



The NWB strongly recommends that the Licensee consults the comments received by interested parties and the issues of compliance identified by the NWB. In particular, Aboriginal Affairs and Northern Development Canada (AANDC) criticized the Licensee's failure to meet monitoring requirements, and also raised concern over the integrity of the synthetic liner for the new sewage Waste lagoon, the defined borders of the existing wetland area and the potential for escaping leachate from the Solid Waste Facility. This information is attached for your consideration.¹

Sincerely,



Thomas Kabloona
Nunavut Water Board
Chair

TK/bm/ri

Enclosure: Licence No. **3BM-REP1520**
Comments – AANDC

Cc: Kivalliq Distribution List

¹ Aboriginal Affairs and Northern Development Canada (AANDC), September 19, 2014.

TABLE OF CONTENTS

| | |
|---|------|
| DECISION | ii |
| I. BACKGROUND | iii |
| II. FILE HISTORY | iii |
| III. PROCEDURAL HISTORY OF RENEWAL APPLICATION..... | iv |
| IV. ISSUES | viii |
| Compliance | viii |
| Term of the Licence | viii |
| Annual Report..... | ix |
| Water Use..... | ix |
| Deposit of Waste..... | ix |
| <u>Sewage</u> | x |
| <u>Solid Waste</u> | x |
| <u>Contaminated Soil Storage Area</u> | xii |
| Construction..... | xiii |
| Operating Plans and Spill Contingency Measures | xiv |
| Abandonment and Reclamation Plan | xv |
| Monitoring Program..... | xvi |
| 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 MODIFICATIONS AND CONSTRUCTION | 9 |
| PART F: CONDITIONS APPLYING TO OPERATION AND MAINTENANCE..... | 10 |
| PART G: CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION..... | 12 |
| PART H: CONDITIONS APPLYING TO THE MONITORING PROGRAM | 13 |

DECISION

LICENCE NUMBER: 3BM-REP1520

This is the decision of the Nunavut Water Board (NWB) with respect to a complete application dated March 25, 2014 for an amendment and renewal of a Water licence made by:

HAMLET OF REPULSE BAY

to allow for the use of Water and deposit of Waste during municipal activities by the Hamlet of Repulse Bay, located within the Kivalliq Region, Nunavut and generally located at the geographical coordinates as follows:

Latitude: 66° 31' N and Longitude: 86° 14' W

DECISION

After having been satisfied that the application was in conformity with the Keewatin 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. NWB3-REP0409 be renewed as Licence No. 3BM-REP1520 subject to the terms and conditions contained therein (Motion # 2015-B1-001:).

Signed this __8th__ day of __April, 2015__ at Gjoa Haven, NU.



Thomas Kabloona
Nunavut Water Board
Chair

TK/bm/ri

¹ Nunavut Planning Commission Conformity Determination, September 29, 2014.

² Nunavut Impact Review Board, Screening Exemption Decision, September 30, 2014.

I. BACKGROUND

The Hamlet of Repulse Bay is located on the northern shore of Repulse Bay, on the south shore of the Rae Isthmus. The Hamlet is located at Latitude 66°31' N and Longitude 86° 14'W, and is 443 kilometers southeast of Taloyoak and 1,424 air kilometers northeast of Yellowknife. The predominant local topography of Repulse Bay is extremely rugged, making inland access difficult. Very little soil covers the ridges of bedrock, and silty sands and gravel constitute the limited soil layers present. Limited localized vegetation consisting of mosses, lichens and sedge meadows is present. The average annual precipitation in Repulse Bay consists of 150 mm of rainfall and 58.2 cm of snowfall. The mean high in July is 15.7C degrees with a mean low of 5.8C degrees. In January, the mean high is -29.4C degrees and a mean low of -36.4C degrees. The Hamlet's population is approximately 907 persons as of 2013.

The Hamlet operates water and waste management facilities for which a water licence from the Nunavut Water Board is required. Community infrastructure includes:

- An Existing Water Supply Facility which draws freshwater from Nuviq Luktujuk Lake. Water is treated in the truck-fill station and then transferred to municipal trucks that transport the Water to holding tanks in each building. The Applicant has proposed some upgrades to the Water Supply Facility, anticipated to occur in summer 2015, to improve pump and treatment. Tendered drawings have been approved by the Hamlet/GN-CGS and construction is pending receipt of a valid Water licence.
- An Existing Sewage Disposal Facility which consists of a truck offload discharge area where the Water is directed through a series of wetlands and surface Water bodies prior to discharging into Hudson Bay. A sewage lagoon is scheduled to be built in 2015/2016 to pre-treat and retain sewage raw sewage before it decants to the wetland. Tendered drawings have been approved and construction is pending receipt of valid Water licence.
- The Solid Waste Disposal Facility, built in 2003/2004, includes a generic landfill area, a bulky metals disposal area, a Hazardous Waste storage area and a remediated soil storage area. This facility was built and operated without the proper authorization from the NWB; however, it has now been included within the scope of the Licence.

II. FILE HISTORY

On **June 11, 2004**, the Nunavut Water Board ("NWB" or "Board") issued Water Licence NWB3REP0409— Type "B" to the Hamlet of Repulse Bay for the use of 24,000 m³ of Water *per* year and the deposit of Waste generated by the Hamlet. Licence NWB3REP0409 expired on May 31, 2009, at which time no renewal application had been submitted.

On **September 27, 2007**, the NWB issued an amendment to Licence NWB3REP0409 to accommodate the construction of a new landfarm. Included in the amendment were new monitoring requirements to ensure that the contaminated material was remediated and monitored properly. The landfarm design capacity was for 1890 m³.

III. PROCEDURAL HISTORY OF RENEWAL APPLICATION

The application for renewal of the Licence was submitted to the NWB by the Hamlet of Repulse Bay on **March 29, 2012**. The document was not signed, and no additional information was included with the application.

On **September 27, 2012**, the Licensee was advised of a number of deficiencies concerning the application, including the following, unfulfilled commitments from the original licence and amendment:

- Part F, Item 6 of the amendment, requiring the submission of an Operations and Maintenance Manual (O&M) for the landfarm facility. However, no O&M manual had been received;
- Annual Reports from 2004-2011, with the exception of Water sampling results in 2010, had not been received;
- On December 11, 2004 an O&M Manual for Sewage and Solid Waste was to be submitted, but no such Plan had been submitted; and
- A response to outstanding issues of compliance detailed by AANDC on February 22, 2012.

