



## PART 1 FORM PROJECT PROPOSAL INFORMATION REQUIREMENTS

To access NIRB documents, project screenings, and project reviews please visit the Nunavut Impact Review Board's ftp site <http://ftp.nirb.ca/>. The NIRB's website ([www.nirb.ca](http://www.nirb.ca)) is currently under construction. Please contact [info@nirb.ca](mailto:info@nirb.ca) should you have any questions or require further information.

### IMPORTANT!

Please be advised that your application will not be processed until the Sections 1 - 9 are completed in their entirety, in both English and Inuktitut (+ Inuinnaqtun, if in the Kitikmeot).

### SECTION 1: APPLICANT INFORMATION

1. Project Name Environmental Waste Processing Facility

2. Applicant's full name and mailing address:

Qikiqtaaluk Environmental Inc.  
9935 Catania Ave – Suite 200  
Brossard QC J4Z 3V4

Phone: 514 940-3332

Fax: N/A

Email: osimard@genv.ca

3. Primary contact's full name and mailing address:

Olivier Simard  
PO Box 1228  
Iqaluit NU X0A 0H0

Phone: (867) 222-8194

Fax: N/A

Email: osimard@genv.ca

### SECTION 2: AUTHORIZATION NEEDED

1. Indicate all authorizations associated with the project proposal:

<input type="checkbox"/>	Regional Inuit Association (RIA)
<input checked="" type="checkbox"/>	Nunavut Water Board (NWB)
<input type="checkbox"/>	Nunavut Planning Commission (NPC)
<input checked="" type="checkbox"/>	Government of Nunavut (GN)
<input type="checkbox"/>	Community Government & Services (CG&S)
<input type="checkbox"/>	Culture and Heritage (CH)
<input type="checkbox"/>	Nunavut Research Institute (NRI)
<input type="checkbox"/>	Aboriginal Affairs and Northern Development Canada (AANDC)

<input type="checkbox"/>	Canadian Launch Safety (CLS)
<input type="checkbox"/>	Canadian Wildlife Service (CWS)
<input type="checkbox"/>	Department of National Defense (DND)
<input type="checkbox"/>	Environment Canada (EC)
<input type="checkbox"/>	Fisheries and Oceans Canada (DFO)
<input type="checkbox"/>	Parks Canada (PC)
<input type="checkbox"/>	Hamlet
<input checked="" type="checkbox"/>	Other (please specify): City of Iqaluit Development Permit

2. List the active permits, licenses, or other authorizations related to the project proposal, and their expiry date(s): (see Appendix A)

NWB Licence Type B – Number 1BR-TH1419 – Exp: 2019-08-19

GN DoE Hazardous Waste Management Registration – Exp: N/A

GN DoE Waste Receiver Registration – Exp: N/A

GN DoE Waste Generator & Transporter Registration – Exp: N/A



3. List the pending\* permits, licenses, or other authorizations related to the project proposal:  
**Amendment to NWB Licence. (see Appendix B)**

\*Please provide a copy of all applications to the NIRB.

4. Has this project or any components of this project been previously screened or reviewed by NIRB?

☒ YES

☐ NO

If YES, indicate the previous project name and NIRB File No.

**Project Name:** Qikiqtaaluk Environmental Inc. *"Treatment of Hydrocarbon Impacted Water"*

**File Number:** EX201

### SECTION 3: PROJECT PROPOSAL DESCRIPTION

1. Indicate the type of project proposal (check all that apply)<sup>(1,2)</sup>:  
 (See Appendix A for Project Type Definitions)

1	All-Weather Road/Access Trail	<input type="checkbox"/>	9	Site Cleanup/Remediation	<input type="checkbox"/>
2	Winter Road/ Winter Trail	<input type="checkbox"/>	10	Oil and Natural Gas Exploration/Activities	<input type="checkbox"/>
3	Mineral Exploration	<input type="checkbox"/>	11	Marine Based Activities	<input type="checkbox"/>
4	Advanced Mineral Exploration	<input type="checkbox"/>	12	Scientific/International Polar Year Research*	<input type="checkbox"/>
5	Mine Development /Bulk Sampling	<input type="checkbox"/>	13	Harvesting Activities*	<input type="checkbox"/>
6	Pits and quarries	<input type="checkbox"/>	14	Tourism Activities*	<input type="checkbox"/>
7	Offshore Infrastructure (port, break water, dock)	<input type="checkbox"/>	15	Other <sup>(2)</sup> : Municipal and Industrial Development	<input checked="" type="checkbox"/>
8	Seismic Survey	<input type="checkbox"/>			<input type="checkbox"/>

**Please note:**

- All project types listed above, except those marked with an asterisk (\*), will also require the Proponent to submit a **Part 2 Project Specific Information Requirement (PSIR) Form**. The NIRB application process will not be considered complete without the Part 2 PSIR Form.
- Please be advised that in order to complete the NIRB process, the NIRB may request additional information at any time during the process.
- If "Other" is selected, contact NIRB for direction on whether a Part 2 PSIR Form is required.



2. If Project Type 3, 4 or 5 was selected in previous question, please indicate the mineral of interest that is being extracted. Include a brief description.

<input type="checkbox"/>	Base Metals (zinc, copper, gold, silver, etc)
<input type="checkbox"/>	Diamonds
<input type="checkbox"/>	Uranium
<input type="checkbox"/>	Other: _____

3a. If Project Type 12, 13 or 14 was selected above, complete the table and questions below.

Transportation Type	Quantity	Proposed Use	Length of Use
<i>E.g. Helicopter</i>	<i>1</i>	<i>Site to site pick ups and drop offs</i>	<i>6 days</i>

3b. Describe any docks, piers, air strips or related structures that are to be used in conjunction with the proposed project activities. **Please note:** *the building of new structures may require a Part 2 Form.*

N/A

3c. If a temporary camp site is to be established, describe the proposed structures in detail and indicate the type and source of power for the camp site if applicable.

N/A

#### 4. Personnel

Total No. of personnel on site = (A)	<b>2</b>	Total No. of days on-site = (B)	<b>365</b>	Total No. of Person days (A) x (B) = 730
--------------------------------------	----------	---------------------------------	------------	--

#### 5. Timing

Period of operation: from **All year long** to \_\_\_\_\_

Proposed term of authorization: from **Permanent** to \_\_\_\_\_

#### 6a. Region (check all that apply):

<input type="checkbox"/> North Baffin	<input type="checkbox"/> Kivalliq	<input type="checkbox"/> Kitikmeot	<input type="checkbox"/> Transboundary: _____
<input checked="" type="checkbox"/> South Baffin	<input type="checkbox"/> National Park		

6b. Describe the location of the proposed project activities in a regional context, noting the proximity to the nearest communities and any protected areas.

**Within the City of Iqaluit boundaries on a Heavy Industrial (M2) zoned lot with the legal designation Remainder of Lot 666 Plan 1673 LTO Parcels O & Q. (see Appendix C)**



6c. Discuss the history of the site if it has been used for any project activities in the past.

**Remnants of a building and demolition debris are visible on-site. The site has been used for many years by local businesses as a snow collection area. It is owned by the GN Department of Economic Development and Transportation and will be transferred to the City of Iqaluit in the near future.**

6d. Indicate if there are any known archaeological/palaeontological historical sites in the area.

**None observed. The nearest known archeological site is the Crystal II site, located approximately 1.5 km to the south, near the Sylvia Grinnell River. Inuit Heritage Trust stated that they have no record of this site being a site of archaeological significance. A GN territorial archaeologist also stated that this site is not of archaeological significance. See the correspondence in Appendix D.**

7. Land Status (check all that applies):

☐ Crown ☒ Commissioners' ☒ Municipal  
☐ Inuit Owned Surface Lands ☐ Inuit Owned Sub-Surface Lands

8a. Co-ordinates:

Min Lat (degree/minute) 63°44'34" Min Long (degree/minute) 68°32'51"  
Max Lat (degree/minute) 63°44'40" Max Long (degree/minute) 68°33'03"

NTS Map Sheet No: (see Appendix C)

(Please ensure that maps of the project are attached (1:50,000 if available, 1:250, 000 **Mandatory**) available from Natural Resources Canada)

8b. If the project proposal includes a **camp**, please provide the coordinates of the camp location

Min Lat (degree/minute) N/A Min Long (degree/minute) \_\_\_\_\_  
Max Lat (degree/minute) \_\_\_\_\_ Max Long (degree/minute) \_\_\_\_\_

If different from above for the camp:

NTS Map Sheet No: N/A

Please ensure that maps of the project are attached (1:50,000 if available, 1:250, 000 **Mandatory**) available from Natural Resources Canada

Please note that additional location information may be required in a subsequent Project Specific Information Requirement (PSIR) submission. This may take the form of a digital Geographic Information Systems (GIS) file.

## SECTION 4: NON-TECHNICAL PROJECT PROPOSAL DESCRIPTION

Please include a non-technical description of the project proposal, no more than 500 words, in English and Inuktitut (+Inuinnaqtun, if in the Kitikmeot). The project description should outline the following:

- The project activities, their necessity and duration;
- Method of transportation;
- Any structures that will be erected (permanent/ temporary);
- Alternatives considered; and
- Long-term developments, the projected outcome of the development for the area and its timeline.

**See the non-technical description of the project proposal in Appendix E**





☐ Class B Water Licence

\*Please provide a copy of the application or licence to the NIRB.

## SECTION 6: WASTE DISPOSAL AND TREATMENT METHODS

1. List the types of waste associated with the proposed project activities:

Type of waste	Projected amount generated	Method of Disposal	Additional treatment procedures
Sewage (human waste)			
Greywater			
Combustible wastes			
Non-Combustible wastes			
Overburden (organic soil, waste material, tailings)			
Hazardous waste			
Other:			

2. Describe the proposed Waste Management Plan.

---

---

---

---

## SECTION 7: COMMUNITY INVOLVEMENT & REGIONAL BENEFITS

1. List the community representatives that have been contacted and provide the minutes of the meetings if available:

Community	Name	Organization	Date Contacted

## SECTION 8: GENERAL QUESTIONS

1. Will you be disturbing any known archaeological sites?

☐ YES

☒ NO

## SECTION 9: APPLICANT SIGNATURE

Please sign and date your application:

 Project Manager  
Signature Title  
February 15, 2016  
Date



## APPENDIX A Project Type Definitions

**Access Trail:** A project proposal with the objective of providing vehicular access to an area of interest involving minimal alteration to the terrain.

