



## Air Quality Report

February 21, 2023

### 1. Lead in Air:

Averages for lead in air continue to be at historical lows; 2022 annual average for lead in air at Butler Park and Birchbank stations was 0.057  $\mu\text{g}/\text{m}^3$  and 0.033  $\mu\text{g}/\text{m}^3$ , respectively.

As seen in the monthly averages in Figure 2, month to month variability in ambient levels remains relatively low, but the influence of weather including dominant wind direction and precipitation, can be seen in the data.

Figure 3 presents the 3-month rolling average for lead in air measured at the Butler Park station compared to the US EPA standard of 0.15  $\mu\text{g}/\text{m}^3$  (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). Lead in air levels measured at Butler Park and Birchbank meet the US EPA standard of 0.15  $\mu\text{g}/\text{m}^3$  on a 3-month average.

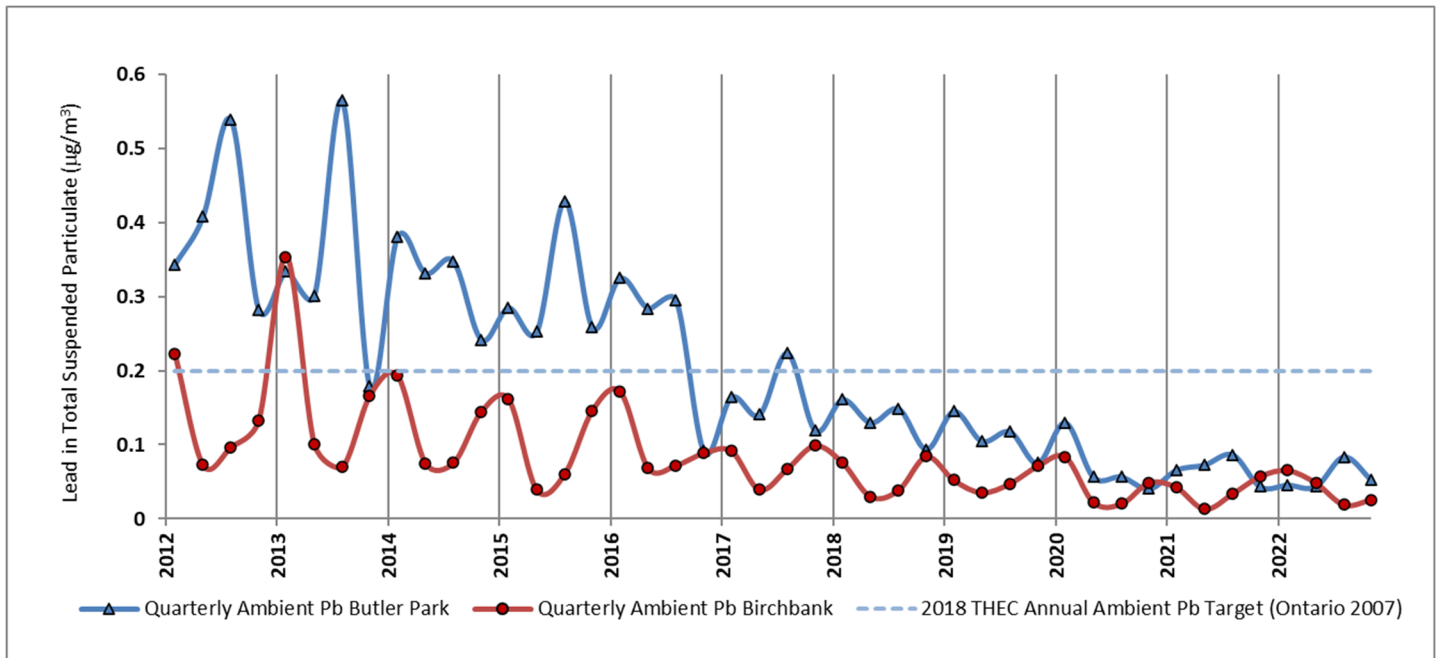


Figure 1: Quarterly monthly average lead at Butler Park and Birchbank stations (as total suspended particulate measured bi-daily)

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).

