

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

March 16, 2011

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

Dear Phyllis:

**Project No: Water Use License 1BR-MAC0712**

**Regarding: Mackar Inlet 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 in 2010:

**Work Completed**

The following is a summary of the work completed in 2010. At the end of the 2010 season, all remediation and construction work had been completed:

**Non-Hazardous Waste Landfill:** Construction was completed in 2008. Placement of the remaining non-hazardous waste was completed, with final capping and construction of swales and cross-ditches completed on September 20, 2010. Based on the survey, the final volume of the landfill is 9,886 m<sup>3</sup>.

**Tier II Disposal Facility:** Construction of the Tier II Facility was completed in 2009. Placement of Tier II contaminated soils was completed in 2010. Based on the survey, approximately 3,936 m<sup>3</sup> of Tier II contaminated soils (along with some intermediate fill) was placed in the facility by the end of 2010. Final capping and closure of the facility, and installation of monitoring points, was completed on September 10, 2010.

**Landfarm:** Construction of the landfarm was completed in June 2009. All Type B hydrocarbon impacted soils were placed and treated in the landfarm in 2010. Final closure of the landfarm, including flattening of the berms and reshaping of the material to promote positive drainage was completed on September 20, 2010.

**Existing Landfill Remediation:** Excavation and backfilling of the Lower Site Landfill, Airstrip Landfill and Upper Site Landfill were completed.

**Demolition:** The module train, warehouse, garage, heated vehicle storage building, fuel storage tanks and culverts were removed and disposed of.

**Debris Removal:** Completed.

**Sewage Lagoon Closure:** The sewage lagoon was closed at the end of the season, which included discharge of the effluent, flattening of the berms and general grading.

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

**Spill Incidences:** There were two spill incidences. See the attached spill report for details.

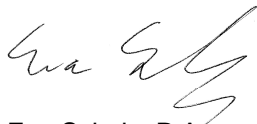
#### **Monitoring Program Results**

The results of the monitoring program are provided in the attached reports prepared by the Environmental Sciences Group from Kingston, ON, who are the scientific advisors for the DLCU Project. Reports were prepared documenting the results from sampling conducted in June, July, August and September at the CAM-5 site.

All construction and remediation work at the CAM-5 site was completed in 2010. The work remaining for 2011 includes the overland demobilization of the camp and equipment to Hall Beach to await transport.

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

NWB Annual Report

Year being reported: 2010 ▼

License No: 1BR-MAC0712

Issued Date: July 31, 2007

Expiry Date: December 31, 2012

Project Name: CAM-5, Mackar Inlet DEW Line Site

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  
 Project Engineer and Regulatory Support

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

Military site clean up.

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:  | 55 per day        | Quantity Allowable Domestic (cu.m)   |
|                  | 927/103 days      | Actual Quantity Used Domestic (cu.m) |
|                  |                   | Quantity Allowable Drilling (cu.m)   |
|                  |                   | Total Quantity Used Drilling (cu.m)  |

Waste Management and/or Disposal

- ☒ Solid Waste Disposal  
☒ Sewage 556 cu.m. of sewage and greywater deposited in lagoon.  
☒ Drill Waste  
☒ Greywater  
☒ Hazardous  
☒ Other:

Additional Details:

Details of the waste management and disposal were provided in the application.  
 See attached summary for details regarding quantities in 2008.

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

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

Date of Spill:

Date of Notification to an Inspector:

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

See the two attached spill reports.

#### Revisions to the Spill Contingency Plan

SCP submitted and approved - no revision required or proposed



Additional Details:

#### Revisions to the Abandonment and Restoration Plan

Other: (see additional details)



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)

#### Results of the Monitoring Program including:

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

Details attached



Additional Details:

See attached monitoring reports.

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

Details attached



Additional Details:

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

No additional sampling requested by an Inspector or the Board



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

|  |
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|  |
|--|

**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)

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

|  |
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|  |
|--|

**Date Submitted:**

|                |
|----------------|
| March 31, 2011 |
|----------------|

**Submitted/Prepared by:**

|            |
|------------|
| Eva Schulz |
|------------|

**Contact Information:**

|             |              |
|-------------|--------------|
| <b>Tel:</b> | 403-270-9220 |
|-------------|--------------|

|             |              |
|-------------|--------------|
| <b>Fax:</b> | 403-270-0399 |
|-------------|--------------|

|               |  |
|---------------|--|
| <b>email:</b> | <a href="mailto:eva.schulz@aecom.com">eva.schulz@aecom.com</a> |
|---------------|--|

### GPS Coordinates for water sources utilized

| Source Description   | UTM Zone 16N, NAD83 |         |
|----------------------|---------------------|---------|
|                      | Northing            | Easting |
| Water Source (MAC-1) | 7580000             | 554500  |
|                      |                     |         |
|                      |                     |         |
|                      |                     |         |
|                      |                     |         |
|                      |                     |         |
|                      |                     |         |
|                      |                     |         |

### GPS Locations of areas of waste disposal

| Location Description (type)             | UTM Zone 16N, NAD83 |          |
|---|---------------------|----------|
|   | Northing            | Easting  |
| Non-Hazardous Waste Landfill Stn. 801   | 7580334             | 553239   |
| Non-Hazardous Waste Landfill Stn. 802   | 7580352.3           | 553304.5 |
| Non-Hazardous Waste Landfill Stn. 803   | 7580297.6           | 553339.6 |
| Non-Hazardous Waste Landfill Stn. 804   | 7580279.3           | 553274.1 |
| Tier II Soil Disposal Facility Stn. 901 | 7580514.8           | 553492.6 |
| Tier II Soil Disposal Facility Stn. 902 | 7580551.8           | 553539.8 |
| Tier II Soil Disposal Facility Stn. 903 | 7580512.5           | 553570.7 |
| Tier II Soil Disposal Facility Stn. 904 | 7580475.5           | 553523.5 |
| Landfarm                                | 7581250             | 553125   |
| Sewage Lagoon                           | 7581564             | 551918   |
|   |                     |          |
|   |                     |          |

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



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

Tuesday, March 1, 2011

**RE: June 2010 Monthly Report for Water Use License Number: 1BR-MAC0712**

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 CAM-5 (*Macker Inlet*).

1. CAMP SEWAGE LAGOON

A sewage lagoon was constructed by Biogenie to service the CAM-5 construction camp in June of 2008. The sewage lagoon is located approximately 100 m east of the contractor's camp, 100 m away from drainage channels and more than 450 m from water bodies supporting aquatic life. The GPS coordinates that are required by the Water Use License for the sewage lagoon location are 16W 0551963E 7581586N.

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. Three sewage effluent samples were collected in June 2010 from Cells 1 and 2 of the CAM-5 sewage lagoon. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

**LOCATION: SEWAGE LAGOON – NORTH WESTERN CORNER OF SEWAGE LAGOON  
CELL#2**

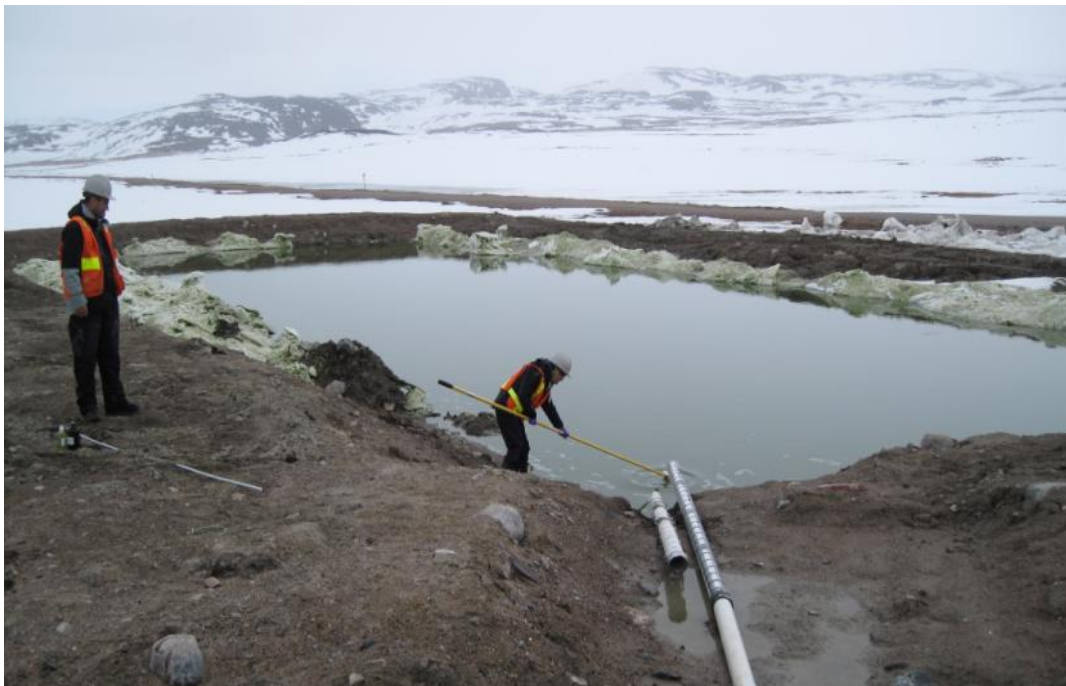
**GPS COORDINATES: 0551958E 7581581N**

**SAMPLE: 10-11286**

**DATE: JUNE 11, 2010**

| Parameter                       | Allowable<br>Maximum<br>Average<br>Concentration | Units          | Sample #<br>10-11286 |
|---------------------------------|--|----------------|----------------------|
| pH                              | 6.0 to 9.0                                       | pH units       | 7.29                 |
| Oil & Grease                    | None Visible                                     | -              | None Visible         |
| Total Suspended Solids<br>(TSS) | 180  | mg/L           | <b>250</b>           |
| BOD                             | 120  | mg/L           | 48                   |
| Faecal Coliforms                | 10,000   | CFU/dL         | N/A                  |
| Total Coliforms                 | -  | CFU/ 100<br>mL | N/A                  |

*Sample 10-11286 was not analyzed for faecal or total coliforms as the sample did not reach the laboratory within the required time frame.*



**Photo 1 (IMG 0887) Sample 10-11286** Wide angle of sewage sample collected from the northwestern corner of the sewage lagoon, facing east.



**LOCATION: SEWAGE LAGOON – NORTH WESTERN CORNER OF SEWAGE LAGOON  
CELL #2**

**GPS COORDINATES:** 0551958E 7581581N

**SAMPLE:** 10-11323

**DATE:** JUNE 13, 2010

| <b>Parameter</b>                        | <b>Allowable<br/>Maximum<br/>Average<br/>Concentration</b> | <b>Units</b>   | <b>Sample #<br/>10-11323</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<br/>(TSS)</b> | 180  | mg/L           | N/A                          |
| <b>BOD</b>                              | 120  | mg/L           | N/A                          |
| <b>Faecal Coliforms</b>                 | 10,000   | CFU/dL         | 0                            |
| <b>Total Coliforms</b>                  | -  | CFU/ 100<br>mL | N/A                          |

*Sample 10-27809 was analyzed for faecal coliforms only as sample 10-11286 was not analyzed for this parameter.*

*Cell 2 of the Sewage Lagoon was not discharged in June.*

**LOCATION: CELL #1 SEWAGE LAGOON – SAMPLE COLLECTED FROM CENTRE OF LAGOON**

**GPS COORDINATES:** 0551931E 7581559N

**SAMPLE:** 10-11952

**DATE:** June 30, 2010

| Parameter                    | Allowable Maximum Average Concentration | Units       | Sample # 10-11952 |
|------------------------------|---|-------------|-------------------|
| pH                           | 6.0 to 9.0                              | pH units    | 8.64              |
| Oil & Grease                 | None Visible                            | -           | None Visible      |
| Total Suspended Solids (TSS) | 180                                     | mg/L        | 81                |
| BOD                          | 120                                     | mg/L        | <b>132</b>        |
| Faecal Coliforms             | 10,000                                  | CFU/dL      | 100               |
| Total Coliforms              | -                                       | CFU/ 100 mL | 700               |



**Photo 2 (DSC01260) Sample 10-11952 Sewage lagoon Cell 1.** Wide angle taking facing east with cell two in the background. Sample was collected with swing sampler from north berm of the lagoon.

*Cell 1 of the Sewage Lagoon was not discharged in June as sample 10-11592 was over the maximum allowable concentration for BOD.*

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, Shari Reed, Dean Morrow, Ian Goode (ESG)

## APPENDIX A LABORATORY RESULTS

|                                  |                             |
|----------------------------------|-----------------------------|
| ESG                              | ASG Login No: 20615         |
| 12 Verite Ave                    | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC | Client No: 10-017           |
| P.O. Box 17000, Stn. Forces      | Samples Received: 14-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: 15-Jun-10    |
|                                  | Page: 1 of 1                |

### RESULTS OF pH ANALYSIS

| Sample I.D. | pH   |
|-------------|------|
| 10-11286    | 7.29 |

### LABORATORY QA/QC

| Sample I.D.    | pH   |
|----------------|------|
| Control        | 6.98 |
| Control Target | 7.00 |

|                                  |                             |
|----------------------------------|-----------------------------|
| ESG                              | ASG Login No: 20615         |
| 12 Verite Ave                    | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC | Client Login No: 10-017     |
| P.O. Box 17000, Stn. Forces      | Samples Received: 14-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 |
|-------------|--------------|------|------------------------|
| 10-11286*   | SE           | mg/L | 250                    |

### LABORATORY QA/QC

|                       |         |      |           |
|-----------------------|---------|------|-----------|
| Duplicate ; 10-11286* | SE ; SE | mg/L | 240 ; 250 |
| 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: 20615         |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client Login No: 10-017     |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 14-Jun-10 |
| Kingston, Ontario K7K 7B4        |  |  |  |  | Date of analysis: 19-Jun-10 |
| (613) 541-6000 ext 6567          |  |  |  |  | Method No: ASG 042          |
| Fax: (613) 541-6596              |  |  |  |  | Date Reported: 21-Jun-10    |
|                                  |  |  |  |  | Page: 1 of 1                |

### RESULTS OF BOD ANALYSIS

| Sample I.D. | Unit | BOD |
|-------------|------|-----|
| 10-11286    | mg/L | 48  |
|             |      |     |

\*Averaged result of duplicates

### LABORATORY QA/QC

| Sample I.D.    | Unit | BOD |
|----------------|------|-----|
| Blank          | mg/L | < 3 |
| Control        | mg/L | 162 |
| Control Target | mg/L | 165 |

|                                  |  |  |  |  |                             |
|----------------------------------|--|--|--|--|-----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 20620         |
| 12 Verite Ave                    |  |  |  |  | Site: CAM-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No: 10-020           |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 15-Jun-10 |
| Kingston, Ontario K7K 7B4        |  |  |  |  | Date of analysis: 15-Jun-10 |
| (613) 541-6000 ext 6567          |  |  |  |  | Date Reported: 17-Jun-10    |
| Fax: (613) 541-6596              |  |  |  |  | Sheet: 1 of 1               |

### RESULTS OF MICROBIOLOGICAL ANALYSIS

| Sample Identification | Method: ASG 036<br>Total Coliforms<br>(CFU/100 mL) | Method: ASG 036<br>E. coli<br>(CFU/100 mL) | Method: ASG 036<br>Background<br>(CFU/100 mL) | Method: ASG 044<br>Fecal Coliforms<br>(CFU/100 mL) |
|-----------------------|--|--|---|--|
| 11323*                | 0  | 0  | > 200 000                                     | 0  |
|                       |  |  |   |  |

### LABORATORY QA/QC

| Sample Identification | Method: ASG 036<br>Total Coliforms<br>(CFU/100 mL) | Method: ASG 036<br>E. coli<br>(CFU/100 mL) | Method: ASG 036<br>Background<br>(CFU/100 mL) | Method: ASG 044<br>Fecal Coliforms<br>(CFU/100 mL) |
|-----------------------|--|--|---|--|
| Blank                 | 0  | 0  | 0   | 0  |
| Control Sample        | 33   | 33   | 0   | 25   |
| Control Sample Target | 34   | 34   | 0   | 34   |
|                       |  |  |   |  |

|                                  |                            |
|----------------------------------|----------------------------|
| ESG                              | ASG Login No: 20690        |
| 12 Verite Ave                    | Site: Cam-5                |
| Dept. of Chem. / Chem. Eng., RMC | Client No: 10-075          |
| P.O. Box 17000, Stn. Forces      | Samples Received: 1-Jul-10 |
| Kingston, Ontario K7K 7B4        | Date of analysis: 1-Jul-10 |
| (613) 541-6000 ext 6567          | Method No: ASG 037         |
| Fax: (613) 541-6596              | Date Reported: 1-Jul-10    |
|                                  | Page: 1 of 1               |

### RESULTS OF pH ANALYSIS

| Sample I.D. | pH   |
|-------------|------|
| 10-11952*   | 8.64 |

\* Averaged result of duplicates

### LABORATORY QA/QC

| Sample I.D.           | pH          |
|-----------------------|-------------|
| 10-11952* ; Duplicate | 8.84 ; 8.64 |
| Control               | 7.00        |
| Control Target        | 7.00        |

|                                  |                            |
|----------------------------------|----------------------------|
| ESG                              | ASG Login No: 20690        |
| 12 Verite Ave                    | Site: CAM-5                |
| Dept. of Chem. / Chem. Eng., RMC | Client No: 10-075          |
| P.O. Box 17000, Stn. Forces      | Samples Received: 1-Jul-10 |
| Kingston, Ontario K7K 7B4        | Date of analysis: 1-Jul-10 |
| (613) 541-6000 ext 6567          | Date Reported: 2-Jul-10    |
| Fax: (613) 541-6596              | Sheet: 1 of 1              |

### RESULTS OF MICROBIOLOGICAL ANALYSIS

| Sample Identification | Method: ASG 036<br>Total<br>Coliforms<br>(CFU/100 mL) | Method: ASG 036<br>E. coli<br>(CFU/100 mL) | Method: ASG 036<br>Background<br>(CFU/100 mL) | Method: ASG 044<br>Fecal<br>Coliforms<br>(CFU/100 mL) |
|-----------------------|---|--|---|---|
| 11952                 | 700   | 100  | > 2 000                                       | 100   |

### LABORATORY QA/QC

| Sample Identification | Method: ASG 036<br>Total<br>Coliforms<br>(CFU/100 mL) | Method: ASG 036<br>E. coli<br>(CFU/100 mL) | Method: ASG 036<br>Background<br>(CFU/100 mL) | Method: ASG 044<br>Fecal<br>Coliforms<br>(CFU/100 mL) |
|-----------------------|---|--|---|---|
| Blank                 | 0   | 0  | 0   | 0   |
| Control Sample        | 30  | 30   | 0   | 25  |
| Control Sample Target | 34  | 34   | 0   | 34  |

**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: 20690

Site: CAM-5

Client Login No: 10-075

Samples Received: 1-Jul-10

Date of analysis: 1-Jul-10

Method No: ASG 039

Date Reported: 2-Jul-10

Sheet: 1 of 1

**RESULTS OF TOTAL SUSPENDED SOLIDS ANALYSIS**

| Sample I.D. | Sample Type^ | Unit | Total Suspended Solids |
|-------------|--------------|------|------------------------|
| 10-11952*   | SE           | mg/L | 81                     |

**LABORATORY QA/QC**

|                       |         |      |         |
|-----------------------|---------|------|---------|
| Duplicate ; 10-11952* | SE ; SE | mg/L | 78 ; 83 |
| Control               | Control | mg/L | 210     |
| Control Target        | Control | mg/L | 200     |
| Blank                 | Control | mg/L | < 1.0   |

^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: 20690

Site: Cam-5

Client Login No: 10-075

Samples Received: 1-Jul-10

Date of analysis: 1-Jul-10

Method No: ASG 042

Date Reported: 6-Jul-10

Page: 1 of 1

**RESULTS OF BOD ANALYSIS**

| Sample I.D. | Unit | BOD |
|-------------|------|-----|
| 10-11952    | mg/L | 132 |

\*Averaged result of duplicates

**LABORATORY QA/QC**

| Sample I.D.    | Unit | BOD |
|----------------|------|-----|
| Blank          | mg/L | < 3 |
| Control        | mg/L | 162 |
| 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 VanDyck  
Environmental Officer  
Defence Construction Canada  
DEW Line Cleanup PMO  
DGME  
101 Colonel By Drive  
Ottawa ON K1A 0K2

Tuesday, March 1, 2011

**RE: Analytical Results for Wastewater Samples Collected at CAM-5 in June, 2010**

The following report summarizes results of the analysis of wastewater samples as per the CAM-5 (Mackar Inlet) DEW Line Cleanup Project (DLCU) Specifications.

The CAM-5 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     |
| Total 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)     | 0.6                             | µg/L     |
| Dissolved nickel (Ni)  | 0.200                           | mg/L     |
| Total zinc (Zn)        | 1.000                           | mg/L     |
| Oil & grease           | 5 mg/L and None visible         | mg/L     |
| PCBs                   | 0.050*<br>0.005**               | mg/L     |
| Phenols                | 0.020                           | mg/L     |

\*Discharge to barren land, \*\*Discharge to vegetated land

*Phenols*

The wastewater samples collected by ESG at CAM-5 in June, 2010 were not analyzed for phenols but they were analyzed for oil and grease. Research conducted by ESG<sup>1</sup> has

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



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 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

Seven wastewater samples were collected at CAM-5 and analyzed in June 2010. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

**LOCATION: AIRSTRIP LANDFILL - EASTERN SIDE OF PONDED WATER IN  
EXCAVATION**

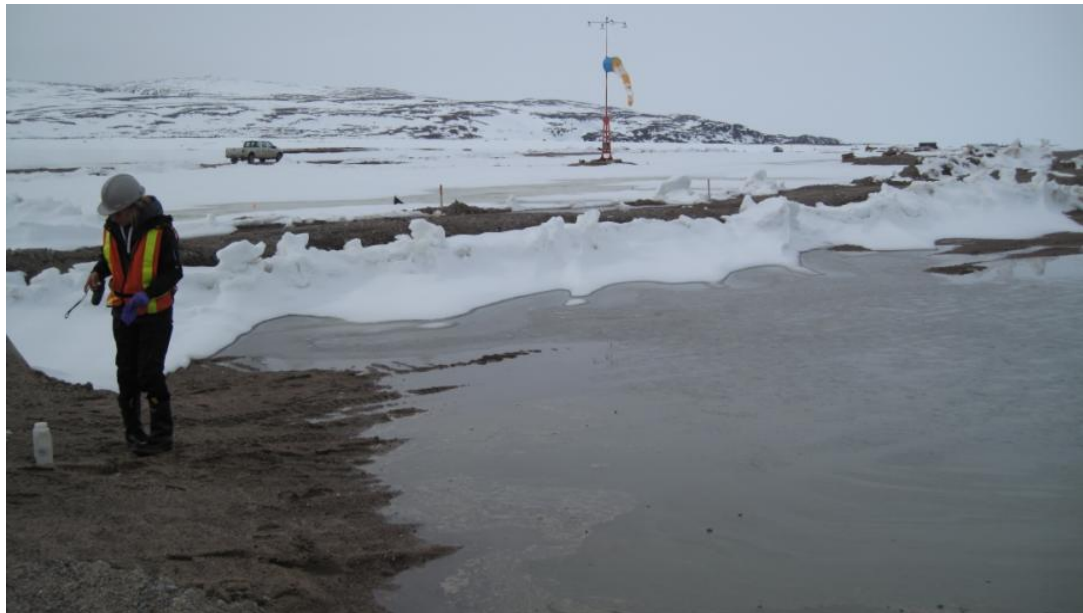
**GPS COORDINATES:** 0552504 E 7581896 N

**SAMPLE:** 10-11282

**DATE:** JUNE 11, 2010

| Parameter         | Maximum Allowable Concentration | Units    | Sample #<br>10-11282 |
|-------------------|---------------------------------|----------|----------------------|
| pH                | 6-9                             | pH units | 6.88                 |
| Total Arsenic     | 0.100                           | mg/L     | <0.003               |
| Dissolved Cadmium | 0.010                           | mg/L     | <0.001               |
| Total Chromium    | 0.100                           | mg/L     | 0.005                |
| Dissolved Cobalt  | 0.050                           | mg/L     | <0.003               |
| Dissolved Copper  | 0.200                           | mg/L     | <0.005               |
| Dissolved Lead    | 0.050                           | mg/L     | <0.010               |
| Total Mercury     | 0.6                             | µg/L     | <0.4                 |
| Dissolved Nickel  | 0.200                           | mg/L     | <0.005               |
| Total Zinc        | 1.0                             | mg/L     | 0.012                |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | Non Visible<br><2.0  |
| PCBs              | 50*<br>5**                      | µg/L     | <0.003               |
| Phenols           | 20                              | µg/L     | N/A                  |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 1 (IMG 0866): Wastewater sample 10-11282, collected from the Airstrip Landfill, facing SE.**

*Water from the Airstrip Landfill evaporated from the excavation and therefore did not require discharge.*

**LOCATION: LOWER SITE MPA – WATER POOLED AT NORTHERN END**

**GPS COORDINATES:** 0553119 E 7582003 N

**SAMPLE:** 10-11283

**DATE:** JUNE 11, 2010

| Parameter         | Maximum Allowable Concentration | Units    | Sample # 10-11283    |
|-------------------|---------------------------------|----------|----------------------|
| pH                | 6-9                             | pH units | 6.84                 |
| Total Arsenic     | 0.100                           | mg/L     | 0.004                |
| Dissolved Cadmium | 0.010                           | mg/L     | <0.001               |
| Total Chromium    | 0.100                           | mg/L     | 0.024                |
| Dissolved Cobalt  | 0.050                           | mg/L     | <0.003               |
| Dissolved Copper  | 0.200                           | mg/L     | 0.005                |
| Dissolved Lead    | 0.050                           | mg/L     | <0.010               |
| Total Mercury     | 0.6                             | µg/L     | <0.4                 |
| Dissolved Nickel  | 0.200                           | mg/L     | <0.005               |
| Total Zinc        | 1.0                             | mg/L     | 0.057                |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible<br><2.0 |
| PCBs              | 50*<br>5**                      | µg/L     | <0.003               |
| Phenols           | 20                              | µg/L     | N/A                  |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 2 (IMG 0868): View of location where wastewater sample 10-11283 was collected from the Lower Site MPA, facing west.**

