



REDWATER GYPSUM STORAGE AREA EXTENSION FAQS ON RISK ASSESSMENTS

What is an environmental risk assessment?

A risk assessment is a decision-making tool. It is used to determine whether a project, like the extension of the phosphogypsum storage area at the Redwater facility, poses unacceptable human health or ecological risk. In Canada, the Canadian Environmental Assessment Act provides risk assessment guidance. The Act defines environmental risk assessment as a systematic process for identifying, analyzing and evaluating potential effects from exposure to chemicals in air, water, and soil. There are two main types of risk assessment: human health risk assessment and ecological risk assessment. Both of these were performed for the Agrium Redwater Gypsum Storage Extension project.

Environmental risk assessments provide information about potential impacts of chemicals on human health and the environment so that health-protective decisions can be made.

What is a human health risk assessment?

A health risk assessment is a report that estimates the possibility of health effects from human exposure to chemicals. For the extension project, the likelihood of health problems resulting from long-term exposure to fluoride in air, soil, edible plants and cow's milk was evaluated.

What is an ecological risk assessment?

An ecological risk assessment is a report that estimates the possibility of adverse impacts on vegetation and wildlife from possible exposure to chemicals. An ecological risk assessment is similar to a human health risk assessment and includes exposures to chemicals from air, water, or soil, as well as exposures through food. For the extension project, the likelihood of adverse effects on white tail deer and on plants from Fluoride exposure was evaluated.

Risk assessments are performed according to regulatory guidance documents and accepted modeling methods.

Who conducts risk assessments?

Health and ecological risk assessments are usually undertaken by professional risk assessors with expertise in several different areas. Agrium hired a team of risk assessment professionals to perform this risk assessment with expertise in toxicology, ecology and computer modeling. As the regulatory agency charged with ensuring that the extension project is done safely, Alberta Environment is reviewing the assessment. The process and results are open to the public and public input is welcomed.

How accurate are health risk assessments?

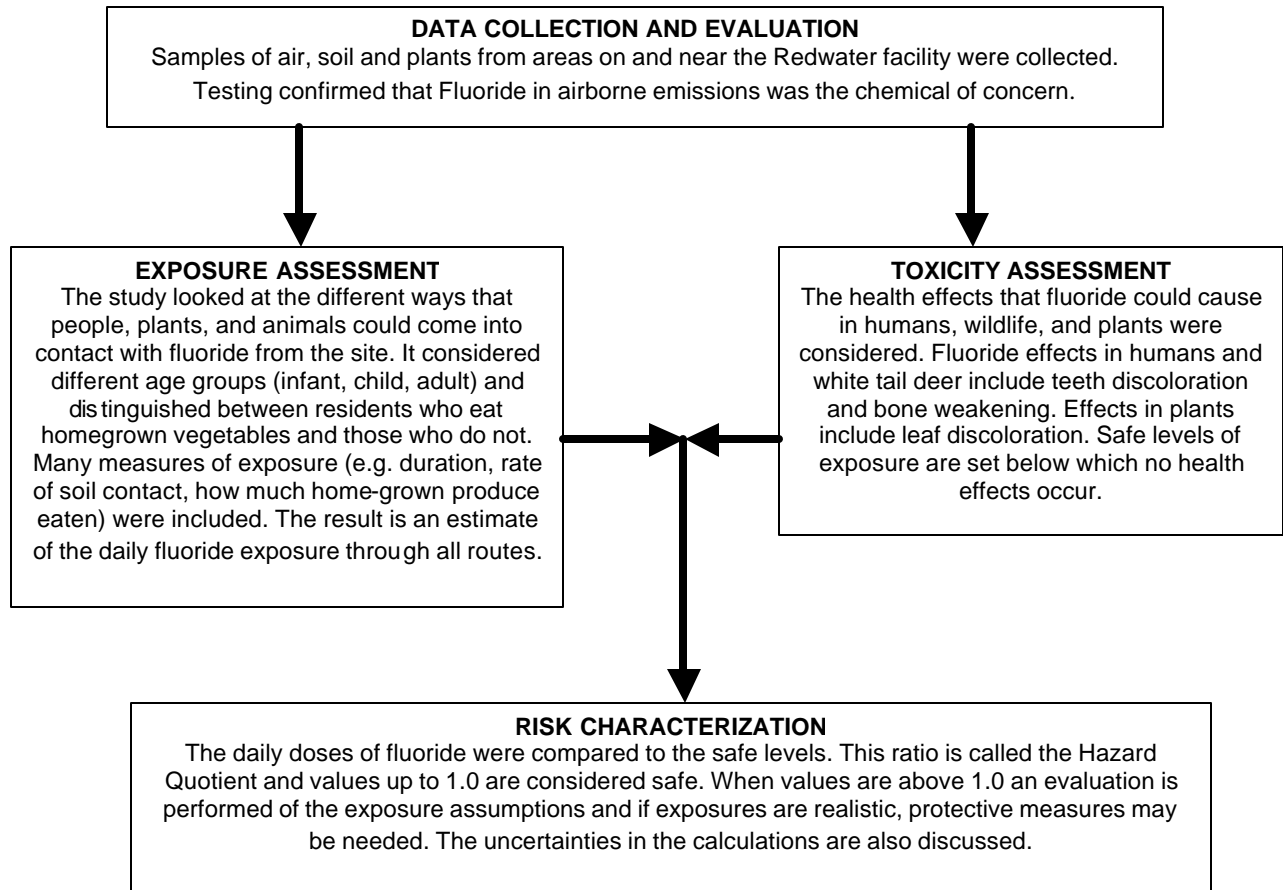
Health risk assessments do not pinpoint exact health risks because exact information on toxicity and exposure are often not available. Instead, they describe the "worst case" in a range of possible risks. Risk analysts make assumptions designed to overestimate the potential risk in order to be protective of public health. An example of

Risk assessments estimate risks associated with "worst case" exposure assumptions.

this is the assumption that a typical resident near the facility spends 20 hours per day for 30 years at home. With this information, decision makers who use the risk assessment results can be confident that potential health impacts have not been underestimated.

What are the steps in a risk assessment?

Both health and ecological risk assessments are conducted using a four-part process:



What do the results mean?

Regulatory agencies consider all the steps in the risk assessment when interpreting the results. For chemicals such as fluoride that do not cause cancer, the risk assessment results are presented as a single number called the Hazard Quotient. When this number is less than or equal to a value of 1.0, it means that health effects are not expected. A Hazard Quotient of greater than 1.0 means that more evaluation is needed to determine the likelihood that the exposures could actually occur. For example, in this risk assessment, Hazard Quotients over 1.0 are associated with an infant or child drinking 50% of his or her milk and eating 50% of his or her fruits and vegetables from a home-grown source. Since actual exposures are likely to be lower the corresponding risks would also be lower.

How can I get more information on the risk assessment for the phosphogypsum stack extension at Redwater?

A copy of the risk assessment is available at the Redwater, Gibbons and Fort Saskatchewan municipal libraries. A copy will also be posted on the Agrium website and can be accessed at www.agrium.com. If you would like your own copy you can call Gale Birch at 998-6134. If you have questions you can contact Mike Fedunec at the Redwater facility at 998-6312.