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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File No.: **3BM-CLY1419**

July 25, 2014

John R. Ivey, SAO
Hamlet of Clyde River
P.O. Box 205
Clyde River, NU X0A 0E0
Email: cao@clyderiver.ca

Bhabesh Roy, M.A. Sc., P. Eng
Municipal Planning Engineer, GN, C&GS
P.O. Box 379
Pond Inlet, NU X0X 0S0
Email: broy@gov.nu.ca

RE: NWB Renewal Licence No. 3BM-CLY1419

Dear Mr. Ivey and Mr. Roy:

Please find attached Licence No. **3BM-CLY1419** issued to the Hamlet of Clyde River 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 disposal 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 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 NWB strongly recommends that the Licensee consult the comments received by interested persons on issues identified. NWB notes that Aboriginal Affairs and Northern Development Canada (AANDC), in its comment, stated that the Licensee should limit the burning of waste materials and work toward ending the practice of burning wastes during the term of any renewed licence issued because the burning of waste materials creates airborne pollutants that are harmful to the environment (e.g., dioxins and furans). For the time being, however, only materials suitable for open burning as referenced in the Government of Nunavut 2012 Guidelines for the Burning and Incineration of Solid Waste should be considered acceptable for burning. This information is attached for your consideration.¹

Sincerely,



Thomas Kabloona
Nunavut Water Board
Chair

TK/kk/pb

Enclosure: Licence No. **3BM-CLY1419**
Comment – AANDC

Cc: Qikiqtani Distribution List

¹ Aboriginal Affairs and Northern Development Canada (AANDC), July 7, 2014.

TABLE OF CONTENTS

DECISION	ii
I. BACKGROUND	iii
II. FILE HISTORY	iii
III. PROCEDUAL HISTORY OF RENEWAL APPLICATION	iv
IV. ISSUES	vi
Compliance and Term of the Licence	vi
Annual Report.....	viii
Water Use.....	viii
Deposit of Waste.....	ix
<i>Sewage</i>	ix
<i>Solid Waste</i>	x
Spill Contingency Planning.....	xi
Monitoring Program.....	xii
<i>Quality Assurance / Quality Control Plan (QA/QC Plan)</i>	xii
WATER LICENCE RENEWAL	1
PART A: SCOPE, DEFINITIONS AND ENFORCEMENT	2
1. Scope.....	2
2. Definitions	2
3. Enforcement.....	5
PART B: GENERAL CONDITIONS	5
PART C: CONDITIONS APPLYING TO WATER USE	7
PART D: CONDITIONS APPLYING TO WASTE DISPOSAL	8
PART E: CONDITIONS APPLYING TO MODIFICATION AND CONSTRUCTION	9
PART F: CONDITIONS APPLYING TO OPERATION AND MAINTENANCE	10
PART G: CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION	11
PART H: CONDITIONS APPLYING TO THE MONITORING PROGRAM	12

DECISION

LICENCE NUMBER: 3BM-CLY1419

This is the decision of the Nunavut Water Board (NWB) with respect to a complete application dated May 27, 2014 (an initial version of the renewal application, submitted on October 27, 2009, was deemed incomplete) for a renewal of a Water Licence made by:

HAMLET OF CLYDE RIVER

to allow for the use of water and deposit of waste during municipal activities by the Hamlet of Clyde River, located within the Qikiqtani Region, Nunavut generally located within geographical coordinates as follows:

Latitude: 70° 27' N and Longitude: 68° 33' W

DECISION

After having been satisfied that the application was in conformity with the North Baffin Regional Land Use Plan¹ and exempt from the requirement for screening as described within Schedule 12-1 by the Nunavut Impact Review Board² 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. 3BM-CLY0909 be renewed as Licence No. 3BM-CLY1419 subject to the terms and conditions contained therein (Motion #: 2014-B1-018).

Signed this 25th day of July 2014 at Gjoa Haven, NU.



Thomas Kabloona
Nunavut Water Board
Chair

TK/kk/pb

¹ Nunavut Planning Commission Conformity Determination, July 8, 2014.

² Nunavut Impact Review Board, Screening Exemption Decision, July 10, 2014.

I. BACKGROUND

The Hamlet of Clyde River (Clyde River or the Hamlet or Licensee) is located approximately 750 kilometres North of Iqaluit, on the shore of Patricia Bay, on the east coast of Baffin Island, within the Qikiqtani Region of Nunavut. The annual snowfall in Clyde River is approximately 169 cm and the annual rainfall is approximately 5 cm. In February the daily mean temperature is approximately -30° Celsius while in July the daily mean temperature is approximately 5° Celsius. Freeze up usually occurs during the month of November but may occur as early as September or October, while spring thaw usually occurs between late May and June.

The Hamlet, which has a population of approximately 963 (2014), operates water and waste management facilities for which a water licence from the Nunavut Water Board is required. Community infrastructure includes:

- A Water Supply Facilities which draws water from Water Source Lake. Water is treated in the truck-fill station and stored for trucked water to holding tanks in each building;
- A Sewage Disposal/Treatment Facilities (Two Lagoon Cells) which receives trucked sewage collected from holding tanks in each building and houses, with a wetland area between the lagoon and the ocean; and
- A Solid Waste Disposal/Management Facility, which includes a bulky metals disposal area, and hazardous waste oil storage area. Segregation of waste needs to be approved.

II. FILE HISTORY

On **September 15, 2003**, the Nunavut Water Board (“NWB” or “Board”) issued water licence NWB3CLY0308 to the Hamlet of Clyde River for the use of 38,000 m³ of water *per* year and the deposit of waste generated by the Hamlet. Licence NWB3CLY0308 expired on September 15, 2008, during the licensing process for a requested amendment. Given that a renewal application for NWB3CLY0308 had also been filed during the amendment process, the NWB extended the expiry date of the licence by six (6) months, from September 15, 2008 to March 15, 2009, to allow for processing of the renewal application and work to proceed under the amendment.

