



# Libby Asbestos Superfund Site OU1 – Former Export Plant

U.S. EPA, Region 8 – Denver, Colorado

September 2009

## Proposed Plan for Public Comment

### Introduction

The public is invited to review and comment on this Proposed Plan to address environmental cleanup at **Operable Unit 1 (OU1)** of the Libby Asbestos **Superfund** Site in Libby, Montana. OU1 is the former Export Plant and is located on the banks of the Kootenai River in central Libby, Montana. OU1 is one of eight **OUs** at the site (Exhibit 1). The investigation and cleanup are being done by the U.S. Environmental Protection Agency (EPA), in consultation with the Montana Department of Environmental Quality (DEQ) under the **Superfund** law. This Proposed Plan provides an overview of the site history, site contamination, and risk; summarizes the remedial alternatives EPA is considering; and details EPA's preferred remedial alternative and supporting rationale.

Exhibit 1. Libby Asbestos Site OUs

OU#	Name
1	Former Export Plant
2	Former Screening Plant and nearby areas
3	Former Vermiculite Mine
4	Libby, MT (Residential, commercial, industrial, and public properties)
5	Former Stimson Lumber parcel
6	Burlington Northern and Santa Fe Railroad
7	Troy, MT
8	State Highways

Issuance of this plan starts the public comment period (September 9 to October 16 2009). At the end of that period, EPA will review and consider all comments provided.

Based on that consideration, EPA may select the preferred cleanup alternative, modify it, select another response action, or develop other alternatives if public comment warrants or if new material is presented.

Information on how to provide your comments or questions to EPA is provided on page 12, along with details on where you can get more information and attend a public meeting. To help you better understand the plan, page 13 provides a list of commonly used environmental terms that appear in **BOLD** thought this Proposed Plan. This Proposed Plan focuses on OU1. For additional information on the Libby Asbestos Site as a whole, please contact the EPA Information Center in Libby or visit EPA's web site.

### Understanding the Superfund Process

Issuance of the Proposed Plan is part of a detailed process that includes everything from site discovery through cleanup (Exhibit 2). EPA will continue to work with local residents on this process over the coming months.

The **remedial investigation (RI)** and **feasibility study (FS)** for OU1 were completed in July and August 2009 using data collected since 1999. These documents are prepared concurrently, as data collected in the **RI** influences development of remedial alternatives in the **FS**. The **RI** characterizes the site conditions, determines the nature and extent of the waste, and assesses risk to human health and the environment. The **FS** identifies, develops, screens, and evaluates remedial alternatives to address risks to human health and the environment from soil contaminated with **Libby Amphibole asbestos (LA)**.

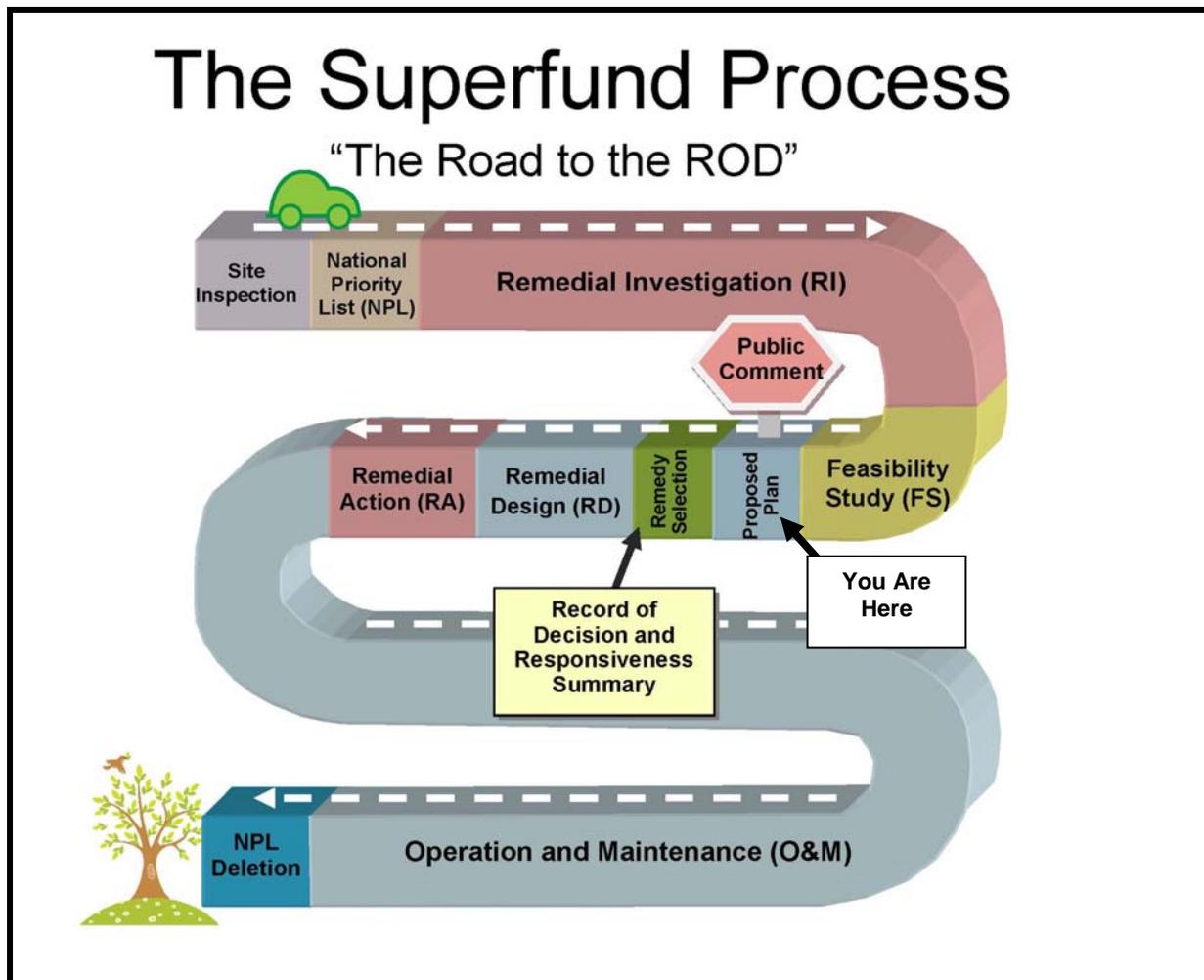
The general FS process follows the steps summarized in the following bullets:

