Review Comment Table

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S20L3-003 - Municipal Water Licence Renewal Application - Charter Community of Fort Good Hope (SLWB)

File(s):	S15L3-002 S20L3-003
Proponent:	Charter Community of Fort Good Hope
Reviewer Comments Due By:	Jan 18, 2021
Proponent Responses Due By:	Jan 25, 2021
Documents:	S20L3-003 - Cover Letter - Water Licence Application - Oct 28_20.pdf 302.5 KB S20L3-003 - Water Licence Application - Oct 28_20.pdf 2.16 MB S20L3-003 - Water Licence Questionnaire Application - Oct 28_20.pdf 1.67 MB S20L3-003 - S15L3-002 - 2018 Water Licence Annual Report - Oct 28_20.pdf 350.65 KB S20L3-003 - S15L3-002 - 2019 Water Licence Annual Report - Oct 28_20.pdf 5.06 MB S20L3-003 - Hazardous Waste Manifest and Maintenance Action Plan - Oct 28_20.pdf 1.11 MB S20L3-003 - Sewage Disposal Facilities Operation and Maintenance Plan - Oct 28_20.pdf 2.84 MB S20L3-003 - Solid Waste Disposal Facility - O and M Plan - Oct 28_20.pdf 3.09 MB S20L3-003 - Water Treatment Plant - O and M Plan - Oct 28_20.pdf 1.87 MB S20L3-003 - Spill Contingency Plan - Oct 28_20.pdf 2.68 MB S20L3-003 - Waste Facilities Report - Oct 28_20.pdf 4.58 MB S20L3-003 - Interim Closure and Reclamation Plan - Oct 28_20.pdf 1.24 MB S20L3-003 - Concordance Table for Renewal Application Documents - Nov 25_20.pdf 184.45 KB S00L3-001 - Preliminary Screening - July 16-2004 391.64 KB S15L3-002 - Preliminary Screening - Oct 26_15.pdf 135.23
Item For Review Distributed On	Nov 27 at 07:03 Distribution List

Item Description

Jan 14, 2021 Update: The review comment deadline has been extended until January 18, 2021 to allow expected review comments from GNWT-ENR

Dec 16, 2020 Update: The review comment period has been extended until January 14, 2021, to allow sufficient time for this public review. The new Proponent response due date is January 21, 2021. (WL S15L3-002 new expiry date after board initiated short-renewal is Feb 3, 2021).

The Charter Community of Fort Good Hope submitted a renewal application for their Type B Municipal Water Licence (S15L3-002) on October 27, 2020. The purpose of this Application is to use water and dispose of the waste for municipal purposes at Fort Good Hope, Kasho Gotine District, NWT.

The current Licence S15L3-002 will expire December 15, 2020, and the application (file no.S20L3-002) requests a 10 year renewal term.

The Board will also consider whether to deem the application exempt from a preliminary screening pursuant to Part 1(2) of Schedule 1 of the *Exemption List Regulations* of the *Mackenzie Valley Resource Management Act*.

Reviewers are invited to submit comments and recommendations using the Online review System (ORS) by the review comment deadline specified below. If reviewers seek clarification on the submission, they are encouraged to correspond directly with the Proponent prior to submitting comments and recommendations.

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

Please provide comments and recommendation on the:

- Renewal Application and Questionnaire
- 2018 and 2019 Annual Water Licence Reports
- Hazardous Waste Manifest and Maintenance Action Plan
- Sewage Disposal Facilities – Operation and Maintenance Plan
- Solid Waste Disposal Facility Operation and Maintenance Plan
- Water Treatment Plant Operation and Maintenance Plan
- Spill Contingency Plan
- Waste Facilities Report

- Interim Closure and Reclamation Plan
- Preliminary Environmental Screening Exemption

A draft licence will be prepared based on comments and recommendations received during this review period and circulated for review on the ORS. (The draft WL will be distributed as a separate online review item to serve as the second round of review for S20L3-003 WL application).

General Reviewer Information

All documents that have been uploaded to this review are also available on our public registry. If you need additional time for review or have any questions, please contact Aswathy Mary Varghese, Regulatory Specialist at ash.varghese@slwb.com.

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Comment Summary

Environment and Climate Change Canada: Victoria Shore				
ID	**Topic**	**Reviewer Comment/Recommendation**	**Proponent Response**	**Board Response**
1	Water licence renewal term	**Comment** The water licence application requests a 10 year renewal term. While the municipality has made progress in developing plans, there is still a significant amount of work needed to implement best practices in solid waste management and to collect Surveillance Network Program (SNP) data which will identify both contaminant migration and subsequent progress with improvements in practices. A 5 year water licence term would ensure a timely and comprehensive review of the improvements included in the Waste Facilities Report, as well as recommendations identified below. **Recommendation** ECCC recommends a maximum water licence term of 5 years, instead of the proposed 10 year term.	**Jan 28:** It is FGH's opinion that the term of the licence is not materially related to the communities' obligations to continue with monitoring, reporting, studies and operational improvements of licensed facilities. FGH has now addressed many of the non-compliances at the time of application, or otherwise indicated how it plans to address items moving forward. FGH recommends that its limited resources and funding be directed to initiatives planned to improve operations and compliance, such as completing studies, facility improvements and monitoring and reporting.	10-year term approved; term may be amended/ reduced later, based on license compliance. (See Decision Letter and Reasons for Decision).
2	Solid Waste Disposal Facility Operations and Maintenance (O&M) Plan Aug. 4, 2020 Waste Facilities Report, Stantec Oct. 22, 2020	**Comment** There are a number of action items that are needed in respect of solid waste management. - Capacity of the solid waste site is to be assessed in 2021. The current site has been in operation for 40 years and is reaching capacity limitations; planning for future solid waste management needs is required. - Records have not been kept for SNP data, unauthorized discharges and spills, nor any records of training, repairs and upgrades. The O&M form provided outlines what should be done, but a practical system for staff to follow should be developed. - The solid waste side fencing needs to be replaced/installed (electric and debris). - The O&M plan does not specify how hydrocarbon-contaminated soil/snow/materials are managed. - Information is not provided on conditions for acceptance of fuel tanks and drums, and how those are managed. - Appliances including refrigerators are accepted and placed in a metals disposal area, but there is no indication that refrigerants are removed and properly disposed of. ECCC recommends that the Proponent use best practices to responsibly manage refrigerants and fluids from discarded appliances and scrap vehicles. Fluids should be removed and sent to an appropriate facility for disposal. - The plan shows that waste asbestos is accepted, and is buried with mixed contractor wastes within the landfill. Asbestos is a hazardous waste, and should be managed in accordance with the GNWT Guidelines for the Management of Waste Asbestos. The Interim Closure and Reclamation Plan also recommends that hazardous waste containing be tested and removed from contractor waste area, rather than being landfilled without controls. - In the absence of both a landfill liner and a leachate management system, ECCC stresses the importance of minimizing the volume and toxicity of leachate generated, to the greatest extent possible. Snow, rain, runoff and site drainage should be diverted away from the landfill in order to minimize the volume of leachate that is generated. Segregating hazardous wastes, using secondary containment, performing on-going maintenance, and monitoring for spills/releases are important elements in reducing the strength and toxicity of the leachate generated. - The Solid Waste Facilities Report presents a proposed waste sorting plan and sewage waste disposal configuration	**Jan 28:** The Charter Community of Fort Good Hope understands the importance of monitoring and that consistency of reporting has been a deficiency. The community will discuss with ENR the opportunity to train and re-train staff to sample surface water and groundwater from installed wells, and to report on water quality and groundwater levels, as/if present. FGH would like regular training and refreshing of training on sampling procedures and reporting. Further evaluation of flow in existing wells will be determined with further discussion with government agencies that are working in the area. If the fencing concept plan is approved by the Sahtu Land and Water Board, the Charter Community of Fort Good Hope will seek funding to proceed with a detailed design for fencing at the SWDF. Small spills (less than	The SWDF O and M Plan needs a major revision following the recommendations from ECCC. Board Staff appreciates the efforts from the Applicant/Licensee to come up with SWDF Optimization Plan.

