



## **Periodic Review Josephine Mill 1 Site**

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**Metaline Falls, Pend Oreille County  
Facility Site ID: 5001204, Cleanup Site ID: 1537**

**Toxics Cleanup Program, Eastern Region**

Washington State Department of Ecology  
Spokane, Washington

April 2023

# Document Information

This document is available on the Department of Ecology's [Josephine Mill 1 cleanup site page](#).<sup>1</sup>

## Related Information

- Facility site ID: 5001204
- Cleanup site ID: 1537

# Contact Information

## Toxics Cleanup Program

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**Website<sup>2</sup>:** [Washington State Department of Ecology](#)

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<sup>1</sup> <https://apps.ecology.wa.gov/cleanupsearch/site/1537>

<sup>2</sup> [www.ecology.wa.gov/contact](http://www.ecology.wa.gov/contact)

<sup>3</sup> <https://ecology.wa.gov/About-us/Accountability-transparency/Our-website/Accessibility>

# Department of Ecology's Regional Offices

## Map of Counties Served



<b>Southwest Region</b> 360-407-6300	<b>Northwest Region</b> 206-594-0000	<b>Central Region</b> 509-575-2490	<b>Eastern Region</b> 509-329-3400
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Region	Counties served	Mailing Address	Phone
<b>Southwest</b>	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	PO Box 47775 Olympia, WA 98504	360-407-6300
<b>Northwest</b>	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	PO Box 330316 Shoreline, WA 98133	206-594-0000
<b>Central</b>	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 W Alder St Union Gap, WA 98903	509-575-2490
<b>Eastern</b>	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 N Monroe Spokane, WA 99205	509-329-3400
<b>Headquarters</b>	Across Washington	PO Box 46700 Olympia, WA 98504	360-407-6000

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# Introduction

This document is the Department of Ecology’s review of post-cleanup site conditions and monitoring data to assure that human health and the environment are being protected at the Josephine Mill 1 site (Site).

Cleanup activities at this Site were completed as removal actions under Comprehensive Environmental Response Compensation and Liability Act (CERCLA) authority by the United States Environmental Protection Agency (USEPA) in September 2011. These actions met cleanup levels under the Model Toxics Control Act (MTCA), Chapter 173-340 of the Washington Administrative Code (WAC).

Residual concentrations of lead, arsenic, zinc, and mercury remained after cleanup that exceed MTCA Method A cleanup levels for soil established under WAC 173-340-740(2). The MTCA Method A cleanup levels for soil are established under WAC 173-340-740. Institutional controls were implemented at the Site in the form of an environmental covenant to prevent exposure and release of contaminated soils capped as part of the remedy for the Site.

## Summary of Site Conditions

### Site history

The former Josephine Mill No. 1 is in northeast Washington, approximately 1.5 miles northwest of the city of Metaline Falls (Figure 1) in Pend Oreille County. The Site’s approximate geographic coordinates are Latitude 48°52’ 29.99” North, Longitude 117°22’ 50.77” West. The Site is accessed by Pend Oreille County Highway 2975 (also referred to as the Boundary Dam Road) and the unpaved Old Pend Oreille Mine Road. Public access to the Site is limited by a locked gate. The Old Pend Oreille Mine Road divides the Site into the upper portion and lower portion. The Site is bounded to the southeast by Flume Creek, which flows to the north-northeast and discharges into the Pend Oreille River. Stimson Lumber owns the Site.

The Site is one of three properties associated with the Josephine Mine; the other two, the Josephine Mine and Josephine Mill No. 2, are nearby on property not owned by Stimson Lumber. The Josephine Mine has also been historically referred to as the “Clark Mine” or “Hortense Mine.” The Josephine Mine was a cadmium, lead, silver, and zinc mine that reportedly operated from approximately 1909 to 1955. The Josephine Mill No. 1 reportedly began operations in about 1907 and was one of two mills supporting operation of the mine. Operations at the Josephine Mill No. 1 were curtailed sometime around 1935 when milling operations were conducted at the newly constructed Josephine Mill No. 2.

A vicinity map is in Appendix 6.1, and a Site plan is in Appendix 6.2.

### Previous site investigations

In July 2002, USEPA and the Bureau of Land Management (BLM) conducted a visual inspection of the Site and surrounding environment. The inspection included soil screening using an x-ray

fluorescence instrument at four potential source locations, including a tailings pile and a waste rock pile. The screening concentrations of lead in soil exceeded Ecology MTCA Method A unrestricted soil cleanup level for lead. In March 2003, EPA conducted a Preliminary Assessment using readily available information, and concluded that the Site is a potential source of hazardous substance releases and warrants further investigation under CERCLA or other statutes.

