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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File No.: **3BM-COR1521**

April 24, 2015

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RE: NWB Renewal Licence No. 3BM-COR1521

Dear Mr. Pameolik and Ms. Lusty:

Please find attached Licence No. **3BM-COR1521** issued to the Hamlet of Coral Harbour 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 recommends that the Licensee consult the comments received Aboriginal Affairs and Northern Development Canada (AANDC) and Environment Canada (EC). This information is attached for your consideration¹.

Sincerely,



Thomas Kabloona
Nunavut Water Board
Chair

TK/bm/ri

Enclosure: Licence No. **3BM-COR1521**
Comments – AANDC and EC

Cc: Kivalliq Distribution List

¹ Email from Aboriginal Affairs and Northern Development Canada (AANDC) to NWB, March 2, 2015 and Email from Environment Canada (EC) to NWB, March 11, 2015.

TABLE OF CONTENTS

DECISION	ii
I. BACKGROUND	iii
II. FILE HISTORY	iii
III. PROCEDURAL HISTORY OF RENEWAL APPLICATION	iv
IV. ISSUES	v
General Compliance.....	v
Term of Licence	vii
Annual Report.....	vii
Water Use	viii
Deposit of Waste.....	ix
<i>Sewage Waste</i>	ix
<i>Solid Waste</i>	xii
Construction.....	xiv
Operation and Maintenance	xv
Spill Contingency Planning.....	xvii
Abandonment and Reclamation Plan	xvii
Monitoring Program.....	xviii
<i>Quality Assurance / Quality Control Plan (QA/QC Plan)</i>	xix
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	8
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 ..	12
PART H: CONDITIONS APPLYING TO THE MONITORING PROGRAM	13

DECISION

LICENCE No.: 3BM-COR1521

This is the decision of the Nunavut Water Board (NWB) with respect to an application dated January 16, 2015 for a renewal / amendment of a Water Licence made by:

HAMLET OF CORAL HARBOUR

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

Latitude: 64°08' N and Longitude: 83°10' W

DECISION

After having been satisfied that the application was in conformity with the Keewatin 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-COR0813 be renewed as Licence No. 3BM-COR1521 subject to the terms and conditions contained therein (Motion # 2015-B1-002:).

Signed this ___22nd___ day of April, 2015 at Gjoa Haven, NU.



Thomas Kabloona
Nunavut Water Board
Chair

TK/bm/ri

¹ Nunavut Planning Commission Conformity Determination, February 27, 2015.

² Nunavut Impact Review Board, Screening Exemption Decision, February 27, 2015.

I. BACKGROUND

The Hamlet of Coral Harbour has a population of 834 (2011) and is located at the coordinates of 64°08' north latitude and 83°10' west longitude on the south shore of Southampton Island within the Kivalliq Region of Nunavut. The surrounding landscape is characterized generally by low relief and many shallow surface water bodies. In 2012, the Hamlet commissioned exp. Services to undertake a facility assessment and design brief for a new freshwater Pump-house, one that can accommodate the Water needs of the community until at least 2033.

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

- A Water Supply Facility which draws Water from the Post River, and consists of a Water intake, overland pipeline, reservoir and pump house with truck fill. Water is treated in the Pump-house and stored, from which trucks transport the Water to holding tanks in each building. Upgrades to the Pump-house and related infrastructure are scheduled in 2015. Conditions to facilitate the upgrades to the Pump-house are included within the current Licence.
- A Sewage Disposal/Treatment Facility which consists of a truck offload Sewage Containment Cell located approximately 3 km north of the community, from where the sewage flows unimpeded through a natural tundra wetland and wetland ponds prior to discharging into a large freshwater lake, approximately 580 m east of the Containment Cell. In 2008 three flow Diversion Berms were constructed in the tundra Wetland to enhance treatment capacity, and it is expected that the Wetland system will effectively treat the community's wastewater until 2028.
- The Solid Waste Disposal Facility consists of a fenced and bermed disposal area for municipal solid Waste and a separate bulk metal disposal area immediately south of the bermed area. The Facility is located 2.5 km northeast of the community, just south of the Sewage Disposal Facility, and covers an area of approximately 7300 m².

II. FILE HISTORY

On **November 1, 2002**, the Nunavut Water Board ("NWB" or "Board") issued Water licence NWB3COR0207— Type "B" to the Hamlet of Coral Harbour for the use of 35,000 m³ of Water *per* year and the deposit of Waste generated by the Hamlet. On February 17, 2005 the NWB issued an amendment to the Licence to allow for construction of additional infrastructure including perimeter containment berms and chain link fencing at the Hamlet's Sewage Disposal Facility. Licence NWB3COR0207 expired on October 31, 2007. A renewal and amendment application for the Licence had been submitted on October 18, 2007.

On **April 2, 2008** the NWB issued a renewal to Licence NWB3COR0207 as Licence 3BM-COR0813. The Licence contained additional conditions to accommodate the installation of three Diversion Berms in the Wetland Treatment Area.

III. PROCEDUAL HISTORY OF RENEWAL APPLICATION

The Application for renewal and amendment of the Licence was submitted to the NWB by the Hamlet of Coral Harbour on **February 20, 2014**. The Application was distributed to interested parties for review, and comments were exchanged between the NWB and the Licensee about the state of the Application, culminating on November 12, 2014, when the NWB notified the Licensee of numerous deficiencies within the application that prevented the licencing process from continuing further. In response, the Licensee indicated it would submit a consolidated Application.