- Identify **remedial action objectives (RAOs)**
- Identify and screen potential remedial technologies that will satisfy these RAOs
- Assemble remedial alternatives that can provide protection of human health and the environment from the retained remedial technologies
- Screen the alternatives based on effectiveness, implementability, and cost
- For alternatives that make it through the screening process, conduct a detailed analysis against seven of nine evaluation criteria (the two threshold criteria and the five primary balancing criteria) and a comparison between alternatives

After the FS is finalized, a preferred alternative for the site is presented to the public in a Proposed Plan (this document). The Proposed Plan briefly summarizes the alternatives studied in the detailed analysis phase of the **RI/FS** and, highlights the key factors that led to identifying the preferred alternative. The 30-day public comment period allows the State of Montana (through DEQ) and the community to provide comment on the preferred alternative.

The final phase of the **RI/FS** process is to prepare a **Record of Decision (ROD)**. Following the receipt and evaluation of public comments and any final comments from DEQ, EPA selects and documents the remedy for the site in a **ROD**.

Exhibit 2. The **Superfund** Process



## Site Background

LA contamination in Libby is primarily linked to operations at the nearby vermiculite mine, most recently owned and operated by W. R. Grace Company (Grace). LA is a naturally occurring contaminant in the vermiculite deposits at the mine. Vermiculite ore was transported from the mine to the former Screening Plant and then to local and nationwide processing facilities. The ore was processed by heat expansion and was then exported to market via truck or rail. From the early 1960s to approximately 1990, the Export Plant (OU1) was used for stockpiling and distributing vermiculite concentrate to Grace's plants and customers nationwide. Ownership was transferred to the City of Libby in the mid-1990s. Expansion operations ceased prior to 1981, although buildings on the site were used to bag and export milled ore until 1990.

Portions of OU1 were also leased to various parties. From 1977 to 1997, organized youth baseball events were held at ball fields on the property. From 1987 to 2000, the Millwork West Company, a retail lumberyard and building material supplier, leased part of the site. Other uses of the site reportedly included a metal scrap dealer and a larch tree gum manufacturer.

In November 1999, in cooperation with the Agency for Toxic Substances and Disease Registry and DEQ, EPA began an emergency response action to protect public health. The Libby Asbestos Site was subsequently listed on the **National Priorities List (NPL)** in October 2002.

**Interim removal actions**, such as the removal of LA-contaminated dust, soil, and debris, were performed at the site in conjunction with site investigation activities and emergency response actions. A total of 19 actions have been implemented at OU1. These have included multiple investigations, pre-removal sampling, and three removals. Removals were intended to provide protection while investigations and studies were being conducted to determine final **remedial actions** (Exhibit 3). For a description of the specific areas referenced in the table, see *Site Characteristics* on next page.

Exhibit 3. Actions Taken to Date at OU1

Date	Investigation/Action Activity
<b>Area 1 – Former Export Plant</b>	
1999, Dec	Soil sampling
2000, Mar/Apr	Soil and stationary air sampling
2000, June	Activity-based sampling
2000, Oct/Nov (Grace)	Removal of vermiculite and contaminated dust, soil, and debris
2001, Mar/Apr/Aug	Soil, bulk material, and dust sampling
2001, Sept/Oct (Grace)	Demolition of historic buildings and removal of contaminated soil
2002, April/May	Bulk materials and soil sampling
2002, Oct – Dec (Grace)	Demolition of remaining historic building and removal of additional contaminated soil
2006, June	Soil sampling
2006, Jun - Sept	Water line installation (City of Libby)
2007, Sept/Oct	RI data gap sampling, site-wide soil sampling and indoor ABS
<b>Area 2 – Riverside Park</b>	
2003, May/July	Soil sampling
2003, Sept/Oct	Contaminant screening study (CSS), and pre-removal soil sampling
2003, Oct/Nov	Removal of contaminated soil
2007, July (City of Libby)	Placement of rock cover in areas of observed vermiculite
2007, Sept	RI data gap and site-wide soil sampling
2008, May	Site work for placement of pavilion footers
2008, July	Removal of contaminated soil
<b>Area 3 - Highway 37 Embankments</b>	
2007, Sept	RI data gap and soil sampling

Except where noted, activity was conducted by EPA

## Nature and Extent of Contamination

The RI provides a detailed summary of the nature and extent of contamination in OU1. LA has been detected in all media sampled. This includes indoor air and dust, outdoor ambient air, outdoor air near disturbed soil, and soil. The indoor air and dust samples were taken from the search and rescue building. The outdoor air samples near disturbed soil were taken during bush hogging activities.

In surface soil samples, detectable concentrations of LA range from trace (<0.2%) to less than 1 percent (>0.2% but <1%) level. Vermiculite is visible with the naked eye in some samples.

