

Review Comment Table

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| Board: | SLWB |
| Review Item: | Town of Norman Wells Municipal Water Licence Renewal (S18L3-003) |
| File(s): | S18L3-003 |
| Proponent: | Town of Norman Wells |
| Document(s): | Renewal Application and Questionnaire (3.9 MB) Solid Waste Disposal Facility Operation and Maintenance Plan (11.4 MB) Water Treatment Facilit Operation and Maintenance Plan (5.6 MB) Spill Contingency Plan (2.2 MB) Wastewater Treatment System Operation and Maintenance Plan (22.8 MB) Hazardous Waste Management Plan (4.7MB) Abandonment and Restoration Plan for Former Water Reservoir (1.4 MB) Request for Preliminary Screening Exemption (55 kB) Draft Water Licence Conditions (494 kB) |
| Item For Review Distributed On: | Aug 31 at 11:18 Distribution List Oct 11 at 13:32 Distribution List |
| Reviewer Comments Due By: | Oct 25, 2018 |
| Proponent Responses Due By: | Nov 1, 2018 |
| Item Description: | <p>October 11, 2018 Update: Draft Water Licence S18L3-003 has been added to this review, and the review has been reopened. reviewers are now nvited to comment on the Draft Licence. The new review comment deadline is Ocyober 25, 2018 and the new proponent response deadline is November 1, 2018.</p> <p>The Town of Norman Wells submitted a renewal application for a Type B water licence (licence). This Application is for the renewal of the Town of Norman Wells current licence S07L3-002. The purpose of this Application is to use water and dispose of waste for municipal purposes at the Town of Norman Wells, Tulita District, NWT.</p> <p>The Proponent has also requested an exemption from preliminary screening because the Proponent believes that the development has not been modified since it was previously licenced.</p> <p>Reviewers are invited to submit comments and recommendations using the Online review System (ORS) by the review comment deadline specified below. If reviewers seek clarification on the submission, they are</p> |

encouraged to correspond directly with the Proponent prior to submitting comments and recommendations.

Reviewers may also wish to consider providing overarching recommendations regarding whether the Board should approve the submission, to provide context for the comments and recommendations and assist the Board with its decision.

Please provide comments and recommendation on the:

- Renewal Application and Questionnaire
- Solid Waste Disposal Facility Operation and Maintenance Plan
- Water Treatment Facility Operation and Maintenance Plan
- Spill Contingency Plan
- Wastewater Treatment System Operation and Maintenance Plan
- Hazardous Waste Management Plan
- Abandonment and Restoration Plan for the Former Water Reservoir
- Preliminary Environmental Screening Exemption Request (see below for additional information)

A draft licence will be prepared based on comments and recommendations received during this review period and circulated for review on the ORS.

Board staff agrees that this renewal application is exempt from preliminary screening, in accordance with the *Preliminary Screening Exemption List Regulations* and *Exemption List Regulations* of the *Mackenzie Valley Resource Management Act* (MVRMA). If you have any comments or recommendations on the possible exemption, please include them in your submission, with rationale. The most recent preliminary screening that was approved by the Board is located on the public registry under S07L3-002 dated June 18, 2008.

The purpose of the Draft Licence is to allow parties to comment on Board staff's suggested conditions. These draft materials are not intended to limit in any way the scope of parties' comments. The Board is not bound by the contents of the Draft Licence and will make its decision at the close of the proceeding on the basis of all the evidence and arguments filed by all parties.

General Reviewer Information:

All documents that have been uploaded to this review are also available on our public registry. If you have any questions about the ORS or this review, please contact Bonnie Bergsma at (867) 496-2778 or email bonnie.bergsma@slwb.com or Board staff identified below.

Contact Information:

Bonnie Bergsma
Jenna Grandjambe

Comment Summary

| Town of Norman Wells (Proponent) | | | | |
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| ID | Topic | Reviewer Comment/Recommendation | Proponent Response | Board Staff Response |
| 1 | Topic: Scope - Reference: Part A: Scope and Definitions | Comment Part A, Condition 3 references compliance with Tlicho legislation. However, the Town of Norman Wells is well outside of Tlicho territory. Recommendation The Town recommends changing the term “Tlicho” to & “Sahtu” in Part A, Condition 3. | | This is a standard condition and all relevant legislation is included (including self-governments) |
| 2 | Topic: General conditions, annual report submission - Reference: Part B condition 24 | Comment Part B, condition 24 specifies that as of March 31, 2020, annual reports need to be submitted annually no later than March 31. This appears to be a typo. As currently written, the Town will not be required to submit an annual report until 2020. Recommendation Replace “2020” with “2019”. This will provide consistency with Annex A, Part A, Condition 2. | | Correction made |
| 3 | Topic: Waste Disposal - Reference: Part D condition 7 | Comment Part D, Condition 7 could be made more clear and specific. Recommendation The Town recommends adding “primary” before the word “cells” in Part D, Condition 7: The Licensee shall maintain a Freeboard limit of one metre within both primary cells of the sewage lagoon. | | Revision made as recommended |
| 4 | Topic: Modifications - Reference: Part F, condition 3 | Comment Part F, Condition 3, which reads “Within 90 days of the completion of the Modification referred to in Part E, condition 1, the Licensee shall submit to the Board” appears to contain a typo. Recommendation The Town suggests changing “Part E” to “Part F”. | | Correction made |
| 5 | Topic: Inspection of Structures and Facilities - Reference: Part G, condition 8 | Comment Part G, Condition 8 could be made more clear and specific to refer to discharges from Seepage Lake and the Sewage Disposal Facility. Recommendation To improve clarity, the Town recommends reviewing wording of Part D, Condition 7 to specify this | | Clarification made to condition. |

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| | | condition refers to decanting of the Sewage Lagoon at SNP Station SNP S07L3-002(1). | | |
| 6 | Topic: Annex A | Comment The title of Annex A contains the name of “KBL Environmental Ltd” and is a typo. Recommendation “KBL Environmental Ltd” with “Town of Norman Wells” | | Correction made |
| 7 | Topic: Annex A - Reference: Annex A: Part A, condition 2b | Comment Annex A, Part A, Condition 2b suggests there are more than one compliance point. However, there is only one compliance point for the Water Licence, which is located at SNP Station S07L3-002-(1). Recommendation To improve clarity, review the wording of Annex A, Part A, Condition 2b to specify the single compliance point, SNP Station S07L3-002-(1). | | Clarification of condition made |
| 8 | Topic: Annex A - Reference: Annex A: Part A, condition 2d | Comment It is unclear what “Part B, Item 10” refers to in Annex A, Part A, Condition 2d. Part B, item 10 of the water licence refers to submissions falling on a holiday or weekend, which is unrelated to meters and devices, and there is no Part B, Item 10, within Annex A. Meters and devices are referred to in Part B, Item 22, of the water licence but this is reference to water volumes not water quality. Recommendation Provide clarification to Annex A, Part A, Condition 2d. | | Correction made to reference Part B condition 22. Water volumes are measured as part of the SNP. |
| 9 | Topic: SNP Station S07L3-002-(1) Reference: Annex A: Part B, condition 3 | Comment The Town notes that decant sampling at SNP Station S07L3-002-(1) is requested every three days, similar to the previous licence. During the last decant (in 2016), the Town communicated to the Board that a reduced sampling frequency (i.e., minimum weekly) would be followed given the logistical constraints of submitting samples to Yellowknife-based Taiga Laboratory (i.e., they do not accept samples on Friday, Saturday or Sunday), and the analytical turnaround time of the laboratory (typically a couple weeks), which negates timely reporting of data to | | Sampling frequency was reduced in the licence condition |

