

**RECEIVED*****By clerk at 9:44 am, Apr 18, 2011***

March 17, 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-LON0813 2010 Annual Report**

**Regarding: FOX-2, Longstaff Bluff 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 and of the samples collected as part of the wastewater monitoring and sewage effluent monitoring:

**Work Completed**

The following work was completed at the FOX-2 site during the 2010 summer construction season:

**Landfarm:** Excavation and remediation of hydrocarbon impacted soils to the project criteria in the landfarm was completed in 2010. The landfarm was closed, which included levelling off the berms and decommissioning the monitoring wells.

**Tier II Soil Disposal Facility:** Construction activities at the Upper Site Tier II Disposal Facility included construction of the perimeter berms, bottom liner installation, placement of liner bedding material, some placement of Tier II soils, and preparation for instrument installation. Approximately 3,695 m<sup>3</sup> of Tier II soils, along with intermediate fill, was placed in the Tier II Disposal Facility prior to being capped for the winter.

**Non-Hazardous Waste Landfill:** The Hangar Non-Hazardous Waste Landfill was constructed and landfilling of non-hazardous site debris was started. Approximately 5,638 m<sup>3</sup> of debris, along with intermediate fill, was placed in the landfill prior to being capped for the winter.

**Contaminated Soils:** All contaminated soils have been excavated and placed within an appropriate on-site disposal facility. No contaminated soils were removed from the site in 2010.

**Demolition:** Demolition and disposal of non-hazardous building materials into the Non-Hazardous Waste Landfill was completed for the module train, warehouse, garage, fuel storage tanks, and POL lines. All hazardous building materials were removed, packaged for transport off-site, and stored in the Hazardous Material Storage Area.

**Debris Removal:** On-going.

**Landfill/Debris Area Excavations:** The following landfills and debris areas were excavated – Airstrip West, Apron Debris Area, Airstrip Landfill, East Beach Debris Area, East Landing Debris Area, West Landfill, Airstrip South Landfill, West Landing Debris Area, Airstrip Camp Landfill, Hangar Pad Debris Area and Station Camp Dump.

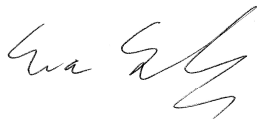
**Community Consultations:** The results of the community meetings held by DCC were submitted with the Project Description. The contractor typically holds a project start up meeting prior to each season.

**Spill Incidences:** There was one spill incidence at FOX-2, see the attached spill report.

**Monitoring Results:** The monitoring reports are attached. The reports were prepared by the Environmental Sciences Group from Kingston, ON, who serve as the scientific advisors for the clean up work and are on-site for the duration of the work.

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: Annual Report Form; Spill Report Form; Monitoring Reports; Selected Site Photographs

NWB Annual Report

Year being reported:

2010 ▼

License No: 1BR-LON0813

Issued Date: July 19, 2008

Expiry Date: July 31, 2013

Project Name: FOX-2, Longstaff Bluff 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 accordance with

Part B ▼ Item 1 ▼

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

Water Source(s):	water supply lake	
Water Quantity:	12/day	Quantity Allowable Domestic (cu.m)
	19.9 cu.m/day for 104 days	Actual Quantity Used Domestic (cu.m)
	40/day for industrial	Quantity Allowable Drilling (cu.m)
	n/a	Total Quantity Used Drilling (cu.m)

Waste Management and/or Disposal

- ☒ Solid Waste Disposal
- ☒ Sewage
- ☒ Drill Waste
- ☒ Greywater
- ☒ Hazardous
- ☒ Other:

sewage & greywater for 2010 season=1498 cu.m

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: July 31, 2010

Date of Notification to an Inspector: August 3, 2010

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

see attached

Details attached.

### Revisions to the Spill Contingency Plan

SCP submitted and approved - no revision required or proposed



Additional Details:

### Revisions to the Abandonment and Restoration Plan

AR plan submitted and approved - no revision required or proposed



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 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 where wastes associated with the licence are deposited;**

Details attached



Additional Details:

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

No additional sampling requested by an Inspector or the Board



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

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

No additional sampling requested by an Inspector or the Board



Additional Details: (Attached or provided below)

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

No inspection and/or compliance report issued by INAC



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

**Any additional comments or information for the Board to consider**

**Date Submitted:**

March 31, 2011

**Submitted/Prepared by:**

Eva Schulz

**Contact Information:**

**Tel:** 403-270-9220

**Fax:** 403-270-0399

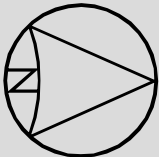
**email:** [eva.schulz@aecom.com](mailto:eva.schulz@aecom.com)

### GPS Coordinates for water sources utilized

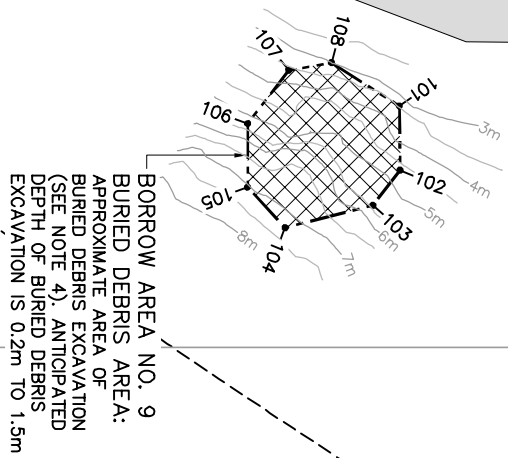
Source Description	UTM Zone 18N, NAD83	
	Northing	Easting
Water Supply Lake	7642850	493400

### GPS Locations of areas of waste disposal

Location Description (type)	UTM Zone 18N, NAD83	
	Northing	Easting
Landfarm (H01)	7646868.5	489093.5
Landfarm (H02)	7646692.5	489225.5
Landfarm (H05)	7646642.7	489130.3
Landfarm (H06)	7646803.4	489008
Hangar Non-Hazardous Waste Landfill (J10)	7646438.4	489315.9
Hangar Non-Hazardous Waste Landfill (J11)	7646428.2	489353
Hangar Non-Hazardous Waste Landfill (J12)	7646390.1	489341
Hangar Non-Hazardous Waste Landfill (J13)	7646402.4	489304
Station Non-Hazardous Waste Landfill (T10)	7643078.5	494111.5
Station Non-Hazardous Waste Landfill (T11)	7643096.6	494161.4
Station Non-Hazardous Waste Landfill (T12)	7643059	494175
Station Non-Hazardous Waste Landfill (T13)	7643040.9	494125.2
Tier II Landfill (U10)	7643260.4	494258.2
Tier II Landfill (U11)	7643254.6	494312.9
Tier II Landfill (U12)	7643197	494306.8
Tier II Landfill (U13)	7643202.7	494252.1
Sewage Lagoon	7646024	491084



RUSHMORE BAY



BORROW AREA NO. 9

BORROW AREA NO. 9

ACCESS ROAD

- General Notes:
1. ALL COORDINATES ARE REFERENCED TO NAD83 (CSRS), UTM ZONE 18N. ELEVATIONS ARE REFERENCED TO MEAN SEA LEVEL, RELATIVE TO GEOD MODEL CANADIAN HT2\_0.
  2. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
  3. ALL NON-HAZARDOUS DEBRIS WITHIN PLAN AREA TO BE PLACED IN THE HANGAR NON-HAZARDOUS WASTE LANDFILL.
  4. DEPTH OF LANDFILL/BURIED DEBRIS EXCAVATION TO EXTEND TO THE BASE OF THE DEBRIS. LIMIT AND DEPTH OF LANDFILL/BURIED DEBRIS EXCAVATION TO BE FIELD VERIFIED BY CONFIRMATORY TESTING AND EXCAVATION OF TESTPITS.

- Legend:
- COORDINATE POINT
  - APPROXIMATE EXTENT OF BORROW AREAS
  - LANDFILL/BURIED DEBRIS EXCAVATION AREA
  - BODY OF WATER

COORDINATE POINTS		
BORROW AREA NO. 9 BURIED DEBRIS AREA EXCAVATION		
NO.	NORTHING	EASTING
101	7 645 167.4	490 768.0
102	7 645 167.5	490 776.5
103	7 645 163.9	490 781.2
104	7 645 152.3	490 784.1
105	7 645 147.3	490 778.8
106	7 645 147.3	490 770.4
107	7 645 152.8	490 763.3
108	7 645 158.4	490 762.3





Canada

## 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 <b>08-03-2010</b>		REPORT TIME <b>12h00</b>		<input checked="" type="checkbox"/> ORIGINAL SPILL REPORT, OR <input type="checkbox"/> UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER _____
	B	OCCURRENCE DATE: MONTH – DAY – YEAR <b>07-31-2010</b>		OCCURRENCE TIME <b>16h30</b>		
C		LAND USE PERMIT NUMBER (IF APPLICABLE) <b>N2007X0035</b>			WATER LICENCE NUMBER (IF APPLICABLE) <b>1BR-LON0813</b>	
	D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION <b>FOX-2, Longstaff Bluff</b>			REGION <input type="checkbox"/> NWT <input checked="" type="checkbox"/> NUNAVUT <input type="checkbox"/> ADJACENT JURISDICTION OR OCEAN	
E		LATITUDE DEGREES <b>68</b> MINUTES <b>53</b> SECONDS <b>49</b>			LONGITUDE DEGREES <b>75</b> MINUTES <b>09</b> SECONDS <b>37</b>	
	F	RESPONSIBLE PARTY OR VESSEL NAME <b>Defence Construction Canada</b>		RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION <b>350 Albert, suite 1721, Ottawa, ON, k1A 0K3</b>		
G		ANY CONTRACTOR INVOLVED <b>Quantum Murray</b>		CONTRACTOR ADDRESS OR OFFICE LOCATION		
	H	PRODUCT SPILLED <b>Hydraulic oil</b>		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES <b>55 litres</b>		U.N. NUMBER
I		SECOND PRODUCT SPILLED (IF APPLICABLE)		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES		U.N. NUMBER
	J	SPILL SOURCE <b>Excavator</b>		SPILL CAUSE <b>Ruptured hose</b>		AREA OF CONTAMINATION IN SQUARE METRES <b>approximately 40</b>
K		FACTORS AFFECTING SPILL OR RECOVERY <b>N/A</b>		DESCRIBE ANY ASSISTANCE REQUIRED <b>N/A</b>		HAZARDS TO PERSONS, PROPERTY OR ENVIRONMENT <b>N/A</b>
	L	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS  <b>The spill was spread over a thin layer of approximately 40 m2, and only a small area had pooled oil. Quick dry was put under the excavator and spill pads were employed to mitigate the spread and the area was excavated and soil placed on a poly liner to be disposed in the proper facility after testing. No further action is required; excavator was fixed and problem solved.</b>				
M		REPORTED TO SPILL LINE BY <b>Robert Bellizzi</b>		POSITION <b>ENV O</b>		EMPLOYER <b>DCC</b>
	N	LOCATION CALLING FROM <b>Ottawa</b>		TELEPHONE <b>613-998-7288</b>		
O		ANY ALTERNATE CONTACT <b>Imad jaradat</b>		POSITION <b>Assoc. proj. Manager</b>		EMPLOYER <b>DCC</b>
	P	ALTERNATE CONTACT <b>Ottawa</b>		ALTERNATE TELEPHONE <b>613-998-4583</b>		
REPORT LINE USE ONLY						
Q	RECEIVED AT SPILL LINE BY		POSITION STATION OPERATOR		EMPLOYER	
	LOCATION CALLED YELLOWKNIFE, NT		REPORT LINE NUMBER (867) 920-8130			
LEAD AGENCY <input type="checkbox"/> EC <input type="checkbox"/> CCG <input type="checkbox"/> GNWT <input type="checkbox"/> GN <input type="checkbox"/> ILA <input type="checkbox"/> INAC <input type="checkbox"/> NEB <input type="checkbox"/> TC			SIGNIFICANCE <input type="checkbox"/> MINOR <input type="checkbox"/> MAJOR <input type="checkbox"/> UNKNOWN			FILE STATUS <input type="checkbox"/> OPEN <input type="checkbox"/> 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

March 15, 2011

**RE: June 2010 Monthly Report for Water Use License Number: 1BR-LON0813**

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-2 (*Longstaff Bluff*).

1. CAMP SEWAGE LAGOON

A 2 cell sewage lagoon was constructed to service the FOX-2 construction camp in 2009. The sewage lagoon is located approximately 100 m from the contractor's camp, 100 m away from drainage channels, and away from water bodies supporting aquatic life. The GPS coordinates that are required by the Water Use License for the sewage lagoon location are 0491084E 7646024N.

2. SEWAGE EFFLUENT SAMPLES

The Water Use License and MP require that samples from treated sewage lagoon effluent at the point of discharge to the receiving water be collected prior to each discharge event. Six sewage effluent samples were collected in June 2010 from the FOX-2 sewage treatment plant and lagoons. A summary of the details of these results follows.

Laboratory results are provided in Appendix A.

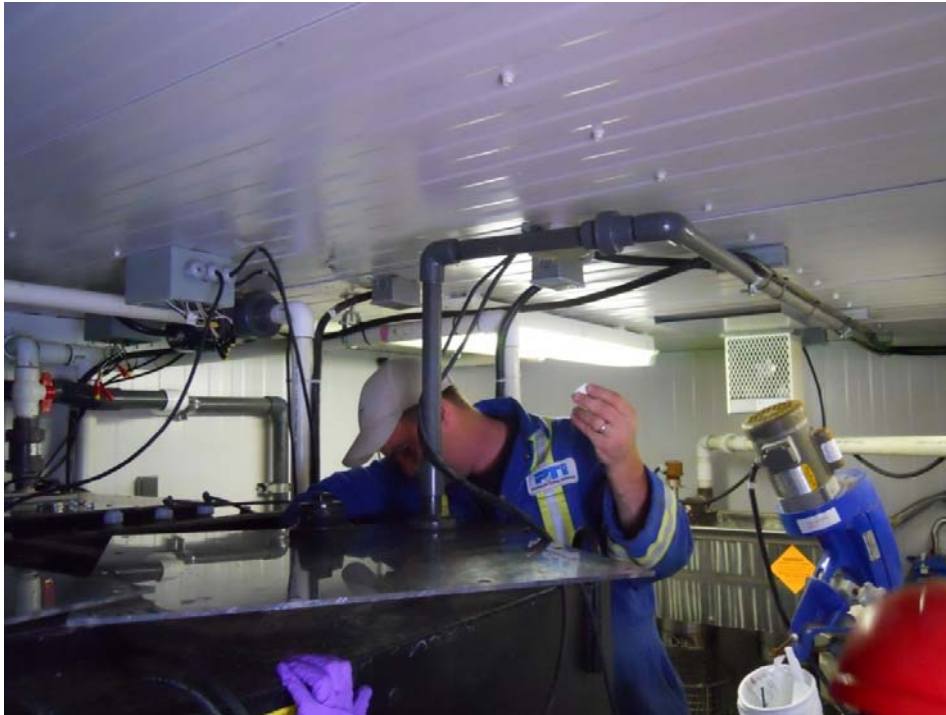
**LOCATION: CAMP SEWAGE TREATMENT FACILITY**

GPS COORDINATES: 18W 0491768 7643478

SAMPLE: 10-12485

DATE: JUNE 8, 2010

Parameter	Allowable Maximum Average Concentration	Units	Sample # 10-12485
pH	6.0 to 9.0	pH units	7.97
Oil & Grease	None Visible	-	N/A
Total Suspended Solids (TSS)	180	mg/L	<5
BOD	120	mg/L	54
Faecal Coliforms	10,000	CFU/dL	2500
Total Coliforms	-	CFU/ 100 mL	>20000



**Photo 1 (0068): Sample 10-12485 Fox-2 Sewage Treatment Facility**

**LOCATION: CAMP SEWAGE TREATMENT FACILITY**

GPS COORDINATES: 18W 0491768 7643478

SAMPLE: 10-12492

DATE: JUNE 11

Parameter	Allowable Maximum Average Concentration	Units	Sample# 10-12492
pH	6.0 to 9.0	pH units	8.53
Oil & Grease	None Visible	-	N/A
Total Suspended Solids (TSS)	180	mg/L	<10
BOD	120	mg/L	17
Faecal Coliforms	10,000	CFU/dL	0
Total Coliforms	-	CFU/ 100 mL	80



**Photo 2 (0095): Sample 10-12492 Fox-2 Sewage Treatment Facility**

**LOCATION: CAMP SEWAGE TREATMENT FACILITY**

GPS COORDINATES: 18W 0491768 7643478

SAMPLE: 10-12702

DATE: JUNE 15, 2010

Parameter	Allowable Maximum Average Concentration	Units	Sample # 10-12702
pH	6.0 to 9.0	pH units	N/A
Oil & Grease	None Visible	-	None Visible
Total Suspended Solids (TSS)	180	mg/L	N/A
BOD	120	mg/L	N/A
Faecal Coliforms	10,000	CFU/dL	<b>62,000</b>
Total Coliforms	-	CFU/ 100 mL	>200,000



**Photo 5 (1448): Sample 10-12702 Fox-2 Sewage Treatment Facility**

**LOCATION: CAMP SEWAGE TREATMENT FACILITY**

GPS COORDINATES: W0491657 7643666

SAMPLE: 10-13691

DATE: JUNE 30, 2010

Parameter	Allowable Maximum Average Concentration	Units	Sample # 10-13691
pH	6.0 to 9.0	pH units	8.3
Oil & Grease	None Visible	-	None Visible
Total Suspended Solids (TSS)	180	mg/L	5
BOD	120	mg/L	<3
Faecal Coliforms	10,000	CFU/dL	30
Total Coliforms	-	CFU/ 100 mL	230