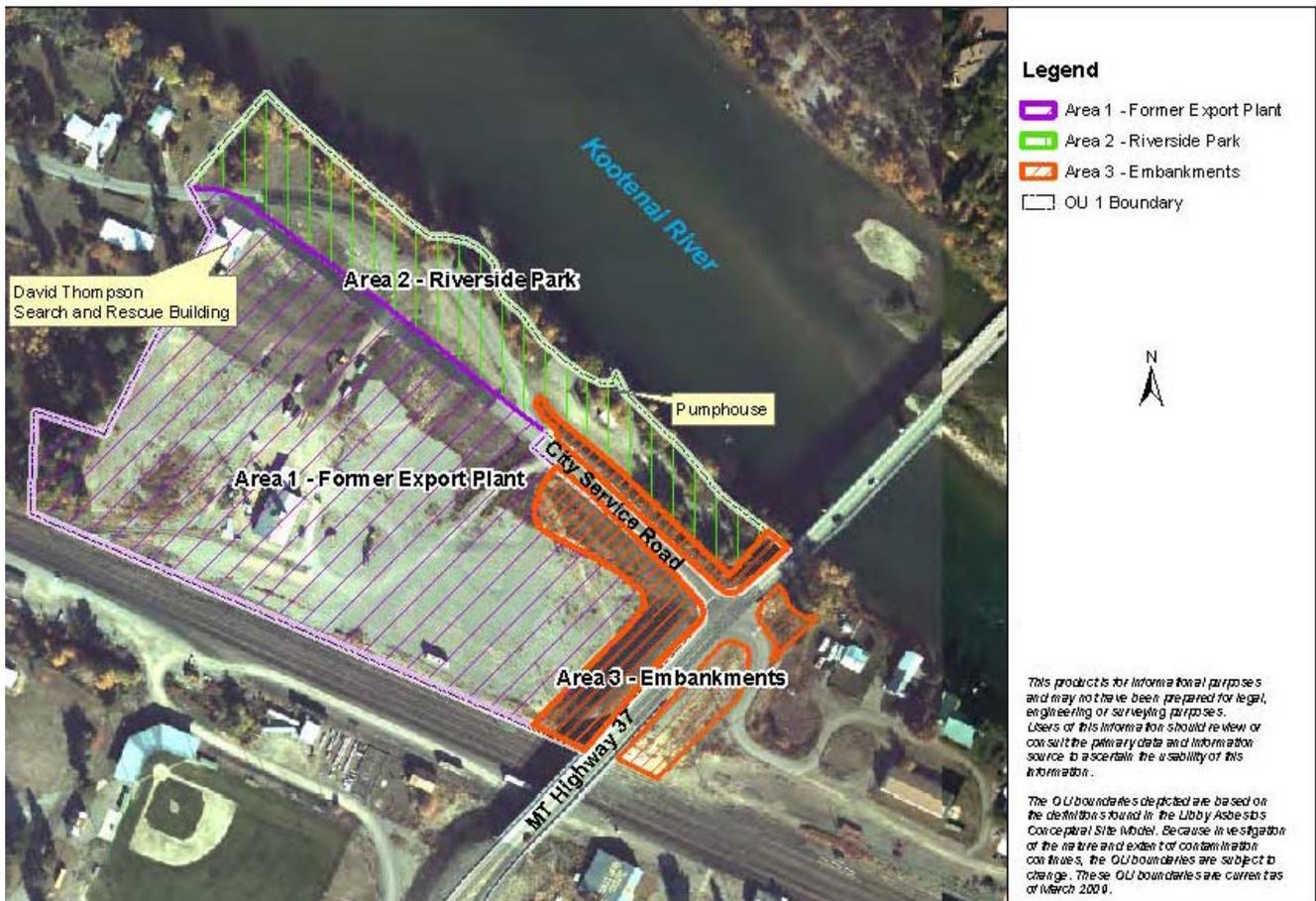
# Site Characteristics

OU1 covers roughly 17 acres on the south side of the Kootenai River, just north of the downtown area of the City of Libby, Montana (Exhibit 4). It is bounded by the Kootenai River on the north, Highway 37 on the east, the BNSF railroad thoroughfare on the south, and State of Montana property on the west.

There are three primary areas within the OU that are carried through all discussions of the remedial alternatives:

- **Area 1.** The area of OU1 west of Highway 37 is divided into two areas by the partially-paved City Service Road. Area 1 is the 12-acre area south of the road. It is a primarily undeveloped area that is currently owned by the City of Libby. In 2004, the David Thompson Search and Rescue organization constructed a building containing a main office and a five-bay garage on the northwest portion of the site on the south side of City Service Road. This area is currently fenced.
- **Area 2.** Area 2 is the 4.7-acre area north of the road, known as Riverside Park. It is also owned by the City of Libby and is developed as a recreational facility. The main features of the park include two boat ramps, two pavilions, picnic tables, and a pump house.
- **Area 3.** Area 3 is made up of the embankments of City Service Road and Highway 37 (on and adjacent to the OU). The embankments adjacent to the OU are included because of their proximity and the known presence of LA and vermiculite in this area.

Exhibit 4. OU1 Site layout map.



## Conceptual Site Model

The conceptual site model (CSM) is a basic description of how contaminants enter the environment, how they are transported, and what routes of **exposure** to organisms and humans occur. It also provides a framework for assessing risks from contaminants, developing remedial strategies, determining source control requirements, and methods to address unacceptable risks. LA is the dominant environmental concern at the site. A pictorial representation of the CSM for current and future receptors at OU1 is presented in Exhibit 5.

### Sources of Vermiculite

Vermiculite and/or vermiculite concentrate was transported to OU1 from the mine for stockpiling and staging prior to distribution. It is also believed that vermiculite materials were used to fill in low lying areas of the site. The potential contaminated media of concern for OU1 include: indoor air, dust in air of vehicles, outdoor air near disturbed soil, general (ambient) outdoor air, and dust in air from disturbances of roofing or other outdoor surfaces.

