



Department of Community and Government Services
Nunalingni Kavamatkunnili Pivikhaqautikkut
Ministère des Services Communautaires et gouvernementaux

PC/MS

Copy: Ralph Ruediger, Director of Community Development, GN-CGS
Tim Brown, Director of Community Infrastructure, GN-CGS
Wayne Olson, Baffin Regional Director Infrastructure, GN-CGS



General Water Licence Application
(Application for a new Water Licence)

Document Date: May 2018

Application Submission Date: 05/29/2018
Month/Day/Year

P.O. BOX 119
GJOA HAVEN, NUNAVUT
XOB 1J0
TEL: (867) 360-6338
FAX: (867) 360-6369

ᑎᓄᓐᓂᓐ ᑕᓄᓐᓂᓐ ᑕᓄᓐᓂᓐ
NUNAVUT IMALIRIYIN KATIMAYIT
NUNAVUT WATER BOARD
OFFICE DES EAUX DU NUNAVUT



P.O. Box 119
GJOA HAVEN, NU X0B 1J0
TEL: (867) 360-6338
FAX: (867) 360-6369

kNK5 wmoEp5 vtmp5
NUNAVUT WATER BOARD
NUNAVUTIMALIRIYINKATIMAYIT
OFFICE DES EAUX DU NUNAVUT

GENERAL WATER LICENCE APPLICATION (APPLICATION FOR NEW WATER LICENCE)

The applicant is referred to the NWB's Guide 4: *Guide to Completing and Submitting a Water Licence Application for a New Licence* for more information about this application form.

LICENCE NO: (for NWB use only)	
1. APPLICANT (PROPOSED LICENSEE) CONTACT INFORMATION (name, address) Bhabesh Roy, M.A.Sc.; P.Eng. Municipal Engineer, Baffin Region Department of Community and Government Services Government of Nunavut P.O. Box 379 Pond Inlet, NU X0A 0S0 Phone: (867) 899-7314 Fax: (867) 899-7328 e-mail: broy@gov.nu.ca	2. APPLICANT REPRESENTATIVE CONTACT INFORMATION if different from Block 1 (name, address) Bhabesh Roy, M.A.Sc.; P.Eng. Municipal Engineer, Baffin Region P.O. Box 379 Pond Inlet, NU X0A 0S0 Phone: (867) 899-7314 Fax: (867) 899-7314 e-mail: broy@gov.nu.ca
3. NAME OF PROJECT (including the name of the project location) Remediation of the Old Town Site, Clyde River, Nunavut	
4. LOCATION OF UNDERTAKING Project Extents NW: Latitude: (70° 28' 58" N) Longitude: (68° 38' 10" W) NE: Latitude: (70° 28' 49" N) Longitude: (68° 30' 53" W) SE: Latitude: (70° 27' 6" N) Longitude: (68° 33' 24" W) SW: Latitude: (70° 28' 2" N) Longitude: (68° 38' 17" W) Camp Location(s) – N/A Latitude: (° ' " N) Longitude: (° ' " W)	
5. MAP - Attach a topographical map, indicating the main components of the undertaking. NTS Map Sheet No.: <u>27F/08</u> Map Name: <u>Clyde River Old Town Site Remediation Overview (Figure 1)</u> Map Scale: <u>1:40,000</u> NTS Map Sheet No.: <u>27F/08</u> Map Name: <u>Clyde River Old Town Site Remediation – Borrow Sources (Figure 3)</u> Map Scale: <u>1:40,000</u>	

5. MAP (continued)

Note: Figures can be found in Appendix A of the attached *Remediation of the Old Town Site, Clyde River, Nunavut – Environmental Screening*

6. NATURE OF INTEREST IN THE LAND - Check any of the following that are applicable to the proposed undertaking (at least one box under the 'Surface' header must be checked).

