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PROJECT TITLE
Tank Farm Remediation

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ITEM NO.	SUBMITTAL DESCRIPTION	PREPARED/ SUBMITTED BY	APPROVED	DISAPPROVED	REMARKS
1	SD-08, Statements, Final Revised Final Site Investigation Work Plan for Sludge Disposal Trenches and Review Areas at Tank Farms 4 and 5	Helene Ropars			

U.S. NAVY ENGINEERING FIELD ACTIVITY, NORTHEAST
REMEDIAL ACTION CONTRACT (RAC)
CONTRACT NO. N62472-99-D-0032
CONTRACT TASK ORDER NO. 0084

FINAL REVISED FINAL SITE INVESTIGATION WORK PLAN FOR SLUDGE DISPOSAL TRENCHES AND REVIEW AREAS AT TANK FARMS 4 AND 5

NAVAL STATION NEWPORT PORTSMOUTH, RHODE ISLAND

September 27, 2004

Prepared by

Tetra Tech FW, Inc.
133 Federal Street, Floor 6
Boston, Massachusetts 02110

Revision	Date	Prepared By	Approved By	Pages Affected
0	9/27/04	J. McIntosh	S. Leach, P.E.	All

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ABBREVIATIONS AND ACRONYMS

bgs	below ground surface
BOLs	bills of lading
BSW	bottom sediment/water
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
COC	contaminant of concern
CTO	Contract Task Order
DESC	Defense Energy Support Center
EFANE	Engineering Field Activity, Northeast
ELUR	Environmental Land Use Restriction
FFA	Federal Facilities Agreement
FID	flame-ionization detector
ft	feet
GIS	Geographic Information System
g	gallon
GPS	Global Positioning System
HSA	hollow stem auger
HDPE	high density polyethylene
IRP	Installation Restoration Program
lf	lineal feet
LNAPL	light non-aqueous phase liquids
MS	matrix spike
MSD	matrix spike duplicate
NAVSTA	Naval Station
ND	non-detectable
NEESA	Naval Energy and Environmental Support Activity
NETC	Naval Education and Training Center
NFESC	Naval Facilities Engineering Service Center
NPL	National Priorities List
NTR	Navy Technical Representative
PAHs	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PID	photoionization detector
ppb	parts per billion
PPE	Personal Protective Equipment
ppm	parts per million
PRGs	Preliminary Remediation Goals
QA	quality assurance
QC	quality control
RAC	Remedial Action Contract
RAs	Review Areas
RCRA	Resource Conservation and Recovery Act
RIDEM	Rhode Island Department of Environmental Management
SER	Shore Establishment Realignment
SHSP	Site-Specific Health and Safety Plan
SVOCs	semivolatile organic compounds
TPH	total petroleum hydrocarbons
TtFW	Tetra Tech FW, Inc.
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VOCs	volatile organic compounds

1.0 INTRODUCTION

Tetra Tech FW, Inc. (TtFW) has prepared this Final Revised Final Site Investigation Work Plan for Sludge Disposal Trenches and Review Areas at Tank Farms 4 and 5 on behalf of Engineering Field Activity, Northeast (EFANE) under Remedial Action Contract (RAC) N62472-99-D-0032, Contract Task Order 0084 (CTO 0084). The former Tank Farm 4 and 5 underground storage tanks (USTs) were assessed for site closure by Halliburton NUS Corporation (1995) and were subsequently demolished by Foster Wheeler Environmental Corporation (now TtFW) during a field effort that began in May 1996.

The primary scope of this investigation will seek to resolve conflicting information regarding the reported practice of burying tank bottom sludge in sludge pits in the vicinity of the former USTs. Testpitting, field screening, sampling, and soil removal (if necessary, and as resources allow) will be conducted about the perimeter of 5 USTs at each tank farm to attempt to locate the sludge pits that may have been created. If a sludge pit is found during the investigation of the 5 USTs selected at each tank farm, the UST testpit investigation outlined in this work plan will be expanded to the remaining USTs at the tank farm where the sludge pit was found. A contaminated area will be defined as a sludge pit if both analytical data and field observations, such as stained soil and the shape of the contaminated area, indicate an extensive volume of Total Petroleum Hydrocarbons (TPH) contamination is present at levels that exceed the applicable criteria. The volume of material that constitutes "extensive" will be discussed during the weekly project status meetings identified in Section of the 5.2.

In addition, at Tank Farms 4 and 5, process piping and adjacent soil that have not been previously evaluated will be located, field screened, sampled, and removed (if necessary). Lastly, investigatory sampling and removal actions will be performed at individual structures, referred to as Review Areas (RAs), located at each tank farm. Rhode Island Department of Environmental Management (RIDEM), United States Environmental Protection Agency (USEPA), and Navy personnel identified the RAs during a file review at Naval Station (NAVSTA) Newport on November 26, 2002.

The investigative and removal action operations outlined in this work plan were agreed upon by RIDEM, USEPA, and Navy personnel during a meeting at NAVSTA on April 7, 2004, see Attachment 1 for meeting minutes. Field operations are scheduled to begin in October 2004.

2.0 SITE BACKGROUND INFORMATION

2.1 NAVSTA Newport

NAVSTA Newport is located approximately 60 miles southwest of Boston, Massachusetts and 25 miles south of Providence, Rhode Island. It occupies approximately 1,063 acres, with portions of the facility located in the city of Newport and towns of Middletown and Portsmouth, Rhode Island. The facility layout is long and narrow, following the western shoreline of Aquidneck Island for nearly 6 miles facing the east passage of Narragansett Bay. A general location map of NAVSTA Newport identifying Tank Farms 4 and 5 is provided as Figure 2-1.

The NAVSTA Newport facility has been in use by the Navy since the Civil War. During both World Wars I and II, military activities at the facility increased significantly and the base provided housing for many service people. In subsequent years, use of the on-site facilities were slowly phased out until Newport became headquarters of the Commander-Cruiser Destroyer Force Atlantic in 1962. In April 1973, the Shore Establishment Realignment (SER) Program resulted in the reorganization of naval forces, and activity again declined.

The entire NAVSTA Newport facility was listed on the USEPA National Priorities List (NPL) of abandoned or uncontrolled hazardous waste sites in November 1989. A Federal Facilities Agreement (FFA) for NAVSTA Newport was signed by the Navy, the State of Rhode Island, and the USEPA on March 23, 1992. The FFA outlines response action requirements under the Department of Defense Installation Restoration Program (IRP) at NAVSTA Newport. The FFA was developed, in part, to ensure that environmental impacts associated with past and present activities at NAVSTA Newport are thoroughly investigated and remediated, as necessary.

2.2 Tank Farm 4 Site and Environmental Conditions

Tank Farm 4 was located in the north-central portion of the NAVSTA Newport (see Figure 2-1). This area is surrounded by the Navy's Defense Highway to the northwest, Norman's Brook to the southwest, residential property to the southeast, and woodlands to the north/northeast (Halliburton NUS, 1995). The former Tank Farm 4 was comprised of 90 acres and consisted of twelve USTs that were numbered 37 through 48 (see Figure 2-2).

The topography of the area consists of a gradual slope to the west/southwest towards Narragansett Bay. The site contains tall grass, trees, and dense brush that have overgrown the areas where the twelve USTs previously existed. Groundwater flows in a west to southwest direction towards Narragansett Bay.

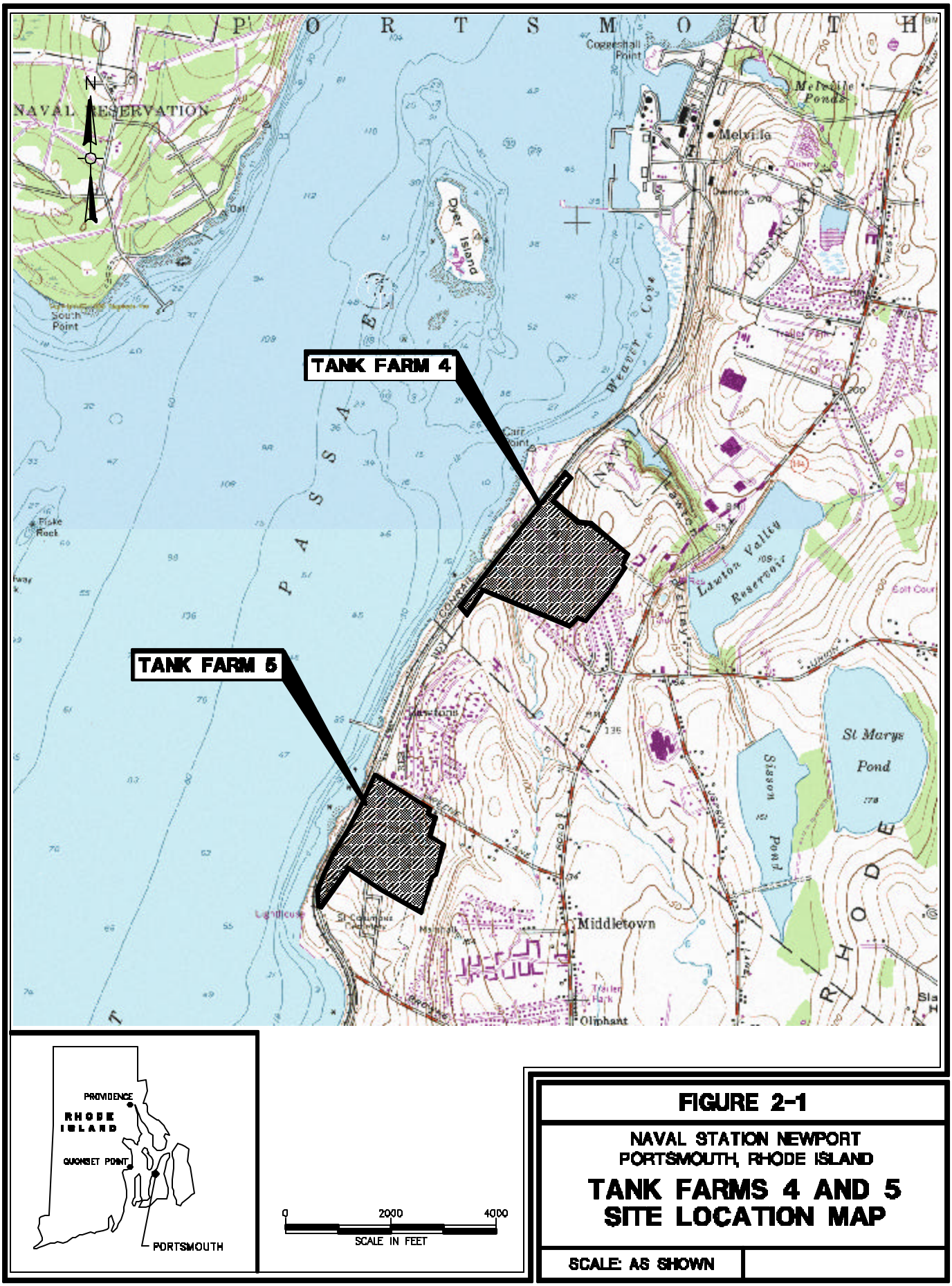


FIGURE 2-1

NAVAL STATION NEWPORT
PORTSMOUTH, RHODE ISLAND

TANK FARMS 4 AND 5 SITE LOCATION MAP

SCALE: AS SHOWN

CADDFILE: 0841_A001.DWG

FIGURE 2-2

NAVAL STATION NEWPORT
PORTSMOUTH, RHODE ISLAND

TANK FARM 4
SITE MAP

SCALE: AS SHOWN

CAD FILE: 0841_A003-C.DWG

For more detailed information on site geology, groundwater, UST construction, and previous investigations, interested readers are referred to the following documents:

Remedial Investigation Technical Report, Volume 1, TRC Environmental Corporation, January 1992.

