Oreille Mine - Historic Debris Field
Site Address:	1382 Pend Oreille Mine Road, Metaline Falls
Cleanup Site ID:	16669
Facility/Site ID:	15428546
VCP Project ID:	EA0369

Dear Bruce Howard:

The Washington State Department of Ecology (Ecology) received your request for technical consultation pursuant to WAC 173-340-515(5) on your proposed additional characterization of the Pend Oreille Mine Historic Debris Field facility (Site) under the Voluntary Cleanup Program (VCP)[1]. This letter provides our advice and assistance. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70A.305[2] RCW.

Issue Presented and Opinion

Ecology has determined that your proposed work plan meets the stated objectives to resolve data gaps at the Site.

This opinion is based on an analysis of whether the proposed actions meet 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 as follows.

[1] https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Voluntary-Cleanup-Program
[2] https://app.leg.wa.gov/RCW/default.aspx?cite=70A.305

Site Description

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

- Cyanide into the soil.
- Methyl tertiary butyl ether (MTBE) into the soil.
- Oil-range petroleum hydrocarbons (ORPH) into the soil.
- Organochlorine (OC) pesticides into the soil.
- Polychlorinated biphenyls (PCBs) into the soil.
- Trichloroethene (TCE) into the soil.
- Volatile organic compounds (VOCs) into the soil.

Enclosure A includes a detailed description 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 parcel(s) associated with this Site are affected by other sites.

Basis for the Opinion

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

1. Teck Washington, Inc., *Pend Oreille Mine (POM) Closure- Historic Debris Field Data Gap Assessment and Feasibility Study Work Plan*, February 21, 2023.

2. Teck Washington, Inc., *POM Present State Analysis- Historic Debris Field*, June 22, 2022.

3. URS, *Reclamation Plan Report- Teck American Incorporated Pend Oreille Mine*, September 25, 2009.

4. GeoEngineers, *Solid Waste Deposit Assessment- Pend Oreille Mine*, July 26, 2006.

You can request these documents by filing a records request[3]. 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[4].

[3] https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests
[4] https://apps.ecology.wa.gov/cleanupsearch/site/2194

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

Characterizing the Site

Based on a review of the Data Gap Assessment and Feasibility Study Work Plan (Teck Washington, Inc., 2023), Ecology has concluded that, upon completion of your proposed assessment, the Site characterization will be sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A.**

Beginning in 2005, shallow soil at the Site has been characterized using soil sampling, photoionization detector (PID) screening, and geophysical survey techniques. Soil samples collected from hand auger borings and test pits to a maximum depth of 5.5 feet below ground surface (bgs) contained TCE exceeding MTCA Method A soil cleanup levels for unrestricted land use, as well as benzene, cyanide, MTBE, ORPH, OC pesticides, and PCBs detected below their respective cleanup levels. The extent of the debris field was estimated using a portable magnetometer and ground penetrating radar, with an area of approximately 200 by 300 feet and a thickness which varies between 5.5-20 feet.

Seepage water was observed discharging from the base of the debris field at approximately 10 gallons per minute. Grab samples of the seepage water contained concentrations of benzene, MTBE, and the pesticide endosulfan below their respective MTCA groundwater cleanup levels.

The following additional Site characterization actions have been proposed to address data gaps and assist in drafting a feasibility study to evaluate remedial alternatives:

- Assess the extent of TCE and RCRA 8 metals in soil using hand-auger borings in 23 locations to collect shallow soil samples to a maximum depth of 6 ft bgs or refusal at bedrock.
- Further define the extent of debris within the HDF using 10 hand auger borings.
- Conduct additional sampling and analyses for TCE and RCRA 8 metals in seepage water and drainage channel sediments.
- Conduct a terrestrial ecological evaluation (TEE) in accordance with WAC 173-340-7490.
- Conduct a slope survey using map and photo review and field reconnaissance to assess stability and evaluate risks to workers during remedial actions.

Ecology concurs that the proposed additional Site characterization will address data gaps identified in Ecology's October 3, 2022 opinion letter, with the following comments and recommendations:

- Since the historic record of the waste deposit is incomplete, further evaluation is warranted to determine if any contaminants of concern (COCs) identified in previous investigations are present in concentrations exceeding MTCA cleanup levels or the ecological indicator soil concentrations for protection of terrestrial plants and animals found in Table 749-3 in WAC 173-340-900. Select soil samples collected during the proposed assessment should be analyzed for all COCs, including cyanide, ORPH, OC pesticides, PCBs, and VOCs, in addition to TCE and RCRA 8 metals. Any COC below laboratory detection limits may be excluded from further analyses.
- The Solid Waste Deposit Assessment (GeoEngineers, 2006) recognized the presence of partially buried drums with unidentified contents. If drums are encountered during Site assessment work and it is safe to do so, the contents and surrounding soils should be sampled and analyzed for all COCs.
- The soil borings should be advanced to the maximum depth possible to fully delineate the extent of the debris field, evaluate bedrock surface conditions, and collect deeper samples to assess all contaminant migration pathways.
- All sampling data should be submitted to Ecology's Environmental Information Management (EIM) database[5], which is required in order to receive a final Ecology opinion for this Site. The Toxics Cleanup Program Policy 840[6] describes data submittal requirements. Please visit the EIM Submit Data webpage for data submittal instructions.

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:

- 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

[5] https://ecology.wa.gov/eim
[6] https://fortress.wa.gov/ecy/publications/SummaryPages/1609050.html

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 Site 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 Voluntary Cleanup Program (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 the Site under the 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 webpage [7]. If you have any questions about this opinion, please contact me by phone at 509-342-5564 or e-mail at ted.uecker@ecy.wa.gov.

Sincerely,

Ted M. Uecker
ERO Toxics Cleanup Program

tmu:hg

Enclosures (1): A – Site Description, history, and diagram

cc: Frank Wimberley, Teck Washington, Inc.
John Haney, Haley & Aldrich
Jason Poulson, Haley & Aldrich
Ward McDonald, Haley & Aldrich
Nicholas Acklam, Ecology
Karl Rains, Ecology
Kristin Beck, Ecology

[7] https://www.ecy.wa.gov/vcp

Enclosure A

Site Description, History, and Diagram

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.

Field observations in 2022 indicate that mine tailings and other COCs may extend to the south/southwest of the known HDF boundary. Also noted that the timber launder running through the HDF was used to dispose of mill tailings to the PO River during a time when cyanide was used to process ore.

In February 2023, a data gap assessment and feasibility study work plan was submitted which proposed the following:

- Assess the extent of TCE and RCRA 8 metals in soil and seepage water using hand-auger borings to collect 23 surficial soil samples (<6 ft bgs)
- Further define the volume of debris within the HDF using hand auger borings
- Conduct additional seepage water sampling
- Conduct a terrestrial ecological evaluation (TEE)
- Conduct a slope survey using map/photo review and field reconnaissance to assess stability and evaluate risks to workers during remedial actions
- Draft and submit a feasibility study to Ecology

Sources: GeoEngineers, 2006; URS, 2009; Teck, 2022, 2023

Site Diagram