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| | | <p>the Board. Therefore, the Town is requesting a reduced decant sampling frequency be specified in the licence.</p> <p>Recommendation Reduce the sampling frequency, during decant, at SNP Station S07L3-002-(1), to a minimum of once weekly.</p> | | |
| 10 | <p>Topic: SNP Station S07L3-002-(1)</p> <p>Reference: Annex A: Part B, condition 3</p> | <p>Comment The Town notes that the sampling frequency at SNP Station S07L3-002-(1), during non-decant years, is requested every spring and fall. As indicated in previous comments received from ECCC and the GNWT on the annual reports, the sampling frequency at this station could be reduced in non-decant years given that no active discharge of effluent is occurring. Given that water sampled at this station during non-decant years would largely represent surface water run-off from the surrounding watershed (not effluent), water quality data at SNP Station S07L3-002-(1) during non-decant years has met the licence's effluent quality guidelines for the past number of years. Sampling frequency at this station, during non-decant years, could therefore be reduced when effluent is not being decanted.</p> <p>Recommendation Reduce the sampling frequency, during non-decant years, at SNP Station S07L3-002-(1) to the fall only.</p> | | <p>Sampling frequency reduced to fall only during years of no decant as per ENR recommendation.</p> |
| 11 | <p>"Topic: SNP Stations S07L3-002-(6) and S07L3-002-(7) - Reference: Annex A: Part B, condition 3</p> | <p>Comment SNP Stations S07L3-002-(6) and S07L3-002-(7) monitor storm water effluent at the Mackenzie River and water dispensed from the pumphouse of the Water Treatment Facility, respectively. The rationale provided for these sampling locations in Part B of Annex A is "to ensure discharge water meets Part D, condition 5" which sets out the effluent quality criteria for treated wastewater. However the location of these Stations do not support this goal.</p> <p>Recommendation The Town recommends</p> | | <p>Rationale was changed for these two SNP stations. Criteria for water dispensed from pumphouse (SNP Station 7) was revised to measure volume. SNP Station 6 recommended to be discontinued.</p> |

| | | updating the rationale of SNP Stations S07L3-002-(6) and S07L3-002-(7) to reflect the intent of these Stations. | | |
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| Environment and Climate Change Canada: Gabriel Bernard-Lacaille | | | | |
| ID | Topic | Reviewer Comment/Recommendation | Proponent Response | Board Staff Response |
| 1 | General File | Comment (doc) ECCC cover letter for S18L3-003 renewal Recommendation | | |
| 2 | ECCC 1- Solid Waste Management; Solid Waste Disposal Facility Operations and Maintenance Plan (August 2018) | Comment “Environment and Climate Change Canada (ECCC) has developed the planning and technical guidance document, Solid Waste Management for Northern and Remote Communities. The Proponent is encouraged to use the ECCC planning and technical guidance document to support responsible solid waste management. A summary and link to the full document are available on the Government of Canada website at: https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/municipal-solid/environment/northern-remote-communities.html ” Recommendation No recommendation. Information is provided for Proponent’s reference. | Oct 10: Thank you for the information. | No comment |
| 3 | ECCC 2- Section 3.3 Sludge Management; Wastewater Treatment System Operations and Maintenance Plan (August 2018) | Comment “Section 3.3 of the Wastewater Treatment System Operations and Maintenance (WWTS O&M) Plan describes the management approach that will be undertaken for sludge. The section states that sludge has never been removed from the sewage lagoon, but that removal is planned for 2019. It remains unclear what criteria was used to determine that sludge removal was required in 2019 or what will trigger sludge removal in the | Oct 10: As per Water Licence (S07L3-002) Part D, Item 7 and 8, the Town intends to provide notification to the Board on the removal and disposal of sludge and sediments from sewage lagoon, including the disposal method, prior to any | The Proponent will update the WWTS O&M Plan when a sludge management plan is developed |

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| | | <p>future. Furthermore, the WWTS O&M plan indicates that when excessive sludge has accumulated (defined in the plan as more than one-third of the water storage depth is accumulated sludge), sludge removal should be completed.”</p> <p>Recommendation ECCC recommends that sludge disposal criteria be developed in advance of sludge removal and that sludge management decisions be informed by process performance (i.e., effluent quality monitoring results), as well as by sludge depth.</p> | <p>sludge removal. It is anticipated that a similar condition will be included in the new water licence. The Town is willing to work with the Board (and ECCC) to help evaluate appropriate sludge disposal criteria (e.g., sludge depth, volume, effluent quality conditions) such that sludge management processes and decisions can be better informed.</p> | |
| 4 | <p>ECCC 3 - Contingency measures; Wastewater Treatment System Operations and Maintenance Plan (August 2018)</p> | <p>Comment The WWTS O&M Plan should identify what contingency measures would be used to address potential scenarios of wastes not meeting discharge requirements/criteria.</p> <p>Recommendation ECCC recommends that the WWTS O&M Plan identifies contingency measures to address potential scenarios of wastes (including effluent and sludge) not meeting discharge requirements/criteria.</p> | <p>Oct 10: Development of contingency measures is currently not a requirement for WWTS/SDF O&M plans, as per the MVLWB guidance (e.g., for effluent discharge). If required by the Board, the Town could include some contingency scenarios in its WWTS O&M Plan. Contingency measures for sludge management and disposal can be developed once a sludge disposal plan is prepared (e.g., in 2019).</p> | <p>The Proponent will update the WWTS O&M Plan with contingency measures.</p> |
| 5 | <p>ECCC 4 - Section 3.5.1 Reporting; Wastewater Treatment System Operations and Maintenance</p> | <p>Comment Section 3.5.1 itemizes the information that will be provided in the annual report. In addition to these items, laboratory reports and Quality Assurance and Quality Control (QA/QC) field data should also be provided.</p> <p>Recommendation ECCC recommends that annual reports also include copies of</p> | <p>Oct 10: The list in Section 3.5.1 can be updated to include laboratory certificates of analysis and any QA/QC sampling results.</p> | <p>This is a requirement in the annual water licence report.</p> <p>Proponent to update section 3.5.1 of the WTS O&M Plan at the</p> |

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| | Plan (August 2018) | laboratory reports and QA/QC field sampling results. | | annual review date. |
| 6 | ECCC 5 - Surveillance Network Program; Water licence S07L3-002, amended October 28, 2010 | Comment The Surveillance Network Program (SNP) for the existing water licence (i.e., S07L3-002, amended October 28, 2010) does not specify monitoring of field pH or field temperature. Collecting this data would assist in interpreting other monitoring results. Recommendation ECCC recommends that field pH and field temperature are sampled and recorded during monitoring events, and that the Surveillance Network Program is revised to include these requirements. | Oct 10 As noted in our responses to the 2017 Annual Report, the Town will consider this for future monitoring events, as required by the terms and conditions of our Water Licence. | Field pH and temperature were added to the list of SNP requirements |
| 7 | ECCC 6 - Surveillance Network Program; Water licence S07L3-002, amended October 28, 2010 | Comment SNP stations S07L3-002-(4) and (5) (i.e., groundwater wells downslope of the solid waste disposal facility) are to be sampled in the spring and fall, as per the Surveillance Network Program. ECCC notes that pH and chloride should be also be included in the list of parameters to be monitored in order to better characterize and understand the groundwater. Recommendation ECCC recommends adding pH and chloride to the list of monitoring parameters specified in the Surveillance Network Program for stations S07L3-002-(4) and (5). | Oct 10: The Town will consider this for future monitoring events, as required by the terms and conditions of our Water Licence. | pH and chloride were added to the list of monitoring parameters for these SNP stations |

