

Frequently Asked Questions

What is risk?

A simple risk can be calculated by the HAZARD multiplied by EXPOSURE.

An example might be ultraviolet (UV) radiation from the Sun. We all know this can cause skin cancer and sunburns. In this example, the HAZARD is the UV radiation.

But different people have different risks of skin cancer and sunburns because of the choices they make: some people avoid UV radiation by wearing long pants and long sleeve shirts, and perhaps putting on sunscreen. Therefore their EXPOSURE is low and their risk of burning is low.

Other people might make different choices and increase their EXPOSURE and therefore have a higher risk of negative health consequences.

Genetics also affects risk associated with UV radiation. Fair-skinned people, for example, have a much greater risk from UV exposure.

In southern Nevada, the HAZARD is the asbestos in our environment. Now that we know that the HAZARD exists, we can make different choices to lower our EXPOSURES.

What is needed however, is for us to better understand and measure EXPOSURE. For example, what is the concentration of asbestos fibers in the air in different places in southern Nevada, and how does that change with the season, with weather patterns, or with rainfall?

We also need to understand and measure EXPOSURE that is caused by *activities*. For example, what EXPOSURE do people get when they drive on dirt roads with asbestos in the soil? Will the EXPOSURE be lower if the windows are rolled up? What about riding your bike or your horse or your motorcycle? What about jogging or walking on dirt trails that have asbestos in the soil?

There are additional types of information that are important to determine exposure to asbestos – one of these is a person's age at the time of exposure. Asbestos fibers stay in your body your whole life. Therefore, if you're exposed when you're young, then your risk is higher than someone first exposed at an older age, because there is more time for a disease process to occur.

The type of fibers that you are exposed to also seems to affect people differently. In general, serpentine asbestos (chrysotile) is considered less carcinogenic than amphibole asbestos (which is what we have in Boulder City). Erionite, a zeolite mineral, is also currently considered to be very carcinogenic. We also have erionite in southern Nevada.

Shouldn't we be able to easily know if people have been getting sick from asbestos in southern Nevada?

No, because until our study was published, *no one knew they were being exposed to asbestos*. So if someone went to their doctor with symptoms, one of the first questions might be: "Have you been exposed to asbestos?" Most people in southern Nevada, unless they worked in an occupation that exposed them to asbestos, would answer no.

As a result, doctors wouldn't think to include asbestos as a possible cause of a patient's cough or other symptoms in diseases like lung cancer, pleural fibrosis, COPD, ovarian cancer, or autoimmune diseases.

Therefore, understanding asbestos disease in southern Nevada will involve reviewing past medical data, getting information from victims and their families, educating medical professionals to consider asbestos in future diagnoses, getting new medical data from people who are exposed—all of which will take time.

Even at Libby, Montana, with its relatively small population and local source of asbestos contamination, it took decades and an investigative exposé in the press to bring to light the negative health effects of asbestos exposure.

How is Boulder City similar to Libby, Montana?

The most important similarity between Boulder City, Nevada, and Libby, Montana, is that Boulder City has some of the same amphibole asbestos minerals as those that are in Libby.

However, importantly, *we do not know* how many fibers people in Boulder City are exposed to, *so the comparison is limited*.

Until we know what the exposures are for people in southern Nevada, it is impossible to make accurate comparisons to Libby.

However, because there has been so much research in Libby, once we can get exposure data for southern Nevada, we can understand risks to our citizens much better. We can learn a lot from Libby.

Other Comparisons with Libby:

- Libby had a vermiculite mine where asbestos minerals were contaminants in the ore. The asbestos concentrations at the Libby mine were not as high as asbestos concentrations at asbestos mines, but still workers had very high exposures. This is very different from Boulder City.
- Some people in Libby who had no occupational exposures (e.g. did not work in the mine) still got sick. Their exposure was through asbestos in their environment – put there by both human and geological processes. So some of those processes may parallel processes at work in Boulder City. More work needs to be done to understand if this is the case.

- Libby has a significantly wetter climate: grass, trees, and snow help limit how many fibers are in the air there. By contrast, the dry climate and types of soil in southern Nevada may lead to higher concentrations of asbestos in the air from natural erosion and human activities, compared to that seen at Libby.

Why do you wear those white suits and respirators?

We are going out into areas that are likely hot spots for asbestos, areas where the rock and soil have a high potential to contain asbestos fibers. We're digging, walking, breaking off rocks, and collecting soil. These activities create dust and coat our clothing with asbestos. This means that we will bring the asbestos fibers back on our clothes to our offices and homes and, unless we take steps to prevent that, we would expose other people to asbestos.

These are the minimal protective measures that are recommended to us by others, such as scientists at the Environmental Protection Agency (EPA).