P.O. BOX 119
GJOA HAVEN, NT X0E 1J0
TEL: (867) 360-6338
FAX: (867) 360-6369

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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN
KATIMAYINGI

Water License Application

Repulse Bay

NWB3REP0409

Supplementary Information Requirements For Hydrocarbon-Impacted Soil Storage and Landfarm Treatment Facilities

I. GENERAL INFORMATION

The following general information should be included in the Application.

1. Date of Application.

   July 12th, 2005

2. Name and mailing address of the Applicant.

   Hamlet of Repulse Bay
   PO Box 10
   Repulse Bay, NU
   X0C 0V0

3. Contact information including phone number(s), fax number(s) and email address(es).

   Phone: (867) 462 9952
   Fax: (867) 462 4411

4. Name(s) of Facility operator(s) and alternate management personnel.

   Project Manager: Baljinder Brar
   Phone: (867) 645 8185
   Fax: (867) 645 8196

   Community and Government
   PO Box 490
   Rankin Inlet, NU
   X0C 0G0

5. Number of years the Applicant is requesting for a water license.

   This is an application for an amendment to the existing water license NWB3REP0409 for the Hamlet of Repulse Bay.

II. TECHNICAL INFORMATION REQUIRED TO PROCESS THE APPLICATION

Current Engineered Drawings, Facility Design Plans, a Facility Operations and Maintenance Plan (including, but not limited, to a Spill Contingency Plan developed in accordance with the Board's "*Guidelines for Contingency Planning*" (1987)) and a Site Monitoring Plan will be required to process the Application. All Engineered Drawings shall be stamped by a qualified Professional Engineer registered to practice in Nunavut.

Site Assessment Considerations	
The Applicant shall provide details of the site topography, hydrology and permafrost regime, including the following**:**	
1. Current detailed topographical site survey diagrams, map(s) and/or aerial photos, of sufficient scale to clearly show all pertinent drainage features, and which clearly illustrate the location of the following:	Attachment A contains drawings CSK-1, CSK-2 and CSK-3, which depict all the requirements listed under Site Assessment Considerations Section One. Below is a description of each drawing and its corresponding siteings. **CSK-1**: Current fuel storage facility site, area allocated by SAO in September 2004 and proposed landfarm treatment location. **CSK-2**: Site drainage patterns, facility access routes available, surface and subsurface characteristics and the slope of underlying ground. **CSK-3**: Monitoring stations and GPS coordinates for the contaminated soil treatment unit and monitoring wells.
a. Adjacent surface water bodies that could be affected by the proposed undertaking, particularly fish-bearing waters;	Ocean
b. Traditional land use areas used for recreation, camping, fishing, etc. (missing these two items on the map)	N/A

Note: Maps, diagrams and aerial photos submitted with the Application must include an accurate scale that allows the determination of distances between the objects depicted.	
2. The slope of land underlying the Facility.	Shown on CSK2
3. A hydrological/climatic assessment of the site that includes the following:	Previously submitted in support of current licence. No changes to that information.
a. Precipitation and temperature profiles for the area	Previously submitted in support of current licence. No changes to that information.
b. Details concerning the local drainage basin;	Previously submitted in support of current licence. No changes to that information.
c. Information regarding direction, path of water flow and potential seepage in area of the undertaking;	Current MSW site. Previously submitted in support of current licence. No changes to that information.
d. A discussion concerning the likelihood of flood events that could disrupt operations or threaten water quality, and whether the local landforms may encourage or discourage such events (i.e. a Facility situated in an active flood plain).	None
4. A description of the soil underlying the site that includes:	Shown on CSK2
a. The physical and chemical characteristics of the material underlying Facility	Soil under lying site consists of a clayey material.
b. The depth of the permafrost active layer; and	Active permafrost layer is approximately 600mm below site.
c. A discussion of any permafrost characteristics that may impact on the construction and operation of the Facility (i.e. frost heaving, presence of ice lenses, evidence of permafrost degradation).	There is possible frost heaving, no ice lenses present and degradation present adjacent to site.
5. Information regarding the conformity of the undertaking with any applicable Municipal zoning or land use planning ordinances.	Conforms: sited in waste management area

