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March 31, 2004

Project No.: PIN-3 (3.6)

Nunavut Water Board

Public Registry

Ms. Phyllis Beaulieu
Licensing Administrator
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0A 1J0

Dear Ms. Beaulieu:

RE: 2003 Annual Report for Water Use License #NWB5FRA0209

UMA Engineering Ltd. is submitting the following annual report as per the requirements of the above noted water use license. The report is being submitted on behalf of Defence Construction Canada and the Department of National Defence.

The following is a summary of the work completed at the PIN-3 site:

- The landfarm construction is complete. All of the hydrocarbon-contaminated soils (approximately 11,475 cubic metres) were excavated and placed within the landfarm. Three monitoring wells were installed around the landfarm.
- The Tier II Soil Disposal Facility is complete. All Tier II contaminated soils (approximately 4,923 cubic metres) were placed in the facility, which is now closed. Thermistors were installed at the Tier II Facility.
- Construction of the Non-Hazardous Waste Landfill (NHW) is complete and approximately 1,170 cubic metres of Tier I contaminated soil were placed in the NWH Landfill.
- Demolition of all site facilities and buildings is complete. The non-hazardous demolition debris was placed in the NHW Landfill.
- Approximately 90% of the site debris was placed in the NHW Landfill. It is expected that the remainder of the debris removal and disposal will be completed in 2004.
- There is still some debris yet to be removed and placed in the NHW Landfill. An intermediate cover of granular material was placed on the waste material prior to closure for the winter. The NHW Landfill will be closed in 2004.
- Twelve boxes of hazardous soil have been packaged and stored in the hangar to await transport off-site.

UMA Engineering Ltd. 2540 Kensington Road NW Calgary Alberta T2N 3S3 Canada
telephone (403) 270-9200 **facsimile** (403) 270-0399 **web site** www.umagroup.com

The following list of work items is to be completed in the 2004 construction season at the PIN-3 site:

- Any remaining debris is to be removed and placed in the NHW Landfill.
- All barrels on site will be disposed of as per the Barrel Disposal Protocol outlined in the Project Description. The empty barrels will be shredded and placed in the NHW Landfill.
- The NHW Landfill will be closed.
- The landfarm will be tilled and soil samples will be collected to determine the remediation status of the hydrocarbon-contaminated soils.
- The contractor will demobilize their camp and equipment at the end of the season, which typically coincides with the timing of the annual sealift.
- PCB materials stored at the registered Temporary PCB Storage Area will be removed.

An overall site plan is included to show the locations of the various work areas described in this report.

Tables 1 and 2 (attached) provide a summary of the volume of freshwater obtained from the water supply lake and the volume of sewage effluent discharged to the sewage lagoon, and a summary of the results of the water samples collected from the excavations areas and holding ponds, respectively.

A sewage lagoon was constructed in 2002 to support the construction camp as per the specifications included in the water use licence application. Due to the coarse-grained nature of the material available at the PIN-3 site, the sewage lagoon does not retain the effluent discharged into the lagoon. All effluent discharged into the lagoon infiltrates the ground, typically within 8-12 hours of discharge. Because of this, the on-site project team was not able to collect any effluent samples.

Water samples were collected from excavation areas and holding ponds prior to being discharged to ensure that the water quality met the discharge criteria. The results showed the quality of the water was suitable for discharge. Copies of the laboratory reports for these samples are attached to this report.

There were no spills or unauthorized discharges during the 2003 construction season at PIN-3.

We trust the information provided is consistent with the requirements of Water Use Licence #NWB5FRA0209. Please feel free to contact the undersigned if you have any questions or comments.

Sincerely,

UMA ENGINEERING LTD.

