



Northeast British Columbia Air Quality Monitoring Project

Article 2: AIR QUALITY PRIMER

Last week in this space, the BC Ministry of Environment (MoE) outlined a government-industry air quality monitoring project in the Peace River Regional District in northeastern B.C.

This week and in the series of articles that follow, we will provide more information about the air monitoring project and air quality in the Peace region. This article gives an overview of some common air pollutants.

B.C. regulates air pollutants that have potential health, odour or environmental impacts. It has adopted ambient (outdoor) air quality objectives or standards for many air pollutants. Ambient air quality objectives are limits on the acceptable levels of contaminants in the atmosphere. See <http://www.bcairquality.ca/regulatory/air-objectives-standards.html> for more information.

Some common air pollutants are briefly described below. These pollutants can originate from many sources. For the purpose of this article, the information provided is described in context of the oil and gas industry.

Sulphur dioxide (SO₂) is a gas formed from the combustion of fuels containing sulphur. Primary sources of sulphur dioxide from the oil and gas sector include the flaring or burning of hydrogen sulphide, gas “sweetening” processes, and the use of fuels containing hydrogen sulphide in engines or turbines. Sulphur dioxide is measured at all four new monitoring stations the ministry has installed in the Peace region.

Volatile organic compounds (VOCs) are compounds that easily evaporate. They include toxic substances such as benzene, toluene, ethylbenzene and xylene, all found in gasoline. VOCs can originate as leaks and other accidental emissions in the oil and gas industry.

Total reduced sulphur (TRS) are gases that, because of their rotten-egg odour, generate large numbers of public complaints even at concentrations well below levels that impact human health. They can be emitted from oil and gas sources through leaks and accidental releases. Hydrogen sulphide (H₂S) gas is usually a large part of total reduced sulphur, which is also measured at the four new monitoring stations in the Peace region.

Nitrogen oxides (NO_x) are gases that include oxides of nitrogen (NO and NO₂). These are produced by all combustion sources including those in the oil and gas industry, such as natural gas-fired compressors.

Particulate matter refers to microscopic airborne particles, including smoke. Particulate matter contains both liquid and solid matter and can impair visibility as well as enter the lungs and impact health. Particulate matter is a relatively minor pollutant from oil and gas activity.

Ground level ozone (O₃) is a naturally occurring gas that is created from nitrogen oxides and volatile organic compounds in the presence of sunlight. Ozone is the main component of photochemical smog but, in the Peace region, it does not usually reach the high levels that can be common in large urban, smoggy, southern communities in summer.

Keep your eye on this section for future articles, including more air quality facts, information about the project, and results to date. A regular article will keep you updated on the status of your region's air quality.

Prepared by: Judi Krzyzanowski BSc, MSc, PhD

- More information on Northeast BC air quality, including current readings, is at <http://www.bcairquality.ca/readings/northeast.html>
 - For concerns related to oil and gas, please contact the OGC at 250-794-5200
-