Soil Storage and Landfarm Treatment Design Considerations	
The Applicant shall provide details of design and construction of all components of the Soil Storage and Landfarm Treatment Facility prior to its construction, including the following**:**	
1. Comprehensive design details, including the dimensions, materials of construction and installation/construction procedures of all Facility components are required as part of the Application. Drawings of the design, stamped by an engineer licensed to practice in Nunavut, are also required. The design details should depict and describe the following components:	The contaminated soil storage area will consist of a land area of 18m X 18m (280m²). The coordinates for the four (4) corners of the contaminated storage area located in drawing CSK-3 in Attachment A and are: N: 7378763.22, E: 534431.41; N: 7378752.27, E: 534445.70; N: 7378737.93, E: 534434.82; and N: 7378748.80, E: 534420.48.
a. Retaining structures (dimensions, materials of construction, etc.);	The soil pile itself will be 17m X 17m X 1m. The slope of the soil pile will be 3.0. Diagrams of the soil pile and berm design can be seen in Attachment C.
b. Geo-synthetic liners (properties, installation details, etc);	No geo-synthetic liners will be used. The existing ground will be scrapped flat as described in design drawings.
c. Sumps, pumps, storage ponds/tanks and any other devices used to manage excess runoff water and/or leachate;	No pumps, sumps or any other storage devices will be used in construction of the contaminated soil storage area.
d. Existing and any proposed drainage modifications, such as berms (natural or constructed) and diversion ditches; and	Constructed berms will be used in the modification of drainage patterns. Four (4) berm walls, 300mm in height, will surround the contaminated soil accordingly o modify the drainage pattern. One (1) side will not have a constructed berm in order to allow access to equipment and workers and then once all contaminated soil is in place the final berm will be built.

	e. Water quality and environmental monitoring stations and associated equipment (design, placement, etc).	There are two (2) proposed site locations for monitoring wells located outside of the contaminated soil storage area. These two (2) sites are located in drawing CSK-3 in Attachment A at: N: 7378754.62, E: 534454.45; and N: 7378736.40, E: 534440.05
2.	Information regarding the installation of barriers to prevent access to the site.	There are currently no plans to construct a barricade of any type in order to prevent access to the site.
3.	A discussion considering the placement of the Facility in relation to water bodies.	Located in the current approved MSW site
4.	A discussion considering flood risks/maximum probably precipitation events in regards to the Facility placement and design.	Flooding is not anticipated
5.	The consideration of alternative methods of soil storage or remediation, in the event that circumstances are not suitable, for example because of environmental constraints, available human resources, etc.	If determined through testing that the soil remains contaminated above CCME industrial levels an appropriate LTU will be constructed. NWB approval will be sought.
Operations and Maintenance Considerations		
The Applicant shall provide details of the Operations and Maintenance Plan to be implemented at the Facility regarding the acceptance of material at the Facility, the procedures to be utilized in the treatment, or storage, of the hydrocarbon-impacted soil, the criteria to be attained prior to soil being deemed remediated, and the ultimate deposition of any treated soils. This shall include the following**:**		
1.	The procedures to determine if soils may be accepted at the Facility, including but not limited to:	
	a. Chemical, physical and biological characterization of the soils and the associated hydrocarbon and metal contaminant concentrations;	Five (5) samples of contaminated soil were taken and sent to Enviro Labs in Edmonton, Alberta. These samples were obtained June 29th, 2005 by FSC employee Sharyl Budgel and received in Edmonton June 30th, 2005. Concentrations for total hydrocarbons range from <5