		(Figures 2-3 and 2-4). There is no indication of timing or plans to implement these improvements, and this should be developed. **Recommendation** ECCC recommends that the items identified be addressed with specific improvements in operational practices, that these be set out in a practical document that staff can use to track requirements and document information and activities, and that there be proactive planning for future solid waste management needs with an assessment of current site capacity and alternative options.	reportable quantities) are excavated. The impacted material is collected in a steel drum or megabag. Megabags with impacted material are to be closed and stored in the hazardous waste area at the solid waste facility. The Charter Community of FGH commits to undertaking a Solid Waste Disposal Facility Optimization Plan within 12 months of license issuance. The purpose of the plan is to evaluate existing design and operation of the facility and to make recommendations to optimize the facility layout and operations. The plan will be completed with the involvement of a knowledgeable solid waste contractor following an onsite evaluation and will include: • Proposed changes to layout and operations to optimize capacity • Proposed improvements to operating procedures for waste receiving, tracking and segregation • Procedures for receiving and managing hazardous wastes, including such wastes contained in vehicles, appliances and fuel tanks • Proposed improvements to waste management and cover • Procedures for record-keeping Following implementation of the proposed changes, an estimation of existing and remaining capacity (lifespan) of the SWDF will be provided	
3	Interim Closure and Reclamation Plan (ICRP) for Solid Waste Facility dated Oct. 20, 2020	**Comment** ECCC acknowledges that the closure and reclamation plan is an interim version, but notes that there are a number of parts of the plan that will require further detail in the final version. These include: - Section 3.3 describes closure of the sewage disposal trench, and states that for accumulated sludge: "If contaminated materials beyond the acceptable guidelines was discovered, the material would be removed and either treated through landfarm applications or used as backfill cover during the landfill closure." Removal of any contaminated sludge would reduce the migration of contaminants to the Mackenzie River, but the disposal options listed would not address the contamination and would simply relocate the contaminated materials where they can still leach contaminants. Testing and disposal of contaminated sludge will need to be identified based on sludge quality and risk. - Closure of the sewage ex-filtration trench; whether or not the sludge is removed, details should be provided on how the trench itself will be closed. - Closure of the hazardous waste storage area once materials are removed. - Post-closure monitoring. - Identifying the composition and depth of the cover layer to be used for closure of the landfill. Section 3.4 simply specifies that there will be a final cover to control water movement through the landfill. Planning for encapsulation is of particular importance to limit the infiltration of surface water into the landfilled materials, in order to prevent leachate generation. **Recommendation** ECCC recommends that the items identified be addressed in the Final Closure and Reclamation Plan in advance of closure of any of the waste management facilities.	**Jan 28:** Suggestion noted, the final closure and reclamation plan will be prepared according to the Solid Waste Management for Northern and Remote Communities Planning and Technical Guidance Document.	Response acceptable
4	Interim Closure and Reclamation	**Comment** Table 5.1 outlines the general steps for implementation of the ICRP. This includes "excavation and treatment of contaminated soil". The	**Jan 28:** Small spills (less than reportable quantities)	The clarification on

	Plan (ICRP) for Solid Waste Facility dated Oct. 20, 2020	various plans submitted in support of the application indicate that there is no mechanism in place to deal with spills in the community or at the municipal facilities. It is not clear what is currently done with any contaminated materials from spill clean-ups. **Recommendation** ECCC recommends the municipality identify how materials contaminated by spills are managed.	are excavated. The impacted material is collected in a drum or megabag. Drums and megabags with impacted material are to be closed and stored in the hazardous waste area at the solid waste facility.	management of contaminated soil must be updated in the next revision of ICRP (timeline to be decided by the Board) and also in SWDF O and M Plan.
5	Surveillance Network Program Monitoring	**Comment** No monitoring results have been provided for the municipal SNP program, which requires monitoring of raw water, six groundwater locations adjacent to the Waste Disposal Facilities, and two surface flow/seepage stations. For groundwater stations, it was stated that there were periods of no flow, but it is not clear whether there were options to sample at other times when water was present. Comprehensive monitoring data is required to identify contaminants migration and inform site management improvements. **Recommendation** ECCC recommends the SNP program be reviewed, and a plan developed to comply with the monitoring and reporting requirements.	**Jan 28:** The Charter Community of Fort Good Hope understands the importance of monitoring and that consistency of reporting as been a deficiency. The community will look for opportunities to train and re-train staff to sample surface water and groundwater from installed wells, and to report on water quality and groundwater levels, as/if present. FGH would like regular training and refreshing of training on sampling procedures and reporting. Further evaluation of flow in existing wells will be determined with further discussion with government agencies that are working in the area.	SNP groundwater stations have to be validated by Flow pathway study. Board staff appreciates the applicant/licensee's willingness to commit to SNP training and compliance to monitoring requirements.

Fisheries and Oceans Canada: Triage Group Fisheries Protection Program

ID	Topic	Reviewer Comment/Recommendation	Proponent Response	Board Response
1	S20L3-003 - Municial Water Licence Renewal Application - Charter Community of Fort Good Hope. Water withdrawl from the Mackenzie River (~31,000 m3/year).	**Comment** DFO-FFHPP has reviewed the Proponent's application pursuant to its mandate to determine whether the project is likely to result in the death of fish by means other than fishing and/or the harmful alteration, disruption or destruction (HADD) of fish habitat which are prohibited under subsections 34.4(1) and 35(1) of the Fisheries Act; and, effects to listed aquatic species at risk, any part of their critical habitat or the residences of their individuals in a manner which is prohibited under sections 32, 33 and subsection 58(1) of the Species at Risk Act. The Project as described, may result in HADD or prohibited effects on listed aquatic species at risk, however more information is required. DFO recommends the applicant submit a Request for Review to DFO. **Recommendation** Please submit a Request for Review to DFO. It remains your responsibility to remain in compliance with the Fisheries Act, avoid prohibited effects on listed aquatic species at risk, any part of their critical habitat or the residences of their individuals, and prevent the introduction of non-indigenous species. It is also your Duty to Notify DFO if you have caused, or are about to cause, the death of fish by means other than fishing and/or the harmful alteration, disruption or destruction of fish habitat.	**Jan 28:** A request for review has been sent to the Department of Fisheries and Oceans. FGH notes that this is a renewal of the existing water licence, with no change in scope of the operations and that a previous Letter of Advice was received in 2008. FGH's operations apply DFO's standard mitigations and Interim codes of practice, as applicable.	Response acceptable

GNWT - ENR - EAM (Environmental Assessment and Monitoring): Central Email GNWT

ID	Topic	Reviewer Comment/Recommendation	Proponent Response	Board Response
30	General File	**Comment** ENR Letter with Comments and Recommendations **Recommendation**		
1	Topic 1: SLWB Notice and Past/Current Non-Compliance Issues	**Comment** As part of the current Water Licence renewal, the following were submitted to the Sahtu Land and Water Board (SLWB): • Revised Operations and Maintenance plans for the Sewage Disposal Facilities (SDF) and Solid Waste Disposal Facilities (SWDF); • Revised Spill Contingency Plan (SCP); • Revised Water Treatment Plant O&M Plan; • Closure and Reclamation Plan; and • Waste Facilities Fencing Plan. As well, there were several other items identified as non-compliance issues prior to 2015 that were inserted as conditions in the body of the current Water Licence (S15L3-002) that were required to be complete following the issuance. ENR notes that several of these are still outstanding as specified in the Board concordance table prepared following a July 27, 2020 visit. These items are further described in comments and recommendations made below. Amongst these items were conditions requesting for fencing to be erected according to the Fencing plan (D:17), establishment of a graduated scale within the infiltration trenches, installation of all specified signage, maintenance and operation of	**Jan 28:** FGH has identified and committed to several recommended improvements to the waste facilities, though additional assistance, particularly with regular training on surface and groundwater monitoring would be welcome.	Response acceptable