**Photo 6 (1720): Sample 10-13691 Fox-2** Sampling the Fox-2 sewage treatment plant

*The effluent from the Camp Sewage Treatment Facility (10-12485, 10-12492, 10-12702, and 10-13691) continued to be discharged directly to ground.( W0491657 7643666)*



**LOCATION: SEWAGE LAGOON CELL 1**

GPS COORDINATES: 18W 0491084 7646022

SAMPLE: 10-12493

DATE: JUNE 11

Parameter	Allowable Maximum Average Concentration	Units	Sample # 10-12493
pH	6.0 to 9.0	pH units	7.57
Oil & Grease	None Visible	-	N/A
Total Suspended Solids (TSS)	180	mg/L	<10
BOD	120	mg/L	14
Faecal Coliforms	10,000	CFU/dL	0
Total Coliforms	-	CFU/ 100 mL	600



**Photo 3 (0097): Sample 10-12493 Fox-2 Sewage Lagoon Cell 1 - Facing East**

*The water from the Sewage Lagoon Cell 1 was discharged to the ground on June 25, 2010.  
(18W 0491084 7646022)*

**LOCATION: FOX 2 – SEWAGE LAGOON CELL 3**

GPS COORDINATES: 18W 0491783 7643438

SAMPLE: 10-12494

DATE: JUNE 11

Parameter	Allowable Maximum Average Concentration	Units	Sample # 10-12494
pH	6.0 to 9.0	pH units	7.12
Oil & Grease	None Visible	-	N/A
Total Suspended Solids (TSS)	180	mg/L	<10
BOD	120	mg/L	43
Faecal Coliforms	10,000	CFU/dL	0
Total Coliforms	-	CFU/ 100 mL	0



**Photo 4 (0099): Sample 10-12494 Fox-2 Sewage Lagoon Cell 3**

*The water from the Sewage Lagoon Cell 3 was discharged to the ground on June 26, 2010. The water was discharged to an INAC approved location. (18W 0491783 7643438)*

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

Sincerely,

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

Candice Casucci  
Environmental Sciences Group

cc: Eva Schulz (UMA)  
Daniela Loock, Kat White, Darren White, Cameron King, Ryan Adams (ESG)



## APPENDIX A LABORATORY RESULTS

<b>ESG</b>				ASG Login No: 20600
12 Verite Ave				Site: FOX-2
Dept. of Chem. / Chem. Eng., RMC				Client No: 10-006
P.O. Box 17000, Stn. Forces				Samples Received: 10-Jun-10
Kingston, Ontario K7K 7B4				Date of analysis: 10-Jun-10
(613) 541-6000 ext 6567				Date Reported: 11-Jun-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)
12485	> 20 000	900	> 20 000	2500

### 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	39	39	0	29
Control Sample Target	37	37	0	37

ESG				ASG Login No: 20600
12 Verite Ave				Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC				Client No: 10-006
P.O. Box 17000, Stn. Forces				Samples Received: 10-Jun-10
Kingston, Ontario K7K 7B4				Date of analysis: 11-Jun-10
(613) 541-6000 ext 6567				Method No: ASG 037
Fax: (613) 541-6596				Date Reported: 11-Jun-10
				Page: 1 of 1

### RESULTS OF pH ANALYSIS

Sample I.D.	pH
10-12485*	7.97

\* Averaged result of duplicates

### LABORATORY QA/QC

Sample I.D.	pH
10-12485* ; Duplicate	7.97 ; 7.97
Control	7.01
Control Target	7.00

ASG Login No:	20600
Site:	Fox-2
Client Login No:	10-006
Samples Received:	10-Jun-10
Date of analysis:	11-Jun-10
Method No:	ASG 039
Date Reported:	11-Jun-10
Sheet:	1 of 1

Sample I.D.	Sample Type^	Unit	Total Suspended Solids
10-12485*	SE	mg/L	< 5

Duplicate ; 10-12485*	SE	mg/L	< 5 ; < 5
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

ASG Login No:	20600
Site:	Fox-2
Client Login No:	10-006
Samples Received:	10-Jun-10
Date of analysis:	10-Jun-10
Method No:	ASG 042
Date Reported:	15-Jun-10
Page:	1 of 1

Sample I.D.	Unit	BOD
10-12485*	mg/L	54

\*Averaged result of duplicates

Sample I.D.	Unit	BOD
Duplicate ; 10-12485*	mg/L	53 ; 54
Blank	mg/L	< 3
Control	mg/L	181
Control Target	mg/L	165

<b>ESG</b>				ASG Login No: 20606
12 Verite Ave				Site: FOX-2
Dept. of Chem. / Chem. Eng., RMC				Client No: 10-007
P.O. Box 17000, Stn. Forces				Samples Received: 13-Jun-10
Kingston, Ontario K7K 7B4				Date of analysis: 13-Jun-10
(613) 541-6000 ext 6567				Date Reported: 14-Jun-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)
12492*	80	0	470	0
12493*	600	0	13 800	0
12494*	0	0	80	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	32	32	0	35
Control Sample Target	34	34	0	34

<b>ESG</b>				ASG Login No: 20606
12 Verite Ave				Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC				Client No: 10-007
P.O. Box 17000, Stn. Forces				Samples Received: 12-Jun-10
Kingston, Ontario K7K 7B4				Date of analysis: 14-Jun-10
(613) 541-6000 ext 6567				Method No: ASG 038
Fax: (613) 541-6596				Date Reported: 14-Jun-10
				Page: 1 of 1

## RESULTS OF pH ANALYSIS

Sample I.D.	pH
10-12492*	8.53
10-12493	7.57
10-12494	7.12

\* Averaged result of duplicates

## LABORATORY QA/QC

Sample I.D.	pH
10-12492 ; 10-12492	8.53 ; 8.52
Control	7.01
Control Target	7.00

ESG	ASG Login No: 20606
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client Login No: 10-007
P.O. Box 17000, Stn. Forces	Samples Received: 13-Jun-10
Kingston, Ontario K7K 7B4	Date of analysis: 15-Jun-10
(613) 541-6000 ext 6567	Method No: ASG 039
Fax: (613) 541-6596	Date Reported: 15-Jun-10
	Sheet: 1 of 1

### RESULTS OF TOTAL SUSPENDED SOLIDS ANALYSIS

Sample I.D.	Sample Type^	Unit	Total Suspended Solids
10-12492*	SE	mg/L	< 10
10-12493	SE	mg/L	< 10
10-12494	SE	mg/L	< 10

### LABORATORY QA/QC

Duplicate ; 10-12492*	SE ; SE	mg/L	< 10 ; < 10
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

<b>ESG</b>	ASG Login No: 20606
12 Verite Ave	Site: FOX-2
Dept. of Chem. / Chem. Eng., RMC	Client Login No: 10-007
P.O. Box 17000, Stn. Forces	Samples Received: 12-Jun-10
Kingston, Ontario K7K 7B4	Date of analysis: 12-Jun-10
(613) 541-6000 ext 6567	Method No: ASG 042
Fax: (613) 541-6596	Date Reported: 19-Jun-10
	Page: 1 of 1

### RESULTS OF BOD ANALYSIS

Sample I.D.	Unit	BOD
12492	mg/L	17
12493	mg/L	14
12494*	mg/L	43

\*Averaged result of duplicates

### LABORATORY QA/QC

Sample I.D.	Unit	BOD
12494; duplicate	mg/L	45; 40
Blank	mg/L	< 3
Control	mg/L	181
Control Target	mg/L	165

<b>ESG</b>					ASG Login No: 20701
12 Verite Ave					Site: FOX-2
Dept. of Chem. / Chem. Eng., RMC					Client No: 10-079
P.O. Box 17000, Stn. Forces					Samples Received: 2-Jul-10
Kingston, Ontario K7K 7B4					Date of analysis: 2-Jul-10
(613) 541-6000 ext 6567					Date Reported: 3-Jul-10
Fax: (613) 541-6596					Sheet: 1 of 1

### RESULTS OF MICROBIOLOGICAL ANALYSIS

Sample Identification	Method: ASG 036 <b>Total Coliforms</b> (CFU/100 mL)	Method: ASG 036 <b>E. coli</b> (CFU/100 mL)	Method: ASG 036 <b>Background</b> (CFU/100 mL)	Method: ASG 044 <b>Fecal Coliforms</b> (CFU/100 mL)
13691	230	10	1400	30

### LABORATORY QA/QC

Sample Identification	Method: ASG 036 <b>Total Coliforms</b> (CFU/100 mL)	Method: ASG 036 <b>E. coli</b> (CFU/100 mL)	Method: ASG 036 <b>Background</b> (CFU/100 mL)	Method: ASG 044 <b>Fecal Coliforms</b> (CFU/100 mL)
Blank	0	0	0	0
Control Sample	38	38	0	30
Control Sample Target	31	31	0	31

<b>ESG</b>					ASG Login No: 20701
12 Verite Ave					Site: FOX-2
Dept. of Chem. / Chem. Eng., RMC					Client Login No: 10-079
P.O. Box 17000, Stn. Forces					Samples Received: 2-Jul-10
Kingston, Ontario K7K 7B4					Date of analysis: 2-Jul-10
(613) 541-6000 ext 6567					Method No: ASG 039
Fax: (613) 541-6596					Date Reported: 3-Jul-10
					Sheet: 1 of 1

### RESULTS OF TOTAL SUSPENDED SOLIDS ANALYSIS

Sample I.D.	Sample Type^	Unit	Total Suspended Solids
13691*	SE	mg/L	5

### LABORATORY QA/QC

Duplicate ; 13691*	SE ; SE	mg/L	5.5 ; 5.0
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: 20701

Site: Fox-2

Client Login No: 10-079

Samples Received: 2-Jul-10

Date of analysis: 7-Jul-10

Method No: ASG 042

Date Reported: 7-Jul-10

Page: 1 of 1

## RESULTS OF BOD ANALYSIS

Sample I.D.	Unit	BOD
13691*	mg/L	< 3

\*Averaged result of duplicates

## LABORATORY QA/QC

Sample I.D.	Unit	BOD
Duplicate ; 13691*	mg/L	< 3 ; < 3
Blank	mg/L	< 3
Control	mg/L	187
Control Target	mg/L	165

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: 20701

Site: Fox-2

Client No: 10-079

Samples Received: 2-Jul-10

Date of analysis: 2-Jul-10

Method No: ASG 037

Date Reported: 2-Jul-10

Page: 1 of 1

## RESULTS OF pH ANALYSIS

Sample I.D.	pH
13691	8.33

\* Averaged result of duplicates

## LABORATORY QA/QC

Sample I.D.	pH
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

Monday, March 21, 2011

**RE: Analytical Results for Wastewater Samples Collected at FOX-2 in June, 2010**

The following report summarizes results of the analysis of wastewater samples as per the FOX-2 (Longstaff Bluff) DEW Line Cleanup Project (DLCU) Specifications.

The FOX-2 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	mg/L
Phenols	-	-

*Phenols*

The wastewater samples collected by ESG at FOX-2 in June, 2010 were not analyzed for phenols but they were analyzed for oil and grease. Research conducted by ESG<sup>1</sup> 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 (2.44 mg/L) is below the LC<sub>50</sub> for freshwater fish and crustaceans and below the oral and

<sup>1</sup> Environmental Sciences Group. *DEW Line Clean Up Project – Phenols in Wastewater*. June, 2007.

dermal LD<sub>50</sub>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

Nine wastewater samples were collected at FOX-2 and analyzed in June 2010. A summary of the details of these results follows. Laboratory results are provided in Appendix A.



**LOCATION: BARREL PROCESSING AREA MELTWATER****GPS COORDINATES:** 18 W 0490764, 7644899**SAMPLE:** 10-12486**DATE:** JUNE 10, 2010

<b>Parameter</b>	<b>Maximum Allowable Concentration</b>	<b>Units</b>	<b>Sample # 10-12486</b>
<b>pH</b>	6-9	pH units	7.0
<b>Total arsenic (As)</b>	0.100	mg/L	<0.003
<b>Dissolved cadmium (Cd)</b>	0.010	mg/L	<0.001
<b>Dissolved chromium (Cr)</b>	0.100	mg/L	<0.005
<b>Dissolved cobalt (Co)</b>	0.050	mg/L	<0.003
<b>Dissolved copper (Cu)</b>	0.200	mg/L	<0.005
<b>Dissolved lead (Pb)</b>	0.050	mg/L	<0.010
<b>Total mercury (Hg)</b>	0.0006	mg/L	<0.0004
<b>Dissolved nickel (Ni)</b>	0.200	mg/L	<0.005
<b>Total zinc (Zn)</b>	0.5	mg/L	0.019
<b>Oil &amp; grease</b>	5	mg/L	<2.0
<b>PCBs</b>	1	mg/L	<0.003
<b>Phenols</b>	-	-	N/A

*Water from the Barrel Processing Area was discharged on July 20<sup>th</sup>, 2010 to an INAC approved location (18W 0490764 7644899).*

**LOCATION: LANDFARM COMPOSITE LOCATION – SOUTHEAST CORNER,  
SOUTHERN EDGE (EASTERLY / WESTERLY), SOUTHWEST CORNER**

**GPS COORDINATES:** 1) 18W 0489136, 7646666  
2) 18W 0489114, 7646700  
3) 18W 0489069, 7646744  
4) 18W 0489029, 7646801

**SAMPLE:** 10-12985

**DATE:** JUNE 19, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-12985
pH	6-9	pH units	7.73
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	N/A
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	<0.010
Oil & grease	5	mg/L	<2.0
PCBs	1	mg/L	<0.003
Phenols	-	-	N/A



**Photo 2 (1484) Sample 10-12985 Fox-2 Landfarm Composite Sample Location 1 -  
Looking Southwest to Sampling at Location 2.**

*Water from the landfarm facility was discharged on July 22, 2010 to maintain berm stability, to an INAC approved location (488980, 7646809).*

**LOCATION: AIRSTRIP WEST LANDFILL LOBE B2 EXCAVATION BASE**

**GPS COORDINATES:** 18W 0488497, 7646521

**SAMPLE:** 10-12986

**DATE:** JUNE 19, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-12986
pH	6-9	pH units	7.89
Total arsenic (As)	0.100	mg/L	0.005
Dissolved cadmium (Cd)	0.010	mg/L	<0.001
Dissolved chromium (Cr)	0.100	mg/L	N/A
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	<0.010
Oil & grease	5	mg/L	<2.0
PCBs	1	mg/L	<0.003
Phenols	-	-	N/A



**Photo 3 (1491) Sample 10-12986 Fox-2 Airstrip West Landfill Lobe B2 Excavation Base - Facing South**

**LOCATION: AIRSTRIP WEST LANDFILL LOBE C EXCAVATION BASE**

**GPS COORDINATES: 18W 0488469 7646565**

**SAMPLE: 10-12987**

**DATE: JUNE 19, 2010**

Parameter	Maximum Allowable Concentration	Units	Sample # 10-12987
pH	6-9	pH units	7.92
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	N/A
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	<0.010
Oil & grease	5	mg/L	<2.0
PCBs	1	mg/L	<0.003
Phenols	-	-	N/A



**Photo 3 (1492) Sample 10-12987 Fox-2 Airstrip West Landfill Lobe C Excavation Base - Facing South.**

**LOCATION: AIRSTRIP WEST LANDFILL LOBE D EXCAVATION BASE**

**GPS COORDINATES: 18W 0488458 7646580**

**SAMPLE: 10-12988**

**DATE: JUNE 19, 2010**

Parameter	Maximum Allowable Concentration	Units	Sample # 10-12988
pH	6-9	pH units	7.90
Total arsenic (As)	0.100	mg/L	0.005
Dissolved cadmium (Cd)	0.010	mg/L	>0.001
Dissolved chromium (Cr)	0.100	mg/L	N/A
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	<0.010
Oil & grease	5	mg/L	<2.0
PCBs	1	mg/L	<0.003
Phenols	-	-	N/A



**Photo 4 (1494) Sample 10-12988 Fox-2 Airstrip West Landfill Lobe D Excavation Base - Facing Northwest.**

*Water levels decreased to the point where discharge was not necessary prior to backfilling in the Airstrip West Landfill lobes B2, C and D. (10-12986, 10-12987 and 10-12988)*

**LOCATION: AIRSTRIP LANDFILL LOBE A – COMPOSITE LOCATION #1, #2 AND #3**

**GPS COORDINATES:** 1) 18W 0489389 7646668

2) 18W 0489391 7646657

3) 18W 0489380 7646668

**SAMPLE:** 10-13165

**DATE:** JUNE 21, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-13165
pH	6-9	pH units	8.24
Total arsenic (As)	0.100	mg/L	0.043
Dissolved cadmium (Cd)	0.010	mg/L	<0.001
Dissolved chromium (Cr)	0.100	mg/L	N/A
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	<b>1.09</b>
Oil & grease	5	mg/L	Broken Bottle
PCBs	1	mg/L	<0.003
Phenols	-	-	N/A



**Photo 5 (1541) Sample 10-13165) Fox-2 Airstrip Landfill Lobe A - From East Edge Facing Southwest.**

*Water from the Airstrip Landfill Lobe A was over criteria for Zinc; it was re-tested on June 29<sup>th</sup> (10-13689, 10-13690).*