Eva Schulz, P.Ag.
Environmental Scientist
eschulz@umagroup.com

Encl. Tables 1 and 2
Overall Site Plan
Laboratory Reports

cc: Jim Wall/Philippe di Pizzo, NWB
Phil Warren, DCC

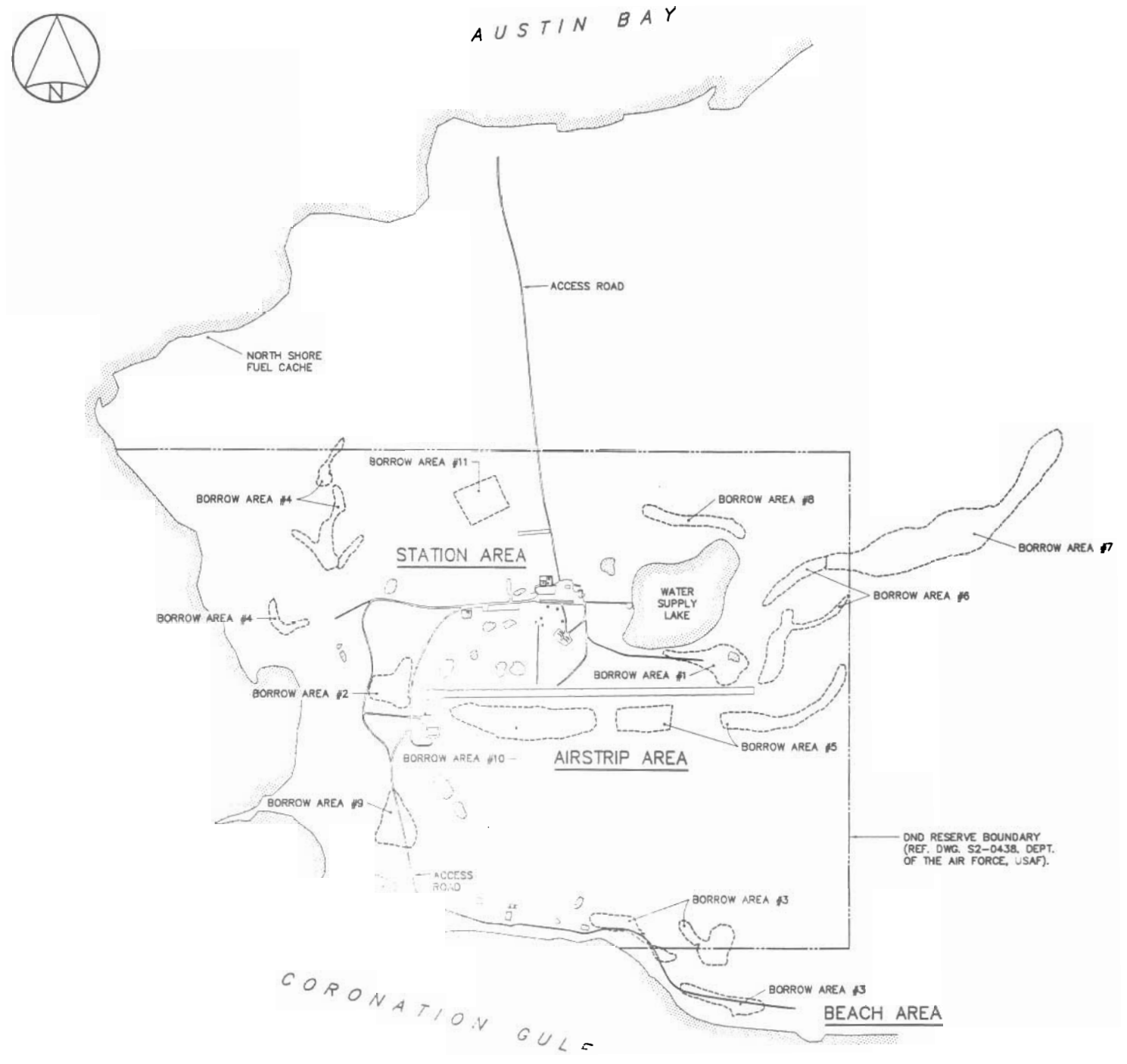
Table 1: Summary of Quantities of Water Obtained and Sewage Effluent Discharged