## Migration Routes and Exposure Pathways

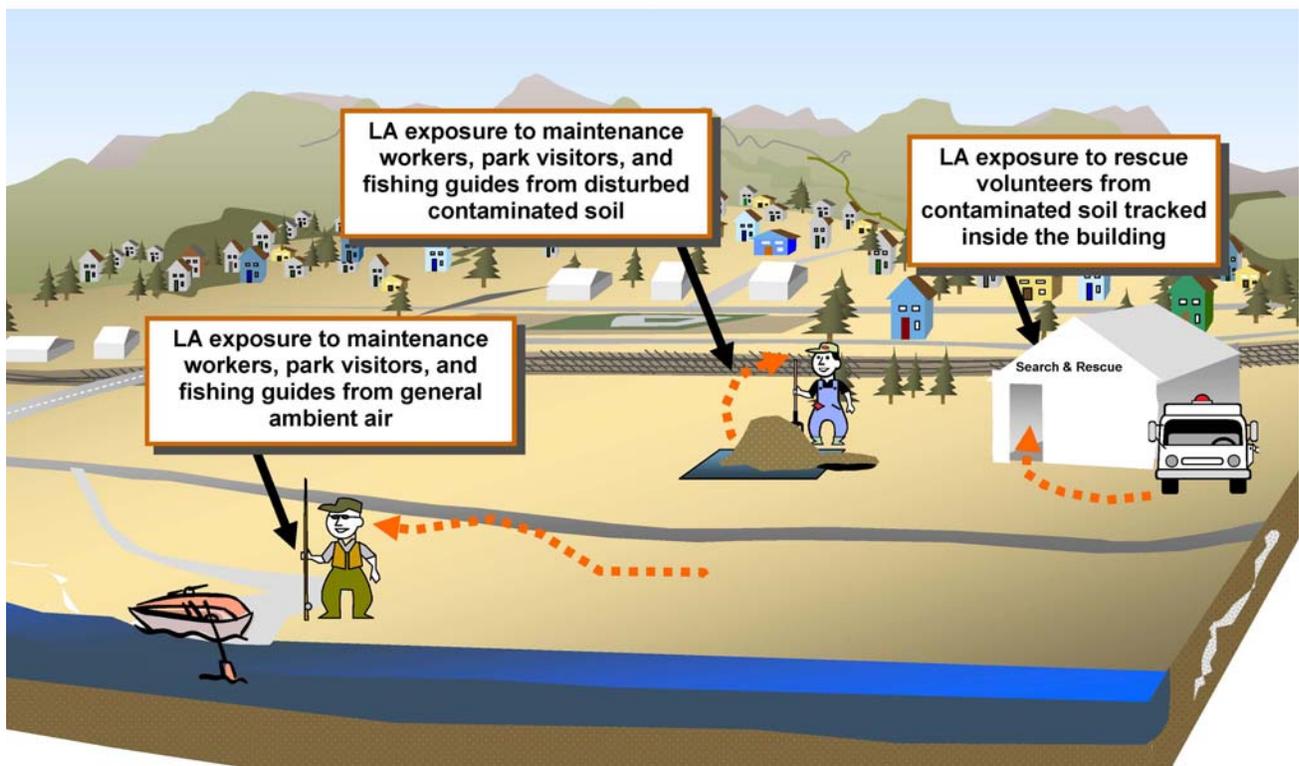
Current potential human receptors at the site include rescue volunteers, commercial workers, trades people, and recreational visitors. The rescue volunteers are part of the David Thompson Search and Rescue team. This team's support building is on OU1 and is used to store equipment between responses. Recreational users include people who use the boat ramp area to launch boats into the Kootenai River, fish along the banks of the Kootenai River along the reach that forms the northern boundary of the site, and use recreational facilities at Riverside Park.

The **exposure** route of chief concern for asbestos is by inhalation of asbestos fibers in air. People at the site may be exposed to asbestos in air by three main pathways:

- Inhalation of fibers released during activities that disturb soil
- Inhalation of fibers in indoor air
- Inhalation of fibers in outdoor (ambient) air

Inhalation **exposure** resulting from active soil disturbance is believed to be the most significant of these pathways.

Exhibit 5. Pictorial Representation of the CSM



## Summary of Site Risks

The **RI** report contains a baseline human health risk assessment for OU1. The risk assessment uses available data to estimate the health risks to people who may breathe asbestos in air while working in or visiting OU1, either now or in the future, based on the conditions that currently exist within OU1. The methods used to evaluate human health risks from asbestos are in basic accord with EPA guidelines for evaluating risks at Superfund sites, including recent guidance that has been specifically developed to support evaluations of **exposure** and risk from asbestos.

The **RI** report contains detailed explanations of the steps used to conduct the risk assessment for OU1. This includes background information on asbestos, the basis for concern, the **exposure** model, a toxicity assessment, quantification of **exposure** and risk, and a listing of uncertainties inherent in the process. This Proposed Plan provides a very brief summary of the conclusions of the risk assessment.

Methods for quantification of cancer risk from inhalation **exposure** to asbestos are still under development. However, risk predictions that are based on the best methods and data that are currently available indicate the following:

- Estimated excess cancer risks from inhalation **exposure** to outdoor ambient air at OU1 are all well below EPA's risk range of 1E-04 (one per ten thousand) to 1E-06 (one per million). Based on this, **exposure** to outdoor ambient air in OU1 is unlikely to be of significant health concern to any human receptor.
- Estimated excess cancer risks to volunteers who work indoors at the David Thompson Search and Rescue facility range are below or within EPA's risk range. Based on this, **exposure** to indoor air, taken alone, is likely to be of low concern. However, volunteers in the building may be exposed to **LA** by other pathways, and so risk evaluations must consider the total risk.

- Estimated cancer risks from inhalation of **LA** caused by disturbance of soils at OU1 are difficult to quantify with confidence, but it seems likely that risks to individuals who repeatedly disturb soil in OU1 may approach or exceed EPA's risk range. Based on this, this pathway is considered to be of potential concern.
- Subsurface soils at OU1 contain buried vermiculite. In the future, if this buried vermiculite became exposed (e.g., because of soil erosion or soil excavation activities), excess cancer risks from soil disturbance might be substantially higher than under current conditions.
- Non-cancer risks from inhalation **exposure** to **LA** cannot be quantified at present, but it is anticipated that non-cancer risks may be of similar or possibly even greater concern than cancer risks.

