N00102.AR.001827
NSY PORTSMOUTH
5090.3a

LETTER REGARDING FORMAT FOR ON SHORE CORRECTIVE MEASURES STUDY REPORT FOR NSY PORTSMOUTH ME
1/24/1995
NAVFAC NORTHERN

DEPARTMENT OF THE NAVY
NORTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
10 INDUSTRIAL HIGHWAY
MAIL STOP, #82
LESTER, PA 19113-2090

IN REPLY REFER TO
5090
Ser 2363/1823/JMC

JAN 24 1995

Mr. Ernest Waterman
U.S. Environmental Protection Agency
Region I
JFK Federal Building
Boston, MA 02203-2211

Ms. Nancy Beardsley
Maine Department of Environmental Protection
State House Station 17
Augusta, ME 04333-0017

Subj: ON-SHORE CORRECTIVE MEASURES STUDY REPORT, PORTSMOUTH NAVAL SHIPYARD

Dear Mr. Waterman and Ms. Beardsley

Enclosed is a proposed format for the synthesis of existing data, from Installation Restoration Program (IRP) investigations at Portsmouth Naval Shipyard (PNS), into the Corrective Measures Study (CMS) Report.

The development of the data base which is being used to present this data synthesis has followed the sequence of raw data as it exists in previous reports rather than on a site by site basis. This has been done to ensure no data is missed for any site. However, it also prevents us from using actual data from a PNS site in the proposed format as no one site will be completed before the others.

The proposed format enclosed was prepared by Halliburton NUS from studies they have performed at other locations. To expedite the completion of the Draft CMS Report please review the enclosed format and provide your comments to me by 8 February, 1995.

If you have any questions please call me at (610) 595-0567 extension 117.

Sincerely,

Jim Conroy

JAMES M. CONROY, PE
LT, CEC, USN
By direction of the
Commanding Officer

Encl: (1) Proposed Data Format, SWMU #27-Fuel Oil Spillage Area

Copy to:
PNS (Code 121.10)

SWMU #27 - FUEL OIL SPILLAGE AREA

SWMU #27 - FUEL OIL SPILLAGE AREA
SUMMARY OF SAMPLING ANALYTICAL PARAMETERS AND FINDINGS

SWMU #27 - FUEL OIL SPILLAGE AREA
SUMMARY OF FINDINGS
NSY PORTSMOUTH, KITTERY, MAINE

SWMU #27 - FUEL OIL SPILLAGE AREA	
Target for Characterization	Fuel oil contamination of soils and groundwater
Objective for Investigation Effort	Delineate the nature and extent of contamination in soils and groundwater
Source of Contamination	Release from a ruptured underground pipeline (reportedly located 6 ft below ground surface) containing No. 6 Fuel Oil
Analytical Parameters	Soils: TPH, PAHs, GC Fingerprinting, TCL Organics, TAL Inorganics Groundwater: TCL Organics, TAL Inorganics (Total), TAL Inorganics (Dissolved), RCRA Metals (8) (Total), RCRA Metals (8) (Dissolved), GC Fingerprinting, TPH(Sterns & Wheler only)
Nature of Contamination	Soils: **McLaren/Hart RFI-** None of the contaminants exceeded MPSs. However, elevated levels of TICs (volatile and semi-volatile compounds) believed to be associated with petroleum products were found. Elevated TPH concentrations exceeding 100 mg/kg were detected at several sampling locations. GC Finger Printing of two soil samples (FSB-5 and FSB-6) classified petroleum hydrocarbons as partly weathered diesel fuel oil. Refer to the following data base tables for analytical program and results. Groundwater: **McLaren/Hart RFI-**There were isolated exceedences of MPSs for metals including arsenic, chromium, lead, and beryllium. No TPH analysis was performed. GC Fingerprinting (For FW-06 only) indicated the presence of No.4 fuel oil (4.8 mg/l) and lube oil(2.9 mg/l). Free product was observed in monitoring wells FW-02 and FW-06. Refer to the following data base tables for analytical program and results. **Sterns & Wheler-**TPH analysis was performed for samples in wells FW-04 (non detect) and FW-06(5.0 mg/l).
Extent of Contamination	Soils: Full lateral and vertical extent of contamination (i.e., TPH exceeding 100 mg/kg) was not delineated. The entire area of Berth 6 is suspected to be contaminated with TPH. Groundwater: The source of the contamination was not identified but is not believed to solely be from the SWMU #27 fuel spill. Lateral and vertical extent of TPH groundwater contamination was not delineated during RFI but was further refined during the Oil Terminal Investigation, by Sterns & Wheler.
CMS Report Recommended Remedial Alternative	Institutional Controls with Groundwater Monitoring. Free product recovery if encountered during future monitoring.
Additional Sampling Needs in support of CMS Recommended Remedial Alternative	No additional sampling is needed to implement the recommended remedial alternative.

SWMU #27 - FUEL OIL SPILLAGE AREA
SOIL SAMPLING AND ANALYSIS SUMMARY
NSY PORTSMOUTH, KITTERY, MAINE

Phase II

Parameter	Soil Sample Identification TP-01S, TP-01B, TP-02S, TP02B, TP-03S, TP-03B
Semivolatiles	X
TPH	X

Phase III

Parameter	Soil Sample Identification TP-01S, TP-01B, TP-02S, TP02B, TP-03S, TP-03B	Soil Sample Identification FSB-6(2-6), FSB-5(2-6)
Semivolatiles	X	X
TPH	X	X
Hydrocarbon Fingerprinting		X

Phase IV

Parameter	Soil Sample Identification TSB-4A(1-2), TSB-4A(2.4-3), TSB-10(2.6-3.8), TSB-15(1.3-1.6), FSB-01-04(3-5), FSB-03-04(3-5), FSB-04-04(3-5), FSB-04-04(1-3), FSB-05-04(3-5), FSB-06-04(3-5)	Soil Sample Identification TSB-01(6-8), TSB-02(1.5-3.5), TSB-04(2-2.5), TSB-07(3.2-3.8), TSB-08(2.2-2.5), TSB-16(2-2.5), TSB19(2.1-2.75), TSB-20(1.7-20)
TCL Volatiles	X	
TCL Semivolatiles	X	
TCL Pesticides/PCBs	X	
TAL Inorganics	X	
TPH		X
Hydrocarbon Fingerprinting		X

SWMU #27 - FUEL OIL SPILLAGE AREA
GROUNDWATER SAMPLING ANALYTICAL PARAMETERS
NSY PORTSMOUTH, KITTERY, MAINE

Parameter	MONITORING WELL IDENTIFICATION					
	FW1	FW2	FW3	FW4	FW5	FW6
PHASE I						
No Analysis						
PHASE II						
No Analysis						
PHASE III						
No Analysis						
PHASE IV						
TCL Organics	X	X	X	X	X	X
TAL Inorganics (Total)	X	X	X	X	X	X
TAL Inorganics (Dissolved)	X	X	X	X	X	X
PHASE IVA						
TCL Volatiles	X	X	X	X	X	X
RCRA Metals (8) (Total)	X	X	X	X	X	X
RCRA Metals (8) (Dissolved)	X	X	X	X	X	X
Petroleum ID						X

SWMU #27 - FUEL OIL SPILLAGE AREA
RFI DATA BASE - SOILS

Refer to attached example raw data base from a previous Halliburton NUS project.

