Proposed Plan for Libby Asbestos Site Cleanup

Libby and Troy Residential and Commercial Properties, Parks and Schools, Transportation Corridors, and Industrial Park

May 2015

Introduction

The public is invited to review and comment on this proposed plan to determine remedial action at the Libby Asbestos Superfund Site (the Site) located in and around Libby and Troy, Montana.

The proposed plan addresses five of eight areas at the Site. Remedial action has already been completed at Operable Unit 1 (the former Export Plant, now Riverfront Park in Libby) and Operable Unit 2 (former Screening Plant). Operable Unit 3 (the former Libby vermiculite mine and forested areas) will be addressed in a separate proposed plan. Investigation and cleanup are being conducted by the U.S. Environmental Protection Agency (EPA) in consultation with the Montana Department of Environmental Quality (DEQ) under the federal Superfund law.

Because long-term management tools, otherwise known as institutional controls, are instrumental to the cleanup, we have divided this document into three sections. *Part One* provides background and explains alternatives considered for the construction portion of the remedy. *Part Two* explains why waste will remain at the site and provides additional information about institutional controls. *Part Three* summarizes EPA's and the state's preferred remedial alternative.

As lead agency, EPA is required to issue a proposed plan and solicit public input. Citizens can provide comment during a public comment period, May 8 to July 8, 2015, or at the public meetings.

At the end of the comment period, EPA will consider and respond to all comments provided. EPA may then select the preferred cleanup alternative, modify it, select another alternative, or develop new alternatives if public comments warrant or if new information is presented. That selection will be presented in a written record of decision.

We want your input!

Public comment period: May 8 to July 8, 2015
During the comment period, EPA is accepting comments on this proposed plan, as well as all supporting documents, including the remedial investigation, feasibility study and draft human health risk assessment. Mail or email comments to:

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Mark your calendars!

EPA and MDEQ are hosting two public meetings to present this proposed plan and accept formal public comment:

7–9 p.m. Wednesday, May 20, Kootenai Senior Center, 304 Third Street, Troy

7–9 p.m. Thursday, May 21, City of Libby's Ponderosa Room, 952 E. Spruce St.

EPA and MDEQ are also hosting a workshop in conjunction with the county's Asbestos Resource Program, Libby Technical Advisory Group and Community Advisory Group to evaluate input received on the preferred institutional controls:

7–9 p.m. Tuesday, June 30, City of Libby's Ponderosa Room, 952 E. Spruce St.

See page 15 for information about how to obtain site documents.

Part One: Cleanup of Libby Amphibole Asbestos

Understanding the Superfund Process

Removal Program

EPA's Removal Program has been conducting investigations and removal actions addressing Libby Amphibole asbestos (LA) since 2000. This has allowed immediate reduction of human health risks while the science has evolved to make the best long-term cleanup decisions possible.

EPA has removed major sources of LA in and around Libby and Troy, investigated thousands of properties, and conducted removals at more than 2,000 private homes and properties. Removals include the former export plant, former screening plant, Riverfront Park and boat ramp, rail yard, golf course, the Flyway, schools and school yards, creek banks and other public areas. EPA has now removed more than one million cubic yards of impacted soil and more than 30,000 cubic yards of contaminated building material. Removal actions will continue until a record of decision is signed, remedial design is complete, and remedial action begins.

Remedial Program

The proposed plan is part of a deliberative process that occurs under EPA's Remedial Program and includes everything from site discovery through deletion. Remedial investigations were completed in 2014. Investigation data from 2000 to 2014 were used in the site-wide risk assessments and feasibility study.

What Are Response Actions?

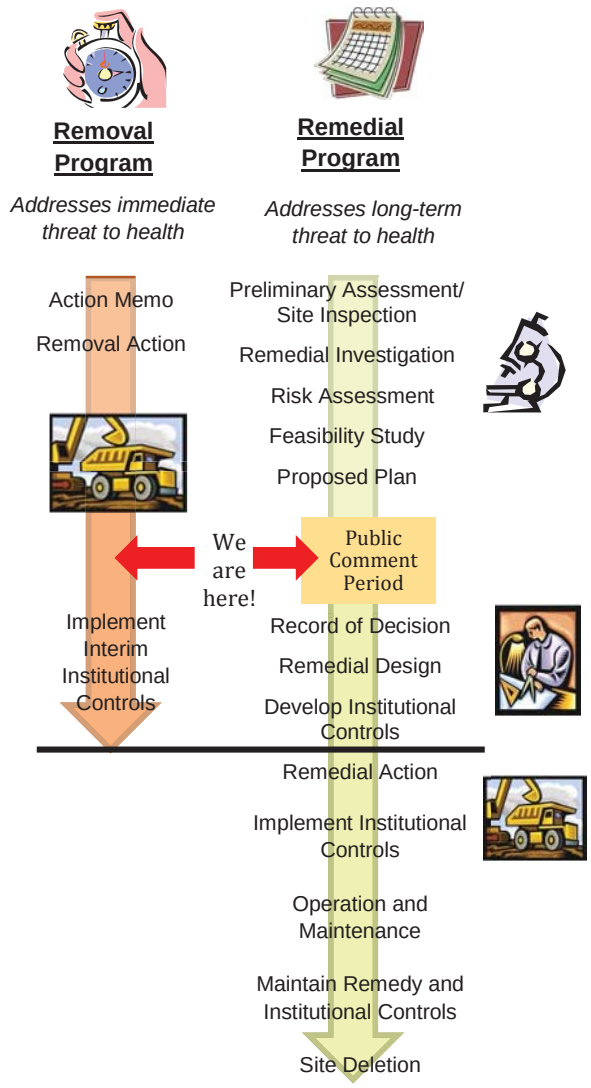
Response Action = cleanup conducted under EPA's Removal or Remedial Program – includes removal *and* remedial actions

Removal Action = cleanups conducted since 2000 under EPA's Removal Program

Remedial Action = future cleanups to be conducted after a record of decision is issued under EPA's Remedial Program; includes institutional controls and monitoring

Remedial Action Level = level at which cleanup is required

The Superfund Process



Site Background

LA contamination in Libby originated with operations at the nearby former Libby vermiculite mine, most recently owned and operated by W. R. Grace Company. LA is co-located with vermiculite deposits at the mine. Vermiculite ore and amphibole asbestos were valuable commodities transported from the mine to the former Screening Plant and to local and nationwide processing facilities. Some of the ore was processed by heat expansion and exported to market via truck or rail. From the early 1960s to 1990, the Export Plant was used for stockpiling and distributing vermiculite concentrate to Grace's plants and customers nationwide. Expansion operations stopped before 1981, but milled ore was bagged

and exported until 1990. As a result of these processes, contamination was widely distributed.

