AECOM
2540 Kensington Road NW
Calgary, AB, Canada T2N 3S3
www.aecom.com

403 270 9200 tel
403 270 0399 fax

RECEIVED
By clerk at 9:45 am, Apr 18, 2011

March 30, 2010

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

Dear Phyllis:

Project No: Water Use License 1BR-FOD813

Regarding: FOX-3, Dewar Lakes 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.

In addition to the annual report form, we are providing a summary of the work completed to date at the site. The following is a summary of the work completed at the site in 2009:

Summary of Work Completed

Non-Hazardous Waste Landfill: Construction of the landfill was completed and approximately 5124 m^3 of non-hazardous materials and intermediate fill were placed within the facility in 2010. The landfill was capped with intermediate fill for the winter and will be closed in 2011.

Tier II Disposal Facility: Construction of the facility was completed in 2010 and approximately 2642 m^3 of Tier II impacted soils and intermediate fill were placed in the facility. The facility was capped with intermediate fill for the winter and will be closed in 2011.

Landfarm: Construction of the landfarm was completed in 2010 and it began receiving Type B hydrocarbon impacted soils for treatment.

Landfill and Buried Debris Area Remediation: The following landfills and buried debris areas were remediated either by excavation and/or regrading: Airstrip East Landfill, Airstrip South Debris Area, Middle Site Debris Area, Main Road Debris Area, Apron Debris Area, Borrow 6 Debris Area, Station West Landfill.

Surface Debris Removal: On-going.

Demolition: Demolition of the ARMCO dormitory, communication dishes and utility poles was completed.

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.

Spill Incidences: There was one spill reported on October 5, 2010. A copy of the spill report is attached. Details of the spill are provided within the August monitoring report.

Monitoring Results: See attached

Response to NWB Letter dated February 10, 2011

Comments regarding the Operation and Maintenance Plan and Post Construction Monitoring Plan: Additional information regarding the comments on the Operation and Maintenance Plan and the Post-Construction Monitoring Plan can be found within the 2007 Project Description, which was included with the original water use license application for this project.

Comments regarding the Spill Contingency Plan: A copy of the Spill Report Form can be attached and is provided to the site team. Drawings for the site were included with the 2007 Project Description.

Comments regarding the 2009 Annual Report: A copy of the 2009 Worker Orientation Seminar is attached. This seminar is completed at the start of each season.

Construction of the Tier II facility was completed in the sense that it could accept Tier II impacted soils. As-built drawings are not prepared until all of the Tier II soils have been placed within the facility and it is closed.

There is no box to check that says the spill contingency plan was submitted, but no comments were received. The first comments received regarding the spill contingency plan were provided in the February 2011 letter.

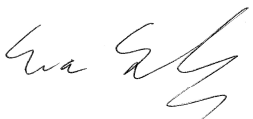
Although every effort is made to prevent spills, more care will be taken when handling barrels in the future to ensure that no further spills occur.

We will ensure that translations of the annual reports are provided in the future.

Closing

We trust the information provided is sufficient. Please feel free to contact the undersigned if you require any additional information.

Sincerely,
AECOM Canada Ltd.



Eva Schulz, P.Ag.
Eva.Schulz@aecom.com

EMS.
cc: Tamara Van Dyck, DCC
Encl: Monitoring Reports , Spill Report, Site Photos, Worker Orientation Seminar

NWB Annual Report **Year being reported:** 2010

License No: 1BR-FOD0813 **Issued Date:** July 18, 2008
Expiry Date: July 30, 2013

Project Name: FOX-3, Dewar Lakes 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
Engineering Design Consultant

General Background Information on the Project (*optional):

Licence Requirements: the licensee must provide the following information in accodance 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

Water Quantity:	
55 for all purposes	Quantity Allowable Domestic (cu.m)
787/119 days	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

- [x] Solid Waste Disposal
- [ ] Sewage — 550 cu.m. of sewage and greywater disposed of in lagoon.
- [ ] Drill Waste
- [x] Greywater
- [x] Hazardous
- [x] Other:

Additional Details:
Details of the waste management and disposal were provided with the application form.

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

Spill No.: 1 (as reported to the Spill Hot-line)
Date of Spill: August 10, 2010
Date of Notification to an Inspector: October 5, 2010
Additional Details: (impacts to water, mitigation measures, short/long term monitoring, etc)
See attached spill report.

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 entire project is an abandonment and restoration plan.

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;

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 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 31, 2011	
Submitted/Prepared by:	Eva Schulz	
Contact Information:	**Tel:**	403-270-9220
	Fax:	403-270-0399
	email:	eva.schulz@aecom.com

GPS Coordinates for water sources utilized

Source Description	UTM Zone 19N, NAD83	
	Northing	Easting
water supply lake	7614050	412400

GPS Locations of areas of waste disposal

Location Description (type)	UTM Zone 19N, NAD83	
	Northing	Easting
Landfarm (F01)	7616970	409322.3
Landfarm (F02)	7616929.4	409363.2
Landfarm (F04)	7616834.8	409400.1
Landfarm (F05)	7616819.1	409321.5
Landfarm (F07)	7616906.8	409287.2
Non-Hazardous Waste Landfill (G01)	7616725.5	409558.2
Non-Hazardous Waste Landfill (G02)	7616722.6	409633.2
Non-Hazardous Waste Landfill (G03)	7616642.7	409630.1
Non-Hazardous Waste Landfill (G04)	7616645.5	409555.2
Tier II Landfill (H01)	7615581.4	409321.8
Tier II Landfill (H02)	7615573	409391.2
Tier II Landfill (H03)	7615496.7	409382
Tier II Landfill (H04)	7615497	409311.5
Sewage Lagoon	exact coordinates to be collected in 2010	

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR **October 5, 2010**	REPORT TIME **1300**	☒ ORIGINAL SPILL REPORT, OR ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER ____-_____
B	OCCURRENCE DATE: MONTH – DAY – YEAR **August 10, 2010**	OCCURRENCE TIME		

C	LAND USE PERMIT NUMBER (IF APPLICABLE) **N2007X0038**	WATER LICENCE NUMBER (IF APPLICABLE) **1BR-FOD0813**
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION **FOX-3 Dewar Lakes Distant early Warning Line Site**	REGION ☐ NWT ☒ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN
E	LATITUDE DEGREES **68** MINUTES **40** SECONDS	LONGITUDE DEGREES **71** MINUTES **14** SECONDS
F	RESPONSIBLE PARTY OR VESSEL NAME **Defence Construction Canada**	RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION **350 Albert, suite 1721, Ottawa, ON, K1A 0K3**
G	ANY CONTRACTOR INVOLVED **N/A**	CONTRACTOR ADDRESS OR OFFICE LOCATION

H	PRODUCT SPILLED **wastewater (zinc concentrations)**	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES **3,000 gallons of wastewater**	U.N. NUMBER
	SECOND PRODUCT SPILLED (IF APPLICABLE)	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER

I	SPILL SOURCE **Wastewater tank**	SPILL CAUSE **Wastewater at .68mg/L zinc**	AREA OF CONTAMINATION IN SQUARE METRES **N/A**
J	FACTORS AFFECTING SPILL OR RECOVERY **Site-specific criterion oversight**	DESCRIBE ANY ASSISTANCE REQUIRED **N/A**	HAZARDS TO PERSONS, PROPERTY OR ENVIRONMENT **N/A**

K — ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS

A wastewater tank within the contractors Hazardous Waste Processing Area was discharged on August 10th, 2010 with a total zinc concentration of 0.68 mg/L that exceeded the Water Use License criterion for Zinc of 0.5mg/L. The wastewater met all other criteria for discharge, including oil and grease. DLCU staff and advisors are formally advised to meet site-specific permit criteria prior to discharge. See attached memo from ESG for additional details.

L	REPORTED TO SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLING FROM	TELEPHONE
M	ANY ALTERNATE CONTACT	POSITION	EMPLOYER	ALTERNATE CONTACT LOCATION	ALTERNATE TELEPHONE

REPORT LINE USE ONLY

N	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

AGENCY	CONTACT NAME	CONTACT TIME	REMARKS
LEAD AGENCY			
FIRST SUPPORT AGENCY			
SECOND SUPPORT AGENCY			
THIRD SUPPORT AGENCY			

Candice Casucci
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
101 Colonel By Drive
Ottawa ON K1A 0K2

Wednesday, March 23, 2011

RE: June 2010 Monthly Report for Water Use License Number: 1BR-FOD813

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-3 *(Dewar Lakes).*

1. CAMP SEWAGE LAGOON

A 2 cell sewage lagoon was constructed to service the FOX-3 construction camp in 2009. The sewage lagoon is located approximately 100 m from the contractor's camp, 100 m away from drainage channels and any bodies of water supporting aquatic life. The GPS coordinates that are required by the Water Use License for the sewage lagoon location are 049186E 7616767N.

2. SEWAGE EFFLUENT SAMPLES

The Water Use License and MP require that samples be collected from treated sewage lagoon effluent at the point of discharge prior to each discharge event. Three sewage effluent samples were collected in June 2010 from the FOX-3 sewage lagoons. A summary of the details follows. Laboratory results are provided in Appendix A.

LOCATION: SEWAGE LAGOON CELL 2
GPS COORDINATES: 19W 0409220 7616779
SAMPLE: 10-00014
DATE: JUNE 24, 2010

Parameter	Allowable Maximum Average Concentration	Units	Sample # 10-00014
pH	6.0 to 9.0	pH units	7
Oil & Grease	None Visible	-	Non Visible
Total Suspended Solids (TSS)	180	mg/L	26
BOD	120	mg/L	<3.0
Faecal Coliforms	10,000	CFU/ 100 mL	0
Total Coliforms	-	-	300

Photo 1 DSC02002 (10-00014) Sewage Lagoon Fox-3: Collecting a sample from Camp Sewage Lagoon – Cell #2.

Waste from Sewage Lagoon Cell 2 was discharge to the ground on June 30, 2010. The water was discharged to an INAC approved location (0409191 E 7616855 N). Following discharge the cell was backfilled.

LOCATION: SEWAGE LAGOON CELL 3
GPS COORDINATES: 19W 0409226 7616809
SAMPLE: 10-00015
DATE: JUNE 24, 2010

Parameter	Allowable Maximum Average Concentration	Units	Sample # 10-00015
pH	6.0 to 9.0	pH units	7
Oil & Grease	None Visible	-	Non Visible
Total Suspended Solids (TSS)	180	mg/L	77
BOD	120	mg/L	<3.0
Faecal Coliforms	10,000	CFU/ 100 mL	0
Total Coliforms	-	-	1100

Photo 21 DSC02003 (10-00015) Sewage Lagoon Fox-3: Collecting a sample from Camp Sewage Lagoon – Cell #3.

Waste from Sewage Lagoon Cell 3 was discharge to the ground on June 30, 2010. The water was discharged to an INAC approved location (0409191 E 7616855 N).

LOCATION: SEWAGE LAGOON CELL 1
GPS COORDINATES: 19W 0409199 7616779
SAMPLE: 10-00018
DATE: JUNE 24, 2010

Parameter	Allowable Maximum Average Concentration	Units	Sample # 10-00018
pH	6.0 to 9.0	pH units	7
Oil & Grease	None Visible	-	Non Visible
Total Suspended Solids (TSS)	180	mg/L	34
BOD	120	mg/L	13
Faecal Coliforms	10,000	CFU/ 100 mL	0
Total Coliforms	-	-	0

Photo 3 DSC02000 (10-00018) Sewage Lagoon Fox-3: Collecting a sample from Camp Sewage Lagoon – Cell 1.

Waste from Sewage Lagoon Cell 1 was discharge to the ground on June 30, 2010. The water was discharged to an INAC approved location (0409191 E 7616855 N). Following discharge the cell was backfilled.

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

Sincerely,

Candice Casucci
Environmental Sciences Group

cc: Eva Schulz (UMA)
Daniela Loock, Kat White, Darren White, Cam Ollson, Allison Wood (ESG)

APPENDIX A
LABORATORY RESULTS

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: 20671
Site: FOX-3
Client No: 10-056
Samples Received: 25-Jun-10
Date of analysis: 25-Jun-10
Date Reported: 26-Jun-10
Sheet: 1 of 1

RESULTS OF MICROBIOLOGICAL ANALYSIS

Sample Identification	Method: ASG 036 **Total Coliforms** (CFU/100 mL)	Method: ASG 036 **E. coli** (CFU/100 mL)	Method: ASG 036 **Background** (CFU/100 mL)	Method: ASG 044 **Fecal Coliforms (CFU/100 mL)**
14	300	0	10 400	0
15	1100	0	> 20 000	0
18	0	0	4 000	0

LABORATORY QA/QC

Sample Identification	Method: ASG 036 **Total Coliforms** (CFU/100 mL)	Method: ASG 036 **E. coli** (CFU/100 mL)	Method: ASG 036 **Background** (CFU/100 mL)	Method: ASG 044 **Fecal Coliforms (CFU/100 mL)**
Blank	0	0	0	0
Control Sample	42	42	0	40
Control Sample Target	38	38	0	38

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: 20671
Site: Fox-3
Client Login No: 10-056
Samples Received: 25-Jun-10
Date of analysis: 30-Jun-10
Method No: ASG 042
Date Reported: 30-Jun-10
Page: 1 of 1

RESULTS OF BOD ANALYSIS

Sample I.D.	Unit	BOD
14*	mg/L	< 3
15	mg/L	< 3
18	mg/L	13

*Averaged result of duplicates

LABORATORY QA/QC

Sample I.D.	Unit	BOD
Duplicate ; 14*	mg/L	< 3 ; < 3
Blank	mg/L	< 3
Control	mg/L	187
Control Target	mg/L	165

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:	20671
Site:	Fox-3
Client Login No:	10-056
Samples Received:	25-Jun-10
Date of analysis:	29-Jun-10
Method No:	ASG 039
Date Reported:	29-Jun-10
Sheet:	1 of 1

RESULTS OF TOTAL SUSPENDED SOLIDS ANALYSIS

Sample I.D.	Sample Type^	Unit	Total Suspended Solids
14*	SE	mg/L	26
15	SE	mg/L	77
18	SE	mg/L	34

LABORATORY QA/QC

Duplicate ; 14*	SE ; SE	mg/L	26 ; 25
Control	Control	mg/L	180
Control Target	Control	mg/L	200
Blank	Control	mg/L	< 1

^SW =Surface Water, SI = Sewage Influent SE = Sewage Effluent
* Averaged result of duplicates

Candice Casucci
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
101 Colonel By Drive
Ottawa ON K1A 0K2

Wednesday, March 23, 2011

RE: Analytical Results for Wastewater Samples Collected at FOX-3 in June 2010

The following report summarizes results of the analysis of wastewater samples as per the FOX-3 (Dewar Lakes) DEW Line Cleanup Project (DLCU) Specifications.

The FOX-3 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 (As)	0.100	mg/L
Dissolved cadmium (Cd)	0.010	mg/L
Dissolved chromium (Cr)	0.100	mg/L
Dissolved cobalt (Co)	0.050	mg/L
Dissolved copper (Cu)	0.200	mg/L
Dissolved lead (Pb)	0.050	mg/L
Total mercury (Hg)	0.0006	mg/L
Dissolved nickel (Ni)	0.200	mg/L
Total zinc (Zn)	0.5	mg/L
Oil & grease	5	mg/L
PCBs	1.0	mg/L
Phenols	-	-

Phenols

The wastewater samples collected by ESG at FOX-3 in July, 2010 were not analyzed for phenols but they were analyzed for oil and grease. Research conducted by ESG[1] has determined that a) no federal, territorial or provincial criteria exist for the discharge of wastewater containing phenols to land at a minimum distance of 30-m from natural

[1] Environmental Sciences Group. *DEW Line Clean Up Project – Phenols in Wastewater*. June, 2007.

drainage courses b) the maximum concentration of phenols in DLCU wastewater to date (2.44 mg/L) is below the LC_{50} for freshwater fish and crustaceans and below the oral and dermal LD_{50}s for rats and rodents and c) phenols in excess of the maximum allowable concentration (MAC) have historically co-occurred with a visible oil & grease sheen and/or with an exceedance of the MAC for oil & grease. This information, and a subsequent decision to not test for phenols, has been presented to the NWB. To date, verbal agreement from the NWB has been received, but the project is awaiting written confirmation of the decision to suspend testing for phenols.