*Waste water from the Lower Site MPA was discharged to the ground on June 17, 2010. The water was discharged to an area greater than 30m from natural drainage courses.*

**LOCATION: LANDFARM – A COMPOSITE SAMPLE COLLECTED FROM THREE LOCATIONS IN THE POOLED WATER ALONG THE WESTERN AND NORTHERN BERMS.**

**GPS COORDINATES:** 1)0553058 E 7581282 N  
2) 0553091 E 7581317 N  
3) 0553053 E 7581218 N

**SAMPLE:** 10-11284

**DATE:** JUNE 11, 2010

| Parameter         | Maximum Allowable Concentration | Units    | Sample # 10-11284           |
|-------------------|---------------------------------|----------|-----------------------------|
| pH                | 6-9                             | pH units | N/A                         |
| Total Arsenic     | 0.100                           | mg/L     | N/A                         |
| Dissolved Cadmium | 0.010                           | mg/L     | N/A                         |
| Total Chromium    | 0.100                           | mg/L     | N/A                         |
| Dissolved Cobalt  | 0.050                           | mg/L     | N/A                         |
| Dissolved Copper  | 0.200                           | mg/L     | N/A                         |
| Dissolved Lead    | 0.050                           | mg/L     | N/A                         |
| Total Mercury     | 0.6                             | µg/L     | N/A                         |
| Dissolved Nickel  | 0.200                           | mg/L     | N/A                         |
| Total Zinc        | 1.0                             | mg/L     | N/A                         |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | <b>None visible<br/>5.8</b> |
| PCBs              | 50*<br>5**                      | µg/L     | N/A                         |
| Phenols           | 20                              | µg/L     | N/A                         |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 3 (IMG 0865): Wide angle of the pooled water along the western berm of the landfarm where sample 10-11284 was collected.**

*Water from the Landfarm was over the criterion for Oil and Grease and therefore was not discharged to land. The water was re-sampled on June 15<sup>th</sup> 2010. Please see sample #10-11347.*

**LOCATION: TIER II DISPOSAL FACILITY – WESTERN CORNER**

**GPS COORDINATES: 0553509E 7580552 N**

**SAMPLE: 10-11285**

**DATE: JUNE 11, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample # 10-11285   |
|-------------------|---------------------------------|----------|---------------------|
| pH                | 6-9                             | pH units | 6.85                |
| Total Arsenic     | 0.100                           | mg/L     | <0.003              |
| Dissolved Cadmium | 0.010                           | mg/L     | <0.001              |
| Total Chromium    | 0.100                           | mg/L     | 0.005               |
| Dissolved Cobalt  | 0.050                           | mg/L     | <0.003              |
| Dissolved Copper  | 0.200                           | mg/L     | <0.005              |
| Dissolved Lead    | 0.050                           | mg/L     | <0.010              |
| Total Mercury     | 0.6                             | µg/L     | <0.4                |
| Dissolved Nickel  | 0.200                           | mg/L     | 0.011               |
| Total Zinc        | 1.0                             | mg/L     | 0.014               |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | Non Visible<br><2.0 |
| PCBs              | 50*<br>5**                      | µg/L     | <0.003              |
| Phenols           | 20                              | µg/L     | N/A                 |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 4 (IMG 0085): Sample 10-11285 Cam-5. Wide angle of wastewater sample collected from the western corner of the Tier II Disposal Facility, facing southwest.**

*Water from Tier II Disposal Facility was discharged to land on June 18, 2010. The water was discharged to an INAC approved location. (0554326 E 7580557 N)*

**LOCATION: LANDFARM- THE SAMPLE WAS COLLECTED FROM THE SW CORNER OF THE POOLED WATER IN THE LANDFARM.**

**GPS COORDINATES: 0553053 E 7581218 N**

**SAMPLE: 10-11347**

**DATE: JUNE 15, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample # 10-11347 |
|-------------------|---------------------------------|----------|-------------------|
| pH                | 6-9                             | pH units | N/A               |
| Total Arsenic     | 0.100                           | mg/L     | N/A               |
| Dissolved Cadmium | 0.010                           | mg/L     | N/A               |
| Total Chromium    | 0.100                           | mg/L     | N/A               |
| Dissolved Cobalt  | 0.050                           | mg/L     | N/A               |
| Dissolved Copper  | 0.200                           | mg/L     | N/A               |
| Dissolved Lead    | 0.050                           | mg/L     | N/A               |
| Total Mercury     | 0.6                             | µg/L     | N/A               |
| Dissolved Nickel  | 0.200                           | mg/L     | N/A               |
| Total Zinc        | 1.0                             | mg/L     | N/A               |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible <2.0 |
| PCBs              | 50*<br>5**                      | µg/L     | N/A               |
| Phenols           | 20                              | µg/L     | N/A               |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 4 (DSC00958): Sample 10-11347 Cam-5 Wide angle of the pooled water along the western berm of the landfarm where sample 10-11347 was collected.**

*Water from the Landfarm was discharged to land on June 21, 2010. The water was discharged to an INAC approved location. (0552986 E 7581176 N)*



**LOCATION: UPPER SITE MPA NORTH – WESTERN CORNER**

**GPS COORDINATES: 0555300 E 75776358 N**

**SAMPLE: 10-11492**

**DATE: JUNE 19, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample # 10-11492    |
|-------------------|---------------------------------|----------|----------------------|
| pH                | 6-9                             | pH units | 6.89                 |
| Total Arsenic     | 0.100                           | mg/L     | <0.003               |
| Dissolved Cadmium | 0.010                           | mg/L     | <0.001               |
| Total Chromium    | 0.100                           | mg/L     | 0.008                |
| Dissolved Cobalt  | 0.050                           | mg/L     | <0.003               |
| Dissolved Copper  | 0.200                           | mg/L     | <0.005               |
| Dissolved Lead    | 0.050                           | mg/L     | <0.010               |
| Total Mercury     | 0.6                             | µg/L     | <0.0004              |
| Dissolved Nickel  | 0.200                           | mg/L     | <0.005               |
| Total Zinc        | 1.0                             | mg/L     | 0.031                |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible<br><2.0 |
| PCBs              | 50*<br>5**                      | µg/L     | <0.003               |
| Phenols           | 20                              | µg/L     | N/A                  |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 6 (DSC00099): Sample 10-11492 Cam-5. Wide angle of wastewater sample collected from the western corner of Upper Site MPA North, facing north.**

*Water from the Upper Site MPA North evaporated from the excavation and therefore did not require discharge.*

**LOCATION: TANK 2 AT HAZARDOUS WASTER PROCESSING AREA (HWP) –**  
**SAMPLE COLLECTED FROM OPENING AT THE TOP OF TANK**  
**GPS COORDINATES: 0552923 E 7581810 N**  
**SAMPLE: 10-11599**  
**DATE: JUNE 23, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample # 10-11599           |
|-------------------|---------------------------------|----------|-----------------------------|
| pH                | 6-9                             | pH units | 6.98                        |
| Total Arsenic     | 0.100                           | mg/L     | 0.006                       |
| Dissolved Cadmium | 0.010                           | mg/L     | <0.001                      |
| Total Chromium    | 0.100                           | mg/L     | 0.013                       |
| Dissolved Cobalt  | 0.050                           | mg/L     | <0.003                      |
| Dissolved Copper  | 0.200                           | mg/L     | <0.005                      |
| Dissolved Lead    | 0.050                           | mg/L     | <0.010                      |
| Total Mercury     | 0.6                             | µg/L     | <0.0004                     |
| Dissolved Nickel  | 0.200                           | mg/L     | <0.005                      |
| Total Zinc        | 1.0                             | mg/L     | 0.131                       |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible<br><b>44.9</b> |
| PCBs              | 50*<br>5**                      | µg/L     | <0.003                      |
| Phenols           | 20                              | µg/L     | N/A                         |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 7 (DSC01022): Sample 10-11599 Cam-5. Tank 2 at the Hazardous Waste Processing area, facing west.**

*Water from the Tank 2(HWP) was over the criterion for Oil and Grease and therefore was not discharged to land. Additional treatment 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, Shari Reed, Dean Morrow, Ian Goode (ESG)

## APPENDIX A LABORATORY RESULTS

|                                  |  |  |  |                             |
|----------------------------------|--|--|--|-----------------------------|
| ESG                              |  |  |  | ASG Login No: 20611         |
| 12 Verite Ave                    |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  | Client No: 10-013           |
| P.O. Box 17000, Stn. Forces      |  |  |  | Samples Received: 14-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: 15-Jun-10    |
|                                  |  |  |  | Page: 1 of 1                |

### RESULTS OF pH ANALYSIS

| Sample I.D. | pH   |
|-------------|------|
| 10-11282*   | 6.88 |

\* Averaged result of duplicates

### LABORATORY QA/QC

| Sample I.D.         | pH          |
|---------------------|-------------|
| 10-11282 ; 10-11282 | 6.88 ; 6.88 |
| Control             | 6.98        |
| Control Target      | 7.00        |

|                                  |  |  |  |                             |
|----------------------------------|--|--|--|-----------------------------|
| ESG                              |  |  |  | ASG Login No: 20611         |
| 12 Verite Ave                    |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  | Client No: 10-013           |
| P.O. Box 17000, Stn. Forces      |  |  |  | Samples Received: 14-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: 15-Jun-10    |
|                                  |  |  |  | Sheet: 1 of 1               |

### RESULTS OF MERCURY ANALYSIS

| Sample ID | Mercury ug/L |
|-----------|--------------|
| 10-11282* | < 0.4        |

\*Average result of duplicates.

### LABORATORY QA/QC

| Sample ID             | Mercury ug/L  |
|-----------------------|---------------|
| Duplicate ; 10-11282* | < 0.4 ; < 0.4 |
| Blank                 | < 0.4         |
| Control Target        | 4.00          |
| Control Sample        | 4.20          |

|                    |              |  |                        |           |
|--------------------|--------------|--|------------------------|-----------|
| <b>ASU #</b>       | 12756        |  | <b>Report ID:</b>      | Cam-5 W5  |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 14-Jun-10 |
|                    |              |  | <b>Date tested:</b>    | 14-Jun-10 |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 15-Jun-10 |
|                    | 10-013       |  | <b>Matrix:</b>         | water     |
| Report of Analysis |              |  |                        |           |
| Sample             | Oil & Grease |  |                        |           |
|                    | mg/L         |  |                        |           |
| 10-11282           | <2.0         |  |                        |           |
| Blank              | <2.0         |  |                        |           |
| Control            | 13.9         |  |                        |           |
| Control Target     | 15.7         |  |                        |           |

|                                  |  |  |  |  |                             |
|----------------------------------|--|--|--|--|-----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 20611         |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No: 10-013           |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 14-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              | 11282       | 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

|                         |                 |        |                        |           |        |        |        |        |
|-------------------------|-----------------|--------|------------------------|-----------|--------|--------|--------|--------|
| <b>ASU #</b>            | 12756           |        | <b>Report ID:</b>      | Cam-5 W4  |        |        |        |        |
| <b>Client:</b>          | ESG             |        | <b>Date Submitted:</b> | 14-Jun-10 |        |        |        |        |
|                         |                 |        | <b>Date tested:</b>    | 14-Jun-10 |        |        |        |        |
| <b>Site:</b>            | Cam-5           |        | <b>Date:</b>           | 15-Jun-10 |        |        |        |        |
|                         | 10-013          |        | <b>Matrix:</b>         | Water     |        |        |        |        |
| Report of Analysis      |                 |        |                        |           |        |        |        |        |
| <b>Total Metals</b>     | Results in mg/L |        |                        |           |        |        |        |        |
| SAMPLE                  | Cu              | Ni     | Co                     | Cd        | Pb     | Zn     | Cr     | As     |
| 10-11282                | -               | -      | -                      | -         | -      | 0.012  | 0.005  | <0.003 |
| Blank                   | -               | -      | -                      | -         | -      | <0.010 | <0.005 | <0.003 |
| Control                 | -               | -      | -                      | -         | -      | 3.05   | 0.82   | 0.78   |
| Control Target          | -               | -      | -                      | -         | -      | 3.00   | 0.80   | 0.80   |
|                         |                 |        |                        |           |        |        |        |        |
| <b>Dissolved Metals</b> | Results in mg/L |        |                        |           |        |        |        |        |
| SAMPLE                  | Cu              | Ni     | Co                     | Cd        | Pb     | Zn     | Cr     | As     |
| 10-11282                | <0.005          | <0.005 | <0.003                 | <0.001    | <0.010 | -      | -      | -      |
| Blank                   | <0.005          | <0.005 | <0.003                 | <0.001    | <0.010 | -      | -      | -      |
| Control                 | 1.61            | 1.62   | 1.61                   | 0.79      | 8.10   | -      | -      | -      |
| Control Target          | 1.60            | 1.60   | 1.60                   | 0.80      | 8.00   | -      | -      | -      |

|                                  |  |  |  |  |                             |
|----------------------------------|--|--|--|--|-----------------------------|
| ESG                              |  |  |  |  | ASG Login No: 20614         |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No: 10-014           |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 14-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: 15-Jun-10    |
|                                  |  |  |  |  | Page: 1 of 1                |

## RESULTS OF pH ANALYSIS

| Sample I.D. | pH   |
|-------------|------|
| 10-11283*   | 6.84 |

\* Averaged result of duplicates

## LABORATORY QA/QC

| Sample I.D.         | pH          |
|---------------------|-------------|
| 10-11283 ; 10-11283 | 6.84 ; 6.84 |
| Control             | 7.01        |
| Control Target      | 7.00        |

|                                  |  |  |  |  |                             |
|----------------------------------|--|--|--|--|-----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 20614         |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No: 10-014           |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 14-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: 15-Jun-10    |
|                                  |  |  |  |  | Sheet: 1 of 1               |

## RESULTS OF MERCURY ANALYSIS

| Sample ID | Mercury ug/L |
|-----------|--------------|
| 10-11283* | < 0.4        |

\*Average result of duplicates.

## LABORATORY QA/QC

| Sample ID             | Mercury ug/L  |
|-----------------------|---------------|
| Duplicate ; 10-11283* | < 0.4 ; < 0.4 |
| Blank                 | < 0.4         |
| Control Target        | 4.00          |
| Control Sample        | 4.20          |

|                    |              |                        |           |
|--------------------|--------------|------------------------|-----------|
| <b>ASU #</b>       | 12749        | <b>Report ID:</b>      | Cam-5 W2  |
| <b>Client:</b>     | ESG          | <b>Date Submitted:</b> | 14-Jun-10 |
|                    |              | <b>Date tested:</b>    | 14-Jun-10 |
| <b>Site:</b>       | Cam-5        | <b>Date:</b>           | 15-Jun-10 |
|                    | 10-014       | <b>Matrix:</b>         | water     |
| Report of Analysis |              |                        |           |
| Sample             | Oil & Grease |                        |           |
|                    | mg/L         |                        |           |
| 10-11283           | <2.0         |                        |           |
| Blank              | <2.0         |                        |           |
| Control            | 13.9         |                        |           |
| Control Target     | 15.7         |                        |           |



|                |        |  |                        |           |
|----------------|--------|--|------------------------|-----------|
| <b>ASU #</b>   | 12748  |  | <b>Report ID:</b>      | Cam-5 W1  |
| <b>Client:</b> | ESG    |  | <b>Date Submitted:</b> | 14-Jun-10 |
|                |        |  | <b>Date tested:</b>    | 14-Jun-10 |
| <b>Site:</b>   | Cam-5  |  | <b>Date:</b>           | 15-Jun-10 |
|                | 10-015 |  | <b>Matrix:</b>         | water     |

#### Report of Analysis

|                |              |  |  |  |
|----------------|--------------|--|--|--|
| <b>Sample</b>  | Oil & Grease |  |  |  |
|                | mg/L         |  |  |  |
| 10-11284       | 5.8          |  |  |  |
| Blank          | <2.0         |  |  |  |
| Control        | 13.9         |  |  |  |
| Control Target | 15.7         |  |  |  |

#### ESG

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

ASG Login No: 20612

Site: Cam-5

Client No: 10-016

Samples Received: 14-Jun-10

Date of analysis: 14-Jun-10

Method No: ASG 015

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              | 11285       | 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

|                         |                 |        |                        |           |        |        |        |        |
|-------------------------|-----------------|--------|------------------------|-----------|--------|--------|--------|--------|
| <b>ASU #</b>            | 12757           |        | <b>Report ID:</b>      | Cam-5 W7  |        |        |        |        |
| <b>Client:</b>          | ESG             |        | <b>Date Submitted:</b> | 14-Jun-10 |        |        |        |        |
|                         |                 |        | <b>Date tested:</b>    | 14-Jun-10 |        |        |        |        |
| <b>Site:</b>            | Cam-5           |        | <b>Date:</b>           | 15-Jun-10 |        |        |        |        |
|                         | 10-016          |        | <b>Matrix:</b>         | Water     |        |        |        |        |
| Report of Analysis      |                 |        |                        |           |        |        |        |        |
| <b>Total Metals</b>     | Results in mg/L |        |                        |           |        |        |        |        |
| SAMPLE                  | Cu              | Ni     | Co                     | Cd        | Pb     | Zn     | Cr     | As     |
| 10-11285                | -               | -      | -                      | -         | -      | 0.014  | 0.005  | <0.003 |
| Blank                   | -               | -      | -                      | -         | -      | <0.010 | <0.005 | <0.003 |
| Control                 | -               | -      | -                      | -         | -      | 3.05   | 0.82   | 0.78   |
| Control Target          | -               | -      | -                      | -         | -      | 3.00   | 0.80   | 0.80   |
|                         |                 |        |                        |           |        |        |        |        |
| <b>Dissolved Metals</b> | Results in mg/L |        |                        |           |        |        |        |        |
| SAMPLE                  | Cu              | Ni     | Co                     | Cd        | Pb     | Zn     | Cr     | As     |
| 10-11285                | <0.005          | 0.011  | <0.003                 | <0.001    | <0.010 | -      | -      | -      |
| Blank                   | <0.005          | <0.005 | <0.003                 | <0.001    | <0.010 | -      | -      | -      |
| Control                 | 1.61            | 1.62   | 1.61                   | 0.79      | 8.10   | -      | -      | -      |
| Control Target          | 1.60            | 1.60   | 1.60                   | 0.80      | 8.00   | -      | -      | -      |

|                    |              |  |                        |           |
|--------------------|--------------|--|------------------------|-----------|
| <b>ASU #</b>       | 12757        |  | <b>Report ID:</b>      | Cam-5 W6  |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 14-Jun-10 |
|                    |              |  | <b>Date tested:</b>    | 16-Jun-10 |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 17-Jun-10 |
|                    | 10-016       |  | <b>Matrix:</b>         | water     |
| Report of Analysis |              |  |                        |           |
| Sample             | Oil & Grease |  |                        |           |
|                    | mg/L         |  |                        |           |
| 10-11285           | <2.0         |  |                        |           |
| Blank              | <2.0         |  |                        |           |
| Control            | 13.6         |  |                        |           |
| Control Target     | 15.7         |  |                        |           |



|                                  |  |  |  |  |                             |
|----------------------------------|--|--|--|--|-----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 20612         |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No: 10-016           |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 14-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: 15-Jun-10    |
|                                  |  |  |  |  | Sheet: 1 of 1               |

### RESULTS OF MERCURY ANALYSIS

| Sample ID | Mercury ug/L |
|-----------|--------------|
| 10-11285* | < 0.4        |

\*Average result of duplicates.

### LABORATORY QA/QC

| Sample ID             | Mercury ug/L  |
|-----------------------|---------------|
| Duplicate ; 10-11285* | < 0.4 ; < 0.4 |
| Blank                 | < 0.4         |
| Control Target        | 4.00          |
| Control Sample        | 4.20          |

|                                  |  |  |  |  |                             |
|----------------------------------|--|--|--|--|-----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 20612         |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No: 10-016           |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 14-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: 15-Jun-10    |
|                                  |  |  |  |  | Page: 1 of 1                |

### RESULTS OF pH ANALYSIS

| Sample I.D. | pH   |
|-------------|------|
| 10-11285*   | 6.85 |

\* Averaged result of duplicates

### LABORATORY QA/QC

| Sample I.D.         | pH          |
|---------------------|-------------|
| 10-11285 ; 10-11285 | 6.86 ; 6.84 |
| Control             | 6.98        |
| Control Target      | 7.00        |

|                    |              |  |                        |           |
|--------------------|--------------|--|------------------------|-----------|
| <b>ASU #</b>       | 12774        |  | <b>Report ID:</b>      | Cam-5 W10 |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 18-Jun-10 |
|                    |              |  | <b>Date tested:</b>    | 21-Jun-10 |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 21-Jun-10 |
|                    | 10-025       |  | <b>Matrix:</b>         | water     |
|                    |              |  |                        |           |
| Report of Analysis |              |  |                        |           |
|                    |              |  |                        |           |
| Sample             | Oil & Grease |  |                        |           |
|                    | mg/L         |  |                        |           |
|                    |              |  |                        |           |
| 10-11347           | <2.0         |  |                        |           |
|                    |              |  |                        |           |
| Blank              | <2.0         |  |                        |           |
|                    |              |  |                        |           |
| Control            | 14.8         |  |                        |           |
| Control Target     | 15.7         |  |                        |           |

|                                  |  |  |  |  |                             |
|----------------------------------|--|--|--|--|-----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 20658         |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No: 10-034           |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 24-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 |
|-----------|--------------|
| 10-11492* | < 0.0004     |

## LABORATORY QA/QC

| Sample ID             | Mercury mg/L        |
|-----------------------|---------------------|
| Duplicate ; 10-11492* | < 0.0004 ; < 0.0004 |
| Blank                 | < 0.0004            |
| Control Target        | 0.0040              |
| Control Sample        | 0.0042              |

|   |                 |        |                        |           |        |        |        |        |
|---|-----------------|--------|------------------------|-----------|--------|--------|--------|--------|
| <b>ASU #</b>                            | 12806           |        | <b>Report ID:</b>      | Cam-5 W12 |        |        |        |        |
| <b>Client:</b>                          | ESG             |        | <b>Date Submitted:</b> | 24-Jun-10 |        |        |        |        |
|   |                 |        | <b>Date tested:</b>    | 28-Jun-10 |        |        |        |        |
| <b>Site:</b>                            | Cam-5           |        | <b>Date:</b>           | 28-Jun-10 |        |        |        |        |
|   | 10-034          |        | <b>Matrix:</b>         | Water     |        |        |        |        |
| Report of Analysis                      |                 |        |                        |           |        |        |        |        |
| <b>Total Metals</b>                     | Results in mg/L |        |                        |           |        |        |        |        |
| SAMPLE                                  | Cu              | Ni     | Co                     | Cd        | Pb     | Zn     | Cr     | As     |
| 10-11492                                | -               | -      | -                      | -         | -      | 0.031  | 0.008  | <0.003 |
| Blank                                   | -               | -      | -                      | -         | -      | <0.010 | <0.005 | <0.003 |
| Control                                 | -               | -      | -                      | -         | -      | 3.08   | 0.83   | 0.79   |
| Control Target                          | -               | -      | -                      | -         | -      | 3.00   | 0.80   | 0.80   |
|   |                 |        |                        |           |        |        |        |        |
| <b>Dissolved Metals</b>                 | Results in mg/L |        |                        |           |        |        |        |        |
| SAMPLE                                  | Cu              | Ni     | Co                     | Cd        | Pb     | Zn     | Cr     | As     |
| 10-11492                                | <0.005          | <0.005 | <0.003                 | <0.001    | <0.010 | -      | -      | -      |
| Blank                                   | <0.005          | <0.005 | <0.003                 | <0.001    | <0.010 | -      | -      | -      |
| Control                                 | 1.62            | 1.64   | 1.63                   | 0.81      | 8.12   | -      | -      | -      |
| Control Target                          | 1.60            | 1.60   | 1.60                   | 0.80      | 8.00   | -      | -      | -      |
| Results relate only to the items tested |                 |        |                        |           |        |        |        |        |

|                    |              |  |                        |           |
|--------------------|--------------|--|------------------------|-----------|
| <b>ASU #</b>       | 12806        |  | <b>Report ID:</b>      | Cam-5 W11 |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 24-Jun-10 |
|                    |              |  | <b>Date tested:</b>    | 24-Jun-10 |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 25-Jun-10 |
|                    | 10-034       |  | <b>Matrix:</b>         | water     |
| Report of Analysis |              |  |                        |           |
| Sample             | Oil & Grease |  |                        |           |
|                    | mg/L         |  |                        |           |
| 10-11492           | <2.0         |  |                        |           |
| Blank              | <2.0         |  |                        |           |
| Control            | 15.4         |  |                        |           |
| Control Target     | 15.7         |  |                        |           |

|                                  |                             |
|----------------------------------|-----------------------------|
| <b>ESG</b>                       | ASG Login No: 20658         |
| 12 Verite Ave                    | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC | Client No: 10-034           |
| P.O. Box 17000, Stn. Forces      | Samples Received: 24-Jun-10 |
| Kingston, Ontario K7K 7B4        | Date of analysis: 24-Jun-10 |
| (613) 541-6000 ext 6567          | Method No: ASG 015          |
| Fax: (613) 541-6596              | Date Reported: 25-Jun-10    |
|                                  | Sheet No: 1 of 1            |

