

Trail Area Health & Environment Committee



Summary

Meeting: September 22, 2021, 7:00 p.m. (by Zoom)

Committee Members in attendance:

Lisa Pasin, Chair, City of Trail
Dr. Karin Goodison, Interior Health MHO
Kyle Jorgenson, USW Local 480 Rep
Dan Bouillon, Teck Trail Operations
Clare North, Teck Trail Operations

Cyra Yunkws, Village of Warfield
Julia Stockhausen, Community Member
Ron Joseph, Community Member
Steve Hilts, Community Member

Others in attendance:

Dean Johnson, USW Local 480
Nelson Ames, Community Member
Meghan Morris, Interior Health
Tara Bullanoff, Interior Health
Frances Boreland, Broken Hill
Michelle Laurie, THEC Facilitator

Andrea McCormick, SNC-Lavalin
Erynn Scaia, SNC-Lavalin
Colleen Delaney, BC Ministry of Environment
Jayne Garry, Teck Trail Operations
Thompson Hickey, Teck Trail Operations

The Trail Area Health & Environment Committee (THEC) meets five times per year online or in-person. Members, designates and community members are welcome.

WELCOME and INTRODUCTIONS

- The meeting was opened by Mayor Lisa Pasin, THEC Chair

MEETING MINUTES

- The minutes from the THEC meeting, June 17, 2021 were approved.

PRESENTATIONS, REPORTS, DISCUSSIONS & RECOMMENDATIONS

Presentations

Fugitive Dust Program Update

Presenter: Keith Klimchuk, Senior Air Quality, Teck Trail Operations

Keith presented an update on progress to date of Teck's fugitive dust reduction program. Fugitive dust is defined as the dust that escapes from stockpiles, open handling of materials, buildings and vehicle traffic on and offsite. Fugitive dust is not stack emissions. He also discussed the influence of weather on fugitive dust and actions and controls Teck is working on to reduce variation in fugitive dust measurements.

See attached presentation.

Program Reports & Updates

Air Quality

- Air Quality Report – **Keith Klimchuk, Teck Trail Operations**
 - See attached for the report.
 - There was discussion on month-to-month variability due to weather and reduced variability due to improved procedures. For progress over time, it was recommended to look at annual averages.
- Air Quality Working Group Update – **Lisa Pasin, Chair**

- Lisa asked for comments on draft communication products. Steve Hilts will send comments to Michelle for consideration. On SO₂, Steve noted that some of the draft text could lead people to think very high levels of SO₂ occur all the time. Michelle will follow up with representatives from the working group next week to review comments.
- The AQWG meets on October 19th

Family Health Report –Meghan Morris, Interior Health

- See attached report.
- Meghan shared that some families were rebooking blood lead testing due to Covid in the community and the need to self-isolate. As well, Cecilee Pitman will continue as the PHN for THEP until March 2022. The last blood lead clinic date was removed due to a conflict with the new statutory holiday on September 30th and timing constraints for samples to get analyzed by the lab.

Home & Garden Report – Andrea McCormick, SNC Lavalin

- See attached report.
- Andrea shared that the current number of soil assessment requests is higher than last year at this same time. This may be due to recent advertising in the community news. Remediation of yards is similar to previous years for top priority properties. Lawncare numbers are down as the program has been able to transfer properties receiving lawncare to full soil replacement in several cases. She also explained ways the program reduces risk such as soil removal and ground cover improvements.
- Frances Boreland asked about recontamination rates and offered to share a study completed by Broken Hill in Australia. The Soil Management Program is currently designing a recontamination study.

Community Check-In - All community members

- Steve Hilts provided an update from the Community Working Group (see attached briefing note).
- Ron Joseph shared concerns about transporting renovation dust that contains lead. The program team reminded everyone about the free supports offered through the Lead Safe Renovation (LSR) program and the online videos which are tools intended to help people protect themselves from lead dust. In addition, Andrea McCormick shared information on disposal from the RDKB landfill.

Program Planning Update - Michelle Laurie, THEC Lead Facilitator

- Michelle shared that since the last THEC meeting, UBC, BCCDC and THEP have agreed to collaborate and share expertise on the UBC children's teeth study and lead.
- THEP continues outreach to community groups and employers to increase understanding in the community as well as outreach to new families moving to the area. Additional public communications include the Fall newsletter sent to all families in the local area in September and a rapid study on the potential use of social media in the program.
- To support onboarding new staff, THEC members and partners, as well as plan for turnover, a knowledge base is being developed and will be prioritized in the 2022 work plan.

Executive Report - Lisa Pasin, THEC Chair, Mayor, City of Trail

- No meeting was held.

NEXT THEC MEETING

- Nov 25

THEC meetings are held from 7:00-9:00pm.

Trail Area Health & Environment Committee



AGENDA

Meeting: September 22, 2021, 7:00 p.m.

By Zoom: <https://us02web.zoom.us/j/89029207274>

Committee Members:

Lisa Pasin, Chair, City of Trail
Sandy Santori, Alternate Chair, City of Trail
Dr. Karin Goodison, Interior Health MHO
Jane Power, Interior Health
Kyle Jorgenson, USW Local 480 Rep
Dan Bouillon, Teck Trail Operations
Clare North, Teck Trail Operations

Linda Worley, RDKB Area B
Cyra Yunkws, Village of Warfield
Ali Grieve, RDKB Area A
Cassandra Counce, BC Ministry of Environment
Ron Joseph, Community Member
Steve Hilts, Community Member
Julia Stockhausen, Community Member
Marylynn Rakuson, Community Member

The Trail Area Health & Environment Committee (THEC) meets five times per year online or in-person. Members, designates and community members are welcome.

WELCOME and INTRODUCTIONS (5 min)

- Opening remarks from Mayor Lisa Pasin, THEC Chair

MEETING MINUTES

- Approve minutes from THEC meeting, June 17, 2021 (as attached)

PRESENTATIONS, REPORTS, DISCUSSIONS & RECOMMENDATIONS

Presentations

Fugitive Dust Program Update (40 mins)

Presenter: Keith Klimchuk, Senior Air Quality, Teck Trail Operations

- Presentation followed by Q&A

Program Reports & Updates (45 mins)

PLEASE NOTE:

All reports are provided in the agenda package for your review prior to the meeting. TO MAKE THE MOST OF OUR TIME TOGETHER, PLEASE BRING YOUR QUESTIONS OR ITEMS FOR FURTHER DISCUSSION.

Air Quality

- Air Quality Report – **Keith Klimchuck, Teck Trail Operations**
- Air Quality Working Group Update – **Lisa Pasin, Chair**

Family Health Report – **Cecilee Pitman/Meghan Morris, Interior Health**

Home & Garden Report – **Andrea McCormick, SNC Lavalin**

Community Check-In - All community members (15 mins)

- Community Working Group update (Steve Hilts, Community Member)
- Round table contributions & questions

Program Planning Update - Michelle Laurie, THEC Lead Facilitator

Executive Report - Lisa Pasin, THEC Chair, Mayor, City of Trail

NEXT THEC MEETING

- Nov 25

THEC meetings are held from 7:00-9:00pm.

**Presentation:
Fugitive Dust Program
Update**

Teck Trail Operations Fugitive Dust Update

September 22, 2020

Teck

Overview

What is fugitive dust?

- Progress to date

Current fugitive dust reduction initiatives

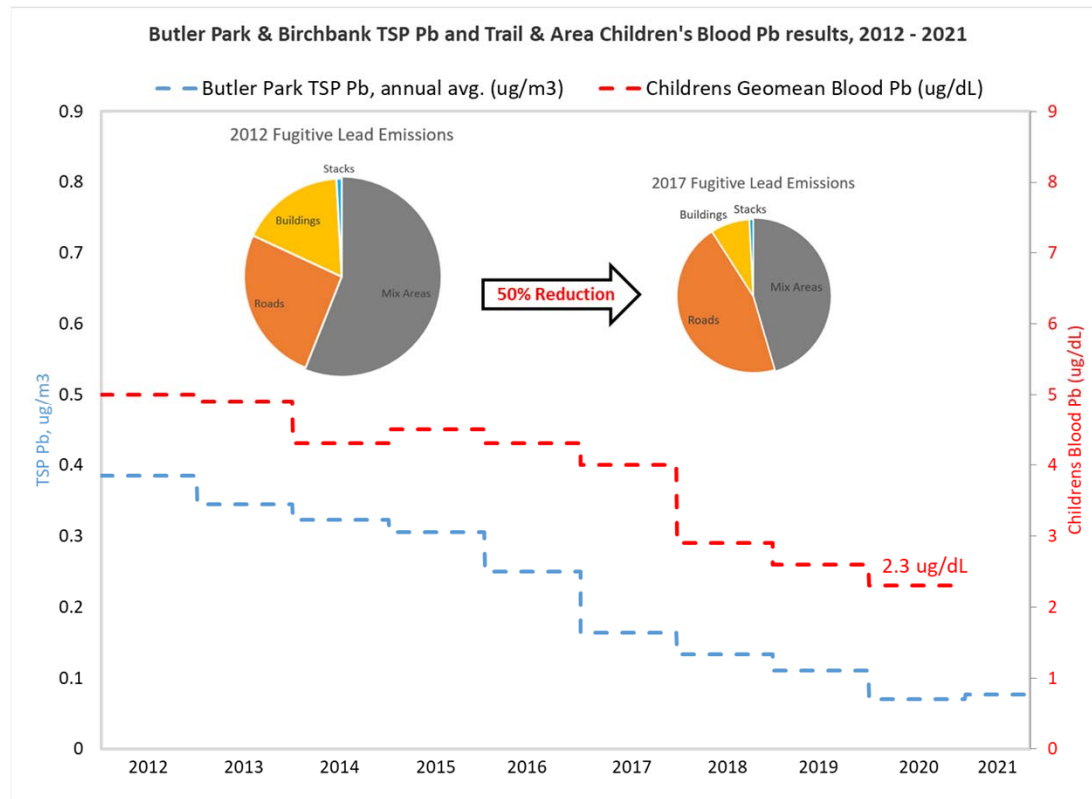
- Influence of weather
- Studies

What is fugitive dust ?

