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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File No.: Licence Application 1BR-IIA---

February 16, 2015

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Subject: Deficiencies in Preliminary Technical Review for Licence Application 1BR-IIA--; Iqaluit International Airport Improvement Project

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Dear Mr. Bogouchevski,

Thank you for your submission of a Type 'B' Water Licence Application for the Iqaluit International Airport Improvement Project (IIAIP), dated February 6, 2015. The NWB has conducted a Preliminary Technical Review of the file and highlighted a number of deficiencies that must be addressed before the Application can proceed.

The NWB raised a number of outstanding issues regarding the file in September 2014[1], of which a number remain unclarified. Foremost, the NWB had inquired about the status of the Waste Containment Cell referred to in the Soil and Groundwater Management Plan (This document was again provided to the NWB as Appendix J of the Application), specifically, the NWB stated:

> *"The status of this construction work is unknown, and whether it was already completed or not? A schematic of the cell with liner and cover systems (for-construction?) was provided to the Board but the schematic was not stamped by a Professional Engineer which is required by the NWB… it is not clear to the NWB at this time whether this "Lines Solid Waste Containment Cell" is to be a permanent waste disposal facility or not. If the facility is expected to be a permanent facility, the NWB seeks clarification with respect to who will be monitoring the leachate once the construction project is completed. Further the NWB seeks clarification with respect to the monitoring details for*

[1] Letter from Damien Cote (NWB) to Jim Stevens (GN) Re: Water Licence Application for the Iqaluit International Airport Improvement Project. September 16, 2014

the facility. "

The NWB found no clarification in the current Application regarding the status, intended plans or potential schedule for construction of the Waste Containment Cell. However, the NWB recognizes that in Block 9 of the current application the Proponent states,

"*The QE engineered plan/drawings for the containment cell is included as an appendix. It should be noted that this "QE containment cell construction" supersedes the approach suggested by CRA in their reports.*"

The NWB assumes that the Proponent is referring to the Plan found in Appendix Z, Rehabilitation Plan Iqaluit Airport: Hydrocarbon Contaminated Soils from the TC Landfarms and Arsenic Contaminated Soils. However, the containment facility found in the CRA and the one found in Appendix Z clearly possess a different purpose, scope and design, and indeed, the facility design found in Appendix Z (designed by QE) does not even address many of the original questions—as quoted above—the NWB had concerning the original CRA Waste Containment Cell. It is the NWB's understanding that the QE Containment Facility was designed (and built?) in response to a Voluntary Abatement Approach suggested by AANDC in summer 2014, after contaminated material contained within the landfarm facilities operated by Transport Canada (TC) was extracted and utilized by the Proponent as fill material. The current Application does not contain any background information regarding the events that transpired in summer 2014, or the commitments agreed to with AANDC; however in an email communication between Andrew Keim (AANDC) and Patrice Richard (SIntra) on July 28, 2014, the NWB understands that under the Voluntary Abatement Approach the Proponent would:

> *a. Voluntarily cease all work on the covering of contaminated soils at the Apron, and any other activity that involved the deposition of waste or the use of water. To immediately identify a site for the relocation and removal of the contaminated soils from the apron area and to store them in a lined and controlled area, pending the issuance of a water license.*
>
> *b. Immediately submit an application for a Water license to the Nunavut Water Board for this project (Land farm)*
>
> *c. Upon completion of these activities bring proof of compliance with these tasks to the Inspector for review and approval. Based on the review the work may continue assuming that no further contraventions of the Act are committed*

The NWB understands from this communication that the Proponent is to build a 'landfarm', not a containment facility as described in Appendix Z, with the major difference between the two structures being that the former involves active remediation of contaminated material and the latter involves passive storage.

The NWB would struggle to issue a licence for a facility that does not fulfill AANDC's specifications for the design of the facility in the first place. If the NWB has mistaken the purpose or scope of the facility it is asked that the Proponent clarify the context around which the facility was constructed. It is also noted that the Management Plan for the Containment Facility described in Appendix Z (which is supposed to replace the containment facility described in the CRA Report) is also by itself deficient; and as such, the NWB asks for clarification on the following issues—or resubmission of the Plan— before the Plan is distributed for external review:

- Background to cell and contaminated material. When was it built? When was material excavated? What volumes? Is the cell permanent or temporary? Is this a containment facility or landfarm?
- What is the design capacity of the facility?
- Monitoring methodology and schedule. Section 5.1 of the Plan refers to monitoring wells being plugged and decommissioned. What monitoring wells? No wells are listed previously in the Plan and none are indicated in the design drawings. What monitoring will occur in the future?
- The Plan refers to discharge of pooled water from the facility but very few details are provided about a corresponding procedure: Where will water be discharged? Who will monitor water levels/quality and how often? What type of notice will be provided to AANDC and NWB before discharging from the facility?
- The Report clearly indicates that the containment cell is for arsenic contaminated material and material recovered from the TC landfarms. However, in the current Application the Proponent asks to use this facility for all contaminated material found henceforth on-site. Does the containment facility possess the capacity to fulfill this role?
- Does the Proponent have an Abandonment and Reclamation Plan for the facility?

