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NUNAVUT WATER BOARD  
NUNAVUT IMALIRIYIN KATIMAYINGI  
OFFICE DES EAUX DU NUNAVUT

**File: 3BM-IGL1520 / Amendment No. 2**

September 1, 2016

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**RE: Licence No. 3BM-IGL1520, Type “B” – Amendment No. 2**

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Dear Mr. Stuckey and Mr. Roy:

Please find attached **Amendment No. 2** to Type “B” Water **Licence No. 3BM-IGL1520**, issued to the Hamlet of Igloolik by the Nunavut Water Board (NWB) under **Motion 2016-B1-011** 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* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*. The terms and conditions of the original Licence as they related to Waste deposit and Water use, remain an integral part of this approval.

The Licensee is advised that this Amendment is for an undertaking that falls outside of an area with an approved Land Use Plan as determined by the Nunavut Planning Commission (NPC)<sup>1</sup> and does not require a review pursuant to section 92(1)(a) of the Nunavut Planning and Project Assessment Act (NuPPAA) as indicated in the Nunavut Impact Review Board’s (NIRB) Screening Decision Report.<sup>2</sup>

The NWB strongly recommends that the Licensee consult the comments and/or recommendations provided by intervener(s). This information is attached for your consideration.<sup>3</sup>

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<sup>1</sup> Nunavut Planning Commission (NPC) Determination, March 1, 2016.

<sup>2</sup> Nunavut Impact Review Board (NIRB) Screening Decision Report, May 13, 2016.

<sup>3</sup> Indigenous and Northern Affairs Canada (INAC) Comment Submission, August 22, 2016.

Sincerely,

Thomas Kabloona  
Nunavut Water Board, Chair

TK/sj/vk

Enclosure:    **Licence No. 3BM-IGL1520 – Amendment No. 2**  
                  Comments – INAC

Cc:            Qikiqtani Distribution List

## **Background**

On June 2, 2016, the Government of Nunavut – Community and Government Services (the “GN-CGS”), on behalf of the Hamlet of Igloolik, submitted to the Nunavut Water Board (“NWB” or “Board”) for consideration, an application and supporting information (the “Application”) to amend Type “B” Water Licence No. 3BM – IGL1520 (the “Existing Licence”) to allow for the expansion of an existing potable water supply reservoir, replacement of an intake line that transmits water from the South Lake source to the Hamlet’s water supply reservoir, the construction of a new truck-fill station, and the inclusion of Fish Lake as an alternative water source to the scope of the Existing Licence.

Details included in the Application to amend the Existing Licence indicate that in 2015 the Hamlet experienced a shortage in the reservoir’s over-winter water storage due to anoxic conditions at the South Lake water source. To protect the public’s safety, the Government of Nunavut – Department of Health (GN-DOH) advised that use of the South Lake water source should be temporarily discontinued. The Hamlet accepted the GN-DOH advise, and it decided to use Fish Lake as its water supply source until the integrity of the South Lake source was restored.

The Hamlet indicated in its Application that to minimize the possibility of similar shortages in the future, it is proposing, as stated above, to expand the reservoir’s annual over-winter storage capacity from 79,000 m<sup>3</sup> to 102,800 m<sup>3</sup> as well as upgrade some of the other structures/equipment associated with the Water Supply Facilities.

The Application submitted to amend Licence No. 3BM-IGL1520 included the following documents:

- Igloolik Approval Letter
- Reservoir Expansion Letter
- Amendment 2 Letter
- 012500 Special Provisions rev April 11, 2016
- Certificate of Analysis B1515523 R
- February 2, 2016 Final Design Brief
- Igloolik Amendment 2 Letter
- Igloolik Bathymetric Survey ARKTIS
- Igloolik Fish Lake Hydrology study August 12, 2015
- Igloolik Reservoir Expansion Sketch
- Igloolik Water Supply Design Development ARKTIS
- Inspectors Direction
- May 27, 2016 INAC Letter to Igloolik Reservoir Expansion Request
- NIRB Project Proposal of Igloolik Water Reservoir Expansion Project, February 18, 2016
- NIRB Project Proposal of Igloolik Water Reservoir Expansion Project, March 3, 2016
- October 27, 2015 Risk Assessment Report Final
- Signature Water Licence Amendment 2 Application
- Water Licence Amendment 2 Application

