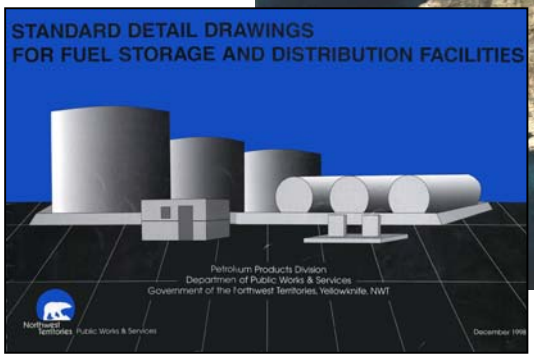
FSC
ARCHITECTS
& ENGINEERS

Final Report

Nunavut

Repulse Bay, Nunavut
Fuel Storage Facility Site Remediation



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FSC Project No.: 2002-1300-054
GN Project No. 02-3008

October 9, 2005

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1. EXECUTIVE SUMMARY

FSC was retained to perform a petroleum hydrocarbon site remediation and complete the design of the fuel storage facility upgrade and code compliance, in Repulse Bay, NU.

FSC performed field tests to delineate the extent of petroleum hydrocarbon contaminated soil for removal. Mosher Engineering Limited excavated and removed of all contaminated soil for storage at the Repulse Bay Municipal Solid Waste Facility.

The fuel storage facility site was remediated to Environment (CCME) Canada Wide Standards for Petroleum Hydrocarbons (PHC's) and the Government of Nunavut guidelines for BTEX in soil for an industrial site.

In addition to the contaminated soil removal, Mosher Engineering Limited constructed all required berms, roads, turnaround area, and tank pads, and filled all excavated areas with clean soil from their local granular sources. A representative from FSC oversaw all activities.

All the soil stored at the solid waste site remediated naturally and is confirmed to meet (CCME) Canada Wide Standards for Petroleum Hydrocarbons (PHC's) and the Government of Nunavut guidelines for BTEX in soil for an industrial site.

2. INTRODUCTION

2.1 General

FSC was retained to perform a petroleum hydrocarbon site remediation at the Fuel Storage Facility in Repulse Bay, NU and to prepare a design and specifications for the upgrade and code compliance of a new Fuel Storage Facility. The latter is located in a separate report. This report covers only the site remediation.

2.2 Project Scope

The area previously occupied by the existing Fuel Storage Facility, was to be remediated to CCME Canada-Wide Standards for Petroleum Hydrocarbon's (PHC's) in Soil for Industrial criteria. The project scope of work includes:

- Delineation of the contaminated area; and
- Supervision of the removal of petroleum hydrocarbon contaminated soil.

2.3 Canada-Wide Standards for Petroleum Hydrocarbon's in Soil

The site was remediated to CCME Canada-Wide Standards for Petroleum Hydrocarbon's (PHC's) in Soil for Industrial land use. The key receptors and exposure pathways for the Industrial land use include:

- Eco Soil Contact
- Groundwater/Surface Water

Of these pathways, Eco Soil Contact was the only one considered as, there was no permanent surface water on site and groundwater was not a concern.

The carbon fraction levels used for soil sample comparison are shown in Table 2.1.

Table 2.1Canada-Wide Standards for PHC in Soil (ppm)

		F1 (C6-C10)	F2 (>C10-C16)	F3 (>C16-C34)	F4 (>C34)
CCME Guidelines - Canada-Wide Standards for Petroleum Hydrocarbons (PHCs) for Fine-Grained Surface Soils	Eco Soil Contact Industrial	660	1,500	2,500	6,600

As required by the GN Remediation Guideline for Soil, sampling must also be carried out for Benzene, Toluene, Ethylbenzene and Xylene (BTEX). The BTEX values for Industrial sites are shown in Table 2.2.

Table 2.2 GN Remediation Guideline for Soil, BTEX (ppm)

	Agricultural	Residential / Parkland	Commercial	Industrial
Benzene	0.05	0.5	0.5	**5**
Toluene	0.1	0.8	0.8	**0.8**
Ethylbenzene	0.1	1.2	20	**20**
Xylene	0.1	1	17	**20**

3. METHODOLOGY

3.1 Soil Sampling

Soil samples were collected by following CCME protocol, "Guidance Manual on Sampling, Analysis and Data Management for Contaminated Sites" (1993).

The soil sampler used Nitrile gloves to remove the soil and pack it, air tight, into the sample jars; new gloves were used for each sample. The field samples were collected and analysed on site immediately after samples were taken by FSC site personnel.

3.2 Field Screening for Total Hydrocarbons

Currently, there is no field test kit to test for the four carbon fractions, F1 to F4 required by the CCME Standards. There is also no field test for BTEX.

A current industry standard is to use the PetroFlag Hydrocarbon Analyzer Kit to test for total hydrocarbons. The PetroFlag system is a broad-spectrum field analytical tool suitable for any type of hydrocarbon contamination regardless of the source or state of degradation.

For field screening, when the source is known FSC considers the primary fraction that typically describes the source. Once a field sample is less than the fraction guideline, confirmatory laboratory samples are taken.

For brevity, the field sample results are not included in the report.

3.3 Confirmatory Laboratory Samples

The laboratory used for confirmatory soil sample analysis is Enviro-Test Laboratories in Edmonton. Enviro-Test Laboratories are accredited by the Standard Council of Canada/Canadian Association for Environmental Analytical Laboratories (SCC/CEAL), American Industrial Hygiene Association (AIHA), and SCC/Health Canada, and certified by the National Environmental Laboratory Accreditation Program (NELAP).

All confirmatory samples were sent to Enviro-Test Laboratories within 24 hours of sample collection. Sample results are included in the following section.

4. SITE VISTIS, LOCATION AND SAMPLE RESULTS

4.1 Site Visits

Sharyl Budgell, EIT, was present on site during the period of excavation of material, placement of material at the Municipal Solid Waste site, and backfilling of the extent of excavation.

All field sampling and analysis were completed on site by Sharyl Budgell. She was responsible for delineating the extent of the contaminated area by periodically performing tests to determine of all contaminated material about the CCME guideline had been removed from site. Therefore, material was excavated until the PetroFlag anaylsis resulted in numbers below that of the CCME guidelines for Industrial levels.

Sampling occurred at the containment area several weeks after the material was placed at the MSW site. This allowed for appropriate time to pass, for natural remediation of the soil to commence. Field samples taken in this area showed that the material that was placed in the containment area were less than CCME guidelines for Industrial criteria.

4.2 General

It is noted that the test result are far below CCME levels. This is because hydrocarbon contamination from a discontinuous source is not normally "graded" in soil, rather, exists in a concentrated area. Further, the excavation equipment is rather coarse in nature and tends to take large rather than surgical amounts. Finally, the Petroflag field test kit is an approximation. There is over-all cost savings to removing a little more soil than to have to repeat a test.

4.3 Site Locations

Sampling occurred in two separate locations in Repulse Bay. The first being the existing fuel storage facility area and the second being the soil containment area at the Municipal Solid Waste site. Field and confirmatory laboratory samples were collected and analysed for both areas indicated previously.

4.3.1 Fuel Storage Facility Site

Contaminated soil was removed from the fuel storage facility by excavating the required material between the dates of June 22 and July 6, 2005. Once excavation had commenced, it was discovered that there was more contaminated material than originally anticipated. In a report by Dillon Consulting Ltd. it was estimated that the quantity of contaminated material was approximately 280cu.m. The estimation proved to be correct for the areas outside the

berms, however, there existed significant contamination under the liner where Dillon was unable to test.

In total, 1890cu. m. of material was removed from the fuel storage facility and placed at the Repulse Bay Municipal Solid Waste site for remediation.

Field samples were taken through out the excavation to indicate the extent of the area the required excavation. Once it was determined by the field sampling that the area was clean as stated by the Industrial criteria in the CCME Guidelines.

Confirmatory samples were taken and forwarded to EnviroTest Laboratories for further testing. Results are listed by sample number in Tables 4.1 & 4.2. Laboratory results can be found in appendix B, along with a diagram of sample locations.

All sampled areas are below the Canada-Wide Standards for PHC's in Soil at Industrial levels. None of the areas require further excavation. As per results, the area is clean within the limits of the CCME standards for Industrial locations as shown in Table 4.1.

Table 4.2 shows all tested areas were within BTEX limits.