**LOCATION: AIRSTRIP LANDFILL LOBE A****GPS COORDINATES:** 1) L1: W0489385, N7646665

2) L2: W0489371, N7646668

3) L3: W0489408, N7646660

**SAMPLE:** 10-13689**DATE:** JUNE 29, 2010

<b>Parameter</b>	<b>Maximum Allowable Concentration</b>	<b>Units</b>	<b>Sample # 10-13689</b>
<b>pH</b>	6-9	pH units	7.30
<b>Total arsenic (As)</b>	0.100	mg/L	<0.003
<b>Dissolved cadmium (Cd)</b>	0.010	mg/L	<0.001
<b>Dissolved chromium (Cr)</b>	0.100	mg/L	N/A
<b>Dissolved cobalt (Co)</b>	0.050	mg/L	<0.003
<b>Dissolved copper (Cu)</b>	0.200	mg/L	<0.005
<b>Dissolved lead (Pb)</b>	0.050	mg/L	<0.010
<b>Total mercury (Hg)</b>	0.0006	mg/L	<0.0004
<b>Dissolved nickel (Ni)</b>	0.200	mg/L	<0.005
<b>Total zinc (Zn)</b>	0.5	mg/L	<0.010
<b>Oil &amp; grease</b>	5	mg/L	<2.0
<b>PCBs</b>	1	mg/L	<0.003
<b>Phenols</b>	-	-	N/A

**SAMPLE:** 10-13690**DATE:** JUNE 29, 2010

<b>Parameter</b>	<b>Maximum Allowable Concentration</b>	<b>Units</b>	<b>Sample # 10-13690</b>
<b>pH</b>	6-9	pH units	7.22
<b>Total arsenic (As)</b>	0.100	mg/L	<0.003
<b>Dissolved cadmium (Cd)</b>	0.010	mg/L	<0.001
<b>Dissolved chromium (Cr)</b>	0.100	mg/L	N/A
<b>Dissolved cobalt (Co)</b>	0.050	mg/L	<0.003
<b>Dissolved copper (Cu)</b>	0.200	mg/L	<0.005
<b>Dissolved lead (Pb)</b>	0.050	mg/L	<0.010
<b>Total mercury (Hg)</b>	0.0006	mg/L	<0.0004
<b>Dissolved nickel (Ni)</b>	0.200	mg/L	<0.005
<b>Total zinc (Zn)</b>	0.5	mg/L	<0.010
<b>Oil &amp; grease</b>	5	mg/L	<2.0
<b>PCBs</b>	1	mg/L	<0.003
<b>Phenols</b>	-	-	N/A





**Photo 7 (1707) Sample 10-13369/90 Fox 2** Wastewater sampling at the Airstrip Landfill Lobe A. Photo taken facing North

*Water from Airstrip Landfill Lobe A was below criteria for all parameters. The excavation was not discharged prior to backfill.*



**LOCATION: APRON DEBRIS AREA LOBE D - BASE**  
**GPS COORDINATES: 18W 0488813 7646306**  
**SAMPLE: 10-13368**  
**DATE: JUNE 25, 2010**

Parameter	Maximum Allowable Concentration	Units	Sample # 10-13368
pH	6-9	pH units	7.53
Total arsenic (As)	0.100	mg/L	0.009
Dissolved cadmium (Cd)	0.010	mg/L	<0.01
Dissolved chromium (Cr)	0.100	mg/L	N/A
Dissolved cobalt (Co)	0.050	mg/L	<0.003
Dissolved copper (Cu)	0.200	mg/L	0.007
Dissolved lead (Pb)	0.050	mg/L	<0.010
Total mercury (Hg)	0.0006	mg/L	<0.4
Dissolved nickel (Ni)	0.200	mg/L	<0.005
Total zinc (Zn)	0.5	mg/L	<0.010
Oil & grease	5	mg/L	<2.0
PCBs	1	mg/L	<0.003
Phenols	-	-	N/A

*Water levels decreased to the point where discharge was not necessary prior to backfilling at the Apron Debris Area Lobe D. (10-13368)*

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, Cameron King (ESG)

## APPENDIX A LABORATORY RESULTS

<b>Client:</b> ESG	ASG Login No: 20608
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-008
P.O. Box 17000, Stn. Forces	Samples Received: 13-Jun-10
Kingston, Ontario K7K 7B4	Date of analysis: 14-Jun-10
(613) 541-6000 ext 6567	Method No: ASG 015
Fax: (613) 541-6596	Date Reported: 15-Jun-10
	Sheet No: 1 of 1

### RESULTS OF PCB IN WATER ANALYSIS

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	12486	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	0.014
	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

<b>Client:</b> ESG	ASG Login No: 20608
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-008
P.O. Box 17000, Stn. Forces	Samples Received: 13-Jun-10
Kingston, Ontario K7K 7B4	Date of analysis: 14-Jun-10
(613) 541-6000 ext 6567	Method No: ASG 014
Fax: (613) 541-6596	Date Reported: 14-Jun-10
	Sheet: 1 of 1

### RESULTS OF MERCURY ANALYSIS

Sample ID	Mercury ug/L
10-12486*	< 0.4

\*Average result of duplicates.

### LABORATORY QA/QC

Sample ID	Mercury ug/L
Duplicate : 10-12486*	< 0.4 ; < 0.4
Blank	< 0.4
Control Target	4.00
Control Sample	4.10

+	<b>Client:</b> ESG	ASG Login No: 20608
	12 Verite Ave	Site: Fox-2
	Dept. of Chem. / Chem. Eng., RMC	Client No: 10-008
	P.O. Box 17000, Stn. Forces	Samples Received: 13-Jun-10
	Kingston, Ontario K7K 7B4	Date of analysis: 14-Jun-10
	(613) 541-6000 ext 6567	Method No: ASG 037
	Fax: (613) 541-6596	Date Reported: 14-Jun-10
		Page: 1 of 1

### RESULTS OF pH ANALYSIS

Sample I.D.	pH
10-12486*	7.00

\* Averaged result of duplicates

### LABORATORY QA/QC

Sample I.D.	pH
10-12486 ; 10-12486	6.99 ; 7.01
Control	7.00
Control Target	7.00

+	<b>ASU #</b>	12754	<b>Report ID:</b>	Fox-2 W4
	<b>Client:</b>	ESG	<b>Date Submitted:</b>	14-Jun-10
			<b>Date tested:</b>	14-Jun-10
	<b>Site:</b>	Fox-2	<b>Date:</b>	15-Jun-10
		10-008	<b>Matrix:</b>	water

### Report of Analysis

Sample	Oil & Grease
	mg/L
10-12486	<2.0
Blank	<2.0
Control	13.8
Control Target	15.7

ASU #	12754		Report ID:	Fox-2 W6				
Client:	ESG		Date Submitted:	14-Jun-10				
			Date tested:	14-Jun-10				
Site:	Fox-2		Date:	15-Jun-10				
	10-008		Matrix:	Water				
Report of Analysis								
Total Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-12486	-	-	-	-	-	0.019	-	<0.003 *
Blank	-	-	-	-	-	<0.010	-	<0.003
10-12486	-	-	-	-	-	0.018	-	<0.003
10-12486	-	-	-	-	-	0.019	-	<0.003
Control	-	-	-	-	-	3.05	-	0.78
Control Target	-	-	-	-	-	3.00	-	0.80
Dissolved Metals								
	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-12486	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	- *
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
10-12486	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
10-12486	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
Control	1.61	1.62	1.61	0.79	8.10	-	0.82	-
Control Target	1.60	1.60	1.60	0.80	8.00	-	0.80	-

<b>ESG</b>					ASG Login No: 20667
12 Verite Ave					Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC					Client No: 10-035
P.O. Box 17000, Stn. Forces					Samples Received: 25-Jun-10
Kingston, Ontario K7K 7B4					Date of analysis: 25-Jun-10
(613) 541-6000 ext 6567					Method No: ASG 015
Fax: (613) 541-6596					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	12985*	mg/L	< 0.003	< 0.003
W	12986	mg/L	< 0.003	< 0.003
W	12987	mg/L	< 0.003	< 0.003
W	12988	mg/L	< 0.003	< 0.003
W	13165	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 ; 12985*	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

ASU #	12810		Report ID:	Fox-2 W9				
Client:	ESG		Date Submitted:	25-Jun-10				
			Date tested:	28-Jun-10				
Site:	Fox-2		Date:	28-Jun-10				
	10-035		Matrix:	Water				
Report of Analysis								
Total Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-12985	-	-	-	-	-	<0.010	-	<0.003
10-12986	-	-	-	-	-	<0.010	-	0.005
10-12987	-	-	-	-	-	<0.010	-	0.006
10-12988	-	-	-	-	-	<0.010	-	0.005
10-13165	-	-	-	-	-	1.09	-	0.043
Blank	-	-	-	-	-	<0.010	-	<0.003
Control	-	-	-	-	-	3.08	-	0.79
Control Target	-	-	-	-	-	3.00	-	0.80
10-13165	-	-	-	-	-	1.06	-	0.041
10-13165	-	-	-	-	-	1.11	-	0.045
Dissolved Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-12985	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
10-12986	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
10-12987	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
10-12988	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
10-13165	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
Control	1.62	1.64	1.63	0.81	8.12	-	0.83	-
Control Target	1.60	1.60	1.60	0.80	8.00	-	0.80	-
10-13165	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
10-13165	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
Results relate only to the items tested								

<b>ASU #</b>	12810		<b>Report ID:</b>	Fox-2 W10
<b>Client:</b>	ESG		<b>Date Submitted:</b>	25-Jun-10
			<b>Date tested:</b>	26-Jun-10
<b>Site:</b>	Fox-2		<b>Date:</b>	28-Jun-10
	10-035		<b>Matrix:</b>	water
Report of Analysis				
Sample	Oil & Grease			
	mg/L			
10-12985	<2.0			
10-12986	<2.0			
10-12987	<2.0			
10-12988	<2.0			
10-13165	broken bottle			
Blank	<2.0			
Control	14.3			
Control Target	15.7			

<b>ESG</b>					ASG Login No: 20667
12 Verite Ave					Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC					Client No: 10-035
P.O. Box 17000, Stn. Forces					Samples Received: 25-Jun-10
Kingston, Ontario K7K 7B4					Date of analysis: 28-Jun-10
(613) 541-6000 ext 6567					Method No: ASG 014
Fax: (613) 541-6596					Date Reported: 28-Jun-10
					Sheet: 1 of 1

## RESULTS OF MERCURY ANALYSIS

Sample ID	Mercury mg/L
12985	< 0.0004
12986	< 0.0004
12987	< 0.0004
12988	< 0.0004
13165	< 0.0004

## LABORATORY QA/QC

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

ESG	ASG Login No: 20667
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-035
P.O. Box 17000, Stn. Forces	Samples Received: 25-Jun-10
Kingston, Ontario K7K 7B4	Date of analysis: 28-Jun-10
(613) 541-6000 ext 6567	Method No: ASG 037
Fax: (613) 541-6596	Date Reported: 28-Jun-10
	Page: 1 of 1

### RESULTS OF pH ANALYSIS

Sample I.D.	pH
12985*	7.73
12986	7.89
12987	7.92
12988	7.90
13165	8.24

\* Averaged result of duplicates

### LABORATORY QA/QC

Sample I.D.	pH
12985 ; 12985	7.72 ; 7.73
Control	7.01
Control Target	7.00

ASU #	12821		Report ID:	Fox-2 W12				
Client:	ESG		Date Submitted:	28-Jun-10				
			Date tested:	2-Jul-10				
Site:	Fox-2		Date:	2-Jul-10				
	10-061		Matrix:	Water				
Report of Analysis								
Total Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-13368	-	-	-	-	-	<0.010	-	0.009
Blank	-	-	-	-	-	<0.010	-	<0.003
Control	-	-	-	-	-	3.30	-	0.83
Control Target	-	-	-	-	-	3.00	-	0.80
10-13368	-	-	-	-	-	<0.010	-	0.010
10-13368	-	-	-	-	-	<0.010	-	0.009
Dissolved Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-13368	0.007	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
Control	1.75	1.75	1.75	0.87	8.81	-	0.90	-
Control Target	1.60	1.60	1.60	0.80	8.00	-	0.80	-
10-13368	0.007	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
10-13368	0.007	<0.005	<0.003	<0.001	<0.010	-	<0.005	-



ESG	ASG Login No: 20678
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-061
P.O. Box 17000, Stn. Forces	Samples Received: 28-Jun-10
Kingston, Ontario K7K 7B4	Date of analysis: 28-Jun-10
(613) 541-6000 ext 6567	Method No: ASG 037
Fax: (613) 541-6596	Date Reported: 28-Jun-10
	Page: 1 of 1

RESULTS OF pH ANALYSIS	
Sample I.D.	pH
13368*	7.53

\* Averaged result of duplicates

LABORATORY QA/QC	
Sample I.D.	pH
13368 ; 13368	7.52 ; 7.53
Control	7.01
Control Target	7.00

<b>ESG</b>	ASG Login No: 20678
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-061
P.O. Box 17000, Stn. Forces	Samples Received: 28-Jun-10
Kingston, Ontario K7K 7B4	Date of analysis: 29-Jun-10
(613) 541-6000 ext 6567	Method No: ASG 021
Fax: (613) 541-6596	Date Reported: 29-Jun-10
	Sheet: 1 of 1

<b>RESULTS OF MERCURY ANALYSIS</b>	
<b>Sample ID</b>	<b>Mercury<sup>^</sup> mg/L</b>
13368*	< 0.0004

\*Results of duplicate analysis.  
^ Acid digestion performed.  
# Reported at 0.0004 mg/L detection limit.

<b>LABORATORY QA/QC</b>	
<b>Sample ID</b>	<b>Mercury<sup>^</sup> mg/L</b>
Duplicate ; 13368*	< 0.0004 ; < 0.0004
Blank	< 0.0004
Control Target	0.0040
Control Sample	0.0042

<b>ESG</b>	ASG Login No: 20678
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-061
P.O. Box 17000, Stn. Forces	Samples Received: 28-Jun-10
Kingston, Ontario K7K 7B4	Date of analysis: 29-Jun-10
(613) 541-6000 ext 6567	Method No: ASG 015
Fax: (613) 541-6596	Date Reported: 30-Jun-10
	Sheet No: 1 of 1

### RESULTS OF PCB IN WATER ANALYSIS

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	13368*	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 ; 13368*	mg/L	< 0.003 ; < 0.003	< 0.003 ; < 0.003
Control Sample	mg/L	< 0.003	0.017
Control Sample Target	mg/L	< 0.003	0.015

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

<b>ASU #</b>	12821	<b>Report ID:</b>	Fox-2 W11
<b>Client:</b>	ESG	<b>Date Submitted:</b>	28-Jun-10
		<b>Date tested:</b>	29-Jun-10
<b>Site:</b>	Fox-2	<b>Date:</b>	30-Jun-10
	10-061	<b>Matrix:</b>	water

### Report of Analysis

Sample	Oil & Grease		
	mg/L		
10-13368	<2.0		
Blank	<2.0		
Control	14.0		
Control Target	15.7		

<b>ESG</b>					ASG Login No: 20699
12 Verite Ave					Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC					Client No: 10-078
P.O. Box 17000, Stn. Forces					Samples Received: 2-Jul-10
Kingston, Ontario K7K 7B4					Date of analysis: 2-Jul-10
(613) 541-6000 ext 6567					Method No: ASG 021
Fax: (613) 541-6596					Date Reported: 3-Jul-10
					Sheet: 1 of 1

### RESULTS OF MERCURY IN WATER ANALYSIS

Sample ID	Mercury <sup>^</sup> µg/L
13689*	< 0.4
13690	< 0.4

### LABORATORY QA/QC

Sample ID	Mercury <sup>^</sup> µg/L
Duplicate ; 13689*	< 0.4 ; < 0.4
Blank	< 0.4
Control Target	4.00
Control Sample	4.00

\* Averaged result of duplicates

<sup>^</sup> Acid digestion performed

# Reported at 0.4 µg/L detection limit

<b>ASU #</b>	12845	<b>Report ID:</b>	Fox-2 W14
<b>Client:</b>	ESG	<b>Date Submitted:</b>	2-Jul-10
		<b>Date tested:</b>	5-Jul-10
<b>Site:</b>	Fox-2	<b>Date:</b>	6-Jul-10
	10-078	<b>Matrix:</b>	water
Report of Analysis			
Sample	Oil & Grease		
	mg/L		
10-13689	<2.0		
10-13690	<2.0		
Blank	<2.0		
Control	14.0		
Control Target	15.7		
Results relate only to the items tested			

ASG Login No:	20699
Site:	Fox-2
Client No:	10-078
Samples Received:	2-Jul-10
Date of analysis:	5-Jul-10
Method No:	ASG 006
Date Reported:	6-Jul-10
Sheet No:	1 of 1

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	13689	mg/L	< 0.003	< 0.003
W	13690*	mg/L	< 0.003	< 0.003

\* Average result of duplicate

\*\*Report Values in PPM\*\*

	Blank	mg/L	< 0.003	< 0.003
	Duplicate ; 13690*	mg/L	< 0.003 ; < 0.003	< 0.003 ; < 0.003
	Control Sample	mg/L	< 0.003	0.018
	Control Sample Target	mg/L	< 0.003	0.016

ASG Login No:	20699
Site:	Fox-2
Client No:	10-078
Samples Received:	2-Jul-10
Date of analysis:	6-Jul-10
Method No:	ASG 037
Date Reported:	6-Jul-10
Page:	1 of 1

Sample I.D.	pH
10-13689	7.30
10-13690*	7.22

\* Averaged result of duplicates

Sample I.D.	pH
10-013690* ; Duplicate	7.22 ; 7.22
Control	7.01
Control Target	7.00

<b>ASU #</b>	12845		<b>Report ID:</b>	Fox-2 W13				
<b>Client:</b>	ESG		<b>Date Submitted:</b>	2-Jul-10				
			<b>Date tested:</b>	5-Jul-10				
<b>Site:</b>	Fox-2		<b>Date:</b>	6-Jul-10				
	10-078		<b>Matrix:</b>	Water				
Report of Analysis								
<b>Total Metals</b>	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-13689	-	-	-	-	-	<0.010	-	<0.003
10-13690	-	-	-	-	-	<0.010	-	<0.003
Blank	-	-	-	-	-	<0.010	-	<0.003
Control	-	-	-	-	-	3.2	-	0.81
Control Target	-	-	-	-	-	3.0	-	0.80
10-13690	-	-	-	-	-	<0.010	-	<0.003
10-13690	-	-	-	-	-	<0.010	-	<0.003
<b>Dissolved Metals</b>	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-13689	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
10-13690	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
Control	1.60	1.64	1.63	0.79	8.10	-	0.83	-
Control Target	1.60	1.60	1.60	0.80	8.00	-	0.80	-
10-13690	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
10-13690	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-

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

March 15, 2011

**RE: July 2010 Monthly Report for Water Use License Number: 1BR-LON0813**

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-2 (*Longstaff Bluff*).