Month	Quantity of Water Obtained (cubic metres)	Quantity of Sewage Effluent Discharged (cubic metres)
June	428	342
July	2814	535
August	667	533
September	558	446
TOTAL	**4467**	**1856**

Table 2: Summary of 2003 Water Quality Results at PIN-3

Parameter	pH	Oil & Grease	Total Arsenic	Dissolved Cadmium	Total Chromium	Dissolved Cobalt	Dissolved Copper	Dissolved Lead	Total Mercury	Dissolved Nickel	Total Zinc	PCBs	Phenols
Units	pH	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	ug/L	ug/L
MAC[1]	6.0 - 9.0	No visible sheen	0.1	0.01	0.1	0.05	0.2	0.05	0.6	0.2	1	5 or 50	20
Beach POL Pad (12408631 E, 7596518 N)													
30/06/03	8.22	None visible	<0.003	<0.001	<0.005	<0.003	0.006	<0.010	<0.4	<0.005	0.018	<3.0	<1.0
Sewage Outfall													
06/07/03	7.21	None visible	0.004	<0.001	<0.005	<0.003	0.005	<0.010	<0.4	<0.005	0.036	<3.0	<1.0
West Module Train Holding Pond - North (12409012 E, 7598256 N)													
08/07/03	7.48	None visible	<0.003	<0.001	<0.005	<0.003	0.005	<0.010	<0.4	<0.005	0.014	<3.0	<1.0
West Module Train Holding Pond - South (12409012 E, 7598256 N)													
08/07/03	7.25	None visible	<0.003	<0.001	<0.005	<0.003	<0.005	<0.010	<0.4	<0.005	<0.010	<3.0	<1.0
Field Blank													
08/07/03	6.59	None visible	<0.003	<0.001	<0.005	<0.003	<0.005	<0.010	<0.4	<0.005	<0.010	<3.0	<1.0
Travel Blank													
08/07/03	**5.40**	None visible	<0.003	<0.001	<0.005	<0.003	<0.005	<0.010	<0.4	<0.005	<0.010	<3.0	<1.0
East Module Train Holding Pond - North (12409240 E, 7598259 N)													
10/07/03	7.48	None visible	<0.003	<0.001	<0.005	<0.003	0.007	<0.010	<0.4	<0.005	0.025	<3.0	<1.0
East Module Train Holding Pond - North (12409240 E, 7598259 N)													
10/07/03	7.92	None visible	<0.003	<0.001	<0.005	<0.003	0.006	<0.010	<0.4	<0.005	<0.010	<3.0	<1.0
7/10/2003*	8.01	None visible	<0.003	<0.001	<0.005	<0.003	0.008	<0.010	<0.4	<0.005	0.010	<3.0	<1.0
Beach POL Pad Excavation #1 (12408653 E, 7596461 N)													
05/08/03	8.01	None visible	0.004	<0.001	0.005	<0.003	0.006	<0.010	<0.4	<0.005	<0.010	<3.0	1.0
Beach POL Pad Excavation #2 (12408630 E, 7596450 N)													
05/08/03	7.95	None visible	0.005	<0.001	<0.005	<0.003	0.007	<0.010	<0.4	<0.005	0.010	<3.0	1.9
Hanger Excavation (12408221 E, 7597322 N)													
05/08/03	8.06	None visible	<0.003	<0.001	<0.005	<0.003	0.006	<0.010	<0.4	<0.005	0.040	<3.0	<1.0

NOTE: [1] Target Maximum Acceptable Concentrations as proposed in the Monitoring Plan
5.4 Exceeds Guideline Criteria
* Duplicate Sample



National Defence / Défense nationale

Headquarters
Quartier général

General Notes:

Legend:

