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403 254 3301 tel
403 270 9196 fax

July 21, 2011

Sean Joseph
Technical Advisor
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU

Dear Sean:

Project No: Water Use Licence No.: 1BR-BYR0712 2010 Annual Report

Regarding: Comments Dated June 13, 2011

AECOM Canada Ltd., on behalf of Defence Construction Canada and the Department of National Defence, is providing the following information in response to the comments received on June 13, 2011 with regards to the 2010 Annual Report for 1BR-BYR0712.

1. The volume of material placed in the Non-hazardous Waste Landfill to date, including intermediate fill, is approximately 5,460 m^3. The volume of material placed in the Tier II Disposal Facility to date, including intermediate fill, is approximately 2,475 m^3. The volume of material placed within the landfarm for treatment is approximately 2,800 m^3.

2. In order to prevent unauthorized discharges, the following actions will be taken: Samples of any meltwater from within the constructed facilities (landfarm, Non-Hazardous Waste Landfill, Tier II Disposal Facility) will be collected and analyzed prior to the discharge of contact water to ensure that it meets the quality guidelines provided within the water use license. Secondly, snow will be removed from the facilities immediately upon arrival at the site to reduce the potential for excessive contact water and the need to pump contact water from the facilities.

3. Efforts to ensure that effluent criteria are met prior to discharge include the collection and analysis of effluent samples prior to discharge. However, some locations, such as the PIN-4 site, have only coarse grained materials available and generally some seepage can be anticipated. All discharge and seepage from the PIN-4 sewage lagoon is to the tundra and not a waterway or waterbody. According to the water use license, the effluent quality standards apply at the point of discharge to a water body. The sewage lagoon at PIN-4 is located approximately 30 m from an area of seasonally ponded water, over 100 m from a permanent pond of water and over 1 km from the water supply lake. There are no flowing waterways, such as creeks or streams in the area. Therefore, the criteria are not strictly applicable to the point of effluent discharge at the PIN-4. However, if required, water

samples can be collected from the nearby water bodies to ensure that the effluent quality is being met.

4. References to the FOX-2 site have been removed from the Monitoring Report, which has been reissued and attached for reference.

5. As-built drawings for the permanent facilities (Non-Hazardous Waste Landfill and Tier II Disposal Facility) are prepared after the final cover has been placed and closure is complete. At this time, as-built drawings are not available, but will be provided upon closure of the facilities and completion of the remediation work at the site.

We trust the information provided is sufficient. Please feel free to contact the undersigned, or Tamara Van Dyck with Defence Construction Canada at 613-995-9741, if you have any additional questions or comments.

Sincerely,
AECOM Canada Ltd.

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

Encl.
cc: Tamara Van Dyck, DCC

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

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

March 15, 2011

RE: 2010 Report for Water Use License Number: 1BR-BYR0712

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 PIN-4 (Byron Bay).

1. CAMP SEWAGE LAGOON

A 2 cell sewage lagoon was constructed to service the PIN-4 construction camp in August 2009. The sewage lagoon was constructed a minimum of 100 m from drainage courses and water bodies.

2. SEWAGE EFFLUENT SAMPLES

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

No sampling was completed at the PIN-4 sewage lagoons during the 2010 field season. The level of liquid in the lagoons remained low, and discharge was not required.

Photo 1 (P9270732): PIN-4 sewage lagoon cell 1 facing northeast. Sept 27th 2010.

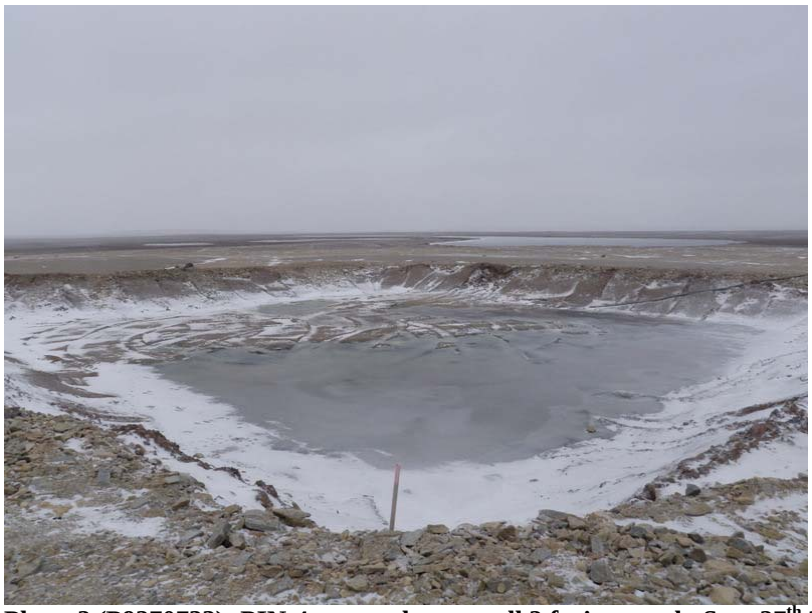

Photo 2 (P9270733): PIN-4 sewage lagoon cell 2 facing north. Sept 27th 2010.

