

March 27, 2014

Phyllis Beaulieu
Licensing Manager
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Dear Phyllis:

Project No: Water Use License 1BR-FOX1118

Regarding: 2013 Annual Report: FOX-4, Cape Hooper DEW Line Site

AECOM Canada Ltd. is providing the attached annual report form as per Section B.1 of the above-noted water use license. The report is being submitted on behalf of Defence Construction Canada and the Department of National Defence.

During the 2013 field season at the FOX-4 Cape Hooper DEW Line Site, construction activities included regrading and decommissioning of the Landfarm, Non-Hazardous Waste Landfill (NHWL), Tier II Disposal Facility, and contaminated soil excavation. The following is a detailed summary of the work items completed during the 2013 summer construction season at FOX-4:

- Landfill regrades were completed at the following locations:
 - Helipad West Landfill
 - Station Area Landfill
 - Pallet Line Landfill
 - Heated Vehicle Storage Area
 - Tanner Bay Landfill
- Landfill excavation work was completed at the following locations:
 - Helipad Landfill – East Landfill
 - Barrel Dump Landfill
 - Garbage Disposal Landfill
 - Airstrip Landfill
- General site grading included:
 - The airstrip was repaired and depressions were filled using screened granular fill from Borrow Area 6
 - A washout and other minor erosion features were repaired on the airstrip as required
 - Granular fill was placed and compacted on select areas of the airstrip to provide a more uniformly sloped surface
 - The site access road was stabilized at the end of the season with the placement of additional fill in localized depressions in the vicinity of the Station Area
- Existing Tier II Disposal Facility construction activity:

- An additional 1.5m of Type 2 granular fill was added to the cap to allow for suitable thermal cover
 - The sideslopes of the facility were adjusted for the additional cover material – existing Type 1 Granular Fill was removed and stockpiled for replacement
 - Thermistors were extended to account for the additional cap thickness
- Expanded Tier II Disposal Facility construction activity:
 - The bottom liner system, with Type 5 embedment materials, was installed at the beginning of the 2013 construction season and the facility was ready to accept contaminated soils by July 17, 2013
 - Tier II contaminated material was brought to this facility from all of the landfill excavations. The final load occurred on August 23, 2013
 - Capping involved 0.3m Type 2 Granular Fill, liner, Type 5 Granular Fill and a thermal cover of 2.35m Type 2 Granular Fill
 - Four thermistors were installed within this facility
- Non-Hazardous Waste Landfill construction activity:
 - Debris was placed within the Landfill during the 2013 Construction season
 - Type 6 Granular Fill was added as specified
 - The landfill was capped with a 1 metre thick cap of Type 2 Granular Fill.
- Landfarm construction activity:
 - Soils requiring treatment were placed in the facility, which included Type B hydrocarbon contaminated soils from the Beach POL
 - Sediment catchment ponds were excavated and periodically dredged
 - Type B contaminated soils were placed and type 1 Granular Fill was used from the treatment soils
 - Decommissioning of the Landfarm involved using the Type 2 Granular Fill to from the construction of the berms for grading the Landfarm
- Thermokarst Remediation:
 - The original thermokarst was backfilled with granular material in an effort to stabilize the erosion feature identified in the previous season
 - These areas were monitored for evidence of further instability throughout the season

The work remaining in 2014 includes demobilization of the contractors' camp and equipment from the site, as well as removal of the PCB materials currently in storage.

Community Consultations: The results of the community meetings held by DCC were submitted with the Project Description. The contractor typically holds a project start up meeting prior to each season; however, a copy of the presentation has not been provided.

Spill Incidences: N/A.

Monitoring Reports: See attached.

We trust the information provided is sufficient. Please feel free to contact the undersigned if you have any questions or comments.

Sincerely,
AECOM Canada Ltd.



Eva Schulz, P.Ag.
Senior Environmental Scientist
Eva.Schulz@aecom.com

EMS

cc: Tamara Van Dyck, DCC
Encl: Annual Report Form; Monitoring Reports; Site Figures; Selected Site Photos

NWB Annual Report

Year being reported:

2013

License No: 1BR-FOX0713 Issued Date: July 23, 2007
 Expiry Date: December 31, 2013

Project Name: FOX-4, Cape Hooper DEW Line Site Clean Up

Licensee: Defence Construction Canada

Mailing Address: Defence Construction Canada
 DGME
 101 Colonel By Drive,
 Ottawa, Ontario, Canada. K1A 0K2

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

AECOM
 Design Engineering and Regulatory Support

General Background Information on the Project (*optional):

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):	Water Supply Lake (FOX4-1)	
Water Quantity:	18 per day	Quantity Allowable Domestic (cu.m)
	809/89 days	Actual Quantity Used Domestic (cu.m)
		Quantity Allowable Drilling (cu.m)
		Total Quantity Used Drilling (cu.m)

Waste Management and/or Disposal

- ☒ Solid Waste Disposal
☒ Sewage 728.1 cu.m of sewage and greywater discharged to sewage lagoon
☐ Drill Waste
☒ Greywater
☐ Hazardous
☒ Other:

Additional Details:

Details of the waste management were provided in the application supporting documents.

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)
 N/A

N/A

Revisions to the Spill Contingency Plan

SCP submitted and approved - no revision required or proposed

Additional Details:

Revisions to the Abandonment and Restoration Plan

N/A - not applicable

Additional Details:

The project is an Abandonment and Restoration project.

