WATER LICENCE INSPECTION FORM

☒ Original
☐ Follow-Up Report

Licensee	Licensee Representative
Environment and Climate Change Canada	Jean-Phillipe-Cloutier-Dussault
Licence No. / Expiry	**Representative's Title**
8BC-EUR2131	Director
Land / Other Authorizations	**Land / Other Authorizations**
Date of Inspection	**Inspector**
July 5, 2022	Joseph Monteith

Activities Inspected

☒ Camp ☐ Drilling ☐ Mining ☐ Construction ☒ Reclamation ☒ Fuel Storage
☐ Roads/Hauling ☐ Other: Water Storage ☐ Other: Waste Disposal

Conditions: **A- Acceptable** **U-Unacceptable** **C-Concern** **NI-Not Inspected** **NA- Not applicable**

PART:	Condition	Observation No.*
A: SCOPE, DEFINITIONS AND ENFORCEMENT	A	
B: GENERAL CONDITIONS	A	
C: CONDITIONS APPLYING TO SECURITY	NI	
D: CONDITIONS APPLYING TO WATER USE	A	1-4
E: CONDITIONS APPLYING TO WASTE DISPOSAL AND MANAGEMENT	A	5-15
F: CONDITIONS APPLYING TO MODIFICATIONS	A	
G: CONDITIONS APPLYING TO CONSTRUCTION	A	
H: CONDITIONS APPLYING TO EMERGENCY RESPONSE AND CONTINGENCY PLANNING	A	16-17
I: CONDITIONS APPLYING TO ABANDONMENT, RECLAMATION AND CLOSURE PLANNING	A	
J: CONDITIONS APPLYING TO MONITORING	NI	8,11
SCHEDULES	A	

**The item number corresponds with specific conditions within the licence and the observation number corresponds with specific comments provided below.*

Samples taken by Inspector:
☐ Yes ☒ No

Location(s):
- N79°59'47.23", W85°50'43.59" Airstrip
- N79°59'20.24",W79°59'20.24" Camp

Background

BACKGROUND

The Eureka High Arctic Weather Station (HAWS) was established in 1947. The Eureka HAWS is located on the northern shore of Slidre Fiord, at the northwestern tip of Fosheim Peninsula, Ellesmere Island, approximately 425 km northwest of the Hamlet of Grise Fiord.

The Eureka HAWS is sited on crown land. The Station is operated by Environment and Climate Change Canada (ECCC) since April 7th 1947. The primary purpose of the Eureka station is to collect weather information in order to produce public weather forecasts. The station also serves as a staging location for other science based activities in the High Arctic and provides support to the Arctic aviation community. Facilities at Eureka include operations, shops, accommodations and other buildings, maintenance garage, warehouses, pump-house, power-house, fuel storage facility, electrical plumbing-carpentry facilities, water reservoir, incinerator, and sewage lagoon.

ECCC is authorized to withdrawal 10,000m^3 per annum at a maximum rate of 299m^3 metres per day.

On July 22, 2021 the NWB issued 8BC-EUR2131 to Environment and Climate Change Canada to allow for the use of water and the deposit of waste during operations and maintenance, and runway surface repair at the ECCC Eureka High Arctic Weather Stations (HAWS), located on Ellesemere Island within the Qiqiktani region, Nunavut.

On July 13, 2022, the Nunavut Water Board authorized an amendment with Terms and Conditions, allowing ECCC, to add activities in support of the HAWS Project:

- The Licensee provided engineering drawings for the planned new raw water storage reservoir. The work is scheduled to be completed in August 2024.
- ECCC intends to install and operate a wastewater treatment plant to be commissioned in 2023. In its Application, ECCC stated: "The new wastewater treatment plant will be sealifted to site and consists of four (4), 6m long high-cube shipping containers with peak hour flow capacity of 28m3/day." Subsequently, the existing sewage lagoon will be converted to a wastewater retention pond.
- In addition, the Applicant requested the Board's approval to construct a greywater exfiltration trench. The trench is to treat 5 m3 daily of greywater from the construction camp.

Inspector Statement

On July 5, 2022 at 10:35am, a Water Licence Inspection was conducted by Water Resource Officer (WRO) Joseph Monteith at Eureka, Ellesmere Island, Qikiqtani Region, Nunavut, for water licence 8BC-EUR2126.

