

09 September 2024

Nunavut Water Board

Department of Environment Government of Nunavut Igaluit, NU

Subject: Comments on ECCC Request for Management of Contaminants at Eureka Site

Good day,

This letter is in response to the Government of Nunavut Department of Environment's (ENV) receipt of a request from the Nunavut Water Board regarding Environment and Climate Change Canada's (ECCC) proposal to manage contaminated soil at the Eureka weather station. ENV has significant concerns about the proposal, which are detailed below following a brief overview of our understanding of the background and the proposal.

Background

In 2022, a Human Health and Environmental Risk Assessment (HHERA) was conducted for the Eureka High Arctic Weather Station (HAWS), which established Site Specific Target Limits (SSTLs) for contaminants present at the site. The assessment initially categorized the site into two distinct areas: the "Main Station" and the "Airstrip." However, an amendment submitted in June 2024 proposed that the SSTLs should apply to the entire site, including Johnny's Hole, an area east of the airstrip.

The HHERA outlines multiple SSTLs for each contaminant of concern, tailored to specific receptors. These include "Plant-Based Protection Levels," "Risk-Based Ecological Soil Values," and "Risk-Based Human Health Soil Values." The assessment further recommends that only the human health values be considered, as the site is deemed "disturbed," resulting in most final SSTLs aligning with those protective of human health.

The proponent claims that the final SSTLs have been approved and that activities related to the disposal and management of soils with contaminant levels below these thresholds are exempt from further Nunavut Impact Review Board (NIRB) screening or review.



Proposal

The proposal includes the following elements for review:

<u>Approval of SSTLs:</u> The SSTLs outlined in the RAP and HHERA should be approved as the remedial objectives for soil and sediment on site. The SSTLs should be confirmed as acceptable by the GNEPS / Department of Environment and Inspector to ensure that Part E, Item 17 and Part J, Item 5 of the Water Licence (8AC-EUR2331) is met prior to the future reuse of treated soils, and to confirm soils that are below the SSTLs don't require reclamation or treatment (i.e., can be left in-place).

<u>Placement of Soils at Johnny's Hole:</u> As per the RAP, some soils that meet SSTLs, but not the generic Tier 1 criteria, may be placed at Johnny's Hole. Main Station SSTLs derived in the HHERA will apply to Johnny's Hole, as supported by Amendment to the Updated RAP in Attachment A. Johnny's Hole presents an ideal location because of its proximity to the New Landfarm, flat terrain, adequate distance from any water body or stream, and the area is pre-disturbed.

<u>Landfarm Treatment:</u> The landfarm should be allowed to treat soils to the SSTLs. Once treated, these materials could either a) remain in the landfarm, b) be relocated to Johnny's Hole, or c) be relocated to another location that is not environmentally sensitive and where the SSTLs would still be met.

<u>Retention of Below SSTLs Soils or Sediments:</u> Impacted soils or sediments that meet the SSTLs should not require reclamation (i.e., through treatment or disposal). Impacted soils or sediments that meet the SSTLs should be permitted to be left in-place.

Review

The following comments address each element of the proposal, followed by general remarks.

Approval of SSTLs:

- ENV does not approve of the single set of SSTLs presented in the June 21, 2024, amendment to the 2022 HHERA.
- The Ecological Risk Assessment within the HHERA provides evidence of plant and animal presence at the Eureka site. For example:

"[...] wildlife sightings are reported weekly at the HAWS. Muskox, arctic hare, and wolves are the most commonly observed species at the HAWS." (p.9)



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"[...] terrestrial and aquatic wildlife receptors of concern were selected by selecting ecological receptors that are indigenous to the area and would be potentially exposed to COPC from the HAWS" (p.68)