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, Jennifer Joubert (ESG)

Candice Casucci
Environmental Sciences Group
The Royal Military College of Canada
PO Box 17000 Stn. Forces
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Tamara Van Dyck
Environmental Officer
Defence Construction Canada
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101 Colonel By Drive
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Friday, March 18, 2011

RE: Analytical Results for Wastewater Samples Collected at PIN-4 in June 2010

The following report summarizes results of the analysis of wastewater samples as per the PIN-4 (Byron Bay) DEW Line Cleanup Project (DLCU) Specifications.

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

Parameter	Maximum Allowable Concentration	Units
pH	6-9	pH units
Total arsenic (As)	0.100	mg/L
Dissolved cadmium (Cd)	0.010	mg/L
Dissolved chromium (Cr)	0.100	mg/L
Dissolved cobalt (Co)	0.050	mg/L
Dissolved copper (Cu)	0.200	mg/L
Dissolved lead (Pb)	0.050	mg/L
Total mercury (Hg)	0.0006	mg/L
Dissolved nickel (Ni)	0.200	mg/L
Total zinc (Zn)	0.500	mg/L
Oil & grease	5	mg/L
PCBs	1.0	mg/L
Phenols	0.020	mg/L

Phenols

The wastewater samples collected by ESG at PIN-4 are not analyzed for phenols but they are analyzed for oil and grease. Research conducted by ESG[1] has determined that a) no federal, territorial or provincial criteria exist for the discharge of wastewater containing phenols to land at a minimum distance of 30-m from natural drainage courses b) the maximum concentration of phenols in DLCU wastewater to date (2.44 mg/L) is below the

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

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

WASTEWATER SAMPLES

Four wastewater samples were collected at PIN-4 and analyzed in June 2010. A summary of the details of these results follows. Laboratory results are provided in Appendix A

LOCATION: WEST CORNER OF NON HAZARDOUS WASTE LANDFILL
GPS COORDINATES: 12W 0577200 7628902
SAMPLE: 10-10925
DATE: June 24, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-10925
pH	6-9	pH units	7.04
Total arsenic (As)	0.100	mg/L	0.004
Dissolved cadmium (Cd)	0.010	mg/L	0.003
Dissolved chromium (Cr)	0.100	mg/L	<0.005
Dissolved cobalt (Co)	0.050	mg/L	<0.003
Dissolved copper (Cu)	0.200	mg/L	0.016
Dissolved lead (Pb)	0.050	mg/L	<0.010
Total mercury (Hg)	0.0006	mg/L	<0.0004
Dissolved nickel (Ni)	0.200	mg/L	<0.005
Total zinc (Zn)	0.500	mg/L	**1.03**
Oil & grease	5	mg/L	<2.0
PCBs	1.0	mg/L	<0.003
Phenols	0.020	mg/L	N/A

Photo 1 (P6240003) Sample 10-10925: Pin-4 Sample collection at West end of Non-Hazardous Waste Landfill

Water was discharged from the facility prior to a sample being collected. Sample 10-10925 was above criteria for Zn and the onsite team collected soil samples from the area where water was discharged to. All results were below criteria.

LOCATION: BEACH POL AREA BP -11299
GPS COORDINATES: 12W 0581920 762507
SAMPLE: 10-10992
DATE: June 28, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-10992
pH	6-9	pH units	7.53
Total arsenic (As)	0.100	mg/L	<0.003
Dissolved cadmium (Cd)	0.010	mg/L	<0.001
Dissolved chromium (Cr)	0.100	mg/L	<0.005
Dissolved cobalt (Co)	0.050	mg/L	<0.003
Dissolved copper (Cu)	0.200	mg/L	0.021
Dissolved lead (Pb)	0.050	mg/L	<0.010
Total mercury (Hg)	0.0006	mg/L	<0.0004
Dissolved nickel (Ni)	0.200	mg/L	<0.005
Total zinc (Zn)	0.500	mg/L	<0.010
Oil & grease	5	mg/L	<2.0
PCBs	1.0	mg/L	<0.003
Phenols	0.020	mg/L	N/A

Photo 2 (P6280009) Sample 10-10992 Pin-4: Water collected within excavation of BP-11299 facing south towards ocean.

Waste water from the Beach POL Area was discharged to the ground on July 20, 2010. The water was discharged to an area greater than 30m from natural drainage courses (581880 7626522).