Water Supply Facilities

1. Eureka obtains its water for domestic purposes from a bridge at Station Creek (photo 1). The water is pumped from Station Creek (photo 1) into the water reservoir (photo 3& 5) using a submersible pump in a milk crate with holes(photo 2) in order to reduce the transfer of silt, and potentially fish from the creek to the reservoir. The raw water is then pumped from a pump house at the water reservoir (photo 3) to holding tanks within the Eureka complex building, treated by filtration and Reverse Osmosis and chlorination prior to use for drinking and food preparation. It is estimated that the reservoir holds approximately 12,000 cubic metres of water. An amendment to the water license has been issued to increase its capacity. The work to expand the capacity was observed (photo 5,6,7)).
2. 2x water pumps observed on site. Fish Mesh Screen observed on the hose. The box with lots of holes was not observed to be hanging from the bridge. ECCC is using small milk crates and the intake hose was within the milk crate, with an acceptable sized fish meshed screen (photo 2).
3. Water usage Logs was observed in the pump house (photo 4).
4. Jean-Phillipe-Cloutier-Dussault, ECCC, emailed WRO Monteith a copy of Eureka ECCC's Water Consumption Records showing a total of 1739.9m^3 consumed between January 1, 2022, and October31, 2022.

Waste Water Facilities

5. A sump pitt building was observed (photo 8,9)_
6. The sewage lagoon onsite is a single cell, engineered retention lagoon, and can hold waste water from 21 people at a rate of 290 Litres per person, per day for the duration of the year(photos 10, 11, 12).
7. The freeboard appeared to be less than 1 metre (photo 7).
8. No signs of slumping and erosion observed on lagoon wall/road. Fresh gravel was laid along the inner side of the lagoon walls (photo 10,11,12).

Solid Waste Facilities

9. A solid waste facility was observed on site (photo 14).
10. Open Burning in an old cut out metal storage tank was observed (photo 14). No Signs of prohibited materials such as plastics, metals, and hazardous waste in the open burn bin(photo 13).
11. A drum washer and crusher was observed on site (photo 15).
12. A solid waste facility for capping solid waste was observed with a sign Eur-2. At the time of the inspection, fresh gravel was laid on top of site where waste was pushed off the side. Waste capped. (photo 17).
13. Incinerator (photo 16)
14. Inside the incinerator building (photo 17).
15. Inside the Incinerator. No signs of pr (photo 18).

Spill Reports

16. Spill Report 2021-396 (photo 19).
17. On Monday September 13, 2021 a spill report of 554.43m^3 for sewage discharge was submitted to the spills line. The spill was a result of a non compliant sample results from the sampling program at the Eureka ECCC Sewage Lagoon. If the sample result exceed the authorized amount for decanting. A submission of a spill report to the NT/NU Spills line is required as per the terms and conditions of the water license. A follow up detailed report was submitted. Consultation was sought in order to ensure that the sewage lagoon sample results would be compliant. Since this spill report was submitted no sample results has come up non-compliant. On January 20, 2020 a telephone conference was conducted with Eureka, ECCC Real Properties Management Division, on what is required to bring the site back into compliance. In the case for the 2021-396 spill, a submission to the NT/NU Spills Line, as the sewage lagoon had to be decanted due to autumn freezing, and the need to make more room for the winter season recharge. ECCC-Eureka is investing in over eleven million dollars to bring the site into compliance with their water license.

Section 1	☒ Comments	☐ Non-Compliance with Act or Licence	☐ Action Required

- During the expansion of the water reservoir it was observed that water was pumped out of the expansion site, and wet soil was laid down to form up the walls. I've added the action required to install silk fencing to mitigate the potential of sedimentation, since the activity is within the high water mark of the river.

SECTION 2	☐ Comments	☐ Non-Compliance with Act or Licence	☒ Action Required
Install silt fencing between the expansion of the water reservoir construction, and the river.			

Licensee or Representative	Inspector's Name
Jean-Phillipe-Cloutier-Dussault	Joseph Monteith
Signature	**Signature**
Date	**Date**
	December 5, 2022

CC: Licensing Department, NWB
Jeremy Fraser, Manager of Field Operations

PHOTO LOG

Date	Camera	Inspector	
July 5, 2022	Nikon Cool Pix	Joseph Monteith	
Photo Log #		**Location**	
Photo 1		Eureka, Ellesmere Island	

Description: Bridge at Creek stream. Water is withdrawn from within milk crates, covered with a fish mesh screen(photo 2) to reduce the intake of soil and fish into the pump, and as per regulation.