Following an internal preliminary review and receipt of additional information as well as confirmation from the respective regulators regarding pre-licensing issues related to the Application, the NWB distributed the Application on July 22, 2016 for a thirty (30) day comment and review period with the deadline for submissions set for August 22, 2016. Before

the deadline for comments elapsed, a submission was received from Indigenous and Northern Affairs Canada (INAC) in which INAC provided several comments and recommendations, which are summarized below:

- The Operation and Maintenance Plan associated with the undertaking should be updated to include the water supply system's two pump houses. The updated plan should be submitted to the NWB for review and approval;
- A spill contingency plan should be submitted to the NWB for review and approval;
- Spill involving fuel or hazardous material that occur adjacent to or into a water body regardless of quantity or size should be reported immediately to the NWT, 24-hour spill report line and to INAC's Manager of Field Operations; and
- In accordance with the *Consolidation of Spill Contingency Planning and Reporting Regulations* (R-068-93), any person storing contaminants in an above-ground storage facility, with capacity equal to or greater than 20,000 litres/kilograms, is required to file a spill contingency plan.

With respect to pre-licensing matters, the Nunavut Planning Commission (NPC) issued its determination<sup>4</sup> for the Application on March 1, 2016, stating that the project falls outside of the area in which an approved Land Use Plan is in place and that the proposal was forwarded to the Nunavut Impact Review Board (NIRB) for screening as it did not belong to the class of exempt works or activities. On May 13, 2016, the NIRB issued its Screening Determination<sup>5</sup> for the project.

### **Issues Considered by the Board**

The following sections provide an overview of some of the main issues that the Board considered in its decision on whether or not to grant Amendment No. 2 to Licence No. 3BM-IGL1520:

#### *Inspector's Direction*

On June 2, 2016, Indigenous and Northern Affairs Canada (INAC) issued an Inspector's Direction<sup>6</sup> regarding the shortage of over-winter water storage for the Hamlet of Igloolik. The Inspector directed that the issue(s) that created the shortage be addressed immediately to prevent any potential threat to public health and safety. Further, the Inspector requested that a plan be provided prior to any work occurring, including the timelines and details of work required to address public health and safety concerns pertaining to the water shortage and that a final summary of work completed be provided on or prior to October 31, 2016.

In keeping with the Inspector's Direction and as part of the Licensee's strategy to prevent future shortages, the Licensee, as mentioned above, is proposing to expand the water storage facility and associated infrastructure. Written letters of support<sup>7</sup> for the proposed expansion were provided by the Nunavut's Deputy Chief Medical Officer of Health and the Mayor of the Hamlet of Igloolik.

#### *Water Use/Type of Licence*

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<sup>4</sup> Nunavut Planning Commission (NPC), Land Use Determination, March 1, 2016.

<sup>5</sup> Nunavut Impact Review Board (NIRB) Screening Decision, May 13, 2016.

<sup>6</sup> J. Hack, Water Resource Officer, INAC, to D. Flynn, Assistant Deputy Minister, Local Government – GN-CGS; CC'd: E. Allain, INAC, Licensing, NWB; T. Toonoo, CGS; Dr. K. Barker and M. LeBlanc Havard, Department of Health; SAO, Hamlet of Igloolik; Re: Nunavut Waters and Nunavut Surface Rights Tribunal Act Inspector's Direction, June 2, 2016.

<sup>7</sup> Letter from P. Ivalu, Mayor, Municipality of Igloolik, to B. Roy, Municipal Planning Engineer, Re: Igloolik Water Reservoir Expansion, February 26, 2016; and letter from, M. Kaikie, Deputy Chief Medical Officer of Health, to M. Heath, Director of Community Infrastructure Division, GN- CGS, Re: Igloolik Water Reservoir Expansion, February 25, 2016.

Details included in the Application to amend the Licence indicate that while the Licensee is proposing to increase the storage capacity of the reservoir from 79,000 m<sup>3</sup> to 102,800 m<sup>3</sup>, the actual water consumption rate for the Hamlet in the short-term will remain at the current volume allowed in Existing Licence. The Existing Licence authorizes the use of up to 81,208 cubic metres of water annually not exceeding 299 cubic metres per day directly from the water source authorized under the Existing Licence; however, the Licensee's 2013, 2014, and 2015 Annual Reports suggest that the Hamlet's annual water usage was on average 54,000 cubic metres during the aforementioned periods and that the rate of usage is unlikely to change in the short-term.