FERNALD ANALYTICAL REPORT
SOILS - PLANT AREA 6

SAMPLE NUMBER:	070503			070505			070507			070510			070512		
TASK:	50.03.18			50.03.18			50.03.18			50.03.18			50.03.18		
LAB:	CORE			TCT			CORE			TCT			CORE		
WELL OR BORING NUMBER:	11106			11106			11106			11106			11106		
DEPTH:	0-.5			1-1.5			1-1.5			2.5-3			2.5-3		
DATE COLLECTED:	07-AUG-93			07-AUG-93			07-AUG-93			07-AUG-93			07-AUG-93		
~~NORTH COORDINATE:~~	~~480444.22~~			~~480444.22~~			~~480444.22~~			~~480444.22~~			~~480444.22~~		
~~EAST COORDINATE:~~	~~1381742.53~~			~~1381742.53~~			~~1381742.53~~			~~1381742.53~~			~~1381742.53~~		
~~QA TYPE:~~	~~NORMAL~~			~~NORMAL~~			~~NORMAL~~			~~NORMAL~~			~~NORMAL~~		
~~QC OF:~~															
~~SUFFIX/FILTERFLAG:~~	~~NONE-NA~~			~~NONE-NA~~			~~NONE-NA~~			~~NONE-NA~~			~~NONE-NA~~		
	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)
INORGANICS															
ALUMINUM				11500.00 MG/KG		-				8300.00 MG/KG		-			
ANTIMONY				0.94 MG/KG		UR				0.92 MG/KG		UR			
ARSENIC				4.50 MG/KG		-				3.90 MG/KG		-			
BARIUM				93.70 MG/KG		-				67.80 MG/KG		-			
BERYLLIUM				0.95 MG/KG		J				0.92 MG/KG		UJ			
CADMIUM				1.20 MG/KG		UR				1.10 MG/KG		UR			
CALCIUM				48700.00 MG/KG		J				70200.00 MG/KG		J			
CHROMIUM				17.30 MG/KG		-				13.20 MG/KG		-			
COBALT				10.60 MG/KG		-				10.20 MG/KG		-			
COPPER				20.20 MG/KG		-				13.40 MG/KG		-			
CYANIDE				0.29 MG/KG		U				0.29 MG/KG		U			
IRON				25300.00 MG/KG		-				19800.00 MG/KG		-			
LEAD				14.70 MG/KG		J				15.10 MG/KG		J			
MAGNESIUM				21100.00 MG/KG		-				19500.00 MG/KG		-			
MANGANESE				627.00 MG/KG		-				760.00 MG/KG		-			
MERCURY				0.06 MG/KG		UJ				0.07 MG/KG		UJ			
MOLYBDENUM				4.00 MG/KG		UJ				3.90 MG/KG		UJ			
NICKEL				25.50 MG/KG		-				20.80 MG/KG		-			
POTASSIUM				1890.00 MG/KG		-				902.00 MG/KG		-			
SELENIUM				0.54 MG/KG		J				0.46 MG/KG		UJ			
SILICON				255.00 MG/KG		R				210.00 MG/KG		R			
SILVER				0.23 MG/KG		U				0.23 MG/KG		U			
SODIUM				556.00 MG/KG		-				373.00 MG/KG		-			
THALLIUM				0.23 MG/KG		J				0.23 MG/KG		UJ			
VANADIUM				23.60 MG/KG		J				18.40 MG/KG		J			
ZINC				99.10 MG/KG		J				49.80 MG/KG		J			
PESTICIDES															
4,4'-DDD				3.90 UG/KG		UJ				3.80 UG/KG		UJ			

SAMPLE NUMBER:	070503			070505			070507			070510			070512		
LAB:				TCT						TCT					
~~SUFFIX/FILTERFLAG:~~				~~NONE-NA~~						~~NONE-NA~~					
	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)
PESTICIDES															
4,4'-DDE				3.90 UG/KG		UJ				3.80 UG/KG		UJ			
4,4'-DDT				3.90 UG/KG		UJ				3.80 UG/KG		UJ			
ALDRIN				2.00 UG/KG		UJ				2.00 UG/KG		UJ			
ALPHA-BHC				2.00 UG/KG		UJ				2.00 UG/KG		UJ			
ALPHA-CHLORDANE				2.00 UG/KG		UJ				2.00 UG/KG		UJ			
AROCLOR-1016				39.00 UG/KG		U				38.00 UG/KG		U			
AROCLOR-1221				79.00 UG/KG		U				77.00 UG/KG		U			
AROCLOR-1232				39.00 UG/KG		U				38.00 UG/KG		U			
AROCLOR-1242				39.00 UG/KG		U				38.00 UG/KG		U			
AROCLOR-1248				39.00 UG/KG		U				38.00 UG/KG		U			
AROCLOR-1254				47.00 UG/KG		-				38.00 UG/KG		U			
AROCLOR-1260				39.00 UG/KG		U				38.00 UG/KG		U			
BETA-BHC				2.00 UG/KG		UJ				2.00 UG/KG		UJ			
DELTA-BHC				2.00 UG/KG		UJ				2.00 UG/KG		UJ			
DIELDRIN				3.90 UG/KG		UJ				3.80 UG/KG		UJ			
ENDOSULFAN II				3.90 UG/KG		UJ				3.80 UG/KG		UJ			
ENDOSULFAN SULFATE				3.90 UG/KG		UJ				3.80 UG/KG		UJ			
ENDOSULFAN-I				2.00 UG/KG		UJ				2.00 UG/KG		UJ			
ENDRIN				3.90 UG/KG		UJ				3.80 UG/KG		UJ			
ENDRIN ALDEHYDE				3.90 UG/KG		UJ				3.80 UG/KG		UJ			
ENDRIN KETONE				3.90 UG/KG		UJ				3.80 UG/KG		UJ			
GAMMA-BHC (LINDANE)				2.00 UG/KG		UJ				2.00 UG/KG		UJ			
GAMMA-CHLORDANE				2.00 UG/KG		UJ				2.00 UG/KG		UJ			
HEPTACHLOR				2.00 UG/KG		UJ				2.00 UG/KG		UJ			
HEPTACHLOR EPOXIDE				2.00 UG/KG		UJ				2.00 UG/KG		UJ			
METHOXYCHLOR				20.00 UG/KG		UJ				20.00 UG/KG		UJ			
TOXAPHENE				200.00 UG/KG		UJ				200.00 UG/KG		UJ			
RADIONUCLIDES															
URANIUM-238	166.00 PCI/G	59.2	J				36.60 PCI/G	12.2	J				0.90 PCI/G	.2	J
URANIUM, TOTAL	697.00 MG/KG	48.8	-				222.00 MG/KG	15.5	-				6.80 MG/KG	.5	-
URANIUM-234	162.00 PCI/G	58	J				29.70 PCI/G	10	J				0.90 PCI/G	.2	J
THORIUM-230	1.40 PCI/G	.3	J				1.10 PCI/G	.3	J				1.10 PCI/G	.3	J
RADIUM-226	0.25 PCI/G	.1	UJ				0.50 PCI/G	.1	J				0.30 PCI/G	.1	J
URANIUM-235/236	7.50 PCI/G	3.6	J				0.40 PCI/G	.5	J				0.10 PCI/G	.1	UJ
THORIUM-232	0.80 PCI/G	.2	J				0.70 PCI/G	.2	J				0.70 PCI/G	.2	J
THORIUM, TOTAL	7.30 PCI/G	.2	NV				6.38 PCI/G	.2	NV				6.38 PCI/G	.2	NV
RADIUM-228	0.50 PCI/G	.2	U				0.80 PCI/G	.3	-				0.50 PCI/G	.3	U
THORIUM-228	0.80 PCI/G	.4	J				0.70 PCI/G	.4	J				0.70 PCI/G	.4	J
SEMIVOLATILES															
1,2,4-TRICHLOROBENZENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
1,2-DICHLOROBENZENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			