On **January 16, 2015**, the Government of Nunavut, Community and Government Services (GN-CGS) resubmitted the renewal / amendment Application on behalf of the Hamlet of Coral Harbour. The documents identified by the Licensee for consideration with the renewal and amendment Application included the following:

- Renewal Amendment Application, containing:
 - Letter of Authorization
 - Executive Summary (English and Inuktitut)
 - Community background
 - Application Form
 - Annual Reports 2007, 2008 and 2009
 - Letter from NWB to exp Services Inc. dated February 19, 2014
 - Compliance Plan
- Design Drawings (CO COV, C1 C1-SP, C2 C2-PP, C3 C3, C4 C4, E1_R00, E2_R00, PLN-MEC-Tender, Coral Harbour Tender S1 to S5).
- Operations and Maintenance Manual for Water, Sewage and Solid Waste Facilities at Coral Harbour, NU (Nunami Stantec 2010), containing:
 - Water Distribution System Operations and Maintenance (Section 3)
 - Sewage Disposal Facility Operations and Maintenance (Section 4)
 - Sewage Sludge Management Plan (Section 4.7)
 - Solid Waste Disposal Facilities Operations and Maintenance (Section 5)
 - Spill Contingency Plan (Section 6.2) with Spill Contingency Forms (Appendix G)
 - Quality Assurance/Quality Control (QA/QC) Plan
- Facility Assessment and Design Brief (exp Services 2013)

Importantly, despite stating that the Operation and Maintenance for Water, Sewage and Solid Waste Facilities (Nunami Stantec 2010) contained a QA/QC Plan, no such Plan was included within the Manual, and no QA/QC Plan had been received by the NWB independently at any other time.

On **February 1, 2015**, following a Preliminary Technical Review by the NWB, the Application was distributed to interested parties for comments. All parties were invited to make representations to the NWB within thirty (30) days.

The Board received comments from Aboriginal Affairs and Northern Development Canada (AANDC) on March 2, 2015, and Environment Canada (EC) on March 11, 2015. Although the NWB received EC's comment after the thirty (30) day review period, the Board accepted the submission, as EC's comments related directly to a request made by the Licensee in the Application to remove acute toxicity testing at the Wetland discharge.

Also on February 1, 2015, in accordance with s.11.5.10 of the *Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada* ("NLCA"), the NWB sent the project proposal to the Nunavut Planning Commission, (NPC) to determine whether the project proposal is in conformity with an approved land use plan. In accordance with s.13.5.1 of the NLCA, the NWB requested that the Nunavut Impact Review Board (NIRB) determine whether the project requires environmental screening.

NPC responded on February 27, 2015, that the project conforms to the Keewatin Regional Land Use Plan; and NIRB also informed the NWB on February 27, 2015, that the project is exempt from Screening.

On **March 9, 2015**, the NWB received a request, to be included with the Application, from GN-CGS involving changes to the Monitoring Program associated with the Coral Harbour Licence.¹ The request was forwarded to AANDC Inspections, who replied on March 10, 2015, indicating its support for all of the changes requested by GN-CGS.²

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-COR0813 as Licence No. 3BM-COR1521.

IV. ISSUES

General Compliance

The NWB is aware of recurring, non-compliance issues with respect to the *NWNSRTA* in the context of the Licence issued to the Hamlet. The Board was provided with AANDC's Multi-Year Municipal Compliance Summary letter for the Hamlet of Coral Harbour on February 22, 2012. The letter reminded the Hamlet of multiple areas of non-compliance identified between 2007-2011 including failure to comply with the Monitoring Program and failure to submit a Compliance Plan. Monitoring events have become more common since the authoring of

¹Email from Megan Lusty, GN-CGS, to Brady MacCarl, NWB, Re: 3BM-COR0813 Monitoring Program Station Locations, dated March 9, 2015.

²Email from Robert Savard, AANDC, to Brady MacCarl, NWB, Re: 3BM-COR0813 Renewal, dated March 10, 2015.

AANDC's Compliance Summary; however the Hamlet did not undertake any water quality sampling in 2013. Also, the Hamlet submitted an updated Plan for Compliance with the current Application, which identifies many of the Hamlet's compliance issues and provides appropriate timelines for remedial action. The Board expects that all commitments presented in the Plan will be fulfilled during the prescribed time-periods.

In particular, the Board reminds the Licensee that the following non-compliance and other related issues were raised at the issuance of the expired licence, and based off of AANDC's Inspection Reports and the O&M Manual for Water, Sewage and Solid Waste Facilities (2010), appear to persist:

- i. Insufficient segregation of materials at the Solid Waste Disposal Facility
- ii. Lack of geotechnical inspections and analysis
- iii. Little confirmation that the Wetland performs as properly
- iv. Incomplete monitoring data

The Board expects that these areas of non-compliance to be addressed over the course of the current Licence term.

During the Application AANDC Water Resources Division asked the Board to remove the requirement for the submission of a Plan for Compliance from the Licence, pursuant to Part B, Item 10 of the expired Licence. As the Licensee submitted a Plan for Compliance with the current Application, and AANDC Inspections has indicated that it is working closely with Nunavut Municipalities to help them achieve full compliance with their Water licences, the Board has applied this recommendation, and expects that with AANDC's assistance the Hamlet will achieve full compliance with Licence conditions by the end of the Licence-term. The Board states, however, that it disagrees with AANDC that the NWB does not possess the authority to request a Plan for Compliance from the Licensee. Section 43 of the *Act* indicates that the Board may provide guidelines to the Applicant respecting the information to be provided by the Applicant in respect..."[to] measures the applicant proposes to take to avoid or mitigate any adverse impact of the use of waters or the deposit of waste". The Board believes that the Licensee's state of compliance to Licence terms and conditions directly influences the risk to Water resources associated with the undertaking.

During the Application AANDC also provided a list of recommended changes to the General Terms and Conditions of the Coral Harbour Licence. The Board believes that the recommended changes require further discussion between the NWB and AANDC, and used its discretion to implement only the changes it felt clearly augmented the functionality of the Licence at the current time.

Term of Licence

The Licensee requested a ten (10) year term for the 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 AANDC's annual site inspections and the compliance record of the Applicant.

AANDC Water Resources supported the Hamlet's request for a ten (10) year licence-term, and in fact, suggested that an even longer term may be appropriate to recognize the institutional capacity issues faced in Nunavut municipalities, which often struggle to process Water licence renewal applications every 2-5 years. Although the Board understands the logic behind AANDC's request, it disagrees that an extended licence-term is appropriate for a Licensee that has not demonstrated a genuine commitment to fulfill the conditions of its Licence, and reminds the Licensee that the Board must incorporate the Licensee's "past performance" into consideration when granting a licence as required by s.57(b) of the *NWNSTRA*, and it is the Board's belief that compliance history falls under this definition. The Board cannot be seen as tacitly permitting non-compliant operations by issuing licences of extended length in instances where multiple areas of non-compliance remain unresolved. Once the Hamlet addresses the outstanding issues related to its licence, such as adequate monitoring, the Board is open to reconsidering the request for a more extended licence-term. The Board has issued a term of six (6) years for the current licence, and believes that this term-length 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 six (6) 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

The Licensee failed on multiple occasions to submit annual reports in the timeframe dictated by the previous licence, and it is only with the most recent submission of the amendment and renewal application that the NWB received complete annual reports for all of the years covering the previous licence. Furthermore, most of the reports did not contain Monitoring Program sampling results reflecting Part H of the previous licence. The NWB reminds the Licensee that annual reports represent a crucial reporting tool that the NWB and interested parties rely on to monitor the status of a licence and record any developments that may necessitate regulatory action; as such, their submission is something the Board does not undervalue.

