Indian and Northern Affairs Canada
Affaires indiennes et du Nord Canada

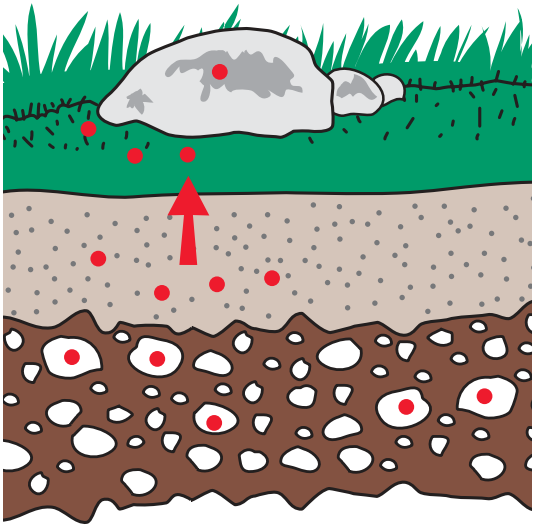
NORTHWEST TERRITORIES CONTAMINANTS FACT SHEETS

Radionuclides

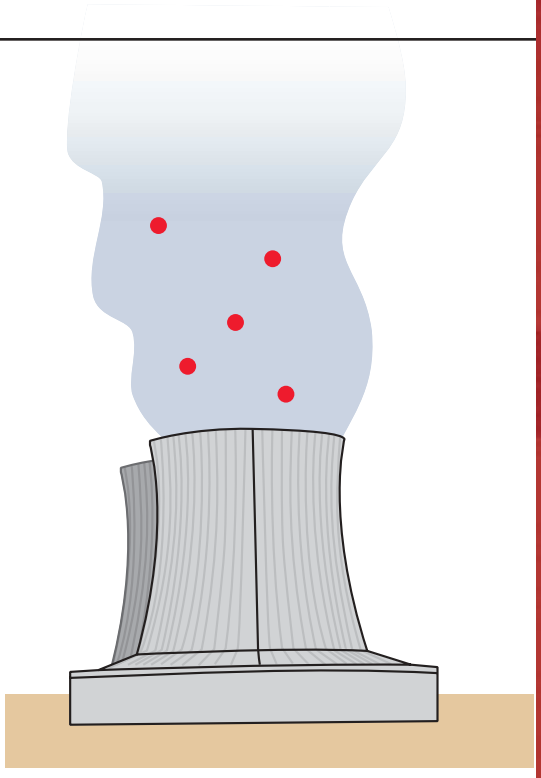
People in the Northwest Territories are becoming more aware of contaminants in the environment. One group of contaminants, called radionuclides, are substances that emit radiation. This fact sheet will describe, what radionuclides are, where they come from, how people may be exposed to radiation, and what this means to the health of people who eat traditional food in the Northwest Territories.

There are several sources of radionuclides in the environment.

Radionuclides release energy in the form of radiation. Most human exposure to radionuclides is from natural sources. Natural radionuclides in the Northwest Territories include polonium and uranium. Every rock contains some level of natural radionuclides, which are usually released slowly as the rock weathers over time.



● Contaminants



● Contaminants

Mining activity can expose and release natural radionuclides. In the past, uranium mining at Port Radium on Great Bear Lake has exposed radionuclides by digging up the rocks. A team of community members and scientists is working towards decreasing concerns at this site.

In addition to natural radionuclides, there are also human-made radionuclides. These include cesium and strontium. Human-made radionuclides generally come from outside the Northwest Territories. The majority have come from nuclear testing of weapons in the atmosphere during the 1960s. Other sources are the Chernobyl nuclear accident in the Ukraine in 1986, and nuclear waste treatment in Britain and Europe.

In 1978, the Soviet satellite Cosmos 954 crashed into Great Slave Lake and released nuclear debris. This was a minor addition to radionuclides in the Northwest Territories, and it was not found to be a concern.

Canada

Radionuclides can travel long distances.

When nuclear weapons were tested, some of the radioactive fallout landed near the testing sites, but much of it travelled long distances through air or ocean currents for thousands of kilometres. This is called long-range transport.

Radionuclides may be absorbed by plants and lichens. Plants that grow back every year do not build up radionuclides, but lichen lives many years, so it can build them up over time. Radionuclides such as polonium^{-210} may build up in the caribou when they eat the lichen. This process, where contaminants become more concentrated when animals (predators) eat other animals or plants (prey), is called biomagnification.

People can also be exposed to radionuclides by spending very long periods of time at contaminated sites, such as old uranium mines.

Health effects from radionuclides in traditional foods are extremely low.

Little information is available about the health effects of low levels of radiation over a long period of time. Everyone is regularly exposed to radiation by the sun and during medical X-rays. At high levels, radiation can damage cells or cause cancers. Radionuclides in people and animals are mostly stored in bone and muscle.

Exposure to radionuclides in traditional food is not considered a health concern. Studies suggest that levels of radionuclides in fish, beluga and waterfowl in the Northwest Territories are all very low.

Polonium^{-210} is a natural radionuclide that is elevated in caribou as it builds up in lichen. But the benefits of eating caribou far out way any concerns about radionuclides.

Radiation levels in the environment are dropping in the Northwest Territories.

Above-ground nuclear weapon testing was banned in the mid-1960s. Since then the levels of human-made radionuclides in the environment have dropped 95%. This is probably because nuclear weapon testing was the main source of human-made radiation. Radionuclide levels are low, but unfortunately the potential for significant impacts on the northern environment from accidental releases in other parts of the world still exists due to long-range transport by wind.

Good News...

Traditional foods are safe to eat!

Levels of radionuclides in animals, fish and waterfowl in the Northwest Territories are very low. You can still enjoy them without worrying about health problems related to radiation. In fact, traditional foods are some of the healthiest foods available.

To avoid exposure to radionuclides you can:

- Obey 'No Trespassing' signs and follow any health consumption advice near old uranium mine sites.
- Reduce exposure to the sun, a large source of radiation, by wearing sun screen and limiting your time in the sun.

Did you know...

Cesium^{-137} is the radionuclide that is of most concern to Northerners. It was released during nuclear weapons testing and by the Chernobyl nuclear accident. Cesium is persistent - meaning it lasts for a very long time in nature. Levels of cesium have dropped since the 1960s, and levels in caribou are now 10 times lower. Cesium is not considered a health risk to caribou or to the people who eat them.

For more information please contact:

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QS-Y223-013-EE-A1