

Five-Year Review Report

Second Five-Year Review Report for Joseph Forest Products Superfund Site Wallowa County, Oregon

September 2003

**PREPARED BY:
United States Environmental Protection Agency
Region 10**

Approved by:

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September 30, 2003

Date

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Attachment 1 - Site Location Map

Attachment 2 - List of Documents Reviewed

List of Acronyms

ARAR	Applicable or Relevant and Appropriate Requirement
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EPA	United States Environmental Protection Agency
CFR	Code of Federal Regulations
DEQ	Oregon Department of Environmental Quality
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
PRP	Potentially Responsible Party
RA	Remedial Action
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SDWA	Safe Drinking Water Act

Executive Summary

The remedy for the Joseph Forest Products Site in Wallowa County, Oregon included excavation and off-site disposal of contaminated soil and debris, institutional controls, and groundwater monitoring. The Site achieved construction completion with the signing of the Preliminary Close Out Report on September 27, 1993, and was deleted from the NPL on November 4, 1999. The trigger for this five-year review was the completion of the first five-year report on September 30, 1998.

The remedy is protective of human health and the environment. Exposure pathways that could result in unacceptable risks have been controlled. All threats at the Site have been addressed through excavation and off-site disposal of contaminated soil and debris and the implementation of institutional controls. Long-term protectiveness of the remedial action will be verified by sampling conducted by the City of Enterprise at their water supply springs. Current information indicates that the remedy is functioning as required.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name (from WasteLAN): Joseph Forest Products		
EPA ID (from WasteLAN): ORD068782820		
Region: 10	State: OR	City/County: Wallowa
SITE STATUS		
NPL status: <input type="checkbox"/> Final <input checked="" type="checkbox"/> Deleted <input type="checkbox"/> Other (specify) _____		
Remediation status (choose all that apply): <input type="checkbox"/> Under Construction <input type="checkbox"/> Operating <input checked="" type="checkbox"/> Complete		
Multiple OUs?* <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Construction completion date: 9 /27/ 93	
Has site been put into reuse? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
REVIEW STATUS		
Lead agency: <input checked="" type="checkbox"/> EPA <input type="checkbox"/> State <input type="checkbox"/> Tribe <input type="checkbox"/> Other Federal Agency _____		
Author name: Chip Humphrey		
Author title: RPM	Author affiliation: US EPA Region 10	
Review period:** 8 /01 /03 to 9 /30/03		
Date(s) of site inspection: 8 / 22 / 03		
Type of review: <input checked="" type="checkbox"/> Post-SARA <input type="checkbox"/> Pre-SARA <input type="checkbox"/> NPL-Removal only <input type="checkbox"/> Non-NPL Remedial Action Site <input type="checkbox"/> NPL State/Tribe-lead <input type="checkbox"/> Regional Discretion		
Review number: <input type="checkbox"/> 1 (first) <input checked="" type="checkbox"/> 2 (second) <input type="checkbox"/> 3 (third) <input type="checkbox"/> Other (specify) _____		
Triggering action: <input type="checkbox"/> Actual RA Onsite Construction at OU # _____ <input type="checkbox"/> Actual RA Start at OU# _____ <input type="checkbox"/> Construction Completion <input checked="" type="checkbox"/> Previous Five-Year Review Report <input type="checkbox"/> Other (specify) _____		
Triggering action date (from WasteLAN): 9 /30 /98		
Due date (five years after triggering action date): 9 / 30 /03		

* ["OU" refers to operable unit.]

** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form, cont'd.

Issues:

No significant issues were identified.

Recommendations and Follow-up Actions:

None

Protectiveness Statement(s):

The remedy is protective of human health and the environment. Exposure pathways that could result in unacceptable risks have been controlled. All threats at the Site have been addressed through excavation and off-site disposal of contaminated soil and debris and the implementation of institutional controls. Long-term protectiveness of the remedial action will be verified by sampling conducted by the City of Enterprise at their water supply springs. Current information indicates that the remedy is functioning as required.

Other Comments:

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**Joseph Superfund Site
Portland, OR
Second Five-Year Review Report**

I. Introduction

The purpose of the five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in Five-Year Review reports. In addition, Five-Year Review reports identify issues found during the review, if any, and identify recommendations to address them.

