

Reviewer Comments and Proponent Responses

Project: Charter Community of Tsiigehtchic - Municipal Water Licence Renewal (G22L3-001)
Board: Gwich'in Land and Water Board
Organization: Charter Community of Tsiigehtchic

No.	Topic	Reviewer Comment	Reviewer Recommendation	Proponent Response
Fisheries and Oceans Canada (DFO) - Triage Group Fisheries Protection Program				
1	Charter Community of Tsiigehtchic - Municipal Water Licence Renewal (G22L3-001)	The proposal has been reviewed to determine whether it is likely to result in the death of fish by means other than fishing or the harmful alteration, disruption or destruction 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 .	Fisheries and Oceans Canada recommends the proponent review the Interim Code of Practice for End-of-Pipe Fish Protection Screens for Small Water Intakes at https://www.dfo-mpo.gc.ca/pnw-ppe/codes/screen-ecran-eng.html . Provided the plans can meet the Code of Practice guidelines and applicable Measures to Protect Fish and Fish Habitat (https://www.dfo-mpo.gc.ca/pnw-ppe/measures-measures-eng.html), the Fish and Fish Habitat Protection Program (the Program) is of the view that the proposal will not require an authorization under the Fisheries Act or the Species at Risk Act . If the project is unable to comply with the Interim Codes of Practice or the Measures to Protect Fish and Fish Habitat, we recommend that the proponent submit a Request for Review (http://www.dfo-mpo.gc.ca/pnw-ppe/reviews-revues/forms-formes/quest-demand-eng.pdf) of the project. Should plans change or if the proponent has omitted information in the proposal, further review by the Program may be required. It remains the responsibility of the proponent 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 the proponent's Duty to Notify DFO if they have caused, or are about to cause, the harmful alteration, disruption or destruction of fish habitat and/or the death of fish by means other than fishing.	Proponent has reviewed the Interim Code of Practice for EOP Fish Protection Screens. Operator to confirm the use of fish screens. The current approaches comply and meet the Code of Practice.

No.	Topic	Reviewer Comment	Reviewer Recommendation	Proponent Response
Gwichya Gwich'in Council - DGO - Mavis Clark				
1		<ul style="list-style-type: none"> • First Concern, is the Charter for years have not been cleaning their garbage dump • The area around the dump should be kept clean of any debris. • Our Council would like to see the Charter Dig a deep pit and bury the debris. • The Government should invest in a Tire Chipper let the communities use the chipper to get rid of tires at the community dumps and something should be done with the chips 		Proponent has reviewed comments.

No.	Topic	Reviewer Comment	Reviewer Recommendation	Proponent Response
GNWT-ENR - EAM (Environmental Assessment and Monitoring) - Erin Goose				
1	Access to landfill	Having 24-hour public access to the landfill without individuals present to monitor activity creates a risk of illegal or improper dumping.	ENR recommends locking the gates after hours to remove access to the landfill and stop inappropriate dumping by local, municipal, or commercial individuals. A bin can be placed outside of the gate to allow locals to drop off their garbage and it can be later inspected by staff and disposed of in the appropriate waste areas.	Proponent open to posted hours of gated access. The community believes that the landfill should not be open access 24hrs, suggests closing hours 9pm or 10pm.
2	SWDF Deficiencies	The last three inspections of the Tsiigehtchic SWDF and sewage lagoon noted deficiencies. Noted deficiencies at the SWDF during inspections included profuse windblown debris, compaction but little cover being used to cover waste, improper hazardous waste storage, no control of access, and algal growth in sewage lagoon which had less than 1M freeboard.	<p>1. ENR recommends more frequent placement of cover on top of domestic (household) and bulky waste to ensure windblown debris is lessened. This will also reduce odours and the attraction of wildlife scavengers to these public areas. In addition, implementing more fencing, or portable barriers around the active disposal of household garbage at the SWDFs will assist in reducing the amount of windblown debris as well.</p> <p>2. ENR recommends more frequent monitoring of hazardous waste. ENR encourages the idea of a secondary containment area for household hazardous wastes to be brought first for inspection before storing at the SWDF. More frequent monitoring will also help when creating annual reports.</p> <p>3. ENR requires that if decanting has to occur that ENR is informed 10 days prior.</p>	The proponent has reviewed the recommendations. Community open to discuss options for fencing and confirm ahead of 2022 Annual Report. The community agrees that more frequent monitoring would be a good practice however lacks the resources for this to be common practice. Typically decanting is done annually, therefore ENR will be informed well in advance.
3	Fencing	According to page 1 of Appendix E - Preliminary Solid Waste Design Options Report the current chain link fence has failed. This fence was put in place to stop debris from the landfill from spreading into the surrounding areas. There is wildlife being attracted to the landfill including black bears, grizzly bears, and wolves. The wildlife attraction to the landfill needs to be mitigated. In appendix E section 5.2.1 page 20 there are options proposed such as the use of grizzly plates or mobile litter fencing that could work instead of a permanent chain link fence	<p>1) ENR recommends that the community of Tsiigehtchic further investigate the feasibility and cost of using grizzly plates. In the interim, ENR recommends the use of mobile litter fencing around active areas of the landfill to prevent wastes from spreading into the surrounding areas.</p> <p>2) ENR recommends the Water Licence include a condition requiring re-submission of the waste management plan for Board approval within 2 years, that includes the preferred option for limiting wildlife access and prevent landfill from spreading into the surrounding area.</p>	Grizzly Plates are explained through plan Option 1 and 2 are recommended by and for the community. Proponent will investigate the feasibility of grizzly plates as well as creating a plan on current solutions to prevent waste spread. Proponent will include wording to include re-submission of waste management plan for Board approval within the next two years.
4	Guideline for hazardous	Hazardous Waste Guidelines 2017 (see comment 9)		See response to comment 9.
5	Species at Risk	Section 76 and 77 of the Species at Risk (NWT) Act requires the Minister of Environment and Natural Resources to make a submission to the body responsible for assessing the potential impacts of a proposed development, or for considering a land use Permit or water Licence application, respecting the potential impacts of the proposed development, Permit or Licence application on a NWT-listed or pre-listed species or its habitat. NWT-listed species are those that are on the NWT List of Species at Risk. Pre-listed species are those that have been assessed by the NWT Species at Risk Committee (SARC) but have not yet been added to the NWT List of Species at Risk. • The project area overlaps with the ranges of the following NWT-listed and/or pre-listed species; information on these species is available	N/A	Due to the size and location of the project impacts are anticipated to be minimal and extra care will be implemented to ensure best efforts to avoid impacts