Sub-surface

☐ Mineral Lease from Nunavut Tunngavik Incorporated (NTI)

Date (expected date) of issuance: _____ Date of expiry: _____

☐ Mineral Lease from Indian and Northern Affairs Canada (INAC)

Date (expected date) of issuance: _____ Date of expiry: _____

Surface

☐ Crown Land Use Authorization from Indian and Northern Affairs Canada (INAC)

Date (expected date) of issuance: _____ Date of expiry: _____

☐ Inuit Owned Land (IOL) Authorization from Kitikmeot Inuit Association (KIA)

Date (expected date) of issuance: _____ Date of expiry: _____

☐ IOL Authorization from Kivalliq Inuit Association (KivIA)

Date (expected date) of issuance: _____ Date of expiry: _____

☐ IOL Authorization from Qikiqtani Inuit Association (QIA)

Date (expected date) of issuance: _____ Date of expiry: _____

☒ Commissioner's Land Use Authorization

Date (expected date) of issuance: _____ Date of expiry: _____

☒ Other: GN-CGS Quarry permit

Date (expected date) of issuance: _____ Date of expiry: _____

Name of entity(s) holding authorizations: GN-CGS

7. NUNAVUT PLANNING COMMISSION (NPC) DETERMINATION

Indicate the land use planning area in which the project is located.

☒ North Baffin

☐ Keewatin

☐ South Baffin

☐ Sanikiluaq

☐ Akunnig

☐ West Kitikmeot

Is a land use plan conformity determination required?

☒ Yes A conformity review is being completed concurrently by NPC

☐ No

If Yes, indicate date issued and attach copy May 25, 2018, Copy attached.

If No, provide written confirmation from NPC confirming that a land use plan conformity review is not required

8. NUNAVUT IMPACT REVIEW BOARD (NIRB) DETERMINATION

Is an Article 12 Part 4 screening determination required?

☒ Yes

☐ No

If Yes, indicate date issued and attach copy _____

The Project will require a screening determination for the Commissioner's Land Use Authorization; the screening is being completed concurrently by NIRB (Please see NPC's letter dated May 25,2018)

If No, provide written confirmation from NIRB confirming that a screening determination is not required

9. DESCRIPTION OF UNDERTAKING – List and attach plans and drawings or project proposal.

The GN-CGS intends to remediate the Old Town Site in Clyde River, Nunavut. Several environmental investigations have been completed at the Old Town Site in recent years to identify and delineate wastes and contamination; several waste streams have been identified (i.e., hazardous and non-hazardous wastes, petroleum hydrocarbon and metal contaminated soil and water, aluminum waste, and asbestos- and lead-containing wastes). The remediation of the Old Town Site will require the construction and operation of a number of structures including: currently and previously used borrow sources, a temporary access road, a new landfill containment cell at the Hamlet's solid waste facility, and a temporary landfarm at the Old Town Site. The access road and landfarm will be removed once remedial activities are completed.

See the attached *Remediation of the Old Town Site, Clyde River, Nunavut – Environmental Screening* for more information on Project activities and locations.

10. OPTIONS – Provide a brief explanation of the alternative methods or locations that were considered to carry out the project.

Alternatives to the Project, including both viable technical and economic alternatives for carrying out the Project, have been considered. The alternative to the Project is to not complete the remediation. This is not considered feasible due to health and safety risks for the residents of Clyde River; the potential migration of contaminants off-site; and, additional remedial costs if the Project is delayed.

Alternative means of carrying out the Project focused on alternative routing for the access road, alternative locations for the landfill containment cell and landfarm, and alternative technical methods for completing remedial activities. Alternative means have been considered not feasible for the following reasons:

- An alternative route for the proposed access road is not considered feasible as the cost of locating and designing a new route would be prohibitive; the GN-CGS has already completed geotechnical investigations of the route and will be undertaking archaeological investigations this summer. Additionally, based on the geotechnical investigations, the applicant believes the most efficient, limited impact, and cost-effective routing has been selected.
- An alternative location for the proposed landfill containment cell is not considered feasible as the costs would be excessive to site, investigate and design a new landfill facility. Furthermore, an alternative location would likely require construction over natural ground, producing additional environmental effects. The proposed location for the landfill containment cell minimizes cost and potential effects to the nearby environment as it is situated within the Hamlet's existing solid waste facility.
- An alternative location for the proposed landfarm is not considered feasible as it is ideal to have the landfarm in proximity to the source of the contaminated soils; this will reduce the potential for additional environmental effects (i.e., potential accidents during transportation to an alternative landfarm location). The proposed landfarm is currently situated on the Old Town Site and requires very short transport times from the identified impacted locations. Constructing the landfarm in an alternate area would also require additional costs for investigation and design.