1. CAMP SEWAGE LAGOON

A 2 cell sewage lagoon was constructed to service the FOX-2 construction camp in 2009. The sewage lagoon is located approximately 100 m from the contractor's camp, 100 m away from drainage channels, and away from water bodies supporting aquatic life. The GPS coordinates that are required by the Water Use License for the sewage lagoon location are 0491084E 7646024N.

2. SEWAGE EFFLUENT SAMPLES

The Water Use License and MP require that samples from treated sewage lagoon effluent at the point of discharge to the receiving water be collected prior to each discharge event. Two sewage effluent samples were collected in July 2010 from the FOX-2 sewage treatment plant, to confirm that discharge of the treated sewage to ground can continue. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

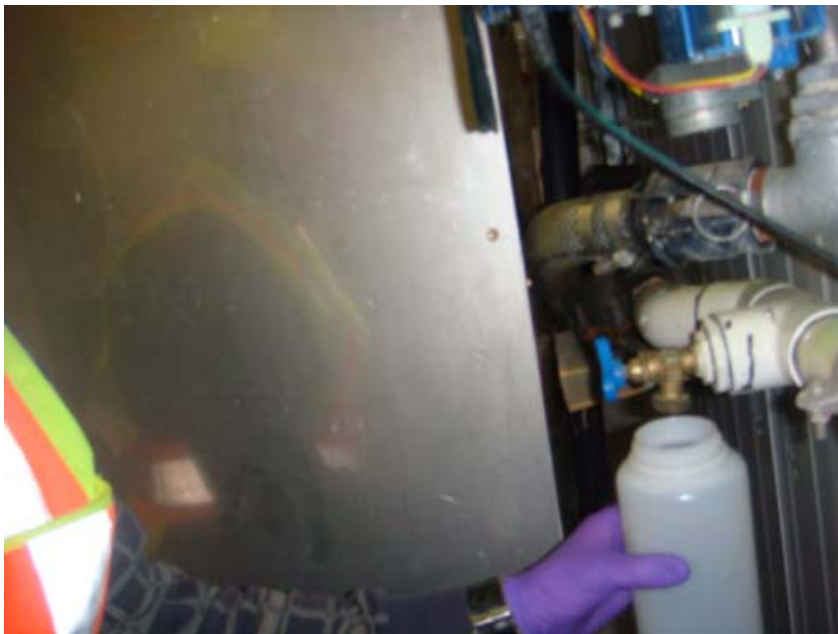
**LOCATION: CAMP SEWAGE TREATMENT FACILITY**

**GPS COORDINATES: 18W 0491657 7643666**

**SAMPLE: 10-14033**

**DATE: July 13, 2010**

<b>Parameter</b>	<b>Allowable Maximum Average Concentration</b>	<b>Units</b>	<b>Sample # 10-14033</b>
<b>pH</b>	6.0 to 9.0	pH units	7.71
<b>Oil &amp; Grease</b>	None Visible	-	N/A
<b>Total Suspended Solids (TSS)</b>	180	mg/L	<2
<b>BOD</b>	120	mg/L	<3
<b>Faecal Coliforms</b>	10,000	CFU/dL	0
<b>Total Coliforms</b>	-	CFU/ 100 mL	0



**Photo 1 (1934) Sample 10-14033 Fox-2 Sampling the Fox-2 sewage treatment plant.**

**LOCATION: CA MP SEWAGE TREATMENT FACILITY**

**GPS COORDINATES: 18W 0491768 7643478**

**SAMPLE: 10-14597**

**DATE: JULY 28, 2010**

Parameter	Allowable Maximum Average Concentration	Units	Sample# 10-14597
pH	6.0 to 9.0	pH units	7.48
Oil & Grease	None Visible	-	N/A
Total Suspended Solids (TSS)	180	mg/L	<3
BOD	120	mg/L	<3
Faecal Coliforms	10,000	CFU/dL	120
Total Coliforms	-	CFU/ 100 mL	0



**Photo 2 (2136) Sample 10-14597 Fox -2 Sampling the Fox-2 sewage treatment plant.**

*All July samples were below the relevant criteria, and the effluent from the treatment plant continued to be discharged to the ground. (W0491657,7643666).*



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

Sincerely,

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

Candice Casucci  
Environmental Sciences Group

cc: Eva Schulz (UMA)  
Daniela Loock, Kat White, Darren White, Cameron King, Ryan Adams (ESG)

## APPENDIX A LABORATORY RESULTS

ESG	ASG Login No: 20772
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-112
P.O. Box 17000, Stn. Forces	Samples Received: 16-Jul-10
Kingston, Ontario K7K 7B4	Date of analysis: 16-Jul-10
(613) 541-6000 ext 6567	Method No: ASG 037
Fax: (613) 541-6596	Date Reported: 16-Jul-10
	Page: 1 of 1

### RESULTS OF pH ANALYSIS

Sample I.D.	pH
10-14033*	7.71

\* Averaged result of duplicates

### LABORATORY QA/QC

Sample I.D.	pH
10-14033* ; Duplicate	7.71 ; 7.71
Control	7.00
Control Target	7.00

ESG	ASG Login No: 20772
12 Verite Ave	Site: FOX-2
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-112
P.O. Box 17000, Stn. Forces	Samples Received: 16-Jul-10
Kingston, Ontario K7K 7B4	Date of analysis: 16-Jul-10
(613) 541-6000 ext 6567	Date Reported: 17-Jul-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)
14033^	0	0	0	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	49	49	0	44
Control Sample Target	38	38	0	38

ESG	ASG Login No: 20772
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client Login No: 10-112
P.O. Box 17000, Stn. Forces	Samples Received: 16-Jul-10
Kingston, Ontario K7K 7B4	Date of analysis: 16-Jul-10
(613) 541-6000 ext 6567	Method No: ASG 039
Fax: (613) 541-6596	Date Reported: 19-Jul-10
	Sheet: 1 of 1

### RESULTS OF TOTAL SUSPENDED SOLIDS ANALYSIS

Sample I.D.	Sample Type^	Unit	Total Suspended Solids
~14033	SE	mg/L	< 2

### LABORATORY QA/QC

Blank	Control	mg/L	< 1
Control	Control	mg/L	200
Control Target	Control	mg/L	200

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

<b>ESG</b>	ASG Login No: 20772
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client Login No: 10-112
P.O. Box 17000, Stn. Forces	Samples Received: 16-Jul-10
Kingston, Ontario K7K 7B4	Date of analysis: 21-Jul-10
(613) 541-6000 ext 6567	Method No: ASG 042
Fax: (613) 541-6596	Date Reported: 21-Jul-10
	Page: 1 of 1

### RESULTS OF BOD ANALYSIS

Sample I.D.	Unit	BOD
10-14033*	mg/L	< 3

\*Averaged result of duplicates

### LABORATORY QA/QC

Sample I.D.	Unit	BOD
Duplicate ; 10-14033	mg/L	< 3 ; < 3
Blank	mg/L	< 3
Control	mg/L	170
Control Target	mg/L	165

ESG					ASG Login No: 20847
12 Verite Ave					Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC					Client No: 10-182
P.O. Box 17000, Stn. Forces					Samples Received: 30-Jul-10
Kingston, Ontario K7K 7B4					Date of analysis: 3-Aug-10
(613) 541-6000 ext 6567					Method No: ASG 037
Fax: (613) 541-6596					Date Reported: 3-Aug-10
					Page: 1 of 1

### RESULTS OF pH ANALYSIS

Sample I.D.	pH
14588*	9.92
14589	9.91
14597	7.48

\* Averaged result of duplicates

### LABORATORY QA/QC

Sample I.D.	pH
14588* ; Duplicate	9.91 ; 9.93
Control	7.01
Control Target	7.00

ESG					ASG Login No: 20847
12 Verite Ave					Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC					Client Login No: 10-182
P.O. Box 17000, Stn. Forces					Samples Received: 30-Jul-10
Kingston, Ontario K7K 7B4					Date of analysis: 6-Aug-10
(613) 541-6000 ext 6567					Method No: ASG 039
Fax: (613) 541-6596					Date Reported: 6-Aug-10
					Sheet: 1 of 1

### RESULTS OF TOTAL SUSPENDED SOLIDS ANALYSIS

Sample I.D.	Sample Type^	Unit	Total Suspended Solids
14597	SE	mg/L	< 3

### LABORATORY QA/QC

Control	Control	mg/L	190
Control Target	Control	mg/L	200
Blank	Control	mg/L	< 1

<b>ESG</b>				ASG Login No: 20847
12 Verite Ave				Site: FOX-2
Dept. of Chem. / Chem. Eng., RMC				Client No: 10-182
P.O. Box 17000, Stn. Forces				Samples Received: 30-Jul-10
Kingston, Ontario K7K 7B4				Date of analysis: 30-Jul-10
(613) 541-6000 ext 6567				Date Reported: 31-Jul-10
Fax: (613) 541-6596				Sheet: 1 of 1

### RESULTS OF MICROBIOLOGICAL ANALYSIS

Sample Identification	Method: ASG 036 <b>Total Coliforms</b> (CFU/100 mL)	Method: ASG 036 <b>E. coli</b> (CFU/100 mL)	Method: ASG 036 <b>Background</b> (CFU/100 mL)	Method: ASG 044 <b>Fecal Coliforms</b> (CFU/100 mL)
14597	0	0	24 000	120

### LABORATORY QA/QC

Sample Identification	Method: ASG 036 <b>Total Coliforms</b> (CFU/100 mL)	Method: ASG 036 <b>E. coli</b> (CFU/100 mL)	Method: ASG 036 <b>Background</b> (CFU/100 mL)	Method: ASG 044 <b>Fecal Coliforms</b> (CFU/100 mL)
Blank	0	0	0	0
Control Sample	39	39	0	42
Control Sample Target	37	37	0	37

<b>ESG</b>				ASG Login No: 20847
12 Verite Ave				Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC				Client Login No: 10-182
P.O. Box 17000, Stn. Forces				Samples Received: 30-Jul-10
Kingston, Ontario K7K 7B4				Date of analysis: 9-Aug-10
(613) 541-6000 ext 6567				Method No: ASG 042
Fax: (613) 541-6596				Date Reported: 9-Aug-10
				Page: 1 of 1

### RESULTS OF BOD ANALYSIS

Sample I.D.	Unit	BOD
14597*	mg/L	< 3

\*Averaged result of duplicates

### LABORATORY QA/QC

Sample I.D.	Unit	BOD
Duplicate ; 21328*	mg/L	< 3 ; < 3
Blank	mg/L	< 3
Control	mg/L	160
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

Friday, March 18, 2011

**RE: Analytical Results for Wastewater Samples Collected at FOX-2 in July, 2010**

The following report summarizes results of the analysis of wastewater samples as per the FOX-2 (Longstaff Bluff) DEW Line Cleanup Project (DLCU) Specifications.

The FOX-2 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	mg/L
Phenols	-	-

*Phenols*

The wastewater samples collected by ESG at FOX-2 in July, 2010 were not analyzed for phenols but they were analyzed for oil and grease. Research conducted by ESG<sup>1</sup> 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

<sup>1</sup> Environmental Sciences Group. *DEW Line Clean Up Project – Phenols in Wastewater*. June, 2007.

(2.44 mg/L) is below the LC<sub>50</sub> for freshwater fish and crustaceans and below the oral and dermal LD<sub>50</sub>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-2 and analyzed in July 2010. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

**LOCATION: AIRSTRIP CAMP DEBRIS AREA LOBE B (3 LOCATIONS)**  
**GPS COORDINATES:** 18W 0489062 7646527, 18W 0489058 7646544,  
 18W 0489046 7646528  
**SAMPLE:** 10-14032  
**DATE:** JULY 13, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-14032
pH	6-9	pH units	5.76
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	0.018
Dissolved copper (Cu)	0.200	mg/L	0.017
Dissolved lead (Pb)	0.050	mg/L	<0.010
Total mercury (Hg)	0.0006	mg/L	<0.4
Dissolved nickel (Ni)	0.200	mg/L	0.103
Total zinc (Zn)	0.5	mg/L	0.045
Oil & grease	5	mg/L	None Visible 3.0
PCBs	1	mg/L	<0.003
Phenols	-	-	N/A



**Photo 1 (IMG 1920) Sample 10-14032 Fox-2 Water in FOX-2 Airstrip Camp Debris Area Lobe B (Composite sample taken from 3 locations)**

*This sample was below the pH range, however water did not require discharge prior to backfill.*



**LOCATION: WASTE WATER IN ASDA LOBE A1 (3 LOCATIONS)**

**GPS COORDINATES:** 18W 0489113 7646260, 18W 0489105 7646253, 18W 0489108 7646245

**SAMPLE:** 10-14074

**DATE:** July 15, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-14074
pH	6-9	pH units	7.32
Total arsenic (As)	0.100	mg/L	0.018
Dissolved cadmium (Cd)	0.010	mg/L	<0.001
Dissolved chromium (Cr)	0.100	mg/L	0.006
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	<0.4
Dissolved nickel (Ni)	0.200	mg/L	0.08
Total zinc (Zn)	0.5	mg/L	0.022
Oil & grease	5	mg/L	None Visible 2.2
PCBs	1	mg/L	<0.003
Phenols	-	-	N/A



**Photo 2 (IMG 1964) Sample 10-14074 Fox-2** Waste water in Fox-2 ASDL Lobe A1.  
(Comp from 2 locations)

*Waste water in ASDA Lobe 1A (10-14074) was discharged to land on August 22<sup>h</sup>, 2010.  
The water was discharged to an INAC approved location (489108, 7646245).*

**LOCATION: WASTE WATER IN WLDA LOBE D**

**GPS COORDINATES: 491828 7643270**

**SAMPLE: 10-14210**

**DATE: JULY 22, 2010**

<b>Parameter</b>	<b>Maximum Allowable Concentration</b>	<b>Units</b>	<b>Sample # 10-14210</b>
<b>pH</b>	6-9	pH units	7.87
<b>Total arsenic (As)</b>	0.100	mg/L	<0.003
<b>Dissolved cadmium (Cd)</b>	0.010	mg/L	<0.001
<b>Dissolved chromium (Cr)</b>	0.100	mg/L	<0.005
<b>Dissolved cobalt (Co)</b>	0.050	mg/L	<0.003
<b>Dissolved copper (Cu)</b>	0.200	mg/L	<0.00
<b>Dissolved lead (Pb)</b>	0.050	mg/L	<0.010
<b>Total mercury (Hg)</b>	0.0006	mg/L	<0.0004
<b>Dissolved nickel (Ni)</b>	0.200	mg/L	0.007
<b>Total zinc (Zn)</b>	0.5	mg/L	<0.010
<b>Oil &amp; grease</b>	5	mg/L	None Visible <2.0
<b>PCBs</b>	1	mg/L	<0.003
<b>Phenols</b>	-	-	N/A

**SAMPLE: 10-14211**

**DATE: JULY 22, 2010**

<b>Parameter</b>	<b>Maximum Allowable Concentration</b>	<b>Units</b>	<b>Sample # 10-14211</b>
<b>pH</b>	6-9	pH units	7.92
<b>Total arsenic (As)</b>	0.100	mg/L	<0.003
<b>Dissolved cadmium (Cd)</b>	0.010	mg/L	<0.001
<b>Dissolved chromium (Cr)</b>	0.100	mg/L	<0.005
<b>Dissolved cobalt (Co)</b>	0.050	mg/L	<0.00
<b>Dissolved copper (Cu)</b>	0.200	mg/L	<0.005
<b>Dissolved lead (Pb)</b>	0.050	mg/L	<0.010
<b>Total mercury (Hg)</b>	0.0006	mg/L	<0.0004
<b>Dissolved nickel (Ni)</b>	0.200	mg/L	0.006
<b>Total zinc (Zn)</b>	0.5	mg/L	<0.010
<b>Oil &amp; grease</b>	5	mg/L	<2.0
<b>PCBs</b>	1	mg/L	<0.003
<b>Phenols</b>	-	-	N/A