In November 1999, in cooperation with the federal Agency for Toxic Substances and Disease Registry and DEQ, EPA began an emergency response action to protect public health. This response action continues today. Because of unacceptable risk, the Site was added to EPA's National Priorities List in October 2002.

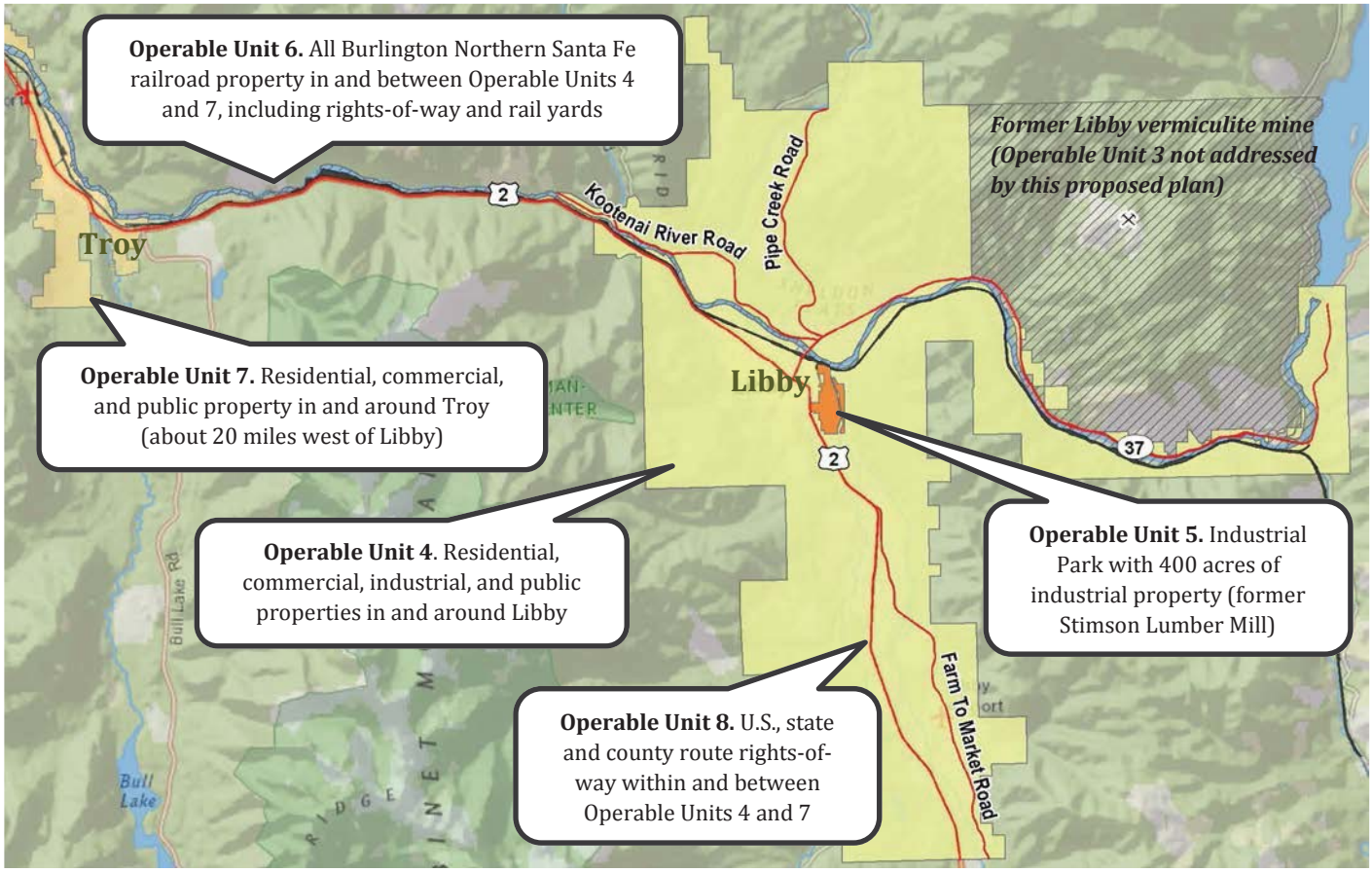
Throughout the process, interim removal actions, such as removal of LA-containing materials, soil, insulation and debris, were performed in conjunction with investigation activities. The removals provided protection while remedial investigations, risk assessments, and feasibility studies were being conducted. Since 2000, work has included numerous investigations, pre-removal sampling, removals, reports, and decision documents. Individual property assessments are still continuing in Libby and Troy.

EPA's Administrator determined on June 17, 2009 that conditions at the Site constituted a public health emergency. This was the first time that EPA made such a finding under the federal Superfund law. In making this determination, EPA recognized the serious health impacts from LA contamination in Libby, and made it possible for the U.S. Department of Health and Human Services to provide asbestos-related medical care to eligible Libby and Troy residents. EPA is continuing to identify and conduct activities needed to complete the remedial action so that the public health emergency may be lifted.

