



Your file – Votre référence
8BC-ERK1015

April 4, 2016

Our file – Notre référence
IQALUIT-# 1040970

Licensing Department
Nunavut Water Board
P.O. Box 119
GJOA HAVEN, NU, X0B 1J0

**Re: Technical Review of Water Licence Application – Canadian Forces Station Eureka–
Department of National Defence (8BC-ERK1015)**

To Whom It May Concern,

Thank you for the Nunavut Water Board's March 7, 2016 notice of the above mentioned water licence application. A memorandum is provided for the Nunavut Water Board's consideration. Comments and recommendations have been provided pursuant to Indigenous and Northern Affairs Canada'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 867-975-3877 or email at Amanda.Winegardner@aandc-aadnc.gc.ca for further information.

Sincerely,

Amanda Winegardner
Water Management Specialist
Water Resources Division
Resource Management Directorate
Indigenous and Northern Affairs Canada
P.O. Box 100
IQALUIT, NU, X0A 0H0

Encl.

Cc. Scott Burgess, A/Manager, Water Resources – INAC, Nunavut Regional Office (NRO)
Sarah Forté, Water Management Coordinator – INAC, NRO
Erik Allain, Manager, Field Operations – INAC, NRO

Memorandum

To: Licensing Department, Nunavut Water Board

From: Amanda Winegardner, Water Management Specialist, Water Resources Division, INAC

Date: April 4, 2016

Re: Technical Review of Type B Water Licence Renewal 8BC-ERK1015

Applicant: Department of National Defence – 1 Canadian Air Division

Project: Canadian Forces Station Eureka, Ellesmere Island

Region: Qikiqtani

Comments:

A. Background

On March 7, 2016, the Nunavut Water Board (NWB) invited interested parties to review the application submitted by the Department of National Defence (DND; the proponent) for a renewal of Type B water licence 8BC-ERK1015; in order to support the continued operation of Canadian Forces Station (CFS) Eureka on Ellesmere Island. This licence was previously known as 3BC-ERK1015 and is being reclassified by the NWB as the proponent's use of water is not for municipal purposes.

CFS Eureka consists of an airstrip, fuel storage area, living quarters for military personnel, a landfarm facility for contaminated soil, an equipment laydown area, a barrel storage area, an old waste battery farm, a solid waste management area and a two-cell sewage lagoon. In 2015, CFS Eureka was operational during the month of June and unoccupied during the remaining 11 months of the calendar year. The proponent anticipates a similar operational schedule for 2016.

The fuel storage/transfer area of the CFS Eureka airstrip is a registered federal contaminated site, and ongoing remediation work has been progressing under the site's Federal Contaminated Sites Action Plan. However, past inspection reports show that there have been incidents of non-compliance in the past at CFS Eureka, in relation to the sewage lagoon, fuel spills and waste/barrel disposal. Both the 2015 annual report prepared by the proponent as well as the proponent's renewal application include a compliance plan to address issues identified during previous inspections.

The proponent is applying to renew their Type B water licence for a five year term, in order to cover the deposition of waste into a two-cell sewage lagoon and solid waste to their landfill. Water to support operations at CFS Eureka is currently delivered by truck from the Eureka High Arctic Weather Station operated by Environment and Climate Change Canada (water licence-EUR1116), with usage estimated to be less than 100 m³ per day when the station is in active

operation. This type of water use is not included under the current use because CFS Eureka does not obtain water directly from a freshwater source.

B. Results of review

On behalf of Indigenous and Northern Affairs Canada (INAC)'s Water Resources Division, the following comments and recommendations are provided for consideration:

1. Licence term

Source:

- 1) 8BC-ERK1015-Application for Water Licence Renewal, Section 25: Proposed Term of Licence

Comment: The proponent has applied for a renewal on their current licence with a proposed term of five years.

Recommendation 1: INAC recommends that the term for this licence, if renewed, be five years in duration. A five-year licence term is preferable to a longer licence term as it should ensure the proponent's progress in terms of addressing compliance issues and contaminated site remediation is re-evaluated on a shorter term basis.