The NWB maintains the condition to produce annual reports under Part B, Item 1 of the Licence. The Licensee shall ensure that complete annual reports are provided each year which

fully address the reporting conditions itemized under Part B, Item 1. Monitoring Program requirements specified in the Licence must also be fully implemented and reported.

Annual reporting information is maintained on the public registry and is available to all interested parties. A “*Standardized Form for Annual Reporting*” is to be used by the Licensee and is available at the NWB’s ftp site at:

www.nwb-oen.ca/public-registry

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

Water Use

The Water distribution system consists of a Water intake, overland pipeline, reservoir and Pump-house with truck-fill point/or station. The reservoir is located approximately 350 m north of the community and filled once per year from the Post River. GN-CGS provided the Board with water demand figures based off of a twenty-year population growth trend that demonstrated the need for a higher Water volume limit, and thus requested an increase to a quantity not exceeding 40,000 or 45,000 cubic metres annually. The inconsistent figures, which AANDC Water Resources noted during the Application review, reflect a requested amount of 40,000 cubic metres on the Application Form in contrast to a figure of 45,000 cubic metres in the Executive Summary and Water-use table included with the Application. AANDC recommended to the Board that 45,000 cubic metres be adopted as the regulated volume. The Board has reviewed the Water-use table submitted with the Application and notes that Water-use is expected to exceed 41,000 cubic metres *per* year by the end of the licence term, and as such the Board has approved a maximum Water-use limit of 45,000 cubic metres *per* year. No other concerns were raised about Water-use from external parties; however, the Board notes that the reservoir capacity accommodates only 40,000 cubic metres according to the O&M Manual for Water, Sewage and Solid Waste Facilities (2010), and as such, the Hamlet must identify in its updated O&M Plan how the Hamlet plans to address this deficiency.

In review of the Application, the NWB relied on the Nunavut Waters Regulations (Regulations) and the definition of “Use” provided by the Act. In due consideration, all Water taken from the Post River to fill the reservoir would qualify under the definition as “use of Water”. Therefore, the NWB has determined that Water extracted from the source water supply, for any purposes, is considered as a Use of Water and the Licensee is reminded of its responsibility to record daily quantities of Water directly extracted from the Post-River at Monitoring Program Station COR-1. The Licensee shall also calculate daily, monthly and annual Water volumes all freshwater processed at the Pump-house.

The Licensee is also advised that according to the Schedule 2 of the Regulations any Water use of 300 cubic metres or more per day and any use of Waters related to the storage of 60,000 cubic metres or more Water would require a Type “A” Water Licence. The Board has, therefore, approved the requested increase to a maximum Water usage for all purposes to 45,000 cubic metres per year or up to 299 cubic metres per day for filling of the reservoir. If the Licensee records volumes of Water extracted from the Post River in excess of 300 cubic metres per day during reservoir refill, or if the Hamlet expands the reservoir volume capacity to greater than 60,000 cubic metres, the Hamlet will be required to obtain a “Type A” Licence by applying to the Board for an amendment to its current licence.

Deposit of Waste

Sewage Waste

The Coral Harbour Sewage Disposal Facility consists of a fenced and bermed Containment Cell and a natural tundra Wetland. Sewage is collected from the Hamlet’s houses and buildings by vacuum truck and discharged into the Containment Cell located approximately 3 km north of the community.

Containment Cell, Wetland Area and System Efficiency

The Containment Cell was constructed in 2003 and according to the Application has an estimated capacity of 41,200 cubic metres (170 m by 155 m by 1.7 m deep, allowing for reduced capacity due to inside sloping of berms). Leaks were found in the berm soon after construction and the Containment Cell has never retained sewage as designed, instead, it consistently seeps Sewage into the tundra Wetland during periods of non-freezing temperatures. In 2008, based on the design presented in *Report of the Natural Tundra Wetland Sewage Disposal Facility, Coral Harbour (Nunami, 2007)*, the Hamlet installed three (3) engineered Diversion Berms in the Wetland to augment treatment capacity. With these Diversion Berms, the Report states that the Wetland should independently be able to successfully treat the Hamlet’s sewage until at least 2028. However, consistent monitoring was recommended to confirm that Water quality at the Final Discharge Point remained in compliance, and at the issuance of the expired licence the NWB reminded “the Licensee of its responsibility to be in compliance with the conditions of the Licence. If monitoring results demonstrate that the wetland area is incapable of treating sewage, at any time of the year, the Licensee will be required to take the necessary remedial actions to remedy the situation.”

Also related to the Diversion Berms, the expired licence stated, “[The] information was considered very preliminary and the Licensee is required to provide the NWB with finalized As-Built Drawings, stamped and signed by an Engineer, for all construction of Diversion Berms associated with the Sewage Disposal Facilities and the Solid Waste Disposal Facility.”

The Licensee never submitted this information during the licence term, however, on March 2, 2015, in response to an inquiry from the NWB, GN-CGS submitted “Issues for Addendum No.4”, signed and stamped drawings for the Coral Harbour Sewage System, dated May 7, 2008, which were identified as the last drawings associated with the project.