WASTEWATER SAMPLES

Seven wastewater samples were collected at FOX-3 and analyzed in June 2010. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

LOCATION: FUEL STORAGE BERM
GPS COORDINATES: 19W 0409086 7616964
SAMPLE: 10-00008
DATE: JUNE 24, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-00008
pH	6-9	pH units	N/A
Total arsenic (As)	0.100	mg/L	N/A
Dissolved cadmium (Cd)	0.010	mg/L	N/A
Dissolved chromium (Cr)	0.100	mg/L	N/A
Dissolved cobalt (Co)	0.050	mg/L	N/A
Dissolved copper (Cu)	0.200	mg/L	N/A
Dissolved lead (Pb)	0.050	mg/L	N/A
Total mercury (Hg)	0.0006	mg/L	N/A
Dissolved nickel (Ni)	0.200	mg/L	N/A
Total zinc (Zn)	0.5	mg/L	N/A
Oil & grease	5	mg/L	<2.0
PCBs	1.0	mg/L	N/A
Phenols	-	-	N/A

Photo 1 DSC02005 Sample 10-00008 Fox-3: Collecting a sample from the water pooled in the station west fuel storage berm

Waste water from Fuel Storage Berm was discharge to the ground on June 30, 2010. The water was discharged to an INAC approved location.

LOCATION: MACBETH RIVER FOD 10
GPS COORDINATES: 414180 7614628
SAMPLE: 10-00001
DATE: JUNE 20, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-00001
pH	6-9	pH units	6.15
Total arsenic (As)	0.100	mg/L	N/A
Dissolved cadmium (Cd)	0.010	mg/L	N/A
Dissolved chromium (Cr)	0.100	mg/L	N/A
Dissolved cobalt (Co)	0.050	mg/L	N/A
Dissolved copper (Cu)	0.200	mg/L	N/A
Dissolved lead (Pb)	0.050	mg/L	N/A
Total mercury (Hg)	0.0006	mg/L	<0.4
Dissolved nickel (Ni)	0.200	mg/L	N/A
Total zinc (Zn)	0.5	mg/L	N/A
Oil & grease	5	mg/L	N/A
PCBs	1.0	mg/L	0
Phenols	-	-	N/A

LOCATION: MACBETH RIVER FOD 10
GPS COORDINATES: 414180 7614628
SAMPLE: 10-00002
DATE: JUNE 20, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-00002
pH	6-9	pH units	N/A
Total arsenic (As)	0.100	mg/L	<0.003
Dissolved cadmium (Cd)	0.010	mg/L	<0.001
Dissolved chromium (Cr)	0.100	mg/L	<0.005
Dissolved cobalt (Co)	0.050	mg/L	<0.003
Dissolved copper (Cu)	0.200	mg/L	<0.005
Dissolved lead (Pb)	0.050	mg/L	<0.010
Total mercury (Hg)	0.0006	mg/L	N/A
Dissolved nickel (Ni)	0.200	mg/L	0.0096
Total zinc (Zn)	0.5	mg/L	<0.010
Oil & grease	5	mg/L	N/A
PCBs	1.0	mg/L	0
Phenols	-	-	N/A

LOCATION: MACBETH RIVER FOD 10
GPS COORDINATES: 414180 7614628
SAMPLE: 10-00003
DATE: JUNE 20, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-00003
pH	6-9	pH units	N/A
Total arsenic (As)	0.100	mg/L	N/A
Dissolved cadmium (Cd)	0.010	mg/L	N/A
Dissolved chromium (Cr)	0.100	mg/L	N/A
Dissolved cobalt (Co)	0.050	mg/L	N/A
Dissolved copper (Cu)	0.200	mg/L	N/A
Dissolved lead (Pb)	0.050	mg/L	N/A
Total mercury (Hg)	0.0006	mg/L	N/A
Dissolved nickel (Ni)	0.200	mg/L	N/A
Total zinc (Zn)	0.5	mg/L	N/A
Oil & grease	5	mg/L	<2.0
PCBs	1.0	mg/L	0
Phenols	-	-	N/A

Photo 1 DSC01951 Fox-3: Collecting samples from FOX 10 upstream of site activities in the MacBeth River

LOCATION: MACBETH RIVER FOD 11
GPS COORDINATES: 413372 7613744
SAMPLE: 10-00004
DATE: JUNE 20, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-00004
pH	6-9	pH units	6.13
Total arsenic (As)	0.100	mg/L	N/A
Dissolved cadmium (Cd)	0.010	mg/L	N/A
Dissolved chromium (Cr)	0.100	mg/L	N/A
Dissolved cobalt (Co)	0.050	mg/L	N/A
Dissolved copper (Cu)	0.200	mg/L	N/A
Dissolved lead (Pb)	0.050	mg/L	N/A
Total mercury (Hg)	0.0006	mg/L	<0.4
Dissolved nickel (Ni)	0.200	mg/L	N/A
Total zinc (Zn)	0.5	mg/L	N/A
Oil & grease	5	mg/L	N/A
PCBs	1.0	mg/L	0
Phenols	-	-	N/A

LOCATION: MACBETH RIVER FOD 11
GPS COORDINATES: 413372 7613744
SAMPLE: 10-00005
DATE: JUNE 20, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-00005
pH	6-9	pH units	N/A
Total arsenic (As)	0.100	mg/L	<0.003
Dissolved cadmium (Cd)	0.010	mg/L	<0.001
Dissolved chromium (Cr)	0.100	mg/L	<0.005
Dissolved cobalt (Co)	0.050	mg/L	<0.003
Dissolved copper (Cu)	0.200	mg/L	<0.005
Dissolved lead (Pb)	0.050	mg/L	<0.010
Total mercury (Hg)	0.0006	mg/L	N/A
Dissolved nickel (Ni)	0.200	mg/L	0.0096
Total zinc (Zn)	0.5	mg/L	<0.010
Oil & grease	5	mg/L	N/A
PCBs	1.0	mg/L	N/A
Phenols	-	-	N/A

LOCATION: MACBETH RIVER FOD 11
GPS COORDINATES: 413372 7613744
SAMPLE: 10-00006
DATE: JUNE 20, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-00006
pH	6-9	pH units	N/A
Total arsenic (As)	0.100	mg/L	N/A
Dissolved cadmium (Cd)	0.010	mg/L	N/A
Dissolved chromium (Cr)	0.100	mg/L	N/A
Dissolved cobalt (Co)	0.050	mg/L	N/A
Dissolved copper (Cu)	0.200	mg/L	N/A
Dissolved lead (Pb)	0.050	mg/L	N/A
Total mercury (Hg)	0.0006	mg/L	N/A
Dissolved nickel (Ni)	0.200	mg/L	N/A
Total zinc (Zn)	0.5	mg/L	N/A
Oil & grease	5	mg/L	<2.0
PCBs	1.0	mg/L	N/A
Phenols	-	-	N/A

Photo 2 DSC01995 Fox-3: Site Collecting samples from FOX 11 downstream of site activities in the MacBeth River

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

Sincerely,

Candice Casucci
Environmental Sciences Group

cc: Eva Schulz (UMA)
Daniela Loock, Kat White, Darren White, Allison Wood (ESG)

APPENDIX A
LABORATORY RESULTS

Request 10-055 all results
PCBs pH

ASU #	12816		**Report ID:**	Fox-3 W2					
Client:	ESG		**Date Submitted:**	25-Jun-10					
			Date tested:	28-Jun-10					
Site:	Fox-3		**Date:**	28-Jun-10					
	10-055		**Matrix:**	Water					
Report of Analysis									
Total Metals	Results in mg/L								
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As	
00002	-	-	-	-	-	<0.010	<0.005	<0.003	
00005	-	-	-	-	-	<0.010	<0.005	<0.003	*
Blank	-	-	-	-	-	<0.010	<0.005	<0.003	
Control	-	-	-	-	-	3.08	0.83	0.79	
Control Target	-	-	-	-	-	3.00	0.80	0.80	
00005	-	-	-	-	-	<0.010	<0.005	<0.003	
00005	-	-	-	-	-	<0.010	<0.005	<0.003	
Dissolved Metals	Results in mg/L								
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As	
00002	<0.005	0.010	<0.003	<0.001	<0.010	-	-	-	
00005	<0.005	0.010	<0.003	<0.001	<0.010	-	-	-	*
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	-	-	
Control	1.62	1.64	1.63	0.81	8.12	-	-	-	
Control Target	1.60	1.60	1.60	0.80	8.00	-	-	-	
00005	<0.005	0.010	<0.003	<0.001	<0.010	-	-	-	
00005	<0.005	0.009	<0.003	<0.001	<0.010	-	-	-	
Results relate only to the items tested									

ASU #	12816	**Report ID:**	Fox-3 W1
Client:	ESG	**Date Submitted:**	25-Jun-10
		Date tested:	29-Jun-10
Site:	Fox-3	**Date:**	30-Jun-10
	10-055	**Matrix:**	water

Report of Analysis

Sample	Oil & Grease mg/L
10-00003	<2.0
10-00006	<2.0
10-00008	<2.0
Blank	<2.0
Control	14.0
Control Target	15.7

Results relate only to the items tested

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:	20673
Site:	Fox-3
Client No:	10-055
Samples Received:	25-Jun-10
Date of analysis:	28-Jun-10
Method No:	ASG 014
Date Reported:	28-Jun-10
Sheet:	1 of 1

RESULTS OF MERCURY ANALYSIS

Sample ID	Mercury mg/L
1	< 0.0004
4	< 0.0004

LABORATORY QA/QC

Sample ID	Mercury mg/L
Blank	< 0.0004
Control Target	0.0040
Control Sample	0.0042

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: 20673
Site: Fox-3
Client No: 10-055
Samples Received: 25-Jun-10
Date of analysis: 25-Jun-10
Method No: ASG 015
Date Reported: 28-Jun-10
Sheet No: 1 of 1

RESULTS OF PCB IN WATER ANALYSIS

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	00001	mg/L	< 0.003	< 0.003
W	00004	mg/L	< 0.003	< 0.003

* Average result of duplicate
Report Values in PPM

LABORATORY QA/QC

	Blank	mg/L	< 0.003	< 0.003
	Control Sample	mg/L	< 0.003	0.011
	Control Sample Target	mg/L	< 0.003	0.015

** S = Soil , C = Concrete , PC = Paint Chip , SW = Swab , P = Plant , W = Water

All results corrected for the recovery of the surrogate decachlorobiphenyl

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: 20673
Site: Fox-3
Client No: 10-055
Samples Received: 25-Jun-10
Date of analysis: 28-Jun-10
Method No: ASG 037
Date Reported: 28-Jun-10
Page: 1 of 1

RESULTS OF pH ANALYSIS

Sample I.D.	pH
00001*	6.15
00004	6.13

* Averaged result of duplicates

LABORATORY QA/QC

Sample I.D.	pH
00001 ; 00001	6.14 ; 6.16
Control	7.01
Control Target	7.00

Candice Casucci
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
101 Colonel By Drive
Ottawa ON K1A 0K2

Wednesday, March 23, 2011

RE: July 2010 Monthly Report for Water Use License Number: 1BR-FOD813

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-3 *(Dewar Lakes).*

1. CAMP SEWAGE LAGOON

A 2 cell sewage lagoon was constructed to service the FOX-3 construction camp in 2009. The sewage lagoon is located approximately 100 m from the contractor's camp, 100 m away from drainage channels and any bodies of water supporting aquatic life. The GPS coordinates that are required by the Water Use License for the sewage lagoon location are 049186E 7616767N.

2. SEWAGE EFFLUENT SAMPLES

The Water Use License and MP require that samples be collected from treated sewage lagoon effluent at the point of discharge prior to each discharge event. No samples were collected from the FOX-3 sewage lagoons in July 2010.

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

Sincerely,

Candice Casucci
Environmental Sciences Group
cc: Eva Schulz (UMA)
Daniela Loock, Kat White, Darren White, Cam Ollson, Allison Wood (ESG)

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

Tamara VanDyck
Environmental Officer
Defence Construction Canada
DEW Line Cleanup PMO
101 Colonel By Drive
Ottawa ON K1A 0K2

Wednesday, March 23, 2011

RE: Analytical Results for Wastewater Samples Collected at FOX-3 in July 2010

The following report summarizes results of the analysis of wastewater samples as per the FOX-3 (Dewar Lakes) DEW Line Cleanup Project (DLCU) Specifications.

The FOX-3 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 (As)	0.100	mg/L
Dissolved cadmium (Cd)	0.010	mg/L
Dissolved chromium (Cr)	0.100	mg/L
Dissolved cobalt (Co)	0.050	mg/L
Dissolved copper (Cu)	0.200	mg/L
Dissolved lead (Pb)	0.050	mg/L
Total mercury (Hg)	0.0006	mg/L
Dissolved nickel (Ni)	0.200	mg/L
Total zinc (Zn)	0.5	mg/L
Oil & grease	5	mg/L
PCBs	1.0	mg/L
Phenols	-	-

Phenols

The wastewater samples collected by ESG at FOX-3 in July, 2010 were not analyzed for phenols but they were analyzed for oil and grease. Research conducted by ESG[1] has determined that a) no federal, territorial or provincial criteria exist for the discharge of wastewater containing phenols to land at a minimum distance of 30-m from natural drainage courses b) the maximum concentration of phenols in DLCU wastewater to date

[1] Environmental Sciences Group. *DEW Line Clean Up Project – Phenols in Wastewater*. June, 2007.

(2.44 mg/L) is below the LC_{50} for freshwater fish and crustaceans and below the oral and dermal LD_{50}s for rats and rodents and c) phenols in excess of the maximum allowable concentration (MAC) have historically co-occurred with a visible oil & grease sheen and/or with an exceedance of the MAC for oil & grease. This information, and a subsequent decision to not test for phenols, has been presented to the NWB. To date, verbal agreement from the NWB has been received, but the project is awaiting written confirmation of the decision to suspend testing for phenols.

WASTEWATER SAMPLES

One wastewater sample was collected at FOX-3 and analyzed in July 2010. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

LOCATION: DEBRIS AREA 12 LOBE A EXCAVATION BASE
GPS COORDINATES: 0412905 7613294
SAMPLE: 10-01123
DATE: JULY 27, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-01123
pH	6-9	pH units	N/A
Total arsenic (As)	0.100	mg/L	0.006
Dissolved cadmium (Cd)	0.010	mg/L	0.001
Dissolved chromium (Cr)	0.100	mg/L	0.007
Dissolved cobalt (Co)	0.050	mg/L	0.016
Dissolved copper (Cu)	0.200	mg/L	<0.005
Dissolved lead (Pb)	0.050	mg/L	<0.010
Total mercury (Hg)	0.0006	mg/L	N/A
Dissolved nickel (Ni)	0.200	mg/L	0.014
Total zinc (Zn)	0.5	mg/L	0.091
Oil & grease	5	mg/L	N/A
PCBs	1.0	mg/L	<0.003
Phenols	-	-	N/A

Photo 1 Sample 10-1123 Fox-3: Site Debris Area 12 Lobe A contact water (facing south east)

Waste water from the Debris Area 12 Lobe A (10-1123) was discharged to the ground on August 9, 2010. The water was discharged to an area greater than 30m from drainage courses. (N 0412905 E 7613294)

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

Sincerely,

Candice Casucci
Environmental Sciences Group

cc: Eva Schulz (UMA)
Daniela Loock, Kat White, Darren White, Allison Wood (ESG)

APPENDIX A
LABORATORY RESULTS

ASU #	12968		**Report ID:**	Fox-3 W5				
Client:	ESG		**Date Submitted:**	29-Jul-10				
			Date tested:	31-Jul-10				
Site:	Fox-3		**Date:**	1-Aug-10				
	10-190		**Matrix:**	Water				
Report of Analysis								
Total Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-01123	-	-	-	-	-	0.091	0.007	0.006
Blank	-	-	-	-	-	<0.010	<0.005	<0.003
Control	-	-	-	-	-	2.82	0.76	0.73
Control Target	-	-	-	-	-	3.00	0.80	0.80
Dissolved Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-01123	<0.005	0.014	0.016	0.001	<0.010	-	-	-
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	-	-
Control	1.45	1.56	1.59	0.75	7.53	-	-	-
Control Target	1.60	1.60	1.60	0.80	8.00	-	-	-

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:	20860
Site:	Fox-3
Client No:	10-190
Samples Received:	3-Aug-10
Date of analysis:	3-Aug-10
Method No:	ASG 015
Date Reported:	4-Aug-10
Sheet No:	1 of 1

RESULTS OF PCB IN WATER ANALYSIS

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	2010-1123^	mg/L	< 0.003	< 0.003

^ Sample received in plastic bottle, not teflon
Report Values in PPM

LABORATORY QA/QC

	Blank	mg/L	< 0.003	< 0.003
	Control Sample	mg/L	< 0.003	0.013
	Control Sample Target	mg/L	< 0.003	0.015

** S = Soil , C = Concrete , PC = Paint Chip , SW = Swab , P = Plant , W = Water

Candice Casucci
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
101 Colonel By Drive
Ottawa ON K1A 0K2

Wednesday, March 23, 2011

RE: August 2010 Monthly Report for Water Use License Number: 1BR-FOD813

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-3 *(Dewar Lakes).*

1. CAMP SEWAGE LAGOON

A 2 cell sewage lagoon was constructed to service the FOX-3 construction camp in 2009. The sewage lagoon is located approximately 100 m from the contractor's camp, 100 m away from drainage channels and any bodies of water supporting aquatic life. The GPS coordinates that are required by the Water Use License for the sewage lagoon location are 049186E 7616767N.

