

Type B Water Licence S18L3-003
Town of Norman Wells – Municipal

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Part A: Scope and Definitions

Scope:

1. This Licence entitles the Town of Norman Wells (Licensee) to use Water to dispose of Waste for the purpose of a municipal undertaking at the Town of Norman Wells, Northwest Territories.
2. This Licence is issued subject to the conditions contained herein with respect to the taking of Water and the depositing of Waste of any type in any Waters or in any place under any conditions where such Waste or any other Waste that results from the deposits of such Waste may enter any Waters. Whenever new Regulations are made or existing Regulations are amended by the Commissioner in Executive Council under the *Waters Act*, or other statutes imposing more stringent conditions relating to the quantity or type of Waste that may be so deposited or under which any such Waste may be so deposited, this Licence shall be deemed, upon promulgation of such Regulations, to be automatically amended to conform with such Regulations.
3. Compliance with the terms and conditions of this Licence does not relieve the Licensee from responsibility for compliance with the requirements of any applicable federal, territorial, Tlicho, Deline, or municipal legislation.

Definitions:

Act - the *Waters Act*.

Analyst - an Analyst designated by the Minister under subsection 65(1) of the Act.

Board - the Sahtu Land and Water Board established under Part 3 of the *Mackenzie Valley Resource Management Act*.

Closure – the permanent dismantlement of one or more components of the Project with the intent of making the components incapable of its intended use. This includes the removal of associated equipment and structures used in the construction or maintenance of the Project.

Construction - any activities undertaken during any phase of the Project to construct or build any structure, facilities, or components of, or associated with, the development of the Project.

Discharge – the direct or indirect release of any Waters or Waste to the Receiving Environment.

Effluent – A Wastewater Discharge.

Engineered Structure – any structure or facility related to Water Use or the deposit of Waste that is designed and approved by a Professional Engineer, that are associated with the Construction, Operation, Closure and Reclamation of the Project.

Freeboard - the vertical distance between the Water line and the lowest elevation of the effective Water containment crest on the upstream slope of a Dam or dyke.

Greywater – all liquid Wastes from showers, baths, sinks, kitchens and domestic washing facilities, but does not include Toilet Wastes.

Inspector - an Inspector designated by the Minister under subsection 65(1) of the Act.

Licensee - the holder of this Licence.

Maximum Average Concentration – the arithmetic mean of any four consecutive analytical results submitted to the Board in accordance with the sampling and analysis requirements specified in the Surveillance Network Program.

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

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

Municipal Sewage Sludge - 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 - 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 those whose professional field of specialization is appropriate to address the components of the Project at hand.

Project – the undertaking described in Part A, condition 1.

Pump-out Sewage – all Toilet Wastes and Greywater collected by means of a vacuum truck for disposal at an approved facility.

Receiving Environment - the natural environment that receives any deposit of Discharge of Waste or Water, including runoff, from the Project.

Reclamation – the 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 the surrounding environment.

Regulations - Regulations proclaimed pursuant to section 63 of the Act.

Runoff – the overland flow of water that occurs when excess precipitation, meltwater, or other Water is not absorbed by the earth's surface, and instead drains downslope towards a watercourse.

Segregated Waste Disposal Areas – defined areas identified within the Solid Waste Disposal Facility set apart for the deposit of specific bulky waste materials.

Sewage – all Toilet Wastes and Greywater.

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

Solid Waste Disposal Facility – comprises the area and associated structures designated to contain solid wastes, that includes the municipal solid waste disposal areas and the bulky solid waste disposal areas.

Spill Contingency Plan - a document, developed in accordance with Aboriginal Affairs and Northern Development Canada's *Guidelines for Spill Contingency Planning*, that describes the set of procedures to be implemented to minimize the effects of a spill.

Surveillance Network Program - a monitoring program established to define environmental sampling, analysis and reporting requirements, as detailed in Annex A of this Licence.

Temporary Hazardous Waste Containment Facility – a bermed and lined area constructed and maintained for the temporary storage of hazardous wastes.

Toilet Wastes – all human excreta and associated products, but does not include greywater.

Traditional Knowledge – the cumulative, collective body of knowledge, experience, and values built up by a group of people through generations of living in close contact with nature. It builds upon the historic experiences of a people and adapts to social, economic, environmental, spiritual, and political change.

Unauthorized Discharge – a release or Discharge of any Waters or Waste not authorized under this Licence.

Waste(s) – any substance defined as Waste by section 1 of the Act.

Wastewater – any Water that is generated by Project activities or originates on-site, contains Waste, and requires treatment or management, and includes but is not limited to, Runoff, Seepage, Sewage, Minewater, and Effluent.