Table 4.1 Fuel Storage Facility Site Laboratory Results – Hydrocarbons (mg/kg)

		F1 (C6-C10)	F2 (>C10-C16)	F3 (>C16-C34)	F4 (>C34)
CCME Guidelines - Canada-Wide Standards for Petroleum Hydrocarbons (PHCs) for Fine-Grained Surface Soils	Eco Soil Contact Industrial	660	1,500	2,500	6,600
Sample Date	**29-June-05**				
Sample ID	RB-01	<5	6	<5	<5
	RB-02	<5	<5	<5	<5
	RB-03	<5	<5	10	<5
	RB-04	<5	6	<5	<5
	RB-05	<5	<5	<5	<5
	RB-06	-	-	-	-
	RB-07	<5	<5	8	<5
	RB-08	<5	<5	8	<5
	RB-09	<5	<5	17	<5

Table 4.2 Fuel Storage Facility Site Laboratory Results – BTEX (ppm)

		Benzene	Toluene	Ethylbenzene	Xylene
Remediation Guidelines for Soil	Agricultural	0.05	0.1	0.1	0.1
	Residential/ Parkland	0.5	0.8	1.2	1
	Commercial	0.5	0.8	20	17
	Industrial	**5**	**0.8**	**20**	**20**
Sample Date	**29-June-05**				
Sample ID	RB-01	<0.05	<0.05	<0.05	<0.15
	RB-02	<0.05	<0.05	<0.05	<0.15
	RB-03	<0.05	<0.05	<0.05	<0.15
	RB-04	<0.05	<0.05	<0.05	<0.15
	RB-05	<0.05	<0.05	<0.05	<0.15
	RB-06	<0.05	<0.05	<0.05	<0.15
	RB-07	<0.05	<0.05	<0.05	<0.15
	RB-08	<0.05	<0.05	<0.05	<0.15
	RB-09	<0.05	<0.05	<0.05	<0.15

4.3.2 Soil Storage Area at Municipal Solid Waste Site

An area at the MSW site was chosen by the community to be used as the containment area for the excavated soil storage. As soil was removed from the fuel storage facility site it was trucked to the MSW site for remediation storage. Sketches are shown in Appendix A.

The material was placed on the existing ground that had been prepared by levelling the existing ground with a dozer and using a roller compactor to smooth the ground. Berms were constructed from the topsoil and rocks that had been pushed by the dozer while creating a level surface. The material was placed by end dragging to a depth of approximated 300mm to 600mm, then spread level to positive drainage with a bulldozer. Two lifts were used to cover the area to approximately 600mm thick.

No water was seen entering or leaving the soil storage site.

Field samples were taken and analysed on August 3, 2005. The results of the field samples indicated that the soil had naturally remediated over the course of time that it had been at this location.

Confirmatory samples were taken on August 21, 2005 and forwarded to Enviro Test Laboratories for further testing. Results are listed by sample number in Tables 4.3 & 4.4. Laboratory results can be found in Appendix B, along with a diagram of sample locations.

Table 4.3 Soil Storage Laboratory Results – Hydrocarbons (mg/kg)

		F1 (C6-C10)	**F2 (>C10-C16)**	**F3 (>C16-C34)**	**F4 (>C34)**
CCME Guidelines - Canada-Wide Standards for Petroleum Hydrocarbons (PHCs) for Fine-Grained Surface Soils	Eco Soil Contact Industrial	660	1,500	2,500	6,600
Sample Date	**21-Aug-05**				
	RB-10	<5	90	70	25
	RB-11	<5	39	50	17
	RB-12	<5	15	27	<5
	RB-13	<5	56	32	<5
	RB-14	18	1100	38	<5
	RB-15	<5	140	73	7
	RB-16	9	840	65	<5
	RB-17	13	620	25	<5
	RB-18	<5	51	25	<5

Table 4.4 Soil Storage Laboratory Results – BTEX (ppm)

		Benzene	Toluene	Ethylbenzene	Xylene
Remediation Guidelines for Soil	Agricultural	0.05	0.1	0.1	0.1
	Residential/ Parkland	0.5	0.8	1.2	1
	Commercial	0.5	0.8	20	17
	Industrial	**5**	**0.8**	**20**	**20**
Sample Date	**21-Aug-05**				
	RB-10	<0.05	<0.05	<0.05	<0.15
	RB-11	<0.05	<0.05	<0.05	<0.15
	RB-12	<0.05	<0.05	<0.05	<0.15
	RB-13	<0.05	<0.05	<0.05	<0.15
	RB-14	<0.05	<0.05	<0.05	<0.15
	RB-15	<0.05	<0.05	<0.05	<0.15
	RB-16	<0.05	<0.05	<0.05	<0.15
	RB-17	<0.05	<0.05	<0.05	<0.15
	RB-18	<0.05	<0.05	<0.05	<0.15

All sampled areas are less than the Canada-Wide Standards for PHC's in Soil at Industrial levels. None of the areas require further excavation. As per results, the area is clean within the limits of the CCME standards for Industrial locations as shown in Table 4.3.

Table 4.4 shows all tested areas were within the GN's BTEX limits.

CONCLUSIONS

1. The extent of hydrocarbon contamination at the fuel storage facility site was greater than expected.

2. Samples sent to Enviro-Test Laboratories confirmed that the soil at fuel storage facility site contains less than the CCME Canada-Wide Standards for PHC's and the GN BTEX guidelines in Soil for Commercial / Industrial sites.

3. All contaminated soil from the fuel storage facility was removed to the Repulse Bay Municipal Solid Waste Facility.

4. The fuel storage facility site has been backfilled with clean soil, compacted and graded for positive drainage.

5. The New Fuel Storage Facility was constructed over area where existing fuel storage facility was located.

6. Soil removed from the fuel storage facility site and stored at the MSW site has naturally remediated and is confirmed to contain less than the CCME Canada-Wide Standards for PHC's and the GN BTEX guidelines in Soil for Industrial sites.

7. The soil stored at the MSW site is now suitable for re-use including fill on Industrial sites and/or cover material for the MSW site itself. It may be suitable for other uses at a later date; confirmation testing will be required prior to any other use.

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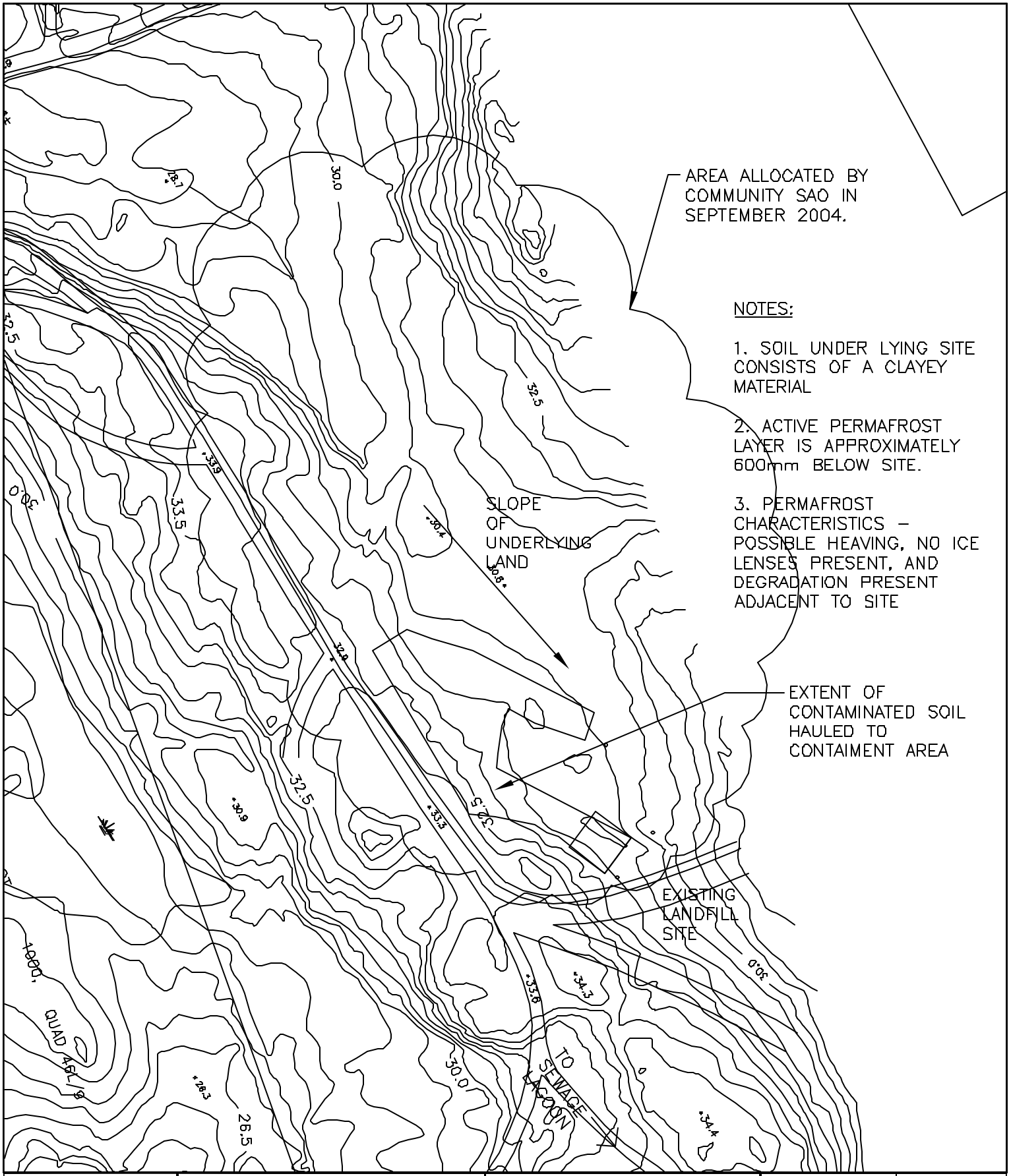
JOB TITLE
NEW FUEL STORAGE FACILITY

