

Water Licence 3BM TAL 1419 Renewal

Hamlet of Taloyoak, NU

Submitted to the Nunavut Water Board

October 22, 2019

Submitted by

Shah Alam, P. Eng. E.P

Municipal Planning Engineer,
CGS, Cambridge Bay, NU X0B 0C0
Ph: (867) 983-4156
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October 22, 2019

RE: 3BM-TAL 1419 – Renewal Application, Hamlet of Taloyoak

CC: Janice Anderson, Senior Administrative Officer, Hamlet of Taloyoak, NU
Baba Pedersen, Resource Management /Water Resource Officer, CIRNAC

HAMLET OF TALOYOAK

P.O. BOX 8
TALOYOAK, NU X0B 1B0
Tel: (867) 561-2300

CANADIAN IMPERIAL BANK OF COMMERCE
5001-50TH AVE. BOX 430
YELLOWKNIFE, NT X1A 2N3

037555



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PAY

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HAMLET OF TALOYOAK

TO THE
ORDER
OF

Receiver General for Canada

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HAMLET OF TALOYOAK

1063

Receiver General for Canada

10/18/2019

037555

WATER USE FEE	10/18/2019	30.00	0.00	30.00
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30.00	0.00	30.00
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HAMLET OF TALOYOAK

1063

Receiver General for Canada

10/18/2019

037555

WATER USE FEE	10/18/2019	30.00	0.00	30.00
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Executive Summary

Hamlet of Taloyoak (the Licensee) is responsible to supply potable water and disposal of sewage waste, solid waste and metal waste to lagoon and landfill facilities. These facilities are currently operating under the current water Licence 3BM-TAL 1419 which will expire on Dec 07, 2019.

Raw water is drawn from the Canso Lake using twin intake pumps inside HDPE insulated pipes. The intake pipe is connected to a screen structure inside the lake water and the upper end is connected to filtration feed pipe at the treatment plant. Raw water treated at the treatment plant by using Cartage filtration system 20M-5M-1M and chlorination before the truckfill from outside. Water flow meters are included in the treatment system to address the volume of water drawn and truckfill volume are mostly uses for water quantity from water delivery records.

The sewage lagoon consists of two natural lakes in series, located about 3.2 km away from the community and is in operation since early 80's. Both cells are connected with a submerged natural berm in between. The 1st cell receives raw sewage from truck discharge and complete the primary treatment naturally before merging to the 2nd cell when spring freshet upto fall. The 2nd cell (lower cell) is connected to wetland through a meandering shallow trench to its final discharge point at the Stanner Harbour. Sewage effluent enters into wetland from the 2nd cell through a raised berm and no other decanting system is required for the lagoon. The wetland is enriched with seasonal vegetation that helps effluent remediation process before final discharge. Sediment substrates depositing on the trench bed and on wetland ponding areas due to long time uses which are recommended to cleanup, grade or re-shaping the trench. Alternative options are recommended for sewage facility improvement which is under Capital Project priority list. A metal fence was installed at the upper right side of the main cell to protect access ATV to lagoon.

Solid waste site facility had some issues over the years in terms of mixing waste types and wind blow of light weight wastes, paper and debris towards nearby area including the airport runway. Poor segregation of waste types, illegal dumping outside the facility and performance of facility operations are some issues reported by the CIRNAC inspection report. The Licensee has worked to mitigate some of these issues over the years with own resources and GN CGS initiatives, but still waiting for a funding assistance to demolish the abandoned WTP building in town and old IPH which has been instructed by CIRNAC inspection. A feasibility study project for solid waste facility upgrading is in progress and expected design development in the next fiscal year.

The O&M manuals for water and sewage waste has no changes and active as approved before, but the Licensee will update those manuals and plans during the licence renewal review process.

[illegible]



Application for Water Licence Renewal

Document Date: May 2011

Application Submission Date: 10/22/2019
Month/Day/Year

P.O. BOX 119
GJOA HAVEN, NUNAVUT
XOB 1J0
TEL: (867)360-6338
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NUNAVUT IMALIRIYIN KATIMAYIT
NUNAVUT WATER BOARD
OFFICE DES EAUX DU NUNAVUT

DOCUMENT MANAGEMENT

Original Document Date: April 2010

DOCUMENT AMENDMENTS

	Description	Date
(1)	Updated for public distribution as separate document from NWB Guide 7	June 2010
(2)	Updated NWB logos and reformatted table to allow rows to break across page	May 2011
(3)		
(4)		
(5)		
(6)		
(7)		
(8)		
(9)		
(10)		



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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYIT
OFFICE DES EAUX DU NUNAVUT

APPLICATION FOR WATER LICENCE RENEWAL

Your application may be classified as a **renewal** only if all operations remain the same as previously licensed and only the term of the licence requires change. If your application contemplates:

- a change to the volume of water authorized for use;
- a new activity related to water use or waste disposal;
- a new component related to water use or waste disposal;
- a change in predicted environmental impacts(s); and/or
- a change to any term or condition of the original licence

your application is **NOT** classified as a renewal but rather an amendment and will require submission of an Application for Water Licence Amendment. Licensees applying for combined renewal / amendment are also referred to the Application for Water Licence Amendment.