2. SEWAGE EFFLUENT SAMPLES

The Water Use License and MP require that samples be collected from treated sewage lagoon effluent at the point of discharge prior to each discharge event. One sewage effluent sample was collected in August 2010 from the FOX-3 sewage lagoon. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

LOCATION: SEWAGE LAGOON CELL 4
GPS COORDINATES: 0409239 E 7616790 N
SAMPLE: 10-02738
DATE: AUGUST 11, 2010

Parameter	Allowable Maximum Average Concentration	Units	Sample # 10-02738
pH	6.0 to 9.0	pH units	8.11
Oil & Grease	None Visible	-	N/A
Total Suspended Solids (TSS)	180	mg/L	34
BOD	120	mg/L	23
Faecal Coliforms	10,000	CFU/ 100 mL	100
Total Coliforms	-	-	150

Photo 1 (10-02738) Sewage Lagoon Cell 4 Fox-3: Collecting a sample from Camp Sewage Lagoon – Cell #4.

Waste from Sewage Lagoon Cell 4 was discharge to the ground on August 17, 2010. The water was discharged to an INAC approved location (0409191 E 7616855 N).

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

Sincerely,

Candice Casucci
Environmental Sciences Group

cc: Eva Schulz (UMA)
Daniela Loock, Kat White, Darren White, Cam Ollson, Allison Wood (ESG)

APPENDIX A
LABORATORY RESULTS

ESG	ASG Login No: 20909
12 Verite Ave	Site: Fox-3
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-267
P.O. Box 17000, Stn. Forces	Samples Received: 12-Aug-10
Kingston, Ontario K7K 7B4	Date of analysis: 13-Aug-10
(613) 541-6000 ext 6567	Method No: ASG 037
Fax: (613) 541-6596	Date Reported: 13-Aug-10
	Page: 1 of 1

RESULTS OF pH ANALYSIS

Sample I.D.	pH
10-02738	8.11

LABORATORY QA/QC

Sample I.D.	pH
Control	7.02
Control Target	7.00

ESG	ASG Login No: 20909
12 Verite Ave	Site: FOX-3
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-267
P.O. Box 17000, Stn. Forces	Samples Received: 12-Aug-10
Kingston, Ontario K7K 7B4	Date of analysis: 12-Aug-10
(613) 541-6000 ext 6567	Date Reported: 14-Aug-10
Fax: (613) 541-6596	Sheet: 1 of 1

RESULTS OF MICROBIOLOGICAL ANALYSIS

Sample Identification	Method: ASG 036 **Total Coliforms** (CFU/100 mL)	Method: ASG 036 **E. coli** (CFU/100 mL)	Method: ASG 036 **Background** (CFU/100 mL)	Method: ASG 044 **Fecal Coliforms (CFU/100 mL)**
2738	150	40	> 200 000	100

LABORATORY QA/QC

Sample Identification	Method: ASG 036 **Total Coliforms** (CFU/100 mL)	Method: ASG 036 **E. coli** (CFU/100 mL)	Method: ASG 036 **Background** (CFU/100 mL)	Method: ASG 044 **Fecal Coliforms (CFU/100 mL)**
Blank	0	0	0	0
Control Sample	35	35	0	36
Control Sample Target	39	39	0	39

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:	20909
Site:	Fox-3
Client Login No:	10-267
Samples Received:	12-Aug-10
Date of analysis:	16-Aug-10
Method No:	ASG 039
Date Reported:	16-Aug-10
Sheet:	1 of 1

RESULTS OF TOTAL SUSPENDED SOLIDS ANALYSIS

Sample I.D.	Sample Type^	Unit	Total Suspended Solids
10-02738*	SE	mg/L	34

LABORATORY QA/QC

Duplicate ; 10-02738*	SE ; SE	mg/L	34 ; 34
Control	Control	mg/L	200
Control Target	Control	mg/L	200
Blank	Control	mg/L	< 1

^SW =Surface Water, SI = Sewage Influent SE = Sewage Effluent
* Averaged result of duplicates

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:	20909
Site:	Fox-3
Client Login No:	10-267
Samples Received:	12-Aug-10
Date of analysis:	17-Aug-10
Method No:	ASG 042
Date Reported:	17-Aug-10
Page:	1 of 1

RESULTS OF BOD ANALYSIS

Sample I.D.	Unit	BOD
10-02738	mg/L	23

LABORATORY QA/QC

Sample I.D.	Unit	BOD
Blank	mg/L	< 3
Control	mg/L	135
Control Target	mg/L	165

Candice Casucci
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
350 Albert Street, Suite 1720
Ottawa ON K1A 0K3

Wednesday, March 23, 2011

RE: Analytical Results for Wastewater Samples Collected at FOX-3 in August 2010

The following report summarizes results of the analysis of wastewater samples as per the FOX-3 (Dewar Lakes) DEW Line Cleanup Project (DLCU) Specifications.

The FOX-3 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 (As)	0.100	mg/L
Dissolved cadmium (Cd)	0.010	mg/L
Dissolved chromium (Cr)	0.100	mg/L
Dissolved cobalt (Co)	0.050	mg/L
Dissolved copper (Cu)	0.200	mg/L
Dissolved lead (Pb)	0.050	mg/L
Total mercury (Hg)	0.0006	mg/L
Dissolved nickel (Ni)	0.200	mg/L
Total zinc (Zn)	0.5	mg/L
Oil & grease	5	mg/L
PCBs	1.0	mg/L
Phenols	-	-

Phenols

The wastewater samples collected by ESG at FOX-3 in August, 2010 were not analyzed for phenols but they were analyzed for oil and grease. Research conducted by ESG[1] has determined that a) no federal, territorial or provincial criteria exist for the discharge of

[1] Environmental Sciences Group. *DEW Line Clean Up Project – Phenols in Wastewater*. June, 2007.

wastewater containing phenols to land at a minimum distance of 30-m from natural drainage courses b) the maximum concentration of phenols in DLCU wastewater to date (2.44 mg/L) is below the LC_{50} for freshwater fish and crustaceans and below the oral and dermal LD_{50}s for rats and rodents and c) phenols in excess of the maximum allowable concentration (MAC) have historically co-occurred with a visible oil & grease sheen and/or with an exceedance of the MAC for oil & grease. This information, and a subsequent decision to not test for phenols, has been presented to the NWB. To date, verbal agreement from the NWB has been received, but the project is awaiting written confirmation of the decision to suspend testing for phenols.

WASTEWATER SAMPLES

Seven wastewater samples were collected at FOX-3 and analyzed in August 2010. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

LOCATION: WASTEWATER TREATMENT SYSTEM - CONTRACT INTAKE
GPS COORDINATES: 0412417 E 7615041 N
SAMPLE: 10-02737
DATE: AUGUST 10, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-02737
pH	6-9	pH units	6.29
Total arsenic (As)	0.100	mg/L	0.011
Dissolved cadmium (Cd)	0.010	mg/L	<0.001
Dissolved chromium (Cr)	0.100	mg/L	0.009
Dissolved cobalt (Co)	0.050	mg/L	0.032
Dissolved copper (Cu)	0.200	mg/L	0.018
Dissolved lead (Pb)	0.050	mg/L	0.022
Total mercury (Hg)	0.0006	mg/L	<0.0004
Dissolved nickel (Ni)	0.200	mg/L	0.050
Total zinc (Zn)	0.5	mg/L	**0.677**
Oil & grease	5	mg/L	**8.2**
PCBs	1.0	mg/L	<0.003
Phenols	-	-	N/A

Photo 1 Sample (10-02737) Fox-3: Wastewater Sampling at Contractor Intake Hose.

Waste water sample 10-02737 was above criteria for Zn and oil and grease. An additional sample was collected on Aug 17th (sample 10-04002).

LOCATION: WASTEWATER TREATMENT SYSTEM - CONTRACT INTAKE
GPS COORDINATES: 0412417 E 7615041 N
SAMPLE: 10-04002
DATE: AUGUST 17, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-04002
pH	6-9	pH units	N/A
Total arsenic (As)	0.100	mg/L	N/A
Dissolved cadmium (Cd)	0.010	mg/L	N/A
Dissolved chromium (Cr)	0.100	mg/L	N/A
Dissolved cobalt (Co)	0.050	mg/L	N/A
Dissolved copper (Cu)	0.200	mg/L	N/A
Dissolved lead (Pb)	0.050	mg/L	N/A
Total mercury (Hg)	0.0006	mg/L	N/A
Dissolved nickel (Ni)	0.200	mg/L	N/A
Total zinc (Zn)	0.5	mg/L	*
Oil & grease	5	mg/L	4.9
PCBs	1.0	mg/L	N/A
Phenols	-	-	N/A

Photo 2 Sample (10-04002) Fox-3: Wastewater Sampling at Contractor Intake Hose

Wastewater sample 10-04002 was below criteria for oil and grease. The sample was not requested to be analyzed for Zn due to an onsite error. The water in the treatment tank was discharged to ground on August 26, 2010 to an INAC approved location (0413763 E 7614347 N).

LOCATION: SP - 7246
GPS COORDINATES: 0409424 E 7617053 N
SAMPLE: 10-04506
DATE: AUGUST 23, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-04506
pH	6-9	pH units	N/A
Total arsenic (As)	0.100	mg/L	N/A
Dissolved cadmium (Cd)	0.010	mg/L	N/A
Dissolved chromium (Cr)	0.100	mg/L	N/A
Dissolved cobalt (Co)	0.050	mg/L	N/A
Dissolved copper (Cu)	0.200	mg/L	N/A
Dissolved lead (Pb)	0.050	mg/L	N/A
Total mercury (Hg)	0.0006	mg/L	N/A
Dissolved nickel (Ni)	0.200	mg/L	N/A
Total zinc (Zn)	0.5	mg/L	N/A
Oil & grease	5	mg/L	**5.3**
PCBs	1.0	mg/L	N/A
Phenols	-	-	N/A

Photo 3 Sample (10-04506) Fox-3- SP-7246: Wastewater Sample in bottle.

After a week of rainfall, contaminated soil area SP-7246 had filled up with water. There was a POL pipeline running through the excavation that could potentially collapse or be damaged due to the large amount of water. An onsite decision was made to pump the water and backfill the area prior to results being received. Water was discharged on Aug 30th to an INAC approved location (0409436 7617061).

LOCATION: G-7410B
GPS COORDINATES: 0409361 E 7617117 N
SAMPLE: 10-04507
DATE: AUGUST 23, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-04507
pH	6-9	pH units	N/A
Total arsenic (As)	0.100	mg/L	N/A
Dissolved cadmium (Cd)	0.010	mg/L	N/A
Dissolved chromium (Cr)	0.100	mg/L	N/A
Dissolved cobalt (Co)	0.050	mg/L	N/A
Dissolved copper (Cu)	0.200	mg/L	N/A
Dissolved lead (Pb)	0.050	mg/L	N/A
Total mercury (Hg)	0.0006	mg/L	N/A
Dissolved nickel (Ni)	0.200	mg/L	N/A
Total zinc (Zn)	0.5	mg/L	N/A
Oil & grease	5	mg/L	2.0
PCBs	1.0	mg/L	N/A
Phenols	-	-	N/A

Photo 4 Sample (10-04507) Fox-3- G-7410B: Wastewater Sample in bottle.

Wastewater from G-7410B (10-04507) was discharged to the ground on August 30th, 2010. The water was discharged to and INAC approved location (0409365 E 7617137 N).

LOCATION: LANDFARM
GPS COORDINATES: 0409358 E 7616838 N
SAMPLE: 10-04508
DATE: AUGUST 26, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-04508
pH	6-9	pH units	N/A
Total arsenic (As)	0.100	mg/L	N/A
Dissolved cadmium (Cd)	0.010	mg/L	N/A
Dissolved chromium (Cr)	0.100	mg/L	N/A
Dissolved cobalt (Co)	0.050	mg/L	N/A
Dissolved copper (Cu)	0.200	mg/L	N/A
Dissolved lead (Pb)	0.050	mg/L	N/A
Total mercury (Hg)	0.0006	mg/L	N/A
Dissolved nickel (Ni)	0.200	mg/L	N/A
Total zinc (Zn)	0.5	mg/L	N/A
Oil & grease	5	mg/L	2.1
PCBs	1.0	mg/L	N/A
Phenols	-	-	N/A

Photo 5 Sample (10-04508) Fox-3 Landfarm: Water sampling at the Landfarm.

Waste water from Landfarm (10-04508) was discharged to the ground on August 31st, 2010. The water was discharged to and INAC approved location (0409384 E 7616804 N).

LOCATION: TIER II DISPOSAL FACILITY
GPS COORDINATES: 0409379 E 7615567 N
SAMPLE: 10-36115
DATE: AUGUST 30, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-36115
pH	6-9	pH units	7.03
Total arsenic (As)	0.100	mg/L	0.011
Dissolved cadmium (Cd)	0.010	mg/L	0.001
Dissolved chromium (Cr)	0.100	mg/L	0.032
Dissolved cobalt (Co)	0.050	mg/L	<0.003
Dissolved copper (Cu)	0.200	mg/L	0.009
Dissolved lead (Pb)	0.050	mg/L	<0.010
Total mercury (Hg)	0.0006	mg/L	<0.0004
Dissolved nickel (Ni)	0.200	mg/L	0.006
Total zinc (Zn)	0.5	mg/L	0.085
Oil & grease	5	mg/L	**11.0**
PCBs	1.0	mg/L	<0.003
Phenols	-	-	N/A

Photo 6 Sample (10-36115) Fox-3 Tier II Disposal Facility : Water Sampling

Sample 10-36115 was above criteria for oil and grease. The area was not discharged in August.

LOCATION: BARREL PROCESSING AREA
GPS COORDINATES: 0413758 E 2614355 N
SAMPLE: 10-36116
DATE: AUGUST 30, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-36116
pH	6-9	pH units	7.22
Total arsenic (As)	0.100	mg/L	0.011
Dissolved cadmium (Cd)	0.010	mg/L	<0.001
Dissolved chromium (Cr)	0.100	mg/L	0.078
Dissolved cobalt (Co)	0.050	mg/L	<0.003
Dissolved copper (Cu)	0.200	mg/L	0.005
Dissolved lead (Pb)	0.050	mg/L	<0.010
Total mercury (Hg)	0.0006	mg/L	<0.0004
Dissolved nickel (Ni)	0.200	mg/L	<0.005
Total zinc (Zn)	0.5	mg/L	0.474
Oil & grease	5	mg/L	**254**
PCBs	1.0	mg/L	<0.003
Phenols	-	-	N/A

Photo 7 Sample (10-36116) Fox-3 Barrel Processing Area: Water sampling at the Barrel Processing Area.

Sample 10-36116 was above criteria for oil and grease, and the wastewater was not discharged in August.

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

Sincerely,

Candice Casucci
Environmental Sciences Group

cc: Eva Schulz (UMA)
Daniela Loock, Kat White, Darren White, Cam Ollson, Allison Wood (ESG)

APPENDIX A
LABORATORY RESULTS

ASU #	13046		**Report ID:**	Fox-3 W7				
Client:	ESG		**Date Submitted:**	12-Aug-10				
			Date tested:	13-Aug-10				
Site:	Fox-3		**Date:**	13-Aug-10				
	10-268		**Matrix:**	water				
Report of Analysis								
Total Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-02737	-	-	-	-	-	0.677	0.009	0.011
Blank	-	-	-	-	-	<0.010	<0.005	<0.003
Control	-	-	-	-	-	3.04	0.82	0.78
Control Target	-	-	-	-	-	3.00	0.80	0.80
Dissolved Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-02737	0.018	0.050	0.032	<0.001	0.022	-	-	-
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	-	-
Control	1.59	1.62	1.63	0.80	8.17	-	-	-
Control Target	1.60	1.60	1.60	0.80	8.00	-	-	-

ASU #	13046		**Report ID:**	Fox-3 W6
Client:	ESG		**Date Submitted:**	12-Aug-10
			Date tested:	12-Aug-10
Site:	Fox-3		**Date:**	13-Aug-10
	10-268		**Matrix:**	water
Report of Analysis				
Sample	Oil & Grease			
	mg/L			
10-02737	8.2			
Blank	<2.0			
Control	12.8			
Control Target	15.9			
Results relate only to the items tested.				