In May 2003, USEPA and BLM conducted a Removal Assessment to determine the potential for off-site contamination migration and to determine if the Site warrants a CERCLA removal action. Several sample results exceeded the MTCA Method A unrestricted soil cleanup level for lead.

USEPA consultants performed a Site Investigation (SI) in October 2008 to delineate the extent and volume of mill tailings and waste rock accumulated at the Site. The findings from the Final SI report indicated an estimated 12,000 cubic yards of elevated lead, zinc, and cadmium concentrations present in tailings and waste rock exceeding MTCA Method A unrestricted soil cleanup levels.

## Cleanup Action

USEPA and Stimson Lumber, the site owner, entered into an Administrative Settlement Agreement and Order on Consent to complete a non-time critical removal action. An engineering evaluation/cost assessment was completed in March 2010 that specified excavation, consolidation, and capping of contamination under a protective barrier as the final remedial action.

## Cleanup Standards

The two primary components of cleanup standards are cleanup levels and points of compliance.

### Cleanup levels

USEPA conducted the removal action at the Site based on a combination of MTCA Method A and Method B cleanup levels to protect both human and ecological receptors. The selected cleanup levels applied at the Site are in Table 1.

Table 1. Site contaminants and cleanup levels

Contaminant	Cleanup Level	Basis
Arsenic	20 mg/kg	MTCA Method A
Cadmium	80 mg/kg	MTCA Method B
Lead	250 mg/kg	MTCA Method A
Mercury	2 mg/kg	MTCA Method A
Zinc	24,000 mg/kg	MTCA Method B

mg/kg – milligrams per kilogram

## Site Cleanup

In 2010, remedial action began at the Site. Vegetation, wood, and metal debris were cleared from the work area. A repository area was created to hold consolidated contaminated soils; due to the presence of groundwater, an interception trench was installed to route groundwater around the repository. The repository was lined with a geotechnical enhancement fabric and a layer of drier soils and stone to stabilize the soil prior to emplacement. Contaminated soils were excavated and mixed with uncontaminated native soils and Portland cement to dry materials and increase stability. Confirmation sampling was performed to confirm that contaminated soils had all been removed. A geosynthetic cover system comprised of geotextile, a polyethylene geomembrane, and a geocomposite drainage layer was placed over contaminated materials. Finally, the repository was covered with a minimum of 18 inches of cover soil. A perimeter drainage ditch was also installed to divert surface water around the eastern edge of the repository. Surface soils were seeded with grass seed, and woody debris was placed on the repository to deter recreational vehicles. Work was completed in September 2011.

## Environmental covenant

EPA determined institutional controls were necessary due to the presence of capped contamination. Institutional controls serve to prevent property uses and activities that might expose contaminated soils, and to notify future property owners of residual contamination. Institutional controls were implemented in the form of an [environmental covenant](#),<sup>4</sup> which was recorded for the Site in November 2012. The covenant imposes the following conditions:

1. Any activity that damages or disturbs the integrity of the repository or protective barrier or otherwise results in the release or exposure to the environment of any hazardous substances beneath the protective barrier is hereby prohibited. Some examples of activities that are prohibited in the protective barrier areas include the following: drilling, digging, excavating, placement of any objects or use of any equipment which deforms or stresses the surface beyond its load bearing capability, piercing the surface with a rod, spike, or similar item, bulldozing or earthwork.
2. Any activity on the Property that may interfere with the integrity or operation or maintenance of the repository, or protective barrier, or the erosion and drainage controls, or any other component of the environmental response project, or the continued protection of human health and the environment, or that may result in a release to the environment of hazardous substances that were contained as part of the environmental response project, is prohibited without prior written approval from Ecology.
3. There shall be no use of the Property for construction and occupancy of residential structures.

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<sup>4</sup> <https://apps.ecology.wa.gov/cleanupsearch/document/63228>

4. There shall be no groundwater wells installed or groundwater used at the Property, unless such installation and/or use have/has prior written approval from Ecology.
5. Owner shall inspect, maintain and repair the protective barrier, erosion and drainage controls, warning signs and woody debris placed on the surface of the repository at the Property. This work shall conform to the Post-Removal Site Control Plan produced by Stimson Lumber in accordance with the ASAOC. A copy of this plan is attached and incorporated by reference herein as Exhibit C.
6. Owner shall provide thirty (30) days advanced written notice to Ecology of Owner's intent to convey or transfer, in whole or in part, any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued inspection, maintenance and repair of the protective barrier, warning signs and woody debris placed on the surface of the repository at the Property.
7. The Owner shall restrict all permits, licenses and leases at or on any portion of the Property to uses and activities consistent with this Environmental Covenant, and shall notify all permittees, licensees and lessees of the restrictions and limitations placed on the Property by this Environmental Covenant.
8. The Owner shall allow authorized representatives of EPA and Ecology the right to enter the Property at reasonable times to evaluate the environmental response project and the repository and protective barrier, to take samples, to inspect any other response actions conducted at the Property, to perform maintenance and repair activities, and to conduct any other action deemed necessary to ensure that the environmental response project continues to protect public health and the environment. Further, no conveyance or transfer, in whole or in part, of an interest in the Property shall be consummated by Owner without provision for such continued access by EPA and Ecology.
9. Owner shall notify and obtain written approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Environmental Covenant. Ecology may approve any such inconsistent use only after public notice and comment.
10. The Owner of the Property reserves the right under Washington Administrative Code ("WAC") 173-340-440 to record an instrument that provides that this Environmental Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

