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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File No.: 3BM-RAN1520
Renewal/Amendment

December 21, 2015

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RE: Licence No. 3BM-RAN1520 - Renewal/Amendment

Dear Mr. Ng and Ms. Lusty:

Please find attached Licence No. **3BM-RAN1520** issued to Hamlet of Rankin Inlet 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 the use of water and deposit of waste 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 the use of water and the deposit of waste 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's 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 Licensee should note that future applications to amend and/or renew this Licence must satisfy the applicable, preceding requirements of the Nunavut Planning and Project Assessment Act (NuPPA) prior to the NWB's commencement of formal processing of the application.

The NWB strongly recommends that the Licensee consult the comments received by interested persons on issues identified during the licensing process. This information is attached for your consideration.¹

Sincerely,

Thomas Kabloona
Nunavut Water Board
Chair

TK/ce/ri

Enclosure: Licence No. **3BM-RAN1520**
Comments – AANDC

Cc: Kivalliq Distribution List

¹ Aboriginal Affairs and Northern Development Canada (AANDC), July 3, 2015;

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DECISION

LICENCE NUMBER: 3BM-RAN1520

This is the decision of the Nunavut Water Board (NWB) with respect to an amendment application received on March 4, 2015, made by the:

HAMLET OF RANKIN INLET

to allow for the continued disposal of solid wastes during municipal activities by the Hamlet of Rankin Inlet, located within the Kivalliq Region of Nunavut at geographical coordinates as follows:

Latitude: 64° 49' N and Longitude: 92° 05' W

DECISION

After having been satisfied that the application was in conformity with the Keewatin Regional Land Use Plan (KRLUP)² and exempt from the requirement for screening as described within Schedule 12-1 by the Nunavut Impact Review Board³ in accordance with Article 12 of the Nunavut Land Claims 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 (NWNSRTA) 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. 3BM-RAN1520 be renewed as Licence No. 3BM-RAN1520 subject to the terms and conditions contained therein (Motion #: 2015-B1-041).

Signed this 10th day of December, 2015 at Gjoa Haven, NU.

Thomas Kabloona
Nunavut Water Board, Chair

TK/ce/ri

² Nunavut Planning Commission (NPC) Conformity Determination, June 11, 2015

³ Nunavut Impact Review Board (NIRB) Exemption from Screening Decision, June 12, 2015

I. BACKGROUND

The Hamlet of Rankin Inlet (Hamlet) is located within the Kivalliq Region of Nunavut, at general latitude 64° 49' N and general longitude 92° 05' W. The Hamlet is on the west coast of Hudson Bay, 96 km southwest of Chesterfield Inlet and 1,088 km east of Yellowknife.

Waste disposal infrastructure for the Hamlet of Rankin Inlet (Hamlet) consists of an Old Landfill from the 1950's, a New Landfill that was built between 2003 and 2006, and a Landfarm built in 2005. The Old Landfill site is the non-engineered solid waste facility that has been in operation since the early 1950's. This is the only solid waste facility in operation at the Hamlet of Rankin Inlet, at the time of issuance of this Licence. The Old Landfill had reached capacity in 2002, however through improved operations (including the sorting and compressing of waste prior to disposal) the site is no longer at capacity and is still in operation. The New Landfill is a solid waste facility that was constructed between 2003 and 2006. Though the facility has been constructed since 2006 the facility has never been used as a solid waste site, as of the time of the issuance of this Licence. The New Landfill has not been used because of Transport Canada's concerns pertaining to the sites' proximity to the Hamlet of Rankin Inlet's operational Airport.

The waste disposal facilities mentioned above serve a population of approximately 2,904 people (Statistics Canada 2015) and are authorized under expired Type "B" Water Licence No. 3BM-RAN1214.

Under a separate Type "A" Water Licence No. 3AM-GRA1015, the Water Supply Facility including a treatment system and the Sewage Treatment Facility operate via a utilidor that services the Hamlet and are operated by the Government of Nunavut – Community and Government Services (GN-CGS), on behalf of the Hamlet. Water Licence No. 3AM-GRA1015 is currently undergoing a renewal process with the Nunavut Water Board (NWB).

The GN-CGS also applied to the Nunavut Water Board (NWB) in 2008 for a water licence for the construction of a New Landfarm in 2009 which would be operated by the GN-CGS under the approved Licence 1BR-RAN0914. The New Landfarm is not the Landfarm referenced in this Licence. The phrase Landfarm under this Licence refers to the facility constructed in 2005, which is the only Landfarm operated by the Hamlet of Rankin Inlet, and licensed under 3BM-RAN1520.

The GN-CGS applied for this amendment-renewal application on March 4, 2015, on behalf of the Hamlet of Rankin Inlet. In their application, the applicant requested a twenty-three (23) year renewal term and an amendment of the following:

- The Licensee requested the conditions in Part F relating to the New Landfill site as well as for the Monitoring Program Station Number RAN-3, run-off sampling for the New Landfill, be removed from the Licence, under Part F, item 1, Conditions Applying to the Operation and Maintenance. The applicant requested the removal of the condition requiring the submission of a Status Update Report and Photographic record for the New Landfill site.
- Part G, item 1, Conditions Applying to the Abandonment, Restoration and Closure -

the applicant requested the removal of the condition requiring them to revise and resubmit a Solid Waste Abandonment and Restoration (A&R) Plan for the Old Landfill.

- Part H, item 9, Conditions Applying to the Monitoring Program - the Licensee requested the removal of the condition requiring the installation of two groundwater monitoring wells, one located upstream of the Landfarm for background data collection (RAN-5) and one located downstream of the Landfarm (RAN-6).