BODY OF WATER

No.	DATE	REVISION	REVISION	APPR

UMA SHM

SCALE – ECHELLE 200 100 0 200 400 600m

PROJECT – PROJET
PIN-3 LADY FRANKLIN POINT

DEW LINE CLEAN UP

TRADE – METIER	DATE
SITING	2002-02-25

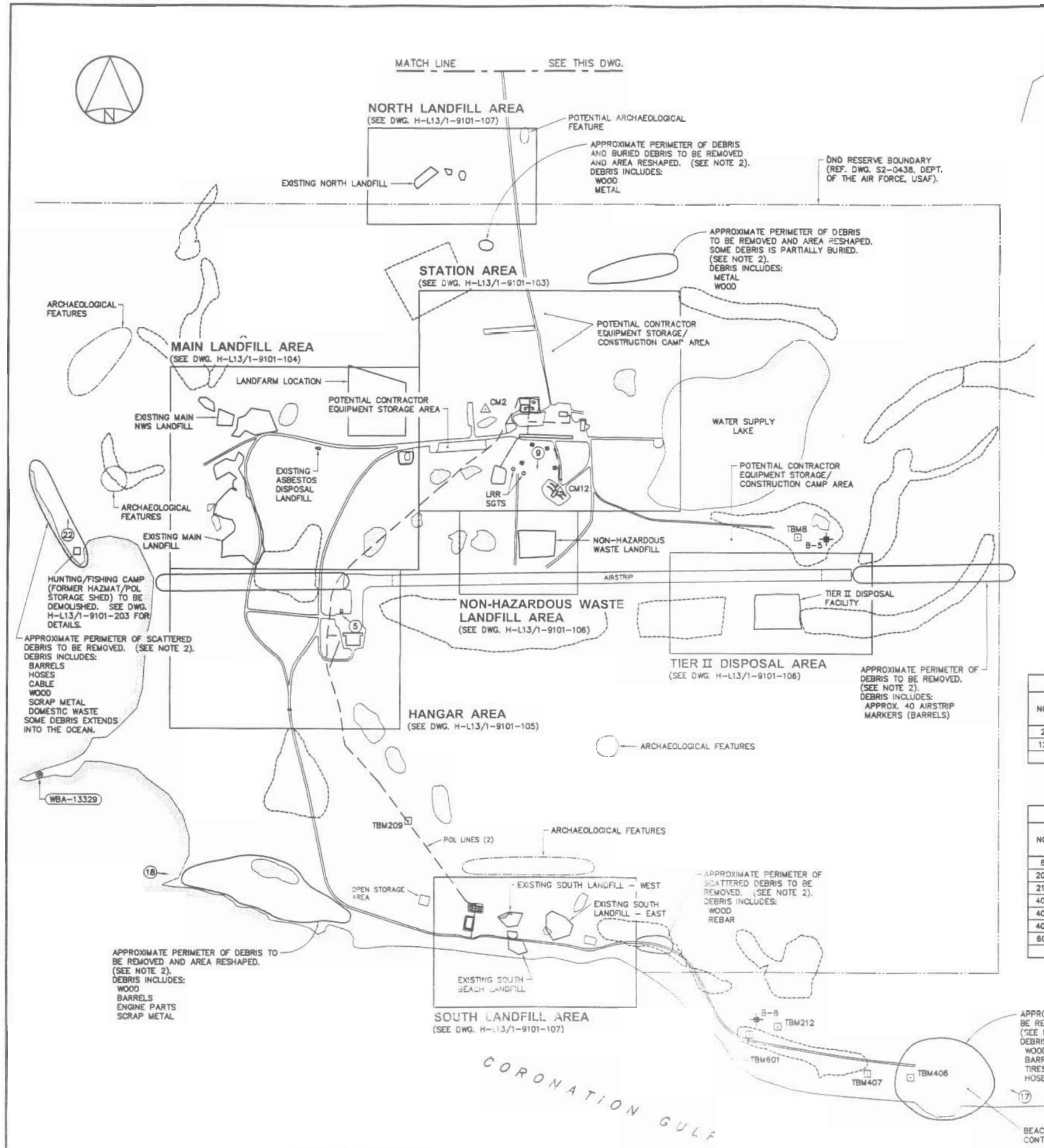
SUBJECT – SUJET

OVERALL SITE PLAN

PRODUCTION	CONCURRENCE – ASSENTIMENT	
DESIGNED ETUDIE BWF		DES OFF AGENT CONCEPT
DRAWN DESSINE CAE/K		SECT HD CHIEF SECT
CHECKED VERIFIE LEM		DES MGR GEST CONCEPT
COORDINATION TMF	REVIEWED – REVU	