		mg/kg, 5 mg/kg is the detection level, to 10 mg/kg. All BTEX results were below detection levels. A full observation of the test results can be seen in Attachment B.
	b. Treatability studies, to determine the viability of landfarm treatment; and	None
	c. Sampling frequency and number of samples *per* volume of soil accepted	N/A
2.	The procedures to be utilized during active landfarming operations in the active treatment cells, including but not limited to:	
	a. Treatment cell development and material placement therein;	The treatment cell area will first have the existing ground scrapped flat. Construction of the berms will then begin on three (3) of the walls. Soil will then be added in regiments of 300mm until the desired height is reached. The slope of the contaminated soil will be 3.0. Once the final layer of contaminated soil is in place construction on the final berm wall will commence. All four (4) berm walls will be built to a height of 300mm.
	b. Contaminated soil thickness in treatment cells;	The total contaminated soil thickness in the treatment cell will be one (1) metre in height with a slope of 3.0.
	c. Method of mechanical aeration in treatment cells;	The soil will be turned over by a loader. All work will be completed during sunny, dry weather.
	d. Oversize material management;	N/A
	e. Surface water management, leachate containment and/or treatment, and site grade planning;	Surface drainage prevented from entering the holding cell. There is no plan for site grading to take place with respect to the ground. The contaminated soil treatment area's existing ground will be scrapped flat. The contaminated soil will be graded to positive drainage.
	f. Process water management, and treatment prior to discharge;	N/A The construction of the berms will limit the water flow entering

	and leaving the site area. There will be no treatment of water prior to discharge.
g. Site volume and operational monitoring programs;	The estimated amount of contaminated soil that will be entering the site and placed for treatment is 280m³. The monitoring program will consist of samples taken from the two (2) monitoring wells aforementioned in drawing CSK-3 under Attachment A.
h. Dust control programs; and	There are no dust control programs in place for this treatment unit.
i. Staff operational training programs.	N/A
3. The Applicant must provide a soil quality remedial objective, as defined by the Canadian Council of Ministers of the Environment ("CCME") or by other applicable agency, to which the Applicant is intending to achieve.	Industrial
4. A conceptual decommissioning and reclamation plan is required with the Application, which should contain the following information:	5.
a. Details regarding the ultimate deposition of any treated soils; and	Once the soil has been treated and tests show that soil is fully remedial to the desired levels then the soil is to be used as cover material at the local municipal solid waste site.
b. A disposal plan for soils contaminated with bioremediation-unsuitable compounds, or for soils that do not respond well to the proposed landfarming treatment.	The material does not contain any bioremediation-unsuitable compounds and all contaminated soil will be remediated.
Surface and Groundwater Monitoring Programs	
A comprehensive Surface and Groundwater Monitoring Plan to be implemented at the Facility is required with the Application. This Plan shall include the following**:**	
1) Locations (including GPS coordinates) of all proposed Monitoring Stations;	There are two (2) proposed site locations for monitoring wells

		located outside of the contaminated soil storage area. These two (2) sites are located in drawing CSK-3 under Attachment A at: N: 7378754.62, E: 534454.45; and N: 7378736.40, E: 534440.05.
2)	Chemical, physical and biological parameters to be monitored;	Hydrocarbon monitoring of the soil will occur after it is spread and at intervals after the spreading.
3)	Sampling frequency;	As determined by field staff
4)	Baseline monitoring programs currently in progress, or contemplated during the term of the license under consideration; and	None
5)	QA/QC Programs to be implemented as part of the Monitoring Program.	FSC field monitoring programs confirmed using EnviroTest Labs