LOCATION: BEACH POL AREA BP -11421
GPS COORDINATES: 12W 0581951 7626473
SAMPLE: 10-10993
DATE: June 28, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-10993
pH	6-9	pH units	7.62
Total arsenic (As)	0.100	mg/L	0.005
Dissolved cadmium (Cd)	0.010	mg/L	<0.001
Dissolved chromium (Cr)	0.100	mg/L	0.027
Dissolved cobalt (Co)	0.050	mg/L	<0.003
Dissolved copper (Cu)	0.200	mg/L	0.012
Dissolved lead (Pb)	0.050	mg/L	<0.010
Total mercury (Hg)	0.0006	mg/L	<0.0004
Dissolved nickel (Ni)	0.200	mg/L	<0.005
Total zinc (Zn)	0.500	mg/L	0.039
Oil & grease	5	mg/L	(broken bottle)
PCBs	1.0	mg/L	<0.003
Phenols	0.020	mg/L	N/A

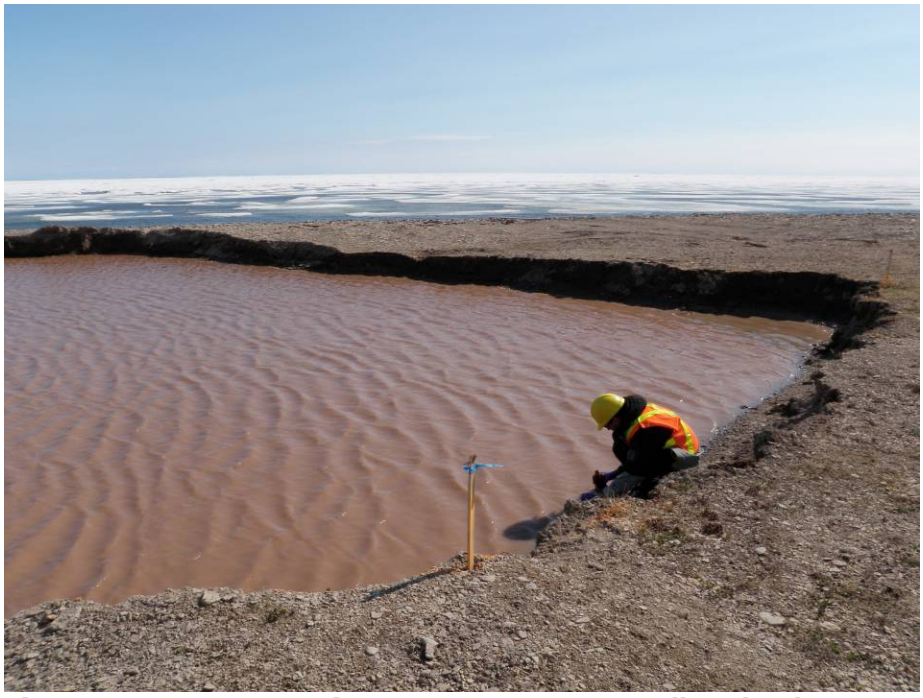

Photo 3 (P6280011) Sample 10-10993 Pin-4: Water collected within excavation of BP-11421 facing south west towards ocean.

Wastewater from the area was retested in July as the analysis for oil and grease could not be completed (broken sample vessel). .

LOCATION: BEACH POL AREA BP - 22286
GPS COORDINATES: 12W 0581984 7626464
SAMPLE: 10-11005
DATE: JUNE 28, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-11005
pH	6-9	pH units	7.74
Total arsenic (As)	0.100	mg/L	<0.003
Dissolved cadmium (Cd)	0.010	mg/L	<0.001
Dissolved chromium (Cr)	0.100	mg/L	<0.005
Dissolved cobalt (Co)	0.050	mg/L	<0.003
Dissolved copper (Cu)	0.200	mg/L	0.011
Dissolved lead (Pb)	0.050	mg/L	<0.010
Total mercury (Hg)	0.0006	mg/L	<0.0004
Dissolved nickel (Ni)	0.200	mg/L	<0.005
Total zinc (Zn)	0.500	mg/L	<0.010
Oil & grease	5	mg/L	2.2
PCBs	1.0	mg/L	<0.003
Phenols	0.020	mg/L	N/A

Photo 4 (P6280005) Sample 10-11005 Pin-4: Water collected within the excavation BP-22286 facing south towards water.

Wastewater collected from the area was below criteria for all parameters. Beach POL Area BP-22286 (10-11005)) was backfilled in late July without discharing any water from the excavation.

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, Jennifer Joubert, Andrea Ellis, William Pain (ESG)

APPENDIX A
LABORATORY RESULTS

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:	20687
Site:	Pin-4
Client No:	10-057
Samples Received:	30-Jun-10
Date of analysis:	1-Jul-10
Method No:	ASG 037
Date Reported:	1-Jul-10
Page:	1 of 1

RESULTS OF pH ANALYSIS

Sample I.D.	pH
10925*	7.04

* Averaged result of duplicates

LABORATORY QA/QC

Sample I.D.	pH
10925* ; Duplicate	7.04 ; 7.04
Control	7.00
Control Target	7.00

ASU #	12831	**Report ID:**	PIN-4 W2	
Client:	ESG	**Date Submitted:**	30-Jun-10	
		Date tested:	2-Jul-10	
Site:	PIN-4	**Date:**	2-Jul-10	
	10-057	**Matrix:**	Water	