Wastewater Treatment System – comprises the area and Engineered Structures designated to contain and treat Sewage, including the wastewater conveyance system for Sewage collection and the engineered sewage lagoon at Seepage Lake for Sewage treatment.

Watercourse – a natural watercourse, body of water or water supply, whether usually containing water or not, and includes groundwater, springs, swamps, and gulches.

Water(s) - any Waters as defined under section 1 of the Act.

Water Treatment Facilities – all the facilities designated to collect, treat, and supply Water for municipal purposes including the raw water intake, the Water Treatment Facility and reservoir and the water distribution system.

Water Use – a use of Water as defined by section 1 of the Act.

Part B: General Conditions

1. The Licensee shall ensure a copy of this Licence is maintained at the municipal office at all times.
2. The Licensee shall take every reasonable precaution to protect the environment.
3. In conducting its activities under this Licence, the Licensee shall make every reasonable effort to consider and incorporate any scientific information and Traditional Knowledge that is made available to the Licensee.
4. All references to policies, guidelines, codes of practice, statutes, regulations, or other authorities shall be read as a reference to the most recent versions, unless otherwise denoted.
5. The Licensee shall ensure all information submitted to the Board:
 - a) Is in a form acceptable to the Board;
 - b) Is in accordance with the MVLWB's *Document Submission Standards*;
 - c) Include a conformity table, which identifies where the pertinent requirements of this Licence are addressed; and
 - d) Includes a revision history table and summary of the revisions made.
6. The Licensee shall ensure management plans are submitted to the Board in a format consistent with the MVLWB's *Standard Outline for Management Plans*.
7. The Licensee shall comply with all plans and programs approved pursuant to the conditions of this Licence, including such revisions made as per the conditions of this Licence, and as approved by the Board.
8. The Licensee may propose revisions at any time by submitting a revised plan or program to the Board for approval. All revisions shall be submitted to the Board, for approval, at least 90 days, unless otherwise specified, prior to implementing any proposed updates or changes in the approved plans and programs.
9. If any submission is not approved by the Board, the Licensee shall revise the submission according to the Board's direction and resubmit for approval.
10. If any date for any submission falls on a weekend or holiday, the Licensee may submit the item on the following business day.
11. The Licensee shall comply with the Schedules which are annexed to and form part of this Licence, and any changes to the Schedules as may be made by the Board.
12. The Licensee shall comply with the **Surveillance Network Program**, which is annexed to and forms part of this Licence, and any changes to the Surveillance Network Program as may be made by the Board.
13. The Schedules, the Surveillance Network Program, and any compliance dates specified in this Licence may be changed at the discretion of the Board.
14. Prior to establishing, activating, or relocating any Surveillance Network Program station(s), the Licensee post sign(s) to identify the Surveillance Network Program station(s). All sign(s) shall be located and maintained to the satisfaction of an Inspector.

15. The Licensee shall post the necessary signs to inform the public of the location of the Water Treatment Facilities, the Wastewater Treatment System Facilities and Solid Waste Disposal Facilities. All signage shall be located and maintained to the satisfaction of the Inspector and the Board.
16. The Licensee shall erect and maintain signage identifying the locations of the Solid Waste Cells, the Segregated Waste Areas, and the Temporary Hazardous Waste Containment Areas. The signage will be located and maintained to the satisfaction of the Inspector and the Board.
17. The Licensee shall erect and maintain, to the satisfaction of the Inspector, fencing around the perimeter of the Solid Waste Disposal Facility that is capable of deterring wildlife and unauthorized personnel from entering the site.
18. The Licensee shall develop an access control strategy for the Solid Waste Disposal Facility site to minimize risks of illegal dumping and/or wildlife access at all times.
19. The Licensee shall install, operate, and maintain meters, devices, or other such methods used for measuring the volumes of Water used and Waste discharged to the satisfaction of an Inspector.
20. The Licensee shall endeavour to prevent the feeding of wildlife on garbage, and therefore prevent the subsequent habituation of wildlife to the Solid Waste Disposal Facility.
21. Beginning March 31, 2019 and no later than every March 31 thereafter, the Licensee shall submit an **Annual Water Licence Report** to the Board. The Report shall be in accordance with Schedule 1, condition 1.

Part C: Water Use

1. The Licensee shall obtain all fresh Water from the Mackenzie River using the Water Supply Facilities or as otherwise specified by the Board
2. The Licensee may obtain Water from an alternate water supply for use on an emergency basis, upon written approval of the Inspector, when it is not possible to obtain water from the source stated in Part C, condition 1.
3. The annual quantity of Water used for all purposes, shall not exceed 250,000 cubic metres.
4. The Water intake line shall be equipped with a screen with a mesh size that is satisfactory to an Inspector and sufficient to ensure no entrainment or impingement of fish.