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:	20912
Site:	Fox-3
Client No:	10-268
Samples Received:	12-Aug-10
Date of analysis:	13-Aug-10
Method No:	ASG 021
Date Reported:	13-Aug-10
Sheet:	1 of 1

RESULTS OF MERCURY IN WATER ANALYSIS

Sample ID	Mercury^ mg/L
10-02737	< 0.0004

^ Acid digestion performed in block digester.
# Reported at 0.0004 mg/L detection limit.

LABORATORY QA/QC

Sample ID	Mercury^ mg/L
Blank	< 0.0004
Control Target	0.0043
Control Sample	0.0040

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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:	20912
Site:	Fox-3
Client No:	10-268
Samples Received:	12-Aug-10
Date of analysis:	13-Aug-10
Method No:	ASG 037
Date Reported:	13-Aug-10
Page:	1 of 1

RESULTS OF pH ANALYSIS

Sample I.D.	pH
10-02737*	6.29

* Averaged result of duplicates

LABORATORY QA/QC

Sample I.D.	pH
10-02737* ; Duplicate	6.28 ; 6.30
Control	7.02
Control Target	7.00

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12 Verite Ave
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P.O. Box 17000, Stn. Forces
Kingston, Ontario K7K 7B4
(613) 541-6000 ext 6567
Fax: (613) 541-6596

ASG Login No:	20912
Site:	Fox-3
Client No:	10-268
Samples Received:	12-Aug-10
Date of analysis:	13-Aug-10
Method No:	ASG 015
Date Reported:	14-Aug-10
Sheet No:	1 of 1

RESULTS OF PCB IN WATER ANALYSIS

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	2737*	mg/L	< 0.003	< 0.003

* Average result of duplicate
Report Values in PPM

LABORATORY QA/QC

	Blank	mg/L	< 0.003	< 0.003
	Duplicate ; 2737*	mg/L	< 0.003 ; < 0.003	< 0.003 ; < 0.003
	Control Sample	mg/L	< 0.003	0.011
	Control Sample Target	mg/L	< 0.003	0.015

** S = Soil , C = Concrete , PC = Paint Chip , SW = Swab , P = Plant , W = Water

ASU #	13086		**Report ID:**	Fox-3 W8
Client:	ESG		**Date Submitted:**	20-Aug-10
			Date tested:	26-Aug-10
Site:	Fox-3		**Date:**	26-Aug-10
	10-305		**Matrix:**	water

Report of Analysis

Sample	Oil & Grease
	mg/L
10-04002	4.9
Blank	<2.0
Control	13.7
Control Target	15.9

ASU #	13135		**Report ID:**	Fox-3 W9
Client:	ESG		**Date Submitted:**	27-Aug-10
			Date tested:	30-Aug-10
Site:	Fox-3		**Date:**	30-Aug-10
	10-335		**Matrix:**	water
Report of Analysis				
Sample	Oil & Grease			
	mg/L			
10-04506	5.3			
10-04507	2.0			
10-04732	5.1			
Blank	<2.0			
Control	13.5			
Control Target	15.9			

ASU #	13145		**Report ID:**	Fox-3 W10
Client:	ESG		**Date Submitted:**	30-Aug-10
			Date tested:	31-Aug-10
Site:	Fox-3		**Date:**	31-Aug-10
	10-341		**Matrix:**	water
Report of Analysis				
Sample	Oil & Grease			
	mg/L			
10-04508	2.1			
Blank	<2.0			
Control	13.3			
Control Target	15.9			

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:	21009
Site:	Fox-3
Client No:	10-380
Samples Received:	2-Sep-10
Date of analysis:	3-Sep-10
Method No:	ASG 037
Date Reported:	3-Sep-10
Page:	1 of 1

RESULTS OF pH ANALYSIS

Sample I.D.	pH
36115	7.03
36116	7.22

LABORATORY QA/QC

Sample I.D.	pH
Control	7.00
Control Target	7.00

ASU #	13175		**Report ID:**	Fox-3 W12				
Client:	ESG		**Date Submitted:**	2-Sep-10				
			Date tested:	3-Sep-10				
Site:	Fox-3		**Date:**	3-Sep-10				
	10-380		**Matrix:**	water				

Report of Analysis

Total Metals — Results in mg/L

SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-36115	-	-	-	-	-	0.085	0.032	0.011
10-36116	-	-	-	-	-	0.474	0.078	0.043
Blank	-	-	-	-	-	<0.010	<0.005	<0.003
Control	-	-	-	-	-	3.04	0.83	0.75
Control Target	-	-	-	-	-	3.00	0.80	0.80

Dissolved Metals — Results in mg/L

SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-36115	0.009	0.006	<0.003	0.001	<0.010	-	-	-
10-36116	0.005	<0.005	<0.003	<0.001	<0.010	-	-	-
10-36126	<0.005	-	-	-	<0.010	-	-	-
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	-	-
Control	1.46	1.61	1.59	0.81	8.00	-	-	-
Control Target	1.60	1.60	1.60	0.80	8.00	-	-	-

ASU #	13175		**Report ID:**	Fox-3 W11
Client:	ESG		**Date Submitted:**	2-Sep-10
			Date tested:	3-Sep-10
Site:	Fox-3		**Date:**	3-Sep-10
	10-380		**Matrix:**	water
Report of Analysis				
Sample	Oil & Grease			
	mg/L			
10-36115	11.0			
10-36116	254			
Blank	<2.0			
Control	17.7			
Control Target	15.7			

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:	21009
Site:	Fox-3
Client No:	10-380
Samples Received:	2-Sep-10
Date of analysis:	3-Sep-10
Method No:	ASG 021
Date Reported:	3-Sep-10
Sheet:	1 of 1

RESULTS OF MERCURY IN WATER ANALYSIS

Sample ID	Mercury^ mg/L
36115	< 0.0004
36116	< 0.0004

^ Acid digestion performed.
# Reported at 0.0004 mg/L detection limit.

LABORATORY QA/QC

Sample ID	Mercury^ mg/L
Blank	< 0.0004
Control Target	0.0040
Control Sample	0.0041

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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:	21009
Site:	Fox-3
Client No:	10-380
Samples Received:	2-Sep-10
Date of analysis:	2-Sep-10
Method No:	ASG 015
Date Reported:	3-Sep-10
Sheet No:	1 of 1

RESULTS OF PCB IN WATER ANALYSIS

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	36115	mg/L	< 0.003	< 0.003
W	~36116	mg/L	< 0.003	< 0.003

Report Values in PPM
* Average Result of Duplicate
~ Surrogate Recovery outside control limits

LABORATORY QA/QC

	Blank	mg/L	< 0.003	< 0.003
	Control Sample	mg/L	< 0.003	0.011
	Control Sample Target	mg/L	< 0.003	0.015

** S = Soil , C = Concrete , PC = Paint Chip , SW = Swab , P = Plant , W = Water

Candice Casucci
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
101 Colonel By Drive
Ottawa ON K1A 0K2

Wednesday, March 23, 2011

RE: September 2010 Monthly Report for Water Use License Number: 1BR-FOD813

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-3 *(Dewar Lakes).*

1. CAMP SEWAGE LAGOON

A 2 cell sewage lagoon was constructed to service the FOX-3 construction camp in 2009. The sewage lagoon is located approximately 100 m from the contractor's camp, 100 m away from drainage channels and any bodies of water supporting aquatic life. The GPS coordinates that are required by the Water Use License for the sewage lagoon location are 049186E 7616767N.

2. SEWAGE EFFLUENT SAMPLES

The Water Use License and MP require that samples be collected from treated sewage lagoon effluent at the point of discharge prior to each discharge event. One sewage effluent sample was collected in September 2010 from the FOX-3 sewage lagoon. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

LOCATION: SEWAGE LAGOON - CELL 3
GPS COORDINATES: 0409226 E 7616809 N
SAMPLE: 10-36522
DATE: SEPTEMBER 9, 2010

Parameter	Allowable Maximum Average Concentration	Units	Sample # 10-36522
pH	6.0 to 9.0	pH units	7.44
Oil & Grease	None Visible	-	N/A
Total Suspended Solids (TSS)	180	mg/L	19
BOD	120	mg/L	105
Faecal Coliforms	10,000	CFU/ 100 mL	**>2000000**
Total Coliforms	-	-	>2000000

Photo 1 (P9090001) Sample 10-36522 Fox-3: Collecting a sample from the cell 3 of the camp sewage lagoon.

Water from Sewage Lagoon- Cell 3 (10-36522) was not discharged to land in 2010. The water will remain in its current location and will be addressed in the 2011 season.

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

Sincerely,

Candice Casucci
Environmental Sciences Group

cc: Eva Schulz (UMA)
Daniela Loock, Kat White, Darren White, Cam Ollson, Allison Wood (ESG)

APPENDIX A
LABORATORY RESULTS

ESG	ASG Login No: 21047
12 Verite Ave	Site: Fox-3
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-411
P.O. Box 17000, Stn. Forces	Samples Received: 11-Sep-10
Kingston, Ontario K7K 7B4	Date of analysis: 11-Sep-10
(613) 541-6000 ext 6567	Date Reported: 12-Sep-10
Fax: (613) 541-6596	Sheet: 1 of 1

RESULTS OF MICROBIOLOGICAL ANALYSIS

Sample Identification	Method: ASG 036 **Total Coliforms** (CFU/100 mL)	Method: ASG 036 ***E. coli*** (CFU/100 mL)	Method: ASG 036 **Background** (CFU/100 mL)	Method: ASG 044 **Fecal Coliforms** (CFU/100mL)
36522	> 2000000	29000	> 2000000	> 2000000

LABORATORY QA/QC

Sample Identification	Method: ASG 036 **Total Coliforms** (CFU/100 mL)	Method: ASG 036 ***E. coli*** (CFU/100 mL)	Method: ASG 036 **Background** (CFU/100 mL)	Method: ASG 044 **Fecal Coliforms** (CFU/100mL)
Blank	0	0	0	0
Control Sample	38	38	0	36
Control Target	36	36	0	36

ESG	ASG Login No: 21047
12 Verite Ave	Site: Fox-3
Dept. of Chem. / Chem. Eng., RMC	Client Login No: 10-411
P.O. Box 17000, Stn. Forces	Samples Received: 11-Sep-10
Kingston, Ontario K7K 7B4	Date of analysis: 13-Sep-10
(613) 541-6000 ext 6567	Method No: ASG 039
Fax: (613) 541-6596	Date Reported: 13-Sep-10
	Sheet: 1 of 1

RESULTS OF TOTAL SUSPENDED SOLIDS ANALYSIS

Sample I.D.	Sample Type^	Unit	Total Suspended Solids
10-36522*	SE	mg/L	19

LABORATORY QA/QC

Duplicate ; 10-36522*	SE ; SE	mg/L	18 ; 20
Control	Control	mg/L	190
Control Target	Control	mg/L	200
Blank	Control	mg/L	< 1

^SW =Surface Water, SI = Sewage Influent SE = Sewage Effluent

* Averaged result of duplicates

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:	21047
Site:	Fox-3
Client No:	10-411
Samples Received:	11-Sep-10
Date of analysis:	13-Sep-10
Method No:	ASG 037
Date Reported:	13-Sep-10
Page:	1 of 1

RESULTS OF pH ANALYSIS

Sample I.D.	pH
10-36522*	7.44

* Averaged result of duplicates

LABORATORY QA/QC

Sample I.D.	pH
10-36522* ; Duplicate	7.44 ; 7.44
Control	7.01
Control Target	7.00

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:	21047
Site:	Fox-3
Client Login No:	10-411
Samples Received:	11-Sep-10
Date of analysis:	13-Sep-10
Method No:	ASG 042
Date Reported:	17-Aug-10
Page:	1 of 1

RESULTS OF BOD ANALYSIS

Sample I.D.	Unit	BOD
10-36522*	mg/L	105
10-28665	mg/L	146
10-28668	mg/L	161
10-28671	mg/L	150

LABORATORY QA/QC

Sample I.D.	Unit	BOD
10-36522* , Duplicate	mg/L	101 ; 109
Blank	mg/L	< 3
Control	mg/L	130
Control Target	mg/L	165

Candice Casucci
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
101 Colonel By Drive
Ottawa ON K1A 0K2

Wednesday, March 23, 2011

RE: Analytical Results for Wastewater Samples Collected at FOX-3 in September 2010

The following report summarizes results of the analysis of wastewater samples as per the FOX-3 (Dewar Lakes) DEW Line Cleanup Project (DLCU) Specifications.

The FOX-3 specifications require that "wash water, melt water collection, and 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 (As)	0.100	mg/L
Dissolved cadmium (Cd)	0.010	mg/L
Dissolved chromium (Cr)	0.100	mg/L
Dissolved cobalt (Co)	0.050	mg/L
Dissolved copper (Cu)	0.200	mg/L
Dissolved lead (Pb)	0.050	mg/L
Total mercury (Hg)	0.0006	mg/L
Dissolved nickel (Ni)	0.200	mg/L
Total zinc (Zn)	0.5	mg/L
Oil & grease	5	mg/L
PCBs	1.0	mg/L
Phenols	-	-

Phenols

The wastewater samples collected by ESG at FOX-3 in September, 2010 were not analyzed for phenols but they were analyzed for oil and grease. Research conducted by ESG[1] has determined that a) no federal, territorial or provincial criteria exist for the discharge of

[1] Environmental Sciences Group. *DEW Line Clean Up Project – Phenols in Wastewater*. June, 2007.

wastewater containing phenols to land at a minimum distance of 30-m from natural drainage courses b) the maximum concentration of phenols in DLCU wastewater to date (2.44 mg/L) is below the LC_{50} for freshwater fish and crustaceans and below the oral and dermal LD_{50}s for rats and rodents and c) phenols in excess of the maximum allowable concentration (MAC) have historically co-occurred with a visible oil & grease sheen and/or with an exceedance of the MAC for oil & grease. This information, and a subsequent decision to not test for phenols, has been presented to the NWB. To date, verbal agreement from the NWB has been received, but the project is awaiting written confirmation of the decision to suspend testing for phenols.

WASTEWATER SAMPLES

Six wastewater samples were collected at FOX-3 and analyzed in September 2010. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

LOCATION: STATION WEST LANDFILL - LOBE E1
GPS COORDINATES: 0408853 E 7616961 N
SAMPLE: 10-36126
DATE: SEPTEMBER 1, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-36126
pH	6-9	pH units	N/A
Total arsenic (As)	0.100	mg/L	N/A
Dissolved cadmium (Cd)	0.010	mg/L	N/A
Dissolved chromium (Cr)	0.100	mg/L	N/A
Dissolved cobalt (Co)	0.050	mg/L	N/A
Dissolved copper (Cu)	0.200	mg/L	<0.005
Dissolved lead (Pb)	0.050	mg/L	<0.010
Total mercury (Hg)	0.0006	mg/L	N/A
Dissolved nickel (Ni)	0.200	mg/L	N/A
Total zinc (Zn)	0.5	mg/L	N/A
Oil & grease	5	mg/L	N/A
PCBs	1.0	mg/L	N/A
Phenols	-	-	N/A

Photo 1 (P9010015) Sample 10-36126 Fox-3: Station West Landfill Lobe E1 Wastewater sample.

Waste water from Station West Landfill – Lobe E1 was discharge to the ground on September 8, 2010. The water was discharged to an INAC approved location.

LOCATION: MATERIAL PROCESSING AREA #7
GPS COORDINATES: 0409594 E 7615637 N
SAMPLE: 10-36129
DATE: SEPTEMBER 2, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-36129
pH	6-9	pH units	6.90
Total arsenic (As)	0.100	mg/L	0.142
Dissolved cadmium (Cd)	0.010	mg/L	<0.001
Dissolved chromium (Cr)	0.100	mg/L	0.554
Dissolved cobalt (Co)	0.050	mg/L	0.004
Dissolved copper (Cu)	0.200	mg/L	0.078
Dissolved lead (Pb)	0.050	mg/L	<0.010
Total mercury (Hg)	0.0006	mg/L	<0.0004
Dissolved nickel (Ni)	0.200	mg/L	0.011
Total zinc (Zn)	0.5	mg/L	**0.551**
Oil & grease	5	mg/L	5.0
PCBs	1.0	mg/L	<0.003
Phenols	-	-	N/A

Photo 2 – Sample 10-36129 Fox-3: Wastewater Samples 36129 in amber, Teflon and HDPE bottles, MPA#7.

Waste water from Material Processing Area #7 (sample 10-36129) was above criteria for Zn and was not discharged to land in September 2010.