Site Characteristics

The Site is roughly 200 square miles and includes Libby, Troy, the former Libby vermiculite mine, and other areas in Lincoln County. The Site has been divided into eight operable units, five of which (4, 5, 6, 7, and 8) are included in this proposed plan. Remedies have already been selected for Operable Unit 1 (Riverfront Park) and Operable Unit 2 (former screening plant). Operable Unit 3, the former Libby vermiculite mine, is being addressed separately.

Location of Operable Units Addressed in this Proposed Plan (4, 5, 6, 7, and 8)



What are the Sources of Libby Amphibole Asbestos?

The former Libby vermiculite mine is the source for LA contamination. LA is present in vermiculite deposits that were mined by Grace and resulted in significant contamination. Use or transport of LA-containing vermiculite also created secondary sources. These include contaminated building materials such as vermiculite insulation; contaminated soil in gardens, yards or roadways; and indoor dust that results from contaminated soil or attic insulation.

Who is Exposed and How?

Residents, workers, trades people and recreational visitors may be exposed through *inhalation of*:

- outdoor (ambient) air
- outdoor air during soil disturbance
- indoor air after disturbance of contaminated building materials or dust
- indoor air under passive conditions (e.g., watching television)

Assessing Risk

More than 150 types of activity-based samples have been collected to evaluate exposures. These types of activities included sweeping and vacuuming, disturbing yard soil, raking and mowing, bicycling and driving on roads, and worker activities. Data from more than 4,600 samples (from activity-based and outdoor air samples) have been used in the risk assessment to evaluate LA exposure.

Adverse effects from exposure to LA include cancer and non-cancer effects:

- Cancer effects are primarily lung cancer and mesothelioma. EPA considers a lifetime risk for developing cancer between 1 per 10,000 and 1 per million to be within EPA's acceptable range.
- Non-cancer effects include asbestosis and abnormalities in the membrane of the lungs (such as pleural thickening). Calculation of non-cancer risk for an exposure pathway results in a value known as a hazard quotient. The sum of these quotients from multiple pathways is known as a hazard index. If the cumulative hazard index is less than or equal to 1, remedial action is generally not needed.

The 2014 draft site-wide human health risk assessment estimates LA exposure based on current or reasonably anticipated future conditions. Highlights include:

- Levels of LA in outdoor air are now equal to those seen in other Montana cities and are up to 100,000 times LOWER today than during previous mining and processing operations.
- LA is present in background soil in the Kootenai Valley, but concentrations are low and exposures are unlikely to pose unacceptable risks.
- It is possible to live without unacceptable risks from LA exposure in most of Libby and Troy, but unacceptable risks remain at properties where LA remains above trace concentrations at residential properties and has not been addressed.
- Investigations and removals have been effective at identifying and mitigating sources of interior LA.
- People who actively disturb LA-contaminated vermiculite indoors may incur unacceptable risk. Handling this vermiculite requires protective equipment (such as a respirator).
- Residents and outdoor workers who disturb LA-containing yard soil can potentially be subjected to unacceptable risks for some types of soil disturbances.
- Some short-term exposures to higher concentrations of LA contribute much more to overall risk than do some long-term exposures to lower concentrations of LA.
- It is possible to reduce exposure and risk by lowering LA levels where disturbances are expected (e.g., removing yard soil with LA).

Ecological Risk

The 2014 site-wide ecological risk assessment evaluated data for risk to fish, insects, amphibians, mammals, and birds. Risks are highest in Operable Unit 3, where concentrations of LA are highest. The ecological risk assessment indicates that LA exposures, even in Operable Unit 3, are likely to

have minimal to no adverse effects on plants and animals. Thus, remedial alternatives presented in the proposed plan focus solely on human health risks from exposure to LA.

Prior Response Actions

As discussed in Site Background, EPA began emergency response in 1999. Four property types have been used in the feasibility study evaluations and in the development of the preferred alternative for this proposed plan. Below is a short description of each property type and the status of previous response actions. A detailed description of the investigations and response actions for each is provided in Appendix A of the feasibility study.

- **Residential/Commercial Properties**. These properties are located in Operable Units 4 (Libby) and 7 (Troy). There are about 6,500 residential/ commercial properties in Libby and 1,500 properties in Troy. Since 2002, EPA has investigated more than 6,900 properties and completed removals at 2,043 of those properties. EPA expects to complete investigations at the majority of properties where access has been granted in 2015. In addition, EPA anticipates additional investigations at fewer than 100 properties to ensure that past decisions are consistent with the preferred remedy. Remedial action may be required at between 300 and 500 properties. Owners of many of the remaining properties have refused access or have not responded to repeated investigation requests.

- **Industrial Park**. This property is located in Operable Unit 5 (former Stimson Lumber Mill). Investigation began in 2001 and removal ended in 2013. Since 2005, there have been numerous activity-based sampling studies (mowing, raking, child play, motorcycle, bicycle and outdoor worker). Part of Industrial Park is used for recreation, including a motocross track, fishing pond and recreational hiking trail along Libby Creek. The remedial investigation was completed in 2013 and removals were completed where needed.

- **Transportation Corridors**. These properties encompass 42 miles of rail line, rights-of-way, and rail yards (Operable Unit 6), as well as 30 miles of U.S. 2, Montana 37, and Farm to Market and River roads (Operable Unit 8). They have been investigated and removals conducted, where needed.

- **Parks and Schools**. These properties are located in Operable Units 4 (Libby) and 7 (Troy). There are 12 city and county parks in Libby and seven in Troy. Park investigations occurred between 2001 and 2006. Removals were completed in 2006 and included contaminated soil (J. Neils Park) and materials inside structures (Pioneer, Cemetery, and Fireman's parks). Libby has four public schools and two private schools, and Troy has two public schools. Investigations and removal work at the majority of schools were completed in 2006. Investigation was completed at Morrison Elementary in 2014 with no removal needed.

