

MVLWB Registry

From: Miki <mehrlich@mvlwb.com>
Sent: Tuesday, June 16, 2015 1:09 PM
To: permits@mvlwb.com
Subject: FW: Fort Simpson draft water license - compost criteria
Attachments: Fort Simpson Draft Water License - compost criteria.doc

Please post to [MV2015L3-0001 – Initial appl - Consultation and reviews](#)
Title: Ft Simpson – Information from ENR on sewage sludge composting – Jun16-15

From: Shannon Ripley [mailto:Shannon_Ripley@gov.nt.ca]
Sent: Monday, June 15, 2015 1:46 PM
To: Miki Ehrlich (mehrlich@mvlwb.com); heather.scott@mvlwb.com
Cc: Diep Duong
Subject: Fort Simpson draft water license - compost criteria

Hi Miki and Heather,

I hope your weeks are off to a great start!

Heather, my apologies I've been slow in following up on our conversation last week re. the draft Fort Simpson water license. Attached, I am sending you some notes in the draft water license. A few additional notes to go along with this:

- I have added three suggested terms to the definitions in the water license: 'Compost', 'composting' and 'sewage sludge'. The definitions of 'compost' and 'composting' are sourced from *Technical Document on Municipal Solid Waste Organics Processing*. 2013. Environment Canada. The definition for 'municipal sewage sludge' is sourced from the *Guidance Document for the Beneficial Use of Municipal Biosolids, Municipal Sludge and Treated Septage*. 2012. CCME Both are available on-line.
- It may not be economically feasible for the community to fence the entire Solid Waste Disposal Facility at this time. Priorities would be the installation and maintenance of electric fencing around any areas of the Solid Waste Disposal Facility that are most likely to attract wildlife, and in particular bears. This may primarily focus on the landfill area where municipal solid waste is dropped off and managed. Bulky material segregation areas, such as where bulk metals, wood waste, and white goods (appliances) are stored are of lower prioritization for wildlife fencing. Given that the priority purpose of electrified wildlife fencing is to prevent bears from entering the Solid Waste Disposal Facility, the fence can be electrified between May 1st and October 31st, and then powered down during the winter months. This time period is ideally suited to the use of solar panels for power generation, which can help to keep costs reasonable, particularly at sites where there is no current electrical access.
- Unless there is a specific rationale for doing so, it may help readability if the terms 'water', 'waste' and 'sewage sludge' generally are all lower-case letters, particularly when they are not referring to a particular license, plan or facility in which it is appropriate for them to be capitalized.

Please feel free to give me a call if you have any questions about these!

Thanks and have a great week!

shannon

Shannon Ripley

Waste Reduction Specialist

Environment

Department of Environment and Natural Resources

Government of the Northwest Territories

P.O. Box 1320 | Yellowknife, NT | X1A 2L9

Tel: 1-867- 920-3310 | Fax: 1-867-873-0221 ****new phone number!****

shannon_ripley@gov.nt.ca

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This e-mail and all attachments to it are confidential and are intended solely for the use of the person to whom it is addressed.
If you have received this message in error, please delete it and any and all attachments to it and notify me immediately by replying to sender.

DRAFT Type B Water Licence MV2015L3-0001
Village Town of Fort Simpson – Municipal

Part A: Scope and Definitions

1. Scope

- a) This Licence entitles the Village of Fort Simpson (Licensee) to use Water and dispose of Waste for the purpose of a municipal undertaking at the Village of Fort Simpson, Northwest Territories.
- b) This Licence is issued subject to the conditions contained herein with respect to 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 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.
- c) Compliance with the terms and conditions of this Licence does not relieve the Licensee from responsibility for compliance with the requirements of all applicable Federal, Territorial, or municipal legislation.
- d) The Licensee shall take every reasonable precaution to protect the environment.
- e) In conducting its activities under this Licence, the Licensee shall make best efforts to consider and incorporate any scientific and Traditional Knowledge that is made available to the Licensee.

Commented [SR1]: Please see comment re. capitalization.

Commented [SR2]: Please see comment re. capitalization.

2. Definitions:

“**Act**” means the *Waters Act*, S.G.N.W.T. 2014, C.18.

“**Analyst**” means an Analyst designated by the Minister under subsection 65(1) of the Act.

“**Board**” means the Mackenzie Valley Land and Water Board established under subsection 99(1) of the *Mackenzie Valley Resource Management Act*,

“**Compost**” is a stable, humus-like material that results from the biological decomposition and stabilization of organic materials under aerobic and thermophilic conditions.