On **March 18, 2009**, the licence was renewed for an eight (8) month period as licence 3BM-CLY0909, with the expiry date set at November 13, 2009, allowing the Hamlet to use 38,000 m³ of water *per* year and the deposit of waste at specific facilities within the Hamlet. The eight month Licence term was intended to provide the Licensee time to take immediate action towards achieving full compliance with all Licence requirements for its existing facilities and to begin and complete the first year’s construction of its Enhanced Sewage Disposal Facility, as part of this process. The NWB communicated that it expected submission of an application to renew the Licence within approximately five (5) months from the issuance date of Licence 3BM-CLY0909, at which point the Board expected the Hamlet to be in compliance with the Licence. As per Part B, Item 12 of the Licence, the Licensee was required to submit a Plan for Compliance that clearly demonstrates how the Hamlet will achieve full compliance with the Licence conditions during this time period and subsequent licence term(s).

III. PROCEDUAL HISTORY OF RENEWAL APPLICATION

The application for renewal of the licence was submitted to the NWB by the Hamlet of Clyde River, in conjunction with the Government of Nunavut, Department of Community and Government Services (GN-CGS) on **October 27, 2009**. The following documents were included within the application package:

- Cover Letter: Renewal water Licence Application of the Municipality of Clyde River;
- Water Licence Renewal Application signed by SAO;
- Technical Summary of all the Environmental Facilities; and
- Plan of Compliances Report with the attachment of the following:
 - Appendix-A: Construction Progress Report of Sewage Disposal Facility dated October 2009;
 - Appendix-B: Draft Operations and Maintenance Manual for the Wastewater Treatment Facility dated September 2009;
 - Appendix-C: Ottawa Lab Instruction Sheets on BOD and TSS;
 - Appendix-D: NT-NU Spill Report Form;
 - Appendix-E: Dillon's Solid Waste Facility Siting Study – Final Report dated July 2002;
 - Appendix-F: Terms of Reference of Trow Associates Inc. on Solid Waste Management of the Hamlet of Clyde River;
 - Appendix-G: Water Testing Log Sheet;
 - Appendix-H: GN-DOH Water Disinfection Guidelines; and
 - Appendix-I: GN-DOH Water Quality Management Guidelines.

On November 27, 2009, the Licensee was advised by the Board that, under Part B, Item 12, of the expired Licence, the Licensee was to submit to the Board for approval, within thirty (30) days of issuance of Licence 3BM-CLY0909, a Plan for Compliance that clearly demonstrates the measures the Licensee will undertake, including an implementation schedule, to achieve full compliance with the conditions of this Licence. The Licensee was informed that the Plan does not satisfy the Licence condition, particularly with regards to plans for immediate action towards achieving full compliance with all Licence requirements for existing facilities.

On December 9, 2009, GN-CGS submitted the document entitled “Clyde River Truck-fill Operations and Maintenance Manual” dated June 22, 1998 as additional information.

On March 18, 2010, the NWB informed GN-CGS regarding the Board's decision to reject the current version of the Hamlet of Clyde River's Plan for Compliance. The Board required the submission of a revised Plan for Compliance that addresses the deficiencies outlined during the review for written approval of the Board prior to the Board accepting and processing the water licence renewal application received on October 27, 2009. On November 15, 2010, February 25, 2011 and April 26, 2011, the Board advised the Licensee that processing of the water licence renewal application for 3BM-CLY0909, received on October 27, 2009, remains on hold pending submission and Board approval of a revised Plan for Compliance. On November 3,

2011, the Board advised the Licensee (by Email) to provide timeline for submission of outstanding information.

On **February 22, 2012**, the Aboriginal Affairs and Northern Development Canada (AANDC) Nunavut Regional Office issued a letter of longstanding issues of non-compliance of water licenses in Nunavut Municipalities, including the Hamlet of Clyde River. A summary list of non-compliance identified by AANDC Inspection between 2007 and 2011 was attached to this letter.

On **August 27, 2012**, GN-CGS submitted the document entitled “Clyde River Wastewater Facility, Clyde River, Nunavut, Operations and Maintenance Manual Volumes 1 and 2” (O&M Manual), prepared by exp. Services Inc. and dated July 2012. Included with that submission were *As-Built Drawings Government of Nunavut, Clyde River Wastewater Lagoon* (New Sewage Lagoon and Rehabilitate Existing Lagoon), prepared by Trow Associates Inc., dated December 31, 2011, Project Number OTCD00019055A. This O&M Manual was the revised version of an earlier “*draft*” document submitted on March 30, 2011.

The Board distributed the revised version of the O&M Manual for comments; however, the Board was not in a position to approve the document as it did not address all of the components required by Part F, Item 1 of the Licence. On **October 1, 2012**, the Licensee was advised that the Board remains unable to approve the revised O&M Manual as the Board notes that although AANDC’s and EC’s June 2012 comments related to the Waste Water Facility were addressed, the Manual still did not address all the components required by Part F, Item 1 of the Licence. In addition, the GN-CGS was reminded again that processing of the water licence renewal application for 3BM-CLY0909 received November 27, 2009 remains on hold pending submission and Board approval of a revised Plan for Compliance.

On **May 27, 2014**, GN-CGS resubmitted an updated consolidated application for water licence renewal including the following documents:

- Cover Letter: Hamlet of Clyde River Water Licence # 3BM-CLY0909 Renewal Application;
- Water Licence Renewal Application, dated May 20, 2014;
- Technical Summary of the Environmental Facilities in Clyde River in English and Inuktitut;
- Revised Plan for Compliance for Hamlet of Clyde River;
- Clyde River Truck-fill Operations and Maintenance Manual, prepared July 22, 1998, and stumped by GN-CGS October 10, 2012;
- Solid Waste Operation and Maintenance Plan for Hamlet of Clyde River, dated May 2014;
- Lab Test Results in 2012 and 2013 for Hamlet of Clyde River; and
- Clyde River Wastewater Lagoon (New Sewage Lagoon and Rehabilitate Existing Lagoon) Record Drawings, dated May 26, 2014 and including:
 - Cover Sheet;
 - Municipal Location Plan, No. T-1;
 - Site Plan, No. SP-2;

- Lagoon Details 1, No. DE-1; and
- Lagoon Details 2, No. DE-2.

The NWB was advised to disregard the previous 2009-2012 submissions except the following document:

- Clyde River Wastewater Facility Operations and Maintenance Manual, dated July 2012 that also included the following:
 - Quality Assurance and Quality Control (QA/QC) Plan;
 - Spill Response Plan Wastewater Treatment Site Clyde River, Nunavut, dated December 2010 and included as Appendix C; and
 - As-Built Drawings; Government of Nunavut, Clyde River Wastewater Lagoon (New Sewage Lagoon and Rehabilitate Existing Lagoon), dated December 31, 2011 and prepared by Trow Associates Inc. including:
 - Cover sheet;
 - Overall Site Plan, No. SP-1;
 - Site Plan, No. SP-2;
 - Truck Discharge Site Plans, No. TD-1;
 - Lagoon Details 1, No. DE-1;
 - Lagoon Details 2, No. DE-2; and
 - Municipal Location Plan, No. T-1.

