Air Quality Program: **Lead (Pb)**

The Air Quality Program works to improve air quality in the community through emissions reductions, air quality monitoring, and community dust control. The Air Quality Program activities work together to get the best results – lower exposure, lower health risks, and a healthier environment.

Young children are mainly exposed to lead through hand-to-mouth activity (ingestion) rather than breathing. In Trail, much of the lead in dust comes from ongoing smelter emissions.

Air quality has improved dramatically in Trail

Over the past 30 years, there have been significant reductions to levels of lead in air. The works continues.

- Since 1997, there has been a 99.5% reduction in emissions of Pb from the smelter stacks.
- Since 2012, major reductions to lead in the environment are being made through the comprehensive Fugitive Dust Reduction Program
- Since 2020, air measurements for Pb in Trail are lower than the U.S. EPA standard of 0.15 micrograms per cubic metre (µg/m^3). Canada doesn't have an applicable standard. See Figure 1 below. Visit reports to view **Air Quality Reports** over time.

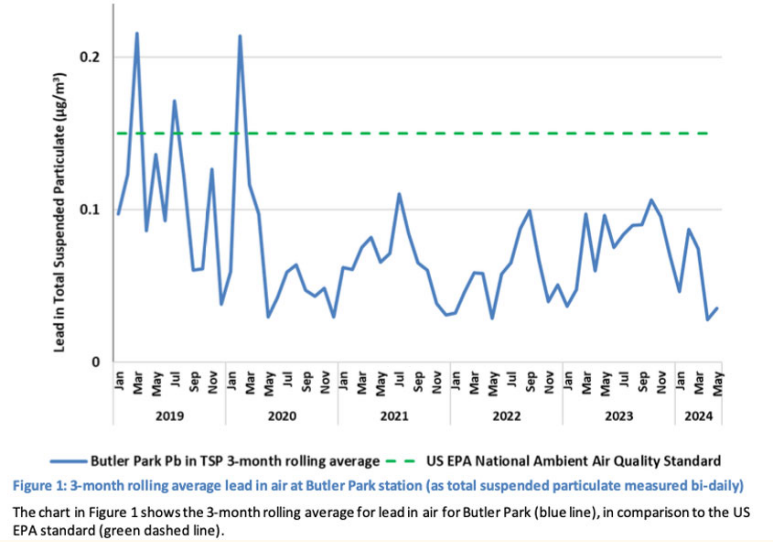

Figure 1: 3-month rolling average lead in air at Butler Park station (as total suspended particulate measured bi-daily)

The chart in Figure 1 shows the 3-month rolling average for lead in air for Butler Park (blue line), in comparison to the US EPA standard (green dashed line).

To note, other metals were evaluated through Human Health Risk Assessment and current levels are not of concern in community air.

What is Lead (Pb) and why is it in Trail?

Lead is a naturally occurring element found in small amounts in the earth's crust. In addition to lead (Pb) contributions from historical use of products such as lead-based paint and leaded gasoline, Trail is home to one of the world's largest Pb and zinc smelting and refining facilities, in operation for over one hundred years. The goal is always to recover as much metal as possible from concentrates but due to the limits of technology, lead has been emitted into the air and these particles can settle on surfaces. Both stack and fugitive emissions (dust that escapes from buildings, stockpiles, roadways and other activities on site) have caused lead to settle on surfaces in the Trail area as part of the dust and soil.

What is Pb in airborne dust, how does it affect the community, and how is it being managed?

In Trail, dust originating at the smelter site from stockpiles, open handling of materials, buildings and vehicle traffic can become airborne. This airborne dust containing Pb, along with stack emissions, may travel from the smelter site and settle in the community. Bare soils and deteriorating paint can also add to Pb in airborne dust.

Since 2012, Teck's Fugitive Dust Reduction Program has resulted in a 65% reduction in Pb in fugitive emissions, dramatically reducing Pb in airborne dust in the community. This program continues to look for opportunities for improvement.