2. Sludge management

Source:

- 1) 3BC-ERK1015 Licence, Section III-D: Waste Disposal
- 2) 8BC-ERK1015 CFS Eureka OM Plan, Section 3: Sewage Lagoon O & M Plan

Comment: The proponent was required upon issuance of their current licence (3BC-ERK1015) to develop an Operation and Maintenance (O & M) Manual for CFS Eureka's wastewater treatment facilities, including a management plan for sewage sludge. The proponent has created (and had approved) an O & M Plan, however there is no content in the plan that refers to sludge management.

Recommendation 2: INAC recommends that the proponent revise their current O & M Manual to include actions related to sludge management.

3. Sewage lagoon effluent

Source:

- 1) 8BC-ERK1015 2015 Annual Report, Appendix A: Monitoring Program Station No. ERK-1
- 2) 3BC-ERK1015 Licence, Part D: Conditions Applying to Waste Disposal

Comment: The 2015 Annual Report for CFS Eureka shows that effluent from the sewage lagoon was sampled on June 27th, 2015, prior to the release of effluent from the lagoon as per Part J, Item 3 in the current licence. The analytical results from this sampling show that the concentrations from this grab sample were within the license conditions for all parameters except Total Suspended Solids, where an exceedance was reported. The licensee explained that this may have been due to water turbulence driven by sewage input or wind action. INAC notes that this is a possible explanation, but INAC also appreciates that the fine particle size of sewage combined with the short settling time available in the lagoon prior to closure of the site each year make it difficult to meet effluent quality parameters.

Recommendation 3: INAC recommends that the proponent modify their operating procedures in order to ensure that effluent discharge from the sewage lagoon meets criteria established in the licence conditions.

4. Abandonment and Restoration Plan and monitoring results from the Landfill, Battery and Barrel Dumps

Source:

- 1) 3BC-ERK1015 AR Plan Eureka, Section 2.4.2.3: Emergency Response Plan
- 2) 3BC-ERK1015 2014 Annual Report, Appendix F: Analytical results for ERIK-3, ERK-4 and ERK-5

Comment: Section 2.4.2.3 of the proponent's current Abandonment and Restoration Plan states that,

“In the event that the monitoring program identifies contamination above CCME guidelines and/or background concentrations outside the boundaries of the two facilities, additional monitoring will take place to either confirm the initial finding, and/or determine the direction and rate of movement of the contamination. A risk assessment will be conducted at that time to determine the best course of action, which may include but is not limited to excavation, containment systems, or interception ditches.”

Runoff and leachate monitoring at ERK-3 (Landfill) in 2014 showed exceedance of Canadian Council of Ministers of the Environment (CCME) Water Quality Guidelines for the Protection of Aquatic Life for arsenic, copper, iron and lead (note that there were no samples from ERK-3 in 2015). Runoff and leachate monitoring at ERK-4 (Battery Dump) showed exceedance of CCME guidelines in 2014 for copper and iron as well as iron only in 2015. Runoff and leachate monitoring at ERK-5 (Barrel Dump) showed exceedance of copper, iron and lead in 2014. Additionally, the detection limits used in 2014 and 2015 to measure a suite of polycyclic aromatic hydrocarbons were not low enough to test for exceedance of CCME guidelines for that class of compounds.

Recommendation 4: INAC recommends that the proponent clarify action being taken to address these exceedances and to indicate why additional monitoring has not occurred as per the licensee's own Abandonment and Restoration Plan.

Recommendation 5: INAC recommends that the proponent ensure that detection limits appropriate for the assessment of polycyclic aromatic hydrocarbon levels in comparison to CCME guidelines are used (where tests at lower detection limits are possible).

5. As-built drawings for existing landfill facility

Source:

- 1) 3BC-ERK1015 Licence, Part D: Waste Disposal

Comment: The current licence requires that the licensee submit stamped as-built engineered drawings for the existing landfill facility. These have not been provided and the licensee has indicated that they will not submit these drawings as the facility precedes the current licence. This rationale is concerning as it does not provide assurance as to the landfill facility's design.

