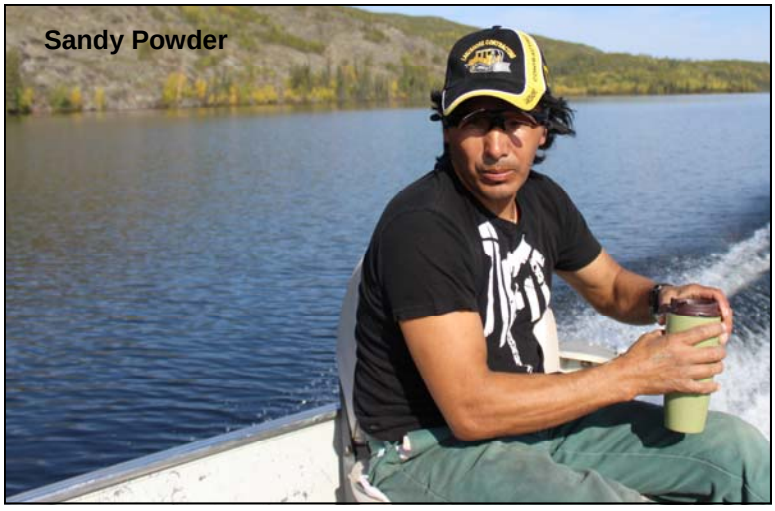
Uranium City 2012

Athabasca Working Group Environmental Monitoring Program

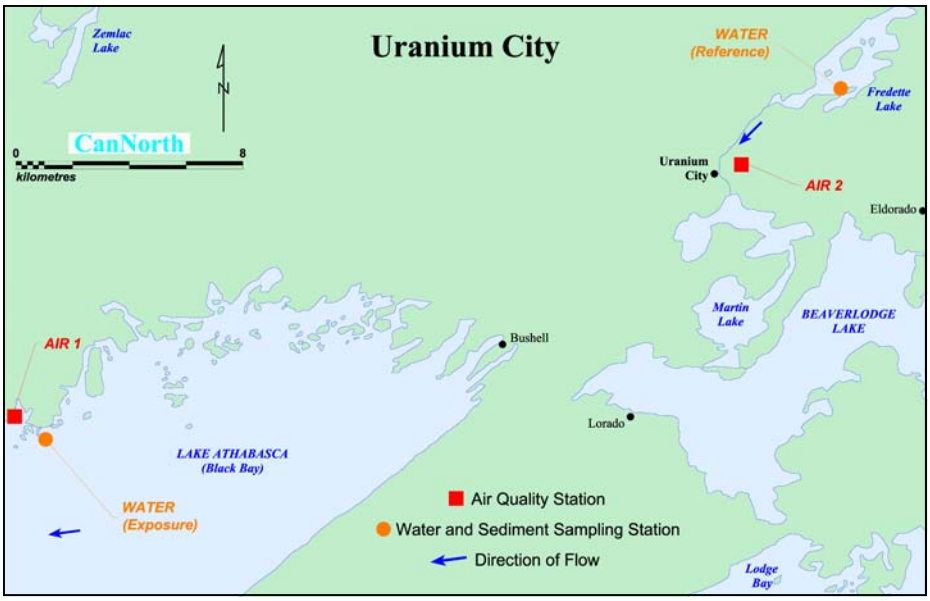
The Athabasca Working Group (AWG) environmental monitoring program began in the year 2000 and provides northern residents with the opportunity to participate in sampling the environment around their communities for parameters that could come from active and historical uranium mining and milling operations. Parameters can potentially spread by water flowing from lakes near past and present uranium operations, and small amounts may also be spread through the air. In order to address public concerns, lakes, rivers, plants, wildlife, and air quality are tested in northern Saskatchewan near the communities of Uranium City, Stony Rapids, Wollaston Lake/ Hatchet Lake, Black Lake, Fond-du-Lac, and Camsell Portage.

Selection of the types of plants and animals sampled, the locations sampled, and the sample collections were carried out by, or with the help of, northern community members. The purpose of this brochure is to inform the public of the results from the 2012 AWG environmental monitoring program that was completed in the Uranium City area.



Sandy Powder

Ryan Froess, Program Manager



STUDY AREA

Water, sediment, and fish are sampled from reference and potential exposure sites near Uranium City. The potential exposure site is Lake Athabasca because it is located downstream of waterbodies that could potentially carry parameters from upstream uranium mines. Fredette Lake, northeast of Uranium City, is sampled as the reference site because it has no link to upstream uranium mining operations.