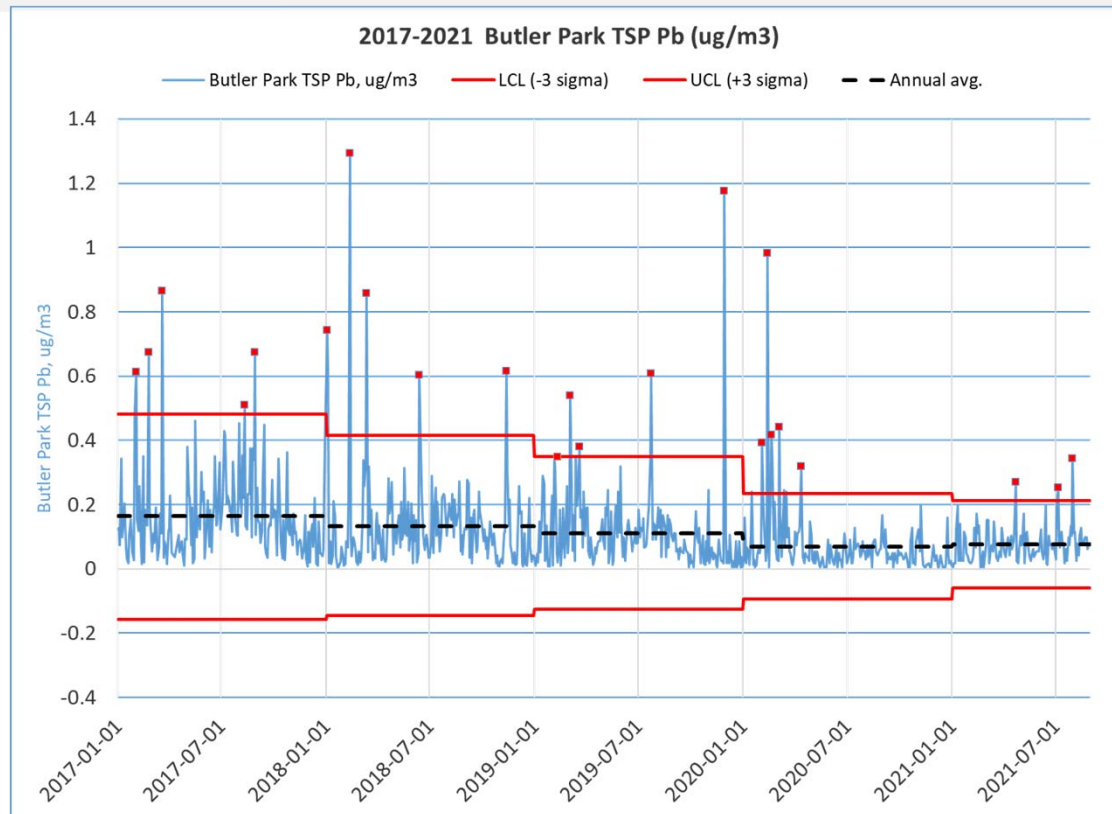
Fugitive dust is dust that escapes from stockpiles, open handling of materials, buildings and vehicle traffic on and offsite. Fugitive dust is not stack emissions.



Fugitive dust reduction and progress to date



Fugitive Lead Emissions Reduction, Reduction in variation

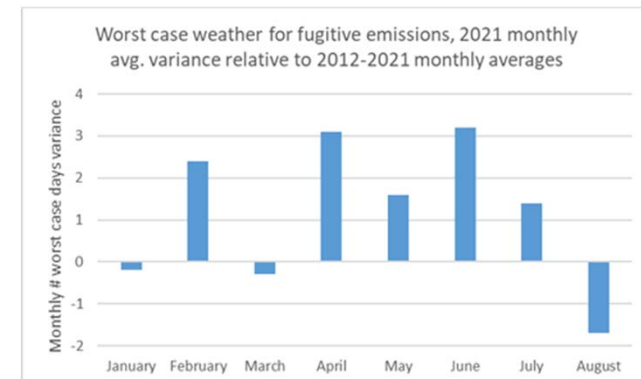
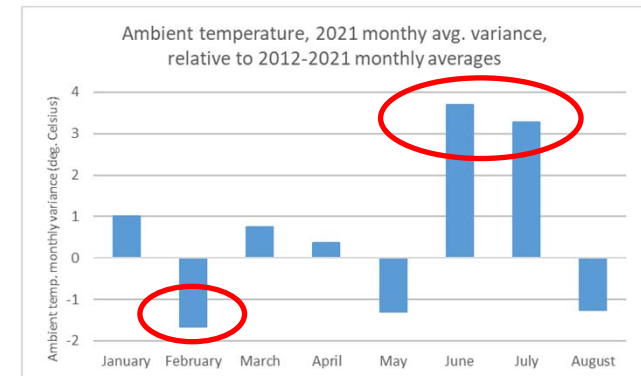


Current Fugitive Dust Reduction Initiatives

Studies to mitigate
the influence of
weather on dust
emissions

Current fugitive dust reduction initiatives: Influence of weather

- Even though a more moderate climate has been experienced over the last several years, there have been weather extremes in 2021.
 - Extremes in ambient temperature with cold dry weather in February and very hot June and July weather.
 - Monthly precipitation trended much lower than normal with the exception of August.
 - Particularly anomalous was the higher frequency for wind gusts above 30 km/h and sustained high winds.
- Weather extremes are challenging for controlling fugitive dust
 - Flush trucks can't wash roads at $< 4^{\circ}\text{C}$ in the winter.
 - Roads and piles dry out more quickly in summer heat.
 - High winds put even greater pressure on resources to apply controls to mitigate fugitive dust.



Current fugitive dust reduction studies: Cold dry winter weather with elevated winds

Controls are seasonal

Dust Controls	Mar.-Nov.	Nov.-Mar.
Wind warning	●	●
Dust suppressant	●	●
Flush truck	● ●	●
Sweepers	● ● ●	●
Sprinklers	●	●



Snow canon

Portable
Snow canon



Current fugitive dust reduction studies: Extreme summer heat, water use



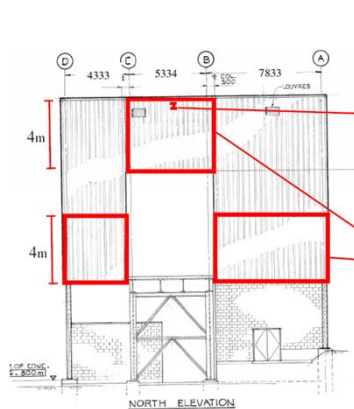
Upgrade to centralized control and monitoring



Other investigations:
Evapotranspiration technologies

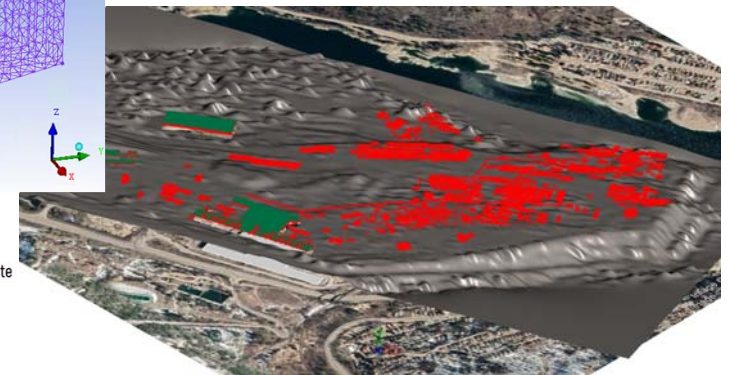
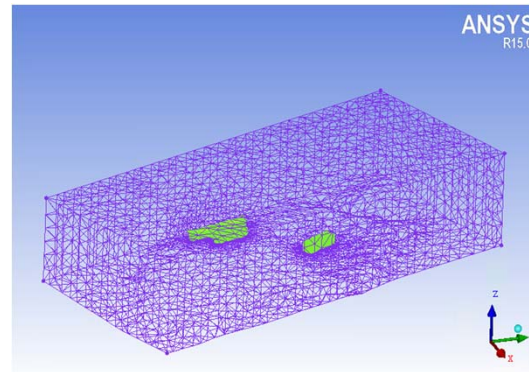
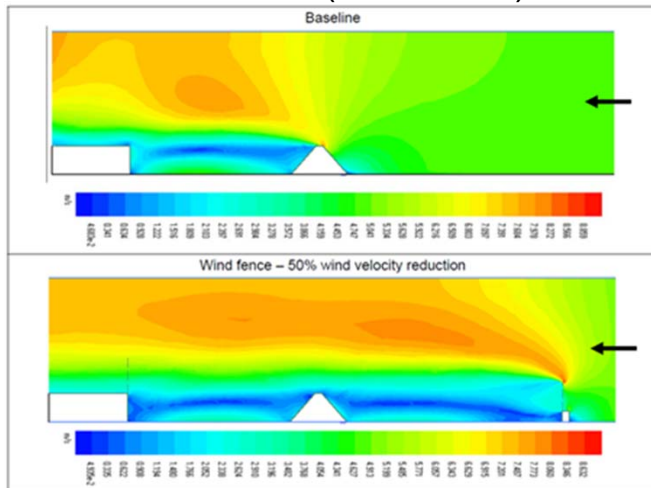