DWG. NO. – DESSIN NO.
H-L13/1-9101-101

Canada



CONTAMINATED SOIL		
AREA NO.	APPROX. AREA (m^2)	ESTIMATED IN PLACE VOLUME (m^3)
DCC TIER I		
SNB-12755	9	3
DCC TIER II		
ND2-13694	610	553
WBA-13329	4	2

SURVEY CONTROL MONUMENTS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
2	10 000.000	10 000.000	15.115	PIN-3 BASELINE STA. 8+00.0
12	9 754.519	10 222.290	15.511	DMA RM-1 11809

TEMPORARY BENCHMARKS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
8	9 620.953	10 927.700	16.588	REBAR
209	8 777.480	9 774.216	5.123	SPIKE
212	8 167.035	10 869.794	3.102	SPIKE
402	11 321.756	9 951.396	4.423	SPIKE
406	8 019.787	11 266.627	1.301	50mm X 50mm WOODEN HUB
407	8 031.586	11 137.370	0.674	50mm X 50mm WOODEN HUB
601	8 144.828	10 787.184	2.641	

National Defence / Défense nationale

Headquarters
Quartier général

General Notes:

1. ALL ELEVATIONS ARE REFERENCED TO MEAN SEA LEVEL. (REF. DWG. AAP-1, DEPT. OF THE AIR FORCE, USAF).
2. ALL NON-HAZARDOUS DEBRIS WITHIN PLAN AREA TO BE PLACED IN NON-HAZARDOUS WASTE LANDFILL.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
4. HORIZONTAL CONTROL REFERENCED TO SURVEY CONTROL MONUMENTS.
5. ARCHAEOLOGICAL FEATURES LOCATED AS PER ENVIRONMENTAL CLEAN UP STUDY OF 21 DEW LINE SITES IN CANADA, VOL. 10, UMA 1991.
6. ALL LONG RANGE RADAR (LRR) FACILITIES ARE NOT TO BE DISTURBED. SEE DWG. H-L13/1-9101-201 FOR ADDITIONAL DETAILS.
7. VERY SCATTERED DEBRIS IS FOUND WITHIN 50m OF ALL SITE ROADS AND TYPICALLY CONSISTS OF SCRAP METAL, WOOD AND DOMESTIC WASTE, EXCEPT WHERE OTHERWISE NOTED. ALL LITTER AND UNMARKED DEBRIS ALONG THE SITES ROADS IS TO BE REMOVED.
8. SECTIONS OF AUSTIN BAY ACCESS ROAD MAY BE SUBJECT TO SEASONAL FLOODING.
9. CONTAMINATED SOILS AREAS SURVEY REFERENCE POINTS AND DETAILS WILL BE PROVIDED PRIOR TO CONSTRUCTION.

Legend:

- △CM2 SURVEY CONTROL MONUMENT
- ⊡TBM8 TEMPORARY BENCHMARK
- (CONTAMINATED AREA)
- TEST PIT LOCATION (1992)
- (5) PHOTOGRAPHIC VIEWPOINT
- BODY OF WATER
- BORROW AREA

No.	DATE	REVISION	REVISION	APPR.

uma SNC

SCALE - ECHELLE 100 50 0 100 200 300m

PROJECT - PROJET
PIN-3 LADY FRANKLIN POINT

DEW LINE CLEAN UP

TRADE - METIER: SITING
DATE: 2002-02-25

SUBJECT - SUJET
PROJECT LAYOUT

PRODUCTION	CONCURRENCE - ASSENTIMENT	
DESIGNED - ETUDIE BWF		DES OFF - AGENT CONCEPT
DRAWN - DESSINE CAE/JK		SECT HD - CHEF SECT
CHECKED - VERIFIE BRM		DES MGR - GEST CONCEPT
COORDINATION - SMS	REVIEWED - REVU	