EPA is working to develop a reference concentration that will allow non-cancer **exposure** risk for inhalation **exposure** to **LA** to be quantified. Therefore, the risk assessment does not include an evaluation of non-cancer risk. However, studies in Libby reveal that the incidence of asbestos-related non-cancer effects (e.g., pleural calcification, pleural thickening and opacities) is increased in workers and residents. These findings emphasize that, despite the present inability to provide a quantitative calculation, non-cancer effects are a significant human health concern in the community. Thus, it should not be presumed that cancer risk is the "risk driver" at OU1 or other parts of the site.

Ecological risk has not yet been addressed separately for OU1. EPA will be conducting a comprehensive assessment of ecological risks as part of OU3 (the mine site) that will address ecological risk for OU1.

# Remedial Action Objectives

**Remedial Action Objectives (RAOs)** are goals developed by EPA to protect human health and the environment at the Libby Asbestos Site. These RAOs are the overarching goals that all cleanup activities selected for OU1 should meet (Exhibit 6). EPA considers current and future use of the site when determining RAOs.

Exhibit 6. RAOs for OU1

RAOs for OU1	
1.	Mitigate the potential for inhalation exposures to asbestos fibers that would result in risks that exceed the target cancer risk range specified by EPA of 1E-06 to 1E-04 (one in one million to one in ten thousand).
2.	Control erosion of contaminated soil by wind and water from source locations to prevent the spread of contamination to unimpacted locations and media.
3.	Implement controls to prevent uses of the site that could pose unacceptable risks to human health or the environment or compromise the remedy.

Future land use for Area 1 is assumed to be non-residential (likely commercial or recreational). The City expects that David Thompson Search and Rescue will continue to use the northwest portion of Area 1, and development of the remainder of Area 1 is under consideration by the City's planning department. Future use of Areas 2 and 3 is unlikely to change. Area 2 will continue to be Riverside Park and serve recreational visitors. Area 3 is likely to remain undeveloped, as use of the embankments is restricted by the steep topography and its location within the rights-of-way for the City Service Road and Highway 37.

In evaluating potential future activities at the site, the final condition of the remediated area must be considered. For each of the alternatives evaluated, **institutional controls (ICs)** would be implemented to provide continued protection to human health and the environment. ICs are actions, such as restrictive covenants, zoning ordinances, easements, deed restrictions, and building permits, that help minimize the

potential for human **exposure** to contamination by ensuring appropriate land or resource use.

EPA's goal is to protect public health or welfare or the environment from **exposure** to LA in a way that is consistent with the City's intended use of the property. EPA will perform cleanup to provide protection to the public and the environment, but will not otherwise create improvements to the property. The RAOs for OU1 are based on anticipated future use.

## Summary of Remedial Action Alternatives

A number of proven, remedial technologies and process options were used to develop remedial alternatives for cleanup. The eight remedial alternatives that were screened during the FS consisted of varying combinations of those technologies and process options (Exhibit 7).

Exhibit 7. Technologies and Process Options Used in Site Remedial Alternatives

Remedy Component Used	Remedial Alternative							
	1	2	3a	3b	4a	4b	5a	5b
In-Place Containment of Contaminated Soil			●	●				
Partial Removal of Contaminated Soil					●	●	●	●
Removal of Contaminated Surface and Subsurface Soil for Utility Corridors				●		●		●
Offsite Disposal at the Former Libby Vermiculite Mine				●	●	●		
Offsite Thermo-Chemical Treatment and Reuse of Treated Material							●	●
ICs and Monitoring		●	●	●	●	●	●	●
Engineered Controls		●						
5-year Review	●	●	●	●	●	●	●	●

*The shaded alternatives were eliminated from consideration prior to detailed analysis*

The main differences in the use of various remedy components in the remedial alternatives relate to the following:

- Is contaminated surface soil across the OU capped in place (3a and 3b) or removed (Alternatives 4a, 4b, 5a, and 5b)?

- Is contaminated soil in the utility corridors at OU1 addressed (Alternatives 3b, 4b, and 5b)?
- Is the removed soil disposed at the former mine (Alternatives 4a and b) or is the soil treated and returned to OU1 (Alternatives 5a and 5b)?

Each of the eight alternatives shown in Exhibit 7 was evaluated in the FS to determine its ability to provide protection to human health and the environment through overall effectiveness, implementability, and cost. Alternatives that were deemed to have lower than moderate effectiveness or implementability and/or high cost were eliminated from further consideration (Alternatives 2, 5a, and 5b). Alternative 2 was eliminated because it would not be entirely effective at protecting human health and the environment. Alternatives 5a and 5b differed from Alternatives 4a and 4b only through use of a treatment technology (thermochemical treatment) and they were eliminated because of issues related to the availability of the technology, applicability to this medium, and excessively high costs relative to other protective alternatives. Further explanations on those determinations can be found in the FS.

The remaining five remedial alternatives were retained for detailed analysis and are discussed below. Costs for these alternatives are rounded up to the nearest thousand. These costs are presented for purposes of comparing one alternative to another and are not developed with the level of detail necessary to be estimated completion costs. Typically, costs developed for FS purposes are as much as 30 percent lower to 50 percent higher than completion costs.

ICs would be used for all alternatives except Alternative 1. The choice of which specific ICs to use would be made in the remedial design phase in consultation between the EPA, Montana DEQ, and the City of Libby.

