Water Resources
Nunavut Regional Office
P.O. Box 100
Iqaluit, NU, X0A 0H0

INAC reference
CIDM# 1227672

NWB reference
#1BR-KEI1722

October 3, 2018

Richard Dywer
Manager of Licencing
Nunavut Water Board
Gjoa Haven, NU, X0E 1J0

Re: Crown-Indigenous Relations and Northern Affairs Canada – Water Resources Division Technical Review of Type 'B' Licence for CAM-E Keith Bay Remediation Project 1BR-KEI1722 - Contaminated Sites Division with Crown-Indigenous Relations and Northern Affairs Canada

Dear Mr. Dwyer,

Thank you for the email received on August 10, 2018 from the Nunavut Water Board concerning the above mentioned water licence. A technical memorandum is provided for the Nunavut Water Board's consideration. Comments have been provided pursuant to the Department's mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Indian Affairs and Northern Development Act*.

Please do not hesitate to contact me by telephone at 867-975-4568 or email at Lisa.Bachellier@Canada.ca for further comments or any questions.

Sincerely,

Lisa Bachellier
Water Resource Technician

c.c.: Ian Parsons, A/Manager, Water Resources, CIRNAC, NRO
Justin Hack, Manager of Field Operations, CIRNAC, NRO

Technical Memorandum

Re: Crown-Indigenous Relations and Northern Affairs Canada – Water Resources Division Technical Review of Type 'B' Licence for CAM-E Keith Bay Remediation Project 1BR-KEI1722 - Contaminated Sites Division with Crown-Indigenous Relations and Northern Affairs Canada

Applicant:	Crown-Indigenous Relations and Northern Affairs Canada-Contaminated Sites Division
Project:	CAM-E Keith Bay Remediation Project
Region:	Kitikmeot Region

A. BACKGROUND

On August 10, 2018 the Nunavut Water Board (NWB or Board) provided notification to interested parties that Crown-Indigenous Relations and Northern Affairs Canada-Contaminated Sites Division – (Licensee) had submitted a Type 'B' water licence application 1BR-KEI1722 for the CAM-E Keith Bay Remediation Project.

The Keith Bay (CAM-E) site is a former Distant Early Warning (DEW) line facility located approximately 75 km east of Kuggaruk in the Kitikmeot Region of Nunavut. The DEW line facility was constructed in 1957 by the Department of National Defense and operated until 1963.The site was transferred to Indigenous and Northern Affairs Canada in 1965 and an environmental site assessment was completed, including a Remedial Action Plan, Archeological Assessment Report, and an Environmental Impact Assessment Report on 1994/95, 2011/12 and 2012/13 respectively.

The Canadian Council of Ministers of the Environment (CCME) & the National Classification System of Contaminated Sites (NCSCS) has identified the CAM-E Keith Bay site a Class I or high priority site for clean-up.

B. RESULTS OF REVIEW

On behalf of Crown-Indigenous Relations and Northern Affairs Canada – Water Resources Division, the following comments and recommendations are provided for the Board's consideration.

1. Total Water Use

Reference:

Preliminary Environmental Screening of the Remediation of the Former CAM-E Dew-line Site- Keith Bay Nunavut –Final March 31, 2014
CAM-E Remedial Action Plan
Water Use Licence Application CAM-E Keith Bay Remediation Project Dated July 13, 2016
Exploration/ Remote Camp supplementary questionnaire

Comment:

i) Section 2.61 of The Remedial action plan -Portable Water

An estimated volume of 120 L per person per day will be required for potable water. This equates to approximately 1,560 L per day (1.6 m^3) for each of the two temporary winter camps (13 people per camp) and 3,600 L per day (3.6 m^3) for the summer camps (30 people). The total volume of potable water over the Project (maximum of 420 days, excluding post-closure monitoring) is estimated at 1,472 m^3, inclusive of 1,341 m^3 from the on-site Freshwater Lake and 131 m^3 along the winter access trail route.

ii) Section 2.6.2 of the Remedial Action Plan - Dust Suppression

Water used for dust suppression will also be obtained from the Freshwater Lake. Water will be obtained in the same way as the potable water, but will be sprayed across on-site roads, the airstrip, and other facilities using the water truck equipped with a spray bar. An estimated total of 604,800 L (605 m^3) of water will be withdrawn from the Freshwater Lake for the purposes of dust suppression over the Project. This equates to approximately 1,800 L (1.8 m^3) of water per day during remedial work on-site (336 days). Water will likely be withdrawn weekly for dust suppression, depending on weather and dust conditions.

iii) Section 2.6.3 of the Remedial Action Plan - Equipment/Drum Cleaning

Water will also be used for cleaning/rinsing of on-site equipment and drums. Water from the Freshwater Lake will be obtained in the same way as the potable water, being pumped and transferred into clean water tanks. An estimated 118,000 L (approximately

20 L per drum, by 5,900 drums; or 118 m³) of water will be required over the Project for the equipment/drum cleaning activities.

iv) Section 13 of the Water Licence Application: Quantity and Quality of Water Involved.