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“**Composting**” is a managed biological process through which organic matter is degraded under aerobic conditions to a relatively stable, humus-like material called compost.

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“**Freeboard**” means the vertical distance between Water line and the effective Water containment crest on the upstream slope of a dam or dyke.

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

“**Inspector**” means an Inspector designated by the Minister under section 65(1) of the Act.

“**Licensee**” means the Village of Fort Simpson.

“**Maximum Average Concentration**” means the running average 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**” means a duly appointed member of the Executive Council who is responsible for the *Waters Act* or the department responsible for administering that 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.

“**Pumpout Sewage**” means all Toilet Wastes and/or Greywater collected by means of a vacuum truck for disposal and/or treatment at an approved facility.

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

“**Regulations**” means Regulations promulgated pursuant to section 63 of the Act.

“**Sewage**” means all Toilet Wastes and Greywater.

“**Sewage Disposal Facilities**” comprises the area and engineered structures designed to treat Sewage.

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

“Solid Waste Disposal Facilities” comprises the area and associated infrastructure designed to contain solid Wastes as identified in Figure 6 of the “Village of Fort Simpson, Landfill Capacity and Closure Cost Report”, Golder Consulting Ltd., January, 2015.

“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 minimize the effects of a spill.

“Surveillance Network Program (SNP)” means a monitoring program established to define environmental sampling and analysis requirements, as detailed in Annex A of this Licence, to collect Water quality data, and to assess discharge quality, Licence compliance, and potential for impacts to the environment.

“Toilet Wastes” means all human excreta and associated products but does not include Greywater;

“Traditional Knowledge” means 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” 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.

“Waste Disposal Facilities” comprises the area and associated infrastructure designated for the disposal of Waste, including the Sewage Disposal Facilities and the Solid Waste Disposal Facilities.

“Water Supply Facilities” comprises the area and associated infrastructure designed to collect, treat, and supply Water for municipal purposes.

“Water” means any Water as defined by section 1 of the Act.

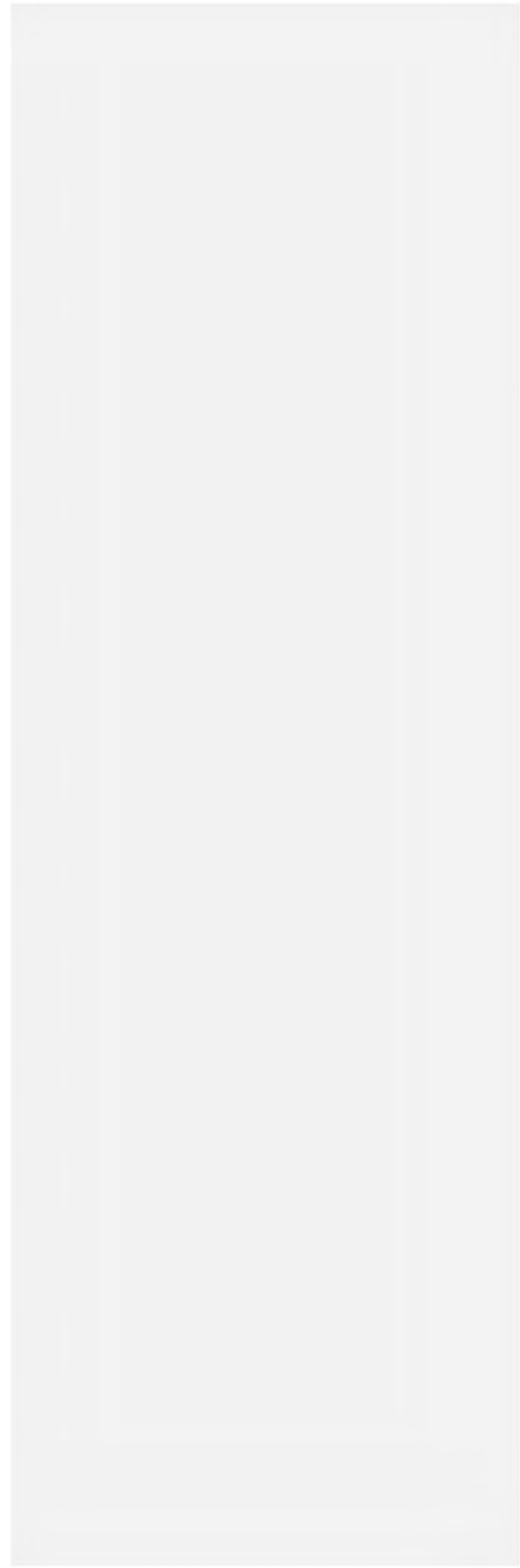
“Water Use” means a use of Water as defined by section 1 of the Act.