		able at https://www.nwtspciestrisk.ca/SpeciesAtRisk • Boreal Caribou – Threatened in the NWT Potential impacts to the species at risk listed above from the project include attraction and subsidy of predators like wolves and bears which could in turn lead to an increase in predation risk for boreal caribou in the local area. ENR is satisfied that, due to small footprint of the project and location near an existing community, and with application of the specific recommendations contained within other sections of this letter to the Board, as well as application of the wildlife mitigation measures outlined in the Proponent's LUP/ML application and supporting documents, potential impacts to the species at risk listed above can be avoided or minimized.		
6	Cover Letter	Comments from ENR		
7	Annual Reporting	ENR notes that there was no Annual Report submitted with the current water licence application, and based on the Public Registry, many years are missing Annual Reports. Additionally, ENR notes that the recent Annual Reports which are available are limited to a summary of the monthly and annual quantities of freshwater used, despite the other requirements for Annual Reporting summarized in Part B, Condition 1 of either Water Licence G16L3-002 or G99L3-004. Annual reporting is an important requirement of the water licence. It also serves as an important tracking tool for reviewers as well as the community and community members.	ENR recommends that, as per their water licence, Tsiigehtchic submit all future Annual Reports on a yearly basis to be posted to the Public Registry. The Annual Reports should contain all information required by the water licence. ENR recommends including sampling results and tracking waste volumes in the annual reports.	The community will work to submit all future annual reports ahead of the deadline outlined in the license issuance.
8	Solid Waste – Hazardous Material	Part E, Condition 2 b) of Water Licence G16L3-002 requires that Tsiigehtchic provide additional information in the Solid Waste Disposal Facility Operations and Maintenance Plan regarding hazardous waste. ENR notes in particular that information is still outstanding regarding the inventory of hazardous materials and the transport of hazardous materials to an approved disposal facility (Part E, Condition 2 b) iii and iv).	ENR recommends that Tsiigehtchic provide an inventory of the hazardous waste currently on site and that they provide information on the location, timing, and means of transport of the hazardous waste to an approved facility. ENR recommends that the water licence include a condition requiring that annual hazardous waste quantities be included in the annual report.	Proponent will establish an inventory list of hazardous waste, transportation information and identify the approved disposal facility. An annual report will be suggested to the community and a template can be made. The proponent will investigate best options and provide best options. Inuvik is the closest waste facility that currently accepts any hazardous waste. The community does not currently have trucks to use to transport hazardous waste. To date, fluid removal from appliances and vehicles has not taken place. The community will look into potentially contracting a licensed professional to be a part of this process.
9	Spill Contingency Planning	ENR understands that the proposed Spill Contingency Planning document lists off-site resources for assistance in the event of a spill. In addition, some of the information pertaining to ENR contacts needs to be updated. The proposed Spill Contingency Planning document does not list any facilities under Subsection 2.12 – SCP-Resource Inventory.	1) Update the telephone number for the ENR Inspector from (867) 678-0590 to (867) 678-6676 under Subsection 2.6 – Off-Site Resources. 2) Update the telephone number for the ENR Water Resource Officer from (867) 678-6650 to (867) 678 6652 under the Tsiigehtchic Contact List for Spill Contingency Plan Manifests should be completed for Hazardous Waste shipped offsite as per the 2017 Guideline on Hazardous Waste Management (attached for convenience).	Proponent will ensure information included will contain the most up-to-date contact information
10	ENR Waste Reduction and Recycling Initiative	ENR acknowledges to expenses involved in the waste management of a northern landfill. The Waste Reduction and Recycling initiative can help f	N/A	The proponent has acknowledged this comment and will review the initiative to see if anything what can be implemented.