Preliminary Closure Assessment Report of Tank Farms 4 and 5 at Naval Education and Training Center Newport, Rhode Island, Halliburton NUS Corporation, June 1995.

Site Investigation Report, Tanks 38, 42, 45, and 48 at Naval Education and Training Center Newport, Rhode Island, Brown & Root, April 1996.

Tank Farm 4 Perimeter Testpit Sampling Results at Naval Education and Training Center Newport, Rhode Island, Foster Wheeler Environmental Corporation, June 13, 1997.

Round 1 Corrective Action Groundwater Monitoring Report, Tank 38, Tank Farm 4 at Naval Education and Training Center Newport, Rhode Island, TTNUS, October 1998.

Supplemental Site Investigation Report for Tanks 42, 45, and 48, Tank Farm 4 at Naval Education and Training Center Newport, Rhode Island, TTNUS, September 1999.

Confirmation Study Report on Hazardous Waste Sites at Naval Education and Training Center, Newport, RI, Loureiro Engineering Associates, May 1986.

2.3 Tank Farm 5 Site and Environmental Conditions

As shown in Figure 2-1, Tank Farm 5 was approximately 1.5 miles south of Tank Farm 4. Tank Farm 5 was surrounded by the Navy's Defense Highway to the north/northwest, a cemetery to the southwest, residential property and woodlands to the southeast, and Greene's Lane to the northeast (Halliburton NUS, 1995). Groundwater flows in a north to northwest direction. The former Tank Farm 5 was comprised of 85 acres and consisted of eleven USTs that were numbered 49 through 59 (see Figure 2-3).

Groundwater elevations at Tank Farm 5 range between 58-feet (ft) and 93-ft above mean low water level. The topography slopes to the west and north from the high elevation near UST 59. The vegetation in this area consists of grass, dense brush, trees, and woodlands.

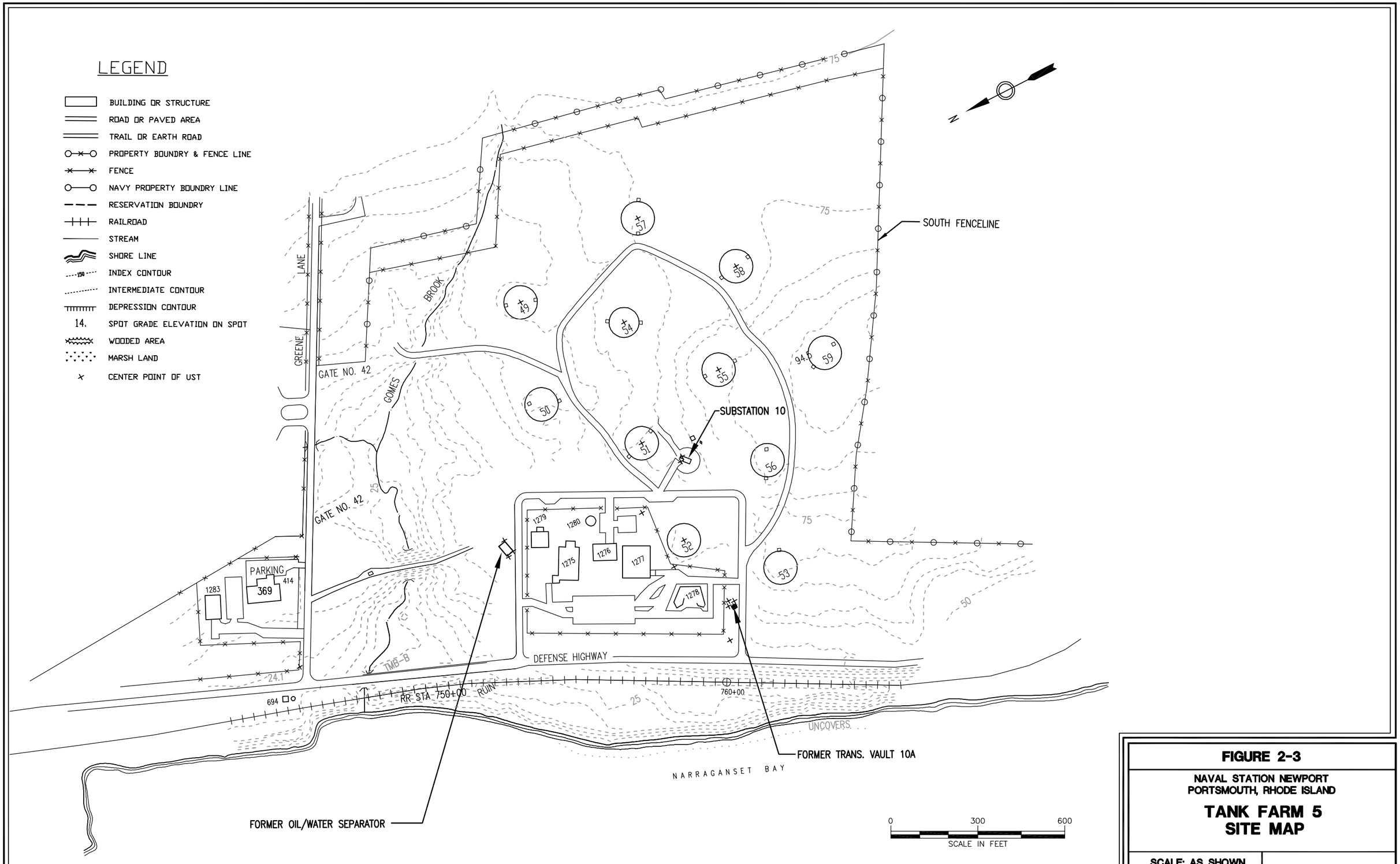


FIGURE 2-3

NAVAL STATION NEWPORT
PORTSMOUTH, RHODE ISLAND

TANK FARM 5
SITE MAP

SCALE: AS SHOWN

CAD FILE: 0841_A009-C.DWG

For more detailed information on site geology, groundwater, UST construction, and previous investigations, interested readers are referred to the following documents:

Final Initial Assessment Study on the Naval Education and Training Center (NETC), Naval Energy and Environmental Support Activity (NEESA), 1983.

Process Piping and Closure Assessment Report for Tank Farm 5, Brown & Root, October 1995.

Site Investigation Report, Tank 50, Tank Farm 5, Brown & Root, December 1995.

Technology Screening Evaluation Report, Tank 50, Tank Farm 5, Brown & Root, January 1996.

Site Investigation Report, Tanks 51, 52, 54, and 57, Tank Farm 5, Brown & Root, April 1996.

Tank Closure Certification Report and Tank Closure Assessment Report Summary for Tanks 53 and 56 at Tank Farm 5, NETC Newport, OHM, September 1996.

Round 1 Corrective Action Groundwater Monitoring Report, Tanks 51, 52, 54, and 57, Tank Farm 5, Brown & Root, November 1996.

Round 2 Corrective Action Groundwater Monitoring Report, Tanks 51, 52, 54, and 57, Tank Farm 5, Brown & Root, July 1997.

Post Pilot Study Report, Rev 2.0, Tank 50 Remedial Action, Tetra Tech, 6 October 1997.

Round 3 Corrective Action Groundwater Monitoring Report, Tanks 51, 52, 54, and 57, Tank Farm 5, Brown & Root, May 1998.

Round 4 Corrective Action Groundwater Monitoring Report, Tanks 51, 52, 54, and 57, Tank Farm 5, Brown & Root, August 1999.

Round 5 Corrective Action Groundwater Monitoring Report, Tanks 51, 52, 54, and 57, Tank Farm 5, Brown & Root, December 1999.

Corrective Action Plan for Tanks 51, 52, 54, and 57, Tank Farm 5, TTNUS, September 1999.

Round 6 Corrective Action Groundwater Monitoring Report, Tanks 51, 52, 54, and 57, Tank Farm 5, Brown & Root, June 2000.

Final Tank Closure Certification Report, Tanks 53 and 56, OHM, September 1996.

Soil Borings at Tank Farm 5, Tank 53, OHM, January 1995.

Soil Investigation Tank Farm 5 – Tanks 53 and 56, TRC, December 1993.

Record of Decision for Interim Remedial Action, Groundwater Operable Unit, Tanks 53 and 56, U.S. Navy, 1992.

Tank Closure Investigation, Tanks 53 and 56, Tank Farm 5, TRC, June 1991.

2.4 USTs, Process Piping, and RAs

Each UST at Tank Farms 4 and 5 had a capacity of 60,000 barrels, which is equivalent to 2.52 million gallons of standard petroleum. The tanks were made of pre-stressed reinforced concrete. The tank roof and walls were approximately 12-inches thick and the floor was approximately 24-inches thick (Halliburton NUS, 1995). Figures 2-2 and 2-3 identify the locations of the former USTs.

Both tank farms contained process piping. Process piping of interest in this field effort consists of fuel piping and bottom sediment/water (BSW) piping. The fuel piping transported fuel from the main fuel line adjacent to Defense Highway to each individual UST. The fuel piping consisted of the following:

- Main fuel transect:

– Tank Farm 4	Piping that transferred fuel from the main fuel line at A-10, adjacent to Defense Highway, to the loop piping
– Tank Farm 5	The portion of the main fuel line that transferred fuel from the approximate location of Greene's Lane to A-19

- Loop piping:

– Tank Farm 4	Piping oriented in a circular fashion, that transferred fuel from the main fuel transect at E-21, moving in a clockwise direction, to pipe chambers CT-39, CT-37, CT-43, etc.
– Tank Farm 5	Piping, oriented in a circular fashion, that transferred fuel from pipe chambers A-19 to CT-50, CT-54, etc to CT-53 moving in a clockwise direction at Tank Farm 5

- Shunt piping:

– Tank Farms 4 and 5	Piping that transferred fuel from the main loop into each pump chamber associated with each respective UST and then from the pump chamber directly to the UST
– Tank Farm 5 Exit Piping	The portion of the main fuel line that transferred fuel from pipe chamber CT-51, CT-52, CT-56, and CT-53 and then off of the tank farm in a southern direction. The main fuel line was isolated from each UST by a 10-inch valve

BSW piping transferred sediment and water from the bottom of each UST to the oil/water separator for treatment. After separation, the water was discharged to the respective brooks at each tank farm (Normans Brook for Tank Farm 4 and Gomes Brook for Tank Farm 5). Attachment 2 contains the following Navy drawings that identify the BSW and fuel piping for Tank Farms 4 and 5:

Tank Farm 4	Fuel Distribution System Area III Site Plan – 627297
	Fuel Distribution System Storage Tanks 37 thru 48 Area III Plot Plan – 627336
Tank Farm 5	Fuel Distribution System Area V Site Plan – 627299
	Fuel Distribution System Storage Tanks 49 thru 59 Area V Plot Plan – 627343

As shown on Drawing 627336, the BSW line associated with USTs 37, 38, 39, 40, 41, 42, 44, and 48 is a discrete line separate from the BSW lines associated with the remaining USTs at Tank Farm 4.

As shown on Drawing 627343, the BSW line associated with USTs 53, 56, 52, 51, 50, 54, and 49 is a discrete line separate from the BSW lines associated with the remaining USTs at Tank Farm 5. With respect to the 4-inch stripper line extending from UST 50 to A-18, The Process Piping Closure Assessment Report (Brown and Root, October 1995) states, "A discrete 4-inch oil stripper line shown on construction plans to extend from Tank 50 to Boiler House #3, located off site west of the Defense Highway, was not found." Because this line was not found during previous investigations, it is not planned for investigation because the Navy believes it does not exist.