- As such, the SSTLs developed for the protection of plants and animals (Plant-Based Protection Levels and Risk-Based Ecological Soil Values) in the HHERA should not be disregarded simply because the site is "disturbed."
- ENV acknowledges that some environmental damage has occurred at the site, and disturbance to
 the ecosystem is inevitable with human settlement. However, plants and animals still inhabit and
 thrive near settlements, particularly in remote areas. It is essential to take reasonable measures to
 minimize the impact of contaminants on these life forms.
- The justification for the inapplicability of the "Plant-Based Protection Levels" and "Risk-Based Ecological Soil Values" in the HHERA is based on the notion that the effects would not impact the "population level" (p.71). While this type of analysis may be appropriate for large-scale environmental impact assessments, it is not suitable for evaluating individual activities such as depositing contaminated soils. Additionally, the Environmental Protection Act (EPA) (1988) does not support such considerations.
- Finally, the proposed SSTLs exceed the CCME Management Limits, potentially allowing the formation of free-phase NAPLs, which pose additional risks to both human and animal receptors.

Placement of Soils at Johnny's Hole:

- The Risk Assessment process is designed to assess the risks contaminants pose to life forms at a given site. This process relies on two critical assumptions—one moral and one physical:
 - 1. Contaminants are present due to accidental release or malpractice, and any further release would be prevented if possible.
 - 2. Contaminants have been present for some time and exist in an undisturbed condition.
- The mechanical removal and relocation of contaminated soils to Johnny's Hole invalidates these assumptions:
 - -Contaminants will be moved to a new, previously unimpacted (even if "disturbed") location.



- -Contaminants will be exposed to erosive forces, increasing the likelihood of migration and contact with life forms.
- Even if the proponent's assumptions are correct—that Johnny's Hole is devoid of life and will not be recolonized—the absence of containment or monitoring at the deposition site allows contaminants to migrate into surrounding undisturbed areas, which do support flora and fauna.

Based on the available information, Johnny's Hole is currently uncontaminated – it would become contaminated if Soil above CCME Tier 1 criteria was moved there.

Landfarm Treatment:

• ENV supports the use of landfarming to treat hydrocarbon-impacted soils. The treatment protocol should aim to achieve appropriate target levels before soils are deposited in locations without adequate containment, such as Johnny's Hole, as described above.

Retention of Below SSTLs Soils or Sediments:

 The ecological component of the 2022 HHERA evaluates the impact of contaminants on both flora and fauna. It clearly states that the presence of F2 and naphthalene is likely affecting plants and soil invertebrates:

"PHC F2 concentrations in soil are elevated across the HAWS and above toxicity values protective of plants and earthworms." (p.90)

- The report dismisses these impacts in a manner we find concerning:
- "Overall, while there may be some potential negative effects to terrestrial vegetation on the Eureka HAWS due to exposure to PHC F2 and naphthalene, the entire area is quite barren with very little vegetation due to the extremely harsh climate." (p.91)
- The High Arctic is not "barren," and it is our mandate to protect all of Nunavut's natural spaces.
- If activities at the site do not compromise the assumptions underlying the Risk Assessment, its conclusions may be valid. If soils are left in place, most of the issues identified above will not arise.

General Remarks



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- The proponent has thoroughly evaluated the impact of contaminants at the Eureka HAWS on flora and fauna, only to dismiss their conclusions by labeling the site as "disturbed" and "barren."
- If this characterization were accurate, the entire ecological assessment might have been unnecessary and could have been dismissed from the outset.
- The ecological component of the HHERA was undertaken because plants and animals do, in fact, share the site and its surroundings with its human inhabitants.
- Therefore, the values established to protect plants and animals should be considered when conducting activities at the site.

Conclusion

GN ENV does not find the SSTLs applicable for the relocation of contaminated soil at Johny's Hole. The development of SSTLs needs to appropriately account for environmental risks.

ENV remains available to discuss these comments with the Nunavut Water Board or the proponent, should clarification be required or if an alternative path forward is proposed. Please reach out to Brad Pirie (bpirie@gov.nu.ca) with any questions.

Regards,

Brad Pirie