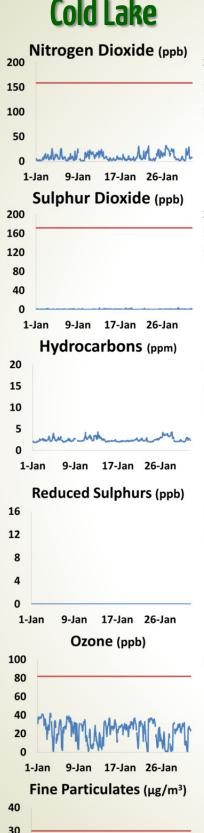
Air Quality Monitoring DASHBOARD REPORT





Continuous Monitoring Stations

Cold Lake



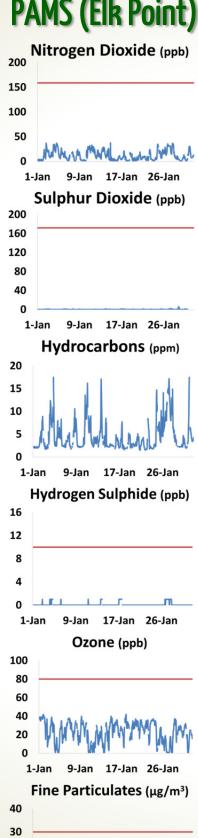
20

10

9-Jan

17-Jan 26-Jan

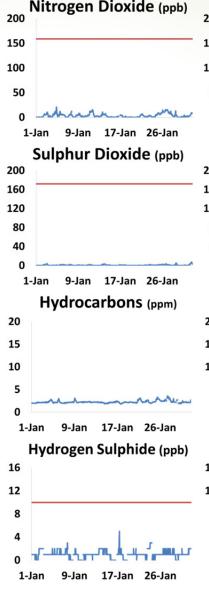
PAMS (Elk Point)

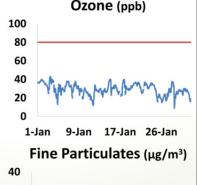


20

17-Jan 26-Jan

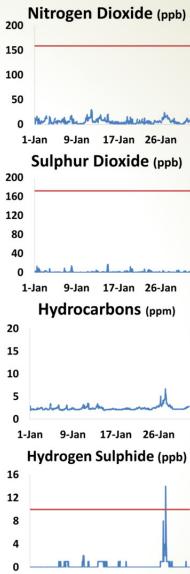
St. Lina







Maskwa



Notable observations for Jan 2013:

17-Jan 26-Jan

9-Jan

1-Jan

- Air quality was rated as "Low Risk" over 90% of the time at the Cold Lake, St. Lina, and portable monitoring stations.
- In this series of charts, the blue line indicates the pattern of measurements over a onemonth period; the red line indicates the applicable Alberta Ambient Air Quality Objective (AAAQO) established for the respective
- There was one exceedence of the 1-hour AAAQO for hydrogen sulphide at the Maskwa station. An investigation by operators in the area found that a gas compressor on a production pad upwind of the station was shut-down due to low seal water level. As intended, the pressure safety valve on the vent separator vessel lifted to safely relieve the pressure. Field operations staff quickly responded by closing the vent valves on the wellheads to isolate the sources of gas (ESRD Reference #266784).

Passive Monitoring Stations



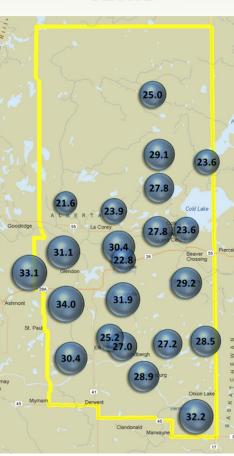
This series of bubble maps present monthly average concentrations in parts per billion (ppb).

Displaying data this way illustrates the spatial patterns of the parameters monitored in the LICA passive monitoring network.

Nitrogen Dioxide



Ozone



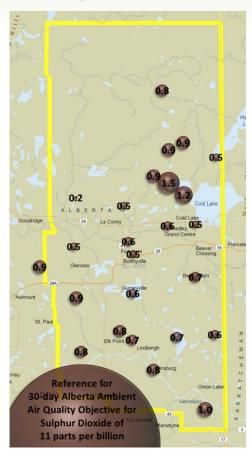
Minimum-Maximum-Average (ppb)
Monthy Ozone: 2011 - 2012