Part B: General Conditions

1. The Licensee shall ensure a copy of this Licence is maintained at the municipal office at all times.
2. All information submitted to the Board for this Licence shall:
 - a) Be submitted in a form acceptable to the Board;
 - b) Be in accordance with the Mackenzie Valley Land and Water Board's March 2012, *Document Submission Standards*; and,
 - c) Include a section within each submission which identifies where the pertinent requirements of the Licence are addressed.
3. The Licensee shall operate in accordance with the plans and programs approved pursuant to the conditions of this Licence and with any revisions to the plans and programs as may be made pursuant to the conditions of this Licence and as approved by the Board. If any plan is not approved by the Board, the Licensee shall revise the plan as directed by the Board.
4. The Licensee shall submit to the Board an **Annual Water Licence Report** no later than March 31 of the year following the calendar year reported, which shall be in accordance with Schedule 1.
5. 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.
6. 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.
7. The Schedules, Surveillance Network Program, and any compliance dates specified in the Licence may be changed at the discretion of the Board.
8. Meters, devices, or other such methods used for measuring the volumes of Water Used and Waste discharged shall be installed, operated, and maintained by the Licensee to the satisfaction of an Inspector.
9. Within sixty (60) days following issuance of this Licence, the Licensee shall post the necessary signs to identify the stations of the Surveillance Network Program. All postings shall be located and maintained to the satisfaction of an Inspector.
10. The Licensee shall post the necessary signs to inform the public of the location of the Water Supply Facilities and Waste Disposal Facilities. All postings shall be located and maintained to the satisfaction of an Inspector.
11. 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.

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Part C: Conditions Applying to Water Use

1. The Licensee shall obtain all fresh Water for Fort Simpson from the Mackenzie River using the Water Supply Facilities, or as otherwise approved by the Board.
2. The annual quantity of Water Used for all purposes shall not exceed 500,000 cubic metres.
3. The Water intake hose shall be equipped with a screen with a mesh size that is satisfactory to an Inspector and sufficient to ensure no entrainment of fish.

Commented [ME-M3]: Volume is the same as for the existing Water Licence

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Part D: Conditions Applying to Waste Disposal

1. The Licensee shall ensure that any unauthorized Wastes associated with this undertaking do not enter any Waters.
2. The Licensee shall immediately notify an Inspector of the exceedance of any effluent quality criterion.

Sewage

3. The Licensee shall direct all piped and Pumpout Sewage to the Sewage Disposal Facilities, or as otherwise approved by the Board.
4. All Sewage effluent discharged from the Sewage Disposal Facilities at Surveillance Network Program station 2015-2 shall have a pH between 6 and 9, and no visible sheen of oil or grease, and meet the following effluent quality criteria:

Parameter	Maximum Average Concentration
Total Suspended Solids	75 mg/L
Oil and Grease	5 mg/L
BOD ₅	75 mg/L
Faecal Coliforms	1 x 10 ⁶ CFU/100mL

CFU = Colony Forming Units

5. The Licensee shall submit to the Board monthly, the analytical results for monitoring conducted at Surveillance Network Program station 2015-2.
6. The Licensee shall maintain the Sewage Disposal Facilities and the Solid Waste Disposal Facilities to the satisfaction of an Inspector.

Solid Waste

7. The Licensee shall dispose of all solid Wastes at the Solid Waste Disposal Facilities, or as otherwise approved by the Board
8. Within ninety (90) days following issuance of this Licence, the Licensee shall submit to the Board, for approval, a **Solid Waste Disposal Facility Fencing Plan**. The Plan shall describe how the Licensee will install and maintain fencing at the Solid Waste Disposal Facility that is capable of capturing windswept Waste, deterring wildlife, and preventing unauthorized persons from entering the site
9. Within one (1) year following issuance of this Licence, the Licensee shall install the fencing referred to in Part D, item 7, to the satisfaction of an Inspector.
10. Within six (6) months following issuance of this Licence, the Licensee shall submit to the

Commented [Staff4]: Board staff request recommendations from reviewers regarding whether this plan should be for approval or not.

Board, for approval, a **Commercial and Industrial Operators Waste Management Plan**. The Plan shall describe how the Licensee shall monitor and regulate the volume of Sewage and solid Waste deposited to the Waste Disposal Facilities from commercial and industrial operators working outside of the municipal boundaries of Fort Simpson.

Commented [Staff5]: Board staff request recommendations from reviewers regarding whether this plan should be for approval or not.