On June 3, 2014, the Board requested by email and received from GN-CGS, additional information and clarification of on-going waste disposal activities in Hamlet.

On June 7, 2014, following a preliminary internal technical review, the NWB concluded that the Application generally met the requirements of section 48(1) of the Nunavut Waters and Nunavut Surface Rights Tribunal Act (NWNSTRA or Act) and forwarded notice of the Application to regulators, the council of the municipality most affected by the project, and other interested parties. All parties were invited to make representations to the NWB within thirty (30) days. On July 7, 2014, comments were received from AANDC.

Based on the results of the completed detailed assessment, including consideration of any potential accidents, malfunctions, or cumulative environmental effects that the overall project might have in the area, the Board has approved the application for the renewal of Licence No. 3BM-CLY0909 as Licence No. 3BM-CLY1419.

IV. ISSUES

Compliance and Term of the Licence

The Licensee has requested a ten (10) year term for the renewal licence. In accordance with s. 45 of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (NWNSTRA or the Act), the NWB may issue a licence for a term not exceeding twenty-five (25) years. In determining an appropriate term of a water licence, the Board considers a number of factors, including the results of the AANDC's annual site inspection and the compliance record of the Applicant.

The Board was provided with AANDC Multi Year Municipal Compliance Summary letter on February 22, 2012 indicating the longstanding issues of non-compliance of water licenses in Nunavut Municipalities, including the Hamlet of Clyde River, as summarized by AANDC Inspections between 2007 and 2011.

In addition, the Board notes AANDC - Water Resources Division's comments on the application, stating that *this requested term is unreasonable due to the Licensee's record of non-compliance with licence terms and conditions (e.g., monitoring requirements), and recommended that the licence be renewed for three to five (3-5) years maximum. Lengthier renewal terms should only be issued to Licensees that consistently satisfy their licence terms and conditions.*

The NWB is fully aware of reoccurring, Non-Compliance issues with respect to the NWNSRTA in the context of the Licence issued to the Hamlet. The NWB acknowledges, however, that the Hamlet of Clyde River appears to have made some ongoing efforts to address its compliance issues. However, more effort is required to ensure the protection of water resources. Some improvements have been made by the Licensee during the last year in trying to address the Non-Compliance issues and to reach the short-term compliance goals including the Monitoring Program requirement specified in the Licence.

The Board believes that a licence term of five (5) years will provide a realistic opportunity for the Licensee to prove to the Board that it can meet the long-term requirements as well as establish a consistent compliance record with respect to the requirements under the terms and conditions of its licence. The five (5) year renewal licence will also ensure that sufficient time is given to permit the Licensee to develop, submit, and implement the plans required under its licence to the satisfaction of the NWB.

The NWB acknowledges that the application included a Plan for Compliance outlining short-term and long-term goals to bring the Hamlet into compliance with the obligations of its water licence as per requirement of Part B, Item 12 of expired licence. The Licensee has committed to forwarding the updated Plan for Compliance directly to the Inspector. It should be noted that some of the commitments and goals have already been reached in the short-term plan, including the submission of annual reports and the implementation of some monitoring activities. However, the long-term goals, which are expected to be met under this renewal licence, are designed to address ongoing issues that the Hamlet must resolve in order to meet its obligations (i.e. continued full monitoring, annual reporting, and submission of updated plans). Although the Board recognizes that some status information is inadequate in the Plan for Compliance, the proposed schedule for achieving the short-term and long-term goals is acceptable by the Board. The Licensee shall be required to implement the Plan for Compliance that was approved by the Board as per Part B, Item 8. The Licensee is advised that the approval granted by the Board is specifically for the proposed schedule. The implementation of this Plan shall allow the Licensee to achieve full compliance with the conditions of this Licence, including the issues raised during the public review of the application and those of the Inspector's Reports.

Annual Report

The previous licence 3BM-CLY0909 included a condition requiring the submission of annual reports including the results of the Monitoring Program. Although annual reports were received by the NWB for 2009-2013 (with the exception of 2010), not all data generated under Part H Monitoring Program were included. Monitoring Program results were included generally within 2012 and 2013 Annual Reports. On January 13, 2014, the GN-CGS advised the Board that a monitoring program has been set up and the Hamlet staff is being trained. The GN-CGS also reported that the Hamlet has started an extended sampling and testing program on Water, Wastewater and Leachate coming from the landfill site.

In its submission, AANDC stated that NWB *reporting template can be completed but should be supplemented by additional documentation to ensure that all monitoring requirements are satisfied. The Licensee is encouraged to develop its own annual reporting template.* It was also stated that *tabular summaries should be presented for all monitoring program stations in addition to laboratory reports. These summary tables should reference licensed monitoring program stations (e.g., CLY-X), reference applicable effluent quality limits, and identify any exceedances.*

The NWB maintains the condition in the Licence to produce annual reports under Part B, Item 1 in the Licence. The Licensee shall ensure that complete annual reports are provided each year. Monitoring Program requirements specified in the licence must be fully implemented. These reports are for the purpose of ensuring that the NWB has an accurate annual update of municipal activities during a calendar year with respect to water use and waste disposal. This information is maintained on the public registry and is available to interested parties upon request. A “*Standardized Form for Annual Reporting*” is to be used by the Licensee and is available for use by the Licensee at the NWB’s ftp site at:

<ftp://nunavutwaterboard.org/ADMINISTRATION/Standardized%20Forms/>.

The Licensee is advised that NWB *Standardized Form* could be supplemented by additional monitoring documentation and Licensee’s annual reporting forms.

Water Use

The Hamlet currently receives its freshwater supply from Water Source Lake for potable use in quantity not exceeding 38,000 cubic meters annually. GN-CGS informed the Board that all operations for water supply remain unchanged, and the amount of water requested for the renewal licence is the same as that considered under the expired licence. No concerns were raised by interveners in their submissions with respect to the amount of water required by the Hamlet, or the manner in which it is obtained or used. The Board has therefore kept the maximum water usage for all purposes specified in this Licence unchanged at 38,000 cubic meters per year or up to 145 cubic meters *per day* (5 days quantity to 7 days maximum average). Conditions related to water use has been included under Part C, in the Licence.