SAMPLE NUMBER:	070503			070505			070507			070510			070512		
LAB:				TCT						TCT					
~~SUFFIX/FILTERFLAG:~~				~~NONE-NA~~			-			~~NONE-NA~~			-		
	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)
SEMIVOLATILES															
1,3-DICHLOROBENZENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
1,4-DICHLOROBENZENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
2,4,5-TRICHLOROPHENOL				980.00 UG/KG		UJ				950.00 UG/KG		UJ			
2,4,6-TRICHLOROPHENOL				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
2,4-DICHLOROPHENOL				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
2,4-DIMETHYLPHENOL				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
2,4-DINITROPHENOL				980.00 UG/KG		UJ				950.00 UG/KG		UJ			
2,4-DINITROTOLUENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
2,6-DINITROTOLUENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
2-CHLORONAPHTHALENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
2-CHLOROPHENOL				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
2-METHYLNAPHTHALENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
2-METHYLPHENOL				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
2-NITROANILINE				980.00 UG/KG		UJ				950.00 UG/KG		UJ			
2-NITROPHENOL				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
3,3'-DICHLOROBENZIDINE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
3-NITROANILINE				980.00 UG/KG		UJ				950.00 UG/KG		UJ			
4,6-DINITRO-2-METHYLPHENOL				980.00 UG/KG		UJ				950.00 UG/KG		UJ			
4-BROMOPHENYL PHENYL ETHER				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
4-CHLORO-3-METHYLPHENOL				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
4-CHLOROPHENYLPHENYL ETHER				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
4-METHYLPHENOL				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
4-NITROANILINE				980.00 UG/KG		UJ				950.00 UG/KG		UJ			
4-NITROPHENOL				980.00 UG/KG		UJ				950.00 UG/KG		UJ			
ACENAPHTHENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
ACENAPHTHYLENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
ANTHRACENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
BENZO(A)ANTHRACENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
BENZO(A)PYRENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
BENZO(B)FLUORANTHENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
BENZO(G,H,I)PERYLENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
BENZO(K)FLUORANTHENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
BENZOIC ACID				980.00 UG/KG		UJ				950.00 UG/KG		UJ			
BENZYL ALCOHOL				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
BIS(2-CHLOROETHOXY)METHANE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
BIS(2-CHLOROETHYL)ETHER				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
BIS(2-CHLOROISOPROPYL) ETHER				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
BIS(2-ETHYLHEXYL)PHTHALATE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
BUTYL BENZYL PHTHALATE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
CARBAZOLE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
CHRYSENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
DI-N-BUTYL PHTHALATE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
DI-N-OCTYL PHTHALATE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
DIBENZO(A,H)ANTHRACENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
DIBENZOFURAN				390.00 UG/KG		UJ				380.00 UG/KG		UJ			

SAMPLE NUMBER:	070503			070505			070507			070510			070512		
LAB:				TCT						TCT					
~~SUFFIX/FILTERFLAG:~~				~~NONE-NA~~						~~NONE-NA~~			-		
	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)
SEMIVOLATILES															
DIETHYL PHTHALATE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
DIMETHYL PHTHALATE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
FLUORANTHENE				390.00 UG/KG		UJ				49.00 UG/KG		J			
FLUORENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
HEXACHLOROBENZENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
HEXACHLOROBUTADIENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
HEXACHLOROCYCLOPENTADIENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
HEXACHLOROETHANE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
INDENO(1,2,3-CD)PYRENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
ISOPHORONE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
N-NITROSO-DI-N-PROPYLAMINE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
N-NITROSODIPHENYLAMINE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
NAPHTHALENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
NITROBENZENE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
P-CHLOROANILINE				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
PENTACHLOROPHENOL				980.00 UG/KG		UJ				950.00 UG/KG		UJ			
PHENANTHRENE				390.00 UG/KG		UJ				40.00 UG/KG		J			
PHENOL				390.00 UG/KG		UJ				380.00 UG/KG		UJ			
PYRENE				390.00 UG/KG		UJ				43.00 UG/KG		J			
VOLATILES															
1,1,1-TRICHLOROETHANE				12.00 UG/KG		U				11.00 UG/KG		U			
1,1,2,2-TETRACHLOROETHANE				12.00 UG/KG		U				11.00 UG/KG		U			
1,1,2-TRICHLOROETHANE				12.00 UG/KG		U				11.00 UG/KG		U			
1,1-DICHLOROETHANE				12.00 UG/KG		U				11.00 UG/KG		U			
1,1-DICHLOROETHENE				12.00 UG/KG		U				11.00 UG/KG		U			
1,2-DICHLOROETHANE				12.00 UG/KG		U				11.00 UG/KG		U			
1,2-DICHLOROETHENE (TOTAL)				12.00 UG/KG		U				2.00 UG/KG		J			
1,2-DICHLOROPROPANE				12.00 UG/KG		U				11.00 UG/KG		U			
2-BUTANONE				12.00 UG/KG		J				12.00 UG/KG		J			
2-HEXANONE				12.00 UG/KG		UR				11.00 UG/KG		UR			
4-METHYL-2-PENTANONE				12.00 UG/KG		UR				11.00 UG/KG		UR			
ACETONE				84.00 UG/KG		UJ				76.00 UG/KG		UJ			
BENZENE				12.00 UG/KG		U				11.00 UG/KG		U			
BROMODICHLOROMETHANE				12.00 UG/KG		U				11.00 UG/KG		U			
BROMOFORM				12.00 UG/KG		U				11.00 UG/KG		U			
BROMOMETHANE				12.00 UG/KG		U				11.00 UG/KG		U			
CARBON DISULFIDE				12.00 UG/KG		U				11.00 UG/KG		U			
CARBON TETRACHLORIDE				12.00 UG/KG		U				11.00 UG/KG		U			
CHLOROBENZENE				12.00 UG/KG		U				11.00 UG/KG		U			
CHLOROETHANE				12.00 UG/KG		U				11.00 UG/KG		U			
CHLOROFORM				12.00 UG/KG		U				11.00 UG/KG		U			
CHLOROMETHANE				12.00 UG/KG		U				11.00 UG/KG		U			
CIS-1,3-DICHLOROPROPENE				12.00 UG/KG		U				11.00 UG/KG		U			

SAMPLE NUMBER:	070503			070505			070507			070510			070512		
LAB:				TCT						TCT					
~~SUFFIX/FILTERFLAG:~~				~~NONE NA~~						~~NONE NA~~			-		
	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)	RESULT	SIGMA	VAL QUAL(1)
VOLATILES															
DIBROMOCHLOROMETHANE				12.00 UG/KG		U				11.00 UG/KG		U			
ETHYLBENZENE				12.00 UG/KG		U				11.00 UG/KG		U			
METHYLENE CHLORIDE				12.00 UG/KG		U				12.00 UG/KG		U			
STYRENE				12.00 UG/KG		U				11.00 UG/KG		U			
TETRACHLOROETHENE				12.00 UG/KG		U				11.00 UG/KG		U			
TOLUENE				12.00 UG/KG		U				11.00 UG/KG		U			
TRANS-1,3-DICHLOROPROPENE				12.00 UG/KG		U				11.00 UG/KG		U			
TRICHLOROETHENE				12.00 UG/KG		U				11.00 UG/KG		U			
VINYL ACETATE				12.00 UG/KG		UR				11.00 UG/KG		UR			
VINYL CHLORIDE				12.00 UG/KG		U				11.00 UG/KG		U			
XYLENES, TOTAL				2.00 UG/KG		J				3.00 UG/KG		J			

SWMU #27 - FUEL OIL SPILLAGE AREA
RFI DATA BASE - GROUNDWATER

Refer to example raw data base for soils.