The Board finds it difficult to determine the efficiency of the Wetland in treating sewage effluent when very little Water quality sampling was conducted. It should be noted that the lack of monitoring—both Water quality and geotechnical—at the sewage disposal area also puts the Licensee in contradiction of Part D, Items 3-6 of the expired licence. The Board reminds the Licensee that concerns over the unpredictable time-frame for discharge from the Sewage Containment Cell, and the ability of the Wetland to treat early freshet flow regimes, resulted in a recommendation from EC to impose stricter quality limits under the previous licence than would normally be applied to a Wetland treatment system of the Hamlet’s design. The Government of Nunavut, Department of Environment (GN-DOE) also expressed similar concern in the expired licence over “potential non-compliance during the winter when raw, untreated sewage may potentially be entering the environment with minimal or no treatment due to a combination of a leaky sewage lagoon and frozen conditions in the wetland area.”

The NWB reminded the Licensee of the Board’s concerns regarding the efficiency of the Sewage Disposal Facility in an email communication to GN-CGS on February 20, 2015, inquiring whether or not any comprehensive assessment to determine the efficiency of the system was planned. In its reply, GN-CGS cited a number of studies³ and documents submitted to the NWB prior to 2008, which it believed adequately addressed the concerns related to the Sewage Disposal Facility, and stated that Water quality monitoring would occur regularly in the future. The Board has previously reviewed all of the cited documents, and reminds the Licensee that the above-mentioned statements from GN-DOE and the NWB occurred after these documents had been received and reviewed by the NWB. Although the documents provide rationale for the installation of the three (3) Diversion Berms in the Wetland to improve system efficiency, there remains little evidence to evaluate whether or not they are performing as designed. GN-CGS also stated that Water quality sampling events in the Sewage Disposal Area occurred in 2012 and 2014, which indicated that the system is performing as planned. Although encouraging, the Board notes that these samples were taken in August, and reminds the Licensee that August is a relatively low-risk time period for natural sewage treatment systems that are fed by continuous flow, and analyzed independently cannot be relied on as an adequate measure of the system’s performance.

The Board does not feel comfortable assuming that the Wetland is performing as predicted, and believes that further investigation into the efficiency of the Wetland should be conducted. The

3 Jacques Whitford Limited, 2005; Nunami Jacques Whitford, 2007; Nunami Jacques Whitford, 2007.

Board's primary concerns center on the structural integrity of the Sewage Containment Cell, and the Wetland's ability to successfully treat sewage during early freshet conditions. To address these concerns, the Licensee shall submit for review by the Board a Wetland Assessment Study that analyzes at least three (3) years of Water quality data coming from the Sewage Disposal Facility, by December 31, 2017. The Study shall also include additional information on the structural integrity of the Containment Cell, the time-period for when seepage begins from the Containment Cell and whether or not the effluent is treated by the potentially still-frozen wetland before discharge into the freshwater lake. This requirement is reflected in Part H, Item 14.

The Board stresses that it does not necessarily doubt that the Wetland and Diversion Berms work as designed, rather, it simply believes that more monitoring results are required to definitely demonstrate that the Wetland can effectively treat sewage Effluent independently of the Sewage Containment Cell, even during early freshet conditions when parts of the Wetland may still be frozen. Without a controlled discharge from an engineered containment structure, consistent Water quality monitoring is especially important to confirm that the Wetland is performing as expected. The Licensee is reminded that its monitoring requirements for the Sewage Disposal Facility are dictated under Part H of the License.

Containment Cell Stability

The Board also recognizes that in contradiction of Part F, Item 3 of the previous licence, no geotechnical inspection occurred of the containment area during the previous licence term. Annual geotechnical inspections were required at least in part to alleviate concerns about the Containment Cell already raised by AANDC during the previous renewal application—in 2008, where the Licence stated:

INAC noted that the Hamlet is not planning to upgrade the existing exfiltration berm and concern was raised over its stability. The NWB has added a requirement for a geotechnical inspection of the facilities to be carried out on an annual basis by a qualified engineer. This condition is consistent with other water licences issued in Nunavut. The Licensee must also address the Hamlet's response to potential berm failure within the Spill Contingency Plan in the O&M Manual.

The NWB recognizes that the Hamlet addressed the potential for berm failure within the Spill Contingency Plan it submitted to the Board in 2010, but is of the opinion that the Hamlet failed to undertake the arguably more important step of analyzing the actual potential of berm failure through a geotechnical analysis. The current Licence requires that the containment cell be inspected annually by an Engineer, and that a geotechnical inspection of the facility occur at least one (1) year prior to the renewal of the Licence.

Toxicity Testing

The Licensee requested in the Application that Bioassay Acute Toxicity Testing at the Wetland discharge be removed, relating to Part D, Item 6 of the expired licence, citing as its reasoning the difficulty in transporting the samples to a properly equipped facility that can process the test in an appropriate time-period. As the Licence condition was originally recommended by EC, the NWB consulted with EC about the requirement, and on March 11, 2015, received an email communication from the Department indicating that it holds no concerns about removing the condition, but strongly encourages compliance with the monitoring provisions of the Licence. The Board has therefore removed the requirement for Bioassay Acute Toxicity Testing at COR-5.

Solid Waste

The primary Solid Waste Facility for Coral Harbour consists of an approximately 7300 m², fenced and bermed disposal area for municipal solid Waste and separate bulk metal disposal area, located roughly 2.5 km northeast of the community and just south of the Sewage Disposal Area. According to the Water, Sewage and Solid Waste O&M Manual (2010), contaminated soil is stored at the Solid Waste Facility in 205 L steel drums and is shipped out of the community every year.

Hazardous Waste

Although the Board finds the Solid Waste O&M Plan located within the O&M Plan submitted by the Hamlet in 2010, generally acceptable, both AANDC, in its inspections (2009, 2010), and EC, in comments provided in March 2010 on the Hamlet's O&M Plan, raised concerns about the segregation of Hazardous Waste at the Solid Waste Management Facility. This issue had been raised previously in the expired licence, which stated, "The O&M Plan for the Solid Waste Disposal Facility should set out procedures for the segregation, storage and eventual removal for disposal of hazardous Wastes, including Waste oil, and should also address procedures for the incineration of solid Waste."

The issue remained unresolved when the Licensee submitted the Solid Waste O&M Plan in 2010, as the Plan explicitly states, "The MSW disposal facility in Coral Harbour needs to have an area set aside as a Hazardous Waste Storage Area...Once the Hazardous Waste Storage Area has been developed, the Hamlet should create a site map of the MSW disposal facility, detailing disposal and storage locations for various Wastes." The Plan then recommends that Hazardous Waste be stored until a sufficient volume has been established to make a shipment to an approved off-site Hazardous Waste disposal area economical.