DWG. NO. - DESSIN NO.
H-L13/1-9101-102

Canada

APPENDIX A
LABORATORY RESULTS

Notes:

1. Sample 03-07243 was collected from standing water contained within the DEW Line Sewage Outfall on 6 July 2003.
2. Samples 03-07255 and 03-07256 were collected from the northern and southern sections of the West Module Train Holding Pond on 8 July 2003.
3. Sample 03-07257 is a field blank that was filled on 8 July 2003.
4. Sample 03-07258 is a travel blank.
5. Samples 03-07259 and 03-07260/61 (a field duplicate pair) were collected from the northern and southern sections of the East Module Train Holding Pond on 10 July 2003.

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ASG Login No: 9485
Site: Pin-3
Client No: 03-029
Samples Received: 15-Jul-03
Date of analysis: 16-Jul-03
Method No: ASG 037
Date Reported: 16-Jul-07
Page: 1 of 1

RESULTS OF pH ANALYSIS

Sample I.D.	pH
03-07243*	7.21
03-07255	7.48
03-07256	7.25
03-07257	6.59
03-07258	5.40
03-07259	7.48
03-07260	7.92
03-07261	8.01

* Averaged result of duplicates

LABORATORY QA/QC

Sample I.D.	pH
03-07243; Duplicate	7.18, 7.23
control	4.01
control target	4.00

The results reported here relate only to the items tested.

Prepared By: _____
Jovie Velasco, Analyst

Authorization: _____
Cindy Cowin, Laboratory Manager

ASU #	**6269**		Report ID:	PIN-3W3		
Client:	**ASG 9485**		Date Submitted:	15-Jul-03		
			Date:	17-Jul-03		
Site:	**PIN-3**		Matrix:	Water		
	03-029					
Preliminary Report of Analysis						
SAMPLE	Oil & Grease	*Phenols				
	mg/L	ug/L				
03-07243	3.5	<1.0				
03-07255	<1.0	<1.0				
03-07256	<1.0	<1.0				
03-07257	1.1	<1.0				
**03-07258	1.0	result to follow				
03-07259	<1.0	<1.0				
03-07260	1.5	<1.0				
03-07261	2.3	<1.0				
Blank	<1.0	<1.0				
Control	15.6	11.8				
Control Target	15.6	10.0				
Date Tested	16-Jul-03	16-Jul-03				
* Samples run in duplicate and results averaged						
**Non-conformance due to insufficient sample volume						

Authorization:

ASU #	**6269**		Report ID:	PIN-3W5	
Client:	**ASG 9485**		Date Submitted:	15-Jul-03	
			Date:	18-Jul-03	
Site:	**PIN-3**		Matrix:	Water	
	03-029				
Preliminary Report of Analysis					
SAMPLE	*Phenols				
	ug/L				
03-07258	<1.0				
Blank	<1.0				
Control	10.6				
Control Target	10.0				
Date Tested	18-Jul-03				
* Samples run in duplicate and results averaged					

Prepared by: Authorization:

ASU #	6269		**Report ID:**	PIN-3 W4	
Client:	ASG 9485		**Date submitte**	15-Jul-03	
			Date tested	17-Jul-03	
Site:	PIN-3		**Date**	18-Jul-03	
ESG#:	03-029		**Matrix**	Water	
Preliminary Report of Analysis			All result are in mg/L		
Total Metals					
	Zn	Cr	As		
03-07243	0.036	<0.005	0.004		
03-07255	0.014	<0.005	<0.003		
03-07256	<0.010	<0.005	<0.003		
03-07259	0.025	<0.005	<0.003		
03-07260	<0.010	<0.005	<0.003		
03-07261	0.010	<0.005	<0.003		
Blank	<0.010	<0.005	<0.003		
Control	1.24	0.39	1.25		
Control Target	1.20	0.40	1.20		
Dissolved Metals					
	Cu	Ni	Co	Cd	Pb
03-07243	0.005	<0.005	<0.003	<0.001	<0.010
03-07255	0.005	<0.005	<0.003	<0.001	<0.010
03-07256	<0.005	<0.005	<0.003	<0.001	<0.010
03-07259	0.007	<0.005	<0.003	<0.001	<0.010
03-07260	0.006	<0.005	<0.003	<0.001	<0.010
03-07261	0.008	<0.005	<0.003	<0.001	<0.010
Blank	<0.005	<0.005	<0.003	<0.001	<0.010
Control	2.15	2.20	2.06	0.39	2.18
Control Target	2.20	2.20	2.20	0.40	2.20