Part D: Waste Disposal

1. The Licensee shall manage Waste and Water with the objectives of minimizing the impacts of the Project on the quantity and quality of Water in the Receiving Environment using appropriate mitigation measures, monitoring, and follow-up action.
2. The Licensee shall immediately notify an Inspector of the exceedance of any effluent quality criterion set out in Part D, condition 5.

Sewage

3. The Licensee shall direct all Pump-out Sewage to the Wastewater Treatment System Facilities, or as otherwise approved by the Board.
4. No sewage effluent may be discharged in any place with the exception of the Seepage Lake primary Sewage Lagoon, unless otherwise authorized by the Board.
5. The Licensee shall ensure that Waste discharged from the Wastewater Treatment System Facilities at SNP Station number S07L3-002-(1), shall meet the following effluent quality criteria (EQC):

| Parameter | Maximum Average Concentration |
|------------------|-------------------------------|
| pH | 6.0-9.0 |
| Fecal Coliforms | < 10 ⁶ CFU/100 ml |
| Suspended Solids | 125 mg/L |
| Oil and Grease | 5 mg/L and no visible sheen |
| CBOD | 160 mg/L |

6. The Licensee shall maintain the Wastewater Treatment System Facilities to the satisfaction of an Inspector.
7. The Licensee shall maintain a Freeboard limit of one metre within both primary cells of the sewage lagoon.
8. A permanent method of measurement shall be employed to measure the surface water level of Seepage Lake at SNP Station S07L3-002-(1) and the measurements recorded semi-annually in the spring and fall in accordance with Part B, condition 24.
9. In the event that Seepage Lake requires decanting at any time during the term of this Licence, the liquid effluent from the lagoon shall be decanted to the area at the location designated by SNP Station S07L3-002-(1).
10. The Licensee shall notify the Board and the Inspector, in writing, at least 30 days prior to initiating the removal and disposal of sludge and sediments originating from Seepage lake. The notification shall include the following details:
 - a) How the sludge shall be removed;
 - b) Volume of sludge to be removed;
 - c) Sludge characterization analyses (quality);
 - d) Where the sludge will be deposited and criteria for sludge disposal;
 - e) Comparison of sludge quality against proposed sludge disposal criteria;
 - f) How the sludge shall be treated; and
 - g) Final disposal/end use.

Sludge removal shall not commence until authorized, in writing, by an Inspector.

11. In the event that sludge and sediments originating in Seepage Lake require removal and disposal at any time during the term of this Licence, such material shall be removed and disposed in a location deemed satisfactory by the Inspector.
12. The Licensee shall submit Water quality data for samples collected from Surveillance Network Program stations S07L3-002-(1) to the Board and an Inspector as follows:
 - a) No later than five days prior to commencing or resuming Discharge of effluent from the Wastewater Treatment System Facilities to the Receiving Environment; and
 - b) No later than five days prior to commencing or resuming Discharge of effluent from the Wastewater Treatment System Facilities to the Receiving Environment following an exceedance of the effluent quality criteria specified in Part D, condition 5.Discharge shall not commence until authorized in writing by the Inspector.

Solid Waste

13. The Licensee shall dispose of all solid Wastes at the Solid Waste Disposal Facilities in accordance with the approved Solid Waste Disposal Facility Operation and Maintenance Plan.
14. The Licensee shall not burn solid or liquid Waste(s), with the exception of paper products, paperboard packaging and untreated wood waste, which may be burned at the Solid Waste Disposal Facility.
15. The Licensee shall collect windblown litter in the Solid Waste Disposal Facility and surrounding lands, once in the spring and again in the fall of every year for the duration of the Water Licence.
16. The Licensee shall act in accordance with the approved **Hazardous Waste Management Plan**, and shall annually review the plan and make any necessary revisions to reflect changes in design, operation, and maintenance, or as directed by the Board. The proposed updates shall be submitted to the Board for approval, and shall include a summary of revisions in the introductory section of the plan. The Plan shall include, but not be limited to the following:
 - a) design of disposal site, including designation of areas for segregated Waste;
 - b) Methods of implementing reuse of hazardous Waste;
 - c) Detailed amounts and sources of hazardous Waste that are or are not accepted;
 - d) Hazardous waste acceptance criteria;
 - e) Methods of disposal of hazardous Waste (including contaminated soil);
 - f) Secondary containment methods;
 - g) A hazardous Waste manifest identifying all hazardous Waste being stored in the Temporary Hazardous Waste Containment Area;
 - h) Hazardous waste tracking methods; and
 - i) Record-keeping and reporting.