REPULSE BAY, NU

DRAWING TITLE
OVERALL SITE LOCATION

DESIGNED BY: WO	SCALE: NTS
DRAWN BY: SRB	DATE: JULY 11, 2004
FILE NAME: CSK-1.DWG	JOB NUMBER: 2002-1300
SHEET: 1 of 1	DRAWING NO: CSK-1



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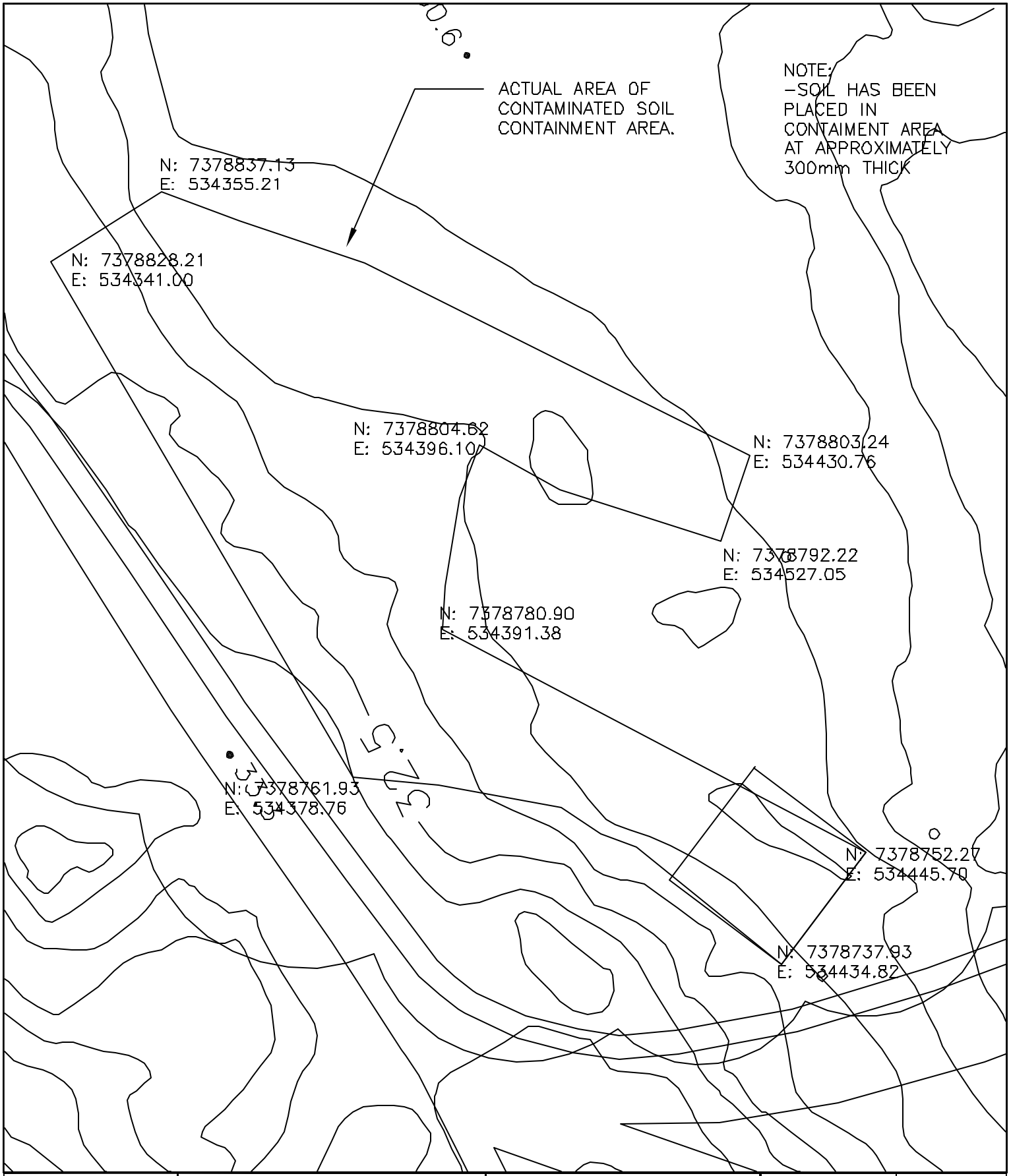
JOB TITLE: NEW FUEL STORAGE FACILITY REPULSE BAY, NU	DRAWING TITLE: SITE LOCATION
DESIGNED BY: WO	SCALE: NTS
DRAWN BY: SRB	DATE: JULY 11, 2005
FILE NAME: CSK-1.DWG	JOB NUMBER: 2002-1300
SHEET: 1 of 1	DRAWING NO: CSK-2



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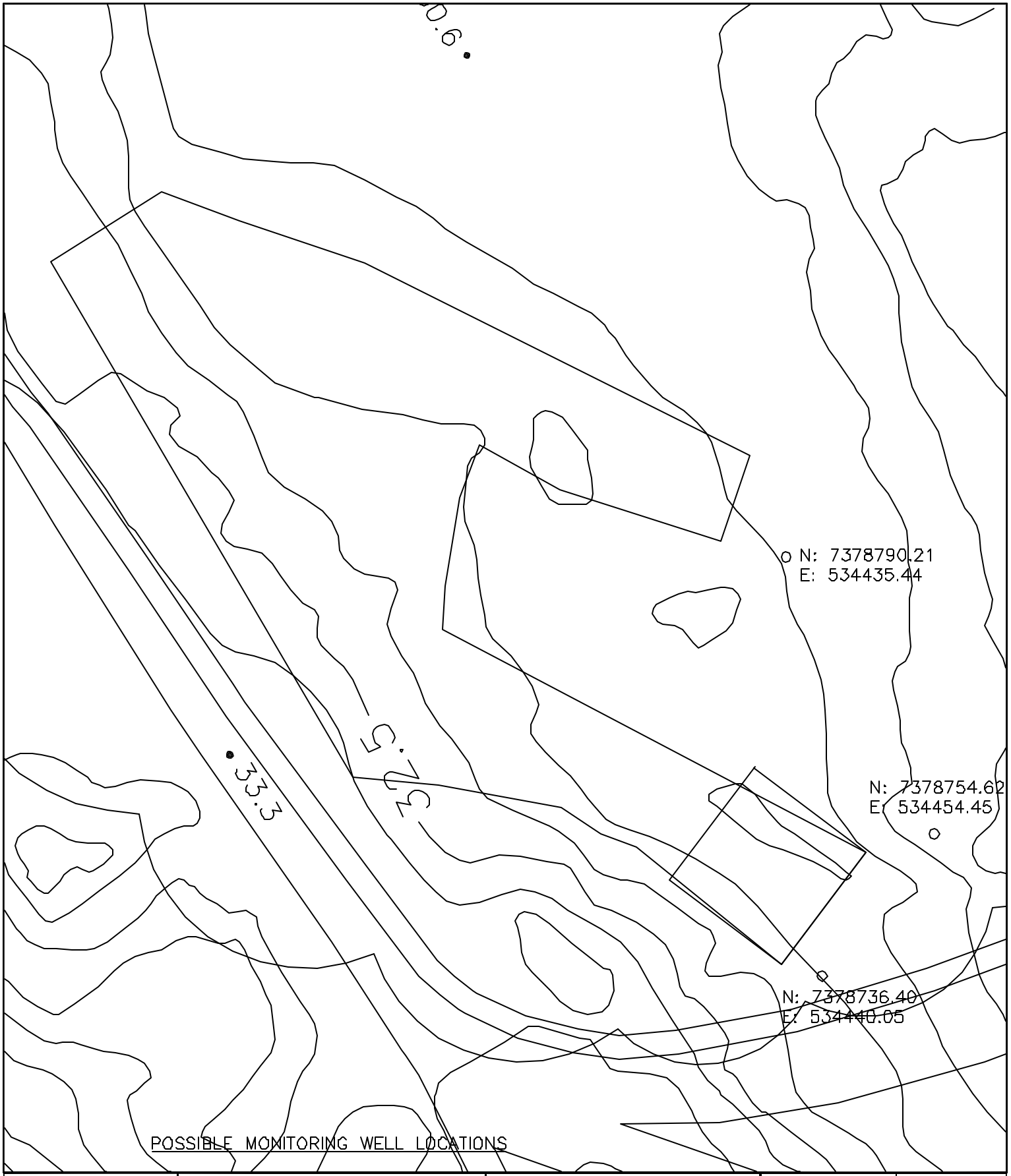
JOB TITLE: NEW FUEL STORAGE FACILITY REPULSE BAY, NU	DRAWING TITLE: COORDINATES	DESIGNED BY: WO	SCALE: NTS
		DRAWN BY: SRB	DATE: JULY 27, 2005
		FILE NAME: CSK-1.DWG	JOB NUMBER: 2002-1300
		SHEET: 1 of 1	DRAWING NO: CSK-3