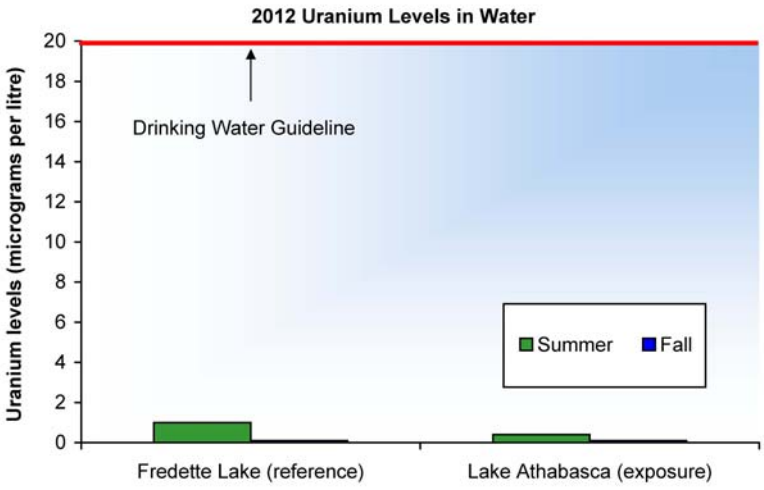
Two stations are located near the community of Uranium City to monitor air quality. Every year, efforts are made to collect plant and wildlife samples near Uranium City.

KEY PARAMETERS

The focus is on certain parameters related to uranium operations that are of concern to human and environmental health. These include: copper, lead, nickel, molybdenum, zinc, radium-226, uranium, selenium, and arsenic. All of these parameters occur naturally in the environment and in parts of northern Saskatchewan they can sometimes be found in elevated amounts. To help establish whether the key parameters found in samples are naturally occurring or whether they are from uranium operations, the amounts measured are compared: 1) between reference and potential exposure sites, 2) between years, and 3) to available guidelines.


Photo credit: Doug Chisholm

WATER

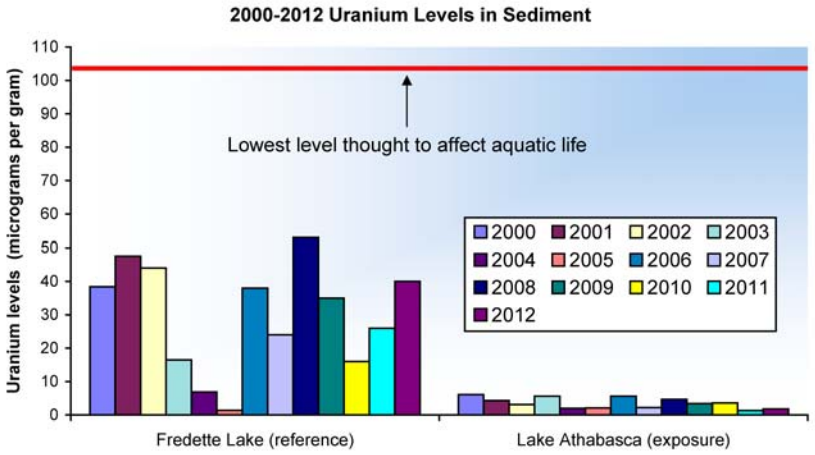


In 2012, water samples were collected from Fredette Lake and Lake Athabasca in the summer and in the fall. The results of testing were similar to past years. Many of the key parameters were below the amount that can be detected by the laboratory. Additionally, all key parameters were below the provincial guideline levels for the protection of aquatic life and drinking water quality standards. The graph shows the amounts of uranium found at each sampling station in the summer and the fall of 2012. The water from the Uranium City potential exposure site is not currently of concern for human or environmental health.

SEDIMENT

Sediment is the mud on the lake bottom. Parameters from mine sites may be carried by flowing water to lakes where they can be left in the sediment. It is important to sample sediment, as many different types of small animals that live there are often eaten by fish. Sediment samples were collected from the same locations used for water sampling.

All key parameters were below guideline levels from the reference site of Fredette Lake and the potential exposure site of Lake Athabasca in 2012. Since the beginning of the AWG sampling program, Fredette Lake has tended to have higher levels of key parameters than Lake Athabasca. This suggests that these higher parameter levels occur naturally in the area because Fredette Lake is a reference waterbody. The graph shows 2000 to 2012 uranium results in the Uranium City study area.