**Advanced Exploration:** A project proposal with the objective of identifying size, grade, and physical characteristics of a mineral occurrence and to assess the economic and technical feasibility of developing the mineral deposit into a producing mine

**All-Weather Road:** A project proposal with the objective of road construction for use in all seasons.

**Bulk Sampling:** A project proposal with the objective of extracting of large samples of mineralized material involving hundreds to thousands of tonnes. Samples are selected as representative of the potential mineral deposit being sampled. May involve crushing/milling (on small-scale)

**Harvesting activities:** A project proposal with the objective of harvesting animals, marine mammals and/or fish from their natural habitats by means of hunting or trapping for traditional and commercial use.

**Marine Based Activities:** Any activity occurring in the marine environment, such as vessel use associated with land-based activities or disposal at sea.

\*Please note that normal community re-supply or individual ship movements not associated with land-based project proposals shall not be screened by NIRB (Section 12.12.2 of NLCA).

**Mine Development:** A project proposal with the objective of extracting broken rock with mineralization of sufficient grade and tonnage to sustain commercial mining operations (ore). Mining a body of ore can be achieved by either open pit and/or underground development. Mine development may involve milling. Milling involves treatment of the extracted ore through a combination of mechanical and chemical processes to selectively recover the valuable mineral.

**Mineral Exploration:** A project proposal with the objective of exploring an area to find geological anomalies. It involves site reconnaissance (ground and/or air) to locate broad and fiscal mineral deposits.

**Offshore Infrastructure:** A project proposal with the objective of building off loading facilities constructed off the shoreline and connected to the mainland of the marine or freshwater environment. Examples include a jetty, dock, or port facility.

**Oil and Gas Exploration/Activities:** A project proposal that includes 1) exploration, such as seismic or geological mapping, 2) drilling of oil and gas wells, 3) construction and operation of a pipeline, a gas processing plant or any oil and gas facility within Nunavut.

**Pits and Quarries:** A project proposal with the objective of pitting, which involves the extraction of granular material (i.e. sands and gravels) and quarrying, which involves the removal of consolidated rock (i.e. bedrock, frozen soil).

**Scientific Research:** A project proposal with the objective of implementing a series of site activities comprised of observation of phenomena, measurement and collection of data necessary for scientific investigation in designated areas within a limited time period.

**Seismic Survey:** A project proposal with the objective of conducting a survey to map the depths and contours of rock strata by timing the reflections of sound waves released from the surface. Survey site locations may be offshore (not within 12 nautical miles of any coast), near shore, and extended onshore.

**Site Cleanups:** A project proposal with the objective of site cleanups (includes DEW line site cleanups), which focuses on the remediation of chemically contaminated soils, stabilization of landfills and dumps, demolition/disposal of infrastructure and debris and monitoring after cleanup is completed.



**Tourism Activity:** A project proposal with the objective of conducting travel predominantly for recreational, sport or leisure purposes within a designated area and limited time period.

**Winter Road:** A project proposal with the objective of building a road for winter use by leveling and compacting surface snow and ice. Winter road is removed at end of season.

**Winter Trail:** A project proposal with the objective of building a trail for winter use by a single pass of a tracked vehicle using a blade, if necessary.



## **APPENDIX A**

### **RELATED ACTIVE PERMITS, LICENSES, OR OTHER AUTHORIZATIONS**

[illegible]

## Section 2 – Continued

Attach a complete description of the proposed facility, safety measures, equipment and management processes to be used. Include engineered drawing where applicable.

## Section 3 - Waste Management Information

Type of Business (check all that apply) Receiver of Waste X Manage Self-generated Waste \_\_\_\_\_  
Type of Activity (check all that apply) Collect and Store X Transfer X  
Treat X Recycle \_\_\_\_\_ Dispose \_\_\_\_\_  
Hazardous Waste Generator(s) Used Qulliq Energy Corporation, City of Iqaluit, Uqsuq Oil, small businesses,  
garages, schools, households

Hazardous Waste Carriers(s) Used NEAS, NSSI  
Veolia (Quebec), Solva-Rec (Quebec)

Do you have an approved Emergency Response and Spill Contingency Plan? Yes \_\_\_\_\_ (attach copy) No X

## Section 4 - Certification

*I certify that the information provided on this form is correct, accurate and complete.*

Signature of Contact Person  Date (dd/mm/yy) 15/08/11  
Print Name of Contact Person Jacques Dion Title Vice President  
Phone 514-940-3332 Email jdion@qenv.ca

### For Department Use Only

Management Facility Number NUF# 400006 Approved by  Date 2011-08-23

GN DoE Waste Generator and Transporter Registration  
De: Eno, Robert [REno@GOV.NU.CA]  
Envoyé: 31 août 2011 14:07  
À: 'Karl Côté'  
Objet: RE: application for waste carrier and waste generator

Hello Karl,

You registration numbers are as follows:

Generator: NUG 100045  
Carrier: NUC 200011

With respect to the carrier number, you should be aware that you will be expected to consult with Transport Canada and/or the Motor Vehicles Division of Community and Government Services with respect to TDGR for road transport. DoE does not administer TDGR so I cannot speak to the requirements.

If you have any questions, please do not hesitate to get in touch with me.

Robert

-----

Robert Eno  
Director, Environmental Protection Division  
Chief Environmental Protection Officer  
Dept. of Environment  
Gov't of Nunavut  
Iqaluit, NU  
867-975-7729

From: Karl Côté [mailto:kcote@sanexen.com]  
Sent: Wednesday, August 31, 2011 11:18 AM  
To: Eno, Robert  
Subject: application for waste carrier and waste generator

Hi Robert,

Here are the 2 registration forms.

Karl



Department of Environment  
Government of Nunavut

# REGISTRATION FORM HAZARDOUS WASTE RECEIVER

## Instructions

1. The following information must be provided in order to register as a hazardous waste receiver in Nunavut and to obtain a receiver number. Incomplete applications will be returned to the applicant.
2. A receiver who operates a commercial business for the purpose of collecting, storing, transferring, treating, recycling or disposing of hazardous waste may be required to register the facility as a hazardous waste management facility. Refer to section 3.2.2 of the *Environmental Guideline for the General Management of Hazardous Waste* for further information.
3. Completed registration forms are to be forwarded to the Manager of Pollution Control, Department of Environment, Government of Nunavut, Box 1000, Station 1360, Iqaluit, Nunavut, X0A 0H0. Electronic registration forms are preferred and may be forwarded to [EnvironmentalProtection@gov.nu.ca](mailto:EnvironmentalProtection@gov.nu.ca).
4. Use additional pages to provide information as required.
5. Applicants should refer to the accompanying users' guide for further assistance on completing the receiver registration form.

## Section 1 - Identification

Receiver (Legal Name) Qikiqtaaluk Environmental Inc.

Mailing Address PO Box 1228, Building 922, Niaqunngusiaq Road, Iqaluit (Nunavut)

Postal Code X0A 0H0

Principle Contact Person Harry Flaherty Title President

Phone 867-979-8406 Email hflaherty@qcorp.ca

Alternate Contact Person Jacques Dion Title Vice President

Phone 514-940-3332 Email jdion@qenv.ca

## Section 2 - Description of Waste Received (provide a separate table if required)

Site Location(s) where Waste is Received Building 1571, Federal Road, corner of Kakivak Court, on Lot 3

Shipping Name (Description)	TDG Number	TDG Class	Quantity Received each Month (L or Kg)	Frequency of Acceptance
see attached list				

Attach a brief description of the proposed facility.

### Section 3 - Waste Management Information

General Type of Business Environmental Contractor and Consultant  
General Type of Activity Environmental site remediation and hazardous waste management  
Hazardous Waste Generator(s) Used Qulliq Energy Corporation, City of Iqaluit, Uqsuq Oil, small businesses, garages, schools, households

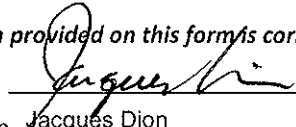
Hazardous Waste Carriers(s) Used NEAS, NSSI, Veolia (Quebec), Solva-Rec (Quebec)


Hazardous Waste Management Facilities Used Qikiqtaaluk Environmental Inc., Veolia (Quebec), Solva-Rec (Quebec)

Do you have an approved Emergency Response and Spill Contingency Plan? Yes ☐ (attach copy) No ☒

### Section 4 - Certification

*I certify that the information provided on this form is correct, accurate and complete.*

Signature of Contact Person  Date (dd/mm/yy) 15/08/11  
Print Name of Contact Person Jacques Dion Title Vice President  
Phone 514-940-3332 Email jdion@qenv.ca

<b>For Department Use Only</b>	Receiver Number NUR# <u>300001</u>	Approved by <u></u>	Date <u>2011-08-23</u>
--------------------------------	------------------------------------	---	------------------------



ᓄᓇᓂᓪ ᐃᓕᓂᓪᓴᓪ ᑲᓂᓕᓪᓴᓪ  
NUNAVUT WATER BOARD  
NUNAVUT IMALIRIYIN KATIMAYINGI  
OFFICE DES EAUX DU NUNAVUT

File No.: **1BR-THI1419**

August 20, 2014

Greg Johnson, Director  
C/o Qikiqtaaluk Environmental Inc.  
9935 Ave Catania, Entrance 1, Suite 200  
Montreal, QC J4Z 3V4

Email: [gjohnson@qenv.ca](mailto:gjohnson@qenv.ca)

**RE: NWB Water Licence No. 1BR-THI1419**

---

Dear Mr. Johnson:

Please find attached Licence No. **1BR-THI1419** issued to Qikiqtaaluk Environmental Inc. by the Nunavut Water Board (NWB) pursuant to its authority under Article 13 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada (Nunavut Land Claims Agreement or NLCA)*. The terms and conditions of the attached Licence related to Water use and waste deposit are an integral part of this approval.

If the Licensee contemplates the renewal of this Licence, it is the responsibility of the Licensee to apply to the NWB for its renewal. The past performance of the Licensee, new documentation and information, and issues raised during a public hearing, if the NWB is required to hold one, will be used to determine the terms and conditions of the Licence renewal. Note that if the Licence expires before the NWB issues a new one, then Water use and waste disposal must cease, or the Licensee may be in contravention of the *Nunavut Land Claims Agreement* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*. However, the expiry or cancellation of a licence does not relieve the holder from any obligations imposed by the licence. The NWB recommends that an application for the renewal of this Licence be filed at least three (3) months prior to the Licence expiry date.

If the Licensee contemplates or requires an amendment to this licence, the NWB may decide, in the public interest, to hold a public hearing. The Licensee should submit applications for amendment as soon as possible to give the NWB sufficient time to go through the amendment process. The process and timing may vary depending on the scope of the amendment; however, a minimum of sixty (60) days is required from time of acceptance by the NWB. It is the responsibility of the Licensee to ensure that all application materials have been received and are acknowledged by the Manager of Licensing.