Authorization:

ASU #	6269		**Report ID:**	PIN-3 W6	
Client:	ASG 9485		**Date submitte**	15-Jul-03	
			Date tested	21-Jul-03	
Site:	PIN-3		**Date**	23-Jul-03	
ESG#:	03-029		**Matrix**	Water	
Preliminary Report of Analysis			All result are in mg/L		
Total Metals					
	Zn	Cr	As		
03-07257	<0.010	<0.005	<0.003		
03-07258	<0.010	<0.005	<0.003		
Blank	<0.010	<0.005	<0.003		
Control	1.28	0.39	1.20		
Control Target	1.20	0.40	1.20		
Dissolved Metals					
	Cu	Ni	Co	Cd	Pb
03-07257	<0.005	<0.005	<0.003	<0.001	<0.010
03-07258	<0.005	<0.005	<0.003	<0.001	<0.010
Blank	<0.005	<0.005	<0.003	<0.001	<0.010
Control	2.13	2.25	2.08	0.40	2.22
Control Target	2.20	2.20	2.20	0.40	2.20

Prepared By: Authorization:

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ASG Login No: 9485
Site: Pin-3
ESG No: 03-028
Samples Received: 15-Jul-03
Date of analysis: 02-Aug-03
Method No: ASG 014 & ASG 021
Date Reported: 02-Aug-03
Sheet: 1 of 1

RESULTS OF MERCURY IN WATER ANALYSIS#
AMMENDED REPORT

Sample I.D.	Unit	Total Mercury^	Dissolved Mercury
03-07243	µg/L	< 0.4	< 0.1
03-07255*	µg/L	< 0.4	< 0.1
03-07256	µg/L	< 0.4	< 0.1
03-07257	µg/L	< 0.4	< 0.1
03-07258	µg/L	< 0.4	< 0.1
03-07259	µg/L	< 0.4	< 0.1
03-07260	µg/L	< 0.4	< 0.1
03-07261	µg/L	< 0.4	< 0.1

LABORATORY QA/QC

Duplicate ; 03-07255	µg/L	< 0.4 ; < 0.4	< 0.1 ; < 0.1
Blank	µg/L	< 0.4	< 0.1
Control Target	µg/L	4.0	2.0
Control	µg/L	4.5	2.2

* Averaged result of duplicates.
^ Acid digestion performed.
# Reported at 0.4 ug/L detection limit.

The results reported here relate only to the items tested.

Prepared By: _____
Nelson Melo; Analyst

Authorization: _____
Dr. David Kelly; Assistant Director

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ASG Login No: 9485
Site: Pin-3
Client No: 03-029
Samples Received: 15-Jul-03
Date of analysis: 15-Jul-03
Method No: ASG 006
Date Reported: 18-Jul-03
Sheet No: 1 of 1

RESULTS OF PCB IN WATER ANALYSIS

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	03-07243	µg/L	< 3.0	< 3.0
W	03-07255	µg/L	< 3.0	< 3.0
W	03-07256	µg/L	< 3.0	< 3.0
W	03-07257	µg/L	< 3.0	< 3.0
W	03-07258	µg/L	< 3.0	< 3.0
W	03-07259	µg/L	< 3.0	< 3.0
W	03-07260	µg/L	< 3.0	< 3.0
W	03-07261	µg/L	< 3.0	< 3.0

LABORATORY QA/QC

	Blank	µg/L	< 3.0	< 3.0
	Control Sample	µg/L	< 3.0	19
	Control Sample Target	µg/L	< 3.0	16.0

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

All results corrected for the recovery of the surrogate decachlorobiphenyl

The results reported here relate only to the items tested.

