



UPCOMING HEALTH-RELATED STUDIES

The Giant Mine Remediation Project Team has authorized two other health-related studies. They each have different purposes and build on the information from the HHERA.

Health Effects Monitoring Program:

Led by Dr. Laurie Chan from the University of Ottawa, this human biomonitoring study collects toenail clippings, saliva, and urine from residents of Yellowknife, Dettah, and Ndilo. Scientists will analyze the samples to determine residents' current exposure to contaminants, including arsenic. Combined with the results of the HHERA, the Project Team will use this information to continue to monitor the clean-up work. This study will also contribute to awareness of exposure to contaminants for all local residents.

Stress Study: The project team will start developing a stress study in 2018. This study will include focus group consultations with affected community members. These consultations will evaluate whether stress related to the possibility of arsenic exposure has caused indirect health effects on members of the community.

The Project Team will share the data they collect to maintain a link between these two studies.

The Project Team will continue to manage and monitor remediation activities to ensure the risk of exposure to contaminants remains safe during the clean-up phase.

Giant Mine Remediation Project: Human Health and Ecological Risk Assessment (HHERA)

ARE THERE ANY HUMAN HEALTH OR ENVIRONMENTAL RISKS ASSOCIATED WITH GIANT MINE?

In January 2018 the Government of Canada released a final report on the Giant Mine Human Health and Ecological Risk Assessment (HHERA). The report assessed whether the clean-up of the former mine site would change the risk to human health in the nearby communities. It found that there is low risk to very low risk from past activities at the Giant Mine and that the clean-up will further reduce these risks. The report also considered the effect that clean-up activities would have on local wildlife and plants, stating that the clean-up will reduce the risks, but that potential for risks to small animals still exists.

This was not the first risk assessment done for Giant Mine. Since 2000, there have been several assessments looking at the risk of contamination linked to historical mining activities at the site. The 2013 Report of Environmental Assessment identified public concerns about health risks, and Measure 10 of that report recommended a more thorough assessment.



The current Human Health and Ecological Risk Assessment (HHERA):

- Determined the presence of arsenic and other contaminants in the environment;
- Identified ways residents in the Yellowknife and surrounding area, and wildlife are exposed; and
- Calculated whether the risk level is likely to change after remediation.

A number of agencies, including Health Canada and the Government of the Northwest Territories (GNWT) Department of Health and Social Services, received copies of the HHERA and this report has been considered for Public Health information. The Project will continue to provide information as it changes or is updated to ensure the most current information is included in decision making by the appropriate agencies.

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Canada



Canada

The Giant Mine was an active gold mine for more than 50 years. It produced more than seven million ounces of gold from 1948 to 1999. When the owners went bankrupt, the Government of Canada became responsible for the mine. This included the existing environmental liabilities of 237,000 tonnes of arsenic trioxide and 13.5 million tonnes of contaminated tailings.

PREVIOUS STUDIES PAVED THE WAY FOR THE CURRENT RISK ASSESSMENT

Indigenous and Northern Affairs Canada (INAC) is leading the clean-up of the site with the GNWT. This clean-up is called the Giant Mine Remediation Project. The Project works to reduce the release of contaminants from the site and to ensure the health and safety of the public and workers.