The Licensee submitted an Email Correspondence “3BM-RAN1214 "New" Solid Waste Site” dated December 9, 2015 (a copy has been placed on the NWB FTP site and Public Registry) which clarified that the applicant does not want to eliminate the possibility of using the New Solid Waste Site for the next ten (10) years, contrary to the request made in the Application. Specifying that the terms and conditions of the Licence pertaining to the commissioning of the New Solid Waste Site, and the Abandonment/Restoration of the Old Landfill, in Part F and G of a renewed Licence can be maintained within the Licence as long as they are only triggered when the New Landfill is commissioned and when the Old Landfill is Abandoned/Restored. The terms and conditions in Part F, G and H of this amended and renewed Licence 3BM-RAN1520 reflect this request and the Board’s decision.

II. PROCEDUAL HISTORY

The NWB received from the Government of Nunavut – Community Government Services (GN-CGS), on behalf of the Hamlet of Rankin Inlet, from March 4, 2015 to December 9, 2015, the following application documents (Application) for the renewal and amendment of Licence No. 3BM-RAN1520:

- Water Licence Renewal and Amendment Application, March 4, 2015;
- Application Cover Letter, March 4, 2015;
- Hamlet Authorization letter by SAO, March 4, 2015;
- Executive Summary in English and Inuktitut, March 4, 2015;
- Community Information, March 4, 2015;
- Map of Solid Waste Site, March 4, 2015;
- Hamlet of Rankin Inlet - Plan for Compliance, March 5, 2015;
- Annual Report for 2014, March 25, 2015;
- Annual Report for 2012, March 28, 2013;
- Environmental Monitoring Program and Quality Assurance/Quality Control Plan, Hamlet of Rankin Inlet prepared by Nuna Burnside and updated by GN-CGS, April, 2015.
- AANDC Review of Outstanding Compliance Objectives, May 15, 2015;
- Environmental Emergency Contingency Plan, Hamlet of Rankin Inlet prepared by GN-CGS, August, 2015;
- Annual Report for 2013, September 3, 2015;
- ALS Laboratory Environmental Analytical Report of samples for June and July 2015, September 3, 2015;

- Letter, Additional Information for the Hamlet of Rankin Inlet Water Licence No. 3BM-RAN1214, September 3, 2015;
- Solid Waste Management Facility Operation and Maintenance (O&M) Plan, Hamlet of Rankin Inlet prepared by Nuna Burnside and revised by GN-CGS, September, 2015;
- Email Correspondence “3BM-RAN1214 "New" Solid Waste Site” dated December 9, 2015

Following receipt and an internal review, NWB distributed the Application for a thirty (30)-day technical review and comment period on May 28, 2015 with the deadline for comments set to June 28, 2015. On June 15, 2015, Aboriginal Affairs and Northern Development Canada (AANDC) requested that the deadline for comments be extended to July 3, 2015. On July 3, 2015, a submission was received from Aboriginal Affairs and Northern Development Canada (AANDC).

With respect to pre-licensing requirements, on June 11, 2015 the Nunavut Planning Commission (NPC) completed its review of the above noted project proposal and determined that it conformed to the Keewatin Regional Land Use Plan (KRLUP), the conditional requirements for the Licensee were attached to NPC’s decision letter and has been included on the NWB’s ftp site, *Keewatin Regional Land Use Plan Appendix G – Code of Good Conduct for Land Users*. On June 12, 2015 the Nunavut Impact Review Board (NIRB) determined that the application was exempt from the requirement for screening. The applicant is required to comply with all stated pre-licensing requirements.

The NWB has placed on its FTP site and Public Registry, copies of the Application as well as all submissions received from intervening parties. This information is also made available to interested persons upon request. In addition, the NWB maintains information pertaining to licences on its FTP site, which can be accessed using the following link: <ftp.nwb-oen.ca>

Based upon the results of the detailed assessment, including consideration of any potential impacts to water that the overall project might have in the area, the Board approved the application to renew and amend the expired Licence No. 3BM-RAN1214.

III. ISSUES

The following sections provide background information relevant to the terms and conditions included in this Renewal-Amended Licence, in the context of submissions received and/or the Board’s rationale. Where appropriate, the Board has removed or modified terms and conditions associated with the previous licence, which are no longer applicable under this renewal-Amended Licence.

Term of the Licence

In accordance with s. 45 of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (NWNSRTA or the Act), the NWB may issue a licence for a term not exceeding twenty-five (25) years. In determining an appropriate term for a licence, the Board generally takes into consideration several factors including intervener’s comments, the Licensee’s compliance history, the rationale contained in the Application, as well as the risk to Water resources

posed by the undertaking.

The Licensee has requested a twenty-three (23) year licence term. In its review of the Application, AANDC stated that it did not support the request for a twenty-three (23) year licence term and recommends a 5 to 10 year renewal upon the submission of all outstanding information, by the Applicant, so as to properly review the Application. On May 1, 2015 and May 15, 2015 the NWB and AANDC communicated all outstanding submissions to the Applicant and on September 3, 2015 the Licensee submitted the outstanding documentation, as detailed above in the Procedural History.

The Licensee has not demonstrated a strong compliance record since the expired licence was issued in 2009, the annual report for 2013 was submitted past the deadline stipulated in Part B, Item 1 of the issued water licence. Moreover, the revised *Solid Waste Management Facility Operation and Maintenance (O&M) Plan, Hamlet of Rankin Inlet*, which was due on August 20, 2012 (as required in expired Licence 3BM-RAN1214 Part F, Item 2) was only submitted on September 3, 2015. Likewise, the revised *Environmental Emergency Contingency Plan, Hamlet of Rankin Inlet*, which was due on August 20, 2012 as required in expired Licence No. 3BM-RAN1214, Part F, Item 3) was only submitted on September 3, 2015

AANDC's 2014 site inspection report, from August 19, 2014 site visit, identified ongoing compliance issues with the existing Landfill and Landfarm, as well as outstanding revisions to Plans required by the NWB in expired Licence No. 3BM-RAN1214. AANDC's 2015 site inspection report, from the June 18, 2015 site visit, showed that although the Hamlet had made strides to address several non-compliance issues identified from the 2014 inspection, some non-compliance issues have persisted including the lack of segregation of waste in the Landfill, the need for proper storage of oil tanks and drums and the need for the installation of proper signage around the existing Landfarm and Landfill sites.