Report of Analysis

Total Metals Results in mg/L

SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-10925	-	-	-	-	-	1.03	<0.005	0.004
Blank	-	-	-	-	-	<0.010	<0.005	<0.003
Control	-	-	-	-	-	3.30	0.90	0.83
Control Target	-	-	-	-	-	3.00	0.80	0.80

Dissolved Metals Results in mg/L

SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-10925	0.016	<0.005	<0.003	0.003	<0.010	-	-	-
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	-	-
Control	1.75	1.75	1.75	0.87	8.81	-	-	-
Control Target	1.60	1.60	1.60	0.80	8.00	-	-	-

ASU #	12831		**Report ID:**	PIN-4 W1
Client:	ESG		**Date Submitted:**	30-Jun-10
			Date tested:	30-Jun-10
Site:	PIN-4		**Date:**	30-Jun-10
	10-057		**Matrix:**	water
Report of Analysis				
Sample	Oil & Grease			
	mg/L			
10-10925	<2.0			
Blank	<2.0			
Control	14.0			
Control Target	15.7			

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Fax: (613) 541-6596

ASG Login No:	20687
Site:	Pin-4
Client No:	10-057
Samples Received:	30-Jun-10
Date of analysis:	1-Jul-10
Method No:	ASG 014
Date Reported:	1-Jul-10
Sheet:	1 of 1

RESULTS OF MERCURY ANALYSIS

Sample ID	Mercury^ mg/L
10925*	< 0.0004

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

LABORATORY QA/QC

Sample ID	Mercury^ mg/L
Duplicate ; 10925*	< 0.0004 ; < 0.0004
Blank	< 0.0004
Control Target	0.0040
Control Sample	0.0040

ESG
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P.O. Box 17000, Stn. Forces
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Fax: (613) 541-6596

ASG Login No:	20687
Site:	Pin-4
Client No:	10-057
Samples Received:	30-Jun-10
Date of analysis:	30-Jun-10
Method No:	ASG 015
Date Reported:	1-Jul-10
Sheet No:	1 of 1

RESULTS OF PCB IN WATER ANALYSIS

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	10925**	mg/L	< 0.003	< 0.003

* Average result of duplicate
Report Values in PPM

LABORATORY QA/QC

	Blank	mg/L	< 0.003	< 0.003
	Duplicate ; 10925*	mg/L	< 0.003 ; < 0.003	< 0.003 ; < 0.003
	Control Sample	mg/L	< 0.003	0.019
	Control Sample Target	mg/L	< 0.003	0.015

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

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Fax: (613) 541-6596

ASG Login No:	20709
Site:	Pin-4
Client No:	10-073
Samples Received:	5-Jul-10
Date of analysis:	6-Jul-10
Method No:	ASG 021
Date Reported:	6-Jul-10
Sheet:	1 of 1

RESULTS OF MERCURY ANALYSIS

Sample ID	Mercury^ mg/L
10-10992*	< 0.0004
10-10993	< 0.0004
10-11005	< 0.0004

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

LABORATORY QA/QC

Sample ID	Mercury^ mg/L
Duplicate ; 10-10992*	< 0.0004 ; < 0.0004
Blank	< 0.0004
Control Target	0.0040
Control Sample	0.0040

ESG
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(613) 541-6000 ext 6567
Fax: (613) 541-6596

ASG Login No:	20709
Site:	Pin-4
Client No:	10-073
Samples Received:	5-Jul-10
Date of analysis:	6-Jul-10
Method No:	ASG 037
Date Reported:	6-Jul-10
Page:	1 of 1

RESULTS OF pH ANALYSIS

Sample I.D.	pH
2010-10992	7.53
2010-10993	7.62
2010-11005*	7.74

* Averaged result of duplicates

LABORATORY QA/QC

Sample I.D.	pH
2010-11005* ; Duplicate	7.74 ; 7.74
Control	7.01
Control Target	7.00

ASU #	12849		**Report ID:**	PIN-4 W6
Client:	ESG		**Date Submitted:**	5-Jul-10
			Date tested:	5-Jul-10
Site:	PIN-4		**Date:**	6-Jul-10
	10-073		**Matrix:**	water
Report of Analysis				
Sample	Oil & Grease			
	mg/L			
10-10992	<2.0			
10-10993	broken bottle			
10-11005	2.2			
Blank	<2.0			
Control	14.0			
Control Target	15.7			