10. OPTIONS (continued)

- All viable technical methods for completing remedial activities at the Old Town Site were evaluated during the development of the Remedial Action Plan. As a result, we believe the best possible options have been proposed for the waste streams at the Old Town Site.

11. CLASSIFICATION OF PRIMARY UNDERTAKING - Indicate the primary classification of undertaking by checking one of the following boxes.

- | | |
|---|---|
| <input type="checkbox"/> Industrial | <input type="checkbox"/> Agricultural |
| <input type="checkbox"/> Mining and Milling (includes exploration/drilling/exploration camps) | |
| <input type="checkbox"/> Conservation | |
| <input type="checkbox"/> Municipal (includes camps/lodges) | <input type="checkbox"/> Recreational |
| <input type="checkbox"/> Power | <input checked="" type="checkbox"/> Miscellaneous (describe below): |
- Site Clean-up / Remediation

See Schedule II of *Northwest Territories Waters Regulations* for Description of Undertakings.

Information in accordance with applicable Supplemental Information Guidelines (SIG) must be submitted with a New Water Licence Application. Indicate which SIG(s) are applicable to your application.

- | |
|---|
| <input type="checkbox"/> Hydrostatic Testing |
| <input type="checkbox"/> Tannery |
| <input type="checkbox"/> Tourist / Remote Camp |
| <input checked="" type="checkbox"/> Landfarm & On-Site Storage of Hydrocarbon Contaminated Soil |
| <input type="checkbox"/> Onshore Oil and Gas Exploration Drilling |
| <input type="checkbox"/> Mineral Exploration / Remote Camp |
| <input type="checkbox"/> Advanced Exploration |
| <input type="checkbox"/> Mine Development |
| <input type="checkbox"/> Municipal |
| <input checked="" type="checkbox"/> General Water Works |
| <input type="checkbox"/> Power |

12. WATER USE - Check the appropriate box(s) to indicate the type(s) of water use(s) being applied for.

- | | |
|---|--|
| <input type="checkbox"/> To obtain water for camp / municipal purposes | <input type="checkbox"/> To divert a watercourse |
| <input checked="" type="checkbox"/> To obtain water for industrial purposes | <input checked="" type="checkbox"/> To modify the bed or bank of a watercourse |
| <input checked="" type="checkbox"/> To cross a watercourse | <input type="checkbox"/> Flood control |
| <input type="checkbox"/> To alter the flow of, or store water | |
| <input type="checkbox"/> Other: _____ | |

13. QUANTITY AND QUALITY OF WATER INVOLVED - For each type of water use indicated in Block 12, provide the source of water, the quality of the water source and available capacity, the estimated quantity to be used in cubic meters per day, method of extraction, as well as the quantities and qualities of water to be returned to source.

Name of water source(s) (show location(s) on map):

Water will be obtained from Patricia Bay (marine) for dust suppression on the temporary access road. Water will be obtained from the Clyde River for remedial activities at the Old Town Site. Potable water will be brought to the Old Town Site from the Hamlet. Drainage Channels # 1 to #4 on the Old Town Site will be crossed by the temporary access road; see Figure 2 in Appendix A of the attached Remediation of the Old Town Site, Clyde River, Nunavut – Environmental Screening

13. QUANTITY AND QUALITY OF WATER INVOLVED (continued)

Describe the quality of the water source(s) and the available capacity:

Overall water quality of Patricia Bay and the Clyde River is expected to be good. The Drainage Channels primarily act as drainage pathways for the hills to the east of the Old Town Site. Overall water quality in these channels is expected to be of similar quality to other melt water channels however some impacts to the water quality from contaminants at the Old Town Site have been observed in Drainage Channel #4, and, to some extent, in Drainage Channels #2 and #3.

Provide the overall estimated quantity of water to be used: 2.0 m³/day

Provide the estimated quantity(s) of water to be used from each source:

Stantec expects a maximum of 2.0 m³ of water use per day for all activities associated with remediation of the Old Town Site, over the life of the Project (200 days). It is estimated approximately 1.8 m³/day (1,800 L/day) will be withdrawn from Patricia Bay and 0.2 m³/day (200 L/day) will be withdrawn from the Clyde River. However water will likely be withdrawn weekly (not daily) from Patricia Bay and Clyde River. Water will not be withdrawn from the Drainage Channels.