The Agency is preparing this Five-Year Review report pursuant to CERCLA §121 and the National Contingency Plan (NCP). CERCLA §121 states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgement of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

The Agency interpreted this requirement further in the NCP; 40 CFR §300.430(f)(4)(ii) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

The United States Environmental Protection Agency (EPA), Region 10, conducted the five-year review of the remedy implemented at the Joseph Forest Products Superfund Site in Wallowa County, Oregon. This review was conducted by the Remedial Project Manager (RPM) for the Site from August 2003 through September 2003. This report documents the results of the review.

This is the second five-year review for the Joseph Forest Products Site. The triggering action for this statutory review is the completion of the first five-year review in September 1998. The five-year review is required because hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure.

II. Site Chronology

Table 1: Chronology of Site Events

Event	Date
DEQ issues Notice of Violation for unauthorized disposal of hazardous waste; JFP discontinues operation	1985
Site Inspection Report	May 1987
NPL Site Listing	March 1989
Removal Action start	March 1991
Removal Action completion	May 1992
Record of Decision	Sept 1992
IAG with Corps for removal action	Jan 1993
Contractor mobilized to start site preparation	April 1993
Soil/debris Cleanup completed	June 1993
Preliminary Closeout Report	Sept 1993
Post-construction groundwater monitoring completed	Sept 1996
First Five-Year Review	Sept 1998
Final Closeout Report	Aug 1999
Site deleted from NPL	Nov 1999

III. Background

Physical Characteristics

The Joseph Forest Products (JFP) Superfund site is located about 3/4 mile northwest of the City of Joseph, in Wallowa County, Oregon. The site is approximately 18 acres and encompasses an inactive wood-treating facility located at the site of a former lumber mill. The property is bounded by Russell Lane to the north, and private property to the south and west.

The site is located within the City of Enterprise Watershed Protection Area. Two developed springs, located approximately 4000 feet north of the JFP site, supply municipal water to the City of Enterprise (population 2121). There is a natural spring on the JFP site, several seasonal springs in the drainage to the north, and a shallow well at the residence across Russell Lane to the north of the site. The Wallowa River flows within 400 feet of the site at its closest point on the eastern side.

Land and Resource Use

The historic land use of the Site was industrial since at least 1940. It is anticipated that a mix of land uses similar to that described will continue into the future. In establishing cleanup requirements for the Site, EPA assumed that the Site would remain industrial. The Site itself is currently fenced and used for miscellaneous storage and pasture.

The groundwater aquifer underlying the Site is a source of drinking water. The dominant groundwater flow direction is to the north.

History of Contamination

The Joseph Forest Products site was a former wood treatment facility which operated at this location from 1974 to 1985, using a vacuum-pressure (retort) treatment process. JFP used a water-based chromated copper arsenate preservative. The treatment building and surrounding buildings were destroyed by a fire in 1974. An estimated 200 gallons of concentrated treatment paste and approximately 3000 gallons of treatment solution in the storage tank were lost. It is assumed that the material was washed onto nearby soil during fire fighting operations. JFP did not resume treatment operations until late 1977.

Initial Investigation

The Oregon Department of Environmental Quality (DEQ) issued JFP a Notice of Violation for unauthorized disposal and storage of hazardous waste in 1985. JFP responded by removing empty containers and arranging for disposal of chemical wastes on site. The company filed for bankruptcy and ceased operations in 1985. By late 1985, it had become apparent that JFP's insolvency would prevent any further corrective actions on the part of JFP.

A site inspection (SI) of the JFP site was conducted by the EPA TAT contractor during September and October of 1985. Sampling efforts continued from January through April 1986. The SI report was issued in May of 1987. Field activities during the SI included installation of monitoring wells and collection of samples of soil, surface water, and groundwater. Water level measurements from groundwater monitoring wells installed at the site indicate a moderate gradient toward to the northeast in the shallow surficial aquifer. The principal contamination of concern identified in the SI was elevated levels of metals, primarily arsenic, chromium, and copper, in soils at the Site. The highest levels of these metals detected were 12,400 mg/kg arsenic, 7830 mg/kg chromium, and 13,000 mg/kg copper. In addition, the SI results indicated detectable levels of total metals in some groundwater and surface water samples.

Basis for Taking Action

Remedial Planning and Removal Activities

The Joseph Forest Products site was placed on the National Priorities List (NPL) in 1989. The EPA ARCS contractor was issued a work assignment by EPA to conduct a remedial investigation/feasibility study (RI/FS) of the site in January 1990.