## Periodic Review

### Regulation

WAC 173-340-420(2) requires Ecology to conduct a periodic review of a site every five years under the following conditions:

- (a) Whenever Ecology conducts a cleanup action;



- (b) Whenever Ecology approves a cleanup action under an order, agreed order, or consent decree;
- (c) Or, as resources permit, whenever Ecology issues a no further action opinion;
- (d) And, one of the following conditions exists:
  - (1) Institutional controls or financial assurance are required as part of the cleanup.
  - (2) Where the cleanup level is based on a practical quantitation limit.
  - (3) Where, in the department's judgment, modifications to the default equations or assumptions using site-specific information would significantly increase the concentration of hazardous substances remaining at the site after cleanup, or the uncertainty in the ecological evaluation or the reliability of the cleanup action is such that additional review is necessary to assure long-term protection of human health and the environment.

When evaluating whether human health and the environment are being protected, the factors Ecology shall consider include [WAC 173-340-420(4)]:

- (a) The effectiveness of ongoing or completed cleanup actions.
- (b) New scientific information for individual hazardous substances or mixtures present at the Site.
- (c) New applicable state and federal laws for hazardous substances present at the Site.
- (d) Current and projected Site and resource uses.
- (e) Availability and practicability of more permanent remedies.
- (f) The availability of improved analytical techniques to evaluate compliance with cleanup levels.

Ecology shall publish a notice of all periodic reviews in the *Site Register* and provide an opportunity for public comment.

## Basis

Because the Site underwent a USEPA removal action with agreement by Ecology, and institutional controls were required as part of the cleanup action, periodic reviews are required at a frequency of at least every five years.

## Effectiveness of completed cleanup actions

Evaluating the cleanup action effectiveness involves assessing contaminant levels and trends to determine if the cleanup actions are performing as expected.

Ecology visited the Site on October 27, 2022. The Site remains vacant; the forest road adjoining the Site is used to access the Josephine Mill, but a locked gate controls access. The clean soil cap continues to eliminate direct human and ecological exposure pathways (ingestion, contact) to contaminated soils. The Site owner performed annual inspections for the first six years, and inspections thereafter every five years. Future inspections will occur every five years or after severe weather events.

A photo log is in Appendix 6.4.

The environmental covenant for the Site was recorded and remains effective. There is no evidence a new instrument has been recorded that limits the applicability or effectiveness of the covenant. The covenant prohibits activities that will result in the release of contaminants contained as part of the cleanup without Ecology's approval and prohibits any use of the property that is inconsistent with the covenant. The covenant serves to protect the long-term integrity of the surface cover by restricting property uses.

## **New scientific information for individual hazardous substances or mixtures present at the Site**

There is no new scientific information that affects the Site.

## **New applicable state and federal laws for hazardous substances present at the Site**

No new federal or state laws apply to contaminants at the Site.

## **Current and projected Site use**

The Site is currently vacant, and no change in used is anticipated. There have been no changes in current or projected future Site or resource uses. A sale of the property is being negotiated; if the purchase goes through, the new owner will continue to maintain the property as forest habitat.

## **Availability and practicability of more permanent remedies**

The remedy implemented included containment of hazardous materials, and it continues to be protective of human health and the environment. While more permanent remedies may be available, they are still not practicable at this Site.

## **Availability of improved analytical techniques**

The analytical methods used at the time of the remedial action were capable of detection well below applicable cleanup levels. The presence of improved analytical techniques would not affect decisions or recommendations made for the Site.

# **Conclusions**

- The current conditions at this Site appear to be protective of human health and the environment.
- The environmental covenant for the property is in place and will be effective in protecting public health and the environment from exposure to hazardous substances and protecting the integrity of the cleanup action.

- Soil cleanup levels have not been met at the Site; however, the cleanup action for the Property is determined to comply with cleanup standards under WAC 173-340-740(6) (f), since the long-term integrity of the containment system is ensured and the requirements for containment technologies have been met.