Current fugitive dust reduction studies: Wind barriers

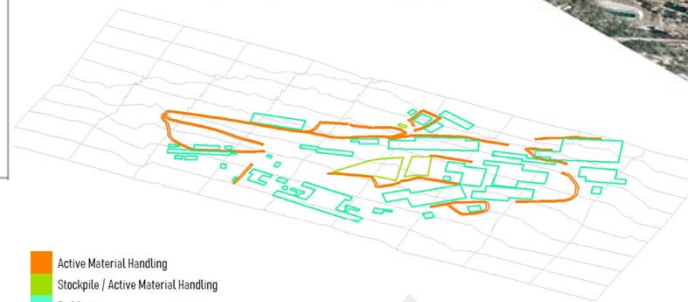


Current fugitive dust reduction studies: Wind barriers, 3-D model for site (underway)

Roaster pad wind fence validation
(28-50% reduction in dusting)
2-D model (2019-2020)



Major Dust Release Sources and Buildings on site



Air Quality Report

Air Quality Report

September 22, 2021

1. Lead in Air:

Second quarter 2021 average for lead in air at Butler Park was $0.073 \mu\text{g}/\text{m}^3$, and the year-to-date average of $0.077 \mu\text{g}/\text{m}^3$ is similar to last year. As seen in the monthly averages in Figure 2, month to month variability in ambient levels remains relatively low, but the influence of abnormal weather, including temperature extremes, very low precipitation, and high frequency of winds gusts, can be seen in the data.

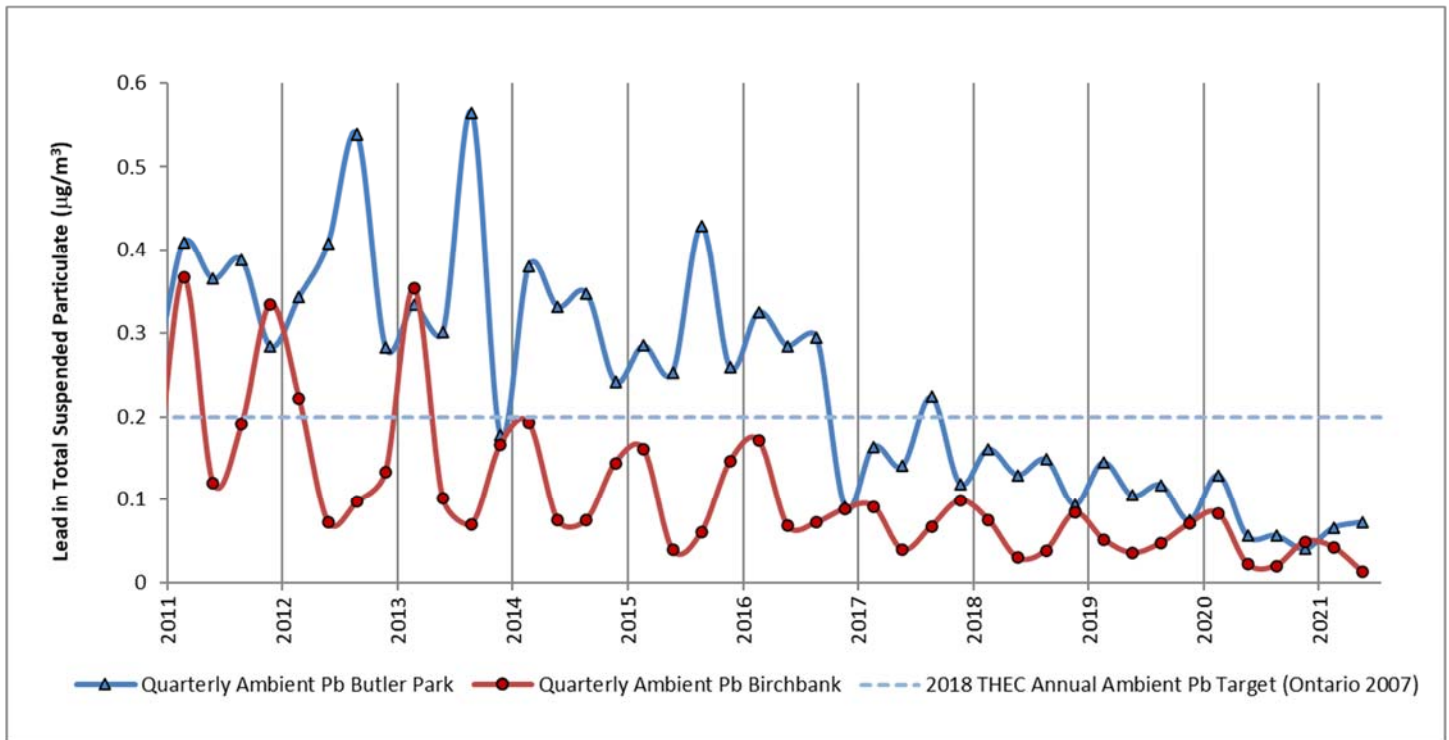


Figure 1: Quarterly monthly average lead at Butler Park and Birchbank stations (as total suspended particulate measured bi-daily)

The chart in Figure 1 shows quarterly averages for Lead in air for Butler Park (dark blue) and Birchbank (red), in comparison to the 2018 THEC Annual Ambient Lead in Air Objective (dashed line).

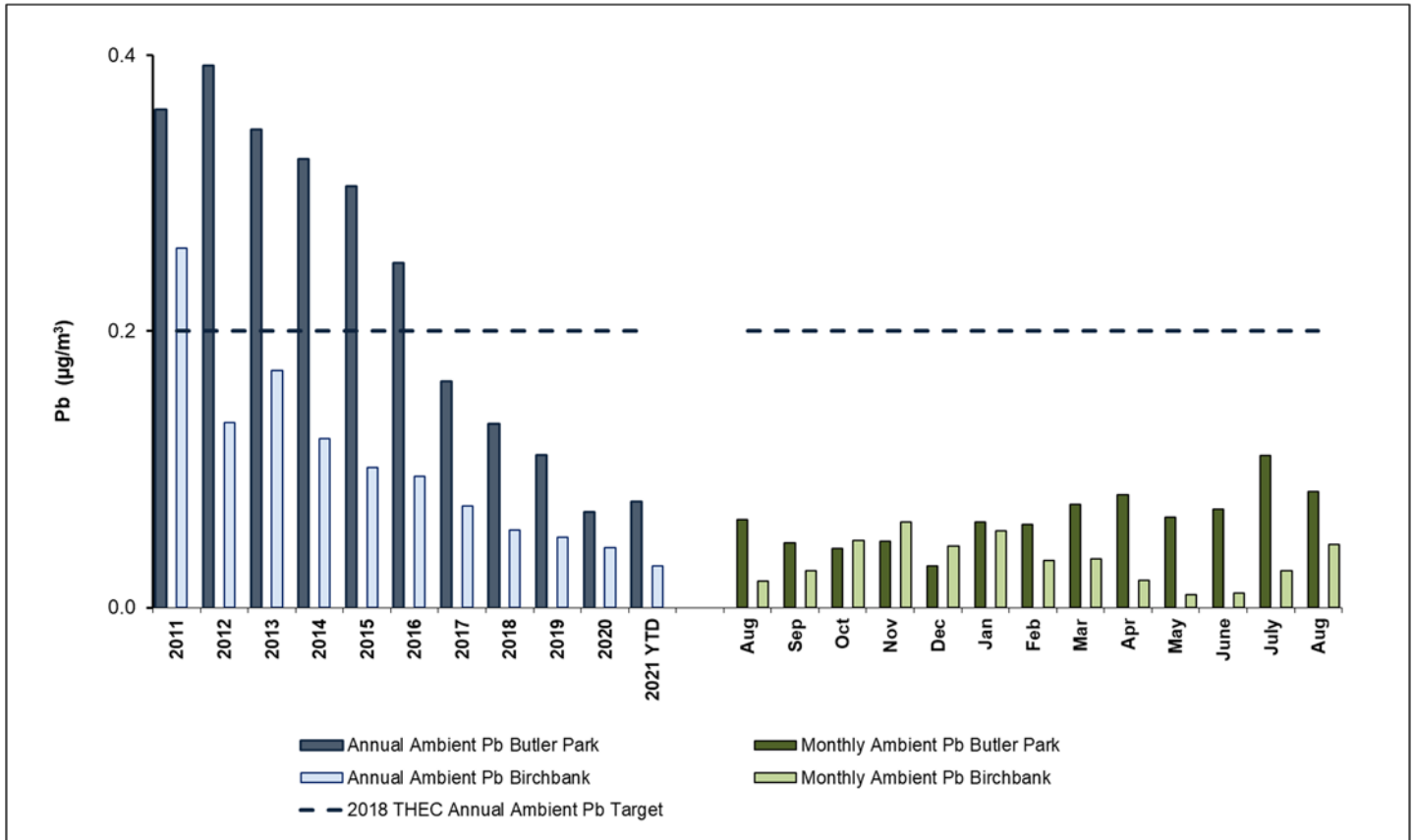


Figure 2: Annual and monthly average lead at Butler Park and Birchbank stations (as total suspended particulate measured bi-daily)