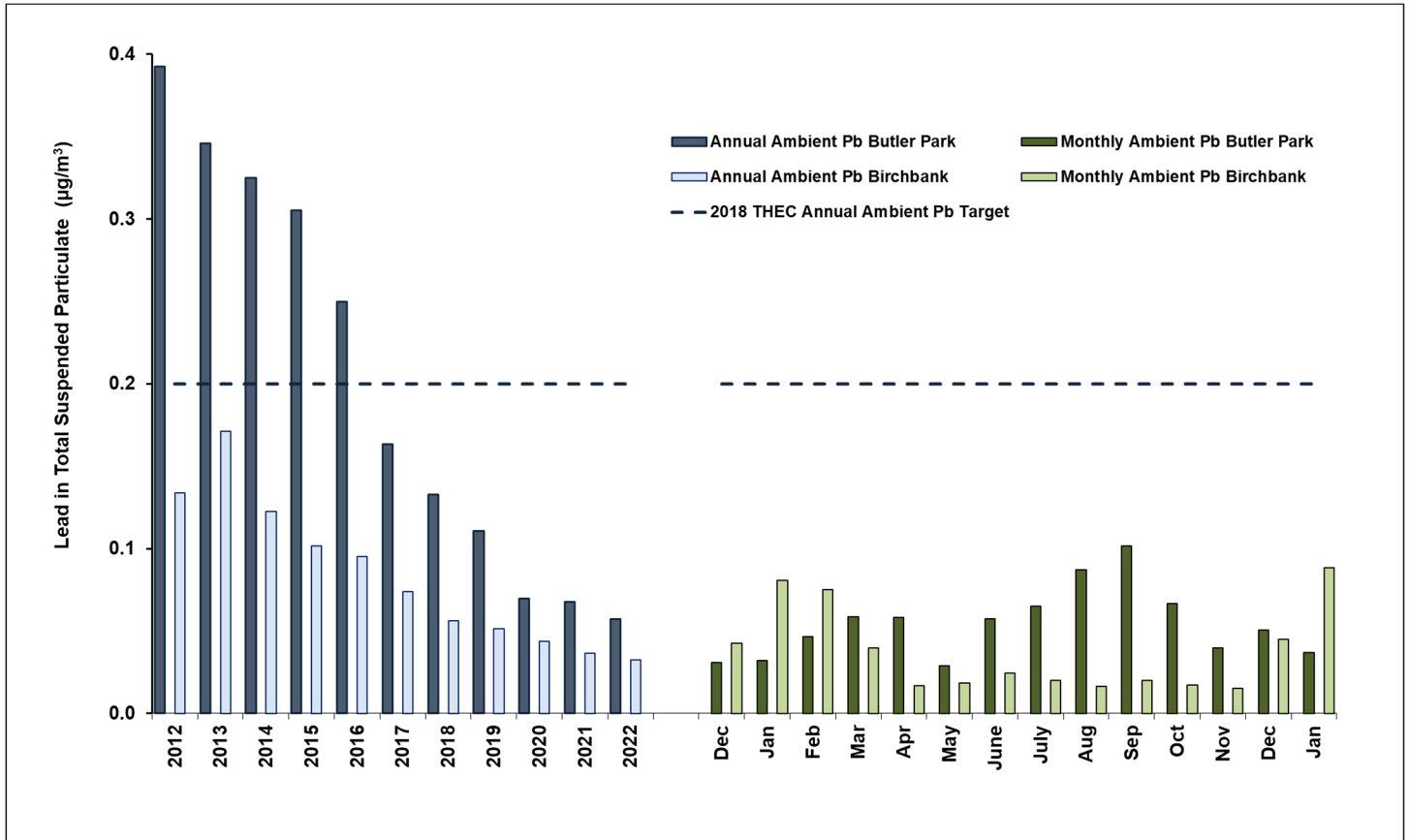


Figure 2: Annual and monthly average lead at Butler Park and Birchbank stations (as total suspended particulate measured bi-daily)

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 Target 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.

