CanNorth

2015

Uranium City

Athabasca Working Group Environmental Monitoring Program

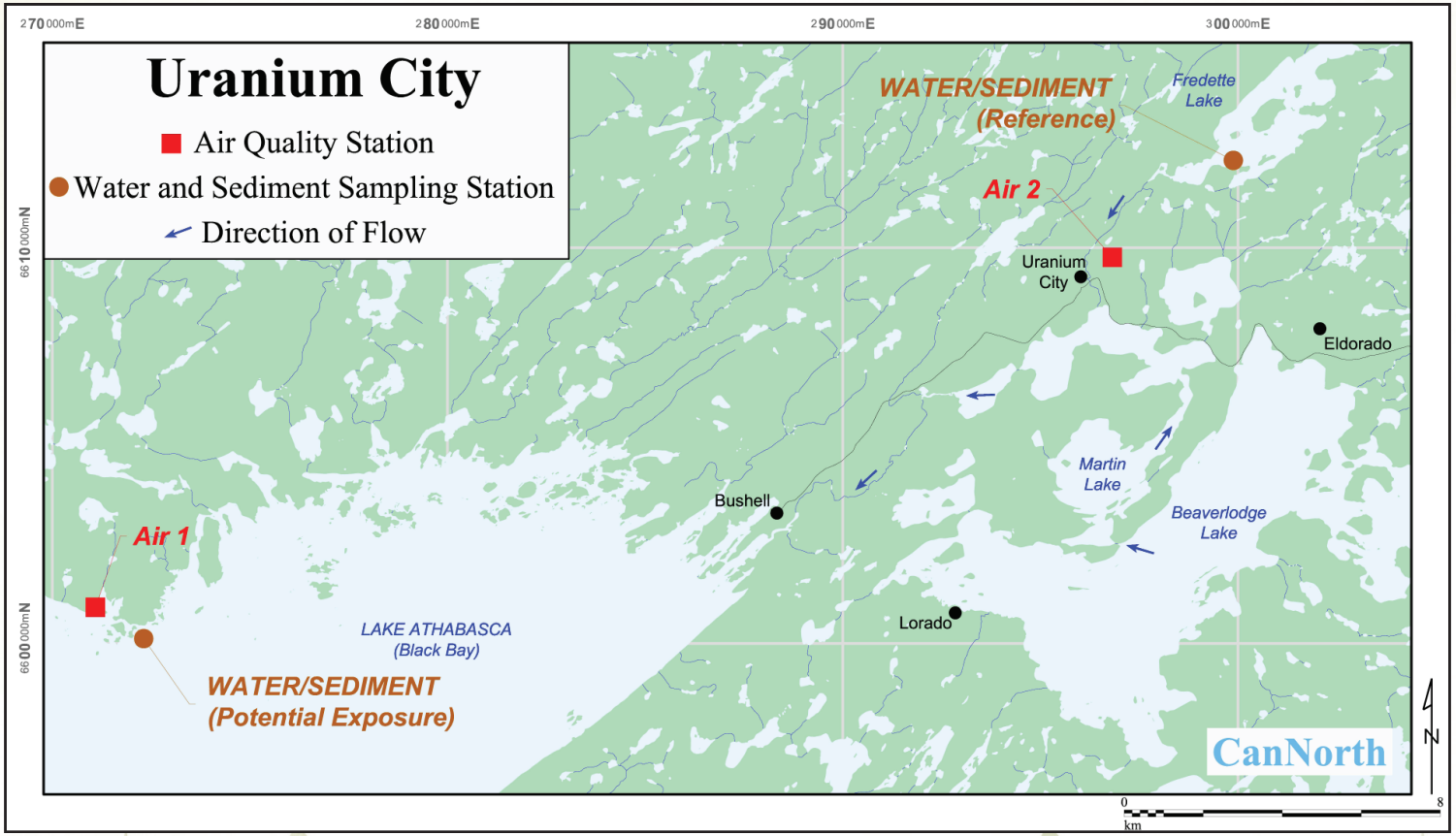
ABOUT THE AWG PROGRAM

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

The types of plants and animals selected, the locations chosen for sampling, 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 2015 environmental monitoring program results in the Uranium City area.

STUDY AREA

Water, sediment, and fish were sampled from a reference site and a potential exposure site in the Uranium City area in 2015. Fredette Lake was chosen as the reference site because it is not influenced by operating uranium mines and mills. Black Bay of Lake Athabasca (Black Bay) is referred to as the potential exposure site because it is located downstream of the active uranium operations in northern Saskatchewan. Air quality is monitored at two locations near the community of Uranium City and plant and wildlife samples are collected each year near the community when available.