Environment and Climate Change Canada: Russell Wykes

| ID | Topic | Reviewer Comment/Recommendation | Proponent Response | Board Staff Response |
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| 2 | General File | Comment (doc) ECCC Cover Letter Recommendation | | |
| 1 | ECCC Comments | Comment (doc) n/a Recommendation n/a | | |
| 3 | "Topic: Part D (Waste Disposal), Condition 3 | Comment Part D (Waste Disposal), Condition 3, which reads "The Licensee shall direct all Pump-out Sewage to the Wastewater Treatment System Facilities" appears to contain a typographical error. Recommendation ECCC recommends reviewing Part D (Waste Disposal), Condition 3. | Nov 2: No comment | Correction made |

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| 4 | Topic: Sludge management | <p>Comment Part D (Waste Disposal), Condition 10 outlines the notification requirements pertaining to the removal and burial of sewage sludge. The use of the term disposal, rather than burial, would allow for other sludge management options. Sludge disposal decisions should be informed by sludge quality and volume, and by disposal criteria. These details should be provided in the notification.</p> <p>Recommendation ECCC recommends making the following changes to Part D (Waste Disposal), Condition 10: (1) Replace the word “burial” with “disposal” and (2) Add further details to the notification requirements, including sludge volume, sludge characterization/analyses, proposed sludge disposal criteria, and comparison of sludge quality against proposed sludge disposal criteria.</p> | Nov 2: No comment | Change made and additional details to notification requirements added |
| 5 | Topic: Burning of wastes | <p>Comment The water licence includes a provision for burning of paper products, paperboard packaging and untreated wood waste at the Solid Waste Disposal Facility</p> <p>Recommendation ECCC recommends that open burning be minimized/ avoided to the extent possible. ECCC’s planning and technical guidance document, Solid Waste Management for Northern and Remote Communities, discusses the hazards of open burning and provides information regarding management alternatives. A summary and link to the full document are available on the Government of Canada website at: "https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/municipal-solid/environment/northern-remote-communities.html">https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/municipal-solid/environment/northern-remote-communities.html.</p> | Nov 2: Thank you for the information | No comment |

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| 6 | Topic: Hazardous Waste Management Plan | <p>Comment Part D (Waste Disposal), Condition 16 outlines requirements for the Hazardous Waste Management Plan. Additional elements are recommended to strengthen the plan.</p> <p>Recommendation ECCC recommends adding the following additional requirements for the Hazardous Waste Management Plan to Part D, Condition 16: - Hazardous waste acceptance criteria; - Secondary containment methods; - Hazardous waste tracking methods; and - Record-keeping and reporting.</p> | <p>Nov 2: The Town's Hazardous Waste Management Plan currently specifies hazardous waste acceptance criteria and secondary containment methods. As per licence conditions, the Town can review and update (as needed) its HWMP to meet requirements of Condition 16.</p> | Additional requirements were added to the condition |
| 7 | Topic: Annual Water Licence Report | <p>Comment Monthly and annual quantities of sludge removed from Seepage Lake will be reported in the Annual Water Licence Report. The annual report should also include an overall summary of sludge monitoring and management to provide a better account of this topic.</p> <p>Recommendation ECCC recommends adding the following additional requirement for the Annual Water Licence Report to Schedule 1: - Sludge monitoring and management summary.</p> | <p>Nov 2: No comment</p> | Additional requirement added to the Schedule 1 |
| 8 | Topic: Operations and Maintenance Plans | <p>Comment The Schedule 2 requirements for the Operations and Maintenance Plans do not specifically reference either monitoring or sludge. Both topics should be addressed in the appropriate O&M plans.</p> <p>Recommendation ECCC recommends adding the following additional requirements for the Operations and Maintenance Plans to Schedule 2: - Monitoring; - Sludge depth measurements (conduct every two to five years); and - Sludge monitoring and management procedures.</p> | <p>Nov 2: Sludge management is currently addressed in Section 3.3 of the Town's WWTF O&M Plan. As per licence conditions, the Town will update its O&M Plans, as needed, to meet requirements of licence.</p> | Additional requirements added to schedule 2 |
| 9 | Topic: Closure and Reclamation Plan | <p>Comment The Schedule 3 requirements for the Closure and Reclamation Plan do not specifically reference monitoring.</p> <p>Recommendation ECCC recommends adding the following additional requirement for the Closure and</p> | <p>Nov 2: No comment</p> | Additional requirement added to schedule 3 |

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| | | Reclamation Plan to Schedule 3: - Monitoring | | |
| 10 | Topic: SNP Station S07L3-002-(1) | <p>Comment The sampling parameters for SNP Station S07L3-002-(1) should be revised to include phosphorus and all relevant forms of nitrogen.</p> <p>Recommendation ECCC recommends revising the SNP sampling parameters for Station S07L3-002-(1) as follows: (1) Replace “nitrate and nitrogen” with “total nitrogen, nitrite-nitrogen, nitrate-nitrogen” and (2) Replace “total phosphate” with “total phosphorus”</p> | Nov 2: No comment | Changes made to sampling parameters |
| 11 | Topic: SNP Stations S07L3-002-(2) and S07L3-002-(3) | <p>Comment SNP Stations S07L3-002-(2) and S07L3-002-(3) monitor waters in Seepage Creek directly upstream of the culverts conveying Seepage Creek under Quarry Road and under Mackenzie Drive, respectively. The rationale provided for these sampling locations is to ensure discharge water meets Part D, condition 5, which sets out the effluent quality criteria for treated wastewater. However the sampling parameters do not support this goal.</p> <p>Recommendation ECCC recommends that the water licence rationale is reviewed for Stations S07L3-002-(2) and S07L3-002-(3) to ensure that the rationale accurately reflects the goal of these monitoring stations, which appear to be monitoring treated wastewater discharge quality beyond the point of compliance. Sampling parameters should also be reviewed, to ensure consistency with the rationale. Ammonia nitrogen, total nitrogen and total phosphorus should be added to the currently proposed sampling parameters.</p> | Nov 2: The Town agrees with ECCC. The Town supports reviewing the water licence rationale for Stations S07L3-002-(2) and S07L3-002-(3), which should reflect the goal of these monitoring stations. Stations S07L3-002-(2) and S07L3-002-(3) are beyond (downstream of) the water licence compliance point (S07L3-002-(1)) and should not be subject to the effluent quality criteria (i.e., Part D, Condition 5). | Rationale revised and additional sampling parameters added |
| 12 | Topic: Sludge management | <p>Comment As noted for Condition 10, using the term disposal, rather than burial, will allow for flexibility in sludge management.</p> <p>Recommendation ECCC recommends making the following change to Part D</p> | Nov 2: No comment | Corrections made |

| | | (Waste Disposal), Condition 11: Replace the words “burial” and “buried” to with “disposal” and “disposed in”. | | |
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| GNWT - ENR: Central Email GNWT | | | | |
| ID | Topic | Reviewer Comment/Recommendation | Proponent Response | Board Staff Response |
| 13 | General File | Comment (doc) ENR Letter with Comments and Recommendations Recommendation | | |
| 16 | General File | Comment (doc) ENR Letter with Comments and Recommendations Recommendation | | |
| 1 | Topic 1: Part A - Scope and Definitions of Norman Wells Water Licence | Comment For consistency with other Water Licences issued in the Northwest Territories (NWT), the Sahtu Land and Water Board (SLWB) should consider updating the following definitions within Part A - Scope and Definitions of Norman Wells Water Licence: Minister means a duly appointed member of the Executive Council who is responsible for the Waters Act or the department responsible for administering the Act. Modification means a change, other than an expansion, that does not alter the purpose or function of that structure. Municipal Sewage Sludge is a mixture of water and non-stabilized solids separated from various types of wastewater as a result of a natural or artificial process. Professional Engineer means a person registered with the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists to practice as a Professional Engineer in the Northwest Territories in accordance with the Engineering and Geoscience Professions Act, S.N.W.T. 2006, V.16, or amendments, and whose principal field of specialization is appropriate to address the components of the undertaking at hand. Reclamation means activities which facilitate the return of areas affected by the Waste Disposal Facilities to a viable and, wherever | Oct 10 No comment. | Updates to definitions made |