Prepared By: _____
Stephanie Dwyre, Analyst

Authorization: _____
David Kelly, Assistant Director

APPENDIX A
LABORATORY RESULTS

Notes:

1. Samples 03-07608 and 03-07609 were collected from standing water contained within the Beach POL Pad excavation on 5 August 2003.
2. Sample 03-07612 was collected from standing water contained within the Hangar excavation on 5 August 2003.

ASU #	**6370**		Report ID:	PIN-3W7
Client:	**ASG 9615**		Date Submitted:	11-Aug-03
			Date:	12-Aug-03
Site:	**PIN-3**		Matrix:	Water
	03-075			

Preliminary Report of Analysis

SAMPLE	*Phenols ug/L	Oil & Grease mg/L
03-07608	1.0	5.4
03-07609	1.9	27
03-07612	<1.0	2.5
Blank	<1.0	<1.0
Control	8.8	12.1
Control Target	10.0	15.6
Date Tested	11-Aug-03	11-Aug-03

* Samples run in duplicate and results averaged

Prepared by:

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ASG Login No: 9615
Site: Pin-3
ESG No: 03-075
Samples Received: 11-Aug-03
Date of analysis: 13-Aug-03
Method No: ASG 014 & ASG 021
Date Reported: 13-Aug-03
Sheet: 1 of 1

RESULTS OF MERCURY IN WATER ANALYSIS#

Sample I.D.	Unit	Total Mercury^	Dissolved Mercury
03-07608*	µg/L	< 0.4	< 0.1
03-07609	µg/L	< 0.4	< 0.1
03-07612	µg/L	< 0.4	< 0.1

LABORATORY QA/QC

Duplicate ; 03-07608	µg/L	< 0.4 ; < 0.4	< 0.1 ; < 0.1
Blank	µg/L	< 0.4	< 0.1
Control Target	µg/L	4.0	2.0
Control	µg/L	4.0	2.1

* Averaged result of duplicates.
^ Acid digestion performed.
# Reported at 0.4 ug/L detection limit.

The results reported here relate only to the items tested.

Prepared By: _____
Nelson Melo; Analyst

Authorization: _____
Dr. David Kelly; Assistant Director

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ASG Login No: 9615
Site: Pin-3
Client No: 03-075
Samples Received: 11-Aug-03
Date of analysis: 12-Aug-03
Method No: ASG 006
Date Reported: 13-Aug-03
Sheet No: 1 of 1

RESULTS OF PCB IN WATER ANALYSIS

Sample Type **	Sample I.D.	Unit	Aroclor 1254	Aroclor 1260
W	03-07608	µg/L	< 3.0	< 3.0
W	03-07609	µg/L	< 3.0	< 3.0
W	03-07612	µg/L	< 3.0	< 3.0

LABORATORY QA/QC

	Blank	µg/L	< 3.0	< 3.0
	Control Sample	µg/L	16	< 3.0
	Control Sample Target	µg/L	16	< 3.0

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

All results corrected for the recovery of the surrogate decachlorobiphenyl

The results reported here relate only to the items tested.

Prepared By: _____
Kim Morin, Analyst

Authorization: _____
Cindy Cowin, Laboratory Manager

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ASG Login No: 9615
Site: Pin-3
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Page: 1 of 1

RESULTS OF pH ANALYSIS

Sample I.D.	pH
03-07608	8.01
03-07609*	7.95
03-07612	8.06

* Averaged result of duplicates

LABORATORY QA/QC

Sample I.D.	pH
03-07609; Duplicate	7.94; 7.95
control	3.99
control target	4.00

The results reported here relate only to the items tested.

Prepared By: _____
Jovie Velasco, Analyst

Authorization: _____
Cindy Cowin, Laboratory Manager