It should be noted that in the decision section of the Existing Licence, which was issued on March 31, 2015, it was mentioned that Schedule 2 of the *Nunavut Waters Regulations* (the "Regulations"), which came into effect on April 18, 2013, states that a Type "A" water licence is required for activities involving the storage of more than 60,000 cubic metres of water and/or the used of at least 300 cubic metres of water per day. It should be noted that the Board did not apply this requirement at the time the Existing Licence was issued due to a number of factors including the nature of the storage facility involved (the Regulations are based on storage utilizing dams or dikes – Column 2, Item 3 of Schedule 2) and the fact that the Hamlet's direct water usage from the source or its reservoir did not exceed the threshold outlined in Schedule 2 of the Regulations. The Licensee is advised, however, that if there is any proposed increase in direct source water use related to the Existing Licence in future, the associated renewal or amendment application for this potential increase in use may potentially be treated as a Type "A" application and processed in accordance with the relevant thresholds established in the Regulations.

#### Water Sources

Conditions included in the Existing Licence allow for the use of South Lake as the Hamlet's primary and only source of water supply. However, due to the over-winter shortage experienced in 2015 as a result of poor water quality that temporarily effected the South Lake source, the Hamlet was obliged to use Fish Lake as an alternative water source during that period. As part of its Application (Amendment No. 2 Application), the Licensee requested the inclusion of Fish Lake as a secondary water supply source. The memorandum entitled *Fish Lake Hydrology Study: Igloolik*, included as part of the Application, the yield to Fish Lake is estimated at 302,000 cubic metres, excluding evaporation and some other factors, while the annual community demand is expected reach approximately 165,000 cubic metres by the year 2045. Although the assessment did not examine the suitability of Fish Lake as an over-winter source, based on the information presented, Fish Lake may be considered capable of meeting the Hamlet's water supply needs as a secondary source, to some extent.

A bathymetric survey conducted by Arktis Solutions Incorporated for the South Lake water supply source estimates its volume at 491,956 cubic metres, suggesting, with the consideration of other factors, that the Hamlet's current and future water demand (20-year projection) could continue to be met by this source assuming that its integrity and yield are maintained over time.

The Board has considered the Licensee's request in the context of previous and potential risk(s) that may be inherent in using the South Lake water source as well as the potential implications for the Hamlet should such risk come to fruition, in deciding to grant the Licensee's request under Part C, Item 1 of this Amendment. The Licensee should note that in granting the use of Fish Lake as an alternative water source, the Board included requirements to inform the NWB

and the Inspector at least ten (10) days prior to withdrawing water from Fish Lake for any purpose under the Licence.

### Management Plans

In accordance with the terms and conditions included in the Existing Licence, the Licensee is required to submit to the Board for review and/or approval, the following management plans:

- a. An Operation and Maintenance Manual for the Sewage and Solid Waste Disposal Facilities, within ninety (90) days of issuance of the Existing Licence (Part F, Item 1). The Licensee submitted on August 17, 2015, a one-page document entitled *Operation and Maintenance Procedure of Wastewater Treatment by Lagoons of the Hamlet of Igloodik*, which the Board determined as being insufficient for meeting the requirements in the Licence. Therefore, the Licensee should note that the conditions in the Existing Licence as well as any added requirements imposed by Amendment No. 1 to the Existing Licence remain applicable and in effect.

The Licensee should also be advised that the requirements under Part F, Item 1, which include the submission of a Spill Contingency Plan (SCP), remain outstanding. INAC in its submission related to this Application, requested that a SCP be submitted to the Board for approval, which the Board is in agreement with. As there is no SCP currently approved under the Existing Licence or submitted for approval at the time of the Application, the Board has included the condition under Part E, Item 8 of this Amendment for the submission of a separate spill contingency plan for the proposed construction activities.

- b. Changes to the Operation and Maintenance Manual for the Water Distribution Facility, as an addendum within the annual report submitted for the Existing Licence (Part F, Item 2). The Licensee submitted on August 8, 2015 a document to satisfy this requirement; however, the Board determined shortly following submission that the document needed to be revised as it was inadequate. Consequently, this requirement remains outstanding and must be addressed as stipulated in the Existing Licence and/or Amendment No. 1 to the Existing Licence.

Apart from the aforementioned item, the Board has included terms and condition under Part F, Item 8 of this Amendment for the submission, within sixty (60) days of completion of the Water Supply Facilities expansion, an O&M manual that captures the upgraded facilities authorized under this amendment (Amendment No. 2). The Licensee should note that the requirement in the Existing Licence for submission of an O&M Manual for the current Water Supply Facilities remains in effect and outstanding. However, condition has been added to this Amendment for the submission of an O&M manual for the expanded facility once completed and commissioned that should take into consideration INAC's relevant comments and recommendations.