ASU #	12849		**Report ID:**	PIN-4 W7				
Client:	ESG		**Date Submitted:**	5-Jul-10				
			Date tested:	5-Jul-10				
Site:	PIN-4		**Date:**	6-Jul-10				
	10-073		**Matrix:**	Water				
Report of Analysis								
Total Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-10992	-	-	-	-	-	<0.010	<0.005	<0.003
10-10993	-	-	-	-	-	0.039	0.027	0.005
10-11005	-	-	-	-	-	<0.010	<0.005	<0.003
Blank	-	-	-	-	-	<0.010	<0.005	<0.003
Control	-	-	-	-	-	3.16	0.85	0.81
Control Target	-	-	-	-	-	3.00	0.80	0.80
10-11005	-	-	-	-	-	<0.010	<0.005	<0.003
10-11005	-	-	-	-	-	<0.010	<0.005	<0.003
Dissolved Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-10992	0.021	<0.005	<0.003	<0.001	<0.010	-	-	-
10-10993	0.012	<0.005	<0.003	<0.001	<0.010	-	-	-
10-11005	0.011	<0.005	<0.003	<0.001	<0.010	-	-	-
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	-	-
Control	1.60	1.64	1.63	0.79	8.10	-	-	-
Control Target	1.60	1.60	1.60	0.80	8.00	-	-	-
10-11005	0.011	<0.005	<0.003	<0.001	<0.010	-	-	-
10-11005	0.011	<0.005	<0.003	<0.001	<0.010	-	-	-

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ASG Login No:	20709
Site:	Pin-4
Client No:	10-073
Samples Received:	5-Jul-10
Date of analysis:	13-Jul-10
Method No:	ASG 006
Date Reported:	14-Jul-10
Sheet No:	1 of 1

RESULTS OF PCB IN WATER ANALYSIS

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	10992	mg/L	< 0.003	< 0.003
W	10993	mg/L	< 0.003	< 0.003
W	11005	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	0.018
	Control Sample Target	mg/L	< 0.003	0.016

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

Candice Casucci
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Friday, March 18, 2011

RE: Analytical Results for Wastewater Samples Collected at PIN-4 in July 2010

The following report summarizes results of the analysis of wastewater samples as per the PIN-4 (Byron Bay) DEW Line Cleanup Project (DLCU) Specifications.

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

Parameter	Maximum Allowable Concentration	Units
pH	6-9	pH units
Total arsenic (As)	0.100	mg/L
Dissolved cadmium (Cd)	0.010	mg/L
Dissolved chromium (Cr)	0.100	mg/L
Dissolved cobalt (Co)	0.050	mg/L
Dissolved copper (Cu)	0.200	mg/L
Dissolved lead (Pb)	0.050	mg/L
Total mercury (Hg)	0.0006	mg/L
Dissolved nickel (Ni)	0.200	mg/L
Total zinc (Zn)	0.500	mg/L
Oil & grease	5	mg/L
PCBs	1.0	mg/L
Phenols	0.020	mg/L

Phenols

The wastewater samples collected by ESG at PIN-4 are not analyzed for phenols but they are analyzed for oil and grease. Research conducted by ESG[1] has determined that a) no federal, territorial or provincial criteria exist for the discharge of wastewater containing phenols to land at a minimum distance of 30-m from natural drainage courses b) the maximum concentration of phenols in DLCU wastewater to date (2.44 mg/L) is below the

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

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

WASTEWATER SAMPLES

Two wastewater samples were collected at PIN-4 and analyzed in July 2010. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

LOCATION: BEACH POL AREA BP -11421
GPS COORDINATES: 12W 0581951 7626473
SAMPLE: 10-19428
DATE: JULY 6, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-19428
pH	6-9	pH units	N/A
Total arsenic (As)	0.100	mg/L	N/A
Dissolved cadmium (Cd)	0.010	mg/L	N/A
Dissolved chromium (Cr)	0.100	mg/L	N/A
Dissolved cobalt (Co)	0.050	mg/L	N/A
Dissolved copper (Cu)	0.200	mg/L	N/A
Dissolved lead (Pb)	0.050	mg/L	N/A
Total mercury (Hg)	0.0006	mg/L	N/A
Dissolved nickel (Ni)	0.200	mg/L	N/A
Total zinc (Zn)	0.500	mg/L	N/A
Oil & grease	5	mg/L	**39.4**
PCBs	1.0	mg/L	N/A
Phenols	0.020	mg/L	N/A

Photo 1 (P6280011) Sample 10-19428 Pin-4: Water collected within excavation of BP-11421 facing south west towards ocean.

Water from Beach POL Area BP-11421 (10-19428) was above criteria for Oil and Grease and therefore was not discharged to land. The level of water in the excavation decreased throughout the season, and no discharge was required prior to backfill.

LOCATION: LANDING DERIS AREA - LOBE C
GPS COORDINATES: 12W 0582215 7626834
SAMPLE: 10-19887
DATE: JULY 20, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-19887
pH	6-9	pH units	7.92
Total arsenic (As)	0.100	mg/L	<0.003
Dissolved cadmium (Cd)	0.010	mg/L	0.001
Dissolved chromium (Cr)	0.100	mg/L	<0.005
Dissolved cobalt (Co)	0.050	mg/L	<0.003
Dissolved copper (Cu)	0.200	mg/L	0.023
Dissolved lead (Pb)	0.050	mg/L	<0.010
Total mercury (Hg)	0.0006	mg/L	N/A
Dissolved nickel (Ni)	0.200	mg/L	0.007
Total zinc (Zn)	0.500	mg/L	0.014
Oil & grease	5	mg/L	<2.0
PCBs	1.0	mg/L	<0.003
Phenols	0.020	mg/L	N/A

Photo 2 (P7190001) Sample 10-19887 Pin-4: Water collected with excavation of Landing Debris Area - Lobe C.