Progressive Reclamation Work Undertaken

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

n/a

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:**

Select

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

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**Date Submitted:**

March 25, 2014

Submitted/Prepared by:

Eva Schulz

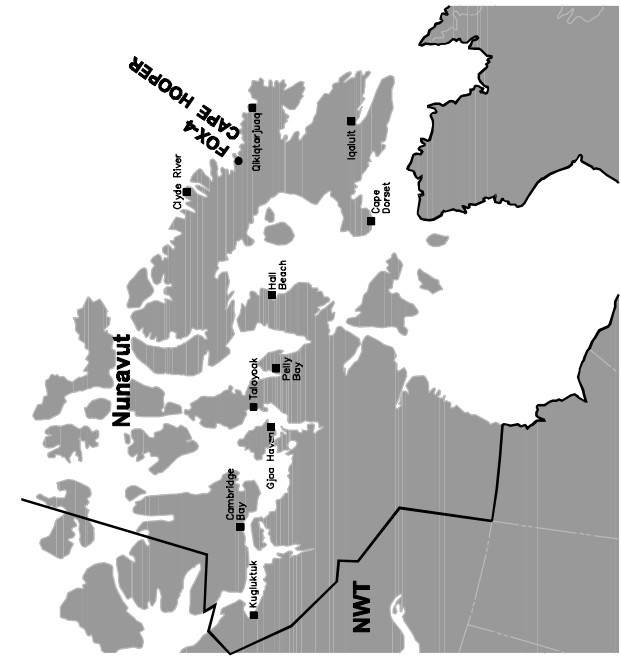
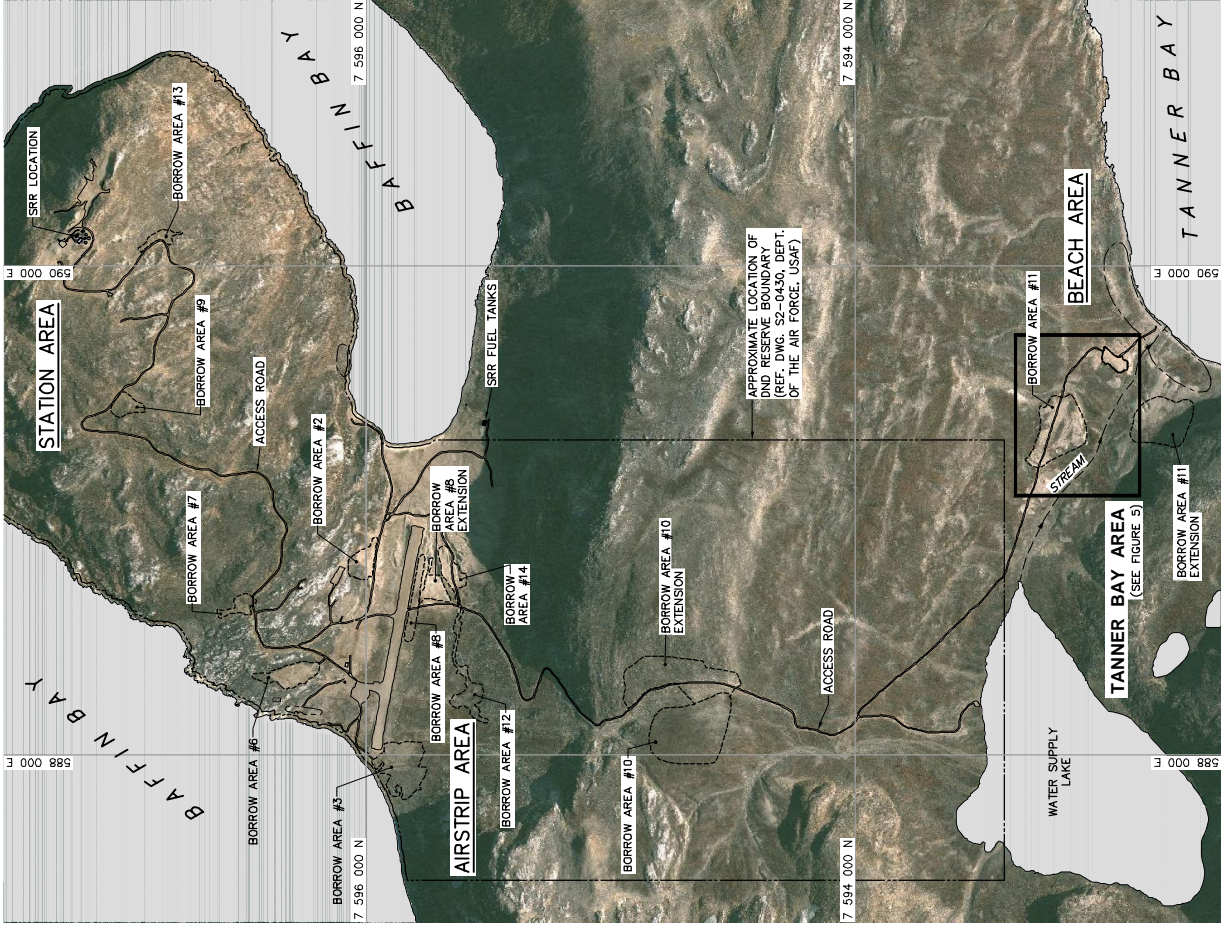
Contact Information:**Tel:** 403-270-9220**Fax:** 403-270-9196**email:** eva.schulz@aecom.com