Past exterior response actions to reduce exposure from disturbance of soil have included excavation of LA-containing soil, to depths up to 3 feet in some instances, and clean soil replacement. Interior response actions to reduce indoor exposures have included removal or encapsulation of vermiculite insulation and other LA-containing building materials and interior cleanings. The human health risk assessment has shown these past response actions have been effective in reducing LA exposures.

Remedial Action Objectives

Remedial action objectives provide a general description of what a cleanup will accomplish, and are used to develop the cleanup options described in the next sections. They include:

1. Reduce exposures from inhalation of LA during disturbance of contaminated soil so that risks are below EPA's acceptable level; and

2. Reduce exposures from inhalation of LA from disturbance of contaminated building materials so that risks are below EPA's acceptable level.

These objectives consider how a cleanup can be protective of human health and the environment based on property types and current and reasonably anticipated future land use.

Alternatives Considered for Remedial Action

EPA evaluated a variety of remedial technologies and process options to develop remedial alternatives. These alternatives are described in EPA's feasibility study. Seven alternatives were screened for contaminated soil and six for contaminated building materials (see the table below). Each was assessed to determine its ability to protect human health and the environment by overall effectiveness, implementability and cost. Four alternatives for soil (S2, S3, S4, and S7) and three for building materials (B2, B3, and B6) were eliminated from further consideration. The remaining alternatives were retained for detailed analysis, including no action/no further action which are required as a baseline for comparison.

Alternatives Screened for Effectiveness, Implementation and Cost

Contaminated Soil Alternatives (S)		Contaminated Building Material Alternatives (B)	
S1	▪ No action/No further action*	**B1**	▪ No action/no further action*
S2	▪ Institutional controls ▪ Access controls and monitoring	**B2**	▪ Institutional controls ▪ Access controls and monitoring
S3	▪ Permanent relocation ▪ Institutional controls ▪ Access controls and monitoring	**B3**	▪ Permanent relocation ▪ Institutional controls ▪ Access controls and monitoring
S4	▪ Covering of contaminated soil without removing contaminated soil ▪ Institutional controls and monitoring	**B4**	▪ Encapsulation of accessible contaminated materials ▪ Interior cleaning ▪ Institutional controls and monitoring
S5	▪ Covering of contaminated soil ▪ Limited excavation of contaminated soil to allow cover ▪ Disposal of excavated soil at the former vermiculite mine ▪ Institutional controls and monitoring	**B5**	▪ Removal of accessible contaminated materials ▪ Disposal of materials at permitted facility ▪ Encapsulation of remaining contaminated materials ▪ Interior cleaning ▪ Institutional controls and monitoring
S6	▪ Partial excavation** of contaminated soil ▪ Backfill with uncontaminated fill ▪ Disposal of excavated soil at the former vermiculite mine ▪ Institutional controls and monitoring	**B6**	▪ Complete removal of contaminated materials ▪ Disposal of materials at permitted facility ▪ Interior cleaning ▪ Institutional controls and monitoring
S7	▪ Complete excavation of contaminated soil ▪ Backfill with uncontaminated soil ▪ Disposal of excavated soil at former vermiculite mine ▪ Institutional controls and monitoring		

Alternatives highlighted in green retained for detailed analysis.
*Required to move forward by Superfund law as a baseline for comparison.
**6 to 36 inches in depth depending on constraints and concentrations of LA.

All alternatives, except no action, would include institutional controls. Institutional controls would protect the remedy by ensuring that human activity does not cause damage and restrict uses or activities that could pose an unacceptable exposure. One example is a permit for soil excavation to prevent re-contamination from soil at depth. The permit would minimize exposure to LA by requiring potentially-contaminated soil to be properly handled and disposed of. Institutional controls could also establish an educational program about risks from exposure to LA above certain levels. This could reinforce the importance of protecting the remedy, and what to do if new sources are discovered or if the remedy is damaged. Selected institutional controls would be documented in the record of decision or in the remedial design in consultation with EPA, DEQ, Lincoln County, cities of Libby and Troy, and the public. Operation and maintenance activities are also required to ensure long-term effectiveness of the remedy.

The tables below summarize the similarities and differences between alternatives. Costs estimates are presented for comparison of alternatives. Actual costs range from 30 percent lower to 50 percent higher than costs developed for the feasibility study.

How Do Remedial Alternatives for Contaminated Soil Compare to One Another?

Considerations	S1: No further Action	S5: Limited excavation/disposal, covers, institutional controls, and monitoring	S6: Partial excavation/disposal, backfill, institutional controls, and monitoring
Excavation?	None	Limited to allow covers at grade.	Excavation of accessible contaminated soil.
Covers?	None	Use soil from non-local sources.	None, except for backfill (non-local sources).
Exceptions?	None	Where *covers* or excavations are not possible, due to obstructions (e.g., structures), obstructions would be kept in place to prevent exposure. Institutional controls will be needed to address LA if structures are removed.	
Relocation?	None	Residents temporarily relocated and businesses temporarily closed during cleanup.	
Disposal?	None	Excavated soil taken to the former vermiculite mine.	
Revegetation?	None	Revegetated or otherwise restored to pre-remediation conditions.	
Institutional Controls?	None	Protect remedy, restrict or prevent uses or activities that could pose unacceptable exposure, require management of LA where land use changes or inaccessible LA becomes accessible, and provide awareness of risks from exposure to LA.	
Monitoring and Maintenance?	None	Inspection and repair of covers in public use areas.	Inspection and repair to backfill over delineation marker barriers in public areas.
Cost Estimate?*	$550,000	$35,810,000	$53,860,000
Timeframe?	None	3 years of construction.	4 years of construction.

*Present value costs were developed for the estimate of each alternative per EPA policy. Present value cost represents the amount of money that, if invested in the initial year of the alternative at a given rate, would provide the funds required to make future payments to cover all costs associated with the alternative over its planned life.