- 11. The Licensee shall not accept hazardous wastes at the Waste Disposal Facilities generated by commercial and industrial operators.
- 12. The Licensee shall not burn solid or liquid Wastes, with the exception of paper products, paperboard packaging, and untreated wood Waste, which may be burned at the Solid Waste Disposal Facility.
- 13. The Licensee shall ensure that all treated ~~s~~Sewage sludge from the Sewage Sludge Treatment Facility that will be used as landfill cover material at the Solid Waste Disposal Facilities will meet the following criteria prior to use: ~~incorporation~~:

Parameter	Maximum Grab Sample
Trace elements according to CCME Compost Quality Guidelines	1 composite sample, with 10 representative, random sub-samples
Foreign matter	Can be analyzed from 1 representative composite sample described above.
Pathogens (Fecal coliforms or Salmonella) as described in CCME Compost Quality Guidelines (2005)	7 separate samples – all should show no detection of one of these two pathogens (each sample can be tested for either fecal coliforms or Salmonella as described in CCME guidelines).

Commented [ME-M6]: Board staff are conducting research to determine appropriate parameters and criteria.

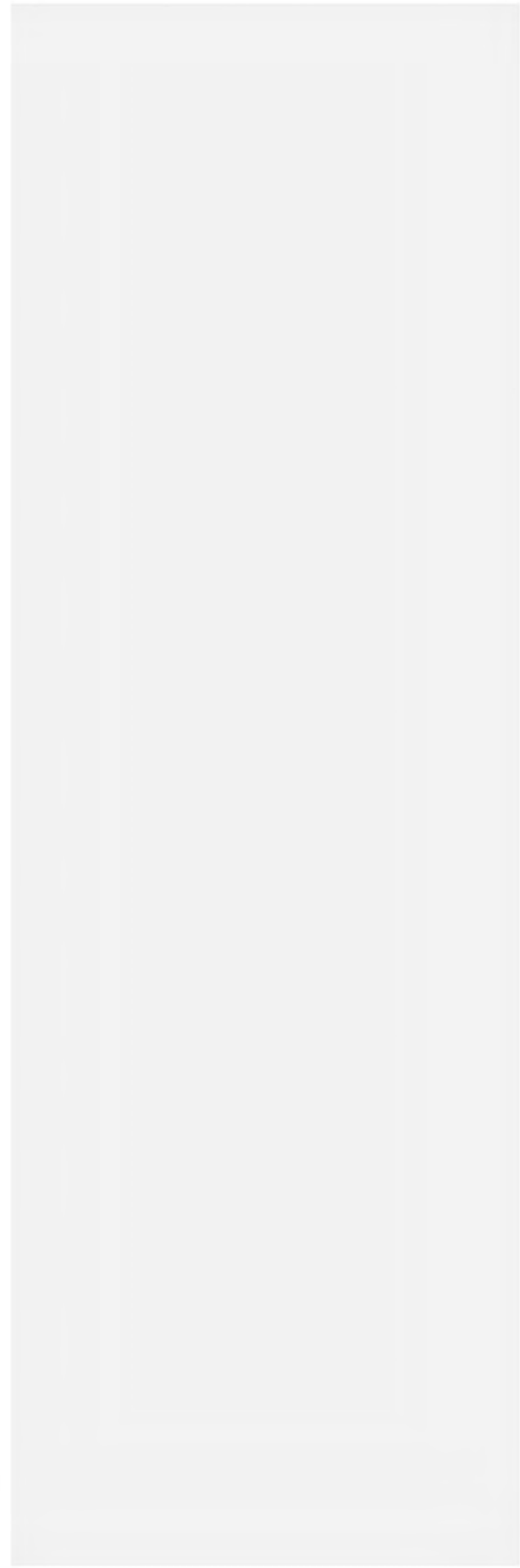
Commented [SR7R6]: I suggest that Category B Compost Criteria for trace elements, foreign matter and pathogens be met prior to use, if criteria are being established. I would suggest that one composite sample (with 10 random sub-samples) be taken for the trace element testing, and that 7 samples be taken for pathogen testing, if this route is chosen. An excellent resource on the composting process and management of a compost facility is "Compost Facility Operator Manual" by John Paul and Dieter Geesing (2009). ENR has a copy of this book.

~~If testing for particle size is not completed by the Licensee to determine if soil is Coarse or Fine grained, soil must be treated to achieve the Coarse grained soil criteria.~~

Commented [SR8]: Maturity / stability is often tested in finished compost, and is discussed in the CCME Compost Quality Guidelines. However, given the end use of the compost as landfill cover, this likely isn't necessary in this circumstance. It would be helpful for compost facility operators to monitor windrow temperatures to ensure temperatures are hot enough for long enough to ensure pathogen kill, as described in the CCME guidelines.