Part F, Item 1 of expired 3BM-CLY0909 licence required that the Licensee submit to the Board for approval within sixty (60) days of issuance of the Licence an Operation and Maintenance

(O&M) Plan for the Water Supply, Sewage and Solid Waste Facilities. This complete Plan was not submitted and approved by the Board under the expired licence.

The renewal Application included a document entitled “Clyde River Truck-fill Operations and Maintenance Manual” prepared July 22, 1998, and stamped by GN-CGS October 10, 2012. On June 3, 2014, the Licensee advised the Board that no changes generally occurred with the Community water distribution system since completion of the above-stated Plan. Although the Board has approved the June 22, 1998 “Clyde River Truck-fill Operations and Maintenance Manual Volume 1 & 2” stamped by GN on October 10, 2012, the Board requires as per Part F, Item 5, that the Licensee updates this Plan with the most recent information for submission to the Board with the 2014 Annual Report.

Deposit of Waste

Sewage

The Hamlet’s previous sewage disposal facility constructed in 1976 approximately 1.2 km west of the municipality, did not have sufficient holding capacity for the 963 people presently residing in Clyde River. The berms of the lagoon were failing and raw sewage was leaking out of the toes of the berms in several places. It was an unlined earth lagoon with a reported capacity of approximately 11,600 m³ and was designed to hold sewage for 365 days with annual discharge.

An expansion of the existing facility was approved by the NWB within the scope of the amendment to Licence NWB3CLY0308, including the construction of a new lagoon to the south and west of the existing lagoon to supplement the current storage capacity. The land between the old facility (and approved expansion) and Patricia Bay was also approved in the scope of the amendment to water licence NWB3CLY0308 to remain as a Vegetated Filter Strip Wetland Area.

The Enhanced double-cell sewage treatment facility was constructed in 2011 to meet the long term needs of the Hamlet. The design horizon for this facility is 2028. As-Built drawings dated December 31, 2011 have been submitted to the Board within the Water Licence Renewal Application.

The wastewater treatment system utilizes the sewage lagoons as the main method of treatment, with the filter strip wetlands providing additional treatment prior to the release to the environment. The treated sewage effluent will be pumped from the sewage disposal facility to the wetland area beginning mid-August and continuing until mid to late September. The end of the Vegetated Filter Strip Wetland Area is located approximately 720 metres from the discharge point of the sewage disposal facility, at Patricia Bay.

Under the expired licence the GN-CGS submitted different versions of Wastewater Facility Operation and Maintenance Manual to fulfill the requirement of Part F, Item 1(b) of licence 3BM-CLY0909. However, the Plan was never approved by the Board. The last revised document entitled “Clyde River Wastewater Facility, Clyde River, Nunavut, Operations and

Maintenance Manual Volumes 1 and 2” (O&M Manual), prepared by exp. Services Inc. and dated July 2012, was submitted on August 27, 2012. Including with that submission were As-Built Drawings Government of Nunavut, Clyde River Wastewater Lagoon (New Sewage Lagoon and Rehabilitate Existing Lagoon), prepared by Trow Associates Inc., dated December 31, 2011, Project Number OTCD00019055A, Spill Contingency Plan, and Quality Assurance and Quality Control (QA/QC) Plan.

On October 1, 2012, the Licensee was advised that the Board remains unable to approve the revised O&M Manual as Board notes that although AANDC’s and EC’s June 2012 comments related to the Waste Water Facility were addressed; however, the Manual still did not address all the components required by Part F, Item 1 of the Licence.

At this time, the Board has decided to approve under Part F, Item 1 the “Clyde River Wastewater Facility, Clyde River, Nunavut, Operations and Maintenance Manual Volumes 1 and 2” (O&M Manual), dated August 27, 2012, that was submitted as additional information with the Application for renewal licence. However, the remaining components of Part F, Item 1 of expired licence are included within the renewal Licence as stand-alone licence requirements still to be addressed.

Solid Waste

The Hamlet has been managing two waste sites: Domestic waste site and Bulky metal waste site. An access road from the Community to the sewage lagoon connects those isolated sites. Both facilities are non-engineered. The land fill (domestic waste) site is on the south side of the access road. This site is about 600m from the ocean and slopes towards the ocean. There is a dilapidated fence located on the south face of the landfill which is intended to prevent debris from being blown from the site into the ocean. The landfill does not have berms, gate, lights or designated areas for different wastes. The size of the existing landfill site is 300m by 300m. This facility reportedly has a capacity issue.

The Bulky metals site is located at the north of the access road and opposite to the sewage lagoon. This site receives all the metal wastes without any segregation. Dump truck or low bed is used to transport bulky metals from the community to this site. Hazardous waste management cell was not built within the bulky metals site. As a result hazardous wastes are mixed up with other materials. At the time of Application review, it was indicated that exp Services Inc., an engineering consulting firm, has been retained to complete the design for the waste management facilities to satisfy the current guidelines of GN-CGS. This project was initiated and a new site was selected. Currently this project is on hold for future direction.

The Board acknowledges AANDC’s comment regarding the Licensee’s practice of open burning and advises the Licensee of the requirement to comply with the *Canada Wide Standards for Dioxin and Furans* and the *Canada Wide Standard for Mercury Emissions* for the management and incineration of municipal wastes. For the time being, only materials suitable for open burning referenced in the *Government of Nunavut 2012 Guidelines for the Burning and Incineration of Solid Waste* should be considered acceptable for burning.

AANDC indicated that *the new landfill should be an engineered facility with water management provisions (i.e., diversion of clean water away from the facility and the*

management of runoff and seepage reporting from the facility). There should be no burning of any solid waste materials at the new facility.

AANDC stated also that *there should be no delay in establishing a proper hazardous waste management facility as the mismanagement of hazardous wastes can result in severe health and safety hazards to people (potentially fatal, material safety data sheet instructions must be followed) and can contaminate the surrounding environment (land and water) to the detriment of wildlife and people.* The Board concurs with these recommendations/conclusions.