As shown on all drawings in Attachment 2, various structures were/are present at each tank farm. Structures of environmental interest, referred to as RAs, have been selected for investigation and/or removal during this field effort. These structures are identified in Figures 2-2 and 2-3 of this work plan.

2.5 Operational History of Tank Farms

2.5.1 Tank Farm 4 Operations

Between the approximate dates of 1941 and 1974, Tank Farm 4 was used for storage of heavy fuel oil. From 1974-1976 (approximately), the tanks were leased to Northeast Petroleum Company, formerly of Tiverton, RI, and were used to store No. 2 fuel oil (Personal Communication, 2002). In the 1980's the tanks were used to store reserve oil supplies. The tanks were cleaned and ballasted between 1994 and 1997. Between 1997 and 1998, USTs at Tank Farm 4 were imploded in place, see Section 2.6.2.2. No waste oil was ever stored at Tank Farm 4.

2.5.2 Tank Farm 5 Operations

From 1941 through 1974 (dates are approximate), Tank Farm 5 was used for storage of heavy fuel oil. With the exception of USTs 53 and 56, the remaining USTs were used for reserve supply until the late 1980's. The USTS were cleaned and ballasted between 1994 and 1997 and were demolished via implosion between 1997 and 1998 (Draft Technical Memorandum Summary of Analytical Results Sample Round 5 for Former Tanks 53 and 56 – Tank Farm 5 Naval Station Newport, Newport, Rhode Island, Tetra Tech NUS, July 2004).

In 1974, the UST 53 and UST 56 fuel piping was sealed off by chaining the 10-inch valve that separated the USTs from the main fuel line in the locked position and a 10-inch blinding disc was affixed to the tank side of the pipe (Brown & Root, 1995). The tanks were then used to store waste oil from 1975-1984 (Tetra Tech NUS, July 2004). Because the fuel piping was already sealed off, waste oil could only have been placed into USTs 53 and 56 via tanker truck and not through the tank farm process piping. There is no evidence suggesting that sludge was ever removed from USTs 53 and 56 while they were used to store waste oil. However, the Navy cannot confirm this.

In 1984, the Navy discontinued use of USTs 53 and 56 and investigations associated with these tanks were conducted until the USTs were closed in 1996, see Section 2.6.2.1.

2.5.3 Tank Cleaning and Potential Disposal Pits at Tank Farms 4 and 5

During the operation of Tank Farms 4 and 5, the tanks were periodically cleaned. Tank cleaning operations of Tank Farms 4 and 5 were conducted when the tanks stored heavy fuel oil. A *Final Initial Assessment Study on the Naval Education and Training Center (NETC)* completed in March 1983 by Naval Energy and Environmental Support Activity (NEESA) reported that at Tank Farm 4, tank bottom sludge, obtained during cleaning operations, was disposed of directly onto the ground in the vicinity of the tank being cleaned. Updated information is provided in the Confirmation Study Report (Loureiro Engineering, May 1986), which reported that "Until the mid-1970's, tank bottom sludge was periodically removed and disposed of by burning; however, there was some suspicion that the cleanings were disposed of on the ground in the general vicinity of the tank being cleaned." At Tank Farm 5, it was reported that "…tank bottom sludge obtained during cleaning operations, was disposed of in a burn pit. This burning pit had steel sides and a sand bottom. The sludge was placed in the pit and burned" (NEESA, 1983). However, because there was past suspicion of sludge being disposed of in the vicinity of the tank being cleaned at Tank Farm 4, it is reasonable to assume the practice may have also been followed at Tank Farm 5.

2.5.4 2002 Site Walk at Tank Farms 4 and 5

A Tank Farm 4 site walk conducted on July 17, 2002 included a former Navy and Defense Energy Support Center (DESC) employee who was responsible for tank farm operation and maintenance from 1969 through 1990. The employee stated that during cleaning operations, tank bottom sludge from tanks at Tank Farm 4 was pumped to UST 41 because it was the designated slop tank for Tank Farm 4. The water and oil in the slop tank was allowed to gravity separate and the emulsion was then pumped to the Tank Farm 4 on-site oil/water separator. Oil was collected, drummed, and disposed off-site and the treated water was discharged. A thin water layer was maintained at the base of each tank to prevent oil loss to the environment (Pers. Comm., 2002).

The same employee recalled that Tank Farm 5 stored heavy fuel oil until it was decommissioned in 1995 (Pers. Comm., 2002). The employee stated that during cleaning operations, tank bottom sludge from the USTs at Tank Farm 5 was pumped to UST 50 because it was the designated slop tank for Tank Farm 5. Similar to Tank Farm 4, the water and oil in the slop tank were allowed to gravity separate and the emulsion was then pumped to the Tank Farm 5 on-site oil/water separator. Oil was collected, drummed, and disposed of off-site and the treated water was discharged.

The employee stated that burying tank bottom sludge in trenches was not practiced at Tank Farms 4 or 5 nor was water/oil drained from the tanks onto the ground at any time during his employment.

2.6 Previous Investigations

2.6.1 Site Assessment for Tank Farm Closure

With the exception of USTs 53 and 56 at Tank Farm 5, Halliburton NUS Corporation conducted a closure assessment of Tank Farms 4 and 5 in 1995 while the USTs were still erect but before they were cleaned and imploded. Halliburton NUS Corporation (1995) did not assess USTs 53 and 56 because these tanks had been previously cleaned and were being closed under RI Hazardous Waste Regulations because they once stored waste oil. All other USTs were being closed under RIDEM UST Regulations. The USTs 53 and 56 closure activities are briefly discussed in Section 2.6.2.1.

To summarize the Halliburton NUS Corporation findings, the soil surrounding the former USTs was fill material consisting of gravel, crushed bedrock, and coarse to fine grained soils that were placed during and after tank construction. Tank construction and placement included blasting and excavating 10-30 ft of bedrock (Halliburton NUS, 1995) to create a cradle for the tank structure. The diameter of each UST was approximately 119 ft. Each tank was approximately 36 ft high from the footing to the roof and the tank extended 10 to 30 ft below the original bedrock surface (Halliburton NUS, 1995). Once buried, most of the roofs of the USTs were approximately 4 ft below the soil surface but this depth varied. Soil thickness at the site varies and ranges from 20-45-ft thick.

2.6.1.1 Soil Probes and Field Screening at Tank Farms 4 and 5

From October through December of 1994, Halliburton NUS Corporation installed a total of 29 soil probes to a depth of approximately 4-6 ft and 6-8 ft below ground surface (bgs) around the perimeters of Tank Farm 4 USTs 37-48, along the shunt piping (BSW and fuel piping in between USTs and pump chambers) associated with all Tank Farm 4 USTs, along the BSW piping associated with USTs 37, 40, 41, and 48 that connects to the discrete BSW line, the Tank Farm 4 Ruin #1 (a former oil/water separator), and the former oil/water separator at Tank Farm 5. The probing was conducted to assess the integrity of the shunt

piping and the oil water separator piping. Halliburton NUS Corporation personnel sampled at this depth because the shunt piping existed approximately 5-8 ft bgs.

The samples were field screened using the Ensys Petro Risc kit for the presence of petroleum hydrocarbons. The samples containing the highest screened TPH values were sent off-site for TPH analysis using USEPA Method 8015B. Twenty-four soil samples were collected from the perimeter of USTs 37-48 for off-site TPH analysis. The two samples collected from the Tank Farm 4 oil/water separator and the Tank Farm 5 oil/water separator were also sent off-site for TPH analyses. For all samples, the TPH concentrations were non-detectable (ND) at the respective reporting limits. At the request of RIDEM personnel, the TPH analytical data presented in the Halliburton NUS Corporation Closure Assessment Report (1995) was consolidated and can be found in Table 2-1. Appendix A contains figures that were originally developed by Halliburton NUS Corporation (1995) to identify the locations of groundwater monitoring wells, soil probes, and borings (see Section 2.6.1.2) collected at Tank Farms 4 and 5.

2.6.1.2 Soil Borings at Tank Farms 4 and 5

Halliburton NUS Corporation installed a total of 21 subsurface soil borings in Tank Farms 4 and 5. For boring locations, see Appendix A. Twelve soil borings were installed in Tank Farm 4 around the perimeters of USTs 37-48. Nine soil borings were installed in Tank Farm 5 around the perimeters of USTs 49-52, 54-55, and 57-59. The borings were advanced 30 ft to 43.5 ft bgs. Subsurface soil samples were collected from the borings beginning at 20 ft bgs and continued to a depth approximately 34-44 ft bgs. The soil samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), TPH, and Resource Conservation and Recovery Act (RCRA) 8 metals. Appendix B contains the soil boring data summaries that were originally developed by Halliburton NUS Corporation and included in the Halliburton NUS Corporation 1995 report. Appendix C contains the VOC, SVOC, TPH, and RCRA 8 metals analytical data, which was originally presented in Appendix C of the Halliburton NUS Corporation 1995 Report. Each boring was completed as a groundwater monitoring well and groundwater samples were collected and analyzed for VOCs, SVOCs, and RCRA 8 metals. Readers interested in the groundwater analytical results can obtain the data from the boring data summaries in Appendix B of this work plan or in the original Halliburton NUS Corporation Report (1995).

To summarize the boring log information (Halliburton NUS, 1995), no visual or olfactory evidence of potential contamination was observed in borings for USTs 39, 43, 44, 46, 47, 51, 55, 58, and 59. Staining or odor at depths ranging from 12-40 ft bgs were observed in USTs 37, 38, 40, 41, 42, 45, 48, 49, 50, 52, 54, and 57. The soil boring visual and olfactory information was consolidated from the boring logs that were originally included in the Halliburton NUS Corporation 1995 Report and can be found in Table 2-2 of this work plan. For details of the sampling protocols and to review analytical data corresponding to these samples, interested readers are referred to *Preliminary Closure Assessment Report of Tank Farms 4 and 5 at Naval Education and Training Center, Rhode Island* (Halliburton NUS, 1995).