		fences/signs/equipment to the satisfaction of an Inspector, and the submission of a Flow Path Study to identify appropriate SNP monitoring locations. **Recommendation** 1) Should compliance issues persist during the term of the new Water Licence, ENR recommends the SLWB should consider proceeding to further collaborative measures, such as a meeting including the Board and the Licensee, as well as other relevant parties such as the Inspector. Such meetings have been used in similar contexts with communities in the Mackenzie Valley, in order to further assess each specific outstanding compliance issue and associated path forward, in a format that can be followed and tracked by Board and identified community individual(s) via e-mails and communication follow-up(s).		
2	Topic 2: Solid Waste Disposal Facility Cells Re-organization to Prevent Community Access	**Comment** Information submitted in Subsections4.1.7 and 4.1.8 of the Waste Facilities Report (WFR) suggested the re-location of certain cells, in order to prevent human exposure and community members' access to the Sewage Disposal Facility (SDF) and hazardous/industrial wastes storage areas. For example, Figure 2-2 outlined the current landfill configuration where the household wastes cell is located immediately adjacent to the honey bags pit on one side, and the two sections of the wastewater trench, or SDF on the other side. The waste sorting plan proposed in Figure 2-3 suggested to regroup the honey bags pit with similar wastes within the proposed SDF fenced area (wastewater trenches). This plan further recommends moving the current household waste area to a corner of the Solid Waste Disposal Facility (SWDF) located below the ATV/snowmobiles area on the opposite side of the landfill site from the hazardous waste area, wastewater trenches and vehicles storage area. This section also proposes that a separate road be developed so that the proposed new household wastes location can be accessed directly, without having to navigate through the entire landfill site on the way, as currently done under the present configuration. The Solid Waste Management for Northern and Remote Communities Guidelines, released by Environment Canada and Climate Change (March 2017) identified controlling access to landfills as a high priority measure (see Table 2-2). As specified in p. 7 of the Waste Facilities Report, there is currently no access control to the SWDF other than the double vehicle gates. As well, both existing and proposed waste sorting plans (Figures 2-2 and 2-3) show a 'soil disposal area' located above the ATV and snowmobiles disposal area. The purpose of this area isn't clear. **Recommendation** 1) ENR supports suggestions for the relocation of the household wastes cells and honey bags pits, as well as for the development of a separate access road to the new location proposed for the household wastes, in order to limit community access and exposure to industrial/hazardous wastes, and/or the wastewater trenches.	**Jan 28:** Noted. Additional improvements to the Solid Waste Disposal Facility will be identified in the Optimization Plan. If the plan for improvements is approved, and funding is obtained, design drawings can be submitted for approval 60 days prior to the start of construction.	Response acceptable
3	None	**Comment** None **Recommendation** 2) ENR recommends that the community of Fort Good Hope specify if contaminated soil is being accepted at the SWDF in the 'soil disposal area' identified in the Figures 2-2 and 2-3.	**Jan 28:** The "soil disposal area" as labeled is not intended to accept impacted soil. There is no record of the source of the existing soil in the SWDF. Impacted soil is not intended to be accepted at the SWDF, but it can be stored in drums or lined megabags in the hazardous waste section. This will be addressed in the proposed Optimization Plan.	Response acceptable. SWDF O and M Plan must be updated accordingly
4	Topic 3: Fencing and Community Access - SLWB Non-Compliance Concerns	**Comment** The most recent inspections report completed in June 2018 and July 2020 by ENR's Inspectors noted on the absence of fencing around the SDF and SWDF. Section 4.1.6 of the Waste Facilities Report (WFR) further specified that within the SWDF, there were no fences separating areas for community access, as well as areas where the general community should not have access. The orange fence installed around the perimeter of the trench (see Figure 3 in the June 2018 ENR inspection report), had already fallen down, demonstrating this type of fencing to be only a temporary solution, and that only reliable permanent fencing should be considered in the future. A Waste Facilities Fencing Plan was submitted within the WFR, describing fencing plans details in Section 4.1.7 and illustrating these plans in Appendix A. As such, a fence around the SDF including the new proposed location for the honey bags pit is presented, in order to limit access to these sites and prevent wind-blown debris from entering the wastewater trench sections. Fencing was also proposed around the newly proposed location for household wastes, which paired with a separate road access would help further limiting community access to the remaining of the landfill site where commercial, industrial and wastewater types of wastes are being housed.	**Jan 28:** If the fencing concept plan is approved by the Sahtu Land and Water Board, the Charter Community of Fort Good Hope will seek funding to proceed with a detailed design for fencing at the SWDF. The design of upgraded fencing will incorporate a full topographic survey.	Response acceptable

		Furthermore, a fence extension was also suggested to be instated at the current site entrance, to further limit/restrict community access through this entrance planned to be receive for commercial, industrial and wastewater wastes only. **Recommendation** 1) ENR supports that permanent fencing additions and separate entrance access be instated as suggested in the Waste Facilities Fencing Plan, in order to limit community members' access and unnecessary exposure to industrial/hazardous and wastewater/sewage storage areas.		
5	Topic 4: Hazardous Wastes at SWDF and Commercial Controlled Access	**Comment** Currently, the hazardous waste area of the landfill is partially lined with a 3,000m2 polyethylene liner (p. 7 of WFR). The June 2018 ENR inspection report specified that the SWDF had a large amount of hazardous wastes that appeared to be generated by local contractors (See Figure 8). The SWDF O&M Plan specifies that the community is registered to receive hazardous wastes, although no-one at the facility is monitoring each load that is coming in (p. 13, Section 9). The WFR further specifies that businesses from within the community of Fort Good Hope were permitted to dispose of hazardous waste in designated areas for a fee. Part D, Item 19 of the Water Licence specifies that the SWDF only accepts household hazardous waste, and not hazardous waste from local contractors. Section 3.3 of the Waste Facilities Report outlines that the SWDF does not accept hazardous waste from industrial or commercial businesses from outside of the community. This appears to be contradictory. **Recommendation** 1) Considering that there is no monitoring of loads arriving at the SWDF, ENR recommends that the community clarify the procedures by which commercial/industrial operators from within the community are asked to follow when disposing of wastes at the SWDF, and paying their fees for wastes disposal.	**Jan 28:** This will be addressed in the proposed Solid Waste Disposal Facility Optimization Plan.	Response acceptable. SWDF O and M Plan must be updated after the community comes up with the optimization plan. Board decision awaited on the condition for acceptance of waste from commercial operations as per inspector's instruction/approval.
6	None	**Comment** None **Recommendation** 2) ENR recommends that the Water Licence be updated to differentiate commercial/industrial operators from within or outside municipal boundaries. For example, the information currently outlined under Part D Item 19 of the current Water Licence, could be updated to specify that: "The Licensee shall not accept hazardous Wastes at the Temporary Hazardous Waste Containment Facility generated by commercial and industrial operators from outside the municipal boundaries of Fort Good Hope.	**Jan 28:** This is reasonable.	Comment received
7	Topic 5: Segregation, Signs and Training - SLWB Notice and Compliance Concerns and Issues	**Comment** As noted in the June 2018 Inspection Report completed by ENR, the SWDF was deemed to be in poor condition. Issues included non-segregation of wastes (household wastes mixed with metals, wood, household appliances contaminated materials, etc). These conditions are also illustrated in Figure 5 of that report as well as Figure 4 of the July 2020 ENR Inspection Report. The former provided further visual representation on wood mixed with general wastes (Figure 6), hazardous wastes stored improperly (Figure 2), and wind-blown debris covering the ground outside of the SWDF (Figure 7). The WFR specifies, in Section 4.1.9, that each of these wastes will be deposited in their designated area, in an organized manner. Condition B:11 of the existing Water Licence also directed signs to be established, in order to inform the public at all necessary locations. Section 2.3 of the WFR further outlined the need for staff training, stating that the community was responsible for providing training to their SWDF personnel, so that the SWDF is operated in a safe and environmentally responsible manner, and in accordance with applicable regulations. The March 2017 ECCC Guidelines also identified trained on-site operators and segregation of wastes as a High Priority measures (see Table 2-2) towards protecting the public, facility operators and wildlife from immediate risks and preventing the release of toxic substances from the site. **Recommendation** 1) ENR recommends that the Water Licence include conditions requiring that all signs not yet instated (see July 27 2020 Concordance Table), as well as signs for SNP stations once final locations are determined, be installed within six months following issuance of the new Water Licence. These should also include segregation signs, in order to provide the necessary directives to all users, indicating where each type of waste should be deposited.	**Jan 28:** New signs for the SWDF were shipped to the Charter Community of Fort Good Hope on November 6th, 2020. The signs will be installed once the ground is sufficiently thawed in spring 2021.	Response acceptable
8	None	**Comment** None **Recommendation** 2) ENR recommends that the community consult the list of training and certification courses offered through MACA School of Community Government, and arrange for necessary training to take place, as recommended in the WFR for the SWDF staff.	**Jan 28:** The Charter Community of Fort Good Hope will discuss with MACA and ENR, opportunities for training and regular retraining of community staff.	Response acceptable
9	Topic 6: SWDF Maps and Remaining	**Comment** Upon review of the Solid Waste Disposal Facility Operations and Maintenance Plan (SWDF O&M Plan), it was noted that the scaled site plan with an air photo referred to in Section 5 with associated identification of	**Jan 28:** The map referenced in Section 5 of the SWDF O&M Plan will be	Response acceptable

