



July 18, 2018

AlecSandra MacDonald
Land and Water Technician
Gwich'in Land and Water Board
Box 2018
Inuvik, NT
X0E 0T0

Dear Ms. MacDonald,

**RE: Hamlet of Fort McPherson (the Hamlet)
Type B Water Licence – G03L3-001
Construction of New Solid Waste Disposal Facility
Request for Review and Comment**

The Department of Environment and Natural Resources (ENR), Government of the Northwest Territories has reviewed the proposed activity 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: Project Description, Equipment List and 2015 Engineering Drawing

Comment(s):

There is only a brief project description contained in the cover letter to the GLWB. The project description is not considered adequate to properly review the proposed activity.

Additionally, the engineering drawing is dated from 2015 and does not adequately reflect the engineering and location of the proposed new Solid Waste Disposal Facility (SWDF).

Also, the very brief project description does not contain an equipment list of vehicles and equipment, or a detailed description of activities to be utilized in construction of the new SWDF.

Recommendation(s):

- 1) ENR recommends that the Hamlet submit a detailed project description, observing and utilizing recommendations presented by ENR in their comments and recommendations herein, and not in the form of a cover letter to the Board, to enable ENR to properly review the proposed construction of the new SWDF prior to its construction.
- 2) ENR recommends that the Hamlet submit to the Board, for review purposes, an updated current engineering drawing that indicates in detail the proposed access road and new SWDF.
- 3) ENR recommends that the Hamlet submit a detailed list of equipment that will be utilized for the project activities.

Topic 2: Project Footprint

Comment(s):

It isn't clear to ENR if this expansion is considered to be within the footprint (areal extent) of the previous Water Licence. If the new SWDF is considered to be outside of the original Water Licence footprint, then this activity could actually be a Water Licence amendment application rather than an activity that is approved by the Board under the current Water Licence requirement. A change in footprint (areal extent) of the project would be a change in scope, and therefore would require the submission of a Water Licence amendment application.

Recommendation(s):

- 1) ENR requests that the Board clarify if this activity is within the footprint of the currently issued Water Licence project description. If the activity is outside the areal extent of the current Water Licence, a Water Licence amendment application should be considered for this project.

Topic 3: ECCC Guidelines – Solid Waste Management for Northern and Remote Communities (March 2017)

Comment(s):

The [*Solid Waste Management for Northern and Remote Communities*](#) Guidelines were released by Environment Canada and Climate Change (ECCC) in March 2017.

Section 5.0 of this document offers guidance with respect to Landfills in northern communities, including Landfill Designs: (Base liners & Leachate Management, Cover Systems, etc.), Landfill Construction, etc. and operations: Management of

Major Waste Types (Section 6), Waste Management Planning and Continuous Improvement & Community Waste Assessment (Section 2), Solid Waste Facility Site Selection (Section 3.0), Performance Monitoring and Reporting (Section 7), and Solid Waste Facility Closure and Post-Closure.

Recommendation(s):

- 1) ENR recommends the Hamlet refer to the best practices and principles, from the document *ECCC Solid Waste Management for Northern and Remote Communities Guidelines* during construction of the new SWDF.
- 2) ENR recommends that the Hamlet refer to the application of such practices and principles in a more detailed project description submission to the Board.

Topic 4: SWDF to Contain Wastes and Prevent Off-site Migration of Contaminants

Comment(s):

The ECCC guideline identifies containing waste in a manner that minimizes risk of off-site contamination/pollution - by contaminants migrating beyond the limits of the SWDF property boundary (Section 5.2.1 of ECCC Guidelines) as a primary objective for design and operation of existing and new landfills. Possible pollutant migration pathways identified from landfills include surface water and groundwater. Page one of the Project Description letter specifies that the new SWDF will drain into the Shale pond (former shale pit) - which subsequently drains to the Peel River, via a channel or small stream leading out under the Dempster highway.

Page 2 of the Engineering Diagrams suggests that SWDF surface water drainage drains into the Run-off and Leachate Ponds and then into the Shale Pond to Peel River drainage system.

ENR is concerned that leachate from the SWDF should not drain directly into the Peel River receiving environment. Additional information on measures to prevent landfill leachate from entering the surface and groundwater should be provided.

Recommendation(s):

- 1) ENR recommends the Hamlet provide further details, in a resubmitted project description, regarding the potential for contaminants to migrate from the SWDF into the Peel River and surrounding environment.