How Do Remedial Alternatives for Contaminated Building Materials Compare to One Another?

Considerations	B1: No further action	B4: Encapsulation, interior cleaning, institutional controls, and monitoring	B5: Partial removal/disposal, encapsulation, interior cleaning, institutional controls, and monitoring
Removal?	None	None.	Accessible contamination removed by vacuum or other mechanical means.
Encapsulation?	None	In-place sealing/covering of *all* accessible materials with high performance coating to prevent release of LA.	In-place sealing/covering of *remaining* accessible materials with high performance coating to prevent release of LA.
Cleaning?	None	Interior cleaning after removal or encapsulation. Results of air monitoring must meet remedial clearance criteria.	
Relocation?	None	Residents temporarily relocated and businesses temporarily closed during cleanup.	
Disposal?	None	None.	Contaminated materials disposed of at Lincoln County Landfill asbestos cell.
Institutional Controls?	None	Protect remedy, restrict or prevent uses or activities that could pose unacceptable exposure, and provide awareness of risks from exposure to LA.	
Monitoring and Maintenance	None	Post-construction inspection and repair at encapsulation sites in public areas.	
Instruction	None	Maintenance manual would include instructions on how to address contaminated materials left in place if future disturbance is required.	
Cost Estimate?*	$330,000	$9,730,000	$9,840,000
Timeframe	None	1 year of construction.	1 year of construction.

Part Two: Long-Term Management of LA

Institutional controls are an important part of the remedy and are required with all alternatives to manage future releases of LA or "waste left in place." LA will remain at the Site and could become a new source of exposure after the construction portion of the remedy described above is implemented. It is not practical to remove all LA that is sealed behind indoor walls or to excavate all LA that is in soil. Contaminated soil may be left beneath the surface after contaminated soil is removed. LA may also remain in wall cavities and other interior locations that are inaccessible.

A combination of several institutional controls will be needed to manage the variety of activities that could disturb potentially contaminated soil or building materials. Examples of disturbances include homeowners digging or excavating for a fence or septic tank; contractors constructing new roads and buildings, and municipal workers laying utility lines.

Because EPA conducts cleanup based on current or reasonably anticipated future land use, controls will also be needed to track land use changes over time to determine whether a property requires a more stringent cleanup standard (e.g., an undeveloped property becomes a residential property). Additionally, controls will be needed to manage properties or portions of properties that have not been screened. This is because some properties or portions of a property were infrequently used at the time of screening or because the property owner denied access.

Objectives of the Institutional Controls

To ensure that the remedy remains protective and that risk remains below EPA's level of concern, the objectives of the institutional controls are to:

1. Prevent LA fibers that may remain beneath soil covers or at undeveloped properties from becoming a future source of unacceptable exposure.

2. Prevent LA fibers that may remain in inaccessible building materials from becoming a future source of unacceptable exposure.

3. Track changes in land use and develop a notification system to ensure that property owners, prospective property owners and workers are aware of remaining or potential LA and institutional control requirements.

Institutional Controls

Some of the institutional controls considered have already been implemented at the site to manage potential encounters with LA. EPA and DEQ recognize that there may be other institutional controls that may be useful at the Site. We encourage input to develop a comprehensive program of controls that will work best for the communities.

Institutional Controls Considered for the Libby Site

Institutional Control	Purpose	Additional Information
UDIG program	Ensure asbestos information is provided to property owners before they dig.	Coordinate with asbestos support program regarding planned excavations, presence of LA, and recommended precautions.
Montana Dept. of Transportation permit	Prevent exposures in transportation corridors by requiring permits for construction or maintenance of highway rights-of-way.	Would properly manage and dispose of waste encountered on, over, or under the right-of way, including landscaping.
Asbestos support program	Provide resources and education to help the community manage exposures and risk.	Would include designated program staff and contact information for the public.
Educational program for managing exposure	Provide educational tools to help the public avoid exposure and cross contamination with an emphasis on best management practices when potentially encountering LA.	Examples include a handbook, school programs, external education, tools for newcomers, ads, materials for those who obtain hunting/fishing licenses and/or city workers conducting excavation.
Property status database	Identify and track cleanup status of properties and known areas of contamination; also identify land use.	Searchable database.
Update codes, ordinances, and regulations	Ensure that an asbestos support program is involved with existing application/approval process to provide information for actions that may encounter LA.	Would include updates to control of air pollution, wastewater treatment, solid waste, general health and subdivision regulations.
Open space recreation initiative	Prevent and/or reduce dust on new and existing trail systems through use of appropriate trail coverage.	Would reduce potential exposure to LA by paving or hardscaping high-use areas.
Public nuisance ordinance	Prohibit activities that could result in excessive public exposure to LA.	Would enforce existing nuisance ordinance.
Permit for disturbance of soil or building materials	A new permit to manage disturbance of contaminated building materials and soil within the Superfund Site (separate from other existing city and county permits).	Would provide access to information and potential resources such as clean fill and topsoil, personal protective equipment, and free disposal.
Contractor certification	Ensure training of contractors and others who may disturb LA on how to manage contamination.	List of certified contractors would be available to the public.
Property notices	Alert record searchers of property cleanup status by placing documentation in public land records.	Would be used to flag properties where investigation or cleanup has not been completed.
Advisories	Warn potential land users of existing or pending risk associated with use.	Could include internet, newspaper, mailings or signs to notify general public, search and rescue workers, firefighters, loggers, etc.
Other Institutional Controls That May Be Useful		
Zoning	Prohibit certain activities based on the property location and contamination status.	
Easement or Covenants	Provide information to property owners about how they can place voluntary environmental easements or covenants on their property; would prevent land use changes	Would be voluntary, so not effective as an institutional control.
Modify existing building permits	Modify existing building permits to include enforceable requirements for disturbance of LA contaminated building materials throughout the Superfund Site.	Would allow enforcement of building permits where LA might be disturbed at properties beyond city limits.
Property transaction disclosures	Ensure that asbestos information associated with a particular property is shared with a prospective purchaser during a property transaction.	Property notices listed above may achieve a similar result.
Asbestos program notification	Asbestos support program would provide information about asbestos for specific properties.	Would not be enforceable.