### RESULTS OF PCB IN WATER ANALYSIS

| Sample Type ** | Sample I.D. | Unit | Aroclor 1254 | Aroclor 1260 |
|----------------|-------------|------|--------------|--------------|
| W              | 11492       | 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

|                                  |                             |
|----------------------------------|-----------------------------|
| <b>ESG</b>                       | ASG Login No: 20658         |
| 12 Verite Ave                    | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC | Client No: 10-034           |
| P.O. Box 17000, Stn. Forces      | Samples Received: 24-Jun-10 |
| Kingston, Ontario K7K 7B4        | Date of analysis: 24-Jun-10 |
| (613) 541-6000 ext 6567          | Method No: ASG 037          |
| Fax: (613) 541-6596              | Date Reported: 24-Jun-10    |
|                                  | Page: 1 of 1                |

### RESULTS OF pH ANALYSIS

| Sample I.D. | pH   |
|-------------|------|
| 10-11492*   | 6.89 |
|             |      |

\* Averaged result of duplicates

### LABORATORY QA/QC

| Sample I.D.         | pH          |
|---------------------|-------------|
| 10-11492 ; 10-11492 | 6.89 ; 6.88 |
| Control             | 7.00        |
| Control Target      | 7.00        |

|                         |                 |        |                        |           |        |        |        |        |
|-------------------------|-----------------|--------|------------------------|-----------|--------|--------|--------|--------|
| <b>ASU #</b>            | 12812           |        | <b>Report ID:</b>      | Cam-5 W13 |        |        |        |        |
| <b>Client:</b>          | ESG             |        | <b>Date Submitted:</b> | 25-Jun-10 |        |        |        |        |
|                         |                 |        | <b>Date tested:</b>    | 28-Jun-10 |        |        |        |        |
| <b>Site:</b>            | Cam-5           |        | <b>Date:</b>           | 28-Jun-10 |        |        |        |        |
|                         | 10-050          |        | <b>Matrix:</b>         | Water     |        |        |        |        |
| Report of Analysis      |                 |        |                        |           |        |        |        |        |
| <b>Total Metals</b>     | Results in mg/L |        |                        |           |        |        |        |        |
| SAMPLE                  | Cu              | Ni     | Co                     | Cd        | Pb     | Zn     | Cr     | As     |
| 10-11599                | -               | -      | -                      | -         | -      | 0.131  | 0.013  | 0.006  |
| Blank                   | -               | -      | -                      | -         | -      | <0.010 | <0.005 | <0.003 |
| Control                 | -               | -      | -                      | -         | -      | 3.08   | 0.83   | 0.79   |
| Control Target          | -               | -      | -                      | -         | -      | 3.00   | 0.80   | 0.80   |
|                         |                 |        |                        |           |        |        |        |        |
| <b>Dissolved Metals</b> | Results in mg/L |        |                        |           |        |        |        |        |
| SAMPLE                  | Cu              | Ni     | Co                     | Cd        | Pb     | Zn     | Cr     | As     |
| 10-11599                | <0.005          | <0.005 | <0.003                 | <0.001    | <0.010 | -      | -      | -      |
| Blank                   | <0.005          | <0.005 | <0.003                 | <0.001    | <0.010 | -      | -      | -      |
| Control                 | 1.62            | 1.64   | 1.63                   | 0.81      | 8.12   | -      | -      | -      |
| Control Target          | 1.60            | 1.60   | 1.60                   | 0.80      | 8.00   | -      | -      | -      |

|                    |              |  |                        |           |
|--------------------|--------------|--|------------------------|-----------|
| <b>ASU #</b>       | 12812        |  | <b>Report ID:</b>      | Cam-5 W14 |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 25-Jun-10 |
|                    |              |  | <b>Date tested:</b>    | 26-Jun-10 |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 28-Jun-10 |
|                    | 10-050       |  | <b>Matrix:</b>         | water     |
| Report of Analysis |              |  |                        |           |
| Sample             | Oil & Grease |  |                        |           |
|                    | mg/L         |  |                        |           |
| 10-11599           | 44.9         |  |                        |           |
| Blank              | <2.0         |  |                        |           |
| Control            | 14.3         |  |                        |           |
| Control Target     | 15.7         |  |                        |           |

|                                  |  |  |  |  |                             |
|----------------------------------|--|--|--|--|-----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 20669         |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No: 10-050           |
| 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 |
|-----------|--------------|
| 11599     | < 0.0004     |

^ Acid digestion performed.

# Reported at 0.0004 mg/L detection limit.

### LABORATORY QA/QC

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

|                                  |  |  |  |  |                                    |
|----------------------------------|--|--|--|--|------------------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: <b>20669</b>         |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                        |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No: <b>10-050</b>           |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: <b>25-Jun-10</b> |
| Kingston, Ontario K7K 7B4        |  |  |  |  | Date of analysis: <b>25-Jun-10</b> |
| (613) 541-6000 ext 6567          |  |  |  |  | Method No: ASG 037                 |
| Fax: (613) 541-6596              |  |  |  |  | Date Reported: <b>28-Jun-10</b>    |
|                                  |  |  |  |  | Page: 1 of 1                       |

### Amended RESULTS OF pH ANALYSIS

| Sample I.D. | pH   |
|-------------|------|
| 11599*      | 6.98 |

\* Averaged result of duplicates

### LABORATORY QA/QC

| Sample I.D.    | pH          |
|----------------|-------------|
| 11599 ; 11599  | 6.98 ; 6.98 |
| Control        | 7.01        |
| Control Target | 7.00        |

|                                  |  |  |  |  |                             |
|----------------------------------|--|--|--|--|-----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 20669         |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No: 10-050           |
| 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              | 11599       | mg/L | < 0.003      | < 0.003      |
|                |             |      |              |              |

\* Average result of duplicate

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

### LABORATORY QA/QC

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

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

Candice Casucci  
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PO Box 17000 Stn. Forces  
Kingston, ON K7K 7B4



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

Tuesday, March 1, 2011

**RE: July 2010 Monthly Report for Water Use License Number: 1BR-MAC0712**

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 CAM-5 (*Macker Inlet*).

1. CAMP SEWAGE LAGOON

A sewage lagoon was constructed by Biogenie to service the CAM-5 construction camp in June of 2008. The sewage lagoon is located approximately 100 m east of the contractor's camp, 100 m away from drainage channels and more than 450 m from water bodies supporting aquatic life. The GPS coordinates that are required by the Water Use License for the sewage lagoon location are 16W 0551963E 7581586N.

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. One sewage effluent sample was collected in July 2010 from Cell 1 of the CAM-5 sewage lagoon. A summary of the details of these results follows. Laboratory results are provided in Appendix A.



**LOCATION: CELL 1 SEWAGE LAGOON – SAMPLE COLLECTED FROM CENTRE OF LAGOON**

**GPS COORDINATES: 0551931 E 7581559 N**

**SAMPLE: 10-24395**

**DATE: JULY 8, 2010**

| Parameter                       | Allowable<br>Maximum<br>Average<br>Concentration | Units          | Sample #<br>10-24395 |
|---------------------------------|--|----------------|----------------------|
| pH                              | 6.0 to 9.0                                       | pH units       | N/A                  |
| Oil & Grease                    | None Visible                                     | -              | None Visible         |
| Total Suspended Solids<br>(TSS) | 180  | mg/L           | N/A                  |
| BOD                             | 120  | mg/L           | 116                  |
| Faecal Coliforms                | 10,000   | CFU/dL         | N/A                  |
| Total Coliforms                 | -  | CFU/ 100<br>mL | N/A                  |

*Waste water from Cell 1 Sewage Lagoon (10-24395) was discharged to the ground on July 14, 2010. The water was discharged to an INAC approved location. (0551931 E 7581559 N)*

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

Sincerely,



Candice Casucci  
Environmental Sciences Group

cc: Eva Schulz (UMA)  
Daniela Loock, Kat White, Shari Reed, Dean Morrow, Ian Goode (ESG)

## APPENDIX A LABORATORY RESULTS

|                                  |  |  |  |  |                             |
|----------------------------------|--|--|--|--|-----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 20745         |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client Login No: 10-105     |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 9-Jul-10  |
| Kingston, Ontario K7K 7B4        |  |  |  |  | Date of analysis: 14-Jul-10 |
| (613) 541-6000 ext 6567          |  |  |  |  | Method No: ASG 042          |
| Fax: (613) 541-6596              |  |  |  |  | Date Reported: 14-Jul-10    |
|                                  |  |  |  |  | Page: 1 of 1                |

### RESULTS OF BOD ANALYSIS

| Sample I.D. | Unit | BOD |
|-------------|------|-----|
| 10-24395*   | mg/L | 116 |
|             |      |     |

\*Averaged result of duplicates

### LABORATORY QA/QC

| Sample I.D.           | Unit | BOD       |
|-----------------------|------|-----------|
| Duplicate ; 10-24395* | mg/L | 115 ; 116 |
| Blank                 | mg/L | < 3       |
| Control               | mg/L | 163       |
| Control Target        | mg/L | 165       |

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The Royal Military College of Canada  
PO Box 17000 Stn. Forces  
Kingston, ON K7K 7B4



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

Tuesday, March 1, 2011

**RE: Analytical Results for Wastewater Samples Collected at CAM-5 in July, 2010**

The following report summarizes results of the analysis of wastewater samples as per the CAM-5 (Mackar Inlet) DEW Line Cleanup Project (DLCU) Specifications.

The CAM-5 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     |
| Total 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)     | 0.6                             | µg/L     |
| Dissolved nickel (Ni)  | 0.200                           | mg/L     |
| Total zinc (Zn)        | 1.000                           | mg/L     |
| Oil & grease           | 5 mg/L and None visible         | mg/L     |
| PCBs                   | 0.050*<br>0.005**               | mg/L     |
| Phenols                | 0.020                           | mg/L     |

\*Discharge to barren land, \*\*Discharge to vegetated land

*Phenols*

The wastewater samples collected by ESG at CAM-5 in July, 2010 were not analyzed for phenols but they were analyzed for oil and grease. Research conducted by ESG<sup>1</sup> has

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

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 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

Five wastewater samples were collected at CAM-5 and analyzed in July 2010. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

**LOCATION: TANK 2 AT HAZARDOUS WASTE PROCESSING AREA (HWP)**

**SAMPLE COLLECTED FROM OPENING AT TOP OF TANK**

**GPS COORDINATES:** 0552923 E 7581810 N

**SAMPLE:** 10-24399

**DATE:** JULY 8, 2010

| Parameter                | Maximum Allowable Concentration | Units    | Sample # 10-24399        |
|--------------------------|---------------------------------|----------|--------------------------|
| <b>pH</b>                | 6-9                             | pH units | N/A                      |
| <b>Total Arsenic</b>     | 0.100                           | mg/L     | N/A                      |
| <b>Dissolved Cadmium</b> | 0.010                           | mg/L     | N/A                      |
| <b>Total Chromium</b>    | 0.100                           | mg/L     | N/A                      |
| <b>Dissolved Cobalt</b>  | 0.050                           | mg/L     | N/A                      |
| <b>Dissolved Copper</b>  | 0.200                           | mg/L     | N/A                      |
| <b>Dissolved Lead</b>    | 0.050                           | mg/L     | N/A                      |
| <b>Total Mercury</b>     | 0.6                             | µg/L     | N/A                      |
| <b>Dissolved Nickel</b>  | 0.200                           | mg/L     | N/A                      |
| <b>Total Zinc</b>        | 1.0                             | mg/L     | N/A                      |
| <b>Oil &amp; Grease</b>  | None Visible and 5 mg/L         | mg/L     | Non Visible / <b>7.5</b> |
| <b>PCBs</b>              | 50*<br>5**                      | µg/L     | N/A                      |
| <b>Phenols</b>           | 20                              | µg/L     | N/A                      |

\*Discharge to barren land, \*\*Discharge to vegetated land

*Waste water sample 10-24399 did not comply with Oil and Grease criterion and therefore was not discharged to land. Additional treatment was required.*

**LOCATION: TANK 2 AT HAZARDOUS WASTE PROCESSING AREA (HWP)**

**SAMPLE COLLECTED FROM OPENING AT TOP OF TANK**

**GPS COORDINATES:** 0552923 E 7581810 N

**SAMPLE:** 10-24744

**DATE:** JULY 13, 2010

| Parameter         | Maximum Allowable Concentration | Units    | Sample #<br>10-24744         |
|-------------------|---------------------------------|----------|------------------------------|
| pH                | 6-9                             | pH units | N/A                          |
| Total Arsenic     | 0.100                           | mg/L     | N/A                          |
| Dissolved Cadmium | 0.010                           | mg/L     | N/A                          |
| Total Chromium    | 0.100                           | mg/L     | N/A                          |
| Dissolved Cobalt  | 0.050                           | mg/L     | N/A                          |
| Dissolved Copper  | 0.200                           | mg/L     | N/A                          |
| Dissolved Lead    | 0.050                           | mg/L     | N/A                          |
| Total Mercury     | 0.6                             | µg/L     | N/A                          |
| Dissolved Nickel  | 0.200                           | mg/L     | N/A                          |
| Total Zinc        | 1.0                             | mg/L     | N/A                          |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible /<br><b>7.3</b> |
| PCBs              | 50*<br>5**                      | µg/L     | N/A                          |
| Phenols           | 20                              | µg/L     | N/A                          |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 1 (DSC01219) Sample 10-24399/10-24774:** Tank 2 at the Hazardous Waste Processing Area, facing west.

*Waste water sample 10-24744 did not comply with Oil and Grease criterion and therefore was not discharged to land. Additional treatment was required.*

**LOCATION: TANK 2 AT HAZARDOUS WASTE PROCESSING AREA (HWP)**

**SAMPLE COLLECTED FROM OPENING AT TOP OF TANK**

**GPS COORDINATES: 0552923 E 7581810 N]**

**SAMPLE: 10-25384**

**DATE: July 20, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample #<br>10-25384   |
|-------------------|---------------------------------|----------|------------------------|
| pH                | 6-9                             | pH units | N/A                    |
| Total Arsenic     | 0.100                           | mg/L     | N/A                    |
| Dissolved Cadmium | 0.010                           | mg/L     | N/A                    |
| Total Chromium    | 0.100                           | mg/L     | N/A                    |
| Dissolved Cobalt  | 0.050                           | mg/L     | N/A                    |
| Dissolved Copper  | 0.200                           | mg/L     | N/A                    |
| Dissolved Lead    | 0.050                           | mg/L     | N/A                    |
| Total Mercury     | 0.6                             | µg/L     | N/A                    |
| Dissolved Nickel  | 0.200                           | mg/L     | N/A                    |
| Total Zinc        | 1.0                             | mg/L     | N/A                    |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible /<br><2.0 |
| PCBs              | 50*<br>5**                      | µg/L     | N/A                    |
| Phenols           | 20                              | µg/L     | N/A                    |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 2 (DSC01275) Sample 10-25384:** Tank 2 at the Hazardous Waste Processing Area, facing northwest.

Waste water sample 10-25384 was below all applicable criteria. The water from Tank 2 was discharged to the ground on July 23, 2010, to an INAC approved location (0552879 E 7581784 N).

**LOCATION: BEHIND ATHLETIC TENT AT MAIN CAMP – POOLED WATER AT SOUTHERN END**

**GPS COORDINATES:** 0551800 E 7581485 N

**SAMPLE:** 10-27382

**DATE:** JULY 24, 2010

| Parameter         | Maximum Allowable Concentration | Units    | Sample # 10-27382 |
|-------------------|---------------------------------|----------|-------------------|
| pH                | 6-9                             | pH units | 7.15              |
| Total Arsenic     | 0.100                           | mg/L     | <0.003            |
| Dissolved Cadmium | 0.010                           | mg/L     | <0.001            |
| Total Chromium    | 0.100                           | mg/L     | <0.005            |
| Dissolved Cobalt  | 0.050                           | mg/L     | <0.003            |
| Dissolved Copper  | 0.200                           | mg/L     | 0.006             |
| Dissolved Lead    | 0.050                           | mg/L     | <0.010            |
| Total Mercury     | 0.6                             | µg/L     | <0.0004           |
| Dissolved Nickel  | 0.200                           | mg/L     | <0.005            |
| Total Zinc        | 1.0                             | mg/L     | <0.010            |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | Non Visible / 2.5 |
| PCBs              | 50*<br>5**                      | µg/L     | <0.003            |
| Phenols           | 20                              | µg/L     | N/A               |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 3 (DSC01287) Sample 10-27382 Cam-5** Behind athletic tent at main camp – southern end

*Water that pooled behind the athletic tent in the camp area (10-27382) was tested at the request of DCC to ensure it was below the WDC. No treatment of the water was required as all parameters were below the relevant criteria.*

**LOCATION: TANK 2 AT HAZARDOUS WASTE PROCESSING AREA (HWP)**

**SAMPLE COLLECTED FROM OPENING AT TOP OF TANK**

**GPS COORDINATES:** 0552923 E 7581810 N

**SAMPLE:** 10-27512

**DATE:** JULY 28, 2010

| Parameter         | Maximum Allowable Concentration | Units    | Sample #<br>10-27512          |
|-------------------|---------------------------------|----------|-------------------------------|
| pH                | 6-9                             | pH units | 6.66                          |
| Total Arsenic     | 0.100                           | mg/L     | <0.003                        |
| Dissolved Cadmium | 0.010                           | mg/L     | <0.001                        |
| Total Chromium    | 0.100                           | mg/L     | <0.005                        |
| Dissolved Cobalt  | 0.050                           | mg/L     | <0.003                        |
| Dissolved Copper  | 0.200                           | mg/L     | <0.005                        |
| Dissolved Lead    | 0.050                           | mg/L     | <0.010                        |
| Total Mercury     | 0.6                             | µg/L     | <0.0004                       |
| Dissolved Nickel  | 0.200                           | mg/L     | <0.005                        |
| Total Zinc        | 1.0                             | mg/L     | 0.200                         |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible /<br><b>28.5</b> |
| PCBs              | 50*<br>5**                      | µg/L     | <0.003                        |
| Phenols           | 20                              | µg/L     | N/A                           |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 4 (DSC01323) Sample 10-27512:** Collection of water sample at Tank 2 in the Hazardous Waste Processing Area.



*Waste water from 10-27512 did not comply with Oil and Grease and therefore was not discharged to land. Additional treatment 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, Shari Reed, Dean Morrow, Ian Goode (ESG)

APPENDIX A  
LABORATORY RESULTS

|                    |              |  |                        |           |
|--------------------|--------------|--|------------------------|-----------|
| <b>ASU #</b>       | 12880        |  | <b>Report ID:</b>      | Cam-5 W16 |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 9-Jul-10  |
|                    |              |  | <b>Date tested:</b>    | 12-Jul-10 |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 12-Jul-10 |
|                    | 10-105       |  | <b>Matrix:</b>         | water     |
| Report of Analysis |              |  |                        |           |
| Sample             | Oil & Grease |  |                        |           |
|                    | mg/L         |  |                        |           |
| 10-24399           | 7.5          |  |                        |           |
| Blank              | <2.0         |  |                        |           |
| Control            | 14.0         |  |                        |           |
| Control Target     | 15.9         |  |                        |           |

|                    |              |  |                        |           |
|--------------------|--------------|--|------------------------|-----------|
| <b>ASU #</b>       | 12903        |  | <b>Report ID:</b>      | Cam-5 W17 |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 16-Jul-10 |
|                    |              |  | <b>Date tested:</b>    | 16-Jul-10 |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 16-Jul-10 |
|                    | 10-126       |  | <b>Matrix:</b>         | water     |
| Report of Analysis |              |  |                        |           |
| Sample             | Oil & Grease |  |                        |           |
|                    | mg/L         |  |                        |           |
| 10-24774           | 7.3          |  |                        |           |
| Blank              | <2.0         |  |                        |           |
| Control            | 14.9         |  |                        |           |
| Control Target     | 15.9         |  |                        |           |

|                    |              |  |                        |           |
|--------------------|--------------|--|------------------------|-----------|
| <b>ASU #</b>       | 12931        |  | <b>Report ID:</b>      | Cam-5 W18 |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 22-Jul-10 |
|                    |              |  | <b>Date tested:</b>    | 23-Jul-10 |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 23-Jul-10 |
|                    | 10-147       |  | <b>Matrix:</b>         | water     |
|                    |              |  |                        |           |
| Report of Analysis |              |  |                        |           |
|                    |              |  |                        |           |
| Sample             | Oil & Grease |  |                        |           |
|                    | mg/L         |  |                        |           |
|                    |              |  |                        |           |
| 10-25384           | <2.0         |  |                        |           |
|                    |              |  |                        |           |
| Blank              | <2.0         |  |                        |           |
|                    |              |  |                        |           |
| Control            | 14.0         |  |                        |           |
| Control Target     | 15.9         |  |                        |           |

|                    |              |  |                        |           |
|--------------------|--------------|--|------------------------|-----------|
| <b>ASU #</b>       | 12941        |  | <b>Report ID:</b>      | Cam-5 W19 |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 26-Jul-10 |
|                    |              |  | <b>Date tested:</b>    | 26-Jul-10 |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 27-Jul-10 |
|                    | 10-166       |  | <b>Matrix:</b>         | water     |
|                    |              |  |                        |           |
| Report of Analysis |              |  |                        |           |
|                    |              |  |                        |           |
| Sample             | Oil & Grease |  |                        |           |
|                    | mg/L         |  |                        |           |
|                    |              |  |                        |           |
| 10-27382           | 2.5          |  |                        |           |
|                    |              |  |                        |           |
| Blank              | <2.0         |  |                        |           |
|                    |              |  |                        |           |
| Control            | 13.1         |  |                        |           |
| Control Target     | 15.9         |  |                        |           |
|                    |              |  |                        |           |

|   |                 |        |                        |           |        |        |        |        |
|---|-----------------|--------|------------------------|-----------|--------|--------|--------|--------|
| <b>ASU #</b>                            | 12941           |        | <b>Report ID:</b>      | Cam-5 W20 |        |        |        |        |
| <b>Client:</b>                          | ESG             |        | <b>Date Submitted:</b> | 26-Jul-10 |        |        |        |        |
|   |                 |        | <b>Date tested:</b>    | 27-Jul-10 |        |        |        |        |
| <b>Site:</b>                            | Cam-5           |        | <b>Date:</b>           | 27-Jul-10 |        |        |        |        |
|   | 10-166          |        | <b>Matrix:</b>         | Water     |        |        |        |        |
| Report of Analysis                      |                 |        |                        |           |        |        |        |        |
| <b>Total Metals</b>                     | Results in mg/L |        |                        |           |        |        |        |        |
| SAMPLE                                  | Cu              | Ni     | Co                     | Cd        | Pb     | Zn     | Cr     | As     |
| 10-27382                                | -               | -      | -                      | -         | -      | <0.010 | <0.005 | <0.003 |
| Blank                                   | -               | -      | -                      | -         | -      | <0.010 | <0.005 | <0.003 |
| Control                                 | -               | -      | -                      | -         | -      | 2.95   | 0.82   | 0.76   |
| Control Target                          | -               | -      | -                      | -         | -      | 3.00   | 0.80   | 0.80   |
|   |                 |        |                        |           |        |        |        |        |
| <b>Dissolved Metals</b>                 | Results in mg/L |        |                        |           |        |        |        |        |
| SAMPLE                                  | Cu              | Ni     | Co                     | Cd        | Pb     | Zn     | Cr     | As     |
| 10-27382                                | 0.006           | <0.005 | <0.003                 | <0.001    | <0.010 | -      | -      | -      |
| Blank                                   | <0.005          | <0.005 | <0.003                 | <0.001    | <0.010 | -      | -      | -      |
| Control                                 | 1.54            | 1.62   | 1.62                   | 0.80      | 8.12   | -      | -      | -      |
| Control Target                          | 1.60            | 1.60   | 1.60                   | 0.80      | 8.00   | -      | -      | -      |
| Results relate only to the items tested |                 |        |                        |           |        |        |        |        |

|                                  |  |  |  |  |                   |           |
|----------------------------------|--|--|--|--|-------------------|-----------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No:     | 20812     |
| 12 Verite Ave                    |  |  |  |  | Site:             | Cam-5     |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No:        | 10-166    |
| 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 021   |
| Fax: (613) 541-6596              |  |  |  |  | Date Reported:    | 28-Jul-10 |
|                                  |  |  |  |  | Sheet:            | 1 of 1    |

## RESULTS OF MERCURY ANALYSIS

| Sample ID | Mercury mg/L |
|-----------|--------------|
| 27382*    | < 0.0004     |

^ Acid digestion performed.