Part E: Construction

1. The Licensee shall ensure that all structures intended to contain, withhold, divert, or retain Water or Wastes are designed, constructed, and maintained to minimize the escape of Waste to the Receiving Environment.
2. The Licensee shall ensure that all Engineered Structures are constructed and maintained in accordance with the recommendations of the Professional Engineer responsible for the design, including but not limited to, recommendations regarding field supervision and inspection requirements.
3. A minimum of ten days prior to the commencement of Construction of any Engineered Structure(s), the Licensee shall provide written notification to the Board and an Inspector. Notification shall include the name and contact information for the Construction superintendent. Updates shall be provided to the Board and an Inspector in writing as changes occur.
4. Within 90 days of the completion of the Construction of each Engineered Structure, the Licensee shall submit to the Board an **As-built Report**, stamped and signed by a Professional Engineer, which shall include, but not be limited to the following information:
 - a) final as-built drawings of the Engineered Structure(s) stamped and signed by a Professional Engineer;
 - b) documentation of field decisions that deviate from the Design and Construction Plan; and
 - c) any data used to support these decisions.

Part F: Modifications

1. The Licensee may carry out a Modification to an existing or planned structure, without written approval from the Board, provided the proposed Modification is not an expansion, does not alter the purpose or function of the structure, and the following are consistent with the terms of this Licence and the following requirements are met prior to beginning the Modification:
 - a) The Licensee shall provide written notification to the Board and an Inspector a minimum of 45 days prior to beginning the Modification;
 - b) An Inspector has provided written notification to the Board authorizing the proposed Modification;
 - c) The Board has not informed the Licensee that additional information is required; and
 - d) The Board has not informed the Licensee that additional time is required to conduct a public review.
2. The Licensee may only carry out a Modification that does not meet Part F, condition 1 with written approval from the Board.
3. Within 90 days of the completion of the Modification referred to in Part F, condition 1, the Licensee shall submit to the Board an **As-Built Report**, stamped and signed by a Professional Engineer, which shall include final as-built drawings and specifications of the modified structure.

Part G: Operations and Maintenance

1. The Licensee shall act in accordance with the **Operations and Maintenance Plans** submitted to the Board on August 22, 2018, until a revised plan is approved by the Board.
2. The Licensee shall act in accordance with the approved **Solid Waste Disposal Facilities Operations and Maintenance Plan** and shall annually review the plan and make any necessary revisions to reflect changes in design, operation, and maintenance, or as directed by the Board. The proposed updates shall be submitted to the Board for approval, and shall include a summary of revisions in the introductory section of the plan. The plan shall be developed in accordance with the MVLWB and GNWT *Operation and Maintenance Plan Template for Municipal Licences: Solid Waste Disposal Facility* and Schedule 2, condition 1.
3. The Licensee shall act in accordance with the approved **Water Treatment Facility Operations and Maintenance Plan** and shall annually review the plan and make any necessary revisions to reflect changes in design, operation, and maintenance, or as directed by the Board. The proposed updates shall be submitted to the Board for approval, and shall include a summary of revisions in the introductory section of the plan. The plan shall be developed in accordance with the MVLWB and GNWT *Operation and Maintenance Plan Template for Municipal Licences: Water Treatment Plant* and Schedule 2, condition 2.
4. The Licensee shall act in accordance with the approved **Wastewater Treatment System Operations and Maintenance Plan** and shall annually review the plan and make any necessary revisions to reflect changes in design, operation, and maintenance, or as directed by the Board. The proposed updates shall be submitted to the Board for approval, and shall include a summary of revisions in the introductory section of the plan. The plan shall be developed in accordance with the MVLWB and GNWT *Operation and Maintenance Plan Templates for Municipal Water Licences: Sewage Disposal Facilities* and Schedule 2, condition 3.
5. Within 60 days following the effective date of this Licence, the Licensee shall submit to the Board, for approval, a revised Wastewater Treatment System Operations and Maintenance Plan.
6. The Licensee shall operate and maintain Seepage Lake Lagoon, the Solid Waste Disposal trenches and cells, the Segregated Waste Disposal Areas and the Temporary Hazardous Waste Containment Facility to prevent structural failure and to the satisfaction of an Inspector.

Inspection of Structures and Facilities

7. The Licensee shall conduct monthly inspections of the Solid Waste Disposal Facilities, or more frequently as directed by an Inspector and immediately after a major storm or catastrophic event. Records of these inspections shall be made available to the Board or an Inspector upon request. Items inspected shall be in accordance with the approved Solid Waste Disposal Facilities Operations and Maintenance Plan.
8. The Licensee shall conduct daily erosion inspections of Discharge locations during periods of Discharge from Seepage Lake and the Sewage Disposal Facility, or more frequently as directed by an Inspector. Discharge refers to decanting of the Sewage Lagoon at SNP Station SNP S07L3-002(1). Records of these inspections shall be made available to the Board or an Inspector upon request.
9. The Licensee shall conduct annual inspections of the Seepage Lake Lagoon dams, dykes and ditches. Records of these inspections shall be made available to the Board or an Inspector upon request.