		and the reduction of hazardous waste such as tires. https://www.gov.nt.ca/en/newsroom/enr-funding-opportunity-waste-reduction-and-recycling-initiative#:~:text=This%20program%20provides%20up%20to,not%20already%20collected%20through%20an		
11	Spill Plan – Map	Part F, Condition 2 d) of Water Licence G16L3-002 requires that “[a]ppropriate site map(s) identifying the locations of each facility, and the locations of fuel and other hazardous materials stored at each site” be added to the Spill Plan. ENR notes that the map provided with the Spill Plan does not provide the location of either the water treatment plant or the community garage, both of which house hazardous materials.	ENR recommends that Tsiigehtchic provide an updated map in the Spill Plan which includes the locations of the water treatment plant and the community garage.	These items are in the community overall site figure. The overall site figure can be added to the spill plan as well. An updated figure will be included in revised plan.
12	Incomplete assessment of potential environmental impacts and proposed mitigations	Section 10 of the Water Licence Application states that it is anticipated that the application will be exempt from preliminary screening based on the GWLB’s conclusions about the previous application made in 2000 that the “Tsiigehtchic’s application for a water licence (renewal) will not adversely harm the environment nor does it cause significant public concern.”. The Table in Section 10 of the application appears not to have been filled out based on this assumption.	N/A	Gwich’in Land and Water Board had concluded that the application renewal will not adversely harm the environment or cause public health concerns as stated in Section 10 of the water licence application. As stated in this section, exception of preliminary screening prompts the Proponent to leave the following chart blank as there are no anticipated impacts to include. The community will include only on site hazards in Section 10, explaining the potential harmful effects in case of spill and effort to reduce spills.
13	Solid Waste – Removal of Fluids	Part E, Condition 2 a) of Water Licence G16L3-002 requires that Tsiigehtchic provide additional information on the methods for the removal of fluids from appliances and vehicles. The Solid Waste Disposal Facility Operations and Maintenance Plan provides minimal information to address that, only stating that vehicles are depolluted, and that refrigeration equipment is stored upright and is placed in a labelled area when emptied. Additionally, Section 2.3 of the Solid Waste Design Options Report states that an inspection in 2021 noted that it was uncertain if fluids had been drained from vehicles or if freon had been drained from fridges and freezers. ENR notes that additional information is required to ensure that fluids are being properly removed from the appliances and vehicles at the solid waste facility.	1)Update the telephone number for the ENR Inspector from (867) 678-0590 to (867) 678-6676 under Subsection 2.6 – Off-Site Resources. 2)Update the telephone number for the ENR Water Resource Officer from (867) 678-6650 to (867) 678 6652 under the Tsiigehtchic Contact List for Spill Contingency Plan	Documents will be updated with the most relevant telephone numbers upon revision request ahead of issuance.
14	Solid Waste – Removal of Fluids	Part E, Condition 2 a) of Water Licence G16L3-002 requires that Tsiigehtchic provide additional information on the methods for the removal of fluids from appliances and vehicles. The Solid Waste Disposal Facility Operations and Maintenance Plan provides minimal information to address that, only stating that vehicles are depolluted, and that refrigeration equipment is stored upright and is placed in a labelled area when emptied. Additionally, Section 2.3 of the Solid Waste Design Options Report states that an inspection in 2021 noted that it was uncertain if fluids had been drained from vehicles or if freon had been drained from fridges and freezers. ENR notes that additional information is required to ensure that fluids are being properly removed from the appliance	ENR recommends that Tsiigehtchic provide additional information in the Solid Waste Disposal Facility Operations and Maintenance Plan to explain the methods used for the removal of fluids from appliances and vehicles.	To date, fluid removal from appliances and vehicles has not have taken place. The community will look into contracting a licensed professional to be a part of this process.