# Reported at 0.0004 mg/L detection limit.

## LABORATORY QA/QC

| Sample ID          | Mercury mg/L        |
|--------------------|---------------------|
| Duplicate ; 27382* | < 0.0004 ; < 0.0004 |
| Blank              | < 0.0004            |
| Control Target     | 0.0040              |
| Control Sample     | 0.0041              |

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

## RESULTS OF PCB IN WATER ANALYSIS

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

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

|                                  |  |
|----------------------------------|--|
| 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              |  |

## RESULTS OF pH ANALYSIS

\* Averaged result of duplicates

| Sample I.D.        | pH          |
|--------------------|-------------|
| 27382* ; Duplicate | 7.15 ; 7.15 |
| Control            | 7.01        |
| Control Target     | 7.00        |

|                         |                 |        |                        |           |        |        |        |        |
|-------------------------|-----------------|--------|------------------------|-----------|--------|--------|--------|--------|
| <b>ASU #</b>            | 12965           |        | <b>Report ID:</b>      | Cam-5 W21 |        |        |        |        |
| <b>Client:</b>          | ESG             |        | <b>Date Submitted:</b> | 29-Jul-10 |        |        |        |        |
|                         |                 |        | <b>Date tested:</b>    | 31-Jul-10 |        |        |        |        |
| <b>Site:</b>            | Cam-5           |        | <b>Date:</b>           | 1-Aug-10  |        |        |        |        |
|                         | 10-183          |        | <b>Matrix:</b>         | Water     |        |        |        |        |
| Report of Analysis      |                 |        |                        |           |        |        |        |        |
| <b>Total Metals</b>     | Results in mg/L |        |                        |           |        |        |        |        |
| SAMPLE                  | Cu              | Ni     | Co                     | Cd        | Pb     | Zn     | Cr     | As     |
| 10-27512                | -               | -      | -                      | -         | -      | 0.200  | <0.005 | <0.003 |
| Blank                   | -               | -      | -                      | -         | -      | <0.010 | <0.005 | <0.003 |
| Control                 | -               | -      | -                      | -         | -      | 2.82   | 0.76   | 0.73   |
| Control Target          | -               | -      | -                      | -         | -      | 3.00   | 0.80   | 0.80   |
| 10-27512                | -               | -      | -                      | -         | -      | 0.203  | <0.005 | <0.003 |
| 10-27512                | -               | -      | -                      | -         | -      | 0.196  | <0.005 | <0.003 |
| <b>Dissolved Metals</b> | Results in mg/L |        |                        |           |        |        |        |        |
| SAMPLE                  | Cu              | Ni     | Co                     | Cd        | Pb     | Zn     | Cr     | As     |
| 10-27512                | <0.005          | <0.005 | <0.003                 | <0.001    | <0.010 | -      | -      | -      |
| Blank                   | <0.005          | <0.005 | <0.003                 | <0.001    | <0.010 | -      | -      | -      |
| Control                 | 1.45            | 1.56   | 1.59                   | 0.75      | 7.53   | -      | -      | -      |
| Control Target          | 1.60            | 1.60   | 1.60                   | 0.80      | 8.00   | -      | -      | -      |
| 10-27512                | <0.005          | <0.005 | <0.003                 | <0.001    | <0.010 | -      | -      | -      |
| 10-27512                | <0.005          | <0.005 | <0.003                 | <0.001    | <0.010 | -      | -      | -      |

|                                  |  |  |  |  |  |                   |           |
|----------------------------------|--|--|--|--|--|-------------------|-----------|
| <b>ESG</b>                       |  |  |  |  |  | ASG Login No:     | 20837     |
| 12 Verite Ave                    |  |  |  |  |  | Site:             | Cam-5     |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  |  | Client No:        | 10-183    |
| P.O. Box 17000, Stn. Forces      |  |  |  |  |  | Samples Received: | 29-Jul-10 |
| Kingston, Ontario K7K 7B4        |  |  |  |  |  | Date of analysis: | 30-Jul-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^<br>mg/L |
|-----------|------------------|
| 27512*    | < 0.0004         |

## LABORATORY QA/QC

| Sample ID          | Mercury^<br>mg/L    |
|--------------------|---------------------|
| Duplicate ; 27512* | < 0.0004 ; < 0.0004 |
| Blank              | < 0.0004            |
| Control Target     | 0.0040              |
| Control Sample     | 0.0037              |

|                                  |  |  |
|----------------------------------|--|--|
| 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:     | 20837     |
| Site:             | Cam-5     |
| Client No:        | 10-183    |
| mples Received:   | 29-Jul-10 |
| Date of analysis: | 3-Aug-10  |
| Method No:        | ASG 015   |
| Date Reported:    | 4-Aug-10  |
| Sheet No:         | 1 of 1    |

| Sample Type ** | Sample I.D. | Unit | Aroclor 1254 | Aroclor 1260 |
|----------------|-------------|------|--------------|--------------|
| W              | 27512*      | mg/L | < 0.003      | < 0.003      |
|                |             |      |              |              |

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

|  |                       |      |                   |                   |
|--|-----------------------|------|-------------------|-------------------|
|  | Blank                 | mg/L | < 0.003           | < 0.003           |
|  | Duplicate ; 27512*    | 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>       | 12965        |  | <b>Report ID:</b>      | Cam-5 W22 |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 29-Jul-10 |
|                    |              |  | <b>Date tested:</b>    | 30-Jul-10 |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 30-Jul-10 |
|                    | 10-183       |  | <b>Matrix:</b>         | water     |
|                    |              |  |                        |           |
| Report of Analysis |              |  |                        |           |
|                    |              |  |                        |           |
| Sample             | Oil & Grease |  |                        |           |
|                    | mg/L         |  |                        |           |
|                    |              |  |                        |           |
| 10-27512           | 28.5         |  |                        |           |
|                    |              |  |                        |           |
| Blank              | <2.0         |  |                        |           |
|                    |              |  |                        |           |
| Control            | 14.1         |  |                        |           |
| Control Target     | 15.9         |  |                        |           |
|                    |              |  |                        |           |

|                                  |  |  |  |  |                             |
|----------------------------------|--|--|--|--|-----------------------------|
| ESG                              |  |  |  |  | ASG Login No: 20837         |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No: 10-183           |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 29-Jul-10 |
| Kingston, Ontario K7K 7B4        |  |  |  |  | Date of analysis: 30-Jul-10 |
| (613) 541-6000 ext 6567          |  |  |  |  | Method No: ASG 037          |
| Fax: (613) 541-6596              |  |  |  |  | Date Reported: 30-Jul-10    |
|                                  |  |  |  |  | Page: 1 of 1                |

### RESULTS OF pH ANALYSIS

| Sample I.D. | pH   |
|-------------|------|
| 27512*      | 6.66 |
|             |      |

\* Averaged result of duplicates

### LABORATORY QA/QC

| Sample I.D.        | pH          |
|--------------------|-------------|
| 27512* ; Duplicate | 6.66 ; 6.66 |
| Control            | 7.00        |
| Control Target     | 7.00        |



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Tamara VanDyck  
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DGME  
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Tuesday, March 1, 2011

**RE: August 2010 Monthly Report for Water Use License Number: 1BR-MAC0712**

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 CAM-5 (*Macker Inlet*).

1. CAMP SEWAGE LAGOON

A sewage lagoon was constructed by Biogenie to service the CAM-5 construction camp in June of 2008. The sewage lagoon is located approximately 100 m east of the contractor's camp, 100 m away from drainage channels and more than 450 m from water bodies supporting aquatic life. The GPS coordinates that are required by the Water Use License for the sewage lagoon location are 16W 0551963E 7581586N.

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. Five sewage effluent samples were collected in August 2010 from Cell 2 of the CAM-5 sewage lagoon. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

**LOCATION: SEWAGE LAGOON – NORTH EASTERN CORNER OF SEWAGE LAGOON CELL#2**

**GPS COORDINATES: 0551958E 7581581N**

**SAMPLE: 10-27804**

**DATE: AUGUST 5, 2010**

| <b>Parameter</b>                    | <b>Allowable Maximum Average Concentration</b> | <b>Units</b> | <b>Sample # 10-27804</b> |
|-------------------------------------|--|--------------|--------------------------|
| <b>pH</b>                           | 6.0 to 9.0                                     | pH units     | 8.84                     |
| <b>Oil &amp; Grease</b>             | None Visible                                   | -            | None Visible             |
| <b>Total Suspended Solids (TSS)</b> | 180  | mg/L         | <b>280</b>               |
| <b>BOD</b>                          | 120  | mg/L         | 75                       |
| <b>Faecal Coliforms</b>             | 10,000   | CFU/dL       | N/A                      |
| <b>Total Coliforms</b>              | -  | CFU/ 100 mL  | N/A                      |

*Sample 10-27804 was not analyzed for faecal or total coliforms as the sample did not reach the laboratory within the required time frame.*

**LOCATION: SEWAGE LAGOON – NORTH EASTERN CORNER OF SEWAGE LAGOON CELL#2**

**GPS COORDINATES: 0551958E 7581581N**

**SAMPLE: 10-27809**

**DATE: AUGUST 11, 2010**

| <b>Parameter</b>                    | <b>Allowable Maximum Average Concentration</b> | <b>Units</b> | <b>Sample # 10-27809</b> |
|-------------------------------------|--|--------------|--------------------------|
| <b>pH</b>                           | 6.0 to 9.0                                     | pH units     | N/A                      |
| <b>Oil &amp; Grease</b>             | None Visible                                   | -            | None Visible             |
| <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       | 100                      |
| <b>Total Coliforms</b>              | -  | CFU/ 100 mL  | 90                       |

*Sample 10-27809 was analyzed for faecal or total coliforms only as sample 10-27804 was not analyzed for these parameters.*



**Photo 1 (IMG 1409) Sample 10-27804 /09:** Wide angle of sewage sample collected from the northeast corner of sewage lagoon cell 2.

**LOCATION: SEWAGE LAGOON – NORTH EASTERN CORNER OF SEWAGE LAGOON  
CELL#2**

**GPS COORDINATES: 0551958E 7581581N**

**SAMPLE: 10-28114**

**DATE: AUGUST 13, 2010**

| Parameter                       | Allowable<br>Maximum<br>Average<br>Concentration | Units          | Sample #<br>10-28114 |
|---------------------------------|--|----------------|----------------------|
| pH                              | 6.0 to 9.0                                       | pH units       | N/A                  |
| Oil & Grease                    | None Visible                                     | -              | None Visible         |
| Total Suspended Solids<br>(TSS) | 180  | mg/L           | <b>230</b>           |
| BOD                             | 120  | mg/L           | N/A                  |
| Faecal Coliforms                | 10,000   | CFU/dL         | N/A                  |
| Total Coliforms                 | -  | CFU/ 100<br>mL | N/A                  |



**Photo 2 (IMG 1436) Sample 10-28814:** Wide angle of sewage sample collected from the south side of sewage lagoon cell 2.

**LOCATION: SEWAGE LAGOON – SOUTH EASTERN CORNER OF SEWAGE LAGOON  
CELL#2**

**GPS COORDINATES: 0552018 E 7581602 N**

**SAMPLE: 10-28296**

**DATE: AUGUST 22, 2010**

| Parameter                       | Allowable<br>Maximum<br>Average<br>Concentration | Units          | Sample #<br>10-28296 |
|---------------------------------|--|----------------|----------------------|
| pH                              | 6.0 to 9.0                                       | pH units       | N/A                  |
| Oil & Grease                    | None Visible                                     | -              | None Visible         |
| Total Suspended Solids<br>(TSS) | 180  | mg/L           | <b>190</b>           |
| BOD                             | 120  | mg/L           | N/A                  |
| Faecal Coliforms                | 10,000   | CFU/dL         | N/A                  |
| Total Coliforms                 | -  | CFU/ 100<br>mL | N/A                  |



**Photo 3 (DSC01516) Sample 10-28296:** Wide angle of sample collection from Sewage Lagoon Cell #2 facing east.

*Although the above sample did not comply with SDC for TSS, the waste water from the Sewage Lagoon was discharged to the ground on August 25, 2010 as part of the site closure. The water was discharged to an INAC approved location (0552018 E 7581602 N).*

**LOCATION: SEWAGE LAGOON CELL #2 – DISCHARGE EFFLUENT**

**GPS COORDINATES: 0552018 E 7581602 N**

**SAMPLE: 10-28363**

**DATE: AUGUST 25, 2010**

| Parameter                       | Allowable<br>Maximum<br>Average<br>Concentration | Units          | Sample #<br>10-28363 |
|---------------------------------|--|----------------|----------------------|
| pH                              | 6.0 to 9.0                                       | pH units       | N/A                  |
| Oil & Grease                    | None Visible                                     | -              | None Visible         |
| Total Suspended Solids<br>(TSS) | 180  | mg/L           | <b>240</b>           |
| BOD                             | 120  | mg/L           | N/A                  |
| Faecal Coliforms                | 10,000   | CFU/dL         | N/A                  |
| Total Coliforms                 | -  | CFU/ 100<br>mL | N/A                  |



**Photo 4 (DSC01549) Sample 10-28363 Cam-5:** Sample collection from sewage discharge from Sewage Lagoon Cell #2, facing northwest.

*Sample 10-28363 was collected by ESG for record keeping purposes only to document the conditions of the discharged effluent to the tundra on August 25th.*

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". The signature is fluid and cursive, with a large initial "C" and a small dot at the end.

Candice Casucci  
Environmental Sciences Group

cc: Eva Schulz (UMA)  
Daniela Loock, Kat White, Shari Reed, Dean Morrow, Ian Goode (ESG)

## APPENDIX A LABORATORY RESULTS

|                                  |                             |
|----------------------------------|-----------------------------|
| <b>ESG</b>                       | ASG Login No: 20892         |
| 12 Verite Ave                    | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC | Client Login No: 10-232     |
| P.O. Box 17000, Stn. Forces      | Samples Received: 9-Aug-10  |
| Kingston, Ontario K7K 7B4        | Date of analysis: 11-Aug-10 |
| (613) 541-6000 ext 6567          | Method No: ASG 042          |
| Fax: (613) 541-6596              | Date Reported: 16-Aug-10    |
|                                  | Page: 1 of 1                |

### RESULTS OF BOD ANALYSIS

| Sample I.D. | Unit | BOD |
|-------------|------|-----|
| 27804*      | mg/L | 75  |
|             |      |     |

\*Averaged result of duplicates

### LABORATORY QA/QC

| Sample I.D.        | Unit | BOD     |
|--------------------|------|---------|
| Duplicate ; 27804* | mg/L | 75 ; 75 |
| Blank              | mg/L | < 3     |
| Control            | mg/L | 159     |
| Control Target     | mg/L | 165     |

|                                  |                             |
|----------------------------------|-----------------------------|
| ESG                              | ASG Login No: 20892         |
| 12 Verite Ave                    | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC | Client Login No: 10-232     |
| P.O. Box 17000, Stn. Forces      | Samples Received: 9-Aug-10  |
| Kingston, Ontario K7K 7B4        | Date of analysis: 11-Aug-10 |
| (613) 541-6000 ext 6567          | Method No: ASG 039          |
| Fax: (613) 541-6596              | Date Reported: 12-Aug-10    |
|                                  | Sheet: 1 of 1               |

### RESULTS OF TOTAL SUSPENDED SOLIDS ANALYSIS

| Sample I.D. | Sample Type^ | Unit | Total Suspended Solids |
|-------------|--------------|------|------------------------|
| 27804*      | SE           | mg/L | 280                    |
|             |              |      |                        |

### LABORATORY QA/QC

|                    |         |      |           |
|--------------------|---------|------|-----------|
| Duplicate ; 27804* | SE ; SE | mg/L | 290 ; 280 |
| 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                              | ASG Login No: 20892         |
| 12 Verite Ave                    | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC | Client No: 10-232           |
| P.O. Box 17000, Stn. Forces      | Samples Received: 9-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   |
|-------------|------|
| 27804       | 8.84 |

### LABORATORY QA/QC

| Sample I.D.    | pH   |
|----------------|------|
| Control        | 7.02 |
| Control Target | 7.00 |

|                                  |                             |
|----------------------------------|-----------------------------|
| ESG                              | ASG Login No: 20911         |
| 12 Verite Ave                    | Site: CAM-5                 |
| Dept. of Chem. / Chem. Eng., RMC | Client No: 10-264           |
| P.O. Box 17000, Stn. Forces      | Samples Received: 12-Aug-10 |
| Kingston, Ontario K7K 7B4        | Date of analysis: 12-Aug-10 |
| (613) 541-6000 ext 6567          | Date Reported: 14-Aug-10    |
| Fax: (613) 541-6596              | Sheet: 1 of 1               |

### RESULTS OF MICROBIOLOGICAL ANALYSIS

| Sample Identification | Method: ASG 036<br>Total Coliforms<br>(CFU/100 mL) | Method: ASG 036<br>E. coli<br>(CFU/100 mL) | Method: ASG 036<br>Background<br>(CFU/100 mL) | Method: ASG 044<br>Fecal Coliforms<br>(CFU/100 mL) |
|-----------------------|--|--|---|--|
| 27809                 | 90   | 20   | > 200 000                                     | 100  |

### LABORATORY QA/QC

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

|                   |           |
|-------------------|-----------|
| ASG Login No:     | 20944     |
| Site:             | Cam-5     |
| Client Login No:  | 10-285    |
| Samples Received: | 20-Aug-10 |
| Date of analysis: | 23-Aug-10 |
| Method No:        | ASG 039   |
| Date Reported:    | 23-Aug-10 |
| Sheet:            | Jan-00    |

| Sample I.D. | Sample Type^ | Unit | Total Suspended Solids |
|-------------|--------------|------|------------------------|
| 27797*      | SE           | mg/L | 320                    |
| 28114       | SE           | mg/L | 230                    |

|                    |         |      |           |
|--------------------|---------|------|-----------|
| Duplicate ; 27797* | SE ; SE | mg/L | 310 ; 330 |
| Control            | Control | mg/L | 180       |
| Control Target     | Control | mg/L | 200       |
| Blank              | Control | mg/L | < 1       |

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

|                   |           |
|-------------------|-----------|
| ASG Login No:     | 20962     |
| Site:             | Cam-5     |
| Client Login No:  | 10-321    |
| Samples Received: | 24-Aug-10 |
| Date of analysis: | 25-Aug-10 |
| Method No:        | ASG 039   |
| Date Reported:    | 27-Aug-10 |
| Sheet:            | 1 of 1    |

| Sample I.D. | Sample Type^ | Unit | Total Suspended Solids |
|-------------|--------------|------|------------------------|
| 28296*      | SE           | mg/L | 190                    |

|                    |         |      |           |
|--------------------|---------|------|-----------|
| Duplicate ; 28296* | SE ; SE | mg/L | 180 ; 190 |
| Control            | Control | mg/L | 190       |
| Control Target     | Control | mg/L | 200       |
| Blank              | Control | mg/L | < 1       |

|                                  |                             |
|----------------------------------|-----------------------------|
| ESG                              | ASG Login No: 20973         |
| 12 Verite Ave                    | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC | Client Login No: 10-337     |
| P.O. Box 17000, Stn. Forces      | Samples Received: 27-Aug-10 |
| Kingston, Ontario K7K 7B4        | Date of analysis: 30-Aug-10 |
| (613) 541-6000 ext 6567          | Method No: ASG 039          |
| Fax: (613) 541-6596              | Date Reported: 30-Aug-10    |
|                                  | Sheet: 1 of 1               |

### RESULTS OF TOTAL SUSPENDED SOLIDS ANALYSIS

| Sample I.D. | Sample Type ^ | Unit | Total Suspended Solids |
|-------------|---------------|------|------------------------|
| 10-28363*   | SE            | mg/L | 240                    |

### LABORATORY QA/QC

|                       |         |      |           |
|-----------------------|---------|------|-----------|
| Duplicate ; 10-28363* | SE ; SE | mg/L | 240 ; 240 |
| Control               | Control | mg/L | 190       |
| Control Target        | Control | mg/L | 200       |
| Blank                 | Control | mg/L | < 1       |

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Tamara VanDyck  
Environmental Officer  
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DGME  
101 Colonel By Drive  
Ottawa ON K1A 0K2

Tuesday, March 1, 2011

**RE: Analytical Results for Wastewater Samples Collected at CAM-5 in August, 2010**

The following report summarizes results of the analysis of wastewater samples as per the CAM-5 (Mackar Inlet) DEW Line Cleanup Project (DLCU) Specifications.

The CAM-5 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     |
| Total 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)     | 0.6                             | µg/L     |
| Dissolved nickel (Ni)  | 0.200                           | mg/L     |
| Total zinc (Zn)        | 1.000                           | mg/L     |
| Oil & grease           | 5 mg/L and None visible         | mg/L     |
| PCBs                   | 0.050*<br>0.005**               | mg/L     |
| Phenols                | 0.020                           | mg/L     |

\*Discharge to barren land, \*\*Discharge to vegetated land

*Phenols*

The wastewater samples collected by ESG at CAM-5 in August, 2010 were not analyzed for phenols but they were analyzed for oil and grease. Research conducted by ESG<sup>1</sup> has

---

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

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 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 CAM-5 and analyzed in August 2010. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

**LOCATION: TANK 2 AT HAZARDOUS WASTE PROCESSING AREA (HWP) –**  
**SAMPLE COLLECTED FROM OPENING AT TOP OF THE TANK**  
**GPS COORDINATES: 0552923E 7581810N**  
**SAMPLE: 10-27725**  
**DATE: AUGUST 3, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample #<br>10-27725          |
|-------------------|---------------------------------|----------|-------------------------------|
| pH                | 6-9                             | pH units | N/A                           |
| Total Arsenic     | 0.100                           | mg/L     | N/A                           |
| Dissolved Cadmium | 0.010                           | mg/L     | N/A                           |
| Total Chromium    | 0.100                           | mg/L     | N/A                           |
| Dissolved Cobalt  | 0.050                           | mg/L     | N/A                           |
| Dissolved Copper  | 0.200                           | mg/L     | N/A                           |
| Dissolved Lead    | 0.050                           | mg/L     | N/A                           |
| Total Mercury     | 0.6                             | µg/L     | <0.0004                       |
| Dissolved Nickel  | 0.200                           | mg/L     | N/A                           |
| Total Zinc        | 1.0                             | mg/L     | N/A                           |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible /<br><b>16.0</b> |
| PCBs              | 50*<br>5**                      | µg/L     | <0.003                        |
| Phenols           | 20                              | µg/L     | N/A                           |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 1 (DSC01366) Sample 10-27725 Cam-5: Sampling of Tank 2 at the Hazardous Waste Processing Area, facing northwest.**

*Waste water sample 10-27725 did not comply with Oil and Grease criterion and therefore was not discharged to land. Additional treatment was required.*

**LOCATION: TANK 2 AT HAZARDOUS WASTE PROCESSING AREA (HWP) –**

**SAMPLE COLLECTED FROM OPENING AT TOP OF THE TANK**

**GPS COORDINATES: 0552923E 7581810N**

**SAMPLE: 10-27805**

**DATE: AUGUST 5, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample #<br>10-27805          |
|-------------------|---------------------------------|----------|-------------------------------|
| pH                | 6-9                             | pH units | N/A                           |
| Total Arsenic     | 0.100                           | mg/L     | N/A                           |
| Dissolved Cadmium | 0.010                           | mg/L     | N/A                           |
| Total Chromium    | 0.100                           | mg/L     | N/A                           |
| Dissolved Cobalt  | 0.050                           | mg/L     | N/A                           |
| Dissolved Copper  | 0.200                           | mg/L     | N/A                           |
| Dissolved Lead    | 0.050                           | mg/L     | N/A                           |
| Total Mercury     | 0.6                             | µg/L     | N/A                           |
| Dissolved Nickel  | 0.200                           | mg/L     | N/A                           |
| Total Zinc        | 1.0                             | mg/L     | N/A                           |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible /<br><b>20.4</b> |
| PCBs              | 50*<br>5**                      | µg/L     | N/A                           |
| Phenols           | 20                              | µg/L     | N/A                           |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 2 (DSC01408) Sample 10-27805 Cam-5: Sampling of Tank 2 at the Hazardous Waste Processing Area, facing northwest**

*Waste water sample 10-27805 did not comply with Oil and Grease criterion and therefore was not discharged to land. Additional treatment was required.*

**LOCATION: TANK 2 AT HAZARDOUS WASTE PROCESSING AREA (HWP) –**

**SAMPLE COLLECTED FROM OPENING AT TOP OF THE TANK**

**GPS COORDINATES: 0552923E 7581810N**

**SAMPLE: 10-28115**

**DATE: AUGUST 13, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample #<br>10-28115          |
|-------------------|---------------------------------|----------|-------------------------------|
| pH                | 6-9                             | pH units | N/A                           |
| Total Arsenic     | 0.100                           | mg/L     | N/A                           |
| Dissolved Cadmium | 0.010                           | mg/L     | N/A                           |
| Total Chromium    | 0.100                           | mg/L     | N/A                           |
| Dissolved Cobalt  | 0.050                           | mg/L     | N/A                           |
| Dissolved Copper  | 0.200                           | mg/L     | N/A                           |
| Dissolved Lead    | 0.050                           | mg/L     | N/A                           |
| Total Mercury     | 0.6                             | µg/L     | N/A                           |
| Dissolved Nickel  | 0.200                           | mg/L     | N/A                           |
| Total Zinc        | 1.0                             | mg/L     | N/A                           |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible /<br><b>12.2</b> |
| PCBs              | 50*<br>5**                      | µg/L     | N/A                           |
| Phenols           | 20                              | µg/L     | N/A                           |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 3 (DSC01437) Sample 10-28115: Sampling of Tank 2 at the Hazardous Waste Processing Area, facing northwest.**



Waste water sample 10-28115 did not comply with Oil and Grease criterion and therefore was not discharged to land. Additional treatment was required.