Based on the results of the first phase of RI activities, a removal action was carried out by the ERCS contractor in October and November 1991. Approximately 1,068 tons of highly contaminated soils (up to 104,000 ppm arsenic) adjacent to the treatment building and drip pad were excavated and transported to the ESI hazardous waste disposal facility for disposal. EPA determined that the removal action was necessary because the highly contaminated soils posed a threat to the groundwater pathway. Security fencing was also installed around the treatment building to prevent access. During the excavation it was determined that the treatment building foundation and soil beneath the building were also contaminated, and that the contaminated material could not be removed without demolishing the treatment building.

The ARCS contractor also performed quarterly monitoring of the monitoring wells, on-site spring, and City of Enterprise supply springs. Although there were detectable levels of metals in the on-site wells, there was no evidence of contamination of the City water supply.

The RI/FS were completed in September, 1992. EPA issued a Proposed Plan describing the preferred alternative for site cleanup in August, 1992.

IV. Remedial Actions

Remedy Selection

EPA issued a ROD on September 30, 1992 which selected the following remedy:

- Excavation of contaminated surface and subsurface soil to specified cleanup levels, demolition of the treatment building, decontamination of the drip pad and treatment equipment, and off-site disposal of soils and debris.
- Excavation of abandoned Underground Storage Tanks (USTs), decontamination of the tanks if any residuals are present, and transport of the tanks off-site for disposal or salvage as scrap metal. Contaminated soil would be excavated and disposed off-site.
- Removal of asbestos from the abandoned wood drying building and off-site disposal in a trench meeting regulatory requirements for asbestos waste disposal.
- Use of institutional controls such as deed restrictions, or use of an environmental

notice to ensure appropriate consideration of Site conditions in future land use decisions.

- Implement a groundwater monitoring program to verify that contaminant levels in all wells and the City of Enterprise water supply allow for unlimited use.

The cleanup standards for the site were developed based on risk-based remedial action objectives in the ROD.

Remedy Implementation

EPA executed an Interagency Agreement with the US Army Corps of Engineers (USACE) to conduct the cleanup as a removal action. The removal action described below was carried out by OHM Remediation Services under a contract with the Corps of Engineers. On-site work was initiated on March 31, 1993.

The treatment building was torn down and completely removed and internal tanks were relocated to a staging area for cleaning. Contaminated pipes and pump equipment were stockpiled for disposal. The concrete slab and sump were broken and removed to a stockpile area.

The mixing tank, solution holding tank and retort vessel from the treatment building were cleaned using a vacublast system. The tanks were inspected prior to being picked up by a local scrap dealer for recycling. Decontamination of the drip pad was also completed using the vacublast equipment.

Asbestos fabric removal was completed and a penetrating encapsulant was applied to the walls of the lumber drying building by a licensed asbestos subcontractor. The underground storage tanks were removed and disposal was completed in accordance with state requirements.

Excavation, off-site disposal of contaminated soils and debris, and backfilling was completed on May 9, 1993. A total of 1,642 tons of soil and debris was disposed at the ESI hazardous waste disposal facility and 4,801 tons of contaminated soil and debris was disposed at the Finley Buttes special waste landfill.

EPA and the DEQ conducted a final inspection on August 16, 1993, and determined the contractors completed construction of the remedy in accordance with the Final Project Work Plan.

Post-Construction Monitoring/Operation and Maintenance

EPA and DEQ conducted semi-annual groundwater and surface water monitoring after completion of construction. The primary purpose of the monitoring was to verify that the City's water supply has been adequately protected from any residual contamination associated with the

site. The results from samples collected by EPA and DEQ since the cleanup was completed have shown that none of the monitoring well locations or springs have measured levels of metal concentrations above the Maximum Contaminant Limit or Secondary Maximum Contaminant Limit for either total or dissolved metals. Arsenic was detected in monitoring wells MW-1, MW-2, MW-4, and MW-5, but did not exceed the MCL of 0.05 mg/L. The detected arsenic levels are consistent with previous monitoring results that have shown arsenic to be a naturally occurring element in groundwater at the site. Arsenic was not detected in the City's water supply springs. DEQ completed the final round of groundwater and surface water sampling in 1996. The City of Enterprise continues to monitor their water supply Springs in accordance with State requirements.

There are no ongoing cleanup operations or operation and maintenance of facilities at the site.

V. Progress Since the Last Five-Year Review

Site conditions have not changed since EPA's inspection of the Site for the last five-year review in 1998. The major activity since the last review was the deletion of the site from the NPL in November, 1999.