The NWB strongly recommends that the Licensee consult the comments received from interested persons on issues identified. This information is attached for your consideration.<sup>1</sup>

Sincerely,



---

Thomas Kabloona  
Nunavut Water Board  
Chair

TK/sa/ri

Enclosure: Licence No. **1BR-THI1419**  
Comments – AANDC

Cc: Qikiqtani Distribution List

---

<sup>1</sup> Aboriginal Affairs and Northern Development Canada (AANDC), May 27, 2014.



## DECISION

### LICENCE NUMBER 1BR-THI1419

This is the decision of the Nunavut Water Board (NWB) with respect to an application, dated March 15, 2014, for a new Water Licence made by:

#### QIKIQTAAALUK ENVIRONMENTAL INC.

to allow for the disposal of waste during the operation of a commercial Hydrocarbon Impacted Water Treatment Facility located within the City of Iqaluit, Nunavut, generally at the following geographical coordinates:

Latitude: (63° 45' 45" N)    Longitude: (68° 32' 36" W)  
Latitude: (63° 45' 45" N)    Longitude: (68° 32' 35" W)  
Latitude: (63° 45' 44" N)    Longitude: (68° 32' 44" W)  
Latitude: (63° 45' 44" N)    Longitude: (68° 32' 41" W) (Water Treatment Facility Extents)

## DECISION

After having been satisfied that the application was for a location that falls outside of an area with an approved Land Use Plan<sup>2</sup> and exempt from the requirement for screening as described within Schedule 12-1 by the Nunavut Impact Review Board<sup>3</sup> in accordance with Article 12 of the *Nunavut Land Claim Agreement (NLCA)*, the NWB decided that the application could proceed through the regulatory process. In accordance with s.55.1 of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act (Act)* and Article 13 of the *NLCA*, public notice of the application was given and interested persons were invited to make representations to the NWB.

After reviewing the submission of the applicant and considering the representations made by interested persons, the NWB, having given due regard to the facts and circumstances, the merits of the submissions made to it and to the purpose, scope and intent of the *NLCA* and of the *Act*, waived the requirement to hold a public hearing, and determined that:

**Licence No. 1BR-THI1419 be issued subject to the terms and conditions contained therein.  
(Motion #: 2014-B1-016)**

Signed this 15<sup>th</sup> day of July 2014 at Gjoa Haven, NU.



Thomas Kabloona  
Nunavut Water Board, Chair  
TK/sa/ri

<sup>2</sup> Nunavut Planning Commission Land, Use Conformity Determination, July 26 2013.

<sup>3</sup> Nunavut Impact Review Board Screening Exemption Decision, April 28 2014.

## TABLE OF CONTENTS

### DECISION 1

PROCEDURAL HISTORY .....	3
GENERAL CONSIDERATIONS .....	4
Term of the Licence .....	4
Annual Report .....	5
Security .....	5
Deposit of Waste .....	5
Spill Contingency Plan.....	5
Abandonment and Restoration Plan .....	6
Monitoring .....	6
Operation and Maintenance Plan.....	7
PART A: SCOPE, DEFINITIONS AND ENFORCEMENT .....	9
Scope .....	9
1. Definitions.....	9
2. Enforcement .....	11
PART B: GENERAL CONDITIONS .....	12
PART C: CONDITIONS APPLYING TO SECURITY .....	14
PART D: CONDITIONS APPLYING TO WATER USE .....	14
PART E: CONDITIONS APPLYING TO WASTE DISPOSAL .....	14
PART F: CONDITIONS APPLYING TO MODIFICATIONS .....	15
PART G: CONDITIONS APPLYING TO CONSTRUCTION .....	16
PART H: CONDITIONS APPLYING TO SPILL CONTINGENCY PLANNING .....	17
PART I: CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION OR TEMPORARY CLOSING.....	18
PART J: CONDITIONS APPLYING TO THE MONITORING PROGRAM.....	19

## **INTRODUCTION**

Between September 2013 and March 2014, the Board received, from Qikiqtaaluk Environmental Inc. (the Licensee or Proponent), an application and supporting information (Application) for a Type “B” Licence to construct and operate a proposed Water Treatment Facility (WTF) for the purpose of treating hydrocarbon impacted Water generated from spills occurring within the City of Iqaluit, Nunavut.

The WTF is expected to include the following main components:

- an oil/Water separator;
- particulate filters;
- activated carbon filters;
- patented ultra-sorption filters;
- Water pumps; and
- treated effluent storage reservoirs (from which the effluent will be sampled and analyzed prior being discharge).

The waste generated from the treatment process, including oil, lubricants, sludge, waste filter, and contaminated soil, is expected to be treated and/or disposed of at an approved facility in accordance with applicable regulations.

## **PROCEDURAL HISTORY**

The following is a list of the submissions received by the Board in support of the Application:

### **September 12, 2013**

- General Water Licence Application;
- Abandonment and Remediation Plan, Hydrocarbon Impacted Water Treatment, dated September 2013;
- Qikiqtaaluk Environmental Inc., Certificate of Incorporation, Industry Canada;
- Hydrocarbon Impacted Water Treatment, Cost Estimate in Case of Abandonment for Security;
- Cover letter, dated on September 12, 2013, in English and Inuktitut;
- Layout of Water Treatment Unit (two drawings);
- Spill Contingency Plan Hydrocarbon Impacted Water Treatment, dated September 2013;
- Table of Contents; and
- City of Iqaluit, Topographical Map.

### **Received on March 17, 2014**

Updated Water Licence Application, Hydrocarbon Impacted Water Treatment dated March 15, 2014, containing:

- General Water Licence (Application for a New Water Licence);
  - Figure 4: Water Treatment Unit;
  - Figure 5: Water Treatment Unit;
  - Hydrocarbon Impacted Water Treatment Cost Estimate in Case of Abandonment for Security;
  - Industry Canada, Certificate of Incorporation;
  - Executive Summary (English), dated September 12, 2013;
-

- Executive Summary, Inuktitut;
- Spill Contingency Plan Hydrocarbon Impacted Water Treatment, dated September 2013;
- Abandonment and Remediation Plan Hydrocarbon Impacted Water, dated September 2013; and
- Supplementary Information Requirements, Re: File No. 1BR-THI---, Type “B” Application by Qikiqtaaluk Environmental Inc. for a Hydrocarbon Impacted Water Treatment Project, dated March 14, 2014.

Following an internal review, the NWB distributed the Application on April 23, 2014 for a thirty (30) day public comment period with a deadline for submissions set for May 23, 2014. Due to administrative matters associated with some of the information provided, the deadline for submission was extended to May 27, 2014. On or before the extended deadline, a submission was received from Aboriginal Affairs and Northern Development Canada (AANDC). In its submission, AANDC provided comments and recommendations with respect to measures that the Proponent could implement to minimize potential impacts of the project on the receiving environment; however, it did not provide any written objections to the potential issuance of a licence.

Apart from the comments received from AANDC, the Board received the NPC Land Use Conformity Determination for the project on September 12, 2013, which states that the Project proposal is located outside the boundaries of the two currently approved land use plans. In addition, the Board received on April 28, 2014, the NIRB determination for the project, which states that the Application is exempt from screening pursuant to Schedule 12-1 of the NLCA.

Copies of the submission received as well as all documents related to this Application can be accessed through the NWB’s ftp site using the following link (**Username:** public and **Password:** registry):

<ftp://nunavutWaterboard.org/1%20PRUC%20PUBLIC%20REGISTRY/1%20INDUSTRIAL/1B/1BR%20-%20Remediation/1BR-THI----%20Qik%20Env/>.

## **GENERAL CONSIDERATIONS**

### **Term of the Licence**

In accordance with the Nunavut Waters and Nunavut Surface Rights Tribunal Act, s. 45, the NWB may issue a licence for a term not exceeding twenty-five (25) years. The Proponent requested in its Application a twenty five (25) year term for the licence. However, the Board has granted a five-year-term licence to the Project, which is generally granted for new licences for this type of an undertaking. AANDC also provided comments within their submission regarding a shorter term and that a five year licence term is recommended to allow an earlier opportunity to reconsider licence terms and conditions. The Board believes that the term granted will provide the Licensee with adequate opportunity to consistently demonstrate its ability to comply with the requirements in the Licence in advance of any future renewal and/or consideration of a longer term licence by the Board.

## **Annual Report**

Under the reporting section of the Licence, Part B, Item 1, the Licensee is required to submit, on an annual basis, a report that describes the Licensee's activities as they relate to waste deposition during the preceding year. The Board makes annual reporting information available to interested persons upon request in addition to making the information available in its public registry. Public access to annual information reporting submitted by all licensees is made available through the NWB's ftp site using the following link (**Username:** public and **Password:** registry ): <ftp://nunavutwaterboard.org/1%20PRUC%20PUBLIC%20REGISTRY/>.

## **Security**

As part of its Application, the Proponent included a financial estimate of \$79,340 for potential reclamation activities that might be associated with the proposed project in the document entitled *Hydrocarbon Impacted Water Treatment, Cost Estimate in Case of Abandonment for Security*, received September 12, 2013. AANDC in its submission indicated that it believes that the cost estimate provided by the Proponent is reasonable and should be considered by the Board. While the Board welcomes the information on reclamation security provided by the Proponent, the Board has decided to exclude, at this time, requirements in the licence related to posting of reclamation security for the Project. The Board understands that reclamation security for this type of undertaking has to be examined in a holistic manner and in accordance with the type of undertaking so as to avoid a tiered approach to reclamation security requirements for similar undertakings. The Proponent is, however, required to update the security estimate provide, as needed, to reflect the scope of and operational conditions for the project over time, under Part C, Item 2 in the Licence. In addition, should the Project scope change or further reviews of subsequent applications and information provided through Annual Reports and Inspection Reports warrant the need, and the Board approach to reclamation security broaden, the requirements for providing a total reclamation security for site liability may be required.

## **Deposit of Waste**

Details provided in the Application indicate that, in addition to the treatment of hydrocarbon contaminated Water/snow/ice and the discharge of effluent in accordance with the licence conditions and Effluent quality criteria under Part E, Item 10, the following waste types will potentially be generated by the Water Treatment Facility (WTF): waste fuel and filters; oil, lubricants and liquid sludge; contaminated Water; contaminated soil; and other hydrocarbon contaminated waste. All waste generated will require management in accordance with the terms and conditions in this licence and/or applicable legislations and guidelines for wastes generated and proposed to be removed from site to an approved hazardous waste management facility.

Under Part E, of the Licence, the Licensee is required to manage primary waste and residual waste generated from its undertaking in accordance with applicable regulations including the Government of Nunavut - Department of Environment, *Environmental Guideline for Used Oil and Waste Fuel* (June 2012). Additional conditions have been included under Part E of this Licence to address overall waste management practices.