**LOCATION: TANK 2 AT HAZARDOUS WASTE PROCESSING AREA (HWP) –**

**SAMPLE COLLECTED FROM OPENING AT TOP OF THE TANK**

**GPS COORDINATES: 0552923E 7581810N**

**SAMPLE: 10-28164**

**DATE: AUGUST 18, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample #<br>10-28164         |
|-------------------|---------------------------------|----------|------------------------------|
| pH                | 6-9                             | pH units | N/A                          |
| Total Arsenic     | 0.100                           | mg/L     | N/A                          |
| Dissolved Cadmium | 0.010                           | mg/L     | N/A                          |
| Total Chromium    | 0.100                           | mg/L     | N/A                          |
| Dissolved Cobalt  | 0.050                           | mg/L     | N/A                          |
| Dissolved Copper  | 0.200                           | mg/L     | N/A                          |
| Dissolved Lead    | 0.050                           | mg/L     | N/A                          |
| Total Mercury     | 0.6                             | µg/L     | N/A                          |
| Dissolved Nickel  | 0.200                           | mg/L     | N/A                          |
| Total Zinc        | 1.0                             | mg/L     | N/A                          |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible /<br><b>6.3</b> |
| PCBs              | 50*<br>5**                      | µg/L     | N/A                          |
| Phenols           | 20                              | µg/L     | N/A                          |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 4 (DSC01467) Sample 10-28164: Sampling of Tank 2 at the Hazardous Waste Processing Area, facing northwest.**

*Waste water sample 10-28164 did not comply with Oil and Grease criterion and therefore was not discharged to land. Additional treatment was required.*

**LOCATION: TANK 2 AT HAZARDOUS WASTE PROCESSING AREA (HWP) –**

**SAMPLE COLLECTED FROM OPENING AT TOP OF THE TANK**

**GPS COORDINATES: 0552923E 7581810N**

**SAMPLE: 10-28323**

**DATE: AUGUST 23, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample # 10-28323  |
|-------------------|---------------------------------|----------|--------------------|
| pH                | 6-9                             | pH units | N/A                |
| Total Arsenic     | 0.100                           | mg/L     | N/A                |
| Dissolved Cadmium | 0.010                           | mg/L     | N/A                |
| Total Chromium    | 0.100                           | mg/L     | N/A                |
| Dissolved Cobalt  | 0.050                           | mg/L     | N/A                |
| Dissolved Copper  | 0.200                           | mg/L     | N/A                |
| Dissolved Lead    | 0.050                           | mg/L     | N/A                |
| Total Mercury     | 0.6                             | µg/L     | N/A                |
| Dissolved Nickel  | 0.200                           | mg/L     | N/A                |
| Total Zinc        | 1.0                             | mg/L     | N/A                |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible / 4.8 |
| PCBs              | 50*<br>5**                      | µg/L     | N/A                |
| Phenols           | 20                              | µg/L     | N/A                |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 5 (DSC01518) Sample 10-28323: Wastewater sample collection from Tank 2 at the HWP, facing east.**

*Waste water sample 10-28323 was below the criterion for Oil and Grease and Tank 2 was discharged on Aug 26<sup>th</sup> to an INAC approved location. (0552879 E 7581784 N)*

**LOCATION: TANK 2 AT HAZARDOUS WASTE PROCESSING AREA (HWP) –**

**SAMPLE COLLECTED FROM OPENING AT TOP OF THE TANK**

GPS COORDINATES: 0552923E 7581810N

**SAMPLE: 10-28204**

**DATE: AUGUST 28, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample # 10-28204  |
|-------------------|---------------------------------|----------|--------------------|
| pH                | 6-9                             | pH units | N/A                |
| Total Arsenic     | 0.100                           | mg/L     | <0.003             |
| Dissolved Cadmium | 0.010                           | mg/L     | <0.001             |
| Total Chromium    | 0.100                           | mg/L     | <0.005             |
| Dissolved Cobalt  | 0.050                           | mg/L     | <0.003             |
| Dissolved Copper  | 0.200                           | mg/L     | 0.007              |
| Dissolved Lead    | 0.050                           | mg/L     | <0.010             |
| Total Mercury     | 0.6                             | µg/L     | <0.0004            |
| Dissolved Nickel  | 0.200                           | mg/L     | <0.005             |
| Total Zinc        | 1.0                             | mg/L     | 0.053              |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible / 135 |
| PCBs              | 50*<br>5**                      | µg/L     | <0.003             |
| Phenols           | 20                              | µg/L     | N/A                |

\*Discharge to barren land, \*\*Discharge to vegetated land

*Water from Tank 2 Hazardous Waster Processing Area was above criteria for Oil and Grease therefore it was not discharged to land. Additional treatment was required.*

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, Shari Reed, Dean Morrow, Ian Goode (ESG)

# APPENDIX A LABORATORY RESULTS

|                    |              |  |                        |           |
|--------------------|--------------|--|------------------------|-----------|
| <b>ASU #</b>       | 12998        |  | <b>Report ID:</b>      | Cam-5 W25 |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 4-Aug-10  |
|                    |              |  | <b>Date tested:</b>    | 4-Aug-10  |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 5-Aug-10  |
|                    | 10-213       |  | <b>Matrix:</b>         | water     |
| Report of Analysis |              |  |                        |           |
| Sample             | Oil & Grease |  |                        |           |
|                    | mg/L         |  |                        |           |
| 10-27725           | 16.0         |  |                        |           |
| Blank              | <2.0         |  |                        |           |
| Control            | 14.9         |  |                        |           |
| Control Target     | 15.9         |  |                        |           |

|                                  |  |  |  |  |                            |
|----------------------------------|--|--|--|--|----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 20867        |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No: 10-213          |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 4-Aug-10 |
| Kingston, Ontario K7K 7B4        |  |  |  |  | Date of analysis: 4-Aug-10 |
| (613) 541-6000 ext 6567          |  |  |  |  | Method No: ASG 015         |
| Fax: (613) 541-6596              |  |  |  |  | Date Reported: 5-Aug-10    |
|                                  |  |  |  |  | Sheet No: 1 of 1           |

## **RESULTS OF PCB IN WATER ANALYSIS**

| Sample Type ** | Sample I.D. | Unit | Aroclor 1254 | Aroclor 1260 |
|----------------|-------------|------|--------------|--------------|
| W              | 27725       | 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 | 0.012   |
| Control Sample Target | mg/L | < 0.003 | 0.015   |

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

## RESULTS OF MERCURY IN WATER ANALYSIS

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

| Sample ID      | Mercury^<br>mg/L |
|----------------|------------------|
| Blank          | < 0.0004         |
| Control Target | 0.0040           |
| Control Sample | 0.0040           |

|                    |              |  |                        |           |
|--------------------|--------------|--|------------------------|-----------|
| <b>ASU #</b>       | 13015        |  | <b>Report ID:</b>      | Cam-5 W26 |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 9-Aug-10  |
|                    |              |  | <b>Date tested:</b>    | 11-Aug-10 |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 13-Aug-10 |
|                    | 10-232       |  | <b>Matrix:</b>         | water     |
|                    |              |  |                        |           |
| Report of Analysis |              |  |                        |           |
|                    |              |  |                        |           |
| Sample             | Oil & Grease |  |                        |           |
|                    | mg/L         |  |                        |           |
|                    |              |  |                        |           |
| 10-27805           | 20.4         |  |                        |           |
|                    |              |  |                        |           |
| Blank              | <2.0         |  |                        |           |
|                    |              |  |                        |           |
| Control            | 12.8         |  |                        |           |
| Control Target     | 15.9         |  |                        |           |
|                    |              |  |                        |           |

|                       |              |  |                        |                 |  |
|-----------------------|--------------|--|------------------------|-----------------|--|
| <b>ASU #</b>          | 13083        |  | <b>Report ID:</b>      | Cam-5 W28-amend |  |
| <b>Client:</b>        | ESG          |  | <b>Date Submitted:</b> | 19-Aug-10       |  |
|                       |              |  | <b>Date tested:</b>    | 19-Aug-10       |  |
| <b>Site:</b>          | Cam-5        |  | <b>Date:</b>           | 19-Aug-10       |  |
|                       | 10-285       |  | <b>Matrix:</b>         | water           |  |
| <b>AMENDED REPORT</b> |              |  |                        |                 |  |
| Report of Analysis    |              |  |                        |                 |  |
|                       |              |  |                        |                 |  |
| Sample                | Oil & Grease |  |                        |                 |  |
|                       | mg/L         |  |                        |                 |  |
|                       |              |  |                        |                 |  |
| 10-28115              | 12.2         |  |                        |                 |  |
|                       |              |  |                        |                 |  |
| Blank                 | <2.0         |  |                        |                 |  |
|                       |              |  |                        |                 |  |
| Control               | 15.4         |  |                        |                 |  |
| Control Target        | 15.9         |  |                        |                 |  |
|                       |              |  |                        |                 |  |

|                    |              |  |                        |           |  |
|--------------------|--------------|--|------------------------|-----------|--|
| <b>ASU #</b>       | 13087        |  | <b>Report ID:</b>      | Cam-5 W29 |  |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 20-Aug-10 |  |
|                    |              |  | <b>Date tested:</b>    | 26-Aug-10 |  |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 26-Aug-10 |  |
|                    | 10-295       |  | <b>Matrix:</b>         | water     |  |
|                    |              |  |                        |           |  |
| Report of Analysis |              |  |                        |           |  |
|                    |              |  |                        |           |  |
| Sample             | Oil & Grease |  |                        |           |  |
|                    | mg/L         |  |                        |           |  |
|                    |              |  |                        |           |  |
| 10-28164           | 6.3          |  |                        |           |  |
|                    |              |  |                        |           |  |
| Blank              | <2.0         |  |                        |           |  |
|                    |              |  |                        |           |  |
| Control            | 13.7         |  |                        |           |  |
| Control Target     | 15.9         |  |                        |           |  |

|                    |              |  |                        |           |
|--------------------|--------------|--|------------------------|-----------|
| <b>ASU #</b>       | 13104        |  | <b>Report ID:</b>      | Cam-5 W31 |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 24-Aug-10 |
|                    |              |  | <b>Date tested:</b>    | 26-Aug-10 |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 26-Aug-10 |
|                    | 10-322       |  | <b>Matrix:</b>         | water     |
|                    |              |  |                        |           |
| Report of Analysis |              |  |                        |           |
|                    |              |  |                        |           |
| Sample             | Oil & Grease |  |                        |           |
|                    | mg/L         |  |                        |           |
|                    |              |  |                        |           |
| 10-28323           | 4.8          |  |                        |           |
|                    |              |  |                        |           |
| Blank              | <2.0         |  |                        |           |
|                    |              |  |                        |           |
| Control            | 13.7         |  |                        |           |
| Control Target     | 15.9         |  |                        |           |

|                    |              |  |                        |           |
|--------------------|--------------|--|------------------------|-----------|
| <b>ASU #</b>       | 13160        |  | <b>Report ID:</b>      | Cam-5 W33 |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 1-Sep-10  |
|                    |              |  | <b>Date tested:</b>    | 1-Sep-10  |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 1-Sep-10  |
|                    | 10-354       |  | <b>Matrix:</b>         | water     |
|                    |              |  |                        |           |
| Report of Analysis |              |  |                        |           |
|                    |              |  |                        |           |
| Sample             | Oil & Grease |  |                        |           |
|                    | mg/L         |  |                        |           |
|                    |              |  |                        |           |
| 10-28204           | 135          |  |                        |           |
|                    |              |  |                        |           |
| Blank              | <2.0         |  |                        |           |
|                    |              |  |                        |           |
| Control            | 15.0         |  |                        |           |
| Control Target     | 15.7         |  |                        |           |
|                    |              |  |                        |           |

|                                  |  |  |  |  |                            |
|----------------------------------|--|--|--|--|----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 21007        |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No: 10-360          |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 2-Sep-10 |
| Kingston, Ontario K7K 7B4        |  |  |  |  | Date of analysis: 3-Sep-10 |
| (613) 541-6000 ext 6567          |  |  |  |  | Method No: ASG 021         |
| Fax: (613) 541-6596              |  |  |  |  | Date Reported: 3-Sep-10    |
|                                  |  |  |  |  | Sheet: 1 of 1              |
|                                  |  |  |  |  |                            |
|                                  |  |  |  |  |                            |
|                                  |  |  |  |  |                            |

## RESULTS OF MERCURY IN WATER ANALYSIS

| Sample ID | Mercury <sup>^</sup><br>mg/L |
|-----------|------------------------------|
| 28204     | < 0.0004                     |
|           |                              |

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

# Reported at 0.0004 mg/L detection limit.

## LABORATORY QA/QC

| Sample ID      | Mercury <sup>^</sup><br>mg/L |
|----------------|------------------------------|
| Blank          | < 0.0004                     |
| Control Target | 0.0040                       |
| Control Sample | 0.0041                       |

|                                  |  |  |  |  |                            |
|----------------------------------|--|--|--|--|----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 21007        |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No: 10-360          |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 2-Sep-10 |
| Kingston, Ontario K7K 7B4        |  |  |  |  | Date of analysis: 2-Sep-10 |
| (613) 541-6000 ext 6567          |  |  |  |  | Method No: ASG 015         |
| Fax: (613) 541-6596              |  |  |  |  | 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              | 28204       | 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



|   |                 |        |                        |           |        |        |        |        |
|---|-----------------|--------|------------------------|-----------|--------|--------|--------|--------|
| <b>ASU #</b>                            | 13174           |        | <b>Report ID:</b>      | Cam-5 W36 |        |        |        |        |
| <b>Client:</b>                          | ESG             |        | <b>Date Submitted:</b> | 2-Sep-10  |        |        |        |        |
|   |                 |        | <b>Date tested:</b>    | 3-Sep-10  |        |        |        |        |
| <b>Site:</b>                            | Cam-5           |        | <b>Date:</b>           | 3-Sep-10  |        |        |        |        |
|   | 10-360          |        | <b>Matrix:</b>         | Water     |        |        |        |        |
| Report of Analysis                      |                 |        |                        |           |        |        |        |        |
| <b>Total Metals</b>                     | Results in mg/L |        |                        |           |        |        |        |        |
| SAMPLE                                  | Cu              | Ni     | Co                     | Cd        | Pb     | Zn     | Cr     | As     |
| 10-28204                                | -               | -      | -                      | -         | -      | 0.053  | <0.005 | <0.003 |
| Blank                                   | -               | -      | -                      | -         | -      | <0.010 | <0.005 | <0.003 |
| Control                                 | -               | -      | -                      | -         | -      | 3.04   | 0.83   | 0.75   |
| Control Target                          | -               | -      | -                      | -         | -      | 3.00   | 0.80   | 0.80   |
|   |                 |        |                        |           |        |        |        |        |
| <b>Dissolved Metals</b>                 | Results in mg/L |        |                        |           |        |        |        |        |
| SAMPLE                                  | Cu              | Ni     | Co                     | Cd        | Pb     | Zn     | Cr     | As     |
| 10-28204                                | 0.007           | <0.005 | <0.003                 | <0.001    | <0.010 | -      | -      | -      |
| Blank                                   | <0.005          | <0.005 | <0.003                 | <0.001    | <0.010 | -      | -      | -      |
| Control                                 | 1.46            | 1.61   | 1.59                   | 0.81      | 8.00   | -      | -      | -      |
| Control Target                          | 1.60            | 1.60   | 1.60                   | 0.80      | 8.00   | -      | -      | -      |
|   |                 |        |                        |           |        |        |        |        |
| Results relate only to the items tested |                 |        |                        |           |        |        |        |        |



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

Tuesday, March 1, 2011

**RE: September 2010 Monthly Report for Water Use License Number: 1BR-MAC0712**

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 CAM-5 (*Macker Inlet*).

1. CAMP SEWAGE LAGOON

A sewage lagoon was constructed by Biogenie to service the CAM-5 construction camp in June of 2008. The sewage lagoon is located approximately 100 m east of the contractor's camp, 100 m away from drainage channels and more than 450 m from water bodies supporting aquatic life. The GPS coordinates that are required by the Water Use License for the sewage lagoon location are 16W 0551963E 7581586N.

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. Five sewage effluent samples were collected in September 2010 from Cell 1 of the CAM-5 sewage lagoon. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

**LOCATION: SEWAGE LAGOON CELL 1 - NORTHWEST CORNER**

**GPS COORDINATES: 0551920 E 7581562 N**

**SAMPLE: 10-28649**

**DATE: SEPTEMBER 1, 2010**

| <b>Parameter</b>                        | <b>Allowable<br/>Maximum<br/>Average<br/>Concentration</b> | <b>Units</b>   | <b>Sample #<br/>10-28649</b> |
|---|--|----------------|------------------------------|
| <b>pH</b>                               | 6.0 to 9.0   | pH units       | 7.38                         |
| <b>Oil &amp; Grease</b>                 | None Visible   | -              | None Visible                 |
| <b>Total Suspended Solids<br/>(TSS)</b> | 180  | mg/L           | 73                           |
| <b>BOD</b>                              | 120  | mg/L           | <b>144</b>                   |
| <b>Faecal Coliforms</b>                 | 10,000   | CFU/dL         | <b>45000</b>                 |
| <b>Total Coliforms</b>                  | -  | CFU/ 100<br>mL | 55000                        |

**LOCATION: SEWAGE LAGOON CELL 1 - NORTHWEST CORNER**

**GPS COORDINATES:** 0551920 E 7581562 N

**SAMPLE:** 10-28655

**DATE:** SEPTEMBER 3, 2010

| Parameter                       | Allowable<br>Maximum<br>Average<br>Concentration | Units          | Sample #<br>10-28655 |
|---------------------------------|--|----------------|----------------------|
| pH                              | 6.0 to 9.0                                       | pH units       | N/A                  |
| Oil & Grease                    | None Visible                                     | -              | None Visible         |
| Total Suspended Solids<br>(TSS) | 180  | mg/L           | N/A                  |
| BOD                             | 120  | mg/L           | <b>146</b>           |
| Faecal Coliforms                | 10,000   | CFU/dL         | <b>35000</b>         |
| Total Coliforms                 | -  | CFU/ 100<br>mL | 25000                |



**Photo 1 (DSC01633) Sample 10-28655:** Wide angle of sewage lagoon sample collected from the NW corner of Sewage Lagoon Cell 1, facing west.

**LOCATION: SEWAGE LAGOON CELL 1 - NORTHWEST CORNER**

**GPS COORDINATES: 0551920 E 7581562 N**

**SAMPLE: 10-28659**

**DATE: SEPTEMBER 8, 2010**

| <b>Parameter</b>                        | <b>Allowable<br/>Maximum<br/>Average<br/>Concentration</b> | <b>Units</b>   | <b>Sample #<br/>10-28659</b> |
|---|--|----------------|------------------------------|
| <b>pH</b>                               | 6.0 to 9.0   | pH units       | N/A                          |
| <b>Oil &amp; Grease</b>                 | None Visible   | -              | None Visible                 |
| <b>Total Suspended Solids<br/>(TSS)</b> | 180  | mg/L           | N/A                          |
| <b>BOD</b>                              | 120  | mg/L           | <b>177</b>                   |
| <b>Faecal Coliforms</b>                 | 10,000   | CFU/dL         | <b>45000</b>                 |
| <b>Total Coliforms</b>                  | -  | CFU/ 100<br>mL | 54000                        |



**Photo 2 (DSC01677) Sample 10-28569:** Wide angle of sewage lagoon sample collected from the NW corner of Sewage Lagoon Cell 1, facing west.

**LOCATION: SEWAGE LAGOON CELL 1 - NORTHWEST CORNER**

**GPS COORDINATES: 0551920 E 7581562 N**

**SAMPLE: 10-28665**

**DATE: SEPTEMBER 10, 2010**

| <b>Parameter</b>                        | <b>Allowable<br/>Maximum<br/>Average<br/>Concentration</b> | <b>Units</b>   | <b>Sample #<br/>10-28665</b> |
|---|--|----------------|------------------------------|
| <b>pH</b>                               | 6.0 to 9.0   | pH units       | N/A                          |
| <b>Oil &amp; Grease</b>                 | None Visible   | -              | None Visible                 |
| <b>Total Suspended Solids<br/>(TSS)</b> | 180  | mg/L           | N/A                          |
| <b>BOD</b>                              | 120  | mg/L           | <b>146</b>                   |
| <b>Faecal Coliforms</b>                 | 10,000   | CFU/dL         | <b>21000</b>                 |
| <b>Total Coliforms</b>                  | -  | CFU/ 100<br>mL | 28000                        |



**Photo 3 (DSC01688) Sample 10-28665 Cam- 5:** Wide angle of sewage lagoon sample collected from the NW corner of Sewage Lagoon Cell 1, facing west.

**LOCATION: SEWAGE LAGOON CELL 1 - NORTHWEST CORNER**

**GPS COORDINATES: 0551920 E 7581562 N**

**SAMPLE: 10-28668**

**DATE: SEPTEMBER 11, 2010**

| <b>Parameter</b>                        | <b>Allowable<br/>Maximum<br/>Average<br/>Concentration</b> | <b>Units</b>   | <b>Sample #<br/>10-28668</b> |
|---|--|----------------|------------------------------|
| <b>pH</b>                               | 6.0 to 9.0   | pH units       | N/A                          |
| <b>Oil &amp; Grease</b>                 | None Visible   | -              | None Visible                 |
| <b>Total Suspended Solids<br/>(TSS)</b> | 180  | mg/L           | N/A                          |
| <b>BOD</b>                              | 120  | mg/L           | <b>161</b>                   |
| <b>Faecal Coliforms</b>                 | 10,000   | CFU/dL         | 9300                         |
| <b>Total Coliforms</b>                  | -  | CFU/ 100<br>mL | 22000                        |



**Photo 4 (DSC01702) Sample 10-28668 Cam- 5:** Wide angle of sewage lagoon sample collected from the NW corner of Sewage Lagoon Cell 1, facing west.



**LOCATION: SEWAGE LAGOON CELL 1 - NORTHWEST CORNER**

**GPS COORDINATES: 0551920 E 7581562 N**

**SAMPLE: 10-28671**

**DATE: SEPTEMBER 12, 2010**

| Parameter                       | Allowable<br>Maximum<br>Average<br>Concentration | Units          | Sample #<br>10-28671 |
|---------------------------------|--|----------------|----------------------|
| pH                              | 6.0 to 9.0                                       | pH units       | N/A                  |
| Oil & Grease                    | None Visible                                     | -              | None Visible         |
| Total Suspended Solids<br>(TSS) | 180  | mg/L           | N/A                  |
| BOD                             | 120  | mg/L           | <b>150</b>           |
| Faecal Coliforms                | 10,000   | CFU/dL         | <b>18000</b>         |
| Total Coliforms                 | -  | CFU/ 100<br>mL | 30000                |



**Photo 5 (DSC01724) Sample 10-28671:** Wide angle of sewage lagoon sample collected from the NW corner of Sewage Lagoon Cell 1, facing west.

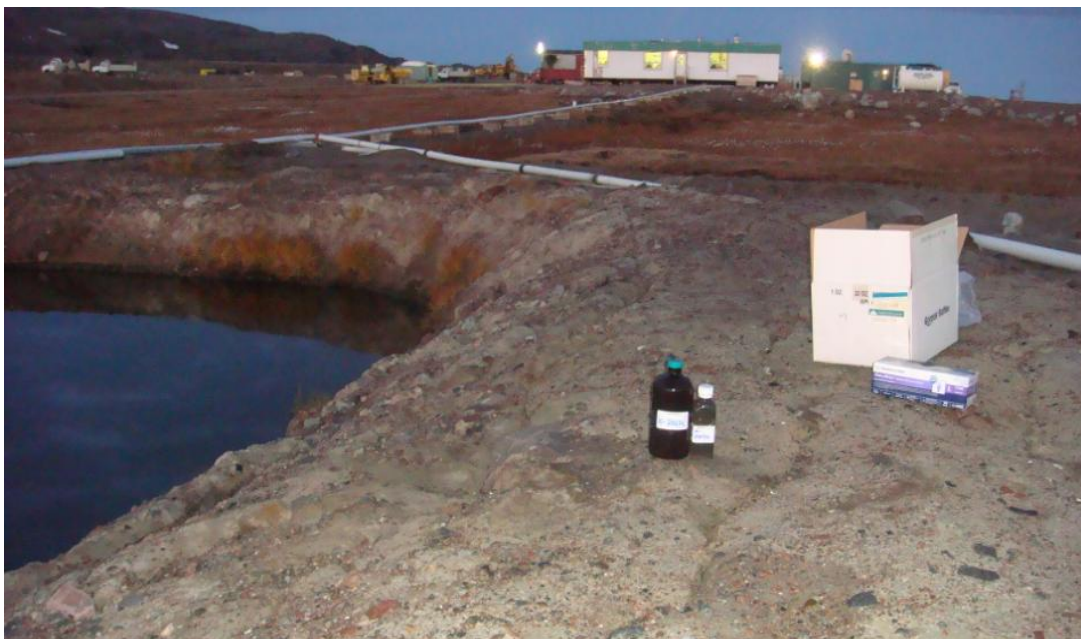
**LOCATION: SEWAGE LAGOON CELL 1 - NORTHWEST CORNER OF SEWAGE LAGOON  
CELL 1 IMMEDIATELY PRIOR TO DISCHARGE**

**GPS COORDINATES: 0552016 E 7581605 N**

**SAMPLE: 10-28676**

**DATE: SEPTEMBER 16, 2010**

| Parameter                       | Allowable<br>Maximum<br>Average<br>Concentration | Units          | Sample #<br>10-28676 |
|---------------------------------|--|----------------|----------------------|
| pH                              | 6.0 to 9.0                                       | pH units       | N/A                  |
| Oil & Grease                    | None Visible                                     | -              | None Visible         |
| Total Suspended Solids<br>(TSS) | 180  | mg/L           | N/A                  |
| BOD                             | 120  | mg/L           | <b>137</b>           |
| Faecal Coliforms                | 10,000   | CFU/dL         | 7400                 |
| Total Coliforms                 | -  | CFU/ 100<br>mL | 13500                |



**Photo 6 (DSC01753) Sample 10-28676:** Wide angle of sewage lagoon sample collected from the NW corner of Sewage Lagoon Cell 1, facing west.