GPS Coordinates for water sources utilized

[illegible]

GPS Locations of areas of waste disposal

[illegible]



LOCATION OF CAPE HOOPER WITHIN NUNAVUT TERRITORY
SCALE: NTS

LEGEND:

- APPROXIMATE EXTENT OF BORROW AREAS
- ARCHAEOLOGICAL FEATURES
- BODY OF WATER

DEFENSE

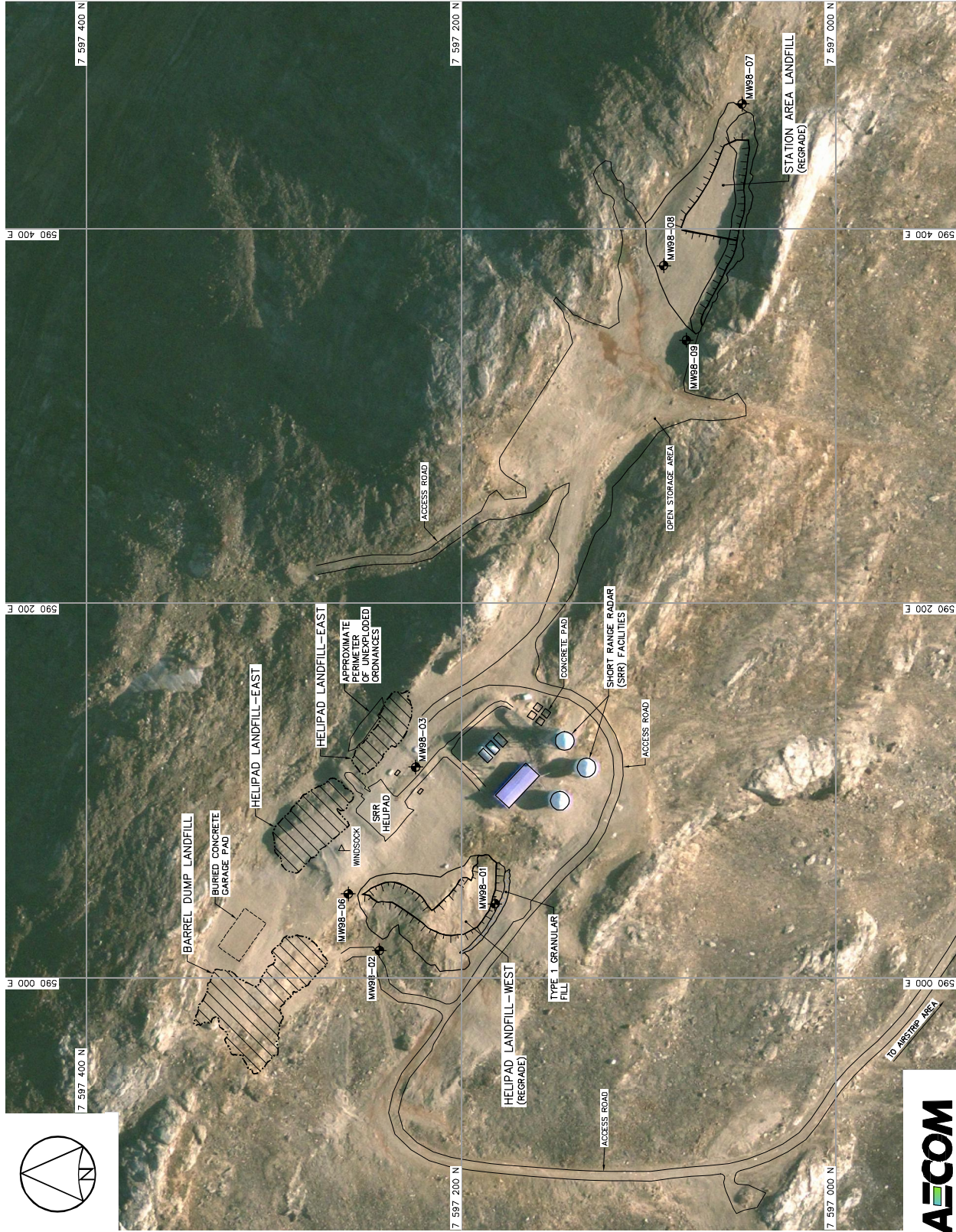
- National Defense
- DEW LINE
- CLEAN UP
- FOX-4
- CAPE HOOPER

GEOTECHNICAL QA SUMMARY REPORT

OVERALL SITE PLAN

FIGURE 1





LEGEND:

- EXISTING MONITORING WELL LOCATION (7)
- LANDFILL EXCAVATION AREA

STATION AREA MONITORING WELLS (AS-BUILT)				
NO.	UTM COORDINATES		ELEV.	
	NORTHING	EASTING		
MW98-01	7 597 182.2	590 039.4	372.6	
MW98-02	7 597 244.0	590 014.5	369.5	
MW98-03	7 597 224.5	590 112.4	388.5	
MW98-06	7 597 260.5	590 044.7	382.1	
MW98-07	7 597 050.2	590 466.8	379.4	
MW98-08	7 597 092.0	590 380.4	373.2	
MW98-09	7 597 080.0	590 340.5	372.4	