**Photo 3 (IMG 2034) Sample 10-14210/11 Fox 2 West Landing Debris Area Base -**  
wastewater sampling.

*Water from the West Landing Debris Area Lobe D was discharged on Aug 20, 2010. The water was discharged to an INAC approved location (18w 0491828, 7643270).*

**LOCATION: AIRSTRIP LANDFILL LOBE A – CONTAINERIZED WATER**

**GPS COORDINATES: 489362 7646676**

**SAMPLE: 10-14588**

**DATE: JULY 28, 2010**

Parameter	Maximum Allowable Concentration	Units	Sample # 10-14588
pH	6-9	pH units	9.92
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	<0.005
Dissolved cobalt (Co)	0.050	mg/L	<0.003
Dissolved copper (Cu)	0.200	mg/L	0.035
Dissolved lead (Pb)	0.050	mg/L	<0.010
Total mercury (Hg)	0.0006	mg/L	<0.4
Dissolved nickel (Ni)	0.200	mg/L	0.009
Total zinc (Zn)	0.5	mg/L	0.155
Oil & grease	5	mg/L	<2.0
PCBs	1	mg/L	<0.003
Phenols	-	-	N/A



**Photo 4 (IMG 2115) Sample 10-14588 Fox-2** Sampling the tank of containerized contact water from ASL Lobe A.

*Treated water within the tank was above the pH range, and water was discharged from the tank into the landfarm on site. Additional water samples from the landfarm will be collected prior to any water being discharged from the facility.*

**LOCATION: BARREL PROCESSING AREA – CONSOLIDATED WATER FROM BARRELS**

**GPS COORDINATES:** 490774 7644917

**SAMPLE:** 10-14589

**DATE:** JULY 28, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-14589
pH	6-9	pH units	9.91
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	0.009
Dissolved lead (Pb)	0.050	mg/L	<0.010
Total mercury (Hg)	0.0006	mg/L	<0.4
Dissolved nickel (Ni)	0.200	mg/L	<0.005
Total zinc (Zn)	0.5	mg/L	0.029
Oil & grease	5	mg/L	<2.0
PCBs	1	mg/L	<0.003
Phenols	-	-	N/A



**Photo 5 (IMG 2121) Sample 10-14589 Fox-2** Sampling consolidated water from barrels in the barrel processing area.

*Treated water within the tank was above the pH range, and water was discharged from the tank into the landfarm on site. Additional water samples from the landfarm will be collected prior to any water being discharged from the facility.*

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

Sincerely,

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

Candice Casucci  
Environmental Sciences Group

cc: Eva Schulz (UMA)  
Daniela Loock, Kat White, Darren White, Cameron King, Ryan Adams (ESG)

## APPENDIX A LABORATORY RESULTS

ESG				ASG Login No: 20763
12 Verite Ave				Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC				Client No: 10-121
P.O. Box 17000, Stn. Forces				Samples Received: 15-Jul-10
Kingston, Ontario K7K 7B4				Date of analysis: 16-Jul-10
(613) 541-6000 ext 6567				Method No: ASG 037
Fax: (613) 541-6596				Date Reported: 16-Jul-10
				Page: 1 of 1

### RESULTS OF pH ANALYSIS

Sample I.D.	pH
10-14032*	5.76

\* Averaged result of duplicates

### LABORATORY QA/QC

Sample I.D.	pH
10-14032 ; Duplicate	5.75 ; 5.77
Control	7.00
Control Target	7.00

<b>ASU #</b>	12895	<b>Report ID:</b>	Fox-2 W15
<b>Client:</b>	ESG	<b>Date Submitted:</b>	15-Jul-10
		<b>Date tested:</b>	15-Jul-10
<b>Site:</b>	Fox-2	<b>Date:</b>	16-Jul-10
	10-121	<b>Matrix:</b>	water
Report of Analysis			
<b>Sample</b>	Oil & Grease		
	mg/L		
10-14032	3.0		
Blank	<2.0		
Control	14.9		
Control Target	15.9		

<b>ESG</b>					ASG Login No: 20763
12 Verite Ave					Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC					Client No: 10-121
P.O. Box 17000, Stn. Forces					Samples Received: 15-Jul-10
Kingston, Ontario K7K 7B4					Date of analysis: 15-Jul-10
(613) 541-6000 ext 6567					Method No: ASG 021
Fax: (613) 541-6596					Date Reported: 16-Jul-10
					Sheet: 1 of 1

## RESULTS OF MERCURY IN WATER ANALYSIS

Sample ID	Mercury^ mg/L
10-14032*	< 0.0004

\* Averaged result of duplicates

^ Acid digestion performed

# Reported at 0.4 µg/L detection limit

## LABORATORY QA/QC

Sample ID	Mercury^ mg/L
Duplicate ; 14032*	< 0.0004 ; < 0.0004
Blank	< 0.0004
Control Target	0.0040
Control Sample	0.0040

<b>ESG</b>					ASG Login No: 20763
12 Verite Ave					Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC					Client No: 10-121
P.O. Box 17000, Stn. Forces					Samples Received: 15-Jul-10
Kingston, Ontario K7K 7B4					Date of analysis: 18-Jul-10
(613) 541-6000 ext 6567					Method No: ASG 015
Fax: (613) 541-6596					Date Reported: 19-Jul-10
					Sheet No: 1 of 1

## RESULTS OF PCB IN WATER ANALYSIS

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	14032*	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 ; 14032*	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



<b>ASU #</b>	12895		<b>Report ID:</b>	Fox-2 W16				
<b>Client:</b>	ESG		<b>Date Submitted:</b>	15-Jul-10				
			<b>Date tested:</b>	16-Jul-10				
<b>Site:</b>	Fox-2		<b>Date:</b>	16-Jul-10				
	10-121		<b>Matrix:</b>	Water				
Report of Analysis								
<b>Total Metals</b>	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-14032	-	-	-	-	-	0.045	-	<0.003
Blank	-	-	-	-	-	<0.010	-	<0.003
Control	-	-	-	-	-	3.1	-	0.77
Control Target	-	-	-	-	-	3.0	-	0.80
10-14032	-	-	-	-	-	0.045	-	<0.003
10-14032	-	-	-	-	-	0.046	-	<0.003
<b>Dissolved Metals</b>	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-14032	0.017	0.103	0.018	<0.001	<0.010	-	<0.005	-
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
Control	1.59	1.63	1.62	0.80	8.14	-	0.85	-
Control Target	1.60	1.60	1.60	0.80	8.00	-	0.80	-
10-14032	0.017	0.102	0.019	<0.001	<0.010	-	<0.005	-
10-14032	0.017	0.103	0.018	<0.001	<0.010	-	<0.005	-
<b>ASU #</b>	12913		<b>Report ID:</b>	Fox-2 W17				
<b>Client:</b>	ESG		<b>Date Submitted:</b>	19-Jul-10				
			<b>Date tested:</b>	20-Jul-10				
<b>Site:</b>	Fox-2		<b>Date:</b>	20-Jul-10				
	10-130		<b>Matrix:</b>	Water				
Report of Analysis								
<b>Total Metals</b>	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-14074	-	-	-	-	-	0.022	-	0.018
Blank	-	-	-	-	-	<0.010	-	<0.003
Control	-	-	-	-	-	3.09	-	0.78
Control Target	-	-	-	-	-	3.00	-	0.80
<b>Dissolved Metals</b>	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-14074	<0.005	0.008	<0.003	<0.001	<0.010	-	0.006	-
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
Control	1.55	1.65	1.64	0.83	8.24	-	0.83	-
Control Target	1.60	1.60	1.60	0.80	8.00	-	0.80	-

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: 20780

Site: Fox-2

Client No: 10-130

Samples Received: 19-Jul-10

Date of analysis: 20-Jul-10

Method No: ASG 021

Date Reported: 20-Jul-10

Sheet: 1 of 1

**RESULTS OF MERCURY IN WATER ANALYSIS**

Sample ID	Mercury <sup>^</sup> mg/L
14074*	< 0.0004

\* Averaged result of duplicates

<sup>^</sup> Acid digestion performed

# Reported at 0.4 µg/L detection limit

**LABORATORY QA/QC**

Sample ID	Mercury <sup>^</sup> mg/L
Duplicate ; 14074*	< 0.0004 ; < 0.0004
Blank	< 0.0004
Control Target	0.0040
Control Sample	0.0040

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: 20780

Site: Fox-2

Client No: 10-130

Samples Received: 19-Jul-10

Date of analysis: 20-Jul-10

Method No: ASG 037

Date Reported: 20-Jul-10

Page: 1 of 1

**RESULTS OF pH ANALYSIS**

Sample I.D.	pH
14074*	7.32

\* Averaged result of duplicates

**LABORATORY QA/QC**

Sample I.D.	pH
14074* ; Duplicate	7.32 ; 7.32
Control	7.01
Control Target	7.00

<b>ASU #</b>	12913		<b>Report ID:</b>	Fox-2 W18
<b>Client:</b>	ESG		<b>Date Submitted:</b>	19-Jul-10
			<b>Date tested:</b>	19-Jul-10
<b>Site:</b>	Fox-2		<b>Date:</b>	21-Jul-10
	10-130		<b>Matrix:</b>	water
Report of Analysis				
<b>Sample</b>	Oil & Grease			
	mg/L			
10-14074	2.2			
Blank	<2.0			
Control	14.4			
Control Target	15.9			

<b>ESG</b>				ASG Login No: 20780
12 Verite Ave				Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC				Client No: 10-130
P.O. Box 17000, Stn. Forces				Samples Received: 19-Jul-10
Kingston, Ontario K7K 7B4				Date of analysis: 19-Jul-10
(613) 541-6000 ext 6567				Method No: ASG 015
Fax: (613) 541-6596				Date Reported: 21-Jul-10
				Sheet No: 1 of 1

### RESULTS OF PCB IN WATER ANALYSIS

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	14074	mg/L	< 0.003	< 0.003

\*\*Report Values in PPM\*\*

### LABORATORY QA/QC

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

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

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: 20810

Site: Fox-2

Client No: 10-159

Samples Received: 26-Jul-10

Date of analysis: 27-Jul-10

Method No: ASG 021

Date Reported: 28-Jul-10

Sheet: 1 of 1

**RESULTS OF MERCURY IN WATER ANALYSIS**

Sample ID	Mercury <sup>^</sup> mg/L
10-14210*	< 0.0004
10-14211	< 0.0004

\* Averaged result of duplicates

<sup>^</sup> Acid digestion performed

# Reported at 0.4 µg/L detection limit

**LABORATORY QA/QC**

Sample ID	Mercury <sup>^</sup> mg/L
Duplicate : 10-14210*	< 0.0004 ; < 0.0004
Blank	< 0.0004
Control Target	0.0040
Control Sample	0.0041

ASU #	12937		Report ID:			Fox-2 W19	
Client:	ESG		Date Submitted:			26-Jul-10	
			Date tested:			26-Jul-10	
Site:	Fox-2		Date:			27-Jul-10	
	10-159		Matrix:			water	
Report of Analysis							
Sample	Oil & Grease						
	mg/L						
10-14210	<2.0						
10-14211	<2.0						
Blank	<2.0						
Control	13.1						
Control Target	15.9						
12937		Report ID:	Fox-2 W20				
ESG		Date Submitted:	26-Jul-10				
		Date tested:	27-Jul-10				
Fox-2		Date:	27-Jul-10				
10-159		Matrix:	Water				
Results in mg/L							
Cu	Ni	Co	Cd	Pb	Zn	Cr	As
-	-	-	-	-	<0.010	-	<0.003
-	-	-	-	-	<0.010	-	<0.003
-	-	-	-	-	<0.010	-	<0.003
-	-	-	-	-	2.95	-	0.76
-	-	-	-	-	3.00	-	0.80
Results in mg/L							
Cu	Ni	Co	Cd	Pb	Zn	Cr	As
<0.005	0.007	<0.003	<0.001	<0.010	-	<0.005	-
<0.005	0.006	<0.003	<0.001	<0.010	-	<0.005	-
<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
1.54	1.62	1.62	0.80	8.12	-	0.82	-
1.60	1.60	1.60	0.80	8.00	-	0.80	-

ESG	ASG Login No: 20810
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-159
P.O. Box 17000, Stn. Forces	Samples Received: 26-Jul-10
Kingston, Ontario K7K 7B4	Date of analysis: 28-Jul-10
(613) 541-6000 ext 6567	Method No: ASG 037
Fax: (613) 541-6596	Date Reported: 28-Jul-10
	Page: 1 of 1

## RESULTS OF pH ANALYSIS

Sample I.D.	pH
10-14210*	7.87
10-14211	7.92

\* Averaged result of duplicates

## LABORATORY QA/QC

Sample I.D.	pH
10-14210* ; Duplicate	7.86 ; 7.87
Control	7.01
Control Target	7.00

ESG	ASG Login No: 20810
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-159
P.O. Box 17000, Stn. Forces	Samples Received: 26-Jul-10
Kingston, Ontario K7K 7B4	Date of analysis: 27-Jul-10
(613) 541-6000 ext 6567	Method No: ASG 015
Fax: (613) 541-6596	Date Reported: 28-Jul-10
	Sheet No: 1 of 1

## RESULTS OF PCB IN WATER ANALYSIS

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	14210*	mg/L	< 0.003	< 0.003
W	14211	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 ; 14210*	mg/L	< 0.003 ; < 0.003	< 0.003 ; < 0.003
Control Sample	mg/L	< 0.003	0.015
Control Sample Target	mg/L	< 0.003	0.015

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

<b>Client:</b>	ESG				ASG Login No: 20847
	12 Verite Ave				Site: Fox-2
	Dept. of Chem. / Chem. Eng., RMC				Client No: 10-182
	P.O. Box 17000, Stn. Forces				Samples Received: 30-Jul-10
	Kingston, Ontario K7K 7B4				Date of analysis: 3-Aug-10
	(613) 541-6000 ext 6567				Method No: ASG 037
	Fax: (613) 541-6596				Date Reported: 3-Aug-10
					Page: 1 of 1

Sample I.D.	pH
14588*	9.92
14589	9.91
14597	7.48

Sample I.D.	pH
14588* ; Duplicate	9.91 ; 9.93
Control	7.01
Control Target	7.00

<b>ESG</b>	ASG Login No: 20847
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-182
P.O. Box 17000, Stn. Forces	Samples Received: 30-Jul-10
Kingston, Ontario K7K 7B4	Date of analysis: 4-Aug-10
(613) 541-6000 ext 6567	Method No: ASG 021
Fax: (613) 541-6596	Date Reported: 4-Aug-10
	Sheet: 1 of 1

## RESULTS OF MERCURY IN WATER ANALYSIS

Sample ID	Mercury <sup>^</sup> mg/L
14588*	< 0.0004
14589	< 0.0004

\* Averaged result of duplicates

<sup>^</sup> Acid digestion performed

# Reported at 0.4 µg/L detection limit

## LABORATORY QA/QC

Sample ID	Mercury <sup>^</sup> mg/L
Duplicate ; 14588*	< 0.0004 ; < 0.0004
Blank	< 0.0004
Control Target	0.0040
Control Sample	0.0044

<b>ESG</b>	ASG Login No: 20847
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-182
P.O. Box 17000, Stn. Forces	Samples Received: 30-Jul-10
Kingston, Ontario K7K 7B4	Date of analysis: 3-Aug-10
(613) 541-6000 ext 6567	Method No: ASG 015
Fax: (613) 541-6596	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	14588	mg/L	< 0.003	< 0.003
W	14589	mg/L	< 0.003	< 0.003

\*\*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



<b>ASU #</b>	12972		<b>Report ID:</b>	Fox-2 W22
<b>Client:</b>	ESG		<b>Date Submitted:</b>	30-Jul-10
			<b>Date tested:</b>	30-Jul-10
<b>Site:</b>	Fox-2		<b>Date:</b>	30-Jul-10
	10-182		<b>Matrix:</b>	water
Report of Analysis				
Sample	Oil & Grease			
	mg/L			
10-14588	<2.0			
10-14589	<2.0			
Blank	<2.0			
Control	14.1			
Control Target	15.9			

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

March 15, 2011

**RE: August 2010 Monthly Report for Water Use License Number: 1BR-LON0813**

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-2 (*Longstaff Bluff*).

1. CAMP SEWAGE LAGOON

A 2 cell sewage lagoon was constructed to service the FOX-2 construction camp in 2009. The sewage lagoon is located approximately 100 m from the contractor's camp, 100 m away from drainage channels, and away from water bodies supporting aquatic life. The GPS coordinates that are required by the Water Use License for the sewage lagoon location are 0491084E 7646024N.