The renewal Application included the document entitled “Solid Waste Operation and Maintenance Plan for Hamlet of Clyde River” dated May 2014. This Plan states that hazardous wastes are not being properly managed but it provides recommendations. Also, the May 2014 Plan for Compliance (Item D7) states that a “Document for Segregation of Hazardous waste Procedure” will be made available by the end of June 2014 and that segregation of hazardous wastes will commence in the summer of 2014. In its comments AANDC stated that the Licensee *should provide the document referenced in the May 2014 Plan for Compliance as soon as it is available for review (“Document for Segregation of Hazardous waste procedure”).* Additionally, AANDC stated that the Licensee should prepare a standalone Hazardous Waste Management Plan pursuant to Part F item 1(b) of the licence. On July 14, 2014, the GN-CGS informed the Board that the “Document for Segregation of Hazardous waste Procedure” document *was circulated for CGS internal review, and it is being translating into Inuktitut and expected to be available in the end of month.*

Although the Board has approved the May 2014 “Solid Waste Operation and Maintenance Plan for Hamlet of Clyde River” under Part F, Item 3, the Licensee shall be required to submit to the Board for approval within ninety (90) days of issuance of this Licence a stand-alone Hazardous Waste Management Plan that must reflect the operation of a fully functional hazardous waste management facility and provide procedure for segregation of hazardous waste. This requirement is incorporated in Part F, Item 3 of the Licence.

The Licensee is also advised that the design and construction of a new landfill and the decommissioning of the existing landfill should be authorized under a water licence amendment. Application for amendment should be submitted as soon as possible to give the NWB sufficient time to go through the amendment process.

Spill Contingency Planning

Part F, Item 1(e) of the expired licence required that the Licensee develop a Spill Contingency Plan. The July 2012 “Wastewater Treatment Facility Operations and Maintenance Manual” and the May 2014 “Solid Waste operations and Maintenance Plan” documents included a spill response plan section. In its comments AANDC stated that the Licensee should develop a stand-alone Spill Contingency Plan that *details how hazardous materials originating from hamlet infrastructure and assets (e.g., wastewater treatment facility, oil tanks, vehicles, etc.) will be managed in the event of a spill or accidental release.*

The NWB concurs that a stand-alone Spill Contingency Plan would facilitate the effective implementation of spill response measures by Hamlet staff. The Plan shall detail spill responses and procedures for Water, Sewage and Solid Waste Facilities Operations. Therefore

the Licensee shall be required, as per Part F, Item 4 of the renewal Licence, to submit a stand-alone Spill Contingency Plan for Board approval within ninety (90) days of issuance of the Licence.

Monitoring Program

Part H of the Licence details the environmental monitoring requirements. Part H, Items 1 and 7 of the expired licence required the Licensee to sample, among others, the runoff from the quarry site (CLY-13). On July, 14, 2014, the Board was informed by the Licensee that the quarry that was used for the construction of Enhanced sewage disposal facility is no longer operational, and requested removal of this Monitoring Program Station. The Board has removed the CLY-13 Monitoring location from the Monitoring Program Stations.

Part H, Items 1 and 4 of the expired licence required the Licensee to also sample, among others, the ocean water for multiple parameters five (5) metres from the point where sewage effluent enters the ocean (CLY-7) three times per year (beginning, middle, and near the end of discharge). In its submission, with respect to other Municipal Water Licence Applications, AANDC stated that this monitoring requirement doesn't appear to provide any scientific value and it seems unnecessarily onerous for the Licensee to sample five (5) metres into the marine environment when an effluent sample is collected at the final discharge point of the wetland treatment area (where the effluent leaves the wetland and discharges into the marine environment). The Board has concurred with this recommendation and has removed CLY-7 Monitoring location from the list of Monitoring Program Stations to be consistent with other municipal water licence requirements.

It should also be noted that while minimum sampling requirements have been imposed, additional sampling may be required upon request by an Inspector.

Quality Assurance / Quality Control Plan (QA/QC Plan)

The requirement to submit a Quality Assurance / Quality Control Plan (QA/QC Plan) is to provide the necessary checks and controls under the Licence for sampling, monitoring and reporting for Hamlet of Clyde River. The purpose of the QA/QC Plan is to ensure that samples taken in the field as part of the Monitoring Program will be reflective and representative of the environment in which the samples are taken in terms of physical, chemical, and biological characteristics. These procedures are generally developed from literature and guidelines, and are intended to promote good practices in environmental management.

The QA/QC Plan included within the "Clyde River Wastewater Facility Operations and Maintenance Manual Volume 1 and 2" was found acceptable by the Board.



NUNAVUT WATER BOARD WATER LICENCE RENEWAL

Licence No. **3BM-CLY1419**

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

HAMLET OF CLYDE RIVER

(Licensee)

P.O BOX 205 CLYDE RIVER, NUNAVUT, X0A 0E0

(Mailing Address)

hereinafter 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 renewal:

Licence Number/Type: 3BM-CLY1419 TYPE "B"

Water Management Area: SOUTHWESTERN BAFFIN BAY WATERSHED (49)

Location: CLYDE RIVER
QIKIQTANI REGION, NUNAVUT

Classification: MUNICIPAL UNDERTAKING

Purpose: DIRECT WATER USE AND DEPOSIT OF WASTE

Quantity of Water use not
to Exceed: 38,000 CUBIC METRES PER ANNUM OR 145 CUBIC
METRES PER DAY

Date of Licence Issuance: JULY 25, 2014

Expiry of Licence: JULY 24, 2019

This Licence renewal 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 and the deposit of waste for a Municipal undertaking classified as per Schedule 1 of the *Regulations* at the Hamlet of Clyde River, located in the Qikiqtani Region, Nunavut (Latitude: 70° 27' N and Longitude: 68° 33' 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 responsibility for compliance with the requirements of all applicable Federal, Territorial and Municipal legislation.