- c. Submission of a Quality Assurance/Quality Control (QA/QC) Plan, within ninety (90) days of issuance of the Existing Licence (Part H, Item 8). The Licensee has indicated that it intends to submit a QA/QC Plan within ninety (90) days of issuance of Amendment No. 2. No changes have been made to this requirement in this Amendment or in Amendment No. 1; therefore, the requirement as included in the Existing Licence remains in effect and outstanding.

### Closure and Reclamation

As the pertinent requirements in the Existing Licence are quite general and adequate enough to address closure and reclamation procedures for the current Water Supply Facilities once construction of the expanded facilities is completed and the facility is commissioned, the Board has not included any additional conditions regarding closure and reclamation activities. Licensee should note that the Water Supply Facilities and infrastructure that are no longer in use will require closure and reclamation in accordance with Part G, Item 1 of the Existing Licence.

### Compliance

As mentioned above, the Board notes that some of the management plans associated with the Existing Licence remain outstanding and that an Inspector's direction, dated June 2, 2016, has been issued and remains in effect. Further, the Board notes that the Plan for Compliance required under Part B, Item 1(k) of Amendment No. 1 to the Existing Licence remains outstanding. The Board advises that it is the obligation of the Licensee to ensure that all requirements associated with its Existing Licence and related Amendment(s) are accordingly addressed.

### Design Drawings

As part of the Application to amend the Existing Licence, the Licensee submitted a report prepared by exp Services Inc. that contained design parameters and drawings pertaining to the reservoir expansion, Figures 1 and 2. Further, a design development report for the water supply system improvement, prepared by Arktis Piusitippaa Inc., contained in addition to relevant design parameters, design drawings for the truck-fill station and pump house, Figures 5-12. The Licensee should note that as the drawings provided in both documents were not signed and stamped by an engineer, and it is inconclusive as to whether they are for-construction or for tendering purposes. Conditions have been included under Part E, Item 9 in this Amendment, requiring the submission of for-construction drawings for the Board's review at least two (2) weeks prior to the commencement of construction activities.

### Project Execution

Based on details included in the Application, the proposed expansion of the reservoir will be undertaken in two phases:

- Phase 1 – Mobilization, dewatering of existing reservoir, drill and blasting, excavation, temporary water truck filling facility, and recharging of reservoir. Phase 1 is schedule to commence September 30, 2016 or prior to the freeze-up period.
- Phase 2 – Mobilization, dewatering of existing reservoir, drill and blasting excavation, temporary water truck filling facility, and recharging of reservoir. Phase 2 is schedule to commence September 30, 2017 or prior to the freeze-up period.

### **Decision**

Considering that above-mentioned issues and the Licensee proposed investment in infrastructure improvements to enhance its ability to adequately address the community's potable water supply needs, the Board has decided to approve the issuance of Amendment No. 2 to Licence No. 3BM-IGL1520.

## LICENCE AMENDMENT No. 2

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<b>Licensee:</b>	<b>Hamlet of Igloolik</b>
<b>Licence No:</b>	<b>3BM-IGL1520, Type “B”</b>
<b>Licence Issued:</b>	<b>March 31, 2015</b>
<b>Amendment No.1</b>	<b>February 16, 2016</b>
<b>Amendment Effective Date:</b>	<b>September 1, 2016</b>
<b>Expiry Date:</b>	<b>March 30, 2020</b>

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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* and the *Nunavut Waters and the Nunavut Surface Rights Tribunal Act*, with respect to the Application for Amendment No. 2 to Licence No. 3BM-IGL1520, dated April 29, 2016, made by the Government of Nunavut – Community and Government Services (GN-CGS) on behalf of the Hamlet of Igloolik, the Nunavut Water Board hereby grants the following Licence Amendment.

The Licence issued on March 31, 2015 with an expiry date of March 30, 2020, shall be further amended to include the following terms and conditions, with respect to the use of Water and the deposit of Waste for a Municipal undertaking within the boundaries of the Hamlet of Igloolik, in the Qikiqtani Region, Nunavut, at the following geographical coordinates: Latitude: 69° 23’ N and Longitude 81° 46’ W.