Green shading indicates the control is already fully-implemented at the Site.
Blue shading indicates the control is already partially-implemented at the Site.
White indicates that the control has not been implemented at the Site.

Support for a Community Institutional Controls Program

A variety of flexible tools are already in place to support the community with institutional controls. A sampling of the types of tools that could be used to support institutional controls is provided below. The complete list of tools will be developed in the remedial design process with the intention of providing flexibility to support changing needs in the community.

Examples of Tools to Support Implementation of Institutional Controls

Tool	Description	History	Future
Fill and topsoil program	Identification and sampling of approved fill material and public assistance for access to fill - primarily for residential/commercial properties.	Soil stockpiled by EPA throughout removal process. It would support permit institutional control.	Soil stockpiles will be transferred.
Permit education	Provide information about the requirement for a permit, the importance of the permit (to protect the remedy and avoid recontamination), and steps for getting a permit.	Not currently used. It would support an institutional control for a local program permit.	Could be initiated as part of education program.
Share information with realtors	Ensures that all parties involved in a real estate transaction are aware of any LA contamination.	Not currently used. It would support a community education institutional control.	
Land use change education	Provides information to property owners about the requirement to notify of a potential land use change and how that change could trigger additional cleanup requirements.	Not currently used. It would support a local program permit and the database institutional controls.	
Zonolite Trust	Offer partial reimbursement for removal of attic insulation contaminated with LA. www.zonoliteatticinsulation.com 844-924-2255	W.R. Grace initiated in 2014.	

Part Three: Summary of Preferred Alternative

Evaluation

The six remedial alternatives that advanced through the initial screening process were evaluated in detail against seven of nine evaluation criteria mandated by Superfund law (see below). The nine criteria fall into three groups: threshold, primary balancing, and modifying. Each alternative (except no-action) *must* meet the threshold criteria to move forward. The primary balancing criteria are then used to weigh major differences in alternatives.

Modifying criteria (state and public acceptance) are generally considered after comments are received on the proposed plan. EPA has involved the State of Montana in the selection of the preferred alternative as part of the development of the proposed plan by seeking and incorporating their comments in the proposed plan.

The table below presents the comparative analysis of alternatives against the threshold and balancing criteria. In general, alternatives that rely primarily on excavation or removal are more expensive and disruptive, but they offer relatively higher long-term effectiveness and permanence. The feasibility study provides a detailed summary of the results of the comparison of alternatives.

Do the Remedial Alternatives Meet Superfund Evaluation Criteria?

Alternative Number and Description		Protection of human health and environ-ment?	Compli-ance with ARARs?	Long-term effectiveness and perma-nence	Treatment*	Short-term effectiveness	Implement-ability	Present value cost (dollars) **
Contaminated Soil Alternatives								
S1	No further action	No	No	0	0	0	5	$0.6M
S5	Limited excavation/disposal, covers, institutional controls and monitoring	Yes	Yes	3	0	4	4	$35.8M
S6	Partial excavation/disposal, backfill, institutional controls, and monitoring	Yes	Yes	4	0	3	3	$53.9M
Contaminated Building Material Alternatives								
B1	No further action	No	No	0	0	0	5	$0.3M
B4	Encapsulation, interior cleaning, institutional controls, and monitoring	Yes	Yes	2	0	4	3	$9.7M
B5	Partial removal/disposal, encapsulation, interior cleaning, institutional controls, and monitoring	Yes	Yes	4	0	3	3	$9.8M

0 = does not meet criteria/ 5 = best meets criteria $ to $$$$ = < $1M to $100M

ARARs. Applicable or relevant and appropriate requirements (ARARs table is provided in the feasibility study).

*Reduction of toxicity, mobility, or volume by treatment.

** Present value costs are rounded to nearest $100K. M=million. K=thousand.

EPA's Preferred Alternative

This Site is unusual in that so much removal work has been completed proactively to minimize exposure and risk. The most significant LA sources were removed before and while the remedial investigation, feasibility study, and risk assessment were being conducted. With the exception of residential/commercial property, investigations have generally been completed at the remaining location types and, where necessary, removals have been completed. If known conditions change, the institutional controls put in place for the location type will address any necessary testing, cleanup, or other action.

EPA's preferred alternative for contaminated soil is Alternative S6: Partial excavation/disposal, backfill, institutional controls, and monitoring. The preferred alternative will address exposures above remedial action levels through excavation and disposal of soil to a depth of 6 to 36 inches depending on constraints and concentrations of LA and disposal at the former Libby vermiculite mine. Delineation marker barriers would be placed over contaminated soil left in place and covered with backfill. Institutional controls and monitoring would be required.

EPA's preferred alternative for contaminated building materials is Alternative B5: Partial removal/disposal, encapsulation, interior cleaning, institutional controls, and monitoring. The preferred alternative will address exposures above remedial action levels through removal and disposal of accessible contaminated building materials at the Lincoln County landfill. The remaining contaminated building materials will be encapsulated and interior cleaning will ensure remedial clearance criteria are met for indoor spaces. For both soil and building materials, the response action must meet the clearance criteria to be considered complete. Institutional controls and monitoring would be required.

Preferred Alternative by Location Type

Location Type	Contaminated Soil Alternative S6	Contaminated Building Materials Alternative B5	Institutional Controls
Residential/ Commercial	Partially excavate contaminated soil to a depth of 6 to 36 inches and dispose at the former Libby vermiculite mine.	Remove accessible contaminated materials and dispose at Lincoln county landfill, encapsulate remaining contaminated materials, and clean interior.	Required
Industrial Park Transportation Corridor Parks and Schools	Work completed and no further action expected.	Work completed and no further action expected.	