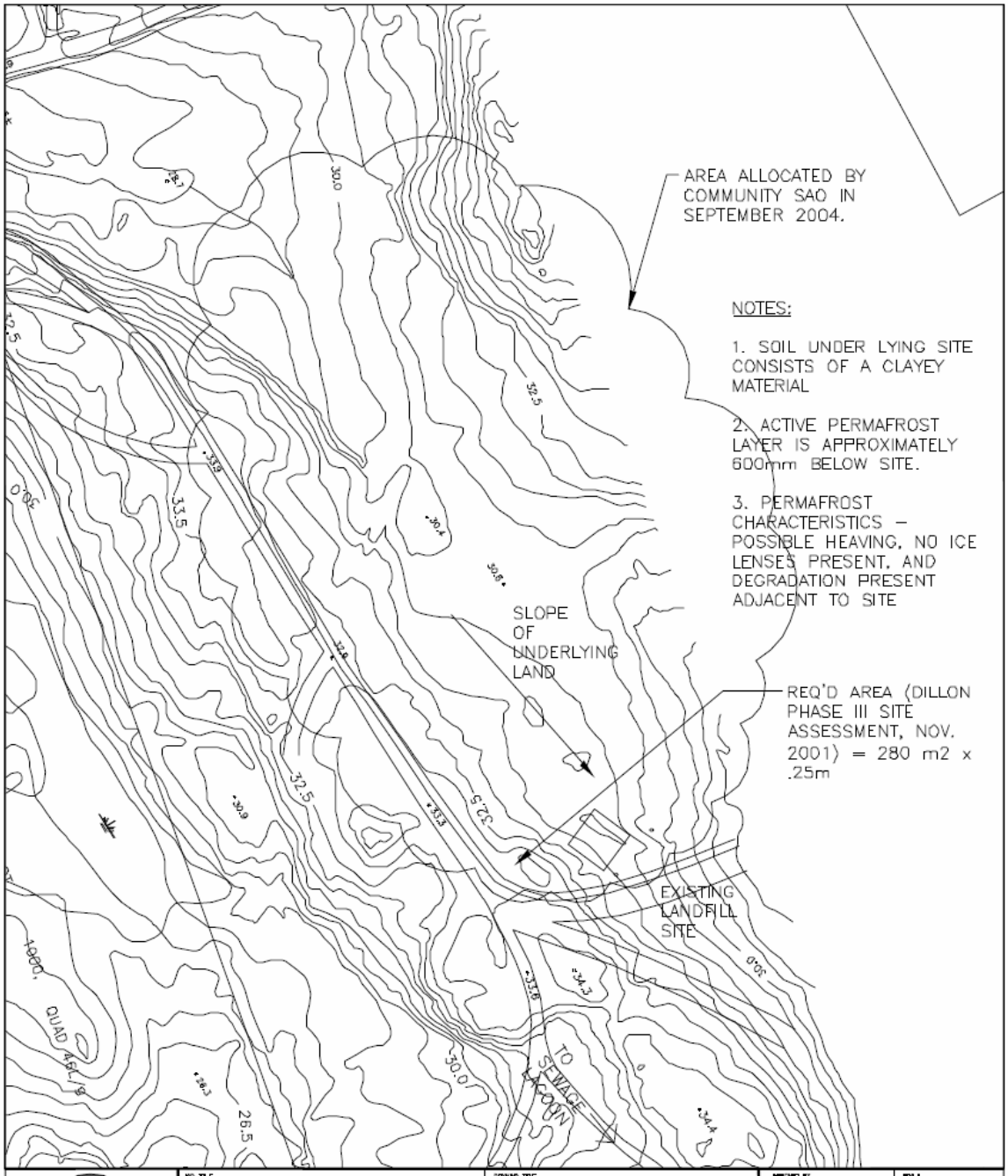
Table VII: Summary Information on Monitoring Program Sites

Monitoring Location	GPS Coordinates	Type of Monitoring Carried Out	Monitoring Frequency
To the east of the most easterly corner of site area	N: 7378754.62 E: 534454.45	□ Surface ✓ Subsurface	□ Monthly □X Annually
To the east of the most southerly corner of site area	N: 7378736.40 E: 534440.05	□ Surface ✓ Subsurface	□ Monthly □ Annually