Water from Landing Debris Area – Lobe C (10-19887) was discharged to land on August 25th. The water was discharged to an INAC approved location (12W 582238 7626806).

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, Jennifer Joubert, Andrea Ellis, William Pain (ESG)

APPENDIX A
LABORATORY
RESULTS

ASU #	12885		**Report ID:**	PIN-4 W8
Client:	ESG		**Date Submitted:**	12-Jul-10
			Date tested:	12-Jul-10
Site:	PIN-4		**Date:**	13-Jul-10
	10-099		**Matrix:**	water
Report of Analysis				
Sample	Oil & Grease			
	mg/L			
10-19428	39.4			
Blank	<2.0			
Control	14.0			
Control Target	15.9			

ASU #	12938		**Report ID:**	PIN-4 W10
Client:	ESG		**Date Submitted:**	26-Jul-10
			Date tested:	26-Jul-10
Site:	PIN-4		**Date:**	27-Jul-10
	10-141		**Matrix:**	water
Report of Analysis				
Sample	Oil & Grease			
	mg/L			
10-19887	<2.0			
10-19888	<2.0			
Blank	<2.0			
Control	13.1			
Control Target	15.9			

ASU #	12938		**Report ID:**	PIN-4 W11				
Client:	ESG		**Date Submitted:**	26-Jul-10				
			Date tested:	27-Jul-10				
Site:	PIN-4		**Date:**	27-Jul-10				
	10-141		**Matrix:**	Water				

Report of Analysis

Total Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-19887	0.023	0.007	<0.003	0.001	<0.010	0.044	<0.005	<0.003
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	<0.010	<0.005	<0.003
Control	1.54	1.62	1.62	0.80	8.12	2.95	0.82	0.76
Control Target	1.60	1.60	1.60	0.80	8.00	3.00	0.80	0.80

Dissolved Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-19887	0.012	<0.005	<0.003	<0.001	<0.010	0.014	<0.005	<0.003
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	<0.010	<0.005	<0.003
Control	1.54	1.62	1.62	0.80	8.12	2.95	0.82	0.76
Control Target	1.60	1.60	1.60	0.80	8.00	3.00	0.80	0.80

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ASG Login No:	20811
Site:	Pin-4
Client No:	10-141
Samples Received:	26-Jul-10
Date of analysis:	27-Jul-10
Method No:	ASG 015
Date Reported:	28-Jul-10
Sheet No:	1 of 1

RESULTS OF PCB IN WATER ANALYSIS

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	19887	mg/L	< 0.003	< 0.003

Report Values in PPM

LABORATORY QA/QC

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

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

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ASG Login No:	20811
Site:	Pin-4
Client No:	10-141
Samples Received:	26-Jul-10
Date of analysis:	28-Jul-10
Method No:	ASG 037
Date Reported:	28-Jul-10
Page:	1 of 1

RESULTS OF pH ANALYSIS

Sample I.D.	pH
19887*	7.92

* Averaged result of duplicates

LABORATORY QA/QC

Sample I.D.	pH
19887* ; Duplicate	7.92 ; 7.92
Control	7.01
Control Target	7.00

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

Friday, March 18, 2011

RE: Analytical Results for Wastewater Samples Collected at PIN-4 in August 2010

The following report summarizes results of the analysis of wastewater samples as per the PIN-4 (Byron Bay) DEW Line Cleanup Project (DLCU) Specifications.

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

Parameter	Maximum Allowable Concentration	Units
pH	6-9	pH units
Total arsenic (As)	0.100	mg/L
Dissolved cadmium (Cd)	0.010	mg/L
Dissolved chromium (Cr)	0.100	mg/L
Dissolved cobalt (Co)	0.050	mg/L
Dissolved copper (Cu)	0.200	mg/L
Dissolved lead (Pb)	0.050	mg/L
Total mercury (Hg)	0.0006	mg/L
Dissolved nickel (Ni)	0.200	mg/L
Total zinc (Zn)	0.500	mg/L
Oil & grease	5	mg/L
PCBs	1.0	mg/L
Phenols	0.020	mg/L

Phenols

The wastewater samples collected by ESG at PIN-4 are not analyzed for phenols but they are analyzed for oil and grease. Research conducted by ESG[1] has determined that a) no federal, territorial or provincial criteria exist for the discharge of wastewater

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

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

WASTEWATER SAMPLES

Two wastewater sample was collected at PIN-4 and analyzed in August 2010. A summary of the details of these results follows. Laboratory results are provided in Appendix A.