### Alternative 1

- No Action

**Est. Total Capital Costs: None**  
**Five-year Review Costs (first 30 years): \$288,000**  
**Est. Construction Timeframe: None**  
**Est. Total Alternative Cost (Present Value): \$104,000**

Superfund requires that EPA retain a no-action

alternative as a baseline for comparison to other alternatives. This alternative would require that current site operations be suspended and no further action be taken. **Five-year site reviews** would be performed as required under CERCLA. This alternative is not protective of human health or the environment and does not comply with the RAOs.

### Alternative 3a

- In-Place Containment of Contaminated Surface Soil
- ICs with Monitoring

**Est. Total Capital Costs: \$2,297,000**  
**Est. Total O&M Costs (first 30 years, inc. 5-yr reviews): \$955,000**  
**Est. Construction Timeframe: less than one construction season (May - October)**  
**Est. Total Alternative Cost (Present Value): \$2,514,000**

Alternative 3a provides protection of human health through in-place containment (cover) of contaminated surface soil. The covers would be designed to break any potential **exposure pathway**. Depending on the final design, covers would be hard (e.g., concrete) or soft (e.g., sod) based on their ability to protect human health and the environment under the land use designated in a future land use plan. Clean cover soil would be brought from an offsite borrow source outside of the Libby valley. Existing riprap along the riverbank would be temporarily removed and replaced after the remedy is put in place, if needed to ensure permanence of the riprap. Long-term **O&M** would maintain the integrity of covers and riprap.

ICs would be used to provide protection of human health and protect the remedy. Monitoring (inspections) and **five-year site reviews** would continue to ensure that the remedy remains protective.

### Alternative 3b

- In-Place Containment of Contaminated Surface Soil
- Removal of Contaminated Soil in Utility Corridors and Other Planned Excavations
- Offsite Disposal at the Former Libby Vermiculite Mine
- ICs with Monitoring

**Est. Total Capital Costs: \$2,824,000**

**Est. Total O&M Costs (first 30 years, inc. 5-yr reviews): \$955,000**  
**Est. Construction Timeframe: less than one construction season (May – October)**  
**Est. Total Alternative Cost (Present Value): \$3,007,000**

Alternative 3b uses the same remedial strategy as Alternative 3a (containment). The scope and protectiveness are higher due to the addition of partial removal and offsite disposal of subsurface soil (assumed to be up to 5 feet) in utility corridors and other planned excavations (e.g., building footings) under a designated future land use plan. This removal would provide uncontaminated areas to mitigate potential future risks to workers installing underground utilities or conducting other excavation work. Removal of subsurface soil would only be performed in Areas 1 and 2 (assumed to be 10 percent of the surface of those areas).

The utility corridors and other planned excavations would involve removal of contaminated soil and backfill with uncontaminated material. Specialized trucks (with covered tops) would transport removed contaminated soil to the Former Libby Vermiculite Mine. The mine is currently used for disposal of contaminated soil generated during ongoing cleanup activities performed in other OUs on site. Long-term O&M would maintain the integrity of the covers and riprap.

ICs would be similar to Alternative 3a. Monitoring (inspections) and **five-year site reviews** would continue.

#### **Alternative 4a**

- **Partial Removal of Contaminated Surface Soil**
- **Offsite Disposal at the Former Libby Vermiculite Mine**
- **ICs with Monitoring**

**Est. Total Capital Costs: \$3,128,000**  
**Est. Total O&M Costs (first 30 years, inc. 5-yr reviews): \$955,000**  
**Est. Construction Timeframe: One to two construction seasons (May – October)**  
**Est. Total Alternative Cost (Present Value): \$3,291,000**

Unlike the previous alternatives, Alternative 4a provides protection of human health through

partial removal of contaminated soil (primarily surface soil) within OU1. The contamination would be removed from the surface of the entire OU to an assumed depth of 12 inches. All excavations would be backfilled with clean soil.

As with Alternative 3b, offsite disposal would be at the former mine. Existing riprap along the riverbank would be temporarily removed and replaced after the remedy is put in place, if necessary to ensure permanence of the riprap. Long-term O&M would be required to maintain the integrity of the backfilled areas and riprap. ICs would be similar to Alternatives 3a and 3b. Monitoring and **five-year site reviews** would continue to evaluate effectiveness of the remedy.

#### **Alternative 4b**

- **Partial Removal of Contaminated Surface Soil**
- **Removal of Contaminated Soil in Utility Corridors and Other Planned Excavations**
- **Offsite Disposal at the Former Libby Vermiculite Mine**
- **ICs with Monitoring**

**Est. Total Capital Costs: \$3,820,000**  
**Est. Total O&M Costs (first 30 years, inc. 5-yr reviews): \$955,000**  
**Est. Construction Timeframe: One to two construction seasons (May – October)**  
**Est. Total Alternative Cost (Present Value): \$3,938,000**

Alternative 4b uses the same remedial strategy as Alternative 4a (site-wide partial removal of contaminated soil). The scope and protectiveness of this alternative are higher than Alternative 4a, due to the addition of removal and offsite disposal of subsurface soil on a limited basis for utility corridors (assumed depth of 5 feet) and other planned excavations under a designated future land use plan. As with Alternative 4a, offsite disposal of the removed contaminated soil would be to the Former Libby Vermiculite Mine and riprap would be removed and replaced if necessary to ensure permanence. Long-term O&M would maintain the integrity of backfilled areas and riprap.

As with Alternatives 3a, 3b, and 4a, ICs would be used to provide protection of human health to the extent possible and to protect the remedy put in place. Monitoring and **five-year site reviews** would continue to evaluate effectiveness.

# Evaluation of Remedial Alternatives

The remedial alternatives that made it through the initial screening process (1, 3a, 3b, 4a, and 4b) were evaluated in detail with respect to seven of the nine evaluation criteria. The nine criteria fall into three groups: Threshold, Primary Balancing, and Modifying. Each alternative (except no-action) must meet the threshold criteria. The primary balancing criteria are used to weigh major trade-offs among alternatives, and the modifying criteria may be fully considered only after State and public comment is received on the Proposed Plan. Exhibit 8 presents the comparative analysis of alternatives against the seven criteria. The FS provides a detailed summary of how the comparison of alternatives was made.