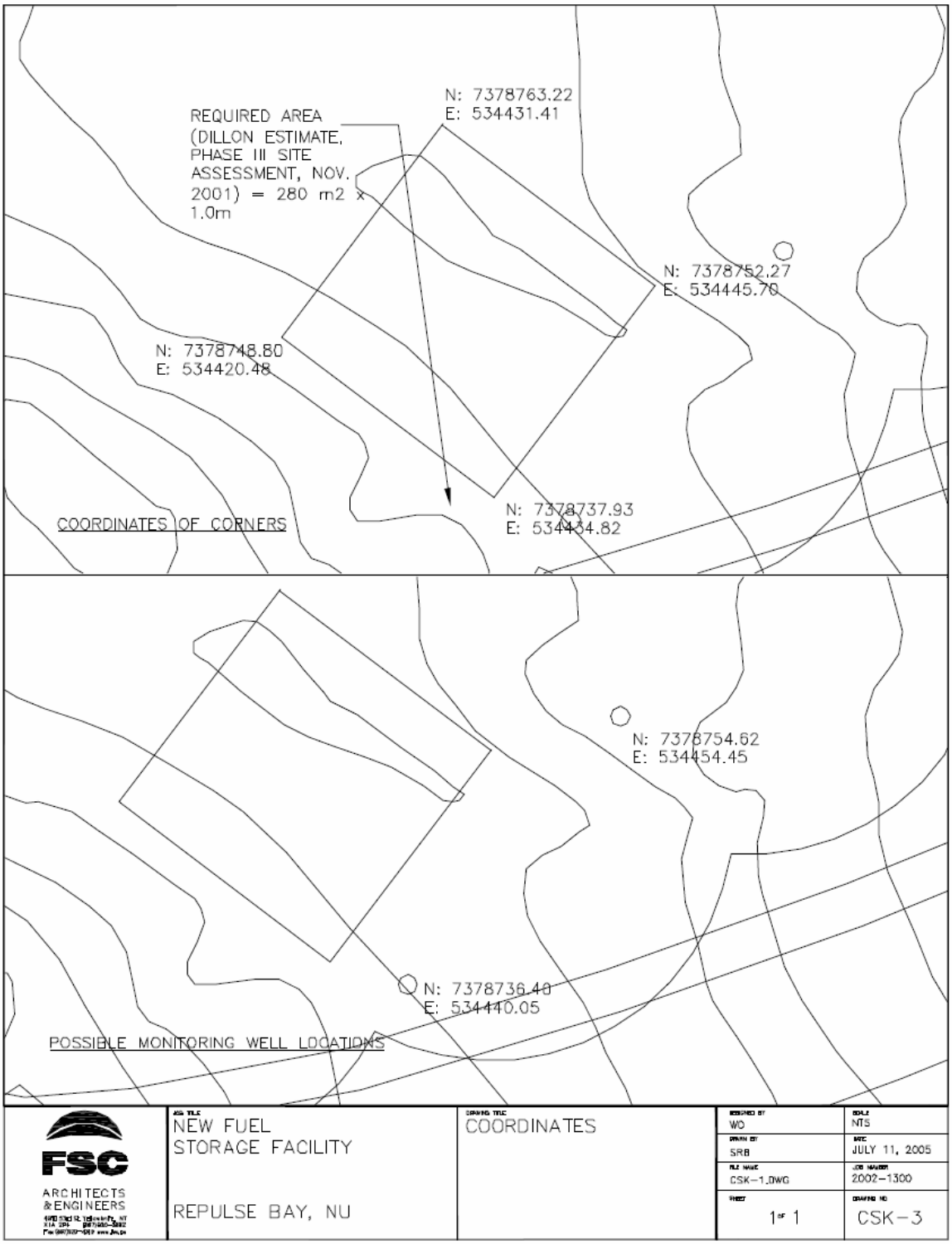
Attachment A
Site Drawings CSK-1, CSK-2 and CSK-3

FSC
ARCHITECTS &ENGINEERS

NEW FUEL STORAGE FACILITY REPULSE BAY, NU	OVERALL SITE LOCATION	WO	NTS
		SRB	JULY 11, 2004
		CSK-1.DWG	2002-1300
		1 of 1	CSK-1



FSC ARCHITECTS & ENGINEERS	NEW FUEL STORAGE FACILITY REPULSE BAY, NU	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


REQUIRED AREA
(DILLON ESTIMATE,
PHASE III SITE
ASSESSMENT, NOV.
2001) = 280 m2 x
1.0m
N: 7378763.22
E: 534431.41
N: 7378752.27
E: 534445.70
N: 7378748.80
E: 534420.48
N: 7378737.93
E: 534434.82
COORDINATES OF CORNERS
N: 7378754.62
E: 534454.45
N: 7378736.40
E: 534440.05
POSSIBLE MONITORING WELL LOCATIONS
FSC
ARCHITECTS
& ENGINEERS
NEW FUEL
STORAGE FACILITY
REPULSE BAY, NU
COORDINATES
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-3