**The Licence shall be amended as follows:**

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

#### *Item 1 – Scope*

*Amended to read:*

This Licence allows for the deposit of Waste use and use of Water, including the expansion of the Hamlet’s water supply reservoir, construction of a new truck-fill station, replacement of the transmission main that supplies water from the South Lake water source, and the use of Fish Lake as an alternative water source; for a Municipal undertaking at the Hamlet of Igloolik, located within the Qikiqtani Region, Nunavut (Latitude: 69°23’N and Longitude: 81°46’W).

#### *Item 2 –Definitions*

*Amended to read*

**“Water Supply Facilities”** – Consists of pre-expanded and/or expanded facilities and associated infrastructure including the South Lake water source, intake infrastructure, and transmission line to the Hamlet’s water supply reservoir and the reservoir, as well as the



Fish Lake Water source, a secondary and alternative source, as described in the Application dated March 13, 2015 and/or Amendment No. 2 Application dated June 2, 2016.

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

*Item 1 Amended to read:*

The Licensee is authorized to withdraw freshwater using the Water Supply Facilities for the purposes allowed under the Licence and associated amendments, from either South Lake, as a primary source, or Fish Lake, as a secondary source.

*Insert Item 8*

The Licensee shall provide to the Board and an Inspector, at least (10) days written notice, prior to withdrawing and using fresh water from Fish Lake, the secondary water source authorized under this Amendment.

**PART E: CONDITIONS APPLYING TO MODIFICATION AND CONSTRUCTION**

*Insert Item 7*

The Licensee shall, within ninety (90) days of completion of construction of the reservoir expansion and related infrastructure, submit to the Board for review a Construction Summary Report that includes stamped, as-built plans and drawings, explanations for deviations from the construction specifications and drawings, and consideration of construction and field decisions and their effects on the performance of engineered facilities.

*Insert Item 8*

The Licensee shall submit to the Board for Approval, within thirty (30) days prior to commencing construction activities, a Spill Contingency Plan to assist the Licensee in preventing and/or minimizing spills during construction works and activities.

*Insert Item 9*

The Licensee shall submit to the Board for review, at least two (2) weeks prior to commencing construction activities, for-construction drawings and plans, signed and stamped by Engineer.

*Insert Item 10*

The Licensee shall ensure that surface runoff or discharges impacted by construction activities associated with the undertaking, not exceed the following Effluent Quality Limits, where flow may directly or indirectly enter Water:

Parameter	Maximum Average Concentration	Maximum Concentration of Any Grab Sample (mg/L)
Total Suspended Solids	50	100
Oil and Grease	No Visible Sheen	No Visible Sheen
pH	Between 6.0 and 9.5	Between 6.0 and 9.5

**PART F: CONDITIONS APPLYING TO OPERATION AND MAINTENANCE***Insert Item 8*

The Licensee shall submit, to the Board for approval, an Operation and Maintenance Manual for the updated or expanded Water Supply Facilities authorized under the scope of Amendment No. 2, at least sixty (60) days prior to commissioning the facility.

**PART H: CONDITIONS APPLYING TO MONITORING PROGRAM***Item 1 Amended to read:*

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

Monitoring Station ID	Description	Status
IGL-1	Raw Water Supply Intake at South Lake	Active (Volume)
IGL-1a (New)	Raw Water Supply Intake at Fish Lake	Active (Volume)
IGL-2	Runoff from the Modified Solid Waste Disposal Facility	Active (Water Quality)
IGL-3	Raw Sewage at Discharge point into the Modified Sewage Disposal Facility	Not Active
IGL-4	Final control point from the Modified Sewage Disposal Facility or upon commissioning, the Upgraded Sewage Disposal Facility	Active (Water Quality)
IGL-5	Final Effluent Discharge Point prior entering Foxe Basin	Active (Water Quality)

*Item 2 Amended to read:*

The Licensee shall measure and record, in cubic metres, the monthly and annual quantities of water pumped at Monitoring Program Stations IGL-1, and IGL-1a for all purposes under the Existing Licence associated Amendments.

**All remaining terms and conditions of Licence No. 3BM-IGL1520, Type ‘B’, dated March 31, 2015, and Amendment No.1 dated February 16, 2016 still apply.**

This Amendment, Amendment No. 2 to Licence No. 3BM-IGL1520, is issued and recorded at Gjoa Haven, NU on September 1, 2016.

Approved by,

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Thomas Kabloona  
Nunavut Water Board, Chair