Alternatives 3a, 3b, 4a, and 4b are expected to comply with the chemical-, location, and action-specific **applicable or relevant and appropriate requirements (ARARs)** identified in the FS. No key ARARs that significantly differ between these alternatives were identified. In addition, Alternatives 3a, 3b, 4a, and 4b are not expected to require ARAR waivers pursuant to NCP 300.430(f)2(iv).

Exhibit 8. Detailed Evaluation of the Retained Remedial Alternatives

Remedial Alternative	Description	Threshold Criteria		Primary Balancing Criteria					Present Value Cost (Dollars)
		Overall Protection of Human Health and the Environment	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability		
1	No Action	0	0	0	0	0	5	\$	\$104,000
3a	In-Place Containment of Contaminated Soil, and ICs with Monitoring	3	4	3	0	3	3	\$\$	\$2,514,000
3b	In-Place Containment of Contaminated Soil, Partial Removal of Contaminated Soil for Utility Corridors, Offsite Disposal at the Former Libby Vermiculite Mine, and ICs with Monitoring	3	4	4	0	2	2	\$\$	\$3,007,000
4a	Partial Removal of Contaminated Soil, Offsite Disposal at the Former Libby Vermiculite Mine, and ICs with Monitoring	3	4	3	0	2	2	\$\$	\$3,291,000
4b	Partial Removal of Contaminated Soil, Additional Removal for Utility Corridors, Offsite Disposal at the Former Libby Vermiculite Mine, and ICs with Monitoring	3	4	4	0	1	2	\$\$	\$3,938,000

- Numerical designations for the qualitative ratings are used to illustrate a range of compliance with that criterion. They are not additive.
- Detailed cost spreadsheets for each alternative are presented in the FS (within a -30 to +50 percent accuracy range based on the scope presented). Costs are prepared solely to facilitate relative comparisons between alternatives for FS evaluation purposes..

**Legend for Qualitative Ratings System:**

**Threshold and Balancing Criteria (Excluding Cost)**

- 0 None
- 1 Low
- 2 Low to Moderate
- 3 Moderate
- 4 Moderate to High
- 5 High

**Balancing Criteria (Present Value Cost in Dollars)**

- 0 None (\$0)
- \$ Low (\$0 through \$2M)
- \$\$ Low to Moderate (\$2M through \$5M)
- \$\$\$ Moderate (\$5M through \$8M)
- \$\$\$\$ Moderate to High (\$8M through \$10M)
- \$\$\$\$\$ High (Greater than \$10M)

# EPA's Preferred Alternative - A Combination of Alternatives 3b and 4a

EPA's preferred alternative for cleanup of contamination at OU1 is a combination of two alternatives: Alternative 3b (In-Place Containment of Contaminated Soil, Removal of Contaminated Soil for Utility Corridors, Offsite Disposal at the Former Libby Vermiculite Mine, and ICs with Monitoring) and Alternative 4a (Partial Removal of Contaminated Soil, Offsite Disposal at the Former Libby Vermiculite Mine, and ICs with Monitoring).

As discussed earlier, Alternative 3b provides protection of human health through in-place containment of contaminated soil in OU1 and additional removal of subsurface contaminated soil from utility corridors in Area 1 and Area 2. Alternative 4a provides protection of human health through partial removal of contaminated soil (primarily contaminated surface soil). Disposal of removed contaminated soil would be at the Former Libby Vermiculite Mine. Riprap would be removed and replaced if necessary to ensure permanence. Long-term O&M would be required to maintain the integrity of the covers, backfilled areas and riprap. ICs would be used to provide protection of human health to the extent possible and to protect the remedy. Monitoring (inspections) and **five-year site reviews** would continue to evaluate effectiveness of the remedy. Combining Alternatives 3b and 4a provides the flexibility to accommodate future land uses, as the City of Libby more clearly defines redevelopment options in a future land use plan.

**Est. Total Capital Costs: \$3,295,000**  
**Est. Total O&M Costs (first 30 years, inc. 5-yr reviews): \$955,000**  
**Est. Construction Timeframe: One to two construction seasons (May through October)**  
**Est. Total Alternative Cost (Present Value): \$3,447,000**

Approximate quantities of materials were used in the evaluation of the remedial alternatives in the FS process and include: 9 acres of surface area for covers, 22,250 loose cubic yards (cy) of contaminated soil removed, 22,600 loose cy of backfill for excavations and covers, and 14,550 loose cy of topsoil for excavations and covers. The one-way distance to the mine is assumed to be 13 miles. Final quantities will be determined in the design process and may differ significantly.

## Implementation Details

- During construction, water- or chemical-based suppression would be used to prevent LA from becoming airborne.
- Temporary lay down areas and gravel access roads would be constructed to limit contaminated soil disturbance during removal.
- Clean soil for covers and for backfill of excavations would be brought from a borrow source outside the Libby Valley and would be tested before use.
- A visible marker layer would be placed at the bottom of the cover and the utility excavations to denote the backfill extent.
- ICs and monitoring would be used. Engineered controls would not be required.
- The community would be kept informed during remedy implementation and during 5-year reviews. Reviews are required as contaminated soil left below covers or backfilled areas) prevents unrestricted use of the site.

The combination of Alternatives 3b and 4a performs as well or better than more expensive alternative (4b). It has a higher level of long-term effectiveness and permanence than the less expensive alternatives (due to the removal of contamination from surface excavations and utility corridors) (Exhibit 8).