In its September 16, 2014 communication, the NWB also raised questions regarding the risk-based strategy used by the Proponent that involves covering contaminated material that is to be used as fill with ashphalt or 1 m of uncontaminated soil; specifically, the NWB stated:

> "*It is not clear to the NWB at this time whether thermal conditions will be monitored or not? If not, the NWB seeks to understand how the Applicant will ensure that, under 1 meter of clean material, the contaminated soils will be in permanent freezing conditions. The NWB understands that the active soil layer in locations such as Iqaluit generally vary between 1-2 meters. "*

If it is not the Proponent's intention that frozen conditions will be maintained, he is asked to clarify where the strategy for 1 m of cover originated from, and what type of monitoring will occur to verify the contaminated fill material poses negligible risk to groundwater.

Also related to monitoring, the NWB stated in its September 2014 communication the following concern:

> *"The Soil and Groundwater Management Plan included with the Type B Application indicates that there is to be groundwater monitoring downgradient of the areas to be excavated. However no monitoring details are provided to the NWB. The NWB expects that a complete list of parameters, frequency, duration, etc. will be provided for the Board's consideration and also the technical review of participants in the licensing process…*
>
> *Further, the NWB seeks to better understand whether this monitoring is proposed to be for sampling during the construction period only (i.e. to make sure no contaminants migrate), for long-term monitoring (i.e. to prevent contaminant migration from buried contaminated soils under apron area) or for both? Based on the correspondences between the GN-DOE and Arctic Infrastructure Limited Partnership (AILP) of July 2, 2014, there were 2 monitoring wells planned next to the apron and 2 additional wells downgradient, next to the new taxiway G. However, no details regarding the purpose of these wells and the monitoring plans were provided. The NWB requires this information to also be clarified. "*

It appears that the Proponent may have submitted the Contaminated Soil Long Term Monitoring Plan (Appendix Q) as a response to this inquiry; however, the NWB does not believe that this plan adequately resolves any of the concerns raised above, and indeed raises new questions that should be responded to:

- What is the Plan's relationship to the Soil and Groundwater Monitoring Plan? Is it an addendum? No Introduction or background information is provided in the Plan.

- The Plan indicates that sampling will occur at the groundwater monitoring stations. Which groundwater monitoring stations? Monitoring wells previously installed or ones that will be installed in the future? No site-plan or monitoring station descriptions are provided.
- It is difficult to distinguish the difference between Section 1 (Contaminated Soil Containment Cell) and Section 2 (Risk Based Management of Soil) of the Plan. They appear to mirror the same monitoring strategy, and one can assume that the Contaminated Soil Containment Cell is the one referred to in Appendix Z of the application (However it could also be the facility described in the Soil and Groundwater Management Plan), and also that Section 2 refers to areas where contaminated material has been used as fill. However, without providing a background to the document or a description of the monitoring stations these distinctions are an assumption.

The NWB acknowledges that it also previously raised concern over elevated chromium concentrations in soil; however, the Report entitled "Environmental Management of Chromium in Iqaluit", included in Appendix G of the current Application addresses the NWB's immediate concerns on this issue.

The current Application also raises a number of new concerns that should be addressed before the application process continues. First, the Proponent submitted a Hazardous Waste Management Plan with the Current Application (Appendix T), the NWB notes that the Plan is very short and lacks specifics: What type of hazardous waste is expected and what volumes? The Proponent states that all guidelines will be followed but does not indicate the guidelines referenced. Where will hazardous waste be stored? When will the material be shipped to an approved disposal facility?

Second, It is unclear what volume of contaminated soil the Proponent expects to uncover: Section 15 of the Application states 7,704 m^3 of PHC contaminated soil material and 545 m^3 of Arsenic contaminated soil (total volumes) is expected; the Spill Contingency Plan predicts a total of 9,375 m^3 of contaminated material; and the Soil and Groundwater Monitoring Plan provides a total expected volume of contaminated material of 4,950 m^3. Do any of these predictions account for the material disturbed from the TC landfarms?

Third, of the 26 documents provided as Appendices with the Application, the NWB struggles to find comprehensive and clearly defined procedures related to operations, monitoring and reclamation on-site. It appears that seven (7) of the documents submitted with the current application are related to these topics[2], however, generally speaking many aspects of these plans are outdated (based on site developments in the past 12 months), incomplete or poorly explained, which ultimately leaves it to the regulator to determine the relationship between the Plans and piece-together what information is currently relevant. As it is not always clear what is being referenced to when one Plan mentions an aspect of another Plan (Eg. Monitoring wells, containment facility, Voluntary Abatement Approach), the strength of the Application would improve significantly if the Plans were updated and consolidated into fewer documents. Also, it would be beneficial to all parties if the Applicant provided an updated site Plan that clearly indicated water sources, waste disposal areas and proposed monitoring locations.