SWMU #27 - FUEL OIL SPILLAGE AREA
RFI DATA BASE STATISTICS - SOILS

Refer to attached example statistics from a previous Halliburton NUS project.

AREA: WHOLE SITE - Validated & NONValidated
FEMP ~~SUBSURFACE~~ SOIL DATA, 1988-1993

Replace w/ MPS

Parameter	Units	Summary of Positive/Nonpositive Detections							
		Freq. of Detection	Total Validated Samples	Freq. of Detection Above Bckg.	Range of Positive Detections	Average of Positive Detections	Minimum Nondetect	Maximum Nondetect	95% Background Concentration Value
RADIONUCLIDES ~~DEPTH: 1.5 - 9999 FEET~~									
URANIUM-238	PCI/G	440/512	462	237/512	0.200-317.000	9.88	0.600	9.300	1.12
URANIUM, TOTAL	MG/KG	1084/1644	801	813/1644	0.500-69300.000	202.47	0.100	12.000	3.69
URANIUM-234	PCI/G	422/496	451	235/496	0.200-319.000	9.99	0.600	1.200	1.04
THORIUM-230	PCI/G	471/534	517	60/534	0.300-153.000	2.01	0.100	1.300	1.91
RADIUM-226	PCI/G	415/482	454	36/482	0.300-137.000	1.25	0.250	3.000	1.47
LEAD-210	PCI/G	32/43	43	29/43	0.560-34.000	5.14	0.500	1.100	.850
POLONIUM-210	PCI/G	68/68	68	68/68	0.627-34.370	3.57			NA
URANIUM-235/236	PCI/G	106/500	455	104/500	0.048-36.200	2.86	0.100	1.200	0.150
THORIUM-232	PCI/G	343/541	520	31/541	0.200-8.070	0.92	0.100	1.100	1.26
THORIUM, TOTAL	MG/KG	699/1420	527	117/1420	0.912-290.000	9.63	0.800	45.000	11.1
RADIUM-228	PCI/G	204/487	466	24/487	0.510-23.900	1.18	0.500	4.000	1.31
THORIUM-228	PCI/G	391/530	513	53/530	0.200-19.500	1.12	0.100	1.000	1.38
NEPTUNIUM-237	PCI/G	2/299	295	2/299	0.288-0.305	0.30	0.200	0.600	NA
PLUTONIUM-239/240	PCI/G	15/342	339	15/342	0.300-5.500	1.29	0.200	0.700	NA
PLUTONIUM-238	PCI/G	5/343	339	5/343	0.344-2.770	1.01	0.200	2.100	NA
STRONTIUM-90	PCI/G	76/347	339	76/347	0.511-47.600	2.95	0.500	5.000	.436
TECHNETIUM-99	PCI/G	37/415	406	37/415	1.020-205.000	11.13	1.000	2.900	NA
RUTHENIUM-106	PCI/G	0/316	305	0/316			1.000	24.300	NA
CESIUM-137	PCI/G	15/390	378	15/390	0.242-2.940	0.87	0.200	1.400	NA
GROSS ALPHA	PCI/G	111/122	11	111/122	5.100-1054.000	38.12	3.600	11.000	
GROSS BETA	PCI/G	121/122	10	121/122	7.100-159.000	33.85	5.400	5.400	
ACTINIUM-227	PCI/G	0/2	2	0/2			0.300	0.600	.105

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AREA: WHOLE SITE - Validated & NONValidated
FEMP SUBSURFACE SOIL DATA, 1988-1993

Summary of Positive/Nonpositive Detections

Parameter	Units	Freq. of Detection	Total Validated Samples	Freq. of Detection Above Bckg.	Range of Positive Detections	Average of Positive Detections	Minimum Nondetect	Maximum Nondetect	95% Background Concentration Value
RADIONUCLIDES DEPTH: 1.5 - 9999 FEET									
PROTACTINIUM-231	PCI/G	0/4	4	0/4			1.100	7.200	ND
RADIUM-224	PCI/G	4/4	4	1/4	0.670-1.330	0.92			1.01

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AREA: WHOLE SITE - Validated & NONValidated
FEMP SUBSURFACE SOIL DATA, 1988-1993

Summary of Positive/Nonpositive Detections

Parameter	Units	Freq. of Detection	Total Validated Samples	Freq. of Detection Above Bckg.	Range of Positive Detections	Average of Positive Detections	Minimum Nondetect	Maximum Nondetect	95% Background Concentration Value
INORGANICS DEPTH: 1.5 - 9999 FEET									
ALUMINUM	MG/KG	331/331	327	24/331	1100.000-142000.000	10122.15			16100
ANTIMONY	MG/KG	11/141	137	11/141	1.200-22.100	16.76	0.880	15.500	NA
ARSENIC	MG/KG	298/302	298	35/302	0.030-74.200	6.18	0.510	14.700	9.57
BARIUM	MG/KG	331/331	327	48/331	9.900-3610.000	91.67			119
BERYLLIUM	MG/KG	228/326	322	183/326	0.290-5.200	1.03	0.350	4.000	0.620
CADMIUM	MG/KG	168/317	313	168/317	0.920-8.000	3.77	0.670	9.600	0.910
CALCIUM	MG/KG	331/331	327	18/331	2180.000-314000.000	78230.30			150000
CHROMIUM	MG/KG	316/318	314	49/318	4.700-115.000	16.39	5.800	6.900	20.7
COBALT	MG/KG	303/331	327	34/331	2.600-105.000	10.88	3.300	11.700	15.7
COPPER	MG/KG	298/329	325	101/329	5.000-171.000	19.67	1.900	37.300	20.0
CYANIDE	MG/KG	35/307	303	26/307	0.110-9.800	0.95	0.000	5.100	.17
IRON	MG/KG	331/331	327	35/331	4000.000-193000.000	21039.06			30700
LEAD	MG/KG	324/324	320	80/324	0.470-139.000	12.77			15.6
MAGNESIUM	MG/KG	331/331	327	11/331	1390.000-93200.000	20646.83			42600
MANGANESE	MG/KG	331/331	327	22/331	107.000-12200.000	642.88			1300
MERCURY	MG/KG	14/331	327	1/331	0.040-2.300	0.26	0.010	1.000	0.29
MOLYBDENUM	MG/KG	112/311	307	102/311	1.600-11.100	4.54	1.300	23.100	2.7
NICKEL	MG/KG	286/318	314	43/318	6.700-186.000	25.79	3.800	39.000	34.3
POTASSIUM	MG/KG	330/331	327	28/331	204.000-10900.000	1217.53	21.200	21.200	1980
SELENIUM	MG/KG	26/291	287	26/291	0.320-3.300	0.95	0.220	3.900	NA
SILICON	MG/KG	134/147	147	4/147	17.600-5950.000	527.93	54.700	192.000	1590
SILVER	MG/KG	162/309	305	162/309	0.410-31.100	5.73	0.210	9.600	NA

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AREA: WHOLE SITE - Validated & NONValidated
FEMP SUBSURFACE SOIL DATA, 1988-1993