2. SEWAGE EFFLUENT SAMPLES

The Water Use License and MP require that samples from treated sewage lagoon effluent at the point of discharge to the receiving water be collected prior to each discharge event. Two sewage effluent samples were collected in August 2010 from the FOX-2 sewage treatment plant, to confirm that discharge of the treated sewage to ground can continue. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

**LOCATION: CAMP SEWAGE TREATMENT FACILITY**

**GPS COORDINATES: 18W 0491657 7643666**

**SAMPLE: 10-16039**

**DATE: August 20, 2010**

<b>Parameter</b>	<b>Allowable Maximum Average Concentration</b>	<b>Units</b>	<b>Sample # 10-16039</b>
<b>pH</b>	6.0 to 9.0	pH units	7.24
<b>Oil &amp; Grease</b>	None Visible	-	None Visible
<b>Total Suspended Solids (TSS)</b>	180	mg/L	<1.8
<b>BOD</b>	120	mg/L	<3
<b>Faecal Coliforms</b>	10,000	CFU/dL	N/A
<b>Total Coliforms</b>	-	CFU/ 100 mL	N/A

**LOCATION: CAMP SEWAGE TREATMENT FACILITY**

**GPS COORDINATES: 18W 0491657 7643666**

**SAMPLE: 10-16305**

**DATE: August 26, 2010**

<b>Parameter</b>	<b>Allowable Maximum Average Concentration</b>	<b>Units</b>	<b>Sample # 10-16305</b>
<b>pH</b>	6.0 to 9.0	pH units	N/A
<b>Oil &amp; Grease</b>	None Visible	-	N/A
<b>Total Suspended Solids (TSS)</b>	180	mg/L	N/A
<b>BOD</b>	120	mg/L	N/A
<b>Faecal Coliforms</b>	10,000	CFU/dL	N/A
<b>Total Coliforms</b>	-	CFU/ 100 mL	N/A

\*SAMPLE 10-16305 EXPIRED IN TRANSIT TO THE LAB AND WAS NOT ANALYZED.

*The sample collected in August was below the relevant criteria, and the effluent from the treatment plant continued to be discharged to the ground. (W0491657, 7643666).*

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

Sincerely,

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

Candice Casucci  
Environmental Sciences Group

cc: Eva Schulz (UMA)  
Daniela Loock, Kat White, Darren White, Cameron King, Ryan Adams (ESG)

## APPENDIX A LABORATORY RESULTS

ESG	ASG Login No: 20951
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-317
P.O. Box 17000, Stn. Forces	Samples Received: 23-Aug-10
Kingston, Ontario K7K 7B4	Date of analysis: 24-Aug-10
(613) 541-6000 ext 6567	Method No: ASG 037
Fax: (613) 541-6596	Date Reported: 24-Aug-10
	Page: 1 of 1

### RESULTS OF pH ANALYSIS

Sample I.D.	pH
10-16039*	7.24

\* Averaged result of duplicates

### LABORATORY QA/QC

Sample I.D.	pH
10-16039* ; Duplicate	7.24 ; 7.24
Control	7.01
Control Target	7.00

ESG	ASG Login No: 20951
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client Login No: 10-317
P.O. Box 17000, Stn. Forces	Samples Received: 23-Aug-10
Kingston, Ontario K7K 7B4	Date of analysis: 25-Aug-10
(613) 541-6000 ext 6567	Method No: ASG 039
Fax: (613) 541-6596	Date Reported: 27-Aug-10
	Sheet: 1 of 1

### RESULTS OF TOTAL SUSPENDED SOLIDS ANALYSIS

Sample I.D.	Sample Type^	Unit	Total Suspended Solids
10-16039	SE	mg/L	< 1.8

### LABORATORY QA/QC

Control	Control	mg/L	190
Control Target	Control	mg/L	200
Blank	Control	mg/L	< 1

<b>ESG</b>					ASG Login No: 20951
12 Verite Ave					Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC					Client Login No: 10-317
P.O. Box 17000, Stn. Forces					Samples Received: 23-Aug-10
Kingston, Ontario K7K 7B4					Date of analysis: 30-Aug-10
(613) 541-6000 ext 6567					Method No: ASG 042
Fax: (613) 541-6596					Date Reported: 30-Aug-10
					Page: 1 of 1

## RESULTS OF BOD ANALYSIS

Sample I.D.	Unit	BOD
10-16039*	mg/L	< 3

\*Averaged result of duplicates

## LABORATORY QA/QC

Sample I.D.	Unit	BOD
Duplicate ; 10-16039*	mg/L	< 3 ; < 3
Blank	mg/L	< 3
Control	mg/L	146
Control Target	mg/L	165

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

Monday, March 21, 2011

**RE: Analytical Results for Wastewater Samples Collected at FOX-2 in August, 2010**

The following report summarizes results of the analysis of wastewater samples as per the FOX-2 (Longstaff Bluff) DEW Line Cleanup Project (DLCU) Specifications.

The FOX-2 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	mg/L
Phenols	-	-

*Phenols*

The wastewater samples collected by ESG at FOX-2 in August, 2010 were not analyzed for phenols but they were analyzed for oil and grease. Research conducted by ESG<sup>1</sup> 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 (2.44 mg/L) is below the LC<sub>50</sub> for freshwater fish and crustaceans and below the oral and

<sup>1</sup> Environmental Sciences Group. *DEW Line Clean Up Project – Phenols in Wastewater*. June, 2007.

dermal LD<sub>50</sub>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

Ten wastewater samples were collected at FOX-2 and analyzed in August 2010. A summary of the details of these results follows. Laboratory results are provided in Appendix A.



**LOCATION: AIRSTrip SOUTH DEBRIS AREA LOBE A2****GPS COORDINATES:** 18w 0489117 7646255**SAMPLE:** 10-15340**DATE:** AUGUST 5, 2010

<b>Parameter</b>	<b>Maximum Allowable Concentration</b>	<b>Units</b>	<b>Sample # 10-15340</b>
<b>pH</b>	6-9	pH units	7.64
<b>Total arsenic (As)</b>	0.100	mg/L	0.005
<b>Dissolved cadmium (Cd)</b>	0.010	mg/L	<0.001
<b>Dissolved chromium (Cr)</b>	0.100	mg/L	<0.005
<b>Dissolved cobalt (Co)</b>	0.050	mg/L	<0.003
<b>Dissolved copper (Cu)</b>	0.200	mg/L	0.011
<b>Dissolved lead (Pb)</b>	0.050	mg/L	<0.010
<b>Total mercury (Hg)</b>	0.0006	mg/L	<0.0004
<b>Dissolved nickel (Ni)</b>	0.200	mg/L	0.019
<b>Total zinc (Zn)</b>	0.5	mg/L	<0.010
<b>Oil &amp; grease</b>	5	mg/L	<2.0
<b>PCBs</b>	1	mg/L	<0.003
<b>Phenols</b>	-	-	N/A

**SAMPLE:** 10-15341**DATE:** AUGUST 5, 2010

<b>Parameter</b>	<b>Maximum Allowable Concentration</b>	<b>Units</b>	<b>Sample # 10-15341</b>
<b>pH</b>	6-9	pH units	7.51
<b>Total arsenic (As)</b>	0.100	mg/L	<0.003
<b>Dissolved cadmium (Cd)</b>	0.010	mg/L	<0.001
<b>Dissolved chromium (Cr)</b>	0.100	mg/L	<0.005
<b>Dissolved cobalt (Co)</b>	0.050	mg/L	<0.003
<b>Dissolved copper (Cu)</b>	0.200	mg/L	<0.005
<b>Dissolved lead (Pb)</b>	0.050	mg/L	<0.010
<b>Total mercury (Hg)</b>	0.0006	mg/L	<0.0004
<b>Dissolved nickel (Ni)</b>	0.200	mg/L	0.020
<b>Total zinc (Zn)</b>	0.5	mg/L	<0.001
<b>Oil &amp; grease</b>	5	mg/L	<2.0
<b>PCBs</b>	1	mg/L	<0.003
<b>Phenols</b>	-	-	N/A



**Photo 1 (IMG 2225) Sample 10-15340/41 Fox- 2** Sampling Airstrip South Debris Area Lobe A2 water which had accumulated within the excavation

*Waste water from the Airstrip South Debris Area Lobe A2 was discharged to the ground on August 22, 2010. The water was discharged to an INAC approved location. (18w 0489108, 7646245).*

**LOCATION: BARREL PROCESSING AREA TANK III****GPS COORDINATES:** 18w 0490776 7644911**SAMPLE:** 10-15400**DATE:** August 9, 2010

<b>Parameter</b>	<b>Maximum Allowable Concentration</b>	<b>Units</b>	<b>Sample # 10-15400</b>
<b>pH</b>	6-9	pH units	8.23
<b>Total arsenic (As)</b>	0.100	mg/L	<0.003
<b>Dissolved cadmium (Cd)</b>	0.010	mg/L	<0.001
<b>Dissolved chromium (Cr)</b>	0.100	mg/L	<0.005
<b>Dissolved cobalt (Co)</b>	0.050	mg/L	<0.003
<b>Dissolved copper (Cu)</b>	0.200	mg/L	<0.005
<b>Dissolved lead (Pb)</b>	0.050	mg/L	<0.010
<b>Total mercury (Hg)</b>	0.0006	mg/L	<0.0004
<b>Dissolved nickel (Ni)</b>	0.200	mg/L	<0.005
<b>Total zinc (Zn)</b>	0.5	mg/L	0.068
<b>Oil &amp; grease</b>	5	mg/L	2.6
<b>PCBs</b>	1	mg/L	<0.003
<b>Phenols</b>	-	-	N/A

**SAMPLE:** 10-15400**DATE:** August 9, 2010

<b>Parameter</b>	<b>Maximum Allowable Concentration</b>	<b>Units</b>	<b>Sample # 10-15401</b>
<b>pH</b>	6-9	pH units	8.44
<b>Total arsenic (As)</b>	0.100	mg/L	<0.003
<b>Dissolved cadmium (Cd)</b>	0.010	mg/L	<0.001
<b>Dissolved chromium (Cr)</b>	0.100	mg/L	<0.005
<b>Dissolved cobalt (Co)</b>	0.050	mg/L	<0.003
<b>Dissolved copper (Cu)</b>	0.200	mg/L	<0.005
<b>Dissolved lead (Pb)</b>	0.050	mg/L	<0.010
<b>Total mercury (Hg)</b>	0.0006	mg/L	<0.0004
<b>Dissolved nickel (Ni)</b>	0.200	mg/L	<0.005
<b>Total zinc (Zn)</b>	0.5	mg/L	0.050
<b>Oil &amp; grease</b>	5	mg/L	3.1
<b>PCBs</b>	1	mg/L	<0.003
<b>Phenols</b>	-	-	N/A



**Photo 2 (IMG 2311) Sample10-15400/01 Fox 2-** Sampling wastewater from barrels consolidated and treated in Tank III in the Barrel Processing Area

*Waste water from the Barrel Processing Area Tank III (10-15400/01) was discharged to the ground on August 20, 2010. The water was discharged to an INAC approved location. (18w 0490776, 7644911)*

**LOCATION: BARREL PROCESSING AREA TANK III**

**GPS COORDINATES:** 18w 0490776 7644911

**SAMPLE:** 10-16127

**DATE:** August 23, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-16127
pH	6-9	pH units	8.06
Total arsenic (As)	0.100	mg/L	0.005
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	<0.0004
Dissolved nickel (Ni)	0.200	mg/L	<0.005
Total zinc (Zn)	0.5	mg/L	0.113
Oil & grease	5	mg/L	<b>5.2</b>
PCBs	1	mg/L	<0.003
Phenols	-	-	N/A



**Photo 3 (IMG 2445) Sample 10-16127 Fox-2** Sampling wastewater used to steam clean barrels in the Barrel Processing Area

*Waste water from the Barrel Processing Area Tank III (10-16127) was above the discharge criteria for Oil and Grease, and was not discharged.*

**LOCATION: CHLORINE TANK**

**GPS COORDINATES:** 18W 0491632 7643603

**SAMPLE:** 10-16126

**DATE:** August 24, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-16126
<b>pH</b>	6-9	pH units	7.60
<b>Total arsenic (As)</b>	0.100	mg/L	0.005
<b>Dissolved cadmium (Cd)</b>	0.010	mg/L	<0.001
<b>Dissolved chromium (Cr)</b>	0.100	mg/L	<0.005
<b>Dissolved cobalt (Co)</b>	0.050	mg/L	0.012
<b>Dissolved copper (Cu)</b>	0.200	mg/L	0.027
<b>Dissolved lead (Pb)</b>	0.050	mg/L	<0.010
<b>Total mercury (Hg)</b>	0.0006	mg/L	0.0310
<b>Dissolved nickel (Ni)</b>	0.200	mg/L	0.109
<b>Total zinc (Zn)</b>	0.5	mg/L	0.061
<b>Oil &amp; grease</b>	5	mg/L	<b>60700</b>
<b>PCBs</b>	1	mg/L	<0.003
<b>Phenols</b>	-	-	N/A

**SAMPLE:** 10-16224

**DATE:** August 24, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-16224
<b>pH</b>	6-9	pH units	<b>9.48</b>
<b>Total arsenic (As)</b>	0.100	mg/L	0.005
<b>Dissolved cadmium (Cd)</b>	0.010	mg/L	<0.001
<b>Dissolved chromium (Cr)</b>	0.100	mg/L	<0.005
<b>Dissolved cobalt (Co)</b>	0.050	mg/L	<0.003
<b>Dissolved copper (Cu)</b>	0.200	mg/L	0.009
<b>Dissolved lead (Pb)</b>	0.050	mg/L	<0.010
<b>Total mercury (Hg)</b>	0.0006	mg/L	0.0038
<b>Dissolved nickel (Ni)</b>	0.200	mg/L	0.029
<b>Total zinc (Zn)</b>	0.5	mg/L	0.052
<b>Oil &amp; grease</b>	5	mg/L	<b>39.1</b>
<b>PCBs</b>	1	mg/L	<0.003
<b>Phenols</b>	-	-	N/A



**Photo 4 (IMG 2447) Sample 10-16126/16224 Fox-2** Sampling consolidated and treated chlorinated wastewater from fuel tanks in the Beach Refuel Area

*Waste water from the Tank was above criteria for oil and grease and was not discharged.*

**LOCATION: WL - 18297**

**GPS COORDINATES:** 18 W 0492520 7642753

**SAMPLE:** 10-16129

**DATE:** August 24, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-16129
pH	6-9	pH units	7.35
Total arsenic (As)	0.100	mg/L	0.009
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	<0.0004
Dissolved nickel (Ni)	0.200	mg/L	<0.005
Total zinc (Zn)	0.5	mg/L	0.053
Oil & grease	5	mg/L	2.5
PCBs	1	mg/L	<0.003
Phenols	-	-	N/A



**Photo 5 (IMG 2450) Sample 10-16129 Fox-2** Sampling wastewater from WL-18297 which had accumulated after excavation

*Waste water from the WL – 18297 (10-16129) was below criteria for all parameters. No water was discharged prior to backfilling.*



**LOCATION: FUEL TANK W19F**

**GPS COORDINATES:** 18W 091620 7643590

**SAMPLE:** 10-16557

**DATE:** August 31, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-16557
pH	6-9	pH units	6.95
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	<0.0004
Dissolved nickel (Ni)	0.200	mg/L	0.039
Total zinc (Zn)	0.5	mg/L	0.027
Oil & grease	5	mg/L	<b>91.0</b>
PCBs	1	mg/L	<0.0003
Phenols	-	-	N/A



**Photo 6 (IMG 2489) Sample 10-16557 Fox -2** Sampling consolidated and treated wastewater from fuel tank W19F in the Beach Refuel Area

*Wastewater from Fuel Tank W19F was above criteria for oil and grease and was not discharged.*

**LOCATION: FUEL TANK W19E**

**GPS COORDINATES:** 18W 091620 7643590

**SAMPLE:** 10-16588

**DATE:** August 31, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-16588
pH	6-9	pH units	6.73
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	<0.0004
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	mg/L	<0.0003
Phenols	-	-	N/A



**Photo 7 (IMG 2490) Sample 10-16558 Fox-2** Sampling consolidated untreated wastewater from fuel tank W19E in the Beach Refuel Area

*Wastewater from Fuel Tank W19E was above criteria for oil and grease (visible sheen) and was not discharged. The contents of Fuel Tank W19E were incinerated on site, and no discharge was required.*

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

Sincerely,

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

Candice Casucci  
Environmental Sciences Group

cc: Eva Schulz (UMA)  
Daniela Loock, Kat White, Darren White, Cameron King, Ryan Adams (ESG)

## APPENDIX A LABORATORY RESULTS

<b>ESG</b>					ASG Login No: 20899
12 Verite Ave					Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC					Client No: 10-240
P.O. Box 17000, Stn. Forces					Samples Received: 10-Aug-10
Kingston, Ontario K7K 7B4					Date of analysis: 11-Aug-10
(613) 541-6000 ext 6567					Method No: ASG 021
Fax: (613) 541-6596					Date Reported: 11-Aug-10
					Sheet: 1 of 1

### RESULTS OF MERCURY IN WATER ANALYSIS

Sample ID	Mercury <sup>^</sup> mg/L
15340	< 0.0004
15341	< 0.0004

<sup>^</sup> Acid digestion performed.

