



Nunavut Regional Office  
PO Box 2200  
Iqaluit, NU  
X0A 0H0

March 31, 2019

Mr. Karén Kharatyan,  
Licensing Manager  
PO Box 119  
Gjoa Haven, NU  
X0B 1J0

Dear Mr. Kharatyan,

**RE: FOX-D, Kivitoo Remediation Project: 2018 Annual Report for Water Licence  
1BR-KIV1621**

Please find attached the 2018 annual report for the Water Licence 1BR-KIV1621 issued for the FOX-D, Kivitoo Remediation Project.

If you have any questions or comments please contact the Project Manager, Lilianne Kydd, at (867) 975-4733 or via e-mail at [Lilianne.Kydd@canada.ca](mailto:Lilianne.Kydd@canada.ca).

Sincerely,

Charlotte Lamontagne  
Director, Contaminated Sites

cc: Nunavut Impact Review Board (NIRB), Cambridge Bay, Nunavut

NWB Annual Report

Year being reported:

Select



2018

License No: 1BR-KIV1621

Issued Date: June 22, 2016

Expiry Date: June 23, 2021

Project Name:

FOX-D Kivitoo

Licensee:

Crown-Indigenous Relations and Northern Affairs Canada

Mailing Address:

10th Floor Eddy Street  
Gatineau, QC  
K1A 0H4

Name of Company filing Annual Report (if different from Name of Licensee please clarify relationship between the two entities, if applicable):

## General Background Information on the Project (\*optional):

FOX-D (Kivitoo) was an Intermediate Distant Early Warning (DEW) Line site constructed in 1957 and operated until 1963. The site is located on Davis Strait, approximately 50 km to the west of the nearest community, Qikiqtarjuaq, Nunavut.

Licence Requirements: the licensee must provide the following information in accordance with

Part B



Item 1



A summary report of water use and waste disposal activities, including, but not limited to: methods of obtaining water; sewage and greywater management; drill waste management; solid and hazardous waste management.

Water Source(s):

Freshwater Lake

Water Quantity:

10.0 per day

Quantity Allowable Domestic (cu.m)

339.1 in 103day

Actual Quantity Used Domestic (cu.m)

n/a

Quantity Allowable Drilling (cu.m)

n/a

Total Quantity Used Drilling (cu.m)

Waste Management and/or Disposal



Solid Waste Disposal



Sewage



Drill Waste



Greywater



Hazardous



Other:

Additional Details:

Monthly quantity of freshwater used:  
June 10.6 m<sup>3</sup>

July 134.0 m<sup>3</sup>  
 August 154.1 m<sup>3</sup>  
 September 40.4 m<sup>3</sup>

Solid Waste: Combustible waste was incinerated on-site. Non-combustible solid waste was packaged and transported off-site.

Sewage and Greywater : Disposal in sewage lagoon

Hazardous: Hazardous waste was packaged for transportation as per the Transportation of Dangerous Goods requirements to a licenced southern disposal facility.

Type B Petroleum Hydrocarbon Contaminated (PHC) soil: By the end of the 2018 field season, a total of 5,455 m<sup>3</sup> of Type B PHC soil was successfully treated in the soil treatment facility.

#### A list of unauthorized discharges and a summary of follow-up actions taken.

Spill No.:  (as reported to the Spill Hot-line)

Date of Spill:

Date of Notification to an Inspector:

Additional Details: (impacts to water, mitigation measures, short/long term monitoring, etc)

On July 12, 2018, a fuel spill occurred on the ground near the camp generator. The spill was immediately cleaned up and the affected soil was excavated and placed in soil containment bags for transport offsite. Confirmatory soil sampling was completed at the spill site to confirm the spill clean-up was complete.

On July 5, 2018, an unauthorized discharge of water occurred at the soil treatment facility. The Inspector was notified of the event. The discharge occurred when buildup of water underneath the landfarm liner caused the liner to rise, pushing water over the berms resulting in discharge from the facility. Water samples confirmed the water within the landfarm was below discharge criteria as per the FOX-D Water Licence (1BR-KIV1621) requirements.

#### Revisions to the Spill Contingency Plan

SCP addendum attached for Board consideration ▼

Additional Details:

Addendum to Spill Contingency Plan included.

#### Revisions to the Abandonment and Restoration Plan

AR addendum attached for Board consideration ▼

Additional Details:

Addendum to FOX-D Remedial Action Plan included.