The Board has seen no evidence that the Hamlet has improved its Hazardous Waste storage infrastructure and operating procedures. As such, the Licence contains conditions to submit a detailed Hazardous Waste Management Plan within the updated Solid Waste Management Plan (See Section IV: Operation and Maintenance), which will address the conditions presented by the Board during the issuance of the expired licence, and the concerns raised by AANDC and EC since.

Leachate from Solid Waste Facility

The expired licence also required that the Solid Waste O&M Plan present diversion options for leachate from the Solid Waste site to reflect INAC's (AANDC's) concern about the presence of heavy metals in the wetland. Specifically it stated: "The NWB also notes the concern raised by INAC regarding the mixing of leachate from the Solid Waste Disposal Facility with effluent from the Sewage Disposal Facility leading to the presence of metals in the Wetland Treatment Area. The NWB requires that the Licensee address this concern and propose a way to divert solid Waste runoff from the wetland area. This may require modification to the current drainage from the Solid Waste Disposal Facility."

The Licensee shall address the concern raised by INAC (AANDC) regarding leachate from the Solid Waste Disposal Facility by commenting on the presence of heavy metals in the Wetland in the 2015 Annual Report, and indicating whether modification to the drainage from the Solid Waste Disposal Facility is required. The Board hopes that during the next AANDC Municipal Inspection the Inspector has time to review the drainage course from the Solid Waste Disposal Facility and comment further on whether or not AANDC still holds concerns about leachate from the facility elevating metals concentrations in the Wetland. AANDC Inspections agreed in principle to this course of action.⁴

Abandoned Solid Waste Facility

The expired licence also raised concern about an abandoned solid Waste disposal facility near the Hamlet's airport, stating specifically:

Comments provided by INAC noted a second waste storage location by the Coral Harbor Airport, which is not a licensed facility. The Supplementary Questionnaire submitted included a reference to this facility, however there is insufficient detail provided to licence its operation. The NWB requests that the Licensee submit for approval, the details concerning its location, construction including as-built design drawings stamped and signed by an Engineer, as well as including its operation within an Operations and Maintenance Manual. The Licensee will also be required to obtain an amendment to this licence for its use. Should the facility no longer be

⁴ Robert Savard, AANDC, Brady MacCarl, NWB, phone conversation, March 19, 2015.

in use, the Licensee is required to comply with the abandonment and restoration conditions set out in Part G of this Licence and provide a Plan for the Abandonment and Restoration of the site.

The Licensee did not investigate the history of the site until after the NWB sent an inquiry email to GN-CGS in February 2015. On March 2, 2015, GN-CGS responded with the following information:

- The Hamlet of Coral Harbour does not use a second Waste storage site near the airport, but a previous site did exist there and was closed in the late '80s or early '90s.
- The above mentioned *Supplementary Questionnaire* mentions that the site “has been successfully decommissioned”.
- The Hamlet is searching for the Decommissioning Report, and will submit it to the NWB if found.
- GN-CGS recommends that the area in question be included in the 2015 AANDC Inspection.
- The Hamlet will only dispose of solid Waste in the licenced facility included in the Licence.

The Board agrees that should a Decommissioning Report not be found, an investigation of the site by an AANDC inspector during the next municipal inspection is the best course of action moving forward. A phone conversation between the NWB and AANDC confirmed this strategy.⁵

The Solid Waste O&M Plan (2010) mentions a second Solid Waste Disposal Area for the disposal of carcasses. It is not clear to the Board what the status of this site is, whether it is related to the primary Solid Waste Disposal Area, or could, in fact, be the decommissioned disposal area mentioned above. The Licensee shall provide additional information on the carcass disposal area in the updated Solid Waste O&M Plan, including its history, location and current operating status.

Changes to Terms and Conditions

Lastly, during the Application AANDC provided a list of recommended changes to the Terms and Conditions related to Waste disposal. The Board believes that the recommended changes require further discussion between the NWB and AANDC, and used its discretion to implement only the changes it felt clearly augmented the functionality of the Licence at the current time.

Construction

⁵ Robert Savard, AANDC, Brady MacCarl, NWB, phone conversation, March 19, 2015

The Board found the Design Plan (Exp. 2013) and associated design drawings for the new Pump-house Facility satisfactory and no criticism was received from interested parties during the technical review of the Application. The Licensee is required, pursuant to Part E, Item 4 to submit a construction report and stamped, as-built drawings of the new Pump-house facility within ninety (90) days following the conclusion of construction activities. The Licensee confirmed this commitment in the Plan for Compliance submitted with the Application.

Part E, Item 4 of the expired licence called for as-built plans and drawings, stamped and signed by a professional Engineer, for the upgrades to the Sewage Disposal Facility including the constructed Diversion Berms in the Wetland Treatment Area. Although these documents were not submitted during the licence term, GN-CGS provided to the NWB a signed and stamped drawing for the Coral Harbour Sewage System labelled “Issue for Addendum No. 4” on March 2, 2015, which also lists the GPS coordinates for the flow Diversion Berms. GN-CGS stated that this is the final drawings produced by Nunami Jacques Whitford for the project, as no Engineer was on-site during the construction of the Berms, and therefore no as-built drawings for the Berms exist.

GN-CGS assured the Board that as-built plans and drawings, signed and stamped by a professional Engineer will be submitted to the NWB within (90) days of completion of construction for all future projects.

Lastly, during the Application AANDC recommended that Part E, Item 2 be modified to make the condition clearer to the reader. The Board believes that the recommended changes require further discussion between the NWB and AANDC, and as such has left the condition as previously stated.

Operation and Maintenance

Part F, Item 1 of the expired licence required the submission of an Operation and Maintenance Manual (O&M Manual) including Water Distribution; Sewage Disposal; Sewage Sludge Disposal; Solid Waste Disposal; Spill Contingency and Monitoring Program Quality Assurance/Quality Control (QA/QC) Plans. The Hamlet submitted an Operations and Maintenance Plan in 2010; however, the Plan did not contain a QA/QC section, and did not include a comprehensive sludge management strategy as required by the expired licence.

