



GWICH'IN LAND AND WATER BOARD

P.O. Box 2018, Inuvik, NT X0E 0T0

867-777-4954

867-777-2304

glwb.com

Gwich'in Land and Water Board Technical Session - Town of Inuvik Municipal Water Licence Renewal

Meeting Notes

Thursday April 27, 2017

*This document is a compilation of notes taken by individual attendees, and do not represent the official record or official meeting minutes. For further details, please contact amacdonald@glwb.com. Detailed [agenda available here](#).

AGENDA

9:30 – 9:45 am	Opening & Introductions
9:45 am -10:45 am	SNP Monitoring: Station Locations and Parameter Selections
10:45 am – 11:00 am	Health Break
11:00 am -12:00 pm	O/M Manual Updates and Hazardous Waste Management
12:00 pm – 1:00 pm	Lunch Break
1:00 pm – 2:00pm	Bears: Landfills and Deterrents
2:00 pm – 2:15 pm	Health Break
2:15 pm – 3:15 pm	Climate Change and Permafrost Mitigation
3:15 pm – 4:00 pm	Open Floor & Meeting Closure

Participants

GLWB: Leonard DeBastien, Holly Jones, AlecSandra Macdonald

Town of Inuvik: Rick Campbell

GRRB: Janet Boxwell, Kristen Callaghan, Sarah Lord

GNWT ENR: Jeanne Arsenaault, Gerald Enns, Lloyd Gruben, Rolland Malegana, Bill Pain, Brian Sieben
Doug Villeneuve

GTC: Steven Charlie

GNWT MACA: Iqbal Arshad

DFO: Kyle Antonchuk

INAC: Marijo Cyr, Yves Theriault

AECOM: Jason Casault, Jordan Hoffart

Standards Council of Canada: Christeen Moore

SNP Monitoring: Station Locations and Parameter Selections

Please refer to attached [Presentation Slides](#) for additional information

1. Current Surveillance Network Program overview

- SNP #3, # 6, and #7 monitor surface water at lagoon, #3 is point of compliance
- SNP # 8 at twin lakes is control for lagoon
- SNP # 4 and #5 monitor landfill. Topography at landfill result in flow to North and South.
- SNP #4 at only flows in spring runoff, heavy rainfall
- Majority of runoff into SNP #5
- Current locations should be maintained, have a good data set over past two decades.

2. Are additional SNP stations (i.e. at Boot Lake) warranted?

- Town of Inuvik/GTC: Community concerns about Boot lake are likely not warranted, but have no data to confirm.
- GRRB: It would be straightforward to establish SNP sampling station at outflow of Boot Lake where it flows in to the Mackenzie. Collecting data for a few years would be a direct way to address public concerns about the effect of the landfill on Boot Lake and on the drinking water supply.
- GRRB: Additional monitoring station could be installed at Boot Creek above Boot Lake. This could be in addition to SNP #4 and would ensure adequate data collection during dry periods when SNP #4 is not flowing.
- Town of Inuvik: Suggested sampling site at culvert.
- Town of Inuvik: Water intake pipe is 200 m into Mackenzie river, any discharge from boot lake would not mix. Water intake facility plans took this into account.

3. Should groundwater monitoring be monitored?

- Town of Inuvik: Groundwater monitoring would be difficult/impossible to establish.
- Town of Inuvik: Suggest that opening wells would have detrimental effects on permafrost.
- GRRB: Suggested possible groundwater monitoring because SNP station #4 was not producing data at regular intervals as is required to monitor potential seepage and runoff from the landfill. If an additional SNP station(s) is/are established that are capable of sampling at monthly intervals as is required for ongoing monitoring, then groundwater monitoring is not needed. Collecting water quality data on an ongoing basis is necessary. Relying on an intermittently flowing water source that cannot be sampled during most of the year is not adequate to detect changes.
- ENR: Recommend SNP at Boot Lake, wait to see if there are impacts, then monitor groundwater if needed.

4. Suggestions for Biological Oxygen Demand Effluent Quality Criteria (BOD vs. CBOD)

- ENR: Could set CBOD at 80-90% of BOD based on other communities' data.