- 14. Treated Sewage sludge may only be used for application as landfill cover material at the Solid Waste Disposal Facility (as per Part D, item 13) unless otherwise authorized by the Board.
- 15. The Licensee shall provide written notification to an Inspector at least ten (10) days prior to using treated Sewage sludge as landfill cover material at the Solid Waste Disposal Facility. Notification shall include sampling results for treated Sewage sludge.

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Part E: Conditions Applying to Operations and Maintenance

1. The Licensee shall act in accordance with the **Operations and Maintenance Plans** submitted to the Board on March 31, 2015 until a revised plan is approved by the Board.
2. The Licensee shall submit to the Board by March 31, 2016, for approval, a revised **Operations and Maintenance Plan for the Solid Waste Disposal Facilities**, which shall be in accordance with Schedule 2 of this Licence.
3. The Licensee shall submit to the Board, for approval, a revised **Operations and Maintenance Plan for the Sewage Disposal Facilities** which shall include but not be limited to, the information set out in the *Operations and Maintenance Plan Template – Sewage Treatment Facility*. The Licensee shall submit the Plan within ninety (90) days of receiving the Template.
4. The Licensee shall act in accordance with the approved Operations and Maintenance Plans referred to in Part E, items 2 and 3, and shall annually review the Plans and make any necessary revisions to reflect changes in operations, technology, and the results from research and other studies, or as directed by the Board. Revised Plans shall include a brief summary of the changes made, and shall be submitted to the Board, for approval, at least sixty (60) days prior to any proposed changes to the requirements in the approved Plan.

Commented [ME-M9]: Pending Board decision on whether or not to approve the Plan submitted with the application

Part F: Conditions Applying to Construction

1. A minimum of sixty (60) days prior to construction of any structures intended to contain, withhold, divert or retain Waters or Wastes, the Licensee shall submit to the Board, final design drawings stamped and signed by a Professional Engineer, which notes “issued for construction” or similar phrase.
2. The Licensee shall ensure that all structures identified in Part F, item 1 are constructed and maintained following the recommendations of the Professional Engineer responsible for the design, including but not limited to recommendations regarding field supervision and inspection requirements.
3. Any fill materials used in the construction of any structures or facilities must be from an approved source and be clean and free of contaminants.
4. A minimum of ten (10) days prior to the commencement of construction of the structures identified in Part F, item 1, the Licensee shall provide written notification to the Board and an Inspector. Notification shall include the name and contact information for the construction superintendent.
5. Within ninety (90) days of the completion of the construction of the structures identified in Part F, item 1, the Licensee shall submit to the Board an **As-built Report** which shall include as-built drawings stamped and signed by a Professional Engineer and descriptions and rationale for changes made that deviate from the “issued for construction” designs.

Part G: Conditions Applying to Modifications

1. The Licensee may, without written approval from the Board, carry out Modifications to the Water Supply Facilities and Waste Disposal Facilities provided that such Modifications are consistent with the conditions of this Licence and the following requirements are met:
 - a) The Licensee has notified the Board and Inspector, in writing, of such proposed Modifications at least sixty (60) days prior to beginning the Modifications;
 - b) The Modifications do not place the Licensee in contravention of either the Licence or the Act;
 - c) The Board has not, during the sixty (60) days following notification of the proposed Modifications, informed the Licensee that further information is required or that review of the proposal will require more than sixty (60) days;
 - d) An Inspector has authorized the proposed Modifications and provided a letter of notification to the Board; and,
 - e) The Board has not rejected the proposed Modifications.
2. Modifications for which all of the conditions referred to in Part G, Item 1, have not been met, may be carried out only with written approval from the Board.
3. Within ninety (90) days of the completion of the Modifications referred to in Part G, Item 1, the Licensee shall submit to the Board as-built plans and drawings stamped and signed by a Professional Engineer.