Recommendation 6: INAC recommends that the proponent provide further rationale as to why these drawings cannot be provided as per the current licence condition and provide an alternative method to show that the landfill facility is of sound design.

6. Water discharge from the Landfarm

Source:

- 1) 8BC-ERIK1015 CFS Eureka OM Plan, Section 7: Landfarm Management Plan
- 2) 8BC-ERIK1015 CFS Eureka OM Plan, Section 8: Monitoring Program
- 3) 3BC-ERK1015 Licence, Part D: Conditions Applying to Waste Disposal

Comment: The 'Landfarm Management Plan' in the licensee's current Operations and Management Plan reports that no water is to be discharged outside of the Landfarm. However, the licensee's Monitoring Program includes a monitoring station at the final discharge point from the Landfarm Facility. INAC also notes that the licensee is permitted under the current licence to discharge effluent from the Landfarm Facility as per the Effluent quality limits in the licence.

Recommendation 7: INAC recommends that the proponent revise their Operation and Maintenance Plan so that it is congruent with the terms of a renewed licence.

7. Missing information on renewal application

Source:

- 1) 8BC-ERK1015 Application for Water Licence Renewal, Box 15: Quantity and Quality of Waste Involved

Comment: INAC noted that the table for type and quantities of generated waste in part 15 of the application has been left blank. While the proponent has indicated that the type of quantities of wastes to be generated are the same as the existing licence, this table provides a useful overview of expected waste for reviewers of this application as well as those accessing this information via the public registry, and so should be updated annually.

8. Hazardous Material Management Plan

Source:

- 1) 8BC-ERK1015- CFS Eureka OM Plan Appendix C- CFS Alert HazMat Mgt Plan

Comment: The hazardous material management plan provided by the licensee is for CFS Alert as opposed to CFS Eureka. While INAC recognizes that the majority of the plan content for these two sites may be the same, specific waste disposal sites do differ between CFS Alert and Eureka, e.g. ‘Millionaire’s dump’ is listed as a disposal location at CFS Eureka (32.g and i), when this dump facility is actually located at CFS Alert. Improper waste disposal location names could become a further hazard in an emergency situation.

Recommendation 8: INAC recommends that the proponent revise the management plan for hazardous materials so that it contains the proper site-specific information regarding waste disposal locations and procedures for CFS Eureka.

9. Spill reporting procedures in the Hazardous Material Management Plan and Spill Contingency Plan

Source:

- 1) 8BC-ERK1015- CFS Eureka OM Plan Appendix C- CFS Alert HazMat Mgt Plan
- 2) 8BC-ERK1015- CFS Eureka OM Plan Appendix D- Spill Contingency Plan CFS Eureka, Section 5.1.6: Reporting Action

Comment: The Spill Contingency Plan (SCP) specifies that the Senior Officer at CFS Eureka will complete a Eureka Spill Report in the event of a spill and then submit this report to 8 Wing Trenton Environmental Management. The SCP further specifies that 8 Wing Trenton Environmental Management will then report the spill to the Nunavut Spill Line. This reporting procedure is only laid out in the SCP and not in the Hazardous Material Management Plan.

Recommendation 9: INAC recommends that the proponent update their Hazardous Material Management Plan so that it contains the spill reporting information included in the SCP. Name and contact information for the Senior Officer should also be updated annually in the SCP and Hazardous Material Management Plan. This would ensure that the two documents can function as stand-alone plans.

10. Current contact information

Source:

- 1) 8BC-ERK1015 Application for Water Licence Renewal, Box 1: Licensee Contact Information
- 2) 8BC-ERK1015- CFS Eureka OM Plan Appendix D- Spill Contingency Plan CFS Eureka, Section 1.1: Licensee Information

Comment: The application for water licence renewal notes a change in licensee name and address from the existing licence. This new licensee name and address is not noted in the Spill Contingency Plan.

Recommendation 10: INAC recommends that the proponent update the licensee name and contact information for all personnel in the Spill Contingency Plan.