The chart in Figure 2 shows annual and monthly averages for Lead in air for Butler Park. Annual averages are shown on the left for Butler Park (dark blue) and Birchbank (light blue). Monthly averages for the past year are shown on the right for Butler Park (dark green) and Birchbank (light green). The 2018 THEC Annual Ambient Lead in Air Objective is shown as a dashed line. Monthly averages for Lead in ambient air are expected to have some variability due to season, weather, predominant wind direction and operational variance.

2. Arsenic in Air:

Second quarter 2021 average for arsenic in air at Butler Park was $0.003 \mu\text{g}/\text{m}^3$, and the year-to-date average of $0.003 \mu\text{g}/\text{m}^3$ is similar to last year.

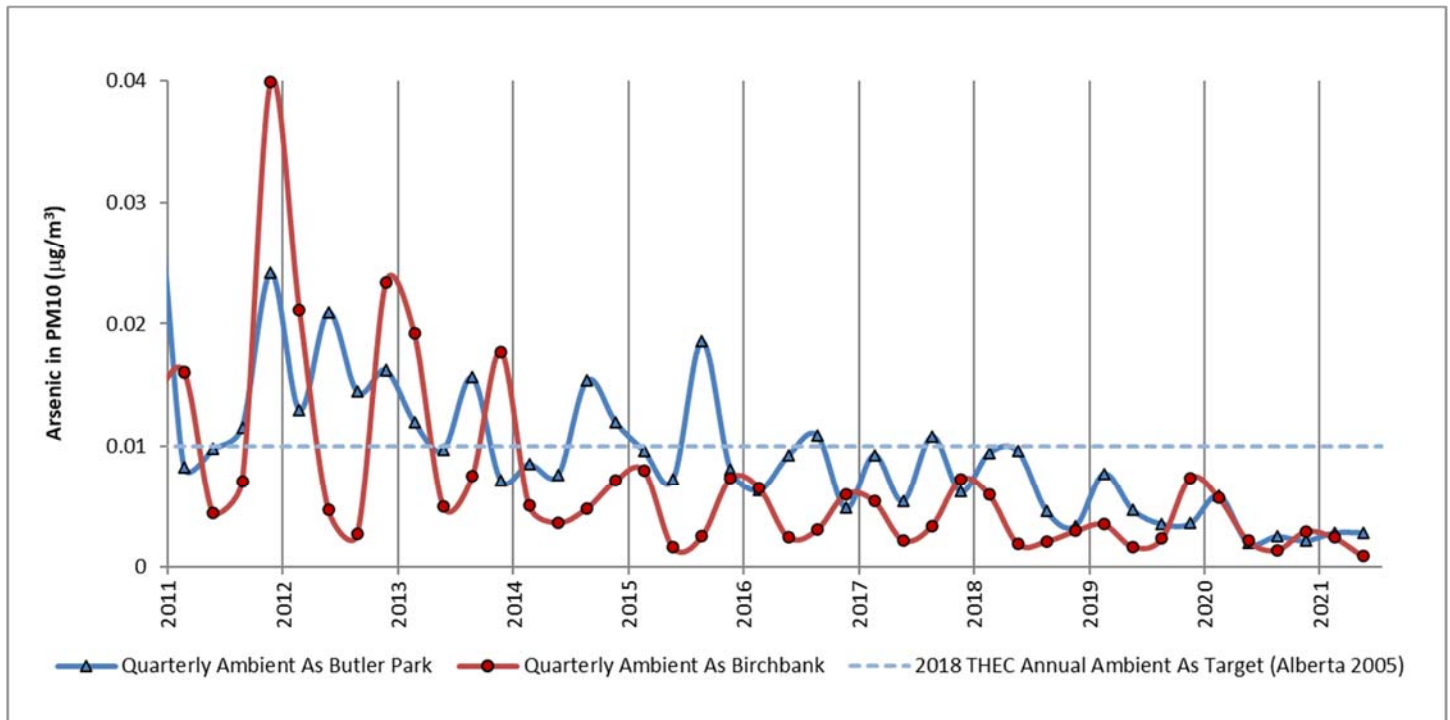


Figure 3: Quarterly average arsenic at Butler Park and Birchbank stations (as inhalable PM₁₀ fraction measured weekly)

The chart in Figure 3 shows the annual average for Arsenic in air (measured as inhalable PM₁₀ fraction) at Butler Park (blue) and Birchbank (red) in comparison to the 2018 THEC Air Quality Objective (blue line).

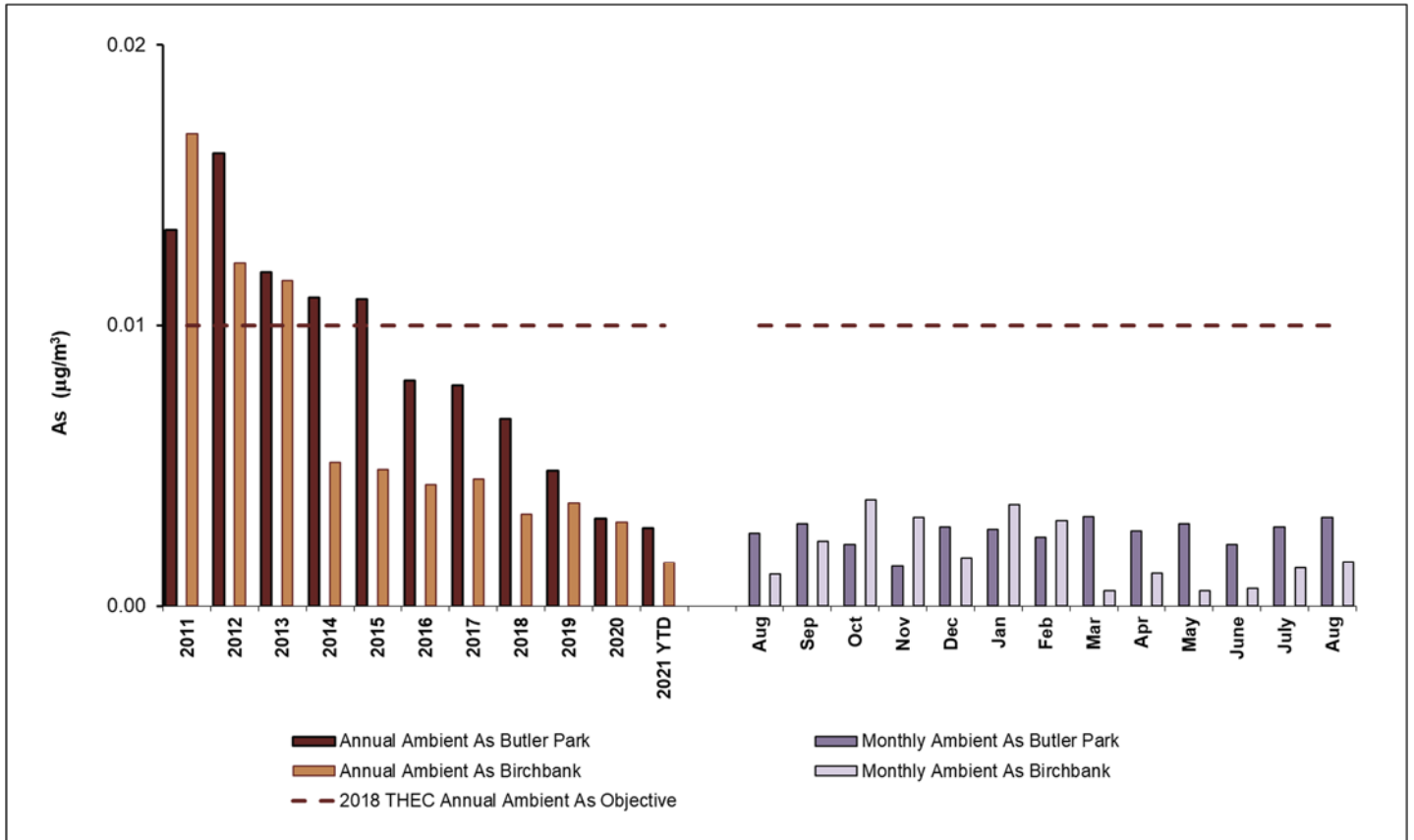


Figure 4: Annual and monthly average arsenic at Butler Park and Birchbank stations (as inhalable PM10 fraction measured weekly)

The chart in Figure 4 shows annual and monthly averages for Arsenic in air at Butler Park and Birchbank. Annual averages are shown on the left for Butler Park (dark brown) and Birchbank (light brown). Monthly averages for the past year are shown on the right for Butler Park (dark purple) and Birchbank (light purple). The 2018 THEC Air Quality Objective is shown as a dashed line. Monthly averages for Arsenic in ambient air are expected to have some variability due to season, weather, predominant wind direction, operational variance and sampling frequency.