Based on the information provided in the Application, information contained within the public registry and the comments provided during the technical review, the Board has decided to issue the Licence for a term of five (5) years. The NWB believes that the term granted will allow the Licensee the opportunity to properly carry out the terms and conditions of the Licence and continually work towards improving overall compliance.

Compliance Plan

Part A, Item 1d of the expired 3BM-RAN1214 Licence required the licensee to submit a Compliance Plan that clearly demonstrated how the Hamlet will achieve full compliance with the licence conditions during the term of the licence. The Compliance Plan submitted by the applicant on March 5, 2015 is generally satisfactory. The Licensee is required in Part A, Item 1c of this renewed Licence to submit a revised Compliance Plan for Board Approval, which address the terms and conditions as detailed in this Licence.

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 pertaining to waste deposit activities. Although the 2012-2014 reports submitted include useful information, AANDC has noted in their review that the reporting requirements specified in Part B, Item 1 of the Licence were not being

fully satisfied. The NWB requests that the Licensee supplement the standard NWB reporting forms with additional documentation in order to ensure that all reporting requirements are satisfied. The Licensee is encouraged to develop its own annual reporting template in order to provide the comprehensive report required by the Licence. This template should include tabular summaries of monitoring data pursuant of Part B, Item 1 (a) of the Licence. The annual reports are maintained in the NWB's public registry and FTP site, which can be accessed using the following link: <ftp.nwb-oen.ca>. Copies of the reporting information made available to the public upon request.

Operational Plans

The Applicant submitted a revised detailed Operation and Maintenance (O&M) Plan, which included an English only executive summary for the solid waste management facility and the landfarm (an Inuktitut translation is required in Part F, Item 2a). The NWB finds that the O&M Plan is generally satisfactory and has been approved by the Board. The NWB and AANDC encourage the Applicant to adhere to the operational and maintenance activities as outlined in the plan, more specifically as it pertains to the Hazardous Waste Storage Area, detailed in section 3.4 of the O&M, and section 3.6.3 of the O&M, which summarizes the required General Maintenance Procedures. All further required revisions for the O&M have been outlined in Part F, Item 2 of this renewed licence. The revised Plan is required to be submitted to the Board for approval in writing within ninety (90) days of the Licence issuance as per Part F, Item 2 of this Licence.

The Licensee submitted an *Environmental Emergency Contingency Plan* (EECP), dated August 2015, as required by Part F, Item 3 of Licence No. 3BM-RAN1214. The EECP generally addresses an appropriate contingency plan in the event of any unauthorized waste discharge, the Board has approved the EECP. The NWB notes however that the EECP submitted with this renewal does not address all the required revisions recommended by Environment Canada, as stated in the expired Licence No. 3BM-RAN1214. The NWB notes that the EECP dated August 2015 is significantly different from the original EECP version dated December 2008, prepared by Nuna Burnside. As required in Part B, Item 14 of both the expired Licence No. 3BM-RAN1214 and in this renewed Licence No. 3BM-RAN1520, revisions to Plans and Manuals should be accompanied with a revisions list detailing where significant content changes have been made. The submitted EECP is generally satisfactory and has been approved by the Board however the outstanding revisions for the EECP have been outlined in Part F, Item 3 of this renewed licence. The revised Plan is required within ninety (90) days of licence issuance for Board approval as per Part F, Item 3 of this Licence.

Water Use

Water use under this Licence only pertains to monitoring and sampling activities, as described in the *Solid Waste Management Facility Operation and Maintenance (O&M) Plan*. The maximum permitted usage of Water by the Licensee, over the term of the Water Licence and for all purposes, has been set at 5 m³ per year. Based upon the projected requirements of the Licensee, the Board has set the terms and conditions in the Water Licence, which govern water usage.

All other Water use for the Hamlet is mainly regulated by Licence No. 3AM-GRA1015 held by the GN on behalf of the Hamlet.

Sewage

Disposal of Sewage is not authorized under this Licence No. 3BM-RAN1520.

Solid Waste

The 2014 AANDC site inspection report shows two leachate pools in the vicinity of the Old Landfill site. There appears to be no fencing or proper environmental protection mechanisms put in place to protect the environment from these leachate pools. Moreover, the 2014 Annual Report submitted by the Applicant shows that the leachate from the Landfill, at sampling point RAN-2, exceeded Water Quality Guidelines for the Protection of Aquatic Life (as detailed in the Canadian Environmental Quality Guidelines) for concentrations of Chloride, Ammonia Nitrogen, Total Phenols, Total Arsenic, Total Copper, and Total Iron. The NWB looks forward to improved concentration levels in the 2015 Annual Report.

Though the New Landfill has been constructed since 2006, the facility has never been used as a solid waste site, as of the time of the issuance of this Licence. The New Landfill has not been used due to Transport Canada's concerns pertaining to the sites' proximity to the Hamlet of Rankin Inlet's operational Airport. The NWB notes that a certain minimum distance is required between an airport utilized by commercial aircraft and a landfill containing food wastes, which may attract birds. The NWB required that the Licensee consult with the appropriate agencies, including Transport Canada, in order to ensure that proper control measures are put in place. As stated in the expired Licence No. 3BM-RAN1214, in the event that plans for the commissioning and use of the New Landfill progress, the NWB requires that an implementation report be submitted for NWB approval sixty (60) days prior to commissioning the landfill. The report shall detail the measures taken to address the items listed in Part F, Item 1 of the Licence.

Landfarm

In the expired Licence No. 3BM-RAN1214, Environment Canada noted drawings of the Landfarm, which indicate the presence of a water body within fifty (50) metres of the landfarm. This issue clearly demonstrates the problems that arise when a waste disposal facility is built without the regulatory review and approval of the NWB, as is the case here with the Hamlet's existing landfarm. The Licensee is reminded of its responsibility to ensure that leachate and runoff from the waste disposal facilities do not enter water.