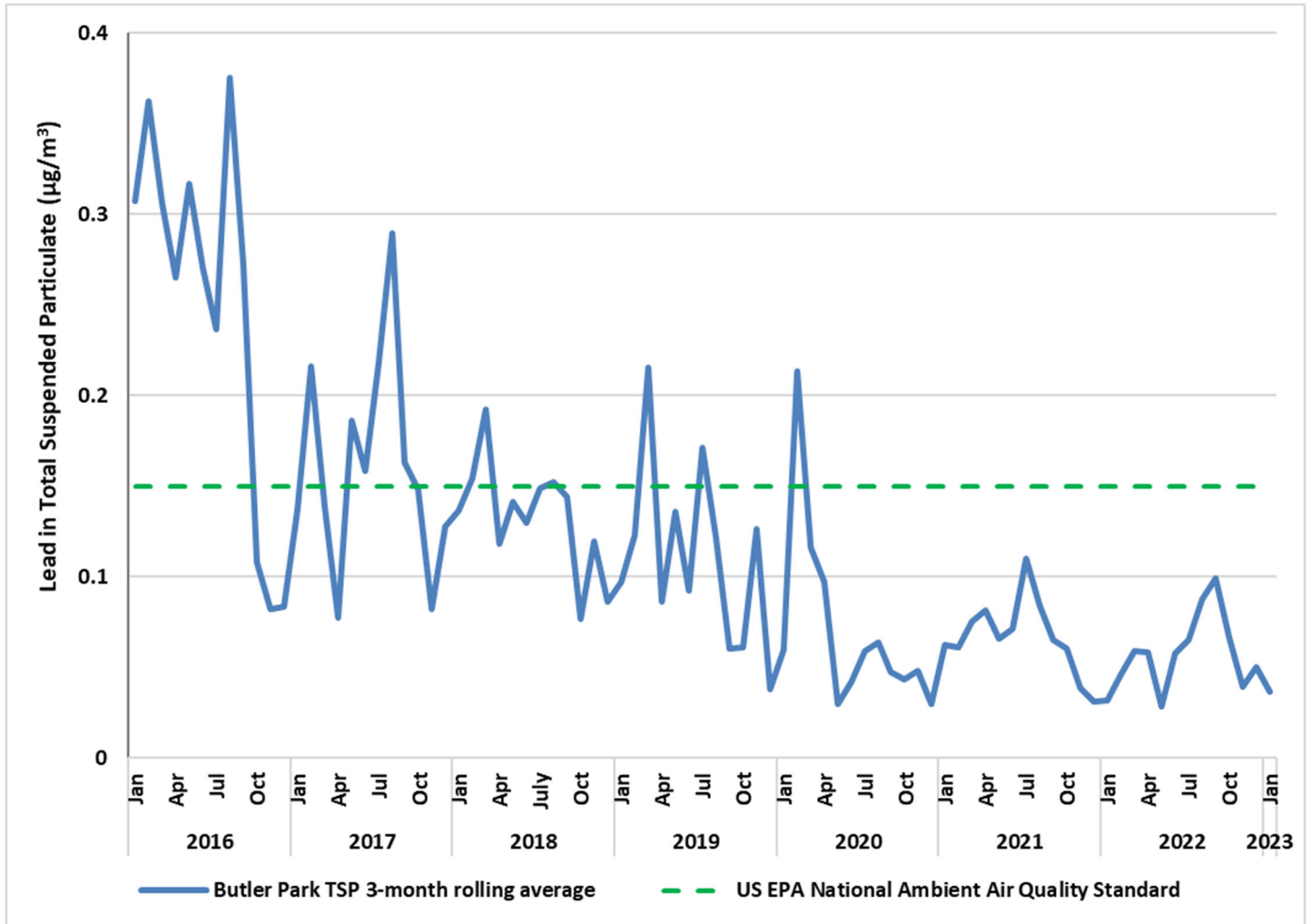


Figure 3: 3-month rolling average lead in air at Butler Park station (as total suspended particulate measured bi-daily)

The chart in Figure 3 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).