Indicate the estimated quantities to be used for each purpose (camp, drilling, etc.)

Water withdrawn from Patricia Bay (1.8 m³/day) will be used for dust suppression efforts on the temporary access road. Water withdrawn from the Clyde River (0.2 m³/day) will be used for on-site remedial activities (i.e., cleaning/rinsing drums, ASTs, etc).

Describe the method of extraction(s):

Water will be withdrawn from Patricia Bay and the Clyde River with the use of a pump and an intake fitted with an appropriately sized fish screen and flow rate to avoid entrainment and impingement of fish (based on Fedoranko 1991 [marine intakes] and DFO 1995 [freshwater intakes]). Water will be withdrawn from excavations on site with the use of an intake and a pump; this intrusive water will be pumped into holding tanks of the water treatment system for treatment.

Estimated quantity(s) of water returned to source(s) 2.0 m³/day

The above quantity is inclusive of marine water to be used for dust suppression and freshwater for on-site remedial activities. Water will not be returned directly to the withdrawal sources; water withdrawn for remedial activities will be collected, treated and discharged on-site.

Describe the quality of water(s) returned to source(s):

Water quality discharge criteria for treated water will be based on those outlined in the Project's water license, issued by the NWB. In the absence of these criteria however, the GN's *Environmental Guideline for Industrial Waste Discharges into Municipal Solid Waste and Sewage Treatment Facilities* will be used, at a minimum, as discharge criteria.

14. WASTE – Check the appropriate box(s) to indicate the types of waste(s) generated and deposited.

- | | |
|---|--|
| <input type="checkbox"/> Sewage | <input checked="" type="checkbox"/> Waste oil |
| <input type="checkbox"/> Solid Waste | <input type="checkbox"/> Greywater |
| <input checked="" type="checkbox"/> Hazardous | <input type="checkbox"/> Sludges |
| <input checked="" type="checkbox"/> Bulky Items/Scrap Metal | <input checked="" type="checkbox"/> Contaminated soil and/or water |
| <input type="checkbox"/> Animal Waste | |
| <input checked="" type="checkbox"/> Other (describe): <u>Special Wastes</u> | |

15. QUANTITY AND QUALITY OF WASTE INVOLVED – For each type of waste indicated in Block 14, describe its composition, quantity in cubic meters/day, method of treatment and method of disposal.

The following table provides a summary of waste presently at the Old Town Site; these will be remediated. For more information, see Sections 1.1 and 3.1 of the attached *Remediation of the Old Town Site, Clyde River, Nunavut – Environmental Screening*

Type of Waste	Composition	Quantity Generated	Treatment Method	Disposal Method
Hazardous Waste	Includes: - Capacitors and transistors, potentially containing PCBs	Approximate total of 17 m ³	None	Includes: - Transportation to an appropriate facility in southern Canada
Bulky Items / Scrap Metal	Includes: - Combustible, non-hazardous waste - Non-combustible, non-hazardous waste - Building foundations (concrete) - Above-ground storage tanks - Fuel drums	Approximate total of 1,458 m ³	No treatment	Includes: - On-site incineration - Disposal at the new landfill containment cell
Waste Petroleum Product	Includes: - Drums of waste fuel product - Includes drums potentially containing ethylene glycol	Approximate total of 1,854 L	No treatment	Includes: - On-site incineration of waste fuel product - Drums potentially containing ethylene glycol will be sealed and transported to an appropriate facility in southern Canada
Contaminated Soil	Soils containing: - Petroleum hydrocarbons (PHCs) - Metals - Aluminum waste	Approximate total of 9,765 m ³ , comprised of: - PHCs = 7,500 m ³ - Metals = 827 m ³ - Aluminum waste = 1,438 m ³	Includes: - <i>Insitu</i> bioremediation at the new landfarm	Once treated soil meets remedial objectives, treated soil will be left in place and graded to match surrounding terrain
Contaminated Water	Waters containing: - PHCs - Metals	Approximate total of 1,000,000 L	Includes: - On-site water treatment system	Includes: - Disposal to ground surface, at least 100m away from any surface waterbody, once treated water meets discharge criteria
Special Wastes	Includes: - Asbestos-containing materials - Lead contaminated waste - Some electrical equipment (batteries, wiring)	Approximate total of 187 m ³	Includes: - Collection of any loose and flaking lead-painted materials	Includes: - Disposal at the new landfill containment cell - Transportation to an appropriate facility in southern Canada