On **October 30, 2012**, NWB notified the Licensee that its application was unsigned and was still deemed incomplete. Outstanding issues included incorrectly calculated Water use and deficiencies in the application form. Also, a number of necessary documents were missing such as a determination from NPC and NIRB regarding land-use conformity and environmental screening, an updated compliance assessment report, the application fee and executive summaries of the application in English and Inuktitut.

On **November 25, 2012**, NWB received from GN-CGS annual reports on Water usage in the Hamlet of Repulse Bay, for the years 2009-2011.

On **November 28, 2012**, NWB received a compliance report from GN-CGS which indicated how compliance issues would be addressed in the years 2013-2014.

On **December 17, 2013** NWB received design plans and drawings from exp Services Inc. (exp Services) on behalf of the Hamlet of Repulse Bay, for a new Water pump house facility. Accompanying documents included:

- 1301-3BM-REP0409 - Design Brief
- 131211-3BM-REP0409- Design Drawings (C1, C2, C3, C4, S1, S2, S3, S4, S5, S6, M1 00, M1 01, M200, M201, M300, M301, MS00, M600, E1, E2)

On **January 6, 2014**, The Hamlet of Repulse Bay submitted a letter to NWB indicating that exp Services will represent the Hamlet in the forthcoming application process for an amendment and renewal of Licence 3BM-REP0409.

On **January 28, 2014**, exp Services submitted the following reports and design drawings for the construction of a new sewage facility:

- 131 0-3BM-REP0409-Design Brief
- 121018-3BM-REP0409-Draft SLEA
- 130402-3BM-REP0409-Geotechnical Investigation Sewage Lagoon Upgrades
- 130924-3BM-REP0409 Draft Wetlands Assessment
- 131011-3BM-REP0409 Design Drawings (COVER, SP, SLP, SEC, PP1, PP2, DE1, DE2)

On **February 3, 2014**, exp Services submitted a renewal/amendment application for Licence NWB3REP0409, which includes a Draft Design Brief for Sewage Lagoon Upgrade, a Draft Screening Environmental Assessment and a Draft Wetland Assessment. On March 6, 2014, the NWB acknowledged this Application, but highlighted a number of outstanding documents and recommended that the Licensee submit a complete Amendment Application. However, this application was rescinded upon submission of another amendment/renewal application submitted March 25, 2014.

CURRENT RENEWAL APPLICATION

On **February 14** and **March 25, 2014**, exp Services submitted a consolidated renewal/amendment application, which superseded the renewal/amendment applications submitted on March 29, 2012 and February 3, 2014. The Application included the following documents:

- Licence Amendment Application Form
- Executive Summary with cover letter and background
- Interim Operation and Maintenance (O&M) Plan Solid Waste Facility , October 2006
- Sustainable O&M Plan and Manual for Solid Waste facility
- Annual Reports 2004-2011 - Requested as outstanding
- Geotechnical Investigation Report for Sewage Facility Improvement (Submitted previously April 2, 2013)
- Design Brief Final for Sewage Lagoon - prepared by exp Services Inc.
- Design Brief of New Pump-house Upgrades by exp Services Inc.
- Waste monitoring test results and summary
- Final Wetlands Assessment
- Notification that the following documents were in progress:
 - Annual Report 2013
 - Conformity of land use for new sewage Lagoon by NPC
 - Impact Assessment Report from NIRB

On **March 27, 2014**, the Hamlet of Repulse Bay submitted the 2013 Annual Report, to be considered with the renewal/amendment application.

On **May 9, 2014**, following a preliminary technical review of the application, the NWB notified the Hamlet of a number of deficiencies in the application, including:

- Two O&M plans, neither of which were final versions: 1) Interim O&M Plan, Solid Waste Management Facility, Hamlet of Repulse Bay (2006); and, 2) Long Term Sustainable Plan, Solid Waste Management Facility for the Hamlet of Repulse Bay (2009).
- O&M Plan for landfarm is not submitted
- As-built plans for landfarm are not submitted
- QA/QC Plan is not submitted
- Submitted Screening Level Environmental Assessment Sewage Facility Upgrade, Hamlet of Repulse Bay, NU (2014) is a draft. The NWB does not accept Draft documents.
- All drawings should be stamped by an Engineer
- Clarification of who will act on the Hamlet's behalf in the Application
- Blocks 11, 14 and 25 on application form should be revised/updated

On **July 25, 2014**, after discussions with the Hamlet indicated that the deficiencies in the Application would be addressed, the NWB notified the Hamlet of Repulse Bay that the Licence Application could proceed. It was noted, however, that the Proponent had failed to submit an O&M Plan for the existing Sewage Disposal Facility, however the Proponent had indicated that a new O&M Plan would be submitted before the completion of the Upgraded Sewage Disposal Facility.

On **August 20, 2014**, the NWB acknowledged that the Proponent had submitted the following documents in 2012, 2013 and 2014, which fulfilled the requirements for the renewal/amendment Application:

2012 Submission's

- Location of Landfill
- Renewal Application
- 2011 Annual Report
- Draft SLEA – Repulse Bay NU
- Authorization Letter – B Purdy
- 2009-2011 Annual Water Usage
- CG Letter Plan for Compliance
- Signed Plan Compliance
- 2008 Annual Water Usage Report
- Annual Water Usage Report 2007

2013 Submission's

- Geotechnical Inspection Report – Lagoon Upgrades Repulse Bay NU
- Draft Wetlands Assessment – Repulse Bay NU
- Sewage Lagoon Technical Designs (PP1, PP2, SEC, COVER, DE1, DE2, SP, SLP)
- Water Pump house Technical Designs (M100, M101, M200, M300, M400, M500, M600,

E1, E2, M201, M301, C1, C2, C3, C4, COVER, S1, S2, S3, S4, S5, S6)

2014 Submission's

- Updated Amendment Application
- Letter to NWB
- Design Brief Sewage Lagoon Upgrade Repulse Bay, Nunavut
- Annual Reports 2004-2011
- Executive Summary Translation
- Design Brief New Pump House Upgrades Draft
- Design Brief New Pump House Upgrades Final
- Wetlands Assessment, Sewage Treatment Wetlands, Hamlet of Repulse Bay, NU
- Long Term Sustainable Plan Solid Waste Facility for the Hamlet of Repulse Bay, January 2009
- Interim Operation and Maintenance (O&M) Plan, Solid Waste Management Facility Hamlet of Repulse Bay

Also on this date, in accordance with s.11.5.10 of the *Nunavut Land Claims Agreement* (“NLCA”), the NWB sent the project proposal to the Nunavut Planning Commission, to determine whether the project proposal is in conformity with an approved land use plan. Moreover, pursuant to s. 13.5.1 of the NLCA, the NWB requested that the Nunavut Impact Review Board (NIRB) determine whether the project requires environmental screening. The NPC responded on September 29, 2014 that the project conforms to the Keewatin Land Use Plan; and the NIRB informed the NWB on September 30, 2014 that the project is exempt from screening.