- TOI: Could also do a BOD/CBOD trend analysis for 1-3 years to determine site specific ratio for Inuvik. Climate and other considerations may influence the relationship between the two parameters.
- ENR: BOD ECQ could be dropped to 100 mg/L from current 150, based on data trends (decrease in population, improved lagoon performance may be due to warming trend).
- TOI: Lagoon designed for population of 5,000, current pop 3,200.
- AECOM: Concern w/dropping BOD5 – may not be a benefit to lowering threshold, sewage lagoon has natural assimilative capacity. There is no indication that lagoon can't handle current demand, effects of effluent into Mackenzie are small and dilution occurs quickly.
- Changing parameter would not change lagoon performance. The advantage of lagoon system is that it is easy to maintain, can drop hydraulic levels if needed. Need to regulate freeboard, requiring construction of higher retention walls, to improve performance.
- Primary cells have not been dredged in a long time. Now use enzymes for improved function. Project planning to include dredging in the next couple years.
- (DFO): winter retention time – any consideration for mechanical aeration in winter?
- TOI: Investigated alternatives during last WL renewal, but cold weather conditions are not conducive to operation. Primary treatment – settling of solids not impacted in winter, low biological activity in winter so aeration will probably not improve decomposition.

5. Should other Effluent Quality Criteria (EQC)s be updated?

- GRRB: Thank you for providing the laboratory invoices that detail the parameters being tested. Based on this, Total Petroleum Hydrocarbons (TPH) should be added to the list of parameters to SNP monitoring around landfill, in addition to Oil and Grease. This is especially relevant given the proposed soil treatment facility that will be accepting hydrocarbon-contaminated soils and snow for remediation.

6. Wastewater Systems Effluent Regulations update From Jean Arsenault (ENR Pollution Control Specialist)

- Wastewater Systems Effluent Regulations (WSER) – currently only applies to Southern provinces and Yukon. There had been plans in place to develop Northern Performance Standard (NPS).
- NPS working group met early on, but ECCC has since had other priorities (i.e. climate change adaptation) so Spring 2016 was last meeting, discussions on NPS have halted.
- Few updates, no anticipated timeline for NPS development.
- GRRB: Would like to see new standards incorporated as they are developed; our concern is that a 10-year licence is a long time to wait for another full review if new standards are coming out in the next two years.

ACTIONS

- ➔ GLWB staff to recommend additional SNP monitoring station at Boot Creek, above Boot Lake for Inuvik draft WL.
- ➔ GLWB staff to recommend Trend analysis CBOD/BOD for draft WL.
- ➔ GLWB staff to follow up on TPH recommendation for draft WL.

O/M Manual Updates and Hazardous Waste Management

1. Review Current Plans

- Current Plans include SWDF, WWTF, SCP
 - Water Treatment Plan forthcoming
 - SCP developed in 2016, requires further updates
 - Last SWDF and WWTF updates in 2011

2. Priorities and Timelines for O/M updates

- Have had issues of non-compliance/stop work order due to lack of O/M update pertaining to asbestos disposal.
- Updates to O/M plan would have helped resolve some of the concerns and information gaps brought forward during the application review.
- SWDF and Hazardous waste is High priority, as no HWMP exists.
- SCP is also high priority due to high volume of comments during review.
- Water Treatment important because no O/M plan currently exists.
- Cost requirements for updates of all plans are a hurdle.
- As with other communities, WL can stagger the required updates over 2 years, focus on highest priorities first.

3. Presentation by Gerald Enns - ENR Hazardous Waste Specialist

Please refer to attached [Presentation Slides](#) for additional information

- Overview: ENR's HW objectives, photos for areas of improvement, developing a Hazardous Waste Management Plan.
- Tol is registered to receive asbestos, but nothing else in HW.
- Important for communities to define what they are willing to accept at landfill and communicate with residents and the Industrial, Commercial, Institutional (ICI) sector.
- Tol's gate, regular hours, and staff will be integral in keeping unacceptable hazardous waste out of facility.
- [MVLWB's SWF O/M Plan Template](#) is helpful. Some O/M Plans are not helpful to Operators.
- Issues with communication between contractor and operator – important to be diligent in enforcing what is accepted.
- Must inventory Hazardous Waste for Transportation and Disposal.
- No recent record of Hazardous Waste collection.
 - Fire department used to run a collection program. Operator Training for Hazardous Waste collection is an issue, so nothing has been collected recently.
- No petroleum hydrocarbons accepted at the Tol's SWF.
- Household Hazardous Waste collection proposed for Inuvik – coordination between Rick and Gerald should happen.
 - Suggestion for community mercury campaign (CFLs to LEDs and go after thermostats as they contain highest amounts).