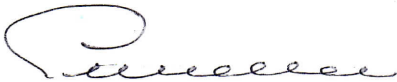
Part H: Spill Contingency Planning

1. The Licensee shall ensure that Unauthorized Discharges associated with the Project do not enter any Waters.
2. The Licensee shall act in accordance with the approved **Spill Contingency Plan**, and shall annually review the plan and make any necessary revisions to reflect changes in operations, technology, chemicals, or fuels, or as directed by the Board. The proposed updates shall be submitted to the Board for approval, and shall include a summary of revisions in the introductory section of the plan.
3. If, during the period of this Licence, a spill or Unauthorized Discharge occurs, or is foreseeable, the Licensee shall:
 - a) Implement the approved Spill Contingency Plan referred to in Part H, condition 2;
 - b) Immediately report it using the NU-NT Spill Report Form by one of the following methods:
 - Telephone (867) 920-8130
 - Fax: (867) 873-6924
 - E-mail: spills@gov.nt.ca
 - Online: Spill Reporting and Tracking Database
 - c) Within 24 hours, notify the Board and an Inspector; and
 - d) Within 30 days of initially reporting the incident, submit a detailed report, including descriptions of causes, response actions, and any changes to procedures to prevent similar occurrences in the future, to the Board and an Inspector. Updates shall be provided to the Board and an Inspector in writing as changes occur.
4. The Licensee shall restore all areas affected by spills and Unauthorized Discharges to the satisfaction of an Inspector.

Part I: Closure and Reclamation

1. Within six months prior to abandoning any Water Treatment, Storage and Distribution Facility and Waste Disposal Facilities, the Licensee shall submit to the Board, for approval, a **Closure and Reclamation Plan**. The Plan shall be in accordance with Schedule 3, condition 1.
2. Every three years following the previous approval, or as directed by the Board, the Licensee shall submit to the Board for approval, a revised Closure and Reclamation Plan.
3. Upon implementation of the Closure and Reclamation Plan, the Licensee shall provide to the Board and Inspector updates of all Closure and Reclamation activities within the Annual Report as described in Part B, condition 24.
4. The Licensee shall complete the reclamation and restoration work within the time schedule specified in the Closure and Reclamation Plan or as subsequently revised and approved by the Board.
5. The Licensee shall endeavour to carry out Progressive Reclamation of areas that are abandoned prior to closure of operations.

Signed on behalf of the Sahtu Land and Water Board



Larry Wallace, Chair



Bonnie Bergsma, Witness

Schedule 1
Attached to Water Licence S18L3-003
Town of Norman Wells – Municipal

Part B: General Conditions – Annual Water Licence Report

1. The **Annual Water Licence Report** referred to in Part B, condition 21, of this Licence shall include, but not be limited to, the following information:

- a) The monthly and annual quantities in cubic metres of fresh water obtained from all sources;
- b) The monthly and annual quantities in cubic metres of all sewage discharged to Seepage Lake;
- c) A summary of all Modifications and/or major maintenance work carried out on the water intake infrastructure, Water Treatment, Storage and Distribution Facilities, Solid Waste Disposal Facilities and the Sewage Lagoon, including all associated structures;
- d) Tabular summaries of all data generated under the Surveillance Network Program;
- e) Details, such as the underlying cause or corrective measures, regarding any sample exceedances or monitoring concerns;
- f) A summary of any Closure and Reclamation work completed during the year and an outline of any work anticipated for the next year;
- g) A summary of any studies requested by the Board that relate to Waste disposal, water use or reclamation, and a brief description of any future studies planned;
- h) A list of spills or Unauthorized Discharges;
- i) Copies of laboratory reports and QA/QC field sampling results;
- j) Updates or revisions to the Operations and Maintenance Plans referred to in Part G;
- k) Updates or revisions to the Spill Contingency Plan referred to in Part H;
- l) Updates or revisions to the Closure and Reclamation Plan referred to in Part I;
- m) The monthly and annual quantities of sludge removed from Seepage Lake;
- n) Sludge monitoring and management summary;
- o) Semi-annual measurements of water levels at Seepage Lake; and
- p) Any other details on Water Use or Waste disposal requested by the as Board by November 1 of the year being reported.