## 2. Arsenic in Air:

Averages for arsenic in air continue to be at historical lows. 2022 annual average for arsenic in air at Butler Park and Birchbank was  $0.002 \mu\text{g}/\text{m}^3$ .

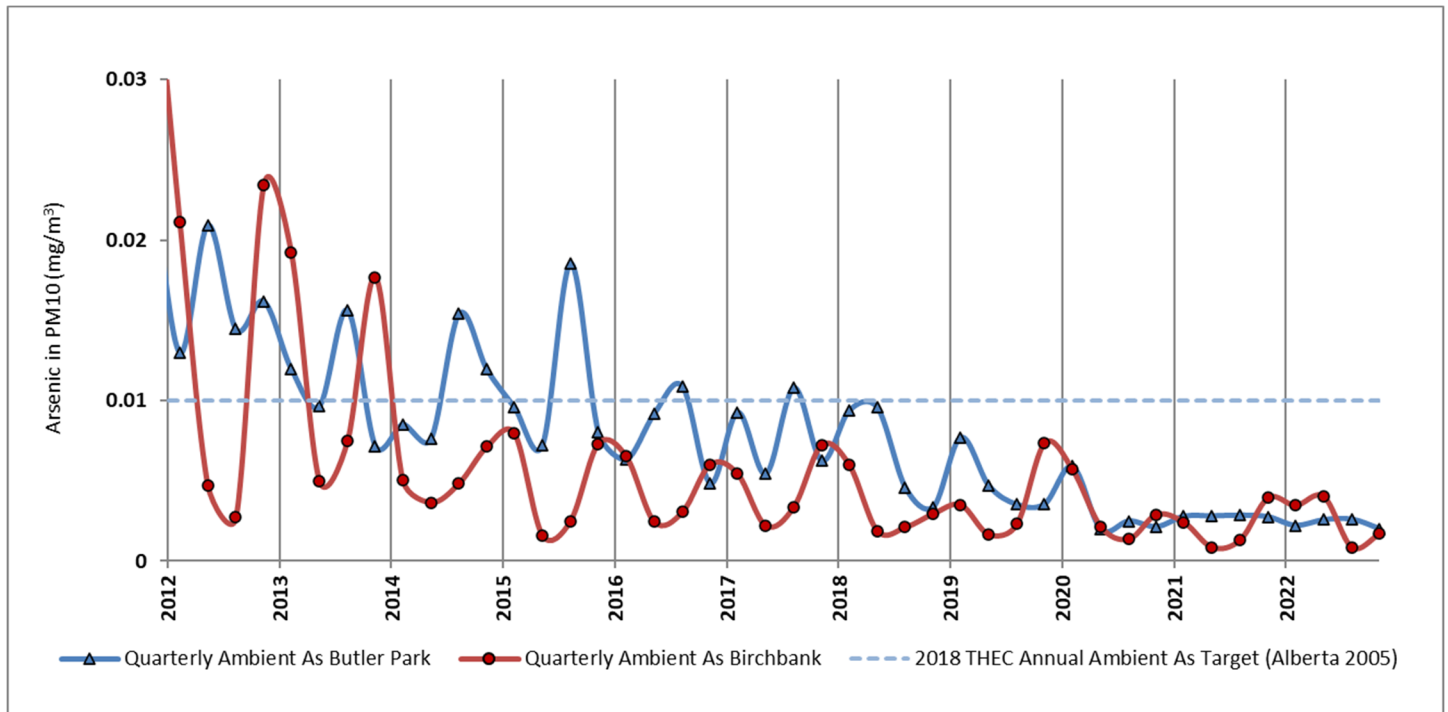


Figure 4: Quarterly average arsenic at Butler Park and Birchbank stations (as inhalable PM<sub>10</sub> fraction measured weekly)

The chart in Figure 4 shows the annual average for Arsenic in air (measured as inhalable PM<sub>10</sub> fraction) at Butler Park (blue) and Birchbank (red) in comparison to the 2018 THEC Air Quality Objective (blue line).