2. 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;

“**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;

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

“**Effluent**” means treated or untreated liquid waste material that is discharged into the environment from a structure such as a settling pond, landfarm or a treatment plant;

“**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*;

“Enhanced Sewage Disposal Facility” comprises the area and engineered sewage lagoons, decant structures, and Vegetated Filter Strip Wetland Area designed to contain and treat sewage as described in the Application for Water Licence Renewal filed by the Applicant on May 27, 2014 and illustrated in Drawings SP-1, CSM-1, SP-2, SEC-1, TD-1, DE-1, and DE-2 prepared by Trow Associates Inc., Pr. # 0TCD00019055A, As-Built dated December 31, 2011;

“Final Discharge Point” means an identifiable discharge point of a Waste Disposal Facility beyond which the Licensee no longer exercises care and control over the quality of the Effluent;

“Freeboard” means the vertical distance between water line and crest on a dam or dyke's upstream slope;

“Geotechnical Engineer” means a professional engineer registered with the Association of Professional Engineers, Geologist and Geophysicists of Nunavut and whose principal field of specialization with the engineering properties of earth materials in dealing with man-made structures and earthworks that will be built on a site. These can include shallow and deep foundations, retaining walls, dams, and embankments;

“Grab Sample” means an undiluted quantity of material collected at a particular time and place that may be representative of the total substance being sampled at the time and place it was collected;

“Greywater” means all liquid wastes from showers, baths, sinks, kitchens and domestic washing facilities, but does not include toilet wastes;

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

“Hazardous Waste Management Facility” comprises the area and associated structures designed to contain Hazardous Waste as described in the Application for Water Licence renewal and associated documents filed by the Applicant on May 27, 2014;

“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*;

“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;

“Monitoring Program” means a monitoring program established to collect data on surface water and groundwater quality to assess impacts to the freshwater aquatic 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 18th April, 2013*;

“Sewage” means all toilet wastes and greywater;

“Sewage Disposal Facilities” comprises the area and engineered lagoon cells, decant structures and Vegetated Filter Strip Wetland Area designed to contain and treat sewage as described in the Application for Water Licence renewal and associated documents filed by the Applicant on May 27, 2014 and illustrated in Drawings SP-1, CSM-1, SP-2, SEC-1, TD-1, DE-1, and DE-2 prepared by Trow Associates Inc., Pr. # 0TCD00019055A, As-Built dated December 31, 2011;

“Solid Waste Disposal Facilities” comprises the area and associated structures designed to contain solid waste as described in the Application for Water Licence renewal and associated documents filed by the Applicant on May 27, 2014;

“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;

“Toilet Wastes” means all human excreta and associated products, but does not include greywater;

“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 waste, and includes the Sewage Disposal Facilities and Solid Waste Disposal Facilities (including

Bulky metal area), as described in the Application for Water Licence renewal filed by the Applicant on May 27, 2014;

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

“Water Supply Facilities” comprises the area and associated intake infrastructure at Water Source Lake, as described in the Application for Water Licence renewal filed by the Applicant on May 27, 2014;

“Vegetated Filter Strip Wetland Area” comprises approximately 23.5 hectares of land immediately downstream of the sewage lagoon, for approximately 720 metres at a slope of 6 to 7% and includes the lagoons dewatering pump and infrastructure as well as diversion berm and fencing as described in the Application for Water Licence Renewal filed by the Applicant on May 27, 2014 and illustrated in Construction Drawings prepared by Trow Associates Inc. Project OTCD00019055A As-Built dated December 31, 2011.

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 on the Appurtenant Undertaking with the Board no later than March 31st of the year following the calendar year being reported, containing the following information:
 - a. tabular summaries of all data generated under the “Monitoring Program”;
 - b. summary of modifications to the “Monitoring Program” in accordance with Part H, Item 16;
 - c. the daily, monthly and annual quantities in cubic metres of freshwater obtained from all sources;
 - d. the daily, monthly and annual quantities in cubic metres of each and all waste discharged; including the hazardous and non-hazardous waste accepted at the Solid Waste Facilities;
 - e. a summary of modifications and/or major maintenance work carried out on the

- Water Supply and Waste Disposal Facilities, including all associated structures and facilities;
- f. a list of unauthorized discharges and summary of follow-up action taken;
 - g. a summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;
 - h. Any updates or revisions for manuals and plans (*i.e., Operations and Maintenance, Abandonment and Restoration, QA/QC*) as required by changes in operation and/or technology;
 - i. a summary of any studies, reports and plans requested by the Board that relate to waste disposal, water use or reclamation, and a brief description of any future studies planned;
 - j. any other details on water use or waste disposal requested by the Board by November 1st of the year being reported.
2. The Licensee shall notify the NWB of any changes in operating plans or conditions associated with this project at least thirty (30) days prior to any such change.
 3. 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.
 4. The “Monitoring Program” and compliance dates specified in the Licence may be modified at the discretion of the Board.
 5. The Licensee shall install flow meters or other such devices, or implement suitable methods required for the measuring of water volumes as required under Part H, Item 1.
 6. The Licensee shall, post the necessary signs, where possible, to identify the stations of the “Monitoring Program”. All signage postings shall be in the Official Languages of Nunavut, and shall be located and maintained to the satisfaction of an Inspector.
 7. The Licensee shall immediately report to the 24-Hour Spill Report Line at (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 Water Supply or Waste Disposal Facilities.
 8. The Licensee shall implement the Plan for Compliance that was submitted as additional information with the renewal Application, and approved by the Board with the issuance of the Licence.
 9. 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/or 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.
 10. The Licensee shall, for all Plans submitted under this Licence, implement the Plan as

approved by the Board in writing.

11. 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 an Addendum to be included with the Annual Report.
12. 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.
13. 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
 - (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
14. 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.
15. 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.
16. This Licence is assignable as provided for in Section 44 of the *Act*.

PART C: CONDITIONS APPLYING TO WATER USE

1. The Licensee shall obtain all freshwater processed by the Water Supply Facilities and/or used for municipal purposes from Water Source Lake or as otherwise approved by the

Board in writing.

2. The annual quantity of water use for all purposes under Part C, Item 1, shall not exceed thirty-eight thousand (38,000) cubic metres per year or one hundred and forty-five (145) cubic metres per day.
3. Where the use of water is of a sufficient volume that the source Water body may be drawn down, the Licensee shall submit to the Board for approval in writing the following: the volume required a hydrological overview of the water body, details of impacts, and proposed mitigation measures.
4. The Licensee shall maintain the Water Supply Facilities to the satisfaction of the Inspector.
5. The Licensee shall equip all water intake hoses with a screen of appropriate mesh size to ensure that fish are not entrained and shall withdraw water at a rate such that fish do not become impinged on the screen.
6. The Licensee shall not remove any material from below the ordinary High Water Mark of any water body unless approved by the Board in writing.
7. The Licensee shall not cause erosion to the banks of any body of water and shall provide necessary controls to prevent such erosion.
8. Sediment and erosion control measures shall be implemented prior to and maintained as required during Hamlet operations, to prevent entry of sediment into water.