- ENR noted Hazardous waste concerns during 2014 site visit.
 - 20L pails of paint accepted as hazardous waste, shouldn't be in household waste section:
 - Is accepting it, drying and burying properly better than not accepting it and having it dumped elsewhere?
 - Old drums with snow collecting on top:
 - Town only accepts empty drums, crushes them and disposes of them in landfill.
 - Drums are sent back if not acceptable (e.g. ENR drums).
- Hazardous Waste Facility & Solid Waste Facility – Develop plans or amend plan to include Hazardous Waste Management.
- ENR's General Hazardous Waste Management and Waste Lead Paint guidelines should be updated by Late June.

4. Hazardous Waste and O/M Discussion

- Town, contractors, and residents must know what is acceptable and how it should be disposed of at SWDF. Used to charge for evacuating fridges, etc.
- Shale pit is currently inactive, used for storage. Not being used to dispose of materials. Former asbestos and hazardous waste disposal facility. No plans for closure/ reclamation at the moment.
- Gatekeeper notes that people do not like stopping to answer questions.
- Is there currently no inventory of hazardous wastes received at landfill? No system for recording what was received?
- Could there be an opportunity for Hazardous waste amnesty event/ Educational campaign?
 - Was done by fire department in the past, but was not well attended, and there were training issues.

ACTIONS

- ➔ Town/ENR to work together to on hazardous waste pick up and hazardous waste management plan development
- ➔ GLWB staff to recommend HWMP as component of licence
- ➔ GLWB staff to recommend updates to O/M to be staggered over two years, according to priority

Bears: Landfills and Deterrents

1. Presentation by Marsha Branigan (Manager, ENR Wildlife Management)

Please refer to attached [Presentation Slides](#) for additional information

- Overview of Bears, Inuvik & Landfill – “Most conflicts begin with bear access to non-natural food sources.”
- ENR had a camp program with electric fences being given out to camp owners. Not a lot of programs with landfills (by ENR).

- Landfills attract bears; not healthy food for bears; potential to increase local density of bears as they become habituated to this source of food. Also, impacts bear populations due to necessity of killing problem bears (Defense of Life and Property, DLP kills).
- ENR had a program (early 2000's) in which collared bears were tracked for movements around the dump as part of research in preparation for Mackenzie Pipeline.
 - Results: Females regularly visited dump via satellite collar data, but not directly observed at the dump.
 - Female denned nearby; she had frequent visits to dump
- In 2006 a wounded bear (shot by officers at dump) ran off into the woods near dump. ENR staff spent nights at the dump observing. Lots of bears were seen, both black and grizzly bear. Many were grizzlies with some black. Most activity was at night. However, now, there is more bear activity during the day.
- In 2016 there were 5 problem bears killed by officers at the dump.
- ENR perspective is that there is not additional research needed on this issue.
- Fencing has multiple purposes:
 - Keep garbage contained. A recommendation has been made about this already by ENR to the Town.
 - Trap windblown garbage.
 - Keep wildlife out.
 - Keep humans out (dealing with a liability issue).
- In 2006 or 2007 ENR superintendent Ron Morrison presented information to the town and hamlets on this issue. His recommendations at the time were to:
 - Move the dump.
 - Cover or remove domestic garbage daily.
 - Install fencing.
 - Create Bear Smart by-laws in town (specific by-laws were recommended).
 - Bear proof garbage containers.
 - Implement a community education program on bear awareness.
 - Restrict curb-side garbage placement until the day of pick-up (as a by-law).
- Bear Smart/Bear Wise Program needs to be collaborative and multipronged; look at results of Bear Smart programs adopted elsewhere.
- Discussions on this overall issue need to include the Wildlife Management Boards.
- ENR agrees with GRRB comments on the problem. The landfill does need to contain garbage. ENR is willing to work with the Town on this issue.