Part H: Conditions Applying to Spill Contingency Planning

1. The Licensee shall act in accordance with the **Spill Contingency Plan** submitted to the Board on March 31, 2015 until a revised plan is approved by the Board.
2. The Licensee shall submit to the Board by March 31, 2016, for approval, a revised Spill Contingency Plan.
3. 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. Revised Plans shall include a brief summary of the changes made, and shall be submitted to the Board, for approval, at least sixty (60) days prior to any proposed changes to the requirements in the approved Plan.
4. If, during the term of this Licence, a spill or an Unauthorized Discharge of Waste occurs or is foreseeable, the Licensee shall:
 - a) Implement the Spill Contingency Plan;
 - b) Report the incident immediately via the 24-hour NWT Spill Report Line at (867) 920-8130 in accordance with the instructions contained in the Spill Report Form NWT 1752/0593;
 - c) Report each spill and Unauthorized Discharge to the Board and an Inspector within 24 hours; and,
 - d) Within thirty (30) days of the spill or Unauthorized Discharge reported under Part G, item 4(b), submit to the Board and an Inspector a detailed report. The report shall include descriptions of root causes, response actions, and any changes to procedures to prevent similar occurrences in the future.
5. All spills and Unauthorized Discharges of Water or Waste shall be reclaimed to the satisfaction of an Inspector.

Commented [ME-M10]: Pending Board decision on whether or not to approve the Spill Contingency Plan submitted with the application

Part I: Conditions Applying to Closure and Reclamation

1. The Licensee shall submit to the Board, by March 31, 2016, for approval, a revised **Interim Closure and Reclamation Plan** which shall be in accordance with Schedule 3, item 1.
2. The Licensee shall act in accordance with the approved Interim Closure and Reclamation Plan referred to in Part I, item 1, and shall review the Plan annually and make any necessary revisions to reflect changes in operations, technology, the results or Reclamation and/or other studies, or as directed by the Board. Revised Plans shall be submitted to the Board, for approval, at least sixty (60) days prior to any proposed changes to the requirements in the approved Plan or as requested by the Board.
3. The Licensee shall carry out progressive Reclamation of disturbed areas as soon as is reasonably practical.
4. The Licensee shall complete Reclamation activities within the time schedule specified in the Plan or as subsequently revised and approved by the Board.
5. A minimum of six (6) months prior to closing any portion of the Waste Disposal Facilities, the Licensee shall submit to the Board, for approval, a **Final Closure and Reclamation Plan** to address final closure of that cell. The Plan shall be in accordance with Schedule 3, item 2.
6. The Licensee shall act in accordance with the approved Final Closure and Reclamation Plan referred to in Part I, item 5.

Signed the **XX day of XX, XXXX** on behalf of the Mackenzie Valley Land and Water Board

Chair

Witness

Schedule 1 – Annual Water Licence Report

The **Annual Water Licence Report** referred to in Part B, item 4 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 each and all Waste discharged to the Waste Disposal Facilities, including sludge from the Water Supply Facilities and Sewage Disposal Facilities;
- c) The monthly and annual quantities in cubic metres of Waste removed from the Waste Disposal Facilities;
- d) The monthly and annual quantities in cubic metres of sludge removed from the Sewage Disposal Facilities for disposal;
- e) A summary of activities conducted in accordance with the approved **Solid Waste Disposal Facility Fencing Plan**, referred to in Part D, item 8 of this Licence undertaken during the previous calendar year;
- f) A summary of activities conducted in accordance with the approved **Commercial and Industrial Operators Waste Management Plan**, referred to in Part D, item 10 of this Licence undertaken during the previous calendar year;
- g) The monthly and annual quantity of all Sewage and solid Waste deposited into the Waste Disposal Facilities by commercial and industrial operators working outside the municipal boundaries of Fort Simpson;
- h) A summary of activities conducted in accordance with the approved **Sludge Management Plan**, referred to in Schedule 2, item i) of this Licence undertaken during the previous calendar year;
- i) A summary of any **Construction** activities conducted in accordance with Part F of this Licence, undertaken during the previous calendar year;
- j) A summary of any **Modifications** and/or major maintenance work conducted on the Water Supply Facilities and Waste Disposal Facilities including all associated structures, in accordance with Part G of this Licence, undertaken during the previous calendar year;
- k) A summary of activities conducted in accordance with the approved **Spill Contingency Plan** referred to in Part H of this Licence, undertaken during the previous calendar year;
- l) A list and description of all Unauthorized Discharges that occurred during the previous calendar year, including the date, NWT spill number, volume, location, and summary of the circumstances and follow-up actions taken, and the status (i.e. open or closed), in accordance with the reporting requirements referred to in Part H, item 4 of this Licence;
- m) An outline of any spill training and communications exercises carried out during the previous calendar year;
- n) A summary of activities conducted in accordance with the **Operations and Maintenance Plan** referred to in Part E of this Licence, undertaken during the previous calendar year;