FISH

Northern pike and lake whitefish were captured in the reference site of Fredette Lake and a lake whitefish was caught in the potential exposure site of Lake Athabasca in 2012. Key parameter levels measured in lake whitefish flesh samples were similar between lakes and the northern pike sample from Fredette Lake was similar to levels measured in previous sampling years. Mercury is the only parameter in fish for which there is a consumption guideline. Mercury is widespread in the environment globally and can be found in soil, water, plants, and animals. It can be transported through the atmosphere and accumulates in predatory species (fish species such as northern pike, walleye, and lake trout) because they are higher up the food chain. Natural deposits in northern Saskatchewan are likely the cause of higher mercury levels in fish in some lakes (Saskatchewan Environment 2011). Mercury is not related to uranium mining and milling, but is an important parameter for human health. The northern pike caught in Fredette Lake in 2012 had a mercury rating of "1", which means restrictions on the amount of northern pike eaten from this lake are recommended. The lake whitefish samples from the Uranium City area did not fall into any category requiring restricted consumption. Historical AWG monitoring data in Fredette Lake indicate that the mercury concentrations for northern pike greater than 80 cm have a mercury rating of "1" and should be eaten in limited amounts. This means that only ten northern pike greater than 80 cm in length should be consumed annually. Important: Children and pregnant women should not consume any northern pike greater than 80 cm from Fredette Lake. It is recommended that residents consult the provincial document, Mercury in Saskatchewan Fish: Guidelines for Consumption for more information. It can be found at the following website: http://www.environment.gov.sk.ca/.

WILDLIFE

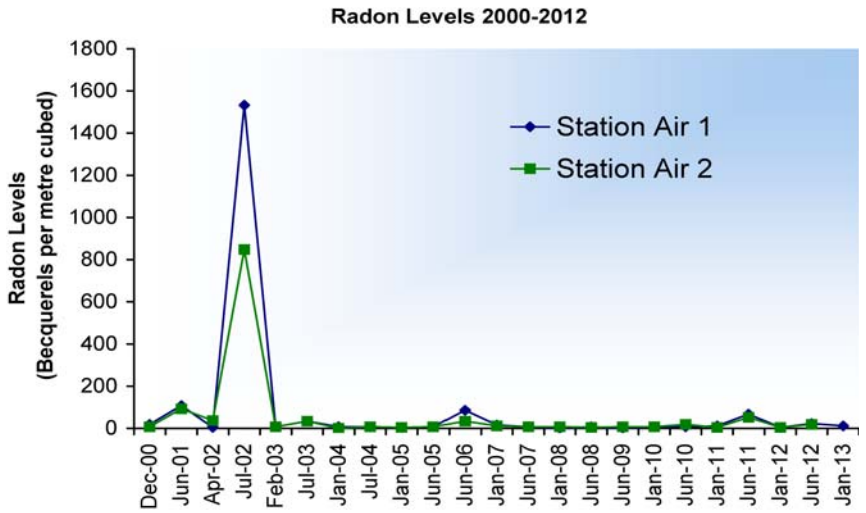
Moose flesh was tested in 2012 from the Uranium City area. Key parameter levels were expected because they were similar to previous years. Many of the parameter levels were too low to be measured by the laboratory. Barren-ground caribou and lynx samples were not collected from the Uranium City area in 2012. Barren-ground caribou and lynx from other AWG communities in 2012 had parameter levels that were low and within the expected ranges for their respective communities.

PLANTS

Labrador tea, blueberry, and bog cranberry samples were collected from the Uranium City area in 2012. All key parameter levels in all plant types were considered low. Nickel levels in Labrador tea and bog cranberry, which were relatively high in 2011 compared to average levels since AWG monitoring began, were low in 2012.

AIR

Air quality was monitored at two locations near Uranium City by measuring radon levels. Radon is an odourless, tasteless gas produced naturally by the breakdown of uranium and radium-226 in the soil and water. As a result, radon levels are naturally higher in areas where uranium is found in the ground, especially in the summer months when the ground thaws and releases the gas into the air. Radon levels were highest in the summer of 2002. Levels from the years 2000 to 2012 are shown in the graph.



CONCLUSION

The results of the 2012 AWG monitoring program do not indicate that the levels of key parameters are differing from year to year in water, sediment, fish, wildlife, plants, and air in Uranium City and its surrounding area. Generally, the levels of key parameters remained low and similar to previous years. Therefore, no evidence of environmental or human health concerns as a result of uranium mining and milling activities in northern Saskatchewan currently exist in the Uranium City area.

ACKNOWLEDGEMENTS

The AWG program would not be possible without the involvement of northern residents who participate in the sampling program each year. Special thanks to Sandy and Wayne Powder who have done a great job collecting AWG samples from the Uranium City area. Thank you to the AWG members, who include representatives from the seven northern communities and the industrial partners, Cameco Corporation and AREVA Resources Canada Inc. Thank you to Doug Chisholm for photo permission.

This project was managed by CanNorth, an aboriginal environmental services company owned by Kitsaki Management. If you have any questions or comments please contact Peter Vanriel at (306) 652-4432 or awg@cannorth.com.