	Capacity	various areas was not attached to the SWDF O&M Plan. Also, it was noted that the map provided in Figure 2-1 (p. 8) of the WFR did not present clear lines between land and water, and did not clearly identify the name of Mackenzie River as well as distances separating the SWDF (and wastewater trenches) to the receiving environment of the Mackenzie River. Condition(s) within the new Water Licence should also be included to help determine the currently unknown remaining SWDF capacity, by facilitating the survey and study proposed to be completed in 2021 as committed to in Section 7 of the SWDF O&M Plan. **Recommendation** 1) ENR recommends that the map referenced in Section 5 of the SWDF O&M Plan be submitted.	resubmitted.	
10	None	**Comment** None **Recommendation** 2) ENR recommends that the map submitted as Figure 2-1 (p. 8) of the WFR be improved, in order to provide important information currently missing or difficult to decipher.	**Jan 28:** The recommended edits will be completed on the map submitted as Figure 2-1 of the WFR.	Response acceptable
11	None	**Comment** None **Recommendation** 3) ENR recommends that condition(s) be included within the new Water Licence to facilitate the completion of a study as committed by the community, to determine the remaining SWDF capacity which was not specified in the SWDF O&M Plan.	**Jan 28:** The Charter Community of FGH commits to undertaking a Solid Waste Disposal Facility Optimization Plan within 12 months of license issuance. The purpose of the plan is to evaluate existing design and operation of the facility and to make recommendations to optimize the facility layout and operations. The plan will be completed with the involvement of a knowledgeable solid waste contractor following an onsite evaluation and will include: • Proposed changes to layout and operations to optimize capacity • Proposed improvements to operating procedures for waste receiving, tracking and segregation • Procedures for receiving and managing hazardous wastes, including such wastes contained in vehicles, appliances and fuel tanks • Proposed improvements to waste management and cover • Procedures for record-keeping Following implementation of the proposed changes, an estimation of existing and remaining capacity (lifespan) of the SWDF will be provided	Response acceptable
12	Topic 7: Repairs to Discharge Chute - Wastewater Trenches at SDF	**Comment** Section 3.2.1 (p. 14) of the WFR, specifies that two separate wastewater trenches are adjacent and hydraulically linked, connecting directly to a subsurface granular seam, understood to be indirectly connected to the Mackenzie River via groundwater flow. There is currently only one sewage discharge chute at the SDF which has been in need of repair for some time, as described in July 2020 and June 2018 ENR inspection reports. In Section 3.2.3 of the WFR, the community proposed to construct two separate truck dumping stations, one at each trench, allowing for separate use if one station was to be momentarily damaged or out of service in the future. Section 3.2.4 of the same document also specified that a vertical measuring post was to be installed in each wastewater trench, as a mean of measuring any buildup of sewage. Lastly, erosion and land slumping reported at the SDF trenches in the June 2018 and July 2020 ENR inspection reports represent a serious issue to ensure that the integrity of the discharge locations and wastewater trenches is maintained. This issue needs to be addressed by the community as soon as feasibly possible, and may be inserted as a Water Licence condition. **Recommendation** 1) ENR recommends that the Charter Community of Fort	**Jan 28:** Acknowledged	This issue needs to be addressed by the community as soon as feasibly possible. WL condition requiring satisfactory maintenace of sewage disposal facility is transferred from the existing water licence to the renewed licence. Additional condition to be discussed with the Board.

		Good Hope proceed with the repair/replacement of the current sewage discharge chute. As proposed by the community, and considering the long term need for the repair of the current chute, ENR supports the community's suggestion that another discharge chute be established at the other wastewater trench, in order to ensure service in the future in time when one trench may be out of service.		
13	None	**Comment** None **Recommendation** 2) ENR recommends that the SLWB consider including provision in the body of the Water Licence requiring the Licensee to construct, operate, and maintain the Sewage Disposal Facilities such that any deterioration or erosion of constructed facilities' structures needing repair be reported to an Inspector and the Board, and repaired immediately. A similar condition was included in the recent Type A Water Licence issued for Hay River.	**Jan 28:** Visible signs of erosion or deterioration will be reviewed by an Engineer. Recommendations for repairs will be made based on the findings of the Engineer's assessment.	Response acceptable
14	Topic 8: Annual Reporting - Compliance Considerations	**Comment** Annual Reports were not submitted during the first three years of the current Water Licence, as identified in the June 2018 ENR inspection report. In recent years, Annual Reports for the period covered by the current Water Licence were submitted in two groups, firstly in June 2018 (2015, 2016 and 2017 ARs) and again in October 2020 (2018 and 2019 ARs). ENR notes that the 2015 to 2017 Annual Reports were prepared from Annual Report templates, and that the last two years were submitted in a different format prepared by the community's consultant. To best support the community with submitting Annual Reports during the upcoming term of the new Water Licence, the community should identify difficulties that were encountered that affected their ability to prepare and submit Annual Reports in the past. Once identified, the parties may be in a better position to identify ways to best support the community of Fort Good Hope in meeting these requirements of their Water Licence. As identified in the MVLWB policy document on 'Roles and Responsibilities – Community Water and Wastewater Management' (p. 7 of 9), in-house technical support and assistance may also be available to the community of Fort Good Hope from MACA, in assisting in the writing of Annual Water Licence Reports. **Recommendation** 1) ENR recommends that the Charter Community of Fort Good Hope identify and analyse factors that may have prevented them from preparing and submitting Annual Reports in the past via available Annual Report Templates, as well as organizational measures that will be put in place to ensure the submission of Annual Reports in the future.	**Jan 28:** FGH understands the importance of regular reporting and commits to identifying opportunities to train and re-train staff in monitoring and reporting.	Response acceptable
15	Topic 9: SNP Groundwater Monitoring - MACA Groundwater Investigation Locations	**Comment** The SDF is currently utilizing an infiltration system for the management of municipal wastewater discharges. Infiltration systems differ from most SDF used in the NWT, as wastewater does not travel over land, but rather in subsurface layers. As such, while the receiving environment may be identified, specific final discharge locations may remain unknown. This may, in part, outline the difficulty that the Charter Community of Fort Good Hope has experienced in the past in attempting to monitor potential impacts from their SDF, and submitting associated results. During the current term of the existing Water Licence, it would appear that no groundwater monitoring results were submitted by the community. However, groundwater investigation and monitoring has been conducted by MACA during the term of the current Water Licence via groundwater monitoring wells that were established in strategic locations downstream from the Waste Management Facilities (SDF wastewater trenches), and the SWDF, both located in the same area. Previous comments from ENR, prepared in collaboration with MACA, specified that these groundwater monitoring wells were to be monitored annually by MACA and results were to be provided to (and managed by) the community. **Recommendation** None required – see following comments and recommendations Topics 10 and 11.	**Jan 28:** Noted	Response acceptable
16	Topic 10: NWT Specific Infiltration Systems Research	**Comment** ENR recently funded a modeling study to be conducted at Enterprise, NT, where an infiltration system is also being used to receive wastewater discharges from the community. Site specific conditions of low hydraulic gradients and slow groundwater flow at the location of the Enterprise lagoon suggested that degradable solutes were likely naturally attenuated before being discharged to the Hay River. Site-specific conditions in Fort Good Hope may however differ, and conclusions made for the SDF system in Enterprise system should not be extrapolated to the system in Fort Good Hope. However, a similar modeling desktop assessment has been funded by ENR for Fort Good Hope and is nearing completion, which results should become available early in 2021. **Recommendation** 1) ENR recommends for results from Fort Good Hope modeling desktop study to be considered in the future in order to take the best informed decisions on the selection of groundwater wells for the monitoring of possible impacts from the waste management facilities. ENR will provide results as they become available.	**Jan 28:** FGH appreciates access to data from additional studies. At this time, FGH has committed to monitoring and reporting on water quality and water levels in existing installed groundwater wells.	Response acceptable

