

Anaconda Smelter Superfund Site, Montana Summary of ATSDR's Exposure Investigation (EI)

October 2019



The Agency for Toxic Substances and Disease Registry (ATSDR) collected blood and urine samples from Anaconda residents to measure the amount of lead and arsenic in their bodies. We found that the amount of lead in their blood and the amount of arsenic in their urine was comparable to national values. In other words, it was similar to the amount of lead and arsenic found in the bodies of people in the United States who don't live in Anaconda.

What did ATSDR do in Anaconda?

In 2018, ATSDR measured recent blood lead levels (BLL) and urine arsenic levels in 367 Anaconda residents of all ages. We compared the BLL and urine arsenic values found in all participants to the values for the U.S. general population found in the National Health and Nutrition Examination Survey (NHANES). We also asked participants survey questions. We published the results of this study, along with recommendations, in an exposure investigation report. You can read the full report at <https://www.atsdr.cdc.gov/HAC/PHA/HCPHA.asp?State=MT>.

What did ATSDR find during their investigation?

Our exposure investigation had four findings, which are summarized below.

Finding 1: Blood Lead Levels

All children under 6 and women of child-bearing age tested had less than 5 micrograms per deciliter ($\mu\text{g}/\text{dL}$) of lead in their blood. This is an important finding because these two groups are at greatest risk for harmful health effects from lead, but in Anaconda they did not have high amounts of lead in their blood. ATSDR considers 5 more $\mu\text{g}/\text{dL}$ the level that needs follow-up.

All children between the ages of 6 and 19 also had less than 5 $\mu\text{g}/\text{dL}$.

When we looked at the amount of lead in the blood of all EI participants, we found it was slightly higher than the level in the general U.S. population. In technical terms, the median BLL in Anaconda was 0.15 $\mu\text{g}/\text{dL}$ higher than that from NHANES. We would not expect people's health to differ between these levels.

Finding 2: Inorganic Arsenic Levels

Inorganic arsenic is the form of arsenic associated with contamination at the Anaconda site. The amount of inorganic arsenic in Anaconda participants was slightly lower than the amount found in the general U.S. population. In technical terms, the median urinary inorganic arsenic was slightly lower than the median of NHANES participants. A few people had elevated inorganic arsenic but not at levels that would generally cause health problems.

Finding 3: Total Arsenic Levels

The amount of total arsenic found in Anaconda participants was slightly higher than the U.S. population. In technical terms, the median total urinary arsenic was slightly higher than the median of NHANES participants. We think the total arsenic levels are slightly higher because of organic arsenic that residents encounter through their diet. The levels of organic arsenic we measured are not considered toxic.

Finding 4: Lead & Arsenic Levels Related to Some Jobs and Attics

The answers to the survey questions told us that people with jobs where lead may be present had increased levels of lead in their blood. The survey also revealed that people who entered their attic regularly had increased levels of lead and urine arsenic (because some attics remain contaminated with lead and arsenic).

What recommendations did ATSDR make?

ATSDR made the following recommendations:

- Because some yards and attics remain contaminated, community members should participate in the Superfund Community Soils Operable Unit (OU) clean-up programs to reduce exposure to lead and arsenic.
- The ADLC Health Department should conduct regular blood lead screenings for children under age 6.
- EPA should continue Superfund remedial actions to minimize risk of exposure to lead and arsenic from uncovered slag through improved signage (specifically uncapped slag piles).
- People working in jobs where lead and arsenic are present should use appropriate personal protective equipment (PPE) while on the job to minimize tracking contamination into their homes.

Inorganic Arsenic vs. Organic Arsenic

Arsenic is divided into two groups:

- **Inorganic arsenic**, the toxic form of arsenic, is primarily found in the environment. In Anaconda, the smelter released inorganic arsenic. It can also be found in rice.
- **Organic arsenic** is found in the diet, primarily in seafood, and is not considered toxic at levels found in Anaconda.

“Total arsenic” is the sum of inorganic and organic arsenic.

A Note about Lead Paint

Most homes in Anaconda were built before 1978 when lead paint was often used. Small children are especially sensitive to lead exposure from old paint. For example, they may eat small paint chips or breathe in dust that contains lead paint particles.

Keep surface paint in good condition and adopt best practices during home renovations to reduce contact with lead.

See <https://www.epa.gov/lead/protect-your-family-lead-your-home> for more information.

How can you can reduce contact with lead and arsenic?

- Avoid areas of known contamination, including exposed slag piles. Instruct children not to play or ride bikes there.
- Take precautions to prevent exposure to lead from paint during house renovations in homes build prior to 1978.
- Limit time in attics until the Superfund contractors have cleaned the attic or testing demonstrates that there is no health risk.
- Supervise small children closely to modify or eliminate risky hand-to-mouth behaviors or intentional eating of dirt.
- Practice good hygiene that reduces bringing dust and dirt into your home. For example, remove shoes, wash children's hands often, bath pets regularly, and mop and dust.
- Cover bare soils with vegetation (grass, mulch, etc.) and create safe play areas with clean ground cover for children.
- Ensure children have a diet rich in iron, calcium, and vitamin C.

How can workers protect themselves and their families?

- Learn about proper personal protective equipment (PPE) and use it in areas of known or suspected contamination. See https://www.osha.gov/SLTC/personalprotectiveequipment/hazards_solutions.html for more information.
- Reduce the amount of workplace dirt that you track into the home by removing shoes and work clothes before you enter your home. Also, wash work clothes separately from other clothes.

How can I learn more about the Anaconda site?

- For more details about ATSDR's findings, visit: <https://www.atsdr.cdc.gov/HAC/PHA/HCPHA.asp?State=MT>.
- If you have questions, contact ATSDR's regional office representative, David Dorian, at (303) 312-7011 or ddorian@cdc.gov. You can also call our toll-free number at 1-800-CDC-INFO.
- If you participated in the exposure investigation and have questions about what your individual results mean in terms of your or your family's health, please contact ATSDR's Medical Officer, CDR Arthur Wendel, MD at dvq6@cdc.gov or (206) 553-0454.

