Meeting with Department of Defence, Environment and Climate Change Canada and Crown Indigenous Relations and Northern Affairs Canada for the Nunavut Water Board DND Station Alert, Type A Water Licence 8AC-ALT----

August 7, 2019

Meeting Time 9:00 to 10:00 am MST/ 11am to 12 pm CST

In attendance – Nathan Koutroulides, Department of Defense (DND); Michelle Blade, Crown Indigenous Relations and Northern Affairs Canada (CIRNAC); Godwin Okonkwo, CIRNAC; Anne Wilson, Environment and Climate Change Canada (ECCC), Eva Walker (ECCC).

The intent of meeting was to have an informal discussion between DND, ECCC and CIRNAC to understand the status of the wastewater treatment system at DND Station Alert, the proposed plans for system upgrades and clarify comments and considerations made by ECCC for the Type A WL renewal.

Meeting Start 9:00 am MST/11 am CST Introductions

Item	Discussion
Introductions	Attendees introduced themselves and their role within their organization
History/Current site condition	DND provided a history of the wastewater treatment at Station Alert as well as a brief description of the current site conditions and intended path moving forward to improve treatment. Nathan noted that the terraced wetland wastewater treatment system has an ice buildup at the head each year, and at freshet the channel is washed out. It gets repaired but never stabilizes, and the system is not meeting the design intent. The channel is widening and changing paths; there is substantial erosion. ECCC provided background on their participation in the water licence process for the Station Alert. CIRNAC provided background on their participation in the water licence process for the Station Alert.
Packaged wastewater treatment plant	DND is currently undertaking a two stage process in order to determine the type and size of packaged wastewater treatment plant required for Station Alert. The first part of the process is to understand what the requirements of a packaged wastewater treatment will be for the station based on the current station water balance. Determining the station's water balance has proven challenging due to design of the freeze-prevention bypass system and location of valves. Water comes in through the main plant, and there are a number of valves below the buildings that bypass water into pipes to prevent freezing. This is a loop system that goes through several facilities; locating valves is not straightforward.

	DND has engaged a design consultant and are hoping to have flow monitors installed on the effluent outflow and throughout the station by the end of 2019. They hope to have the water balance by 2020. Once the station's water balance is understood, a package wastewater treatment plant will be selected. Three modular options are being costed, but the question is how much water they can handle. Funding may be slow. DND is aiming to have a package plant in place in 2023, operational in 2025. Moving the packaged plant up to Station Alert will be logistically difficult (sealift to Thule, Greenland, then airlift to Station Alert). Performance targets for the packaged plants were discussed; DND did not know targets for effluent treatment. Anne suggested talking to other facilities in the North that are successfully treating camp wastewater.
Terraced wetland wastewater treatment system	In conjunction with the work on the treatment plant, DND will be engineering the terraced wetland wastewater treatment system to withstand freshet. DND acknowledges that sedimentation is an issue as the terraced wetland wastewater treatment system is built on a hillside of unconsolidated silt material and is actively trying to resolve this issue. DND has design drawings that will be provided with the Proponent responses prior to the Final Summary Submission to the Nunavut Water Board in September. Gabion baskets with rocks and geotextile are proposed, to reduce and slow hillside flows. DND stated that the intent is to keep the terraced wetland wastewater treatment system as a back up to the packaged wastewater treatment plant. CIRNAC asked where the treated effluent would be discharged once a packaged system was commissioned; DND confirmed that it would be into the terraced wetland wastewater treatment system. ECCC noted that any direct discharge of untreated effluent during re-construction of the terraced wetland wastewater treatment system would need to be discussed; DND does not plan to divert wastewater during works. Reconstruction of the terraced wetland wastewater treatment system is estimated for 2024. DND indicated annual repairs to the terrace system are done in the Fall. CIRNAC requested documentation of when terrace system repairs have previously occurred. DND is unsure if repairs were completed Fall 2018 as DND employees raised health and safety concerns regarding working in raw sewage. CIRNAC requested details on where terrace system repair equipment is sterilized and how the wash water is captured and disposed of thereafter. DND is unsure on where terrace system repair equipment is sterilized. The fall repairs being done each year were not carried out in 2018.

Monitoring	DND thought that monthly sampling had occurred in 2018 at the bottom of the terraced wetland wastewater treatment system, and will provide the Nunavut Water Board with the 2018 Annual Report for distribution to interested parties. In 2017 monthly sampling effectively meant only two samples for the open-water season, thus only two samples for the year. Samples are taken at the bottom of the terrace by the operator, and ice is a factor in safely being able to collect them. ECCC clarified with DND that weekly sampling would be preferable to the monthly sampling and would allow for a better characterization of the effluent. This would help with treatment system selection, as effluent quality has been highly variable. The main parameters to be sampled included BOD, ammonia, TSS, pH and oil and grease. Holding times were discussed, and ECCC also noted that they understood the logistical difficulties of water quality sampling in remote northern environments.
General Comments	At the Alert technical meeting, DND committed to providing a desktop version of the Sewage Sludge Management Plan for submission to the NWB with this Type A water licence application for interveners to review. CIRNAC recommends the Sewage Sludge Management Plan contain an adaptive management strategy for terrace system erosion control. The Plan should take DND to 2023 and 2025, when the gabion baskets with rocks and geotextile and the packaged wastewater treatment plant are anticipated to be operational, respectively, – and address erosion control measures when health and safety concerns that preclude personnel from conducting maintenance on the raw-sewage terrace system. ECCC supported this recommendation. DND noted that time constraints would mean plan submission would need to occur as a condition of the licence terms. DND has a LIDAR study which can be circulated, showing drainage patterns. CIRNAC noted that having the commitments formalized in management plans was needed, as these are actionable items. All agreed that it was helpful to set definitive goals and timelines while DND works towards the installation of the Packaged Wastewater Treatment Plant.

Commitments:

1. ECCC will provide contacts of mining companies to DND that have had success with packaged wastewater treatment plants in Nunavut.
2. ECCC will provide DND with an example of an adaptive management plan or template.
3. DND will look into the ability to take weekly wastewater samples at Station Alert.

The meeting was concluded at 10:09 am MST, 12:09 pm CST.