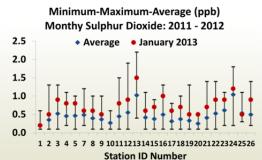
* Average * January 2013

45
30
15
0
1 2 3 4 5 7 8 9 1011 12 13 14 15 16 17 18 19 20 21 25 26

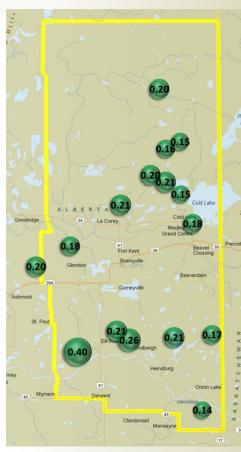
Station ID Number

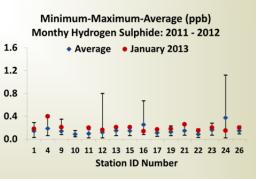
Sulphur Dioxide





Hydrogen Sulphide





Monthy Nitrogen Dioxide: 2011 - 2012

15

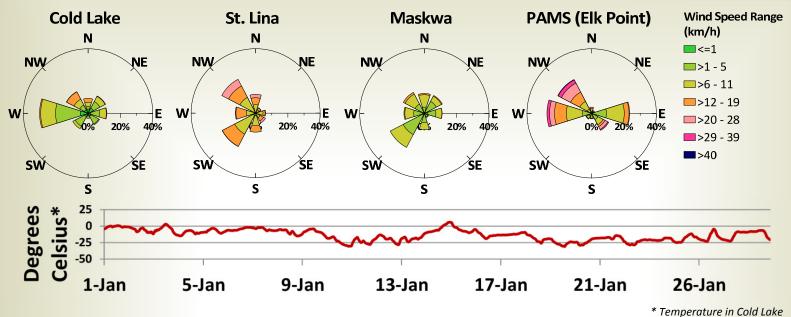
Average January 2013

Station ID Number

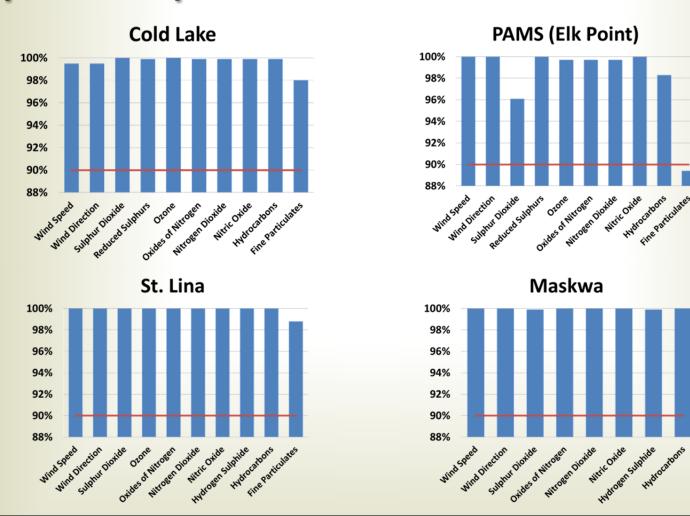
Minimum-Maximum-Average (ppb)

Wind Speed, Wind Direction, Temperature





Operational Uptime



Notes on instrument uptime: The Alberta Air Monitoring Directive (1989) requires that real time instrumentation must be operational at least 90% of the time on a monthly basis (indicated by the red line on the above charts). In January 2013, the particulate matter analyzer at the portable air monitoring system (PAMS) located at Elk Point had several operational issues. With assistance from Alberta Environment and Sustainable Resource Development (ESRD) and particulate matter analyzer specialists, LICA was able to resolve the issues however, overall instrument operational uptime was less than the required 90% (ESRD Reference #268338).

Regional Monitoring Network Map





Passive Monitor: Sulphur Dioxide



Passive Monitor:

Ozone



Passive Monitor:

Nitrogen Dioxide



Passive Monitor:

Hydrogen Sulphide



Continuous Monitor:

Sulphur Dioxide, Hydrogen Sulphide, Oxides of Nitrogen, Total Hydrocarbons, Meteorology



Continuous Monitor:

Sulphur Dioxide, Hydrogen Sulphide, Oxides of Nitrogen, Ozone, Methane/Non-Methane Hydrocarbons, Particulate Matter, Meteorology



Continuous Monitor:

Sulphur Dioxide, Hydrogen Sulphide, Oxides of Nitrogen, Ozone, Total Hydrocarbons, Particulate Matter, Meteorology



Continuous Monitor:

Sulphur Dioxide, Total Reduced Sulphurs, Oxides of Nitrogen, Ozone, Total Hydrocarbons, Particulate Matter, Meteorology



Polycyclic Aromatic and Speciated Hydrocarbons:

Routine 1-in-6 Day Samples



Polycyclic Aromatic and Speciated Hydrocarbons:

Routine 1-in-6 Day Samples High Non-Methane Hydrocarbon Triggered Samples



Soil Acidification Monitoring Plot:

pH, Soil Texture, Electrical Conductivity, Soluble Ions, Cation Exchange Capacity - Buffered,/Unbuffered, Exchangeable Cations, Total Carbon, Total Nitrogen, Total Sulphur, Available Ammonium, Available Nitrates, Available Phosphorous



Station Identification

- Sand River
- 2 Therien
- 3 Flat Lake
- Lake Eliza
- Telegraph Creek
- Muriel-Kehewin
- Dupre

- La Corey
- 10 Wolf Lake
- 11 Foster Creek
- Primrose
- 13 Maskwa
- 14 Ardmore
 - Frog Lake

- 16 Clear Range
- **17** Fishing Lake
- 18 Beaverdam
- 19 Cold Lake South
- Medley-Martineau 20
- 21 Fort George
- **Burnt Lake**

- Mahihkan
- 24 Hilda Lake
- 25 Town of Bonnyville
- St. Lina
- 27 **Portable Station**