0 20 40 m SCALE 1:2000

National Defense
National Defense
DEW LINE CLEAN UP
FOX-4 CAPE HOOPER

GEOTECHNICAL QA
SUMMARY REPORT
STATION AREA

FIGURE 3



LEGEND:

- APPROXIMATE LOCATION OF COMMEMORATIVE PLAQUE
- APPROXIMATE EXTENT OF BORROW AREAS
- ARCHAEOLOGICAL FEATURES
- MONITORING WELL LOCATION (8)
- GROUND TEMPERATURE CABLE LOCATION (10)
- LANDFILL EXCAVATION AREA
- BODY OF WATER

TIER II DISPOSAL FACILITY MONITORING WELLS (AS-BUILT)			
NO.	UTM COORDINATES		ELEV.
	NORTHING	EASTING	
MW1-01	7 596 130.8	588 468.4	21.0
MW1-02	7 596 046.4	588 499.4	19.5
MW1-03	7 596 025.9	588 524.3	20.3
MW1-04	7 595 961.2	588 536.5	19.2
MW1-05	7 595 911.0	588 450.4	18.6
MW1-06	7 595 926.0	588 352.6	18.0
MW2-07	7 595 977.9	588 334.9	16.4
MW2-08	7 596 055.8	588 361.3	18.7

TIER II DISPOSAL FACILITY GROUND TEMPERATURE CABLES (AS-BUILT)			
NO.	UTM COORDINATES		ELEV.
	NORTHING	EASTING	
VT-1	7 596 005.7	588 474.2	23.1
VT-2	7 595 989.1	588 481.2	22.6
VT-3	7 596 033.0	588 457.8	22.7
VT-4	7 596 002.9	588 436.3	22.5
VT-5	7 596 079.9	588 428.6	22.3
VT-6	7 596 007.5	588 406.4	21.9
VT-7	7 595 948.9	588 398.2	22.4
VT-8	7 595 975.5	588 405.7	23.2
VT-9	7 595 947.7	588 454.0	23.5
VT-10	7 595 956.9	588 479.7	23.9



- National Defence
- Defence nationale
- DEW LINE
- CLEAN UP
- FOX-4
- CAPE HOOPER

GEOTECHNICAL QA
SUMMARY REPORT
AIRSTRIIP AREA

FIGURE 4



LEGEND:



APPROXIMATE EXTENT OF
BORROW AREAS



National Défense
Défense nationale
DEW LINE CLEAN UP
FOX-4 CAPE HOOPER

GEOTECHNICAL QA
SUMMARY REPORT
TANNER BAY AREA

FIGURE 5





Photograph 1. First Layer of Geotextile at the Tier II Facility



Photograph 2. Placement of HDPE Liner (Geomembrane) at the Tier II Facility



Photograph 3. Placement of Type 5 Granular Fill Above Liner



Photograph 4. Type1 Granular Fill at on Tanner Bay Regrade Slopes



Photograph 5. Final Type 2 Granular Fill Surface at Tanner Bay Regrade



Photograph 6. HVS Buried Debris Area Regrade Type 2 Granular Fill Compaction



Photograph 7. Type 1 Granular Fill Placement at Pallet Line Landfill Regrade



Photograph 8. Type 2 Granular Fill Compaction at Pallet Line Landfill Regrade



Photograph 9. Borrow 10 – Haul road removal and Borrow 10 Extension reclamation



Photograph 10. Borrow 10 Extension - Reclamation

**Photograph 11.**

Tier 2 Facility – East berm being trimmed

**Photograph 12.**

Type 2 Granular Fill from Borrow 13 stockpiled at Station



Photograph 13. Pallet Line Landfill Regrade – Placing Type 1 Fill material



Photograph 14. Pallet Line Landfill Regrade - Completed



Photograph 15. Station Area Ridge Regrade - Completed



Photograph 16.

Helipad Landfill - West



Photograph 17.

Damaged Monitoring Well



Photograph 18.

Repaired Monitoring Well



Photograph 19. Airstrip Landfill Excavation



Photograph 20. Helipad West Landfill Regrade



Photograph 21. Garbage Disposal Landfill Backfilled and Graded



Photograph 22. Airstrip Landfill Excavation



Photograph 23. Helipad West Landfill Regrade



Photograph 24. Helipad East Landfill Excavation



Photograph 25. Compaction Attachment for Excavator at Helipad-West Regrade



Photograph 26. Non-Hazardous Waste Landfill – Compacting Type 6 Granular Fill over Debris