Summary of Positive/Nonpositive Detections

Parameter	Units	Freq. of Detection	Total Validated Samples	Freq. of Detection Above Bckg.	Range of Positive Detections	Average of Positive Detections	Minimum Nondetect	Maximum Nondetect	95% Background Concentration Value
INORGANICS DEPTH: 1.5 - 9999 FEET									
SODIUM	MG/KG	281/331	327	25/331	42.200-1700.000	188.70	34.100	280.000	285
THALLIUM	MG/KG	28/330	326	4/330	0.210-0.720	0.35	0.045	3.900	0.49
VANADIUM	MG/KG	327/331	327	21/331	4.700-190.000	24.01	16.700	28.700	37.8
ZINC	MG/KG	326/329	325	43/329	16.700-780.000	63.53	37.700	82.900	82.0

AREA: WHOLE SITE - Validated & NONValidated
FEMP SUBSURFACE SOIL DATA, 1988-1993

Parameter	Units	Summary of Positive/Nonpositive Detections Freq. of Detection	Total Validated Samples	Freq. of Detection Above Bckg.	Range of Positive Detections	Average of Positive Detections	Minimum Nondetect	Maximum Nondetect	95% Background Concentration Value
VOLATILES DEPTH: 1.5 - 9999 FEET									
1,1,1-TRICHLOROETHANE	UG/KG	49/376	374	49/376	1.000-6600.000	233.67	5.000	1600.000	
1,1,2,2-TETRACHLOROETHANE	UG/KG	9/377	375	9/377	2.000-190.000	38.56	5.000	1300000.00	
1,1,2-TRICHLOROETHANE	UG/KG	6/377	375	6/377	1.000-4.000	2.00	5.000	1300000.00	
1,1-DICHLOROETHANE	UG/KG	38/377	375	38/377	1.000-460.000	45.84	5.000	1600.000	
1,1-DICHLOROETHENE	UG/KG	24/377	375	24/377	1.000-460.000	33.08	5.000	1600.000	
1,2-DICHLOROETHANE	UG/KG	6/376	374	6/376	2.000-10.000	4.00	5.000	1600.000	
1,2-DICHLOROETHENE (TOTAL)	UG/KG	47/377	375	47/377	1.000-4300.000	165.06	5.000	1300.000	
1,2-DICHLOROPROPANE	UG/KG	0/377	375	0/377			5.000	1600.000	
2-BUTANONE	UG/KG	26/241	239	26/241	2.000-200.000	28.73	4.000	3400.000	
2-HEXANONE	UG/KG	7/298	296	7/298	1.000-2600.000	372.71	1.000	3400.000	
4-METHYL-2-PENTANONE	UG/KG	53/299	297	53/299	1.000-2600.000	68.34	1.000	3400.000	
ACETONE	UG/KG	66/375	373	66/375	4.000-230.000	44.99	4.000	3400.000	
BENZENE	UG/KG	2/377	375	2/377	1.000-1300.000	650.50	5.000	1600.000	
BROMODICHLOROMETHANE	UG/KG	2/377	375	2/377	7.000-13.000	10.00	5.000	1600.000	
BROMOFORM	UG/KG	0/377	375	0/377			5.000	1600.000	
BROMOMETHANE	UG/KG	0/377	375	0/377			10.000	3400.000	
CARBON DISULFIDE	UG/KG	94/377	375	94/377	1.000-390.000	16.83	5.000	1600.000	
CARBON TETRACHLORIDE	UG/KG	2/377	375	2/377	5.000-12.000	8.50	5.000	1600.000	
CHLOROBENZENE	UG/KG	2/377	375	2/377	1.000-2.000	1.50	5.000	1600.000	
CHLOROETHANE	UG/KG	3/377	375	3/377	2.000-210.000	72.00	10.000	3400.000	
CHLOROFORM	UG/KG	14/377	375	14/377	2.000-160.000	30.29	5.000	1600.000	
CHLOROMETHANE	UG/KG	1/372	370	1/372	12.000-12.000	12.00	10.000	13000.000	

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AREA: WHOLE SITE - Validated & NONValidated
FEMP SUBSURFACE SOIL DATA, 1988-1993

Parameter	Units	Summary of Positive/Nonpositive Detections							
		Freq. of Detection	Total Validated Samples	Freq. of Detection Above Bckg.	Range of Positive Detections	Average of Positive Detections	Minimum Nondetect	Maximum Nondetect	95% Background Concentration Value
VOLATILES DEPTH: 1.5 - 9999 FEET									
CIS-1,3-DICHLOROPROPENE	UG/KG	0/377	375	0/377			5.000	1600.000	
DIBROMOCHLOROMETHANE	UG/KG	1/377	375	1/377	1300.000-1300.000	1300.00	5.000	1600.000	
ETHYLBENZENE	UG/KG	5/377	375	5/377	1.000-10.000	3.60	5.000	1600.000	
METHYLENE CHLORIDE	UG/KG	46/378	376	46/378	1.000-100.000	20.91	4.000	6700.000	
STYRENE	UG/KG	2/377	375	2/377	1.000-2.000	1.50	5.000	1600.000	
TETRACHLOROETHENE	UG/KG	46/376	374	46/376	1.000-21000.000	1347.76	5.000	110.000	
TOLUENE	UG/KG	42/377	375	42/377	1.000-66.000	4.52	1.000	1600.000	
TRANS-1,3-DICHLOROPROPENE	UG/KG	1/365	363	1/365	1300.000-1300.000	1300.00	5.000	1600.000	
TRICHLOROETHENE	UG/KG	51/376	374	51/376	1.000-150000.000	5790.92	5.000	26.000	
VINYL ACETATE	UG/KG	0/358	356	0/358			10.000	3400.000	
VINYL CHLORIDE	UG/KG	6/377	375	6/377	2.000-110.000	22.17	10.000	3400.000	
XYLENES, TOTAL	UG/KG	9/377	375	9/377	3.000-31000.000	3455.67	3.000	1300.000	

AREA: WHOLE SITE - Validated & NONValidated
FEMP SUBSURFACE SOIL DATA, 1988-1993

Parameter	Units	Summary of Positive/Nonpositive Detections Freq. of Detection	Total Validated Samples	Freq. of Detection Above Bckg.	Range of Positive Detections	Average of Positive Detections	Minimum Nondetect	Maximum Nondetect	95% Background Concentration Value
SEMIVOLATILES DEPTH: 1.5 - 9999 FEET									
1,2,4-TRICHLOROBENZENE	UG/KG	1/309	308	1/309	220.000-220.000	220.00	330.000	3500.000	
1,2-DICHLOROBENZENE	UG/KG	0/309	308	0/309			330.000	3500.000	
1,3-DICHLOROBENZENE	UG/KG	0/309	308	0/309			330.000	3500.000	
1,4-DICHLOROBENZENE	UG/KG	1/309	308	1/309	210.000-210.000	210.00	330.000	3500.000	
2,4,5-TRICHLOROPHENOL	UG/KG	0/309	308	0/309			820.000	17000.000	
2,4,6-TRICHLOROPHENOL	UG/KG	0/309	308	0/309			330.000	3500.000	
2,4-DICHLOROPHENOL	UG/KG	0/309	308	0/309			330.000	3500.000	
2,4-DIMETHYLPHENOL	UG/KG	1/309	308	1/309	100.000-100.000	100.00	330.000	3500.000	
2,4-DINITROPHENOL	UG/KG	0/308	307	0/308			820.000	17000.000	
2,4-DINITROTOLUENE	UG/KG	1/308	307	1/308	110.000-110.000	110.00	330.000	3500.000	
2,6-DINITROTOLUENE	UG/KG	0/309	308	0/309			330.000	3500.000	
2-BENZYL-4-CHLOROPHENOL	UG/KG	0/2	2	0/2			400.000	420.000	
2-CHLORONAPHTHALENE	UG/KG	0/309	308	0/309			330.000	3500.000	
2-CHLOROPHENOL	UG/KG	3/309	308	3/309	42.000-390.000	158.67	330.000	3500.000	
2-METHYLNAPHTHALENE	UG/KG	5/309	308	5/309	45.000-200.000	86.20	330.000	3500.000	
2-METHYLPHENOL	UG/KG	0/309	308	0/309			330.000	3500.000	
2-NITROANILINE	UG/KG	1/309	308	1/309	2400.000-2400.000	2400.00	380.000	17000.000	
2-NITROPHENOL	UG/KG	0/309	308	0/309			330.000	3500.000	
3,3'-DICHLOROBENZIDINE	UG/KG	0/311	310	0/311			340.000	210000.000	
3-NITROANILINE	NONE	0/304	303	0/304			820.000	17000.000	
4,6-DINITRO-2-METHYLPHENOL	UG/KG	0/308	307	0/308			820.000	17000.000	
4-BROMOPHENYL PHENYL ETHER	UG/KG	0/308	307	0/308			330.000	3500.000	