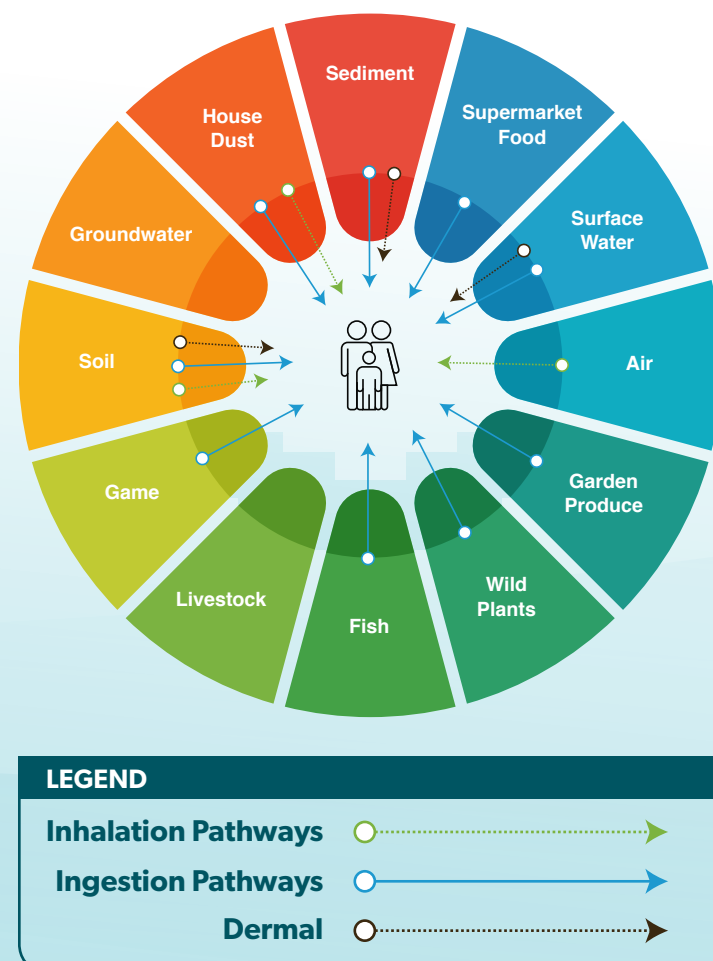
A risk assessment, completed in 2006, found no significant public health risks coming from the site. A follow-up assessment in 2010 confirmed these findings, however, local residents remained concerned. In its Report of Environmental Assessment, the Mackenzie Valley Review Board recommended an independent Human Health Risk Assessment (HHRA) to address the public's concerns.

Current Risk Assessment

In June 2016, Canada North Environmental Services (CanNorth), an Indigenous-owned company with extensive experience in risk assessment and communication of environmental issues, was obtained to conduct an HHRA. CanNorth worked closely with stakeholders — including the Giant Mine Working Group and the Giant Mine Advisory Committee of the Yellowknives Dene First Nations (YKDFN) — throughout the risk assessment process.

The HHRA considered several potential ways people may be exposed to arsenic and other contaminants in the community. These included soil and dust, drinking water, wading in sediments, as well as eating country foods and medicinal plants from the local area. The HHRA estimated how much local foods residents eat and where they got the food. Information from country food samples collected by local residents was used in the HHRA. The report also considered how much grocery store food is eaten.

The HHRA also considered the ways that wildlife may be exposed to arsenic and other contaminants on the Giant Mine site.



SUMMARY OF FINDINGS AND METHODOLOGY

Risk assessment findings

The HHRA determined that the contaminants in the surrounding area were from past releases from Giant Mine. The human health risks associated with arsenic and other contaminants from past releases are low to very low, consistent with risks of a full body CT scan or getting dental X-rays.

The HHRA found that the clean-up will improve environmental conditions on the Giant Mine however there could still be risks to small animals on the site. In Yellowknife Bay, low risks to small insects in the sediments were found, but these conditions will slowly improve.

The HHRA suggested the need for ongoing management and monitoring of the site.

How was the HHRA done?

The HHRA was very thorough. In fact, it analyzed more data and information than is typically required for an assessment of this type. The HHRA considered:

- **Who is being exposed?** This included people living in Ndilo and Dettah, Latham Island, the City of Yellowknife, and Ingraham Trail. Recreational use of other areas, such as Fred Henne Territorial Park, was also considered.
- **What are they being exposed to?** Arsenic was found to be the main contaminant of concern along with antimony and a few other contaminants, such as cadmium and lead.
- **How are they being exposed?** The potential ways that humans are exposed to contaminants was considered. As an example, being exposed through eating fish, local country food, or contact with soil or sediment. Lab results of fish, country food, water, soil, and sediment were used to calculate potential risks.

The HHRA completed two studies to collect the required data:

- **Country food sampling program (2016 and 2017):** This program collected samples of fish, game, berries, mushrooms, birds, and other plants. Volunteers from Yellowknife, Dettah, and Ndilo submitted samples of country food and medicinal plants harvested from the local area.
- **Dietary Survey (early 2017):** The Dietary Survey was carried out to determine how much country food the YKDFN and Métis communities ate and where they got their food. Community meetings with the YKDFN were held in early 2017.

A survey was sent out at the same time to the Métis community. All of the above information was combined to determine the current risks, as well as the potential future risks after the Giant Mine is cleaned up.