17	Topic 11: Research - Infiltrating Sewage Disposal Facilities' Systems	**Comment** The GNWT (MACA and ENR) in collaboration with the MVLWB have been conducting a multi-years research project with Dalhousie University, in order to develop a better understanding of infiltration systems (as referenced above). A literature review for systems comparable to Fort Good Hope's infiltration trench was conducted by Dalhousie University, revealing the existence of similar systems used in the USA called rapid infiltration basins, or RIBs. Design guidelines were developed by the USEPA for the use of RIBs for community scale wastewater treatment. The siting and design of these systems is based on similar principles as subsurface onsite wastewater treatment systems (OWTS); however, they generally require greater clearance distance (3 m) between the bottom of the infiltration basin and the water table or impermeable soil layer. States in the USA that permit RIBs require an intrusive hydrogeological investigation in the siting and design of such system, typically requiring ongoing groundwater monitoring once the system becomes operational. **Recommendation** 1) Considering that over land monitoring stations may not be relevant for the monitoring of an infiltration system such as operated in Fort Good Hope, and to align with monitoring practices of similar systems operating as RIBs in the USA, ENR recommends for the most relevant groundwater wells established by MACA to be transferred to the SNP monitoring program of the new Water Licence, in order to monitor the subsurface migration of contaminants from Fort Good Hope waste management facilities towards the Mackenzie River. Results from Fort Good Hope modeling desktop study should help determine which locations are be most relevant and efficient at monitoring groundwater flowing downstream from the facilities.	**Jan 28:** The Charter Community of Fort Good Hope will report on water quality data and groundwater levels from all existing groundwater wells surrounding the solid waste facility. Further evaluation of groundwater flow in existing wells will be determined with further discussion with government agencies that are working in the area.	Response acceptable
18	Topic 12: SWDF O&M Plan - Landfilling Operations; Part 13: Litter and Wildlife Control	**Comment** Details of intermediate cover are not provided in the SWDF O&M Plan. Litter and wildlife control measures are also not addressed in Section 13 of the plan. **Recommendation** 1) ENR recommends that the proponent clarify the frequency of intermediate cover applied on the active cell/disposal area. Ideally, 300 mm cover should be applied in fall and spring, according to Solid Waste Management for Northern and Remote Communities Planning and Technical Guidance Document: http://publications.gc.ca/collections/collection_2017/eccc/En14-263-2016-eng.pdf	**Jan 28:** The household waste section of the SWDF is compacted with no cover up to two times per year. Cover is added to household waste cells when they are full. Additional improvements to cover practices will be evaluated as part of the proposed SWDF Optimization Plan.	Response acceptable. SWDF O and M Plan must be updated accordingly
19	None	**Comment** None **Recommendation** 2) The proponent should specify the cover material which would be used and its availability. Intermediate cover should be provided to contain the waste, minimize water infiltration, reduce wind-blown litter and prevent wildlife attraction.	**Jan 28:** Additional improvements to cover practices will be evaluated as part of the proposed SWDF Optimization Plan.	Response acceptable. SWDF O and M Plan must be updated accordingly
20	None	**Comment** None **Recommendation** 3) If the cover is not applied as frequently as recommended, clarification on what litter and wildlife control methods are adopted should be addressed in Topic 13.	**Jan 28:** If the fencing concept plan is approved by the Sahtu Land and Water Board, the Charter Community of Fort Good Hope will seek funding to proceed with a detailed design for fencing at the SWDF. The fencing will work to control litter and wildlife.	Response acceptable. SWDF O and M Plan must be updated accordingly
21	Topic 13: Hazardous Waste Management	**Comment** Vehicles are said to be managed at site, but not landfilled. Vehicles may have hazardous components (batteries, mercury containing elements, oils, antifreeze etc.) which need to be removed prior to further handling/recovery of scrap metal. **Recommendation** 1) The proponent should specify how the vehicle wastes are handled on-site. It should also be specified if a trained personnel/technician will be involved in 'de-contaminating' the vehicles.	**Jan 28:** Additional improvements to waste acceptance and management procedures will be evaluated as part of the proposed SWDF Optimization Plan.	Response acceptable. SWDF O and M Plan must be updated accordingly
22	Topic 14: Closure and Post-closure Plan	**Comment** The Closure Plan is said to be completed: "Rev0 submitted to SLWB for approval October 27, 20202". The timeline/year is incorrect. **Recommendation** 1) The proponent is advised to rectify the error in the completion details.	**Jan 28:** The error will be corrected.	Response acceptable
23	Topic 15: Electric Fencing and Site Security	**Comment** The Solid Waste Disposal Facility Operation and Maintenance Plan indicates that a wind fence and electric fence are installed at the Solid Waste Facility (Section 3, Security and Control). However, in Section 16 (Inspection and Monitoring), the document comments that 'Re-installation is required' in reference to the voltage of the electric fence. The SWDF O&M Plan should be updated to clearly indicate whether an electric fence is present and operational at the Solid Waste Disposal Facility. If there is no electric fence present, the Proponent should install an electric fence in order to deter wildlife from accessing the Solid Waste Disposal Facility.	**Jan 28:** The electric fence has been decommissioned at the SWDF.	Response acceptable. SWDF O and M Plan must be updated accordingly

		Recommendation 1) The proponent should update the SWDF O&M Plan to clearly indicate whether an electric fence is currently present and operational at the Solid Waste Disposal Facility.		
24	None	**Comment** None **Recommendation** 2) If no electric fence is present and operational at the Solid Waste Disposal Facility, the Proponent should install an electric fence to deter bears and other wildlife from entering the site.	**Jan 28:** An electric fence is not currently planned at the Solid Waste Disposal Facility. If the fencing concept plan is approved by the Sahtu Land and Water Board, the Charter Community of Fort Good Hope will seek funding to proceed with a detailed design for fencing at the SWDF. The fencing plan includes a 2.4 m tall fence, to act as a wildlife control.	Response acceptable
25	None	**Comment** None **Recommendation** 3) A gate should be installed with the electric fence to ensure that there are no access points for wildlife into the site.	**Jan 28:** An electric fence is not currently planned at the Solid Waste Disposal Facility. If the fencing concept plan is approved by the Sahtu Land and Water Board, the Charter Community of Fort Good Hope will seek funding to proceed with a detailed design for fencing at the SWDF. The fencing plan includes a gate to ensure that there are no access points for wildlife into the site.	Response acceptable
26	Topic 16: Surveillence Network Program	**Comment** The SNP sampling stations have not been monitored regularly; each of the SNP sampling locations should have submitted GPS location information and clear signage. Regular sampling according to the Water Licence should be completed. **Recommendation** 1) ENR recommends that SNP sampling stations be monitored by the proponent on a regular basis, and that SNP sampling is performed, and records of sampling completed as per Water Licence Terms and Conditions.	**Jan 28:** Sampling of groundwater (if present) in existing wells is proposed to be completed twice per summer (July and September), and SNP surface water sampling will be completed monthly when water is present.	GPS coordinates must be provided for SNP sampling wells and proper signage must be posted in compliance with the WL conditions
27	Topic 17: Waste Facilities Report - 2.1, Facility Description – Life Span of SWDF	**Comment** According to the WFR, Section 2.1, the SWDF facility has been in use since 1980. The report also has combined the two facilities called the SSWF, which consists of several different areas for solid waste/sewage wastes, household/domestic/residential/industrial wastes, and hazardous/construction/vehicle/snowmobile/fuel tank wastes. According to the report it has been designed as a modified landfill, which has a particular description. “A modified landfill is a method of disposing solid waste on land in a manner that protects human health and the environment. Applying engineering principals, solid waste is confined to the smallest practical area, reduced to the smallest practical volume and covered routinely with a cost-effective layer of earth”. According to the MACA, GNWT guidelines for designing solid waste facilities; Section 3.2, all landfills should be designed for a minimum lifespan of 20 years. **Recommendation** 1) Since the facility has been in use since 1980, and the lifespan of a landfill is approximately 20 years, it is recommended that this landfill be closed and reclaimed according to the following MACA, GNWT guidelines: https://www.enr.gov.nt.ca/sites/enr/files/guidelines/solidwaste_guidelines.pdf	**Jan 28:** The Charter Community of Fort Good Hope is not planning for a new Solid Waste Disposal Facility at this time. Remaining lifespan will be evaluated following implementation of changes proposed as an outcome of the SWDF Optimization Plan.	Response acceptable
28	None	**Comment** None **Recommendation** 2) ENR recommends that a new SWDF include understanding of current as well as future requirements and concerns, engineering principles and the consideration of environmental health and human health/population growth.	**Jan 28:** The Charter Community of Fort Good Hope is not planning for a new Solid Waste Disposal Facility at this time. Remaining lifespan will be evaluated following implementation of changes proposed as an outcome of the SWDF Optimization Plan.	Response acceptable.
29	Topic 18: Waste	**Comment** Currently there is no Senior Administrative Officer (SAO) for the	**Jan 28:** The numbers and	Response