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AREA: WHOLE SITE - Validated & NONValidated
FEMP SUBSURFACE SOIL DATA, 1988-1993

Summary of Positive/Nonpositive Detections

Parameter	Units	Freq. of Detection	Total Validated Samples	Freq. of Detection Above Bckg.	Range of Positive Detections	Average of Positive Detections	Minimum Nondetect	Maximum Nondetect	95% Background Concentration Value
SEMIVOLATILES DEPTH: 1.5 - 9999 FEET									
4-CHLORO-3-METHYLPHENOL	UG/KG	4/309	308	4/309	43.000-88.000	57.00	330.000	3500.000	
4-CHLOROPHENYLPHENYL ETHER	UG/KG	0/308	307	0/308			330.000	3500.000	
4-METHYLPHENOL	UG/KG	1/309	308	1/309	110.000-110.000	110.00	330.000	3500.000	
4-NITROANILINE	UG/KG	0/300	300	0/300			820.000	17000.000	
4-NITROPHENOL	UG/KG	4/307	306	4/307	58.000-330.000	148.00	820.000	17000.000	
ACENAPHTHENE	UG/KG	2/308	307	2/308	77.000-250.000	163.50	330.000	3500.000	
ACENAPHTHYLENE	UG/KG	3/309	308	3/309	780.000-2100.000	1393.33	330.000	2100.000	
ANTHRACENE	UG/KG	7/312	311	7/312	51.000-1400.000	531.00	330.000	100000.000	
BENZO(A)ANTHRACENE	UG/KG	20/312	311	20/312	38.000-17000.000	2454.40	330.000	2100.000	
BENZO(A)PYRENE	UG/KG	13/311	310	13/311	63.000-8600.000	2011.77	330.000	100000.000	
BENZO(B)FLUORANTHENE	UG/KG	17/312	311	17/312	39.000-23000.000	4611.12	45.000	2100.000	
BENZO(G,H,I)PERYLENE	UG/KG	9/312	311	9/312	53.000-5900.000	1620.33	330.000	100000.000	
BENZO(K)FLUORANTHENE	UG/KG	5/312	311	5/312	98.000-280.000	187.60	38.000	100000.000	
BENZOIC ACID	UG/KG	8/289	288	8/289	46.000-200.000	89.50	380.000	17000.000	
BENZYL ALCOHOL	UG/KG	0/290	289	0/290			330.000	3500.000	
BIS(2-CHLOROETHOXY)METHANE	UG/KG	0/309	308	0/309			330.000	3500.000	
BIS(2-CHLOROETHYL)ETHER	UG/KG	0/309	308	0/309			330.000	3500.000	
BIS(2-CHLOROISOPROPYL) ETHER	UG/KG	0/275	274	0/275			330.000	3500.000	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	100/309	308	100/309	3.000-9100.000	871.37	330.000	100000.000	
BUTYL BENZYL PHTHALATE	UG/KG	5/311	310	5/311	46.000-430.000	237.20	330.000	100000.000	
CARBAZOLE	UG/KG	0/105	105	0/105			340.000	470.000	
CHRYSENE	UG/KG	19/312	311	19/312	47.000-17000.000	2437.00	330.000	2100.000	

AREA: WHOLE SITE - Validated & NONValidated
FEMP SUBSURFACE SOIL DATA, 1988-1993

Summary of Positive/Nonpositive Detections

Parameter	Units	Freq. of Detection	Total Validated Samples	Freq. of Detection Above Bckg.	Range of Positive Detections	Average of Positive Detections	Minimum Nondetect	Maximum Nondetect	95% Background Concentration Value
SEMIVOLATILES DEPTH: 1.5 - 9999 FEET									
DI-N-BUTYL PHTHALATE	UG/KG	17/312	311	17/312	37.000-1400.000	228.77	330.000	100000.000	
DI-N-OCTYL PHTHALATE	UG/KG	3/312	311	3/312	50.000-280.000	129.33	330.000	100000.000	
DIBENZO(A,H)ANTHRACENE	UG/KG	6/311	310	6/311	42.000-1100.000	537.50	330.000	100000.000	
DIBENZOFURAN	UG/KG	3/308	307	3/308	36.000-120.000	74.33	330.000	3500.000	
DIETHYL PHTHALATE	UG/KG	7/308	307	7/308	43.000-250.000	121.43	330.000	3500.000	
DIMETHYL PHTHALATE	UG/KG	0/309	308	0/309			330.000	3500.000	
FLUORANTHENE	UG/KG	32/312	311	32/312	40.000-34000.000	3012.06	330.000	2100.000	
FLUORENE	UG/KG	2/307	306	2/307	77.000-370.000	223.50	330.000	3500.000	
HEXACHLOROBENZENE	UG/KG	0/308	307	0/308			330.000	3500.000	
HEXACHLOROBUTADIENE	UG/KG	1/309	308	1/309	350.000-350.000	350.00	330.000	3500.000	
HEXACHLOROCYCLOPENTADIENE	UG/KG	0/306	305	0/306			330.000	3500.000	
HEXACHLOROETHANE	UG/KG	0/309	308	0/309			330.000	3500.000	
INDENO(1,2,3-CD)PYRENE	UG/KG	11/312	311	11/312	78.000-4900.000	1147.91	330.000	100000.000	
ISOPHORONE	UG/KG	0/309	308	0/309			330.000	3500.000	
N-NITROSO-DI-N-PROPYLAMINE	UG/KG	1/301	300	1/301	190.000-190.000	190.00	330.000	3500.000	
N-NITROSODIMETHYLAMINE	UG/KG	1/2	2	1/2	5.000-5.000	5.00	420.000	420.000	
N-NITROSODIPHENYLAMINE	UG/KG	1/308	307	1/308	72.000-72.000	72.00	330.000	3500.000	
NAPHTHALENE	UG/KG	3/309	308	3/309	52.000-120.000	75.33	330.000	3500.000	
NITROBENZENE	UG/KG	0/299	298	0/299			330.000	3500.000	
P-CHLOROANILINE	UG/KG	0/304	303	0/304			330.000	3500.000	
PENTACHLOROPHENOL	UG/KG	4/308	307	4/308	49.000-260.000	122.25	820.000	17000.000	
PHENANTHRENE	UG/KG	29/312	311	29/312	39.000-18000.000	1554.55	88.000	2100.000	