*Water from Sewage Lagoon Cell 1 did not meet the sewage discharge criteria for BOD but was discharged on September 16th before results were reported, as part of the camp closure.*

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, Shari Reed, Dean Morrow, Ian Goode (ESG)

## APPENDIX A LABORATORY RESULTS

|                                  |                            |
|----------------------------------|----------------------------|
| ESG                              | ASG Login No: 21008        |
| 12 Verite Ave                    | Site: Cam-5                |
| Dept. of Chem. / Chem. Eng., RMC | Client No: 10-375          |
| P.O. Box 17000, Stn. Forces      | Samples Received: 2-Sep-10 |
| Kingston, Ontario K7K 7B4        | Date of analysis: 3-Sep-10 |
| (613) 541-6000 ext 6567          | Method No: ASG 037         |
| Fax: (613) 541-6596              | Date Reported: 3-Sep-10    |
|                                  | Page: 1 of 1               |

### RESULTS OF pH ANALYSIS

| Sample I.D. | pH   |
|-------------|------|
| 10-28649    | 7.38 |

### LABORATORY QA/QC

| Sample I.D.    | pH   |
|----------------|------|
| Control        | 7.00 |
| Control Target | 7.00 |

|                                  |                            |
|----------------------------------|----------------------------|
| ESG                              | ASG Login No: 21008        |
| 12 Verite Ave                    | Site: CAM-5                |
| Dept. of Chem. / Chem. Eng., RMC | Client No: 10-375          |
| P.O. Box 17000, Stn. Forces      | Samples Received: 2-Sep-10 |
| Kingston, Ontario K7K 7B4        | Date of analysis: 2-Sep-10 |
| (613) 541-6000 ext 6567          | Date Reported: 3-Sep-10    |
| Fax: (613) 541-6596              | Sheet: 1 of 1              |

### RESULTS OF MICROBIOLOGICAL ANALYSIS

| Sample Identification | Method: ASG 036<br>Total<br>Coliforms<br>(CFU/100 mL) | Method: ASG 036<br><i>E. coli</i><br>(CFU/100 mL) | Method: ASG 036<br>Background<br>(CFU/100 mL) | Method: ASG 044<br>Fecal<br>Coliforms<br>(CFU/100mL) |
|-----------------------|---|---|---|--|
| 28650*                | 55000   | 30000   | < 200000                                      | 45000  |

\*Averaged Results of Duplicates

RTF- Results to follow

### LABORATORY QA/QC

| Sample Identification | Method: ASG 036<br>Total<br>Coliforms<br>(CFU/100 mL) | Method: ASG 036<br><i>E. coli</i><br>(CFU/100 mL) | Method: ASG 036<br>Background<br>(CFU/100 mL) | Method: ASG 044<br>Fecal<br>Coliforms<br>(CFU/100mL) |
|-----------------------|---|---|---|--|
| Blank                 | 0   | 0   | 0   | 0  |
| Control Sample        | RTF   | RTF   | RTF   | RTF  |
| Control Target        | RTF   | RTF   | RTF   | RTF  |

|                                  |                            |
|----------------------------------|----------------------------|
| ESG                              | ASG Login No: 21008        |
| 12 Verite Ave                    | Site: Cam-5                |
| Dept. of Chem. / Chem. Eng., RMC | Client Login No: 10-375    |
| P.O. Box 17000, Stn. Forces      | Samples Received: 2-Sep-10 |
| Kingston, Ontario K7K 7B4        | Date of analysis: 3-Sep-10 |
| (613) 541-6000 ext 6567          | Method No: ASG 039         |
| Fax: (613) 541-6596              | Date Reported: 3-Sep-10    |
|                                  | Sheet: 1 of 1              |

### RESULTS OF TOTAL SUSPENDED SOLIDS ANALYSIS

| Sample I.D. | Sample Type ^ | Unit | Total Suspended Solids |
|-------------|---------------|------|------------------------|
| 10-28649*   | SE            | mg/L | 73                     |

### LABORATORY QA/QC

|                       |         |      |         |
|-----------------------|---------|------|---------|
| Duplicate ; 10-28649* | SE ; SE | mg/L | 70 ; 75 |
| Control               | Control | mg/L | 190     |
| Control Target        | Control | mg/L | 200     |
| Blank                 | Control | mg/L | < 1     |

|                                  |                            |
|----------------------------------|----------------------------|
| <b>ESG</b>                       | ASG Login No: 21008        |
| 12 Verite Ave                    | Site: Cam-5                |
| Dept. of Chem. / Chem. Eng., RMC | Client Login No: 10-375    |
| P.O. Box 17000, Stn. Forces      | Samples Received: 2-Sep-10 |
| Kingston, Ontario K7K 7B4        | Date of analysis: 8-Sep-10 |
| (613) 541-6000 ext 6567          | Method No: ASG 042         |
| Fax: (613) 541-6596              | Date Reported: 8-Sep-10    |
|                                  | Page: 1 of 1               |

### RESULTS OF BOD ANALYSIS

| Sample I.D. | Unit | BOD |
|-------------|------|-----|
| 10-28649    | mg/L | 144 |

\*Averaged result of duplicates

### LABORATORY QA/QC

| Sample I.D.    | Unit | BOD |
|----------------|------|-----|
| Blank          | mg/L | < 3 |
| Control        | mg/L | 148 |
| Control Target | mg/L | 165 |

|                                  |  |  |  |  |                            |
|----------------------------------|--|--|--|--|----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 21022        |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No: 10-389          |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 4-Sep-10 |
| Kingston, Ontario K7K 7B4        |  |  |  |  | Date of analysis: 4-Sep-10 |
| (613) 541-6000 ext 6567          |  |  |  |  | Date Reported: 5-Sep-10    |
| Fax: (613) 541-6596              |  |  |  |  | Sheet: 1 of 1              |
|                                  |  |  |  |  |                            |
|                                  |  |  |  |  |                            |

## RESULTS OF MICROBIOLOGICAL ANALYSIS

| Sample Identification | Method: ASG 036<br>Total Coliforms<br>(CFU/100 mL) | Method: ASG 036<br><i>E. coli</i><br>(CFU/100 mL) | Method: ASG 036<br>Background<br>(CFU/100 mL) | Method: ASG 044<br>Fecal Coliforms<br>(CFU/100mL) |
|-----------------------|--|---|---|---|
| 28655*                | 25000  | 29000   | < 200000                                      | 35000   |

\*Averaged Results of Duplicates

## LABORATORY QA/QC

| Sample Identification | Method: ASG 036<br>Total Coliforms<br>(CFU/100 mL) | Method: ASG 036<br><i>E. coli</i><br>(CFU/100 mL) | Method: ASG 036<br>Background<br>(CFU/100 mL) | Method: ASG 044<br>Fecal Coliforms<br>(CFU/100mL) |
|-----------------------|--|---|---|---|
| Blank                 | 0  | 0   | 0   | 0   |
| Control Sample        | 49   | 49  | 0   | 40  |
| Control Target        | 42   | 42  | 0   | 42  |

|                                  |  |  |  |  |                            |
|----------------------------------|--|--|--|--|----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 21022        |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client Login No: 10-389    |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 4-Sep-10 |
| Kingston, Ontario K7K 7B4        |  |  |  |  | Date of analysis: 9-Sep-10 |
| (613) 541-6000 ext 6567          |  |  |  |  | Method No: ASG 042         |
| Fax: (613) 541-6596              |  |  |  |  | Date Reported: 9-Sep-10    |
|                                  |  |  |  |  | Page: 1 of 1               |

## RESULTS OF BOD ANALYSIS

| Sample I.D. | Unit | BOD |
|-------------|------|-----|
| 28655       | mg/L | 146 |
|             |      |     |

\*Averaged result of duplicates

## LABORATORY QA/QC

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

|                                  |  |  |  |  |                            |
|----------------------------------|--|--|--|--|----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 21043        |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No: 10-406          |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 9-Sep-10 |
| Kingston, Ontario K7K 7B4        |  |  |  |  | Date of analysis: 9-Sep-10 |
| (613) 541-6000 ext 6567          |  |  |  |  | Date Reported: 11-Sep-10   |
| Fax: (613) 541-6596              |  |  |  |  | Sheet: 1 of 1              |

## RESULTS OF MICROBIOLOGICAL ANALYSIS

| Sample Identification | Method: ASG 036<br>Total Coliforms<br>(CFU/100 mL) | Method: ASG 036<br><i>E. coli</i><br>(CFU/100 mL) | Method: ASG 036<br>Background<br>(CFU/100 mL) | Method: ASG 044<br>Fecal Coliforms<br>(CFU/100mL) |
|-----------------------|--|---|---|---|
| 28655                 | 54000  | 29000   | < 200000                                      | 45000   |

## LABORATORY QA/QC

| Sample Identification | Method: ASG 036<br>Total Coliforms<br>(CFU/100 mL) | Method: ASG 036<br><i>E. coli</i><br>(CFU/100 mL) | Method: ASG 036<br>Background<br>(CFU/100 mL) | Method: ASG 044<br>Fecal Coliforms<br>(CFU/100mL) |
|-----------------------|--|---|---|---|
| Blank                 | 0  | 0   | 0   | 0   |
| Control Sample        | 31   | 31  | 0   | 30  |
| Control Target        | 44   | 44  | 0   | 44  |

|                                  |  |  |  |  |                             |
|----------------------------------|--|--|--|--|-----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 21043         |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client Login No: 10-406     |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 9-Sep-10  |
| Kingston, Ontario K7K 7B4        |  |  |  |  | Date of analysis: 14-Sep-10 |
| (613) 541-6000 ext 6567          |  |  |  |  | Method No: ASG 042          |
| Fax: (613) 541-6596              |  |  |  |  | Date Reported: 14-Sep-10    |
|                                  |  |  |  |  | Page: 1 of 1                |

## RESULTS OF BOD ANALYSIS

| Sample I.D. | Unit | BOD |
|-------------|------|-----|
| 10-28659*   | mg/L | 177 |

\*Averaged result of duplicates

## LABORATORY QA/QC

| Sample I.D.           | Unit | BOD       |
|-----------------------|------|-----------|
| Duplicate ; 10-28659* | mg/L | 182 ; 173 |
| Blank                 | mg/L | < 3       |
| Control               | mg/L | 140       |
| Control Target        | mg/L | 165       |

|                                  |  |  |  |  |                             |
|----------------------------------|--|--|--|--|-----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 21050         |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No: 10-415           |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 12-Sep-10 |
| Kingston, Ontario K7K 7B4        |  |  |  |  | Date of analysis: 12-Sep-10 |
| (613) 541-6000 ext 6567          |  |  |  |  | Date Reported: 13-Sep-10    |
| Fax: (613) 541-6596              |  |  |  |  | Sheet: 1 of 1               |
|                                  |  |  |  |  |                             |
|                                  |  |  |  |  |                             |

## RESULTS OF MICROBIOLOGICAL ANALYSIS

| Sample Identification | Method: ASG 036<br>Total Coliforms<br>(CFU/100 mL) | Method: ASG 036<br><i>E. coli</i><br>(CFU/100 mL) | Method: ASG 036<br>Background<br>(CFU/100 mL) | Method: ASG 044<br>Fecal Coliforms<br>(CFU/100mL) |
|-----------------------|--|---|---|---|
| 28665                 | 28000  | 16000   | < 200000                                      | 21000   |

## LABORATORY QA/QC

| Sample Identification | Method: ASG 036<br>Total Coliforms<br>(CFU/100 mL) | Method: ASG 036<br><i>E. coli</i><br>(CFU/100 mL) | Method: ASG 036<br>Background<br>(CFU/100 mL) | Method: ASG 044<br>Fecal Coliforms<br>(CFU/100mL) |
|-----------------------|--|---|---|---|
| Blank                 | 0  | 0   | 0   | 0   |
| Control Sample        | 36   | 36  | 0   | 39  |
| Control Target        | 42   | 42  | 0   | 42  |

|                                  |  |  |  |  |                             |
|----------------------------------|--|--|--|--|-----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 21050         |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client Login No: 10-415     |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 12-Sep-10 |
| Kingston, Ontario K7K 7B4        |  |  |  |  | Date of analysis: 17-Sep-10 |
| (613) 541-6000 ext 6567          |  |  |  |  | Method No: ASG 042          |
| Fax: (613) 541-6596              |  |  |  |  | Date Reported: 22-Sep-10    |
|                                  |  |  |  |  | Page: 1 of 1                |

## RESULTS OF BOD ANALYSIS

| Sample I.D. | Unit | BOD |
|-------------|------|-----|
| 10-28665    | mg/L | 146 |

\*Averaged result of duplicates

## LABORATORY QA/QC

| Sample I.D.    | Unit | BOD |
|----------------|------|-----|
| Blank          | mg/L | < 3 |
| Control        | mg/L | 130 |
| Control Target | mg/L | 165 |



|                                  |  |  |  |  |                             |
|----------------------------------|--|--|--|--|-----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 21051         |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No: 10-417           |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 13-Sep-10 |
| Kingston, Ontario K7K 7B4        |  |  |  |  | Date of analysis: 13-Sep-10 |
| (613) 541-6000 ext 6567          |  |  |  |  | Date Reported: 15-Sep-10    |
| Fax: (613) 541-6596              |  |  |  |  | Sheet: 1 of 1               |

## RESULTS OF MICROBIOLOGICAL ANALYSIS

| Sample Identification | Method: ASG 036<br>Total Coliforms<br>(CFU/100 mL) | Method: ASG 036<br><i>E. coli</i><br>(CFU/100 mL) | Method: ASG 036<br>Background<br>(CFU/100 mL) | Method: ASG 044<br>Fecal Coliforms<br>(CFU/100mL) |
|-----------------------|--|---|---|---|
| 28668                 | 22000  | 11000   | > 200000                                      | 9300  |

## LABORATORY QA/QC

| Sample Identification | Method: ASG 036<br>Total Coliforms<br>(CFU/100 mL) | Method: ASG 036<br><i>E. coli</i><br>(CFU/100 mL) | Method: ASG 036<br>Background<br>(CFU/100 mL) | Method: ASG 044<br>Fecal Coliforms<br>(CFU/100mL) |
|-----------------------|--|---|---|---|
| Blank                 | 0  | 0   | 0   | 0   |
| Control Sample        | 45   | 45  | 0   | 45  |
| Control Target        | 45   | 45  | 0   | 45  |

|                                  |  |  |  |  |                             |
|----------------------------------|--|--|--|--|-----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 21051         |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client Login No: 10-417     |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 13-Sep-10 |
| Kingston, Ontario K7K 7B4        |  |  |  |  | Date of analysis: 17-Sep-10 |
| (613) 541-6000 ext 6567          |  |  |  |  | Method No: ASG 042          |
| Fax: (613) 541-6596              |  |  |  |  | Date Reported: 22-Sep-10    |
|                                  |  |  |  |  | Page: 1 of 1                |

## RESULTS OF BOD ANALYSIS

| Sample I.D. | Unit | BOD |
|-------------|------|-----|
| 10-28668    | mg/L | 161 |

\*Averaged result of duplicates

## LABORATORY QA/QC

| Sample I.D.    | Unit | BOD |
|----------------|------|-----|
| Blank          | mg/L | < 3 |
| Control        | mg/L | 130 |
| Control Target | mg/L | 165 |

|                                  |  |  |  |                             |
|----------------------------------|--|--|--|-----------------------------|
| 12 Verite Ave                    |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  | Client No: 10-419           |
| P.O. Box 17000, Stn. Forces      |  |  |  | Samples Received: 13-Sep-10 |
| Kingston, Ontario K7K 7B4        |  |  |  | Date of analysis: 13-Sep-10 |
| (613) 541-6000 ext 6567          |  |  |  | Date Reported: 15-Sep-10    |
| Fax: (613) 541-6596              |  |  |  | Sheet: 1 of 1               |

## RESULTS OF MICROBIOLOGICAL ANALYSIS

| Sample Identification | Method: ASG 036<br>Total Coliforms<br>(CFU/100 mL) | Method: ASG 036<br><i>E. coli</i><br>(CFU/100 mL) | Method: ASG 036<br>Background<br>(CFU/100 mL) | Method: ASG 044<br>Fecal Coliforms<br>(CFU/100mL) |
|-----------------------|--|---|---|---|
| 28671                 | 30000  | 14000   | > 200000                                      | 18000   |

## LABORATORY QA/QC

| Sample Identification | Method: ASG 036<br>Total Coliforms<br>(CFU/100 mL) | Method: ASG 036<br><i>E. coli</i><br>(CFU/100 mL) | Method: ASG 036<br>Background<br>(CFU/100 mL) | Method: ASG 044<br>Fecal Coliforms<br>(CFU/100mL) |
|-----------------------|--|---|---|---|
| Blank                 | 0  | 0   | 0   | 0   |
| Control Sample        | 45   | 45  | 0   | 45  |
| Control Target        | 45   | 45  | 0   | 45  |

|                                  |  |  |  |                             |
|----------------------------------|--|--|--|-----------------------------|
| <b>ESG</b>                       |  |  |  | ASG Login No: 21053         |
| 12 Verite Ave                    |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  | Client Login No: 10-419     |
| P.O. Box 17000, Stn. Forces      |  |  |  | Samples Received: 13-Sep-10 |
| Kingston, Ontario K7K 7B4        |  |  |  | Date of analysis: 17-Sep-10 |
| (613) 541-6000 ext 6567          |  |  |  | Method No: ASG 042          |
| Fax: (613) 541-6596              |  |  |  | Date Reported: 22-Sep-10    |
|                                  |  |  |  | Page: 1 of 1                |

## RESULTS OF BOD ANALYSIS

| Sample I.D. | Unit | BOD |
|-------------|------|-----|
| 10-28671    | mg/L | 150 |

\*Averaged result of duplicates

## LABORATORY QA/QC

| Sample I.D.    | Unit | BOD |
|----------------|------|-----|
| Blank          | mg/L | < 3 |
| Control        | mg/L | 130 |
| Control Target | mg/L | 165 |

|                                  |  |  |  |  |                             |
|----------------------------------|--|--|--|--|-----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 21105         |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client Login No: 10-451     |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 17-Sep-10 |
| Kingston, Ontario K7K 7B4        |  |  |  |  | Date of analysis: 22-Sep-10 |
| (613) 541-6000 ext 6567          |  |  |  |  | Method No: ASG 042          |
| Fax: (613) 541-6596              |  |  |  |  | Date Reported: 22-Sep-10    |
|                                  |  |  |  |  | Page: 1 of 1                |

## RESULTS OF BOD ANALYSIS

| Sample I.D. | Unit | BOD |
|-------------|------|-----|
| 10-28676    | mg/L | 137 |

\*Averaged result of duplicates

## LABORATORY QA/QC

| Sample I.D.    | Unit | BOD |
|----------------|------|-----|
| Blank          | mg/L | < 3 |
| Control        | mg/L | 146 |
| Control Target | mg/L | 165 |

|                                  |  |  |  |  |                             |
|----------------------------------|--|--|--|--|-----------------------------|
| <b>ESG</b>                       |  |  |  |  | ASG Login No: 21105         |
| 12 Verite Ave                    |  |  |  |  | Site: Cam-5                 |
| Dept. of Chem. / Chem. Eng., RMC |  |  |  |  | Client No: 10-451           |
| P.O. Box 17000, Stn. Forces      |  |  |  |  | Samples Received: 17-Sep-10 |
| Kingston, Ontario K7K 7B4        |  |  |  |  | Date of analysis: 17-Sep-10 |
| (613) 541-6000 ext 6567          |  |  |  |  | Date Reported: 24-Sep-10    |
| Fax: (613) 541-6596              |  |  |  |  | Sheet: 1 of 1               |

## RESULTS OF MICROBIOLOGICAL ANALYSIS

| Sample Identification | Method: ASG 036<br>Total<br>Coliforms<br>(CFU/100 mL) | Method: ASG 036<br><i>E. coli</i><br>(CFU/100 mL) | Method: ASG 036<br>Background<br>(CFU/100 mL) | Method: ASG 044<br>Fecal<br>Coliforms<br>(CFU/100mL) |
|-----------------------|---|---|---|--|
| 28676*                | 13500   | 6400  | > 200000                                      | 7400   |

\* Average Result of Duplicate

## LABORATORY QA/QC

| Sample Identification | Method: ASG 036<br>Total<br>Coliforms<br>(CFU/100 mL) | Method: ASG 036<br><i>E. coli</i><br>(CFU/100 mL) | Method: ASG 036<br>Background<br>(CFU/100 mL) | Method: ASG 044<br>Fecal<br>Coliforms<br>(CFU/100mL) |
|-----------------------|---|---|---|--|
| Blank                 | 0   | 0   | 0   | 0  |
| Duplicate ; 28676*    | 13500 ; 13500   | 6500 ; 6200                                       | > 200000 ; > 200000                           | 7500 ; 7200  |
| Control Sample**      | 45  | 45  | 0   | 45   |
| Control Target **     | 45  | 45  | 0   | 45   |

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Tamara VanDyck  
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101 Colonel By Drive  
Ottawa ON K1A 0K2

Tuesday, March 1, 2011

**RE: Analytical Results for Wastewater Samples Collected at CAM-5 in September, 2010**

The following report summarizes results of the analysis of wastewater samples as per the CAM-5 (Mackar Inlet) DEW Line Cleanup Project (DLCU) Specifications.

The CAM-5 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     |
| Total 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)     | 0.6                             | µg/L     |
| Dissolved nickel (Ni)  | 0.200                           | mg/L     |
| Total zinc (Zn)        | 1.000                           | mg/L     |
| Oil & grease           | 5 mg/L and None visible         | mg/L     |
| PCBs                   | 0.050*<br>0.005**               | mg/L     |
| Phenols                | 0.020                           | mg/L     |

\*Discharge to barren land, \*\*Discharge to vegetated land

*Phenols*

The wastewater samples collected by ESG at CAM-5 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 (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

Twelve wastewater samples were collected at CAM-5 and analyzed in September 2010. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

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

**LOCATION: TANK 2 AT HAZARDOUS WASTE PROCESSING AREA (HWP) -**  
**SAMPLE COLLECTED FROM OPENING AT TOP OF TANK.**  
**GPS COORDINATES: 0552923 E 7581810 N**  
**SAMPLE: 10-28647**  
**DATE: SEPTEMBER 1, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample #<br>10-28647          |
|-------------------|---------------------------------|----------|-------------------------------|
| pH                | 6-9                             | pH units |                               |
| Total Arsenic     | 0.100                           | mg/L     | <0.003                        |
| Dissolved Cadmium | 0.010                           | mg/L     | <0.001                        |
| Total Chromium    | 0.100                           | mg/L     | <0.005                        |
| Dissolved Cobalt  | 0.050                           | mg/L     | <0.003                        |
| Dissolved Copper  | 0.200                           | mg/L     | <0.005                        |
| Dissolved Lead    | 0.050                           | mg/L     | <0.010                        |
| Total Mercury     | 0.6                             | µg/L     | <0.0004                       |
| Dissolved Nickel  | 0.200                           | mg/L     | <0.005                        |
| Total Zinc        | 1.0                             | mg/L     | 0.046                         |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible /<br><b>93.7</b> |
| PCBs              | 50*<br>5**                      | µg/L     | <0.003                        |
| Phenols           | 20                              | µg/L     | N/A                           |

\*Discharge to barren land, \*\*Discharge to vegetated land

*Waste water sample 10-28647 was above criteria for oil and grease and therefore Tank 2 was not discharged to land. Further treatment was required.*

**LOCATION: TANK 2 AT HAZARDOUS WASTE PROCESSING AREA (HWP) -**  
**SAMPLE COLLECTED FROM OPENING AT TOP OF TANK.**  
**GPS COORDINATES: 0552923 E 7581810 N**  
**SAMPLE: 10-28654**  
**DATE: SEPTEMBER 3, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample #<br>10-28654          |
|-------------------|---------------------------------|----------|-------------------------------|
| pH                | 6-9                             | pH units | N/A                           |
| Total Arsenic     | 0.100                           | mg/L     | N/A                           |
| Dissolved Cadmium | 0.010                           | mg/L     | N/A                           |
| Total Chromium    | 0.100                           | mg/L     | N/A                           |
| Dissolved Cobalt  | 0.050                           | mg/L     | N/A                           |
| Dissolved Copper  | 0.200                           | mg/L     | N/A                           |
| Dissolved Lead    | 0.050                           | mg/L     | N/A                           |
| Total Mercury     | 0.6                             | µg/L     | N/A                           |
| Dissolved Nickel  | 0.200                           | mg/L     | N/A                           |
| Total Zinc        | 1.0                             | mg/L     | N/A                           |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible /<br><b>76.1</b> |
| PCBs              | 50*<br>5**                      | µg/L     | N/A                           |
| Phenols           | 20                              | µg/L     | N/A                           |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 1 (DSC01634) Sample 10-28654: Wide angle of the opening in Tank 2 where sample 10-28654 was collected, facing north.**

*Waste water sample 10-28654 was above criteria for oil and grease and therefore Tank 2 was not discharged to land. Further treatment was required.*

**LOCATION: TANK 2 AT HAZARDOUS WASTE PROCESSING AREA (HWP) -**

**SAMPLE COLLECTED FROM OPENING AT TOP OF TANK.**

**GPS COORDINATES: 0552923 E 7581810 N**

**SAMPLE: 10-28657**

**DATE: SEPTEMBER 8, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample #<br>10-28657          |
|-------------------|---------------------------------|----------|-------------------------------|
| pH                | 6-9                             | pH units | N/A                           |
| Total Arsenic     | 0.100                           | mg/L     | N/A                           |
| Dissolved Cadmium | 0.010                           | mg/L     | N/A                           |
| Total Chromium    | 0.100                           | mg/L     | N/A                           |
| Dissolved Cobalt  | 0.050                           | mg/L     | N/A                           |
| Dissolved Copper  | 0.200                           | mg/L     | N/A                           |
| Dissolved Lead    | 0.050                           | mg/L     | N/A                           |
| Total Mercury     | 0.6                             | µg/L     | N/A                           |
| Dissolved Nickel  | 0.200                           | mg/L     | N/A                           |
| Total Zinc        | 1.0                             | mg/L     | N/A                           |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible /<br><b>30.6</b> |
| PCBs              | 50*<br>5**                      | µg/L     | N/A                           |
| Phenols           | 20                              | µg/L     | N/A                           |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 2 (DSC01681) Sample 10-28657:** Wide angle of Tank 2, facing NW. The sample was collected from a hole in the top of the tank.

*Waste water sample 10-28657 was above criteria for oil and grease and therefore Tank 2 was not discharged to land. Further treatment was required.*



**LOCATION: TANK 2 AT HAZARDOUS WASTE PROCESSING AREA (HWP) -  
SAMPLE COLLECTED FROM OPENING AT TOP OF TANK.**

**GPS COORDINATES: 0552923 E 7581810 N**

**SAMPLE: 10-28664**

**DATE: SEPTEMBER 10, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample #<br>10-28664          |
|-------------------|---------------------------------|----------|-------------------------------|
| pH                | 6-9                             | pH units | N/A                           |
| Total Arsenic     | 0.100                           | mg/L     | N/A                           |
| Dissolved Cadmium | 0.010                           | mg/L     | N/A                           |
| Total Chromium    | 0.100                           | mg/L     | N/A                           |
| Dissolved Cobalt  | 0.050                           | mg/L     | N/A                           |
| Dissolved Copper  | 0.200                           | mg/L     | N/A                           |
| Dissolved Lead    | 0.050                           | mg/L     | N/A                           |
| Total Mercury     | 0.6                             | µg/L     | N/A                           |
| Dissolved Nickel  | 0.200                           | mg/L     | N/A                           |
| Total Zinc        | 1.0                             | mg/L     | N/A                           |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible /<br><b>13.6</b> |
| PCBs              | 50*<br>5**                      | µg/L     | N/A                           |
| Phenols           | 20                              | µg/L     | N/A                           |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 3 (DSC01693) Sample 10-28664:** Wide angle of Tank 2, facing NW. The sample was collected from a hole in the top of the tank.

