Assistant Deputy Minister - Infrastructure and Environment
Real Property Operations Group Headquarters
101 Colonel By Drive
Ottawa, ON, K1A 0K2

9 February 2017

Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0
Attention: Karen Kharatyan, A/Manager of Licensing

8AC-ALT – DEPARTMENT OF NATIONAL DEFENCE - CFS ALERT – TYPE A WATER LICENCE RENEWAL AND AMENDMENT – ECCC CONSULTATION LETTER

Greetings Ms. Kharatyan:

The subject letter from Environment and Climate Change Canada (ECCC) that detailed questions from an initial review of our water licence application was thoroughly reviewed by our department. The following is our response to the questions posed by ECCC:

1. ECCC Question 1 – *ECCC requests that the Proponent discuss options to reduce the BOD5 loading to the marine receiving environment.* Our response:

   a. Our analysis of the waste water treatment outflow tests for July and August 2016 indicate that the BOD5 loading maximum was 17 mg/L.

   b. Although the BOD5 loading results are well within the current license limits, we have initiated a study on to develop options for increased treatment of our waste water.

2. ECCC Question 2 – *ECCC requests that the Proponent provide an evaluation of the surface erosion that is associated with the overland discharge of the waste water stream (as evidenced by the total suspended solids level entering Parr Inlet). Mitigation measures to stabilize areas experiencing erosion should be identified:*

   a. We are also concerned about any excess erosion that would occur on site and any increase in Total Suspended Solids. We will be conducting a study in July and August of 2017 with the intent to reduce the total volume of flow through the treatment system and to determine if there are other methods that we can employ to reduce erosion and subsequently reduce the TSS. This evaluation can only be conducted in the short summer months (late-June to August) and the results would not be available until fall/winter of 2017.

3. ECCC Question 3 – *ECCC requests that the Proponent discuss whether the oil and grease concentrations are compromised of kitchen grease only, and identify potential mitigation measures to address these concentrations.*

a. Any oil and grease source at Alert would only enter the waste water system from the kitchen. The kitchen waste water systems are equipped with grease traps that are maintained on a regular basis.

b. The station also employs an enzyme treatment that assists in the mitigation of any residual oil and grease that is not caught by the grease traps.

4. ECCC Question 4 – *ECCC requests that the Proponent provide flow volumes to be treated, including source (i.e. sewage, kitchen, circulation water) qualities and quantities.*

a. The 2016 monthly flow rates are shown in Table 1 (attached). The station does not separately meter water usage for sewage or kitchen usage. The average daily usage for grey water, black water, laundry, personal consumption and kitchen usage is 60 m^3.

5. ECCC Question 5 – *ECCC requests that the proponent provide a water balance showing flow paths for site water. Specifically, please identify whether the wastewater is still dilute (as it appears the bleeder water is now returning to source) and whether mechanical treatment would be possible.*

a. We were unsure if ECCC requires a graphical representation showing the flow of water throughout the station or if the flow data in Table 1 is sufficient. Bleeding water in order to prevent freezing of pipes was discontinued in 2013. For the most part, we utilize heat trace and better insulation in an effort to reduce freezing of water lines.

b. We are currently conducting a study to add to our waste water treatment system. Mechanical treatment is one of the options being studied.

6. ECCC Question 6 – *Keeping in mind the pollution prevention provisions of the Fisheries Act ECCC requests that the Proponent identify what additional steps could be taken to improve the current treatment system.*

a. We take great care in operating waste water treatment systems in the high arctic. We are always trying to improve all operating systems and are currently studying options that will make waste water treatment system more efficient.

In summary, since taking custodianship of CFS Alert two years ago, we have renewed our focus on water and waste water systems at the station. Please contact me at 613-995-7169 or Major Tom Gardner at 613-995-9714 should you have any questions.

Regards,

Lieutenant-Colonel P. Glaicar
Chief of Staff Real Property Operations Group - North
Assistant Deputy Minister - Infrastructure and Environment

Attached: Table 1 – 2016 Water Flow Data CFS Alert.

Table 1 – 2016 Water Flow Data Flow CFS Alert

2016	From Monthly Reports Supply From Lake to Water Treatment Plant (m3)	From Monthly Reports Return From WTP to Lake (m3)	Calculation Net Supply - Return (m3)	From Monthly Reports Distribution From WTP to Station (m3)	From Monthly Reports Return From Station to WTP (m3)	Calculation Usage by Station (m3)	Readings Polaris Cooling	Calculation Used by Station Other than Cooling	Estimate Used by WTP Backwash filters, sampling outlets, internal WTP use, fire and water truck fills.
Jan	8055	4106	3949	13153	10832	2321			
Feb	7309	3873	3436	13785	11163	2622	Readings taken in 2015 after air coolers installed.		Estimate Only. This is not captured by meters.
Mar	7701	4166	3535	13387	11277	2110			
Apr	7722	3914	3808	14823	12710	2113			
May	7579	3928	3651	20874	18616	2258			
Jun	7610	3948	3662	19868	17584	2284			
Jul	7995	3975	4020	20367	18073	2294			
Aug	7317	3968	3349	18538	15531	3007			
Sep	8082	3888	4194	17203	14400	2803			
Oct	7503	4366	3137	17740	15172	2568			
Nov	7271	4277	2994	17337	14942	2395			
Dec	7415	4298	3117	17714	15290	2424			
	91559	48707	42852	204789	175590	29199			
Daily Average (m3)	251	133	117	561	481	80	20	60	9