2. Discussion:

- Town Initiatives
 - Town The town has been proactive in working on some of these recommendations (without a requirement in its water license) does have bear initiatives (blue bins).
 - Each bear bin costs \$18,000, and there are already ~300 odd containers, with 900 identified residences.
 - There are issues around where to put them (residents don't want them in their front yard). Around the outskirts of town, few people have personal garbage bins at the end of their drive. The plan is to keep working towards centre of town with the blue bins.

- Capping
 - The Town knows it needs to do a better job at capping fill at the solid waste site. They want to push, compact and fill at least once a week. This has been the intent for the last 3 years but doesn't always happen.
 - They need to have enough materials available for that. When it is muddy also, it is too wet for the heavy machinery to dig it up.
 - Covering domestic garbage daily may be facilitated by proposed Soil Treatment Facility.
 - ENR suggestion: What about stockpiling materials in the fall so they are available in the spring (as the bears come out and to the dump) and it won't be necessary to wait for the ground to thaw or because of the wet conditions? GRRB question: Is the current frequency goal of capping once a week required by the current license?
 - Town: No, it is only required twice a year. It is the Town that is wanting it done more frequently.
 - Is there a plan for how the cells are placed on the landfill site? Is this mapped out?
 - Answer: Shown on screen, the map of Figure 3 in the Town PowerPoint.
 - Town commented that contractors tend to be reluctant to cover and run equipment to do so.
 - Gerald; the open face (uncapped landfill) is where the animals are more attracted. Keeping the open face compacted and small in scale will reduce the potential reward.
 - Controlling the open face is a variable that can be dealt with in the license. Marsha noted that there are permit conditions existing on how much that open face can be. The Town noted that its O&M procedures give direction but the O&M needs to be improved on.

- Fence:
 - The Town had a gate to limit access. After dog pound moved gate further. Need to be able to keep people out. Found out that groups were bringing people in for bear watching! There is also an issue with bears at the golf course too.
 - Town knows a fence for wind-blown garbage is needed. There is a few 100m of fencing that stops material from being blown (on one side). In the next few years, we want to work to get higher fencing installed.
 - Current fence is on the west-east one side to the other. It is standing and maintained. Deals with prevailing winds garbage issue; note that bags caught by fence after storms. Recognition that garbage does get into bush elsewhere.
 - ENR: Lots of garbage is in the bush around the dump. This is a potential condition for the GLWB.
 - Fence was not included in the O/M manual or in application, room for improvement with respect to communication
 - An additional issue related to fencing is that Town needs to first determine what the site is intended to be and what boundaries would then need to be fenced. After the definition of the site is made, then could look at fencing.
 - Other communities with fenced (B.C, Yukon, NWT) Show a trend of increased bear mortality immediately following fencing, and decrease after one year years as habituation decrease
 - Fences tackle issues of bears and humans gaining access as well as windblown debris. Short term will result in more bears in town – Town, ENR, residents must be ready.

- Relocation
 - Consideration has been given to moving, it's expensive and nowhere better suited than current site.
 - E.g. Shale Pit site, but the area was excluded from consideration because too close to airport boundaries and concerns about increased bird activity (danger to flights).
 - The Shale Pit site on Airport Road still has some hazardous waste (asbestos). Not currently active, but no plans for closure.
 - There was a dump site on Navy Road in the past. Moved to where it is now.
 - Question regarding relocation along Inuvik to Tuk highway. No one wants to have a solid waste site in their area (e.g. Gwich'in or Inuvialuit Private Lands or mgmt. area).

- Water Licence
 - Is a water licence the appropriate venue to address Bear concerns?
 - Other communities do require fencing and/or fencing plans (e.g Fort Simpson, Fort Resolution) though most WL focus on preventing the spread of windblown debris
 - Fences in Hay River, Norman Wells, Yellowknife
 - ENR: Will there be discussion at the GLWB level that you are going in this direction? Why some communities have and others not?
 - LWBs are moving towards standardization, while also leaving room for site-specific considerations. Evolving over time. Has not been brought up in GSA before.

- Wildlife Act
 - There may be a mechanism within the new Wildlife Act to require Wildlife Management Plan for solid waste disposal facilities.