The applicant is referred to the NWB's Guide 7: *Licensee Requirements Following the Issuance of a Water Licence* for more information about this application form.

EXISTING LICENCE NO: **3BM TAL-1419**

1. LICENSEE CONTACT INFORMATION

Is the licensee the same as that referred to on the existing licence?

☒ Yes ☐ No

If No, a licence assignment must be completed and approved by the NWB. **A renewal will only be issued in the name of the current licensee in the absence of assignment of the licence.**

If the licensee is the same, but the name of the licensee has changed, attach a certificate of name change.

Name: **Hamlet of Taloyoak**
Attn.: **Janice Anderson, SAO**

Address: **P.O. Box 8, Taloyoak, NU, X0B 1B0**
Phone: **867-561-2302**
Fax: **867-561-5057**
e-mail: sao@taloyoak.ca

2. LICENSEE REPRESENTATIVE CONTACT INFORMATION – If different from Block 1.

Name: **Shah Alam, P. Eng. E.P**

Address: **Municipal Planning Engineer, Cambridge Bay, NU, XOB 0C0**

Phone: **867-983-4156**

Fax: **867-983-4124/ 4123**

e-mail: **salam@gov.nu.ca**

(Attach authorization letter.)

3. NAME OF PROJECT

Is the name of the project the same as that considered in the existing water licence?

☒ Yes ☐ No

Indicate the name of the project including the name of the location: _____

4. LOCATION OF UNDERTAKING

Is the location of the undertaking the same as that considered in the existing water licence?

☒ Yes ☐ No

Project Extents

NW: Latitude: (**69 ° 32 ' 0 " N**)

Longitude: (**93 ° 31' 0 " W**)

NE: Latitude: (° ' " N)

Longitude: (° ' " W)

SE: Latitude: (° ' " N)

Longitude: (° ' " W)

SW: Latitude: (° ' " N)

Longitude: (° ' " W)

Camp Location(s) **N/A**

Latitude: (° ' " N)

Longitude: (° ' " W)

5. MAP

Are the locations of the main components of the undertaking the same as those considered in the existing licence?

☒ Yes ☐ No

Attach a topographical map, indicating the main components of the undertaking.

NTS Map Sheet No.: _____ Map Name: _____ Map Scale: _____

6. NATURE OF INTEREST IN THE LAND

Is the nature of the interest in the land the same as that considered in the existing water licence?

☒ Yes ☐ No

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 _____

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

Is the name of the entity(s) holding authorizations the same as that considered in the existing water licence?

☒ Yes ☐ No

If No, a licence assignment must be completed and approved by the NWB.

Name of entity(s) holding authorizations: [Hamlet of Taloyoak](#)

7. NUNAVUT PLANNING COMMISSION (NPC) DETERMINATION

Is the undertaking located in the same land use planning area as that considered in the existing licence?

☒ Yes ☐ No

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

<input type="checkbox"/> North Baffin	<input type="checkbox"/> Keewatin
<input type="checkbox"/> South Baffin	<input type="checkbox"/> Sanikiluaq
<input type="checkbox"/> Akunnig	<input checked="" type="checkbox"/> West Kitikmeot

Was a land use plan conformity determination required from NPC prior to the issuance of the existing water licence?

☐ Yes ☒ No

If Yes, indicate date issued and attach copy. _____

Does the proposed renewal change the original NPC conformity determination or the need to obtain one?

☐ Yes ☒ No

If Yes, indicate date issued (or expected) and attach a copy. _____

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

Was a screening determination required from NIRB prior to the issuance of the existing water licence?

☐ Yes ☒ No

If Yes, indicate date issued and attach copy. _____

Does the proposed renewal change the original NIRB screening determination or the need to obtain one?

☐ Yes ☒ No

If Yes, indicate date issued (or expected) and attach a copy. _____

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

9. DESCRIPTION OF UNDERTAKING

Is the description of the undertaking the same as that considered in the existing water licence?

☒ Yes ☐ No

List and attach plans and drawings or project proposal.