- 2) ENR recommends the Hamlet identify measures, in a resubmitted project description, that will be implemented to prevent uncontrolled migration of landfill leachate into the local surface and groundwater receiving environment.

Topic 5: SWDF Leachate and Runoff Quality - Monitored as Entering Shale Pond

Comment(s):

Engineering Diagrams, p. 2, illustrates 3 ponds. The Run-off pond and the Leachate Pond are planned to be constructed within the new SWDF footprint. The third pond represents the flooded “shale pit” located to the west of the new suggested SWDF.

ENR was unable to locate information, pertaining to how and when SWDF leachate and run-off will be introduced into the Shale pit drainage system, and draining into the Peel River.

The submitted aerial images suggested, p. 2, that an SNP location be located at the exit from the Shale pit. ENR is not certain whether the Shale is considered to be part of the SWDF leachate management system, or whether it is considered to be part of the receiving environment. If it is considered part of the leachate management system, then additional information should be provided regarding how discharge from the Shale pit will be controlled, connections between the pit and the groundwater regime, etc. If the Shale pit is considered part of the receiving environment, then effluent from the run-off and leachate ponds should be sampled prior to being discharged to the pit. ENR notes that ECCC guidelines recommend a minimum 30m-100 m setback between the landfill and the nearest stream or river (Table 3-7). ENR understand this minimum setback to imply that no drainage systems should directly connect a SWDF to a nearby stream or river.

Recommendation(s):

- 1) ENR recommends the Hamlet clarify, in a resubmitted project description how the Shale pit is being used, and update the design plan and engineering drawing(s) as necessary.

Topic 6: Non-Compliance Items - Outstanding Management Plans

Comment(s):

ENR notes that the most recent Operation and Maintenance Plan (O&M Plan) on file for the McPherson SWDF is dated of September 1997.

As well, the September 2016 ENR inspection report identifies the following non-compliance items:

- Missing SWDF O&M Plan (for current facility) - including O&M Plan for Landfarm operations;
- Missing Sewage Disposal Facilities O&M Plan;
- Missing Spill Contingency Plan; and
 [A “Water Intake Pumphouse Spill Plan” was submitted in 2017, but no SCP for other Municipal Facilities where hazardous material are being stored.]
- Missing term of reference for a bio-physical assessment of the environment receiving the sewage effluent discharges.

Waste Management and Spill Contingency Plans, and other plans, are documents of crucial importance, which provide site- specific information and procedures to best support staff tasked with managing Solid Waste Disposal Facilities and any associated potential environmental risks.

Recommendation(s):

- 1) If not already provided, ENR recommends that all Waste Management Plans, and other plans mention above, to be submitted and approved by the GLWB prior to beginning of construction and operation of the new SWDF.
- 2) If not already provided, ENR recommends that the O&M Plan for the new SWDF to be submitted and approved by the GLWB prior to beginning of operations at the new SWDF.

Topic 7: Controlled Access to SWDF – High Priority Measure

Comment(s):

ENR’s most recent inspection conducted on September 8, 2016, identified the presence of a significant amount of unorganized and improperly stored hazardous wastes at the current SWDF site, including barrel drums and plastic totes with unknown contents, batteries and various chemical products.

The inspection report further identifies that the Hamlet has historically had the challenge of dealing with unauthorized use of the landfill. This challenge is said to be largely due to the current landfill location outside of the community, and the connectivity between the landfill and the Dempster Highway. At the time of inspection, the SWDF could be accessed via the Dempster Highway at any time of the day.

ENR notes that the new site is located in close proximity to the current SWDF site, and is also accessed using the same road off the Dempster Highway. ENR also notes that controlling the access to landfills was assessed as a **high priority measure** in ECCC Guidelines (see Table 2-2). It would appear that no design details on planned

systems/structures to control access to the proposed new SWDF were specified in the proponent's Project Description letter. ECCC Guidelines (p. 65, or 77 of 132) also refers to the importance of keeping waste from large industrial generators out of communities SWDF (eg. drill cuttings) as municipal SWDF are not designed, or approved by the Board, to handle such wastes, increasing long term liability to communities.

Recommendation(s):

- 1) ENR recommends that the Hamlet describe, in a resubmitted project description, the systems and/or structures planned to control access to the new SWDF site.
- 2) ENR recommends established management procedures are implemented to control access to the new SWDF (if any), and be outlined in resubmitted project description and the O&M Plan for the new SWDF. The new O&M Plan is to be submitted and approved by the Board.