# Reported at 0.0004 mg/L detection limit.

### LABORATORY QA/QC

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

<b>ESG</b>					ASG Login No: 20899
12 Verite Ave					Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC					Client No: 10-240
P.O. Box 17000, Stn. Forces					Samples Received: 10-Aug-10
Kingston, Ontario K7K 7B4					Date of analysis: 10-Aug-10
(613) 541-6000 ext 6567					Method No: ASG 037
Fax: (613) 541-6596					Date Reported: 11-Aug-10
					Page: 1 of 1

### RESULTS OF pH ANALYSIS

Sample I.D.	pH
15340	7.64
15341	7.51

### LABORATORY QA/QC

Sample I.D.	pH
Control	7.02
Control Target	7.00

<b>ASU #</b>	13030		<b>Report ID:</b>	Fox-2 W24				
<b>Client:</b>	ESG		<b>Date Submitted:</b>	10-Aug-10				
			<b>Date tested:</b>	13-Aug-10				
<b>Site:</b>	Fox-2		<b>Date:</b>	13-Aug-10				
	10-240		<b>Matrix:</b>	Water				
Report of Analysis								
<b>Total Metals</b>	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-15340	-	-	-	-	-	<0.010	-	0.005
10-15341	-	-	-	-	-	<0.010	-	<0.003
Blank	-	-	-	-	-	<0.010	-	<0.003
Control	-	-	-	-	-	3.04	-	0.78
Control Target	-	-	-	-	-	3.00	-	0.80
10-15341	-	-	-	-	-	<0.010	-	<0.003
10-15341	-	-	-	-	-	<0.010	-	<0.003
<b>Dissolved Metals</b>	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-15340	0.011	0.019	<0.003	<0.001	<0.010	-	<0.005	-
10-15341	<0.005	0.020	<0.003	<0.001	<0.010	-	<0.005	-
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
Control	1.59	1.62	1.63	0.80	8.17	-	0.82	-
Control Target	1.60	1.60	1.60	0.80	8.00	-	0.80	-
10-15341	<0.005	0.020	<0.003	<0.001	<0.010	-	<0.005	-
10-15341	<0.005	0.020	<0.003	<0.001	<0.010	-	<0.005	-

<b>ASU #</b>	13030		<b>Report ID:</b>	Fox-2 W23
<b>Client:</b>	ESG		<b>Date Submitted:</b>	10-Aug-10
			<b>Date tested:</b>	11-Aug-10
<b>Site:</b>	Fox-2		<b>Date:</b>	13-Aug-10
	10-240		<b>Matrix:</b>	water
Report of Analysis				
Sample	Oil & Grease			
	mg/L			
10-15340	<2.0			
10-15341	<2.0			
Blank	<2.0			
Control	12.8			
Control Target	15.9			

<b>ESG</b>	ASG Login No: 20899
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-240
P.O. Box 17000, Stn. Forces	Samples Received: 10-Aug-10
Kingston, Ontario K7K 7B4	Date of analysis: 10-Aug-10
(613) 541-6000 ext 6567	Method No: ASG 015
Fax: (613) 541-6596	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	15340	mg/L	< 0.003	< 0.003
W	15341	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	0.016
Control Sample Target	mg/L	< 0.003	0.015

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

<b>ESG</b>	ASG Login No: 20929
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-272
P.O. Box 17000, Stn. Forces	Samples Received: 16-Aug-10
Kingston, Ontario K7K 7B4	Date of analysis: 17-Aug-10
(613) 541-6000 ext 6567	Method No: ASG 021
Fax: (613) 541-6596	Date Reported: 17-Aug-10
	Sheet: 1 of 1

### RESULTS OF MERCURY IN WATER ANALYSIS

Sample ID	Mercury^ mg/L
10-15400	< 0.0004
10-15401*	< 0.0004

\* Averaged result of duplicates

^ Acid digestion performed on block digester.

# Reported at 0.0004 mg/L detection limit.

### LABORATORY QA/QC

Sample ID	Mercury^ mg/L
Duplicate ; 10-15401*	< 0.0004 ; < 0.0004
Blank	< 0.0004
Control Target	0.0040
Control Sample	0.0041

ESG	ASG Login No: 20929
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-272
P.O. Box 17000, Stn. Forces	Samples Received: 16-Aug-10
Kingston, Ontario K7K 7B4	Date of analysis: 17-Aug-10
(613) 541-6000 ext 6567	Method No: ASG 037
Fax: (613) 541-6596	Date Reported: 17-Aug-10
	Page: 1 of 1

## RESULTS OF pH ANALYSIS

Sample I.D.	pH
10-15400*	8.23
10-15401	8.44

\* Averaged result of duplicates

## LABORATORY QA/QC

Sample I.D.	pH
10-15400* ; Duplicate	8.22 ; 8.24
Control	7.01
Control Target	7.00

ESG	ASG Login No: 20929
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-272
P.O. Box 17000, Stn. Forces	Samples Received: 16-Aug-10
Kingston, Ontario K7K 7B4	Date of analysis: 17-Aug-10
(613) 541-6000 ext 6567	Method No: ASG 015
Fax: (613) 541-6596	Date Reported: 18-Aug-10
	Sheet No: 1 of 1

## RESULTS OF PCB IN WATER ANALYSIS

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	15400*	mg/L	< 0.003	< 0.003
W	15401	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 ; 15400*	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

<b>ASU #</b>	13064		<b>Report ID:</b>	Fox-2 W25				
<b>Client:</b>	ESG		<b>Date Submitted:</b>	16-Aug-10				
			<b>Date tested:</b>	19-Aug-10				
<b>Site:</b>	Fox-2		<b>Date:</b>	19-Aug-10				
	10-272		<b>Matrix:</b>	Water				
Report of Analysis								
<b>Total Metals</b>	Results in mg/L							
<b>SAMPLE</b>	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-15400	-	-	-	-	-	0.068	-	<0.003
10-15401	-	-	-	-	-	0.050	-	<0.003
Blank	-	-	-	-	-	<0.010	-	<0.003
Control	-	-	-	-	-	2.92	-	0.76
Control Target	-	-	-	-	-	3.00	-	0.80
10-15401	-	-	-	-	-	0.051	-	<0.003
10-15401	-	-	-	-	-	0.049	-	<0.003
<b>Dissolved Metals</b>	Results in mg/L							
<b>SAMPLE</b>	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-15400	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
10-15401	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
Control	1.43	1.61	1.57	0.77	7.92	-	0.80	-
Control Target	1.60	1.60	1.60	0.80	8.00	-	0.80	-
10-15401	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
10-15401	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-

<b>ASU #</b>	13064		<b>Report ID:</b>	Fox-2 W26
<b>Client:</b>	ESG		<b>Date Submitted:</b>	16-Aug-10
			<b>Date tested:</b>	18-Aug-10
<b>Site:</b>	Fox-2		<b>Date:</b>	19-Aug-10
	10-272		<b>Matrix:</b>	water
Report of Analysis				
<b>Sample</b>	Oil & Grease			
	mg/L			
10-15400	2.6			
10-15401	3.1			
Blank	<2.0			
Control	15.4			
Control Target	15.9			



<b>ASU #</b>	13142		<b>Report ID:</b>	Fox-2 W27
<b>Client:</b>	ESG		<b>Date Submitted:</b>	30-Aug-10
			<b>Date tested:</b>	31-Aug-10
<b>Site:</b>	Fox-2		<b>Date:</b>	31-Aug-10
	10-332		<b>Matrix:</b>	water
Report of Analysis				
<b>Sample</b>	Oil & Grease			
	mg/L			
10-16126**	60700			
10-16127	5.2			
10-16129	2.5			
10-16224	39.1			
Blank	<2.0			
Control	13.3			
Control Target	15.9			
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.				

<b>ESG</b>				ASG Login No: 20985
12 Verite Ave				Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC				Client No: 10-332
P.O. Box 17000, Stn. Forces				Samples Received: 30-Aug-10
Kingston, Ontario K7K 7B4				Date of analysis: 1-Sep-10
(613) 541-6000 ext 6567				Method No: ASG 021
Fax: (613) 541-6596				Date Reported: 2-Sep-10
				Sheet: 1 of 1

## RESULTS OF MERCURY IN WATER ANALYSIS

Sample ID	Mercury^ mg/L
16126	0.0310
16127	< 0.0004
16129	< 0.0004
16224	0.0038

^ 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

ESG	ASG Login No: 20985
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-332
P.O. Box 17000, Stn. Forces	Samples Received: 30-Aug-10
Kingston, Ontario K7K 7B4	Date of analysis: 1-Sep-10
(613) 541-6000 ext 6567	Method No: ASG 037
Fax: (613) 541-6596	Date Reported: 1-Sep-10
	Page: 1 of 1

RESULTS OF pH ANALYSIS	
Sample I.D.	pH
16126	7.60
16127	8.06
16129	7.35
16224	9.48

\* Averaged result of duplicates

LABORATORY QA/QC	
Sample I.D.	pH
Control	7.00
Control Target	7.00

<b>ASU #</b>	13142	<b>Report ID:</b>	Fox-2 W27
<b>Client:</b>	ESG	<b>Date Submitted:</b>	30-Aug-10
		<b>Date tested:</b>	31-Aug-10
<b>Site:</b>	Fox-2	<b>Date:</b>	31-Aug-10
	10-332	<b>Matrix:</b>	water
Report of Analysis			
Sample	Oil & Grease		
	mg/L		
10-16126**	60700		
10-16127	5.2		
10-16129	2.5		
10-16224	39.1		
Blank	<2.0		
Control	13.3		
Control Target	15.9		

\*\* 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 #	13142		Report ID:	Fox-2 W28				
Client:	ESG		Date Submitted:	30-Aug-10				
Site:	Fox-2		Date tested:	1-Sep-10				
	10-332		Date:	3-Sep-10				
			Matrix:	Water				
Report of Analysis								
Total Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-16126**	-	-	-	-	-	0.061	-	0.005
10-16127	-	-	-	-	-	0.113	-	0.005
10-16129	-	-	-	-	-	0.053	-	0.006
10-16224	-	-	-	-	-	0.052	-	0.009
Blank	-	-	-	-	-	<0.010	-	<0.003
Control	-	-	-	-	-	2.91	-	0.73
Control Target	-	-	-	-	-	3.00	-	0.80
10-16224	-	-	-	-	-	0.051	-	0.009
10-16224	-	-	-	-	-	0.053	-	0.009
Dissolved Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-16126**	0.027	0.109	0.012	<0.001	<0.010	-	<0.005	-
10-16127	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
10-16129	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
10-16224	0.009	0.029	<0.003	<0.001	<0.010	-	<0.005	-
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-
Control	1.44	1.55	1.54	0.77	7.66	-	0.78	-
Control Target	1.60	1.60	1.60	0.80	8.00	-	0.80	-
10-16224	0.009	0.028	<0.003	<0.001	<0.010	-	<0.005	-
10-16224	0.009	0.029	<0.003	<0.001	<0.010	-	<0.005	-
** sample 10-16126 top layer of free product removed before analysis of water								
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: 20985

Site: Fox-2

Client No: 10-332

Samples Received: 30-Aug-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	16126	mg/L	< 0.003	< 0.003
W	16127	mg/L	< 0.003	< 0.003
W	16129	mg/L	< 0.003	< 0.003
W	16224	mg/L	< 0.003	< 0.003

\*\*Report Values in PPM\*\*

\* Average Result of Duplicate

**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

**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: 21013

Site: Fox-2

Client No: 10-365

Samples Received: 3-Sep-10

Date of analysis: 7-Sep-10

8-Sep-10

Method No: ASG 014

Date Reported: 7-Sep-10

Sheet: 1 of 1

**RESULTS OF MERCURY IN WATER ANALYSIS**

Sample ID	Mercury^ mg/L
16557*	< 0.0004
16558	< 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
Duplicate ; 16557*	< 0.0004 ; < 0.0004
Duplicate ; 16558*	< 0.0004 ; < 0.0004
Blank	< 0.0004
Blank	< 0.0004
Control Target	0.0040
Control Sample	0.0041
Control Sample	0.0042

<b>ASU #</b>	13178		<b>Report ID:</b>	Fox-2 W30
<b>Client:</b>	ESG		<b>Date Submitted:</b>	3-Sep-10
			<b>Date tested:</b>	3-Sep-10
<b>Site:</b>	Fox-2		<b>Date:</b>	3-Sep-10
	10-365		<b>Matrix:</b>	water
Report of Analysis				
Sample	Oil & Grease			
	mg/L			
10-16557	91.0			
10-16558	**			
Blank	<2.0			
Control	17.7			
Control Target	15.7			
Results relate only to the items tested				
** sample was predominantly free product, bottle exploded and whole sample lost				

<b>ESG</b>					ASG Login No: 21013
12 Verite Ave					Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC					Client No: 10-365
P.O. Box 17000, Stn. Forces					Samples Received: 3-Sep-10
Kingston, Ontario K7K 7B4					Date of analysis: 3-Sep-10
(613) 541-6000 ext 6567					Method No: ASG 015
Fax: (613) 541-6596					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	16557	mg/L	< 0.003	< 0.003
W	~16558	mg/L	< 0.003	< 0.003

\*\*Report Values in PPM\*\*

\* Average Result of Duplicate

~ Sample received with aqueous and organic phases. Analysis done on only aqueous phase

### LABORATORY QA/QC

Blank	mg/L	< 0.003	< 0.003
Control Sample	mg/L	< 0.003	0.012
Control Sample Target	mg/L	< 0.003	0.015

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

ESG				ASG Login No: 21013
12 Verite Ave				Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC				Client No: 10-365
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 037
Fax: (613) 541-6596				Date Reported: 7-Sep-10
				Page: 1 of 1

### RESULTS OF pH ANALYSIS

Sample I.D.	pH
16557*	6.95
16558	6.73

\* Averaged result of duplicates

### LABORATORY QA/QC

Sample I.D.	pH
16557* ; Duplicate	6.95 ; 6.95
Control	7.00
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

March 15, 2011

**RE: September 2010 Monthly Report for Water Use License Number: 1BR-LON0813**

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-2 (*Longstaff Bluff*).

1. CAMP SEWAGE LAGOON

A 2 cell sewage lagoon was constructed to service the FOX-2 construction camp in 2009. The sewage lagoon is located approximately 100 m from the contractor's camp, 100 m away from drainage channels, and away from water bodies supporting aquatic life. The GPS coordinates that are required by the Water Use License for the sewage lagoon location are 0491084E 7646024N.

2. SEWAGE EFFLUENT SAMPLES

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

No sampling was required in September of 2010.

Please contact the undersigned if you have any questions or concerns.

Sincerely,

Candice Casucci  
Environmental Sciences Group

cc: Eva Schulz (UMA)  
Daniela Looock, Kat White, Darren White, Cameron King, Ryan Adams (ESG)

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

Monday, March 21, 2011

**RE: Analytical Results for Wastewater Samples Collected at FOX-2 in September, 2010**

The following report summarizes results of the analysis of wastewater samples as per the FOX-2 (Longstaff Bluff) DEW Line Cleanup Project (DLCU) Specifications.

The FOX-2 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	mg/L
Phenols	-	-

*Phenols*

The wastewater samples collected by ESG at FOX-2 in September, 2010 were not analyzed for phenols but they were analyzed for oil and grease. Research conducted by ESG<sup>1</sup> 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

<sup>1</sup> Environmental Sciences Group. *DEW Line Clean Up Project – Phenols in Wastewater*. June, 2007.



(2.44 mg/L) is below the LC<sub>50</sub> for freshwater fish and crustaceans and below the oral and dermal LD<sub>50</sub>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

Four wastewater samples were collected at FOX-2 and analyzed in September 2010. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

**LOCATION: TREATED WATER FROM CUBE STORAGE TANK IN THE TEMPORARY TANK STORAGE AREA**

**GPS COORDINATES: 18W 0491620 7643590**

**SAMPLE: 10-20197**

**DATE: SEPTEMBER 4, 2010**

Parameter	Maximum Allowable Concentration	Units	Sample # 10-20197
pH	6-9	pH units	<b>9.06</b>
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	<0.0004
Dissolved nickel (Ni)	0.200	mg/L	0.016
Total zinc (Zn)	0.5	mg/L	0.436
Oil & grease	5	mg/L	<b>69.8</b>
PCBs	1	mg/L	<0.003
Phenols	-	-	N/A



**Photo 1 (IMG 2609) Sample 10-20197 Fox-2: Sampling treated water in the cube storage tank within the Temporary Tank Storage Area.**

*Wastewater from the Cube Storage Tank was above criteria for pH and oil and grease and was not discharged. An additional wastewater sample was collected on Sept 9<sup>th</sup> (10-20335).*

**LOCATION: TREATED WATER FROM CUBE STORAGE TANK IN THE TEMPORARY  
TANK STORAGE AREA**

**GPS COORDINATES: 18W 0491620 7643590**

**SAMPLE: 10-20335**

**DATE: SEPTEMBER 9, 2010**

<b>Parameter</b>	<b>Maximum Allowable Concentration</b>	<b>Units</b>	<b>Sample # 10-20335</b>
<b>pH</b>	6-9	pH units	<b>9.22</b>
<b>Total arsenic (As)</b>	0.100	mg/L	<0.003
<b>Dissolved cadmium (Cd)</b>	0.010	mg/L	<0.001
<b>Dissolved chromium (Cr)</b>	0.100	mg/L	<0.005
<b>Dissolved cobalt (Co)</b>	0.050	mg/L	<0.003
<b>Dissolved copper (Cu)</b>	0.200	mg/L	<0.005
<b>Dissolved lead (Pb)</b>	0.050	mg/L	<0.010
<b>Total mercury (Hg)</b>	0.0006	mg/L	<0.0004
<b>Dissolved nickel (Ni)</b>	0.200	mg/L	<0.005
<b>Total zinc (Zn)</b>	0.5	mg/L	0.023
<b>Oil &amp; grease</b>	5	mg/L	<b>6.2</b>
<b>PCBs</b>	1	mg/L	<0.003
<b>Phenols</b>	-	-	N/A

*Wastewater from the Cube Storage Tank was above criteria for pH and oil and grease and was not discharged in 2010. The water from this tank was consolidated into tank W19F for further treatment in 2011.*

**LOCATION: TREATED WATER FROM LARGE POLY STORAGE TANK IN THE  
TEMPORARY TANK STORAGE AREA**

**GPS COORDINATES: 18W 0491620 7643590**

**SAMPLE: 10-20198**

**DATE: SEPTEMBER 4, 2010**

Parameter	Maximum Allowable Concentration	Units	Sample # 10-20198
pH	6-9	pH units	7.24
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	<0.0004
Dissolved nickel (Ni)	0.200	mg/L	0.014
Total zinc (Zn)	0.5	mg/L	1.18
Oil & grease	5	mg/L	<b>33.9</b>
PCBs	1	mg/L	<0.003
Phenols	-	-	N/A