The Board recognizes that in most cases the procedures and infrastructure described in the O&M Manual continue to be applicable to the Hamlet. However, the Plan is also now five years old and there are updates that should be made, not least, clarification on the concerns raised by the Board in the Licence, and the removal of a the expired licence in the Appendix. Therefore, relating to Part F of the current Licence, the Licensee shall submit to the Board for approval in writing updated Management Plans following the issuance of the Licence. The Plans will be submitted as independent documents, which the Board believes will allow for easier review by interested parties and revision by the Licensee if necessary.

The Hamlet included with the Application a Design Brief (Exp, 2013) with stamped, engineered drawings for upgrades to the Pump-house Facility, scheduled to be built during summer 2015, and indicated that it will submit to the Board for Approval a corresponding Operation and Maintenance Plan for Water supply infrastructure by the end of 2015. The Board has reviewed the design plans for the Pump-house and included conditions within Part F, Item 1, of the Licence to submit an updated, stand-alone Water Distribution Facility Operation and Maintenance (O&M) Plan by December 31, 2015, for approval in writing from the Board. Although no comments were received from interested parties regarding the new Pump-house, the Board reminds the Licensee that EC indicated on March 10, 2010, that the Water Use O&M Plan should include a Water quality monitoring program log sheet.

The Board finds the Solid Waste Disposal Facilities Operations & Maintenance Plan, located within the O&M Plan submitted with the Application, to be acceptable, except for conditions related to hazardous waste management. As such, pursuant to Part F, Item 2 of the Licence, the Licensee shall submit to the Board for Approval in writing an updated, stand-alone Solid Waste Management Plan within six (6) months of Licence issuance. The updated Plan will address the issues raised in the Licence (See Section IV: Solid Waste), and will include a Hazardous Waste Management Plan that must reflect on the operation of a fully functional Hazardous Waste management facility and provide procedures for segregation of Hazardous Waste.

The Board finds the Sewage Waste Management Plan, located within the O&M Plan submitted to the NWB in 2010, to be generally acceptable. However, the expired licence required the inclusion within the O&M Manual of a stand-alone Sludge Management Plan that “clearly outlines the chemical composition of the sludge, and how the sludge will be stored, treated and eventually disposed of.” The O&M Plan did not address this condition, citing the need for sludge sampling before an appropriate Plan could be authored. Part F, Item 3 of the current Licence requires the Licensee to submit to the Board for approval in writing an updated, stand-alone Sewage Waste Management Plan within six (6) months of licence issuance, which includes a Sludge Management Plan and any other relevant updates to operating procedures (See Section IV: Sewage Waste). The time-frame will allow the Licensee to incorporate any recommendations from AANDC’s 2015 Municipal Inspection.

Importantly, until the submission of the updated Water Supply O&M Plan, the updated Sewage Waste O&M Plan, and the updated Solid Waste O&M Plan the Licensee shall follow acceptable standards and practices pertaining to Water and Waste management related infrastructure and facilities.

Part F, Item 3 of the previous licence required the Licensee to carry out annual geotechnical inspection of engineered facilities related to the management of Water and Waste; however, no geotechnical inspections occurred during the expired licence term. The Board understands that due to limited financial resources the requirement for annual geotechnical inspections is often

onerous to remote Northern municipalities; however, without assessments of structural integrity the engineered facilities in Coral Harbour pose a risk to Water quality. To mitigate this dilemma, the Board has altered the requirement for an inspection of all engineered facilities related to management of Water and Waste, to allow for the annual inspection to be completed by a Municipal Engineer. The Licensee shall still perform a geotechnical inspection of all engineered facilities related to the management of Water and Waste at least one (1) year prior to the expiry of the Licence. These conditions are reflected in Part F, Item 5, and Part F, Item 6, of the current licence.

Lastly, during the Application AANDC provided a list of recommended changes to the Terms and Conditions related to Operations and Maintenance. The NWB has implemented the AANDC's recommended changes where applicable.

Spill Contingency Planning

The Board finds the Emergency Response and Spill Contingency Plan located within the 2010 O&M Plan generally acceptable. However, the Licensee shall submit, pursuant to Part F, Item 4 of the Licence, an updated, stand-alone Spill Contingency Plan within thirty (30) days of Licence issuance. The updated Plan will incorporate the comments from EC received by the Board on March 10, 2010, and any other revisions that reflect changes in contact information or Water use and Waste disposal infrastructure.

Abandonment and Reclamation Plan

Part G, Item 1 of the Licence maintains the condition to submit to the Board for approval in writing, an Abandonment and Reclamation (A&R) Plan at least six (6) months prior to abandoning any facilities or the construction of new facilities to replace existing ones. In this manner, the Board reminds the Licensee that the current Water intake Pump-house will require the submission of an A&R Plan before it is replaced by the new Water intake Pump-house described in the Design Brief (Exp. 2013).

The Board is also concerned about the abandoned solid Waste site near the Hamlet airport, mentioned in the expired Licence, and elaborated upon by GN-CGS in a communication to the NWB March 2, 2015. The Hamlet believes that the site has been fully decommissioned; however, no Decommissioning Report could be located by the time of licence issuance. GN-CGS has agreed to investigate the site with an AANDC inspector in summer 2015. Following the inspection, the Licensee shall submit either an Abandonment and Reclamation Plan, if the inspector determines that further reclamation work is required, or a Closure Report, if the Inspector determines the site is satisfactorily remediated, within ninety (90) following the distribution of AANDC's Inspection Report. These conditions are included in Part G.

Lastly, during the Application AANDC recommended licence conditions for Abandonment and Reclamation. The Board has implemented AANDC's recommended changes in the current licence.

Monitoring Program

The Hamlet did not execute most of its monitoring requirements as dictated under Part H of the expired licence. However, Water sampling events did occur in 2012 and 2014, where in both cases, the Hamlet sampled most of the Monitoring Program Stations related to the Sewage Disposal Facility and Solid Waste Disposal Facility. The 2014 sampling event met discharge criteria at the most downstream location sampled. The Board reminds the Licensee that without consistent environmental monitoring, the Board and other interested parties possess very limited avenues to properly assess the performance of the Hamlet's Water delivery and Waste management infrastructure.