Schedule 2
Attached to Water Licence S18L3-003
Town of Norman Wells – Municipal

Part G: Operations and Maintenance

1. The **Operations and Maintenance Plan for the Solid Waste Disposal Facilities** referred to in Part G, condition 2, shall include, but not be limited to the following:
 - a) All the components outlined in the Board's *Operation and Maintenance Plan Template for Municipal Water Licences: Solid Waste Facility*;
 - b) A map showing all the components of the SWD Facilities and SNP stations that monitor those facilities;
 - c) The remaining capacity or lifespan for each component of the Solid Waste Disposal Facilities;
 - d) Frequency of compaction and cover of Waste, and source of cover material;
 - e) Use of drainage controls, measures employed to minimize standing water in waste cells, and contingency measures for leachate that does not receive approval to discharge;
 - f) Prevention of windblown debris;
 - g) Security of the Waste disposal site;
 - h) Segregation of domestic, metal and recyclable materials;
 - i) Methods employed that eliminate the requirement of burning Waste(s);
 - j) Monitoring conducted under the Surveillance Network Program;
 - k) Measures for the management of Hazardous Wastes, including a waste manifest; and
 - l) Measures for climate change preparation and adaptation.
2. The **Operations and Maintenance Plan for the Water Treatment Facility** referred to in Part G, condition 3, shall include, but not be limited to the following:
 - a) All the components outlined in the Board's *Operation and Maintenance Plan Template for Municipal Water Licences: Water Treatment System*;
 - b) Methods for the characterization of sludge generated at the Water Supply Facilities;
 - c) Measures for the disposal of sludge generated at the Water Supply Facilities; and
 - d) Measures for climate change preparation and adaptation.
3. The **Operation and Maintenance Plan for the Wastewater Treatment System** (Sewage Disposal Facilities) referred to in Part G, condition 4, shall include, but not be limited to, the following information:
 - a) All the components outlined in the Board's *Operation and Maintenance Plan Template for Municipal Water Licences: Wastewater (Sewage) Treatment System*;
 - b) A map showing all the components of the Sewage Disposal Facilities and Surveillance Network Program stations that monitor these facilities;
 - c) Measures that will be taken to manage effluent that does not meet effluent quality criteria set out in Part D, condition 5;
 - d) Measures for sludge management, including how sludge depth is monitored, how sludge is managed, tested, removed, treated and disposed of;
 - e) Contingency measures in case of failure of the Wastewater Treatment System Facilities;
 - f) Removal of floating material in the Sewage lagoon;
 - g) Inspection of dykes, drainage courses, reservoirs and restoration of any erosion;
 - h) Monitoring of sludge depth measurements (conduct every two to five years); and
 - i) Sludge monitoring and management procedures.
 - j) Water quality monitoring conducted under the Surveillance Network Program; and
 - k) Measures for climate change preparation and adaptation.

Schedule 3
Attached to Water Licence S18L3-003
Town of Norman Wells – Municipal

Part I: Closure and Reclamation – Closure and Reclamation Plan

1. With regard to any facility being closed, the **Closure and Reclamation Plan** referred to in Part I, condition 1 shall include, but not be limited to the following information:

- a) Contaminated site remediation;
- b) Leachate prevention;
- c) An implementation schedule;
- d) Maps delineating all disturbed areas and site facilities;
- e) Consideration of altered drainage patterns;
- f) Type and source of cover materials;
- g) Future use areas;
- h) Hazardous Wastes;
- i) The potential for groundwater contamination;
- j) Monitoring; and
- k) Any facility that is included in the Town of Norman Wells Water Licence.

Annex A
Surveillance Network Program (SNP)
Annexed to Water Licence S18L3-003
Town of Norman Wells - Municipal

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- Part A: Reporting Requirements
- Part B: Site Descriptions and Monitoring Requirements

Part A: Reporting Requirements

1. The effective date of this Surveillance Network Program (SNP) is November 19, 2018.
2. Beginning March 31, 2019, and for every year thereafter, the Licensee shall submit to the Board and an Inspector, a **Surveillance Network Program Report**, which shall include, but not be limited to the following:
 - a) Electronic and tabular summaries of all data and information generated under Part B of this Annex for the month being reported, including rationale for SNP stations where samples were not collected and results and interpretation of quality assurance/quality control procedures;
 - b) Graphical summaries and interpretation of the analytical results from the SNP samples collected at the point of compliance (SNP Station S07L3-002(1) compared to the Effluent Quality Criteria under Part D of this Licence, for the previous two (2) consecutive years;
 - c) An explanation of any actions taken in response to any exceedances of the Effluent Quality Criteria;
 - d) Information regarding the calibration and status of the meters and devices referred to in Part B, condition 19 of this Licence;
 - e) The exact coordinates of all SNP stations which were established within the year being reported, including an updated map identifying the locations of all the SNP stations; and
 - f) A tabular summary of cumulative water use.
3. More frequent sample collection may be required at the request of an Inspector.
4. All sampling, sample preservation, and analyses shall be conducted in accordance with methods prescribed in the current edition of American Public Health Association's (APHA) *Standard Methods for the Examination of Water and Wastewater* at the time of analysis, or by other such methods approved by an Analyst.
5. All analyses shall be performed in a laboratory accredited by the Canadian Association for Laboratory Accreditation (CALA) for the specific analyses to be performed or as approved by an Analyst.