Table 2-1
Tank Farms 4 and 5 Soil Probe TPH Analytical Results Summary

Target Analyte	Depth of Sample (bgs)	Mineral Spirits (Paint Thinner)	JP-4 Jet Fuel	Kerosene	Jet Fuel A	JP-5 Jet Fuel	JP-8 Jet Fuel	Mineral Oil	Naphtha	Diesel Fuel	Fuel Oil # 2	Fuel Oil # 4	Fuel Oil # 5	Fuel Oil # 6	Bunker Oil	Motor Oil	Hydraulic Jack Oil	Transmission Fluid	Lubricating Oil	Compressor Oil	Creosote	Diesel Range Organics (C10 to C28)	Residual Range Organics (C28 to C40)	Method Reporting Limits (mg/kg)
Client Sample ID																								
Tank Farm 4																								
SO-TF4-P1-37-0608	6-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P1-38-0608	6-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P1-39-0406	4-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P2-39-0608	6-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P1-40-0608	6-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P1-41-0608	6-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P2-41-0608	6-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P1-42-0406	4-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P2-42-0406	4-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P1-43-0608	6-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P2-43-0608	6-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P3-43-0608	6-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P1-44-0608	6-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P1-45-0608	6-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P2-45-0608	6-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P3-45-0406	4-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P4-45-0406	4-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P1-46-0406	4-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P2-46-0608	6-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P1-47-0406	4-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P2-47-0406	4-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P1-48-0608	6-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P2-48-0608	6-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P3-48-0406	4-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P1-OWS-0608	6-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P2-OW3-0406	4-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P2-DUP1	Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P2-DUP2	Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P2-DUP3	Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P2-DUP4	Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P-RB3	Rinsate Blank	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF4-P-RB4	Rinsate Blank	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0-6.2
SO-TF4-P-RB5	Rinsate Blank	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0-6.2
Tank Farm 5																								
SO-TF5-P1-OWS-0709	7-9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12
SO-TF5-P3-OWS-0709	7-9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10-12

Total Petroleum Hydrocarbons (Extractables)
USEPA Method 8015B, GC/FID Fingerprint
Samples were taken in November 1994

Halliburton NUS Corporation, June 1995

Table 2-2
Observations in Borings at Tank Farms 4 and 5

Location	Boring Depth (ft-bgs)*	Indications of Potential Contamination	Laboratory Sample #	Field Immunoassy Result (ppm)	Laboratory Results for TPH (mg/kg)
Tank Farm 4					
Tank 37	32-34	stain	B373234	>25, <100	ND
	34-36	stain	B373436		ND
	36-38	stain			
	38-40	stain			
Tank 38	32-34	stain	B383234		ND
	34-36	odor only			
	39-41	stain			
Tank 40	40-42	stain	B404042	>100	140 (Bunker oil)
Tank 41	38-40	odor only	B413840	>100	110 (Bunker oil)
Tank 42	36-38	stain	B423638		>5,700 (Bunker oil)
Tank 45	28-30	odor only			
	30-32	odor only			
	32-34	stain	B453234		1,200
	34-36	stain	B453436		11,000 (Bunker oil)
	36-38	stain			
	38-40	stain			
Tank 48	25-27	stain			
	27-29	stain	B482729	Visual Inspection	5,300 (Bunker oil)
	29-31	stain			
	31-33	stain			
	33-35	stain			
	35-37	stain			
	37-39	stain			
	39-41	stain	B483941	Visual Inspection	3,000 (Bunker oil)
Tank Farm 5					
Tank 49	38-40	stain			
	40-42	stain	B494042		220 (No 6 Fuel oil & Bunker oil)
Tank 50	0-10	odor only			
	12-14	stain			
	14-16	stain			
	16-18	stain			
	18-20	stain			
	20-22	stain			
	22-24	stain			
	24-26	stain			
	26-28	stain			
	28-30	stain	B502830		13,000 (No 6 Fuel oil & Bunker oil)
	30-32	stain			
Tank 52	24-26	stain	B522426		1,600 (Bunker oil)
	26-28	stain			
	28-30	stain			
	30-32	stain			
	32-34	stain			
	34-36	stain	B523436		1,100 (Bunker oil)
Tank 54	36-38	odor only	B543638	>100	1,300 (Diesel)
	38-40	odor only			
Tank 57	34-36	stain	B573436	<100	470 (No 6 Fuel oil or Bunker oil)
	38-40	stain			

Note: No indications of potential contamination were observed in the following tank borings: 39, 43, 44, 46, 47, 51, 55, 58, 59
* See accompanying analytical data provided in Appendix C.
USTs 53 and 56 were RCRA Interim Status hazardous waste storage tanks and were closed in accordance with RI rules and Regulations for Hazardous Waste Management. USTs 53 and 56 were not assessed in Halliburton NUS 1995 Field Effort.

2.6.1.2.1 Field Screening During Soil Boring Advancement

Field samples were collected during soil boring advancement for TPH screening using Ensys Petro Risc kits (Halliburton NUS, 1995). As previously mentioned, the borings were completed as groundwater monitoring wells. The field screening was conducted to determine appropriate well screen settings prior to well installation. Appendix D of this work plan includes replicas of the data sheets that were used to record the findings of the TPH field screening during boring advancement (Halliburton NUS, 1995). Replicas were constructed to increase the readability of the field notes. The original data sheets can be found in Appendix D of the Halliburton NUS Corporation Report (1995).

2.6.2 Previous Actions at Tank Farms 4 and 5

The *Preliminary Closure Assessment Report of Tank Farms 4 and 5 at Naval Education and Training Center Newport, Rhode Island* (Halliburton NUS, 1995) reported that soil borings determined no action was needed at USTs 37, 39, 40, 41, 43, 44, 46, 49, 55, 58, and 59. Site Investigations (including numerous borings and groundwater monitoring well installation and sampling) were conducted at USTs 38, 42, 45, 48, 50, 51, 52, 54 and 57 and the reports were approved by letters from RIDEM dated May 30, 1996 and June 7, 1996. Therefore, no remediation activities were scheduled for these USTs.

2.6.2.1 USTs 53 and 56

USTs 53 and 56 were RCRA Interim Status hazardous waste storage tanks that were assessed and closed under an approved closure plan in accordance with the RI Rules and Regulations for Hazardous Waste Management. This effort is documented in the *Tank Closure Certification Report and Tank Closure Assessment Report Summary for Tanks 53 and 56 at Tank Farm 5, NETC Newport, OHM, September 1996.* To briefly summarize, no contamination was observed in the vicinity of UST 56. Contaminated soils were observed in the vicinity of UST 53 so the soils extending 15 feet outward from the tank perimeter and down to bedrock (approximately 40 feet), were excavated and disposed off-site.

2.6.2.2 UST Cleaning/Implosion

<u>Tank Farm 4</u>

In 1996, Foster Wheeler Environmental Corporation (now TtFW) mobilized to NAVSTA to clean and demolish (implode) the USTs that comprised Tank Farm 4. As reported in various closure assessment reports (see itemized list below), the USTs were cleaned by presoaking the tanks with heated fuel oil followed by a heated caustic wash. The pump chambers associated with each UST were cleaned by flushing the interior pipe before removal, pipe removal, and then washing the pipe surface with high pressure hot water diluted with an industrial degreaser. The cleaned USTs were inspected by RIDEM.

<u>Tank Farm 5</u>

In 1995, OHM cleaned the USTs at Tank Farm 5 using methods similar to those used at Tank Farm 4. From March through December 1998, Foster Wheeler Environmental Corporation (now TtFW) mobilized to Tank Farm 5 to remove the ballast water from within the previously cleaned USTs, implode the USTs (including USTs 53 and 56), and demolish the pump chambers associated with each UST (*Final Project Close-Out Report - Tank Farm 5 Demolition*, Foster Wheeler Environmental Corporation, May 6, 1999). After cleaning, the USTs were inspected by RIDEM.

For details of the field operations and site conditions during the UST implosion, refer to the reports cited below.

Closure Assessment Reports for Tank Farm 5, Halliburton NUS, 1995.

Process Piping and Closure Assessment Report for Tank Farm 5, Brown and Root, October 1995.

Tank Closure Certification Report and Tank Closure Assessment Report Summary for Tanks 53 and 56 at Tank Farm 5, NETC Newport, OHM, September 1996.

Closure Assessment Report: Tank Farm 4, NETC Newport, Brown & Root, October 1997.

Final Tank 37 Closure Assessment Report, Foster Wheeler Environmental Corporation, January 28, 1999.

Final Tank 38 Closure Assessment Report, Foster Wheeler Environmental Corporation, January 28, 1999.

Final Tank 39 Closure Assessment Report, Foster Wheeler Environmental Corporation, January 28, 1999.

Final Tank 40 Closure Assessment Report, Foster Wheeler Environmental Corporation, January 28, 1999.

Final Tank 41 Closure Assessment Report, Foster Wheeler Environmental Corporation, January 28, 1999.

Final Tank 43 Closure Assessment Report, Foster Wheeler Environmental Corporation, January 28, 1999.

Final Tank 44 Closure Assessment Report, Foster Wheeler Environmental Corporation, January 28, 1999.

Final Tank 45 Closure Assessment Report, Foster Wheeler Environmental Corporation, January 28, 1999.

Final Tank 46 Closure Assessment Report, Foster Wheeler Environmental Corporation, January 28, 1999.

Final Tank 47 Closure Assessment Report, Foster Wheeler Environmental Corporation, January 28, 1999.

Final Tank 48 Closure Assessment Report, Foster Wheeler Environmental Corporation, January 28, 1999.

Final Project Close-Out Report - Tank Farm 5 Demolition, Foster Wheeler Environmental Corporation, May 6, 1999.

2.6.2.3 Shunt and Process Piping (Loop and BSW) Assessment

Tank Farm 4

The shunt piping from the individual pump chambers to the former USTs, previously sampled by Halliburton NUS Corporation (see Section 2.6.1.1 of this work plan), was pressure washed and demolished (see various closure assessment reports for individual tanks). However, the Navy cannot confirm whether the remaining shunt piping (from UST pump chambers to process piping) and the process piping (fuel piping or BSW piping) were removed and/or assessed via sampling.

Tank Farm 5

Most of the Tank Farm 5 shunt and process piping (loop and BSW piping) was previously sampled and removed by Brown & Root under subcontract to OHM, as indicated by the Process Piping and Closure Assessment Report for Tank Farm 5 (Brown & Root, October 1995). Figures 2-1 and 3-1 (Brown & Root, October 1995), provided herein in Attachment 3, identify the piping that was sampled and closed in place. Piping and valves inside and outside the CT chambers were closed in place, which means that the pipes and valves were dismantled, removed from the chambers, the interior of the piping that intersected the chambers (loop piping and shunt piping) was cleaned, and a welded pipe cap was installed on each cleaned pipe entrance into the CT chamber (Brown & Root, October 1995). For the piping that did not intersect with chambers, closed in-place means that the pipe was cleaned and then welded pipe caps were installed at the point where the piping was accessed for cleaning. Soil samples were collected from areas where pipe removal occurred. As shown in Attachment 3, TPH concentrations that exceeded 500 parts per million (ppm) were observed in three samples collected from the loop piping (LS-58, LS-58-duplicate, LS-59, and LS-60) in between UST 50 and A-19 (Brown & Root, October 1995) and from the UST 58 shunt piping (LS-62). The Navy is currently proposing land use controls for this area.

All process piping from CT-53 to A-19 moving in a clockwise direction (including the shunt to UST 52) was closed in place and was not sampled.

The shunt piping associated with UST 51 was closed in place and was sampled.

The shunt piping associated with UST 56 was removed and sampled.

The shunt piping associated with UST 53 was removed but the Navy cannot confirm that sampling was conducted.

The 6-inch BSW line associated with USTs 53 and 56, which runs clockwise (see Attachments 2 and 3) from the approximate location of CT-53 (but doesn't intersect with CT-53) to the approximate location of A-19 (but doesn't intersect with A-19) was closed in place and was not sampled.

The 8-inch BSW line (this line connects to the 6-inch BSW line associated with USTs 53 and 56) that runs from the vicinity of A-19 (but doesn't intersect with A-19) and runs to the oil/water separator was drained, cleaned, flushed, and closed in place but was not sampled.

The 4-inch BSW line that runs from A-19 to the oil/water separator/burn pit was drained, cleaned, flushed, and closed in place but was not sampled.

The Process Piping Closure Assessment Report (Brown and Root, October 1995) indicates that the 4-inch (from UST 49 to UST 50) and 6-inch BSW lines (from UST 50 to the oil/water separator) that join the 8-inch BSW line, which runs to the oil/water separator, was cleaned but was not sampled.

2.6.2.4 Pump Chamber (UST) and Pipe Chamber (Process Piping) Demolition

Tank Farm 4

During the tank cleaning activities, the pump chambers associated with each UST were exposed and all soils associated with the removed piping and exposed pump chambers were visually screened using a flame-ionization detector (FID), see various tank closure reports submitted by Foster Wheeler Environmental Corporation (now TtFW). No FID readings exceeded the applicable screening criteria and the soil was re-used on-site as backfill.

During implosion of the USTs, the concrete pump chambers associated with each UST were cleaned and demolished (Tank Farm 4 Video Site Activity Documentation). The Navy cannot confirm if the pipe chambers associated with the process piping were assessed via sampling.

