**FREQUENTLY ASKED QUESTIONS (FAQs)**

**Q. What is the Yellowknife Garden Metals Study?**

This study collects important information on the amount of arsenic and other mining-related contaminants in backyard garden soils and garden produce. The information will be used in an independent risk assessment for the consumption of garden produce.

**Q: Why might garden produce and metal contamination be a concern to residents?**

Recent studies have shown that soils in the Yellowknife area have been impacted by past mining emissions and concentrations of arsenic are higher near Yellowknife than other parts of the country, particularly near Giant and Con Mine. These studies did not include garden soils. Since many residents have gardens and use soil from areas that have been impacted by past mining emissions (either sourced through local contractors or from their own properties), it is important to evaluate the levels of arsenic in garden soils and produce and to evaluate the risk associated with eating vegetables from local gardens.

In general, there is a need to acknowledge that lakes and landscapes have been impacted by past mining emissions in the region. This does not imply that the health of residents is at risk, but indicates that we need to collect the necessary information so that decisions related to metal exposure in the region are based on the best available evidence.

**Q. Why now?**

There are several new agricultural initiatives in the Yellowknife area, including people selling produce from local gardens. Resource managers and health authorities need to understand the levels of arsenic and other metals in garden produce to best support these new agricultural initiatives.

**Q. Who is behind the study?**

This project is a joint initiative between the Aurora Research Institute, the Royal Military College (RMC), Queen’s University and the Yellowknives Dene First Nation, with financial support from the Department of Environment and Natural Resources.

**Q. What is the purpose of the YK Garden Metals Study?**

The purpose of the project is to gain a better understanding of the levels of arsenic and metals in garden produce from Yellowknife, Ndilo, and Dettah. This will allow the project team to compare current and past levels in Yellowknife and levels from other parts of Canada and the world. We are also interested in investigating how different types of produce take up arsenic from the soil and what types of arsenic are present in Yellowknife garden soils. Finally, we will use this information in a risk assessment to determine if the consumption of garden vegetables presents a health risk to residents.

**Q. Why should this study matter to me?**

If you are concerned about your exposure to arsenic and other metals from local garden produce, this project will provide you and other residents an understanding of the current exposure to arsenic and other contaminants of concern. If you participate in the study, you will receive your individual results and what those numbers mean. In addition to that, your involvement will contribute to the overall assessment of our metal levels in local food sources, which is an important part of future health effects and risk assessment work.

**Q. Hasn’t this been done before?**

It has been almost 20 years since a study like this was completed. In 2001, a study from the Environmental Sciences Group at Royal Military College looked at arsenic in garden vegetables from nine gardens in the Yellowknife area. This study found that produce from Yellowknife gardens had higher levels of arsenic than national averages, but a risk assessment approach indicated that garden produce was still safe to eat. It is worthwhile to revisit a study like this, since many people use garden produce to supplement their diet and there is a growing interest in commercial agriculture in the Yellowknife region. In the time since the last study, we now recognize that soils within close proximity to Yellowknife can have soil arsenic concentrations far exceeding national guidelines for agricultural use. The new study will increase the number of garden plots sampled and collect a broad spectrum of vegetables from these gardens.

Residents get soil from a variety of sources, including bagged soil from hardware stores and local soil quarries, so it is important to understand the range of arsenic levels in garden soils, where these soils are derived from, and how this impacts levels in garden produce.

**Q. Have things changed since 2001?**

That’s what this study will find out. Previously, the 2001 study was compared to a study from 1979. Levels were approximately five times lower in the 2001 study when compared to the 1979 results. However, lettuce and berries contained comparable levels between the two studies. The more information we gather, the more complete understanding we will have about levels of metals in our garden soils and how these levels are changing over time.

**Q. Are there certain types of vegetables that have higher levels of arsenic?**

Previous studies have shown that higher arsenic levels in leafy green vegetables such as lettuce, beet greens, and celery leaves compared to lower levels in potatoes, cabbage, peas, rhubarb, garlic, broccoli and zucchini. However, the small sample size in these previous studies mean generalizations should be made with caution.

**Q. What other metals will be tested for in the YK Garden Metals Study?**

Aside from arsenic, other chemicals of potential concern in the study include antimony, cadmium, lead, manganese, zinc, copper, and vanadium. These are being measured because other research and studies have shown that they are present near past mining activities.

**Q. Will I get to see the results of my testing?**

Yes. Each participant will receive their individual results, with interpretation, in a personal letter.

**Q. How will my privacy be protected?**

All the data collected from individual participants will be managed in a secure manner and will be housed at the Aurora Research Institute, Royal Military College, and Queen’s University. Only the research team will have access to the data.

**Q. Is there more information about arsenic in the Yellowknife area and what this means for me and my family?**

Additional information about arsenic is available through The Department of Health and Social Services and Environment and Natural Resources.

Department of Health and Social Services

<https://www.hss.gov.nt.ca/en/newsroom/arsenic-lake-water-around-yellowknife>

Department of Environment and Natural Resources

<http://www.enr.gov.nt.ca/en/services/monitoring-legacy-arsenic-yellowknife-area>

***Giant Mine Human Health and Ecological Risk Assessment***

In 2018, the Giant Mine Remediation Project commissioned a Human Health and Ecological Risk Assessment (HHERA) to look at risks to people and the environment when exposed to contaminants. The final report 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. Additional information can be found here:

<https://www.aadnc-aandc.gc.ca/eng/1524243246522/1524243595839>

***Health Effects Monitoring Program***

The overall objective of the Health Effects Monitoring Program (YKHEMP) is to design and implement a broad health effects biomonitoring program for the population of Yellowknife, Ndilo, and Dettah focusing on arsenic and other contaminants of potential concern such as antimony, cadmium, lead, manganese, and vanadium, which might result from the Giant Mine Remediation Project (GMRP). Specifically, YKHEMP will determine current or baseline levels of arsenic exposure along with other metals before remediation work begins. Then, during remediation, new monitoring results will be compared to the baseline to ensure that participants’ arsenic levels are not increasing because of work being done at Giant Mine. Additional information can be found here:

<http://www.ykhemp.ca/>