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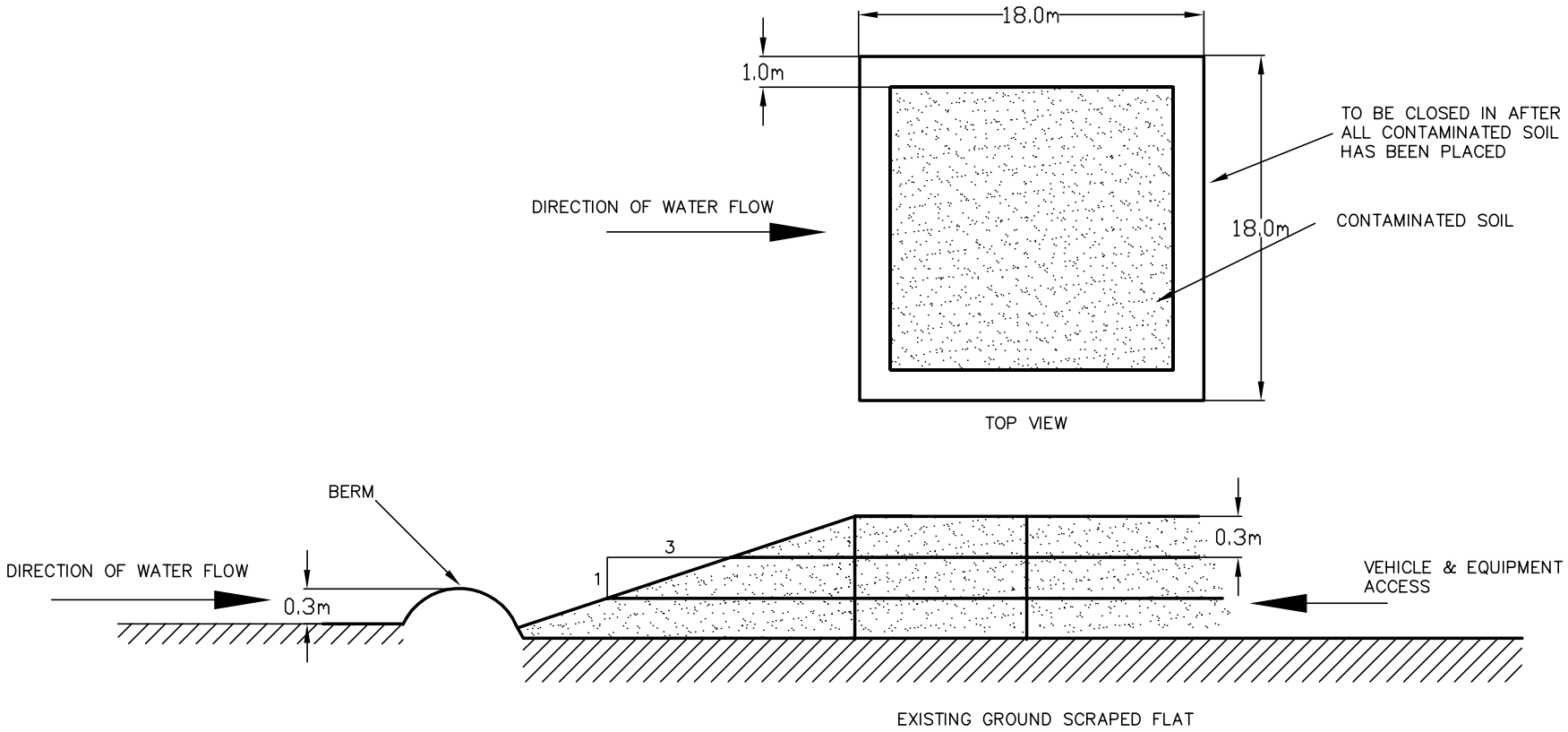
JOB TITLE
NEW FUEL
STORAGE FACILITY

REPULSE BAY, NU

DRAWING TITLE
COORDINATES

DESIGNED BY: WO	SCALE: NTS
DRAWN BY: SRB	DATE: JULY 27, 2005
FILE NAME: CSK-1.DWG	JOB NUMBER: 2002-1300
SHEET: 1 of 1	DRAWING NO: CSK-4



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F.S.C. JOB NO. 2002-1300-051

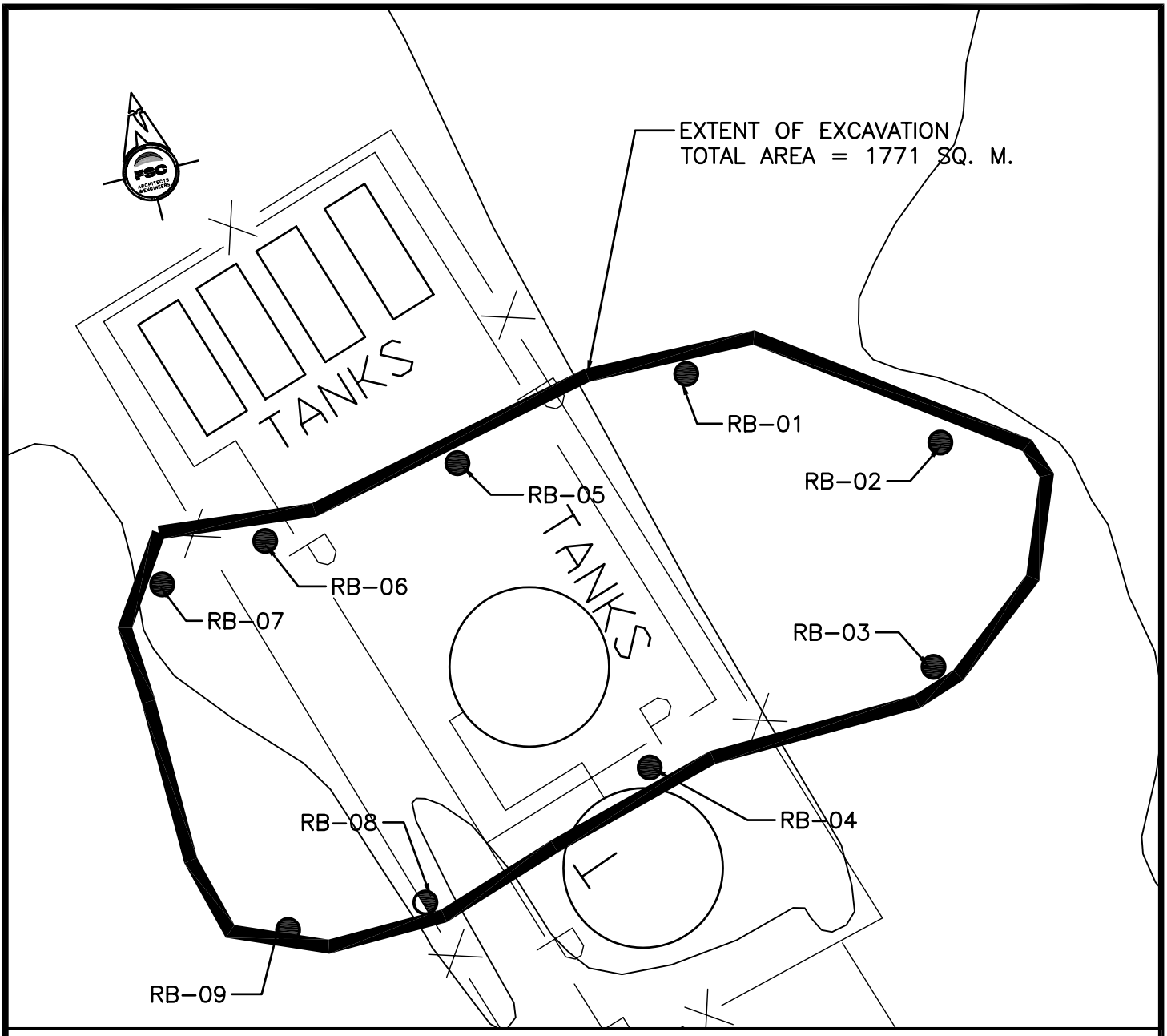
JOB TITLE
REPULSE BAY TANK FARM

REPULSE BAY, NU

DRAWING TITLE
CONTAMINATED SOIL STORAGE AREA

DESIGNED BY: RK	SCALE: NTS
DRAWN BY: RA	DATE: JUN 16, 2005
CHECKED BY: RK	JOB NUMBER: 2002-1300-051
SHEET: 1 OF 1	DRAWING NO: 1