Fugitive dust reduction efforts to date include:

- construction of the Smelter Recycle Building, close to the size of two Canadian football fields to enclose mixing and storage of process feed materials;
- installation of a ten-metre high wind fence reducing dusting where feed materials are mixed;
- installation of wheel washes and truck washes onsite help reduce tracking of materials onto roads;
- onsite street cleaning, via street sweepers and water trucks, provide a year-round program of roadway sweeping and flushing; and,
- identification and reduction of fugitive dust sources from work activities in our operating plants.

Trail Area Health & Environment Program Community Program Office

1319 Bay Avenue, Trail, BC V1R 4A7 250.368.3256 programs@thep.ca **thep.ca**

Reducing health risks to children associated with Lead (Pb)

Dust particles present in smelter emissions contain Pb. These particles settle on surfaces as part of the dust and soil in the Trail area, and there may be more Pb in soil and dust in the Trail area than a town without a Pb smelter. Exposure to Pb in dust and soil, for example by a child getting it on their hands and then putting their hands in their mouth, can affect healthy development. For most people, the risk from Pb in soil and dust is low. For children, particularly those under three years old, the risk is higher because of the fast rate of development and the way they interact with their environment.

Accidental ingestion of Pb is the main route of Pb exposure for children, and the route that most commonly leads to elevated blood Pb levels.

How does lead (Pb) enter the body?

Ingestion is the most common route of exposure to lead for children as children often put hands and objects in their mouth. Ingestion is the route that most commonly leads to elevated blood lead levels. **The most important action you can take is to manage dust.**

Lead particles from old paint, dirt, industrial emissions, or renovations can be **inhaled** or **absorbed** through the skin; however, ingestion is the main contributor to Pb exposure.

THEP works with families to limit children's exposure to Pb.

Monitoring metals is key to action in the near and long-term?

Monitoring air quality is important to understand if we are on track for reducing Pb in airborne dust. Air quality in the Trail area is consistently monitored, and Teck works closely with ENV to adjust operations and take corrective actions when needed. Regular monitoring helps identify emissions sources, track the effectiveness of emissions and dust control efforts, and track progress on improving air quality. Visit **https://thep.ca/programs/air-quality/lead-pb/** to view the map of monitoring station locations.

This information is collected and analyzed by Teck's environment staff and reported to the Ministry of Environment and Parks as well as the Trail Area Health & Environment Committee (THEC).

Dust control in the community

In addition to addressing stack and fugitive dust emissions from the smelter, the Air Quality Program includes ongoing dust control in the community. In the summer months, the Trail area can be very dry. Additional street sweeping and dust suppression reduces dust, which may have Pb content, in the community during the dry months. While most towns only clean streets in the spring and fall, the City of Trail performs at least two additional street sweepings of the whole community in summer as well as weekly sweeping and flushing of the downtown core. Dust suppressant is applied to unpaved alleys in Trail each June. One additional summer sweeping is performed in Rivervale. The roads are flushed with water at the time of sweeping so that dust is not stirred up in the process.

About the Trail Area Health & Environment Program

The Trail Area Health & Environment Program (THEP) supports the community of Trail and surrounding areas to live, work and play in an area influenced by smelter air emissions for over 125 years. Learn more at **thep.ca**.

Residents who have questions or concerns about air quality are encouraged to call **Teck's Community and Environment Feedback line at 250-364-4817** or send your request electronically at **teck.com/contact**, noting that it is for Teck Trail Operations.

If you have a health concern specific to lead exposure, please contact **THEP Family Health Services** at the Kiro Wellness Centre **250-364-5945** or text your public health nurse **250-231-5945.**

Trail Area Health & Environment Program Community Program Office

1319 Bay Avenue, Trail, BC V1R 4A7 | 250.368.3256 | programs@thep.ca | **thep.ca**

TRAIL AREA Health & Environment Program