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| | | <p>practicable, self-sustaining ecosystems that are compatible with a healthy environment, human activities, and surrounding environment. Regulations means Regulations promulgated pursuant to section 63 of the Act. Sewage Sludge Treatment Facility comprises the area and engineered structures designed to treat Sewage sludge. Spill Contingency Plan means a document, developed in accordance with Indian and Northern Affairs Canada's April 2007 Guidelines for Spill Contingency Planning, that describes the set of procedures to be implemented to prevent and minimize the effects of a spill. Unauthorized discharge means a release or discharge of any Water or Waste not authorized under this Licence. Waste means any substance defined as Waste by section 1 of the Act.</p> <p>Recommendation 1) ENR recommends that the above (or equivalent) definitions be added to the Norman Wells Water Licence for consistency with other NWT Water Licences.</p> | | |
| 2 | <p>Topic 2: SDF - Effluent Quality Criteria to Measure Sewage Disposal Facility Treatment Capabilities</p> | <p>Comment The size and storage capacity of the sewage lagoon's retention cell at Seepage Lake (illustrated in figure 2-2, p. 13) has allowed this lagoon system to operate under multi-years storage - where the lagoon is able to retain/store several years of wastewater production prior to discharging to the environment. This was demonstrated by decanting activities occurring in 2009, and again in 2017 only (no decant in between). Quality of treated wastewater is typically assessed against pre-determined Effluent Quality Criteria (EQCs) at the compliance location which, depending on the Sewage Disposal Facility (SDF) system configuration and specifics, is located at the outlet of lagoon or at the wetland outlet for a few systems. In the case of Norman Wells SDF system, the decant structure is located at the outlet of a large multi-year retention capacity</p> | <p>Oct 10: As indicated in the Review Comment, performance results (i.e., water quality results at the compliance point SNP S07L3-002(1)) are largely indicative of a period when no active discharge from the retention cell was occurring. The Town is willing to work with the Board to identify appropriate EQCs once additional data (e.g., several years) are available to better characterize active discharge water quality conditions and the</p> | <p>EQCs were revised based on previous data and achievability of the system and criteria set for other similar licences</p> |

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| | | <p>retention cell. Results monitored at that location (SNP S07L3-002(1) compliance point) submitted for 2009, 2014, 2015 and 2017, provided average values of 5.4 mg/L for Biological Oxygen Demand (BOD), and 33.9 mg/L for Total Suspended Solids (TSS). This average TSS value of 11 sampling events spread over 4 separate years would be reduced to 14.4 mg/L, if a 170 mg/L result measured in July 8, 2009 is removed. The current Water Licence EQCs of BOD 180 mg/L and SS 125 mg/L to be achieved prior to discharge into the ponds/wetlands receiving environment separating Seepage Lake from the Mackenzie River, may not appropriately reflect the treatment capabilities of Seepage Lagoon system. The SLWB may consider reducing these EQCs considering treatment performance achieved in recent years- or alternatively allow for few more years of data to be collected prior to revising effluent quality criteria limits.</p> <p>Recommendation 1) ENR recommends that the SLWB identify and adopt the most appropriate wastewater treatment objectives at the outlet of Seepage Lake lagoon retention cell, in order to reflect the system’s treatment capabilities.</p> | <p>relevance of the existing EQCs.</p> | |
| 3 | <p>Topic 3: SDF-Monitoring Frequency at Compliance Point in Years of No Decant</p> | <p>Comment The monitoring frequency required at the SNP S07L3-002(1) compliance location under the current Water Licence requires sampling to occur twice annually (spring and fall), even in years when no treated water is being discharged to the environment (see SNP section, Item B.2). An August 2015 ENR inspection suggested that samples could be collected in the fall only during years where decant does not occur.</p> <p>Recommendation 1) ENR recommends the SLWB identify and retain the most relevant yearly sampling frequency for years when the Seepage Lake lagoon system is not being decanted to the environment.</p> | <p>Oct 10: The Town is willing to work with the Board to identify the most appropriate sampling frequency for non-decant years.</p> | <p>Frequency changed to fall only during years of no decant.</p> |

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| 4 | Topic 4: SDF - Clarifications | <p>Comment Section 2.1 specifies that the sewage lagoon at Seepage Lake is a bermed lake lagoon with two primary cells and a retention cell. No details on the type liners used under the primary cells (if any) were specified. Section 2.1 further specifies that wastewater operations at the Sewage Lagoon include sewage disposal, sedimentation, decanting and sludge removal, but no details were provided on the exact discharge location(s) [i.e. discharge to either or both of the primary cells], the flow direction within the primary cells, as well as specific information on how wastewater circulates between the primary cells and the retention cell (and the structures allowing that transfer to occur).</p> <p>Recommendation 1) ENR recommends that details such as specified above on the existence, integrity and composition of liners under primary cells, as well as wastewater transfer systems and/or processes in between cells be described, in order to gain a better understanding of wastewater movement through the system and containment structures.</p> | <p>Oct 10: The WWTF/SDF O&M Plan can be updated to indicate the locations of discharge from the primary cells and the estimated flow direction and circulation within the system. As-built information for the primary cells unfortunately do not indicate the composition of the cell berms.</p> | <p>The Proponent will update the WWTF/SDF O&M Plan to include additional details of the wastewater treatment system.</p> |
| 5 | Topic 5: SDF - SNP Effluent Monitoring for CBOD Monitoring | <p>Comment Carbonaceous Biochemical Oxygen Demand (CBOD) was selected as a preferable parameter to measure wastewater effluent quality in southern Canadian jurisdictions, with the adoption of the Canada-wide Wastewater System Effluent Regulations (WSER) and should be replacing Biochemical Oxygen Demand (BOD) in the Norman Wells Water Licence in order to harmonize wastewater treatment system monitoring requirements with other NWT Water Licences, as well as southern Canadian jurisdictions.</p> <p>Recommendation 1) ENR recommends BOD monitoring be replaced by CBOD in order to align with other NWT Municipal Water Licences and southern Canadian jurisdictions.</p> | <p>Oct 10: The Town will consider this for future monitoring events, as required by the terms and conditions of our Water Licence. 2) No comment.</p> | <p>The Licence will change to CBOD monitoring</p> |