## **Spill Contingency Plan**

Under Part H, Item 1 of the Licence, the Board has approved the Spill Contingency Plan submitted as additional information with the Application. The Licensee is, however, required

to address and submit, with its 2014 Annual Report, a revised plan as outlined in Item 2, that addresses comments and recommendations provided by AANDC during comment period and any other revisions that may become apparent in carrying out the activities associated with the undertaking.

### **Abandonment and Restoration Plan**

The Board has approved the Interim Abandonment and Restoration (A&R) Plan that was submitted as additional information with the Application under Part I, Item 1 in the Licence. The licensee is required to annually review the Plan and to update the A&R plan on an ongoing basis to reflect any changes in operational conditions and scope of activities associated with the project.

### **Monitoring**

Petroleum products or petroleum hydrocarbons (PHC) is a general term used to describe mixtures of organic compounds found in or derived from substances such as oil, bitumen and coal. These products released to soil and water can lead to contaminants entering into the environment through volatilization, adsorption to solid organic matter, leaching by rainwater and dissolution into groundwater, or through contaminated surface runoff migration to oceans, lakes, rivers and streams.

Accordingly to the Application, treated water previously impacted by petroleum products, will be discharged at the Final Discharge Point, with the effluent Final Discharge Point location yet undetermined.

To ensure that effluent generated from the facility does not exceed specific criteria, the Board has included general Effluent quality limits for the treated effluent, at the point of discharge, under Part E, Item 10. Parameters not included under Part E, Item 10 but relevant to the undertaking must not exceed values set in the Canadian Council of Ministers of Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life.

Furthermore, characterization of effluent, soil and Waters at the Final Point of Discharge, in addition to the information of contaminants levels, would help on determining if the discharged effluent had an impact on the environment and, if contamination is identified, would help to determine those parameters that shall be tracked during the remediation process.

Analysis recommended for soil and water characterization where petroleum hydrocarbon contamination is suspected<sup>4,5</sup> include Total Petroleum Hydrocarbon (TPH), Polycyclic Aromatic Hydrocarbons collectively referred as PHAs, benzene, toluene, ethylbenzene and xylenes collectively referred as BTEX and Canadian Wide Standards for petroleum hydrocarbon in soil fractions, CWS-PHC fractions. These contaminants are usually accompanied by heavy metals such as chromium, copper, lead, manganese, nickel and zinc that are commonly found in used lubricating oil from friction wear on engine parts.

Therefore, under Part J, Item 4 of the Licence, the Board has established a list of additional

---

<sup>4</sup> Federal Guidelines for Landfarming Petroleum Hydrocarbon Contaminated Soils, Federal Contaminated Sites Action Plan (FCSAP), 2013

<sup>5</sup> Guideline for the Dismantling and Removal of Petroleum Storage Tank Systems, Manitoba, 2007

parameters that the licensee is required to monitor for the purposes of developing site-specific effluent quality criteria and/or limits given that such criteria and limits may be more reflective of operational conditions for the treatment processes involved and the receiving environment at the final point of discharge.

And, under Part J, Item 6, the Board has included conditions that require the Licensee to submit a Monitoring Plan to the Board for approval, within sixty (60) days following the date of issuance of this Licence. To ensure that monitoring is conducted in accordance with established practices, the Board has included conditions requiring the Licensee to submit a Quality Assurance / Quality Control (QA/QC) Plan along with a cover letter from an accredited laboratory confirming acceptance of the Plan.

### **Operation and Maintenance Plan**

To ensure that documented procedures pertaining to the operation of the facility for the undertaking are developed, the Licensee is required to submit an Operation and Maintenance (O&M) Plan for the WTF, to address the collection, treatment, and discharge of petroleum hydrocarbon impacted snow/ice/water and the handling of wastes generated from the undertaking requiring shipment off-site to an approved hazardous waste handling facility. Part G, Item 4 addresses the requirement to submit an O&M Plan within sixty (60) days from the date of issuance of this licence.



## NUNAVUT WATER BOARD WATER LICENCE

Licence No. 1BR-THI1419

Pursuant to the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada*, the Nunavut Water Board, hereinafter referred to as the Board, hereby grants to

### **QIKIQTAAALUK ENVIRONMENTAL INC.**

(Licensee)

9935 AVE CATANIA, ENTRANCE 1, SUITE 200, MONTREAL, QC J4Z 3V4

(Mailing Address)

herein after called the Licensee, the right to alter, divert or otherwise use Water or dispose of waste for a period subject to restrictions and conditions contained within this Licence:

Licence Number/Type: 1BR-THI1419 / TYPE "B"

Water Management Area: FROBISHER BAY WATERSHED (53)

Location: CITY OF IQALUIT / QIKIQTANI REGION, NUNAVUT

Classification: INDUSTRIAL – TYPE "B"

Purpose: DEPOSIT OF WASTE

Quantity of Water use not  
to Exceed: USE OF WATER NOT AUTHORIZED

Date of Licence Issuance: AUGUST 20, 2014

Expiry of Licence: AUGUST 19, 2019

This Licence issued and recorded at Gjoa Haven, Nunavut, includes and is subject to the annexed conditions.

**Thomas Kabloona,**  
**Nunavut Water Board, Chair**



## **PART A: SCOPE, DEFINITIONS AND ENFORCEMENT**

### **Scope**

This Licence allows for the deposit of waste from an Industrial undertaking classified as *per* Schedule 1 of the *Regulations* at the Qikiqtaaluk Environmental Inc.'s Hydrocarbon Impacted Water Treatment Facility Project, located in an industrial area within the City of Iqaluit, Qikiqtani Region, Nunavut.

- a. This Licence is issued subject to the conditions contained herein with respect to the depositing of waste of any type in any Waters or in any place under any conditions where such waste or any other waste that results from the deposits of such waste may enter any Waters. Whenever new *Regulations* are made or existing *Regulations* are amended by the Governor in Council under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, or other statutes imposing more stringent conditions relating to the quantity or type of waste that may be so deposited or under which any such waste may be so deposited, this Licence shall be deemed, upon promulgation of such *Regulations*, to be subject to such requirements; and
- b. Compliance with the terms and conditions of this Licence does not absolve the Licensee from responsibility for compliance with the requirements of all applicable Federal, Territorial and Municipal legislation.

### **1. Definitions**

“**Act**” means the Nunavut Waters and Nunavut Surface Rights Tribunal Act;

“**Addendum**” means the supplemental text that is added to a full plan or report usually included at the end of the document and is not intended to require a full resubmission of the revised report;

“**Amendment**” means a change to original terms and conditions of this Licence requiring correction, addition or deletion of specific terms and conditions of the Licence; modifications inconsistent with the terms of the set terms and conditions of the Licence;

“**Analyst**” means an Analyst designated by the Minister under Section 85 (1) of the Act;

“**Appurtenant Undertaking**” means an undertaking in relation to which a use of Water or a deposit of waste is permitted by a licence issued by the Board;

“**Batch Discharge**” means the controlled discharge of a discrete, contained volume of effluent from the WTF at the Final Discharge Point. The maximum volume of a batch discharge shall not exceed 21,000 m<sup>3</sup> per batch, otherwise as permitted by an Inspector;

“**Board**” means the Nunavut Water Board established under the *Nunavut Land Claims Agreement* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*;

**“Care and Maintenance”** in respect of operation, means when the Licensee ceases production or commercial operation for an undefined period of time;

**“Construction”** means any activities undertaken to establish and install any or all components of the Water Treatment Facility;

**“Effluent”** means treated liquid waste material from the Water Treatment Facility;

**“Engineer”** means a professional engineer registered to practice in Nunavut in accordance with the *Consolidation of Engineers and Geoscientists Act S. Nu 2008, c.2* and the *Engineering and Geoscience Professions Act S.N.W.T. 2006, c.16 Amended by S.N.W.T. 2009, c.12*;

**“Final Discharge Point”** means the point at which the Licensee releases the treated water or effluent from the WTF;

**“Hazardous waste”** means waste classified as “hazardous” by Nunavut Territorial or Federal Legislation, or as “dangerous goods” under the Transportation of Dangerous Goods Act at the time of clean-up;

**“High Water Mark”** means the usual or average level to which a body of Water rises at its highest point and remains for sufficient time so as to change the characteristics of the land (ref. Department of Fisheries and Oceans Canada, Operational Statement: Mineral Exploration Activities);

**“ICP Scan”** means the laboratory method for determining trace metals in leachate or Water through Emission Spectroscopy using inductively coupled plasma (including from approximately 22 to 32 elements, depending on the laboratory performing the analysis);

**“Inspector”** means an Inspector designated by the Minister under Section 85 (1) of the *Act*;

**“Licensee”** means the holder of this Licence;

**“Minister”** means the Minister of Aboriginal Affairs and Northern Development Canada;

**“Modification”** means an alteration to a physical work that introduces a new structure or eliminates an existing structure and does not alter the purpose or function of the work, but does not include an expansion;

**“Monitoring Program”** means a program established to collect data on surface Water, groundWater, and soil quality to assess impacts to the environment of an appurtenant undertaking;

**“Nunavut Land Claims Agreement (NLCA)”** means the *“Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada”*,

including its preamble and schedules, and any amendments to that agreement made pursuant to it;

**“Regulations”** means the *Nunavut Waters Regulations* SOR/2013-69 18<sup>th</sup> April, 2013;

**“Seepage”** means any Water that drains through or escapes from any structure designed to contain, withhold, divert or retain Water or waste;

**“Spill Contingency Plan”** means a Plan developed to deal with unforeseen petroleum and hazardous materials events that may occur during the operations conducted under the Licence;

**“Secondary Containment”** means an impermeable structure, external to and separate from primary containment, which prevents unplanned spills of hazardous materials and provides a minimum capacity of 110% of the original vessel. Where multiple vessels are stored within the containment, it must provide a minimum capacity equal to the sum of the largest vessel and 10% of the aggregate volume of all other vessels located in the containment. This structure shall also provide containment and control of hoses and nozzles;

**“Sump”** is a structure or depression that collects, controls, and filters liquid waste before it is released to the environment. This structure should be designed to prevent erosion while allowing percolation of liquid waste;

**“Waste”** means, as defined in S.4 of the *Act*, any substance that, by itself or in combination with other substances found in Water, would have the effect of altering the quality of any Water to which the substance is added to an extent that is detrimental to its use by people or by any animal, fish or plant, or any Water that would have that effect because of the quantity or concentration of the substances contained in it or because it has been treated or changed, by heat or other means;

**“Water” or “Waters”** means Waters as defined in section 4 of the *Act*;

**“Water Treatment Facility (WTF)”** means the Water treatment facility and associated components, including the Water Treatment Unit, piping, pumps and storage tanks used to treat hydrocarbon impacted Water as described in the March 15, 2014 Application and Figure 3, Layout of treatment equipment and waste storage area; Figure 4, Water treatment unit; and Figure 5, Water treatment unit.