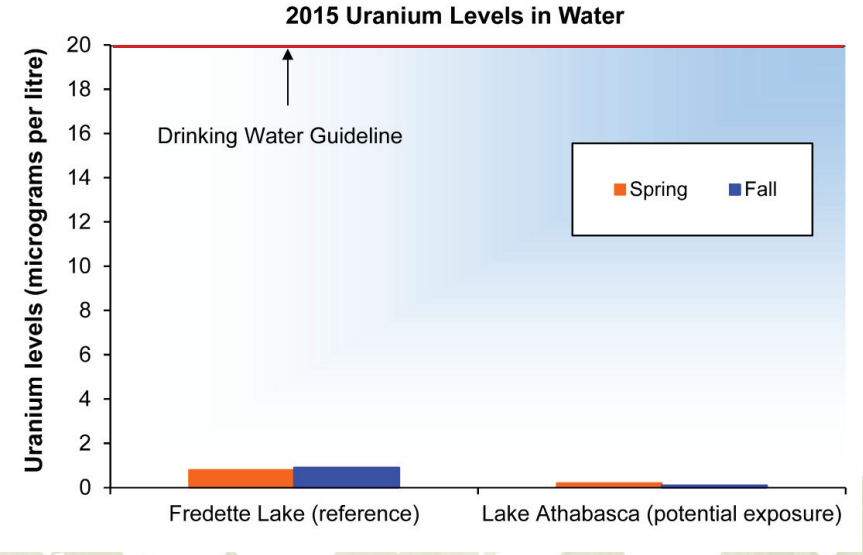
KEY PARAMETERS

The focus of the program is to monitor 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 high amounts.

In order to help establish whether the key parameter levels found in samples are naturally occurring, whether they may be from uranium operations, and whether they pose a risk to the environment, the amounts measured are compared: 1) between reference and potential exposure sites, 2) over time, and 3) to available guidelines.

Water

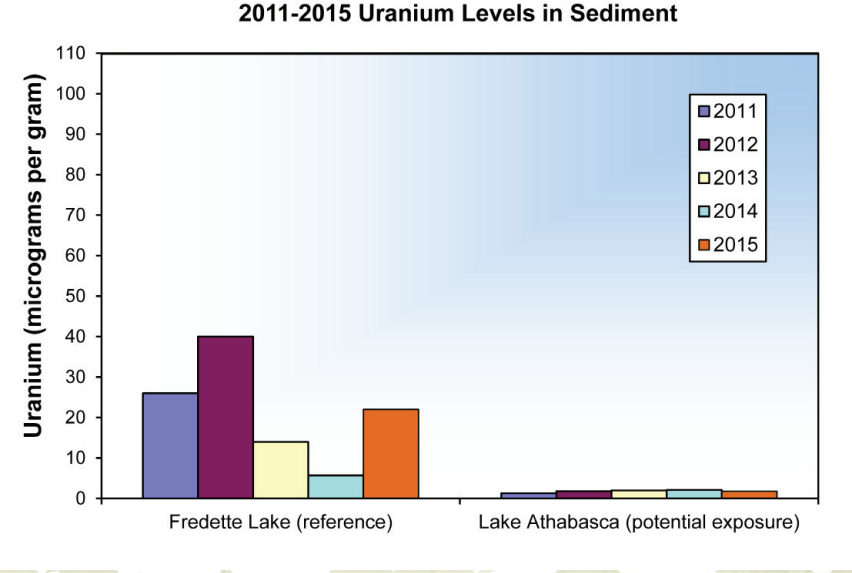
Water samples were collected in the spring and fall in Fredette Lake (reference) and Black Bay of Lake Athabasca (potential exposure) in 2015. The levels of the key parameters were below the guidelines for the protection of aquatic life and drinking water quality. The graph displays the amount of uranium found in the water samples from the Uranium City area in 2015. The uranium drinking water guideline is 20 micrograms per litre, which is much higher than any level ever found in Uranium City since AWG monitoring began in 2000.



Sediment

Sediment is the mud on the lake bottom. Parameters from uranium operations may be carried by flowing water to lakes where they can be left in the sediment on the lake bottom.

Sediment samples were collected from Fredette Lake (reference site) and Black Bay of Lake Athabasca (potential exposure site) in 2015. Since the AWG program began, the levels of key parameters have generally stayed the same in Fredette Lake and Black Bay. Similar to previous years, the key parameter levels were below all available guidelines in both waterbodies in 2015. The graph displays the low uranium levels measured in Black Bay of Lake Athabasca over the past five years.



Fish

Eating fish has many benefits. Fish are an excellent source of protein and high in vitamins and minerals including vitamin D. They are low in saturated fats and cholesterol and are a good source of omega-3 fatty acids[1].

Samples of lake whitefish and northern pike were captured in Fredette Lake (reference) and Black Bay (potential exposure) in 2015. The key parameter levels were often lower than the laboratory could measure. Furthermore, the levels of key parameters have been similar since the beginning of AWG monitoring in the Uranium City area in 2000.

Mercury levels in northern pike greater than 80 cm in length from Fredette Lake have been naturally higher than other reference lakes in the AWG monitoring program in certain years, but were low in 2015. Though not related to uranium mining and milling, it is recommended that the "Mercury in Saskatchewan Fish: Guidelines for Consumption" document be consulted prior to fish consumption in all areas of Saskatchewan. To view the document, go to www.publications.gov.sk.ca and search "mercury in fish".