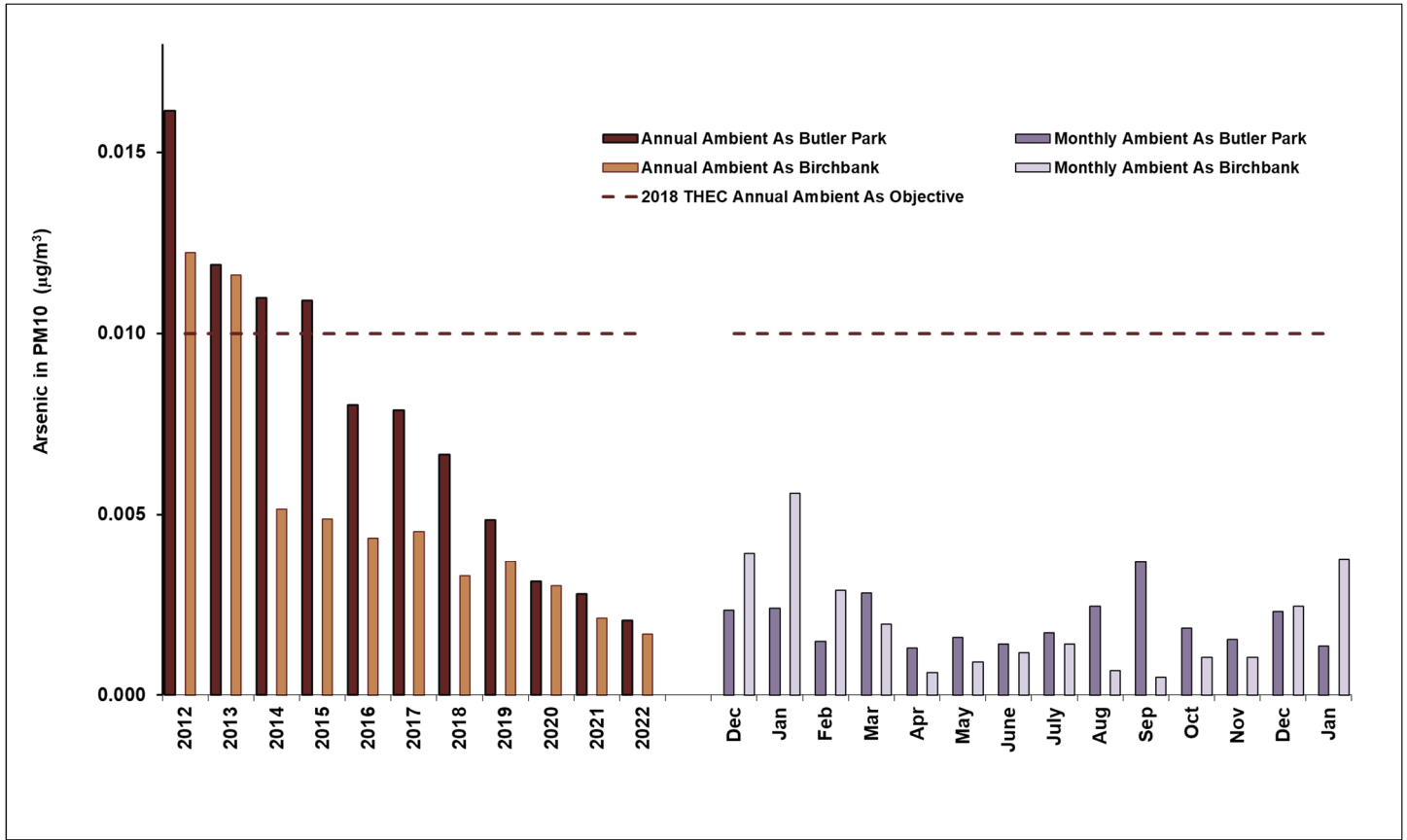


Figure 5: Annual and monthly average arsenic at Butler Park and Birchbank stations (as inhalable PM10 fraction measured weekly)

The chart in Figure 5 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 Arsenic in Air Target 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.