Water drawn from the Canso Lake using twin intake pump house, treated inside the treatment plant and delivered by truck-fill for community potable water. Raw sewage trucked out from house sewage tank and hauled to the sewage lagoon and drop-off through a flute. Primary treated sewage water natural decants to wetland during summer-fall for final polishing before entering into ocean meeting allowable limiting values of parameters content. Solid wastes delivered to the solid waste landfill area and metals to metal dump using hamlet trucks where waste management carried, monitored, effluent samples tested and control uses of waste facilities.

Sewage lagoon upgrading by CGS Project which is under way through a final funding arrangement. A study project has been completed and options set out for improvement and increase in capacity either a full new lagoon, or an addition lagoon cell with the existing lagoon as the secondary summer cell.

In regard to the previous Water License, all facilities operations and programs for water supply, sewage, solid waste and metal waste management within the community remain unchanged until any improvement project completed.

List of attachments:

- (i) Taloyoak Wastewater Study project summary
- (ii) Lagoon Improvement project plan.
- (iii) Solid waste study project summary

10. OPTIONS

Are the alternative methods and locations that were considered to carry out the project the same as those considered in the existing water licence?

☒ Yes ☐ No

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

N/A

11. CLASSIFICATION OF PRIMARY UNDERTAKING

Is the primary undertaking the same as that considered in the existing water licence?

☒ Yes ☐ No

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 checked="" type="checkbox"/> Municipal (includes camps/lodges) | <input type="checkbox"/> Recreational |
| <input type="checkbox"/> Power | <input type="checkbox"/> Miscellaneous (describe below):
_____ |

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

12. WATER USE

Is the type(s) of water use(s) the same as that considered in the existing water licence?

☒ Yes ☐ No

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

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

13. QUANTITY OF WATER INVOLVED

Is the source of water the same as that considered in the existing licence?

☒ Yes ☐ No

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

Is the quality of the water source and its available capacity the same as that considered in the existing licence?

☒ Yes ☐ No

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

Normally, the water at Canso lake is fairly clear and calm, but turbidity slightly increase during spring breaks up winter when water level reduces at the Lake base. Treatment required for turbidity and avoiding salinity intake and microbiological components such as E. Coli and Coli Form. The treatment included filtration and disinfection through chlorination before delivery to resident.

Is the overall estimated quantity of water to be used the same as that considered in the existing licence?

☒ Yes ☐ No

Provide the overall estimated quantity of water to be used: 70,000 m³ annually)

Are the quantity(s) of water to be used from each source the same as those considered in the existing licence?

☒ Yes ☐ No

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

Annual quantity of water drawn from the only source Canso Lake in 2018 was 47,750 m³. The growing population and increase in business and commercial facilities will need additional water supply in few years compare to current supply.

The water source Canso lake has sufficient watershed for more water withdrawing for community needs, and therefore requests for increased annual quantity of 70,000 m³ for next 10 years.

Are the quantity(s) of water to be used for each purpose the same as those considered in the existing licence?

☒ Yes ☐ No

Provide the estimated quantities to be used for each purpose (camp, drilling, etc.): N/A

Are the method(s) of extraction the same as those considered in the existing licence?

☒ Yes ☐ No

Describe the method(s) of extraction:

Are the quantity(s) of water returned to source(s) the same as those considered in the existing licence?

☒ Yes ☐ No

Estimated quantity(s) of water returned to source(s): 130 m³/day

Are the quality(s) of water(s) returned to source(s) the same as those considered in the existing licence?

☒ Yes ☐ No

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

14. WASTE

Are the type(s) of waste(s) to be generated and/ or deposited the same as those considered in the existing licence?

☒ Yes ☐ No

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

- ☒ Sewage
- ☒ Solid Waste
- ☒ Hazardous
- ☒ Bulky Items/Scrap Metal
- ☒ Animal Waste
- ☐ Other (describe): _____

- ☒ Waste oil
- ☒ Greywater
- ☒ Sludge
- ☒ Contaminated soil and/or water

15. QUANTITY AND QUALITY OF WASTE INVOLVED

Are the quantity(s) of the types of wastes involved the same as those considered in the existing licence?

☒ Yes ☐ No

Are the composition(s) of the types of wastes involved the same as those considered in the existing licence?

☒ Yes ☐ No

Are the method(s) of treatment for the types of waste involved the same as those considered in the existing licence?

☒ Yes ☐ No

Are the method(s) of disposal for the types of waste involved the same as those considered in the existing licence?

☒ Yes ☐ No

For each type of waste indicated in Block 14, describe its composition, quantity in cubic meters/day, method of treatment and method of disposal.