Following receipt and an internal review, NWB distributed the Application to interested parties for a thirty (30) day review and comment period. On September 29, 2014, comments were received from AANDC.

On December 5, 2014, following an email request for clarification from the NWB on issues related to the Application, GN-CGS informed the NWB in writing that an error occurred in the Application, and requested that all references to a landfarm facility—and accompanying monitoring requirements—be removed from the Licence. GN-CGS demonstrated in a procedural history provided to the NWB that no landfarm facility ever existed in Repulse Bay, despite an Amendment for one having been issued in 2007. The Hamlet constructed a *contaminated soil storage facility* in 2005, with stated plans to construct a landfarm facility in the future if soil sampling revealed concentrations exceeding CCME guidelines. GN-CGS also submitted an updated Plan for Compliance on this date, and resubmitted design drawings for the sewage lagoon and pump house, with the appropriate Engineer stamps.

On December 12, 2014, GN-CGS submitted to the NWB a report written by Burnside Consulting in 2007, on the state of the Solid Waste Disposal Facility. The Report was highly critical of the design and management of the Solid Waste Disposal Facility.

On December 15, 2014, GN-CGS informed the NWB via telephone that an Operations and Maintenance Plan would be authored for the Solid Waste Disposal Facility, including plans for

future upgrades to the facility, after GN publishes a report detailing a Nunavut-wide solid Waste management improvement plan in spring 2015.

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-REP0409 as Licence No. 3BM-REP1520.

IV. ISSUES

Compliance

The Board was provided with AANDC's Multi-Year Municipal Compliance Summary letter on February 22, 2012 indicating the longstanding issues of non-compliance of Water licences in Nunavut Municipalities, including the Hamlet of Repulse Bay, as summarized by AANDC Inspections between 2007 and 2011.

The NWB is aware of recurring, non-compliance issues regarding the Hamlet's previous licence. The Hamlet has generally not abided by its monitoring requirements as dictated under Part H of the expired licence; the state of the Solid Waste Facility remains undefined and the Hamlet continues to operate its Water supply and Waste disposal facilities without Management Plans approved by the Board. The NWB acknowledges, however, that the Hamlet of Repulse Bay appears to have made efforts to address its compliance issues. These include: Annual Reports have been submitted; new upgrades have been tendered for the Sewage and Water Supply Facilities and commitments have been made by the Licensee in a communication delivered on July 25, 2014, to submit O&M Plans upon the commission of new Water and Waste infrastructure. Also, the Licensee submitted to the Board an updated Plan for Compliance on December 5, 2014, based on an earlier version submitted November 28, 2012, which provides objectives and associated timelines to address many non-compliance issues remaining in the community. The Board accepts the Plan for Compliance and has included conditions for its implementation in Part B.

Term of the Licence

The Licensee has requested a five (5) 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 annual site inspection and the compliance record of the Applicant.

In recognition of the recent efforts made by the Licensee to address compliance issues and taking into consideration the Licensee's request, compliance history, and intervener's (AANDC) recommendations, the NWB has issued the licence for a term of five (5) years and believes that this time period will provide a realistic opportunity for the Licensee to prove to the Board that it

can meet the long-term requirements of the Licence, allow for the commissioning of new and upgraded infrastructure, 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.

Annual Report

Part B of the expired licence required the submission of annual reports and associated sampling results for the Hamlet's Monitoring Program. Although Annual Reports were received by the NWB for 2004-2013, the reports for 2004-2011 were submitted noticeably late—only being received with the 2014 Renewal Application—and all of the reports contained deficiencies in monitoring results.

In accordance with s.14 of the *Nunavut Water Regulations*, the NWB maintains the condition under Part B, Item 1 of the current Licence, to produce and submit Annual Reports by March 31st every year. Annual Reports are an important assessment tool for the NWB regarding the state of a Water licence in addition to ensuring that the NWB and other stakeholders possess an accurate understanding of municipal activities during any particular calendar year related 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: <http://www.nwb-oen.ca/public-registry>

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

Water Use

The Hamlet currently receives its freshwater supply from Nuviq Luktujuk Lake for potable use in a quantity not to exceed 24,000 cubic meters annually. The Licensee has exceeded the utilization of this volume since 2005, and as such, GN-CGS has provided a satisfactory analysis of population growth and Water use demands contained in the Water Supply Facility Design Brief (2013), included with the Application, to justify an increase up to 60,000 cubic meters annually. As interveners raised no concerns in relation to Water allowances requested by the Licensee, the Board has approved the requested volume of 60,000 cubic meters *per* year, or 230 cubic meters *per* day (based on a 5 days/week intake), for Water use and resulting sewage Waste disposal. The Board had provided for general public review, the stamped construction design drawings for the Upgraded Water Supply Facility outlined in the Design Brief provided with the Application. The new facility will incorporate cartridge filtration, chlorinated disinfection and a truck-fill rate of 1,000 litres per minute.

Deposit of Waste

Sewage

The Hamlet of Repulse Bay dumps sewage Waste at a truck offload discharge area roughly 1.4 km east of the Municipality, where the Effluent then receives treatment through a vegetated filter strip wetland area, roughly 1400 metres long, before discharging into Hudson's Bay. A Wetland Assessment completed by exp Services in 2012 noted that the Wetland Area would likely prove unable to successfully treat the municipality's increasing Waste disposal demands in the future, and recommended that a sewage lagoon be constructed prior to the wetland area for pre-treatment and retention purposes. Exp Services completed the sewage lagoon design, and the Design Brief was included with the Application. General operation of the lagoon involves collecting and retaining sewage over the winter months, and then performing a controlled decant into the Wetland between August 15 and September 15 every year. As a failsafe to prevent the lagoon from exceeding capacity before the annual effluent discharge, the lagoon possesses a spillway which leads to the Wetland Area.