- General comments
 - GRRB question/comment: Noting that ENR gave recommendations over 10 years ago to town, if license is 10 year will this mean another 10 years before talking about it again without implementation/changes?
 - Town answer: We have been implementing without requirement to do so in our license. We have installed the blue bins and are getting more. We recognize we need to do a better job to make sure we cap on a regular basis. We can look at getting new fences to mediate problems.
 - Communication and community awareness can be improved upon.
 - Town interested in Facebook and Tweeting.
 - 24 Hr reporting hotline and ENR Facebook posts are helpful community awareness tools.
 - Bear Management Plan should be developed by Tol within a year, and implemented in O/M plans for SWF. Must account for access to garbage by bears as well as attractants within and outside of facility
 - "A GNWT funded study is not the solution". There is already lots of data already, need an action plan and a working group moving forward
 - BearWise/BearSmart communities in AB and BC should be used as examples. Public education and municipal actions drive change.

- Next Steps and Community Involvement
 - GRRB suggested that a public meeting is not necessarily needed at this time.
 - GLWB said this would not be driven by water license issue.
 - GRRB suggested that it would be helpful going forward for a small working group of staff representatives from the boards, town and ENR to address community messaging that can help with the issue and keep track of actions taken.
 - GRRB reiterates support for a five-year (5) WL.
 - Town needs to allow sufficient time frame for any Town action.

ACTIONS

- ➔ GLWB staff to recommend a fencing plan condition in upcoming WL
- ➔ GRRB/ENR/Town/ co-management partners to discuss the formation of a working group to tackle Bear Management Issue at SWDF

Climate Change and Permafrost Mitigation

1. Discussion

- Is a 10-year permit too long given the rapid changes to the climate and infrastructure?
- Noted that there may have been misinterpretation of comments from both GRRB and TOI responses, especially pertaining to scope – mitigation of climate change vs. monitoring, preparation and adaptation – (GRRB clarifies they meant ‘monitoring permafrost and ground temp’).
- GRRB: our concern is to ensure that the proponent is proactively considering the changes in permafrost, temperatures, precipitation, and other environmental conditions that will affect the operation and maintenance of its infrastructure. For example, how stable is the ground underlying the solid waste site, and under the sewage lagoons? The proponent needs to be able to detect and respond to changes rapidly, and this does not seem to be written into the application as we read it.
- Climate change and loss of permafrost are significant in scope, but approach by ToI can be within the town’s scope. There must be an approach. Climate change in Inuvik is happening more rapidly than many other places in the world. Need to incorporate CC planning into everything we do in the North.
- The Town is already including climate change in its infrastructure (utilidor, pilings for new water treatment, annual lagoon inspections etc.), however this was not communicated in application.
- The Town does have council meetings, a FB page, Twitter and other mechanisms for communication with the public.
- Updating O/M plans with greater frequency, utilizing Northern Infrastructure Standards, and considering climate change in all aspects of design and operation of the SWF will be invaluable in Town’s economic and environmental future.
- Christeen Moore from Standards Council of Canada recommends use of new [Northern Infrastructure Standardization Initiative Standards \(NISI\)](#)
 - Developed with input from long-time Inuvik resident). Standards are available in video format, with special attention paid to public education. Community Drainage System Planning will be extremely useful.

- Will continue to be developed over next ~ 2 years. Applicable to full project life-cycle, including planning, operation, maintenance, decommissioning and monitoring of sewage lagoons in the north, wastewater standards, geotechnical site investigations in permafrost zones
- Jordan (AECOM) response to cc impacts on infrastructure: extending depth of pilings incorporated into design of new structures.
- NOTE: rate at which active layer increases depth is unknown variable.
- Marsha: is there permafrost under the landfill?
- Rick: No formal measuring taking place. Probably melting as decomposition occurs. P/frost under lagoon berms subject to annual inspection and maintenance
- Lagoon standards, and others to be developed in the coming years. SCC welcomes participation from northern technical experts to assist in developing these new standards.
- Marijo (INAC): INAC's climate change adaptation team has funding opportunities for permafrost studies and initiatives.
- Suggestion that the Town needs a Permafrost and Climate Change Management Plan, or at the very least needs to include these ideas in their other municipal plans and strategies.

ACTIONS

- ➔ GLWB staff to recommend that climate change be included as a requirement of O/M plans for WLs
- ➔ GLWB staff to disseminate INAC funding availability to communities and AGOs
- ➔ GLWB staff to circulate invitation to participate in SCC Northern Infrastructure Standardization Initiative