



May 27, 2014

Your file - Votre référence
1BR-THI----

Our file - Notre référence
IQLAUIT-#

Megan Porter
Licensing Administrator Assistant
Nunavut Water Board
GJOA HAVEN, NU X0E 1J0

**Re: Aboriginal Affairs and Northern Development Canada Review of Qlkiqtaaluk
Environmental Inc. Application for a New Type 'B' Water Licence in Support of their
Treatment of Hydrocarbon Impacted Water Project (Iqaluit, NU)**

Dear Ms. Porter:

Thank you for your email of April 23, 2014, concerning the above mentioned application. A memorandum is provided for the Board's consideration. Comments and recommendations are provided pursuant to the Aboriginal Affairs and Northern Development Canada's mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Indian Affairs and Northern Development Act*.

Please do not hesitate to contact me by telephone at 867-975-4555 or email at david.abernethy@aandc-aadnc.gc.ca for further information.

Sincerely,

David Abernethy
Regional Coordinator
Water Resources Division
Resource Management Directorate
Aboriginal Affairs and Northern Development Canada
IQUALUIT, NU X0A 0H0

Encl.

c.c.: Murray Ball, Manager of Water Resources, AANDC Nunavut
Eva Paul, A/Manager of Field Operations, AANDC Nunavut
Andrea Morgan, Staff Engineer, AANDC Nunavut
Phyllis Beaulieu, Manager of Licensing, NWB



Memorandum

To: Megan Porter, Nunavut Water Board

From: David Abernethy, Aboriginal Affairs and Northern Development Canada

CC: Murray Ball (AANDC), Eva Paul (AANDC), Andrea Morgan (AANDC), and Phyllis Beaulieu (NWB)

Date: May 27, 2014

Re: **New Water Licence Application, #1BR-THI----**

Applicant: Qikiqtaaluk Environmental Inc.
Project: Treatment of Hydrocarbon Impacted Water Project
Region: Qikiqtani

Comments:

A. Background

On April 23, 2014, the Nunavut Water Board (the "NWB") provided notification of Qikiqtaaluk Environmental Inc.'s (the "Applicant") application for a new water licence in support of their Treatment of Hydrocarbon Impacted Water Project. This undertaking requires a Type 'B' industrial water licence for the management and disposal of treated effluent. Interested parties were asked to review this application and provide comments by May 23, 2014.

The Applicant intends to treat recovered hydrocarbon impacted water and snow/ice encountered from spills and the cleaning of fuel tanks in Iqaluit, Nunavut. Treatment will comprise of an oil-water separator and filtration (particulate filter, activated carbon, and patented ultra sorption filters). Treated effluent will be stored in clean tanks and analyzed prior to discharge in a yet to be determined location that will be at least 30 metres away from nearby water bodies. According to the submitted application, waste petroleum, oil, lubricants, liquid sludges, and waste filter media will be, "disposed according to regulations." The treatment system can treat a maximum of 15.0 cubic metres of water during an 24 hour period but will likely treat up to 5.0 cubic metres per day (8 hour working day). Up to 30.0 cubic metres of treated effluent can be stored on site in two tanks. The Applicant will sample soil two metres down slope of the discharge location each year prior to the first discharge to ensure that the land is not being contaminated from the treated effluent.

This treatment system has been constructed and is situated in a designated industrial area. It is within a fenced area with a locked gate. Recovered hydrocarbon contaminated soils from the impacted snow/ice/water source areas are directed to Nunatta Environmental Services for treatment (separate company that holds water licence #1BR-NUN1217). Included with the application is a Spill Contingency Plan and Abandonment, Remediation Plan, and Closure Cost Estimate.



B. Results of review

On behalf of Aboriginal Affairs and Northern Development Canada (“AANDC”), the following comments and recommendations are provided:

1. Notification prior to any discharge of treated effluent

Comment:

It is standard practice for Licensee's to be required (through a licence term and condition) to provide notification to an Inspector at least 10 days prior to any planned discharge of treated effluent. This allows the Inspector an opportunity to ensure that licence requirements are being satisfied.

Recommendation:

The water licence should include a licence term and condition that requires the Licensee to provide at least 10 days notice to an Inspector prior to any planned discharges of treated effluent. The notice should include the estimated volume proposed for discharge and location.

2. Discharge location

Comment:

The application does not provide a location where the treated effluent will be released.

Recommendation:

Prior to releasing any treated effluent following license issuance, the Applicant should confirm a suitable location for the discharge of treated effluent with an Inspector designated under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*. The discharge location should be at least 31.0 metres above the high water mark of any water body and energy dissipation measures should be implemented to minimize erosion (e.g., maximum flow rate, discharge onto a rock outcrop or truck pad). Once the location is confirmed, a memo should be provided to the NWB that describes the location (coordinates, topography, nearest water source, etc.), soil erosion mitigation provision, and map of the location and nearby water bodies.

3. Secondary containment

Comment:

The employment of secondary containment systems where petroleum hydrocarbon impacted snow/ice/water, recovered petroleum hydrocarbons (drums), sludges, and waste filter media would reduce the likelihood of spill contaminating land and water.

Recommendation:

The Applicant should ensure that all areas used to store petroleum hydrocarbon materials are equipped with suitable secondary containment systems (i.e., bermed structures). This applies to petroleum hydrocarbon impacted snow, ice, and water as well as recovered petroleum hydrocarbons, sludges, and waste filter media. Any water that accumulates within the



secondary containment systems should meet the effluent quality limits of the project's petroleum hydrocarbon treatment system before being released. This water should be released at the same location where treated effluent will be released.