*Waste water sample 10-28664 was above criteria for oil and grease and therefore Tank 2 was not discharged to land. Further treatment was required.*

**LOCATION: TANK 2 AT HAZARDOUS WASTE PROCESSING AREA (HWP) -**  
**SAMPLE COLLECTED FROM OPENING AT TOP OF TANK.**  
**GPS COORDINATES: 0552923 E 7581810 N**  
**SAMPLE: 10-28666**  
**DATE: SEPTEMBER 11, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample #<br>10-28666          |
|-------------------|---------------------------------|----------|-------------------------------|
| pH                | 6-9                             | pH units | N/A                           |
| Total Arsenic     | 0.100                           | mg/L     | N/A                           |
| Dissolved Cadmium | 0.010                           | mg/L     | N/A                           |
| Total Chromium    | 0.100                           | mg/L     | N/A                           |
| Dissolved Cobalt  | 0.050                           | mg/L     | N/A                           |
| Dissolved Copper  | 0.200                           | mg/L     | N/A                           |
| Dissolved Lead    | 0.050                           | mg/L     | N/A                           |
| Total Mercury     | 0.6                             | µg/L     | N/A                           |
| Dissolved Nickel  | 0.200                           | mg/L     | N/A                           |
| Total Zinc        | 1.0                             | mg/L     | N/A                           |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible /<br><b>16.4</b> |
| PCBs              | 50*<br>5**                      | µg/L     | N/A                           |
| Phenols           | 20                              | µg/L     | N/A                           |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 4 (DSC01700) Sample 10-28666:** Wide angle of Tank 2, facing NW. The sample was collected from a hole in the top of the tank. The primary wastewater treatment system is in the foreground and a second wastewater treatment system, initiated on September 10, is visible behind the ladder on the left of the picture.

*Waste water sample 10-28666 was above criteria for oil and grease and therefore Tank 2 was not discharged to land. Further treatment was required.*

**LOCATION: TANK 2 AT HAZARDOUS WASTE PROCESSING AREA (HWP) -  
SAMPLE COLLECTED FROM DISCHARGE OF ACTIVATED CARBON WASTEWATER  
TREATMENT SYSTEM (ONE OF TWO WASTEWATER TREATMENT SYSTEMS BEING  
SIMULTANEOUSLY EMPLOYED TO TREAT THE WATER).**

**GPS COORDINATES: 0552910 E 7581810 N**

**SAMPLE: 10-28667**

**DATE: SEPTEMBER 11, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample # 10-28667          |
|-------------------|---------------------------------|----------|----------------------------|
| pH                | 6-9                             | pH units | N/A                        |
| Total Arsenic     | 0.100                           | mg/L     | N/A                        |
| Dissolved Cadmium | 0.010                           | mg/L     | N/A                        |
| Total Chromium    | 0.100                           | mg/L     | N/A                        |
| Dissolved Cobalt  | 0.050                           | mg/L     | N/A                        |
| Dissolved Copper  | 0.200                           | mg/L     | N/A                        |
| Dissolved Lead    | 0.050                           | mg/L     | N/A                        |
| Total Mercury     | 0.6                             | µg/L     | N/A                        |
| Dissolved Nickel  | 0.200                           | mg/L     | N/A                        |
| Total Zinc        | 1.0                             | mg/L     | N/A                        |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible / <b>13.3</b> |
| PCBs              | 50*<br>5**                      | µg/L     | N/A                        |
| Phenols           | 20                              | µg/L     | N/A                        |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 5 (DSC01699) Sample 10-28667:** Wide angle of Tank 2, facing north. The sample was collected from the effluent from the activated carbon wastewater treatment system. The effluent is pumped back into the tank at the left side of the picture.

*Waste water sample 10-28667 was above criteria for oil and grease and therefore was not discharged to land.*

**LOCATION: TANK 2 AT HAZARDOUS WASTE PROCESSING AREA (HWP) -  
SAMPLE COLLECTED FROM OPENING AT TOP OF TANK.**

**GPS COORDINATES: 0552923 E 7581810 N**

**SAMPLE: 10-28669**

**DATE: SEPTEMBER 12, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample #<br>10-28669          |
|-------------------|---------------------------------|----------|-------------------------------|
| pH                | 6-9                             | pH units | N/A                           |
| Total Arsenic     | 0.100                           | mg/L     | N/A                           |
| Dissolved Cadmium | 0.010                           | mg/L     | N/A                           |
| Total Chromium    | 0.100                           | mg/L     | N/A                           |
| Dissolved Cobalt  | 0.050                           | mg/L     | N/A                           |
| Dissolved Copper  | 0.200                           | mg/L     | N/A                           |
| Dissolved Lead    | 0.050                           | mg/L     | N/A                           |
| Total Mercury     | 0.6                             | µg/L     | N/A                           |
| Dissolved Nickel  | 0.200                           | mg/L     | N/A                           |
| Total Zinc        | 1.0                             | mg/L     | N/A                           |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible /<br><b>18.4</b> |
| PCBs              | 50*<br>5**                      | µg/L     | N/A                           |
| Phenols           | 20                              | µg/L     | N/A                           |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 6 (DSC01723) Sample 10-28669:** Wide angle of Tank 2, facing NW. The sample was collected from a hole in the top of the tank. The primary wastewater treatment system is in the foreground and a second wastewater treatment system is visible behind the ladder on the left of the picture.

*Waste water sample 10-28669 was above criteria for oil and grease and therefore Tank 2 was not discharged to land. Further treatment was required.*

**LOCATION: TANK 2 AT HAZARDOUS WASTE PROCESSING AREA (HWP) -  
SAMPLE COLLECTED FROM DISCHARGE OF ACTIVATED CARBON WASTEWATER  
TREATMENT SYSTEM (ONE OF TWO WASTEWATER TREATMENT SYSTEMS BEING  
SIMULTANEOUSLY EMPLOYED TO TREAT THE WATER).**

**GPS COORDINATES: 0552910 E 7581810 N**

**SAMPLE: 10-28670**

**DATE: SEPTEMBER 12, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample # 10-28670          |
|-------------------|---------------------------------|----------|----------------------------|
| pH                | 6-9                             | pH units | N/A                        |
| Total Arsenic     | 0.100                           | mg/L     | N/A                        |
| Dissolved Cadmium | 0.010                           | mg/L     | N/A                        |
| Total Chromium    | 0.100                           | mg/L     | N/A                        |
| Dissolved Cobalt  | 0.050                           | mg/L     | N/A                        |
| Dissolved Copper  | 0.200                           | mg/L     | N/A                        |
| Dissolved Lead    | 0.050                           | mg/L     | N/A                        |
| Total Mercury     | 0.6                             | µg/L     | N/A                        |
| Dissolved Nickel  | 0.200                           | mg/L     | N/A                        |
| Total Zinc        | 1.0                             | mg/L     | N/A                        |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible / <b>12.5</b> |
| PCBs              | 50*<br>5**                      | µg/L     | N/A                        |
| Phenols           | 20                              | µg/L     | N/A                        |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 7 (DSC01722) Sample 10-28670:** Wide angle of Tank 2, facing north. The sample was collected from the effluent from the activated carbon wastewater treatment system. The effluent is pumped back into the tank at the left side of the picture.

*Waste water sample 10-28670 was above criteria for oil and grease and therefore was not discharged to land.*



**LOCATION: TANK 2 AT HAZARDOUS WASTE PROCESSING AREA (HWP) -  
SAMPLE COLLECTED FROM EFFLUENT FROM MAIN WASTEWATER TREATMENT  
SYSTEM, WHICH WAS ALSO THE TANK DISCHARGE. TANK WAS DISCHARGING AT  
TIME OF SAMPLING.**

**GPS COORDINATES: 0552909 E 7581759 N**

**SAMPLE: 10-28672**

**DATE: SEPTEMBER 16, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample # 10-28672         |
|-------------------|---------------------------------|----------|---------------------------|
| pH                | 6-9                             | pH units | N/A                       |
| Total Arsenic     | 0.100                           | mg/L     | N/A                       |
| Dissolved Cadmium | 0.010                           | mg/L     | N/A                       |
| Total Chromium    | 0.100                           | mg/L     | N/A                       |
| Dissolved Cobalt  | 0.050                           | mg/L     | N/A                       |
| Dissolved Copper  | 0.200                           | mg/L     | N/A                       |
| Dissolved Lead    | 0.050                           | mg/L     | N/A                       |
| Total Mercury     | 0.6                             | µg/L     | N/A                       |
| Dissolved Nickel  | 0.200                           | mg/L     | N/A                       |
| Total Zinc        | 1.0                             | mg/L     | N/A                       |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible / <b>5.9</b> |
| PCBs              | 50*<br>5**                      | µg/L     | N/A                       |
| Phenols           | 20                              | µg/L     | N/A                       |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 8 (DSC01746) Sample 10-28672:** Wide angle of Tank 2, facing northwest. Water from Tank 2 was passed through the wastewater treatment system (right) and discharged to land.

*Waste water from Tank 2 in the HWP was discharged to land on September 16, 2010 to an INAC approved location (0552016 E 7581605 N). Although this sample was over the WDC for oil and grease, the decision to discharge before results were available, was made in order to facilitate the camp closure.*

**LOCATION: INSTA BERM AT THE TANK FARM – EASTERN SIDE**

**GPS COORDINATES: 0551731 E 7581467 N**

**SAMPLE: 10-28648**

**DATE: SEPTEMBER 1, 2010**

| <b>Parameter</b>         | <b>Maximum Allowable Concentration</b> | <b>Units</b> | <b>Sample #<br/>10-28648</b>  |
|--------------------------|--|--------------|-------------------------------|
| <b>pH</b>                | 6-9                                    | pH units     | N/A                           |
| <b>Total Arsenic</b>     | 0.100                                  | mg/L         | N/A                           |
| <b>Dissolved Cadmium</b> | 0.010                                  | mg/L         | N/A                           |
| <b>Total Chromium</b>    | 0.100                                  | mg/L         | N/A                           |
| <b>Dissolved Cobalt</b>  | 0.050                                  | mg/L         | N/A                           |
| <b>Dissolved Copper</b>  | 0.200                                  | mg/L         | N/A                           |
| <b>Dissolved Lead</b>    | 0.050                                  | mg/L         | N/A                           |
| <b>Total Mercury</b>     | 0.6                                    | µg/L         | N/A                           |
| <b>Dissolved Nickel</b>  | 0.200                                  | mg/L         | N/A                           |
| <b>Total Zinc</b>        | 1.0                                    | mg/L         | N/A                           |
| <b>Oil &amp; Grease</b>  | None Visible and 5 mg/L                | mg/L         | None visible /<br><b>49.2</b> |
| <b>PCBs</b>              | 50*<br>5**                             | µg/L         | N/A                           |
| <b>Phenols</b>           | 20                                     | µg/L         | N/A                           |

\*Discharge to barren land, \*\*Discharge to vegetated land

*Waste water sample 10-28648 was above criteria for oil and grease and therefore was not discharged to land.*

**LOCATION: INSTA BERM AT THE TANK FARM – EASTERN SIDE**

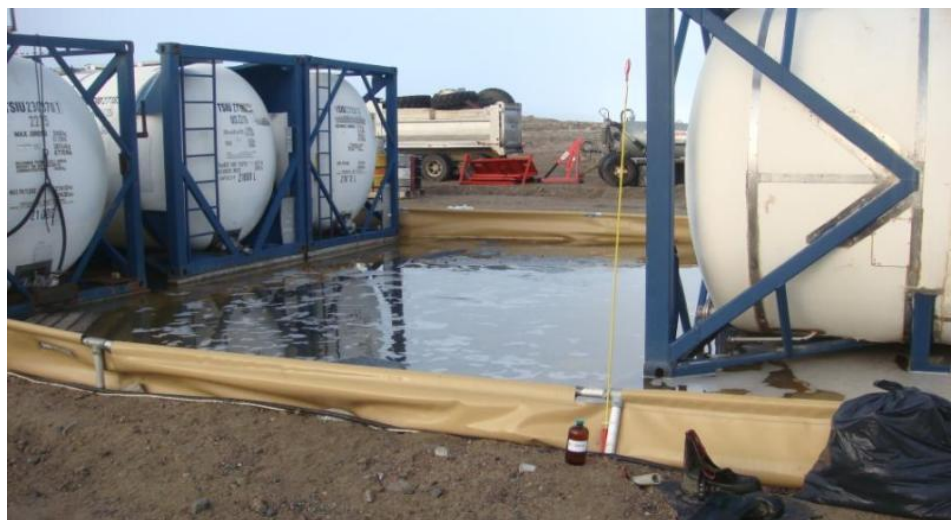
**GPS COORDINATES: 0551731 E 7581467 N**

**SAMPLE: 10-28656**

**DATE: SEPTEMBER 3, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample #<br>10-28648          |
|-------------------|---------------------------------|----------|-------------------------------|
| pH                | 6-9                             | pH units | N/A                           |
| Total Arsenic     | 0.100                           | mg/L     | N/A                           |
| Dissolved Cadmium | 0.010                           | mg/L     | N/A                           |
| Total Chromium    | 0.100                           | mg/L     | N/A                           |
| Dissolved Cobalt  | 0.050                           | mg/L     | N/A                           |
| Dissolved Copper  | 0.200                           | mg/L     | N/A                           |
| Dissolved Lead    | 0.050                           | mg/L     | N/A                           |
| Total Mercury     | 0.6                             | µg/L     | N/A                           |
| Dissolved Nickel  | 0.200                           | mg/L     | N/A                           |
| Total Zinc        | 1.0                             | mg/L     | N/A                           |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible /<br><b>12.2</b> |
| PCBs              | 50*<br>5**                      | µg/L     | N/A                           |
| Phenols           | 20                              | µg/L     | N/A                           |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 9 (DSC01632) Sample 10-28656:** Wide angle of the Insta Berm at the Tank Farm, facing west.

*Waste water sample 10-28656 was above criteria for oil and grease and therefore was not discharged to land.*



**LOCATION: INSTA BERM AT THE TANK FARM – EASTERN SIDE**

**GPS COORDINATES: 0551731 E 7581467 N**

**SAMPLE: 10-28658**

**DATE: SEPTEMBER 8, 2010**

| Parameter         | Maximum Allowable Concentration | Units    | Sample #<br>10-28648  |
|-------------------|---------------------------------|----------|-----------------------|
| pH                | 6-9                             | pH units | N/A                   |
| Total Arsenic     | 0.100                           | mg/L     | N/A                   |
| Dissolved Cadmium | 0.010                           | mg/L     | N/A                   |
| Total Chromium    | 0.100                           | mg/L     | N/A                   |
| Dissolved Cobalt  | 0.050                           | mg/L     | N/A                   |
| Dissolved Copper  | 0.200                           | mg/L     | N/A                   |
| Dissolved Lead    | 0.050                           | mg/L     | N/A                   |
| Total Mercury     | 0.6                             | µg/L     | N/A                   |
| Dissolved Nickel  | 0.200                           | mg/L     | N/A                   |
| Total Zinc        | 1.0                             | mg/L     | N/A                   |
| Oil & Grease      | None Visible and 5 mg/L         | mg/L     | None visible /<br>2.0 |
| PCBs              | 50*<br>5**                      | µg/L     | N/A                   |
| Phenols           | 20                              | µg/L     | N/A                   |

\*Discharge to barren land, \*\*Discharge to vegetated land



**Photo 10 (DSC01678) Sample 10-28648:** Wide angle of the Insta Berm at the Tank Farm, facing west.

*Waste water sample 10-28656 was below criteria for oil and grease and the water within the Insta Berm was discharged across the airstrip on September 10<sup>th</sup> to an INAC approved location. (0551686E 7581556 N)*

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". The signature is fluid and cursive, with the first letter "C" being particularly large and stylized.

Candice Casucci  
Environmental Sciences Group

cc: Eva Schulz (UMA)  
Daniela Loock, Kat White, Shari Reed, Dean Morrow, Ian Goode (ESG)

## APPENDIX A LABORATORY RESULTS

|                         |                 |        |                        |           |        |        |        |        |
|-------------------------|-----------------|--------|------------------------|-----------|--------|--------|--------|--------|
| <b>ASU #</b>            | 13176           |        | <b>Report ID:</b>      | Cam-5 W35 |        |        |        |        |
| <b>Client:</b>          | ESG             |        | <b>Date Submitted:</b> | 2-Sep-10  |        |        |        |        |
|                         |                 |        | <b>Date tested:</b>    | 3-Sep-10  |        |        |        |        |
| <b>Site:</b>            | Cam-5           |        | <b>Date:</b>           | 3-Sep-10  |        |        |        |        |
|                         | 10-376          |        | <b>Matrix:</b>         | Water     |        |        |        |        |
| Report of Analysis      |                 |        |                        |           |        |        |        |        |
| <b>Total Metals</b>     | Results in mg/L |        |                        |           |        |        |        |        |
| SAMPLE                  | Cu              | Ni     | Co                     | Cd        | Pb     | Zn     | Cr     | As     |
| 10-28647                | -               | -      | -                      | -         | -      | 0.046  | <0.005 | <0.003 |
| Blank                   | -               | -      | -                      | -         | -      | <0.010 | <0.005 | <0.003 |
| Control                 | -               | -      | -                      | -         | -      | 3.04   | 0.83   | 0.75   |
| Control Target          | -               | -      | -                      | -         | -      | 3.00   | 0.80   | 0.80   |
| Dissolved Metals        |                 |        |                        |           |        |        |        |        |
| <b>Dissolved Metals</b> | Results in mg/L |        |                        |           |        |        |        |        |
| SAMPLE                  | Cu              | Ni     | Co                     | Cd        | Pb     | Zn     | Cr     | As     |
| 10-28647                | <0.005          | <0.005 | <0.003                 | <0.001    | <0.010 | -      | -      | -      |
| Blank                   | <0.005          | <0.005 | <0.003                 | <0.001    | <0.010 | -      | -      | -      |
| Control                 | 1.46            | 1.61   | 1.59                   | 0.81      | 8.00   | -      | -      | -      |
| Control Target          | 1.60            | 1.60   | 1.60                   | 0.80      | 8.00   | -      | -      | -      |

|                                  |                            |
|----------------------------------|----------------------------|
| <b>ESG</b>                       | ASG Login No: 21006        |
| 12 Verite Ave                    | Site: Cam-5                |
| Dept. of Chem. / Chem. Eng., RMC | Client No: 10-376          |
| P.O. Box 17000, Stn. Forces      | Samples Received: 2-Sep-10 |
| Kingston, Ontario K7K 7B4        | Date of analysis: 3-Sep-10 |
| (613) 541-6000 ext 6567          | Method No: ASG 021         |
| Fax: (613) 541-6596              | Date Reported: 3-Sep-10    |
|                                  | Sheet: 1 of 1              |

### RESULTS OF MERCURY IN WATER ANALYSIS

| Sample ID | Mercury <sup>^</sup> mg/L |
|-----------|---------------------------|
| 10-28647  | < 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 | 0.0041                    |

|  |                       |             |                     |                     |                            |
|--|-----------------------|-------------|---------------------|---------------------|----------------------------|
| <b>ESG</b>   |                       |             |                     |                     | ASG Login No: 21006        |
| 12 Verite Ave  |                       |             |                     |                     | Site: Cam-5                |
| Dept. of Chem. / Chem. Eng., RMC   |                       |             |                     |                     | Client No: 10-360          |
| P.O. Box 17000, Stn. Forces  |                       |             |                     |                     | Samples Received: 2-Sep-10 |
| Kingston, Ontario K7K 7B4  |                       |             |                     |                     | Date of analysis: 2-Sep-10 |
| (613) 541-6000 ext 6567  |                       |             |                     |                     | Method No: ASG 015         |
| Fax: (613) 541-6596  |                       |             |                     |                     | Date Reported: 3-Sep-10    |
|  |                       |             |                     |                     | Sheet No: 1 of 1           |
|  |                       |             |                     |                     |                            |
| <b>RESULTS OF PCB IN WATER ANALYSIS</b>  |                       |             |                     |                     |                            |
|  |                       |             |                     |                     |                            |
|  |                       |             |                     |                     |                            |
| <b>Sample Type **</b>  | <b>Sample I.D.</b>    | <b>Unit</b> | <b>Aroclor 1254</b> | <b>Aroclor 1260</b> |                            |
| W  | 28647                 | mg/L        | < 0.003             | < 0.003             |                            |
|  |                       |             |                     |                     |                            |
|  |                       |             |                     |                     |                            |
| **Report Values in PPM**   |                       |             |                     |                     |                            |
| * Average Result of Duplicate  |                       |             |                     |                     |                            |
|  |                       |             |                     |                     |                            |
| <b>LABORATORY QA/QC</b>  |                       |             |                     |                     |                            |
|  |                       |             |                     |                     |                            |
|  | 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 |                       |             |                     |                     |                            |

|  |              |  |                        |           |
|--|--------------|--|------------------------|-----------|
| <b>ASU #</b>                             | 13176        |  | <b>Report ID:</b>      | Cam-5 W34 |
| <b>Client:</b>                           | ESG          |  | <b>Date Submitted:</b> | 2-Sep-10  |
|  |              |  | <b>Date tested:</b>    | 3-Sep-10  |
| <b>Site:</b>                             | Cam-5        |  | <b>Date:</b>           | 3-Sep-10  |
|  | 10-376       |  | <b>Matrix:</b>         | water     |
|  |              |  |                        |           |
| Report of Analysis                       |              |  |                        |           |
|  |              |  |                        |           |
| Sample                                   | Oil & Grease |  |                        |           |
|  | mg/L         |  |                        |           |
|  |              |  |                        |           |
| 10-28647                                 | 93.7         |  |                        |           |
| 10-28648                                 | 49.2         |  |                        |           |
|  |              |  |                        |           |
| Blank                                    | <2.0         |  |                        |           |
|  |              |  |                        |           |
| Control                                  | 17.7         |  |                        |           |
| Control Target                           | 15.7         |  |                        |           |
|  |              |  |                        |           |
| Results relate only to the items tested. |              |  |                        |           |

|                    |              |  |                        |           |
|--------------------|--------------|--|------------------------|-----------|
| <b>ASU #</b>       | 13186        |  | <b>Report ID:</b>      | Cam-5 W37 |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 7-Sep-10  |
|                    |              |  | <b>Date tested:</b>    | 7-Sep-10  |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 7-Sep-10  |
|                    | 10-390       |  | <b>Matrix:</b>         | water     |
|                    |              |  |                        |           |
| Report of Analysis |              |  |                        |           |
|                    |              |  |                        |           |
| Sample             | Oil & Grease |  |                        |           |
|                    | mg/L         |  |                        |           |
|                    |              |  |                        |           |
| 10-28654           | 76.1         |  |                        |           |
| 10-28656           | 12.2         |  |                        |           |
|                    |              |  |                        |           |
| Blank              | <2.0         |  |                        |           |
|                    |              |  |                        |           |
| Control            | 14.4         |  |                        |           |
| Control Target     | 15.7         |  |                        |           |
|                    |              |  |                        |           |

|                    |              |  |                        |           |
|--------------------|--------------|--|------------------------|-----------|
| <b>ASU #</b>       | 13203        |  | <b>Report ID:</b>      | Cam-5 W38 |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 9-Sep-10  |
|                    |              |  | <b>Date tested:</b>    | 9-Sep-10  |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 10-Sep-10 |
|                    | 10-405       |  | <b>Matrix:</b>         | water     |
|                    |              |  |                        |           |
| Report of Analysis |              |  |                        |           |
|                    |              |  |                        |           |
| Sample             | Oil & Grease |  |                        |           |
|                    | mg/L         |  |                        |           |
|                    |              |  |                        |           |
| 10-28657           | 30.6         |  |                        |           |
| 10-28658           | 2.0          |  |                        |           |
|                    |              |  |                        |           |
| Blank              | <2.0         |  |                        |           |
|                    |              |  |                        |           |
| Control            | 14.1         |  |                        |           |
| Control Target     | 15.7         |  |                        |           |

|                    |              |  |                        |           |
|--------------------|--------------|--|------------------------|-----------|
| <b>ASU #</b>       | 13212        |  | <b>Report ID:</b>      | Cam-5 W39 |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 13-Sep-10 |
|                    |              |  | <b>Date tested:</b>    | 13-Sep-10 |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 13-Sep-10 |
|                    | 10-414       |  | <b>Matrix:</b>         | water     |
|                    |              |  |                        |           |
| Report of Analysis |              |  |                        |           |
|                    |              |  |                        |           |
| Sample             | Oil & Grease |  |                        |           |
|                    | mg/L         |  |                        |           |
|                    |              |  |                        |           |
| 10-28664           | 13.6         |  |                        |           |
|                    |              |  |                        |           |
| Blank              | <2.0         |  |                        |           |
|                    |              |  |                        |           |
| Control            | 13.0         |  |                        |           |
| Control Target     | 15.9         |  |                        |           |
|                    |              |  |                        |           |

|                    |              |  |                        |           |
|--------------------|--------------|--|------------------------|-----------|
| <b>ASU #</b>       | 13213        |  | <b>Report ID:</b>      | Cam-5 W40 |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 13-Sep-10 |
|                    |              |  | <b>Date tested:</b>    | 13-Sep-10 |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 13-Sep-10 |
|                    | 10-416       |  | <b>Matrix:</b>         | water     |
|                    |              |  |                        |           |
| Report of Analysis |              |  |                        |           |
|                    |              |  |                        |           |
| Sample             | Oil & Grease |  |                        |           |
|                    | mg/L         |  |                        |           |
|                    |              |  |                        |           |
| 10-28666           | 16.4         |  |                        |           |
| 10-28667           | 13.3         |  |                        |           |
|                    |              |  |                        |           |
| Blank              | <2.0         |  |                        |           |
|                    |              |  |                        |           |
| Control            | 13.0         |  |                        |           |
| Control Target     | 15.9         |  |                        |           |

|                    |              |  |                        |           |
|--------------------|--------------|--|------------------------|-----------|
| <b>ASU #</b>       | 13214        |  | <b>Report ID:</b>      | Cam-5 W41 |
| <b>Client:</b>     | ESG          |  | <b>Date Submitted:</b> | 13-Sep-10 |
|                    |              |  | <b>Date tested:</b>    | 13-Sep-10 |
| <b>Site:</b>       | Cam-5        |  | <b>Date:</b>           | 13-Sep-10 |
|                    | 10-418       |  | <b>Matrix:</b>         | water     |
|                    |              |  |                        |           |
| Report of Analysis |              |  |                        |           |
|                    |              |  |                        |           |
| Sample             | Oil & Grease |  |                        |           |
|                    | mg/L         |  |                        |           |
|                    |              |  |                        |           |
| 10-28669           | 18.4         |  |                        |           |
| 10-28670           | 12.5         |  |                        |           |
|                    |              |  |                        |           |
| Blank              | <2.0         |  |                        |           |
|                    |              |  |                        |           |
| Control            | 13.0         |  |                        |           |
| Control Target     | 15.9         |  |                        |           |

|  |              |  |                        |           |
|--|--------------|--|------------------------|-----------|
| <b>ASU #</b>                             | 13238        |  | <b>Report ID:</b>      | Cam-5 W43 |
| <b>Client:</b>                           | ESG          |  | <b>Date Submitted:</b> | 17-Sep-10 |
|  |              |  | <b>Date tested:</b>    | 17-Sep-10 |
| <b>Site:</b>                             | Cam-5        |  | <b>Date:</b>           | 17-Sep-10 |
|  | 10-450       |  | <b>Matrix:</b>         | water     |
|  |              |  |                        |           |
| Report of Analysis                       |              |  |                        |           |
|  |              |  |                        |           |
| Sample                                   | Oil & Grease |  |                        |           |
|  | mg/L         |  |                        |           |
|  |              |  |                        |           |
| 10-28672                                 | 5.9          |  |                        |           |
|  |              |  |                        |           |
| Blank                                    | <2.0         |  |                        |           |
|  |              |  |                        |           |
| Control                                  | 13.1         |  |                        |           |
| Control Target                           | 15.7         |  |                        |           |
|  |              |  |                        |           |
| Results relate only to the items tested. |              |  |                        |           |