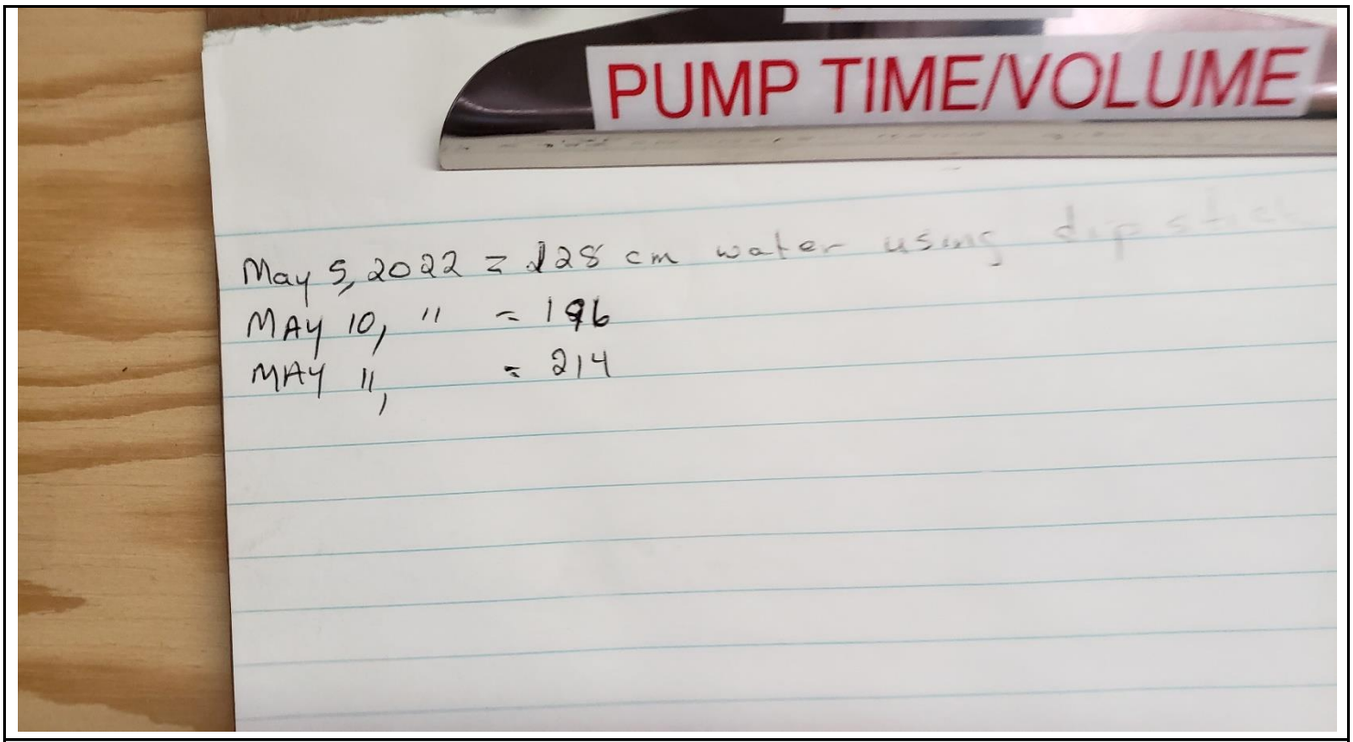
Photo Log #	Location
Photo 2	Eureka

Description: 2 x Water Pumps with Fish Mesh Screens

Photo Log #	Location
Photo 3	Eureka

Description: Water reservoir pump house

Photo Log #	Location
Photo 4	Eureka



Description: Water reservoir pump house. From reservoir to buildings. No sign of water meter. Water depth appears to be measure.

Photo Log #	Location
Photo 5	Eureka

Description: Water reservoir recharge location for 2022. Some parts of the reservoir was less than 1 metre freeboard. Water meters on pump.

Photo Log #	Location
Photo 6	Eureka

Description: At the time of the inspection, work was being done to expand the capacity of the water reservoir.

Photo Log #	Location
Photo 7	Eureka

Description: Wet loam observed. install silt fencing to mitigate the potential for sedimentation in the river. River at low mark in the top right background. Sedimentation observed along the base of the newly laid reservoir walls, within the high mark of the river. No direct observation of sedimentation into the river.

Photo Log #	Location
Photo 8	Eureka

Description: liquid waste, and solid was exit the accommodations, and office building into the sump tank building.

Photo Log #	Location
Photo 9	Eureka

Description: Sump tank, before being discharged to the sewage lagoon.