Photograph 27. Tier II Facility – Drilling VT-10 on Western Berm



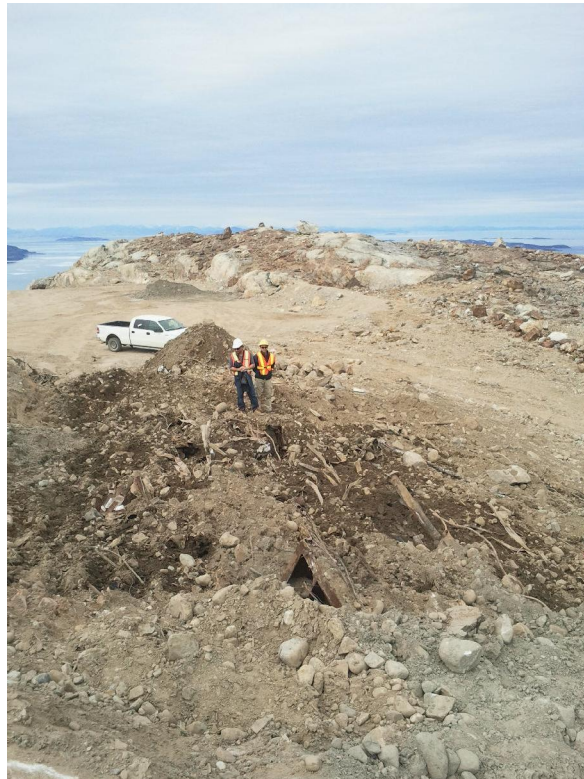
Photograph 28. Airstrip Landfill West – Groundwater Seepage



Photograph 29. Helipad Landfill East - Excavation



Photograph 30. Helipad West Regrade – Compacting Type 2 Granular Fill around MW-01



Photograph 31. Helipad East Landfill – Remaining Debris (August 7)



Photograph 32. Landfarm – Before spreading the three separate areas of material: 2,500 – 5,000 ppm (not screened), +10,000 ppm (screened), and 5,000 – 7,500 ppm (screened) from right to left.



Photograph 33. Airstrip Landfill East – French Drain System



Photograph 34. Airstrip Landfill East – Drainage Swale



Photograph 35. Airstrip Landfill East Lobe – North Eastern Extent Debris Excavation Nearing Completion



Photograph 36. Barrel Dump Landfill – Type 2 Granular Fill Material Cap Complete



Photograph 37. Non-Hazardous Waste Facility – Using a Modified Barge Container QM is Preparing Wood PCB Paint for Transport Off Site



Photograph 38. Helipad East – East Lobe – Backfilling Complete



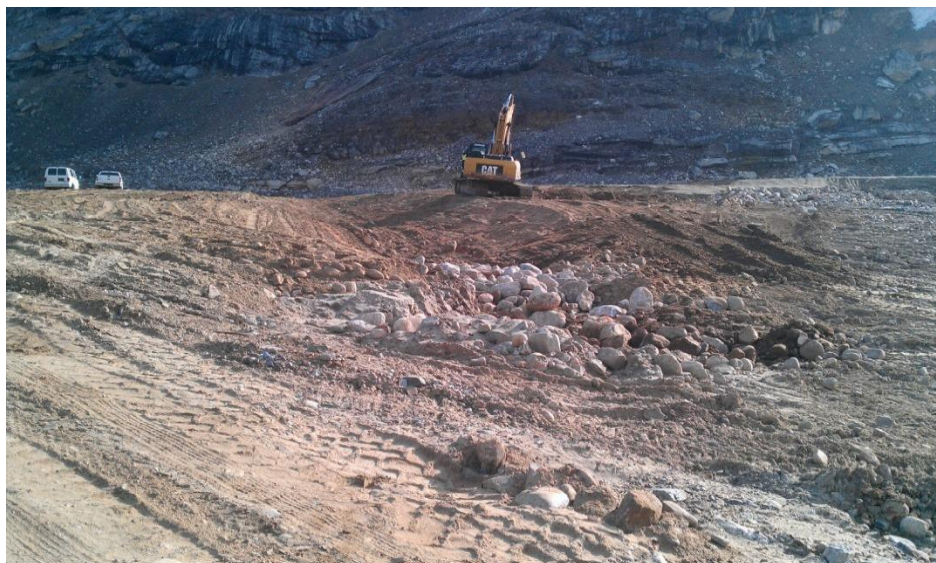
Photograph 39. Helipad East – West Lobe – Completed Excavation



Photograph 40. Existing Tier II Facility - Backfilling Ground Temperature Monitoring Excavation



Photograph 41. Helipad East Regrade



Photograph 42. Airstrip Landfill – Backfill of the large lobe complete.



Photograph 44. Helipad West – Self Armouring of Material
at Helipad-Landfill West



Photograph 45. Airstrip Landfill – Completed Swale and Type 2 Granular Fill Cap



Photograph 46. Tier II Facility – Geomembrane Laid Out



Photograph 47. Tier II Facility – Placing Type 5 Granular Fill over Synthetic Liner



Photograph 48. Borrow Area 3 – Mining Activities



Photograph 49. Borrow Area 14 – Reclamation Work in Progress



Photograph 50. Landfarm – Berms being removed



Photograph 51. Landfarm – North Berm being removed



Photograph 52. Borrow Area 3 – Type 2 Granular Fill Mining Activities



Photograph 53. Borrow Area 3 – Type 2 Granular Fill Mining Activities



Photograph 54. Borrow Area 6 – Screening Material for Airstrip Improvement Project



Photograph 55. Borrow Area 6 – Mining Material to be Screened for Airstrip Improvement Project



Photograph 56. Hooper Bay – Loading Soil Bags onto Barge



Photograph 57. Tier II Facility – Spreading Final Lift



Photograph 58. Landfarm – Decommissioning Complete



Photograph 59. Non-Hazardous Waste Landfill – Complete Except for Final Placing Area for Camp Disassembly Waste.