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<br><b>06-14-2010</b>   |                                      | REPORT TIME<br><b>12h00</b>   |   | <input checked="" type="checkbox"/> ORIGINAL SPILL REPORT,<br>OR<br><input type="checkbox"/> UPDATE # _____<br>TO THE ORIGINAL SPILL REPORT | REPORT NUMBER<br>_____  |
|                       | OCCURRENCE DATE: MONTH – DAY – YEAR<br><b>06-12-2010</b>   |                                      | OCCURRENCE TIME<br><b>noticed 12Jun2010</b>   |   |   |   |
| C                     | LAND USE PERMIT NUMBER (IF APPLICABLE)<br><b>N2005X0038</b>  |                                      |   | WATER LICENCE NUMBER (IF APPLICABLE)<br><b>1BR-MAC0712</b>  |   |   |
|                       | GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION<br><b>CAM-5 Mackar Inlet; Incineration area</b>  |                                      |   |   | REGION<br><input type="checkbox"/> NWT <input checked="" type="checkbox"/> NUNAVUT <input type="checkbox"/> ADJACENT JURISDICTION OR OCEAN  |   |
| E                     | LATITUDE<br>DEGREES <b>68</b> MINUTES <b>17</b> SECONDS  |                                      |   | LONGITUDE<br>DEGREES <b>85</b> MINUTES <b>07</b> SECONDS  |   |   |
|                       | RESPONSIBLE PARTY OR VESSEL NAME<br><b>Defence Construction Canada</b>   |                                      | RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION<br><b>350 Albert, Suite 1720, Ottawa, Ontario, K1A 0K3</b> |   |   |   |
| G                     | ANY CONTRACTOR INVOLVED<br><b>Bioginie</b>   |                                      | CONTRACTOR ADDRESS OR OFFICE LOCATION<br><b>350, rue Franquet, Quebec City, Quebec, G1P 4P3</b>         |   |   |   |
|                       | PRODUCT SPILLED<br><b>Diesel fuel</b>  |                                      | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES<br><b>est. 900 liters</b>                                 |   | U.N. NUMBER<br><b>1202</b>  |   |
| H                     | SECOND PRODUCT SPILLED (IF APPLICABLE)   |                                      | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES   |   | U.N. NUMBER   |   |
|                       | SPILL SOURCE<br><b>Fuel Line</b>   |                                      | SPILL CAUSE<br><b>broken fuel line</b>  |   | AREA OF CONTAMINATION IN SQUARE METRES<br><b>est. 1500 sq. meters</b>   |   |
| I                     | FACTORS AFFECTING SPILL OR RECOVERY<br><b>None</b>   |                                      | DESCRIBE ANY ASSISTANCE REQUIRED<br><b>None</b>   |   | HAZARDS TO PERSONS, PROPERTY OR ENVIRONMENT<br><b>None</b>  |   |
|                       | ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS<br><b>See attached description for additional information.</b>  |                                      |   |   |   |   |
| K                     |  |                                      |   |   |   |   |
|                       |  |                                      |   |   |   |   |
| L                     | REPORTED TO SPILL LINE BY<br><b>Robert Bellizzi</b>  | POSITION<br><b>DLCU Env. Officer</b> | EMPLOYER<br><b>DCC</b>  | LOCATION CALLING FROM<br><b>Ottawa</b>  | TELEPHONE<br><b>613-998-7288</b>  |   |
|                       | ANY ALTERNATE CONTACT<br><b>Don BEattie</b>  | POSITION<br><b>Assoc. Proj. Mng</b>  | EMPLOYER<br><b>DCC</b>  | ALTERNATE CONTACT<br><b>Ottawa</b>  | ALTERNATE TELEPHONE<br><b>613-998-9540</b>  |   |
| REPORT LINE USE ONLY  |  |                                      |   |   |   |   |
| N                     | RECEIVED AT SPILL LINE BY  | POSITION<br>STATION OPERATOR         | EMPLOYER  | LOCATION CALLED<br>YELLOWKNIFE, NT  | REPORT LINE NUMBER<br>(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  |  |                                      |   |   |   |   |



Environmental Sciences Group  
Royal Military College of Canada  
P.O. Box 17000 Stn. Forces  
Kingston, Ontario K7K 7B4

**(ESG-CAM-5-264)**

## MEMORANDUM

TO: John Van Hoof, Contract Coordinator (DCC)

FROM: Dean Morrow, Team Leader (ESG)

DATE: June 12, 2010

### **RE: Fuel Spill from Incinerator Fuel Line**

On June 12<sup>th</sup> ESG was notified of a spill from the fuel tank line which connects to the camp incinerator. Biogenie employees identified sheen and some free product on the melt water stream downgradient of the incinerator. The stream flowed directly south of the incinerator under the sewage discharge pipe and into the drainage ditch on the south side of Cell 1 of the sewage lagoon. After some further investigation it was discovered that the fuel line had been cut possibly during the snow removal process at the incinerator. Prior to this being identified, the fuel tank had been filled to its capacity of 250 L and as a result the fuel leaked out of the cut hose onto the surrounding ground.

Biogenie placed absorbent booms and pads at various intervals along the melt water stream to a point in the drainage ditch on the south side of the Sewage Lagoon Cell 1 where the sheen was no longer visible. The free product that was observed was skimmed with the use of the Pichon vacuum system (Photograph 2). The product will be brought to Hazardous Waste Processing area (HWP) for processing and analysis. An excavator was mobilized to the area to excavate all the snow immediately downgradient of the source (Photograph 3). The snow was transported to the HWP and placed in an 18,000 gallon tank for treatment and analysis at a later date. Approximately three cubic meters of soil was excavated at the source location and transported to the landfarm for remediation (Photograph 4).

ESG will have to conduct sampling and analysis on the impacted area to determine the extent and depth of the contamination within the soil matrix. All absorbent booms and pads must be picked up and properly disposed once work in this area is complete.

If you have any questions, do not hesitate to contact me.

Sincerely,



Dean Morrow

ESG Team Leader for CAM-5

PHONE: 403-313-8118

EMAIL: Dean.Morrow@rmc.ca



**Photograph 1 (DSC00932):** Diesel Tank and hose where the fuel leaked from (coiled on the berm to the right of the photo) with Cell 1 and 2 of the Sewage Lagoon in the background.



**Photograph 2 (DSC00944):** Biogenie employee using the Pichon vacuum system to skim the free product from the melt water stream. Absorbent pads downgradient of the spill in the melt water stream are seen in the foreground. The Incinerator and fuel tank are visible in the background.





**Photograph 3 (DSC00941):** Snow directly downgradient of the source being removed and transported to the HWP.



**Photograph 4 (DSC00952):** Soil directly downgradient of the source being removed and transported to the Landfarm.



Environmental Sciences Group  
Royal Military College of Canada  
P.O. Box 17000 Stn. Forces  
Kingston, Ontario K7K 7B4

(ESG-CAM-5-334)

## MEMORANDUM

TO: Patricia O'Donnell, Site Manager (DCC)

CC: Dan Berube, Contract Coordinator (DCC)  
Robert Bellizzi, Permit Committee Member (DCC)  
Eva Schulz, Permit Committee Member (AECOM)  
Kat White, Permit Committee Member (ESG)

FROM: Dean Morrow, Team Leader (ESG)

DATE: July 8, 2010

### **RE: Investigation Sampling Results for Diesel Spill at Camp Incinerator**

On June 24<sup>th</sup>, ESG collected samples at the location of the Diesel Spill which occurred from a fuel line connecting to the camp incinerator (See ESG-CAM-5-264). A total 23 samples were collected from 11 test pits from the area of suspected contamination.

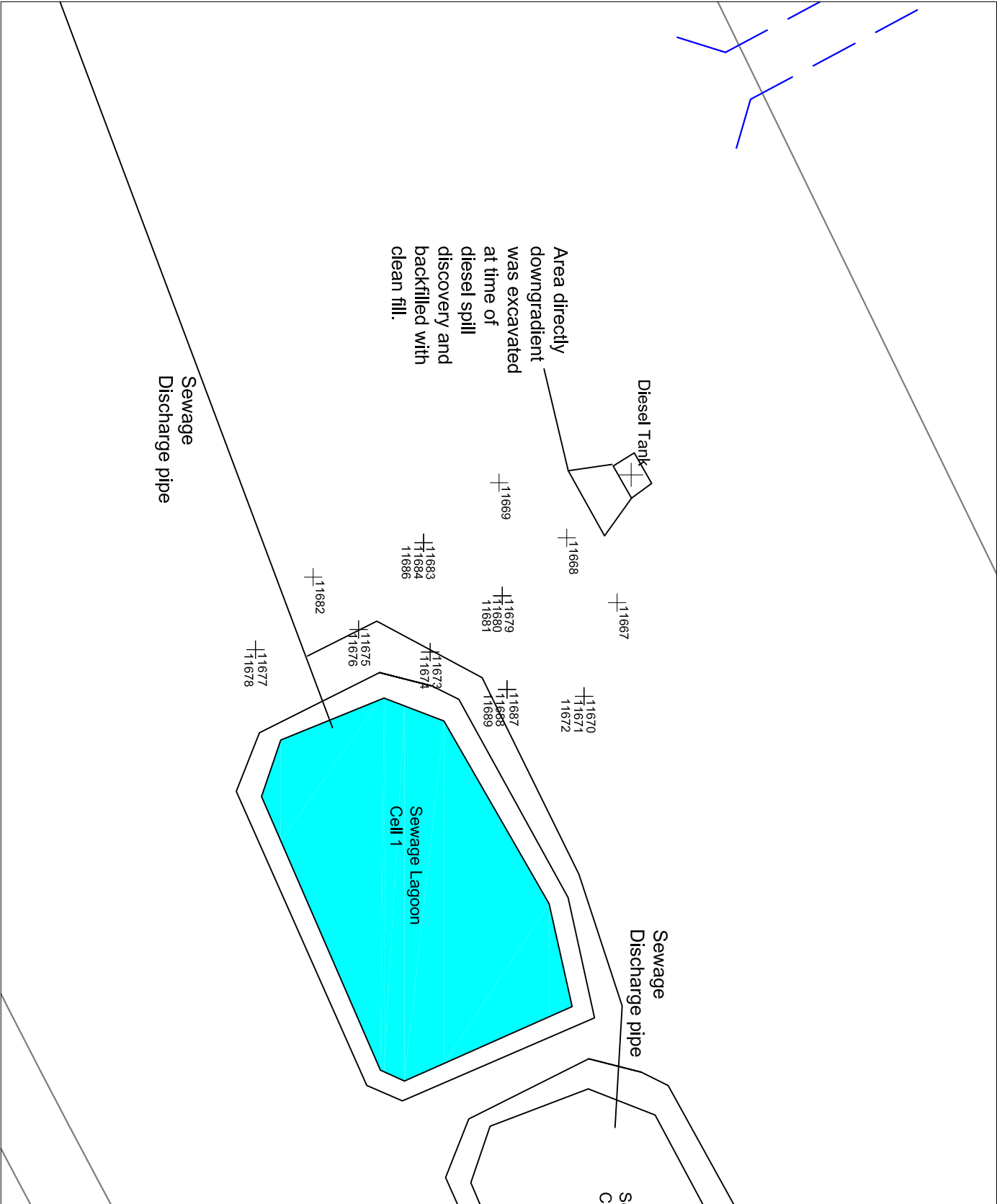
Southern results for the analysis of total petroleum hydrocarbons (TPH) have now been received and indicate that all samples are below the Dew Line Cleanup Guideline for Type B TPH. No further work is required for this area.

Please see the attached map for more details of the investigated area.

If you have any questions, do not hesitate to contact me.

Sincerely,

Dean Morrow  
ESG Team Leader for CAM-5  
PHONE: 403-303-8067  
EMAIL: Dean.Morrow@rmc.ca



Map: Incinerator Fuel Spill Investigation



Grid Scale: 100 metres  
Projection: Universal Transverse Mercator (UTM) Zone 18 W  
Datum: North American Datum 1983 (NAD83)  
Original Sources:  
Government of Canada  
Environmental Sciences Group  
UK Engineering Limited  
AECOM Technology Group

Legend

| Sample & Area Definitions              |  | Tag Number | Area |
|--|--|------------|------|
| Background Clean                       |  |            |      |
| Not Analyzed                           |  |            |      |
| CEPA                                   |  |            |      |
| Tier II                                |  |            |      |
| Tier II & TPH Type A                   |  |            |      |
| Tier II & TPH Type B                   |  |            |      |
| Tier I                                 |  |            |      |
| Tier I & TPH Type A                    |  |            |      |
| Tier I & TPH Type B                    |  |            |      |
| TPH Type A                             |  |            |      |
| TPH Type B                             |  |            |      |
| Other                                  |  |            |      |
| Primary Landfill Excavation            |  |            |      |
| Feature Definitions                    |  |            | Area |
| CEPA Remediated                        |  |            |      |
| Tier II Remediated                     |  |            |      |
| Tier II & TPH Type A Remediated        |  |            |      |
| Tier II & TPH Type B Remediated        |  |            |      |
| Tier I Remediated                      |  |            |      |
| Tier I & TPH Type A Remediated         |  |            |      |
| Tier I & TPH Type B Remediated         |  |            |      |
| TPH Type A Remediated                  |  |            |      |
| TPH Type B Remediated                  |  |            |      |
| Other Remediated                       |  |            |      |
| Primary Landfill Excavation Remediated |  |            |      |

Notes:

UPDATED: April 02/2010  
PRINTED: April 12/2010  
J:\PROJECTS\CMAA-5-2009\Post-Season Work  
CMAA-5, Confirmation, January 13, 2009, Post-Seasoning

Environmental Sciences Group  
The Royal Military College of Canada  
PO Box 17000 Stn Forces  
Kingston, Ontario K7K 7B4  
Tel: (613) 541-4900 ext. 5630  
Fax: (613) 541-4598





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<br><b>06-16-2010</b>  |   | REPORT TIME<br><b>2:30 pm</b>   |   | <input checked="" type="checkbox"/> ORIGINAL SPILL REPORT, OR<br><input type="checkbox"/> UPDATE # _____ TO THE ORIGINAL SPILL REPORT      | REPORT NUMBER<br>_____  |
|                       | OCCURRENCE DATE: MONTH – DAY – YEAR<br><b>observed 06-15-2010</b>   |   | OCCURRENCE TIME<br><b>observed 13h06</b>  |   |  |   |
| C                     | LAND USE PERMIT NUMBER (IF APPLICABLE)<br><b>N2005X0038</b>   |   |   | WATER LICENCE NUMBER (IF APPLICABLE)<br><b>1BR-MAC0712</b>  |  |   |
|                       | GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION<br><b>Cam-5, Mackar Inlet, NU</b>   |   |   |   | REGION<br><input type="checkbox"/> NWT <input checked="" type="checkbox"/> NUNAVUT <input type="checkbox"/> ADJACENT JURISDICTION OR OCEAN |   |
| E                     | LATITUDE<br>DEGREES <b>68</b> MINUTES <b>18</b> SECONDS   |   |   | LONGITUDE<br>DEGREES <b>85</b> MINUTES <b>40</b> SECONDS  |  |   |
|                       | RESPONSIBLE PARTY OR VESSEL NAME<br><b>Defence Construction Canada</b>  |   | RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION<br><b>350 Albert Street, Suite 1720, Ottawa, ON, K1A 0K3</b> |   |  |   |
| G                     | ANY CONTRACTOR INVOLVED<br><b>None</b>  |   | CONTRACTOR ADDRESS OR OFFICE LOCATION   |   |  |   |
|                       | PRODUCT SPILLED<br><b>Contact Water</b>   |   | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES<br><b>approx. 14,500 L/day</b>                              |   | U.N. NUMBER<br><b>n/a</b>  |   |
| H                     | SECOND PRODUCT SPILLED (IF APPLICABLE)<br><b>n/a</b>  |   | QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES<br><b>n/a</b>   |   | U.N. NUMBER<br><b>n/a</b>  |   |
|                       | SPILL SOURCE<br><b>landfarm</b>   |   | SPILL CAUSE<br><b>snow melt</b>   |   | AREA OF CONTAMINATION IN SQUARE METRES<br><b>n/a</b>   |   |
| J                     | FACTORS AFFECTING SPILL OR RECOVERY<br><b>weather - continued snow melt</b>   |   | DESCRIBE ANY ASSISTANCE REQUIRED<br><b>none</b>   |   | HAZARDS TO PERSONS, PROPERTY OR ENVIRONMENT<br><b>none</b>   |   |
|                       | ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS<br><b>Surface water is exiting the landfarm through an engineered breach in the west berm. the breach was constructed in 2009 to ensure that groundwater infiltration into the facility would not cause berm failure over the winter. No sheen was observed on the contact water, but the analytical results for a sample collected inside the facility indicate an oil&amp;grease concentration of 5.8 mg/L, which exceeds the criteria in the WUL of 5.0 mg/L. Water existing the facility is passing through a hydrocarbon sorbent boom and a french drain. A packed barrel sorbent system is being installed on June 16. Further analysis of water exiting the facility will be conducted.</b> |   |   |   |  |   |
| L                     | REPORTED TO SPILL LINE BY<br><b>Robert Bellizzi</b>   | POSITION<br><b>DLCU Env. Officer</b>    | EMPLOYER<br><b>DCC</b>  | LOCATION CALLING FROM<br><b>Ottawa</b>  | TELEPHONE<br><b>613-998-7288</b>   |   |
|                       | ANY ALTERNATE CONTACT<br><b>Don Beattie</b>   | POSITION<br><b>Assoc. Project Manag</b> | EMPLOYER<br><b>DCC</b>  | ALTERNATE CONTACT LOCATION<br><b>Ottawa</b>   | ALTERNATE TELEPHONE<br><b>613-998-9540</b>   |   |
| REPORT LINE USE ONLY  |   |   |   |   |  |   |
| N                     | RECEIVED AT SPILL LINE BY   | POSITION<br>STATION OPERATOR            | EMPLOYER  | LOCATION CALLED<br>YELLOWKNIFE, NT  | REPORT LINE NUMBER<br>(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  |   |   |   |   |  |   |









## Schulz, Eva

---

**From:** Bellizzi, Robert [Robert.Bellizzi@dcc-cdc.gc.ca]  
**Sent:** June 23, 2010 1:49 PM  
**To:** Didham, Curtis [lqa]  
**Cc:** Andrew Keim  
**Subject:** RE: Spill Report 2010-241 Cam-5, Mackar Inlet

Hello Curtis (and Andrew):

We have received additional laboratory results for the contact water within the landfarm. The results were <2.0 ppm and no visible sheen was observed. The water has now been discharged from the facility to the INAC approved discharge location. Currently, there is no water within the landfarm facility. I have attached the lab results for your review. If you require any additional information please let me know. I will update the spill line with this new information.

Thanks and regards,

Robert

---

From: Didham, Curtis [lqa] [<mailto:Curtis.Didham@ec.gc.ca>]  
Sent: Wednesday, June 23, 2010 9:46 AM  
To: Bellizzi, Robert  
Cc: Andrew Keim  
Subject: Spill Report 2010-241 Cam-5, Mackar Inlet

Good Morning Robert,

Please forward your lab results to myself and Andrew Keim (INAC Water Resource Officer) for the contact water spill from the landfarm at Cam-5, Mackar Inlet once you receive them. Can you tell me how far the ocean is from the landfarm spill and how far away is there any freshwater creeks or rivers. Also, please ensure a spill report update is sent to the spill line once you receive the results.

Thanks,

### Curtis Didham

Enforcement Officer | Agent de l'autorité  
Northern District (NT & NU) | District du nord (NT & NU)  
Prairie & Northern Region | Région des prairies et du nord  
Environmental Enforcement Directorate | Direction de l'application de la loi en environnement  
Enforcement Branch | Direction générale de l'application de la loi  
Environment Canada | Environnement Canada  
969 Qimugjuk Building, Federal Road  
E-Mail | Courriel: [curtis.didham@ec.gc.ca](mailto:curtis.didham@ec.gc.ca)  
P.O. Box 1870 Iqaluit, NU X0A 0H0  
Telephone | Téléphone: 867-975-4644  
Facsimile | Télécopieur: 867-975-4594  
Cell | Cellulaire: 867-222-1925  
Government of Canada | Gouvernement du Canada  
Website | Site Web [www.ec.gc.ca](http://www.ec.gc.ca)

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# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-5, Mackar Inlet

**Site Location:**  
Nunavut

**Project No.**  
60153669

**Photo No.**  
1

**Date:**  
14-jun-  
2010

**Direction Photo  
Taken:**

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



**Photo No.**  
2

**Date:**  
19-sep-  
2010

**Direction Photo  
Taken:**

**Description:**  
Non-Hazardous Waste  
Landfill – September  
2010, final grading





# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-5, Mackar Inlet

**Site Location:**  
Nunavut

**Project No.**  
60153669

**Photo No.**  
3

**Date:**  
3-jul-  
2010

**Direction Photo  
Taken:**

**Description:**

Tier II Soil Disposal  
Facility - July 2010.



**Photo No.**  
4

**Date:**  
19-sep-  
2010

**Direction Photo  
Taken:**

**Description:**

Tier II Soil Disposal  
Facility – September  
2010, closed.





# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-5, Mackar Inlet

**Site Location:**  
Nunavut

**Project No.**  
60153669

**Photo No.**  
5

**Date:**  
4-jul-  
2010

**Direction Photo  
Taken:**

**Description:**

Landfarm – July 2010



**Photo No.**  
6

**Date:**  
14-sep-  
2010

**Direction Photo  
Taken:**

**Description:**

Landfarm – berm  
reshaping prior to final  
closure.





# PHOTOGRAPHIC LOG

**Site Name:**  
CAM-5, Mackar Inlet

**Site Location:**  
Nunavut

**Project No.**  
60153669

**Photo No.**  
7

**Date:**  
7-jul-2010

**Direction Photo Taken:**

**Description:**

Upper Site Landfill - Excavation



**Photo No.**  
8

**Date:**  
15-aug-2010

**Direction Photo Taken:**

**Description:**

Upper Site Landfill – completed excavation, showing placement of boulders.





# PHOTOGRAPHIC LOG

**Site Name:**  
CAM-5, Mackar Inlet

**Site Location:**  
Nunavut

**Project No.**  
60153669

**Photo No.**  
9

**Date:**  
11-jul-  
2010

**Direction Photo  
Taken:**

**Description:**

Lower Site Landfill –  
excavation of debris.



**Photo No.**  
10

**Date:**  
19-sep-  
2010

**Direction Photo  
Taken:**

**Description:**

Lower Site Landfill – final  
reshaping and erosion  
protection along toe.





# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-5, Mackar Inlet

**Site Location:**  
Nunavut

**Project No.**  
60153669

**Photo No.**  
11

**Date:**  
18-jun-  
2010

**Direction Photo  
Taken:**

**Description:**  
Airstrip Landfill –  
excavation.



**Photo No.**  
12

**Date:**  
31-aug-  
2010

**Direction Photo  
Taken:**

**Description:**  
Module Train Pad