10/25/94

AREA: WHOLE SITE - Validated & NONValidated
FEMP SUBSURFACE SOIL DATA, 1988-1993

Summary of Positive/Nonpositive Detections

Parameter	Units	Freq. of Detection	Total Validated Samples	Freq. of Detection Above Bckg.	Range of Positive Detections	Average of Positive Detections	Minimum Nondetect	Maximum Nondetect	95% Background Concentration Value
SEMIVOLATILES DEPTH: 1.5 - 9999 FEET									
PHENOL	UG/KG	8/309	308	8/309	38.000-710.000	194.25	330.000	3500.000	
PYRENE	UG/KG	36/312	311	36/312	43.000-30000.000	2557.36	330.000	2100.000	
PYRIDINE	UG/KG	0/1	1	0/1			370.000	370.000	
TOTAL METHYLPHENOL	UG/KG	0/1	1	0/1			370.000	370.000	
TRIBUTYL PHOSPHATE	UG/KG	0/19	19	0/19			370.000	480.000	

AREA: WHOLE SITE - Validated & NONValidated
FEMP SUBSURFACE SOIL DATA, 1988-1993

Summary of Positive/Nonpositive Detections

Parameter	Units	Freq. of Detection	Total Validated Samples	Freq. of Detection Above Bckg.	Range of Positive Detections	Average of Positive Detections	Minimum Nondetect	Maximum Nondetect	95% Background Concentration Value
PESTICIDES DEPTH: 1.5 - 9999 FEET									
4,4'-DDD	UG/KG	0/253	246	0/253			3.400	700.000	
4,4'-DDE	UG/KG	0/253	246	0/253			3.400	700.000	
4,4'-DDT	UG/KG	0/253	246	0/253			3.400	700.000	
ALDRIN	UG/KG	0/253	246	0/253			1.700	350.000	
ALPHA-BHC	UG/KG	1/253	246	1/253	17.000-17.000	17.00	1.700	350.000	
ALPHA-CHLORDANE	UG/KG	0/253	246	0/253			1.700	3500.000	
AROCLOR-1016	UG/KG	1/254	248	1/254	93.000-93.000	93.00	34.000	3500.000	
AROCLOR-1221	UG/KG	1/254	247	1/254	93.000-93.000	93.00	68.000	3500.000	
AROCLOR-1232	UG/KG	1/254	248	1/254	93.000-93.000	93.00	34.000	3500.000	
AROCLOR-1242	UG/KG	1/254	248	1/254	93.000-93.000	93.00	34.000	3500.000	
AROCLOR-1248	UG/KG	2/254	248	2/254	93.000-110.000	101.50	34.000	3500.000	
AROCLOR-1254	UG/KG	23/254	247	23/254	9.900-1700.000	323.60	18.000	4300.000	
AROCLOR-1260	UG/KG	5/254	247	5/254	10.000-2700.000	972.00	34.000	7000.000	
BETA-BHC	UG/KG	0/253	246	0/253			1.700	350.000	
DELTA-BHC	UG/KG	0/253	246	0/253			1.700	350.000	
DIELDRIN	UG/KG	0/253	246	0/253			3.400	700.000	
ENDOSULFAN II	UG/KG	0/253	246	0/253			3.400	700.000	
ENDOSULFAN SULFATE	UG/KG	0/253	245	0/253			3.400	700.000	
ENDOSULFAN-I	UG/KG	1/253	246	1/253	1.900-1.900	1.90	1.700	350.000	
ENDRIN	UG/KG	0/253	246	0/253			3.400	700.000	
ENDRIN ALDEHYDE	UG/KG	1/104	100	1/104	5.000-5.000	5.00	3.400	97.000	
ENDRIN KETONE	UG/KG	0/253	246	0/253			3.400	700.000	

AREA: WHOLE SITE - Validated & NONValidated
FEMP SUBSURFACE SOIL DATA, 1988-1993

Summary of Positive/Nonpositive Detections

Parameter	Units	Freq. of Detection	Total Validated Samples	Freq. of Detection Above Bckg.	Range of Positive Detections	Average of Positive Detections	Minimum Nondetect	Maximum Nondetect	95% Background Concentration Value
PESTICIDES DEPTH: 1.5 - 9999 FEET									
GAMMA-BHC (LINDANE)	UG/KG	0/253	246	0/253			1.700	350.000	
GAMMA-CHLORDANE	UG/KG	0/253	246	0/253			1.700	3500.000	
HEPTACHLOR	UG/KG	0/253	246	0/253			1.700	350.000	
HEPTACHLOR EPOXIDE	UG/KG	0/253	246	0/253			1.700	350.000	
METHOXYCHLOR	UG/KG	1/253	246	1/253	22.000-22.000	22.00	17.000	3500.000	
SULFOTEP	UG/KG	0/1	1	0/1			50.000	50.000	
TOXAPHENE	UG/KG	0/253	247	0/253			160.000	7000.000	

AREA: WHOLE SITE - Validated & NONValidated
FEMP SUBSURFACE SOIL DATA, 1988-1993

Summary of Positive/Nonpositive Detections

Parameter	Units	Freq. of Detection	Total Validated Samples	Freq. of Detection Above Bckg.	Range of Positive Detections	Average of Positive Detections	Minimum Nondetect	Maximum Nondetect	95% Background Concentration Value
DIOXINS/FURANS DEPTH: 1.5 - 9999 FEET									
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN	NG/G	0/6	6	0/6			960.000	1000.000	
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	NG/G	0/6	6	0/6			960.000	1000.000	
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	NG/G	0/6	6	0/6			960.000	1000.000	
1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	NG/G	0/6	6	0/6			960.000	1000.000	
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	NG/G	0/6	6	0/6			960.000	1000.000	
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	NG/G	0/6	6	0/6			960.000	1000.000	
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	NG/G	0/6	6	0/6			960.000	1000.000	
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	NG/G	0/6	6	0/6			960.000	1000.000	
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	NG/G	0/6	6	0/6			960.000	1000.000	
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	NG/G	0/6	6	0/6			960.000	1000.000	
1,2,3,7,8-PENTACHLORODIBENZOFURAN	NG/G	0/6	6	0/6			960.000	1000.000	
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	NG/G	0/6	6	0/6			960.000	1000.000	
2,3,4,7,8-PENTACHLORODIBENZOFURAN	NG/G	0/6	6	0/6			960.000	1000.000	
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN	NG/G	0/10	10	0/10			71.000	1000.000	
2,3,7,8-TETRACHLORODIBENZOFURAN	NG/G	0/6	6	0/6			960.000	1000.000	
HEPTACHLORODIBENZO-P-DIOXINS	NG/G	0/6	6	0/6			960.000	1000.000	
HEPTACHLORODIBENZOFURANS	NG/G	0/6	6	0/6			960.000	1000.000	
HEXACHLORODIBENZO-P-DIOXINS	NG/G	0/6	6	0/6			960.000	1000.000	
HEXACHLORODIBENZOFURANS	NG/G	0/6	6	0/6			960.000	1000.000	
OCTACHLORODIBENZO-P-DIOXIN	NG/G	0/6	6	0/6			960.000	1000.000	
OCTACHLORODIBENZOFURAN	NG/G	1/6	6	1/6	1500.000-1500.000	1500.00	960.000	1000.000	
PENTACHLORODIBENZO-P-DIOXINS	NG/G	0/6	6	0/6			960.000	1000.000	

AREA: WHOLE SITE - Validated & NONValidated
FEMP SUBSURFACE SOIL DATA, 1988-1993

Summary of Positive/Nonpositive Detections

Parameter	Units	Freq. of Detection	Total Validated Samples	Freq. of Detection Above Bckg.	Range of Positive Detections	Average of Positive Detections	Minimum Nondetect	Maximum Nondetect	95% Background Concentration Value
DIOXINS/FURANS DEPTH: 1.5 - 9999 FEET									
PENTACHLORODIBENZOFURANS	NG/G	0/6	6	0/6			960.000	1000.000	
TETRACHLORODIBENZO-P-DIOXINS	NG/G	0/6	6	0/6			960.000	1000.000	
TETRACHLORODIBENZOFURANS	NG/G	0/6	6	0/6			960.000	1000.000	