- o) A summary of any closure and Reclamation activities conducted in accordance with the Interim Closure and Reclamation Plan referred to in Part I of this Licence, undertaken during the previous calendar year, and an outline of activities planned for the forthcoming year;
- p) A summary of any studies requested by the Board by November 1 of the year being reported that relate to Waste disposal, Water Use or Reclamation, and a brief description of any future studies planned;
- q) Tabular summaries of all data generated under the Surveillance Network Program;
- r) A summary of actions taken to address concerns, non-conformances, or deficiencies in any reports filed by an Inspector;
- s) A summary of the calibration and status of the meters and devices referred to in Part B, item 8 of this Licence; and,
- t) Any other details on Water use, operating procedures, Modifications, maintenance work, or other topics, requested by the Board on or before November 1 of the year being reported.

Schedule 2 – Operations and Maintenance

The revised **Operations and Maintenance Plan** referred to in Part E, item 2 of this Licence shall include, but not be limited to, the following information:

- a) An updated contact list;
- b) A tabulated list of acceptable and unacceptable Waste that clearly indicates how all Waste is segregated, stored and ultimately disposed of;
- c) A plan for the management of all new and existing hazardous Waste including end-of-life vehicles;
- d) Segregation of domestic, metal, and recyclable Waste materials;
- e) Prevention of windblown debris;
- f) Security measures to prevent unauthorized entry and deter wildlife;
- g) Method and frequency (i.e. daily, weekly, annually) of all site maintenance activities, including burning;
- h) Alternatives designed to reduce burning and extend the life of the landfill;
- i) A detailed **Sewage Sludge Management Plan** that includes:
 - i. The estimated generation rate of sSewage sludge;
 - ii. The description of characteristics of the sSewage sludge when transported to the Sewage Sludge Treatment Facility;
 - iii. A description of the Sewage Sludge Treatment Facility including location, dimensions, and drainage management;
 - iv. The operation and maintenance of the Sewage Sludge Treatment Facility, including detailed information on the composting process;
 - v. Application of treated sludge at the Solid Waste Disposal Facilities, including testing of finished compost and interpretation of results. Sewage sludge must meet Category B compost criteria as described in the CCME Compost Quality Guidelines (2005).;
- j) Runoff and drainage control within and around the Sewage Sludge Treatment Facility, including erosion control measures; and
- k) Monitoring of:
 - i. The presence of hydrocarbon contamination;
 - ii. Signs of burrowing animals;
 - iii. Signs of large mammals;
 - iv. Access road deterioration;
 - v. Poned water throughout the site;
 - vi. Condition of fence and access control structure;
 - vii. Damage to signage; and,
 - viii. Erosion of side slopes of active and closed cells.

Schedule 3 – Closure and Reclamation

1. The **Interim Closure and Reclamation Plan** referred to in Part I, item 1 of this Licence shall include, but not be limited to, the following information:
 - a) All Waste Disposal Facilities and sites;
 - b) The petroleum and chemical storage areas;
 - c) Any site affected by spills or Unauthorized Discharges;
 - d) Maps delineating all disturbed areas, borrow locations, and site facilities, including hydrological features and elevation contours;
 - e) Consideration of natural runoff Waters and altered drainage patterns;
 - f) The potential for contamination of Groundwater and runoff water (leachate prevention);
 - g) A phased approach and implementation schedule that includes consideration of the design, capacity and lifespan of the components of the Waste Disposal Facilities; and,
 - h) A proposal identifying measures by which restoration costs will be financed by the Licensee upon closure.

2. With regard to the facility being closed, the **Final Closure and Reclamation Plan** referred to in Part I, item 5 shall include, but not be limited to, the following information:
 - a) A description of existing conditions, including photographs;
 - b) A description of monitoring activities conducted prior to closure and a summary of results obtained;
 - c) Contaminated site remediation;
 - d) The potential for contamination of groundwater and runoff water (leachate prevention);
 - e) Consideration of altered drainage patterns;
 - f) Type and source of cover materials;
 - g) Future area use;
 - h) Hazardous Wastes removal, transportation, and disposal;
 - i) A post-closure monitoring plan;
 - j) An implementation schedule; and,
 - k) Maps delineating all disturbed areas, borrow material locations, and site facilities including hydrological features and elevation contours.

Annex A: Surveillance Network Program (SNP)

Annexed to Water Licence MV2015L3-0001, Village of Fort Simpson

Part A: Reporting Requirements

1. The effective date of this Surveillance Network Program is July 2, 2015.
2. The Licensee shall include all of the data and information required in Part B of this Annex in the Annual Water Licence Report, as specified in Part B, item 4 of this Licence.
3. The Licensee shall submit to the Board Surveillance Network Program data, in addition to that required in Part A, item 2 of this Annex, as requested by the Board or an Inspector.