In order to ensure that any surrounding water is not impacted, AANDC recommended that a contingency plan be provided to deal with the possibility of seepage from the landfarm. This plan would evaluate the possibility of digging a trench around the landfarm, and installation of a liner to collect any seepage. The NWB agrees with the concerns raised by the parties and required, in Licence No. 3BM-RAN1214 (Part F, Item 3b), that the Licensee submit a Landfarm Operational Contingency Plan outlining the measures that will be taken should seepage become an issue. The NWB notes that this required plan was not included in the revised *Environmental Emergency Contingency Plan* (EECP), dated August 2015. The NWB requires that this separate Landfarm Operation Contingency Plan be submitted within ninety (90) days of Licence issuance for technical review and approval; Part F, Item 9. The revised EECP, dated August 2015 was generally satisfactory and has been approved in this Licence.

The Licensee will also be required to have a Geotechnical Inspection conducted by a qualified Geotechnical Engineer at least one (1) year prior to the expiry of this Licence, in addition to the annual inspections by a qualified engineer of the Waste Disposal Facilities and Landfarm to report on their structural integrity and make recommendations on remedial works, where required under Part F, Item 5. In addition, in order to protect the receiving environment and in accordance with other municipal landfarms, the NWB has imposed effluent discharge criteria that must be met prior to any release of water from the facility to the environment.

The Applicant has specified in the renewal application that groundwater monitoring wells should not be required because abandonment and restoration plans are underway for the Landfarm. The NWB notes this information however as work has not been initiated, the NWB has continued to require the installation of groundwater monitoring wells at the Landfarm facility, with one (1) located up-gradient and one (1) down-gradient of the facility. The NWB looks forward to reviewing the 2015 Annual Report in order to determine if the Landfarm soil meets CCME guidelines, and also to ensure that Effluent at Monitoring Station RAN-4 do not exceed the Effluent quality limits stated in Part D, Item 8 and Part H, Item 10.

Finally, the NWB maintains that Stamped as-built drawings of the facility shall also be provided to the NWB following the installation of the groundwater monitoring wells, Part F, item 1f.

Modifications and Construction

The Licensee shall refer to Part E of this Licence for the conditions applying to modifications and construction of the facilities included in this Licence. Part E, Item 1 states that the Licensee shall submit to the Board for approval in writing, for construction design drawings stamped by a qualified Engineer, sixty (60) days prior to the construction of any dams, dykes or structures intended to contain, withhold, divert or retain water or wastes.

Abandonment, Restoration and Closure

The Hamlet submitted an Abandonment and Restoration (A&R) Plan for the Old Landfill with the renewal application for Licence No. 3BM-RAN1214. The NWB undertook its own technical review and third party review of the document and identified a number of issues that need to be addressed prior to approving the Plan. The Licensee was required to address the issues identified in the NWB's technical review, Licence No. 3BM-RAN1214 Part G, Item 1. The Applicant has specified that the plans to abandon the Old Landfill and construct a New Landfill are on hold. The NWB has included in this renewed licence the condition that at least six (6) months prior to the abandonment of the Old Landfill, a revised A&R Plan be submitted to the NWB for approval of the Board, taking into consideration the recommendations included in Part G, Item 1 of this Licence.

The Applicant has mentioned in its letter *Additional Information for the Hamlet of Rankin Inlet Water Licence*, dated September 3, 2015, that an Abandonment and Restoration Plan for the Landfarm will be submitted to the NWB for approval by January 31, 2016. The NWB requires that the A&R Plan for the Landfarm be submitted a minimum of six (6) months prior to abandonment of the Landfarm, Part G, Item 2.

Monitoring Program

The NWB acknowledges the receipt of the *Environmental Monitoring Program and Quality Assurance/Quality Control Plan*, dated April 2015, submitted in accordance with Part H, Item 12, 13, and 14. Please note that this renewed Licence has been amended such that Board approval is no longer required for this QA/QC Plan, with the requirement the Licensee obtain an approval from a credited laboratory for the monitoring to be carried out.

A significant issue with the previous two licences (Licence No. 3BM-RAN0207 and 3BM-RAN1214) is the lack of monitoring data collected and reported in accordance with the required monitoring program, detailed in Part H of this Licence. This issue was highlighted in Section 1 of the 2014 Inspection Report by AANDC. As a compliance component, it is the Licensee's responsibility to comply with the monitoring program under Part H of the Licence.



NUNAVUT WATER BOARD WATER LICENCE AMENDMENT

Licence No. 3BM-RAN1520

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 the

HAMLET OF RANKIN INLET

(Licensee)

P.O. BOX 310, RANKIN INLET, NUNAVUT X0C 0G0

(Mailing Address)

hereinafter called the Licensee, the right to deposit waste for a period subject to restrictions and conditions contained within this Licence:

Licence Number/Type: 3BM-RAN1520 / TYPE "B"

Water Management Area: WILSON WATERSHED – 13

Location: HAMLET OF RANKIN INLET
KIVALLIQ REGION, NUNAVUT

Classification: MUNICIPAL UNDERTAKING

Purpose: USE OF WATER AND THE DEPOSIT OF WASTE

Quantity of Water use not
to Exceed: FIVE (5) CUBIC METER PER YEAR

Date of Licence Issuance: December 21, 2015

Expiry of Licence: December 20, 2020

This Licence amendment, 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

1. Scope

This Licence allows for the use of water (only for monitoring/sampling requirements) and deposit of waste for municipal undertakings at the Hamlet of Rankin Inlet, Kivalliq Region, Nunavut (64°49' N; 92°05'W);

- a. This Licence is issued subject to the conditions contained herein with respect to the taking of water and 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 the responsibility for compliance with the requirements of all applicable Federal, Territorial and Municipal legislation.
- c. The Licensee shall, in relation to any application to renew or amend the Licence, have in place, approved by the Board in writing, a Plan for Compliance to achieve full compliance with the conditions of this Licence, or a Plan for Compliance must be submitted at the time of Application, in order for the Application to be deemed complete.