Type of Waste	Composition	Quantity Generated (estimated)	Treatment Method	Disposal Method
Sewage	House sewage combined grey and black	115 m3/day	Natural Lake lagoon	Natural treatment inside lagoon and through wetland
Solid Waste	Residential, commercial municipal	40 m3/day	Composting & heaping	Composting and segregation
Hazardous	Battery, paint, switch, lights, glycol etc.	Not daily, occasionally	Containment and ship out	Collect in container place inside the cell and make ready for ship out.
Bulky items/ Scrap metal	Wood piece, door, window & house items, vehicle parts, fuel/ water/ sewage tank, plastic, cartons etc.	Not daily, time to time as required	Heaping & composting, burning on site, cover.	breaks into smaller pieces and on site pile.
Waste oil	Engine oil, trans. Oil, glycol, heating oil etc.	As required time to time	Containment to shipping out.	Collect in container and protect from spill out.

16. OTHER AUTHORIZATIONS

In addition to the sub-surface and surface land use authorizations provided in Block 6, are the same authorizations required as considered in the existing licence?

☐ Yes ☒ No

For each provide the following:

Authorization: _____

Administering Agency: _____

Project Activity: _____

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

17. PREDICTED ENVIRONMENTAL IMPACTS OF UNDERTAKING AND PROPOSED MITIGATION MEASURES

Are predicted environmental impacts of the undertaking and proposed mitigation measures the same as those considered in the existing water licence?

☒ Yes ☐ No

Describe direct, indirect, and cumulative impacts related to water and waste.

No harmful impact to environment due to water intake or sewage solid waste facility uses, but benefits to the community to supply potable water, safe sewage disposal, proper deposition of solid waste, metal waste and management of hazardous materials.

18. WATER RIGHTS OF EXISTING AND OTHER WATER USERS

Are the effects of the undertaking on any known persons or property including those that hold licences for water use in precedence to the application, domestic users, in-stream users, authorized waste depositors, owners of property, occupiers of property, and/or holders of outfitting concessions, registered trap line holders, and holders of other rights of a similar nature, the same as those considered in the existing water licence?

☐ Yes ☒ No

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 licenses 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 trap line 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.

N/A

19. INUIT WATER RIGHTS

Are the effects of the undertaking on the quality, quantity or flow of waters flowing through Inuit Owned Land (IOL) the same as those considered in the existing water licence?

☒ Yes ☐ No

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).

There is no known effect of the quality and quantity of flow of water or sewage effluent through Inuit owned land and final discharge into ocean. No effect to fish or fish habitat in the lake or connected water bodies.

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.

The Department of Community and Government Services has been in active consultation for collecting community feedback in regards to environmental compliance and facilities improvements, namely:

- Taloyoak wastewater study - community consultation and Technical Report presentation March 2016
 - motion number 15-01-27 approved location #3 or #4 for possible sites

- Vehicle access protection to Sewage Lagoon with a fence at supper end, Sep 11, 2018
- Solid waste audit in community by exp consultant helped by hamlet operators – January 27-29, 2019;
- Solid waste facility improvement site selection presentation by exp consultants to Council Jun 27 2019
- Facilities monitoring meeting by CIRNAC inspector with Hamlet and council – July 05, 2019

21. SECURITY INFORMATION

Is the financial security assessment the same as that considered in the existing water licence? **N/A**

☐ Yes ☐ No

Is the estimate of the total financial security for final reclamation the same as that considered in the existing water licence? **N/A**

☐ Yes ☐ No

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.

No financial security involved in development and operation of these facilities. Therefore, this is not applicable.

22. FINANCIAL INFORMATION

Is the statement of financial security the same as that considered in the existing water licence? **N/A**

☐ Yes ☐ No

Provide an updated statement of financial security. **N/A**

If the applicant is a business entity please answer the questions below:

Is the list of the officers of the company the same as those considered in the existing water licence?

☒ Yes ☐ No

Provide a list of the officers of the company.

Janice Anderson – Senior Administrative Officer (SAO)
David Irquit – Asst. Senior Administrative Officer (ASAO)
James Das – Finance Controller
Ashoona Irrquite – Hamlet Forman and Director of works
James Ashevaq - water Treatment Plant Operator
Noah Qingnaquq –Week end water treatment operator

Is the Certificate of Incorporation or evidence of registration of the company name the same? **N/A**

☐ Yes ☐ No

Attach a copy of the Certificate of Incorporation or evidence of registration of the company name.

[Not applicable for these facilities.](#)

23. STUDIES UNDERTAKEN TO DATE

List and attach updated studies, reports, research etc.

Provide a compliance assessment and status report including a response to any inspector's reports. The licensee must contact the NWB for licence specific direction in completing the assessment and report.

If in non-compliance, a licence may not be issued until compliance is achieved. If in non-compliance, attach plans/reports for consideration. Application will not be processed if significant issues of non-compliance exist.