	Facilities Report - 2.3, Staff and Training	Community of Fort Good Hope. The SAO position is a main contact for any matters relating to the SDF and SWDF issues or emergencies. **Recommendation** 1) ENR recommends that an alternate person be designated as the main contact until such time as a permanent SAO is hired by the community.	emails for the SAO's office remain current regardless of the individual named.	acceptable. However, the new contact names may be updated via e-mail to the Board Staff for records
SLWB: Aswathy Varghese				
ID	**Topic**	**Reviewer Comment/Recommendation**	**Proponent Response**	**Board Response**
1	Waste Disposal Facilities Flow Pathway Study	**Comment** Most SNP monitoring locations still needed to be validated with results from the Waste Disposal Facilities Pathway Study (S15L3-002, Condition D.18). Charter Community of Fort Good Hope (CC-FGH) has requested to amend condition D.18 and wants to continue SNP monitoring for the next five years to do the flow pathway study. **Recommendation** Please clarify whether CC-FGH can use the groundwater monitoring data from GNWT-MACA for the flow pathway study. Also, explain why five years of monitoring data is required for the study.	**Jan 28:** FGH will sample and report on groundwater data, as available, from the existing groundwater wells in the solid waste facility as part of the SNP program. This will include water quality and water table elevation, as converted from depth to groundwater measured in wells. Further evaluation of flow in existing wells will be determined with further discussion with government agencies that are working in the area (including GNWT-MACA). In order to acquire a reliable data set to evaluate flow (minimum of 3 same wells consistently reporting flow), FGH suggests several years of data be collected. FGH can commit to reporting flow measurements once per year from reporting wells, if that helps to provide assurance that this is advancing. FHG also commits to discussing with government agencies studying groundwater in the area if their results can be used for this purpose. Five years was suggested as a maximum timeframe for flexible data collection in the event that wells are found to be dry at time of flow measurement. This can likely be reduced.	Response acceptable.

January 18, 2021

Aswathy Mary Varghese
Regulatory Specialist
Sahtu Land and Water Board
Box 1
Fort Good Hope, NT
X0E 0H0

Dear Ms. Varghese,

Re: Fort Good Hope
Water Licence Renewal Application – S20L3-003
Municipal Water Use and Deposits of Waste
Request for Comment

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

Topic 1: SLWB Notice and Past/Current Non-Compliance Issues

Comment(s):

As part of the current Water Licence renewal, the following were submitted to the Sahtu Land and Water Board (SLWB):

- Revised Operations and Maintenance plans for the Sewage Disposal Facilities (SDF) and Solid Waste Disposal Facilities (SWDF);
- Revised Spill Contingency Plan (SCP);
- Revised Water Treatment Plant O&M Plan;
- Closure and Reclamation Plan; and
- Waste Facilities Fencing Plan.

As well, there were several other items identified as non-compliance issues prior to

2015 that were inserted as conditions in the body of the current Water Licence (S15L3-002) that were required to be complete following the issuance. ENR notes that
several of these are still outstanding as specified in the Board concordance table prepared following a July 27, 2020 visit. These items are further described in comments and recommendations made below.

Amongst these items were conditions requesting for fencing to be erected according to the Fencing plan (D:17), establishment of a graduated scale within the infiltration trenches, installation of all specified signage, maintenance and operation of fences/signs/equipment to the satisfaction of an Inspector, and the submission of a Flow Path Study to identify appropriate SNP monitoring locations.

Recommendation(s):

1) Should compliance issues persist during the term of the new Water Licence, ENR recommends the SLWB should consider proceeding to further collaborative measures, such as a meeting including the Board and the Licensee, as well as other relevant parties such as the Inspector. Such meetings have been used in similar contexts with communities in the Mackenzie Valley, in order to further assess each specific outstanding compliance issue and associated path forward, in a format that can be followed and tracked by Board and identified community individual(s) via e-mails and communication follow-up(s).

Topic 2: Solid Waste Disposal Facility Cells Re-organization to Prevent Community Access

Comment(s):

Information submitted in Subsections4.1.7 and 4.1.8 of the Waste Facilities Report (WFR) suggested the re-location of certain cells, in order to prevent human exposure and community members' access to the Sewage Disposal Facility (SDF) and hazardous/industrial wastes storage areas.

For example, Figure 2-2 outlined the current landfill configuration where the household wastes cell is located immediately adjacent to the honey bags pit on one side, and the two sections of the wastewater trench, or SDF on the other side.

The waste sorting plan proposed in Figure 2-3 suggested to regroup the honey bags pit with similar wastes within the proposed SDF fenced area (wastewater trenches).

This plan further recommends moving the current household waste area to a corner of the Solid Waste Disposal Facility (SWDF) located below the ATV/snowmobiles area on the opposite side of the landfill site from the hazardous waste area,

wastewater trenches and vehicles storage area. This section also proposes that a separate road be developed so that the proposed new household wastes location can be accessed directly, without having to navigate through the entire landfill site on the way, as currently done under the present configuration.

The *Solid Waste Management for Northern and Remote Communities* Guidelines, released by Environment Canada and Climate Change (March 2017) identified controlling access to landfills as a high priority measure (see Table 2-2). As specified in p. 7 of the Waste Facilities Report, there is currently no access control to the SWDF other than the double vehicle gates.

As well, both existing and proposed waste sorting plans (Figures 2-2 and 2-3) show a 'soil disposal area' located above the ATV and snowmobiles disposal area. The purpose of this area isn't clear.

Recommendation(s):

1) ENR supports suggestions for the relocation of the household wastes cells and honey bags pits, as well as for the development of a separate access road to the new location proposed for the household wastes, in order to limit community access and exposure to industrial/hazardous wastes, and/or the wastewater trenches.

2) ENR recommends that the community of Fort Good Hope specify if contaminated soil is being accepted at the SWDF in the 'soil disposal area' identified in the Figures 2-2 and 2-3.

Topic 3: Fencing and Community Access - SLWB Non-Compliance Concerns

Comment(s):

The most recent inspections report completed in June 2018 and July 2020 by ENR's Inspectors noted on the absence of fencing around the SDF and SWDF. Section 4.1.6 of the Waste Facilities Report (WFR) further specified that within the SWDF, there were no fences separating areas for community access, as well as areas where the general community should not have access. The orange fence installed around the perimeter of the trench (see Figure 3 in the June 2018 ENR inspection report), had already fallen down, demonstrating this type of fencing to be only a temporary solution, and that only reliable permanent fencing should be considered in the future.

A Waste Facilities Fencing Plan was submitted within the WFR, describing fencing plans details in Section 4.1.7 and illustrating these plans in Appendix A. As such, a fence around the SDF including the new proposed location for the honey bags pit is

presented, in order to limit access to these sites and prevent wind-blown debris from entering the wastewater trench sections.

Fencing was also proposed around the newly proposed location for household wastes, which paired with a separate road access would help further limiting community access to the remaining of the landfill site where commercial, industrial and wastewater types of wastes are being housed.

Furthermore, a fence extension was also suggested to be instated at the current site entrance, to further limit/restrict community access through this entrance planned to be receive for commercial, industrial and wastewater wastes only.