Tank Farm 5

With the exception of A-18, CT-51, CT-52, CT-53, and CT-56 at Tank Farm 5, the chambers associated with the shunt and loop piping at Tank Farm 5 were cleaned and demolished (Brown & Root, October 1995). Chamber ceilings and sidewalls were demolished to a minimum of 1-foot bgs. Holes were punched through the floors to ensure the structures would be free draining and the concrete rubble was used as backfill for these locations.

In 2000, the Navy partially demolished valve chambers A-18, CT-51, CT-52, CT-53, and CT-56 and sampled the soils around these former structures. The rubble resulting from the demolition was used as backfill and portions of the chamber are still present. The Navy also made an attempt to investigate the drainage from these chambers (refer to the Final Construction Completion Report for Fuel Line Closure, Naval Station Newport, prepared by Foster Wheeler Environmental Corporation (now TtFW), June 2001). Contamination in excess of the applicable criteria was observed at CT-53, CT-56, and A-18.

2.6.3 2003 Global Positioning System (GPS) Surveys

TtFW personnel conducted a field survey of the USTs and RAs at Tank Farms 4 and 5 on October 6, 2003 and October 8, 2003 using a Trimble Geo XT and a Trimble Pro XRS GPS field instrument with submeter accuracy. Most of the centers of the former USTs were easily located because concrete center monuments were placed when the USTs were demolished. Many of the RAs at each tank farm were also located but some were not accessible due to extremely heavy brush and vegetation. Tables 2-3 and 2-4 identify the USTs and RAs located and the respective Northings and Eastings as indicated by the GPS field instrument.

Table 2-3
Tank Farm 4 Coordinates Surveyed October 2003

Easting	Northing	UST/RA
USTs		
557359.78	175882.736	UST 37 Center Monument
556997.597	175834.603	UST 38 Center Monument
556829.526	175522.314	UST 39 Center Monument
556482.336	175419.327	UST 40 Center Monument
556362.272	175080.643	UST 41 Center Monument
557254.778	175540.949	UST 42 Center Monument
557057.391	175236.916	UST 43 Center Monument
556718.314	175108.735	UST 44 Center Monument
557601.819	175450.599	UST 45 Center Monument
557405.262	175135.924	UST 46 Center Monument
557073.867	174873.937	UST 47 Center Monument
556726.74	174747.144	UST 48 Center Monument
Review Areas		
Attempt was not made to locate		Groundwater Monitoring Well MW-10
Attempt was not made to locate		Groundwater Monitoring Well MW-11
Not accessible due to heavy brush		Ruin #1-Former Oil/Water Separator Corners
Not accessible due to heavy brush		Ruin #2-Former Oil/Water Separator Corners
Not accessible due to heavy brush		Storage Shed Corners
Not accessible due to heavy brush		Substation Northeast Corner
Not accessible due to heavy brush		Substation Northwest Corner
556744.453	175657.672	Substation Southeast Corner
556717.579	175647.205	Substation Southwest Corner
Not accessible due to heavy brush		Transformer Vault Northeast Corner
Not accessible due to heavy brush		Transformer Vault Northwest Corner
556494.535	175840.338	Transformer Vault Southeast Corner
556482.888	175828.135	Transformer Vault Southwest Corner

Table 2-4
Tank Farm 5 Coordinates Surveyed October 2003

Easting	Northing	UST/RA
USTs		
553869.467	170137.232	UST 49 Center Monument
Not located- center monument not observed		UST 50 Center Monument
553241.463	170011.804	UST 51 Center Monument
552878.675	170049.187	UST 52 Center Monument
Attempt was not made to locate (remediated)		UST 53 Center Monument
553634.153	169860.583	UST 54 Center Monument
553332.143	169656.499	UST 55 Center Monument
Attempt was not made to locate (remediated)		UST 56 Center Monument
553923.372	169643.036	UST 57 Center Monument
553613.476	169428.823	UST 58 Center Monument
Not located- center monument not observed		UST 59 Center Monument
Review Areas		
553125.34	170603.357	Former Oil/Water Separator Northwest Corner
Not accessible due to heavy brush		Former Oil/Water Separator Northeast Corner
553181.802	170589.615	Former Oil/Water Separator Southeast Corner
553134.986	170581.115	Former Oil/Water Separator Southwest Corner
553120.581	169925.25	Substation 10 Northwest Corner
553132.958	169913.667	Substation 10 Northeast Corner
Not accessible due to heavy brush		Substation 10 Southeast Corner
Not accessible due to heavy brush		Substation 10 Southwest Corner
552604.702	170027.09	Transformer Vault Northwest Corner
552621.033	170017.965	Transformer Vault Northeast Corner
552610.795	170001.07	Transformer Vault Southeast Corner
552595.126	170009.532	Transformer Vault Southwest Corner

3.0 OBJECTIVE AND GENERAL DESCRIPTION OF SITE INVESTIGATION

At each tank farm, the investigation will focus on three areas: 1) Investigation for potential sludge pits about the perimeter of five selected USTs: 2) Investigation of process piping (fuel and BSW) that has not been previously assessed: and 3) Investigation of RAs.

The objective of this site investigation is to determine if contamination associated with sludge pits, process piping, or RAs exists at levels that exceed the site remediation goals. If a reasonable removal action cannot be conducted to remove the contamination, the Navy will first determine whether additional investigations are necessary to support a human health risk assessment. A separate work plan would be developed in order to complete any additional investigations and/or a human health risk assessment.

3.1 UST Testpitting

This site investigation will seek to resolve the conflicting information regarding the purported practice of burying tank bottom sludge in trenches or disposing of it on the ground in the vicinity of the USTs at Tank Farms 4 and 5. An investigation consisting of testpitting, field screening for TPH, possible laboratory analyses for TPH, SVOCs, and VOCs, and possible soil removal followed by confirmatory sample collection will be conducted about the perimeter of five USTs at each tank farm (Tank Farm 4 – USTs 40, 42, 44, 45, and 48; Tank Farm 5 – USTs 49, 50 (slop tank), 51, 54, and 58). These tanks were mutually selected for investigation by all members at the April 7, 2004 meeting. Section 5.8 of this work plan describes the investigation in further detail.

3.2 Process Piping (BSW and Fuel Piping)

Process piping and associated pipe chambers at each tank farm that have not been previously investigated will be sampled during this investigation. Section 5.9 of this work plan describes the pipeline investigation in further detail. In addition, at Tank Farm 5, the areas associated with previously demolished chambers CT-53, CT-56, and A-18 will be investigated.

3.3 RA Investigation

A file review conducted by RIDEM, USEPA, and the Navy on November 26, 2002 revealed various drawings of the tank farm facilities over the years dating back to their construction in the 1940's. After review of the drawings, RIDEM, USEPA, and the Navy jointly identified various RAs of environmental interest that were/are located in the geographic areas of Tank Farms 4 and 5. Tables 3-1 and 3-2 summarize the RAs at each tank farm to be investigated, the planned investigative methods including exploratory sample quantities and/or removal methods, contaminants of concern (COC), analytical methods, and references to Navy drawings where the RAs can be found. The RAs identified in Tables 3-1 and 3-2 are shown on Figures 2-2 and Figures 2-3. The tables and later sections of this work plan describe the investigation of each RA in further detail.

Table 3-1
Tank Farm 4 RAs and Process Piping: Investigatory Approach, Sample Quantities, COC, Rationale, and Supporting Information

Tank Farm 4	Description	Has Structure Been Field-Surveyed? (Y/N)	Investigatory Approach	Analytes	Approx. # of Samples	Rationale	Supporting Information
Review Areas							
Transformer Vault-including discharge location		Y	● 6 soil samples (4 from structure perimeter, 1 inside conduit, 1 at conduit discharge location). ●1 concrete chip sample for laboratory analyses.	PCBs & chlorinated benzenes	7	● PCBs are COC because they are associated with transformers. ● Chlorinated benzenes are COC to identify carrier oils for PCBs.	● Navy Historical Drawings #638210 & #18161-188.
Ruin #1 (20-ft x 20-ft x 8-ft), Discharge Pipe*, Discharge Location*, and downstream of discharge location if contamination is found at discharge point	Also believed to be a burn chamber/burn pit (co-located with oil/water separator)	N	● Demolish and remove structure. ● After removal, 1 sidewall sample will be collected every 20-lf for each 5-ft depth. ● After removal, 1 base sample will be collected for every 100-ft^2. ● 1 sample will be collected from the discharge location. ● All samples will be field screened using decision-making protocol identified in Flowchart #1. ● Discharge piping will be camera-inspected to determine if sludge exists in pipeline. If no sludge exists the pipeline will be abandoned in place. If sludge exists, the pipeline will be jet-sprayed and the material will be collected and disposed off-site. ● If the camera inspection identifies cracked or new piping, the soil in the vicinity of these areas will be sampled to determine if a release occurred.	TPH, SVOCs, Dioxins & Furans * See the plan for qualifiers regarding the sampling at the discharge point and downstream of the discharge point	● Structure & discharge location ~ 29 ● Discharge line - unknown	● All sidewall and base samples will be collected for dioxins and furans, SVOCs, and TPH analyses but the dioxin/furan samples collected from the sidewalls will be frozen and not be immediately analyzed unless the sidewalls samples contain SVOCs or TPH in excess of the other applicable criteria.	● The following Navy Historical Drawings cite a "Ruin", "Burn Chamber", "Burn Pit", and/or "Oil/Water Separator" in locations that indicate the structures are co-located: #18161-188 (ruin), 627336 & 627297 (burn pit), 638210 & 638081 (burn chamber), oil/water separator-(TRC RI, 1992-Appendix B, Aerial Photo Summary-August 31, 1959 Facility Map). ● Navy historical drawings #627297 & 638081 identify a discharge pipe from Ruin #1 to Norman's Brook. ● See TRC RI 1992 Report (Figure 2-27), 6 sediment samples were collected from Normans Brook. Sediment sample data did not indicate any evidence of a release associated with oil/water separators/burn pits. Samples were not taken directly at the discharge location for Ruin #1 so the Navy agreed to collect one sample from the immediate area of the Ruin #1 discharge line.
Ruin #2 (20-ft x 10-ft x 8-ft), Discharge Pipe*, and Discharge Location*	Believed to be a former oil/water separator constructed to treat the water generated from UST 41 ring drain system	N-vegetation too dense	● Demolish and remove structure. ● After removal, 1 sidewall sample will be collected every 20-lf for each 5-ft depth. ● After removal, 1 base sample will be collected for every 100-ft^2. ● 1 sample will be collected from the discharge location. ● Discharge piping will be camera-inspected to determine if sludge exists in pipeline. If no sludge exists the pipeline will be abandoned in place. If sludge exists, the pipeline will be jet-sprayed and material collected and disposed off-site. ● If the camera inspection identifies cracked or new piping, the soil in the vicinity of these areas will be sampled to determine if a release occurred.	TPH & SVOCs * See the plan for qualifiers regarding the sampling at the discharge location	● Structure and discharge location ~ 11 ● Discharge line - unknown		● Ruin 2 is identified on Navy Drawing #18161-188. ● The TRC RI 1992 Report (Figure 2-27) shows the discharge pipe from Ruin #2 into Gomes Brook. ● See TRC RI 1992 Report (Figure 2-27), 6 sediment samples were collected from Normans Brook. Sediment sample data did not indicate any evidence of a release associated with oil/water separators/burn pits. Samples were not taken directly at the discharge location for Ruin #2 so the Navy agreed to collect one sample from the immediate area of the Ruin #2 discharge line.
Substation-including discharge location		Y	● 7 soil samples (4 from structure perimeter, 1 inside conduit, 1 at conduit discharge location, 1 from crawl space underneath structure). ●1 concrete chip sample for laboratory analyses.	PCBs & chlorinated benzenes	8	● PCBs are COC because they are associated with substations. ● Chlorinated benzenes are COC to identify carrier oils for PCBs.	● A 1954 copy of Navy Drawing #627297 contains an identifier of "Elec. Sub" in handwriting.
2 Storage Sheds		N	● A metal detector will be used to locate the foundation or a possible UST associated with these sheds. ● If the metal detector doesn't assist in locating a foundation or an UST, the Navy will use GIS and aerial photographs to locate the former locations of these buildings. ● A total of 4 samples (2 from each bldg) will be collected.	lead	4		● RIDEM produced a 1945 Navy drawing that referred to the sheds as "Buoy Incubator Sheds" and requested they be investigated. ● Navy Drawing #627297 and PW Drawing #9762-104 identify these drawings as "Storage Sheds". The Navy has reviewed available historic documentation, including discussions with the Navy historian at Portsmouth Naval Shipyard, and has found no reference to any structure(s) referred as a Buoy "Incubator" Sheds. From review of the TRC 1992 Phase I Remedial Investigation Report (Appendix B, Historical Map and Photo Survey – June 30, 1950 Facility Map), two large structures were labeled as Bldgs 210 and 211 near the entrance to Tank Farm 4 south of the access road. These two buildings have been identified as storage buildings per a 1950 Naval Station Newport building inventory list
Tank Farm 4 Fenceline		Y	● 5 surface soil samples will be collected.	TPH, PCBs, lead, and SVOCs (SVOCs includes chlorinated benzenes)	5	● The TRC RI Report (1992) that contains the soil gas data identifies various reasons why interpretation of the data is difficult (see Supporting Information). However, the Navy will collect 5 samples for laboratory analysis to assess if oil was used as a herbicide.	● When reviewing data from the TRC RI 1992 Report, it is apparent that: 1) The change in field conditions (mainly precipitation) on individual sampling days did not allow for a consistent set of data for "an apples to apples comparison" of the concentrations across the spectrum of samples. 2) At some site locations, samples were collected at shallow depths and at other areas of the site, samples were collected at deeper depths. These depth variations make comparison of soil gas results from one location to another uncertain. 3) Since the soil gas samples were collected from just above the water table the soil gas data collected is most likely measuring the VOCs contamination present in the groundwater. The results of the soil gas measurements potentially do not provide data on the level of contamination in the soil or at depth for those areas where the groundwater table is well below the ground surface. ● Based on the soil gas concentrations and accessibility issues, it was determined that the TF4 east fenceline would be sampled.
Groundwater Well Sampling:		N	1 sample to be collected from each well (there are 2 wells).	TPH and lead	2		As part of the Remedial Investigation, the Navy sampled MW-10 and MW-11 (adjacent to Defense Highway). The groundwater at this tank farm is classified by RIDEM as GA. Groundwater samples obtained from MW-10 indicate that the GA groundwater objective for lead was exceeded at 27.2 ppb (estimated value). Therefore both wells will be sampled for lead.
Process Piping							
5600-lf of Process Piping	Including former valve pits and piping from the main loop to the oil/water separator	N	● A metal detector will be used to locate the piping (if the metal detector is unsuccessful, drawings will be used). ● A testpit will be constructed to confirm the presence and depth of the piping. ● 1 subsurface soil sample will be collected every 50-lf. ● The Petroflag screening protocol outlined in Flowchart #1 will be used to determine the investigative approach.	TPH,VOCs, and SVOCs	113 Petroflag	● Direct-push sampling of the shunt piping was performed by Halliburton NUS (1995 Preliminary Closure Assessment Report of Tank Farms 4 and 5) and the results are provided in Table 2-1 of this Work Plan.	

