

Nov.19, 2020

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**Sub: Renewal and Amendment of the Type B Water Licence No .3BM-IGL 1520 to Type A Water Licence 3AM-IGL-- of the Municipality of Igloolik.**

Dear Mr. Dwyer

I am writing you to confirm that I received CIRNAC's Final written submission to NWB dated Oct.29,2020. I have thoroughly gone through the comments and discussed with our Technical Team.

Please find attached a Technical memo answering to the questions to "item D: Summary of follow up recommendations". We are willing to submit the updated versions of the Spill Contingency Plan (SCP) and the O&M manual of the Sewage Lagoons within 60 days from the date of the new Type A Water Licence is renewed. The operation will not be affected in absence of these revised versions.

In these circumstances, we are requesting to include these requirements as the conditions of the proposed new Type A Water Licence.

We will appreciate if you would move this file to the next stage of the Water Licence renewal process. Please contact me if you have any questions or comments.

Thanks.

Blum

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## Technical Memorandum

<b>Date:</b>	November 19, 2020	<b>From:</b>	Ken Johnson, M.A.Sc., P.Eng.
<b>To:</b>	Bhabesh Roy, M.A.Sc., P.Eng.	<b>Project No.:</b>	OTT-00019838-B0
<b>Prepared By:</b>	Renata Klassen, M.Sc., P.Eng.	<b>Reviewed By:</b>	Ken Johnson, M.A.Sc., P.Eng.
<b>Project Name:</b>	Municipality of Igloolik – Water Licence Application Support		
<b>Subject:</b>	Responses to CIRNAC Follow-up Recommendations R-05, R-06, R-09 and R-12 CIRNAC. (2020, October 29). Final Written Submission. Municipality of Igloolik Application for Type A Water Licence 3AM-IGL----.		

### Distribution:

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This technical memorandum presents response to the four recommendations included in the Final Written Submission (CIRNAC, 2020). The four recommendations are presented in the abovementioned document as R-05, R-06, R-09 and R-12 and summarized in the document's Section D titled "Summary of Follow-up Recommendations". The responses to the four recommendations presented in this memo will be incorporated into the updated versions of the documents prepared in support of the water licence application upon completion of the regulatory review. The full list of the documents that will be updated is included at the end of this memo.

### 1.0 Introduction

The Municipality of Igloolik (Municipality) is situated on Igloolik Island in the Foxe Basin in the Qikiqtaaluk Region of Nunavut and is operating under water licence No. 3BM-IGL1520 Type "B" which expired on March 30, 2020. The Municipality has applied for a water licence renewal for a 10-year term considering water permit volume of 102,800 m<sup>3</sup>. The new licence will be Type "A" following the recent new guidelines of the Nunavut Water Board.

### 2.0 Recommendations

#### 2.1 R-05

**Recommendation R-05 (1), (2) and (3):** "CIRNAC recommends that GN-CGS include a Municipality map in the O&M Manual which clearly indicates the pathway operators are to take to access the monitoring stations at the filter strip wetland; the locations of safety equipment and spill kits on site, the snow accumulation and dumping areas."

**Response R-05 (1):** The monitoring stations at the filter strip wetland are IGL-5-A, IGL-5-B and IGL-5-C, as shown in Figure 1. Accessing the monitoring stations should focus on minimizing the disturbance to the filter strip wetland. It is anticipated that the filter strip wetland will be entered from either of the three monitoring stations at the toe of the sewage lagoon berms. Once the operator enters the filter strip wetland, it should take the shortest path to reach the closest monitoring station (IGL-5-A, IGL-5-B or IGL-5-C). Travel between the monitoring stations (IGL-5-A, IGL-5-B or IGL-5-C) should follow the water's edge to minimize disturbance to the filter strip wetland. The operator should backtrack to return to the entry point at the sewage lagoon. A tentative route that may be taken by the operator is sketched in Figure 1. Health and safety procedures should always be followed when accessing the monitoring stations.



**Figure 1: A Tentative Route to the Monitoring Stations at the Filter Strip Wetland (marked in orange)**

**Response R-05 (2):** Equipment for spills, including spill kits is in the Hamlet garage, as reported by the Municipality. The Hamlet garage location and its photo are included in Figure 2 as observed on Google. The Municipality explains that the present equipment for spills is what the Municipality needs currently.