Soil will continue to be disposed of at the former Libby vermiculite mine and building materials will continue to be disposed of at the Lincoln County landfill. The county landfill has capacity for material through the remainder of cleanup and during operation and maintenance of the Site.

A robust combination of institutional controls will be used site-wide to ensure the protectiveness of the remedy over the long-term by managing exposure to remaining contamination. Multiple controls are preferred to ensure that the remedy remains protective and to ensure that the best tools are used for various scenarios.

EPA's preferred combination of institutional controls is:

- UDIG program
- Montana Department of Transportation permit
- Asbestos support program
- Educational program for managing exposure
- Property status database
- Update codes, ordinances, and regulations
- Open space recreation initiative
- Public nuisance ordinance
- Permit for disturbance of soils or building materials
- Contractor certification
- Property notices
- Advisories

Although the institutional controls need to be technically implementable, EPA and DEQ recognize that these controls need to be accepted by the community. The community plays an important role in monitoring these controls. This is why EPA and MDEQ have involved the public in initial planning for institutional controls and why an additional public meeting is planned for June 30th to evaluate input received on the proposed controls.

EPA has overall responsibility for developing and implementing institutional controls at the Site while removals and remedial actions are being conducted. Responsibility shifts to the State of Montana after the remedy is complete and the Site is in operation and maintenance. EPA would continue to implement enforcement-related institutional controls because they apply to legal agreements between EPA and potentially responsible parties. EPA would also review the effectiveness of institutional controls along with the engineered components of the remedy during post-construction five-year site reviews.

Institutional controls are required to be maintained over time, so monitoring and reporting will be needed to ensure that the controls remain in place, are functioning as intended, and that the remedy remains protective. Monitoring and reporting will be conducted according to a schedule established by the *Institutional Control and Implementation and Assurance Plan*, which will be prepared following development of the record of decision. EPA and DEQ will also continue to involve the public throughout the design process.

What Would Trigger a Cleanup?

Remedial Action Levels by Location Type

Contaminated Soil	Contaminated Building Material
Residential and Commercial: *Frequently Used Areas* • LA soil concentrations greater than 0.2% (anywhere in total soil exposure area) OR • More than 25% of total soil exposure area has LA at trace concentrations (detectable but less than or equal to 0.2%) *Infrequently Used Areas* • LA soil concentrations greater than 0.2%	**All location types:** • Accessible LA-containing vermiculite in any quantity in living spaces, non-living spaces and /or secondary structures OR • Accessible building materials with more than 0.25% LA (examples include chinking, plaster, mortar and other materials on boilers and pipes)
Industrial and Transportation: • LA soil concentrations equal to or exceeding 1%	
Schools and Parks • LA soil concentrations greater than 0.2%	

Remedial action levels initiate cleanups to reduce LA exposures so that resulting risks will achieve the remedial action objectives. To meet these objectives, EPA will perform cleanup until the remedial clearance criteria are met. Since the remedial clearance criteria may leave LA contamination in subsurface soils or within inaccessible areas of buildings, institutional controls will be implemented to address LA contamination that remains after the physical cleanup is complete. These institutional controls will also protect the integrity of the physical cleanup components, thereby achieving the remediation goals.

Remedial Clearance Criteria

Contaminated Soil		Contaminated Building Material	
Surface Soil (After Cleanup) • LA soil concentrations are below remedial action levels for the location type	**Subsurface Soil (After Cleanup)** **Residential, Commercial, Schools and Parks:** • LA soil concentrations for samples collected at the depth of cut are less than 0.2% **Industrial and Transportation:** • LA soil concentrations for samples collected at the depth of cut are less than 1%	**Indoor Non-living Space** • No accessible vermiculite remaining • Average of five samples of disturbed air are less than 0.005 structures per cubic centimeter	**Indoor Living Space** • No accessible vermiculite remaining • No LA structures detected in any of five samples of disturbed air

How Does the Preferred Alternative Meet Evaluation Criteria?

Details about the preferred alternative and how it meets these criteria are provided in the feasibility study and summarized below:

Protection of human health and the environment: It mitigates exposure pathways for inhalation of LA from contaminated soil and building materials by removing the majority of those materials from the property and managing the remainder.

Compliance with ARARs: It meets ARARs for air by addressing sources and preventing discharges. Location-specific and action-specific ARARs are also addressed through consideration of requirements during design of the remedy and proper work practices for handling of soil and building materials, backfill, revegetation, and dust suppression during construction.

Long-term effectiveness and permanence: It meets this requirement better than other alternatives by removing the majority of contamination from the property and managing the remainder using institutional controls and monitoring. Long-term effectiveness and permanence is more certain than for alternatives that rely primarily on containment.

Reduction of toxicity, mobility, or volume by treatment: The proposed alternative does not include treatment, however the preferred alternative will reduce mobility of LA.

Short-term effectiveness: Short-term risks to the community, workers and the environment are higher than with other alternatives due to increased disturbances created by excavation and increased truck traffic for hauling of contaminated soil/materials and clean fill. However, these risks can be mitigated with safety measures (personal protective equipment, dust suppression and work zones).

Implementability: It uses more construction equipment for longer periods than other alternatives, which makes implementation and coordination more difficult. Longer construction periods mean longer temporary relocations of residents and businesses. Fill sources must be developed and excavation of contaminated soil and placement of fill may be challenging in some areas. Work zones and protective measures must be established. Future inspection, monitoring, and maintenance and implementation of institutional controls will pose challenges but is lessened by greater removal of contaminated soil and building materials than relying on containment.

Cost: It is the most expensive alternative of those retained for analysis; however, it provides the best long-term effectiveness and permanence. The present value cost for soil is approximately $53.9M and for contaminated building materials is approximately $9.8M.