In its assessment of the Design Brief for the New Sewage Lagoon (exp Services, 2013), AANDC expressed concern over the stability of the lagoon berms and the potential for thaw settlement, and recommended that measures be taken to ensure that the risk of a tear in the liner, which may lead to a leak in the berm, is minimal prior to initiating construction of the new sewage lagoon. As such, the Board has included the requirement for annual inspections of the Sewage Lagoon in Part F, Item 7. AANDC also raised concerns about sludge management relating to the lagoon, stating that only preliminary suggestions have been provided dictating how sludge accumulation will be addressed. The NWB agrees that proper sludge management is necessary to maintain efficiency in lagoon treatment, and has included a requirement under Part F, Item 1 of the Licence to include a sludge management plan within the Sewage and Solid Waste O&M Plan.

Lastly, the Board has changed the effluent quality criteria for the regulated final discharge point from the Wetland to reflect the short time-period in which the municipality's accumulated annual sewage volume will be discharged. The discharge criteria adheres to the *Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories* (1992), for a wastewater flow of greater than 600 litres *per capita per day*, discharging to an open coastline environment.

Solid Waste

The Hamlet of Repulse Bay Solid Waste Disposal Facility consists of four main components: A landfill, a Waste diversion area consisting of a wood pile, a bulk metals disposal area and a Hazardous Waste storage area. Part F, Item 1, of the expired licence required that an O&M Plan was to be submitted within six (6) months of the issuance date. Although an Interim Plan was produced in 2006 and submitted with the Renewal Application, a final plan was not submitted and therefore the Plan was not approved. Although not approved by the Board, this document nonetheless states that it would be used as a working document by the Licensee, and importantly, it illustrates a number of monitoring requirements the Licensee intends to follow and submit with the Annual Report such as an overall description of the activities that occurred at the facility throughout the year, including: regular waste acceptance and annual shaping, an estimate of the

quantity of material received at the site, a description of any maintenance or improvements that were completed at the site throughout the year and analytical testing results from the sampling program. Despite the declaration in the Plan that the Licensee would use it as a working document, the Hamlet has not fulfilled these stated obligations between the time of submission of the Interim Plan and the Renewal Application. Even more, the Interim Plan revealed the following facts about the Solid Waste Site which the Board has found particularly concerning:

- the Solid Waste Facility is operating outside of the scope of the expired Licence;
- the constructed Solid Waste Facility differs significantly from the original design;
- no as-built drawings or other construction documentation could be found for review;
- the Interim Plan should act only as:
a temporary plan to assist Hamlet of Repulse Bay staff in operating the site until as built drawings are prepared, the design is reviewed and modified (if required), and an application made to amend the Water Board license.

However, no updated plan has been submitted.

Moreover, GN-CGS provided a report by Nuna Burnside Engineering and Environmental Ltd. (Burnside) to the NWB on December 12, 2014—after the technical review period had concluded—entitled “Design Review, Upgrades and Operational Plan for the Solid Waste Disposal Facility, Hamlet of Repulse Bay, Nunavut (February 2007). GN-CGS stated that it is uncertain why the Report was not included with the Application. Although the Report demonstrates that the Hamlet has investigated solutions to its solid waste problems, the NWB is concerned about the severe concerns raised in the Report about the structural integrity of the Solid Waste Disposal Facility, and the risks the facility poses to surrounding Water regimes. The Report states the Facility was designed in 2002 and constructed at some point in 2003; importantly, it details that no supporting documentation exists on the construction of the Solid Waste Disposal Facility, and Burnside, after consulting with GN and Dillon Consulting Staff, could find no record as to why the site was chosen, how required waste volumes were calculated, and what geotechnical and hydrogeological work was conducted to support the facility’s design. Lastly, the Report underlines that the as-built site differs extensively from the site designed by Dillon. The Board has confirmed that neither construction notification nor supporting documents, including design drawings, were ever received by the NWB.

The Report also raised a number of environmental concerns related to the site: Surface Water is being discharged in an uncontrollable fashion; waste is covered irregularly and waste designated for burning is left for many months; the potential for leachate infiltrating into drainage ditches and exiting the site untreated is very high; the Hazardous Waste area is unlined; no operation and maintenance procedures exist; no environmental monitoring appears to occur; there is no defined contamination attenuation zone; drainage ditches are poorly designed; and the berms at the site fail to properly divert Water.

The Board recognizes, however, that subsequent inspections by AANDC in the years following the Burnside Report (2007) produced no emphatic concerns about the integrity of the Solid

Waste Facility, although the inspections (2008-2011) did raise concerns about the accumulation of unburned and uncompacted waste and the accumulation of Hazardous Waste (batteries). In addition, AANDC raised concerns in its review of the Application, about the state of leachate that had previously been noted to have escaped from the Solid Waste Disposal Area.

The Hamlet submitted with the Application, a Long Term Sustainable Plan (2009) written by Trow Associates (Trow). The Report details different options for replacing or upgrading the current Solid Waste Disposal Area, and shows that the Hamlet is aware of the unsatisfactory conditions of the current Facility. The Report ultimately concludes that the most advantageous strategy for the community centers on remediating the current facility. It is not clear to the Board what, if any, follow-up action followed the submission of the Long Term Sustainable Plan as no formal indication was provided to the NWB. A telephone conversation between GN-CGS and the NWB indicated that the Hamlet planned to reassess the status of the Solid Waste Disposal Facility, including the decision whether to remediate or build new, after a report is published by the GN in spring 2015, where it is expected a new territory-wide strategy to improve solid waste management will be revealed.⁴

Due to the severity of the environmental issues raised, the Board wishes to stress that under normal circumstances the concerns raised by the Burnside Report in combination with very little evidence that the Licensee has taken tangible steps to tackle the aforementioned issues, would likely have caused a delay in the Application while the environmental concerns were more thoroughly assessed. However, the Board understands that the GN-CGS has invested heavily in tendering upgrades to the Water supply and sewage disposal systems, and these facilities represent important steps to achieving licence compliance in the Hamlet. The Board sees no advantages, either to the NWB or the Hamlet, in quite possibly causing delay to these projects again while the Licensee has the Solid Waste Facility assessed, rather, the Board perceives the better option as granting a valid Licence but including follow-up requirements related to environmental monitoring and assessment.

The Licensee is required to submit for review, a Long-term Solid Waste Management Plan for the Hamlet of Repulse Bay, within six (6) months of licence issuance. The Plan shall address the deficiencies identified with respect to the current Solid Waste Facility raised above, and provide definitive objectives regarding building new or upgrading current infrastructure related to solid waste management, which are necessary to address these deficiencies and meet the community's long-term solid waste needs.