Part B: Station Descriptions and Monitoring and Analysis Requirements

1. The location of sampling sites is subject to approval of an Inspector.
2. The locations of the sampling stations and station-specific monitoring requirements are as follows:

SNP station	Location	Sampling Frequency	Sampling Parameters	Rationale
2015-1 (Active)	Raw Water from the Mackenzie River	Monthly	Volume of Water in cubic metres	To monitor the monthly and annual quantity of Water withdrawn for municipal purposes.
2015-2 (Active)	Treated Sewage effluent at point of discharge from the Sewage Disposal Facilities to the Mackenzie River	Monthly	pH, CBOD ₂ , BOD _{5,1} , Total Suspended Solids, Ammonia, Total Phosphorus, Nitrate, Nitrite, Faecal Coliforms, Oil & Grease	To monitor effluent quality from the Sewage Disposal Facilities prior to entering the Mackenzie River
2015-3 (Inactive)	Raw Sewage prior to treatment			
2015-4 (Inactive)	Swamp downslope from Solid Waste Disposal Facilities	Monthly during periods of flow	Total Suspended Solids, Total Cadmium, Total Chromium, Total Cobalt, Total Copper, Total Iron, Total Lead, Magnesium, Total Manganese, Total Nickel, Oil & Grease, Total Petroleum Hydrocarbons, BTEX, Total Phenols, Total Phosphate, Calcium, Potassium, Sodium, Sulphate, Total Zinc, pH, conductivity	To monitor potential impacts to Groundwater and surface Water surrounding the Solid Waste Disposal Facilities
2015-5 (Active)	Wetlands at southwest corner of Solid Waste Disposal Facilities	To be determined	Same as 2015-4	To monitor potential impacts to Groundwater and surface Water surrounding the Solid Waste Disposal Facilities
2015-6 (Active)	Sewage Sludge from the Sewage Disposal Facilities	Monthly	Volume of Sewage in cubic metres	To monitor the monthly and annual quantity of Sewage sludge removed from the Sewage Disposal Facilities
2015-7 (Active)	Composted sewage sludge	To be determined	To be determined	To monitor Sewage sludge quality prior to use as cover at the landfill

Commented [ME-M11]: Should it be more frequent? Or more frequent for certain parameters?

Commented [ME-M12]: Behchoko WL SNP stations monitoring landfill run-off tes for: pH, Total Zinc, Sodium, Suspended Solids, Magnesium, Total Phosphate, Potassium, Sulphate, Total Phenols, Oil and Grease, Conductivity, Calcium, Total Lead, Total Chromium, Total Nickel, Total Iron, Total Cadmium, Total Copper, Total Mercury, Faecal Coliform, BTEX, TPH

Commented [HS-M13]: Reviewed City of YK and Enterprise. They had Behchoko parameters (see above comment). YK had BTEX and TPH, Enterprise did not...Fort Smith just metals, no HCs. I'm not sure what to put in there!

Commented [ME-M14]: As per request by village (see response to ENR comment #20)

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.

Signed the **XX day of XX, XXXX** on behalf of the Mackenzie Valley Land and Water Board

Chair

Witness

Annex B: Table of Items Requiring Submission

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

Part of Licence	Item	Timeline
B	Annual Report	By March 31, each year
B	Identify SNP stations with signage	Within sixty (60) days of issuance
B	Identify Waste Disposal Facilities and Water Supply Facilities with signage	
D	Submit sampling results for SNP station 2015-2 to the Board and an Inspector	Monthly
D	Submit Solid Waste Disposal Facility Fencing plan	Within 90 days of issuance
D	Erect fencing around the Solid Waste Disposal Facilities	Within one (1) year of issuance
D	Submit Commercial and Industrial Operators Waste Management Plan.	Within 6 months of issuance
D	Submit written notification, including sampling results to an Inspector	10 days prior to using treated Sewage sludge as cover at the landfill
E	Submit a revised Operation and Maintenance Plan for the Solid Waste Disposal Facilities	March 31, 2016
E	Submit a revised Operation and Maintenance Plan for the Sewage Disposal Facilities	Within 90 days of receiving the Template
F	Submit a revised Spill Contingency Plan	March 31, 2016
G	Submit revised Interim Closure and Reclamation Plan	March 31, 2016
G	Submit Final Closure and Reclamation Plan	Six (6) months prior to closing any cell within the Solid Waste Disposal Facilities