Part B: Site Descriptions and Monitoring Requirements

1. The location of sampling sites is subject to approval of an Inspector.
2. Coordinates of the SNP stations shall be submitted to the Board within 60 days of establishment of the SNP stations.
3. The sampling station locations are as follows:

| SNP Station | Location | Sampling Frequency | Sampling Parameters | Rationale |
|----------------------|--|---|---|---|
| S07L3-002-(1) | Approximate Location 65.289176°N, - 126.810419°W Sewage effluent directly below the decant structure at Seepage Lake | Weekly during periods of decant; or in the fall if no decant occurs | pH, temperature, CBOD, Total Suspended Solids, conductivity, Faecal Coliforms, Oil and Grease, , Ammonia nitrogen, total nitrogen, nitrite-nitrogen, nitrate-nitrogen, total organic carbon, total phosphorus | To ensure discharge Water from Seepage Lake meets Part D, condition 5. site of compliance, prior to discharge to the Receiving Environment |
| S07L3-002-(2) | Approximate Location 65.279666°N, - 126.766394°W Monitors waters in Seepage Creek directly upstream of the culvert conveying Seepage Creek under Quarry Road | Monthly during periods of flow | pH, temperature, Total Suspended Solids, conductivity, faecal coliforms, ammonia nitrogen, CBOD, total nitrogen, nitrite-nitrogen, nitrate-nitrogen, total organic carbon, total phosphorus, calcium, magnesium, potassium, sodium, sulphate, Total Phenols, Oil and Grease, Total Metals = silver (Ag), arsenic (As), cadmium (Cd), copper (Cu), chromium (Cr), iron (Fe), mercury (Hg), nickel (Ni), lead (Pb), thallium (Tl) and zinc (Zn) | To monitor the quality of treated wastewater discharge beyond the point of compliance and downgradient of the Solid Waste Facility to determine the effectiveness of wetland treatment before final discharge to the Mackenzie River |
| S07L3-002-(3) | Approximate Location 65.264579°N, - 126.736201°W Monitors waters in Seepage Creek directly upstream of the culvert conveying Seepage Creek | Monthly during periods of flow | pH, temperature, Total Suspended Solids, conductivity, faecal coliforms, ammonia nitrogen, CBOD, total nitrogen, nitrite-nitrogen, nitrate-nitrogen, total organic carbon, total phosphorus, calcium, magnesium, potassium, sodium, sulphate, Oil and | To monitor the quality of treated wastewater discharge beyond the point of compliance and downgradient of the Solid Waste Disposal Facility to determine the effectiveness of wetland treatment before final discharge to the Mackenzie River |

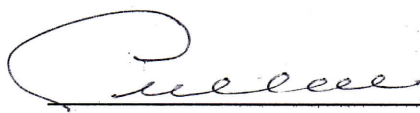
| | | | | |
|----------------------|---|---|--|--|
| | under Mackenzie Drive | | Grease, Total Phenols, Total Metals = silver (Ag), arsenic (As), cadmium (Cd), copper (Cu), chromium (Cr), iron (Fe), mercury (Hg), nickel (Ni), lead (Pb), thallium (Tl) and zinc (Zn) | |
| S07L3-002-(4) | As delineated by a Professional Engineer and approved by the Inspector Approximate Location 65.294976°N, - 126.730765°W Monitors groundwater below (downgradient) of the Solid Waste Disposal Facilities | Semi-annually following spring freshet and before freeze-up | pH, suspended solids, conductivity, calcium, magnesium, potassium, sodium, sulphate, Total Phosphorus, chloride, Total Phenols, Oil and Grease, Total Metals = silver (Ag), arsenic (As), cadmium (Cd), copper (Cu), chromium (Cr), iron (Fe), mercury (Hg), nickel (Ni), lead (Pb), thallium (Tl) and zinc (Zn) | To measure the extent and magnitude of groundwater leachates contamination (if any) underneath and/or migrating from the SWDF. |
| S07L3-002-(5) | As delineated by a Professional Engineer and approved by the Inspector Approximate Location 65.295353°N, - 126.731991°W Monitors groundwater below (downgradient) of the Solid Waste Disposal Facilities | Semi-annually following spring freshet and before freeze-up | pH, suspended solids, conductivity, calcium, magnesium, potassium, sodium, sulphate, total phosphorus, chloride, Total Phenols, Oil and Grease, Total Metals = silver (Ag), arsenic (As), cadmium (Cd), copper (Cu), chromium (Cr), iron (Fe), mercury (Hg), nickel (Ni), lead (Pb), thallium (Tl) and zinc (Zn) | To measure the extent and magnitude of groundwater leachates contamination (if any) underneath and/or migrating from the SWDF. |
| S07L3-002-(6) | Approximate Location 65.278374°N, - 126.833631°W Monitors storm drain effluent at Mackenzie River upstream of water intake line. | Discontinue | pH, temperature, Total Suspended Solids, conductivity, faecal coliforms, ammonia nitrogen, CBOD, total nitrogen, nitrite-nitrogen, nitrate-nitrogen, total organic carbon, total phosphorus, calcium, magnesium, potassium, | To monitor the quality of runoff water discharging from a storm drain in the Town of Norman Wells into the Mackenzie River. The outlet is upstream from the water intake line. |