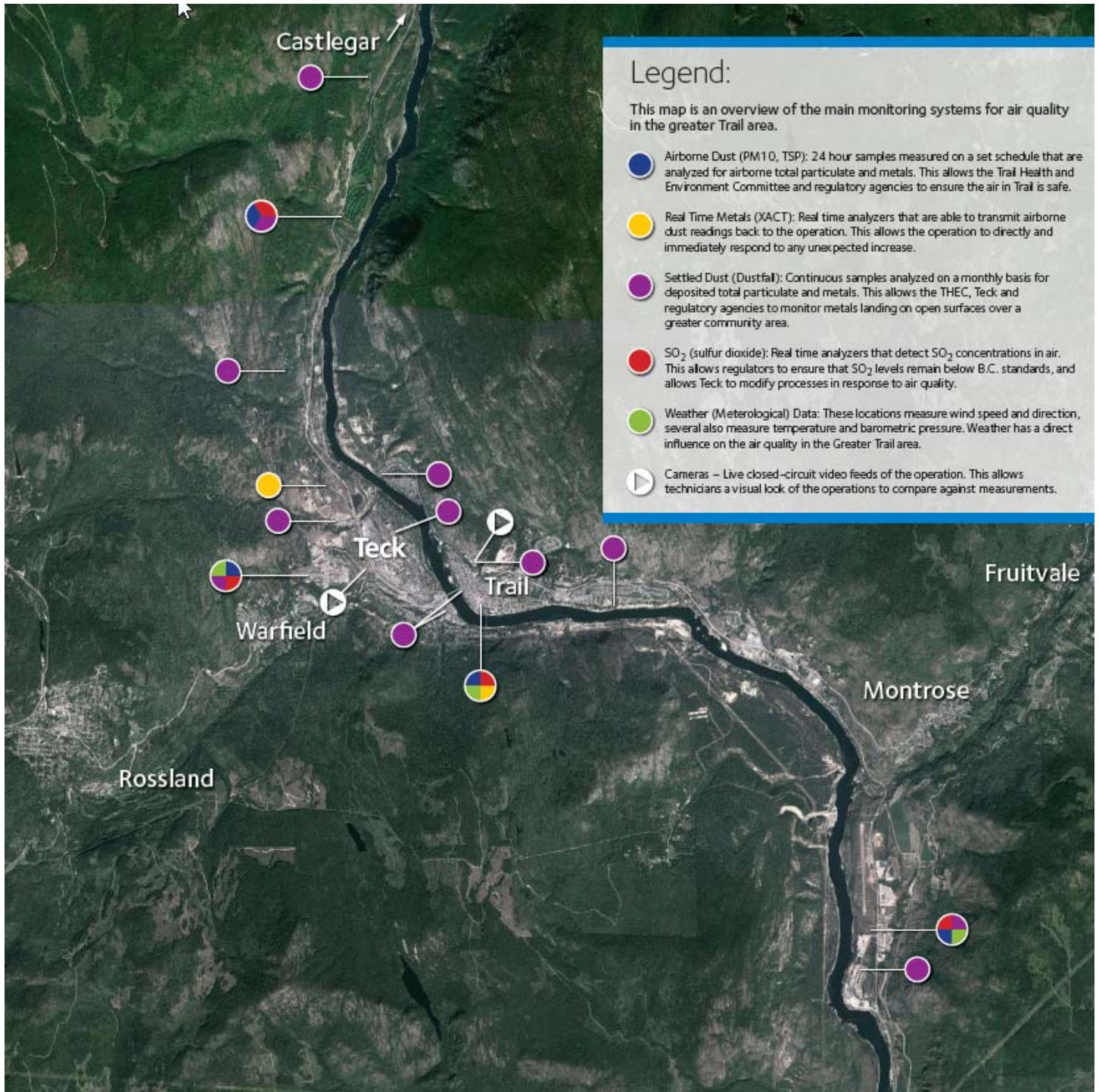


Figure 5: Teck Community Air Monitoring Stations

Air Quality Working Group Update



Air Quality Program Fact Sheet: LEAD

About the THEP 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.

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. One of the world's largest lead and zinc smelting facilities, which refines mine concentrates into metals, has been operating in Trail for over a hundred years. The goal is always to recover as much metal as possible from concentrates but due to the limits of technology, lead and other metals have been emitted into the air. Both stack and fugitive emissions (dust that escapes from buildings, stockpiles, roadways and other activities on site) have caused metals to be deposited in the dust in the Trail area.

Reducing health risks to children associated with Lead

Lead exposure can have detrimental effects on early childhood development and children's future outcomes. Lead is most harmful to children younger than age 6 and especially those younger than age 3. A pregnant woman who is exposed to lead can pass it to her baby. Lead can also be passed to a baby through the mother's breast milk. There is no known safe level of lead exposure. Visit thep.ca to learn about actions you can take to help reduce your family's exposure to lead.

Lead in air has been significantly reduced in Trail

Plant modernization and operational improvements at Teck Trail Operations, including installation of the KIVCET lead smelter in 1997, reduced emissions of lead and other metals from the smelter stacks by over 99% since the 1990s. Children's blood lead levels have decreased significantly over the same time period.

In 2013, Teck initiated a multi-year program to reduce fugitive dust emissions from the Trail Operations site to further improve ambient air quality. Since the inception of fugitive emissions reduction, lead levels in community air have seen a 68% reduction to around $0.07 \mu\text{g}/\text{m}^3$ (micrograms per cubic meter of air). Figure 1 charts the annual average for lead in community air from 1990 – 2020.

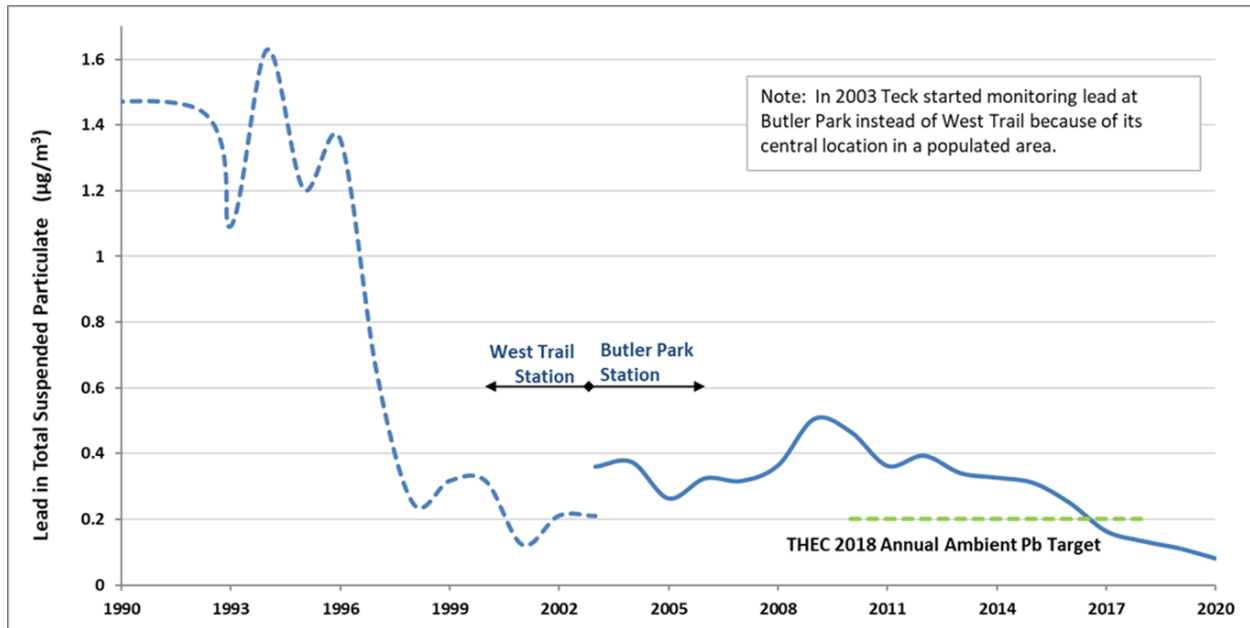


Figure 1 Annual Average Lead in Community Air 1990-2020.