LOCATION: BA-7762
GPS COORDINATES: 0412976 E 7614062 N
SAMPLE: 10-36132
DATE: SEPTEMBER 2, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-36132
pH	6-9	pH units	N/A
Total arsenic (As)	0.100	mg/L	N/A
Dissolved cadmium (Cd)	0.010	mg/L	N/A
Dissolved chromium (Cr)	0.100	mg/L	N/A
Dissolved cobalt (Co)	0.050	mg/L	N/A
Dissolved copper (Cu)	0.200	mg/L	N/A
Dissolved lead (Pb)	0.050	mg/L	N/A
Total mercury (Hg)	0.0006	mg/L	N/A
Dissolved nickel (Ni)	0.200	mg/L	N/A
Total zinc (Zn)	0.5	mg/L	N/A
Oil & grease	5	mg/L	2.4
PCBs	1.0	mg/L	N/A
Phenols	-	-	N/A

Photo 3 (P9020003) Sample 10-36132 Fox-3: Wastewater Sample from BA-7762

Wastewater from BA-7762 was discharged to land on September 10th, 2010. The water was discharged to an INAC approved locations (0412981 E 7614059 N).

LOCATION: TIER II DISPOSAL FACILITY
GPS COORDINATES: 0409379 E 7615567 N
SAMPLE: 10-36163
DATE: SEPTEMBER 4, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-36163
pH	6-9	pH units	N/A
Total arsenic (As)	0.100	mg/L	N/A
Dissolved cadmium (Cd)	0.010	mg/L	N/A
Dissolved chromium (Cr)	0.100	mg/L	N/A
Dissolved cobalt (Co)	0.050	mg/L	N/A
Dissolved copper (Cu)	0.200	mg/L	N/A
Dissolved lead (Pb)	0.050	mg/L	N/A
Total mercury (Hg)	0.0006	mg/L	N/A
Dissolved nickel (Ni)	0.200	mg/L	N/A
Total zinc (Zn)	0.5	mg/L	N/A
Oil & grease	5	mg/L	<2.0
PCBs	1.0	mg/L	N/A
Phenols	-	-	N/A

Photo 4 (P9040052) Sample 10-36163 Fox-3: Wastewater sampling at Tier II Facility.

Sample 10-36163 was analyzed for oil and grease only as a previous sample (10-36115) was below criteria for all other parameters. Sample 10-36163 was below criteria for oil and grease and the water in the Tier II Disposal Facility was discharged to land on September 8th, 2010. The water was discharged to an INAC approved location (0409384 E 7615613 N).

LOCATION: MATERIAL PROCESSING AREA #6
GPS COORDINATES: 0409251 E 7616947 N
SAMPLE: 10-36164
DATE: SEPTEMBER 4, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-36164
pH	6-9	pH units	N/A
Total arsenic (As)	0.100	mg/L	N/A
Dissolved cadmium (Cd)	0.010	mg/L	N/A
Dissolved chromium (Cr)	0.100	mg/L	N/A
Dissolved cobalt (Co)	0.050	mg/L	N/A
Dissolved copper (Cu)	0.200	mg/L	N/A
Dissolved lead (Pb)	0.050	mg/L	N/A
Total mercury (Hg)	0.0006	mg/L	N/A
Dissolved nickel (Ni)	0.200	mg/L	N/A
Total zinc (Zn)	0.5	mg/L	N/A
Oil & grease	5	mg/L	**6.1**
PCBs	1.0	mg/L	N/A
Phenols	-	-	N/A

Photo 5 (P9040054) Sample 10-36164 Fox-3: Wastewater sampling at MPA-6.

Waste water from Material Processing Area #6 was above criteria for oil and grease and was not discharged to land in 2010.

LOCATION: WASTE WATER TANK IN HAZARDOUS WASTE PROCESSING AREA
GPS COORDINATES: 0409340 E 7616854 N
SAMPLE: 10-36449
DATE: SEPTEMBER 9, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-36449
pH	6-9	pH units	6.69
Total arsenic (As)	0.100	mg/L	0.004
Dissolved cadmium (Cd)	0.010	mg/L	<0.001
Dissolved chromium (Cr)	0.100	mg/L	0.016
Dissolved cobalt (Co)	0.050	mg/L	0.006
Dissolved copper (Cu)	0.200	mg/L	0.013
Dissolved lead (Pb)	0.050	mg/L	0.035
Total mercury (Hg)	0.0006	mg/L	<0.0004
Dissolved nickel (Ni)	0.200	mg/L	0.009
Total zinc (Zn)	0.5	mg/L	**1.44**
Oil & grease	5	mg/L	<2.0
PCBs	1.0	mg/L	<0.003
Phenols	-	-	N/A

Photo 6 (P9080025) Sample 10-36449 Fox-3: Wastewater Tank (grey) that contains Barrel Rinse water and wastewater from Barrel Processing Area # 1.

Waste water in the tank was above criteria for Zn, and was not discharged to land in 2010.

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

Sincerely,

Candice Casucci
Environmental Sciences Group

cc: Eva Schulz (UMA)
Daniela Loock, Kat White, Darren White, Cam Ollson, Allison Wood (ESG)

APPENDIX A
LABORATORY RESULTS\

ASU #	13175		**Report ID:**	Fox-3 W12				
Client:	ESG		**Date Submitted:**	2-Sep-10				
			Date tested:	3-Sep-10				
Site:	Fox-3		**Date:**	3-Sep-10				
	10-380		**Matrix:**	water				
Report of Analysis								
Total Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-36126	<0.005	-	-	-	<0.010	-	-	-

ESG						ASG Login No:	21014	
12 Verite Ave						Site:	Fox-3	
Dept. of Chem. / Chem. Eng., RMC						Client No:	10-381	
P.O. Box 17000, Stn. Forces						Samples Received:	3-Sep-10	
Kingston, Ontario K7K 7B4						Date of analysis:	7-Sep-10	
(613) 541-6000 ext 6567						Method No:	ASG 014	
Fax: (613) 541-6596						Date Reported:	7-Sep-10	
						Sheet:	1 of 1	

RESULTS OF MERCURY IN WATER ANALYSIS

Sample ID	Mercury^ mg/L
10-36128	< 0.0004
10-36129	< 0.0004

*Average result of duplicates.
^ Acid digestion performed.
# Reported at 0.0004 mg/L detection limit.

LABORATORY QA/QC

Sample ID	Mercury^ mg/L
Blank	< 0.0004
Control Target	0.0040
Control Sample	0.0041

ASU #	13179		**Report ID:**	Fox-3 W14
Client:	ESG		**Date Submitted:**	3-Sep-10
			Date tested:	3-Sep-10
Site:	Fox-3		**Date:**	3-Sep-10
	10-381		**Matrix:**	water
Report of Analysis				
Sample	Oil & Grease			
	mg/L			
10-36129	5.0			
10-36132	2.4			
Blank	<2.0			
Control	17.7			
Control Target	15.7			

ASU #	13179		**Report ID:**	Fox-3 W13				
Client:	ESG		**Date Submitted:**	3-Sep-10				
			Date tested:	7-Sep-10				
Site:	Fox-3		**Date:**	7-Sep-10				
	10-381		**Matrix:**	water				
Report of Analysis								
Total Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-36128	-	-	-	-	-	0.827	0.417	0.138
10-36129	-	-	-	-	-	0.551	0.554	0.142
Blank	-	-	-	-	-	<0.010	<0.005	<0.003
Control	-	-	-	-	-	2.96	0.79	0.77
Control Target	-	-	-	-	-	3.00	0.80	0.80
Dissolved Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-36128	0.022	0.008	<0.003	<0.001	<0.010	-	-	-
10-36129	0.078	0.011	0.004	<0.001	<0.010	-	-	-
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	-	-
Control	1.53	1.59	1.57	0.78	7.90	-	-	-
Control Target	1.60	1.60	1.60	0.80	8.00	-	-	-

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:	21014
Site:	Fox-3
Client No:	10-381
Samples Received:	3-Sep-10
Date of analysis:	3-Sep-10
Method No:	ASG 015
Date Reported:	7-Sep-10
Sheet No:	1 of 1

RESULTS OF PCB IN WATER ANALYSIS

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	36128*	mg/L	< 0.003	< 0.003
W	36129	mg/L	< 0.003	< 0.003

Report Values in PPM
* Average Result of Duplicate

LABORATORY QA/QC

	Blank	mg/L	< 0.003	< 0.003
	Duplicate ; 36128*	mg/L	< 0.003 ; < 0.003	< 0.003 ; < 0.003
	Control Sample	mg/L	< 0.003	0.012
	Control Sample Target	mg/L	< 0.003	0.015

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

ASG Login No:	21014
Site:	Fox-3
Client No:	10-381
Samples Received:	3-Sep-10
Date of analysis:	7-Sep-10
Method No:	ASG 037
Date Reported:	7-Sep-10
Page:	1 of 1

RESULTS OF pH ANALYSIS

Sample I.D.	pH
10-36128	6.90
10-36129	6.84

* Averaged result of duplicates

LABORATORY QA/QC

Sample I.D.	pH
Control	7.00
Control Target	7.00

ASU #	13189		**Report ID:**	Fox-3 W15
Client:	ESG		**Date Submitted:**	7-Sep-10
			Date tested:	7-Sep-10
Site:	Fox-3		**Date:**	7-Sep-10
	10-395		**Matrix:**	water
Report of Analysis				
Sample	Oil & Grease			
	mg/L			
10-36163	<2.0			
10-36164	6.1			
Blank	<2.0			
Control	14.4			
Control Target	15.7			

ASU #	13205		**Report ID:**	Fox-3 W16
Client:	ESG		**Date Submitted:**	9-Sep-10
			Date tested:	9-Sep-10
Site:	Fox-3		**Date:**	10-Sep-10
	10-410		**Matrix:**	water
Report of Analysis				
Sample	Oil & Grease			
	mg/L			
10-36449**	24580			
Blank	<2.0			
Control	14.1			
Control Target	15.7			
Results relate only to the items tested.				
** samples had significant layer of free product on top, sample was treated as a whole				
and the water layer was not extracted for oil & grease.				

ASU #	13205		**Report ID:**	Fox-3 W17					
Client:	ESG		**Date Submitted:**	9-Sep-10					
			Date tested:	9-Sep-10					
Site:	Fox-3		**Date:**	10-Sep-10					
	10-410		**Matrix:**	water					
Report of Analysis									
Total Metals	Results in mg/L								
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As	
10-36449**	-	-	-	-	-	1.44	0.016	0.004	*
Blank	-	-	-	-	-	<0.010	<0.005	<0.003	
Control	-	-	-	-	-	2.85	0.78	0.72	
Control Target	-	-	-	-	-	3.00	0.80	0.80	
10-36449**	-	-	-	-	-	1.45	0.017	0.004	
10-36449**	-	-	-	-	-	1.42	0.016	0.004	
Dissolved Metals	Results in mg/L								
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As	
10-36449**	0.013	0.009	0.006	<0.001	0.035	-	-	-	*
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	-	-	
Control	1.41	1.53	1.53	0.76	7.61	-	-	-	
Control Target	1.60	1.60	1.60	0.80	8.00	-	-	-	
10-36449**	0.016	0.009	0.006	<0.001	0.044	-	-	-	
10-36449**	0.010	0.009	0.006	<0.001	0.025	-	-	-	
Results relate only to the items tested									
** layer of free product removed prior to analysis									

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:	21041
Site:	Fox-3
Client No:	10-410
Samples Received:	9-Sep-10
Date of analysis:	13-Sep-10
Method No:	ASG 021
Date Reported:	13-Sep-10
Sheet:	1 of 1

RESULTS OF MERCURY IN WATER ANALYSIS

Sample ID	Mercury^ mg/L
36449	< 0.0004

^ Acid digestion performed.
# Reported at 0.0004 mg/L detection limit.

LABORATORY QA/QC

Sample ID	Mercury^ mg/L
Blank	< 0.0004
Control Target	0.0040
Control Sample	0.0039

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12 Verite Ave
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P.O. Box 17000, Stn. Forces
Kingston, Ontario K7K 7B4
(613) 541-6000 ext 6567
Fax: (613) 541-6596

ASG Login No: 21041
Site: Fox-3
Client No: 10-410
Samples Received: 11-Sep-10
Date of analysis: 13-Sep-10
Method No: ASG 037
Date Reported: 13-Sep-10

RESULTS OF pH ANALYSIS

Sample I.D.	pH
10-36449*	6.69

* Averaged result of duplicates

LABORATORY QA/QC

Sample I.D.	pH
10-36449* ; Duplicate	6.69 ; 6.69
Control	7.01
Control Target	7.00

ESG
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P.O. Box 17000, Stn. Forces
Kingston, Ontario K7K 7B4
(613) 541-6000 ext 6567
Fax: (613) 541-6596

ASG Login No: 21041
Site: Fox-3
Client No: 10-410
Samples Received: 9-Sep-10
Date of analysis: 13-Sep-10
Method No: ASG 015
Date Reported: 15-Sep-10
Sheet No: 1 of 1

RESULTS OF PCB IN WATER ANALYSIS

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	~36449*	mg/L	< 0.003	< 0.003

***Sample recived with both aqueous and organic phases
Report Values in PPM
* Average Result of Duplicate
~ Surrogate recovey outside control limits due to complex sample matrix

LABORATORY QA/QC

	Blank	mg/L	< 0.003	< 0.003
	Duplicate ; 36449*	mg/L	< 0.003 ; < 0.003	< 0.003 ; < 0.003
	Control Sample	mg/L	< 0.003	0.013
	Control Sample Target	mg/L	< 0.003	0.015

** S = Soil , C = Concrete , PC = Paint Chip , SW = Swab , P = Plant , W = Water

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No.
FOX-3, Dewar Lakes	Nunavut	60153669-8

Photo No. 1	Date:

Direction Photo Taken:

Description:
Tier II Facility at the start of the 2010 construction season.

Photo No. 2	Date:

Direction Photo Taken:

Description:
Liner installation at the Tier II Facility

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No.
FOX-3, Dewar Lakes	Nunavut	60153669-8

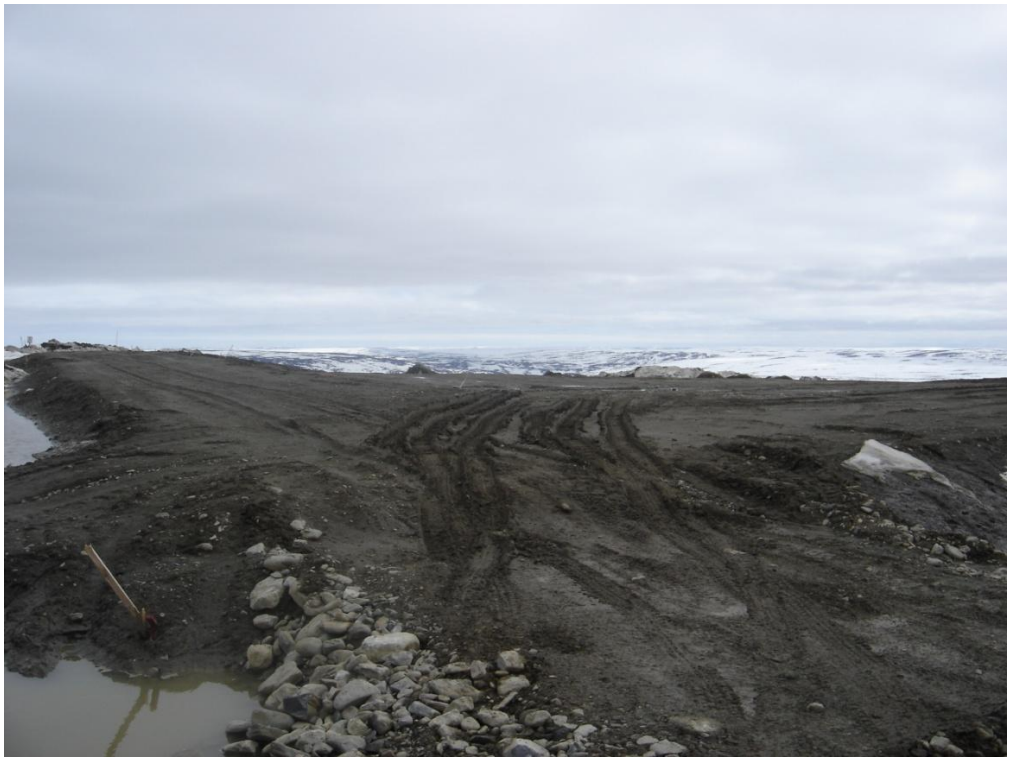
Photo No. 3	Date:	
Direction Photo Taken:		
Description: Tier II soil placement		

Photo No. 4	Date:	
Direction Photo Taken:		
Description: Non-Hazardous Waste Landfill at the start of the season.		

PHOTOGRAPHIC LOG

Site Name: FOX-3, Dewar Lakes	Site Location: Nunavut	Project No. 60153669-8

Photo No. 5	Date:	
Direction Photo Taken:		
Description: Non-hazardous Waste Landfill prior to the placement of intermediate fill for the winter.		

Photo No. 6	Date:	
Direction Photo Taken:		
Description: Landfarm at the start of the season.		