PART D: CONDITIONS APPLYING TO WASTE DISPOSAL

1. The Licensee shall direct all Sewage to the Sewage Disposal Facilities or as otherwise approved by the Board.
2. All Effluent discharged from the Sewage Disposal Facilities at Monitoring Program Stations CLY-4 and CLY-5 shall not exceed the following effluent quality standards:

Parameter	Maximum Concentration of any Grab
BOD ₅	120 mg/L
Total Suspended Solids	180 mg/L
Faecal Coliforms	1 x 10 ⁶ CFU/dl
Oil and grease	No visible sheen
PH	Between 6 and 9

3. The Licensee shall provide notice to an Inspector at least ten (10) days prior to initiating any decant of the Sewage Disposal Facilities.

4. A Freeboard limit of at least 1.0 metre, or as recommended by a qualified Geotechnical Engineer and as approved by the Board in writing, shall be maintained at all dams, dykes, or structures intended to contain, withhold, divert or retain water or wastes.
5. The Sewage Disposal Facilities shall be maintained and operated, to the satisfaction of an Inspector in such a manner as to prevent structural failure.
6. The Licensee shall dispose of and permanently contain all Solid Wastes at the Solid Waste Disposal Facility or as otherwise approved by the Board in writing.
7. The Licensee shall segregate and store all hazardous materials and/or hazardous waste within the Solid Waste Disposal Facility in a manner as to prevent the deposit of deleterious substances into any water until such a time as proper disposal arrangements are made.
8. The Licensee shall implement measures to prevent hazardous materials and/or leachate from the Solid Waste Disposal Facility from entering water.

PART E: CONDITIONS APPLYING TO MODIFICATION AND CONSTRUCTION

1. The Licensee shall submit to the Board for approval, for-construction drawings stamped and signed by a qualified Engineer registered in Nunavut, 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 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 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; and
 - d. the Board has not rejected the proposed Modifications.
3. The Modifications for which all of the conditions referred to in Part E, Item 2, have not been met, may only be carried out upon written approval from the Board.
4. The Licensee shall, within ninety (90) days of completion of Modification or Construction of facilities and/or infrastructure associated with the project, submit to the Board a Construction Summary Report along with stamped as-built plans and drawings,

providing explanation to reflect any deviations from 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 impacts to water resulting from the release of sediment and to minimize erosion.
7. With respect to earthworks, the deposition of debris or sediment into or onto any water body is prohibited. These materials shall be disposed a distance of at least thirty-one (31) metres from the ordinary High Water Mark in such a fashion that they do not enter the water.
8. The Licensee shall use material that is free of contaminants for construction, operation, and maintenance activities and that is obtained from approved sources and has been demonstrated not to be potentially acid generating and metal leaching.

PART F: CONDITIONS APPLYING TO OPERATION AND MAINTENANCE

1. The Board has approved the Plan entitled “Clyde River Wastewater Facility, Clyde River, Nunavut, Operations and Maintenance Manual Volumes 1 and 2” dated July 2012 that was submitted as additional information with the renewal Application.
2. The Board has approved the Plan entitled “Solid Waste Operation and Maintenance Plan for Hamlet of Clyde River” dated May 2014 that was submitted as additional information with the renewal Application.
3. The Licensee shall submit to the Board for approval within ninety (90) days of issuance of the Licence, a stand-alone Hazardous Waste Management Plan to reflect the operation of a functional hazardous waste management facility and provide procedures for the hazardous waste segregation and storage.
4. The Licensee shall submit to the Board for approval within ninety (90) days of issuance of the Licence, a stand-alone Spill Contingency Plan for Water, Sewage and Solid Waste Operations including management of Hazardous materials in the event of a spill. The stand-alone Plan is to take into consideration, at a minimum, the comments received during the review of the renewal Application.
5. The Licensee shall update the approved Plan entitled “Clyde River Truck-fill Operations and Maintenance Manual” prepared July 22, 1998, and stamped by GN-CGS October 10, 2012, and submit to the Board for review within 2014 Annual Report. The updated with

new information manual shall provide details regarding, at a minimum, the water system, pump-house, intake line, treatment plant.

6. An inspection of all engineered facilities related to the management of water and waste shall be carried by an Engineer (Civil, Municipal or Geotechnical) before commissioning any facility. The 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 addressing each of the Engineer's recommendations.
7. The Licensee shall perform more frequent inspections of the engineered facilities at the request of an Inspector.
8. 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 appropriately approved Spill Contingency Plan for the Hamlet of Clyde River. Take whatever steps are immediately practicable to protect human life, health and the environment;
 - b. report the incident immediately via the 24-Hour Spill Reporting Line at (867) 920-8130 and to the AANDC Manager of Field Operations at (867) 975-4295; and
 - c. submit to the Inspector, a detailed report on each occurrence, 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 any preventative measures to be implemented.

PART G: CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION

1. The Licensee shall submit to the Board, for approval, an Abandonment and Restoration Plan at least six (6) months prior to abandoning any facilities or the construction of new facilities to replace existing ones. Where applicable, the Plan shall include information on the following:
 - a. water intake facilities;
 - b. the water treatment and waste disposal sites and facilities;
 - c. abandoned water and waste facilities;
 - d. petroleum and chemical storage areas;
 - e. any site affected by waste spills;
 - f. leachate prevention;
 - g. an implementation schedule;
 - h. maps delineating all disturbed areas, and site facilities;
 - i. consideration of altered drainage patterns;
 - j. type and source of cover materials;
 - k. future area use;

- l. hazardous wastes; and
 - m. a proposal identifying measures by which restoration costs will be financed by the Licensee upon abandonment.
2. The Licensee shall complete all restoration work within the time schedule specified in the Plan, or as subsequently revised and approved by the Board.
 3. The Licensee shall carry out progressive reclamation of any components of the project no longer required for the Licensee's operations.
 4. In order to promote growth of vegetation and the needed microclimate for seed deposition, all disturbed surfaces shall be prepared by ripping, grading, or scarifying the surface to conform to the natural topography.
 5. Areas that have been contaminated by hydrocarbons shall be reclaimed to meet objectives as outlined in the Government of Nunavut's Environmental Guideline for Site Remediation, January 2002. The use of reclaimed soils for the purpose of back fill or general site grading may be carried out only upon consultation and approval by the Government of Nunavut, Department of Environment and an Inspector.