The Trail Area Health & Environment Committee (THEC) is always aiming to improve air quality in Trail.

Historically, THEC developed air quality goals in consultation with the community. The most recent goals, set following public consultation in 2010, were:

- To have an annual average of lead (Pb) in community air of 0.20 µg/m³ or lower by 2018, with continuous improvement to 2020.
- To have an annual average of arsenic in community air of 0.010 µg/m³ or lower by 2018, with continuous improvement to 2020.

These goals were achieved in 2016 (for arsenic) and 2017 (for lead). Going forward, THEC will seek continuous improvement in ambient air quality through ongoing initiatives at Teck Trail Operations.

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

Regular monitoring helps identify significant emissions sources, track the effectiveness of emissions and dust control efforts, and track progress on air quality goals. Teck conducts the following monitoring in the community:

- Measures of lead, arsenic and other particles in the air are taken at two testing locations in the Lower Columbia: Butler Park and Birchbank. Readings are taken over 24-hour periods.
- Every hour, analyzers measure metals concentrations at Butler Park and Duncan Flats and transmit readings directly to Trail Operations. Trail Operations immediately responds to any unexpected increase.

- Dustfall measurements are collected on a monthly basis at Birchbank, Downtown Trail, Columbia Avenue, Columbia Gardens, Tadanac, Kootenay Boundary Regional Hospital, Glenmerry, Oasis, Stoney Creek, Waneta and Warfield. These measurements help understand changes in dust settling in the community over time.

This information is collected and analyzed by Teck's environment staff and reported to the Ministry of Environment and Climate Change Strategy as well as the Trail Area Health & Environment Committee (THEC). THEC meetings are open to the public, occur five times per year, and include an air quality report with the most current data available.

Dust control in the community

In addition to addressing stack and fugitive dust emissions from Teck Trail Operations, 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 keeps dust, which may have lead content, down in 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.

If I have a health or environment concern, who should I contact?

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 <http://www.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.

Visit thep.ca to learn more about THEP's Air Quality Program, find actions to reduce the risk of lead exposure, or to book a home visit.

About the Trail Area Health & Environment Program

The Trail Area Health & Environment Program (THEP) has five main areas of activity: Family Health, Home & Garden, Air Quality, Parks, and Property Development. THEP promotes a healthy environment through a comprehensive integrated program that successfully improves air quality and children's blood lead levels, and promotes the health of the community. Programs are governed by the Trail Area Health & Environment Committee (THEC), comprised of government, industry, the City of Trail and community. THEC was established in 2001 and was formerly known as the Trail Lead Task Force (1990-2000).



Air Quality Program Pb (Lead) FAQs

September, 2021

1. What is Pb (Lead)?

Lead is a naturally occurring element found in small amounts in the earth's crust. You can find lead in various products such as vehicle batteries, radiation protection and soundproofing.

2. Why do we have Pb in Trail?

In addition to environmental lead contributions from historical use of products such as lead-based paint and leaded gasoline, Trail is home to one of the world's largest lead and zinc smelting and refining facilities, in operation for over one hundred years. While significant operational improvements have been made to reduce emissions from process stacks and fugitive sources (buildings, stockpiles and roadways), lead and other metals in dust have been dispersed in the Trail area.

Continuous improvement is a key component of Teck Trail Operations Environmental Management System (ISO14001) and emissions reduction activities continue.

3. How does Pb affect my health?

Lead exposure can have detrimental effects on early childhood development and children's future outcomes. Lead is most harmful to children younger than age 6 and especially those younger than age 3. A pregnant woman who is exposed to lead can pass it to her baby. Lead can also be passed to a baby through the mother's breast milk. There is no known safe level of lead exposure. Visit thep.ca to learn about actions you can take to help reduce your family's exposure to lead.

4. Who is at highest risk of Pb exposure?

Young children are at highest risk of Pb exposure and its effects because:

- They often put their hands and objects in their mouths.
- They sometimes swallow non-food items.
- Their bodies absorb lead at a higher rate.
- Their brains are developing quickly.

Pregnant women exposed to lead can pass it to the baby. Lead can also be passed to a baby through the mother's breast milk.

5. What actions can I take to reduce my family's exposure to Pb in dust?

Primary prevention is the most effective way to prevent lead exposure.

Actions you can take to reduce the risk of lead exposure include:

1. Wash your hands and your children's hands especially before eating and after playing outdoors.
2. Eat foods that have enough iron and other vitamins and minerals. A person who eats a balanced, nutritious diet may absorb less lead. Eat at the table.
3. Keep your floors dust-free by vacuuming and damp-mopping often. Leave outside shoes at the door. Damp dust frequently, especially window ledges and countertops.
4. Keep outdoor play areas clean. Cover the sandbox when you are finished playing. Hose off patios, play equipment, and driveways often. Play on the grass and cover bare soil areas.
5. Renovate safely. Seal off the area of work, and clean well when complete. Keep children and pregnant women away if possible.

Secondary prevention including blood lead testing and follow-up minimizes further exposure. Trail offers an annual voluntary blood lead testing clinic for children under five years old.

6. What are the Pb in air levels in Trail?

As shown in the following chart, lead in air levels have fallen dramatically over the years and in 2020 lead in ambient air averaged 0.07 micrograms per cubic metre, the lowest level to date.

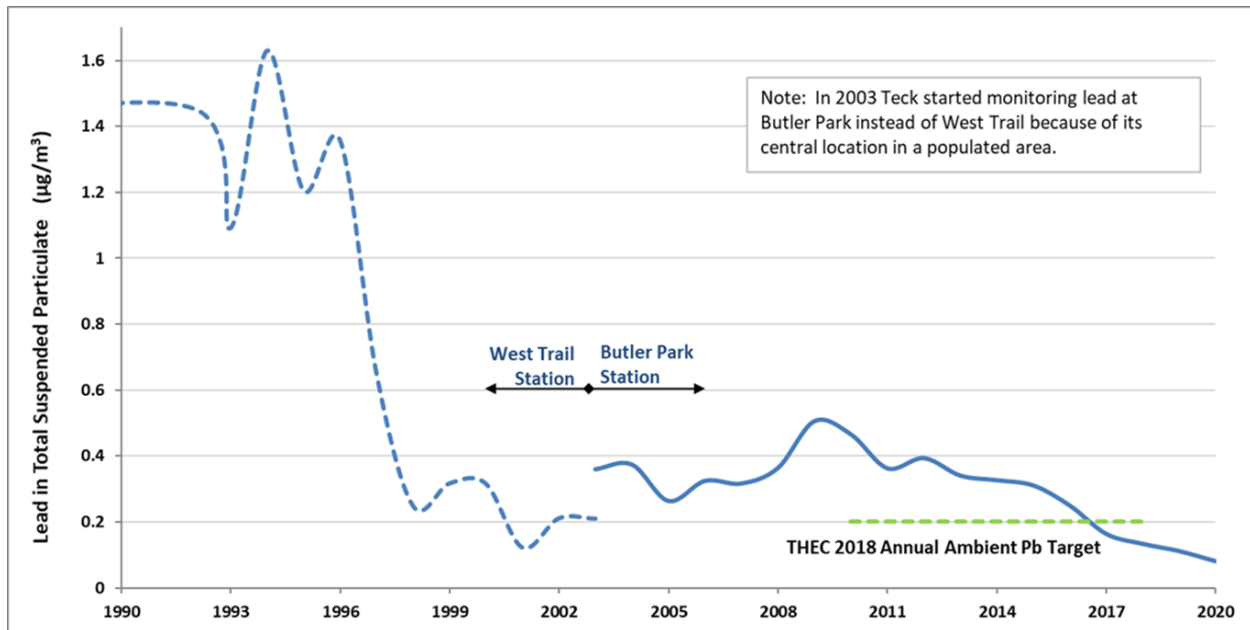


Figure 1 Annual Average Lead in Community Air 1990-2020.

In addition, summary reports are provided at the bi-monthly public Trail Area Health & Environment Committee (THEC) meetings. Meeting minutes are available [online](#).

7. Where is Pb in air monitored?

Teck conducts the following monitoring in the community:

- Measures of lead, arsenic and other particles in the air are taken at two testing locations in the Lower Columbia: Butler Park and Birchbank. Readings are taken over 24-hour periods.

This information is collected and analyzed by Teck's environment staff and reported to the Ministry of Environment and Climate Change Strategy as well as the Trail Area Health & Environment Committee (THEC). THEC meetings are open to the public, occur five times per year, and include an air quality report with the most current data available.

In addition to the 24-hour samples collected at Butler Park and Birchbank, Teck also conducts the following monitoring:

- Every hour, analyzers measure metals concentrations at Butler Park and Duncan Flats and transmit readings directly to Trail Operations. Trail Operations immediately responds to any abnormal increase. See question 8 for how these data are used.
- Dustfall measurements are collected on a monthly basis at Birchbank, Downtown Trail, Columbia Avenue, Columbia Gardens, Tadanac, Kootenay Boundary Regional Hospital, Glenmerry, Oasis, Stoney Creek, Waneta and Warfield. These measurements help understand changes in dust settling in the community over time.