LOCATION: LANDING DEBRIS AREA – LOBE C
GPS COORDINATES: 12W 0582331 7626689
SAMLE: 10-31709
DATE: AUGUST 23, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-31709
pH	6-9	pH units	8.23
Total arsenic (As)	0.100	mg/L	<0.003
Dissolved cadmium (Cd)	0.010	mg/L	<0.001
Dissolved chromium (Cr)	0.100	mg/L	<0.005
Dissolved cobalt (Co)	0.050	mg/L	<0.003
Dissolved copper (Cu)	0.200	mg/L	0.005
Dissolved lead (Pb)	0.050	mg/L	<0.010
Total mercury (Hg)	0.0006	mg/L	<0.0004
Dissolved nickel (Ni)	0.200	mg/L	<0.005
Total zinc (Zn)	0.500	mg/L	<0.010
Oil & grease	5	mg/L	<2.0
PCBs	1.0	mg/L	<0.003
Phenols	0.020	mg/L	N/A

Photo 1 (P8230468) Sample 10-31709 Pin-4: Collecting a wastewater sample from Landing Debris Area - Lobe E

LOCATION: LANDING DEBRIS AREA – LOBE E
GPS COORDINATES: 12W 0582348 7626701
SAMPLE: 10-31815
DATE: AUGUST 28, 2010

Parameter	Maximum Allowable Concentration	Units	Sample # 10-31815
pH	6-9	pH units	7.92
Total arsenic (As)	0.100	mg/L	<0.003
Dissolved cadmium (Cd)	0.010	mg/L	<0.001
Dissolved chromium (Cr)	0.100	mg/L	<0.005
Dissolved cobalt (Co)	0.050	mg/L	<0.003
Dissolved copper (Cu)	0.200	mg/L	<0.005
Dissolved lead (Pb)	0.050	mg/L	<0.010
Total mercury (Hg)	0.0006	mg/L	<0.0004
Dissolved nickel (Ni)	0.200	mg/L	<0.005
Total zinc (Zn)	0.500	mg/L	<0.010
Oil & grease	5	mg/L	<2.0
PCBs	1.0	mg/L	<0.003
Phenols	0.020	mg/L	N/A

Photo 2 (P280511) Sample 10-31815 Pin-4: Collecting a wastewater sample from Landing Debris Area - Lobe E (b)

Waste water from the Landing Debris Area – Lobe E (10-31709) was below criteria for all parameters. Water was not discharged prior to backfilling the excavation.

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, Jennifer Joubert, Andrea Ellis, William Pain (ESG)

APPENDIX A
LABORATORY RESULTS

ASU #	13144		**Report ID:**	PIN-4 W12
Client:	ESG		**Date Submitted:**	30-Aug-10
			Date tested:	31-Aug-10
Site:	PIN-4		**Date:**	31-Aug-10
	10-324		**Matrix:**	water
Report of Analysis				
Sample	Oil & Grease			
	mg/L			
10-31709	<2.0			
Blank	<2.0			
Control	13.3			
Control Target	15.9			

ASU #	13144		**Report ID:**	PIN-4 W13				
Client:	ESG		**Date Submitted:**	30-Aug-10				
			Date tested:	1-Sep-10				
Site:	PIN-4		**Date:**	2-Sep-10				
	10-324		**Matrix:**	Water				
Report of Analysis								
Total Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-31709	-	-	-	-	-	<0.010	<0.005	<0.003
Blank	-	-	-	-	-	<0.010	<0.005	<0.003
Control	-	-	-	-	-	2.91	0.78	0.73
Control Target	-	-	-	-	-	3.00	0.80	0.80
Dissolved Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-31709	0.005	<0.005	<0.003	<0.001	<0.010	-	-	-
Blank	<0.005	<0.005	<0.003	<0.001	<0.010	-	-	-
Control	1.44	1.55	1.54	0.77	7.66	-	-	-
Control Target	1.60	1.60	1.60	0.80	8.00	-	-	-

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ASG Login No:	20982
Site:	Pin-4
Client No:	10-324
Samples Received:	30-Aug-10
Date of analysis:	1-Sep-10
Method No:	ASG 037
Date Reported:	1-Sep-10
Page:	1 of 1

RESULTS OF pH ANALYSIS

Sample I.D.	pH
31709*	8.23

* Averaged result of duplicates

LABORATORY QA/QC

Sample I.D.	pH
31709* ; Duplicate	8.23 ; 8.23
Control	7.00
Control Target	7.00

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Fax: (613) 541-6596

ASG Login No:	20982
Site:	Pin-4
Client No:	10-324
Samples Received:	30-Aug-10
Date of analysis:	1-Sep-10
Method No:	ASG 021
Date Reported:	2-Sep-10
Sheet:	1 of 1

RESULTS OF MERCURY IN WATER ANALYSIS

Sample ID	Mercury^ mg/L
31709	< 0.0004

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

LABORATORY QA/QC

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

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ASG Login No:	20982
Site:	Pin-4
Client No:	10-324
Samples Received:	30-Aug-10
Date of analysis:	2-Sep-10
Method No:	ASG 015
Date Reported:	3-Sep-10
Sheet No:	1 of 1

RESULTS OF PCB IN WATER ANALYSIS

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	31709*	mg/L	< 0.003	< 0.003