		s and vehicles at the solid waste facility.		
15	SNP Sampling	<p>SNP sampling is an important component to monitoring the water quality of the facilities operating under the Water Licence. It has been noted in the last three inspection reports, that the community has not been collecting the required SNP compliance samples. ENR notes that a SNP protocol was submitted with the 2016 licence renewal application, but one was not submitted as part of the 2022 application. A sampling protocol that outlines what staff are required to do may help the Community to ensure SNP samples are collected as required by the Water Licence. Development of a customized SNP Sampling Manual may aid the community in fulfilling SNP sampling requirements as well. See the provided link as an example: http://registry.mvlwb.ca/Documents/W2017L3-0001/Wekweeti%20-%20SNP%20Training%20Manual%20-%202020%20-%20May%2027_20.pdf The only SNP results available, since the start of the current licence, are from samples taken during two licence inspections at SNP Site 1557-4. SNP Site 1557-5 could not be accessed due to overgrown vegetation. The current location of SNP Site 1557-6, which is to be sampled monthly during periods of flow, has always been found to be dry and never sampled. This means there is no monitoring of the effluent from the SWDF. Note for correction: Appendix B (pg 15) refers to a previous Water Licence SNP that is different than the current licence. This should be updated. ENR also notes that the SNP sites appear to be different in different documents submitted with the application. ENR is looking for clarity on whether the Proponent is suggesting a change to the site locations. If this is the case, ENR recommends a review of what water quality data is available from the sites, and a rationale for the location change be submitted for consideration. Changing the position of 1557-6 to a lower lying location that allows for sample collection is recommended.</p>	<p>) The Charter Community of Tsiigehtchic should collect all required SNP samples to remain in compliance with the Water Licence. Developing a clear protocol and schedule for staff would help ensure SNP monitoring samples are collected and submitted following the appropriate procedures and protocols. ENR can provide training support if requested to ensure proper sampling. ENR also recommends the development of a customized SNP Sampling Reference Manual for community Samplers.</p>	<p>SAO and contact Water Resource Officer to implement SNP training to adhere to consistent sampling of SNP through the next year.</p>
16	Ground Water Testing	<p>Section 16 of the SWDF O&M plan notes the inspection of the groundwater monitoring wells that is happening monthly during sampling. The plan, however, does not indicate where these groundwater monitoring wells are located and what parameters are being monitored. ENR supports implementing groundwater monitoring wells at the SWDFs, especially at sites where hazardous wastes may be stored. Monitoring and sampling of these wells will provide important information on the quality of sub-surface water and the presence of any contaminants therein. Results from groundwater monitoring should be provided in the annual reports. Given the lack of flow at 1557-6 a groundwater well seems a viable alternative.</p>	<p>1. ENR supports the establishment of groundwater monitoring wells at the SWDFs in order to better understand sub-surface water quality. If these wells already exist, as indicated in the SWDF O&M plan, the location of the wells, who is responsible for testing them, and who is responsible for reporting the results should be supplied</p>	<p>The only groundwater monitoring wells installed on site are MACA property. Groundwater wells were not installed for SNP. The community does not have groundwater monitoring wells available at this site. Conversations with the Charter and relevant departments should take place if they are to be installed.</p>
17	Sewage – Management of Sludge	<p>Part E, Condition 3 a) of Water Licence G16L3-002 lists the following as one piece of outstanding information t</p>	<p>ENR recommends that Tsiigehtchic include additional details in the Sewage Operations and Maintenance Pla</p>	<p>Proponent will include a section in the sewage operations and maintenance plan describing sewage removal i</p>

		<p>hat should be added to the Sewage Operations and Maintenance</p> <p>Plan: "a plan for the measurement, management and disposal of sludge". The Sewage Operations and Maintenance Plan indicates that sludge levels are monitored annually and that sludge has never previously been removed from the lagoon. However, ENR notes that no plan is provided in the event that sludge does eventually need to be removed from the lagoon.</p>	<p>n to describe the actions that would be undertaken in the event that sludge did need to be removed from the sewage lagoon</p>	<p>n the event this practice becomes necessary. The community will provide over 90 days notice to the LWB if any sludge removal activities are to take place.</p>
18	Spill Plan – Spill Kits	<p>Part F, Condition 2 b) of Water Licence G16L3-002 directs Tsiigehtchic to provide a "complete spill resource inventory, including location and volume of onsite spill kits". ENR acknowledges that the Spill Plan does identify the locations of the spill kits. However, ENR notes that there is no spill kit at the community garage, which is a location where hazardous materials are present. Additionally, ENR notes that the volumes of the spill kits are all marked as "unknown" and that the table on pages 24 and 25 of the Spill Plan only outlines the contents of two of the spill kits, the other columns are left blank.</p>	<p>ENR recommends that Tsiigehtchic keep a spill kit at the community garage. ENR recommends that Tsiigehtchic provide a volume and an inventory of contents for each spill kit in the community.</p>	<p>Proponent has reviewed comment. The site operator will create a current spill kit list and inventory. Office to look into including a spill kit at the community garage.</p>