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No.
FOX-3, Dewar Lakes	Nunavut	60153669-8

Photo No. 7	Date:	
Direction Photo Taken:		
Description: Last tilling event of the season at the Landfarm.		

Photo No. 8	Date:	
Direction Photo Taken:		
Description: Excavation of Airstrip Landfill – Lobe X		

PHOTOGRAPHIC LOG

Site Name:	Site Location:	Project No.
FOX-3, Dewar Lakes	Nunavut	60153669-8

Photo No. 9	Date:

Direction Photo Taken:

Description:
Airstrip Landfill Lobe X – completed.

Photo No. 10	Date:

Direction Photo Taken:

Description:
Demolition of communication dish.

RESTORATION OF FOX-3 DEWAR LAKES DEW LINE SITE, NUNAVUT

WORKER ORIENTATION SEMINAR

(O/Ref.: CD8178)

DEFENCE CONSTRUCTION CANADA

June 2009

Biogenie S.R.D.C. Inc.
1140 Levis Street
Lachenaie, Quebec
J6W 5S6 CANADA

Tel.: 450-961-3535
Fax: 450-961-0220

RESTORATION OF FOX-3 DEWAR LAKES
DEW LINE SITE, NUNAVUT

WORKER ORIENTATION SEMINAR

(O/Ref.: CD8178-001)

Presented to: DEFENCE CONSTRUCTION CANADA

Contributors: Nancy Davis
Sylvain Laberge

June 2009

TABLE OF CONTENTS

1 INTRODUCTION

The first goal of this seminar is to inform you of the activities to be performed throughout the project as well as how these activities will be accomplished. It will present the basic information required to understand the tasks to be performed, as well as a description of the environment in which you will live and work. The important rules and policies established for this project will be introduced to you during the seminar and will be an opportunity to answer the questions and concerns you may have.

The second goal of this seminar is to make the workplace safer by informing you of potential hazards and providing you with safety instructions regarding work on a contaminated site.

You will all be required to abide by the policies and instructions presented during the seminar. Each attendee must sign a record of attendance upon completion of the course (see Acknowledgement Form in Appendix A).

2 SITE HISTORY

2.1 CONSTRUCTION OF THE DEW LINE

Construction of the DEW Line (radar stations) commenced as a joint Canadian and American project in the 1950s. These radar stations were constructed and strategically located to counter the Soviet air threat against North America, and initially, they were fully manual Early Warning or Aircraft Control and Warning (AC&W) systems which were established into geographical sectors. A total of 58 sites were built from 1955-1957 across the US and Canada from Alaska to Nunavut.

2.2 FOX-3 DEW LINE AT DEWAR LAKES

Dewar lakes are located on central Baffin Island about 230 km west of Clyde River (see site location map in Appendix B). FOX-3 was built in the 1950's as an auxiliary DEW Line site. Except for the blue dormitory to be demolished most of the buildings are still in use by the North Warning System. The site layout is presented in Appendix C.

2.3 CONTAMINATION AT FOX-3

Characterization studies demonstrated the presence of, among others, polychlorinated biphenyl (PCB), lead paint, asbestos and petroleum hydrocarbon contamination at the site.

3 REGIONAL OVERVIEW OF THE DEWAR LAKES AREA

3.1 LOCATION OF THE SITE WITH RESPECT TO COMMUNITIES

The closest communities to Dewar Lakes are Clyde River and Qikiqtarjuaq. Workers for the project will preferably be hired from these two communities and workers from other surrounding communities such as Hall Beach, Pangnirtung, Igloolik and Arctic Bay may be contacted to complete the team.

3.2 HERITAGE RESOURCES

Archaelogical sites and recent camps and cemeteries exhibiting evidence of the presence of former occupants of this area have been found on or adjacent to the DEW line sites. Remains such as habitation structures, hunting blinds, food caches and graves, and objects such as tools, utensils and butchered animal bone may be inadvertently discovered or disturbed during clean-up activities. It is important to note that all site personnel are prohibited from knowingly disturbing any archaeological or heritage site or collecting any artifacts – removing artifacts is a criminal offense! Graves and tent rings have been identified at the site. Areas are indicated on the plans and will be marked in the field. Please respect the signs.

If you encounter any archaeological resources during remediation work, you must:

- Leave the article intact and in place, unless there is a risk of damage;
- Mark a visible boundary and avoid the area.
- Advise the site supervisor and all personnel working in the immediate area of its existence.

3.3 CLIMATE

The annual minimum and maximum average temperatures are –31 °C in January and 6 °C in July. The annual average precipitation recorded over the past 30 years is 102 cm of snow and 86 mm of rain. Snow can be expected from mid-September to mid-June, and unseasonable weather can also be expected during the summer months.

During the summer, the climate in Nunavut is cool, although generally dry. Summer temperatures average 4°C to 6 °C. During fall, temperatures begin to drop dramatically, with daytime highs around 2 °C in September. By October, daytime highs drop to around –6 °C. Heavy winds and blowing snow are common in the winter months; fog and rain are present throughout the year.

Climatic conditions are highly variable and can reach extremes (ex. frequent fog, intense wind and wind gusts, and cold weather even during the summer months). The varying presence of fog reduces visibility for aircrafts trying to access the site.

3.4 GEOLOGY AND HYDROLOGY

The geology of Nunavut records almost three billion years of earth history. Permafrost thaws to 1 meter during summer months, and the type of soil encountered is till (gravel and sand). The topography at the site is generally rugged hills separated by broad intervening depressions. The upper site occupies the crest of one of these hills at about 550 m.

3.5 FLORA

The vegetation in Nunavut is influenced by the contrasting barren bedrock outcrops and soil-rich, low-lying areas. Plants that may be observed include sedge (Carex spp.), cotton grass

(Eriophorum spp.), saxifrage, heather, lichens, and mosses where moisture is abundant. Sparse vascular vegetation, including purple saxifrage (Saxifraga oppositifolia), mountain avens (Dryas spp.), willow (Salix arcticas), alpine foxtail (Alopecurus alpinus), wood rush (Luzula spp.) and other saxifrages (Saxifraga spp.), and Arctic poppies may also be seen.

3.6 FAUNA

The density of wildlife is directly related to the habitat suitability and the availability of food. The presence of sparse vegetation in the Dewar Lakes area tends to indicate that the terrestrial animals will not be in great numbers. The area may occasionally be used for breeding and migrating. The following terrestrial animals may be encountered at FOX-3:

- **Polar Bear:** as the site is not located along the coast and the main source of food is seals, polar bears are not expected to be present in the FOX-3 area but may occasionally be seen.
- **Caribou:** the migration path of caribou varies depending on snow cover and food availability. Small caribou groups should be seen around the site
- **Wolf:**, they move with caribou herds and they have been spotted at the site.
- **Fox:** Red and Arctic Foxes do occur on the Baffin Island. Foxes feed on Arctic ground squirrels, lemmings, Arctic Hare, and nests of waterfowl. Arctic fox will also trail behind polar bear to scavenge food. Both species of fox may be encountered at the site.
- **Arctic Hare:** Although the population is unknown, Arctic hare breed on the Baffin Island. They may be present at the site. Their presence may also indicate the presence of predators such as Fox.
- **Other Small Mammals:** Ermines, arctic ground squirrels and lemmings may be encountered in the area.

3.7 AVIFAUNA

Out of the numerous species of birds that have been observed on Baffin Island, the most common that can be expected to be encountered on site are:

- Snow Goose
- King Eider
- Oldsquaw
- Rock Ptarmigan
- Lesser Golden Plover
- White-rumped Sandpiper
- Baird's Sandpiper
- Horned Lark
- Lapland Longspur
- Snow Bunting

3.8 HUNTING AND FISHING ACTIVITIES

Although the Dewar Lakes area is considered as a good fishing and hunting area, the fact that is located so far inland makes it difficult to reach in the summer time for local hunters. No hunting will be permitted on the FOX-3 site. Fishing will be permitted outside of work hours, but only by individuals who possess their Nunavut fishing license. If you intend to go fishing, you must advise the wildlife monitor and your foreman, take a radio with you and sign the sign out sheet and indicate where you are going.

4 REMEDIATION ACTIVITIES (SCOPE OF WORK)

4.1 PROJECT OVERVIEW

The remediation project to be carried out at FOX-3 consists of the following task-specific work:

- Excavation, on-site disposal, and containerization of contaminated soil and Canadian Environmental Protection Act (CEPA) regulated soil. Containerized hazardous contaminated soil will be transported off-site to a facility in Montreal.
- Construction of a temporary storage area for the on-site storage of hazardous material.
- Construction, operation and closure of two (2) new disposal facilities.
- Excavation of existing landfills.
- Demolition of a building and associated infrastructures (including removal of asbestos and PAP material), fuel storage tanks of varying capacities, communication dish, satellite TV dish, communication billboards, and a dormitory, as well as collection of demolition debris, removal and containerization of hazardous debris material, and on-site disposal of non-hazardous material.
- Collection, cleaning and sorting of debris, and waste and barrels scattered and buried over the site areas.
- Site reshaping/regrading.
- Landfarming of hydrocarbon-contaminated soil.

4.2 MOBILIZATION TO FOX-3

4.2.1 Equipment

The equipment and material needed for the site restoration was mobilized by Sealift to Longstaff Bluff (FOX-2) in September 2008 where it was stored until the overland mobilization by cat-train in March and April 2009. Prior to mobilization, ice profiling and trail scouting (GPS, trail marker) were conducted along the selected route to ensure safe conditions.

4.2.2 Workforce

Some workers involved in the project will travel by commercial flight to Iqaluit or Hall Beach, Nunavut. Chartered flights will be used on a weekly basis to transport workers from Quebec, Iqaluit, Hall Beach, Clyde River, Qikiqtarjuaq and other communities to FOX-3 as well as for equipment and food resupply, and transport samples requiring laboratory analysis.

4.3 CONSTRUCTION CAMP

The camp includes the following facilities:

- Dormitories that can accommodate 58 beds
- A kitchen and dining room complex
- An entertainment/gym complex
- Engineer Site Office
- Biogenie Site Office
- Drinking water treatment unit
- Wastewater treatment system

- Generators
- Incinerator
- Garage and fuel storage facility

4.4 DEMOLITION ACTIVITIES

There is 1 building currently on-site that will be demolished which is the dormitory on the upper site.

Other structures to be demolished are:

- Petroleum, oil and lubricants tanks
- TV satellite dish
- Sewage outfall line
- Antenna base
- Communication billboard and dishes

The first demolition step will consist of hand removing pieces that can potentially become airborne when massive demolition commences (polyethylene sheeting, mineral wool, etc.). The massive demolition will be performed using heavy equipment.

4.5 HAZARDOUS AND REGULATED MATERIAL REMOVAL

Prior to dismantling building structures, PCB-amended paint (PAP) that can be removed by scarification or scraping will be disposed of properly in intermediate containers. Other PAP material with concentrations exceeding 50 ppm will be removed and sized to fit into appropriate containers which will be secured so that they do not move during transport for off-site disposal.

An asbestos removal campaign will be conducted prior to dismantling the building structures. The work will adhere to the procedures and instructions detailed in the Asbestos Abatement Plan approved by the Engineer and Nunavut authorities.

Any other hazardous material stored in buildings to be demolished will be removed and properly containerized prior to dismantling.

4.6 EXCAVATION OF CONTAMINATED AND HAZARDOUS SOIL

Contaminated soil excavation will start after the area has been clearly identified by the surveyor. It will be executed under the constant supervision of a technician. The work will begin with the removal of debris, snow, ice and boulders, and with the redirection of surface run-off around the area to be excavated.

Excavation of anticipated hazardous soil will begin once it has been delineated and after the implementation of a restricted zone and a contamination reduction zone. Equipment, containers, material and personnel will undergo a decontamination procedure before exiting the area.

4.7 PRODUCTION OF GRANULAR FILL

Granular fill will be produced using the identified borrow sources. The top organic layer and boulders will first be removed to access the usable material.

The requested types of granular fill will require screening and/or mixing of native material. Screening will be done using a vibrating screen equipped with interchangeable screens, making it adaptable to required types of material. Mixing will be done with an excavator, which will form a single pile out of 2 or more piles of screened or native material, of known granular gradation.

A preparation method, in the form of a "recipe", will be prepared for each type of granular material. The recipe will vary depending on the quality of each source of raw material. The method will involve the following:

- Borrow source to be used
- Screening requirements
- Mixing requirements

The material will be mixed in distinct batches, depending on the type needed at the time of production.

4.8 CONSTRUCTION AND OPERATION OF THE NON-HAZARDOUS WASTE LANDFILL

The construction of the non-hazardous waste landfill will begin by grading the surface and removing boulders, if any. The berm construction will follow. The berms will be constructed by placing Type 2 granular fill with a dozer, in lifts not exceeding 300 mm.

Non-hazardous waste will be placed in the designated areas in uniform, horizontal lifts between and against the berms. Each waste lift shall have a maximum thickness of 500 mm and such that all voids within the waste can be filled with intermediate cover.

4.9 CONSTRUCTION AND OPERATION OF THE TIER II DISPOSAL FACILITY

The construction of the Tier II disposal facility will also begin with the grading of the surface and the removal of boulders, if any. The key trench will be excavated, and the construction of the berm will follow by placing Type 4 granular fill with a dozer. The base of the Tier II disposal facility and the inner side of the berm will be constructed using Type 2 and Type 5 granular fill. The geotextile will then be placed to cover the base of the Tier II disposal facility and the inner and top portions of the berm. The geomembrane will then be positioned and welded on top of the first geotextile, followed by another geotextile. Once the liners are in

place, they will be covered by Type 5 granular fill that will cover both the base of the Tier II disposal facility and the inner portion of the berm.

Tier II contaminated soil will be placed in the designated Tier II disposal facility in uniform, horizontal lifts between and against the berms. Soil lifts with a maximum thickness of 300 mm will be placed in the Tier II disposal facility. An intermediate layer consisting of 150 mm of Type 6 granular fill will be placed between the 2 lifts.

Final cover will consist of 300 mm of Type 2 granular fill placed directly on top of the Tier II soil. Placement of 150 mm of Type 5 granular fill will then follow. The liners will be placed (geomembrane between 2 geotextiles) and covered by 1.7 m of Type 2 and Type 1 granular fill.

4.10 CONSTRUCTION AND OPERATION OF STORAGE AND PROCESSING AREAS

4.10.1 Non-hazardous Waste

The waste processing area will be established near the excavated landfills for sorting, inspection, testing, and classification of the material. It will include a sector in which waste can be spread for inspection or distinctively piled to allow the Engineer to sample it.

4.10.2 Hazardous Waste

A hazardous waste processing area will include a bermed and lined area in which the waste will be steam-cleaned, when necessary. A sump will be installed at the low point of the area, where seepage liquids will be pumped towards a retention tank. Absorbent booms will be used to collect petroleum products.

A mobile Water Treatment Unit (WTU) will be used to treat the water prior to discharge. Water will be treated by bag, sand and activated-carbon filters. Should any free-phase petroleum product be found in the retention tank, it will be containerized in drums.

A Temporary Storage Area (TSA) for containerized hazardous waste will be set up. Access will be restricted in this area.

Hazardous waste will be stored in appropriate packaging containers in accordance with the TDG Acts and Regulations. Appropriate signage will also be installed.

4.10.2.1 Construction and operation of a PCB storage area

PCB-contaminated material will be stored in the TSA. Only authorized personnel may access this area and an entry/exit log will need to be signed. An inventory will be taken on a weekly basis

4.11 WASTE COLLECTION

The waste specialist will assess any debris or drum before it is picked up. Drums containing solids or liquids will be directed to the haz waste processing area to be sampled, consolidated, emptied and cleaned before being crushed and landfilled. Where drums, old heavy equipment or debris are abundant, an excavator and loader will be used in conjunction with dump trucks. If large pieces need to be cut, workers with demolition saws or acetylene torches will assist the loading team. Fire extinguishers and a water tank will be supplied to the cutting site.

Where scattered waste is found on the surface, it will be collected by hand and loaded onto a tractor-trailer.

4.12 SITE GRADING

The granular fill will be spread with a bulldozer as it is unloaded. To meet the required density to spread granular fill, the use of a compactor and the addition of water could be necessary. The exact usage rate of this equipment for compaction purposes will be adjusted according to density measurements taken on-site.

5 PROJECT ORGANIZATION AND ADMINISTRATION

5.1 PROJECT TEAM AND LINE OF COMMUNICATION

Biogenie's main client contact is the on-site DCC Engineer. Several specialists will also be on-site representing DCC. The off-site Project Director is DCC's main contact at Biogenie, while the Site Superintendent will ensure that activities are performed as per the contract.