Attachment B
Enviro Labs Test Results

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

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ANY REMAINING SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

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:

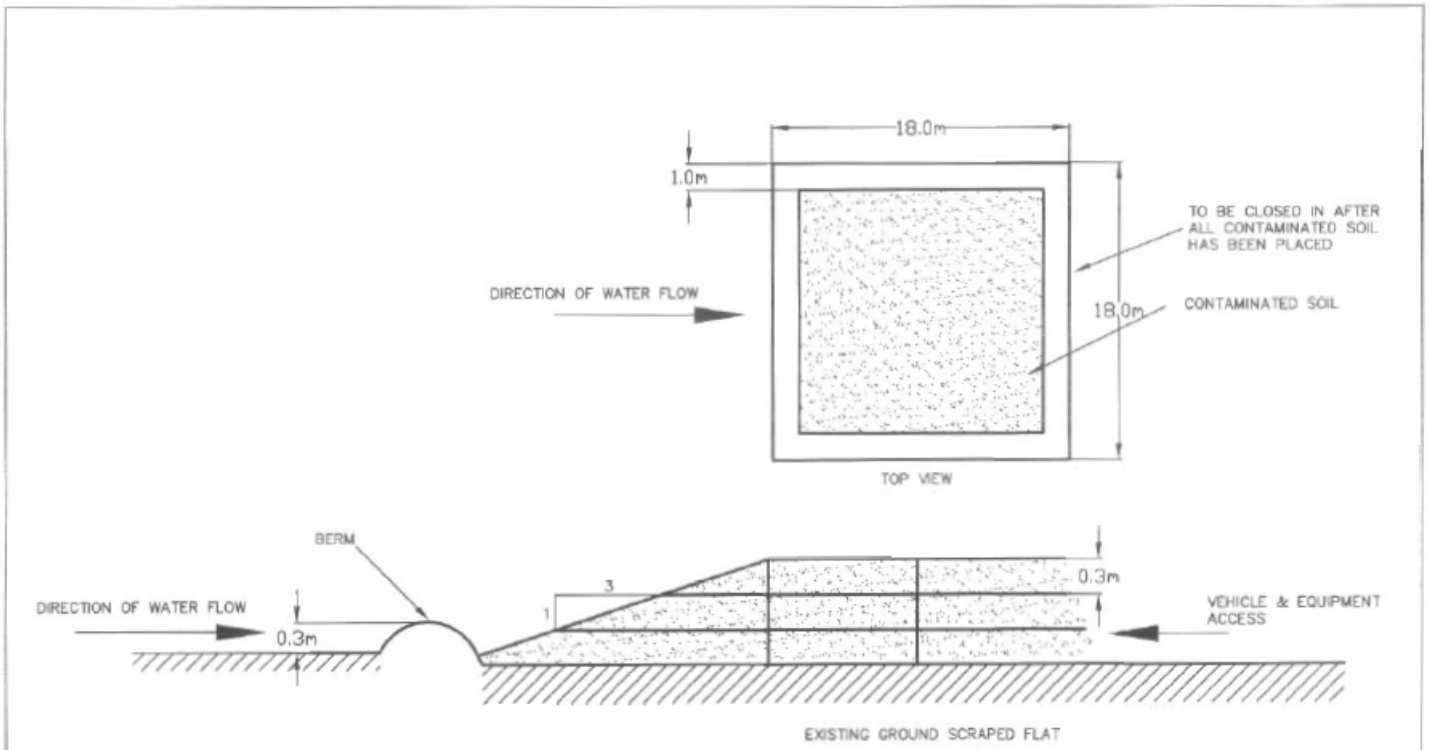
Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	Enviro-Test Laboratories - Waterloo (Sentinel), Ontario, Can		

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.