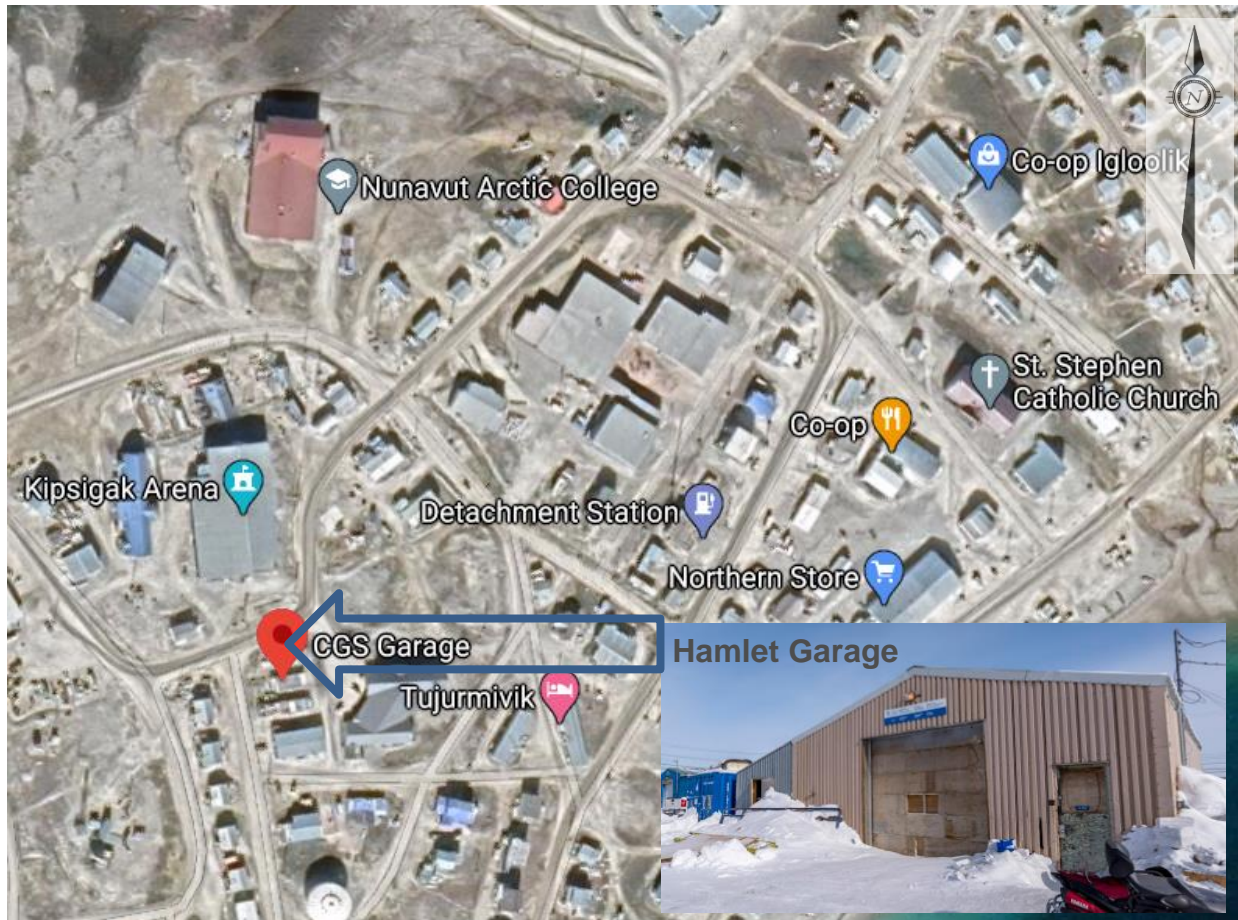


Figure 2: CGS Maintenance Garage Location and Photo (Google, retrieved November 18, 2020).

**Response R-05 (3):** The snow dumps are located on the north and east sides of the Town, as reported by the Municipality and shown in Figure 3. As for the snow accumulation, identifying the anticipated locations where snow is expected to accumulate will require a snowdrift study, which the community is not anticipating completing at this time. As an alternative to a snowdrift study, field observations over the winter will provide indicative information as to where the snow tends to accumulate. The information compiled from field observations will provide definitive information for the prevailing wind and snow conditions for that particular winter and may not provide the information concerning the long-term snow drifting conditions.



Figure 3: Municipality of Igloolik

## 2.2 R-06

**Recommendation R-06 (1):** "GN-CGS has agreed to include a condition in an amended licence to submit Construction Summary reports for future infrastructure. For already constructed infrastructure, GN-CGS submitted an updated O&M Manual for the Wastewater Treatment Facility (Sewage Lagoons). The updated O&M Manual includes a Construction Summary Report section (Section 4). Methodology for construction and installation of the lagoons is provided with photos for clarity. It is not clear indicate whether there were any deviations from the construction specifications and drawings, and if so, what considerations were made in resulting construction and field decisions and resulting effects on the performance of engineered facilities."