In Section 13 of the Water Licence application the applicant has estimated the following for quantities of water
Provide the overall estimated quantity of water to be used:13m³/day
Provide the estimated quantity(s) of water to be used from each source: Quantity to be abstracted from the lake will be approximately is 13 m³/day
Indicate the estimated quantities to be used for each purpose (camp, drilling, etc.)
Water for camp use. ~ 4.56 m³/day; Water for construction ~ 8.44 m³/day

v) Question # 7 from the Exploration/Remote Camp Supplementary Questionnaire

What is the design, maximum and expected average population of the camp?
The camp will be occupied by an average population of 38 people for a maximum of 75 days each year.

Recommendation:

CIRNAC calculates the total volume of potable water to be used per year over the Project (maximum of 420 days man days, excluding post-closure monitoring) to be estimated at 1,472 m³/year, inclusive of 1,341 m³ from the on-site Freshwater Lake and 131 m³ along the winter access trail route.
The licensee also states that water will also be used for cleaning/rinsing of on-site equipment and drums. Water from the Freshwater Lake will be obtained in the same way as the potable water, being pumped and transferred into clean water tanks. An estimated 118,000 L (approximately 20 L per drum, by 5,900 drums; or 118 m³) and as well as an estimated total of 604,800 L (605 m³) of water will be withdrawn from the Freshwater Lake for the purposes of dust suppression over the Project.

The estimated amount of water used for the remediation of the project exceeds the quantity of water being asked for in water licence application.

CIRNAC water resource division requests clarification on the total amount of water to be used per year for the project.

2. Spill Contingency Plan

Reference

CAM-E Keith Bay Intermediate Distant Early Warning (DEW) Line Site, Nunavut
Dated March 2016

Comment:

i) Types and Quantities of Materials that will be stored on-site.

Recommendation

CIRNAC – Water Resources Division recommends that all fuel and Hazardous materials should be stored in secondary containment to prevent spills and leaks.

Reference

CAM-E Environmental Impact Assessment

Reference: Preliminary Environmental Screening of the Remediation of the former CAM-E DEW Line Site, Keith Bay, Nunavut Final- Stantec dated March 31, 2014

Comment: Culvert installation

i) Section 4.1.3 Hydrology
The unnamed drainage channel will be repaired during the Project and a culvert installed. The drainage channel was dry at the time of the July 2013 field survey.

ii) Section 5.6.2.4 Water Quantity
The Project will largely occur outside of permanent waterbodies, and new disturbances will be limited. Where culvert installation is required, proper sizing of the culvert and the expected ephemeral nature of the crossing will reduce potential impact to water quantity, water quality, and subsequently any downstream fish and fish habitat

iii) 5.2 Construction
Table 5-2 Project Activity
Culvert installation

iv) Section 1.2 Summary of the Project activities
Site maintenance activities including backfilling of excavations, grading of existing on-site roads and the airstrip, and installation and removal of a culvert under the access road between the two areas of the Site.

v) Section 2.3.2 Existing site access roads Area 1 and 2.
Prior to use, a culvert will be installed on the main access road approximately 0.8 km north of Area 2.

vi) Section 2.3.21 Culvert installation
One culvert installation will be required to facilitate Project activities. An ephemeral drainage channel has washed out a portion of the road between Areas 1 and 2 (situated approximately 0. 8 km north of Area 2) and a culvert will be required to repair this section of the road

Recommendation:

CIRNAC water resource division recommends that design reports for the culvert installation and maps of where the culverts will be installed, as well as how many culverts will be installed for the remediation project be submitted to the board for review and approval.

3. CAM-E Keith Bay Environmental Impact Assessment

Reference: Preliminary Environmental Screening of the Remediation of the former CAM-E DEW line site, Keith Bay, Nunavut Final- Stantec Report Date March, 31 2014

Comment:

i) 3.2.5 Winter Access Trail

A temporary winter access trail will be required to mobilize equipment to the Site. Heavy equipment will be mobilized using a cat train. At the date of this document, the alignment of the temporary winter access trail has not been finalized, nor has the departure community been selected (options include Repulse Bay, Taloyoak, and Hall Beach; see Section 2.3.1). This document will be updated, as necessary, upon selection of the winter access trail route.

Recommendation:

CIRNAC recommends that all proper authorizations and permits be received before issuance of the water licence (i.e. right of way authorizations, CIRNAC land use permits etc.).
As well, CIRNAC recommends that the Spill Contingency Plan be updated to include the winter trail and provisions for spill containment and clean-up.

A spill response kit should be included with any vehicles or machinery proposed to operate along the winter trail and each vehicle or machine should also be equipped with 'drip pans' for any prolonged parking to minimize spills.

CIRNAC also recommends that if any water is to be drawn for the purposes of winter trail construction (i.e. re-surfacing), that the Proponent provides source locations in latitude and longitude (i.e. degrees, minutes and seconds) and quantities used in cubic meters and also include the water amount used to be added to the amount of water used in the water licence application and to be added (m^3) to be included in the annual report submission.

Prepared by Lisa Bachellier