**Progressive Reclamation Work Undertaken**

Additional Details (i.e., work completed and future works proposed)

The work completed at FOX-D in 2018 includes:

- Completion of surface debris removal
- Completion of buried debris and contaminated soil excavations
- Decommissioning of the soil treatment facility
- Completion of site reshaping
- Completion inspections
- Partial demobilization of waste, contaminated soil, and equipment via sealift

Partial demobilization from FOX-D occurred in 2018, with the final demobilization rescheduled to 2019 due to sealift schedule delays.

The work plan for 2019 includes:

- Final demobilization of all equipment and materials via sealift
- Transport and final disposal of all wastes to approved disposal facility
- Final reporting

**Results of the Monitoring Program including:**

**The GPS Co-ordinates (in degrees, minutes and seconds of latitude and longitude) of each location where sources of water are utilized;**

Details attached



Additional Details:

**The GPS Co-ordinates (in degrees, minutes and seconds of latitude and longitude) of each location where wastes associated with the licence are deposited;**

Details attached



Additional Details:

**Results of any additional sampling and/or analysis that was requested by an Inspector**

No additional sampling requested by an Inspector or the Board



Additional Details: (date of request, analysis of results, data attached, etc)

Any other details on water use or waste disposal requested by the Board by November 1 of the year being reported.

No additional sampling requested by an Inspector or the Board ▼

Additional Details: (Attached or provided below)

Any responses or follow-up actions on inspection/compliance reports

No inspection and/or compliance report issued by INAC ▼

Additional Details: (Dates of Report, Follow-up by the Licensee)

Any additional comments or information for the Board to consider

Please see attached Appendix A for further information on monitoring program reporting.

Date Submitted:

March 31, 2019

Submitted/Prepared by:

Lilianne Kydd

Contact Information:

Tel: 867-975-4733

Fax: 867-975-4560

email: Lilianne.Kydd@canada.ca

## GPS Coordinates for water sources utilized

[illegible]

### GPS Locations of areas of waste disposal

[illegible]

# Appendix A

FOX-D Water Licence 1BR-KIV1621

Monitoring Program Annual Reporting 2018 – Additional Information

**Date**  
December 13, 2018

Lilianne Kydd  
Project Manager, Contaminated Sites Program  
Crown-Indigenous Relations and Northern Affairs Canada  
969 Qimugjuk Building, 2<sup>nd</sup> Floor  
Iqaluit, Nunavut X0A 0H0

**Our Reference: 60509545 (505)**

Dear Ms. Kydd:

**RE: FOX-D 2018 Construction Season Annual Water License Sampling  
Water License No. 1BR-KIV1621**

As part of the annual water license requirements, AECOM Canada Ltd. (AECOM) and Englobe Corporation (Englobe) attempted to obtain samples from the installed monitoring wells around the Soil Treatment Area, and at other monitoring stations around the FOX-D site. This letter summarizes the results of the 2018 construction season water license sampling.

**KIV 5a, 5b, 5c, and 5d**

Four monitoring wells were installed surrounding the Soil Treatment Area at FOX-D between July 11 and July 15, 2017. These monitoring wells were installed to monitor any potential impacted shallow groundwater resulting from soil treatment activities. As per the water license, the monitoring wells were installed at these locations:

- KIV 5a East (upgradient)
- KIV 5b South (upgradient)
- KIV 5c West (down-gradient)
- KIV 5d North (down-gradient)

AECOM attempted to collect samples from the monitoring wells during both the 2017 and 2018 construction seasons. Photographs from the 2018 monitoring event are attached. However, due to the permafrost conditions within the subsurface of this area, the water within these monitoring wells froze at a level above the active layer base. The conductivity of the steel casing used to enclose these monitoring wells contributed to allowing the water within the well to freeze. AECOM measured groundwater levels in the monitoring wells using an interface meter on July 26 and August 19, 2018. Ice was encountered at



approximately 1 metre below ground surface in the wells and minimal free water was present. For the analysis listed under Part K of The License, the laboratory requires approximately 3 litres of water, of which 580 millilitres is required for the analysis of BTEX, F1-F4. Groundwater samples were therefore unable to be obtained due to the insufficient volume of water within the water column in the bailer.