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| 6 | None | <p>Comment None</p> <p>Recommendation 2) ENR further recommends that the EQC section, and associated limits currently found in Part B of the SNP section of the Water Licence, be moved under ~Conditions Applying to Waste Disposal in Part D of the Water Licence.</p> | Oct 10: no comment | EQC section moved into Part D of the Licence |
| 7 | Topic 6: September 2017 Identified Issues from ENR Inspection Report | <p>Comment Several Water Licence requirements were identified as 'Unacceptable' during an ENR inspection conducted on September 28th, 2017. Several Water Licence requirements identified then as outstanding (i.e. Spill Contingency Plan (SCP), Operation and Maintenance Plans (O&M Plans) and Hazardous Waste Management Plan (HWMP)) have since been addressed through submissions under the current Water Licence renewal process. However, ENR isn't clear regarding the status of other outstanding items identified during the September 2017 inspection. As such, some outstanding Water Licence requirements identified during the inspection are outlined as part of the current Water Licence renewal comments below, therefore providing the opportunity for the Town of Norman Wells to provide clarifications via the Proponent's response process.</p> <p>Recommendation 1) None</p> | Oct 10: See response below re Comment ID 8. | Comments noted |
| 8 | Topic 7: SWDF - Security Control and Access | <p>Comment ENR's September 2017 Inspection Report specified (p. 5) that gates should be installed at both entrances of the SWDF, as per Part B #9 of the Water Licence. The report specified that gates should be capable of being locked to prevent the entry of wildlife and for the purpose of discouraging unauthorized deposits of wastes. The Norman Wells Water Licence application identified SWDF Environmental Concerns as 'Unauthorized storage of hazardous waste' (p. 8). As specified in the Town's HWMP,</p> | Oct 10: As noted in our responses to the 2017 Annual Report, the Town is committed to the proper storage, handling, and disposal of wastes and are making efforts to improve our housekeeping practices and remove these wastes from the Facility. The Town is | Conditions added to the licence to install gates at the SWDF |

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| | | <p>the SWDF is surrounded by a chain link fence and an electric fence, and the two main entrances are never closed or locked, while the alternate gate is always closed and locked.</p> <p>Recommendation 1) In order to address the Town’s concerns with unauthorized deposit/storage of hazardous wastes at the SWDF, ENR recommends the new Water Licence include provisions for Norman Wells to install gates (if not already done) at both of the two main entrances to the SWDF, as recommended by the ENR inspector.</p> | <p>willing to work with the Board to develop an access control plan to limit unauthorized waste discharges at the SWDF.</p> | |
| 9 | None | <p>Comment None</p> <p>Recommendation 2) Once gates are installed and fully operational (if not already), ENR further recommends the conditions of the new Water Licence to require access control strategies, or systems, be developed for the SWDF site.</p> | <p>Oct 10: see response above, re comment ID 8</p> | <p>Condition added to develop access control strategy</p> |
| 10 | Topic 8: SWDF - Vacant Operator Position | <p>Comment Norman Wells' SWDF O&M Plan identifies the Landfill Operator's position as being currently vacant. Responsibilities associated with the Landfill Operator's position include (Table 2-4, SWDF O&M Plan): Gate operations, vehicle spotting and waste screening, site maintenance, equipment operations, planning and development of the landfill, regulatory compliance, administrative duties and safety. Section 4.3.1 of the SWDF O&M Plan also notes that the Landfill Operator is responsible for 'Litter control' (p. 33). Interim measures should be identified in the SWDF O&M Plan and implemented, in order to minimize environmental impacts from illegal hazardous waste dumping, and litter control etc., in periods during which the Landfill Operator's position may be vacant. This would ensure that SWDF maintenance does not deteriorate in period when the landfill may be short staffed. For example, an interim measure could consist</p> | <p>Oct 10: As noted in our responses to the 2017 Annual Report, the Town is committed to the proper storage, handling, and disposal of wastes and are making efforts to improve our housekeeping practices. Outlined in the SWDF O&M Plan, the Public Works Foreman is the Acting Landfill Operator, as needed, and the Town has hired HRN Contracting to assist with some of the Landfill Operator’s responsibilities while this position is vacant. As noted above, the Town is willing to work with the Board to</p> | <p>Condition included in Licence to develop access control strategy</p> |

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| | | <p>of allowing public access at specific pre-determined weekly times, when the Public Works Foreman would be on-site to accept loads, but keeping all gates closed and locked the rest of the time. In times when the SEDF facility is locked, keys to the gates and signup sheets could be kept at the Town's office, in order to allow inspections, and keep track of out-of-hours generators and waste deposition that may occur.</p> <p>Recommendation 1) ENR recommends the Norman Wells Water Licence include a requirement to plan for provision of relevant interim management and maintenance measures (in the SWDF O&M Plan next revision) through developing an access control strategy for the SWDF to minimize risks of illegal dumping and/or wildlife access at all times.</p> | <p>develop an access control plan to further limit unauthorized waste discharges at the SWDF.</p> | |
| 11 | <p>Topic 9: SWDF - Wind-blown Debris/Garbage Traveling Outside the SWDF</p> | <p>Comment Photograph ID 17 from a Photo Log taken in June 2018 (SWDF O&M plan Appendix B) displays a broken fence that is no longer capable of capturing and retaining debris/garbage within the SWDF limits. ENR inspection report recommended that the debris fence be inspected on a regular basis to ensure that it is still operational, and that windswept wastes be collected twice per year for the duration of the Water Licence. The SWDF O&M Plan outlines that litter is being managed by fencing and monthly application of an intermediate cover. The following were also recommended in a 2009 AECOM Report "levels of control" approach to litter management at the landfill. The use of fence sections were suggested as a 3rd level of litter control (after vehicle hauling (1st) and waste covering/compacting (2nd)), and retrieving litter accumulating along roads and adjacent lands described in a 4th (and final) level of control.</p> <p>Recommendation 1) ENR recommends</p> | <p>Oct 10: As noted in our responses to the 2017 Annual Report, the Town is committed to the proper storage, handling, and disposal of wastes and are making efforts to improve our housekeeping practices. Section 4.3.1 of the SWDF O&M Plan outlines the Town's litter management procedures for the SWDF. This, combined with monthly inspections (Section 5 of the SWDF O&M Plan), should mitigate concerns with respect to litter control.</p> | <p>Condition added to Licence for litter control</p> |

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| | | <p>the new Water Licence include a requirement to plan for provision of appropriate litter management at the Norman Wells SWDF (in the SWDF O&M Plan next revision) through adequate inspection and maintenance of the debris fence and collection of wastes accumulating alongside the fence as and as discussed in the above comments.</p> | | |
| 12 | <p>Topic 10: SWDF - Not Registered to Receive Asbestos Waste</p> | <p>Comment The Norman Wells HWMP enumerated asbestos as one of the hazardous wastes currently accepted at the SWDF. The HWMP further specifies that asbestos waste should be buried immediately upon being accepted at the landfill with 50 cm of cover material in area(s) where it will not be disturbed. The HWMP also specifies (p. 13) that additional precautions should be implemented by the Town for the disposal of asbestos, and that the Town of Norman Wells SWDF should become registered to receive asbestos waste and comply with the GNWT Guidelines for the Management of Waste Asbestos (2004). Recommendation 1) ENR supports the recommendation made in Norman Wells Hazardous Waste Management Plan for the Town to become registered to receive asbestos waste and comply with the GNWT Guidelines for the Management of Waste Asbestos (2004).</p> | <p>Oct 10: Agreed; the Town is committed to completing this and managing hazardous wastes appropriately.</p> | <p>No comment</p> |
| 14 | <p>Topic 1: TSS EQC</p> | <p>Comment ENR notes that past monitoring results available for Norman Wells Total Suspended Solids (TSS) discharge from the lagoon to be as follows: . 18 mg/L & 3 mg/L (in 2017), . <3 mg/L, 3 mg/L, 5 mg/L & 4 mg/L (in 2015) . 60 mg/L (in 2014) . <3 mg/L, <3 mg/L, 8 mg/L and 170 mg/L (in 2009) While a TSS average of 33.9 mg/L was specified during the Water Licence application review period, the value of 170 mg/L may be an outlier. A TSS EQC of 125 mg/L appears to be high considering the treatment capabilities of</p> | <p>Nov 2: As previously indicated in the Review Comment, performance results (i.e., water quality results at the compliance point SNP S07L3-002(1)) are mostly representative of periods when no active discharge/decant was occurring from Seepage Lake. The last two decant events occurred</p> | <p>EQCs were revised based on previous data and achievability of the system and criteria set for other similar licences</p> |