No.	Topic	Reviewer Comment	Reviewer Recommendation	Proponent Response
Gwich'in Tribal Council - Lands and Resources - Christina Martin				
1	Application Form	Section 7 - Table, project locations - coordinates provided for water discharge site is very generic, in the middle of the river; provide coordinates as identified for example in the Figures document.		Coordinates have been updated (page 4) from LAT 67°27'17.06" N and LONG 133°43'23.28" W to LAT 67°27'00" N and LONG 133°43'00" W. (as seen in figure 3 of Tsiigehtchic Figures) - will be included in revised version.
2	Application Form	Sections 9 - Engagement - are there literally no users of the Ts'oh Van Water Lake? Application overall lacking any mention of consultation with community members, local resource users, nor the provision of opportunities for them to comment.		Although it was our understanding following communication with the GLWB that engagement is not typically required for municipal water licence renewals, we would be happy to undertake engagement with community members.
3	Application Form	Section 10 - Potential environmental impacts / mitigations - a 20-year-old quote from the GLWB should not warrant the complete exclusion of contemplating how project operations can cause impacts on all of the abiotic, biotic and cultural components identified in the table. This table should be methodically contemplated and completed, particularly with respect to potential impacts on wildlife and water quality (both surface and sub-surface).	Note - Section 2.11 from the Spill Contingency Plan can be used as a starting point for these as there are many potential environmental impacts noted from activities (e.g., potential spills) associated with this Water Licence.	Potential impacts of on site hazards have been updated in Section 10 noting potential environmental impacts in the event of a spill.
4	Application Form	Section 11 - If any local companies are employed for related operations or maintenance (e.g., facilities cleaning, brush clearing, solid waste compaction) they should be acknowledged and listed in the table.		The community is happy to engage with locals companies for operations and maintenance should these services be needed. Future employed companies will be listed.
5	Application Form	Section 14 - Where are the (pre) Engagement Record and Engagement Plan? It appears no engagement has been undertaken - recommend WL application be held until there is evidence that community members have been consulted with.		See response from Comment 2. The community and consultants (if applicable) are more than happy to begin engagement process following issuance.
6	Operation and Maintenance Plan for the Solid Waste	Section 1 - The coordinates are not accurate; only refers generically to the community center, not to the waste facility itself. Provide better location		Location updated to provide a more accurate coordinate system (67°26'41.84" N 133°42'48.81" W)

	Disposal Facility	rk. Incorrect type of coordinate system checked.		
7	Operation and Maintenance Plan for the Solid Waste Disposal Facility	Section 3 - States that facility is 'partially fenced' but the Solid Waste Design Options document indicates that the existing fence has failed due to frost heave and the placement of waste against it.		The site is partially fenced. Community will discuss options for better fencing in the near future. The community agrees that more frequent monitoring would be a good practice however lacks the resources for this to be common practice.
8	Operation and Maintenance Plan for the Solid Waste Disposal Facility	Mavis Clark, Interim President of the Gwichya Gwich'in Council in Tsiigehtchic (application review comment February 15, 2022), has expressed concern that garbage is being found in areas around the dump, indicating that any fencing on-site is inadequate to contain wind-blown debris.	Recommend that the erection of appropriate fencing in appropriate locations be a condition of the Water Licence.	The site is partially fenced. Community will discuss options for better fencing in the near future. The community agrees that more frequent monitoring would be a good practice however lacks the resources for this to be common practice.
9	Operation and Maintenance Plan for the Solid Waste Disposal Facility	Signage	Recommend the inclusion of signage at the site of a 'List of materials that are not accepted' (so that this can be checked in Section 3; the table in Section 6 indicates that 'non-hazardous waste from the industrial sector within the community' and 'biosolids' are not accepted).	Community will look into adding signage indicating which materials are not accepted on site.
10	Operation and Maintenance Plan for the Solid Waste Disposal Facility	Section 6 - Nothing is checked for 'scrap metal' but the first figure has a location for 'tin and roof sheeting'.		The proponent has updated in the relevant plans.
11	Operation and Maintenance Plan for the Solid Waste Disposal Facility	Section 7 - NO is checked for 'Is waste being accepted from outside the community?'; Section 10 has checked 'Does your community accept any waste from outside of municipal boundaries from the industrial / commercial / institutional sector?' (awkward framing as a question in the form) - lack of clarity on whether facility accepts non-community-generated wastes or not.		The proponent has updated to 'No' in both sections.
12	Operation and Maintenance Plan for the Solid Waste Disposal Facility	Section 11 - See Section 11 below in the Sewage Disposal Review comments.		-
13	Operation and Maintenance Plan for the Solid Waste Disposal Facility	Section 12 - Should insert how often intermediate cover is placed (e.g., quarterly if in accordance with compaction schedule); also timing.		Intermediate cover is placed quarterly.
14	Operation and Maintenance Plan for the Solid Waste Disposal Facility	Section 17 - Lack of information indicates that there are no inspections nor records of inventories for hazardous materials waste management. It appears that people are trusted to drop off the materials to the appropriate sections, but that there is no follow-up / recording of amounts, types - though then on page 25 there is indication that the hazardous materials are inspected 'semi regularly (monthly - quarterly)' and that records are stored in the community office. Recommend clarifying.	Should include maximum quantity stored on-site for used oil, waste fuel, vehicles, or indicate if there is no limit on their cumulative volume in the facility. Note - Spill Contingency Plan does have some quantity information - 'unlimited' for used oil and waste fuel drums; <50 for stockpiled vehicles.	The community will provide clarity on this matter in the updated O&M plan post issuance.
15	Operation and Maintenance Plan for the Solid Waste Disposal Facility	Berms	Suggest considering lined / bermed secondary containment measures for halocarbons, paints, residue fuel tanks, heating oil tanks and residue drums because of the potential risk of residual substance leaks and subsequent environmental contamination.	To date secondary containment measures include bermed, unlined measures for hazardous materials such as residual fuel tanks, residual drums, etc. A current MACA project includes Tsiigehtchic along with other communities, for removal of some hazardous waste to a registered receiver.
16	Operation and Maintenance Plan for the Solid Waste Disposal Facility	Note - This document indicates that		The O&M plan will be updated post i