Recommendation(s):

1) ENR supports that permanent fencing additions and separate entrance access be instated as suggested in the Waste Facilities Fencing Plan, in order to limit community members' access and unnecessary exposure to industrial/hazardous and wastewater/sewage storage areas.

Topic 4: Hazardous Wastes at SWDF and Commercial Controlled Access

Currently, the hazardous waste area of the landfill is partially lined with a 3,000m^2 polyethylene liner (p. 7 of WFR).

The June 2018 ENR inspection report specified that the SWDF had a large amount of hazardous wastes that appeared to be generated by local contractors (See Figure 8).

The SWDF O&M Plan specifies that the community is registered to receive hazardous wastes, although no-one at the facility is monitoring each load that is coming in (p. 13, Section 9). The WFR further specifies that businesses from within the community of Fort Good Hope were permitted to dispose of hazardous waste in designated areas for a fee.

Part D, Item 19 of the Water Licence specifies that the SWDF only accepts household hazardous waste, and not hazardous waste from local contractors. Section 3.3 of the Waste Facilities Report outlines that the SWDF does not accept hazardous waste from industrial or commercial businesses from outside of the community. This appears to be contradictory.

Recommendation(s):

1) Considering that there is no monitoring of loads arriving at the SWDF, ENR recommends that the community clarify the procedures by which

commercial/industrial operators from within the community are asked to follow when disposing of wastes at the SWDF, and paying their fees for wastes disposal.

2) ENR recommends that the Water Licence be updated to differentiate commercial/industrial operators from within or outside municipal boundaries. For example, the information currently outlined under Part D Item 19 of the current Water Licence, could be updated to specify that: "The Licensee shall not accept hazardous Wastes at the Temporary Hazardous Waste Containment Facility generated by commercial and industrial operators *from outside the municipal boundaries of Fort Good Hope*.

Topic 5: Segregation, Signs and Training - SLWB Notice and Compliance Concerns and Issues

Comment(s):

As noted in the June 2018 Inspection Report completed by ENR, the SWDF was deemed to be in poor condition. Issues included non-segregation of wastes (household wastes mixed with metals, wood, household appliances contaminated materials, etc). These conditions are also illustrated in Figure 5 of that report as well as Figure 4 of the July 2020 ENR Inspection Report. The former provided further visual representation on wood mixed with general wastes (Figure 6), hazardous wastes stored improperly (Figure 2), and wind-blown debris covering the ground outside of the SWDF (Figure 7).

The WFR specifies, in Section 4.1.9, that each of these wastes will be deposited in their designated area, in an organized manner. Condition B:11 of the existing Water Licence also directed signs to be established, in order to inform the public at all necessary locations.

Section 2.3 of the WFR further outlined the need for staff training, stating that the community was responsible for providing training to their SWDF personnel, so that the SWDF is operated in a safe and environmentally responsible manner, and in accordance with applicable regulations. The March 2017 ECCC Guidelines also identified trained on-site operators and segregation of wastes as a High Priority measures (see Table 2-2) towards protecting the public, facility operators and wildlife from immediate risks and preventing the release of toxic substances from the site.

Recommendation(s):

1) ENR recommends that the Water Licence include conditions requiring that all signs not yet instated (see July 27 2020 Concordance Table), as well as signs for

SNP stations once final locations are determined, be installed within six months following issuance of the new Water Licence. These should also include segregation signs, in order to provide the necessary directives to all users, indicating where each type of waste should be deposited.

2) ENR recommends that the community consult the list of training and certification courses offered through MACA School of Community Government, and arrange for necessary training to take place, as recommended in the WFR for the SWDF staff.

Topic 6: SWDF Maps and Remaining Capacity

Upon review of the Solid Waste Disposal Facility Operations and Maintenance Plan (SWDF O&M Plan), it was noted that the scaled site plan with an air photo referred to in Section 5 with associated identification of various areas was not attached to the SWDF O&M Plan.

Also, it was noted that the map provided in Figure 2-1 (p. 8) of the WFR did not present clear lines between land and water, and did not clearly identify the name of Mackenzie River as well as distances separating the SWDF (and wastewater trenches) to the receiving environment of the Mackenzie River.

Condition(s) within the new Water Licence should also be included to help determine the currently unknown remaining SWDF capacity, by facilitating the survey and study proposed to be completed in 2021 as committed to in Section 7 of the SWDF O&M Plan.

Recommendations:

1) ENR recommends that the map referenced in Section 5 of the SWDF O&M Plan be submitted.

2) ENR recommends that the map submitted as Figure 2-1 (p. 8) of the WFR be improved, in order to provide important information currently missing or difficult to decipher.

3) ENR recommends that condition(s) be included within the new Water Licence to facilitate the completion of a study as committed by the community, to determine the remaining SWDF capacity which was not specified in the SWDF O&M Plan.

Topic 7: Repairs to Discharge Chute - Wastewater Trenches at SDF

Comment(s):

Section 3.2.1 (p. 14) of the WFR, specifies that two separate wastewater trenches are adjacent and hydraulically linked, connecting directly to a subsurface granular seam, understood to be indirectly connected to the Mackenzie River via groundwater flow.

There is currently only one sewage discharge chute at the SDF which has been in need of repair for some time, as described in July 2020 and June 2018 ENR inspection reports.

In Section 3.2.3 of the WFR, the community proposed to construct two separate truck dumping stations, one at each trench, allowing for separate use if one station was to be momentarily damaged or out of service in the future. Section 3.2.4 of the same document also specified that a vertical measuring post was to be installed in each wastewater trench, as a mean of measuring any buildup of sewage.

Lastly, erosion and land slumping reported at the SDF trenches in the June 2018 and July 2020 ENR inspection reports represent a serious issue to ensure that the integrity of the discharge locations and wastewater trenches is maintained. This issue needs to be addressed by the community as soon as feasibly possible, and may be inserted as a Water Licence condition.

Recommendations:

1) ENR recommends that the Charter Community of Fort Good Hope proceed with the repair/replacement of the current sewage discharge chute. As proposed by the community, and considering the long term need for the repair of the current chute, ENR supports the community's suggestion that another discharge chute be established at the other wastewater trench, in order to ensure service in the future in time when one trench may be out of service.

2) ENR recommends that the SLWB consider including provision in the body of the Water Licence requiring the Licensee to construct, operate, and maintain the Sewage Disposal Facilities such that any deterioration or erosion of constructed facilities' structures needing repair be reported to an Inspector and the Board, and repaired immediately. A similar condition was included in the recent Type A Water Licence issued for Hay River.

Topic 8: Annual Reporting - Compliance Considerations

Comment(s):

Annual Reports were not submitted during the first three years of the current Water Licence, as identified in the June 2018 ENR inspection report. In recent years, Annual Reports for the period covered by the current Water Licence were submitted in two groups, firstly in June 2018 (2015, 2016 and 2017 ARs) and again in October 2020 (2018 and 2019 ARs).

ENR notes that the 2015 to 2017 Annual Reports were prepared from Annual Report templates, and that the last two years were submitted in a different format prepared by the community's consultant.

To best support the community with submitting Annual Reports during the upcoming term of the new Water Licence, the community should identify difficulties that were encountered that affected their ability to prepare and submit Annual Reports in the past. Once identified, the parties may be in a better position to identify ways to best support the community of Fort Good Hope in meeting these requirements of their Water Licence.

As identified in the MVLWB policy document on 'Roles and Responsibilities – Community Water and Wastewater Management' (p. 7 of 9), in-house technical support and assistance may also be available to the community of Fort Good Hope from MACA, in assisting in the writing of Annual Water Licence Reports.

Recommendation(s):

1) ENR recommends that the Charter Community of Fort Good Hope identify and analyse factors that may have prevented them from preparing and submitting Annual Reports in the past via available Annual Report Templates, as well as organizational measures that will be put in place to ensure the submission of Annual Reports in the future.

Topic 9: SNP Groundwater Monitoring - MACA Groundwater Investigation Locations

The SDF is currently utilizing an infiltration system for the management of municipal wastewater discharges. Infiltration systems differ from most SDF used in the NWT, as wastewater does not travel over land, but rather in subsurface layers. As such, while the receiving environment may be identified, specific final discharge locations may remain unknown. This may, in part, outline the difficulty that the Charter Community of Fort Good Hope has experienced in the past in attempting to monitor potential impacts from their SDF, and submitting associated results.