Report Values in PPM
* Average Result of Duplicate

LABORATORY QA/QC

	Blank	mg/L	< 0.003	< 0.003
	Duplicate ; 31709*		< 0.003 ; < 0.003	< 0.003 ; < 0.003
	Control Sample	mg/L	< 0.003	0.011
	Control Sample Target	mg/L	< 0.003	0.015

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

ASU #	13161		**Report ID:**	PIN-4 W14				
Client:	ESG		**Date Submitted:**	1-Sep-10				
			Date tested:	3-Sep-10				
Site:	PIN-4		**Date:**	3-Sep-10				
	10-351		**Matrix:**	Water				

Report of Analysis

Total Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-31815	-	-	-	-	-	<0.010	<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
10-31815	-	-	-	-	-	<0.010	<0.005	<0.003
10-31815	-	-	-	-	-	<0.010	<0.005	<0.003

Dissolved Metals	Results in mg/L							
SAMPLE	Cu	Ni	Co	Cd	Pb	Zn	Cr	As
10-31815	<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	-	-	-
10-31815	<0.005	<0.005	<0.003	<0.001	<0.010	-	-	-
10-31815	<0.005	<0.005	<0.003	<0.001	<0.010	-	-	-

Results relate only to the items tested

ASU #	13161		**Report ID:**	PIN-4 W15
Client:	ESG		**Date Submitted:**	1-Sep-10
			Date tested:	1-Sep-10
Site:	PIN-4		**Date:**	1-Sep-10
	10-351		**Matrix:**	water
Report of Analysis				
Sample	Oil & Grease			
	mg/L			
10-31815	<2.0			
Blank	<2.0			
Control	15.0			
Control Target	15.7			

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ASG Login No:	20994
Site:	Pin-4
Client No:	10-351
Samples Received:	1-Sep-10
Date of analysis:	3-Sep-10
Method No:	ASG 037
Date Reported:	3-Sep-10
Page:	1 of 1

RESULTS OF pH ANALYSIS

Sample I.D.	pH
10-31815*	7.92

* Averaged result of duplicates

LABORATORY QA/QC

Sample I.D.	pH
10-31815* ; Duplicate	7.92 ; 7.92
Control	7.00
Control Target	7.00

ESG						ASG Login No:	20994
12 Verite Ave						Site:	Pin-4
Dept. of Chem. / Chem. Eng., RMC						Client No:	10-351
P.O. Box 17000, Stn. Forces						Samples Received:	1-Sep-10
Kingston, Ontario K7K 7B4						Date of analysis:	3-Sep-10
(613) 541-6000 ext 6567						Method No:	ASG 014
Fax: (613) 541-6596						Date Reported:	3-Sep-10
						Sheet:	1 of 1

RESULTS OF MERCURY IN WATER ANALYSIS

Sample ID	Mercury^ mg/L
31815*	< 0.0004

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

LABORATORY QA/QC

Sample ID	Mercury^ mg/L
Duplicate ; 31815*	0.0004 ; < 0.0004
Blank	< 0.0004
Control Target	0.0040
Control Sample	0.0041

ESG						ASG Login No:	20994
12 Verite Ave						Site:	Pin-4
Dept. of Chem. / Chem. Eng., RMC						Client No:	10-351
P.O. Box 17000, Stn. Forces						Samples Received:	1-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	31815	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

Candice Casucci
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Tamara Van Dyck
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101 Colonel By Drive
Ottawa ON K1A 0K2

Friday, March 18, 2011

RE: Analytical Results for Wastewater Samples Collected at PIN-4 in September 2010

The following report summarizes results of the analysis of wastewater samples as per the PIN-4 (Byron Bay) DEW Line Cleanup Project (DLCU) Specifications.

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

Parameter	Maximum Allowable Concentration	Units
pH	6-9	pH units
Total arsenic (As)	0.100	mg/L
Dissolved cadmium (Cd)	0.010	mg/L
Dissolved chromium (Cr)	0.100	mg/L
Dissolved cobalt (Co)	0.050	mg/L
Dissolved copper (Cu)	0.200	mg/L
Dissolved lead (Pb)	0.050	mg/L
Total mercury (Hg)	0.0006	mg/L
Dissolved nickel (Ni)	0.200	mg/L
Total zinc (Zn)	0.500	mg/L
Oil & grease	5	mg/L
PCBs	1.0	mg/L
Phenols	0.020	mg/L

Phenols

The wastewater samples collected by ESG at PIN-4 are not analyzed for phenols but they are analyzed for oil and grease. Research conducted by ESG[1] has determined that a) no federal, territorial or provincial criteria exist for the discharge of wastewater

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

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

WASTEWATER SAMPLES

No wastewater sample were collected at PIN-4 in September 2010.

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

Sincerely,

Candice Casucci
Environmental Sciences Group

cc: Eva Schulz (UMA)
Daniela Loock, Kat White, Shari Reed, Jennifer Joubert, Andrea Ellis, William Pain (ESG)