AREA: WHOLE SITE - Validated & NONValidated
FEMP SUBSURFACE SOIL DATA, 1988-1993

Summary of Positive/Nonpositive Detections

Parameter	Units	Freq. of Detection	Total Validated Samples	Freq. of Detection Above Bckg.	Range of Positive Detections	Average of Positive Detections	Minimum Nondetect	Maximum Nondetect	95% Background Concentration Value
ORGANOPHOSPHORUS PESTICIDES DEPTH: 1.5 - 9999 FEET									
AZINPHOSMETHYL	UG/KG	0/6	6	0/6			81.000	82.000	
DEMETON	UG/KG	0/6	6	0/6			65.000	66.000	
DIAZINON	UG/KG	0/6	6	0/6			32.000	33.000	
DIMETHOATE	UG/KG	0/1	1	0/1			50.000	50.000	
DISULFOTON	UG/KG	0/7	7	0/7			32.000	50.000	
ETHION	UG/KG	0/6	6	0/6			32.000	33.000	
FAMPHUR	UG/KG	0/1	1	0/1			100.000	100.000	
MALATHION	UG/KG	0/6	6	0/6			32.000	33.000	
METHYL PARATHION	UG/KG	0/7	7	0/7			32.000	50.000	
PARATHION	UG/KG	0/7	7	0/7			32.000	50.000	
PHORATE	UG/KG	0/1	1	0/1			50.000	50.000	
THIONAZIN	UG/KG	0/1	1	0/1			50.000	50.000	

AREA: WHOLE SITE - Validated & NONValidated
FEMP SUBSURFACE SOIL DATA, 1988-1993

Summary of Positive/Nonpositive Detections

Parameter	Units	Freq. of Detection	Total Validated Samples	Freq. of Detection Above Bckg.	Range of Positive Detections	Average of Positive Detections	Minimum Nondetect	Maximum Nondetect	95% Background Concentration Value
GENERAL CHEMISTRY DEPTH: 1.5 - 9999 FEET									
TOTAL ORGANIC CARBON	MG/KG	26/26	26	26/26	464.000-33226.000	9280.96			

10/25/94

SWMU #27 - FUEL OIL SPILLAGE AREA
RFI DATA BASE STATISTICS - GROUNDWATER

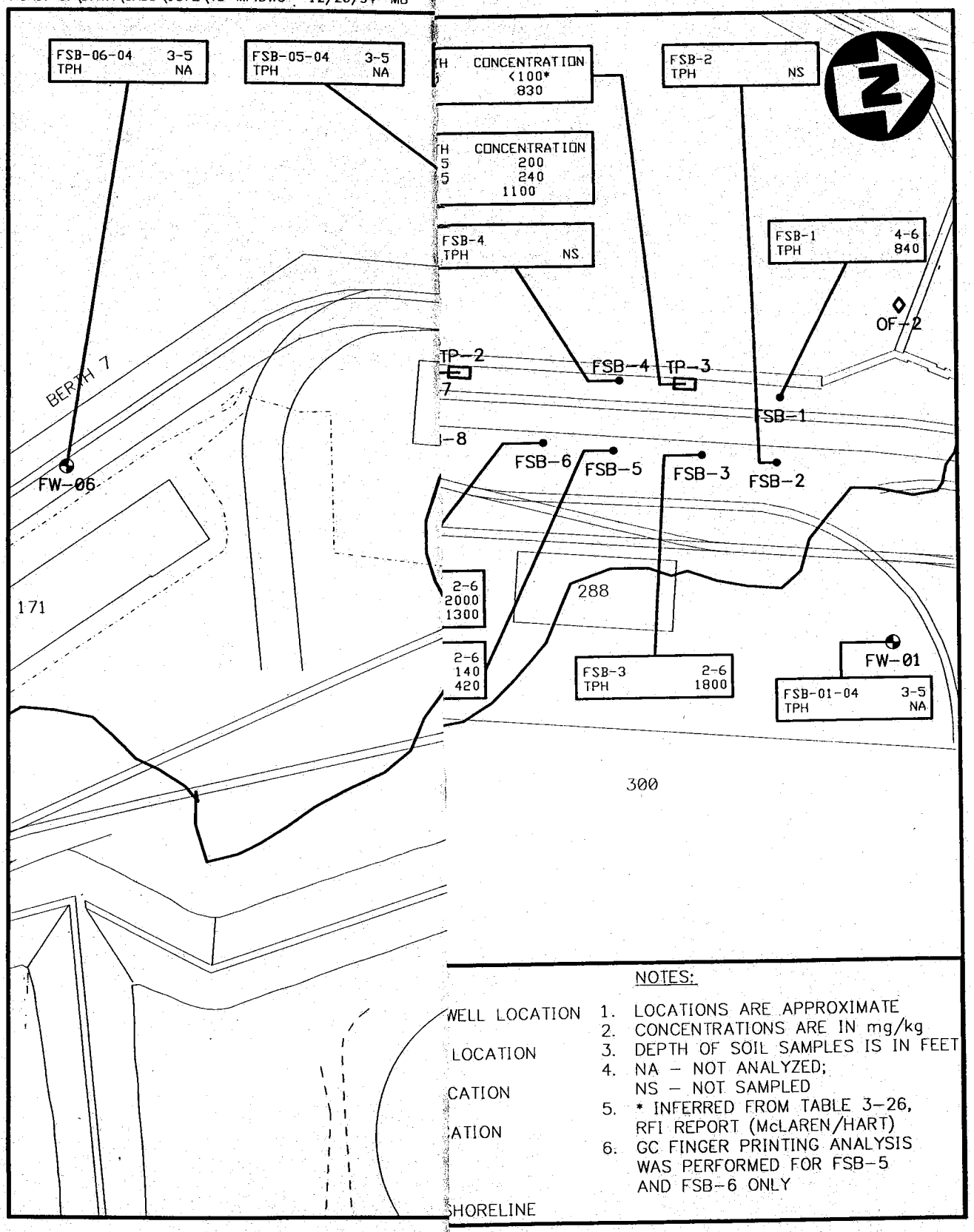
Refer to example statistics for soils.

SWMU #27 - FUEL OIL SPILLAGE AREA
EXCEEDENCES OF MEDIA PROTECTION STANDARDS

For SWMU #27, no exceedences of Media Protection Standards (MPSs) were encountered for soils or groundwater. For other SWMUs where there are exceedences, tables presented will be similar to the tables presented in the statistics tables, but will be limited to those analytes which exceed MPSs.

SWMU #27 - FUEL OIL SPILLAGE AREA
TAG MAP - SOIL (TPH)

ACAD: O:\DATA\CADD\1572\YD-MP.DWG 12/20/94 MB



WELL LOCATION

LOCATION

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SHORELINE

NOTES:

1. LOCATIONS ARE APPROXIMATE
2. CONCENTRATIONS ARE IN mg/kg
3. DEPTH OF SOIL SAMPLES IS IN FEET
4. NA – NOT ANALYZED;
   NS – NOT SAMPLED
5. * INFERRED FROM TABLE 3-26, RFI REPORT (McLAREN/HART)
6. GC FINGER PRINTING ANALYSIS WAS PERFORMED FOR FSB-5 AND FSB-6 ONLY

FIGURE

SOILS – TOTAL PETROLEUM
FOR S

Halliburton NUS
CORPORATION