[1]PHU AHA 2014.

Wildlife

Wild game are an important source of vitamins, minerals, and protein and are low in saturated fats[1]. The AWG program collects samples of meat from moose, barren-ground caribou, and lynx for testing in the AWG communities.

A moose sample was obtained from the Uranium City area in 2015. Caribou and lynx samples were not obtained. The results of the laboratory testing showed that the levels of key parameters were similar previous years of AWG monitoring in the Uranium City area and to other AWG communities where moose samples were tested in 2015.

To prevent potentially harmful lead exposure, it is recommended that hunters always use lead-free ammunition when hunting wildlife.

[1]PHU AHA 2005.

Plants

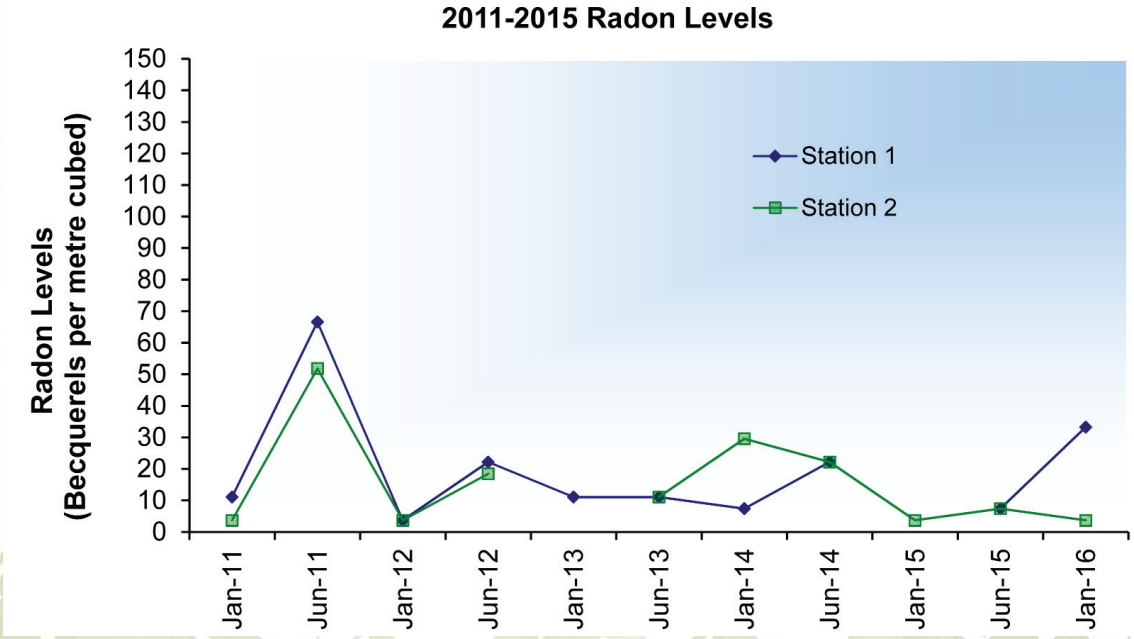
Plants such as blueberries, cranberries, and Labrador tea are important because they have traditionally been used for both food and medicine. Wild plants are very good sources of Vitamin C, fibre, and carbohydrates[2, 3].

Bog cranberry and Labrador tea samples were collected and analyzed from the Uranium City area in 2015. Blueberries in the Uranium City area were not collected in 2015. The levels of the key parameters in bog cranberry and Labrador tea were often too low to be measured by the laboratory. The blueberry test results from the other five AWG communities in 2015 were considered low and were similar to the results from previous years in each community.

[2]Johnson et al. 1995; [3]NWT 2002.

Air

Air quality was monitored at two locations near Uranium City in 2015 by measuring radon levels. Radon is an odourless and tasteless gas produced by the natural 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. Seasonal differences may occur because the ground thaws and releases radon gas into the air during the summer months. Uranium City has had low levels of radon since the beginning of AWG monitoring. The graph displays the results from the last five years (2011 to 2015). Note that radon detectors are sometimes lost to fire or destroyed by animals; therefore, there are no data for the latter halves of 2012 (Station 2) and 2014 (Station 1).



THANK YOU

The AWG program is made possible thanks to the continued involvement of northern residents. Special thanks to Sandy Powder and Wayne Powder who did a great job collecting AWG samples from the Uranium City area. Thank you to the AWG members, including representatives from the seven northern communities and industrial partners, Cameco Corporation and AREVA Resources Canada Inc. Pictured: Sandy Powder (left) and Ryan Froess, Program Manager (right).

If you have any questions or comments about the AWG Environmental Monitoring Program, or for a list of full citations, please contact CanNorth at 306-652-4432 or awg@cannorth.com.

This project was managed by CanNorth,
a First Nation environmental services company

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