## 2. **Enforcement**

- a. Failure to comply with this Licence will be a violation of the *Act*, subjecting the Licensee to the enforcement measures and the penalties provided for in the *Act*;
  - b. All inspection and enforcement services regarding this Licence will be provided by Inspectors appointed under the *Act*; and
3. For the purpose of enforcing this Licence and with respect to the deposit or discharge of waste by the Licensee, Inspectors appointed under the *Act*, hold all powers, privileges and protections that are conferred upon them by the *Act* or by other applicable law.

## **PART B: GENERAL CONDITIONS**

1. The Licensee shall file an Annual Report on the Appurtenant Undertaking with the Board no later than March 31 of the year following the calendar year being reported, containing the following information:
  - a. a summary report of the following activities:
    - i. quantity of Petroleum Hydrocarbon Contaminated (PHC) water/snow/ice collected for treatment through the Water Treatment Facility (WTF);
    - ii. quantity of collected soil for removal and treatment at an approved facility;
    - iii. quantity of waste generated from the undertaking including petroleum, oil, and lubricants (POL), sludge, waste filter media, and any other waste resulting from the treatment of Water at the WTF;
    - iv. an inventory of contaminated Water stored at the project site; and
    - v. an inventory of treated Water stored at the project site.
  - b. a summary of waste disposal activities:
    - i. quantity of soil sent for treatment at approved facilities;
    - ii. Effluent discharged to the receiving environment from the WTF including location and quality of Effluent discharged;
    - iii. a summary of all waste backhauled, including hazardous waste, for disposal at approved facilities under Part E, Items 12, 13 and 14;
  - c. a list of any unauthorized discharges and a summary of follow-up actions taken;
  - d. a summary of maintenance work performed on the WTF;
  - e. any revisions to the plans approved under this licence, including the Spill Contingency Plan and Abandonment and Restoration Plan, as required by Part B, Item 6. Revisions should be submitted in the form of Addenda;
  - f. a description of all progressive and or final reclamation work undertaken, including photographic records of site conditions before, during and after completion of operations;
  - g. a review of the reclamation cost estimate, as required by Part C, Item 1;
  - h. tabular summary of all information requested and results of the Monitoring Program;
  - i. an analysis of data collected during the "Monitoring Program" and a brief description of any future studies planned by the Licensee;
  - j. a public consultation/participation report describing consultation with local organizations and the residents of the nearby communities; and
  - k. any other details on water use or waste disposal requested by the Board by November 1 of the year being reported.
2. The Licensee shall notify the NWB of any normal changes in operating plans or conditions associated with this project at least thirty (30) days prior to any such change.
3. The Licensee shall install flow meters or other such devices, or implement suitable methods required for the measuring of Effluent volumes discharged into the receiving environment at the Final Discharge Point as required under Part J, Item 2 to the

satisfaction of the Inspector.

4. The Licensee shall, for all Plans submitted under this Licence, include a proposed timetable for implementation. Plans submitted cannot be undertaken without subsequent written Board approval and direction. The Board may alter or modify a Plan if necessary to achieve the legislative objectives and will notify the Licensee in writing of acceptance, rejection or alteration of the Plan.
5. The Licensee shall, for all Plans submitted under this Licence, implement the Plan as approved by the Board in writing.
6. The Licensee shall review the Plans referred to in this Licence, as required by changes in operation and/or technology, and modify the Plan accordingly. Revisions to the Plans shall be submitted in the form of Addenda to be included with the Annual Report.
7. Every Plan to be carried out pursuant to the terms and conditions of this Licence shall become a part of this Licence, and any additional terms and conditions imposed upon approval of a Plan by the Board become part of this Licence. All terms and conditions of the Licence should be contemplated in the development of a Plan where appropriate.
8. The Licensee shall ensure a copy of this Licence is maintained at the site of operations at all times. Any communication with respect to this Licence shall be made in writing to the attention of:
  - (a) **Manager of Licensing:**  
Nunavut Water Board  
P.O. Box 119  
Gjoa Haven, NU X0B 1J0  
Telephone: (867) 360-6338  
Fax: (867) 360-6369  
Email: [licensing@nwb-oen.ca](mailto:licensing@nwb-oen.ca)
  - (b) **Inspector Contact:**  
Water Resources Officer, AANDC  
Nunavut District, Nunavut Region  
P.O. Box 100  
Iqaluit, NU X0A 0H0  
Telephone: (867) 975-4295  
Fax: (867) 979-6445
9. The Licensee shall submit one paper copy and one electronic copy of all reports, studies, and plans to the Board. Reports or studies submitted to the Board by the Licensee shall include a detailed executive summary in Inuktitut.
10. The Licensee shall ensure that any document(s) or correspondence submitted by the Licensee to the NWB is received and acknowledged by the Manager of Licensing.
11. This Licence is assignable as provided for in Section 44 of the *Act*.

**PART C: CONDITIONS APPLYING TO SECURITY**

1. The Licensee shall review, annually, the reclamation cost estimate submitted as part of the Application for this Licence. Any changes made to the estimate should be submitted to the Board for review with the Annual Report required in Part B, Item 1.
2. The Licensee shall provide a revised reclamation/closure cost estimate to the Board for approval in writing, within sixty (60) days of receiving notice, that the estimate provided under Part C, Item 1 was not acceptable to the Board.

**PART D: CONDITIONS APPLYING TO WATER USE**

1. The Licensee is not authorized to use Water under this Licence.

**PART E: CONDITIONS APPLYING TO WASTE DISPOSAL**

1. The Licensee shall provide at least fifteen (15) days' notice in writing, to an Inspector prior to any planned discharge of Effluent from the WTF. The notice shall include the volumes proposed for discharge, the analytical results for Water quality of the proposed discharge, location of discharge and an indication of any nearby Water bodies that may be impacted.
2. The Licensee shall confirm, with an Inspector, the suitable location(s) for Final Discharge Point(s) for Effluent from the WTF to be discharge prior to any discharge into the receiving environment.
3. The Licensee shall locate areas designated for waste disposal at a minimum distance of thirty-one (31) metres from the ordinary High Water Mark of any Water body such that the quality, quantity or flow of Water is not impaired, unless otherwise approved by the Board in writing.
4. The Licence shall implement appropriate measures to minimize erosion during any discharge of Effluent from the WTF into the receiving environment.
5. The Licensee shall treat all hydrocarbon-impacted Water/snow/ice at the Water Treatment Facility or as otherwise approved by the Board in writing.
6. The Licensee shall operate and maintain the WTF to the satisfaction of an Inspector and in accordance with acceptable engineering standards and the Operation and Maintenance Plan required under Part G, Item 4.
7. The License shall not combine incompatible waste types for the purpose of storage, shipment, buffering concentration of waste constituents or for any other purposes unless authorized by the Board in writing.

8. The License shall store, transport and treat all Waste generated for the undertaking in accordance with applicable regulations and best management practices and at approved facilities.
9. The Licensee shall maintain the Water treatment facility areas such that generation of dust and ponding of surface Water are minimized.
10. All Effluent discharged from Monitoring Program Station **THI -1** shall not exceed the following Effluent quality limits:

Parameter	Maximum Allowable Concentration of any Grab Sample (mg/L)
pH	6.5 to 9 (pH units)
TSS	50
Oil and Grease	15 and no visible sheen
Total Lead	0.001
Benzene	0.370
Toluene	0.002
Ethyl benzene	0.090

11. The Licensee shall establish and confirm compliance with Effluent quality limits of Part E, Item 10 prior to discharge.
12. If the Effluent referred to in Part E, Item 10 does not meet the discharge criteria, it shall be considered hazardous waste and be disposed off-site at an approved hazardous waste facility or as otherwise approved by the Board in writing.
13. The Licensee shall provide the Board with documented authorization from any community in Nunavut receiving waste from the Qikiqtaaluk Environmental Inc. Water Treatment Facility.
14. The Licensee shall maintain records of all waste stored, transported and final destinations, including details confirming proper disposal of the waste through a waste manifest. Detail related to waste backhauled should be included with the Annual Report in Part B, Item 1 and/or made available to and Inspector upon request.

## **PART F: CONDITIONS APPLYING TO MODIFICATIONS**

1. The Licensee may, without written consent from the Board, carry out Modifications to the Water Supply Facilities and Waste Disposal Facilities provided that such Modifications are consistent with the terms of this Licence and the following requirements are met:
  - a. the Licensee has notified the Board in writing of such proposed Modifications at least sixty (60) days prior to beginning the Modifications;
  - b. such Modifications do not place the Licensee in contravention of the Licence or



- c. the Act;
  - d. such Modifications do not change the scope of the project as approved by NIRB Decision;
  - e. the Board has not, during the sixty (60) days following notification of the proposed Modifications, informed the Licensee that review of the proposal will require more than sixty (60) days; and
  - f. the Board has not rejected the proposed Modifications.
- 2. Modifications for which all of the conditions referred to in Part F, Item 1 have not been met can be carried out only with written approval from the Board.
- 3. The Licensee shall provide as-built plans and drawings of the Modifications referred to in this Licence within ninety (90) days of completion of the Modification. These plans and drawings shall be stamped by an Engineer.

## **PART G: CONDITIONS APPLYING TO CONSTRUCTION**

1. The Licensee shall submit to the Board for review, at least sixty (60) days prior to the commencement of construction of any dams, dykes or structures intended to contain, withhold, divert or retain Water or waste, including facilities or systems for the storage and treatment of hydrocarbon contaminated Water, for-construction design drawings and plans, stamped by an Engineer.
2. The Licensee shall provide to the Board, within ninety (90) days of completion of the construction of any dams, dykes or structures intended to contain, withhold, divert or retains water or waste, including facilities or systems for the storage, treatment and disposal of hydrocarbon contaminated Water and wastes, design drawings and construction reports, including as-built drawings stamped by an Engineer, documentation of field decisions that deviate from original plans, and any data used to support these decisions.
3. The Licensee shall conduct all activities in such a manner as to minimize impacts on surface drainage and immediately undertake and implement corrective measures in the event of any impacts on surface drainage.
4. The Licensee shall submit to the Board for approval within ninety (90) days of Licence issue, an Operation and Maintenance Plan (O&M) that addresses the collection, treatment of petroleum hydrocarbon impacted snow/ice/water, and effluent discharge. The O&M shall include information related but not limited to the following:
  - a. effluent quality limits;
  - b. effluent quality monitoring requirements;
  - c. soil quality monitoring at the discharge point;
  - d. secondary containment provisions for waste storage facilities associated with the undertaking;
  - e. records confirming acceptance from the approved facility that will be treat petroleum hydrocarbon impacted soils generated from the undertaking;
  - f. details pertaining to the annual shipment of recovered petroleum hydrocarbons



- and other wastes to an approved hazardous materials disposal facility;
  - g. a map that references of the project infrastructure;
  - h. a map that references the treated effluent discharge location(s);
  - i. as-built design drawings for the secondary containment and petroleum hydrocarbon impacted Water treatment system; and
  - j. facilities and equipment maintenance and inspection plan.
5. The Licensee shall operate the Water Treatment Facility in accordance with the Plan required under Part G, Item 4 or as otherwise approved by the Board in writing.