State Acceptance: As stated in an April 2, 2015 letter to EPA, "DEQ generally agrees with the preferred alternative as described in the proposed plan, with the concerns and reservations outlined and summarized (in the letter). DEQ agrees with the proposed remedial action levels for residential and commercial soils, parks and schools soils, and interiors. DEQ also supports the clearance criteria for all soils. Together the remedial action levels and clearance criteria are the 'remediation goals,' as required under the NCP. DEQ appreciates that EPA is planning to have an extended 'last-call' program, so as to ensure that all of the properties are cleaned up and all of the institutional controls are in place and effective; DEQ continues to ask that this 'last-call' program last ten years."

Public Acceptance: Community acceptance of the proposed plan will be evaluated after the public comment period ends and will be described in the record of decision.

Conclusion

EPA's preferred alternative is similar to EPA's removal program which has successfully reduced exposures to LA. The institutional controls would ensure that LA encountered in the future is properly managed. EPA's preferred alternative best meets the evaluation criteria.

The State of Montana accepts the preferred alternative as described in this proposed plan. EPA recognizes that DEQ has additional comments that will be addressed in the record of decision and subsequent design documents. DEQ's comments include implementation of binding and enforceable institutional controls, state authority to address interior cleanups and expectations of the property owner, evaluation of all previous removal actions to ensure there is no unacceptable risk left behind, monitoring of waste remaining in place, transportation corridor action level, no further action status of OU6, and remediation depth in utility corridors. EPA agrees with DEQ that there is a need for a robust "last call" for cleanup. At this time EPA anticipates a last call for a few years depending on residential participation and consent to access.

With this document, EPA is soliciting public comments on its preferred remedy. EPA encourages the public to review and comment on the cleanup options evaluated in this proposed plan and other documents in the Administrative Record during the public comment period. The public comment period is May 8, 2015 to July 8, 2015. EPA and DEQ will host public meetings during the comment period to present the proposed plan and supporting information, answer questions, and accept both oral and written comments from the public. Please see page one of this document for details about the public meetings.

Site Documents

Community members can access the Information Repository and Administrative Record containing all documents that support this proposed plan at the following locations:

Lincoln County Library in Libby, 220 West 6th Street. *Hours: Tuesday - Saturday 10 a.m. to 6 p.m.*
Lincoln County Library in Troy, 207 3rd Street. *Hours: Tuesday - Friday 11 a.m. to 5 p.m., Sat. 11 a.m. to 2 p.m.*
EPA Superfund Records Center, 1595 Wynkoop Street, Denver, CO 80202, (303) 312-6473. Call for appointment.

If you have questions about the site or would like more information, please contact the EPA Information Center, 108 E. 9th Street, Libby, Montana 59923, (406) 293-6194.

We Want Your Input

Your input is important to EPA and the State of Montana. Public comment helps us select a final cleanup decision. EPA is accepting comments between May 8 and July 8, 2015 on this proposed plan and all supporting documents in the Administrative Record, including the remedial investigation, feasibility study and draft human health risk assessment.

Three ways to submit written comment:

1) Place comments in a comment box at the public meetings.
2) Bring comments to EPA's Libby Information Center, 108 E. 9th Street, Libby, Montana 59923
3) Email comments to EPALibbyPlan@epa.gov or mail to:
   Rebecca Thomas
   Project Manager
   U.S. EPA Region 8 (EPR-SR)
   1595 Wynkoop Street
   Denver, Colorado 80202

Site Contacts for the Libby Asbestos Superfund Site

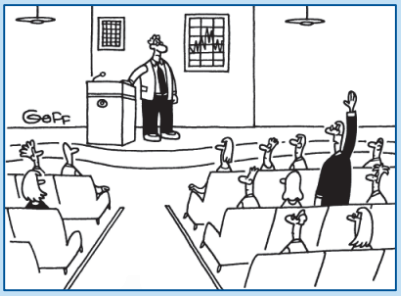
Organization	Name	Mailing Address	Phone	Email
U.S. Environmental Protection Agency	Rebecca Thomas, Project Manager	U.S. EPA, Region 8 1595 Wynkoop Street Denver, Colorado 80202	800-227-8917, x312-6552	thomas.rebecca@epa.gov
	Jennifer Lane, Community Involvement Coordinator		800-227-8917, x312-6813	lane.jennifer@epa.gov
	EPA Superfund Records Center		303-312-6473	—
	Mike Cirian, On-Site Project Manager, EPA Information Center	108 E. 9th Street Libby, Montana 59923	406-293-6194	cirian.mike@epa.gov
	EPA website	www2.epa.gov/region8/libby-asbestos		
Montana Department of Environmental Quality	Jeni Flatow, Public Information Officer	Montana DEQ P.O. Box 200901, Helena, Montana 59601 www.deq.mt.gov	406-444-6422	jflatow@mt.gov
	Lisa DeWitt, Project Officer		406-444-6420	lidewitt@mt.gov
Lincoln County	Asbestos Resource Program	418 Mineral Ave Libby, Montana 59923 www.lcarp.org	406-291-5335	lcarp@libby.org
Technical Advisory Group	Mike Noble	—	406-293-3539 or 406-293-0611 (cell)	mcnoble1151@gmail.com
Community Advisory Group	Mike Giesey	—	406-283-7630	mgiesey_card@hotmail.com

Public Meetings for the Proposed Plan

EPA is hosting two public meetings to present the proposed plan. Please join us!

Wednesday, May 20, 7 to 9 p.m.
Kootenai Senior Center, 304 3rd St., Troy

Thursday, May 21, 7 to 9 p.m.
City of Libby's Ponderosa Room
952 E. Spruce St., Libby



Public comment period is May 8 to July 8, 2015.

EPA is taking comment on this proposed plan and all supporting documents in the Administrative Record, including the remedial investigation, feasibility study and draft human health risk assessment during this period.