[Attachments:](#)

- (i) [Sewage lagoon assessment by consultant](#)
- (ii) [Solid waste facility study and consultants report and opinion](#)
- (iii) [CIRNAC inspectors report 2019](#)

24. PROPOSED TIME SCHEDULE

Is the time schedule for all phases of development (construction, operations, closure and post closure) the same as that considered in the existing licence?

[The sewage lagoon in operation and continued monitoring, no adverse effect of facility or effluent.](#)

☒ Yes ☐ No

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

Construction of [Sewage Lagoon improvement](#)

Proposed Start Date: [Jun 2021](#) Proposed Completion Date: [Aug 2022](#)
(month/year) (month/year)

Operation

Proposed Start Date: _____ Proposed Completion Date: _____
(month/year) (month/year)

Closure

Proposed Start Date: _____ Proposed Completion Date: _____
(month/year) (month/year)

Post - Closure

Proposed Start Date: _____ Proposed Completion Date: _____
(month/year) (month/year)

For each applicable phase of development indicate which season(s) activities occur. [N/A](#)

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

These are existing facilities and their operation as identified during the first completion of these facilities..

25. PROPOSED TERM OF LICENCE

On what date does the existing licence expire? December 07, 2019

Indicate the proposed term of the renewal (maximum of 25 years): 10 (Ten) years

Requested date of renewal issuance: December 08, 2019 Requested Expiry Date: December 07, 2029
(month/year) (month/year)

(The requested date of renewal 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

Is the annual report template expected to be the same as that considered in the existing licence?

☒ Yes ☐ No

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. [Use NWB standard Form for Annual Reporting](#)

Attached:

[Taloyoak Water Licence 3BM-TAL1419 - Annual Report 2019](#)

27. CHECKLIST

The following must be included with the application for renewal for the water licensing process to begin.

Completed Application for Water Licence Renewal form.

☒ Yes ☐ No If no, date expected _____

Updated plans, including designs and reports (see Block 23).

☒ Yes ☐ No If no, date expected _____

Updated security assessment (see Block 21).

☐ Yes ☒ No If no, date expected N/A

Updated financial statement (see Block 22).

☐ Yes ☒ No If no, date expected N/A

Compliance Assessment / Status Report (see Block 23).

☐ Yes ☒ No If no, date expected N/A

English Summary of Renewal Application.

☒ Yes ☐ No If no, date expected _____

Inuktitut and/or Inuinnaqtun Summary of Renewal 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

I, JANICE ANDERSON (print name)

certify that the application requires no changes to water use or waste disposal as previously authorized and that the information given on this form is, to the best of my knowledge, correct and complete.

Janice Anderson
Signature

OCT 17/19
Date

Water Licence 3BM TAL 1419 Renewal

Facilities Description

Hamlet of Taloyoak
P. O. Box 8
Taloyoak, NU X0B 1B0
Tel: (867) 561-2302
Fax: (867) 561-5057

Contact:

Janice Anderson
Senior Administrative Officer
SAO@taloyoak.ca

Location of Undertaking

Geographic Location:

Latitude: 69° 32' N

Longitude: 93° 31' W

1. COMMUNITY BACKGROUND

The Hamlet of Taloyoak is located at 69° 32' N latitude and 93° 31' W longitudes, approximately 460 km East of Cambridge Bay and 1224 km North-East of Yellowknife, sitting 26 m above sea level on the Boothia Peninsula on Stanners Harbour within the Kitikmeot region of Nunavut. It is a zone of continuous permafrost, on sand and gravel raised beach with flat and gently rolling terrain comprising numerous lakes and ponds, covered with thin layer of tundra vegetation. Despite poor soil quality, various types of lichen, moss, willow, heather and wildflowers grow in the area. Wildlife in the area are mainly ground squirrels, lemmings, weasels, arctic hares, arctic foxes, ringed seals and numerous species of birds and fish.

Climate of Taloyoak is reasonable summers and extremely cold winter, average mean temperature in January and July about -30°C and 11°C. Seasonal rainfall average 128 cm, snow fall average 141 cm and mean precipitation 223 mm in Taloyoak.

Description of Undertaking

The Hamlet of Taloyoak is applying for renewal of Water Licence 3BM-TAL-1419, which will expire as of December 07, 2019. As the licensee, the hamlet is responsible for providing water supply, sewage disposal and solid waste disposal and management services to the resident of Taloyoak. Water is drawn from the Canso Lake through twin intake pumphouse, treats in treatment plant and distribute to household water tank through truck fill. Sewage is deposited into the detention lagoon located approximately 3.2 km away from town through vacuum truck and solid waste is deposited at the community waste disposal site 3 km away close near to Sewage Lagoon.