| | | | | |
|----------------------|---|----------------------|---|--|
| | | | sodium, sulphate, Total Phenols, Oil and Grease, Total Metals = silver (Ag), arsenic (As), cadmium (Cd), copper (Cu), chromium (Cr), iron (Fe), mercury (Hg), nickel (Ni), lead (Pb), thallium (Tl) and zinc (Zn) | |
| S07L3-002-(7) | Approximate Location 65.280734°N, - 126.832649°W Monitors water dispensed from the pumphouse for Town use. | Monthly and Annually | Volume in m ³ | To monitor the quantity (volume in cubic metres) of water dispensed for municipal purposes |

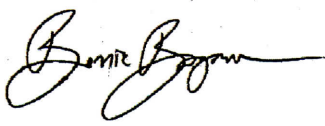
CBOD₅ = carbonaceous biological oxygen demand

4. In the event a decant is not planned at SNP Station S07L3-002-(1), samples shall be taken in the fall and analyzed for the parameters listed under Part D, condition 5 of this Licence.
6. The monthly and annual quantities of sludge and sediments removed from the Sewage Lagoon, if any, shall be measured and recorded in cubic metres.

Signed on behalf of the Sahtu Land and Water Board



Larry Wallace, Chair



Bonnie Bergsma, Witness

Annex B: Concordance Table of Items Requiring Submission

This table summarizes the information the Licensee is required to submit as per the Water Licence conditions.

Table 1: Water Licence Submission Requirements

| Part of Licence | Item | Date |
|-----------------|---|--|
| B | Revisions to approved Plans or Programs | Within 90 days prior to implementing any proposed updates or changes |
| B | Post signs | Prior to establishing, activating, or relocating any SNP station |
| B | Submit Annual Water Licence Report | By March 31 of each year |
| D | Notify Board and Inspector | Immediately upon the exceedance of any EQC |
| D | Notify Board and Inspector | 30 days prior to initiating removal or disposal of sludge |
| D | Submit water quality sample results from SNP stations to Board and Inspector | 5 days prior to discharge of effluent |
| D | Submit revised Hazardous Waste Management Plan | Upon any revisions |
| E | Notify Board and Inspector | 10 days prior to the commencement of construction of Engineered Structures |
| E | Submit As-built drawings | 90 days after completion of construction |
| F | Notify Board and Inspector of proposed Modification | 45 days prior to Modification |
| F | Submit As-built drawings for Modification | 90 days after completion of Modification |
| G | Submit revised Solid Waste Disposal Facilities Operations and Maintenance Plans | Upon any revisions |
| G | Submit revised Water Treatment Facility Operation and Maintenance Plan | Upon any revisions |
| G | Submit revised Wastewater Treatment System Operation and Maintenance Plan | 60 days following the effective date of the Licence |
| H | Submit revised Spill Contingency Plan | Upon any revision |
| I | Submit Closure and Reclamation Plan | Six months prior to abandoning any facilities |
| I | Submit revised Closure and Reclamation Plan | Every three years after approval of the Plan |

Note: This table summarizes the information the Licensee is required to submit as per the Water Licence Conditions. In the event of a discrepancy between this table and the body of the Water Licence, the Water Licence condition will prevail.

Annex C: Table of Revision History

Table 1: Updates and changes that have been made to the Water Licence since issuance

| Date | Location of Change | Description of Change |
|------|--------------------|-----------------------|
| | | |
| | | |