



Water Resources Division
Nunavut Regional Office
Iqaluit, NU X0A 0H0

Your file - Votre référence
1BR-SHE1016

September 18, 2017

Our file - Notre référence
CIDM #1176224

Karén Kharatyan
Acting Manager of Licensing
Nunavut Water Board
Gjoa Haven, NU X0E 1J0

**Re: Indigenous and Northern Affairs Canada's (INAC) Review of Defence
Construction Canada's Renewal Application for Water Licence #1BR-
SHE1016 – Shepherd Bay Project**

Dear Mr. Kharatyan,

Thank you for the Nunavut Water Board's August 16, 2017 notice regarding the above mentioned application.

INAC's Water Resources Division reviewed the amendment application submitted and the results of our review are provided in the enclosed memorandum for the 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 at 867-975-3876 or Sarah.Forte@aandc-aadnc.gc.ca for any additional information.

Regards,

Sarah Forté
Water Management Coordinator

c.c.: Ian Parsons, Acting Manager of Water Resources, INAC Nunavut Regional
Office (NRO)
Erik Allain, Manager of Field Operations, INAC, NRO

Canada 

Technical Review Memorandum

Re: Indigenous and Northern Affairs Canada's (INAC) Review of Defence Construction Canada's Renewal Application for Water Licence 1BR-SHE1016 – Shepherd Bay Project

Prepared by: Amanda Bélanger, Water Resources Analyst, INAC
Sarah Forté, Water Management Specialist, INAC

Applicant: Defence Construction Canada

Project: Shepherd Bay Project

Region: Kitikmeot Region

A. BACKGROUND INFORMATION

On August 16, 2017 the Nunavut Water Board provided notification to interested parties that Defence Construction Canada (the Licensee) had submitted a renewal application for their Type 'B' water licence #1BR-SHE1016.

The existing licence is for water use and disposal of waste associated with post-construction monitoring of the seven landfills at the former CAM-3 Shepherd Bay Distant Early Warning (DEW) Line site located, 60 km southeast of Taloyoak, Nunavut. Remediation activities, including the remediation of existing landfills and construction of additional landfill facilities, were completed at the site in 2007 under the initial water licence NWB5SHE0510. Post closure monitoring for the seven landfills began in the subsequent year, and under the renewed licence #1BR-SHE1016.

The Landfill Monitoring Program is currently in Phase II, with planned monitoring events under this application occurring 15 and 25 years after the initiation of monitoring (in 2022 and 2032, respectively). In February of 2017, the licensee modified their monitoring program to no longer include mercury analysis from soil and groundwater monitoring or polychlorinated biphenyl (PCB) analysis from groundwater monitoring after the 2013 report reviewing Phase I of the Landfill Monitoring Program deemed neither mercury or PCBs as useful indicators of potential landfill failure due to the very few concentrations found in collected samples.

The application is not seeking any amendments to the existing licence. Interested parties were requested to review the renewal application and provide comments by September 16, 2017.

B. RESULTS OF REVIEW

1. Geotechnical monitoring of Tier II Soil Disposal Facility and USAF Landfill

References:

- Long-term landfill monitoring at the CAM-3 former DEW line site, Arcadis Canada Inc., March 30, 2017.
- Water Use Licence Renewal, CAM-3 Shepherd Bay Landfill Monitoring Program, Defense Construction Canada, January 2016.

Comment: The August 2016 site monitoring visit is reported on in the March 2017 document which includes conclusions and recommendations for each of the seven landfills inspected.

For two of the landfills, more frequent inspections are recommended. Specifically, section 6.5 report on the Tier II Soil Disposal Facility states: *“The current monitoring schedule calls for the next monitoring event to be completed during Year 15 (2022). Given the large increase in the size of the erosion channel that occurred between monitoring events in 2014 and 2016, it is recommended that monitoring of this feature be conducted in advance of Year 15.”*

Section 8.5 of the report on the USAF Landfill states: *“The current monitoring schedule calls for the next monitoring event to be completed during Year 15 (2022). Given the large increase in the size of the erosion channel that occurred between monitoring events in 2014 and 2016, it is recommended that monitoring of this feature be conducted annually, as the potential exists for large changes to the feature over short periods of time.”*

The monitoring program proposed by Defense Construction Canada has two visits scheduled, on at Year 15 (2022) and the second at Year 25 (2032).

Recommendation: We recommend that the Licensee explain how they will address their Consultant’s recommendations regarding the geotechnical monitoring of Tier II Soil Disposal Facility and USAF Landfill if they do not plan on changing their monitoring schedule.

2. Soil sampling in areas of staining

References:

- Water Use Licence Renewal, CAM-3 Shepherd Bay Landfill Monitoring Program, Defense Construction Canada, January 2016.
- Abandoned Military Site Remediation Protocol, Indian and Northern Affairs Canada, December 2008
- Long-term landfill monitoring at the CAM-3 former DEW line site, Shepherd Bay, Nunavut, Arcadis Canada Inc., March 30, 2017.
- The collection of landfill monitoring data at the former CAM-3 distant early warning line site, Shepherd Bay, Nunavut, Biogénie, a division of EnGlobe Corp., April 2015.

Comment: Staining has been observed at the Station, Northeast and USAF Landfills in both 2014 and 2016. These stains are located at the toe of the landfill covers which typically indicate areas where leachate is seeping out.

The soil sampling program re-samples fixed locations upstream and downstream, as well as near piezometers during every visit. This is essential for forming time series of data that allow to follow the evolution of parameter concentrations. However, the sampling sites chosen do not correspond to where there is seepage from the landfill, and potentially higher contaminant concentrations in the soil. The Abandoned Military Site Remediation Protocol recommends sampling soil from areas with seepage and staining in section 7.3.4.

Recommendation: We recommend that the Licensee clarify why they are not sampling soil at areas where staining indicates seepage occurring from the landfills.

3. Contact Information in the Spill Contingency Plan

Comment: The Spill Contingency Plan contains either missing or incorrect information for INAC contacts. The primary contact at INAC should be the Manager of Field Operations.

There appears to be a typo for the position of INAC – Land Administration Manager, as it currently reads Land Administration Minister. The phone number for this contact is correct.

Recommendation: Section 3.2 of the Spill Contingency Plan should be modified to reflect the correct contact information as follows:

- Contact information for INAC's Manager of Field Operations should be added. The phone number is: 867-975-4295.
- The Licensee should correct the mistake in the Land Administration Manager title.

Section 5 of the Spill Contingency Plan should be modified to refer to the INAC Field Operations Manager instead of the Water Resources Manager

4. Spill Contingency Plan

Comment: The Spill Contingency Plan suggests that spill kits will be onsite in the event of an equipment leak, but it is not mentioned what will be included in these spill kits.

Recommendation: The Spill Contingency Plan should include a listing of the contents of the spill kits.

5. Term of Licence

Comment: The Licensee has requested that the renewed licence expire in August 2042.

Recommendation: The Department supports a water licence term that will bring the Licensee in line with the scheduling of monitoring events for Phase II of their Landfill Monitoring Program. Because there are only scheduled monitoring events up until 2032, the Department suggests that the license be issued a term ending after the following field season of their last scheduled monitoring event, in December 2033.