Table 3-2
Tank Farm 5 RAs and Process Piping: Investigatory Approach, Sample Quantities, COC, Rationale, and Supporting Information

Tank Farm 5	Description	Has Structure Been Field-Surveyed? (Y/N)	Investigatory Approach	Analytes	Approx. # of Samples	Rationale	Supporting Information
Review Areas							
Transformer Vault-including discharge location		Y	● 6 soil samples (4 from structure perimeter, 1 inside conduit, 1 at conduit discharge location). ● 1 concrete chip sample for laboratory analyses.	PCBs & chlorinated benzenes	7	● PCBs are COC because they are associated with transformers.● Chlorinated benzenes are COC to identify carrier oils for PCBs.	●Navy Historical Drawings #638210, #18161-188, #994207 (also marked 18151-188).
Former Oil/Water Separator (35-ft x 35-ft x 8-ft), Discharge Pipe*, Discharge Location*, and downstream of discharge location if contamination if found at the discharge point	Also believed to be a former burn chamber/burn pit (co-located with oil/water separator).	Y	● Demolish and remove structure. ● After removal, 1 sidewall sample will be collected every 20-lf for each 5-ft depth. ● After removal, 1 base sample will be collected for every 100-ft^2. ● 1 sample will be collected from the discharge location. ● All samples will be field screened using decision-making protocol identified in Flowchart #2. ● Discharge piping will be camera-inspected to determine if sludge exists in pipeline. If no sludge exists, the pipeline will be abandoned in place. If sludge exists, the pipeline will be jet-sprayed and the material will be collected and disposed off-site. ● If the camera inspection identifies cracked or new piping, the soil in the vicinity of these areas will be sampled to determine if a release occurred.	TPH, VOCs, SVOCs, PCBs, Dioxins/Furans, and Metals * See the plan for qualifiers regarding the sampling at the discharge point and downstream of the discharge point	● Structure and discharge location ~ 29 ● Discharge line - unknown	● SVOCs will serve as a release indicator. ● Dioxins and furans were included as a by-product of PCB incineration. ● Sidewall and base samples will be collected for dioxins and furans, SVOCs, TPH, PCBs, VOCs, and metal analyses. However, only the base dioxin/furan sample will be immediately analyzed. The sidewall samples for dioxin and furan analysis will be frozen and will only be run for the dioxin and furan analysis if the samples collected from the sidewalls contain exceedences of the other applicable criteria.	● The following Navy Historical Drawings cite a "Burn Chamber/Burn Pit" and/or "Oil/Water Separator" in locations that indicate the structures are co-located and that the terms burn chamber and burn pit were used interchangeably: # 638210 & 627299 (burn chamber), #627343 (identifies the "burn chamber" as a "burn pit"), oil/water separator-(TRC RI, 1992-Appendix B, Aerial Photo Summary-June 30, 1950 Facility Map, August 31, 1959 Facility Map). ● Navy historical drawing #627383 states that the discharge pipe from the burn pit empties into Gomes Brook. ● The TRC Remedial Investigation Technical Report, Volume 1, 1992 (Table 4-26) contains the results of 5 surface soil samples that were collected in Gomes Brook downgradient from the structure for TPH and lead analysis.The data did not indicate any evidence of a release. Samples were not taken directly at the discharge location so the Navy agreed to collect one sample from the immediate area of the oil/water separator discharge line.
Substation 10-including discharge location		Y	● 6 soil samples (4 from structure perimeter, 1 inside conduit, 1 at conduit discharge location). ●1 concrete chip sample for laboratory analyses.	PCBs & chlorinated benzenes	7	● PCBs are COC because they are associated with substations. ● Chlorinated benzenes are COC to identify carrier oils for PCBs.	● Navy historical drawings #994207 (PWC 18151-188), 11317-140.
Tank Farm 5 Fenceline		Y	● 5 surface soil samples will be collected.	TPH, PCBs, lead, and SVOCs (SVOCs includes chlorinated benzenes).	5	● The TRC RI Report (1992) that contains the soil gas data identifies various reasons why interpretation of the data is difficult (see Supporting Information). However, the Navy will collect 5 samples for laboratory analysis to assess if oil was used as a herbicide.	● When reviewing data from the TRC RI 1992 Report, it is apparent that: 1) The change in field conditions (mainly precipitation) on individual sampling days did not allow for a consistent set of data for "an apples to apples comparison" of the concentrations across the spectrum of samples. 2) At some site locations, samples were collected at shallow depths and at other areas of the site, samples were collected at deeper depths. These depth variations make comparison of soil gas results from one location to another uncertain. 3) Since the soil gas samples were collected from just above the water table the soil gas data collected is most likely measuring the VOCs contamination present in the groundwater. The results of the soil gas measurements potentially do not provide data on the level of contamination in the soil or at depth for those areas where the groundwater table is well below the ground surface. ● Based on the soil gas concentrations and accessibility issues, it was determined that the TF5 east fenceline would be sampled.
Process Piping							
Tank Farm 5 Piping* (not previously evaluated) ~ 3,350-lf	● Samples will be skewed to include former valve pits. ● Process piping from CT-53 to A-19 (clockwise). ● UST 52 shunt piping. ● UST 53 shunt piping. ● Fuel piping from A-19 to the tank farm boundary. ● The 24-inch line from the TF5 property line to CT-53.	N	● A metal detector will be used to locate the piping (if the metal detector is unsuccessful, drawings will be used). ● A testpit will be constructed to confirm the presence and depth of the piping. ● 1 subsurface soil sample will be collected every 50-lf. ● The Petroflag screening protocol outlined in Flowchart #1 will be used to determine the investigative approach.	TPH,VOCs, and SVOCs	67 Petroflag	● Sampling of the pipe trenches after pipe removal at Tank Farm 5 revealed the presence of low-level petroleum contamination in the vicinity of USTs 50 and 58. The Navy feels this area has been adequately assessed and no further investigation is planned. The Navy will propose land use controls to address these locations.	● Tank Farm 5: The Process Piping Closure Assessment Report, Tank Farm 5, prepared by Brown & Root Environmental (October 1995), states that from May to August 1995 all the loop and shunt piping at Tank Farm 5 was cleaned and removed and the pipe trenches sampled for TPH every 30 feet with the exception of the piping planned for investigation in the work plan. ● In 2000, the Navy cleaned and pressure tested the main fuel line, which runs parallel to the loop piping extending from chamber A-19 to chamber CT-53 (refer to the Final Construction Completion Report for Fue Line Closure, Naval Station Newport, prepared by Foster Wheeler Environmental Corporation and dated June 2001) but the loop piping between A-19 and CT-53 was abandoned in-place and was not assessed.
Tank Farm 5 BSW Piping (not previously evaluated) ~ 2,050-lf	● 6-inch BSW piping from vicinity of CT-53 to A19 (clockwise direction). ● 4-inch and 8-inch BSW piping from A19 to oil/water separator.	N	● A metal detector will be used to locate the piping (if the metal detector is unsuccessful, drawings will be used). ● A testpit will be constructed to confirm the presence and depth of the piping. ● 1 subsurface soil sample will be collected every 50-lf. ● The Petroflag screening protocol outlined in Flowchart #2 will be used to determine the investigative approach.	TPH,VOCs, SVOCs, PCBs, metals	41 Petroflag	● Soil probes will be advanced to a depth of 8 feet for every 50 linear feet of loop piping extending from chamber A-19 to chamber CT-53 including the BSW line from A-19 to the oil/water separator. Samples will be collected for TPH field screening from 4 to 6 feet and 6 to 8 feet bgs at each soil probe location.	

4.0 REGULATORY AUTHORITY

The activities identified in this work plan seek to satisfy the requirements of *RIDEM Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (amended February, 2004), RIDEM UST Regulations (October 2002) and Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Regulations*.

