

NRCB installation of CTair unit in High River

Frequently Asked Questions

1. Why hasn't the NRCB placed a CTair unit in High River before now?

The NRCB received the CTair unit (our first) within the last few weeks. High River is the first location where it is being installed.

2. What is the goal of this unit?

There are two main goals of this unit:

1. To help understand the relative contribution of odour-causing parameters from the variety of sources in proximity to the Town of High River
2. To help assess the effect on odour emissions of management practices at confined feeding operations.

3. Will this help determine the source /cause of the odours?

If the parameter(s) measured by the CTair unit High River can be linked to odour events, then wind speed and direction will be used to identify possible odour sources.

The CTair unit is portable and can be relocated by the NRCB to confirm potential odour sources and their possible impact on High River. The CTair can be located adjacent to an operation to measure the concentration of odours being emitted at that location and the effect(s) of changes in management practices on odour emissions.

4. How does the CTair work and what does it measure?

The CTair is a small, portable unit the size of a shoebox that can be mounted to a pole or a wall and is powered with a solar power module.

The unit contains specialized sensors that measure air quality parameters with odour potential: reduced sulphur, ammonia, and volatile organic compounds.

Humans experience odour, but electronic instruments can only measure the levels of individual air quality parameters. However, the CTair contains an odour integration module that uses artificial intelligence to combine the concentration data from individual parameters into an odour index. This odour index will provide a numerical value for how someone would be expected to experience the odour of a particular combination of individual parameter levels.

5. How will the odour index relate to NRCB requests for complainants to rate odour from 1 to 10?

The odour index will be calculated using a proprietary integration method whereas a complainant's ranking on a ten-point scale is subjective. Because of these differences the odour index may not strongly correlate with a complainant's ranking. However, the NRCB intends to correlate the odour index calculations with complainant rankings to assess the relationship between these approaches.

6. How is this unit different than what CRAZ is already measuring in High River?

Although the CTair and portable air monitoring laboratory both measure reduced sulphur compounds, the methods used are different. The CTair measures parameters through electrochemical sensors, and its sensor measures reduced sulphur directly. Conversely, the portable air monitoring laboratory measures reduced sulphur as the difference of oxidized sulphur concentrations that are measured before and after an oxidation chamber. However, it is expected that the CTair, which relies on simpler technology, may not be as sensitive in detecting reduced sulphur as the portable air monitoring laboratory.

Ammonia and volatile organic compounds measured by the CTair are not currently being measured by the portable air monitoring laboratory.

The CTair has lower power requirements than the portable air monitoring laboratory and is serviced with a solar power module. Therefore, the CTair can be moved quickly and to locations without line power, so has greater flexibility in possible monitoring locations than the portable air monitoring laboratory.

The portable air monitoring laboratory has sensors that are more sensitive and capable of providing more accurate air quality data; however, these units are more costly to purchase and operate than the CTair.

7. Why isn't the data being posted in real time?

The CTair is a new technology that is being used for the first time by the NRCB and CRAZ partners. Because of this, quality assurance and control protocols will need to be developed to ensure that the data released to the public is verified and accurate.