During the current term of the existing Water Licence, it would appear that no groundwater monitoring results were submitted by the community. However, groundwater investigation and monitoring has been conducted by MACA during the term of the current Water Licence via groundwater monitoring wells that were established in strategic locations downstream from the Waste Management Facilities (SDF wastewater trenches), and the SWDF, both located in the same area.

Previous comments from ENR, prepared in collaboration with MACA, specified that these groundwater monitoring wells were to be monitored annually by MACA and results were to be provided to (and managed by) the community.

Recommendation(s):

None required – see following comments and recommendations Topics 10 and 11.

Topic 10: NWT Specific Infiltration Systems Research

ENR recently funded a modeling study to be conducted at Enterprise, NT, where an infiltration system is also being used to receive wastewater discharges from the community. Site specific conditions of low hydraulic gradients and slow groundwater flow at the location of the Enterprise lagoon suggested that degradable solutes were likely naturally attenuated before being discharged to the Hay River.

Site-specific conditions in Fort Good Hope may however differ, and conclusions made for the SDF system in Enterprise system should not be extrapolated to the system in Fort Good Hope.

However, a similar modeling desktop assessment has been funded by ENR for Fort Good Hope and is nearing completion, which results should become available early in 2021.

Recommendation(s):

1) ENR recommends for results from Fort Good Hope modeling desktop study to be considered in the future in order to take the best informed decisions on the selection of groundwater wells for the monitoring of possible impacts from the waste management facilities. ENR will provide results as they become available.

Topic 11: Research - Infiltrating Sewage Disposal Facilities' Systems

The GNWT (MACA and ENR) in collaboration with the MVLWB have been conducting a multi-years research project with Dalhousie University, in order to develop a better understanding of infiltration systems (as referenced above).

A literature review for systems comparable to Fort Good Hope's infiltration trench was conducted by Dalhousie University, revealing the existence of similar systems used in the USA called rapid infiltration basins, or RIBs. Design guidelines were developed by the USEPA for the use of RIBs for community scale wastewater treatment. The siting and design of these systems is based on similar principles as subsurface onsite wastewater treatment systems (OWTS); however, they generally require greater clearance distance (3 m) between the bottom of the infiltration basin and the water table or impermeable soil layer.

States in the USA that permit RIBs require an intrusive hydrogeological investigation in the siting and design of such system, typically requiring ongoing groundwater monitoring once the system becomes operational.

Recommendation(s):

1) Considering that over land monitoring stations may not be relevant for the monitoring of an infiltration system such as operated in Fort Good Hope, and to align with monitoring practices of similar systems operating as RIBs in the USA, ENR recommends for the most relevant groundwater wells established by MACA to be transferred to the SNP monitoring program of the new Water Licence, in order to monitor the subsurface migration of contaminants from Fort Good Hope waste management facilities towards the Mackenzie River. Results from Fort Good Hope modeling desktop study should help determine which locations are be most relevant and efficient at monitoring groundwater flowing downstream from the facilities.

Topic 12: SWDF O&M Plan - Landfilling Operations; Part 13: Litter and Wildlife Control

Comment(s):

Details of intermediate cover are not provided in the SWDF O&M Plan. Litter and wildlife control measures are also not addressed in Section 13 of the plan.

Recommendation(s):

1) ENR recommends that the proponent clarify the frequency of intermediate cover applied on the active cell/disposal area. Ideally, 300 mm cover should be applied in fall and spring, according to *Solid Waste Management for Northern and Remote Communities Planning and Technical Guidance Document*:

http://publications.gc.ca/collections/collection_2017/eccc/En14-263-2016-eng.pdf

2) The proponent should specify the cover material which would be used and its availability. Intermediate cover should be provided to contain the waste, minimize water infiltration, reduce wind-blown litter and prevent wildlife attraction.

3) If the cover is not applied as frequently as recommended, clarification on what litter and wildlife control methods are adopted should be addressed in Topic 13 of the Plan.

Topic 13: Hazardous Waste Management

Comment(s):

Vehicles are said to be managed at site, but not landfilled. Vehicles may have hazardous components (batteries, mercury containing elements, oils, antifreeze etc.) which need to be removed prior to further handling/recovery of scrap metal.

Recommendation(s):

1) The proponent should specify how the vehicle wastes are handled on-site. It should also be specified if a trained personnel/technician will be involved in 'de-contaminating' the vehicles.

Topic 14: Closure and Post-closure Plan

Comment(s):

The Closure Plan is said to be completed: "Rev0 submitted to SLWB for approval October 27, 20202". The timeline/year is incorrect.

Recommendation(s):

1) The proponent is advised to rectify the error in the completion details.

Topic 15: Electric Fencing and Site Security

Comments(s):

The Solid Waste Disposal Facility Operation and Maintenance Plan indicates that a wind fence and electric fence are installed at the Solid Waste Facility (Section 3, Security and Control). However, in Section 16 (Inspection and Monitoring), the document comments that 'Re-installation is required' in reference to the voltage of the electric fence. The SWDF O&M Plan should be updated to clearly indicate whether an electric fence is present and operational at the Solid Waste Disposal

Facility. If there is no electric fence present, the Proponent should install an electric fence in order to deter wildlife from accessing the Solid Waste Disposal Facility.

Recommendation(s):

1) The proponent should update the SWDF O&M Plan to clearly indicate whether an electric fence is currently present and operational at the Solid Waste Disposal Facility.

2) If no electric fence is present and operational at the Solid Waste Disposal Facility, the Proponent should install an electric fence to deter bears and other wildlife from entering the site.

3) A gate should be installed with the electric fence to ensure that there are no access points for wildlife into the site.

Topic 16: Surveillence Network Program

Comment(s):

The SNP sampling stations have not been monitored regularly; each of the SNP sampling locations should have submitted GPS location information and clear signage. Regular sampling according to the Water Licence should be completed.

Recommendation(s):

1) ENR recommends that SNP sampling stations be monitored by the proponent on a regular basis, and that SNP sampling is performed, and records of sampling completed as per Water Licence Terms and Conditions.

Topic 17: Waste Facilities Report - 2.1, Facility Description – Life Span of SWDF

Comment(s):

According to the WFR, Section 2.1, the SWDF facility has been in use since 1980. The report also has combined the two facilities called the SSWF, which consists of several different areas for solid waste/sewage wastes, household/domestic/residential/industrial wastes, and hazardous/construction/vehicle/snowmobile/fuel tank wastes.

According to the report it has been designed as a modified landfill, which has a particular description. “A modified landfill is a method of disposing solid waste on land in a manner that protects human health and the environment. Applying engineering principals, solid waste is confined to the smallest practical area, reduced to the smallest practical volume and covered routinely with a cost-effective layer of earth”.

According to the MACA, GNWT guidelines for designing solid waste facilities; Section 3.2, all landfills should be designed for a minimum lifespan of 20 years.

Recommendation (s):

1) Since the facility has been in use since 1980, and the lifespan of a landfill is approximately 20 years, it is recommended that this landfill be closed and reclaimed according to the following MACA, GNWT guidelines:

https://www.enr.gov.nt.ca/sites/enr/files/guidelines/solidwaste_guidelines.pdf

2) ENR recommends that a new SWDF include understanding of current as well as future requirements and concerns, engineering principles and the consideration of environmental health and human health/population growth.

Topic 18: Waste Facilities Report - 2.3, Staff and Training

Comment(s):

Currently there is no Senior Administrative Officer (SAO) for the Community of Fort Good Hope. The SAO position is a main contact for any matters relating to the SDF and SWDF issues or emergencies.

Recommendation(s):

1) ENR recommends that an alternate person be designated as the main contact until such time as a permanent SAO is hired by the community.

Comments and recommendations were provided by ENR technical experts in the Water Management and Monitoring Division, the Environmental Protection and Waste Management Division, the Wildlife and Fish Division and the Sahtu Region and were coordinated and collated by the Environmental Assessment and Monitoring Section (EAM), Environmental Stewardship and Climate Change Division.

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,

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