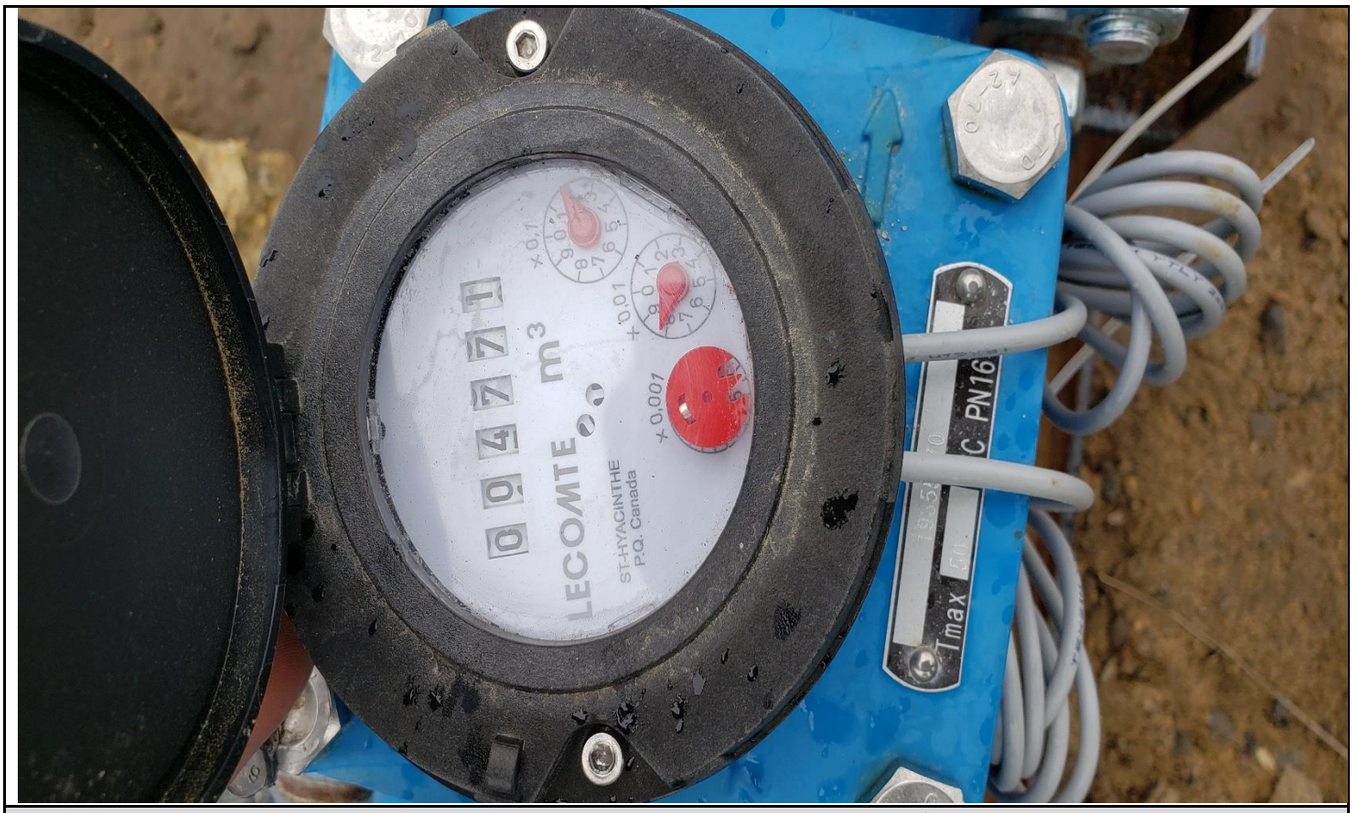
Photo Log #	Location
Photo 10	Eureka

Description: Eur-3 monitoring station. sewage lagoon fills up by pipe, and trucks.

Photo Log #	Location
Photo 11	Eureka

Description: Site where erosion and slumping on the walls of the sewage Lagoon/road was observed in 2019, was repaired. Eur-3 monitoring station observed.

Photo Log #	Location
Photo 12	Eureka



Description: Flow Meter observed on site for decanting sewage lagoon. Lecomte Meter says 4771m³.

Photo Log #	Location
Photo 13	Eureka

Description: Signs of Open Burning – Food waste. No signs of deposit of non-combustible material within open burning tank.

Photo Log #	Location
Photo 14	Eureka

Description: landfill, burn and cap. Solid waste is pushed off the left hand side of the sign, and capped with gravel. EUR-2 is observed as the monitoring station.