2. Definitions

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

“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 waters or a deposit of waste is permitted by a licence issued by the Board;

“Board” means the Nunavut Water Board established under the *Nunavut Land Claims Agreement*;

“Effluent” means treated or untreated liquid waste material that is discharged into the environment from a structure such as the landfill or landfarm;

“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” in respect of an effluent, means an identifiable discharge point of a facility beyond which the operator of the facility no longer exercises control over the quality of the effluent;

“Grab Sample” means a single water or wastewater Effluent sample taken at a time and place representative of the total discharge;

“Hazardous Waste” means waste classified as “hazardous” by Nunavut Territorial or Federal legislation, or as “dangerous goods” under the *Transportation of Dangerous Goods Act*;

“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);

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

“Landfarm” means the facility constructed in 2005, which is operated by the Hamlet of Rankin Inlet, and licensed under 3BM-RAN1520. The facility is an area designed to biologically remediate petroleum hydrocarbon-impacted soil, as described in the renewal application filed by the Applicant on March 4, 2015 and as described in the Solid Waste Management Facility Operation and Maintenance Plan Hamlet of Rankin Inlet, dated September 2015;

“Licensee” means the holder of this Licence;

“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, and changes to the operating system that are consistent with the terms of this Licence and do not require amendment;

“Monitoring Program” means a monitoring program established to collect data on surface water and groundwater to assess impacts to the freshwater aquatic environment of an appurtenant undertaking;

“New Landfill” means the solid waste facility that was constructed between 2003 and 2006. Though the facility has been constructed since 2006, the facility has never been used as a solid waste site, as of the time of the issuance of this Licence. This solid waste facility has never been used because of Transport Canada’s concerns pertaining to the sites’ proximity to the Hamlet of Rankin Inlet’s operational Airport.

The facility is as described in the *Solid Waste Management Facility Operation and Maintenance Plan Hamlet of Rankin Inlet*, dated September 2015;

“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;

“Old Landfill” means the non-engineered solid waste facility that has been in operation since the early 1950’s. This is the only solid waste facility in operation at the Hamlet of Rankin Inlet, at the time of issuance of this Licence. The facility is described in the *Rankin Inlet Solid Waste Site Abandonment and Restoration Plan* (AECOM, July 2009);

“Petroleum Hydrocarbon-Impacted Soil” means soil in which the primary petroleum product present, as determined by laboratory analysis consistent with that described in the *Canada-Wide Standards for Petroleum Hydrocarbons in Soil*, generally consists of fuel oil, diesel fuel, gasoline and/or jet fuel and does not include lubricating oil or grease;

“Treatment Objective” means the treatment objective for the soil within the Landfarm which is the Canadian Council of Ministers of the Environment (CCME) *Canada – Wide Standard for Petroleum Hydrocarbon (PHC) in Soil*, revised 2008 as determined by the Government of Nunavut, Environmental Protection Division based on the 2009 Environmental Guideline for Site Remediation;

“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;

“Waste Disposal Facilities” means all facilities designated for the disposal of solid waste, and includes the Old Landfill and New Landfill; and

“Water” means water as defined in section 4 of the Act.

3. 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
- c. For the purpose of enforcing this Licence and with respect to the use of water

and 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 with the Board not later than the 31st of March of the year following the calendar year reported, which shall contain the following information:
 - a. tabular summaries of all data generated under the “Monitoring Program”;
 - b. the monthly and annual quantities in cubic metres of all Effluent discharged;
 - c. a summary of modifications and/or major maintenance work carried out on the Waste Disposal Facilities (Old Landfill, New Landfill) and the Landfarm;
 - d. a list of unauthorized discharges and summary of follow-up action taken;
 - e. a summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;
 - f. Any addendum with updates or revisions for manuals and plans (i.e., *Operations and Maintenance Plan*) as required by changes in operation and/or technology;
 - g. a summary of any studies or reports requested by the Board that relate to waste disposal or restoration, and a brief description of any future studies planned; and
 - h. any other details on waste disposal requested by the Board by the 1st of November of the year being reported.
2. The Licensee shall comply with the “Monitoring Program” described in this Licence, and any amendments to the “Monitoring Program” as may be made from time to time, pursuant to the conditions of this Licence.
3. The “Monitoring Program” and compliance dates specified in the Licence may be modified at the discretion of the Board in writing.
4. The Licensee shall install, operate and maintain meters, devices or other such methods as approved by the Board in writing, used for measuring the volumes of waste discharged.
5. The Licensee shall post the necessary signs to appropriately identify the Waste Disposal Facilities and the stations of the Monitoring Program. All signage are to be posted in the Official Languages of Nunavut.
6. The Licensee shall immediately report to the 24-Hour Spill Report Line (867-920-8130), any spills of Waste which are reported to or observed by the Licensee, within the municipal boundaries or in the areas of the Waste Disposal Facilities or Landfarm.

7. The Licensee shall ensure a copy of this Licence is maintained at the Municipal Office at all times. Any communication with respect to this Licence and any notice provided to an Inspector, 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
- (b) **Inspector Contact:**
Manager of Field Operations, AANDC
Nunavut District, Nunavut Region
P.O. Box 100
Iqaluit, NU X0A 0H0
Telephone: (867) 975-4295
Fax: (867) 979-6445
8. 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.
9. The Licensee shall ensure that all document(s) and correspondence submitted by the Licensee to the Board are received and acknowledged by the Manager of Licensing.
10. 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.
11. 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.
12. The Licensee shall, for all Plans submitted under this Licence, implement the Plan as approved by the Board in writing.
13. 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 condition 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.

14. The Licensee shall review the Plans referred to in this Licence as required by changes in operation and/or technology and modify the Plans or Manuals accordingly. Revisions to the Plans or Manuals are to be submitted in the form of an addendum to be included with the Annual Report required by Part B, Item 1(f), complete with a list of revisions detailing where significant content changes are made.
15. 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
16. This Licence is not assignable except as provided in Section 44 of the Act.
17. The expiry or cancellation of this Licence does not relieve the Licensee from any obligation imposed by the Licence, or any other regulatory requirement.