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| | | <p>this multi-year retention system.</p> <p>Recommendation 1) ENR recommends that the most suitable wastewater treatment objective be selected. This may include a TSS value that falls within the natural range of values listed above. ENR encourages the Board to reference similar operations for comparisons of appropriate EQC values.</p> | <p>in 2009 and 2016. The TSS “outlier” value of 170 mg/L was obtained in 2009 during a period of decant suggesting that higher TSS value may be obtained during decanting. Given that only two years of decant water quality data are available, the Town is willing to work with the Board to identify appropriate EQCs once additional data (e.g., several years) are available to better characterize active discharge water quality conditions and the relevance of the existing EQCs.</p> | |
| 15 | Topic 2: BOD & CBOD Ratio | <p>Comment ENR notes that past monitoring results available for Norman Wells discharge from the lagoon to be as follows: . 9 mg/L for both BOD & CBOD (24/05/2017) . 3 mg/L for CBOD, and 2 mg/L for BOD (27/09/2017) While CBOD and BOD were only monitored together in 2017, the average value for BOD results submitted in the past corresponded to 5.4 mg/L at the discharge point from the lagoon. As such, EQCs of 75 mg/L for CBOD, and 180 mg/L for BOD, would appear to be high considering the treatment capabilities of this multi-year retention system. Furthermore, CBOD value for Water Licence EQCs were derived at 90% of BOD value by looking at the trend analysis submitted by the City of Yellowknife (MV2009L3-0007). This CBOD/BOC ratio reflected a three year analysis of wastewater effluent monitoring data. In Fort Providence and Inuvik most recent Water Licences, this 90% ratio was adopted when transferring BOD to CBOD,</p> | <p>Nov 2: The Town agrees with changing EQCs from BOD to CBOD to allow for comparability with southern Canadian jurisdictions and the Canada-wide Strategy for Municipal Wastewater Effluent (though not yet applicable to the NWT). As previously indicated, given that only two years of decant value are available, the Town is willing to work with the Board to identify appropriate EQCs once additional data (e.g., several years) are available to better characterize active discharge water quality</p> | <p>EQCs were revised based on previous data and achievability of the system and criteria set for other similar licences</p> |

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| | | <p>from the former Water Licence to the new version. Selecting CBOD as EQC is allowing for comparability with southern Canadian jurisdictions. As such, the Board should consider revising the current CBOD and BOD ratio presented in the current draft Water Licence.</p> <p>Recommendation 1) ENR recommends that the most suitable treatment objectives, for CBOD (and perhaps BOD also, if deemed necessary), be selected by the Board, such as an EQC for CBOD that is derived at 90% of BOD value.</p> | <p>conditions and the relevance of the existing EQCs.</p> | |
|--|--|--|---|--|



September 24, 2018

Sabrina Sturman
Regulatory Specialist
Sahtu Land and Water Board
Box 1, Fort Good Hope
Northwest Territories
X0E 0H0

Dear Ms. Sturman,

Re:

**Town of Norman Wells
Water Licence Renewal Application – S18L3-003
Municipal Water Use and Deposits of Waste
Request for Review and Comments**

The Department of Environment and Natural Resources (ENR), Government of the Northwest Territories has reviewed the application at reference based on its mandated responsibilities under the *Environmental Protection Act*, the *Forest Management Act*, the *Forest Protection Act*, the *Species at Risk (NWT) Act*, the *Waters Act* and the *Wildlife Act* and provides the following comments and recommendations for the consideration of the Board.

Topic 1: Part A - Scope and Definitions of Norman Wells Water Licence

Comment(s):

For consistency with other Water Licences issued in the Northwest Territories (NWT), the Sahtu Land and Water Board (SLWB) should consider updating the following definitions within *Part A - Scope and Definitions* of Norman Wells Water Licence:

Minister means a duly appointed member of the Executive Council who is responsible for the *Waters Act* or the department responsible for administering the Act.

Modification means a change, other than an expansion, that does not alter the purpose or function of that structure.

Municipal Sewage Sludge is a mixture of water and non-stabilized solids separated from various types of wastewater as a result of a natural or artificial process.

Professional Engineer means a person registered with the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists to practice as a Professional Engineer in the Northwest Territories in accordance with the Engineering and Geoscience Professions Act, S.N.W.T. 2006, V.16, or amendments, and whose principal field of specialization is appropriate to address the components of the undertaking at hand.

Reclamation means activities which facilitate the return of areas affected by the Waste Disposal Facilities to a viable and, wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment, human activities, and surrounding environment.

Regulations means Regulations promulgated pursuant to section 63 of the Act.

Sewage Sludge Treatment Facility comprises the area and engineered structures designed to treat Sewage sludge.

Spill Contingency Plan means a document, developed in accordance with Indian and Northern Affairs Canada's April 2007 Guidelines for Spill Contingency Planning, that describes the set of procedures to be implemented to prevent and minimize the effects of a spill.

Unauthorized discharge means a release or discharge of any Water or Waste not authorized under this Licence.

Waste means any substance defined as Waste by section 1 of the Act.

Recommendation(s):

- 1) ENR recommends that the above (or equivalent) definitions be added to the Norman Wells Water Licence for consistency with other NWT Water Licences.

Topic 2: SDF - Effluent Quality Criteria to Measure Sewage Disposal Facility Treatment Capabilities

Comment(s):

The size and storage capacity of the sewage lagoon's retention cell at Seepage Lake (illustrated in figure 2-2, p. 13) has allowed this lagoon system to operate under multi-years storage - where the lagoon is able to retain/store several years of wastewater production prior to discharging to the environment. This was demonstrated by decanting activities occurring in 2009, and again in 2017 only (no decant in between).

Quality of treated wastewater is typically assessed against pre-determined Effluent Quality Criteria (EQCs) at the compliance location which, depending on the Sewage Disposal Facility (SDF) system configuration and specifics, is located at the outlet of lagoon or at the wetland outlet for a few systems. In the case of Norman Wells SDF system, the decant structure is located at the outlet of a large multi-year retention capacity retention cell. Results monitored at that location (SNP S07L3-002(1) compliance point) submitted for 2009, 2014, 2015 and 2017, provided average values of 5.4 mg/L for Biological Oxygen Demand (BOD), and 33.9 mg/L for Total Suspended Solids (TSS). This average TSS value of 11 sampling events spread over 4 separate years would be reduced to 14.4 mg/L, if a 170 mg/L result measured in July 8, 2009 is removed.

The current Water Licence EQCs of BOD 180 mg/L and SS 125 mg/L to be achieved prior to discharge into the ponds/wetlands receiving environment separating Seepage Lake from the Mackenzie River, may not appropriately reflect the treatment capabilities of Seepage Lagoon system. The SLWB may consider reducing these EQCs considering treatment performance achieved in recent years– or alternatively allow for few more years of data to be collected prior to revising effluent quality criteria limits.