#### **KIV-1, KIV-2, KIV-3a, KIV-3b, KIV-4**

Part K of The License lists additional monitoring stations and reporting requirements. The monitoring stations (not including the monitoring wells discussed above) are listed below:

- KIV-1: Raw water supply intake from fresh water lake.
  - Englobe was responsible for recording daily quantities utilized and will be reported in detail as part of the annual report.
- KIV-2: Final discharge point from Sewage Disposal Facility (sewage lagoon).
  - Prior to discharge, notice was given to an Inspector from the Nunavut Water Board to discharge from the sewage lagoons. Englobe collected samples of the Sewage Lagoon prior to discharge to confirm that the results were below criteria. Discharge was completed on July 17 and October 1, 2018.
- KIV-3a: Upper Site – Final discharge point for treated contaminated water stored in barrels, demolition rinse water, and site contact water.
  - There was no barrel processing being conducted at the Upper Site. Demolition rinse water or site contact water was not produced at the Upper Site in 2018. All barrels were transferred to the Lower Site to be processed and washed. All process water was collected in barrels for offsite disposal.
- KIV-3b: Lower Site – Final discharge point for treated contaminated water stored in barrels, demolition rinse water, and site contact water.
  - Barrel processing water was stored in barrels onsite. Samples were collected by Englobe and results indicated that the processing water was over the discharge criteria. Englobe determined there was no practical way to treat the processing water on-site; therefore offsite disposal was chosen. Approximately five to six barrels of water/demolition rinse water/site contact water were shipped offsite for disposal and no discharge occurred in 2018.
- KIV-4: Final discharge point from the hydrocarbon impacted soil treatment facility (Landfarm Facility).
  - There was two discharge events from the Soil Treatment Facility. Prior to both discharge events, the water license inspector was notified. The first one was conducted on July 7, 2018. Englobe conducted snow removal using an excavator in May 2018 to reduce the amount of freshet that would accumulate on top of the liner. A Site inspection was conducted at the end of June and numerous tears were identified in the liner. On July 4, 2018 it was discovered that portions of the liner in the west corner and along the southwest end of the facility had risen as a result of water buildup. On July 7, 2018 results from the water sample taken were below criteria and discharge took place that day. A memo was prepared and distributed on August 15, 2018 that fully details the event. The second discharge event occurred before decommissioning of the Landfarm. Sample results were obtained on August 15, 2018 and were below water license criteria. The final discharge event was conducted August 20, 2018.

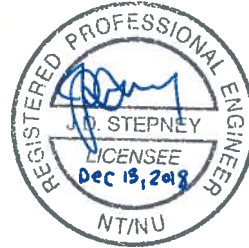
Remediation work at FOX-D site was completed in September 2018. The monitoring wells around the Soil Treatment Area were decommissioned following the removal of the treated Type B PHC soil from August 19 to 20, 2018. At the time of submission of this letter, demobilization of the contractor equipment was scheduled for August 2019. No further work at the site is scheduled for 2019, and water sampling will therefore not be planned in 2019.

Sincerely,

**AECOM Canada Ltd.**

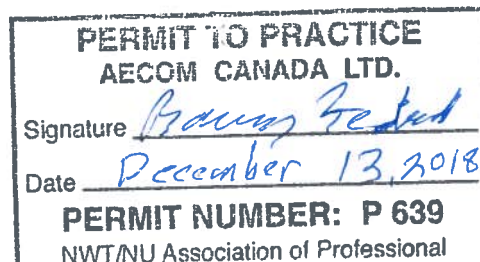


Shenaz Ahmed, E.I.T. (MB)  
Environmental Inspector



Jessica Stepney, P.Eng.  
Project Manager

Cc: Janice Lee (PSPC)  
Roland Merkosky (AECOM)  
Ben Reich (AECOM)  
Brian Nguyen (AECOM)  
Jen Murray (AECOM)



## PHOTOGRAPHIC RECORD

**Site Name:**  
FOX-D

**Site Location:**  
Kivitoo, NU

**Project No.**  
60509545

**Photo No.**  
1

**Date:**  
2018-07-26

**Description:**

AECOM attempting to sample at KIV 5d.



**Photo No.**  
2

**Date:**  
2018-07-26

**Description:**

AECOM Environmental Inspector and Inuit Assistant attempting to sample at KIV 5a.





**PHOTOGRAPHIC RECORD****Site Name:**  
FOX-D**Site Location:**  
Kivitoo, NU**Project No.**  
60509545**Photo No.**  
3**Date:**  
2018-08-19**Description:**

AECOM checking the water levels within the monitoring well at KIV-5a.