Contaminated Soil Storage Area

On September 27, 2007, the NWB issued Amendment #1 to the previous Licence which provided conditions and monitoring requirements to accompany the construction and operation of a landfarm facility. The amendment resulted from an Application submitted August 7, 2005, seeking permission to construct an interim storage area for contaminated soils, which also stated

⁴ Phone conversation, Megan Lusty (GN-CGS), Brady MacCarl (NWB), on December 15, 2014.

that “if required, a landfarm will be designed to remediate the soil once the total volume is determined.”

Subsequently it was determined by the Hamlet that the contaminated soil deposited in the storage area met CCME guidelines and was thus labelled suitable for reuse, and as such, the need for a landfarm facility was never required. The issuance of Amendment #1 caused some confusion over the next several years as it led to multiple requests from the NWB for additional information on the landfarm’s status, and seemingly caused confusion on the Applicant’s part as indicated by multiple references to a “landfarm” in the current Application. On December 5, 2014, GN-CGS provided a procedural history by email to the Board demonstrating that although a Contaminated Soil Storage Area exists on-site, no landfarm facility had ever been constructed or was even necessary in Repulse Bay.⁵

The Board has removed all references to a landfarm facility from the Licence, but continues to maintain monitoring requirements for the Contaminated Soil Storage Area that exists in the community.

Construction

In 2003-2004, the Hamlet constructed a Solid Waste Facility without prior approval from the Board, or indeed submitting any documentation or notification related to the construction activity, in contradiction to Part E of the expired licence. No as-built drawings or summary of construction activities were submitted to the Board, nor a closure and remediation plan ever conducted on the previous solid waste site that was decommissioned. Constructing and operating a waste facility without proper authorization from the Board puts the Hamlet in violation of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, and makes it difficult for the Board and other interested parties to assess environmental concerns posed by a decommissioned facility. As aforementioned, the lack of documentation surrounding the construction of the Solid Waste Disposal Facility caused considerable confusion in the Licence review process, and demonstrated a significant oversight on behalf of the Hamlet. The Licence contains conditions to assess the integrity of the Hamlet’s Solid Waste Facility (See Section IV: Solid Waste).

Moving forward however, the Board recognizes that the Hamlet has submitted all the proper documentation with the current Application, including stamped design drawings, to proceed with the construction of the Upgraded Water Supply and Sewage Disposal facilities. The Hamlet is reminded that a construction report is required within ninety (90) days following the completion of any construction activity which changes the operating procedures in the use of Water or waste disposal in the community. This report should include a summary, including dates of construction activities, as built drawings and a closure plan for any decommissioned facilities. These requirements are reflected in Part E, Item 4 of this Licence.

⁵ Email communication, Megan Lusty (GN-CGS), to Brady MacCarl (NWB), December 5, 2014.

Operating Plans and Spill Contingency Measures

The NWB recognizes that the expired licence contained no conditions for the submission and approval of an Operation and Maintenance Plan (O&M) for a Water Supply Facility. Part F, Item 6, of the current Licence contains conditions to submit a Water Supply O&M Plan for approval by the Board in writing at least ninety (90) days prior to the commissioning of the Upgraded Water Supply Facility. In addition, the O&M Plan shall address comments provided by AANDC during the review of Application.⁶

Part F, Item 1 of the expired licence required that the Licensee submit to the Board for approval in writing within six (6) months of issuance of the Licence, an Operation and Maintenance (O&M) Plan for Sewage and Solid Waste Facilities. No O&M Plan was ever submitted for the Sewage Disposal Facility; however, an incomplete Interim Plan for Solid Waste Disposal was submitted in 2006, with an indication that a final plan would be developed and submitted for approval.

The Licensee indicated in the Application that no Sewage O&M Plan was submitted because any such Plan would become redundant upon the commissioning of the new sewage lagoon, expected in 2016. To address this concern, the Board has included in Part F, Item 1, of the Licence, requirements to provide a final O&M Plan for Sewage Disposal Facility at least ninety (90) days prior to the commissioning of the Upgraded Sewage Disposal Facility. The O&M Plan is to also include a Sludge Management Plan, reflecting AANDC's concerns raised during the Application review, which clearly defines sludge monitoring and removal procedures. AANDC also recommended that the Sewage O&M Plan clearly define the parameters of the Wetland Area. Lastly, the Plan is also to provide discussion on how the Licensee will ensure that the sewage lagoon's thermal integrity will not be compromised and the facility will operate as designed.

Pursuant to Part F, Item 2 of the Licence, within six (6) months of Licence issuance, the Licensee is to submit for Board approval in writing, an Operation and Maintenance (O&M) Plan for Solid Waste Disposal Facility, including a section related to Hazardous Waste Management. The Plan is to also outline an updated monitoring program for the facility, dictating sampling locations, their characteristics and sampling frequency. If possible, the monitoring program for the Solid Waste Disposal facility should be designed in conjunction with an AANDC Inspector if a municipal inspection occurs during summer 2015. The six (6) month submission time-frame for the new O&M Plan for Solid Waste Disposal Facility should allow the Licensee to include insights and considerations made available by the GN's Territory-wide Strategy for Managing Solid Waste, expected in spring 2015.

In addition to the Solid Waste O&M Plan, the Licensee, under Part F, Item 3 of the Licence, is to submit a Long-term Solid Waste Management Plan within ninety (90) days of licence issuance, to address the uncertainties before the Board, that the current Solid Waste facility can properly manage the community's solid Waste needs in a manner that poses negligible risk to surrounding

⁶ Aboriginal Affairs and Northern Development Canada (AANDC), September 19, 2014.

Water resources. The Plan is to outline definitive objectives regarding the building of new or upgrading current infrastructure related to solid Waste management in order to enable the community to manage its long-term solid Waste management needs in an environmentally harmonious manner. Importantly, the Solid Waste Long Term Sustainable Plan (2009), submitted with the Application, states that the current Solid Waste Disposal Facility will need upgrading or replacement by 2019. The Board reminds the Licensee that this date precedes the expiration of the current Licence, and therefore the Long-term Solid Waste Management Plan required for submission must illustrate the Hamlet's solid Waste management strategy beyond this time period.

The expired Licence required the Licensee to embed Spill Contingency Plans within its O&M Plans. As no O&M Plans were submitted, the Board could not approve any Spill Contingency Plans. The condition to submit a stand-alone Spill Contingency Plan for approval by the Board in writing, within ninety (90) days of Licence issuance has been included under Part F, Item 5 of the current Licence.

