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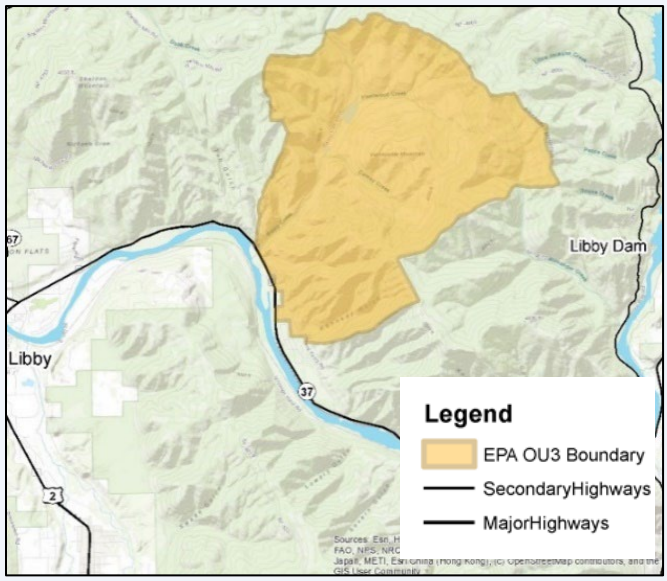
WILDFIRES IN THE LIBBY ASBESTOS SUPERFUND SITE

May 2025

Asbestos in the Forest

The U.S. Environmental Protection Agency listed the Libby Asbestos Superfund Site on the National Priorities List in October 2002. The EPA separated the site into smaller areas called operable units. Operable Unit 3 (OU3) is the property in and around the former W.R. Grace vermiculite mine that is impacted by **Libby amphibole asbestos (also known as LA).** This area includes the former vermiculite mine and forest immediately surrounding the mine.



LA is present in soil, duff (decaying plant matter covering the ground under trees), and tree bark in the forest around OU3. In general, **LA levels decrease with distance from OU3.** LA is also present in soils throughout the Kootenai Valley. This is thought to be naturally occurring and not from mining-related activities. Naturally occurring LA in soil likely came from normal geologic processes. **Even where LA is present, it is not necessarily present at levels that would pose unacceptable risk to human health.**

Did you know: Libby amphibole asbestos (also called LA) is a unique kind of asbestos only naturally found in Libby, MT. The vermiculite mined in Libby contained LA. This vermiculite was sent around the county.

Assessing Risk from Wildfires

The EPA has studied the relationship between LA in smoke and ash emitted from wildfires and the corresponding health risks.

In a burn chamber study, duff materials were burned in a controlled setting at specific temperatures to measure smoke emissions. This study showed that **when LA-containing duff burned, most of the LA (more than 90 percent) remained with the ash at the bottom of the burn chamber. The rest of the asbestos was lofted in the smoke.** Also, a study that monitored air quality during a small, experimental, burn near the mine showed that **LA can be present in smoke in small quantities.** Lastly, air quality data from 2006 to 2013 showed temporary increases in LA in the air when fires happened near OU3.

Based on the data in those studies, the EPA estimated the health risk posed to people exposed to LA during hypothetical wildfires in OU3. The amount of LA in the air from an individual wildfire, less than 1,000 acres, would not result in an immediate health concern. EPA also calculated health risks if a wildfire of over 5,000 acres burned for 3 days. **Even if a fire of that size and intensity burned 10 times during a person's lifetime, the health risks were estimated to be low from LA smoke and ash exposure.** However, these estimates are based on models. A fire of this magnitude hasn't occurred in OU3. If a wildfire of this size does occur in OU3 agencies will collect data at that time and reevaluate the risks.