2. WATER SUPPLY, TREATMENT AND DISTRIBUTION

The raw water source was determined as the Canso Lake, located about 1.5 km northeast from town. To meet the requirement and guidelines of drinking water, GN has constructed the treatment plant in 2011 which is in operation with following facilities:

- Twin water intake lines from the Water Lake into the treatment plant
- Two terrain filtration system for reduction in turbidity reduction
- Sustainable power generation Wind Turbine and Solar panel as back up to grid power line.

Water is taken from Canso Lake and then sent through filter terrain to control turbidity and then disinfection by chlorination before truckfill outside. A storage tank located inside the plant uses for operators uses. The plant building was completed in 2011 and remains in operation for community water supply 7 days a week.

2.1 Water Treatment:

It was calculated that 247.5 m³/day of water will be required in 2033 to meet the community's needs, as per the water consumption equation provided by MACA. In addition to daily domestic demand, water will be required for emergency situations, such as a fire. The Fire Marshal of Nunavut recommended the design fire flow rate to be 1,000 L/min or 1440 m³/day

Raw water intake pump flow rate	950 L/min
Fire Flow / by-pass flow rate	1,000 L/min
Truckfill arm fill-rate	1000 L/min
Process flow rate	1000 L/min
100 mm HDPE water supply pipe line pressure (max)	100 psi

Raw water intake using 20hp water pump rated at 28 L/S, automatically switch to second pump. 75 micron-pre-filtration screen is installed prior to raw water entering the filtration train. The treatment process include 20 micron -5 micron – 1 micron filtration. Water disinfection is doing through chlorination using crystal (currently changed to granular) calcium hypochlorite in two times dosing, before filtration and before truck-fill.

2.2 Water Demand

Water consumption from 2012 through 2018 are shown below (from Annual Reports to NWB)

Table1: Water consumption

Year	Volume (L)
2012	35,518,783
2013	37,599,955
2014	38,410,869
2015	38,974,600
2016	38,333,544
2017	41,733,867
2018	47,747,464

Based on the increased consumption every year, it will reach to the allowable quantity 60,000 m³ as per current licence. We request the Board to increase the allowable annual quantity 70,000 m³ or more for the next 10 years duration.

3. SEWAGE DISPOSAL

Sewage water collected from the community household sewage tank by sewage vacuum truck and then discharge into the primary cell of sewage lagoon. The lagoon is located 3.2 km from the community with approximate capacity of 35,700 cu. m which normally holds raw sewages of 9 month quantity discharged. The lagoon system comprises a series of two cells - the primary cell receives raw sewage from truck discharge and the detention cell receives sewage from primary cell over the semi-submerge berm. No mechanical decanting requires from primary cell. The volume of sewage generation also increasing each year like the water consumption volume, therefore, a larger and efficient lagoon system will be required to properly manage the sewage wastewater.

The wetland located immediately downstream of the detention cell involves in flowing out the effluent water towards the final discharge point at Stanner Harbour through a 900 m meandering channel.

3.1 Sampling location of Sewage water

The following are stations for water and sewage effluent sampling, during June – September.

Table 2: Monitoring Stations of sewage and solid waste sample collection

Sampling Station	GPS Location		Description	Comments
	Latitude	Longitude		
TAL-1	N 69° 32' 39"	W 93° 32' 05"	Raw Water supply at Water Lake	Volume of water collected from lake
TAL-2	N 69° 32' 28"	W 93° 35' 39"	Sewage discharge from truck	Volume discharge
TAL-3	N 69° 32' 46"	W 93° 35' 56"	Effluent flow out from 2 nd cell to wetland	Monthly sample, July-Sep
TAL-4	N 69° 32' 26"	W 93° 35' 22"	Run-off from Solid waste facility	Monthly samples, July-Sep
TAL-5	N 69° 32' 23"	W 93° 34' 34"	Hazardous storage cell retention water	Monthly (available) July-Sep
TAL-6	N 69° 32' 22"	W 93° 34' 25"	Final Discharge point	End of pipe, July-Sep

4. SOLID WASTE DISPOSAL

The solid waste site is located close near the lagoon and no other water body in between the sewage lagoon and solid waste facility, except the wetland that ties up both facilities to the final discharge point at Stanner Harbour. Leachate run-off from the solid waste area mixes with the lagoon effluent prior to flowing towards the final point. A sump area for run-off ponding outside of solid waste facility is determined as the sampling point TAL-4.

The solid waste site has two areas- the general municipal waste and the second area for bulky wastes. The general municipal waste area is fenced and does not have a gate, so remains open for public dumping anytime of the day. The second area is the metal dump area where items such as scrap vehicles, appliances, tires and other parts of abandoned vehicles dispose- off from the community. This area has no fence and no isolated cell, but wastes are managing by heaping at the side.