APPENDIX B – SAMPLING LOCATIONS AND LABORATORY RESULTS



NOTES:

1. WEST SIDE OF EXCAVATION HAS BEEN EXCAVATED TO BEDROCK
2. SAMPLES TAKEN AT EXTENT OF EXCAVATION
3. BOTTOM OF EXCAVATED AREA HAS BEEN EXCAVATED TO BEDROCK

PROJECT TITLE

Repulse Bay Fuel Storage Facility Upgrade

DRAWING TITLE

Sample locations for fuel storage facility area

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& ENGINEERS

CLIENT

GOVERNMENT OF NUNAVUT
DEPARTMENT OF COMMUNITY
AND GOVERNMENT SERVICES

DRAWN BY: SRB	CLIENT PROJECT No: 2002-1300
CHECKED BY: RK	SCALE: NTS
DATE: 09/06/2005	DRAWING NO.: SK-1

ETL Enviro-Test LABORATORIES

PRELIMINARY RESULTS

FSC ARCHITECTS & ENGINEERS
ATTN: RICK ALKHALAF/SHARYL BUDGEL
4910 53 ST PO BOX 1777
YELLOWKNIFE NT X1A 2PY

DATE: 06-JUL-05 11:20 AM

Lab Work Order #: L283148 **Sampled By:** SHARYL **Date Received:** 30-JUN-05
Project P.O. #:
Project Reference: 2002-1300-051
Comments:

DOUG JOHNSON
Director of Operations, Edmonton

RICK ZOLKIEWSKI
Client Service Specialist

ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L283148-1 RB-01 1/5								
Sample Date: 29-JUN-05 07:30								
Matrix: SOIL								
BTEX, F1-F4 (O.Reg.153/04)								
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates					05-JUL-05	05-JUL-05	PJM	R300191
Surr: Octacosane	64		50-150	%	05-JUL-05	05-JUL-05	PJM	R300191
F1 (O.Reg.153/04)								
Prep/Analysis Dates					05-JUL-05	05-JUL-05	SN	R300248
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg		06-JUL-05		
F1-BTEX	<5		5	mg/kg		06-JUL-05		
F2 (C10-C16)	6		5	mg/kg		06-JUL-05		
F3 (C16-C34)	<5		5	mg/kg		06-JUL-05		
F4 (C34-C50)	<5		5	mg/kg		06-JUL-05		
Total Hydrocarbons (C6-C50)	6		5	mg/kg		06-JUL-05		
Chromatogram to baseline at nC50	yes					06-JUL-05		
BTEX (O.Reg.153/04)								
Benzene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
Ethyl Benzene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
m+p-Xylenes	<0.1		0.1	mg/kg	05-JUL-05	05-JUL-05		R300173
o-Xylene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
Toluene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
Xylene, (total)	<0.15		0.15	mg/kg	05-JUL-05	05-JUL-05		R300173
% Moisture	7.0		0.5	%	07-JUL-05	06-JUL-05	SK	R300150
L283148-2 RB-02 2/5								
Sample Date: 29-JUN-05 07:30								
Matrix: SOIL								
BTEX, F1-F4 (O.Reg.153/04)								
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates					05-JUL-05	05-JUL-05	PJM	R300191
Surr: Octacosane	60		50-150	%	05-JUL-05	05-JUL-05	PJM	R300191
F1 (O.Reg.153/04)								
Prep/Analysis Dates					05-JUL-05	05-JUL-05	SN	R300248
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg		06-JUL-05		
F1-BTEX	<5		5	mg/kg		06-JUL-05		
F2 (C10-C16)	<5		5	mg/kg		06-JUL-05		
F3 (C16-C34)	<5		5	mg/kg		06-JUL-05		
F4 (C34-C50)	<5		5	mg/kg		06-JUL-05		
Total Hydrocarbons (C6-C50)	<5		5	mg/kg		06-JUL-05		
Chromatogram to baseline at nC50	yes					06-JUL-05		
BTEX (O.Reg.153/04)								
Benzene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
Ethyl Benzene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
m+p-Xylenes	<0.1		0.1	mg/kg	05-JUL-05	05-JUL-05		R300173
o-Xylene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
Toluene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
Xylene, (total)	<0.15		0.15	mg/kg	05-JUL-05	05-JUL-05		R300173
% Moisture	1.5		0.5	%	07-JUL-05	06-JUL-05	SK	R300150
L283148-3 RB-03 3/5								
Sample Date: 29-JUN-05 07:30								
Matrix: SOIL								

ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L283148-3 RB-03 3/5								
Sample Date: 29-JUN-05 07:30								
Matrix: SOIL								
BTEX, F1-F4 (O.Reg.153/04)								
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates					05-JUL-05	05-JUL-05	PJM	R300191
Surr: Octacosane	82		50-150	%	05-JUL-05	05-JUL-05	PJM	R300191
F1 (O.Reg.153/04)								
Prep/Analysis Dates					05-JUL-05	05-JUL-05	SN	R300248
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg		06-JUL-05		
F1-BTEX	<5		5	mg/kg		06-JUL-05		
F2 (C10-C16)	<5		5	mg/kg		06-JUL-05		
F3 (C16-C34)	10		5	mg/kg		06-JUL-05		
F4 (C34-C50)	<5		5	mg/kg		06-JUL-05		
Total Hydrocarbons (C6-C50)	10		5	mg/kg		06-JUL-05		
Chromatogram to baseline at nC50	yes					06-JUL-05		
BTEX (O.Reg.153/04)								
Benzene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
Ethyl Benzene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
m+p-Xylenes	<0.1		0.1	mg/kg	05-JUL-05	05-JUL-05		R300173
o-Xylene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
Toluene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
Xylene, (total)	<0.15		0.15	mg/kg	05-JUL-05	05-JUL-05		R300173
% Moisture	5.6		0.5	%	07-JUL-05	06-JUL-05	SK	R300150
L283148-4 RB-04 4/5								
Sample Date: 29-JUN-05 07:30								
Matrix: SOIL								
BTEX, F1-F4 (O.Reg.153/04)								
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates					05-JUL-05	05-JUL-05	PJM	R300191
Surr: Octacosane	68		50-150	%	05-JUL-05	05-JUL-05	PJM	R300191
F1 (O.Reg.153/04)								
Prep/Analysis Dates					05-JUL-05	05-JUL-05	SN	R300248
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg		06-JUL-05		
F1-BTEX	<5		5	mg/kg		06-JUL-05		
F2 (C10-C16)	<5		5	mg/kg		06-JUL-05		
F3 (C16-C34)	6		5	mg/kg		06-JUL-05		
F4 (C34-C50)	<5		5	mg/kg		06-JUL-05		
Total Hydrocarbons (C6-C50)	6		5	mg/kg		06-JUL-05		
Chromatogram to baseline at nC50	yes					06-JUL-05		
BTEX (O.Reg.153/04)								
Benzene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
Ethyl Benzene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
m+p-Xylenes	<0.1		0.1	mg/kg	05-JUL-05	05-JUL-05		R300173
o-Xylene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
Toluene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
Xylene, (total)	<0.15		0.15	mg/kg	05-JUL-05	05-JUL-05		R300173
% Moisture	1.2		0.5	%	07-JUL-05	06-JUL-05	SK	R300150
L283148-5 RB-05 5/5								
Sample Date: 29-JUN-05 07:30								
Matrix: SOIL								

ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L283148-5 RB-05 5/5								
Sample Date: 29-JUN-05 07:30								
Matrix: SOIL								
BTEX, F1-F4 (O.Reg.153/04)								
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates					05-JUL-05	05-JUL-05	PJM	R300191
Surr: Octacosane	71		50-150	%	05-JUL-05	05-JUL-05	PJM	R300191
F1 (O.Reg.153/04)								
Prep/Analysis Dates					05-JUL-05	05-JUL-05	SN	R300248
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg		06-JUL-05		
F1-BTEX	<5		5	mg/kg		06-JUL-05		
F2 (C10-C16)	<5		5	mg/kg		06-JUL-05		
F3 (C16-C34)	<5		5	mg/kg		06-JUL-05		
F4 (C34-C50)	<5		5	mg/kg		06-JUL-05		
Total Hydrocarbons (C6-C50)	<5		5	mg/kg		06-JUL-05		
Chromatogram to baseline at nC50	yes					06-JUL-05		
BTEX (O.Reg.153/04)								
Benzene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
Ethyl Benzene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
m+p-Xylenes	<0.1		0.1	mg/kg	05-JUL-05	05-JUL-05		R300173
o-Xylene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
Toluene	<0.05		0.05	mg/kg	05-JUL-05	05-JUL-05		R300173
Xylene, (total)	<0.15		0.15	mg/kg	05-JUL-05	05-JUL-05		R300173
% Moisture	1.5		0.5	%	07-JUL-05	06-JUL-05	SK	R300150

Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Methods Listed (if applicable):

ETL Test Code	Matrix	Test Description	Preparation Method Reference(Based On)	Analytical Method Reference(Based On)
BTX-R153-WT	Soil	BTEX (O.Reg.153/04)		MOE DECPH-E3398/CCME Tier 1
ETL-TVH,TEH-CCME-WT	Soil	CCME Total Hydrocarbons		CCME CWS-PHC Dec-2000 - Pub# 1310

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-WT	Soil	F1 (O.Reg.153/04)		MOE DECPH-E3398/CCME Tier 1
F2-F4-WT	Soil	F2-F4 (O.Reg.153/04)		MOE DECPH-E3398/CCME Tier 1
MOISTURE-WT	Soil	% Moisture		Gravimetric: Oven Dried

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.

Chain of Custody numbers:

L283148

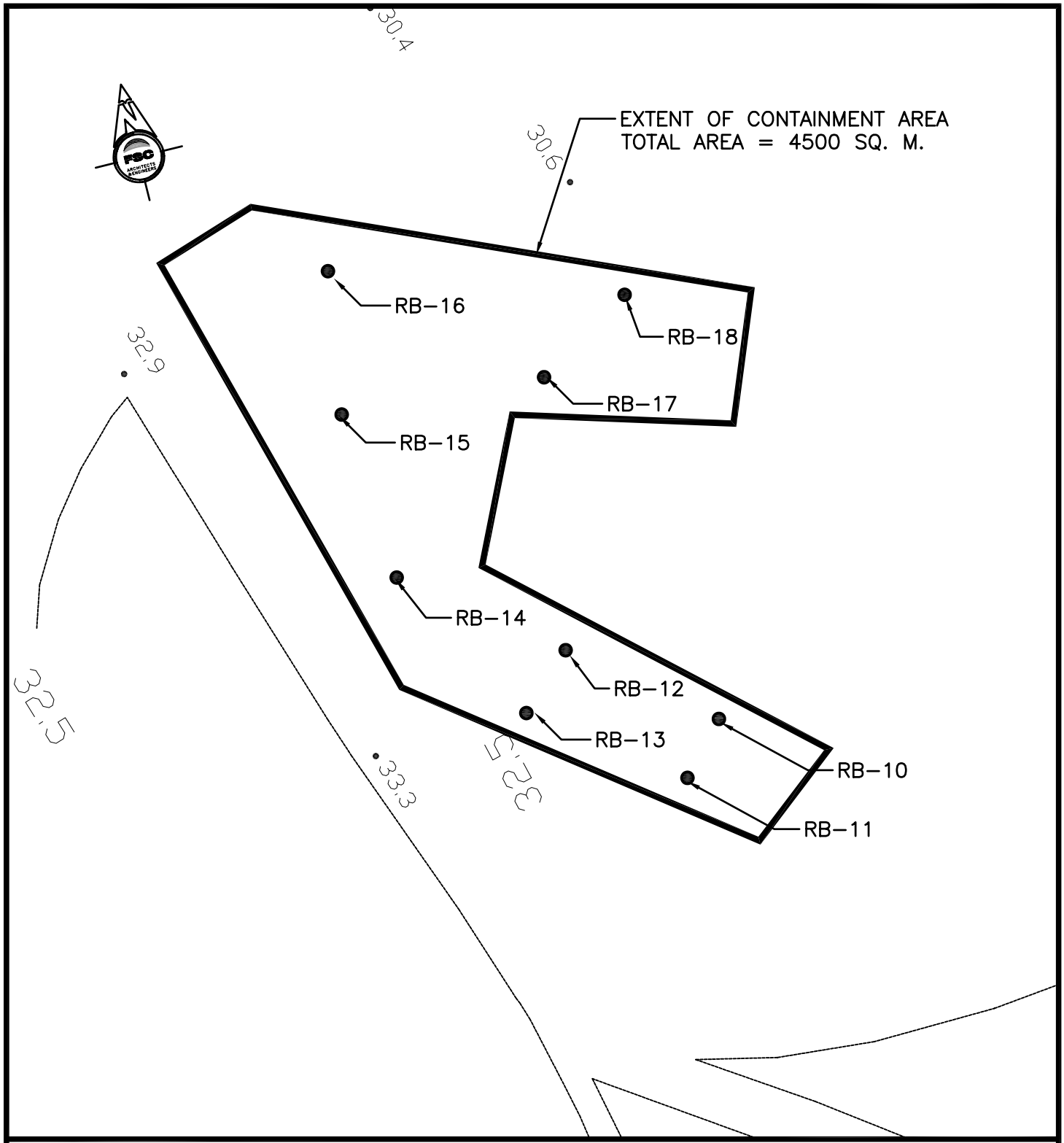
The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	Enviro-Test Laboratories - Waterloo (Sentinel), Ontario, Can		

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds. The reported surrogate recovery value provides a measure of method efficiency. The Laboratory warning units are determined under column heading D.L.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
< - Less than
D.L. - Detection Limit
N/A - Result not available. Refer to qualifier code and definition for explanation

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
UNLESS OTHERWISE STATED, SAMPLES ARE NOT CORRECTED FOR CLIENT FIELD BLANKS.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

Enviro-Test Laboratories has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, Enviro-Test Laboratories assumes no liability for the use or interpretation of the results.



PROJECT TITLE

Repulse Bay Fuel Storage Facility Upgrade

DRAWING TITLE

Sample locations for containment area

NUNAVUT
NOBLE HOUSE 1088C
P.O. BOX 1779
IQALUIT, NUNAVUT
CANADA, X0A 0H0
PH: (867) 979-0555
FAX: (867) 979-5711
Email: fscnunavut@fsc.ca

FSC
ARCHITECTS
& ENGINEERS

CLIENT

GOVERNMENT OF NUNAVUT
DEPARTMENT OF COMMUNITY
AND GOVERNMENT SERVICES

DRAWN BY: SRB	CLIENT PROJECT No: 2002–1300
CHECKED BY: RK	SCALE: NTS
DATE: 09/06/2005	DRAWING NO.: SK–2

ETL Enviro-Test LABORATORIES

PRELIMINARY RESULTS

FSC ARCHITECTS & ENGINEERS
ATTN: RON KENT
4910 53 ST PO BOX 1777
YELLOWKNIFE NT X1A 1V2

DATE: 26-AUG-05 03:56 PM Revision: 1

Lab Work Order #: L308962 **Sampled By:** SRB **Date Received:** 24-AUG-05
Project P.O. #:
Project Reference: 2002-1300
Comments:

APPROVED BY: _____
RICHARD CLARA
Project Manager

ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L308962-2 RB-07								
Sample Date: 21-AUG-05								
Matrix: SOIL								
BTEX, F1-F4 (O.Reg.153/04)								
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	26-AUG-05	TH	R317763
Surr: Octacosane	87		50-150	%	25-AUG-05	26-AUG-05	TH	R317763
F1 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	25-AUG-05	SN	R317966
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg		26-AUG-05		
F1-BTEX	<5		5	mg/kg		26-AUG-05		
F2 (C10-C16)	<5		5	mg/kg		26-AUG-05		
F3 (C16-C34)	8		5	mg/kg		26-AUG-05		
F4 (C34-C50)	<5		5	mg/kg		26-AUG-05		
Total Hydrocarbons (C6-C50)	8		5	mg/kg		26-AUG-05		
Chromatogram to baseline at nC50	yes					26-AUG-05		
BTEX (O.Reg.153/04)								
Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Ethyl Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
m+p-Xylenes	<0.1		0.1	mg/kg	25-AUG-05	25-AUG-05		R317965
o-Xylene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Toluene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Xylene, (total)	<0.15		0.15	mg/kg	25-AUG-05	25-AUG-05		R317965
% Moisture	1.3		0.5	%	25-AUG-05	25-AUG-05	DF	R317720
L308962-3 RB-08								
Sample Date: 21-AUG-05								
Matrix: SOIL								
BTEX, F1-F4 (O.Reg.153/04)								
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	26-AUG-05	TH	R317763
Surr: Octacosane	87		50-150	%	25-AUG-05	26-AUG-05	TH	R317763
F1 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	25-AUG-05	SN	R317966
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg		26-AUG-05		
F1-BTEX	<5		5	mg/kg		26-AUG-05		
F2 (C10-C16)	<5		5	mg/kg		26-AUG-05		
F3 (C16-C34)	8		5	mg/kg		26-AUG-05		
F4 (C34-C50)	<5		5	mg/kg		26-AUG-05		
Total Hydrocarbons (C6-C50)	8		5	mg/kg		26-AUG-05		
Chromatogram to baseline at nC50	yes					26-AUG-05		
BTEX (O.Reg.153/04)								
Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Ethyl Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
m+p-Xylenes	<0.1		0.1	mg/kg	25-AUG-05	25-AUG-05		R317965
o-Xylene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Toluene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Xylene, (total)	<0.15		0.15	mg/kg	25-AUG-05	25-AUG-05		R317965
% Moisture	4.0		0.5	%	25-AUG-05	25-AUG-05	DF	R317720
L308962-4 RB-09								
Sample Date: 21-AUG-05								
Matrix: SOIL								

ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L308962-4 RB-09								
Sample Date: 21-AUG-05								
Matrix: SOIL								
BTEX, F1-F4 (O.Reg.153/04)								
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	26-AUG-05	TH	R317763
Surr: Octacosane	89		50-150	%	25-AUG-05	26-AUG-05	TH	R317763
F1 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	25-AUG-05	SN	R317966
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg		26-AUG-05		
F1-BTEX	<5		5	mg/kg		26-AUG-05		
F2 (C10-C16)	<5		5	mg/kg		26-AUG-05		
F3 (C16-C34)	17		5	mg/kg		26-AUG-05		
F4 (C34-C50)	<5		5	mg/kg		26-AUG-05		
Total Hydrocarbons (C6-C50)	17		5	mg/kg		26-AUG-05		
Chromatogram to baseline at nC50	yes					26-AUG-05		
BTEX (O.Reg.153/04)								
Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Ethyl Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
m+p-Xylenes	<0.1		0.1	mg/kg	25-AUG-05	25-AUG-05		R317965
o-Xylene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Toluene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Xylene, (total)	<0.15		0.15	mg/kg	25-AUG-05	25-AUG-05		R317965
% Moisture	4.9		0.5	%	25-AUG-05	25-AUG-05	DF	R317720
L308962-5 RB-10								
Sample Date: 21-AUG-05								
Matrix: SOIL								
BTEX, F1-F4 (O.Reg.153/04)								
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	26-AUG-05	TH	R317763
Surr: Octacosane	86		50-150	%	25-AUG-05	26-AUG-05	TH	R317763
F1 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	25-AUG-05	SN	R317966
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg		26-AUG-05		
F1-BTEX	<5		5	mg/kg		26-AUG-05		
F2 (C10-C16)	90		5	mg/kg		26-AUG-05		
F3 (C16-C34)	70		5	mg/kg		26-AUG-05		
F4 (C34-C50)	25		5	mg/kg		26-AUG-05		
Total Hydrocarbons (C6-C50)	185		5	mg/kg		26-AUG-05		
Chromatogram to baseline at nC50	yes					26-AUG-05		
BTEX (O.Reg.153/04)								
Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Ethyl Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
m+p-Xylenes	<0.1		0.1	mg/kg	25-AUG-05	25-AUG-05		R317965
o-Xylene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Toluene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Xylene, (total)	<0.15		0.15	mg/kg	25-AUG-05	25-AUG-05		R317965
% Moisture	3.5		0.5	%	25-AUG-05	25-AUG-05	DF	R317720
L308962-6 RB-11								
Sample Date: 21-AUG-05								
Matrix: SOIL								

ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L308962-6 RB-11								
Sample Date: 21-AUG-05								
Matrix: SOIL								
BTEX, F1-F4 (O.Reg.153/04)								
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	26-AUG-05	TH	R317763
Surr: Octacosane	89		50-150	%	25-AUG-05	26-AUG-05	TH	R317763
F1 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	25-AUG-05	SN	R317966
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg		26-AUG-05		
F1-BTEX	<5		5	mg/kg		26-AUG-05		
F2 (C10-C16)	39		5	mg/kg		26-AUG-05		
F3 (C16-C34)	50		5	mg/kg		26-AUG-05		
F4 (C34-C50)	17		5	mg/kg		26-AUG-05		
Total Hydrocarbons (C6-C50)	106		5	mg/kg		26-AUG-05		
Chromatogram to baseline at nC50	yes					26-AUG-05		
BTEX (O.Reg.153/04)								
Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Ethyl Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
m+p-Xylenes	<0.1		0.1	mg/kg	25-AUG-05	25-AUG-05		R317965
o-Xylene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Toluene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Xylene, (total)	<0.15		0.15	mg/kg	25-AUG-05	25-AUG-05		R317965
% Moisture	3.1		0.5	%	25-AUG-05	25-AUG-05	DF	R317720
L308962-7 RB-12								
Sample Date: 21-AUG-05								
Matrix: SOIL								
BTEX, F1-F4 (O.Reg.153/04)								
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	26-AUG-05	TH	R317763
Surr: Octacosane	87		50-150	%	25-AUG-05	26-AUG-05	TH	R317763
F1 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	25-AUG-05	SN	R317966
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg		26-AUG-05		
F1-BTEX	<5		5	mg/kg		26-AUG-05		
F2 (C10-C16)	15		5	mg/kg		26-AUG-05		
F3 (C16-C34)	27		5	mg/kg		26-AUG-05		
F4 (C34-C50)	<5		5	mg/kg		26-AUG-05		
Total Hydrocarbons (C6-C50)	42		5	mg/kg		26-AUG-05		
Chromatogram to baseline at nC50	yes					26-AUG-05		
BTEX (O.Reg.153/04)								
Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Ethyl Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
m+p-Xylenes	<0.1		0.1	mg/kg	25-AUG-05	25-AUG-05		R317965
o-Xylene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Toluene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Xylene, (total)	<0.15		0.15	mg/kg	25-AUG-05	25-AUG-05		R317965
% Moisture	3.8		0.5	%	25-AUG-05	25-AUG-05	DF	R317720
L308962-8 RB-13								
Sample Date: 21-AUG-05								
Matrix: SOIL								

ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L308962-8 RB-13								
Sample Date: 21-AUG-05								
Matrix: SOIL								
BTEX, F1-F4 (O.Reg.153/04)								
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	26-AUG-05	TH	R317763
Surr: Octacosane	94		50-150	%	25-AUG-05	26-AUG-05	TH	R317763
F1 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	25-AUG-05	SN	R317966
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg		26-AUG-05		
F1-BTEX	<5		5	mg/kg		26-AUG-05		
F2 (C10-C16)	56		5	mg/kg		26-AUG-05		
F3 (C16-C34)	32		5	mg/kg		26-AUG-05		
F4 (C34-C50)	<5		5	mg/kg		26-AUG-05		
Total Hydrocarbons (C6-C50)	88		5	mg/kg		26-AUG-05		
Chromatogram to baseline at nC50	yes					26-AUG-05		
BTEX (O.Reg.153/04)								
Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Ethyl Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
m+p-Xylenes	<0.1		0.1	mg/kg	25-AUG-05	25-AUG-05		R317965
o-Xylene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Toluene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Xylene, (total)	<0.15		0.15	mg/kg	25-AUG-05	25-AUG-05		R317965
% Moisture	2.7		0.5	%	25-AUG-05	25-AUG-05	DF	R317720
L308962-9 RB-14								
Sample Date: 21-AUG-05								
Matrix: SOIL								
BTEX, F1-F4 (O.Reg.153/04)								
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	26-AUG-05	TH	R317763
Surr: Octacosane	86		50-150	%	25-AUG-05	26-AUG-05	TH	R317763
F1 (O.Reg.153/04)								
Prep/Analysis Dates					26-AUG-05	26-AUG-05	TF	R318093
CCME Total Hydrocarbons								
F1 (C6-C10)	18		5	mg/kg		26-AUG-05		
F1-BTEX	18		5	mg/kg		26-AUG-05		
F2 (C10-C16)	1100		5	mg/kg		26-AUG-05		
F3 (C16-C34)	38		5	mg/kg		26-AUG-05		
F4 (C34-C50)	<5		5	mg/kg		26-AUG-05		
Total Hydrocarbons (C6-C50)	1160		5	mg/kg		26-AUG-05		
Chromatogram to baseline at nC50	yes					26-AUG-05		
BTEX (O.Reg.153/04)								
Benzene	<0.05		0.05	mg/kg	25-AUG-05	26-AUG-05		R318078
Ethyl Benzene	<0.05		0.05	mg/kg	25-AUG-05	26-AUG-05		R318078
m+p-Xylenes	<0.1		0.1	mg/kg	25-AUG-05	26-AUG-05		R318078
o-Xylene	<0.05		0.05	mg/kg	25-AUG-05	26-AUG-05		R318078
Toluene	<0.05		0.05	mg/kg	25-AUG-05	26-AUG-05		R318078
Xylene, (total)	<0.15		0.15	mg/kg	25-AUG-05	26-AUG-05		R318078
% Moisture	5.6		0.5	%	25-AUG-05	25-AUG-05	DF	R317720
L308962-10 RB-15								
Sample Date: 21-AUG-05								
Matrix: SOIL								

ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L308962-10 RB-15								
Sample Date: 21-AUG-05								
Matrix: SOIL								
BTEX, F1-F4 (O.Reg.153/04)								
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	26-AUG-05	TH	R317763
Surr: Octacosane	75		50-150	%	25-AUG-05	26-AUG-05	TH	R317763
F1 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	25-AUG-05	SN	R317966
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg		26-AUG-05		
F1-BTEX	<5		5	mg/kg		26-AUG-05		
F2 (C10-C16)	140		5	mg/kg		26-AUG-05		
F3 (C16-C34)	73		5	mg/kg		26-AUG-05		
F4 (C34-C50)	7		5	mg/kg		26-AUG-05		
Total Hydrocarbons (C6-C50)	220		5	mg/kg		26-AUG-05		
Chromatogram to baseline at nC50	yes					26-AUG-05		
BTEX (O.Reg.153/04)								
Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Ethyl Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
m+p-Xylenes	<0.1		0.1	mg/kg	25-AUG-05	25-AUG-05		R317965
o-Xylene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Toluene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Xylene, (total)	<0.15		0.15	mg/kg	25-AUG-05	25-AUG-05		R317965
% Moisture	3.5		0.5	%	27-AUG-05	26-AUG-05	SK	R317765
L308962-11 RB-16								
Sample Date: 21-AUG-05								
Matrix: SOIL								
BTEX, F1-F4 (O.Reg.153/04)								
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	26-AUG-05	TH	R317763
Surr: Octacosane	88		50-150	%	25-AUG-05	26-AUG-05	TH	R317763
F1 (O.Reg.153/04)								
Prep/Analysis Dates					26-AUG-05	26-AUG-05	TF	R318093
CCME Total Hydrocarbons								
F1 (C6-C10)	9		5	mg/kg		26-AUG-05		
F1-BTEX	9		5	mg/kg		26-AUG-05		
F2 (C10-C16)	840		5	mg/kg		26-AUG-05		
F3 (C16-C34)	65		5	mg/kg		26-AUG-05		
F4 (C34-C50)	<5		5	mg/kg		26-AUG-05		
Total Hydrocarbons (C6-C50)	914		5	mg/kg		26-AUG-05		
Chromatogram to baseline at nC50	yes					26-AUG-05		
BTEX (O.Reg.153/04)								
Benzene	<0.05		0.05	mg/kg	25-AUG-05	26-AUG-05		R318078
Ethyl Benzene	<0.05		0.05	mg/kg	25-AUG-05	26-AUG-05		R318078
m+p-Xylenes	<0.1		0.1	mg/kg	25-AUG-05	26-AUG-05		R318078
o-Xylene	<0.05		0.05	mg/kg	25-AUG-05	26-AUG-05		R318078
Toluene	<0.05		0.05	mg/kg	25-AUG-05	26-AUG-05		R318078
Xylene, (total)	<0.15		0.15	mg/kg	25-AUG-05	26-AUG-05		R318078
% Moisture	5.4		0.5	%	27-AUG-05	26-AUG-05	SK	R317765
L308962-12 RB-17								
Sample Date: 21-AUG-05								
Matrix: SOIL								

ENVIRO-TEST ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier	D.L.	Units	Extracted	Analyzed	By	Batch
L308962-12 RB-17								
Sample Date: 21-AUG-05								
Matrix: SOIL								
BTEX, F1-F4 (O.Reg.153/04)								
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	26-AUG-05	TH	R317763
Surr: Octacosane	85		50-150	%	25-AUG-05	26-AUG-05	TH	R317763
F1 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	25-AUG-05	SN	R317966
CCME Total Hydrocarbons								
F1 (C6-C10)	13		5	mg/kg		26-AUG-05		
F1-BTEX	13		5	mg/kg		26-AUG-05		
F2 (C10-C16)	620		5	mg/kg		26-AUG-05		
F3 (C16-C34)	25		5	mg/kg		26-AUG-05		
F4 (C34-C50)	<5		5	mg/kg		26-AUG-05		
Total Hydrocarbons (C6-C50)	658		5	mg/kg		26-AUG-05		
Chromatogram to baseline at nC50	yes					26-AUG-05		
BTEX (O.Reg.153/04)								
Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Ethyl Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
m+p-Xylenes	<0.1		0.1	mg/kg	25-AUG-05	25-AUG-05		R317965
o-Xylene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Toluene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Xylene, (total)	<0.15		0.15	mg/kg	25-AUG-05	25-AUG-05		R317965
% Moisture	4.6		0.5	%	27-AUG-05	26-AUG-05	SK	R317765
L308962-13 RB-18								
Sample Date: 21-AUG-05								
Matrix: SOIL								
BTEX, F1-F4 (O.Reg.153/04)								
F2-F4 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	26-AUG-05	TH	R317763
Surr: Octacosane	88		50-150	%	25-AUG-05	26-AUG-05	TH	R317763
F1 (O.Reg.153/04)								
Prep/Analysis Dates					25-AUG-05	25-AUG-05	SN	R317966
CCME Total Hydrocarbons								
F1 (C6-C10)	<5		5	mg/kg		26-AUG-05		
F1-BTEX	<5		5	mg/kg		26-AUG-05		
F2 (C10-C16)	51		5	mg/kg		26-AUG-05		
F3 (C16-C34)	25		5	mg/kg		26-AUG-05		
F4 (C34-C50)	<5		5	mg/kg		26-AUG-05		
Total Hydrocarbons (C6-C50)	76		5	mg/kg		26-AUG-05		
Chromatogram to baseline at nC50	yes					26-AUG-05		
BTEX (O.Reg.153/04)								
Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Ethyl Benzene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
m+p-Xylenes	<0.1		0.1	mg/kg	25-AUG-05	25-AUG-05		R317965
o-Xylene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Toluene	<0.05		0.05	mg/kg	25-AUG-05	25-AUG-05		R317965
Xylene, (total)	<0.15		0.15	mg/kg	25-AUG-05	25-AUG-05		R317965
% Moisture	5.0		0.5	%	27-AUG-05	26-AUG-05	SK	R317765

Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Methods Listed (if applicable):

ETL Test Code	Matrix	Test Description	Preparation Method Reference(Based On)	Analytical Method Reference(Based On)
BTX-R153-WT	Soil	BTEX (O.Reg.153/04)		MOE DECPH-E3398/CCME Tier 1
ETL-TVH,TEH-CCME-WT	Soil	CCME Total Hydrocarbons		CCME CWS-PHC Dec-2000 - Pub# 1310

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-WT	Soil	F1 (O.Reg.153/04)		MOE DECPH-E3398/CCME Tier 1
F2-F4-WT	Soil	F2-F4 (O.Reg.153/04)		MOE DECPH-E3398/CCME Tier 1
MOISTURE-WT	Soil	% Moisture		Gravimetric: Oven Dried

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.

Chain of Custody numbers:

L308962

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	Enviro-Test Laboratories - Waterloo (Sentinel), Ontario, Can		

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency. The Laboratory warning units are determined under column heading D.L.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
< - Less than
D.L. - Detection Limit
N/A - Result not available. Refer to qualifier code and definition for explanation

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
UNLESS OTHERWISE STATED, SAMPLES ARE NOT CORRECTED FOR CLIENT FIELD BLANKS.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

Enviro-Test Laboratories has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, Enviro-Test Laboratories assumes no liability for the use or interpretation of the results.