

September 2011

Alberta's air quality depends on many factors including the rate at which substances are emitted to the atmosphere and how they are dispersed within the atmosphere. When pollutants are emitted into the atmosphere, their dispersion is affected by weather conditions and the local surroundings. Wind speed and direction, temperature, humidity, sunlight availability, atmospheric stability (vertical mixing) and the presence of other substances in the atmosphere can affect dispersion and deposition.

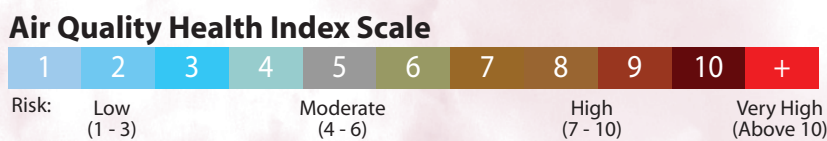
Industrial emissions, including those from oil sands activities, have a major influence on Alberta's air quality. They contribute to acid deposition, smog and the greenhouse effect. In Alberta's urban areas, motor vehicles also have a noticeable effect on air quality.

The **Air Quality Health Index (AQHI)** is a tool designed to help you understand what the air quality around you means to your health. It will provide you with the information you need to protect your health by:

- limiting short-term exposure to air pollution during air quality events
- adjusting your activity levels during air pollution events

It is also intended to provide advice on actions you can take to improve the quality of the air you breathe, especially in urban areas.

The AQHI is reported on a scale of 1 to 10+, with higher numbers indicating a higher health risk:



Oil Sands Air Quality Challenges

Releases of substances to the atmosphere from industrial activities, such as oil sands production and processing, are regulated by Alberta Environment. In addition, air monitoring stations are located throughout the oil sands area to monitor concentrations of pollutants.

Sulphur Dioxide (SO₂)

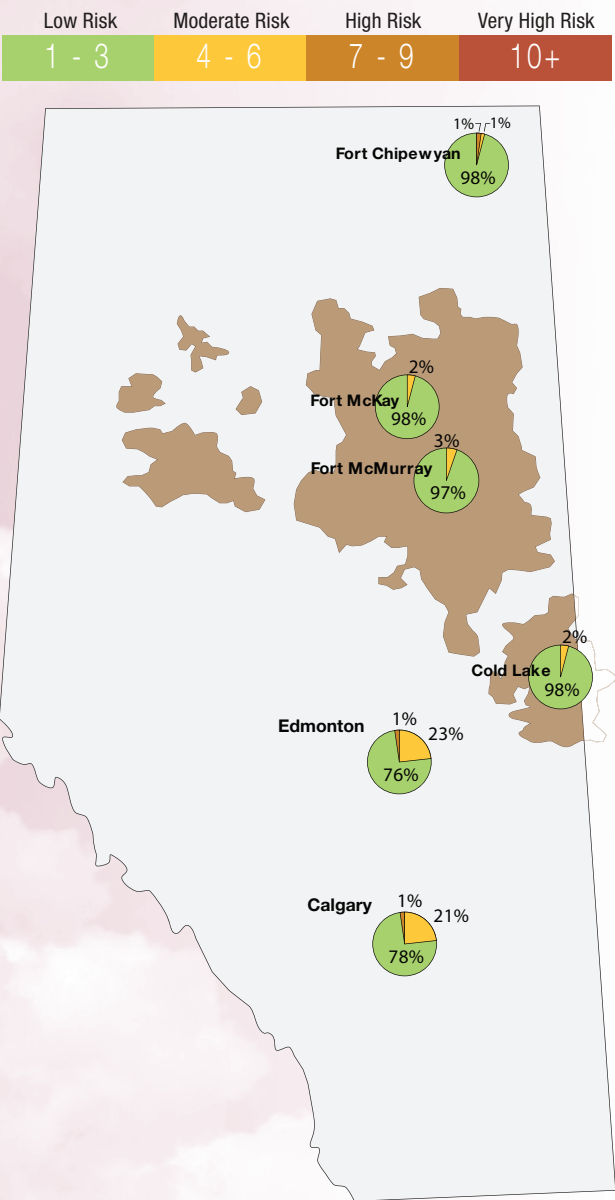
Sulphur dioxide can cause health effects and is a key contributor to acid deposition, including acid rain. It is also contributes to particulate matter. Sulphur dioxide is a compound that is released to the atmosphere when fossil fuels, such as bitumen recovered from oil sands, are processed.

Nitrogen Dioxide (NO₂)

Nitrogen dioxide is part of a family of gases known as nitrogen oxides (NO_x), formed through burning at high temperatures. Presence in the atmosphere has health and environmental effects; it also contributes to ground level ozone and particulate matter. Nitrogen dioxide is emitted to the atmosphere from transportation, mine fleets and stationary heating equipment. Concentrations of nitrogen dioxide are expected to increase with continued development in oil sands production. Actively managing the sources of nitrogen dioxide will remain a priority in managing air quality.

Odour causing substances:

Odours may originate from various compounds in the air. Emissions of volatile organic compounds or reduced sulphur compounds (such as hydrogen sulphide with its characteristic "rotten egg" smell) can create odour issues surrounding industrial development. Managing odours and the substances that create odours continues to be a challenge for industry, regulators and residents in the area. Local organizations are working together to gain a better understanding of the sources and potential mitigation options.



2010 Air Quality Health Risk