In an effort to improve monitoring compliance, the NWB discussed the Monitoring Program with GN-CGS on March 9, 2015⁶, and AANDC Inspections on March 10, 2015⁷, and based off of their feedback the Board has made the following changes to the Monitoring Program: Monitoring Station COR-3 has been moved to directly downstream of the Sewage Containment Cell, Monitoring Station COR-5 has been moved upstream of its former location, and Monitoring Stations COR-4a, COR-4b and COR-4c have been consolidated into COR-4. The locations of Monitoring Stations COR-4 and COR-5 will be established by the Hamlet in conjunction with an AANDC Inspector in the 2015 municipal inspection, and the locations, along with GPS coordinates, shall be included in the updated Sewage Waste O&M Plan.

The Board has upheld from the previous licence the lower discharge quality limit at COR-5, in order to address concerns raised about the treatment capacity of the Wetland when it is being fed by a faulty sewage lagoon structure (See Section IV: Sewage Waste).

The Board has added an additional Monitoring Program Station at the Solid Waste Disposal Facility, identified as COR-7, in response to the 2011 AANDC Inspection Report, which stated that a ditch created during the construction of the Waste metals disposal area has resulted in run-off pooling below the site. The Licensee shall identify the final location of COR-7 in conjunction with an AANDC Inspector during the 2015 municipal inspection, and include the location with GPS coordinates in the updated Solid Waste O&M Plan.

Lastly, during the Application AANDC provided a list of recommended changes to the Terms and Conditions related to the Monitoring Program. The NWB has implemented the recommended changes where it felt them to be appropriate.

⁶ Email from Megan Lusty, GN-CGS, to Brady MacCarl, NWB, March 9, 2015.

⁷ Email from Robert Savard, AANDC, to Brady MacCarl, NWB, March 10, 2015.

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 the Hamlet of Coral Harbour. 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.

Although the NWB never received a QA/QC Plan from the Hamlet during the expired licence, GN-CGS notified the Board on March 2, 2015, that QA/QC Plan would be submitted to the NWB as a stand-alone document by April 30, 2015, and would include a letter from an accredited laboratory confirming the QA/QC Plan as acceptable. The Board has reflected this commitment under Part H, Item 13 of the Licence. The laboratory should be accredited by the Canadian Association for Laboratory Accreditation (CALA).



NUNAVUT WATER BOARD WATER LICENCE RENEWAL

Licence No. **3BM-COR1521**

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 CORAL HARBOUR

(Licensee)

P.O. BOX 30, CORAL HARBOUR, NUNAVUT, X0C 0C0

(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-COR1521 TYPE "B"

Water Management Area: HUDSON BAY ISLANDS WATERSHED (16)

Location: CORAL HARBOUR
KIVALLIQ REGION, NUNAVUT

Classification: MUNICIPAL UNDERTAKING

Purpose: DIRECT WATER USE AND DEPOSIT OF WASTE

Quantity of Water use not
to Exceed: 45, 000 CUBIC METRES PER ANNUM OR 299 CUBIC
METRES PER DAY

Date of Licence Issuance: April 24, 2015

Expiry of Licence: April 23, 2021

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 Coral Harbour, located in the Kivalliq Region, Nunavut (Latitude: 64° 08' N and Longitude: 83° 10' 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*;

“Diversion Berms” means the engineered diversion structures installed in the Tundra Wetland Area in 2008 to augment treatment capacity, and illustrated in Drawing “Issue for Addendum # 4”, dated May 7, 2008;

“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 Water Supply Facility” comprises the area and associated intake infrastructure at the Post River, reservoir and pump-house, as approved under the previous licence 3BM-COR0813.

“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 the Northwest Territories and 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*;

“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 Facility” comprises the exfiltration Containment Cell, Wetland Area and Diversion Berms designed to contain and treat sewage as described in the Application for Water Licence Renewal filed by the Applicant on January 16, 2015, and illustrated in Drawing “Issue for Addendum # 4”, dated May 7, 2008;

“Sewage Containment Cell” comprises the exfiltration Containment Cell built in 2003, and referred to in the renewal Application filed by the Application on January 16, 2015. At the issuance of the current Licence the Containment Cell does not operate as-designed;

“Solid Waste Disposal Facility” 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 January 16, 2015;

“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;

“Upgraded Water Supply Facility” means the area and associated intake infrastructure at the Post River, reservoir and pump-house, as described in the Design Brief (Exp. 2013) and illustrated in Design Drawings C3, E1 R00, PLN-MEC, COV, C1-SP, C2-PP, C4, S1 to S5, filed with the Application on January 16, 2015;

“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 January 16, 2015;

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

“Wetland Treatment Area” comprises the area of land immediately downstream of the Sewage Disposal Facility as described in the supplemental information report entitled *Report of the Natural Tundra Wetland Sewage Disposal Facility, Coral Harbour, NU. Prepared for Nunavut Water Board in support of Licence renewal application NWB #COR0207; Prepared by Nunami Jacques Whitford Limited, Rankin Inlet, Nunavut, October 2007*, and also to include the engineered Diversion Berms installed in 2008, and illustrated in Drawing “Issue for Addendum # 4”, dated May 7, 2008;

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 11;
 - 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 where structures and facilities are subject to the Act and regulations.;
 - f. a list of unauthorized discharges and summary of follow-up action taken;
 - g. Subject to the Act and Regulations, the proponent is required to provide a summary of 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 Water Supply, Sewage Waste, Solid Waste, 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. 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” specified in the Licence may be modified at the discretion of the Board.
 5. The Licensee shall install flow metres 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, 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 the Post River, at the Water Supply Facility, 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 ninety-nine cubic metres *per* day, to a maximum of forty-five thousand (45,000) 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: a 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 Licensee shall direct all Sewage to the Sewage Disposal Facility or as otherwise approved by the Board.
2. All Effluent discharged from the Sewage Disposal Facilities at Monitoring Program Station COR-5 shall not exceed the following Effluent quality limits:

Parameter	Maximum Concentration of any Grab Sample
BOD ₅	30 mg/L

Total Suspended Solids	30 mg/L
Faecal Coliforms	1 x 10 ⁴ CFU/dl
Oil and grease	No visible sheen
PH	Between 6 and 9

3. The Licensee shall provide notice to an Inspector annually upon commencing the monitoring program when flow is observed from either the Sewage Containment Cell, at monitoring station COR-3, or the Wetland Treatment Area, at monitoring station COR-5.
4. Excluding the faulty Sewage Containment Cell, 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 Facility shall be maintained and operated, to the satisfaction of an Inspector in such a manner as to prevent structural failure of the Sewage Containment Cell.
6. The Licensee shall dispose of and permanently contain, or as allowed under Part D, Item 8, all Solid Wastes at the Solid Waste Disposal Facility or as otherwise approved by the Board in writing.
7. 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.
8. 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.
9. 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 MODIFICATION 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, 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 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 Licensee shall submit to the Board for approval in writing by December 31, 2015, a

stand-alone Water Supply Operations and Maintenance Plan, which includes appropriate conditions and operating procedures to accommodate the Upgraded Water Supply Facility, referred to in Part C, Item 1.