## **PART H: CONDITIONS APPLYING TO SPILL CONTINGENCY PLANNING**

1. The Board has approved the Plan entitled “Spill Contingency Plan Hydrocarbon Impacted Water Treatment” dated September 2013 that was submitted as additional information with the Application.
2. The Licensee shall submit for review of the Board, with the 2014 Annual Report, a revision of the Plan referred to in Part H, Item 1, in the format set out by the Consolidation of Spill Contingency Planning and Reporting Regulations R-068-93, to include the following:
  - a. a table of contents (index);
  - b. name, address and title of person in charge of the undertaking;
  - c. name, title and 24hr contact information of person responsible;
  - d. date of plan preparation and the effective period of the Plan;
  - e. description of the location, facility and capacity (storage capacity and types waste to be treated, and storage capacity of treated product to be released;
  - f. sec. 1.3.1 refers to assistance being obtained from the Hamlet, this should reference the local resources if available in Iqaluit;
  - g. Under sec. 1.7, a response flow chart to indicate responsibility, contact information of site personnel and initial reporting requirements;
  - h. a map of the project area showing all components of the undertaking, of suitable scale to indicate any sensitive Waters subject potential impacts from the undertaking;
  - i. a detailed description of the secondary containment systems that will be employed to prevent any spills of petroleum hydrocarbons;
  - j. contact information, Nunavut Water Board (867) 360-6338;
  - k. a copy of the NT/NU Spill Report Form and Reporting Guide as referenced;
  - l. the transport of contaminated materials (filter media, sludge, barreled petroleum hydrocarbons) to port for shipment to an approved hazardous waste management facility; and
  - m. transport of treated Waters to the discharge location.
3. The Licensee shall prevent any chemicals, petroleum products or wastes associated with the project from entering Water. All sumps and fuel caches or contaminated Water storage shall be located at a distance of at least thirty one (31) metres from the ordinary high Water mark of any adjacent Water body and inspected on a regular basis.

4. If during the term of this Licence, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the Licensee shall:
  - a. employ the approved Spill Contingency Plan;
  - b. report the spill immediately to the 24-Hour Spill Line at (867) 920-8130 and to the Inspector at (867) 975-4295; and
  - c. for each spill occurrence, submit to the Inspector, no later than thirty (30) days after initially reporting the event, a detailed report that will include the amount and type of spilled product, the GPS location of the spill, and the measures taken to contain and clean up the spill site.
5. The Licensee shall, in addition to Part H, Item 4, regardless of the quantity of releases of harmful substances, report to the NWT/NU Spill Line if the release is near or into a Water body.
6. Spills, overfills, and storm water from product transfer areas shall be contained, and treated by the WTF to remove any residual hydrocarbons prior to being discharged.
7. The oil-water separator at the WTF shall be equipped with a spill containment device at the point of oil removal.

**PART I: CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION OR TEMPORARY CLOSING**

1. The Board has approved the Plan entitled “Abandonment and Remediation Plan Hydrocarbon Impacted Water Treatment” dated September 2013, that was submitted as additional information with the Application.
2. The Licensee shall annually review the approved Plan in Part I, Item 1 and modify the Plan as necessary to reflect changes in personnel, operations and/or technology. Any proposed modifications to the Plan shall be submitted to the Board for review as an addendum to the original Plan.
3. The next annual review of the Plan in Part I, Item 1 shall include or address the following:
  - a. a detailed schedule for temporary abandonment as a contingency measure;
  - b. a detailed schedule for final abandonment.
4. The Licensee shall complete the restoration work within the time schedule specified in the approved Plan, or as subsequently revised and accepted by the Board in writing.
5. The Licensee shall carry out progressive reclamation for any components of the project no longer required for the Licensee’s operations.
6. The Licensee shall notify the Board of its intention to proceed with final abandonment of undertaking at least six (6) months prior to the planned dates of closure.

7. The Licensee shall backfill and restore, all temporary containment sumps, to the pre-existing natural contours of the land.
8. All disturbed areas shall be stabilized and re-vegetated as required, upon completion of work, and restored as practically as possible to a pre-disturbed state.

**PART J: CONDITIONS APPLYING TO THE MONITORING PROGRAM**

1. The Licensee shall establish and maintain, at a minimum, the following Monitoring Program Stations or as otherwise approved by the Board in writing:

<i><b>Monitoring Station ID</b></i>	<i><b>Description</b></i>	<i><b>Frequency</b></i>	<i><b>Parameters</b></i>
THI -1 (Water)	effluent from the WTF to be discharged at the Final Discharge Point	as per part J, Item 4	volume as per Part J, Item 2; Quality as per Part J, Item 4

2. The Licensee shall measure and record in cubic metres, the quantity of Effluent to be discharged from the Water Treatment Facility at monitoring station THI -1.
3. The Licensee shall monitor compliance with respect to Part E, Item 10, by collecting grab samples, representative of the total volume of effluent to be discharged from the Water Treatment Facility at monitoring station THI -1.
4. The Licensee shall sample at Monitoring Station THI-1, at minimum, once prior to each batch discharge event and prior to completion of discharge, and analyze for the following parameters:

pH	Conductivity
Total Suspended Solids	Ammonia Nitrogen
Nitrate – Nitrite	Oil and Grease (visual)
Total Phenols	Sulphate
Total Hardness	Total Alkalinity
Sodium	Potassium
Magnesium	Calcium
Chloride	Total Cadmium
Total Copper	Total Chromium
Total Iron	Total Lead
Total Mercury	Total Nickel
Total Zinc	Total Phosphorous
Total Aluminum	Total Manganese
Total Cobalt	Total Arsenic
Polycyclic Aromatic Hydrocarbons ( PAHs)	
Total Petroleum Hydrocarbons (TPH)	
Benzene, Toluene, Ethylbenzene, Xylene (BTEX)	

5. The Licensee shall determine, prior to discharge and upon agreement with an Inspector at any final discharge location, and record the GPS co-ordinates (in degrees, minutes and seconds of latitude and longitude) where treated effluent is discharged.
6. The Licensee shall submit to the Board for review, within sixty (60) days of issuance of this Licence, and after having confirmed the Final Discharge Point location, a Monitoring Plan. The Monitoring Plan shall include but not be limited to the following:
  - a. soil monitoring within the vicinity of the Effluent discharge at the Final Discharge Point;
  - b. monitoring of any nearby Water bodies that may be impacted for the effluent discharge at the Final Discharge Point.
7. The Monitoring Plan referred to in Part J Item 6, shall include Water and soil sampling procedures and chemical analysis and be consistent where appropriate with the Guidance Manual on Sampling, Analysis and Data Management for Contaminated Sites, Volume 1: Main Report (CCME, 1993), and Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil – Tier 1 Method (CCME, 2001).
8. Modifications/Amendments to the Monitoring Plan referred to in Part J Item 6 may be made only upon written request and approval by the Board in writing.
9. The Licensee shall conduct additional sampling and analysis by the request of an Inspector.
10. All sampling, sample preservation and analyses shall be conducted in accordance with methods prescribed in the current edition of Standard Methods for the Examination of Water and Wastewater, or by such other methods approved by the Board in writing.
11. All analyses shall be performed in a laboratory accredited according to ISO/IEC Standard 17025. The accreditation shall be current and in good standing.
12. The Licensee shall submit, within three (3) months of Licence approval, to an Analyst for approval, a Quality Assurance/ Quality Control Plan that includes requirements for independent third party sampling and analysis. This Plan shall be developed in accordance with the *1996 Quality Assurance (QA) and Quality Control (QC) Guidelines for Use by Class "A" (INAC)*.
13. If the Analyst does not approve the Plan referred to in Part J, Item 12, the Licensee shall revise the Plan and resubmit to the Analyst for approval within thirty (30) days of notification by the Analyst.
14. The Board shall be notified of the Analyst decision with respect to the QA/QC Plan referred to in Part J Item 12 and 13.
15. The Licensee shall include summaries and an interpretation of all the data and information required by the "Monitoring Program" (required under Part J) in the Annual Report as per Part B, Item 1.

16. The Licensee shall submit to the Board for approval in writing, at least sixty (60) days prior to temporary or permanent suspension of normal site activities, a Post-closure Monitoring Plan that includes information on monitoring requirements of the Water Treatment Facility and site Water management.