	d Maintenance Plan for the Solid Waste Disposal Facility	many hazardous wastes are stored within 'lined berm/dyked' areas, but the Solid Waste Design Options report states that the 'hazardous waste area is not lined' (Section 1.3).		ssuance. As of this date, it is believed to be bermed and unlined.
17	Operation and Maintenance Plan for the Solid Waste Disposal Facility	Note - SCP indicates that paint is stored in a 'bermed hazardous area' and that the rest are stored in a 'hazardous waste area'; make documents consistent.		The O&M plan will be updated post issuance. As of this date, it is believed to be bermed and unlined.
18	Operation and Maintenance Plan for the Solid Waste Disposal Facility	Section 18 - Unclear how effectual any tipping fees for 'General MSW' would be because there is 'no control' for public access / no front gate (Section 3). It appears that the public could just go to the site outside of business hours and drop off their waste for free. Also seems strange that there would be a tipping fee on general wastes and not on hazardous materials wastes.		Current tipping fees to be confirmed by newly appointed SAO.
19	Operation and Maintenance Plan for the Solid Waste Disposal Facility	Note - It seems the box was incorrectly checked in this section; the Solid Waste Design Options indicates that there are no tipping fees at the site.		Current tipping fees to be confirmed by newly appointed SAO.
20	Operation and Maintenance Plan for the Solid Waste Disposal Facility	GENERAL - There is no mention of how often the surface water sampling stations are monitored / sampled. Important to monitor to discern leachate movement (into surface waters) / contaminant levels of concern.		Proponent will look into getting a water resource officer in touch with the community for training and testing. The community has expressed this to be a priority moving forward.
21	Operations and Maintenance Plan for the Water Treatment Plant	Section 1 - Provide more accurate coordinates for the location of the plant (same generic location provided for the Solid Waste Facility).		Coordinates have been updated in Section 1 (page 1) from LAT 67° 26' 30" N and LONG 133° 44' 20" W to LAT 67° 25' 25" N and LONG 133° 42' 42" W. (as seen in figure 3 of Tsiigehtcnic Figures). Coordinates updated to provide consistency and a better description of the site.
22	Operations and Maintenance Plan for the Water Treatment Plant	Section 4 - The application requires the provision of some form of facility drawing.		An updated figure along with WTP drawings, will be provided in the O&M plan.
23	Section 9 - Refer to Section 11 under Sewage Disposal Facility.	Section 5 - A note - This section states that an average annual quantity of water drawn from the Ts'oh Van Water Lake is 6,000 m3 per year (in general keeping with the 4,817.4 m3 reported as withdrawn in 2018, the last reported volume). This makes the ask for 20,000 m3 in the Water Licence Application seem a bit out of line with the volume actually used.		The proponent has reviewed this comment. Will discuss relevant quantities with the GLWB.
24	Operations and Maintenance Plan for the Water Treatment Plant	Section 5 - Recommend that the erection of educational signage for the public around the water source lake should be a condition of the Water Licence.		There is current signage at the water source lake that restricts motorized activities. It is also indicated that the lake is used as a drinking water source. This source is approximately 4.85 km from the community.
25	Operations and Maintenance Plan for the Water Treatment Plant	Section 7 - This section indicates that there is some filter backwash, regeneration and/or membrane reject wastewater disposal. It would be good to know the volumes of this wastewater because it is of concern if it is discharged directly to the water body as checked - which would be the Ts'oh Van Water Lake. That means the collection of fresh water for drinking purposes and the discharge of water treatment plant wastewater are in close proximity to each other. Another unspecified possibility is that the sunke		Backwash is drained to the primary source with no chemical addition other than chlorine. Reject water turbidity is sampled.

		n, wet depression in the ground indicated in the photograph above is the water treatment plant wastewater discharge site. If so, this should be clearly presented in the application and addressed accordingly for any disposal requirements in the Water Licence.		
26	Operations and Maintenance Plan for the Water Treatment Plant	Section 9 - Refer to Section 11 under Sewage Disposal Facility.		Plan updated to provide consistency in sections.
27	Spill Contingency Plan	Section 2.2 - Good to note the updates for contact information.		Revised: Section 2.4 Contact Information and Responsibilities
28	Spill Contingency Plan	Section 2.11 - It has not been noted in any of the documents where Tsiigehtchic's hazardous waste materials are shipped off to. This section of the SCP asks for the specific identify of the approved waste disposal facilities used for waste materials from spills; the actual facility should be noted, not just 'Private' as a response.		The community to date has not had to ship materials off site. Community will confirm where the best facility to ship in the future will be. Currently, the most relevant temporary facility would be in Inuvik.
29	Spill Contingency Plan	Section 2.12 - The volumes of the spill kits should be known. This 'unknown' indicates that there is lack of knowledge on how to use the kits and/or that they may be of insufficient size to handle potential spills.		The site operator will provide and updated list of spill kit contents. Spill training will be discussed with relevant departments and relevant annual training should be added to the Annual Report Template.
30	Spill Contingency Plan	Section 2.13 - Training should include an overview of the SCP. Mock spill training sessions are recommended as well.		Relevant training will be discussed with relevant departments and relevant annual training should be added to the Annual Report Template.
31		Cover Letter		