PART C: CONDITIONS APPLYING TO WATER USE

1. The total volume of Water for monitoring and related purposes shall not exceed five (5) cubic metres per year.
2. Streams cannot be used as a water source unless authorized and approved by the Board in writing.
3. The Licensee shall not remove any material from below the ordinary High Water Mark of any Water body.
4. The Licensee shall implement and maintain sediment and erosion control measures prior to and during the operation to prevent entry of sediment and/or dust into Water.
5. Equipment used should be well cleaned and free of oil and grease and maintained free of fluid leaks. The Licensee shall ensure that pollutants from machinery used do not enter water.

PART D: CONDITIONS APPLYING TO WASTE DISPOSAL

1. 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.
2. The Licensee shall dispose of all solid wastes at the Waste Disposal Facilities in such a manner as to prevent the deposition of such Waste into Water.
3. The Licensee shall not open burn plastics, wood treated with preservatives, electric wire, styrofoam, asbestos or painted wood to prevent the deposition of Waste

materials of incomplete combustion and/or leachate from contaminated ash residual, from impacting any surrounding waters, unless otherwise approved by the Board in writing.

4. The Licensee shall segregate and store all hazardous materials and hazardous waste, including waste oil, within the Waste Disposal Facilities in a manner to prevent the deposit of deleterious substances into any water, until such a time that the materials have been removed for proper disposal at licensed facility.
5. The Licensee shall implement measures to ensure leachate from the Waste Disposal Facilities and Landfarm do not enter Water.
6. The Licensee shall treat all Petroleum Hydrocarbon Impacted Soil in the Landfarm to the Treatment Objective, or as otherwise approved by the Board.
7. The Licensee shall provide at least ten (10) days' notice in writing to an Inspector, of the intent to discharge Effluent from the Landfarm.
8. All water from dewatering contaminated soil areas and discharge of Effluent at Monitoring Station RAN-4 at the Landfarm, shall not exceed the following Effluent quality limits:

Parameter	Maximum Concentration of any Grab Sample (mg/L)
pH	6 to 9 (units)
Total Suspended Solids	50
Oil and Grease	15 and no visible sheen
Benzene	0.370
Toluene	0.002
Ethylbenzene	0.090

9. Effluent that exceeds the Effluent quality limits of Part D, Item 8 shall be considered hazardous waste and require further treatment or disposal off-site at an approved facility, or as otherwise approved by the Board in writing.
10. The discharge location for all treated Effluent described in Part D, Item 8 shall be to the satisfaction of an Inspector and shall be located at a minimum of thirty-one (31) metres from the ordinary High Water Mark of any water body and where direct or indirect flow into a Water body is not possible and no additional impacts are created.
11. The Licensee shall dispose of soils containing contaminants in excess of the Treatment Objectives, off-site at an approved treatment facility, or as otherwise approved by the Board in writing.
12. The Licensee shall, prior to the removal of any treated soil from the Landfarm, confirm with the Government of Nunavut Environmental - Protection Service that the soils have been treated so as to meet all legislatively-required Soil Quality Remediation Objectives.

13. The Licensee shall maintain records of all Waste backhauled and records of confirmation of proper disposal of backhauled Waste. These records shall be made available to an Inspector upon request.

PART E: CONDITIONS APPLYING TO MODIFICATIONS AND CONSTRUCTION

1. The Licensee shall submit to the Board for approval in writing, construction design drawings stamped and signed by a qualified Engineer, at least sixty (60) days prior to the construction of any dams, dykes or structures intended to contain, withhold, divert or retain water or wastes.
2. The Licensee may, without written approval from the Board, carry out modifications to the Waste Disposal Facilities (Old Landfill, New Landfill) and Landfarm 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. these modifications do not place the Licensee in contravention of the Licence or the Act;
 - c. 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;
 - d. the Board has not rejected the proposed modifications; and
3. Modifications for which all of the conditions referred to in Part E, Item 2 have not been met, may be carried out only with approval from the Board in writing.
4. The Licensee shall, within ninety (90) days of completion of the Modifications, submit to the Board a Construction Summary Report complete with as-built plans and drawings of the Modifications, stamped and signed by an Engineer. The Construction Summary Report shall provide adequate explanation to reflect any deviations from the for-construction drawings, taking into account construction and field decisions and how they may affect the performance of engineered facilities.
5. All activities shall be conducted in such a way as to minimize impacts on surface drainage and the Licensee shall immediately undertake any corrective measures in the event of any impacts on surface drainage.
6. The Licensee shall implement and maintain sediment and erosion control measures prior to and during activities carried out under this Part, to prevent the release of sediment to Water and minimize erosion.

PART F: CONDITIONS APPLYING TO OPERATION AND MAINTENANCE

1. The Licensee shall submit to the Board for approval in writing, at least sixty (60) days prior to commissioning the New Landfill, a Status Update Report and photographic record, which demonstrates the implementation of the pre-commissioning recommendations outlined in the *Solid Waste Management Facility Operation and Maintenance (O&M) Plan, Hamlet of Rankin Inlet*, dated September 2015, including:
 - a. The design and construction of the drainage of water surrounding the landfill;
 - b. The need to construct a hazardous waste storage area;
 - c. Stockpiling of top soil in the fill area for use as cover material;
 - d. Background sampling of soil and water quality of the site;
 - e. Review of the O&M Plan by a bird hazard expert;
 - f. The provision of signed/as-built drawings of the Landfill and Landfarm following the completion of the above measures;
 - g. Confirmation of correspondence with Transport Canada and a copy of any authorizations or recommendations provided through this consultation confirming that Transport Canada requirements have been met; and
 - h. A schedule of activities.
2. The Board has approved the revision to the *Solid Waste Management Facility Operation and Maintenance (O&M) Plan Hamlet of Rankin Inlet*, dated September, 2015. The Licensee shall submit to the Board for approval in writing within ninety (90) days of Licence issuance, a revision to address the following:
 - a. A translation of the executive summary in Inuktitut;
 - b. Procedures for the testing and characterization of sewage sludge generated to ensure the materials are non-hazardous and proper storage and/or handling and disposal at the Waste Disposal Facilities are provided;
 - c. The Licensee shall dispose of and permanently contain all solid Wastes from the sewage treatment facility under 3AM-GRA1015 at the Waste Disposal Facilities described in this Licence, or as otherwise approved by the Board in writing.
 - d. Updated monitoring requirements in accordance with the Monitoring Program outlined in Part H;
 - e. Types of wastes suitable for treatment in the Landfarm in accordance with the definition provided in Part A of the Licence for Petroleum Hydrocarbon Impacted Soil;
 - f. Though the Applicant has specified that no contaminated soil is currently accepted, the Applicant is required to state what the recommended depths of contaminated soil placed in the Landfarm is, for existing contaminated soils on site;
 - g. Independent third party sampling and testing of treated soil prior to removal from the Landfarm for reuse; and
 - h. Landfarm Effluent quality criteria in accordance with Part D;
3. The Board has approved the “*Environmental Emergency Contingency Plan, Hamlet of Rankin Inlet*”, dated August 2015. The Licensee shall submit for approval of the