Lastly, the Board has included the requirement for annual inspections by an Engineer, of engineered facilities pertaining to Water and Waste management in Part F, Item 7. The Board also requires that, as indicated in Part F, Item 8, the Licensee is to conduct a geotechnical inspection of engineered facilities related to Water and Waste management at least one (1) year prior to the renewal of the Licence. These conditions reflect AANDC's recommendation for geotechnical inspections of the Sewage Lagoon, and put the Hamlet in-line with inspection requirements found elsewhere in Nunavut.

Abandonment and Reclamation Plan

The Licensee did not comply with Part G, Item 1 of the expired licence, and fulfill its obligation to submit an Abandonment and Reclamation Plan before the decommissioning of facilities. The 2004 Annual Report reveals the construction of a new solid waste facility and the abandonment of the previous facility. Not only did the Licensee fail to provide a proper design brief and construction report for the new facility, including as-built drawings, but no Abandonment and Reclamation Plan was provided for the old facility.

The Design Brief for the New Sewage Lagoon (2013) by exp Services mentions that the Sewage Disposal Area is located on the old solid waste disposal site. Remnants of remaining garbage were identified by the Burnside Report (2007) and in the Screening Level Environmental Assessment (2012) for the Sewage Lagoon, which stated that *"there is also light, widespread evidence of dumping or rubbish...predominantly near the sewage inlet."* This comment confirms that vestiges of the old solid waste site remain. As no official closure plan was ever completed, and the Board requires additional information on the closure of this facility, the Licensee is to submit to the Board for approval in writing, an assessment report of the Old Solid Waste Disposal Site, completed by an Engineer, detailing the site's history, the Engineer's recommendation for mitigating any identified concerns, and a corresponding schedule to

implement the potential remediation measures. Part G, Item 6 requires this Report to be submitted within six (6) months of Licence issuance.

The Board has again included the requirement to submit to the Board for Approval in writing, an Abandonment and Reclamation Plan, at least six (6) months prior to abandoning any facilities related to Water and Waste management, or upon submission of the final design drawings for the construction of new facilities to replace existing ones.

The Board reminds the Licensee that, should the existing sewage drop-off point not be incorporated into the Upgraded Sewage Disposal Facility after construction and commissioning of the upgraded facility, the area will require an Abandonment and Reclamation Plan to be submitted to the Board for Approval prior to undertaking the closure activities.

Monitoring Program

Although the Board recognizes that the Hamlet carried out Water quality sampling events in 2013 and 2014, the Licensee generally failed to fulfill the Monitoring Program required by the previous licence. While the Board recognizes that municipalities in Nunavut often face deficiencies in financial and human resources, monitoring requirements are integral components of Water licences as they are one of the few ways that the Licensee can prove to regulators and interested parties that their activities pose no detriment to the surrounding environment.

Under Part H, Item 1, the Board has reaffirmed many of the monitoring locations under the expired licence and added additional ones to accommodate the proposed new sewage lagoon and to address the concerns raised with respect to the current Solid Waste Facility.

The NWB was informed in a phone conversation with GN-CGS that monitoring wells were never installed around the soil containment area (previously misidentified as a landfarm), and as such the descriptions of Monitoring Stations REP-6 and REP-7 under the previous licence have been removed. However, the Board has maintained Effluent sampling requirements down-gradient of the soil containment area at Monitoring Program Station REP-5, and reminds the Licensee that any decision in the future to use the facility to remediate contaminated soil will likely trigger the requirement for an amendment application.

Regarding the Sewage Disposal Area, Monitoring Program Stations have been added for the pump discharge point (REP-4) from the sewage lagoon and the spillway discharge point (REP-4a) once commissioned. The regulated final discharge point is located at the end of the vegetated filter strip wetland area and is identified as REP-6 (SNP#3 in the Design Brief submitted with the Application). Importantly, the Licensee may notice that Monitoring Program Station REP-4 was identified under the expired licence as the discharge point of an engineered lagoon structure. This appears to have been a error in the licence as it is the Board's understanding that the Hamlet has not, in the past, utilized an engineered sewage lagoon (previously relying on wetland treatment only), and will be building the first such structure during the term of the current licence.

An updated Water quality monitoring strategy is to be included in the Licensee's Solid Waste Disposal Facility's O&M Plan. It is recommended that the Licensee work with an AANDC Inspector in developing the monitoring strategy. For the time being, the Board has included monitoring requirements that reflect the monitoring strategy presented in the Interim Solid Waste Plan (Burnside 2006), which include reaffirming REP-2 and adding a new Monitoring Program Station (REP-2a), at a noted seep near boulders down-gradient of the facility. If the updated monitoring strategy requires changes to the Monitoring Program in Part H of the Licence, the Licensee will be required to apply for an amendment to the Licence.

Under Part H, Item 12, the Board has reaffirmed the requirement for the Licensee to submit a QA/QC Plan, with an endorsement letter from a CALA certified lab, for Board review within ninety (90) days following the issuance of the Licence.



NUNAVUT WATER BOARD WATER LICENCE RENEWAL

Licence No. **3BM-REP1520**

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 REPULSE BAY

(Licensee)

P.O BOX 10 REPULSE BAY, NUNAVUT, X0C 0H0

(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-REP1520 TYPE "B"

Water Management Area: REPULSE BAY WATERSHED (18)

Location: REPULSE BAY
KIVALLIQ REGION, NUNAVUT

Classification: MUNICIPAL UNDERTAKING

Purpose: DIRECT WATER USE AND DEPOSIT OF WASTE

Quantity of Water use not to Exceed: 60,000 CUBIC METRES PER ANNUM OR 230 CUBIC METRES PER DAY

Date of Licence Issuance: APRIL 9, 2015

Expiry of Licence: APRIL 8, 2020

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 Repulse Bay, located in the Kivalliq Region, Nunavut (Latitude: 66° 31' N and Longitude: 86° 14' 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*;

“**Contaminated Soil Storage Area**” Comprises the engineered storage area built in 2005 to store contaminated material, as described in “Repulse Bay, Nunavut Fuel Storage Facility Site Remediation”, submitted to the Board to be included with the Application on

December 5, 2014.

“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*;

“Existing Sewage Disposal Facility” comprises a Vegetated Filter Strip Wetland Area and a sewage drop-off point, as existed under the previous licence NWB3REP0409.