Recommendation(s):

- 1) ENR recommends that the SLWB identify and adopt the most appropriate wastewater treatment objectives at the outlet of Seepage Lake lagoon retention cell, in order to reflect the system’s treatment capabilities.

Topic 3: SDF-Monitoring Frequency at Compliance Point in Years of No Decant

Comment(s):

The monitoring frequency required at the SNP S07L3-002(1) compliance location under the current Water Licence requires sampling to occur twice annually (spring and fall), even in years when no treated water is being discharged to the environment (see SNP section, Item B.2). An August 2015 ENR inspection suggested that samples could be collected in the fall only during years where decant does not occur.

Recommendation(s):

- 1) ENR recommends the SLWB identify and retain the most relevant yearly sampling frequency for years when the Seepage Lake lagoon system is not being decanted to the environment.

Topic 4: SDF - Clarifications

Comment(s):

Section 2.1 specifies that the sewage lagoon at Seepage Lake is a bermed lake lagoon with two primary cells and a retention cell. No details on the type liners used under the primary cells (if any) were specified.

Section 2.1 further specifies that wastewater operations at the Sewage Lagoon include sewage disposal, sedimentation, decanting and sludge removal, but no details were provided on the exact discharge location(s) [i.e. discharge to either or both of the primary cells], the flow direction within the primary cells, as well as specific information on how wastewater circulates between the primary cells and the retention cell (and the structures allowing that transfer to occur).

Recommendation(s):

- 1) ENR recommends that details such as specified above on the existence, integrity and composition of liners under primary cells, as well as wastewater transfer systems and/or processes in between cells be described, in order to gain a better understanding of wastewater movement through the system and containment structures.

Topic 5: SDF - SNP Effluent Monitoring for CBOD Monitoring

Comment(s):

Carbonaceous Biochemical Oxygen Demand (CBOD) was selected as a preferable parameter to measure wastewater effluent quality in southern Canadian jurisdictions, with the adoption of the Canada-wide Wastewater System Effluent Regulations (WSER) and should be replacing Biochemical Oxygen Demand (BOD) in the Norman Wells Water Licence in order to harmonize wastewater treatment system monitoring requirements with other NWT Water Licences, as well as southern Canadian jurisdictions.

Recommendation(s):

- 1) ENR recommends BOD monitoring be replaced by CBOD in order to align with other NWT Municipal Water Licences and southern Canadian jurisdictions.
- 2) ENR further recommends that the EQC section, and associated limits currently found in Part B of the SNP section of the Water Licence, be moved under 'Conditions Applying to Waste Disposal' in Part D of the Water Licence.

Topic 6: September 2017 Identified Issues from ENR Inspection Report

Comment(s):

Several Water Licence requirements were identified as 'Unacceptable' during an ENR inspection conducted on September 28th, 2017.

Several Water Licence requirements identified then as outstanding (i.e. Spill Contingency Plan (SCP), Operation and Maintenance Plans (O&M Plans) and Hazardous Waste Management Plan (HWMP)) have since been addressed through submissions under the current Water Licence renewal process.

However, ENR isn't clear regarding the status of other outstanding items identified during the September 2017 inspection. As such, some outstanding Water Licence requirements identified during the inspection are outlined as part of the current Water Licence renewal comments below, therefore providing the opportunity for the Town of Norman Wells to provide clarifications via the Proponent's response process.

Recommendation(s):

- 1) None

Topic 7: SWDF - Security Control and Access

Comment(s):

ENR's September 2017 Inspection Report specified (p. 5) that gates should be installed at both entrances of the SWDF, as per Part B #9 of the Water Licence. The report specified that gates should be capable of being locked to prevent the entry of wildlife and for the purpose of discouraging unauthorized deposits of wastes.

The Norman Wells Water Licence application identified SWDF Environmental Concerns as 'Unauthorized storage of hazardous waste' (p. 8). As specified in the Town's HWMP, the SWDF is surrounded by a chain link fence and an electric fence, and the two main entrances are never closed or locked, while the alternate gate is always closed and locked.

Recommendation(s):

- 1) In order to address the Town's concerns with unauthorized deposit/storage of hazardous wastes at the SWDF, ENR recommends the new Water Licence include provisions for Norman Wells to install gates (if not already done) at both of the two main entrances to the SWDF, as recommended by the ENR inspector.

- 2) Once gates are installed and fully operational (if not already), ENR further recommends the conditions of the new Water Licence to require access control strategies, or systems, be developed for the SWDF site.

Topic 8: SWDF - Vacant Operator Position

Comment(s):

Norman Wells' SWDF O&M Plan identifies the Landfill Operator's position as being currently vacant.

Responsibilities associated with the Landfill Operator's position include (Table 2-4, SWDF O&M Plan): Gate operations, vehicle spotting and waste screening, site maintenance, equipment operations, planning and development of the landfill, regulatory compliance, administrative duties and safety. Section 4.3.1 of the SWDF O&M Plan also notes that the Landfill Operator is responsible for 'Litter control' (p. 33).

Interim measures should be identified in the SWDF O&M Plan and implemented, in order to minimize environmental impacts from illegal hazardous waste dumping, and litter control etc., in periods during which the Landfill Operator's position may be vacant. This would ensure that SWDF maintenance does not deteriorate in period when the landfill may be short staffed. For example, an interim measure could consist of allowing public access at specific pre-determined weekly times, when the Public Works Foreman would be on-site to accept loads, but keeping all gates closed and locked the rest of the time. In times when the SEDF facility is locked, keys to the gates and sign-up sheets could be kept at the Town's office, in order to allow inspections, and keep track of out-of-hours generators and waste deposition that may occur.

Recommendation(s):

- 1) ENR recommends the Norman Wells Water Licence include a requirement to plan for provision of relevant interim management and maintenance measures (in the SWDF O&M Plan next revision) through developing an access control strategy for the SWDF to minimize risks of illegal dumping and/or wildlife access at all times.

Topic 9: SWDF - Wind-blown Debris/Garbage Traveling Outside the SWDF

Comment(s):

Photograph ID 17 from a Photo Log taken in June 2018 (SWDF O&M plan Appendix B) displays a broken fence that is no longer capable of capturing and retaining

debris/garbage within the SWDF limits. ENR inspection report recommended that the debris fence be inspected on a regular basis to ensure that it is still operational, and that windswept wastes be collected twice per year for the duration of the Water Licence.

The SWDF O&M Plan outlines that litter is being managed by fencing and monthly application of an intermediate cover. The following were also recommended in a 2009 AECOM Report “levels of control” approach to litter management at the landfill. The use of fence sections were suggested as a 3rd level of litter control (after vehicle hauling (1st) and waste covering/compacting (2nd)), and retrieving litter accumulating along roads and adjacent lands described in a 4th (and final) level of control.

Recommendation(s):

- 1) ENR recommends the new Water Licence include a requirement to plan for provision of appropriate litter management at the Norman Wells SWDF (in the SWDF O&M Plan next revision) through adequate inspection and maintenance of the debris fence and collection of wastes accumulating alongside the fence as and as discussed in the above comments.

Topic 10: SWDF - Not Registered to Receive Asbestos Waste

Comment(s):

The Norman Wells HWMP enumerated asbestos as one of the hazardous wastes currently accepted at the SWDF. The HWMP further specifies that asbestos waste should be buried immediately upon being accepted at the landfill with 50 cm of cover material in area(s) where it will not be disturbed.