Based on this periodic review, Ecology has determined that the requirements of the environmental covenant are being followed. No additional remedial actions are required at the Site. The site owner is responsible for continuing to inspect and maintain the remedial action to ensure that the integrity of the cap is maintained.

# References

Arcadis. 2012. *Removal Action Report, Josephine Mill No. 1.*







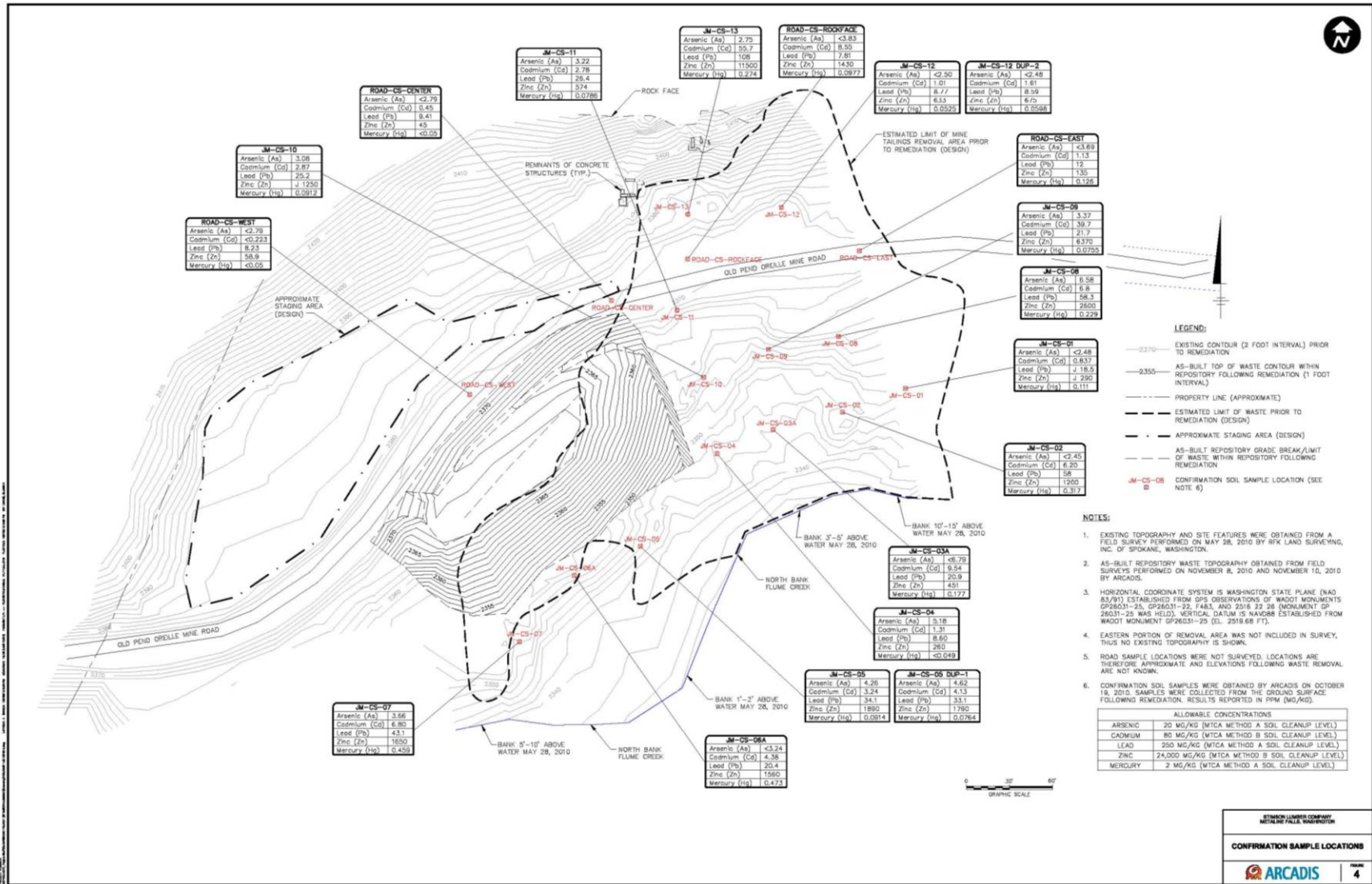


Figure 2: Site Map



# Photo Log

Photo 1: Entire capped area, looking northeast



Photo 2: Northern perimeter drain, looking east





Photo 3: Capped area, looking northwest





Photo 4: French drain output, looking northwest along northern edge of capped area





Photo 5: Perimeter warning sign, looking north



Photo 6: Eastern edge of capped area, looking north