<b>Overall protection of human health and the environment</b>	<b>3</b> Moderate
<b>Compliance with ARARs</b>	<b>4</b> Moderate to High
<b>Long-term effectiveness and permanence</b>	<b>4</b> Moderate to High
<b>Reduction of toxicity, mobility, or volume through treatment</b>	<b>0</b> None
<b>Short-term effectiveness</b>	<b>2</b> Low to Moderate
<b>Implementability</b>	<b>2</b> Low to Moderate
<b>Cost</b>	<b>\$\$</b> Low to Moderate

# Opportunities for Public Involvement

## Public Meeting

EPA will provide a short presentation about the proposed plans for both OU1 and OU2 at a public meeting in September 2009. It's a great opportunity to learn more about the details.

### Libby Asbestos Superfund Site Public Comment Meeting

**Monday, Sept. 28, 2009**  
**7:00 to 9:00 pm**  
**Little Theater**  
**724 Louisiana Ave.**  
(School Administration Building)  
**Libby, MT**



If you like, you can provide your comment orally at the public meeting, and the meeting stenographer will record it.

## Contacts

If you have questions or need additional help, please feel free to contact the following representatives:

Rebecca Thomas, Project Manager  
U.S. EPA, Region 8  
1595 Wynkoop Street  
Denver, Colorado 80202  
(303) 312-6552  
1-800-227-8917, ext. 6552  
Thomas.rebecca@epa.gov

Ted Linnert, Community Involvement  
Coordinator  
U.S. EPA, Region 8  
1595 Wynkoop Street  
Denver, Colorado 80202  
(303) 312-6119  
1-800-227-8917, ext. 6119  
linnert.ted@epa.gov

Catherine LeCours, Project Officer  
Montana DEQ  
P.O. Box 200901  
Helena, MT 59601  
(406) 841-5040  
clecours@mt.gov

## Written Comments and Extensions

The public comment period runs from September 9 to October 16, 2009, and may be extended 30 days with a formal request to EPA. You can submit a comment in writing (by mail, email, or at the public meeting). The mailing address for written comments is:

Ted Linnert  
Office of Communications & Public Involvement  
U.S. EPA, Region 8 – 80C  
1595 Wynkoop Street  
Denver, Colorado 80202  
Email: linnert.ted@epa.gov



## Documents

All public project reports and documents are available for viewing at EPA's web site or at one of the document repositories. These are also excellent sources for all sorts of project information (fact sheets, brochures, etc.).

[www.epa.gov/libby](http://www.epa.gov/libby)

EPA Superfund Records Center  
1595 Wynkoop Street  
Denver, CO 80202  
(303) 312-6473

EPA Information Center  
108 E. 9th Street  
Libby, MT  
(406) 293-6194

# Useful Terms

Understanding environmental cleanup can be daunting for the average person. The following are definitions of commonly used terms at the Libby Asbestos Site to aid your understanding of this document.

- **Applicable or relevant and appropriate requirements (ARARs).** Any state or federal statute that pertains to protection of human life and the environment in addressing specific conditions or use of a particular cleanup technology at a Superfund site.
- **Exposure.** The amount of pollutant present in a given environment that represents a potential health threat to living organisms.
- **Exposure Pathway.** The path from sources of pollutants via, soil, water, or food to man and other species or settings.
- **Feasibility Study (FS).** The FS is the mechanism for the development, screening, and detailed evaluation of alternative remedial actions. It is conducted concurrently with the RI.
- **Five-Year Review.** Remedial actions that result in hazardous substances, pollutants, or contaminants remaining at a site above levels that allow for unlimited use and unrestricted exposure are required to be reviewed every five years to ensure protection of human health and the environment.
- **ICs and Engineered Controls.** ICs are actions, such as restrictive covenants, zoning ordinances, easements, deed restrictions, and building permits, that help minimize the potential for human exposure to contamination by ensuring appropriate land or resource use. Engineered controls are physical controls, such as fencing. Both types of controls are used to help preserve the integrity of the remedy.
- **Libby Amphibole Asbestos (LA).** The term used to differentiate asbestos fibers originating from the W.R. Grace Mine from other types of asbestos. LA fibers have no odor, smell, or taste. They are not flammable. They do not evaporate in air, dissolve in water, or breakdown in dirt.
- **National Priorities List (NPL).** EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under Superfund. A site must be on the NPL to receive money for remedial action.
- **Operable Unit (OU).** A designation based on geography or other characteristics that defines a specific area of a site and enables the Superfund process to move forward in different areas at different times, speeding up the overall cleanup process at the site.
- **Operation and Maintenance (O&M).** Activities conducted after a Superfund site action is completed to ensure that the action is effective for the long-term.
- **Present Value.** The present value (of a sum payable in the future) calculated by deducting interest that will accrue between the current and future date.
- **Remedial Investigation (RI).** The investigation phase of the Superfund process that determines the nature and extent of contamination and assesses the risk to human health and the environment.
- **Remedial Action (RA).** The actual construction or implementation phase of a Superfund site cleanup that follows remedial design. The remedial design is the design phase of a Superfund site cleanup that follows the signing of the ROD and precedes the RA.
- **Interim Removal Action.** Short-term immediate actions taken to address releases of hazardous substances that require expedited response.
- **Record of Decision (ROD).** A public document that explains which cleanup alternative(s) will be used at NPL sites.
- **Superfund.** The program that funds and carries out EPA solid waste emergency and long-term removal and remedial activities. These activities include establishing the NPL, investigating sites for inclusion, determining priority, and conducting and/or supervising cleanup and other actions.

US Environmental Protection Agency  
Region 8 - 80C  
1595 Wynkoop Street  
Denver, Colorado 80202  
Attn: Ted Linnert

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*See inside for details on the*  
**Proposed Plan**  
**for cleanup of OU1 (the former Export Plant)**  
**Libby Asbestos Superfund Site**

**The public comment period begins on September 9, 2009**  
**The public meeting is on September 28, 2009**

***Also, watch your mail next week for the Proposed Plan for OU2***  
***(the Former Screening Plant and Adjacent Areas).***