Attachment C
Soil Pile and Berm Design Drawings



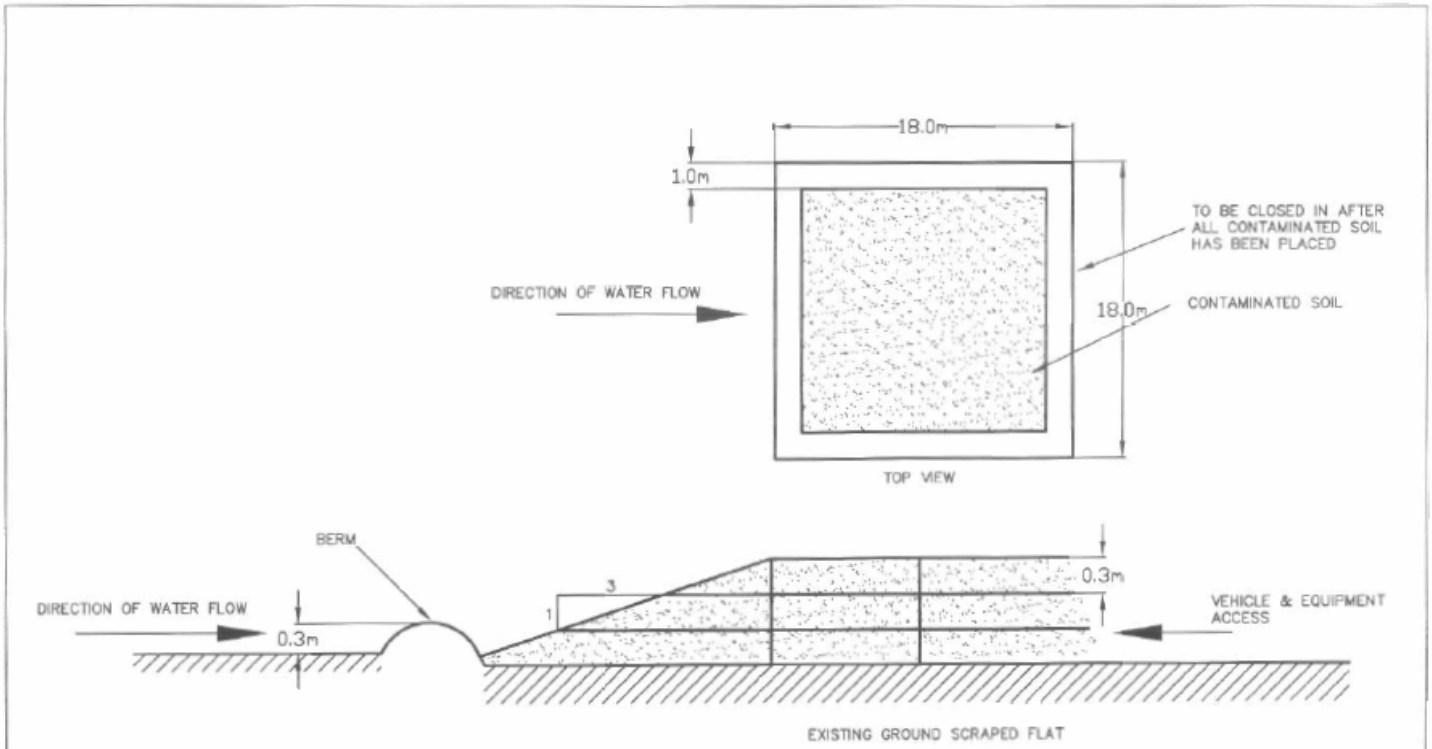
FSC
ARCHITECTS & ENGINEERS
4910 53rd St, Yellowknife, NT X1A 2P4 (867) 920-2882
F.S.C. JOB NO. 2002-1300-051

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



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ARCHITECTS & ENGINEERS
4910 50th St. Yellowknife, NT X1A 2P4 (867) 920-2882 Fax (867) 920-4319 www.fsc.ca
F.S.C. JOB NO. 2002-1300-051

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