Photograph 60. Tier II Facility – Installing Thermistors



Photograph 61. Site Clean Up – Removing Silt Fences

**Andrea Ellis
Environmental Sciences Group
The Royal Military College of Canada
PO Box 17000 Stn. Forces
Kingston, ON K7K 7B4**



**Tamara Van Dyck
Environmental Officer
Defence Construction Canada
DEW Line Cleanup PMO
180 Kent Street, 14th Floor
Ottawa, ON K1P 0B6**

Tuesday January 21, 2014

Re: 2013 Report for Water Use License Number: IBR-FOX1118

The following results of the Monitoring Program (MP) and/or Water Use License are provided by the Environmental Sciences Group to meet the requirements of the above-noted license for *FOX-4 (Cape Hooper)*.

1. SEWAGE EFFLUENT

Two sewage lagoons were constructed at FOX-4 in September 2011 and July 2012. The lagoons were constructed a minimum of 100 m from drainage courses and water bodies. Both lagoons were decommissioned in 2013 by flattening the berms and reshaping the area.

The Water Use License and MP require that samples from treated sewage lagoon effluent at the point of discharge to the receiving water be collected prior to each discharge event.

Sampling was not completed at the FOX-4 sewage lagoons during the 2013 field season. The level of liquid in the lagoons remained low and discharge was not required.



Photograph 1 (07-27-2013): FOX-4 east sewage lagoon, facing northeast.



Photograph 2 (07-28-2013): FOX-4 west sewage lagoon after decommissioning, facing west.

We trust that the information provided meets current requirements. Please contact the undersigned if you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "Andrea Ellis". The signature is fluid and cursive, with the first name "Andrea" written in a larger, more prominent script than the last name "Ellis".

Andrea Ellis
Environmental Sciences Group

cc: Eva Schulz (AECOM)
Daniela Loock, Darren White, Dean Morrow, Shari Reed (ESG)

Andrea Ellis
Environmental Sciences Group
The Royal Military College of Canada
PO Box 17000 Stn. Forces
Kingston, ON K7K 7B4



Tamara Van Dyck
Environmental Officer
Defence Construction Canada
DEW Line Cleanup PMO
180 Kent Street, 14th Floor
Ottawa, ON K1P 0B6

Wednesday, February 12, 2014

RE: Analytical Results for Wastewater Samples Collected at FOX-4 in July 2013

The following report summarizes results of the analysis of wastewater samples as per the FOX-4 (Cape Hooper) DEW Line Cleanup Project (DLCU) Specifications.

The FOX-4 specifications require that “wash water, melt water collection, rinse water resulting from the cleaning of fuel tanks and pipelines, and/or any other liquid effluent stream” meet the following guidelines prior to their discharge to land (01560.4.1):

Parameter	Maximum Allowable Concentration	Units
pH	<6, >9	pH units
Total Arsenic	0.1	mg/L
Dissolved Cadmium	0.01	mg/L
Dissolved Chromium	0.1	mg/L
Dissolved Cobalt	0.05	mg/L
Dissolved Copper	0.2	mg/L
Dissolved Lead	0.05	mg/L
Total Mercury	0.6	µg/L
Dissolved Nickel	0.2	mg/L
Total Zinc	0.5	mg/L
Total Iron	1.0	mg/L
Oil & Grease	5.0	mg/L
PCBs	1,000	µg/L
Phenols	20	µg/L
Benzene	370	µg/L
Toluene	2.0	µg/L
Ethyl benzene	90	µg/L

WASTEWATER SAMPLES

One wastewater sample was collected at FOX-4 and analyzed in July 2013. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

LOCATION: LANDFARM

GPS COORDINATES: 588157/7595892

SAMPLE: 13-15862

DATE: JULY 22, 2013

Parameter	Maximum Allowable Concentration	Units	Sample # 13-15862
pH	<6, >9	pH units	6.0
Total Arsenic	0.1	mg/L	N/A
Dissolved Cadmium	0.01	mg/L	N/A
Dissolved Chromium	0.1	mg/L	N/A
Dissolved Cobalt	0.05	mg/L	N/A
Dissolved Copper	0.2	mg/L	N/A
Dissolved Lead	0.05	mg/L	N/A
Total Mercury	0.6	µg/L	N/A
Dissolved Nickel	0.2	mg/L	N/A
Total Zinc	0.5	mg/L	N/A
Total Iron	1.0	mg/L	N/A
Oil & Grease	5.0	mg/L	<2.0
PCBs	1,000	µg/L	N/A
Phenols	20	µg/L	<1.0
Benzene	370	µg/L	<0.002
Toluene	2.0	µg/L	<0.002
Ethyl benzene	90	µg/L	<0.002



Photograph 1 (07-22-2013): Sample 13-15862 collected from pooled water in the Landfarm.

Wastewater from the Landfarm was discharged to the ground on July 31, 2013. The water was discharged on the west side of the Landfarm (588080, 7595901).

We trust that the information provided meets current requirements. Please contact the undersigned if you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "Andrea Ellis".