**Photo 2 (IMG 2610) - Sample 10-20198: Sampling treated water in the large poly tank within the Temporary Tank Storage Area.**

*Wastewater from the large Poly Storage Tank was above criteria oil and grease and was not discharged in 2010. An additional sample was collected on Sept 9<sup>th</sup> (10-20334).*

**LOCATION: TREATED WATER FROM LARGE POLY STORAGE TANK IN THE  
TEMPORARY TANK STORAGE AREA**

**GPS COORDINATES: 18W 0491620 7643590**

**SAMPLE: 10-20334**

**DATE: SEPTEMBER 9, 2010**

<b>Parameter</b>	<b>Maximum Allowable Concentration</b>	<b>Units</b>	<b>Sample # 10-20334</b>
<b>pH</b>	6-9	pH units	7.68
<b>Total arsenic (As)</b>	0.100	mg/L	<0.003
<b>Dissolved cadmium (Cd)</b>	0.010	mg/L	<0.005
<b>Dissolved chromium (Cr)</b>	0.100	mg/L	<0.005
<b>Dissolved cobalt (Co)</b>	0.050	mg/L	<0.003
<b>Dissolved copper (Cu)</b>	0.200	mg/L	<0.005
<b>Dissolved lead (Pb)</b>	0.050	mg/L	<0.010
<b>Total mercury (Hg)</b>	0.0006	mg/L	<b>0.009</b>
<b>Dissolved nickel (Ni)</b>	0.200	mg/L	0.007
<b>Total zinc (Zn)</b>	0.5	mg/L	0.547
<b>Oil &amp; grease</b>	5	mg/L	<b>51.7</b>
<b>PCBs</b>	1	mg/L	<0.003
<b>Phenols</b>	-	-	N/A

*Wastewater from the large Poly Storage Tank was above criteria for Hg and oil and grease and was not discharged in 2010. The water from this tank was consolidated into tank W19F for further treatment in 2011.*

**LOCATION: TANK W19F FROM THE TEMPORARY TANK STORAGE AREA**

**GPS COORDINATES: 18W 0491620 7643590**

**SAMPLE: 10-20333**

**DATE: SEPTEMBER 9, 2010**

Parameter	Maximum Allowable Concentration	Units	Sample # 10-20198
pH	6-9	pH units	8.92
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	<b>0.0013</b>
Dissolved nickel (Ni)	0.200	mg/L	0.017
Total zinc (Zn)	0.5	mg/L	<0.010
Oil & grease	5	mg/L	<b>84.0</b>
PCBs	1	mg/L	<0.003
Phenols	-	-	N/A

*Wastewater from Tank W19F was above criteria for Hg and oil and grease and was not discharged in 2010. Additional treatment will be required in 2011.*

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, Cameron King, Ryan Adams (ESG)

## APPENDIX A LABORATORY RESULTS

<b>ASU #</b>	13190		<b>Report ID:</b>	Fox-2 W31
<b>Client:</b>	ESG		<b>Date Submitted:</b>	7-Sep-10
			<b>Date tested:</b>	7-Sep-10
<b>Site:</b>	Fox-2		<b>Date:</b>	8-Sep-10
	10-399		<b>Matrix:</b>	water
Report of Analysis				
<b>Sample</b>	Oil & Grease			
	mg/L			
10-20197	69.8			
10-20198	33.9			
10-20202**	<10.0			
Blank	<2.0			
Control	14.4			
Control Target	15.7			
Results relate only to the items tested				
** sample 10-20202-nonconformance, detection limit raised due to insufficient sample volume				

<b>ESG</b>				ASG Login No: 21030
12 Verite Ave				Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC				Client No: 10-399
P.O. Box 17000, Stn. Forces				Samples Received: 7-Sep-10
Kingston, Ontario K7K 7B4				Date of analysis: 9-Sep-10
(613) 541-6000 ext 6567				Method No: ASG 021
Fax: (613) 541-6596				Date Reported: 9-Sep-10
				Sheet: 1 of 1

### RESULTS OF MERCURY IN WATER ANALYSIS

Sample ID	Mercury^ mg/L
10-20197*	< 0.0004
10-20198	< 0.0004
10-20202	< 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
Duplicate ; 10-20197*	< 0.004 ; < 0.0004
Blank	< 0.0004
Control Target	0.0040
Control Sample	0.0052

<b>ESG</b>					ASG Login No: 21030
12 Verite Ave					Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC					Client No: 10-399
P.O. Box 17000, Stn. Forces					Samples Received: 7-Sep-10
Kingston, Ontario K7K 7B4					Date of analysis: 9-Sep-10
(613) 541-6000 ext 6567					Method No: ASG 015
Fax: (613) 541-6596					Date Reported: 9-Sep-10
					Sheet No: 1 of 1

### RESULTS OF PCB IN WATER ANALYSIS

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	20197*	mg/L	< 0.003	< 0.003
W	20198	mg/L	< 0.003	< 0.003
W	20202	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 ; 20197*	mg/L	< 0.003 ; < 0.003	< 0.003 ; < 0.003
	Control Sample	mg/L	< 0.003	0.014
	Control Sample Target	mg/L	< 0.003	0.015

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

<b>ASU #</b>	13190		<b>Report ID:</b>	Fox-2 W32						
<b>Client:</b>	ESG		<b>Date Submitted:</b>	7-Sep-10						
			<b>Date tested:</b>	9-Sep-10						
<b>Site:</b>	Fox-2		<b>Date:</b>	10-Sep-10						
	10-399		<b>Matrix:</b>	Water						
Report of Analysis										
<b>Total Metals</b>	Results in mg/L									
<b>SAMPLE</b>	Cu	Ni	Co	Cd	Pb	Zn	Cr	As		
10-20197	-	-	-	-	-	0.436	-	0.003	*	
10-20198	-	-	-	-	-	1.18	-	<0.003		
10-20202	-	-	-	-	-	<0.010	-	<0.003		
Blank	-	-	-	-	-	<0.010	-	<0.003		
Control	-	-	-	-	-	2.85	-	0.72		
Control Target	-	-	-	-	-	3.00	-	0.80		
10-20197	-	-	-	-	-	0.436	-	0.003		
10-20197	-	-	-	-	-	0.435	-	0.003		
<b>Dissolved Metals</b>	Results in mg/L									
<b>SAMPLE</b>	Cu	Ni	Co	Cd	Pb	Zn	Cr	As		
10-20197	<0.005	0.016	<0.003	<0.001	0.010	-	<0.005	-	*	
10-20198	<0.005	0.014	<0.003	<0.001	<0.010	-	<0.005	-		
10-20202	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-		
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-		
Control	1.41	1.53	1.53	0.76	7.61		0.78			
Control Target	1.60	1.60	1.60	0.80	8.00	-	0.80	-		
10-20197	<0.005	0.016	<0.003	<0.001	0.010	-	<0.005	-		
10-20197	<0.005	0.015	<0.003	<0.001	0.010	-	<0.005	-		



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: 21030  
Site: Fox-2  
Client No: 10-399  
Samples Received: 7-Sep-10  
Date of analysis: 9-Sep-10  
Method No: ASG 037  
Date Reported: 9-Sep-10  
Page: 1 of 1

## RESULTS OF pH ANALYSIS

Sample I.D.	pH
10-20197*	9.06
10-20198	7.24
10-20202	7.57

\* Averaged result of duplicates

## LABORATORY QA/QC

Sample I.D.	pH
10-20197* ; Duplicate	9.06 ; 9.06
Control	7.00
Control Target	7.00

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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: 21059  
Site: Fox-2  
Client No: 10-413  
Samples Received: 14-Sep-10  
Date of analysis: 16-Sep-10  
Method No: ASG 037  
Date Reported: 16-Sep-10  
Page: 1 of 1

## RESULTS OF pH ANALYSIS

Sample I.D.	pH
20333*	8.92
20334	7.68
20335	9.22

\* Averaged result of duplicates

## LABORATORY QA/QC

Sample I.D.	pH
20333* ; Duplicate	8.92 ; 8.92
Control	7.01
Control Target	7.00

<b>ASU #</b>	13218	<b>Report ID:</b>	Fox-2 W34
<b>Client:</b>	ESG	<b>Date Submitted:</b>	14-Sep-10
		<b>Date tested:</b>	14-Sep-10
<b>Site:</b>	Fox-2	<b>Date:</b>	14-Sep-10
	10-413	<b>Matrix:</b>	water
Report of Analysis			
<b>Sample</b>	Oil & Grease		
	mg/L		
10-20333	84.0		
10-20334	51.7		
10-20335	6.2		
<b>Blank</b>	<2.0		
<b>Control</b>	14.8		
<b>Control Target</b>	15.7		
Results relate only to the items tested			

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 P.O. Box 17000 Stn. Forces, Kingston, ON, K7K 7B4  
 Tel: 613-541-6000 x6684 / Fax: 613-545-8341

<b>Client :</b>	ESG	ASG Login No:	21059
	12 Verite Ave	Site:	Fox-2
	Dept. of Chem. / Chem. Eng., RMC	Client No:	10-413
	P.O. Box 17000, Stn. Forces	Samples Received:	14-Sep-10
	Kingston, Ontario K7K 7B4	Date of analysis:	16-Sep-10
	(613) 541-6000 ext 6567	Method No:	ASG 021
	Fax: (613) 541-6596	Date Reported:	16-Sep-10
		Sheet:	1 of 1

**RESULTS OF MERCURY IN WATER ANALYSIS**

Sample ID	Mercury <sup>^</sup> mg/L
20333*	0.0013
20334	0.0009
20335	< 0.0004

\*Average result of duplicates.

<sup>^</sup> Acid digestion performed.

# Reported at 0.0004 mg/L detection limit.

**LABORATORY QA/QC**

Sample ID	Mercury <sup>^</sup> mg/L
Duplicate : 20333*	0.0012 ; 0.0014
Blank	< 0.0004
Control Target	0.0040
Control Sample	0.0042

<b>ASU #</b>	13218		<b>Report ID:</b>	Fox-2 W35					
<b>Client:</b>	ESG		<b>Date Submitted:</b>	14-Sep-10					
			<b>Date tested:</b>	14-Sep-10					
<b>Site:</b>	Fox-2		<b>Date:</b>	15-Sep-10					
	10-413		<b>Matrix:</b>	Water					
Report of Analysis									
<b>Total Metals</b>	Results in mg/L								
<b>SAMPLE</b>	<b>Cu</b>	<b>Ni</b>	<b>Co</b>	<b>Cd</b>	<b>Pb</b>	<b>Zn</b>	<b>Cr</b>	<b>As</b>	
10-20333	-	-	-	-	-	<0.010	-	<0.003	
10-20334	-	-	-	-	-	0.547	-	<0.003	
10-20335	-	-	-	-	-	0.023	-	<0.003	*
Blank	-	-	-	-	-	<0.010	-	<0.003	
Control	-	-	-	-	-	2.98	-	0.75	
Control Target	-	-	-	-	-	3.00	-	0.80	
10-20335	-	-	-	-	-	0.022	-	<0.003	
10-20335	-	-	-	-	-	0.023	-	<0.003	
<b>Dissolved Metals</b>	Results in mg/L								
<b>SAMPLE</b>	<b>Cu</b>	<b>Ni</b>	<b>Co</b>	<b>Cd</b>	<b>Pb</b>	<b>Zn</b>	<b>Cr</b>	<b>As</b>	
10-20333	<0.005	0.017	<0.003	<0.001	<0.010	-	<0.005	-	
10-20334	<0.005	0.007	<0.003	<0.001	<0.010	-	<0.005	-	
10-20335	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-	*
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-	
Control	1.51	1.60	1.60	0.80	8.12	-	0.82	-	
Control Target	1.60	1.60	1.60	0.80	8.00	-	0.80	-	
10-20335	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-	
10-20335	<0.005	<0.005	<0.003	<0.001	<0.010	-	<0.005	-	
Results relate only to the items tested									

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 Tel: 613-541-6000 x6684 / Fax: 613-545-8341

<b>Client:</b> ESG	ASG Login No: 21059
12 Verite Ave	Site: Fox-2
Dept. of Chem. / Chem. Eng., RMC	Client No: 10-413
P.O. Box 17000, Stn. Forces	Samples Received: 14-Sep-10
Kingston, Ontario K7K 7B4	Date of analysis: 15-Sep-10
(613) 541-6000 ext 6567	Method No: ASG 015
Fax: (613) 541-6596	Date Reported: 16-Sep-10
	Sheet No: 1 of 1

**RESULTS OF PCB IN WATER ANALYSIS**

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	20333*	mg/L	< 0.003	< 0.003
W	20334	mg/L	< 0.003	< 0.003
W	20335	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 : 20333*	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

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

All results corrected for the recovery of the surrogate decachlorobiphenyl

## PHOTOGRAPHIC LOG



**Site Name:**  
FOX-2, Longstaff Bluff

**Site Location:**  
Nunavut

**Project No.**  
60153669

**Photo No.**  
1

**Date:**

**Direction Photo Taken:**

**Description:**  
Start of Fuel Tank Demolition



**Photo No.**  
2

**Date:**

**Direction Photo Taken:**

**Description:**  
Fuel Tank Demolition





# PHOTOGRAPHIC LOG



**Site Name:**  
FOX-2, Longstaff Bluff

**Site Location:**  
Nunavut

**Project No.**  
60153669

**Photo No.**  
3

**Date:**

**Direction Photo Taken:**

**Description:**  
Non-Hazardous Waste  
Landfill – June 2010



**Photo No.**  
4

**Date:**

**Direction Photo Taken:**

**Description:**  
Non-Hazardous Waste  
Landfill – September  
2010



# PHOTOGRAPHIC LOG



**Site Name:**  
FOX-2, Longstaff Bluff

**Site Location:**  
Nunavut

**Project No.**  
60153669

**Photo No.**  
5

**Date:**

**Direction Photo Taken:**

**Description:**  
Tier II Facility – June 2010



**Photo No.**  
6

**Date:**

**Direction Photo Taken:**

**Description:**  
Tier II Facility – September 2010





# PHOTOGRAPHIC LOG



**Site Name:**  
FOX-2, Longstaff Bluff

**Site Location:**  
Nunavut

**Project No.**  
60153669

**Photo No.**  
7

**Date:**

**Direction Photo Taken:**

**Description:**  
Upper Site Landfill –  
July 2010



**Photo No.**  
8

**Date:**

**Direction Photo Taken:**

**Description:**  
Upper Site Landfill –  
September 2010





# PHOTOGRAPHIC LOG



**Site Name:**  
FOX-2, Longstaff Bluff

**Site Location:**  
Nunavut

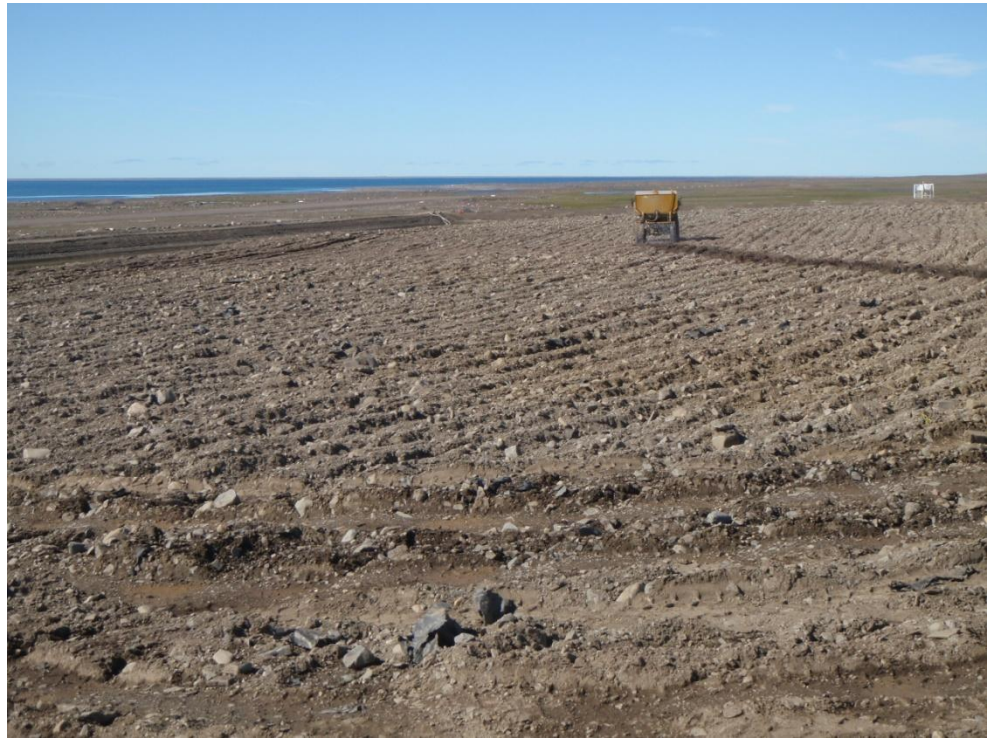
**Project No.**  
60153669

**Photo No.**  
9

**Date:**

**Direction Photo Taken:**

**Description:**  
Landfarm – July 2010



**Photo No.**  
10

**Date:**

**Direction Photo Taken:**

**Description:**  
Landfarm – September 2010