Topic 8: Hazardous Waste Management

Comment(s):

Further to above comment on hazardous wastes management, the ENR Inspector commented in the 2016 report on possibilities and/or opportunities for hazardous wastes collection and diversion away from Fort McPherson's SWDF. The report further identified that while proper signage was/is present at the current SWDF site, segregation practices were not adopted or successful.

ENR notes that a metal shipping container is planned to be staged in the southern portion of the new SWDF, to act as both secondary containment and a system to permit ready transportation of hazardous wastes from the SWDF to an approved hazardous waste disposal facility.

ENR commends the Hamlet for this useful and practical initiative, while cautioning the Hamlet to plan for adequate Spill Contingency measures at this storage containment. The Hamlet should also identify and implement measures to ensure that non-compatible hazardous wastes are not stored within the container.

Recommendations:

- 1) ENR recommends that the Hamlet's Spill Contingency Plan include procedures that will apply to the Hamlet's hazardous waste storage area.
- 2) ENR recommends that all operations and maintenance procedures for hazardous wastes, as well as overall waste segregation strategies, be outlined within the new SWDF O&M Plan which will be submitted for Board approval.

Topic 9: Hazardous Waste Management

Comment(s):

All Proponents that generate hazardous wastes must be registered as a generator of hazardous waste in the NWT.

The Guideline for the General Management of Hazardous Waste in the NWT defines hazardous waste and outlines the roles and responsibilities of generators, carriers, and receivers of hazardous waste in the NWT. The ENR, Environment Division (ED) registers generators, carriers, receivers, and tracks the disposal of hazardous waste generated in the NWT to registered receiving facilities on hazardous waste movement documents (manifest). The definition of hazardous waste includes all waste materials that are 'dangerous goods' according to the Transportation of Dangerous Goods Regulations, and any additional waste of special concern that the ED has determined hazardous until proven otherwise, including but not limited to:

- a) incinerator waste and/or residuals (including bottom ash and fly ash);
- b) any liquid or solid wastes contaminated with refined petroleum products;
- c) bilge wastes;
- d) vehicle or vessel servicing wastes
- e) drilling wastes;
- f) produced fluids (Glycol / Hydrocarbon / Inorganic Mixtures);
- g) tailings; and
- h) any hydrocarbon, lead, mercury or other forms of contaminated soils.

The Guideline for the General Management of Hazardous Waste in the NWT and the Transportation of Dangerous Good Regulations may be found at the following sites:

http://www.enr.gov.nt.ca/sites/enr/files/guidelines/general_management.pdf

<http://www.tc.gc.ca/eng/tdg/clear-menu-497.htm>

Recommendation(s):

- 1) If the Proponent is using, shipping or generating hazardous waste, they must register as a generator of hazardous waste in the NWT and track the disposal of hazardous waste from the site activities to registered receivers on hazardous waste movement documents provided by ENR. Please contact the Environment Division, ENR to register or for more information contact Mr. Mike Martin, Hazardous Substance Specialist, Environment Division by email (Mike.Martin@gov.nt.ca) or by phone (867) 767-9236 extension 53182.

Topic 10: Wind-blown Debris from the SWDF into Sewage Disposal Facilities

Comment(s):

ENR's most recent inspection report indicated issues with wind-blown debris management, travelling from the SWDF and into the sewage lagoon & drainage stream/swale located downstream of the lagoon. According to the Engineering Diagrams, berms to the East and South are respectively 0.5 m and 0.75 m high. A berm with a fence built by the GNWT to the East is said to have been built (Project Description letter) since aerial images submitted with this application were taken; however, no associated height details were provided. The unbermed and unfenced side of the new SWDF facing the road is located on the same side as the Sewage Disposal Facilities and Shale pond.

ENR's inspection report further refers to lack of SWDF covering procedures contributing to the availability of windblown debris (p. 5 and 16 of 18).

Recommendation(s):

- 1) ENR recommends the Hamlet provide further details, in a resubmitted project description, regarding systems/structure designs at the new SWDF to prevent off-site migration of solid waste debris into the Sewage Disposal Facilities, and the surrounding environment.
- 2) ENR recommends that operations and maintenance routines relating to prevention of wind-blown debris (collection frequency, fence clearing, regular covering of solid waste procedures) be described within the resubmitted project description and the Hamlet O&M Plan for the new SWDF.

Comments and recommendations were provided by ENR technical experts in the Water Resources Division, the Conservation, Assessment and Monitoring Division and the Inuvik 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