8. How does Teck Trail Operations use data to manage Pb levels in air in Trail?

Every hour, analyzers measure metals concentrations at Butler Park and Duncan Flats. Near real-time data is transmitted to Teck Trail Operations' process control systems. If Pb levels begin to rise, plants at Teck Trail Operations are automatically notified so that actions can be taken to reduce Pb emissions.

9. What is Teck doing to reduce Pb emissions?

Over the past 30 years, there have been significant improvements in community air quality and over \$1.7 billion has been invested in a modernization program to improve our operational and environmental performance at Teck Trail Operations. Since the installation of the KIVCET Smelter in 1997 and subsequent operations improvements at Teck Trail Operations, there has been a 99.5% reduction in stack lead emissions.

The Air Quality Program, one of five programs overseen by the Trail Area Health & Environment Committee, is managed by Teck Trail Operations, and continues to reduce lead in the environment through the comprehensive Fugitive Dust Reduction Program.

Fugitive dust reduction efforts include:

- construction of the Smelter Recycle Building, close to the size of two Canadian football fields, in 2016 to enclose mixing and storage of process feed materials;
- installation of a ten-metre high wind fence reducing dusting where we mix feeds;
- 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.

10. Who regulates Teck's Pb emissions?

Teck operates under air quality permits issued by the BC Ministry of Environment and Climate Change (ENV).

11. What are the applicable standards for Pb in air?

Currently, the Federal and BC Provincial governments do not have ambient air quality objectives or standards for lead. However, it is reasonable to rely on standards from other jurisdictions when this is the case and the US EPA has a standard of 0.15 micrograms per cubic metre lead in total suspended particulate matter as a 3-month average.

There is no known safe level of lead exposure. The Trail Area Health & Environment Committee (THEC) has a goal of continuous reduction of lead in the community and the partners focus on efforts to achieve this.

12. How does Teck share air quality information locally?

Teck shares summary information at the bi-monthly Trail Area Health & Environment Committee (THEC) meetings which are open to the public. All air quality reports are also published online at thep.ca. Lastly, Teck participates in the THEC Air Quality Working Group to share more detailed information on air quality management at Teck and in the community.

13. If I have a concern about air quality or health, who do I contact?

Residents who have concerns about air quality are encouraged to call the Teck Community and Environment Feedback line at (250) 364-4817, a phone line answered 24 hours a day.

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.

Sulphur Dioxide (SO₂) is a colourless, reactive, gas which at high levels can adversely impact human health and the environment. SO₂ is emitted by Teck Trail Operations as a by-product of processing mine concentrates, which contain sulphur, into metal and chemical products.

SO₂ levels in Trail continue to decline with environmental improvements at Teck Trail Operations. Currently more than 99% of the sulphur is captured and converted to by-products, such as sulphuric acid and fertilizer. About 1% leaves the operation as emissions to air. The location of the smelter is in the heart of Trail, within a deep valley, and at times constrains dispersion of air emissions. **Based on a three-year average, SO₂ levels currently exceed benchmarks for ambient air quality set out by the Canadian and BC governments.**

Those most sensitive to the effects of SO₂ include persons with chronic respiratory disease, especially persons with asthma. Short-term exposures to **elevated SO₂ levels** can cause the air passages in the lungs to constrict or tighten, leading to breathing difficulties and tightening in the chest. Symptoms may worsen during vigorous exercise or hard physical labour.

SO ₂ Levels	Consider taking the following action at these levels of SO ₂
0-35 ppb	None
36-184 ppb	Persons with chronic respiratory conditions such as asthma should consider reducing or rescheduling strenuous outdoor activities if experiencing symptoms. No effects are expected for the general population.
185+ ppb	Persons with chronic respiratory conditions such as asthma should reduce or reschedule strenuous activities outdoors. Others, especially children and the elderly should also consider avoiding outdoor physical exertion.

! Levels change throughout the day. Check current SO₂ levels [online](#).

Residents who have concerns about air quality are encouraged to call the Teck Community and Environment Feedback line at (250) 364-4817, a phone line answered 24 hours a day.

If you have health concerns, please contact your family doctor. Learn more at thep.ca.

THEC Air Quality Working Group: Sulphur Dioxide (SO₂) Emissions in Trail

Draft FAQ Updated August 23, 2021.

The following FAQs provide answers to general, highly-anticipated questions. They could be posted to the THEP webpage and/or printed / distributed publicly as needed.

1. What is sulphur dioxide (SO₂)?

SO₂ is a colourless, reactive gas. At higher concentrations it can have a strong odour. It is produced during the combustion of sulphur-containing fuels and industrial operations involving sulphur-containing materials. Major sources of SO₂ in BC include the upstream oil and gas industry, metal smelting facilities, pulp / paper mills and marine operations (in the Lower Mainland area). Once released, one possibility is that SO₂ can react with other compounds in the air to form fine particulate matter (small solid or liquid particles suspended in air).

2. Why do we have SO₂ in Trail?

SO₂ is emitted by Teck Trail Operations as a by-product of processing mine concentrates, which contain sulphur, into metal and chemical products. With environmental improvements, SO₂ emissions continue to decline. Teck Trail Operations currently captures more than 99% of the sulphur and converts it to by-products, such as fertilizer and sulphuric acid. About 1% leaves the operation through emissions to air. Sulphur capture at Teck Trail Operations is similar to what you might find at a brand-new smelter. However, the dispersion of air emissions from the smelter is constrained due to the location of the smelter, weather and the surrounding topography. SO₂ concentrations in Trail fluctuate throughout the day, month and year. Based on a three-year average, SO₂ levels currently exceed the benchmarks for ambient air quality set out by the Canadian and BC governments.

3. How does SO₂ affect my health?

Short-term exposures to elevated SO₂ levels can cause the air passages in the lungs to constrict or tighten, leading to breathing difficulties and tightening in the chest. Symptoms may include constriction or tightening of the airways in the lungs, coughing, wheezing and shortness of breath. It may also irritate the nasal passage, throat and eyes. Those most sensitive to the effects of SO₂ include persons with chronic respiratory disease, especially persons with asthma. Symptoms may worsen during vigorous exercise or hard physical labour. See FAQ 7 and 8 for more information on SO₂ levels.

4. What are the long-term risks of SO₂ exposure?

Long-term exposure to the particles produced by the reaction of SO₂ with other compounds in the air may also affect your health. These particles penetrate deeply into the lungs. This can cause irritation and inflammation that can damage the lining of the lungs and affect other parts of the body. Particles can worsen existing heart and respiratory disease, including emphysema and bronchitis. Because of this, children who live in areas with elevated sulphur dioxide concentrations may develop more breathing problems as they get older.

5. How do I know if I am sensitive to SO₂?

Some people, particularly those with respiratory conditions, may be more sensitive to SO₂ exposure. Sensitivities may result in symptoms such as irritation of the eyes and respiratory symptoms such as coughing, wheezing and shortness of breath.

6. Who is at the highest risk of SO₂ exposure?

Workers in industrial facilities where SO₂ is used or is a by-product of industrial processes have the greatest exposure. People who live near these industries and other point sources can also be exposed to higher levels of SO₂. See FAQ 7 and 8 for more information on SO₂ levels.

7. What actions can I take to reduce potential health effects of SO₂?

When SO₂ concentrations are elevated, consider reducing or rescheduling activities outdoors, remaining indoors, and reducing indoor sources of SO₂ including tobacco smoke and unvented gas stoves. Persons with asthma should follow a management plan developed with their health care provider. If you are having trouble breathing, have chest pain or discomfort, or a severe cough, contact your health care provider or emergency department. See [HealthLinkBC](#) for a summary of health recommendations.

The SO₂ levels and health guidance in the table below are based on [Health Canada’s 2016 Human Health Risk Assessment for Sulphur Dioxide](#). (hyperlink inserted). For more information on the levels experienced in Trail, see FAQ 8.

SO₂ Levels	Consider taking the following action at these levels of SO₂
0-35 ppb	None
36-184 ppb	Persons with chronic respiratory conditions such as asthma should consider reducing or rescheduling strenuous outdoor activities if experiencing symptoms. No effects are expected for the general population.
185+ ppb	Persons with chronic respiratory conditions such as asthma should reduce or reschedule strenuous activities outdoors. Others, especially children and the elderly should also consider avoiding outdoor physical exertion.

8. What are the SO₂ levels in Trail?

Actual ambient SO₂ concentrations in Trail fluctuate throughout the day, month and year.

This chart calculates the total hours of SO₂ measured in community air (by monitoring station) in 2020. For actions to take at different levels, see FAQ 7.

Station	SO ₂ Levels ppb	Hours / year*	% Time *
Birchbank Golf Course	0-35	7604	97.4
	36-184	200	2.6
	185+	0	0
Trail Butler Park	0-35	8050	96.7
	36-184	269	3.2
	185+	6*	0.1
Trail Columbia Gardens Airport	0-35	8354	99.7
	36-184	23	0.3
	185+	0	0
Warfield Elementary	0-35	7801	93.9
	36-184	495	6
	185+	10*	0.1

**In 2020 Birchbank Golf Course monitored 89% of the year, and the remaining three stations monitored 95% of the year.*

***In 2020, all hours that measured above 185 occurred between 7am-11am.*

Although levels fluctuate, annual levels currently exceed the benchmarks set by the Provincial and Federal governments.