## **APPENDIX B**

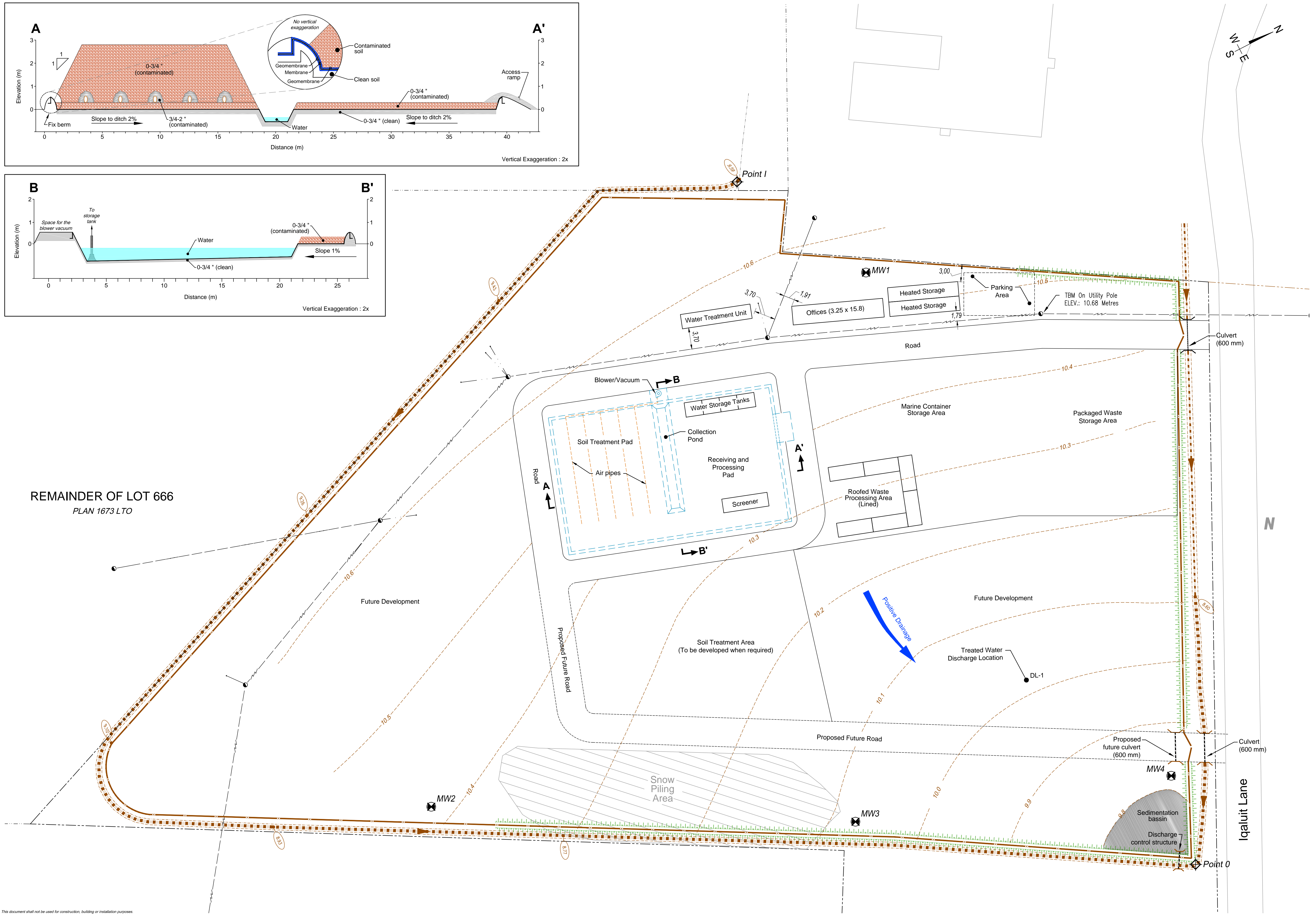
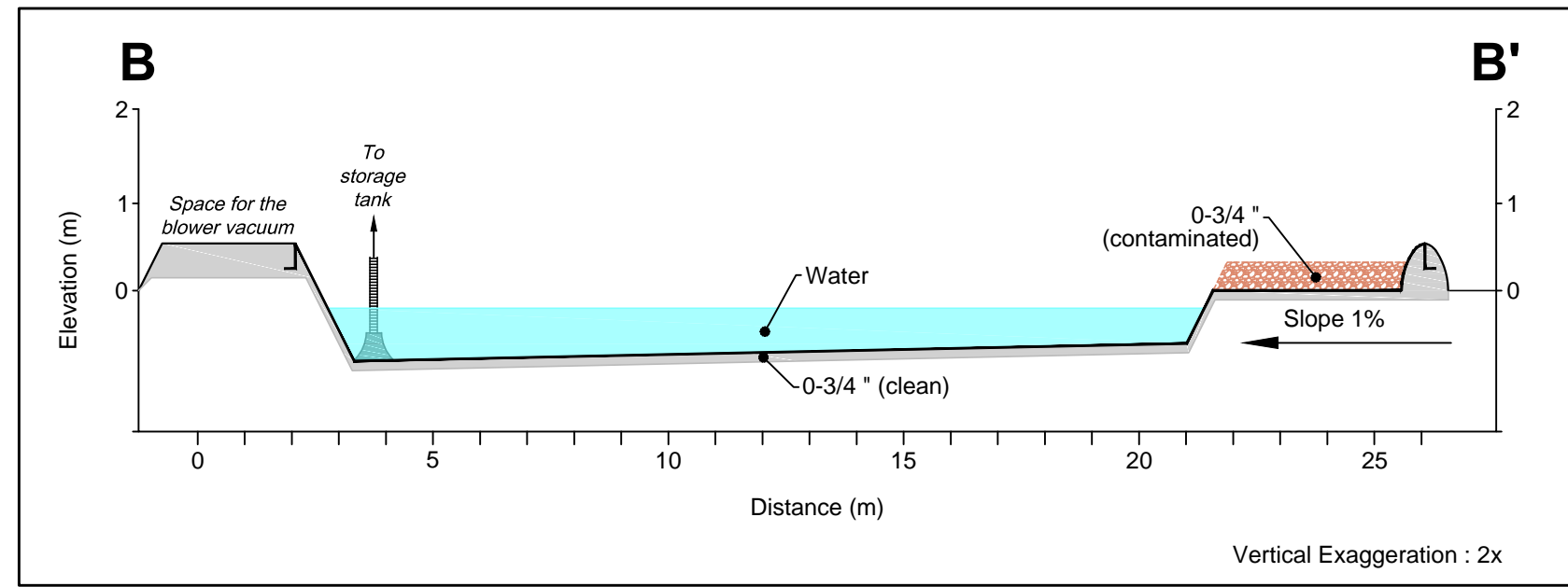
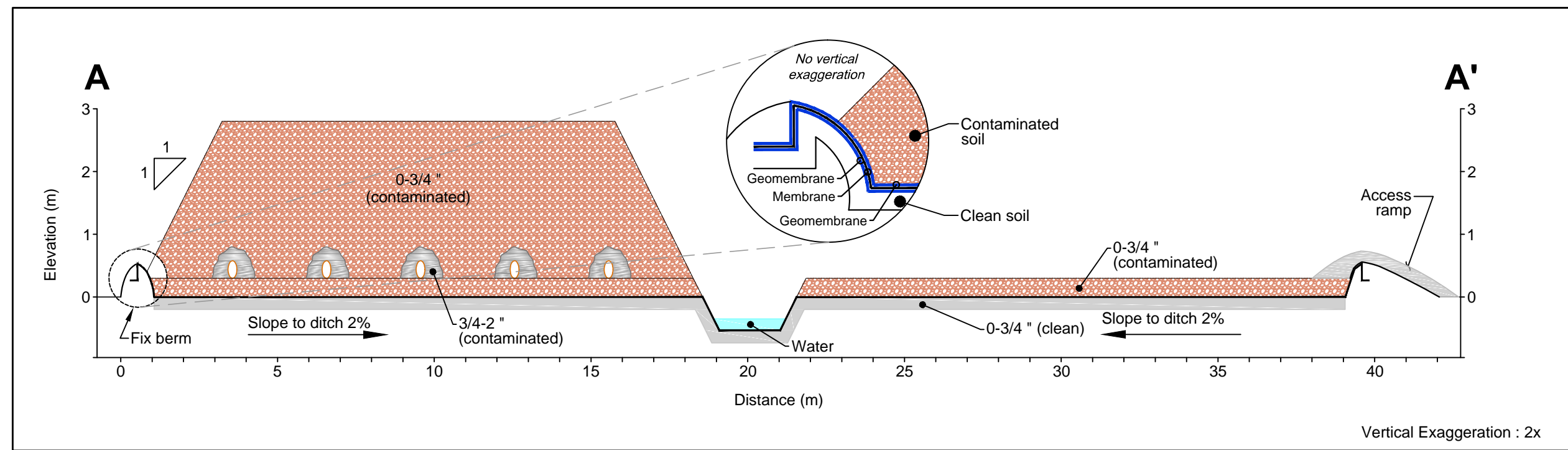
### **NUNAVUT WATER BOARD LICENCE AMENDMENT APPLICATION**

Submitted as separate document.

## **APPENDIX C**

### **SITE PLANS**





**Legend**

- Proposed monitoring well
- Proposed water quality monitoring point
- Proposed draining ground elevation (m)
- Proposed drainage ditch elevation (m)
- Proposed fence
- Proposed ditch
- Berm to be built to final ground design elevation
- Overhead electrical line
- Utility pole and guy wire
- Lot line
- Parcel identification
- Proposed parcel
- Boundary of lease (approximate location)
- Processing and lines soil treatment area

**Source :**

- Sub-Arctic Surveys Ltd : File no. 15-206-QE-JL14-TOPO; July 16, 2015;
- Iqaluit - Survey Sketch 001.2015.dwg

0 3 6 9 12 15m

**Figure 4**  
**Site Plan**

**PROPOSED DEVELOPMENT PLAN**

Property located at:  
Lease parcels O and Q,  
Airport lands in Iqaluit, NU

Drawn by: J. Bergeron  
Verified by: C. Johnson  
Approved by: J. Dion

Date: 2016-02-15  
Drawing no.: QE15-102-2-03 | B | MTM/NAD83 Zone 23  
Geodetic reference:

**Qikiqtaaluk environmental**

## **APPENDIX D**

**INUIT HERITAGE TRUST EMAIL  
GOVERNMENT OF NUNAVUT ARCHAEOLOGIST EMAIL**

## Kellie Anne Fillman

---

**De:** Olivier Simard <osimard@qenv.ca>  
**Envoyé:** 21 décembre 2015 08:15  
**À:** gjohnson@qenv.ca  
**Objet:** TR: QE - Archeological sites  
**Pièces jointes:** Site location\_Google Earth.jpg

FYI. IHT.

**Olivier Simard B.SC.**

Project Manager - Northern Projects



1571B Kakivak Ct. PO Box 1228

Iqaluit, Nunavut X0A 0H0 Canada

Cellular 867 222-8194

The present document is subject to our [information privacy policy](#) available on our Web site.

🌱 Think about the environment, do you really need to print this message?

---

**De :** Torsten Diesel [<mailto:tdiesel@iht.ca>]

**Envoyé :** décembre 9 2015 10:11

**A :** Olivier Simard

**Cc :** LeBlanc, Sylvie

**Objet :** FW: QE - Archeological sites

Hi Olivier,

I am not sure if I respectively IHT has the authority to provide a final assessment statement in regards to the existence of archaeological sites. I recommend that you check in with the Territorial Archaeologist Sylvie LeBlanc ([sleblanc1@gov.nu.ca](mailto:sleblanc1@gov.nu.ca)). She is also cc'd to the email.

However, based on the resources that I can access I could not find any evidence that there was an archaeological site on the particular area that you marked. Maybe this can serve as a tentative answer until Sylvie provides you with a final assessment.

Cheers,  
Torsten

---

**From:** Olivier Simard [<mailto:osimard@qenv.ca>]

**Sent:** December-09-15 9:32 AM

**To:** Torsten Diesel  
**Subject:** QE - Archeological sites

Good morning Torsten,

QE is in the process of developing a new lot at West 40 area (see map attached). Could you tell me if, by any chance, you know if there is archeological sites or archeological studies related to the Site outlined in red on the map? It is part of a request from the NIRB in our land development application. We would like to submit this application next week so the sooner you can answer me or redirect me to someone who could help me the better.

Thank you in advance and have yourself a great holidays season!

Cheers!

