



Water Resources Division
Resource Management Directorate
Nunavut Regional Office
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Your file - Votre référence
1BR-LON1422
Our file - Notre référence
GCDocs# 97616052

September 23, 2021
Richard Dwyer
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0
E-mail: licensing@nwb-oen.ca

**Re: Crown-Indigenous Relations and Northern Affairs Canada's Review of the
Licence Amendment Application for FOX-2 Landfill Monitoring Project, Type B
Water Licence No. 1BR-LON1422**

Dear Mr. Dwyer,

Thank you for the August 24, 2021 invitation to review the referenced licence amendment application for FOX-2 Landfill Monitoring Project, submitted by the Department of National Defense (DND), for Type B Water Licence No. 1BR-LON1422.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) examined the application pursuant to its mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Crown-Indigenous Relations and Northern Affairs Act*. Please find CIRNAC comments and recommendations in the attached Technical Memorandum.

If there are any questions or concerns, please contact me at (867) 975-4282 or bridget.campbell@canada.ca or Vincent Okonkwo at (867) 975-4738 or vincent.okonkwo@canada.ca.

Sincerely,

Bridget Campbell,
Water Resources Coordinator



Technical Review Memorandum

Date: September 23, 2021

To: Richard Dwyer – Manager of Licensing, Nunavut Water Board

From: Bridget Campbell, Water Resources Coordinator, Water Resources Division,
CIRNAC

Subject: **Crown-Indigenous Relations and Northern Affairs Canada's Review of
the Licence Amendment Application for FOX-2 Landfill Monitoring
Project, Type B Water Licence No. 1BR-LON1422**

Region: ☐ Kitikmeot ☐ Kivalliq ☒ Qikiqtani

A. BACKGROUND

As described in the document Landfill Monitoring Program 2021 Updates (AECOM, 2013), the FOX-2 Longstaff Bluff Distant Early Warning (DEW) Line site is one of the DND DEW Line sites decommissioned for remediation and clean-up. The site is located on the western coast of Baffin Island, near the tip of the Baird Peninsula. The nearest community with charter aircraft and a full range of commercial and public services available is Hall Beach, 245 km to the west. The community of Clyde River is located approximately 250 km northeast.

The site was decommissioned in 1991 and remediation work was completed on site in 2011. DND, in cooperation with Nunavut Tunngavik Incorporated (NTI), developed a landfill monitoring plan to address post closure monitoring requirements for landfills at DEW Line Sites in Nunavut. Defence Construction Canada is managing the clean-up and monitoring on behalf of DND.

The following is a list of the landfills associated with the FOX-2 site:

- Airstrip West Landfill (completely excavated)
- Airstrip Landfill (completely excavated)
- Airstrip Camp Landfill Lobe A
- Hangar Non-Hazardous Waste Landfill (new)
- West Landfill Lobe E
- Tier II Disposal Facility (new)
- Upper Site Landfill Lobe A

The objective of the monitoring program is to collect information to assess the performance of the landfills at the former DEW Line sites. The program is based on visual monitoring, soil monitoring, groundwater monitoring, and thermal monitoring with a three phased approach. Phase I occurs annually during years 1, 2, 3, 4 and 5; Phase II occurs during years 7, 10, 15, and 25; Phase III will be based on the results from monitoring



during Phases I and II, and is anticipated to be based on a 10 year monitoring interval. 2021 is year 10, though due to Covid-19 travel restrictions, the year 10 sampling event has been instead scheduled for 2022.

The current licence allows for the use of 1 m³ of water per day by extraction from wells for monitoring events, and water for domestic use is to be flown in. The licence expires on March 16, 2022. This amendment has been requested to allow for a licence term of 20 years to 2042 to include some contingency past the planned 2036 in the event that a currently unforeseen requirement arises in the future for an additional monitoring event after August 2036. The amendment also requests the option to extract water in the volume of up to 1 m³ per day for unforeseen circumstances, including emergencies, from Water Supply Lake, or from one of the small unnamed surface water bodies near the airstrip and/or landfills.

CIRNAC provides the following comments and recommendations pertaining to the application package. A summary of the subjects of recommendations can be found in Table 1. Documents reviewed as part of this submission are provided in Table 2 of Section B, and Section C contains detailed technical review comments.

Table 1: Summary of Recommendations

Recommendation Number	Subject
R-01	Coordinates of Sample Sites
R-02	Number and Location of Spill Kits in Spill Contingency Plan
R-03	Upcoming Thermal Study



B. DOCUMENTS REVIEWED AND REFERENCED

The following table (Table 2) provides a list of the documents reviewed under the submission and reference during the review.

Table 2: Documents Reviewed and Referenced

Document Title	Author, File No., Rev., Date
Documents Submitted with Amendment Application	
Application for Water Licence Amendment	Department of National Defence, August 23, 2021
DND DEW Line Monitoring Modifications	Nunavut Water Board RE: Nunavut Water Board Response to Request for Modification of the Post-Construction Monitoring Programs for Water Licences for DND DEW Line Sites, December 12, 2019
Executive Summary	Defence Construction Canada, Received August 23, 2021
Landfill Monitoring Program	AECOM for Defence Construction Canada, Project No. 60290576, July 2013, Updated in 2021
Foley Island Map	Map NTS 037A
Preliminary Phase II Monitoring Summary Report	From "2018 FOX-2 Monitoring Report" (Golder, 2019), Updated August 20, 2021
Remote Camp Questionnaire	Department of National Defence, Received August 23, 2021
Spill Contingency Plan – FOX-2	Department of National Defence, September 1, 2021
Reference Documents	
Spill Contingency Plan	Department of National Defense, June 1, 2013



C. RESULTS OF REVIEW

1. Coordinates of Sample Sites

Comment:

In the Landfill Monitoring Program 2021 Updates (AECOM, 2021), coordinates for soil sample sites are listed as TBD, or to be determined, for Airstrip Camp Landfill Lobe A, and West Landfill. Coordinates for thermal sample sites are listed as TBD for Tier II Disposal Facility, and Upper Site Landfill. The general areas of sample sites are shown on the Site Figures in Appendix A. It is not clear why coordinates have not been provided.

Recommendation:

(R-01) CIRNAC recommends that DND:

- i. Provide rationale for why the coordinates listed as TBD were not provided; and
- ii. Ensure that the coordinates of the sample sites listed as TDB be provided in the next annual report.

2. Number and Location of Spill Kits in Spill Contingency Plan

Comment:

The Updated Spill Contingency Plan (Department of National Defence, September 1, 2021) in general is clear and robust, and includes more information than the previous version (Department of National Defense, June 1, 2013). It is not clear from the updated Spill Contingency Plan how many spill kits will be stored on site and where they will be stored. Having this information readily available would aid in a fast response to spills.

Recommendation:

(R-02) CIRNAC recommends that DND clarify how many spill kits will be stored on site and their storage locations.

3. Upcoming Thermal Study

Comment:

In the Preliminary Phase II Summary (Golder, 2019, Updated August 20, 2021), it is noted under the Notes heading that “Thermal performance should be evaluated in more detail in upcoming study” for Tier II and for Upper Site Lobe A. It is not clear whether this refers to the next monitoring event, or refers to another study. Details of a study were not provided in the amendment application package.

Recommendation:

(R-03) CIRNAC recommends that DND provide further details of planned studies.