- 16. OTHER AUTHORIZATIONS** – In addition to the sub-surface and surface land use authorizations provided in Block 6, indicate any other authorizations required in relation to the proposed undertaking. For each provide the following: N/A

Authorization: _____

Administering Agency: _____

Project Activity: _____

Date (expected date) of issuance: _____ Date of expiry: _____

Authorization: _____

Administering Agency: _____

Project Activity: _____

Date (expected date) of issuance: _____ Date of expiry: _____

- 17. PREDICTED ENVIRONMENTAL IMPACTS OF UNDERTAKING AND PROPOSED MITIGATION MEASURES** - Describe direct, indirect, and cumulative impacts related to water and waste.

Please see Section 5 of the attached *Remediation of the Old Town Site, Clyde River, Nunavut – Environmental Screening* for more information on potential environmental effects of the Project and proposed mitigation measures.

- 18. WATER RIGHTS OF EXISTING AND OTHER USERS OF WATER**

Provide the names, addresses and nature of use for any known persons or properties that may be adversely affected by the proposed undertaking, including those that hold licences for water use in precedent to the application, domestic users, in-stream users, authorized waste depositors, owners of property, occupiers of property, and/or holders of outfitting concessions, registered trapline holders, and holders of other rights of a similar nature.

Advise the Board if compensation has been paid and/or agreement(s) for compensation have been reached with any existing or other users.

The water license held by the Hamlet of Clyde River for their municipal water use and waste disposal (3BM-CLY1419) will expire on July 24, 2019. The proposed Project will not affect municipal water use. The new landfill containment cell at the Hamlet's solid waste facility will be located in a separate area from the Hamlet's current waste disposal and will be capped following completion of remedial activities. The installation and operation of the new containment cell should not affect the Hamlet's waste disposal.

No other individuals or holders of water licenses (if any) will be affected by the proposed Project.

- 19. INUIT WATER RIGHTS**

Advise the Board of any substantial affect of the quality, quantity or flow of waters flowing through Inuit Owned Land (IOL), and advise the Board if negotiations have commenced or an agreement to pay compensation for any loss or damage has been reached with one or more Designated Inuit Organization (DIO).

The proposed Project will not have any effects on the quality, quantity or flow of waters through IOLs.

- 20. CONSULTATION** – Provide a summary of any consultation meetings including when the meetings were held, where and with whom. Include a list of concerns expressed and measures to address concerns.

Please see Section 2.10 and Appendix G of the attached *Remediation of the Old Town Site, Clyde River, Nunavut – Environmental Screening* for more information on consultation.

21. SECURITY INFORMATION

Provide an estimate of the total financial security for final reclamation equal to the total outstanding reclamation liability for land and water combined sufficient to cover the highest liability over the life of the undertaking. Estimates of reclamation costs must be based on the cost of having the necessary reclamation work done by a third party contractor if the operator defaults. The estimate must also include contingency factors appropriate to the particular work to be undertaken.

Where applicable, the financial security assessment should be prepared in a manner consistent with the principals respecting mine site reclamation and implementation found in the *Mine Site Reclamation Policy for Nunavut*, Indian and Northern Affairs Canada, 2002.

NOT APPLICABLE – the proponent is the Government of Nunavut

22. FINANCIAL INFORMATION

Provide a statement of financial responsibility.

If the applicant is a business entity, provide a list of the officers of the company.

If the applicant is a business entity attach a copy of the Certificate of Incorporation or evidence of registration of the company name.