No.	Topic	Reviewer Comment	Reviewer Recommendation	Proponent Response
Environment and Climate Change Canada (ECCC) - ECCC-EA ECCC-EA				
1	Cover Letter	N/A	N/A	
2	Topic: Water Treatment Plant Wastewater References: - Appendix C: Water Treatment Plant Operation and Maintenance Plan (November 2021)	Section 7 (WTP Waste Production) indicates that WTP backwash/reject wastewater is discharged directly to surface water. It is unclear whether WTP wastewater is tested for potential contaminants prior to discharge. ECCC notes that any such discharge streams should be characterized and determined to be acceptable for release to surface waters prior to discharge.	ECCC recommends that a representative sample of WTP backwash/reject wastewater be characterized and the results used to evaluate whether this waste stream is acceptable for release to surface waters. Should the results indicate that WTP backwash/reject wastewater is not acceptable for release to surface waters, appropriate alternate disposal option(s) should be determined.	To date, backwash is currently not sampled regularly and is not a part of the SNP.
3	Topic: Solid Waste Management References: - Appendix E: Preliminary Solid Waste Design Options Report (Dillon Consulting, December 2021)	Per Section 2.3 (Inspection Report) of the Preliminary Solid Waste Design Options Report (Options Report), solid waste management concerns identified during an inspection in August 2021 include: o Unsure if all fluids drained from discarded vehicles; o Unsure if freezers and fridges have been drained of all Freon; o Batteries and paint containers not placed on pallets to prevent freezing to the ground, cracking and leaking in the environment; and o Used waste oil containers open to the environment and overflowing.	ECCC recommends that the Proponent consult the technical guidance document "Solid Waste Management for Northern and Remote Communities" (Environment and Climate Change Canada, March 2017) for best practices to address/resolve outstanding solid waste management concerns. A summary and a link to the full document are available on Environment and Climate Change Canada's website at: http://www.ec.gc.ca/gdd-mw/default.aspx?lang=En&n=97182135-1	The mentioned document has been reviewed and will be appropriately applied to the current uncertainties. For example - recommended actions could include that operator(s) should be on-site during operating hours to receive and process hazardous waste items to mitigate uncertainty of contamination and ensure proper end-of-life management (e.g. drainage of fluids from vehicles). This will also ensure the facility is kept organized, segregated, managed, and clean of spills. Processing may include cleaning spills, segregating and storing incompatible substances into appropriate containers, ensuring containers are in appropriate locations and the ground is protected from spills, and maintaining up-to-date inventories/records of materials received.
4	Topic: Leachate management	Section 14 (Surface Water Management) of the Solid Waste Disposal Facility	With respect to reduction/mitigation of SWDF runoff and leachate, ECCC r	Potential measures to minimize leachate and impacted water are as follo

	<p>References: 1. Appendix A: Solid Waste Disposal Facility Operation and Maintenance Plan (November 2021) 2. Appendix E: Preliminary Solid Waste Design Options Report (Dillon Consulting, December 2021)</p>	<p>ility Operation and Maintenance Plan (SWDF O&M Plan) states that, due to site topography, surface water drains toward the sewage lagoon.</p> <p>The Options Report provides further information, discussing surface and groundwater flow at the SWDF site. Per Section 3.1 (Topography and Hydrology) of the Options Report, surface water within the active landfill cell discharges into the sewage lagoon, while surface water within the bulky waste disposal site flows along the access road towards the Community. As described in Section 3.4 (Hydrogeology) of the Options Report, the active layer of groundwater for the SWDF site was observed to flow radially off site with the majority of flow towards the sewage lagoon.</p> <p>Dillon Consulting has noted that drainage is a concern throughout the Community due to the differentially melting permafrost, low permeability of soils, and high spring melt events (Section 1.4 of Options Report). Given these conditions and climate projections forecasting greater annual precipitation and higher annual temperatures, it is important to identify measures to minimize SWDF runoff and leachate volumes.</p>	<p>ommends that upstream drainage diversion be constructed such that runoff is minimized.</p>	<p>ws: - Construction of swales and berms around the landfill footprint to direct surface water run-on around the site to reduce/minimize impacted water and leachate generations; -Construction of temporary internal berms and minimizing the size of the active face during the operational phase of landfilling to reduce/minimize impacted water and leachate generations; -The use of intermediate and final cover, when appropriate, to minimize surface water infiltration and leachate generation.</p>
5	<p>Topic: SWDF Management Plans</p> <p>References: - Appendix A: Solid Waste Disposal Facility Operation and Maintenance Plan (November 2021) - Appendix E: Preliminary Solid Waste Design Options Report (Dillon Consulting, December 2021)</p>	<p>The Options Report outlines three preliminary design options for expansion of the existing Tsiigehtchic solid waste site, using a 40-year planning horizon. As per Section 1.3 (Background) of this report, the SWDF site has adequate capacity until 2031. ECCC notes that this capacity end-date (i.e., 2031) occurs within the proposed 10-year water licence term indicated in Section 1.1 (Project Understanding) of the Options Report.</p> <p>Given that additional solid waste management capacity will be required during the proposed water licence term, it will be important to include expansion and closure elements in the water licence, including relevant management plans. ECCC notes that, per Section 19 (Closure and Post-Closure Plan) of the SWDF O&M Plan, no interim or final closure and reclamation plan has been completed for the SWDF.</p>	<p>ECCC recommends that, following selection of a SWDF expansion design, the Proponent be required to: (1) Develop a SWDF Closure Plan, and (2) Update the existing SWDF O&M Plan and/or develop a new SWDF O&M Plan, as appropriate.</p>	<p>A closure and reclamation plan would be submitted to the Board prior to the confirmation of a design option or preliminary design.</p>
6	<p>Topic: Management of Hydrocarbon-Contaminated Materials</p> <p>References: - Appendix A: Solid Waste Disposal Facility Operation and Maintenance Plan (November 2021)</p>	<p>Section 17 (Hazardous Waste Management) of the SWDF O&M Plan indicates that hydrocarbon-contaminated soil, snow, and water are accepted at the SWDF. However, the plan does not discuss how these materials are managed.</p>	<p>ECCC recommends that the SWDF O&M Plan provide details regarding how hydrocarbon-contaminated materials are managed.</p>	<p>The proponent suggests the inclusion of the approximate quantity of hydrocarbon-contaminated materials received at the SWDF be included in quantities written into the issued license. If the facility is not equipped to properly manage waste being received, it should not accept it to avoid contamination.</p>