5.2 SUPERVISORY REPORTING RELATIONSHIPS

The site Foreman will oversee personnel and equipment and ensure that the project is performed as directed by the Superintendent and the Engineer. The Site Health and Safety Officer and the Haz-Mat Specialist will also report to the Site Superintendent. All other on-site employees report to the Foreman, while the camp employees report to the Camp Foreman. An organizational chart is presented in Appendix D.

5.3 TRAINING

The workers may receive the following training, according to their roles and responsibilities for the project:

- CPR and First Aid
- Use of a fire extinguisher
- OSHA 40-hour health and safety course for hazardous waste operations and emergency response
- Workplace hazardous materials information systems (WHMIS)
- Asbestos abatement course
- PCB lead paint removal
- Health and safety on construction sites

5.4 WORK ATTITUDES AND TEAMWORK

Teamwork and a positive attitude are essential to the success of this project. We have all come to FOX-3 with a common goal and that is to complete the cleanup of the site while sharing our knowledge and expertise in a safe, pleasant, positive and stimulating work environment.

The following are a few small gestures that can make a big difference:

Listening - it is important to listen to other people's ideas.

Questioning - it is important to ask questions, interact, and discuss the objectives of the team.

Respecting - it is important to treat others with respect and to support their ideas.

Helping - it is crucial to help one's coworkers, which is the general theme of teamwork.

Sharing - it is important to share with the team to create an environment of teamwork.

Participating - all members of the team are encouraged to participate in the team.

Communication - For a team to work effectively it is essential that team members acquire communication skills and use effective communication channels between one another e.g. using email, group meetings and so on. This will enable team members of the group to work together and achieve the team's purpose and goals.

5.5 PERSONNEL POLICIES

The following items cover the most common concerns for employees. They do not constitute, however, an exhaustive list governing appropriate employee conduct or employment terms.

An employee who has any questions or requires further clarification should discuss these items with Biogenie's Site Supeintendent or the Project Director.

5.5.1 Anti-Harassment Policy

A healthy work environment also means an environment where everyone can maintain their personal dignity and self-esteem. Therefore, the company will not tolerate any form of verbal or physical harassment in the workplace. The objective of this policy is to:

- Maintain an environment that is free from all forms of harassment, that protects the physical and psychological integrity of employees, and that ensures respect for human dignity;
- Provide the necessary support to harassment victims by establishing assistance and redress mechanisms with regard to workplace harassment.

This policy is inspired from the values set out in the Human Rights Act, which recognize the right of all individuals to be treated equally and with the respect owed to any human being, without discrimination or harassment.

➢ Definition

According to current legislation, and without limiting the foregoing, harassment can be defined as any grounds for discrimination, exclusion or preference that are based on race, colour, gender, pregnancy, sexual orientation, family status, age (except as provided by law), religion, political beliefs, language, ethnicity or nationality, social condition, disability or use of a means to accommodate such a disability. Harassment situations can include the following: - Abuse of authority, i.e. the abusive or inappropriate use of a position's authority or power, which jeopardizes a person's employment or advancement, or interferes with their work performance; - Intimidation, threats, reprisals, physical violence, blackmail and coercion; -

Vexatious conduct such as repeated, hostile or unsolicited behaviour, words or actions that compromise an employee's dignity, or physical or psychological integrity, and that create a negative work environment for this employee; - Unsolicited approaches for sexual favours; - Physical contacts, inappropriate sexual gestures, comments, insults, vulgar words, off-colour jokes, comments of a sexual nature, whispers, muttering, intimidation, threats, reprisals, denied promotions, dismissal or other inequities of a sexual nature. These situations are provided only as examples, and the policy is not limited to them.

- Underlying Principles of the Policy

The employer will not tolerate any form of harassment whatsoever; - The employer will promptly respond and take all necessary measures to protect a staff member subjected to harassment by implementing an internal assistance and redress mechanism.

- Application

This policy applies to relationships between all individuals, male or female, including relationships between employees, between employees and management, and between employees and outside persons in the exercise of their duties (suppliers, dealers, sub-contractors, etc.).

5.5.2 Time Off

Anyone wishing to take time off will be accommodated provided that ample notice is given and depending on how it will affect immediate operations. Time off will have to be coordinated with flights coming in and out of Dewar Lakes and will correspond to flight departures.

5.5.3 Transportation and Vehicle Usage

Only authorized personnel will be allowed to operate any vehicle on-site.

5.5.4 Hunting and Fishing

No hunting will be allowed on site. Fishing will only be allowed after working hours to individuals with proper licenses and only in organized groups under the supervision of a Wildlife Monitor.

5.5.5 Alcohol, Illegal Drugs and Firearms

The consumption of alcoholic beverages is **prohibited** at the site and a "Zero Tolerance" policy will be enforced throughout the project. **No alcohol or illegal drugs are to be found on the premises**. Also, the possession of firearms is strictly prohibited, except for wildlife monitoring. **Violation of these policies will be grounds for immediate dismissal.**

It is very important to note that random blood tests may be taken during the season for the purpose of drug/alcohol testing.

5.5.6 Smoking

Smoking will only be permitted in designated areas of the camp and the work site. Smoking is permitted in vehicles/equipment. **Make sure you bring enough cigarettes to cover your stay**

on site. Cigarettes will be for sale at the site for emergencies only and will be sold at a higher price of those sold in the hamlets.

5.5.7 Payroll

All workers will be paid on a bi-weekly basis throughout the project. All applicable labour codes will be adhered to.

5.5.8 Work Schedules and Hours

The following work schedule will apply for the FOX-3 project. Work days will last 11 hours, work weeks will extend over 7 days, and the following schedule will be applied:

- Breakfast: 6:00 a.m. to 6:50 a.m.
- Report for work: 6:55 a.m.
- Work starts: 7:00 a.m.
- Break: 9:30 a.m. to 9:45 a.m.
- Lunch break: 12:00 p.m. to 13:00 p.m.
- Break: 3:30 p.m. to 3:45 p.m.
- Clean-up period: 6:45 p.m.
- Work ends: 7:00 p.m
- Supper hour: 7:00 p.m. to 8:30 p.m.
- Quiet hours: 10:00 p.m. to 6:00 a.m.

Night-shift hours will mirror those for the day shift.

Work shifts are 21 consecutive days on-site followed by 7 days of rest break taken at a population center.

5.5.9 Off-duty Curricular Activities

Off-duty curricular activities include working out in the exercise room, fishing, going for a walk, movies, Internet, board games, darts, cards.

5.5.10 Camp Rules and Operations

Room and board will be supplied without charge to all workers 7 days a week, for the entire duration of the project. Rooms will be based on double occupancy.

Meals will be provided and prepared by qualified cooks. The menu will include a choice of meat or fish and the same selection will not be served more than twice a week. A "mug up" will be provided nightly, at approximately 9:00 p.m., and will consist of tea, coffee, hot chocolate, fruit juice and, at the cook's discretion, any leftover pastries.

The following camp rules shall apply to all workers throughout the project:

1. Everyone is to wear clean clothes within the camp, especially in the dining room. Wearing of hats is not permitted in the kitchen or dining area. Profane language and loud or rude behaviour will not be tolerated.
2. Violent behaviour, fighting and/or disregard for other persons and/or their property will result in permanent removal from the site of those involved.
3. Intentional damage to DCC or Biogenie property, including the facilities, vehicles, or property of other camp occupants will be seen as criminal conduct and may result in criminal charges. Disciplinary action for property damage includes immediate dismissal.
4. Theft of property owned by DCC, Biogenie or other camp occupants will not be tolerated; stealing will be seen as criminal conduct and may result in criminal charges. Disciplinary action for theft includes immediate dismissal.
5. Smoking will be permitted in designated areas only. Smoking is NOT permitted inside any building not designated as a smoking area.

6. The FOX-3 work site is a "DRY CAMP". The use of alcohol, non-prescription drugs and abuse of other substances is **NOT** permitted on-site. **ANYONE** found to be in possession of alcohol, non-prescription drugs or intoxicated while on-site will be **DISMISSED IMMEDIATELY**.

7. Possession of firearms or other personal weapons on-site is strictly prohibited. Large hunting knives are not required on the work site and are prohibited.

8. High calibre hunting rifles will be permitted on-site for use by the designated Wildlife Monitors. Handling or use of these rifle or ammunition by unauthorized personnel will result in immediate dismissal.

9. A curfew (silent hour) will be observed from 10:00 p.m. to 6:00 a.m. Noise is to be kept at a minimum level at all times in the sleeping quarters. This is especially important to remember during the day while the night shift workers are sleeping.

10. All camp residents are required to practice good housekeeping and are responsible to keep their rooms neat and tidy. Keep all passageways free of obstructions and tripping hazards.

11. Due to the nature of hazardous soils and similar contaminants encountered on the work site, coveralls, dirty clothes, work boots and outer work clothing must be removed and left in the Mud Rooms provided.

12. Tampering with fire fighting equipment, alarms, detectors or other emergency response equipment is not permitted and any such activity will result in immediate dismissal.

13. Persons wanting to leave the camp for a walk will seek approval from the Wildlife Monitor beforehand and sign the in/out register specifying where he/she intends to go.

14. Personal hygiene is an important factor when working with contaminated material. Workers are to wash hands and face thoroughly before meals, and shower regularly.

5.5.11 Communications Systems Usage

For the professional and operational needs of the project, telephone, fax and Internet access lines will be available at the Engineer's and Biogenie's offices.

The camp telephone will be available for use by on-site personnel. Personal calls can be made with calling cards or outgoing collect calls. Internet access will also be available.

Mobile radios units ("walkie talkies") will be supplied to the Site Engineer and to members of the contractor's team for on-site communication.

5.6 PERSONAL ARTICLES TO PACK FOR DEWAR LAKES

This list has been prepared as a reminder that you will need to bring a certain number of personal articles with you to FOX-3 as these will not be made available, nor will you be able to purchase them once on site. FOX-3 is a very remote location with challenging winds and low seasonal temperatures. It is therefore imperative that you pack in consequence. Bear in mind when packing that you will be staying at a construction camp in shared occupation for approximately 2 to 3 weeks at a time. Washing machines, detergent and clothes dryers will be available.

PRESCRIPTION MEDICATION

Remember to bring your prescription medication. Upon your arrival on site, you MUST report it to the site Medic.

- ***Personal Hygiene***

  - tooth brush, paste, floss
  - deodorant
  - razor, shaving cream
  - nail clippers
  - insect repellant (Off, Muskol)
  - soap, shampoo
  - bath towel

- plastic sandals for showering
- for female employees: feminine hygiene products

➢ ***Clothing***

- steel-toe and sole boots (CSA-approved)
- winter boots and walking shoes
- warm socks (one never has enough warm socks)
- undergarments (remember to pack some long underwear)
- t-shirts and sweaters
- Clothes for after work
- winter coat, rain coat, windbreaker
- gloves, mitts, hat, scarf
- pyjamas, house coat, slippers

➢ ***Miscellaneous***

- health card, I.D., training certification cards (**Very Important!**)
- reading material
- IPod or walkman **(IPods and walkmans are NOT permitted on the worksite during work hours)**
- camera, film, batteries
- fishing rod & gear.
- **cigarettes**

➢ ***What's provided for on-site work***

The following articles will be issued to employees based on their activity location. This does not guarantee that all of the following articles will necessarily be issued to you and remember, you will not be able to wear them outside of the work area.

- overboots
- head warmers

- gloves
- rain gear (pants and coat)
- overalls
- mosquito hood
- Hard hat
- Safety glasses
- Ear plugs

➢ ***What not to bring***

- alcohol and illegal drugs
- hunting equipment

5.7 TERMINATION PROCEDURES

Employees who disobey any of the personnel policies or camp rules established for this project will receive a formal warning from Biogenie. A second violation will automatically result in the immediate dismissal of the worker from the project. This person will leave the site on the next flight available and will be replaced by another worker.

6 ENVIRONMENTAL ISSUES AND PROTECTION PROCEDURES

6.1 LAND USE

Ice-rich soils are extensive in the area. Due to their fine texture, they are sensitive to erosion and degradation and depend on the vegetation cover, which provides a protective thermal barrier. This barrier can be disturbed by vehicle and equipment traffic, and during soil excavation. Since remediation activities can lead to accelerated soil degradation and permafrost disturbance, the following points should be followed:

1. Vehicle and heavy equipment should be restricted to existing roads and designated work areas unless approved by the Site Engineer.
2. Activities should be minimized in areas adjacent to the work area.
3. Vehicles or heavy equipment should not be operated off-road after heavy rain or melting snow until the soil is dry enough to prevent excess rutting.
4. Drainage and erosion control structures should be installed where required along access roads.
5. Ruts which prevent local drainage or expose permafrost should be repaired.

6.2 WILDLIFE MONITORING AND PROTECTION

Full-time Wildlife Monitors with firearms, ammunition, mobile communication devices, and all-terrain vehicles (ATVs) will be on duty during the operations to ensure the safety of everyone on site

6.3 SOLID WASTE MANAGEMENT

Solid waste generated by camp operations will be composed of putrescible (vegetables, meats, fruits, dairy products, etc.) and non-putrescible waste (cans, paper, wood, etc.). Waste that is combustible will be incinerated, while the rest will be disposed of in the Non-Hazardous Waste Landfill.

A dual-chamber incinerator will be used to destroy all combustible solid waste. Burning temperature is up to 1,650ºC. All toxic gas is destroyed in the second chamber. Diesel fuel is fed directly to the incinerator using a flex-line connected to a diesel tank.

No hazardous solid waste will be generated during camp operations. Cinders will be buried in the site landfill. Any other waste (including laboratory waste) that might be generated during camp operations and that could not be incinerated or disposed of on-site will be containerized and sent south for proper disposal.

6.4 DRINKING WATER

Bottled drinking water will be provided to personnel until the water treatment system is functional and 2 sets of analytical results for treated water meet with the guidelines. Drinking water will be treated using the treatment process described below.

6.5 WATER QUALITY MONITORING PLAN

During camp erection and camp re-opening, water will be sampled and analyzed for a series of parameters to make sure that it meets the drinking water quality guidelines.

Periodic sampling of potable drinking water on-site will be carried out during the course of the project in order to ensure the health of all site personnel. Parameters that will be monitored

during these sampling events include bacteria and TSS. Samples will be collected at the source and after treatment/processing (in the Camp). Should water be **not** potable, signs will be posted around the camp and in the washrooms.

6.6 WATER VOLUME MONITORING

It is estimated that a total of approximately 10,000 L/day of water will be required for all camp operations and approximately 500,000 L total for drilling, drums cleaning, granular production/dust control, and other miscellaneous use. Water will be pumped from the unnamed lake and placed into tanks (known volume). The number of tanks will be recorded daily. Wastewater Management

Two sewage lagoons with enough storage capacity for an entire season have been built to manage the wastewater. They have been installed at 100 m and downwind of the camp.

6.7 FUEL MANAGEMENT

The diesel and gas storage area will be a restricted area and only authorized personnel may refuel equipment. For the refuelling of heavy equipment, generators, pumps, and tools, drip pans will be used to prevent spills,. An automatic stop-fill valve will be used. Absorbent pads will be available at all times.

Under the Occupational Health and Safety Act, Workplace Hazardous Material Information System (WHMIS) regulations, will apply to the handling and storage of hazardous material. Relevant Material Safety Data Sheets (MSDS) will be kept current and available on-site by the H&S Officer. Containers and pipelines will be properly labelled following the WHMIS guidelines.

6.8 CROSS-CONTAMINATION PREVENTION

Cross-contamination may occur during the excavation and transportation of contaminated soil due to the generation of airborne particles, contaminated soil attached to equipment, or personnel leaving the contaminated area, and liquids or free-phase petroleum product released into the environment.

Whenever possible, the excavation work will be performed in such way that no trucks will travel over contaminated soil. This measure could include the construction of a temporary roadway using clean soil. If this measure is not applicable, only one entrance to the contaminated area will be identified and a contamination reduction zone will be implemented.

Equipment will be decontaminated before it is moved from the contaminated area to another location by scraping the dirt off the bucket/blade and tracks of the equipment. Decontamination of heavy equipment will include the removal of chunks and particles of soil prior to its mobilization to the next contaminated soil area. This will be performed on solid ground near the contaminated area and the dirt removed from the equipment will be picked up manually with a shovel, placed in a drum and disposed of as per the soil excavated from that area. Special attention will be paid to truck boxes and tires as well as excavator buckets and tracks.

During excavation operations, dust will be abated using a water spray (when required). Extra care will be taken during dust abatement activities in the contaminated area to limit run-off water. Low volumes of water will be sprayed frequently.

6.9 FREE-PHASE PETROLEUM PRODUCT AND WATER MANAGEMENT

Prior to the excavation work, surface water in the work areas will be drained using existing drainage patterns. During the excavation work, groundwater, water run-off, or wash water having been in contact with contaminated soil will be sampled prior to being treated or discharged into the environment.If required, oils and greases will be skimmed. Construction activities will be undertaken in such a way as to minimize the creation of contact water (wastewater).