“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, identified as Monitoring Program Station REP-6 in the Licence;

“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 March 25, 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;

“Solid Waste Disposal Facility” means the area comprised of, and the associated structures designed to contain solid Waste as described in the Interim Solid Waste O&M Plan (2006), submitted with the Application March 25, 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. A Spill Contingency Plan should follow a format similar to that found in *Guidelines for Spill Contingency Planning* (AANDC 2007)

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

“Upgraded Sewage Disposal Facility” means the engineered sewage lagoon, 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 March 25, 2014 and illustrated in Drawings PP-2, SEC, DE-1, DE-2, DE-3, COV, SLP, CSM, SP and PP-1, completed by exp Services;

“Upgraded Water Supply Facility” means the Water supply facility as described in the Application for Water Licence Renewal filed by the Applicant on March 25, 2014, and illustrated in Drawings COV, C1, C2, C3, C4, S1, S2, S3, S4, S5, S6, E1, E2-Signed, M100-M201, and M300-M601, completed by exp Services.

“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 the bulk metal, Hazardous Waste and wood disposal area), as described in the Application for Water Licence renewal filed by the Applicant on March 25, 2014;

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

“Wetland Area” comprises approximately 64,000 m² along a 1,400 m flow path of wetlands and surface Water bodies, which treats sewage Waste before discharging into Hudson’s as described in Wetlands Assessment, Sewage Treatment Wetlands, Hamlet of Repulse Bay, NU, October 18, 2012, submitted with the renewal Application.

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 sewage Waste discharged; and the monthly and yearly quantities of every type of Waste—re: landfill, bulky metal, hazardous, wood and soil—accepted at the Solid Waste

- Facilities; the total volume of sludge removed from the sewage lagoon and the disposal method;
- 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 (*Including Operations and Maintenance Plans, Spill Contingency, 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. Summary of any inspections completed by federal or territorial authorities, geotechnical or municipal engineers, on undertakings related to Waste disposal, Water use or reclamation activities
 - k. 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 implement the Plan for Compliance that was submitted as additional information with the renewal Application, and accepted by the Board with the issuance of the Licence.
 7. 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.
 8. 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.

9. The Licensee shall, for all Plans submitted under this Licence, implement the Plan as approved by the Board in writing.
10. 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.
11. 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.
12. 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
13. 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.
14. 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.
15. This Licence is assignable as provided for in Section 44 of the *Act*.

PART C: CONDITIONS APPLYING TO WATER USE

1. The Board has, with the issuance of this Licence, approved the Upgraded Water Supply Facility.
2. The Licensee shall obtain all freshwater for municipal purposes from Nuviq Luktujuk Lake, at the truck-fill station, via the Upgraded Water Supply Facility upon commissioning or as otherwise approved by the Board.
3. The annual quantity of Water use for all purposes under Part C, Item 2, shall not exceed two-hundred and thirty (230) cubic metres per day, to a maximum of sixty thousand (60,000) cubic metres per year.
4. 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: details of Water volume involved, hydrological overview of the Water body, details of impacts, and proposed mitigation measures.
5. The Licensee shall maintain the Upgraded Water Supply Facility to the satisfaction of the Inspector.
6. 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.
7. 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.
8. The Licensee shall not cause erosion to the banks of any body of Water and shall provide necessary controls to prevent such erosion.
9. The Licensee shall implement sediment and erosion control measures prior to and maintain as required during Hamlet operations, to prevent entry of sediment into Water.

PART D: CONDITIONS APPLYING TO WASTE DISPOSAL

1. The Board has, with the issuance of this Licence, approved the Upgraded Sewage Disposal Facility.
2. The Licensee shall direct all Sewage, upon commissioning, to the Upgraded Sewage Disposal Facility or as otherwise approved by the Board.
3. The Licensee shall provide a minimum of ten (10) days' notice to an Inspector prior to initiating any decant of the Upgraded Sewage Disposal Facility.
4. All Effluent discharged from the Upgraded Sewage Disposal Facility at Monitoring Program Station REP-6 shall not exceed the following Effluent quality limits:

| Parameter | Maximum Concentration of any Grab Sample |
|------------------------|---|
| BOD ₅ | 80 mg/L |
| Total Suspended Solids | 70 mg/L |
| Faecal Coliforms | 1 x 10 ⁶ CFU/dl |
| Oil and grease | No visible sheen |
| pH | Between 6 and 9 |

5. 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 Waste.
6. The Sewage Disposal Facility shall be maintained and operated, to the satisfaction of an Inspector and in such a manner as to prevent structural failure.
7. The Licensee shall dispose of and permanently contain, or as allowed under Part D, Item 9, all Solid Wastes at the Solid Waste Disposal Facility or as otherwise approved by the Board in writing.
8. 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.
9. The Licensee shall provide a minimum of ten (10) days' notice to an Inspector, of the intent to open burn municipal Waste in accordance with the Government of Nunavut's Environmental Guideline for the Burning and Incineration of Solid Waste (2012), at the designated location at the Solid Waste Disposal Facility, including the details of the types and quantity of Waste to be burned, proposed dates, protocols to be followed, ultimate disposal of residual ash and the person responsible for the activity
10. The Licensee shall segregate and store all hazardous materials and/or Hazardous Waste within the Solid Waste Disposal Facility in such a manner as to prevent the deposit of deleterious substances into any Water, until such a time that the materials have been removed for proper disposal at an approved facility.

PART E: CONDITIONS APPLYING TO MODIFICATIONS AND CONSTRUCTION

1. The Licensee shall submit to the Board for approval in writing, for-construction design drawings, stamped and signed by a qualified Engineer registered in Nunavut, 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 consent from the Board, carry out Modifications to the Upgraded Water Supply Facility 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 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 negative 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 of at 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 only use material that is free of contaminants, for construction, operation, and maintenance activities and that is obtained from approved sources, demonstrated not to be potentially acid generating and metal leaching.