2. The Licensee shall submit to the Board for approval in writing within six (6) months of the date of issuance of this Licence, an Operations and Maintenance Plan for the Solid Waste Management Facility, prepared where appropriate, in accordance with 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)*. This Manual shall include but not be limited to the following:
 - a. Solid Waste Operation and Maintenance Plan;
 - b. Hazardous Waste Management Plan
 - c. Monitoring Program Station descriptions and locations—including GPS.
3. The Licensee shall submit to the Board for approval in writing within six (6) months of the date of issuance of this Licence, an Operations and Maintenance Plan for the Sewage Disposal Facility, prepared where appropriate, in accordance with 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)*. This Manual shall include but not be limited to the following:
 - a. Sewage Disposal Operation and Maintenance Plan;
 - b. Sewage Sludge Management Plan
 - c. Monitoring Program Station descriptions and locations—including GPS.
4. The Licensee shall submit to the Board for approval in writing within thirty (30) 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 the appropriate sections provided in *Guidelines for Spill Contingency Planning (AANDC, 2007)*.
5. An inspection of all engineered facilities related to the management of Water and Waste shall be carried out 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.
6. 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.
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 Coral Harbour. 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.
9. The Licensee shall, in addition to Part F, Item 8, 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. 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. leachate prevention;
 - d. an implementation schedule;
 - e. maps delineating site facilities;
 - f. consideration of altered drainage patterns;
 - g. 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 submit for review by the Board a Decommissioning Report for the former solid Waste disposal facility near the Hamlet Airport within ninety (90) days following Licence issuance. If no Report can be found, the Licensee shall investigate the

site with an AANDC Inspector during the next AANDC Municipal Inspection.

4. If the AANDC Inspector determines that the site referred to in Part G, Item 3 requires further reclamation work, the Licensee shall submit an Abandonment and Reclamation Plan for the site within ninety (90) days of the distribution of AANDC's Inspection Report.
5. If the AANDC Inspector determines that the site referred to in Part G, Item 3 is satisfactorily remediated, and the Licensee has not previously submitted a Decommissioning Report of the site to the Board for review, the Licensee shall submit for review by the Board a Closure Report detailing the history of the site, closure activities that occurred, GPS coordinates for the site, and any additional reclamation or environmental monitoring activities that are required, within ninety (90) days of the distribution of AANDC's Inspection Report.
6. The Licensee shall perform additional environmental monitoring at the former solid Waste disposal facility referred to in Part G, Item 3, at the request of an AANDC Inspector.
7. The Licensee shall carry out progressive reclamation of any components of the project no longer required for the Licensee's operations.
8. 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.
9. 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, March 2009. 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	Status
COR-1	Potable Water supply at Post River	Active (Volume)
COR-2	Sewage Truck Release Point (Into the Containment Cell)	Active (Volume)
COR-3	Effluent from Sewage Containment Cell	Active (Quality)

COR-4	Station within the Wetland	Active (Quality)
COR-5	Discharge from Wetland (Compliance Point)	Active (Quality)
COR-6	Run-off from the Solid Waste Disposal Facility	Active (Quality)
COR-7	Run-off below Waste metals area.	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 COR-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 COR-2
4. The Licensee shall sample at Monitoring Program Stations COR-3, COR-4, and COR-5 a minimum of three (3) times annually, to include once upon initial notice of discharge due to spring melt, once approximately mid-way through the open-water season, and once prior to fall freeze-up. 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. The Licensee shall sample Water quality at Monitoring Stations COR-6 and COR-7 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 4 as well as TPH (Total Petroleum Hydrocarbons), PAH (Polycyclic Aromatic Hydrocarbons) and BTEX (Benzene, Toluene, Ethylbenzene, Xylene).
6. The Licensee shall determine the final locations of Monitoring Stations COR-3, COR-4, COR-5 and COR-7 in conjunction with an AANDC Inspector and include the locations and GPS coordinates of the Stations in the relevant Operations and Maintenance Plans referred to in Part F.

7. The Licensee shall sample and analyze sludge in accordance with the Operations and Maintenance Plan referred to in Part F Item 3.
8. 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 by a laboratory certified by the Canadian Association of Analytical Laboratories (CALA).
9. All analyses shall be performed in a laboratory accredited according to ISO/IEC Standard 17025. The accreditation shall be current and in good standing.
10. The Licensee shall include all of the data and information required by the Monitoring Program in the Licensee's annual report, as required *per* Part B, Item 2, or as requested by an Inspector.
11. Modifications to the Monitoring Program including the Monitoring Program Stations and parameters may be made only upon written approval of the Board.
12. Additional monitoring stations, sampling and analysis may be requested by an Inspector.
13. The Licensee shall submit to the Board for information, within ninety (90) days following Licence issuance, 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 QA/QC Plan* (INAC, 1996). The Plan shall include a cover letter from an accredited laboratory confirming acceptance of the Plan for the monitoring and analyses to be performed under the Licence.
14. The Licensee shall submit to the Board for review, By December 31, 2017, a Wetland Assessment Study that summarizes at least three (3) years of Water quality data coming from the Sewage Disposal Facility, a review of the structural integrity of the Sewage Containment Cell, the time-period for initial discharge from the Sewage Containment Cell resulting from spring thaw, and an assessment of whether this initial discharge is effectively treated by the potentially still-frozen wetland before discharge into the freshwater lake.