The HWMP also specifies (p. 13) that additional precautions should be implemented by the Town for the disposal of asbestos, and that the Town of Norman Wells SWDF should become registered to receive asbestos waste and comply with the GNWT Guidelines for the Management of Waste Asbestos (2004).

Recommendation(s):

- 1) ENR supports the recommendation made in Norman Wells Hazardous Waste Management Plan for the Town to become registered to receive asbestos waste and comply with the GNWT Guidelines for the Management of Waste Asbestos (2004).

Comments and recommendations were provided by ENR technical experts in the Water Resources Division and the Sahtu Region and were coordinated and collated

by the Environmental Assessment and Monitoring Section (EAM), Conservation, Assessment and Monitoring Division (CAM).

Should you have any questions or concerns, please do not hesitate to contact Patrick Clancy, Environmental Regulatory Analyst at (867) 767-9233 Ext: 53096 or email patrick_clancy@gov.nt.ca.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Clancy', written in a cursive style.

Patrick Clancy
Environmental Regulatory Analyst
Environmental Assessment and Monitoring Section
Conservation, Assessment and Monitoring Division
Department of Environment and Natural Resources
Government of the Northwest Territories



Environmental Protection Operations Directorate
Prairie & Northern Region
5019 52nd Street, 4th Floor
P.O. Box 2310
Yellowknife, NT X1A 2P7

ECCC File: 5200 000 011/002
SLWB File: S18L3-003

September 24, 2018

Via online submission

Bonnie Bergsma
Regulatory Specialist
Sahtu Land and Water Board
Box 1
Fort Good Hope, NT X0E 0H0

Dear Ms. Bergsma:

RE: S18L3-003 – Town of Norman Wells – Municipal Water Licence – Type A Water Licence Renewal

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Sahtu Land and Water Board (SLWB) regarding the above-mentioned Type A Municipal Water Licence Renewal application and is submitting comments via the online review system. ECCC's specialist advice is provided based on our mandate, in the context of the *Canadian Environmental Protection Act*, and the pollution prevention provisions of the *Fisheries Act*.

Should you require further information, please do not hesitate to contact me at (867) 669-4746 or Gabriel.Bernard-Lacaille@canada.ca.

Sincerely,

[original signed by]

Gabriel Bernard-Lacaille
A/ Senior Environmental Assessment Coordinator

Attachment(s): ECCC Comments Excel Sheet

cc: Georgina Williston, Head, Environmental Assessment North (NT and NU)



October 25, 2018

Sabrina Sturman
Regulatory Specialist
Sahtu Land and Water Board
Box 1, Fort Good Hope
Northwest Territories
X0E 0H0

Dear Ms. Sturman,

Re:

**Town of Norman Wells
Water Licence Renewal Application – S18L3-003
Municipal Water Use and Deposits of Waste
Draft Water Licence Review
Request for Review and Comments**

The Department of Environment and Natural Resources (ENR), Government of the Northwest Territories has reviewed the draft Water Licence at reference based on its mandated responsibilities under the *Environmental Protection Act*, the *Forest Management Act*, the *Forest Protection Act*, the *Species at Risk (NWT) Act*, the *Waters Act* and the *Wildlife Act* and provides the following comments and recommendations for the consideration of the Board.

Topic 1: TSS EQC

Comment(s):

ENR notes that past monitoring results available for Norman Wells Total Suspended Solids (TSS) discharge from the lagoon to be as follows:

- 18 mg/L & 3 mg/L (in 2017),
- <3 mg/L, 3 mg/L, 5 mg/L & 4 mg/L (in 2015)
- 60 mg/L (in 2014)
- <3 mg/L, <3 mg/L, 8 mg/L and 170 mg/L (in 2009)

While a TSS average of 33.9 mg/L was specified during the Water Licence application review period, the value of 170 mg/L may be an outlier. A TSS EQC of 125 mg/L appears to be high considering the treatment capabilities of this multi-year retention system.

Recommendation(s):

- 1) ENR recommends that the most suitable wastewater treatment objective be selected. This may include a TSS value that falls within the natural range of values listed above. ENR encourages the Board to reference similar operations for comparisons of appropriate EQC values.

Topic 2: BOD & CBOD Ratio

Comment(s):

ENR notes that past monitoring results available for Norman Wells discharge from the lagoon to be as follows:

- 9 mg/L for both BOD & CBOD (24/05/2017)
- 3 mg/L for CBOD, and 2 mg/L for BOD (27/09/2017)

While CBOD and BOD were only monitored together in 2017, the average value for BOD results submitted in the past corresponded to 5.4 mg/L at the discharge point from the lagoon. As such, EQCs of 75 mg/L for CBOD, and 180 mg/L for BOD, would appear to be high considering the treatment capabilities of this multi-year retention system.

Furthermore, CBOD value for Water Licence EQCs were derived at 90% of BOD value by looking at the trend analysis submitted by the City of Yellowknife (MV2009L3-0007). This CBOD/BOC ratio reflected a three year analysis of wastewater effluent monitoring data. In Fort Providence and Inuvik most recent Water Licences, this 90% ratio was adopted when transferring BOD to CBOD, from the former Water Licence to the new version. Selecting CBOD as EQC is allowing for comparability with southern Canadian jurisdictions. As such, the Board should consider revising the current CBOD and BOD ratio presented in the current draft Water Licence.

Recommendation(s):

- 1) ENR recommends that the most suitable treatment objectives, for CBOD (and perhaps BOD also, if deemed necessary), be selected by the Board, such as an EQC for CBOD that is derived at 90% of BOD value.

Comments and recommendations were provided by ENR technical experts in the Water Resources Division and the Sahtu Region and were coordinated and collated by the Environmental Assessment and Monitoring Section (EAM), Conservation, Assessment and Monitoring Division (CAM).

Should you have any questions or concerns, please do not hesitate to contact Patrick Clancy, Environmental Regulatory Analyst at (867) 767-9233 Ext: 53096 or email patrick.clancy@gov.nt.ca.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Clancy', written in a cursive style.

Patrick Clancy
Environmental Regulatory Analyst
Environmental Assessment and Monitoring Section
Conservation, Assessment and Monitoring Division
Department of Environment and Natural Resources
Government of the Northwest Territories



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Environmental Protection Operations Directorate
Prairie & Northern Region
5019 52nd Street, 4th Floor
P.O. Box 2310
Yellowknife, NT X1A 2P7

ECCC File: 5200 000 011
SLWB File: S18L3-003

October 25, 2018

Via online submission

Bonnie Bergsma
Regulatory Specialist
Sahtu Land and Water Board
Box 1
Fort Good Hope, NT X0E 0H0

Dear Ms. Bergsma:

RE: S18L3-003 – Town of Norman Wells – Type “B” Water License Renewal

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Sahtu Land and Water Board (SLWB) regarding the above-mentioned Type “B” Water License Renewal and is submitting comments via the online review system. ECCC’s specialist advice is provided based on our mandate, in the context of the *Canadian Environmental Protection Act*, the pollution prevention provisions of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*.

Should you require further information, please do not hesitate to contact me at (867) 669-4743 or Russell.Wykes@Canada.ca.

Sincerely,

[original signed by]

Russell Wykes
Environmental Assessment Coordinator

Attachment(s): ECCC Comments Excel Sheet

cc: Georgina Williston, Head, Environmental Assessment North (NT and NU)

Canada

www.canada.ca/en/environment-climate-change
www.canada.ca/fr/environnement-changement-climatique