### 3. Sulphur Dioxide (SO<sub>2</sub>):

SO<sub>2</sub> is emitted by Teck Trail Operations as a by-product of processing mine concentrates, which contain sulphur, into metal and chemical products. 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. With environmental improvements, SO<sub>2</sub> emissions continue to decline. However, the dispersion of air emissions from the smelter is constrained due to the location of the smelter, weather and the surrounding topography.

SO<sub>2</sub> 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 [here](#) SO<sub>2</sub> levels fluctuate throughout the day, month and year.

THEP's SO<sub>2</sub> Fact Sheet provides guidance for actions to take when SO<sub>2</sub> levels are elevated. The chart below provides SO<sub>2</sub> hourly data from Butler Park and Birchbank stations for the last 10 years categorized by the health guidance levels. As Teck Trail Operations continues to implement emissions reductions measures, the percentage of hours within the yellow (35-185 ppb) and red (>185 ppb) categories is decreasing. In 2022, there were no hours in the red (>185 ppb) category at Butler Park or Birchbank stations.

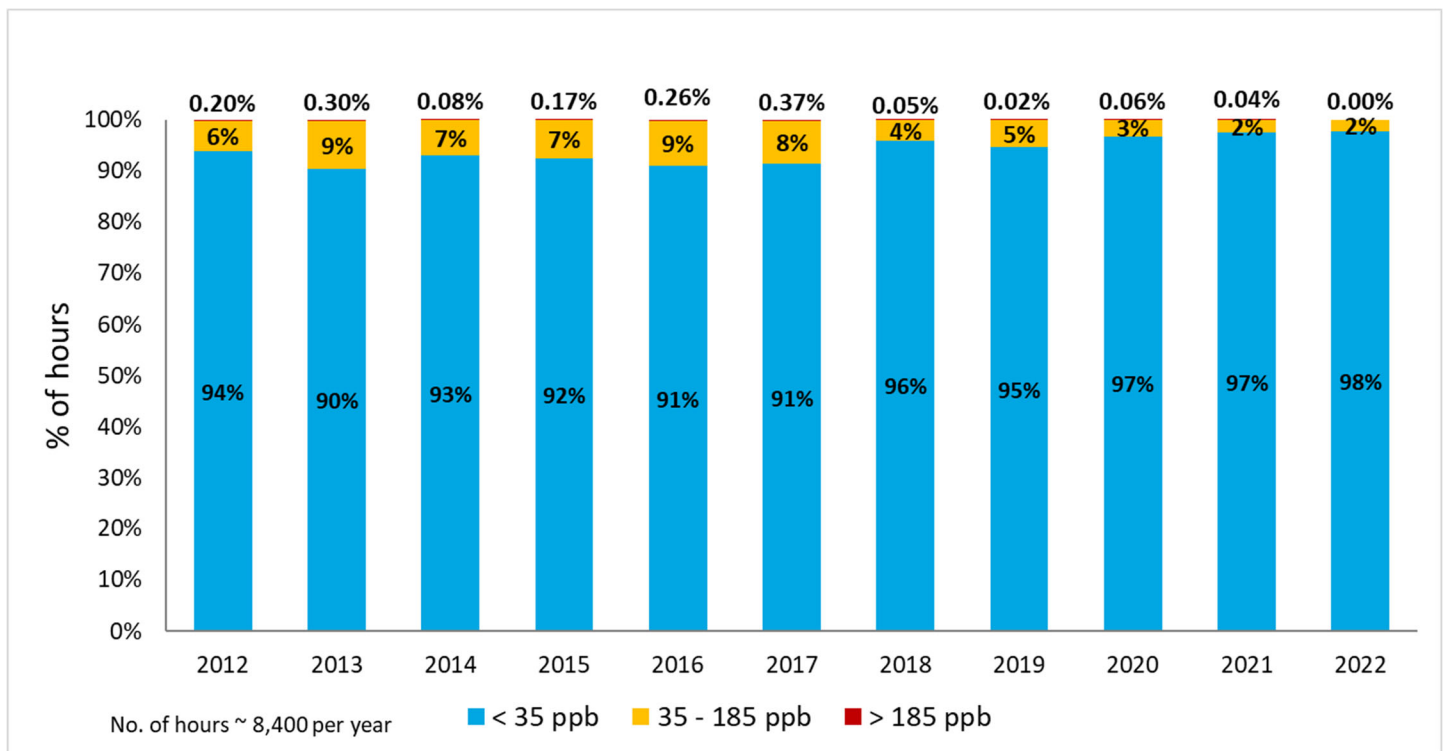


Figure 6: Distribution of Hourly SO<sub>2</sub> Levels at Butler Park

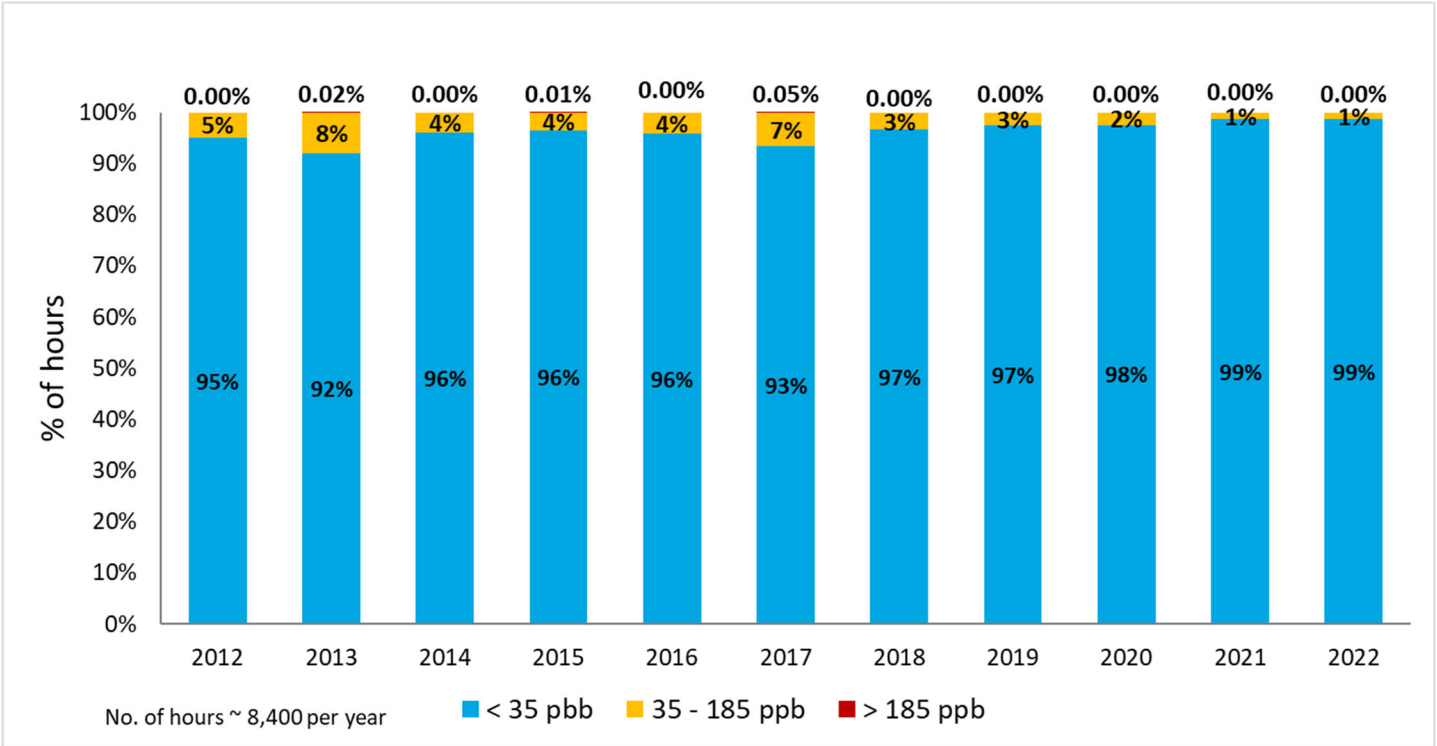


Figure 7: Distribution of Hourly SO<sub>2</sub> Levels at Birchbank

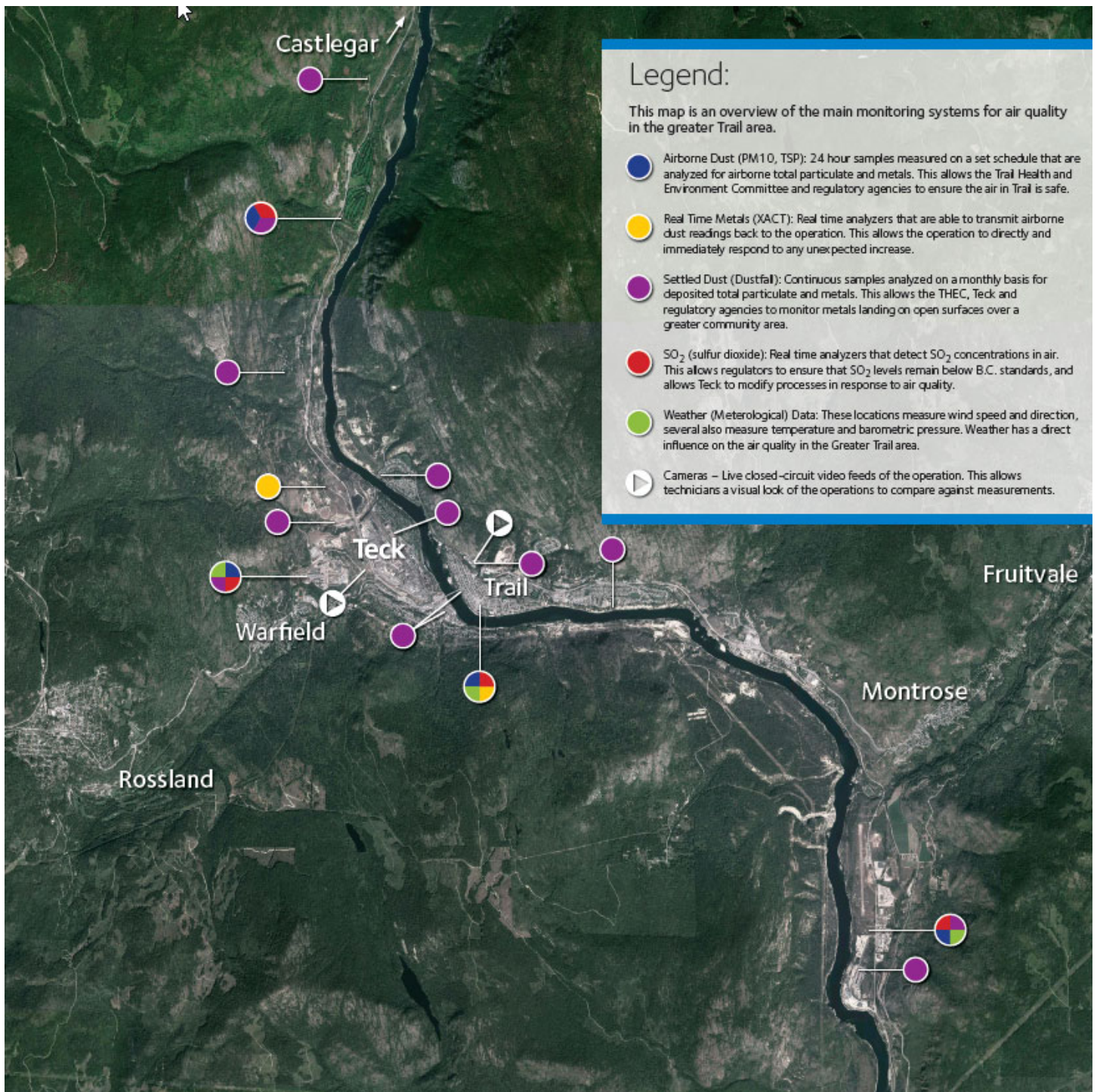


Figure 8: Teck Community Air Monitoring Stations