[2] Pre-Existing Environmental Contamination Management Plan; Soil and Groundwater Management Plan; Erosion and Sediment Control Plan; Contaminated Soil Long Term Monitoring Plan; Spill Contingency Plan; Water Management Plan; Rehabilitation Plan Iqaluit Airport: Hydrocarbon Contaminated Soils from the TC Landfarms and Arsenic Contaminated Soils

Lastly, the NWB has found a number of deficiencies in the Proponent's Application Form.

Block 9

It is noted that 60 workers will be accommodated through the summer, and the camp water use and waste disposal will be covered by the city.

The City of Iqaluit does not possess a valid water licence. The Proponent must present written indication from the Municipality that they will cover the camp's water and waste services, and also receive indication from AANDC that they will allow the Proponent perform this undertaking under the expired licence, while the municipality processes its renewal application.

Next, the Proponent states that "waste will be produced in line with a construction project of this magnitude and will be managed in accordance with our approved Waste Management Plan – no waste should be released into a watercourse."

The Proponent is asked to explain this statement. What approved Waste Management Plan are you referring to? NWB has no record an approved Waste Management Plan for the Proponent.

Lastly, the Proponent mentions that "the drum cache referenced in the PECAMP/PECMP has already been removed to a licensed disposal facility in Quebec and will not be placed in a containment cell as noted in those reports."

Does this refer to all the drums listed in the reports? (300, 205-litre drums and a 50,000 litre tank are currently staged in this area) Did the Proponent have a licence to remove the drum cache or approval from AANDC? What is the current status of the soil material below and surrounding the drum cache?

Block 13

The Proponent lists 'NA' next to 'water source' and 'water use.' However, in Block 9 of the same Application form the Proponent states "A water truck will be used for dust reduction at the project work areas. Water will be taken from the runoff waters at the inner field zone. Less than 100 m3 a day will be consumed during high peak of construction (between June and September)."

The Proponent is reminded that the Nunavut Waters and Nunavut Surface Tribunal Act states 'water use' as

> *"any means a direct or indirect [water] use of any kind, including, but not limited to,*
> *(a) any use of water power and geothermal resources;*
> *(b) any diversion or obstruction of waters;*
> *(c) any alteration of the flow of waters;*
> *and*
> *(d) any alteration of the bed or banks of a river, stream, lake or other body of water, whether or not the body of water is seasonal.*

Under this interpretation, the NWB considers the extraction of water from the inner field zone for use as dust reduction as water use.

Block 14

The Applicant has indicated that no hazardous waste will be involved with this undertaking; however, the Applicant has submitted a Hazardous Waste Management Plan with the Application.

Block 15

It should be noted that the Municipality of Iqaluit currently does not possess a licensed Landfill facility, and as such, is not considered an appropriate disposal method for waste until a valid licence is obtained or indication has been provided by AANDC that the facility can be utilized by the Proponent.

In regards to PHC contaminated material, it is the NWB's understanding that that the Proponent had agreed with AANDC under the Voluntary Abatement Approach to construct a landfarm facility. The Application only refers to a containment area. Also, the Application states that a Tier 3 Risk-based Approach will also be employed to dispose of the material; by this, is the Proponent referring to its use as fill?

Block 27

Based on the interpretation of water "use" provided by the act, the Proponent will be using water and will thus have to pay the water use fee.

Copies of the above-mentioned Reports as well as documents related to the Application are available on the NWB's FTP site, which can be accessed using the following link (**Username**: public and **Password:** registry):

ftp://ftp.nwb-oen.ca/1%20PRUC%20PUBLIC%20REGISTRY/1%20INDUSTRIAL/1B/1BR%20-%20Remediation/1BR-IIA----%20AILP/

The NWB is fully aware that the Proponent is under direction from AANDC not to continue work on-site until a valid licence is obtained, and it is not the intention of the NWB to delay the progression of the Application unnecessarily; however, the NWB cannot issue a water licence before the Proponent has sufficiently demonstrated that appropriate measures will be taken to properly dispose of or remediate waste material, and that a comprehensive monitoring program will be followed for the duration of the undertaking. If you have any questions related to this correspondence, please contact the NWB's Licensing Department at (867) 360-6338 or by email licensing@nwb-oen.ca. The technical advisor assigned to the file can be reached directly at 867-360-6338 ext. 31, or by email brady.maccarl@nwb-oen.ca.

Regards,

Original Signed By:

Brady MacCarl
Technical Advisor