Andrea Ellis
Environmental Sciences Group

cc: Eva Schulz (AECOM)
Daniela Loock, Darren White, Dean Morrow, Shari Reed (ESG)

APPENDIX A
LABORATORY RESULTS

ASU #	14736		Report ID:	Fox-4 W3	
Client:	ESG		Date Submitted:	24-Jul-13	
			Date tested:	25-Jul-13	
Site:	Fox-4		Date:	26-Jul-13	
	13-058		Matrix:	water	
Report of Analysis					
Sample	Oil & Grease				
	mg/L				
13-15862	<2.0				
Blank	<2.0				
Control	14.7				
Control Target	15.9				
Results relate only to the items tested					

ANALYTICAL SCIENCES GROUP AND SLOWPOKE-2 FACILITY AT RMC GROUP DES SCIENCES ANALYTIQUES ET FACILITÉ SLOWPOKE-2 AU CMR Dept. of Chem. and Chem. Eng. - Dépt. de chimie et de génie chimique Royal Military College of Canada - Collège militaire royal du Canada P.O. Box 17000 Stn. Forces, Kingston, ON, K7K 7B4 Tel: 613-541-6000 x6684 / Fax: 613-545-8341																															
Client : ESG 12 Verite Ave Dept. of Chem. / Chem. Eng., RMC P.O. Box 17000, Stn. Forces Kingston, Ontario K7K 7B4 (613) 541-6000 ext 6567 Fax: (613) 541-6596	ASG Login No: 23657 Site: Fox-4 Client Login No: 13-058 Samples Received: 24-Jul-13 Date of analysis: 24-Jul-13 Method No: ASG 023 Date Reported: 29-Jul-13 Page: 1 of 1																														
RESULTS OF BTEX IN WATER ANALYSIS																															
<table border="1"> <thead> <tr> <th>Compound</th> <th>15862 mg/L</th> <th>Blank mg/L</th> <th>Control Sample mg/L</th> <th>Control Target mg/L</th> </tr> </thead> <tbody> <tr> <td>Benzene</td> <td>< 0.002</td> <td>< 0.002</td> <td>0.010</td> <td>0.010</td> </tr> <tr> <td>Toluene</td> <td>< 0.0005</td> <td>< 0.0005</td> <td>0.010</td> <td>0.010</td> </tr> <tr> <td>Ethylbenzene</td> <td>< 0.002</td> <td>< 0.002</td> <td>0.010</td> <td>0.010</td> </tr> <tr> <td>m+p-Xylene</td> <td>< 0.002</td> <td>< 0.002</td> <td>0.020</td> <td>0.020</td> </tr> <tr> <td>o-Xylene</td> <td>< 0.002</td> <td>< 0.002</td> <td>0.010</td> <td>0.010</td> </tr> </tbody> </table>	Compound	15862 mg/L	Blank mg/L	Control Sample mg/L	Control Target mg/L	Benzene	< 0.002	< 0.002	0.010	0.010	Toluene	< 0.0005	< 0.0005	0.010	0.010	Ethylbenzene	< 0.002	< 0.002	0.010	0.010	m+p-Xylene	< 0.002	< 0.002	0.020	0.020	o-Xylene	< 0.002	< 0.002	0.010	0.010	
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m+p-Xylene	< 0.002	< 0.002	0.020	0.020																											
o-Xylene	< 0.002	< 0.002	0.010	0.010																											
Results in PPM																															

ASU #	14736	Report ID:	FOX-4 W5
Client:	ESG	Date Submitted:	24-Jul-13
		Date reported:	26-Jul-13
Site:	FOX-4	Matrix:	Water
	13-058		
Report of Analysis			
Sample	Phenols**		
	ug/L		
13-15862	<1.0		
Blank	<1.0		
Control	24.0		
Control Target	25.0		
Date Tested:	26-Jul-13		
** Analysis subcontracted			
Results relate only to the items tested			

Andrea Ellis
Environmental Sciences Group
The Royal Military College of Canada
PO Box 17000 Stn. Forces
Kingston, ON K7K 7B4



Tamara Van Dyck
Environmental Officer
Defence Construction Canada
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Wednesday, February 12, 2014

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Dissolved Chromium	0.1	mg/L
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Dissolved Copper	0.2	mg/L
Dissolved Lead	0.05	mg/L
Total Mercury	0.6	µg/L
Dissolved Nickel	0.2	mg/L
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Total Iron	1.0	mg/L
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WASTEWATER SAMPLES

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LOCATION: LANDFARM

GPS COORDINATES: 588087/ 7595901, 588157/7595892

SAMPLE: 13-15836

DATE: JUNE 18, 2013

Parameter	Maximum Allowable Concentration	Units	Sample # 13-15836
pH	<6, >9	pH units	6.9
Total Arsenic	0.1	mg/L	N/A
Dissolved Cadmium	0.01	mg/L	N/A
Dissolved Chromium	0.1	mg/L	N/A
Dissolved Cobalt	0.05	mg/L	N/A
Dissolved Copper	0.2	mg/L	N/A
Dissolved Lead	0.05	mg/L	N/A
Total Mercury	0.6	µg/L	N/A
Dissolved Nickel	0.2	mg/L	N/A
Total Zinc	0.5	mg/L	N/A
Total Iron	1.0	mg/L	N/A
Oil & Grease	5.0	mg/L	<2.0
PCBs	1,000	µg/L	N/A
Phenols	20	µg/L	<1.0
Benzene	370	µg/L	<0.002
Toluene	2.0	µg/L	<0.002
Ethyl benzene	90	µg/L	<0.002



Photograph 1 (06-18-2013): Sample 13-15836 collected from pooled water in the Landfarm.

