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January 4, 2013

Ms. Phyllis Beaulieu
Manager of Licensing
Nunavut Water Board
P.O. Box 119
GJOA HAVEN, NU X0E 1J0

Our reference:
IQALUIT-#619549

Your reference:
1BR-HLR----

Sent via email

**Re: Hope Lake Remediation Project – Aboriginal Affairs and Northern
Development Canada, Contaminated Sites Program – Application for a New
Type B Water Licence**

Dear Ms. Beaulieu,

Thank you for your December 4, 2012 request for written representations on the above referenced water licence application.

A Technical Review Memorandum is provided for the Nunavut Water Board's consideration. Comments/ recommendations 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 867-975-4555 or email at David.Abernethy@aandc-aadnc.gc.ca to discuss this submission.

Regards,

David Abernethy
A/Manager of Water Resources

Encl.

c.c.: Murray Ball, A/Director of Resource Management

TECHNICAL REVIEW MEMORANDUM

TO	Phyllis Beaulieu Manager of Licensing Nunavut Water Board	OUR REFERENCE: File #9545-2-3.1BR.HLRA IQALUIT-#619549
FROM	David Abernethy A/Manager of Water Resources Aboriginal Affairs and Northern Development Canada Nunavut Regional Office	YOUR REFERENCE: 1BR-HLR---- DATE: January 4, 2013
SUBJECT	Hope Lake Remediation Project – Aboriginal Affairs and Northern Development Canada, Contaminated Sites Program – Application for a New Type B Water Licence	

A. PROJECT DESCRIPTION

Aboriginal Affairs and Northern Development Canada's Contaminated Sites Program (AANDC-CSP) are applying for a new Type B water licence to satisfy the requirements of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and corresponding regulations when carrying out their Hope Lake Remediation Project. This project consists of three former mineral exploration sites located approximately 75 km south of the Hamlet of Kugluktuk: Hope Lake, Willow Creek, and Husky Creek. Hope Lake is the largest site. It should be noted that Willow Creek includes three separate sites and Husky Creek includes two separate sites. Site infrastructure includes an unmaintained airstrip, abandoned exploration camps and equipment, drum caches, and fuel tanks (mostly empty). In addition to a water licence, AANDC-CSP are applying for a Crown Land Use Permit (administered by the AANDC Land Administration Division) and an Access to Inuit Owned Land Permit from Kitikmeot Inuit Association.

Remedial activities will be based out of a temporary camp situated north of the Hope Lake airstrip. Equipment and camp facilities will be transported to Hope Lake by CAT-Train in March/ April 2013 and remedial activities will be completed during the summer of 2013. The temporary camp will be subsequently closed and staged for demobilization to Kugluktuk along with other materials and equipment by CAT-Train in March/ April 2014. Final demobilization from Kugluktuk will be by barge in the summer/ fall of 2014. As stated in Item 5, Appendix 2 of the submitted application, "the purpose of the Hope Lake Remediation Project is to eliminate/ reduce the hazards (human health and environmental) associated with the sites. The hazards at the site include heavy metals, asbestos, petroleum hydrocarbons, and physical hazards associated with site

infrastructure and debris. All waste materials will be consolidated, packaged, transported off-site, and disposed of at licensed facilities. A borrow area at the Hope Lake site will be exploited to provide sufficient aggregate material for the backfilling of excavations and repairs to the site's airstrip.

Aboriginal Affairs and Northern Development Canada's Contaminated Sites Program have requested a 10.0 m³ daily freshwater consumption limit. Water will be sourced from a small lake north of the camp area or from Hope Lake. Of this amount, 4.8 m³ of water will be used for domestic purposes (32 person camp, 150 L per capita per day) and 5.2 m³ will be used for miscellaneous activities (i.e., barrel and equipment washing). It should be noted that a sewage lagoon will be used to treat sewage and grey water. The aqueous liquid wastes from drums will be treated and disposed on-site.

Based on the submitted Remedial Action Plan a site specific remediation criterion of 2,500 mg/kg for total petroleum hydrocarbons is proposed for hydrocarbon impacted soils. Criteria for metal impacted soils have been derived (as per conversation with Mr. Mark Yetman, AANDC-CSP Project Officer) but have not been presented in the submitted application. Rather, they are presented in the project's Phase III Environmental Site Assessment (not included in the submitted application).

B. RESULTS OF REVIEW

On behalf of Aboriginal Affairs and Northern Development Canada (AANDC), the following comments/ recommendations are submitted for the Board's consideration,

1. Effluent quality limits

As a minimum, the effluent quality limits identified in comparable licensed undertakings (e.g., 1BR-PEE116) should be applied for treated sewage and gray water and effluent released from the wastewater treatment facility used to treat aqueous liquid wastes from drums.

2. Wastewater Treatment Operations and Maintenance Plan

AANDC-CSP should submit a Wastewater Treatment Operations and Maintenance Plan at least 30 days before the installation of a wastewater treatment facility and sewage lagoon. As a minimum, this plan should include the following information:

- a. The design specifications of the selected wastewater treatment facility;
- b. Operation and maintenance procedures for the facility;
- c. Water quality monitoring program;
- d. Licensed discharge criteria; and,

- e. Erosion control measures applied when discharging treated effluent.

3. Construction monitoring report

AANDC-CSP should submit a Construction Monitoring Report that details how they will assess whether or not project remediation objectives have been satisfied. This program should include an evaluation of any groundwater quality monitoring stations, soil analysis, and a general investigation of the project area.

4. Metal Impacted Soils

AANDC-CSP should submit a memo summarizing the criteria that will be used to delineate metal impacted soils requiring treatment and how they have been derived. Upon review of the project's Phase III Environmental Site Assessment, the Canadian Council of Minister's of Environment *Soil Quality Guidelines for the Protection of Environmental and Human Health* will be followed for arsenic, boron, cadmium, chromium, lead, nickel, tin, and zinc with the exception of copper and vanadium for which site specific remediation criteria are proposed (Cu: 580 mg/kg and V: 310 mg/kg). This memo should specify what land use criteria will be applied when following the CCME guidelines (i.e., specify whether the agricultural, residential/parkland, commercial, or industrial criteria will be applied).

Prepared by David Abernethy