5. Hazardous Waste Management:

Hazardous bulky materials store in an area inside the metal dump separated from other waste types. Waste oil, waste paints and unused fuel drums are stored inside C-cans on site for shipping out when possible. Waste batteries are stored inside wooden boxes with plastic sheet all around and moved inside the C-cans for shipping out. There are no separate cells or containment other than C-cans for hazardous materials storage and disposal within the facility.

6. Spills Waste and Contaminated soil management:

The community currently does not have a separate facility for spills waste storage, or contaminated soil remediation other than inside a C-can in mega bags or on ground inside the fenced area of decommissioned Land farm (by Nunavut Airport authority) soil washed water pond. The community is considering to take ownership of this old landfarm facility for soli treatment under a separate Licence or, to include it within this licence scope if possible.

AANDC inspector has advised (Ref. inspection report 2017) to consider of taking over the old soil tank farm which was decommissioned. Taking the ownership of this facility will help the community of getting a piece of land ready to start and will cost less to upgrade the berm, water pond and sampling locations. Also, since apart from the solid waste and metal dump sites, this old facility location will not leach HC contamination to the wetland or the sewage final discharge. A monitoring station TAL-5 has already designated for water sampling if decanting required from the soil washed pond.

7. STUDIES UNDERTAKEN TO DATE

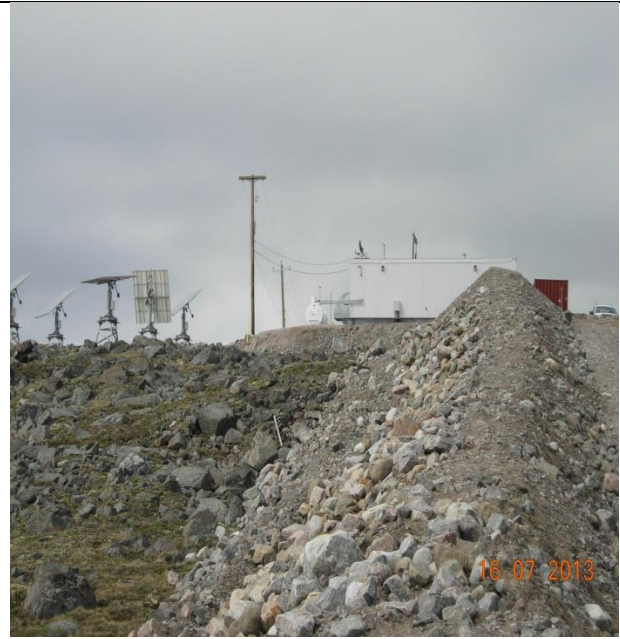
Few studies and documents were completed in relation to the existing sewage lagoon, wetland and solid waste facilities issues. Some reports were received and some are in progress as follows:

1. Taloyoak Wastewater Treatment Feasibility Study: completed by exp Services Inc. 2016.
2. Geotechnical investigation of sites for sewage lagoon development: completed by exp, 2016
3. Wetland Assessment for sewage lagoon development or upgrade: completed by exp, 2016
4. Taloyoak Solid Waste Feasibility Study: Waste Audit Draft Report prepared by exp, May 2019

Pictures: Two Cells natural Lake Lagoon system, WTP and Wetland



Taloyoak Sewage Lagoon system



Taloyoak WTP system



Pic: Fence at right front of Lagoon main cell



Pic: Effluent run-off trench on wetland

Water Licence 3BM TAL 1419 Renewal

Study and Recommendation



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SCALE
 100 0 100 200 300 400 500 m

LEGEND:
 — APPROXIMATE SITE LOCATION

TITLE AND LOCATION:

SITE LOCATION PLAN
WETLAND ASSESSMENT
HAMLET OF TALOYOAK, NUNAVUT

PROJECT NO.: OTT-00222042-A0	DWN.: EC
SCALE: AS NOTED	CK: LM
DATE: OCTOBER 2015	FIG. NO.: 1

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LEGEND:	
---	WETLAND SITE BOUNDARY
---	APPROXIMATE LOCATION OF CULVERT
---	AIRPORT DRAINAGE
---	SOLID WASTE STREAM

TITLE AND LOCATION:

SITE PLAN
WETLAND ASSESSMENT
HAMLET OF TALOYOAK, NUNAVUT

PROJECT NO.: OTT-00222042-A0	DWN.: EC
SCALE: AS NOTED	CK: LM
DATE: OCTOBER 2015	FIG. NO.: 2

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- **Government of Nunavut**

Wetland Assessment

**Sewage Treatment Facility, Hamlet of
Taloyoak, NU**

Type of Document
Revised Draft

Project Name
Wetland Assessment

Project Number
OTT-00222042-A0

Prepared By:
exp Services Inc.
1595 Clark Blvd
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Date Submitted
January 28, 2016

Government of Nunavut

Wetland Assessment

Sewage Treatment Facility, Hamlet of Taloyoak, Nunavut

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Revised Draft

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Date Submitted:

January 2016

Executive Summary

The Government of Nunavut (GN), Department of Community and Government Services (CGS) retained **exp** Services Inc. (**exp**) to prepare a Wetland Assessment in order to complete the detailed planning design for the sewage system upgrade for the Hamlet of Taloyoak, Kitikmeot Region, Nunavut.