Wastewater from the Landfarm was discharged to the ground on June 27, 2013. The water was discharged on the west side of the Landfarm (588080, 7595901).

We trust that the information provided meets current requirements. Please contact the undersigned if you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "Andrea Ellis". The signature is fluid and cursive, with the first name "Andrea" written in a larger, more prominent script than the last name "Ellis".

Andrea Ellis
Environmental Sciences Group

cc: Eva Schulz (AECOM)
Daniela Loock, Darren White, Dean Morrow, Shari Reed (ESG)

APPENDIX A LABORATORY RESULTS

ASU #	14692		Report ID:	Fox-4 W2	
Client:	ESG		Date Submitted:	20-Jun-13	
			Date tested:	21-Jun-13	
Site:	Fox-4		Date:	21-Jun-13	
	13-007		Matrix:	water	
Report of Analysis					
Sample	Oil & Grease				
	mg/L				
13-15836	<2.0				
Blank	<2.0				
Control	16.0				
Control Target	16.0				
Results relate only to the items tested					

ANALYTICAL SCIENCES GROUP AND SLOWPOKE-2 FACILITY AT RMC GROUP DES SCIENCES ANALYTIQUES ET FACILITÉ SLOWPOKE-2 AU CMR Dept. of Chem. and Chem. Eng. - Dépt. de chimie et de génie chimique Royal Military College of Canada - Collège militaire royal du Canada P.O. Box 17000 Stn. Forces, Kingston, ON, K7K 7B4 Tel: 613-541-6000 x6684 / Fax: 613-545-8341																																		
Client : ESG 12 Verite Ave Dept. of Chem. / Chem. Eng., RMC P.O. Box 17000, Stn. Forces Kingston, Ontario K7K 7B4 (613) 541-6000 ext 6567 Fax: (613) 541-6596	ASG Login No: 23550 Site: Fox-4 Client Login No: 13-007 Samples Received: 20-Jun-13 Date of analysis: 26-Jun-13 Method No: ASG 023 Date Reported: 27-Jun-13 Page: 1 of 1																																	
RESULTS OF BTEX IN WATER ANALYSIS																																		
<table border="1"> <thead> <tr> <th>Compound</th> <th>15836 mg/L</th> <th>Blank mg/L</th> <th>Control Sample mg/L</th> <th>Control Target mg/L</th> </tr> </thead> <tbody> <tr> <td>Benzene</td> <td>< 0.002</td> <td>< 0.002</td> <td>0.010</td> <td>0.010</td> </tr> <tr> <td>Toluene</td> <td>< 0.002</td> <td>< 0.002</td> <td>0.010</td> <td>0.010</td> </tr> <tr> <td>Ethylbenzene</td> <td>< 0.002</td> <td>< 0.002</td> <td>0.010</td> <td>0.010</td> </tr> <tr> <td>m+p-Xylene</td> <td>< 0.002</td> <td>< 0.002</td> <td>0.020</td> <td>0.020</td> </tr> <tr> <td>o-Xylene</td> <td>< 0.002</td> <td>< 0.002</td> <td>0.010</td> <td>0.010</td> </tr> </tbody> </table>	Compound	15836 mg/L	Blank mg/L	Control Sample mg/L	Control Target mg/L	Benzene	< 0.002	< 0.002	0.010	0.010	Toluene	< 0.002	< 0.002	0.010	0.010	Ethylbenzene	< 0.002	< 0.002	0.010	0.010	m+p-Xylene	< 0.002	< 0.002	0.020	0.020	o-Xylene	< 0.002	< 0.002	0.010	0.010				
Compound	15836 mg/L	Blank mg/L	Control Sample mg/L	Control Target mg/L																														
Benzene	< 0.002	< 0.002	0.010	0.010																														
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Ethylbenzene	< 0.002	< 0.002	0.010	0.010																														
m+p-Xylene	< 0.002	< 0.002	0.020	0.020																														
o-Xylene	< 0.002	< 0.002	0.010	0.010																														
Results in PPM																																		

ASU #	14692	Report ID:	FOX-4 W4
Client:	ESG	Date Submitted:	20-Jun-13
		Date reported:	27-Jun-13
Site:	FOX-4	Matrix:	Water
	13-007		
Report of Analysis			
Sample	Phenols**		
	ug/L		
13-15836	<1.0		
Blank	<1.0		
Control	29.0		
Control Target	30.0		
Date Tested:	26-Jun-13		
** Analysis subcontracted			
Results relate only to the items tested			

ANALYTICAL SCIENCES GROUP AND SLOWPOKE-2 FACILITY AT RMC
GROUP DES SCIENCES ANALYTIQUES ET FACILITÉ SLOWPOKE-2 AU CMR

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Client:

ESG

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Dept. of Chem. / Chem. Eng., RMC
P.O. Box 17000, Stn. Forces
Kingston, Ontario K7K 7B4
(613) 541-6000 ext 6567
Fax: (613) 541-6596

ASG Login No: 23550

Site: Fox-4

Client No: 13-006

Samples Received: 20-Jun-13

Date of analysis: 24-Jun-13

Method No: ASG 037

Date Reported: 25-Jun-13

Page: 1 of 1

RESULTS OF pH ANALYSIS

Sample I.D.	pH
15836	6.88

* Averaged result of duplicates

LABORATORY QA/QC

Sample I.D.	pH
Control	6.99
Control Target	7.00