No.	Topic	Reviewer Comment	Reviewer Recommendation	Proponent Response
Gwich'in Renewable Resources Board - Staff Gwich'in Renewable Resource Board				
1		Wildlife:Appendix A – Section 3 indic		While it is a good idea to cover waste

		ates that the site does not have an electric fence. Appendix A – Section 1.2 reports that compaction only occurs quarterly and does not indicate how frequently waste is covered. It is our understanding that there have been problems with the landfill attracting bears and wolves in the past. Feeding from a landfill is not healthy for wildlife and attracting wildlife to an area close to town increases the risk of conflicts with people. We encourage the proponent to develop a strategy for deterring wildlife from the landfill. If the primary method used is covering waste, then it must be done frequently, or it will be ineffective.		more often, due to the resources available in the community - labour requirements may not be manageable to cover as often as they would like. Community will obtain information on alternate daily cover from MACA.
2		Windblown Waste: Appendix E – Section 1.3 indicates that at the time of the community's 2016 water license application, sections of the fence which catches wind-blown debris had failed. Inspection report G16L3-002 (August 21, 2020) states that windblown material was found outside of the landfill. We encourage the regulator to ensure that the fence is in good repair and is adequate to prevent material from escaping the landfill.		Community will discuss options for better fencing to implement in the near future. The community agrees that more frequent monitoring would be a good practice however lacks the resources for this to be common practice.
3		Hazardous Waste: Appendix A – Section 17 does not provide any information on how hazardous waste is inspected or inventoried. It also indicates that some hazardous waste is stored without any type of containment (including paint, fuel tanks, and vehicles). Descriptions of how fuel drums are cleaned, and hazardous waste is removed from vehicles are very vague. It sounds as though residual fuel in drums is simply dumped onto the ground. Inspection report G16L3-002 (August 21, 2020) raises several serious concerns, including the landfill operator being unsure of whether hazardous wastes had been removed from vehicles and appliances, used oil containers which were open and overflowing, batteries and paint containers which had been improperly stored, and fuel tanks which had not been cleaned. The regulator may wish to consider whether the proponent's operations are compliant with territorial regulations and whether the current license's hazardous waste storage requirements are being met.		Relevant O&M plans will be updated based on revisions requested. The site operator will work to create a current inventory and highlight how hazardous waste is stored. This section could be included in the Annual Report Template.
4		Water: Appendix A – Section 14 indicates that no measures are in place to manage surface water. Appendix A – Section 5 states that the landfill does not have a liner or a system for collecting leachate. Appendix E – Section 3.4 indicates that the water table at the landfill is within 0.5 metres of the ground surface. We encourage the regulator to review the results of monitoring from the Surveillance Network Program for indications of ground water contamination.		Comment/recommendation by the reviewer has been noted and the community will have a monitoring discussion.
5		Fuel Break <ul style="list-style-type: none"> If your project takes place during nesting season, perform a thorough nest search prior to commencing work and take precautions not to disturb or destroy active songbird nests. Most migratory birds, as well as their eggs and nests, are protected un 		The proponent will be sure to conduct a proper survey of wildlife prior to any projects that take place during nesting season.

der the federal Migratory Birds Convention Act.

- We recommend that you temporarily suspend operations if caribou, moose, sheep, bears, or muskoxen are spotted within 500 metres of the work site. Work can resume once the animals have left the area.