

LARP



Lower Athabasca Regional Plan:

Annual reporting on air quality
and surface water quality



Why we monitor the environment

- Monitoring is a key component of the environmental management frameworks in our regional plans – it's how we know if we're on track to meet our environmental objectives. But it's not useful on its own – we need to know how to interpret the data.
- Objectives are set within the frameworks so we can know whether we are adequately managing the cumulative effects of development in the region.
- These frameworks include indicators; the indicators and associated thresholds help us interpret monitoring results.
- Two key types of thresholds in these frameworks are limits and triggers:
 - Limits are what they sound like – levels of pollutants and other substances that pose an unacceptable risk and cause us to take immediate action.
 - Triggers are levels that tell us limits are being approached. They are our early warning devices – they help us take corrective action before limits are crossed.
- In addition to indicators and thresholds, management frameworks also establish appropriate responses to monitoring results, and standards for reporting these results to the public.

How we monitor air and water quality

- **Air Quality**



- **Surface Water Quality**



- Ambient air quality is assessed on the basis of two indicators – sulphur dioxide (SO₂) and nitrogen dioxide (NO₂). These indicators are monitored hourly at more than a dozen stations in the region.
 - Limits and two kinds of triggers – annual average and peak – have been established for each indicator, based on Alberta's Ambient Air Quality Objectives.
- Surface water quality is assessed on the basis of 38 indicators, which are measured monthly at the Old Fort monitoring station, located downstream of oil sands development on the lower Athabasca River.
 - Average annual and peak triggers have been established for all 38 indicators, and 21 indicators have been assigned limits. The limits are based on the most stringent provincial water quality guidelines available.

The Lower Athabasca Regional Plan: 2012 monitoring results

- The first annual environmental monitoring cycle under the Lower Athabasca Regional Plan was from January 1 to December 31 2012.
- In 2012, we found that none of the air and water quality limits were crossed, meaning that we are meeting the environmental objectives established for the region.
- However, some early warning triggers were crossed for certain air and water indicators at several of our monitoring stations. Specifically:
 - Ten air monitoring stations (see box, below) had nitrogen dioxide and/or sulfur dioxide above trigger levels.
 - Total nitrogen, dissolved uranium and dissolved lithium were above trigger levels at the Old Fort monitoring station.



How we're taking action

We are committed to responding to the 2012 monitoring findings to ensure that the limits are not reached. Here's how:

Air Quality

- A preliminary assessment was undertaken to determine whether natural circumstances (like forest fires) contributed to nitrogen dioxide and sulfur dioxide trigger levels being exceeded.
- We are now looking for human emissions sources and wind conditions that might be contributing to the observed triggers and determine whether there is a need to adjust our management approach.

Surface Water Quality

- We are currently assessing whether total nitrogen, dissolved uranium and dissolved lithium levels in 2012 were fluctuating within the range observed in past years, or whether an increasing trend is developing. If we establish a trend, we will take appropriate measures to understand the cause for the trend, including steps to rule out causes such as changes in river flow.



What this means for you

- No limits in either the air or surface water quality frameworks have been crossed. This means that regional environmental objectives are being met.
- Our indicators and triggers are working as intended – giving us an early warning that certain pollutants may be increasing. This allows us to better understand the causes of trends and address them by adjusting our management approaches before they pose an environmental or human health risk.
- We will continue to report to you on air and surface quality conditions in the Lower Athabasca Region, with the next report on the 2013 monitoring results within one year.