NOT APPLICABLE – the proponent is the Government of Nunavut

23. STUDIES UNDERTAKEN TO DATE - List and attach copies of studies, reports, research, etc.

The following studies have been undertaken in support of remediation of the Old Town Site:

- Environmental Sciences Group, Royal Military College – An Environmental Assessment of the Former Site of the Town of Clyde River, NWT (1995)
- Jacques Whitford Environment Ltd. – Old Town Clyde River Site Visit and Assessment of Current Conditions (2004)
- Jacques Whitford Environment Ltd. – Conceptual Remediation Plan, Old Town Clyde River, Clyde River, Nunavut (2004)
- Jacques Whitford Ltd. – Phase III Environmental Site Assessment, Old Town Site, Clyde River, Nunavut (2009)
- Nunami Jacques Whitford Ltd. – Remedial Action Plan, Old Town Site, Clyde River, Nunavut (2009)
- Nunami Stantec Ltd. - Geotechnical Assessment: Clyde River Old Town Site – Remediation Landfill, Landfarm and Access Road Development, Clyde River, NU (2011)
- Nunami Stantec Ltd. – Human Health and Ecological Risk Assessment, Old Town Site, Clyde River, Nunavut – Final Report (2011)

These documents were submitted to NWB on August 16, 2012 under Appendix H of the attached *Remediation of the Old Town Site, Clyde River, Nunavut – Environmental Screening Final report*.

24. PROPOSED TIME SCHEDULE – Indicate the proposed start and completion dates for each applicable phase of development (construction, operation, closure, and post closure).

Construction

Proposed Start Date: July 2020 Proposed Completion Date: September 2022
(month/year) (month/year)

Operation

Proposed Start Date: July 2020 Proposed Completion Date: September 2022
(month/year) (month/year)

Closure

Proposed Start Date: August 2020 Proposed Completion Date: September 2027
(month/year) (month/year)

Post – Closure – Long-term Monitoring

Proposed Start Date: June 2022 Proposed Completion Date: September 2027
(month/year) (month/year)

For each applicable phase of development indicate which season(s) activities occur.

Construction

☐ Winter ☐ Spring ☒ Summer ☒ Fall ☐ All season

Operation

☐ Winter ☐ Spring ☒ Summer ☒ Fall ☐ All season

Closure

☐ Winter ☐ Spring ☐ Summer ☒ Fall ☐ All season

Post - Closure

☐ Winter ☒ Spring ☒ Summer ☒ Fall ☐ All season

25. PROPOSED TERM OF LICENCE

Number of years (maximum of 25 years): 10 years

Requested Date of Issuance: July 5, 2018 Requested Expiry Date: July 17, 2028
(month/year) (month/year)

(The requested date of issuance must be at least three (3) months from the date of application for a type B water licence and at least one (1) year from the date of application for a type A water licence, to allow for processing of the water licence application. These timeframes are approximate and do not account for the time to complete any pre-licensing land use planning or development impact requirements, time for the applicant to prepare and submit a water licence application in accordance with any project specific guidelines issued by the NWB, or the time for the applicant to respond to requests for additional information. See the NWB's *Guide 5: Processing Water Licence Applications* for more information)

26. ANNUAL REPORTING – If not using the NWB's *Standardized Form for Annual Reporting*, provide details regarding the content of annual reports and a proposed outline or template of the annual report.

The NWB's Standardized Form for Annual Reporting will be used.

27. **CHECKLIST** – The following must be included with the application for the water licensing process to begin.

Written confirmation from the NPC confirming that NPC's requirements regarding land use plan conformity have been addressed.

☒ Yes

No

If no, date expected: **May 25, 2018**

Written confirmation from the NIRB confirming that NIRB's requirements regarding development impact assessment have been addressed.

☒ Yes

No

If no, date expected _____

Completed General Water Licence Application form.

☒ Yes

No

If no, date expected _____

Information addressing Supplemental Information Guideline (SIG), where applicable (see Block 11)

☒ Yes

No

If no, date expected _____

English Summary of Application:

☒ Yes

No

If no, date expected _____

Inuktitut and/or Inuinnaqtun Summary of Application:

☒ Yes

No

If no, date expected _____

Application Fee of \$30.00 CDN (Payee Receiver General for Canada).

Yes

☒ No

If no, date expected _____

Water Use Fee Deposit of \$30.00 CDN (Payee Receiver General for Canada). The actual water use fee will be calculated by the NWB based upon the amount of water authorized for use in accordance with the Regulations at the time of issuance of the licence.

Yes

☒ No

If no, date expected _____

28. SIGNATURE

Bhabesh Roy

Name (print)

Municipal Planning Engineer

Title (Print)

B Roy

Signature

May 29, 2018

Date