Board in writing, within ninety (90) days of Licence issuance, a revision of the Plan to address the following:

- a. A translation of the executive summary in Inuktitut;
 - b. A map of the 50 year flood plain relative to the Landfarm and Waste Disposal Facilities;
 - c. The revised EECF specifies that drip pans should be used when refueling equipment however, the EECF should be revised to clearly state that a secondary containment or surface liners (drip pans, fold a tanks, etc.) should be placed under all containers and vehicle fuel tank inlet and outlet points, hose connections and hose ends during fuel transfer or for the transfers of any hazardous substance;
 - d. The revised EECF specifies what items should be included in the Spill Kits, in section 4.3.1 of the EECF, however it needs to be further revised to specify that appropriate spill response equipment and clean-up materials (absorbents, containment devices, etc.) should be on hand during any transfer of fuel or hazardous substances and at vehicle maintenance areas;
 - e. Lastly, submitted EECF should show the locations of all hazardous materials, spill response equipment and clean up materials.
4. The Licensee shall carry out an inspection of all engineered structures or facilities designed to contain, withhold, divert or retain Water or Waste conducted by an Engineer, at least once annually, during the summer months (July/August) and/or during periods of flow. An Engineer's report of the inspection shall be submitted to the Board within sixty (60) days of the date of inspection, including a cover letter from the Licensee outlining an implementation plan to address each of the Engineer's recommendations.
 5. The Licensee shall carry out an inspection of all engineered structures or facilities designed to contain, withhold, divert or retain Water or Waste, conducted by a Geotechnical Engineer during the summer months (July/August), in accordance with the *Canadian Dam Safety Guidelines*, at least one (1) year prior to expiry of the Licence. The Geotechnical Engineer's report shall be submitted to the Board within sixty (60) days of the inspection, including a cover letter from the Licensee outlining an implementation plan to address each of the Engineer's recommendations.
 6. The Licensee shall perform more frequent inspections of the engineered facilities at the request of an Inspector.
 7. If, during the period of this Licence, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the Licensee shall:
 - a. employ the appropriate contingency measures within the Contingency Plan, approved for the Hamlet of Rankin Inlet;
 - b. report the incident immediately via the 24-Hour Spill Reporting Line at (867) 920-8130, fax the completed Nunavut Spill Report Form to the 24-Hour Emergency Spill Report Line (867) 873 – 6924, and also call the Inspector at (867) 975-4295; and

- c. submit to the Inspector, a detailed report, not later than thirty (30) days after initially reporting the event, that provides the necessary information on the location (including the GPS coordinates), initial response action, remediation/clean-up, status of response (ongoing, complete), proposed disposal options for dealing with contaminated materials and preventative measures to be implemented.
- 8. The Licensee shall, in addition to Part F, Item 7, 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.
- 9. The Licensee shall submit for approval of the Board in writing, within ninety (90) days of Licence issuance, a Landfarm Operational Contingency Plan to deal with seepage from the facility.

PART G: CONDITIONS APPLYING TO ABANDONMENT, RESTORATION AND CLOSURE

- 1. The Licensee shall submit to the Board for approval in writing, a minimum of six (6) months prior to abandonment of the Landfill, a revised *Hamlet of Rankin Inlet, Rankin Inlet Solid Waste Site Abandonment and Restoration (A&R) Plan*, dated July 2009 (this is for the Old Landfill). The revised A&R Plan for the Old Landfill shall at a minimum address the following:
 - a. A clear rationale for the decision to abandon and remediate the existing site rather than the option of removing and relocating the waste materials into a new engineered facility;
 - b. Design criteria for the cover, gas ventilation system and surface water management system;
 - c. Containment along the base given that the facility is unlined and test pit logs are unclear in specifying whether refusal was met in frozen ground when no bedrock was encountered;
 - d. Whether permafrost encapsulation was considered and the potential effects of saline permafrost conditions at the facility;
 - e. A geothermal design basis for the cover;
 - f. The need to monitor ground temperatures within the waste;
 - g. Concerns associated with the placement of the liner's outer edges on top of natural ground as indicated in Figure 9 of the A&R Plan;
 - h. Authorizations for the quarry source;
 - i. An assessment of alternative design strategies for the planned drainage ditches;
 - j. Describe how the area will be re-graded and what drainage and erosion protection measures will be implemented for the areas where contaminated soils are planned to be removed;
 - k. Justification for why the contaminated soil test pits were stopped at each of the respective depths;
 - l. Clarification that the estimated contaminated soil volumes are based on