Should free-phase petroleum product be encountered during excavation activities, it will be collected using absorbent booms. Used absorbent will be stored in drums for sampling and temporary storage.

7 GENERAL HEALTH AND SAFETY PREVENTION PROGRAM

We have produced a Health and Safety Program to ensure that the exposure of all workers to all types of hazards will be minimized and controlled. This program takes into consideration general and specific aspects of the protection of the health and safety of site personnel and the surrounding environment during the activities to be carried out for the remediation project in Dewar Lakes.

This document also includes the executive responsibility and the responsibility of all workers allowed on the site, as well as general prevention instructions covering the risks and hazards associated with site remediation activities and the preventive measures to be implemented when dealing with high-risk work. Finally, this Health and Safety Program covers all aspects of health and safety including teamwork, work attitudes, productivity, first-aid procedures, protective equipment, clothing and safe operation of equipment and tools.

The adherence to the Site-specific Health and Safety Program will be strictly enforced upon Biogenie's employees and its subcontractors. To this end, Biogenie employees and subcontractors must sign an agreement form which stipulates that he/she will conduct their work in a manner that meets health and safety directives set forth by Biogenie.

7.1 EMPLOYEES ROLES AND RESPONSIBILITIES

7.1.1 Right to know

You have the right to know about hazards in your workplace. You should be taught how these hazards can affect you and your co-workers. The first step is to get proper health and safety

training. This includes learning how to identify workplace hazards and knowing what to do if there is an incident or spill.

7.1.2 Right to participate

You have the right to be involved in health and safety concerns in your workplace. You can participate through a safety representative at your workplace, or be involved in your workplace health and safety committee. For the FOX-3 project, a Health and Safety Committee will be set up consisting of the Health and Safety Officer, the Engineer, a Local Worker, and the site Medic.

Tool box meetings will be held every morning and Health & Safety meetings will be held once a week. The H&S Committee will convene once a week and will perform an inspection of the site.

7.1.3 Right to Refuse Unsafe Work

You have the right to refuse unsafe work. If you have reasonable grounds to believe the work you do or the piece of equipment you use is unsafe, you can stop this work immediately. There are steps in place to correct unsafe workplace situations so you can return to work.

Contact your supervisor or health and safety representative to find out how to correct the unsafe situation. You shouldn't work until the situation has been corrected. You cannot be laid off, suspended, or penalized for refusing unsafe work if you follow the proper procedures.

7.2 HAZARD IDENTIFICATION

The major hazards pertaining to the work to be performed at FOX-3 have been identified as follows:

- Chemical hazards associated with hazardous materials or wastes
- Physical hazards associated with work near heavy equipment/machinery
- Thermal hazards associated with heat and cold stress
- Harsh environment hazards associated with mosquito-infested areas and the presence of polar bears
- Water hazard associated with work in proximity to water bodies
- Fire hazards associated with camp operations, heavy equipment operations and fuel transfer operations.

(**NOTE: Specific instructions have been developed for each of these hazards and are part of the Site-specific Health and Safety Plan. The Instructor will review each of them with the workers during Health and Safety meetings and during Toolbox meetings before the specific task is performed**).

These instructions will also be posted on the safety board in the camp along with the emergency contact list and the site map showing the emergency evacuation plan.

7.3 PERSONAL PROTECTIVE EQUIPMENT

Safety equipment necessary to protect the workers and visitors against accident or injury will be readily available upon request to the H&S Officer. The location of sea containers, office trailers, and their contents with regard to safety equipment will be posted.

Instruction and training on the limitation of the equipment, and on the fit, use, operation and maintenance of the PPE will be provided.

The required PPE addresses respiratory, head, eye, hearing, hand, foot and dermal (skin) protection. Appropriate levels of PPE are established for each work area based on the nature of the activity and location. The PPE will be adapted to the activity performed and will be discussed during tool box meetings and weekly H&S meetings.

7.4 PPE MAINTENANCE AND DECONTAMINATION

All PPE shall be kept clean and well maintained.

In order to prevent transfer of contaminants and exposure of unprotected personnel, all used PPE will be kept in the mud rooms or in the decontamination zones where applicable. Containers for the disposal of used PPE will also be available in these rooms. The Health and Safety Officer will ensure that safety equipment and facilities are kept clean at all times.

7.5 ADDITIONAL EQUIPMENT

Additional PPE will be kept for use by visitors.

Also, ABC fire extinguishers are available for putting out small fires. These are located in the office, laboratory, camp, storage ISO containers, vehicle maintenance area, refuelling area and refuelling truck, trucks, and heavy equipment. Firefighting and first-aid equipment and extinguishers are available in the mud room. Locations of the extinguishers will be posted around the site. In addition, protective equipment is included in each of the liquid spill kits (blue barrels) and solid spill kits (black barrels).

7.6 DUST AND NOISE CONTROL

The following measures will be enforced to control dust and noise during the project:

1. Established speed limits (30 km/h) will be respected at all times.
2. Water will be used to control dust.
3. Dust nuisance resulting from construction operations will be prevented, when possible.
4. Access and unnecessary transport will be limited.
5. Vehicles and equipment fitted with efficient muffling devices will be utilized to minimize noise level in construction areas.

7.7 WORK AROUND HEAVY EQUIPMENT

Before approaching heavy equipment in operation, a worker should always establish positive eye contact with the operator. Workers must wear the brightly coloured coveralls and high-visibility vests provided by Biogenie on the work site at all times.

7.8 CLIMATE AND WEATHER

FOX-3 is accessible by air only. Inclement weather restricts transportation of resources, materials and supplies. Hence, additional care must be taken and additional supplies (such as medical) will be provided by Biogenie to accommodate emergencies.

7.9 EMERGENCY RESPONSE PLAN

Since FOX-3 is located in a remote area, response times for emergency transportations are expected to be lengthy. An Emergency Response Plan (ERP) has been prepared in order to minimize or eliminate threat to human health and/or damage to the environment should an emergency situation arise.

The Emergency Response Plan includes:

- A list of possible on or off-site emergency situations associated with the project;
- Emergency response procedures, including notification, reporting and communication procedures;
- Procedures for emergency site evacuation;
- The roles and responsibilities of the project team;
- A description of the training that will be provided.

7.10 EMERGENCY RESPONSE PROCEDURES

7.10.1 Solid or Liquid Spills

Prevention

Although numerous work procedures have been elaborated and precautions taken to prevent any chemical spill into the environment during the handling and transportation of non-hazardous and hazardous materials, spill response procedures have been prepared specifically for this project.

POL material will be stored in small containers (of a maximum capacity of 205 litres) inside a POL container equipped with a drip pan, except for the fuel. Fuel is stored in 18,000 to 40 000 L solid tanks and in a 57 000 L bladder tank located in 2 restricted fuel containment area. One by the airstrip and one at the camp.

The Spill Response Procedures for the chemicals that will be used or encountered during the course of this project will be posted in the hazardous materials sea container, in the laboratory, and in the water treatment unit trailer.

A spill kit will be present at each area where there is potential for a liquid or solid spill. Spills will be recovered immediately, according to the following procedure:

1. Identify the spill material – proceed only if it is safe to do so.
2. Contain the source of the spill.
3. Contain the spread of the spill.
4. Contact the site Superintendent or the Site Foreman.
5. Mobilize the spill control kit.
6. Recover the spill and the contaminated material.
7. Ensure that the source of the spill is secure.
8. Prepare a spill report.

7.10.2 Reporting

If you witness a spill, a report must immediately be made to the field supervisor in order to respond adequately. If the leak can be stopped safely, you may proceed; otherwise you must wait for the designated spill response team to arrive. The spill report form must be filled out and submitted to the Engineer within 24 hours of the spill incident and, if the spill exceeds 70 L, forwarded to the Nunavut Department of Environment.

7.11 FIRE AND EXPLOSION RESPONSE

7.11.1 Fire Fighting Equipment

Numerous portable extinguishers are available on site to handle small accidental fires resulting from activities such as the use of power tools, welding, etc. Furthermore, Biogenie staff will be equipped with 2-way radios for immediate communication with the Site Engineer and the support staff in the case of an emergency.

The fire extinguishers, smoke detectors and pumps will be kept in good working condition by the Health and Safety Officer.

A firefighting team will be set up and training and drills will be held.

It is prohibited to start any type of fire on the site.

7.11.2 Response Procedures

In the event of a fire and/or explosion, the following procedures will apply:

1. Notify the Site Engineer via radio.
2. Sound the designated emergency signal and notify supervisors via radios.
3. Assemble at the designated muster area for a head count.
4. Follow the Site Engineer's instructions.
5. Notify all applicable authorities.
6. Complete an incident report.

7.11.3 Major Emergency

In the event of a major emergency such as a fire, explosion ,etc., all personnel will converge to a muster point which will be established and posted in highly-visible areas around the site. After performing a head count, instructions on how to proceed will be given by the Site Superintendent.

7.11.4 Record Keeping

In the event of a fire, the incident will be recorded on Biogenie's Declaration of Industrial Accident Form (1450-FO17). This form will be submitted to the Site Engineer.

7.12 ON-SITE MEDICAL SERVICES

Medical emergencies may take the form of a work-related injury or an aggravated medical condition.

Many of the supervisory staff and local employees will have valid CPR and first-aid certification. Also, a paramedic will be present throughout the project to direct emergency medical services. Several first-aid kits as well as an infirmary will be available.

In the case of a serious accident, the Site Superintendent and Medic will immediately be contacted through the mobile radio unit. The on-site paramedic will administer first aid. If necessary, the paramedic will arrange for transportation of the victim to the nearest hospital.. In the event of a serious injury, the following procedures will apply:

1. Assess the nature of the injury
2. Call for help, if required
3. Administer appropriate first aid
4. Notify the Site Superintendent as well as the site paramedic
5. Organize a medical evacuation, if required
6. Complete an incident report
7. Complete a Worker's Compensation Form

7.13 MEANS OF EVACUATION

In case of an emergency requiring immediate evacuation, the helicopter from the FOX MAIN North Warning System can be mobilized. MEDEVAC has also been informed of our operations as well as Dr. William MacDonald, Government of Nunavut Clinical Care Director.

APPENDIX A

Acknowledgement Form

FOX-3 DEWAR LAKES DEW LINE CLEANUP PROJECT

ACKNOWLEDGEMENT FORM

I, _____
Name (*please print*)

of _____
Address (*please print*)

hereby acknowledge that I have attended the Worker Orientation Seminar for the activities for the FOX-3 cleanup project in Nunavut.
I also confirm that I have participated in the training course given by Biogenie on _____, 20_____.

I have read and understand the instructions contained in the document, and understand that it is my responsibility to abide by them. I am aware of Biogenie's Zero Tolerance policy for drugs and alcohol at the site and agree to abide by this rule, and I understand that any violation of this rule will lead to immediate dismissal. I also understand and accept that Biogenie may carry out random blood testing during the work season to screen for these substances.

_____ _____
Employee's signature Date

APPENDIX B

Project Location Map

Biogénie

Defence Construction Canada

PROJECT LOCATION MAP

FOX-3 DEWAR LAKES

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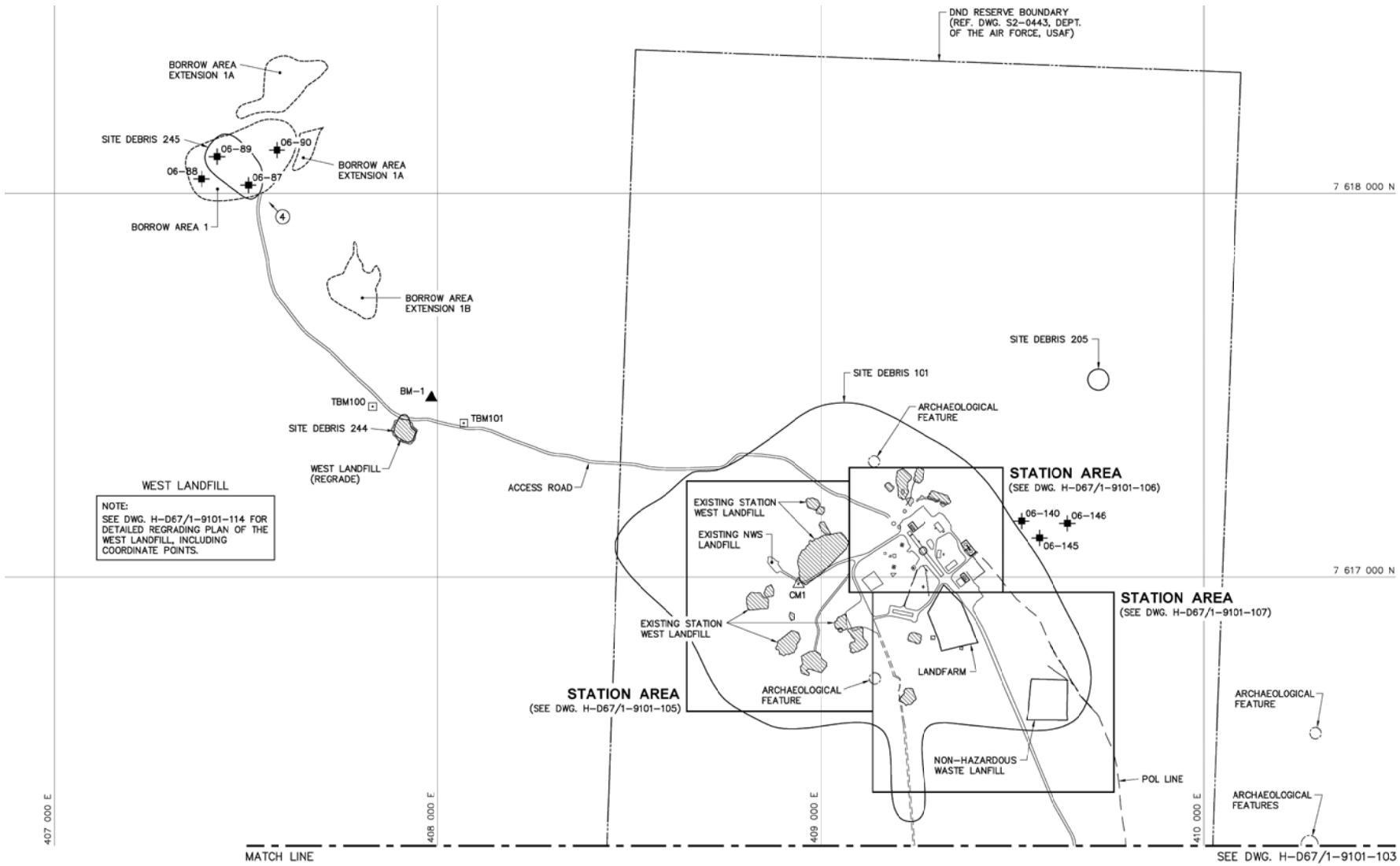
APPENDIX C

Site Layout



Biogénie

Defence Construction Canada

SITE LAYOUT

FOX-3 DEWAR LAKES

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APPENDIX D

Organizational Chart

2009 ORGANIZATIONAL CHART FOX-3 DEW LINE CLEANUP

DEFENCE CONSTRUCTION CANADA

BIOGENIE S.R.D.C. INC.
Prime Contractor
NUNAVUT OFFICE: Hall Beach

Sylvain Laberge, Tech. Civil Eng.
(Backup: Michel Pouliot P Eng.)
Project Manager

Robert Desjardins
(Backup: Darren Saltel)
Hazardous Waste Superintendent

Nicolas Robichaud, Tech.
(Backup: R Desjardins)
Health & Safety Officer + assistant

Dino Goudreau, H.W.M.
(Backup: Sylvain Laberge, Tech.Civil Eng.)
Site Superintendent

Medic
Frontier medical Services
Neil Mooney, Advanced care paramedic
Jonathan Mackay, Advanced care paramedic

Nicolas Robichaud, Tech.
(Backup: Darren Saltel)
Site Technician

Yvon Sabourin (day shift)
Martin Lemay (night shift)
Foremen

GESFOR
Asbestos Work Supervisor
Name TBD

NSSI
Marine Transportation

Aarruja Corporation
Equipment, Material and Goods Supplier
Camp Supplier and Operations, Fuel Distribution, Lodging, Site Workers

Sila Remediation Ltd.
Equipment, Material and Goods Supplier
Site Workers

Savik Enterprises
Garage Rental

Hall Beach Co-op
Fuel Distribution, Lodging and Various Supplies

Toromont Arctic
Heavy Equipment Supplier

Geoïde Consultants
Pierre Tessier, L.S., Chief Site Surveyor
Denis Peiffer, Tech. Geomatics
Site Surveyor

Petroleum Products Division
Government of Nunavut
Fuel Supply

Air Nunavut/Unaalik
Air Transportation