



### 3AM-GRA1624 GN-CGS Rankin Inlet Water Licence Amendment - Lower Landing Lake

<b>Application Type:</b>	New
<b>Project Type:</b>	Water
<b>Application Date:</b>	6/14/2016 9:45:21 AM
<b>Period of operation:</b>	from 2017-06-09 to 2024-05-01
<b>Proposed Authorization:</b>	from 2024-05-01 to 2024-05-01
<b>Project Proponent:</b>	Megan Lusty GN-CGS P.O. Box 490 Rankin Inlet Nunavut X0C0G0 Canada Phone Number.: 867-645-8176, Fax Number.: 867-645-8141

### Non-technical project proposal description

English: The Government of Nunavut, Department of Community and Government Services (GN-CGS) is seeking an amendment to Water Licence 3AM-GRA1624 issued on May 2, 2016 to allow for water to be transferred directly from Lower Landing Lake to Nipissar Lake, instead of from the currently authorized location at Char River. Lower Landing Lake feeds Char River which then flows into the Hudson Bay. The authorized Char River pumping location is at the beginning of Char River near Lower Landing Lake. The new intake location in Lower Landing Lake will be approximately 200m to the north-west of the current intake location in Char River. Both locations are within the Hamlet of Rankin Inlet municipal boundaries. The Licensee is not requesting an amendment to the volume of water authorized for the transfer of water to Nipissar Lake of 3,485m<sup>3</sup>/day. The same equipment currently used for the seasonal transfer of water from Char River to Nipissar Lake will be used at the proposed Lower Landing Lake intake location. The temporary floating intake, with fish screen, will be used with the same pump and generator within the relocated season. An extension of approximately 200m to the 4.05km overland pipeline will be installed to bring the pipeline from Char River to Lower Landing Lake. The existing intake location at Char River is located on a previously disturbed area that was the location of the former bridge over the Char River (the bridge was removed well before the Nipissar Lake resupply project began). As such there is an existing road to the north of Char River that will be used to access the new intake location on Lower Landing Lake. Golder Associates prepared the "Nipissar Lake and Lower Landing Lake Water Balance Assessment" with "Char River Theoretical Rating Curve Based on Field Data" (February 2016) for GN-CGS. A translation of the report Executive Summary is also submitted. This report was done to address concerns that Char River was not a sustainable secondary water source for the Hamlet of Rankin Inlet. The water balance assessment of Lower Landing Lake outlines that this water source would be able to provide sufficient supplementary water to Nipissar Lake, while still maintaining the in-stream flow objectives outlined in the Licence for Char River. Lower Landing Lake and Char River are part of the same watershed. Water quality has been annually monitored in both water bodies (GRA-6, GRA-7), along with Nipissar Lake (GRA-1), since 2014. The water chemistry for Nipissar Lake, Char River and Lower Landing Lake is very similar. No impacts on the water quality of Nipissar Lake have been apparent or are anticipated.

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Personnel on site: 1  
Days on site: 1000  
Total Person days: 1000  
Period of operation: from 2017-06-09 to 2024-05-01  
Proposed term of operation: from 2024-05-01 to 2024-05-01

## Activities

### Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
GRA-1 Nipissar Lake Water Supply	Sampling sites	Municipal	Location of Nipissar Lake Pumphouse and intake for the community water supply. Water is transported via underground pipeline to the Williamson Lake Pumphouse in Rankin Inlet for treatment and distribution.	No known archaeological/paleontological value.	With Hamlet of Rankin Inlet Municipal Boundaries.
GRA-6 Char River Water Pumped to Nipissar Lake	Sampling sites	Municipal	Current intake location for seasonal resupply pipeline.	No known archaeological/paleontological value.	With Hamlet of Rankin Inlet Municipal Boundaries.
GRA-7 Lower Landing Lake (approximate proposed pumping location)	Sampling sites	Municipal	Proposed intake location and extension of seasonal intake. Lower Landing Lake feeds Char River.	No known archaeological/paleontological value.	With Hamlet of Rankin Inlet Municipal Boundaries.
GRA-3 Sewage Treatment Facility	Waste disposal	Municipal	Sewage Treatment Facility - samples are collected from within the building before effluent discharge to Prairie Bay, Hudson Bay.	No known archaeological/paleontological value.	Within Hamlet of Rankin Inlet Municipal Boundaries.

### Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Rankin Inlet	Megan Lusty	Hamlet Council - update on current water volumes in Nipissar Lake and intention to move intake to Lower Landing Lake, pending regulatory approvals.	2017-01-30

## Authorizations

### Indicate the areas in which the project is located

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### Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Nunavut Water Board	Type 'A' Water Licence 3AM-GRA1624	Active	2016-05-02	2024-05-01
Other	Nunavut Planning Commission - NPC File #148311, 3AM-GRA1624 GN-CGS Rankin Inlet Water Licence Amendment. Project proposal conforms to the KRLUP. NPC determined significant modification to the project and screening is required by the NIRB.	Active	2016-06-19	
Other	NIRB Screening Decision Report, File #13UN037. Screening decision for the GN-CGS "Hamlet of Rankin Inlet: Amendment Application - Seasonal Replenishment of Nipissar Lake".	Active	2014-06-26	
Other	NIRB Exempt from screening, File #13UN037. Application Exempt from the Requirement for Screening pursuant to Section 12.4.3 of the NLCA: GN-CGS "Hamlet of Rankin Inlet: Amendment Application - Seasonal Replenishment of Nipissar Lake".	Active	2015-05-27	

## Material Use

**Equipment to be used (including drills, pumps, aircraft, vehicles, etc)**

Equipment Type	Quantity	Size - Dimensions	Proposed Use
Diesel powered generator	1	75hp, same as currently used	Power pump for water transfer from Char River/Lower Landing Lake to Nipissar Lake
Pump	1	Maximum 0.04 m3/s, same as currently used	Pump for water transfer from Char River/Lower Landing Lake to Nipissar Lake
Floating Intake	1	Conforms with DFO Guidelines, same as currently used	Water intake from Char River/Lower Landing Lake
Seacan	1	20ft, same as currently used	Houses pump and generator at Char River/Lower Landing Lake
Pipeline	1	4.05km (same as currently used) + 0.2km (new, to be installed upon approval)	Overland resupply pipeline from Char River/Lower Landing Lake

### Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Diesel	fuel	1	250	250	Gallons	Generator

## Water Consumption

Daily amount (m3)	Proposed water retrieval methods	Proposed water retrieval location
3485	Seasonal floating intake	Lower Landing Lake

## Waste

## Waste Management

Project Activity	Type of Waste	Projected Amount Generated	Method of Disposal	Additional treatment procedures
Waste disposal	Sewage (human waste)	772,000 m3 (projected 2024 volume)	Discharge to Prairie Bay, Hudson Bay.	Wastewater Treatment Plant with Monster Augers

### Environmental Impacts:

Rankin Inlet water consumption has exceeded natural recharge to Nipissar Lake for many years. The overland resupply pipeline from Char River was constructed to supplement the water in Nipissar Lake, to prevent further decrease in water level. The “Nipissar Lake and Lower Landing Lake Water Balance Assessment” by Golder Associates (attached) details the suitability of Lower Landing Lake to provide supplementary water to Nipissar Lake for a significantly longer term than the current Water Licence 3AM-GRA1624 expiry on May 1, 2024. Using Nunavut Bureau of Statistics population projects, the required supplementary water volumes are not expected to exceed 10% of the flow in Char River until 2082, using current per capita consumption rates. Water samples collected in 2014, 2015 and 2016 have determined that Lower Landing Lake, Char River and Nipissar Lake all have similar water chemistry. The Water Pumping Adaptive Management Plan details this monitoring and is also attached.

### Description of Existing Environment: Physical Environment

Description of Existing Environment: Biological Environment

### Description of Existing Environment: Socio-economic Environment

## Identification of Impacts and Proposed Mitigation Measures

## Cumulative Effects

## Impacts

## Identification of Environmental Impacts

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Project Map