VI. Five-Year Review Process

Administrative Components

The City of Enterprise, DEQ and the natural resource trustee agencies were notified of the initiation of the five-year review in August, 2003. No comments or concerns were raised during the review. The five-year review was conducted by Chip Humphrey of EPA, Remedial Project Manager (RPM) for the JFP Site.

Community Involvement

EPA published a notice in the Wallowa County Chieftan on August 29, 2003 to solicit comments on the five-year review. No comments were received. The results of the review and the report will be available to the public at the EPA Oregon Operations Office and at the EPA Region 10 website.

Document Review

This five-year review consisted of a review of relevant documents including the ROD, Final Closeout Report and the Notice of Intent to Delete.

Data Review

Groundwater monitoring at the Joseph Forest Products Site was discontinued in 1996 following an evaluation of post-cleanup monitoring results. Review of the data was described in

the first five-year review report and the NPL site deletion notice. No new site-specific data was collected as part of this review. City of Enterprise representatives were consulted regarding the city's ongoing monitoring of their drinking water supply springs, and they indicated that there were no exceedences of current MCLs based on their monitoring.

Site Inspection

EPA conducted a visual inspection of the site on August 22, 2003. There are no new structures on the site and there was no activity at the time of the inspection. A residence is located on property adjacent to and east of the site. It was observed during the first five-year review in 1998 that most of the property had been covered by an estimated 1 to 3 feet of fill that appeared to be soil mixed with wood waste. The property owner indicated that they planned to seed the area for use as pasture. During the 2003 site visit, a horse was grazing on the southern portion of the site but it did not appear that the site use had otherwise changed since the first five-year review. The drip pad area was observed and it did not appear that the area had changed since the last five-year review, and the current use is consistent with the final remedy.

The land use change to more of an agricultural use (horse grazing) is an acceptable use of the property considering the final cleanup levels allow residential use of the property and the addition of the fill material provides additional protection from direct contact with any residual contamination. The warranty deed for the property includes the environmental notice required by the ROD. EPA believes that the institutional controls as stated in the ROD and as implemented are protective.

VII. Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

The results of the Site inspection and review of documents, ARARs, and risk assumptions, indicates that the remedy is functioning as intended by the ROD. The excavation and off-site disposal of contaminated soil and debris has achieved the remedial objectives to prevent direct contact with or ingestion of contaminants. The MCL for arsenic has been changed to 10 ug/l since completion of the remedy and the first five-year review. EPA reviewed the post-cleanup monitoring data and verified that the levels in the City's water supply springs are below 10 ug/l.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

No significant changes to the remedial action objectives or cleanup levels are necessary based on the results of the five-year review. The following describes the objectives, cleanup levels and monitoring results:

1. Direct contact exposures: Prevent ingestion of contaminants of concern through direct contact exposures to contaminated soil and debris.

The RAOs for soil ingestion were to prevent ingestion of chromium and copper in excess of the reference dose and to prevent ingestion of arsenic causing an excess cancer risk greater than 10^{-4} to 10^{-6} . These objectives were met during the site cleanup by excavating contaminated soil so that post-cleanup concentrations of arsenic, chromium and copper in soil were less than the risk-based cleanup levels required by the ROD.

Prior to cleanup, the arsenic and chromium contamination in the Site soils were associated with an excess lifetime cancer risk of approximately 5×10^{-3} . The risk assessment estimated a Hazard Index value of 82 for noncancer health effects for the highly contaminated soil in the treatment building area. Cleanup standards for the Site were developed based on risk-based remedial action objectives in the ROD. EPA selected cleanup goals of 36 mg/kg arsenic for surface soil and 336 mg/kg arsenic for subsurface soil. EPA selected the more stringent cleanup level for surface soil because this is where the greatest potential for human contact exists. It is also approximately equal to the 1×10^{-4} risk level assuming future residential scenarios and, although the current zoning is for industrial use, there are residents located near the Site. The ROD also established chromium and copper cleanup levels of 1,351 mg/kg and 10,000 mg/kg, respectively, associated with Hazard Index of 1.

Confirmatory soil sampling verified that the Site has achieved the ROD cleanup objective, that arsenic has been removed to levels below 36 mg/kg for surface soil and 336 mg/kg for subsurface soil and that chromium and copper have been removed to levels below 1,351 mg/kg and 10,000 mg/kg, respectively.