PART H: CONDITIONS APPLYING TO THE MONITORING PROGRAM

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

Monitoring Program Station Identification	Description	Frequency	Status
CLY-1	Raw Water Supply Intake at Water Source Lake	Daily, Monthly, and Annually	Active (Volume)
CLY-2	Runoff from the Solid Waste Disposal Facilities	Once at the beginning, middle and near the end of the season during observed flow/seepage	Active (Quality)
CLY-3a	Raw Wastewater at truck offload point (existing cell)	Daily, Monthly and Annually	Active (Quality)
CLY-3b	Raw Wastewater at truck offload point (new cell)	Daily, Monthly and Annually	Active (Quality)
CLY-4	Effluent Discharge from Existing Sewage Disposal Facility	<u>Volume:</u> Daily, Monthly and Annually <u>Quality:</u> Three	Active (Volume and Quality)

		times annually (as per Part H, Item 3)	
CLY-5	Effluent discharge from Enhanced Sewage Disposal Facility (Lagoon decanting point)	Same as CLY-4	Active (Volume and Quality)
CLY-6a	Sampling well at the end of Vegetated Filter Strip Wetlands at location shown on drawing CSM-1	Three times annually Water Quality: (as per Part H, Item 4);	New (Quality)
CLY-6b	Surface water at the end of the Vegetated Filter Strip Wetland in vicinity of CLY-6a	Same as CLY-6a	New (Quality)
CLY-8	Sewage Sludge	To be determined in accordance with Part F Item 1 and Part H Items 8 and 13	New (Volume and Quality)
CLY-9	All thermistors locations shown in drawing SP-2 of the Application for Water Licence Renewal (casing to extend 5 m below the base of the berm)	<u>Temperature:</u> Minimum once every two months for the first two years following construction, then twice annually (early spring and mid to late fall) thereafter	Active (Temperature)
CLY-10	All single-bead thermistors placed below the liner and into key trench at locations adjacent to those defined in CLY-9	Same as CLY-9	Active (Temperature)
CLY-11	All standpipes at locations shown in drawing SP-2 of the Application for Water Licence Renewal	<u>Seepage:</u> Annually early to mid-fall <u>Water Quality:</u> When seepage is observed	New (Seepage and Quality)
CLY-12	All settlement stations at locations adjacent to thermistors shown in	<u>Settlement:</u> Annually	New (Location, elevation)

	drawing SP-2 of the Application for Water Licence Renewal		
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2. The Licensee shall measure and record, in cubic metres, the daily, monthly, and annual quantities of water extracted for all purposes at Monitoring Program Station CLY-1.
3. The Licensee shall measure and record in cubic metres the daily, monthly, and annual quantities of raw sewage offloaded from trucks at Monitoring Program Stations CLY-3a and CLY-3b and effluent pumped or discharged from Monitoring Program Stations CLY-4 and CLY-5.
4. The Licensee shall sample at Monitoring Program Stations CLY-4, CLY-5, CLY-6a and CLY-6b a minimum of three (3) times annually, to include once upon commencement, once approximately mid-way through discharge, and once prior to discharge ending. Samples shall be analyzed for the following parameters:

Biological Oxygen Demand – BOD ₅	Faecal Coliforms
pH	Conductivity
Total Suspended Solids	Oil and Grease (visual)
Nitrate-Nitrite	Ammonia Nitrogen
Chloride	Sulphate
Sodium	Potassium
Magnesium	Calcium
Total Hardness	Total Alkalinity
Total Arsenic	Total Aluminum
Total Cadmium	Total Chromium
Total Cobalt	Total Iron
Total Copper	Total Manganese
Total Lead	Total Nickel
Total Mercury	Total Organic Carbon (TOC)
Total Zinc	
5. If the discharge at Station CLY-4 or CLY-5 has been suspended and subsequently restarted with more than a 48 hour lapse, the sampling sequence described in Part H Item 4 of the Monitoring Program shall be repeated.
6. The Licensee shall measure and record the annual quantities of sludge removed from the Sewage Disposal Facility and the Enhanced Sewage Disposal Facility, along with the methods of treatment, storage, and disposal provided.
7. The Licensee shall sample water quality at Monitoring Stations CLY-2 once at the beginning, middle and near the end of the season during observed flow. Samples shall be analyzed for the parameters listed in Part H Item 4 as well as Total Petroleum Hydrocarbons.

8. The Licensee shall sample and analyze sludge in accordance with the approved Operations and Maintenance Plan referred to in Part F Item 1.
9. The Licensee shall monitor annually in early to mid-fall, prior to freezing, for the presence of seepage within standpipes at Monitoring Station(s) CLY-11. If seepage is observed, the licensee shall sample and analyze the seepage for the parameters listed in Part H Item 4.
10. The Licensee shall monitor temperature at Monitoring Station(s) CLY-9 and CLY-10, a minimum of twice annually, in early spring and mid to late fall in accordance with the approved Operations and Maintenance Plan referred to in Part F, Item 1.
11. The Licensee shall monitor settlement and displacement annually at Monitoring Station(s) CLY-12 in accordance with the approved Operations and Maintenance Plan referred to in Part F, Item 1.
12. The Licensee shall provide the monitoring results for thermistor, standpipe, and settlement stations at Monitoring Stations CLY-9, CLY-10, CLY-11, and CLY-12 within annual reports, due no later than March 31. An annual assessment of the geotechnical and geothermal performance of the Enhanced Sewage Disposal Facility shall be provided as an addendum to the Annual Report.
13. 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.
14. All analyses shall be performed in a laboratory accredited according to ISO/IEC Standard 17025. The accreditation shall be current and in good standing.
15. The Licensee shall include all of the data and information required by the Monitoring Program as well as an indication of wastewater treatment levels upstream and downstream of the Vegetate Filter Strip Wetland Area in the Licensee's annual report, as required *per* Part B, Item 2, or as requested by an Inspector.
16. Modifications to the Monitoring Program including the Monitoring Program Stations and parameters may be made only upon written approval of the Board.
17. Additional monitoring stations, sampling and analysis may be requested by an Inspector.