Find current and historical data online at:

<http://www.env.gov.bc.ca/epd/bcairquality/readings/find-stations-map-SO2.html>

9. Where is SO₂ monitored in Trail?

SO₂ is monitored by Teck at four locations throughout Trail and the surrounding areas – Birchbank, Butler Park, Columbia Gardens and Warfield. These stations operate continuously, with near [real-time data](#) publicly available. SO₂ levels fluctuate throughout the day, month and

year. Find current and historical levels online at:
<http://www.env.gov.bc.ca/epd/bcairquality/readings/find-stations-map-SO2.html>

10. What is Teck doing to reduce SO₂ emissions?

Over the past 30 years, over \$1.7 billion has been invested in a modernization program to improve the operational and environmental performance at Teck Trail Operations resulting in significant improvements in community air quality.

Teck Trail Operations currently captures more than 99% of the sulphur contained in feed and meets the highest standard for sulphur capture for base metal smelters across Canada.

Teck Trail Operations has made a 25% reduction in emissions in the last ten years, accomplished through the installation of two new state of the art Acid Plants and operational changes. Teck Trail Operations continues to drive improvements and is currently advancing capital projects to achieve further reductions by 2023.

In addition to SO₂ emissions reduction initiatives, Teck Trail Operations uses near real-time data to manage SO₂ (see FAQ 11 for details).

11. How does Teck Trail Operations use data to manage SO₂ levels in Trail?

In addition to reducing emissions, near real-time data is transmitted to Teck Trail Operations' process control systems. If SO₂ levels begin to rise (such as during a temperature inversion or during periods of higher emissions), plants at Teck Trail Operations are automatically notified so that actions can be taken to further reduce SO₂ at the source and in the community.

The Ministry of Environment and Climate Change and Teck Trail have the ultimate goal of achievement of the Provincial and Federal benchmarks.

12. Who regulates Teck with respect to SO₂?

Teck Trail Operations operates under permits established by the BC Ministry of Environment and Climate Change Strategy (ENV).

13. What are the applicable standards for SO₂?

Air quality is managed to protect the environment and human health relative to BC's Air Quality Objectives (AQOs) and the Canadian Ambient Air Quality Standards (CAAQS). For SO₂, BC AQO are the same as the CAAQS and there are two benchmarks – 70 ppb to protect human health and 5 ppb to protect the environment. BC uses the guidelines for regulatory decisions, including permitting of discharges to air, to assess air quality, issue public advisories, aid regulatory development and support long-term air management strategies.

The BC Ministry of Environment and Climate Change Strategy and Teck Metals are working towards continuous improvement of SO₂ levels across the airshed with a long-term objective of achieving the Provincial and Federal benchmark.

14. If I have a concern about air quality or health, who do I contact?

Residents who have concerns about air quality are encouraged to call the Teck Community and Environment Feedback line at (250) 364-4817, a phone line answered 24 hours a day. If you have health concerns, please contact your family doctor.

DRAFT

Family Health Report



September 22, 2021

RECENT HIGHLIGHTS

1. Fall 2021 Blood Lead Clinics are in Progress
 2. Healthy Family Visits
 3. Community Outreach
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ADDITIONAL DETAILS

1. Fall 2021 Blood Lead Clinic Dates
 - September 13th, 9am-4pm
 - September 15th, 11am-6pm
 - September 21st, 9am-4pm
 - September 22nd, 9am-4pm
 - September 27th, 11am-6pm
 - **Clinic on September 29th cancelled**

Total of 220 children invited (as of September 2nd)

Total from target area 1/2/3 age 6-36 months: 199 children

2. Healthy Family Visits
 - 42 Healthy Family Visits done in 2021
 - 5 visits were declined
 - 4 HFHH visits to complete for Area 1 catchup
 - HFHH visits now offered to all Area 1 families with new babies
 - Less capacity for visits in September with Blood Lead Clinics, will resume after clinics complete.
 - 20 visits remain to book-some may carry over into 2022.
3. Community Outreach
 - Unfortunately, unable to engage in much outreach work at this time due to Public Health capacity

Additional comments:

Meghan Morris' temporary position has been extended until the end of March 2022. Cecilee to remain as the PHN for the THEP until then.

Home & Garden Report

September 22, 2021

HIGHLIGHTS

1. Summer has ended and the H&G Team is still working hard to complete as many projects, visits, and outreach opportunities as possible before the weather turns. We are still busy connecting with new homeowners moving to the area and considering how we can continue reaching all residents.
2. Soils Program:
 - a. Soil Replacement
 - i. The remediation team and our contractors have completed 40 full yard remediations and 4 vegetable gardens this year. There are still over a dozen properties on the list to have their yards dug out and replaced this year. The team is now actively working on a list of properties for next years work.
 - b. Soil Assessment
 - i. We have connected with many new homeowners signing up for soil testing this year. Over 100 yards and gardens have been sampled and approximately 80 are in our queue to be tested.
 - c. Ground Cover Evaluations
 - i. Ground Cover Evaluations are still offered at this time of year. Specifically, when a new family moves into a home that has already had their soil tested. This is one way we can act quickly and prioritize for remediation if needed.
 - d. Yard Improvement
 - i. Nearly 20 families have received assistance with their property through our Yard Improvement Program and 7 homeowners (without young children) have been provided support as well. We have provided lawn care services to almost 50 families, improving ground cover in areas where children are playing.
2. Healthy Homes:
 - a. Healthy Home visits have returned to in-person visits this summer with virtual visits continuing to be available.
 - i. 49 Healthy Home visits have been completed in 2021.

- ii. Since Spring 2021, Healthy Home visits continue to be offered to families residing in Area 1 (Warfield, Oasis, Casino and Waneta). Going forward our program will connect with any new babies born in these neighborhoods who have not previously had a Healthy Home visit.
 - b. Residential Lead Inspection (RLI) Pilot: Summer dust sampling took place with families that participated in the RLI program late July and August. Our office recently received these results, and will be sharing them with families in the coming weeks.
- 3. Lead Safe Renovation:
 - a. Provides an opportunity for education and supports around the risks of lead exposure during renovations. We receive a lot of positive feedback about the program and the videos on our website. 27 homeowners/tenants have accessed support for their renovation projects since June, bringing the yearly total to over 50.
- 4. Outreach and Engagement: Opportunities are starting to open up for the program.
 - a. The H&G team attended Gyro Park and a residents' house adjacent to the park with Camp Cowabunga and Summer Adventure Camp, put on through Trail Parks & Rec on August 16. This was featured in the Trail Times and resulted in over 30 new soil testing requests.
 - b. The H&G team is once again attending the Fall Blood Lead Clinics to reconnect with families of the program.
 - c. H&G team will be attending the Trail Incredible Market on September 25th to promote soil testing and other available programs.

Community
Representation/
Engagement Working
Group Update

Report from Community Engagement Working Group to THEC

September 2021

Context – Value and History of Community Involvement

- Genuine community engagement has been a widely recognized strength of Trail's approach
- In the early days (1990s), community was directly involved in decision-making to set action plans
- Involvement of community reps (on THEC and/or working sub-groups);
 - bolsters community trust in programs
 - adds valuable local insight to discussion of action options/plans
 - can be complementary to, and consistent with, regulatory frameworks

Mandate and Objectives of the Working Group

- To prepare a proposed action plan, with supporting rationale, for:
 - Expanded and representative community engagement – e.g. new recruitment of THEC members, working group members, outreach to specific groups
 - Rejuvenated community engagement – e.g. new methods for engagement, focus on current questions/issues

Progress to Date

- Agreed on the vision: *“Effective and representative community involvement in/on THEC.”*
- Outlined the landscape in which we are working (the “mural”) including:
 - Desired outcomes to work towards that flow from the vision
 - Context for community engagement (e.g. within existing issues/initiatives)
 - Key supporting and challenging factors to consider
 - Steps to develop and approve the plan
 - Suggestions for specific opportunities to improve engagement

What We Have Heard

- Suggestions and ideas to consider in building the proposed plan.
- Two perceived key challenges:
 1. Low level of community interest (e.g. “things are so much better than before - what else needs to be accomplished?”)
 2. Reduced space for community as actions mostly set by regulators working with Teck.
- Consider how Indigenous communities/governments are represented and/or engaged within THEC/THEP.

How We Are Responding

- Considering all input in developing the proposed plan.
- On the “two key challenges” above:
 1. Define what still needs improvement, and what are the key questions to help us make progress? (i.e. why the community should still be quite interested)
 2. Use Roles document to define where community involvement still fits and adds value. (i.e. where there *is* still space for community)

- Waiting to hear how indigenous representation/engagement is going to be incorporated into the Provincial Trail Health Review Committee. Communications has been sent by the THEC Chair for further guidance.

Next Steps

- Working Group will develop draft plan for discussion/approval by THEC.

Timeline

- November THEC meeting: 'check-in' report and any questions for guidance from THEC.
- February THEC meeting: draft plan shared for discussion.