PART F: CONDITIONS APPLYING TO OPERATION AND MAINTENANCE

1. The Licensee shall submit to the Board for approval in writing, an Operation and Maintenance Plan for the Upgraded Sewage Disposal Facility, as described in Part D,

- Item 1, at least ninety (90) days prior to the commissioning of the Upgraded Sewage Disposal Facility. The Plan shall include a Sludge Management section containing operating procedures, de-sludging schedule, sludge volume, monitoring methodology and treatment/disposal options for excavated sludge.
2. The Licensee shall submit to the Board for approval in writing, an Operation and Maintenance Plan for Solid Waste Disposal Facility, within six (6) months of the issuance of this Licence. The Plan shall include a plan for the management of Hazardous Wastes.
 3. The Licensee shall submit to the Board for review, within six (6) months of the issuance of this Licence, a Long-term Solid Waste Management Plan for the Hamlet of Repulse Bay that provides definitive objectives for building new or upgrading existing solid Waste management infrastructure.
 4. The Plans referred to in Part F, Items 1 and 2 shall be prepared in accordance with the appropriate sections of the Guidelines for the Preparation of an *Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories (1996)* and the *Guidelines for the Planning, Design, Operations and Maintenance of Modified Solid Waste Sites in the Northwest Territories (2003)*.
 5. The Licensee shall submit to the Board for approval in writing, within ninety (90) days of issuance of the Licence, a stand-alone Spill Contingency Plan that addresses all 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 the appropriate sections provided in *Guidelines for Spill Contingency Planning (AANDC, 2007)*.
 6. The Licensee shall submit to the Board for approval in writing, at least ninety (90) days prior to the commissioning of the Upgraded Water Supply Facility, as described in Part C, Item 1, an Operations and Maintenance Plan for the Upgraded Water Supply Facility.
 7. An inspection of all engineered facilities related to the management of Water and Waste shall be carried out at a minimum of once annually, in July or August, by an Engineer. 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 to address each of the Engineer's recommendations.
 8. An inspection of all engineered facilities related to the management of Water and Waste shall be conducted by a Geotechnical Engineer in accordance with the Canadian Dam Safety Guidelines, at least one (1) year prior to the expiry of the Licence, during the open Water period (June/July/August). The Geotechnical Engineer's report shall be submitted to the Board for review within sixty (60) days of the inspection, including a cover letter from the Licensee outlining an implementation plan to address the Engineer's recommendations.
 9. The Licensee shall perform more frequent inspections of the engineered facilities at the

request of an Inspector.

10. 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 Repulse Bay. Take whatever steps are immediately practicable to protect human life, health and the environment;
 - b. report the incident immediately via the NWT/NU 24-Hour Spill Reporting Line at (867) 920-8130 and to the AANDC Manager of Field Operations at (867) 975-4295; and
 - c. for each spill occurrence, submit to the Inspector not later than thirty (30) days after initially reporting the event, a detailed report that provides the necessary information on the location (including the GPS coordinates), amount and type of spilled product, 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.
11. The Licensee shall, in addition to Part F, Item 10, 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.

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 upon submission of the final design drawings for 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 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 related to Water use, Waste deposit to Water, or appurtenant undertakings related to Water use and/or deposit of Waste to Water, subject to the act and regulations.

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.
6. The Licensee shall submit for review, within six (6) months of Licence issuance, a Closure and Remediation Report for the site of the solid Waste facility used prior to 2002. This report is to be stamped by an Engineer and describe the history of the site and its decommissioning, and also the Engineer's assessment of whether further reclamation is required at the site to mitigate the possibility of contamination to surrounding freshwater systems.

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 | Status |
|---|--|----------------------|
| REP-1 | Raw Water Supply Intake at Nuviq Luktujuk Lake | Active (Volume) |
| REP-2 | Runoff from the Solid Waste Disposal Facility culvert as noted in Interim Solid Waste Management Plan (2006) submitted with Application | Active (Quality) |
| REP-2a | Runoff from the Solid Waste Disposal Facility boulder seepage, as noted in Interim Solid Waste Management Plan (2006) submitted with the Application | New/Active (Quality) |
| REP-3 (Existing) | Raw Wastewater at truck offload point (existing drop-off point) | Active (Quantity) |
| REP-3a | Raw Wastewater at truck offload point (New | New/Active |

| | | |
|---|--|---------------------------------|
| (SNP# 1 in Sewage Lagoon Design Brief) | drop-off point: to begin upon commission of Upgraded Sewage Disposal Facility) | (Quantity) |
| REP-4 (SNP#2 in Sewage Lagoon Design Brief) | Pump discharge point from sewage lagoon. (To begin upon commission of Upgraded Sewage Disposal Facility) | New/Active (Quantity) (Quality) |
| REP-4a | Spillway discharge point (To begin upon commission of Upgraded Sewage Disposal Facility) | New (Quantity) (Quality) |
| REP-5 | Effluent discharged from the Contaminated Soil Storage Facility | Active (Quality) |
| REP-6 (SNP#3 in Sewage Lagoon Design Brief) | Discharge from Vegetated Filter Strip Wetlands at location shown on drawing 207086 CSM | New (Quality) |

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 REP-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 Station REP-3 and REP-3a.
4. The Licensee shall, upon commissioning of the Upgraded Sewage Disposal Facility, measure and record in cubic metres the daily, monthly and annual quantities of Effluent discharged from REP-4 and when flow is occurring, Effluent discharged from REP-4a.
5. The Licensee shall, upon commissioning of the Upgraded Sewage Disposal Facility, sample at REP-4, a minimum of three (3) times annually, once upon commencing discharge, once half-way through discharge and once just prior to the end of discharge.
6. The Licensee shall, when discharge is observed to be occurring over the sewage lagoon spillway, sample at Monitoring Program Station REP-4a and notify the Inspector immediately of the release.
7. The Licensee shall sample at Monitoring Program Station REP-6, a minimum of three (3) times annually, once within two weeks of commencing discharge at Monitoring Station REP-4 or REP-4a, once half-way through discharge and once within two weeks following the end of discharge.
8. All Samples obtained at REP-4, REP-4a, and REP-6 shall be analyzed for the following parameters:

| | |
|--|----------------------------|
| Biological Oxygen Demand (BOD ₅) | Fecal 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 | |

9. If the discharge at Station REP-4 has been suspended and subsequently restarted after at least a 48 hour lapse, the sampling sequence described in Part H Item 5 of the Monitoring Program shall be repeated.
10. The Licensee shall measure and record the annual quantities of sludge removed from the sewage lagoon, along with the methods of storage, treatment and disposal. This information shall be included in the Annual Report.
11. The Licensee shall sample for Water quality at Monitoring Stations REP-2, REP-2a and REP-5, once per month in June, July and August during periods of observed flow. Samples shall be analyzed for the parameters listed in Part H Item 8, as well as Total Petroleum Hydrocarbons.
12. The Licensee shall submit to the Board for review, within ninety (90) days of the issuance of the Licence, a Quality Assurance/Quality Control Plan based on the guidance document *Quality Assurance (QA) and Quality Control (QC) Guidelines For Use by Class "B" Licensees in Collecting Representative Water Samples in the Field and for Submission of a QAQC Plan* INAC (1996). The 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.
13. 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).
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 required under Part B, Item 3, 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.