4.1 Future Land Use and Site Remediation Goal

Historically, this area has been used for industrial/commercial purposes. The proposed future use of the area will be restricted recreational use because the area is intended to be redeveloped into a golf course for use by Navy personnel only. However, as requested by RIDEM, the RIDEM Residential Direct Exposure Criteria of 500 ppm TPH will be the designated site remediation goal associated with the testpitting around the perimeter of the USTs and the process piping. The RIDEM residential direct exposure criteria for SVOCs and VOCs will be applied to the testpitting investigation as well. The RIDEM residential direct exposure criteria will be applied to other potential COC associated with the RAs. In the event that RIDEM has not established and published residential criteria for individual COC associated with the investigation identified in this work plan, the USEPA Region 9 Residential Preliminary Remediation Goals (PRGs) will be used as the screening criteria for these constituents.

5.0 SITE INVESTIGATION APPROACH

This section identifies the investigation and removal approaches for the potential sludge pits, process piping, and RAs. The equipment to be used during the site investigation will be identified as will the proposed testpit dimensions and locations, field-screening methodologies, sample collection techniques, laboratory analyses, backfilling operations, and final site closure requirements.

5.1 Work in Wetlands

During a meeting held on April 7, 2004 with the Navy, USEPA, and RIDEM, RIDEM indicated that no wetland permits are required for investigation activities or limited-scope removal actions in wetlands or wetland buffer zones if they are identified in RIDEM-approved work plans. Should larger more extensive removal actions than those identified in this work plan prove necessary, the Navy will coordinate with RIDEM.

Figures 5-1 and 5-2 identify the wetlands at each tank farm and the areas requiring clearing. These figures also identify the limited-scope removal actions, such as testpitting and oil/water separator removal, proposed inside wetlands and wetland buffer zones.

5.2 Field Activity Notification

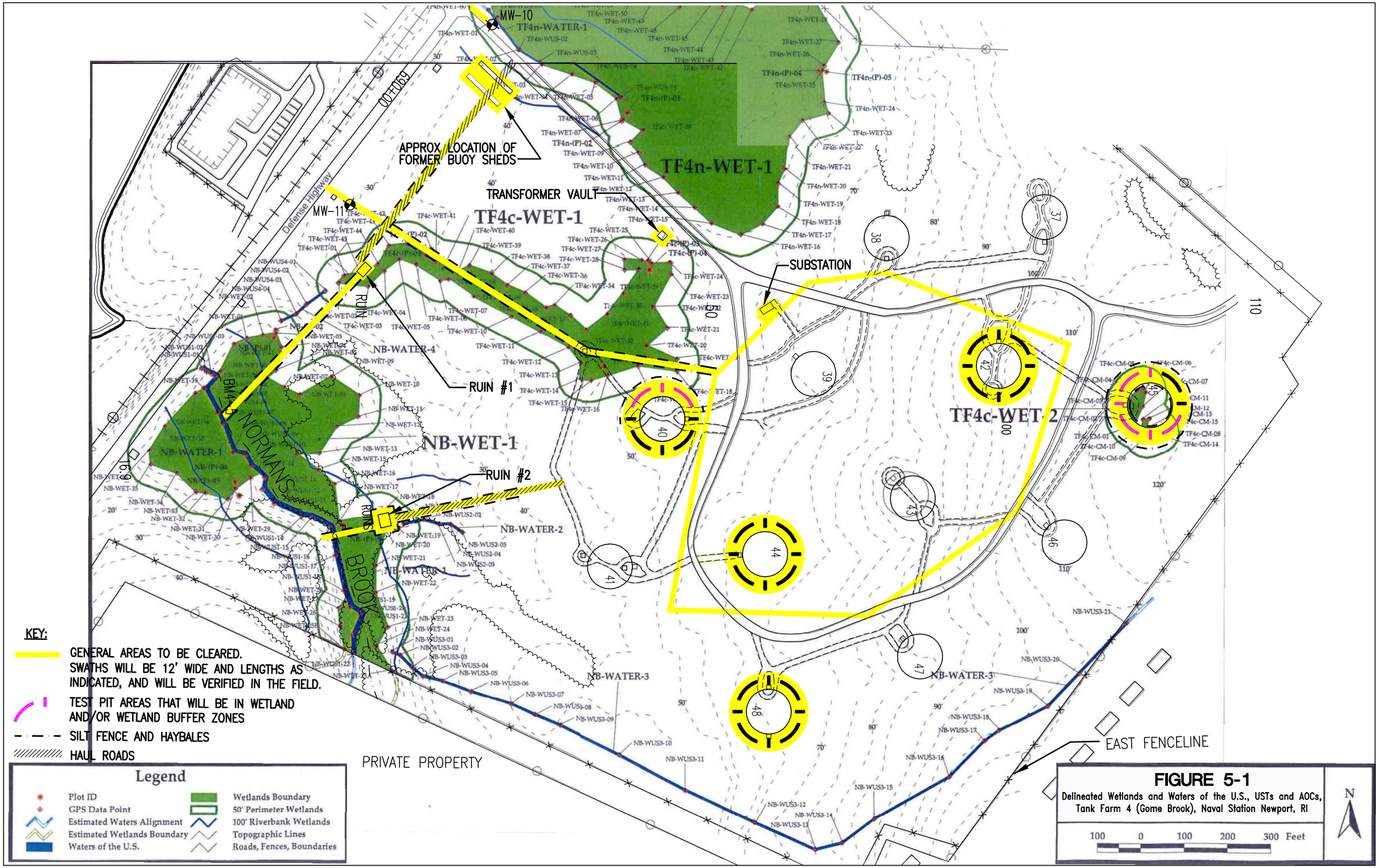
Beginning with mobilization and throughout field operations, on behalf of the Navy, TtFW will provide weekly e-mails to identify field activities to the appropriate personnel in the RIDEM Office of Waste Management and USEPA. Because unpredictable field conditions often result in dynamic field activities, the Navy (TtFW) will attempt to notify RIDEM and USEPA, via e-mail, of any changes to the weekly schedule of field activities 24-hours in advance of the changing schedule.

Weekly project status conference calls will also occur and regulatory participation is greatly encouraged and appreciated to allow discussion of field results and appropriate field activities. During the weekly project status meetings, , it is anticipated that the Navy, RIDEM, and USEPA will discuss the field results and appropriate field activities.

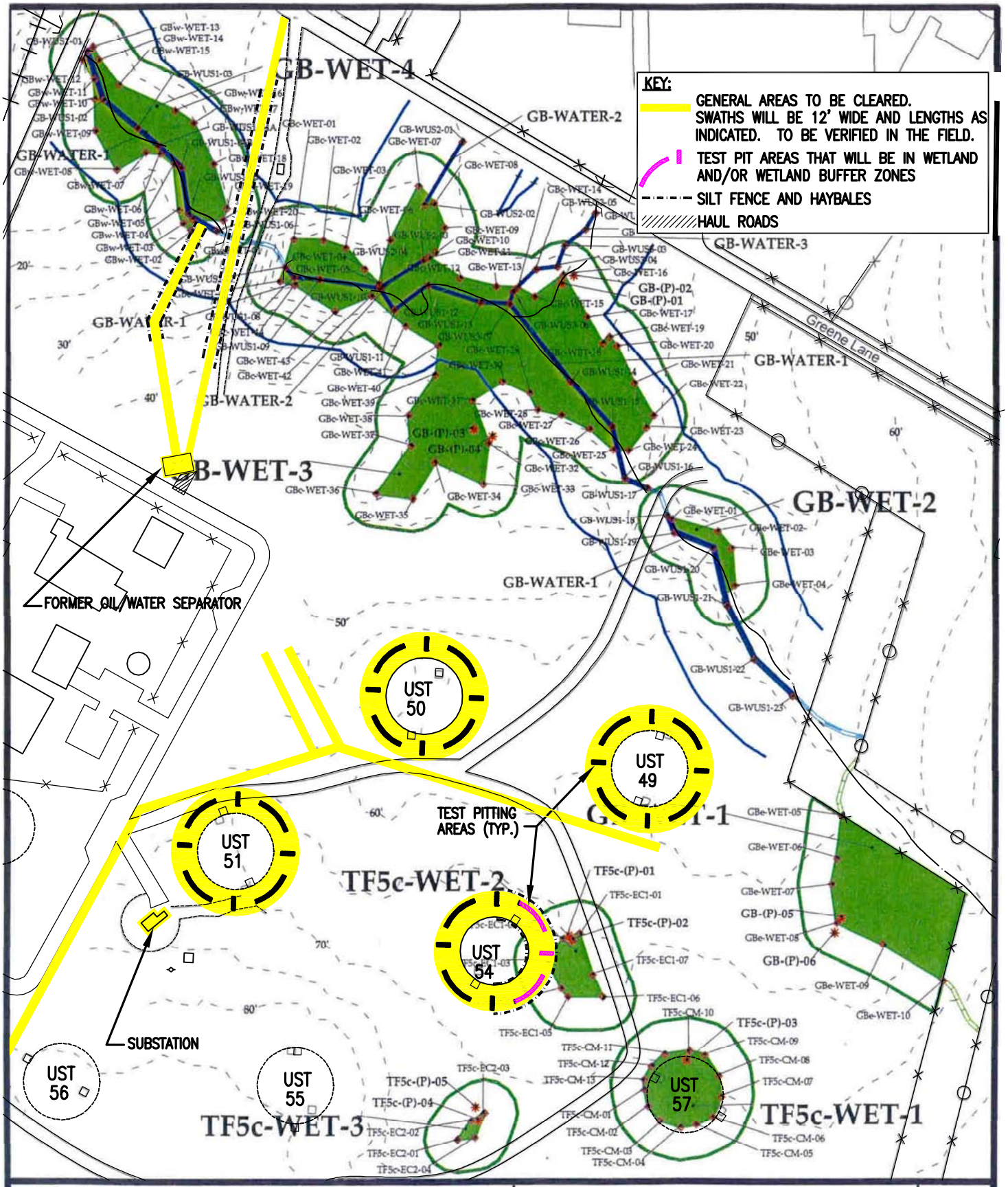
5.3 Mobilization

TtFW will mobilize the following to the site: a backhoe, an excavator, polyethylene sheeting, TPH Petroflag screening kits, sampling equipment such as a direct push rig and a photoionization detector (PID) for headspace screening, and field personnel. If adequate facilities that can be used as a site office currently exist near the site, TtFW may opt to use these facilities as a site office. Otherwise, TtFW will mobilize an office trailer and will supply electricity to it through the mobilization of a generator or through utility stub-ups that will be provided by the Navy. TtFW will establish phone service and sanitary facilities at the site.

Before any intrusive activities begin, TtFW will notify Dig Safe Mark-Out service to identify the location of subsurface utilities. TtFW will coordinate with the Navy Technical Representative (NTR) to obtain excavation permits that may be required by the Navy for excavation operations at the NAVSTA. During field activities, operations and existing field conditions will be photographed as necessary and as determined by the Project Superintendent.



CAD FILE: 1205_A006.DWG



Legend

- Plot ID
- GPS Data Point
- Estimated Waters Alignment
- Estimated Wetlands Boundary
- Waters of the U.S.
- Wetlands Boundary
- 50' Perimeter Wetlands
- 100' Riverbank Wetlands
- Topographic Lines
- Roads, Fences, Boundaries

FIGURE 5-2

Delineated Wetlands and Waters of the U.S., USTs and AOCs, Tank Farm 5 (Gome Brook), Naval Station Newport, RI

100 0 100 200 300 Feet

N

CADD FILE: 1205_A007.DWG

5.3.1 Site-Specific Health and Safety Plan

Before field operations, all Navy employees, subcontractors, and site visitors will be required to sign-off on the Site-Specific Health and Safety Plan (SHSP), which will be on-site available for their review. All individuals on-site will be expected and required to abide by the procedures identified in the SHSP. The on-site TtFW health and safety officer will hold daily health and safety briefings.

