



Frequently asked questions

Phase II/III Environmental Site Assessment of Tin Can Hill



Why did the GNWT commission this Environmental Site Assessment?

This work is a normal step in a land transfer process. The Tin Can Hill site under consideration for the Yellowknife North Slave Campus is currently owned by the City of Yellowknife.

Before formally applying for a transfer of land, an Environmental Site Assessment (ESA) is required to determine whether there are any environmental liabilities associated with the site.

What steps were taken in each phase of the Environmental Site Assessment?

Phase I involved a desktop study of publicly-available data, reports, photographs, and other documents related to the Tin Can Hill site and its surrounding area to evaluate the potential for contamination.

Phases II/III involved the collection of soil samples from across Tin Can Hill to determine the presence, type, and quantity of contamination.

Additional steps were taken to determine whether the contamination poses any unacceptable human health or ecological risks, and the best way to address the contamination.

How much sampling was completed?

37 soil samples were collected from across the site; five additional soil and/or gravel samples were taken from the Old Con Mine Road. Additional biotic

sampling was planned but limited due to the August 2023 wildfire evacuation.

What were the results of sampling?

Concentrations of arsenic in four of five Old Con Mine Road samples, and in 10 of the other 37 tests across the site, exceeded [Contaminated Sites Remediation guidelines](#). Elevated arsenic levels were identified along the border of the site, with the highest concentrations along the southwest edge. Elevated metals concentrations of antimony, barium, boron, cobalt, copper, selenium, vanadium, and zinc were also found.

What potential human health risks were identified in the Preliminary Quantitative Risk Assessment?

- Arsenic and antimony in the soil across Tin Can Hill, including the Old Con Mine Road, do not pose a health risk for the public that use the site periodically for recreation no more than two days per week.*
- Arsenic in the soil at the site of the proposed campus would pose an unacceptable health risk for students living in the proposed student housing and children up to five years old attending the proposed daycare more than three days a week.*
- Arsenic and antimony in the soil at the proposed location of the campus poses no health risks to non-resident students, faculty and staff, children five years or older, or visitors.*

**It is important to note that the findings are moderately uncertain, and the risks have likely been overestimated. This means that the findings are intentionally cautious to be on the safe side.*

What does it mean that the risks are “likely overestimated”?

All risk assessments have some level of uncertainty, and findings are intentionally cautious to be on the safe side. Because the actual exposure time, frequency, and duration that people might spend on site and be exposed to contaminants of potential concern will vary, assumptions used to inform the Environmental Site Assessment findings may be overly cautious.

What do we know about arsenic exposure and human health?

Everyone is exposed to some level of arsenic because it occurs naturally in all foods, water, and the environment. People can be exposed to arsenic by ingesting, inhaling, or absorbing it through the skin. Health risks from exposure to arsenic depend on the form of arsenic, the amount you are exposed to, and how long you are exposed to it. Long-term exposure to arsenic can lead to increased risk for skin problems, several types of cancer, and other health effects.

Should Tin Can Hill users and residents be concerned about the assessment results?

The results of the assessment work at Tin Can Hill are not a cause for concern. Elevated arsenic in soil is known to be present in the Yellowknife area, particularly around the Con Mine and Giant Mine sites.

The Chief Public Health Officer provides [guidance](#) for land and water use to help residents in the Yellowknife, Ndilq, and Dettah area avoid exposure to elevated arsenic levels. Following this guidance ensures residents are safe using our lands and waters for the activities they have always cherished.

Do these results differ from other assessments completed in the Yellowknife area?

No, the results are similar to other regional arsenic studies. The GNWT conducted a [Legacy Arsenic Human Health Risk Assessment](#) in 2021 to measure potential exposure and assess the health risks for people living or using the areas recreationally and traditionally around Yellowknife, Ndilq, and Dettah.

Results showed that arsenic exposure and associated risks of developing cancer were very low in the area around Yellowknife, Ndilq, and Dettah area, and include recommendations and guidance around certain land-use activities.

What are the remediation options?

The contractor gives four remediation options if Tin Can Hill site is approved as the location of the new Yellowknife campus:

- Do not build residences or a daycare at the site, and complete the minimum sampling required to update the risk assessment.
- Do additional sampling to further refine any unknowns in the risk assessment.
- Cover the contamination.
- Remove the contamination.

At this time, the contractor does not recommend the last two options due to cost in the absence of development.

How do the results impact Tin Can Hill as the future North Slave campus location?

The results of the assessment work show that historic contamination needs to be addressed if the site continues as the chosen location of the new Yellowknife campus. Decisions around capital infrastructure rest with the Aurora College Board of Governors. All remediation options are seen as reasonable and supportable if development moves forward.