The Hamlet of Taloyoak is in need of an upgraded sewage treatment facility that is structurally sound, and has the necessary capacity to accommodate the projected growth of the community. Currently, wastewater is trucked from the community to a small lake that has been converted into the sewage lagoon, and is in close proximity to the Hamlet landfill. Effluent from the lagoon flows approximately 900 metres through a natural wetland/stream system prior to discharge to the ocean. Concerns have been expressed by Aboriginal Affairs and Northern Development Canada regarding the existing wastewater treatment facility.

The purpose of this Wetland Assessment is to determine if the Hamlet's existing wetland sewage treatment facility (hereinafter referred to as the 'Site') is in compliance with the requirements of the Nunavut Water Board, water license number 3BM-TAL1419 – Hamlet of Taloyoak; and, to determine which alternative options, as presented in **exp's** on-going Feasibility Study, will be the best suited for the Site. It is assumed that some form of wetland, either natural or created, will form part of the wastewater treatment facility.

Based on the evaluation of the five (5) proposed alternative options in **exp's** Memorandum on Refinement of Potential Sites dated December 16, 2014, and discussions with the GN, two (2) alternative options have been retained for further evaluation: Alternative Sites 3 and 4. This Wetland Assessment included baseline water quality sampling, observations regarding the status of the natural wetlands, and observations regarding the feasibility of proceeding with the two (2) alternative options presented above.

This report documents the Wetland Assessment undertaken by **exp**, which is considered to be supplemental information to the wastewater treatment facility "Feasibility Study" that is currently being prepared by **exp**.

Conclusions

As indicated by the recent findings collected during the July 2015 field investigation, the Hamlet's existing sewage treatment facility is not in compliance with the requirements of the Sewage Disposal Facility license (3BM-TAL1419), given the following:

- Fecal coliforms were outside their acceptable criterion at monitoring station TAL-3; and,
- TSS was outside its acceptance criterion at monitoring station TAL-4.

Furthermore, a number of contaminants were observed at levels that may be a concern beyond the boundaries of the sewage treatment facility or may be an indication that the facility may not be capable of reducing contaminants in the long-term.

As such, mitigation measures are recommended for the Site to assist with the removal of contaminants in the short-term and the long-term.

Recommendations

The enhancement of the existing sewage treatment facility is necessary in order to meet the current requirements of the Sewage Disposal Facility license (3BM-TAL1419); and, meet the Hamlet's sewage treatment needs in the long-term.

Based on the evaluation of the five (5) proposed alternative options for the placement of a new sewage lagoon in **exp's** Memorandum on Refinement of Potential Sites dated December 16, 2014, and discussions with the GN, two (2) alternative options had been selected for further evaluation:

1. Alternative Site 3: Located immediately east of the existing lagoon. Development of this site would include the construction of an engineered lagoon cell. Annual decanting of the new lagoon contents would be directed into the existing wetland (bypassing the existing lagoon).
2. Alternative Site 4: Located immediately north of the existing lagoon. Development of this site would include the construction of an engineered lagoon cell. Annual decanting of the new lagoon contents would be directed into the existing lagoon, followed by the existing wetland.

Based on the results of the wetland assessment, the existing sewage treatment facility is unlikely to remove contaminants in the short-term and the long-term. As such, prior to decanted sewage water being discharged into the existing wetland/surface water channels, additional treatment is required, possibly in the form of:

- a. Installation of an additional retention pond upgradient of the existing lagoon; and/or
- b. Increasing the area of the existing wetland by damming/flooding the northern portion of the Site near pond P3 (this area has considerable space and is sufficiently upgradient of the ocean).

Alternative Site 3 is not recommended, given that the approach would be to bypass the existing lagoon and discharge directly to the existing surface water channels, which will not likely provide sufficient treatment of effluent in the long-term.

Instead, Alternative Site 4 is the more viable option, which would provide additional retention and treatment of effluent prior to discharge into the existing sewage treatment facility. Other options are also possible, as described above, but may not be sustainable in the long-term.

5 Conclusions and Recommendations

5.1 Conclusions

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As indicated by the recent findings collected during the July 2015 site visit, the Hamlet's existing sewage treatment facility is not in compliance with the requirements of the Sewage Disposal Facility license (3BM-TAL1419), given the following:

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