**Response R-06 (1):** Change orders executed during construction of the project have been reviewed to identify deviations from construction specifications, if any. These change orders have been identified:

Change Order No. 3

1. Item # 2b) *Installation of silt fence including wood stake and trenching*, was not necessary based on local topography. Quantity underrun of 1,270 m @ \$10/m



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2. Item # 5 *Supply, deliver and place granular material to construct new berms*, due to saturated existing berm material that was not suitable for re-use, the contractor was directed to import additional material. Quantity was verified by survey to be 9,967.5 m<sup>3</sup>
3. Item # 18 *Excavation, grading and disposal on site of berm materials*, due to material that was unsuitable for re-use on site. Quantity was verified by survey to be 7,609.7 m<sup>3</sup>

The items executed under Change Order No. 3 do not affect the performance of the sewage lagoons.

**Recommendation R-06 (2):** "CIRNAC recommends that Construction Summary Reports be submitted for all new and modified infrastructures in the future, and that the Construction Summary Reports include:

- i. Stamped, as-built plans and drawings;
- ii. Explanations for deviations from the construction specifications and drawings; and
- iii. Summaries of construction and field decisions and their effects on the performance of engineered facilities."

**Response R-06 (2):** Construction Summary Reports will be submitted for any **future** new and modified infrastructure and will include the recommendations items i, ii, and iii listed above. The consulting engineer of record will stamp "record drawings" prepared after completion of any **future** new and modified infrastructure. "As-built" drawings are provided by the contractor who completed the project and are not stamped by the consulting engineer of record.

### 2.3 R-09

**Recommendation R-09 (i) and (ii):** "CIRNAC recommends that these missing details be included in the Spill Contingency Plan:

- i. The size and storage capacity of each sewage lagoon; and
- ii. A site photo indicating the location(s) where spill kits are stored.

**Response R-09 (i):** The size and storage capacity of each sewage lagoon will be added to the updated Spill Contingency Plan and is shown in Table 1.

**Table 1: Dimensions and Active Volume of the Cells at the Sewage Lagoons**

Cell	Length (m)	Width (m)	Base Area (m <sup>2</sup> )	Active Volume (m <sup>3</sup> )
Cell A	293	120	35,160	53,220
Cell B	250	83	20,750	35,500
Cell C	203	86	17,458	35,500

**Answer R-09 (ii):** A site photo showing the locations where spill kits are stored, as provided by the Municipality, is shown in Figure 3.

### 2.4 R-12

**Recommendation R-12:** "CIRNAC recommends that GN-CGS measure wastewater volumes decanted from the lagoons."





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**Responses R-12:** Volume of wastewater decanted from the lagoons will be obtained by recording the difference in the wastewater level at the beginning and at the end of the decanting. The decanted volume will be estimated using the drop in wastewater elevation and the lagoon geometry.

### 3.0 Document List

These documents will be updated upon completion of the regulatory review to reflect the responses presented in this memo:

- Operations and Maintenance Manual Wastewater Treatment Facility (Sewage Lagoon System)
- Spill Contingency Plan

### 4.0 References

CIRNAC. (2020, October 29). Final Written Submission. *Municipality of Igloolik Application for Type A Water Licence 3AM-IGL----*.

EXP Services Inc. (2020a, September). *2020 Quality Assurance/Quality Control (QA/QC) Program Wastewater Treatment Facility (Sewage Lagoon System) Water Treatment Plant/Truck Fill Station Solid Waste Facility Municipality of Igloolik, Nunavut*. Submitted to Municipality of Igloolik September 2020.

EXP Services Inc. (2020b, September). *Igloolik Landfill Site Operation and Maintenance Manual*. Submitted to Municipality of Igloolik September 2020.

EXP Services Inc. (2020c, September). *Mechanical and Electrical Operations and Maintenance Manual Igloolik Truck Fill Station Municipality of Igloolik*. Submitted to Municipality of Igloolik September 2020.

EXP Services Inc. (2020d, September). *Operations and Maintenance Manual Wastewater Treatment Facility (Sewage Lagoon System) Municipality of Igloolik, Nunavut*. Submitted to Municipality of Igloolik September 2020.

EXP Services Inc. (2020e, September). *Operations and Maintenance Manual Water Reservoir Municipality of Igloolik, Nunavut*. Submitted to Municipality of Igloolik September 2020.

EXP Services Inc. (2020f, September). *Operations and Maintenance Manual Water Supply Pipeline Municipality of Igloolik, Nunavut*. Submitted to Municipality of Igloolik September 2020.

EXP Services Inc. (2020g, September). *Spill Contingency Plan Municipality of Igloolik*. Submitted to Municipality of Igloolik September 2020.

EXP Services Inc. (2020h, September). *Water Treatment Plant/Truck Fill Station Civil Related Infrastructure Operation and Maintenance Municipality of Igloolik*. Submitted to Municipality of Igloolik September 2020.