Photo Log #	Location
Photo 15	Eureka

Description: Drum washer and crusher. After washing a drum, it is suitable for burial underground.

Photo Log #	Location

Photo 16	Eureka

Description: Incinerator building. Photo submitted by ECCC.

Photo Log #	**Location**
Photo 17	Eureka

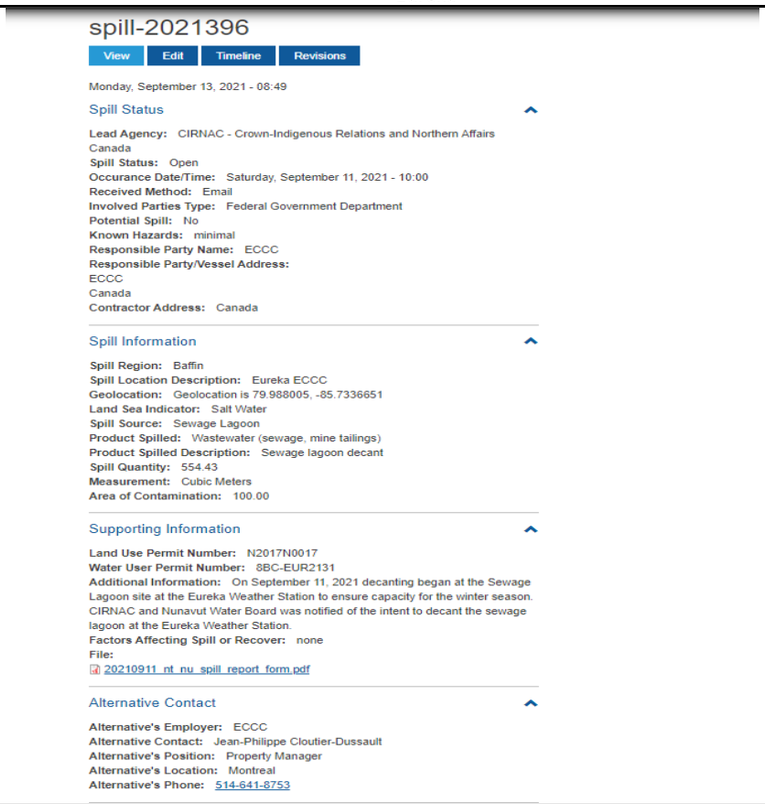
Description: Forced Air Incinerator on site. Photo submitted by ECCC. All waste ash appears to be contained within building.

Photo Log #	**Location**

Photo 18	Eureka

Description: Inside the incinerator. No concerns Photo submitted by ECCC

Photo Log #	**Location**
Photo 19	Eureka



spill-2021396

View | Edit | Timeline | Revisions

Monday, September 13, 2021 - 08:49

Spill Status

Lead Agency: CIRNAC - Crown-Indigenous Relations and Northern Affairs Canada
Spill Status: Open
Occurance Date/Time: Saturday, September 11, 2021 - 10:00
Received Method: Email
Involved Parties Type: Federal Government Department
Potential Spill: No
Known Hazards: minimal
Responsible Party Name: ECCC
Responsible Party/Vessel Address:
ECCC
Canada
Contractor Address: Canada

Spill Information

Spill Region: Baffin
Spill Location Description: Eureka ECCC
Geolocation: Geolocation is 79.988005, -85.7336651
Land Sea Indicator: Salt Water
Spill Source: Sewage Lagoon
Product Spilled: Wastewater (sewage, mine tailings)
Product Spilled Description: Sewage lagoon decant
Spill Quantity: 554.43
Measurement: Cubic Meters
Area of Contamination: 100.00

Supporting Information

Land Use Permit Number: N2017N0017
Water User Permit Number: 8BC-EUR2131
Additional Information: On September 11, 2021 decanting began at the Sewage Lagoon site at the Eureka Weather Station to ensure capacity for the winter season. CIRNAC and Nunavut Water Board was notified of the intent to decant the sewage lagoon at the Eureka Weather Station.
Factors Affecting Spill or Recover: none
File:
20210911_nt_nu_spill_report_form.pdf

Alternative Contact

Alternative's Employer: ECCC
Alternative Contact: Jean-Philippe Cloutier-Dussault
Alternative's Position: Property Manager
Alternative's Location: Montreal
Alternative's Phone: 514-641-8753

Description: Spill Report 2021-396. Waste Water Decant 554.43m^3 released to make room for ECCC's winter capture of sewage.