**Olivier Simard B.SC.**

Project Manager - Northern Projects



1571B Kakivak Ct. PO Box 1228

Iqaluit, Nunavut X0A 0H0 Canada

Cellular 867 222-8194

The present document is subject to our [information privacy policy](#) available on our Web site.

🌱 Think about the environment, do you really need to print this message?

## Kellie Anne Fillman

---

**De:** Perry, Steve <sperry2@gov.nu.ca>  
**Envoyé:** 12 janvier 2016 10:45  
**À:** Olivier Simard  
**Cc:** gjohnson@qenv.ca; LeBlanc, Sylvie  
**Objet:** RE: QE - Archeological sites

Hi Olivier,

I've reviewed existing data sources and can confirm that no known heritage resources exist within the lot on the map you provided.

Please note, however, this does not preclude the existence of non-recorded heritage resources at that location.

Should you have additional questions please contact me.

Thanks,  
Steve



ᑭᑎᑎᑦᑕ ᑭᑎᑎᑦᑕ ᑭᑎᑎᑦᑕ  
Building Nunavut Together  
Nunavutluuqatiglingniq  
Bâtir le Nunavut ensemble

ᑭᑎᑎᑦᑕ ᑭᑎᑎᑦᑕ  
Department of Culture and Heritage  
Pitquhihiyikkut  
Ministère de la Culture et du Patrimoine

ᑭᑎᑎᑦᑕ  
Steve Perry  
ᑭᑎᑎᑦᑕ ᑭᑎᑎᑦᑕ - Geographical Information Systems Officer  
Tugaangayunik Naunaikuttitt - Agent des systèmes d'information géographique

P.O. Box 310, -Government of Nunavut  
ᑭᑎᑎᑦᑕ, ᑭᑎᑎᑦᑕ - Igloolik, Nunavut X0A 0L0  
867-934-2045 867-934-2047  
sperry2@gov.nu.ca - www.ch.gov.nu.ca

ᑭᑎᑎᑦᑕ ᑭᑎᑎᑦᑕ ᑭᑎᑎᑦᑕ ᑭᑎᑎᑦᑕ ᑭᑎᑎᑦᑕ ᑭᑎᑎᑦᑕ  
If you would like this correspondence in any other official language, please let me know  
Titigqat piumarupkit aalaakkut ilitariyauhimayutigut uqauhikkut, unniutitjavangma  
Si vous souhaitez correspondre dans une autre langue officielle, veuillez nous en faire part

---

**From:** Olivier Simard [<mailto:osimard@qenv.ca>]  
**Sent:** Monday, January 11, 2016 4:28 PM  
**To:** Perry, Steve; Cloutier, Stephane  
**Cc:** [gjohson@qenv.ca](mailto:gjohnson@qenv.ca)  
**Subject:** TR: QE - Archeological sites

Hello,











Iqaluit Ln

Hubbard

Akiliq

© 2015 Google

Image © 2015 DigitalGlobe

197 m



2003

Date des images satellite : 31/7/2011 63°44'37.57"N 68°32'54.34"O élév. 37 m altitude



**APPENDIX E**

**NON-TECHNICAL PROJECT DESCRIPTION**

## ENVIRONMENTAL WASTE PROCESSING FACILITY

### PROJECT SUMMARY

Qikiqtaaluk Environmental Inc. (QE) was established in Iqaluit, Nunavut in 2003. Its activities consist of managing hazardous and non-hazardous waste, contaminated water treatment and contaminated soil management. QE will move its operations to a property, located at Lot 666, Plan 1673, Parcels O and Q (the Site). This move will allow QE to add a treatment facility for the remediation of hydrocarbon impacted soils to its existing operations. As part of its mission and field of expertise, QE will safeguard against contaminants escaping the Site. Monitoring wells, watertight lined cells, storage in proper containers, controlled drainage off the site and regular inspections are part of the measures taken by QE to prevent contaminants from escaping the Site.

Hazardous and non-hazardous waste is collected from various clients in Iqaluit. Waste consists of, but is not limited to, batteries, waste oil, fuel and gasoline, hydrocarbon contaminated sludge and solids (absorbents, rags and filter media), waste glycol, ACMs<sup>1</sup>, lead paint and other lead-containing materials, among others. These types of waste are often improperly packaged and/or stored in containers that are in poor condition. QE's business consists of identifying, repackaging, safely storing, the marine transport and final disposal of this waste. The Site will ultimately be used for this purpose.

Hydrocarbon impacted water is often collected from spills, site remediation projects or fuel storage containers during the cleaning process. QE is licensed by the Nunavut Water Board (NWB) to collect, store, treat and discharge this water. The water treatment unit consists of a water/oil separator and a series of filters activated by diaphragm pumps. The contaminated and treated water is stored in separate holding tanks with capacities ranging from 5,000 to 15,000 L. After treatment, confirmatory samples are taken and analyzed for comparison with the discharge criteria as defined by the NWB Licence. Following receipt of results that respect the criteria, the clean water is then discharged at a location authorized in the water licence. QE is requesting an amendment to its current NWB licence to allow for the treatment of all possible contaminants that may be found in water to be managed as well as to change the location of our treatment facility and discharge location.

QE will treat hydrocarbon contaminated soils using a combination of physical (screening and washing), chemical (oxidation) and biological (biopile and/or landfarm) techniques. The contaminated soils are screened to remove rocks. The remaining soils which hold the contamination are then placed in a lined treatment cell. A biopile is comprised of a lined cell with a grid of screened piping that injects air into the soil pile. Amendments are added to the soils to stimulate the bacterial activity that, over time, degrades and removes the contaminants from the soils. The soils are covered with a black semi-permeable tarp to maintain higher temperatures and minimize infiltration of precipitation water. A land farm operation is the same as a biopile, except that there is no forced aeration of the pile and there is no cover over the contaminated soils. Chemical oxidation may also be used for removing contamination that is more difficult to biodegrade. QE will launch a research and development project for new technologies and treatment techniques that could provide better soil remediation results in the Arctic.

Monitoring measures put in place by QE consist of on-site groundwater monitoring wells and an environmental monitoring program to ensure that no contamination migrates off-site.

---

1. Asbestos-containing materials

9935 Catania Avenue  
Entrance 1 — Suite 200  
Brossard (Quebec) J4Z 3V4  
CANADA  
Tel. 514 940.3332  
Fax. 514 940.3435



Qikiqtaaluk  
environmental  
ᑭᑭᑭᑭᑭᑭ ᐃᑭᑭᑭᑭᑭᑭ

[illegible]





2. ᐱᓕᓕᓕᓕᓕᓕ 3, 4, 5-ᓂᓐᓂᓐ ᓄᓕᓂᓐᓂᓐᓂᓐ ᓂᓐᓂᓐᓂᓐᓂᓐ, ᓄᓂᓂᓐᓂᓐᓂᓐ ᓂᓐᓂᓐᓂᓐᓂᓐ ᓂᓐᓂᓐᓂᓐᓂᓐ.

<input type="checkbox"/>	ᓕᓕᓂᓐᓂᓐ ( ᓕᓂᓐ zinc, ᓂᓐᓂᓐ copper, ᓂᓐ gold, ᓂᓐᓂᓐ silver.
<input type="checkbox"/>	ᓂᓂᓐᓂᓐ
<input type="checkbox"/>	ᓂᓂᓐᓂᓐ
<input type="checkbox"/>	ᓂᓂᓐᓂᓐ: _____

3a. ᐱᓕᓕᓕᓕᓕᓂᓐ 12, 13 ᓂᓐᓂᓐᓂᓐ 14 ᓄᓂᓐ ᓂᓐᓂᓐᓂᓐᓂᓐ, ᓂᓐᓂᓐᓂᓐᓂᓐ ᐱᓕᓕᓕᓂᓐ ᓂᓐᓂᓐᓂᓐᓂᓐ ᓂᓐᓂᓐᓂᓐᓂᓐ.

ᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ ( ᓂ )	ᓂᓂᓐ	ᓂᓂᓐ ᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ	ᓂᓂᓐᓂᓐ
ᓂᓐᓂᓐᓂᓐ: ᓄᓂᓐᓂᓐ	1	ᐱᓕᓕᓂᓐ ᓂᓐᓂᓐᓂᓐ (ᓂᓐ) ᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ	6 -ᓂᓐ ᓂᓐᓂᓐ

3b. ᓂᓐᓂᓐᓂᓐᓂᓐ ᓂᓂᓐᓂᓐᓂᓐᓂᓐ, ᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ, ᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ, ᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ ᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ. ᐱᓕᓂᓐᓂᓐᓂᓐᓂᓐ. ᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ: ᓂᓂᓐ ᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ ᓂᓂᓐ 2-ᓂᓐᓂᓐ ᓂᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ.

ᐱᓂᓐᓂᓐ

---



---



---

3c. ᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ, ᓂᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ ᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ ᓂᓂᓐᓂᓐᓂᓐ ᓂᓂᓐᓂᓐᓂᓐᓂᓐ ᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ.

ᐱᓂᓐᓂᓐ

---



---



---

4. ᓂᓂᓐ

ᓂᓂᓐᓂᓐ 2	ᓂᓂᓐᓂᓐᓂᓐ	365	ᓂᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ ᓂᓂᓐᓂᓐ
ᓂᓂᓐᓂᓐᓂᓐ =	ᓂᓂᓐᓂᓐᓂᓐ		(A) x (B) = 730
(A)	= (B)		

5. ᓂᓂᓐᓂᓐᓂᓐ

ᓂᓂᓐᓂᓐᓂᓐ ᓂᓂᓐᓂᓐᓂᓐ	ᓂᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ	ᓂᓂᓐ	ᓂᓂᓐ
ᓂᓂᓐᓂᓐ			
ᓂᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ:			

6a. ᓂᓂᓐᓂᓐᓂᓐᓂᓐ (ᓂᓂᓐᓂᓐ ᓂᓂᓐ ᓂᓂᓐᓂᓐᓂᓐᓂᓐ):

<input type="checkbox"/> ᓂᓂᓐᓂᓐᓂᓐ	<input type="checkbox"/> ᓂᓂᓐᓂᓐ	<input type="checkbox"/> ᓂᓂᓐᓂᓐ	<input type="checkbox"/> ᓂᓂᓐᓂᓐᓂᓐᓂᓐ
<input checked="" type="checkbox"/> ᓂᓂᓐᓂᓐᓂᓐ	<input type="checkbox"/> ᓂᓂᓐᓂᓐᓂᓐ	<input type="checkbox"/> ᓂᓂᓐᓂᓐᓂᓐ	<input type="checkbox"/> ᓂᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ

6b. ᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ ᓂᓂᓐᓂᓐ ᓂᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ ᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ ᐱᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ.

6c. ᓂᓂᓐᓂᓐᓂᓐᓂᓐ ᐱᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ ᓂᓂᓐ ᐱᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐᓂᓐ.