In summary, the amount of LA in ash and smoke generated during a wildfire is related to the location, size, and temperature of the wildfire. The U.S. Forest Service has successfully contained wildfires in or near OU3. The majority of fires have been contained at less than half an acre. The EPA does not know the amount of LA that would be present in the ash and smoke during a large, severe wildfire in OU3. **Therefore, Lincoln County's asbestos air monitoring is an important planned activity if a wildfire occurs in OU3.**

Particulate Matter Exposure

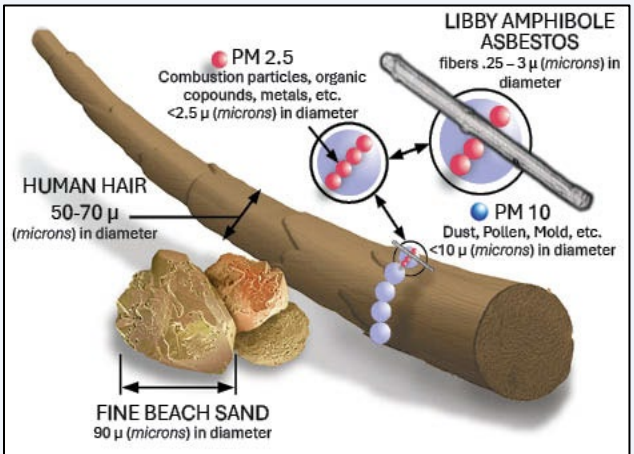
Wildfire smoke is a mixture containing various pollutants, the primary component being particulate matter (PM). PM is a mixture of small solid particles and liquid droplets. Particles in the smoke that are less than or equal to 2.5 micrometers ($PM_{2.5}$ or fine particles), are the greatest health concern.

Wildfire Smoke

The health effects of short-term or daily $PM_{2.5}$ exposure from wildfire smoke can include:

- minor health effects:
  - eye and respiratory tract irritation
- more serious health effects:
  - worsening asthma
  - heart failure
  - possible premature death

Most healthy people will recover quickly from minor wildfire smoke exposure. However, some people are at more risk of experiencing health effects from the smoke exposure. These people include children, older adults, pregnant women and people with pre-existing heart and lung disease.

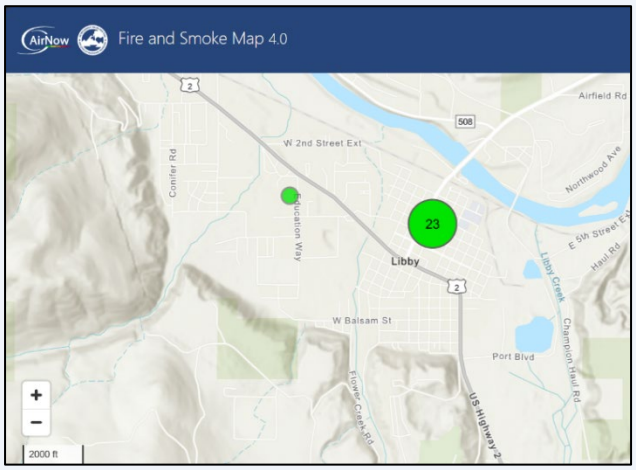


How small is PM 2.5?
$PM_{2.5}$ is about 30 times smaller than the diameter of a human hair.
Libby Amphibole Asbestos fibers can have a similar, or smaller, diameter than $PM_{2.5}$.

Public health officials will make recommendations for reducing $PM_{2.5}$ exposure based on monitoring data. **Strategies to reduce $PM_{2.5}$ exposure can also help reduce exposures to LA.**

Monitoring LA and Smoke During Wildfires in OU3

Lincoln County's wildfire response plan includes LA air monitoring near OU3. The plan also includes reporting hourly $PM_{2.5}$ concentrations from the $PM_{2.5}$ monitor in Libby. Messages about air quality conditions and warnings to reduce smoke exposures are communicated using the Air Quality Index (AQI) (airnow.gov/aqi/aqi-basics/). Near real time AQI can be found at the Fire and Smoke Map (fire.airnow.gov) and Today's Air (https://todaysair.mtdeq.us/).



If the AQI goes above 100, it is considered unhealthy for people who are sensitive to air pollution. AQI values above 150 are considered unhealthy for everyone. **You can take action to reduce $PM_{2.5}$ exposure which will also help reduce LA exposure.**

LA Air Monitoring

- During a wildfire in OU3, Lincoln County will set up special LA monitors near OU3.
- **These monitors must run for 24 hours. They may take up to 72 hours to report LA levels.**
- Lincoln County will monitor LA if a wildfire larger than 5 acres occurs in OU3.

$PM_{2.5}$ Air Monitoring

- During a wildfire, the AirNow Fire and Smoke Map shows the NowCast AQI as well as historical hourly $PM_{2.5}$ data.
- As air quality worsens with wildfire smoke, recommendations change too.

Questions?

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