All cleanup actions specified in the ROD have been implemented. Furthermore, EPA has removed all other contamination detected to acceptable risk levels. Confirmatory groundwater sampling and backfilling the Site with clean soil provide further assurance that the Site no longer poses any threats to human health or the environment. Removal of contaminated soil and debris has eliminated direct contact as a potential route of exposure and removed the source of groundwater contamination.

With the implementation and completion of all remedial activities, the Site no longer poses any threat to human health or the environment, insuring that no further action is required. With the exception of abandoning of monitoring wells, there are no other operation and maintenance activities to be performed at the Site.

2. Source control: Prevent migration of arsenic and chromium from soil resulting in groundwater concentrations above MCLs.

The remedial action objectives for groundwater protection were to prevent migration of arsenic and chromium from soil resulting in groundwater concentrations above MCLs. The MCLs were 50 ug/l for arsenic and 100 ug/l for chromium. The soil cleanup met the objectives for groundwater protection by removing, through excavation and off-site disposal, the source of contamination to groundwater.

3. Groundwater: Prevent ingestion of arsenic and chromium in excess of MCLs.

Post-cleanup groundwater monitoring confirmed that the concentrations of arsenic and chromium were below the MCLs in groundwater at the Site.

The ROD required that the monitoring network of wells and springs be sampled semi-annually for a period of two years following completion of the remedial action. The primary purpose of the monitoring was to verify that the City's water supply has been adequately protected. The results from samples collected by EPA and DEQ since the cleanup was completed have shown that none of the monitoring well locations or springs have measured levels of metal concentrations above the MCLs for either total or dissolved metals. The ROD also provided that monitoring results be evaluated after two years to determine whether monitoring should be continued. DEQ completed the final round of groundwater and surface water sampling in 1996. EPA and DEQ subsequently determined that the groundwater and surface water monitoring required by the ROD has been completed and no further monitoring will be required.

There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy. Semi-annual groundwater monitoring was discontinued following the evaluation period prescribed by the ROD and based on the results that showed no exceedence of MCLs in on-site or off-site groundwater monitoring well or at the City's water supply springs approximately 1 mile downgradient of the site. The data was re-reviewed for the five-year review because the MCL for arsenic has been lowered to 10 ug/l. Although arsenic was detected in specific groundwater wells during the post-cleanup monitoring period, it was not detected in the City's water supply springs. It was concluded that the very low detected arsenic levels were consistent with previous monitoring results that have shown arsenic to be a naturally occurring element in groundwater at the site. The change in the arsenic MCL has not affected the protectiveness of the remedy.

Changes in Exposure Pathways, Toxicity, and Other Contaminant Characteristics

There have been numerous changes to the standardized risk assessment methodology since the completion of the risk assessment that was performed under the 1991 RI/FS. No significant changes in exposure pathways or toxicity that could affect the protectiveness of the remedy were identified during the five-year review.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No other information that calls into question the protectiveness of the remedy was identified during the five-year review.

Technical Assessment Summary

According to the Site inspection and documents reviewed, the remedy is functioning as

intended by the ROD. There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy. Cleanup levels for soil contamination cited in the ROD have been met. No changes in the toxicity factors for the contaminants of concern were identified since the last five-year review was completed. No other information was identified during the five-year review that calls into question the protectiveness of the remedy.

VIII. Issues

No significant issues were noted from the inspection.

IX. Recommendations and Follow-Up Actions

None

X. Protectiveness Statement

The remedy is protective of human health and the environment. Exposure pathways that could result in unacceptable risks have been controlled. All threats at the Site have been addressed through excavation and off-site disposal of contaminated soil and debris and the implementation of institutional controls. Long-term protectiveness of the remedial action will be verified by sampling conducted by the City of Enterprise at their water supply springs. Current information indicates that the remedy is functioning as required.

XI. Next Review

The next five-year review for the Joseph Forest Products Superfund Site is required by September 2008, five years from the date of this review.

ATTACHMENTS

Site Map
List of Documents Reviewed

ATTACHMENT 2
List of Documents Reviewed

Record of Decision, Joseph Forest Products Superfund Site, US Environmental Protection Agency, September 1992.

Final Project Work Plan for the Removal and Disposal of Contaminated Material, Joseph Forest Products, OHM Remediation Services February 1993.

Notice of Intent to Delete, Federal Register: August 31, 1999 (Volume 64, Number 168)