4. Effluent quality limits

Comment:

Effluent quality limits are required to prevent negative impacts to water bodies that could result from the discharge of treated effluent.

Recommendation:

Effluent quality limits should be consistent with environmental best practices and other licenses issued by the NWB for similar undertakings. At a minimum, the effluent discharge quality limits specified in Table 1 should be included in the licence as they are consistently applied for landfarms and fuel storage areas licensed by the NWB. I recommend that the licence reference the sources used to acquire the limits for each parameter (provided below with the exception of oil and grease).

Parameter	Maximum Concentration in any Grab Sample (µg/L)
pH	6.5 to 9.0 (pH units) ¹
Oil and Grease	No visible sheen
Benzene	370 ²
Toluene	2 ³
Ethylbenzene	90 ⁴

5. Effluent quality monitoring at discharge location

Comment:

In addition to monitoring effluent quality limits, treated effluent should be monitored for a more complete list of parameters to verify whether or not the discharge of treated effluent will cause negative affects to the receiving environment.

Recommendation:

In addition to discharge quality limits, treated effluent should be analyzed for a more complete list of water quality parameters. The following parameters should be monitored prior to any discharge of treated effluent (includes discharge quality limits) and the results should be provided in annual report submissions.

¹ Canadian Council of Ministers of the Environment Water Quality Guidelines for the Protection of Aquatic Life – freshwater.

² Ibid.

³ Ibid.

⁴ Ibid.



Total Suspended Solids	Polycyclic Aromatic Hydrocarbons (PAH)
Total Hardness	Benzene, Toluene, Ethylbenzene, Xylene
Conductivity	(BTEX)
Ammonia Nitrogen	pH
Oil and Grease	Total Alkalinity
Calcium	Nitrate-Nitrite
Sodium	Chloride
Chloride	Total Phenols
Total Aluminum	Magnesium
Total Cadmium	Potassium
Total Copper	Sulphate
Total Lead	Total Arsenic
Total Nickel	Total Cobalt
Total Silver	Total Molybdenum
Total Zinc	Total Selenium
Total Extractable Hydrocarbons (TEH)	Total Titanium

6. Soil sampling at discharge location

Comment:

The Applicant plans to collect soil quality samples from the effluent discharge location yearly to ensure that activities are not having a negative impact.

Recommendation:

The Applicant should make known what parameters will be monitored as part of the planned soil quality sampling program. Monitoring results should be included in annual report submissions.

7. Water quality and soil sample analysis

Comment:

Water quality and soil samples must be analyzed by a laboratory listed with the Canadian Association for Laboratory Accreditation to ensure that accuracy of results.

Recommendation:

All water quality and soil samples should be analyzed by a laboratory listed with the Canadian Association for Laboratory Accreditation.

8. Operation and Maintenance Manual

Comment:

An Operation and Maintenance Plan that addresses the collection, treatment, and discharge of petroleum hydrocarbon impacted snow/ice/water would be a valuable resource for project personnel and interested parties.



Recommendation:

The licence should require the submission of an Operation and Management Plan detailing how petroleum hydrocarbon impacted snow/ice/water is collected, treated, and discharged to the environment. In addition, this plan should include the following information:

- effluent quality limits;
- effluent quality monitoring requirements;
- soil quality monitoring at the discharge point;
- secondary containment provisions for contaminated snow/ice/water;
- secondary containment provisions for recovered petroleum hydrocarbons, liquid sludges, and waste filter media;
- details pertaining to the treatment of petroleum hydrocarbon impacted soils from the impacted snow/ice/water source areas (i.e., agreement for soils to be treated at Nunatta Environmental Services landfarm facility);
- details pertaining to the annual shipment of recovered petroleum hydrocarbons and other wastes to a hazardous materials disposal facility);
- a map that references of the project infrastructure;
- a map that references the treated effluent discharge location; and
- design drawings for the secondary containment and petroleum hydrocarbon impacted water treatment system

9. Reclamation Security

Comment:

The Applicant is willing to maintain \$80,000 in reclamation security for the proposed project. This value is base on an estimated cost of \$79,340 to treat/remediate 30,000 litres of contaminated water and 20 tons of soil. A spreadsheet detailing the cost breakdown accompanies the application.

Recommendation:

The Applicant's \$80,000 reclamation cost estimate is reasonable and should be considered. Please note that AANDC has not performed a detailed technical review of this estimate but would like to retain the option of providing further analysis when reviewing annual report submissions.

10. Revisions to the Spill Contingency Plan

Comment:

The Project's Spill Contingency Plan can be improved by including a map of the project area along with project components (e.g., treatment facility and discharge location), details pertaining to the petroleum hydrocarbon secondary containment systems that will be employed, and additional spill response scenarios.

Recommendation:

The Spill Contingency Plan should be revised to include:

1. a map of the project area;



2. a detailed description of the secondary containment systems that will be employed to prevent any spills of petroleum hydrocarbons;
3. accidental spills during the effluent treatment process;
4. the transport of contaminated materials (filter media, sludges, barreled petroleum hydrocarbons) to port for shipment to an approved hazardous waste management facility; and
5. transport of treated waters to the discharge location.

11. Term of Licence

Comment:

The Applicant has requested a twenty-five year licence term.

Recommendation:

A five year licence term is recommended to allow an earlier opportunity to reconsider licence terms and conditions.

Prepared by David Abernethy