- removing all the soil to the top of the permafrost table or bedrock;
 - m. Method for dealing with surface water flows and contact water during the planned excavation;
 - n. A contingency for dealing with seepage and drainage for soil excavated below the water table;
 - o. A contingency for dealing with free phase hydrocarbons and other potential liquid contaminants which may be encountered, especially near the bedrock or permafrost interfaces;
 - p. Reclamation and cover requirements for exposed soils within the excavations following the removal of contaminated soil;
 - q. The need for water quality monitoring up-gradient of the landfill to establish background water quality;
 - r. The need to install thermistors to monitor ground temperatures; and
 - s. Any other items or issues identified through regular annual inspections, compliance inspections or otherwise identified as a requirement of facility closure.
- 2. The Licensee shall submit to the Board for approval in writing, at least six (6) months prior to abandoning any facilities, including the Landfarm, or upon submission of the final design drawings for the construction of new facilities to replace existing ones, an Abandonment and Restoration Plan for those facilities. Where applicable, the Plan shall include information on the following:
 - a. waste disposal sites and facilities;
 - b. petroleum and chemical storage areas;
 - c. any site affected by waste spills;
 - d. leachate prevention;
 - e. an implementation schedule;
 - f. maps delineating all disturbed areas, and site facilities;
 - g. consideration of altered drainage patterns;
 - h. type and source of cover materials;
 - i. future area use;
 - j. hazardous wastes; and
 - k. a proposal identifying measures by which restoration costs will be financed by the Licensee upon abandonment.
- 3. The Licensee shall complete the restoration work within the time schedule specified in the Plans approved under this Part, or as subsequently revised and approved by the Board in writing.
- 4. The Licensee shall carry out progressive reclamation of any components of the project no longer required for the Licensee's operations.
- 5. 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 H: CONDITIONS APPLYING TO THE MONITORING PROGRAM

1. The Licensee shall maintain Monitoring Program Stations at the following locations:

Monitoring Program Station Number	Description	Status
RAN-1	Unassigned	Inactive
RAN-2	Runoff from the Old Landfill	Active
RAN-3	Runoff from the New Landfill	Active Upon Commissioning
RAN-4	Discharge from the Landfarm at the controlled point of release	Active
RAN-5	Monitoring well located up gradient of the Landfarm	Active
RAN-6	Monitoring well located down gradient of the Landfarm	Active

2. Licensee shall sample monthly at Monitoring Program Station RAN-2 and RAN-3 upon commissioning of the New Landfill, during periods of observed flow and annual discharges, to be analyzed for the following parameters:

Biochemical Oxygen Demand (BOD ₅)	Fecal Coliforms
Total Suspended Solids	pH
Conductivity	Nitrate-Nitrite
Oil and Grease (visual)	Total Phenols
Magnesium	Calcium
Sodium	Potassium
Chloride	Sulphate
Total Hardness	Total Alkalinity
Ammonia Nitrogen	Total Zinc
Total Cadmium	Total Iron
Total Cobalt	Total Manganese
Total Chromium	Total Nickel
Total Copper	Total Lead
Total Aluminum	Total Arsenic

3. The Licensee shall carry out weekly inspections at Monitoring Program Stations RAN-2 and RAN-3 upon commissioning of the New Landfill, from May to August inclusive, to identify effluent or water flow in order to fulfill the monitoring requirements of Part H, Item 2. A record of inspections shall be retained and made available to an Inspector upon request.
4. The Licensee shall measure and record the origin and volume of all soil, from all locations entering the Landfarm.
5. The Licensee shall characterize through laboratory analysis and record the concentrations of petroleum hydrocarbons in Petroleum Hydrocarbon Impacted Soil

entering the Landfarm from all sources, as per the CCME *Canada-Wide Standard for Petroleum Hydrocarbons (PHC) in Soil*.

6. The Licensee shall record the date, amount of soil and soil quality and the final destination of all treated soil removed from the Landfarm in order to meet the objectives of Part D, Item 12, and shall provide the ultimate final intended use and GPS coordinates of all soils removed.
7. The Licensee shall sample prior to discharge at Monitoring Program Station RAN-4, to verify compliance with the Effluent quality limits under Part D, Item 8.
8. The Licensee shall record the volume of all Effluent discharged from the Landfarm at Monitoring Program Station RAN-4.
9. The Licensee shall install groundwater monitoring wells at the Landfarm. These wells shall be located with at least one located upstream of the facility for background data collection (RAN-5) and at least one downstream of the facility (RAN-6).
10. The Licensee shall sample at Monitoring Program Stations RAN-4, RAN-5 and RAN-6 once annually in the summer, giving consideration to adequate ground thaw and obtaining a representative groundwater sample. Samples shall be analyzed for the following parameters:

Biochemical Oxygen Demand (BOD ₅)	Fecal Coliforms
Total Suspended Solids	pH
Conductivity	Nitrate-Nitrite
Oil and Grease	Total Phenols
Magnesium	Calcium
Sodium	Potassium
Chloride	Sulphate
Total Lead	Total Mercury
Total Hardness	Total Alkalinity
Ammonia Nitrogen	Total Zinc
Total Cadmium	Total Iron
Total Aluminum	Total Manganese
Total Chromium	Total Nickel
Total Copper	
Total Arsenic	
TPH (Total Petroleum Hydrocarbons)	
PAH (Polycyclic Aromatic Hydrocarbons)	
BTEX (Benzene, Toluene, Ethylbenzene, Xylene)	

11. Additional monitoring stations, sampling and analysis may be requested by the Board or an Inspector.
12. The Licensee shall conduct all sampling, sample preservation and analyses 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 a laboratory certified by the Canadian Association for Laboratory Accreditation (CALA).

13. All analyses shall be performed in a laboratory accredited according to ISO/IEC Standard 17025 for all required analyses. The accreditation shall be current and in good standing.
14. The Licensee shall annually review the Quality Assurance/Quality Control Plan and modify it as necessary. Proposed modifications shall be submitted to the Board for review. The submitted Plan shall include a covering letter from an accredited laboratory confirming acceptance of the Plan for the monitoring and analyses to be performed under the Licence
15. The Licensee shall include all of the data and information required by the “Monitoring Program” complete with an interpretation and discussion of the results, in the Licensee's Annual Report, as required *per* Part B, Item 1, or as requested by an Inspector.
16. Modifications to the Monitoring Program may be made only upon written approval of the Board.