5.4 Clearing and Wetlands at Tank Farms 4 and 5

The site has re-vegetated significantly since the demolition of the USTs. The majority of vegetation at the site consists of scrub growth and a few small trees. During mobilization, TtFW will contract a clearing subcontractor to mobilize equipment that can clear a 40-ft swath around each of the 5 USTs to be investigated at each tank farm to facilitate testpitting. Swaths approximately 12-ft wide and varied in length will be cleared to enable heavy equipment and personnel access to the locations of the RAs as shown on Figures 5-1 and 5-2. A bulldozer may also be used to remove small shrubs and trees in select areas. The cleared material will be staged and will remain on-site or reused on-site if the material is needed by the NAVSTA.

The wetland areas are shown on Figures 5-1 and 5-2. The Navy prepared internal Storm Water Pollution Prevention Plans that identify the mitigation techniques that will be used during operations to maintain the integrity of the wetlands on-site.

5.5 Haul Roads

At each tank farm, haul roads will be established to accommodate heavy equipment, motor vehicle, and personnel access to RAs being investigated or removed. The anticipated haul road areas are shown on Figures 5-1 and 5-2. The roads will be constructed of geotextile fabric and ¾-inch dense graded aggregate and will include silt fence and haybales to control soil erosion and run-off. The haul roads will remain and will not be removed upon completion of the investigation and/or removal activities identified in this work plan.

5.6 Pre-Investigative GPS and Metal Detector Survey

A metal detector and a GPS field instrument will be used to locate features of interest to this investigation.

5.6.1 Tank Farms 4 and 5 Former Pump Chambers

After clearing, a metal detector will be used in the 40-ft swath/perimeter around each UST to be investigated to attempt to locate remnants of the former UST pump chambers. The pump chambers are of interest because it is presumed that sludge would be removed from the USTs through these devices and sludge pits, if they exist, would most likely be adjacent to these areas.

5.6.2 Tank Farms 4 and 5 Steel Burn Pits

A metal detector will also be used to attempt to locate steel plates that may have been used at Tank Farm 5 to line any burn pit(s) as cited in the Final Initial Assessment Study (NEESA, 1983). These burn pits are different from the burn pits co-located with the oil/water separators.

Although there is no documentation from previous investigations suggesting that burn pits with steel sides were constructed adjacent to the tanks at Tank Farm 4, per RIDEM request, a metal detector will be used to investigate the cleared swath/perimeter around the tanks selected for investigation at Tank Farm 4.

If steel sided pits are found at either tank farm, RIDEM and USEPA will be notified.

5.6.3 Tank Farms 4 and 5 Shunt and Process Piping to be Investigated

The location of shunt and process piping (fuel and BSW) will be approximated from existing Navy drawings and when necessary, a metal detector will be used to attempt to locate the piping planned for investigation at each tank farm. If the metal detector cannot signal the location of the subsurface piping, personnel will approximate the location of the piping from Navy drawings. Testpits will then be carefully excavated to expose the location and depth of the fuel and BSW piping. When found, the piping depth will be recorded.

Once all investigation areas are located, the methods described in Sections 5.7 through 6.0 will be used to assess these areas.

5.6.4 RAs

If, after clearing, the RAs that were not located during the October 2003 GPS field survey due to extensive vegetation cannot be found, a metal detector will be used to attempt to locate the former foundations (rebar) or metal devices (heating tanks, support steel, etc.) associated with each RA (if any exist). RAs that were not found during the October 2003 GPS Survey include:

- Tank Farm 4 Ruin #1, Ruin #2, two storage sheds, two groundwater monitoring wells
- Tank Farm 5 None (all RAs have already been located)

The approximate locations of these RAs will be triangulated from known locations on existing Navy drawings. The respective coordinates of these RAs will be programmed into the GPS field instrument and on-site personnel will navigate to these coordinates in the field.

When the structures are located, their actual coordinates will be recorded and logged into the GPS instrument. If the structure cannot be located, RIDEM and USEPA will be notified and the Navy and regulators will jointly decide upon an appropriate course of action.

5.6.5 Center of UST 50

USTs 40, 42, 44, 45, 48 and USTs 49, 50, 51, 54, 58 are planned for investigation. Of these, UST 50 was the only UST not located during the October 2003 survey. Therefore, after clearing, a field survey using a GPS field instrument with submeter accuracy will be conducted to locate the center monument of this former tank. The coordinates of UST 50 will be triangulated from the known coordinates of USTs that were field surveyed in October 2003. The triangulated coordinates will then be programmed into the GPS field instrument and on-site personnel will navigate to these coordinates in the field and mark the UST 50 centerpoint with a flag. The centerpoint located by triangulation will be field verified as the centerpoint, based on existing site features.

5.7 Decision Making Protocols

Petroflag field screening will be employed to obtain real time, approximate TPH concentrations in the field during the UST, process piping, and RA investigations. This section identifies where and when Petroflag screening samples will be collected and also identifies how the Petroflag field screening results will be used to make waste site clean-up decisions in the field. The decision-making protocols identify the decisions and conclusions that will be made based on the investigation area and based on different scenarios that may arise during the investigation. The decision-making protocols are identified in Section 5.11 and Section 5.12.

5.8 Testpitting Investigation Approach

USTs 40, 42, 44, 45, 48 at Tank Farm 4 and USTs 49, 50, 51, 54, 58 at Tank Farm 5 are planned for investigation. A total of 8 testpits will be constructed around the perimeter of each UST selected for assessment. The testpits will be oriented both perpendicular and parallel to each UST's former perimeter to increase the likelihood of intersecting a disposal trench, if any exist at Tank Farms 4 and 5. The diameter of each UST was roughly 119 ft so testpits will be spaced roughly at 25-ft intervals around each UST. The only available information on the size, shape, and orientation of an actual confirmed sludge pit is an October 15, 1979 RIDEM inter-office memo that contains a rough sketch of a sludge disposal trench that appears to be 15-inches deep and oriented perpendicular to a tank at Tank Farm 1.

Four perpendicular testpits will be 5-ft deep, 5-ft wide, and 20-ft long and 4 parallel testpits will be 5-ft deep, 5-ft wide, and 60-ft long. The predetermined length and depth of the testpits are intended to define an area where excavation would cease in an objective manner if no signs of contamination is observed. The planned perpendicular and parallel testpits will begin approximately 10-ft and 20-ft, respectively, from the former UST perimeter. This is because at Tank Farm 5, Foster Wheeler Environmental Corporation (now TtFW) previously testpitted approximately 5-ft beyond the perimeters of each UST (except UST 53 because the soils around UST 53 were previously remediated) prior to tank demolition. Generally, the testpits will be oriented as shown in Figures 5-3 and 5-4.

If during the post-clearing survey, the metal detector identifies the locations of the former pumping chambers, the 8 testpits will be skewed to ensure preferential coverage of the areas adjacent to these chambers. If the locations of the former pump chambers are not determined from the metal detector, their locations will be georeferenced using the UST center monument, aerial photographs, and GPS field instrumentation.

5.8.1 Field Screening of Unearthed Soil

For the purposes of this work plan, *unearthed soil* is defined as soil that is excavated to create a testpit.

During testpit construction, personnel will visually screen unearthed soil for signs of potential contamination, such as odor or staining. If, during testpit construction, no stained or odorous soil is encountered or observed in the unearthed soil, it will be staged adjacent to the testpits until a testpit depth of 5-ft has been reached. If odor or staining is noted in the unearthed soil, personnel will collect soil samples from this material for Petroflag screening and will expand the testpits as determined by field conditions encountered during the investigation. Unearthed soil will be staged adjacent to the testpit and may be segregated according to Petroflag screening results.

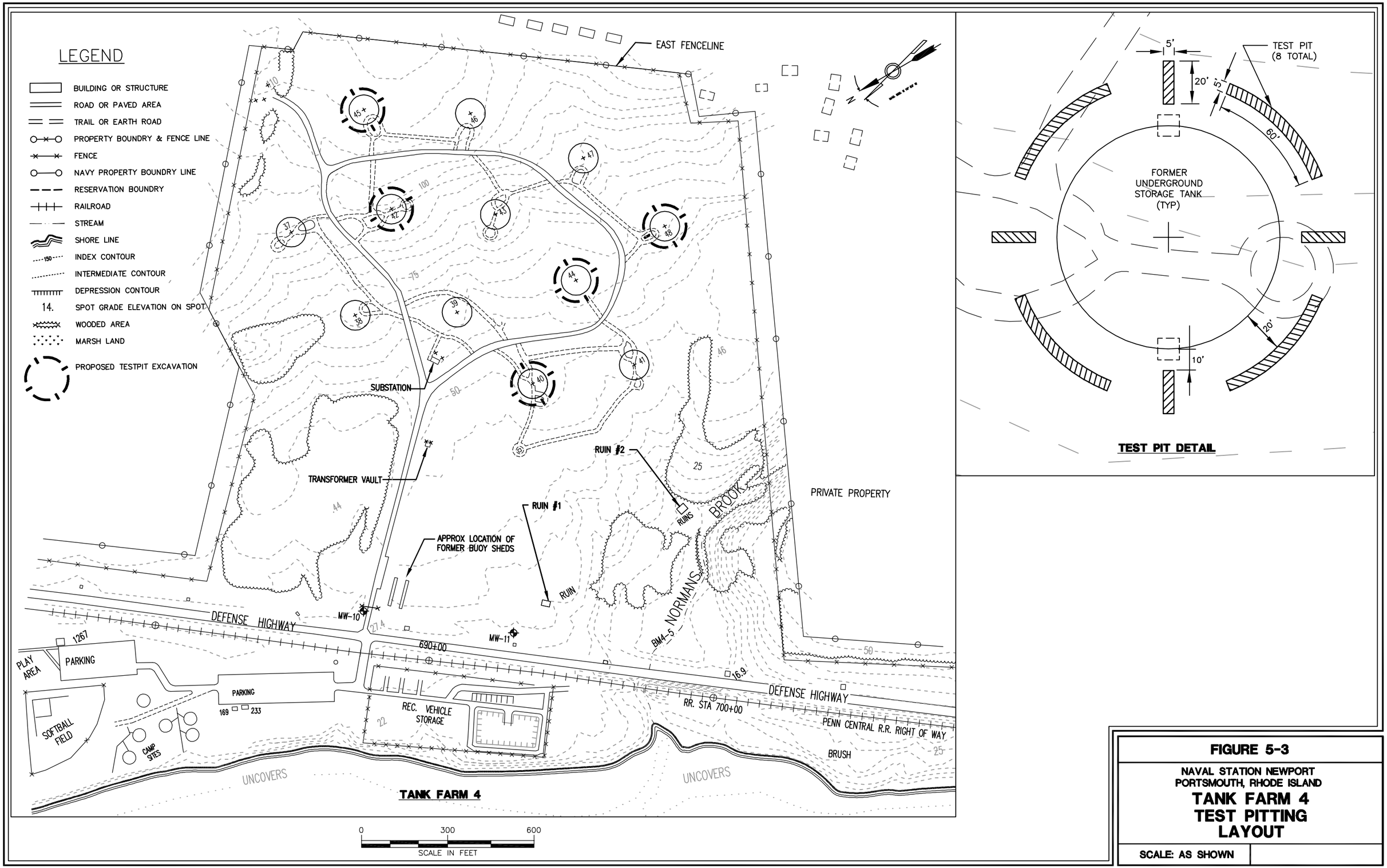


FIGURE 5-3

NAVAL STATION NEWPORT
PORTSMOUTH, RHODE ISLAND

TANK FARM 4
TEST PITTING
LAYOUT

SCALE: AS SHOWN

CAD FILE: 0841_A002-B2.DWG

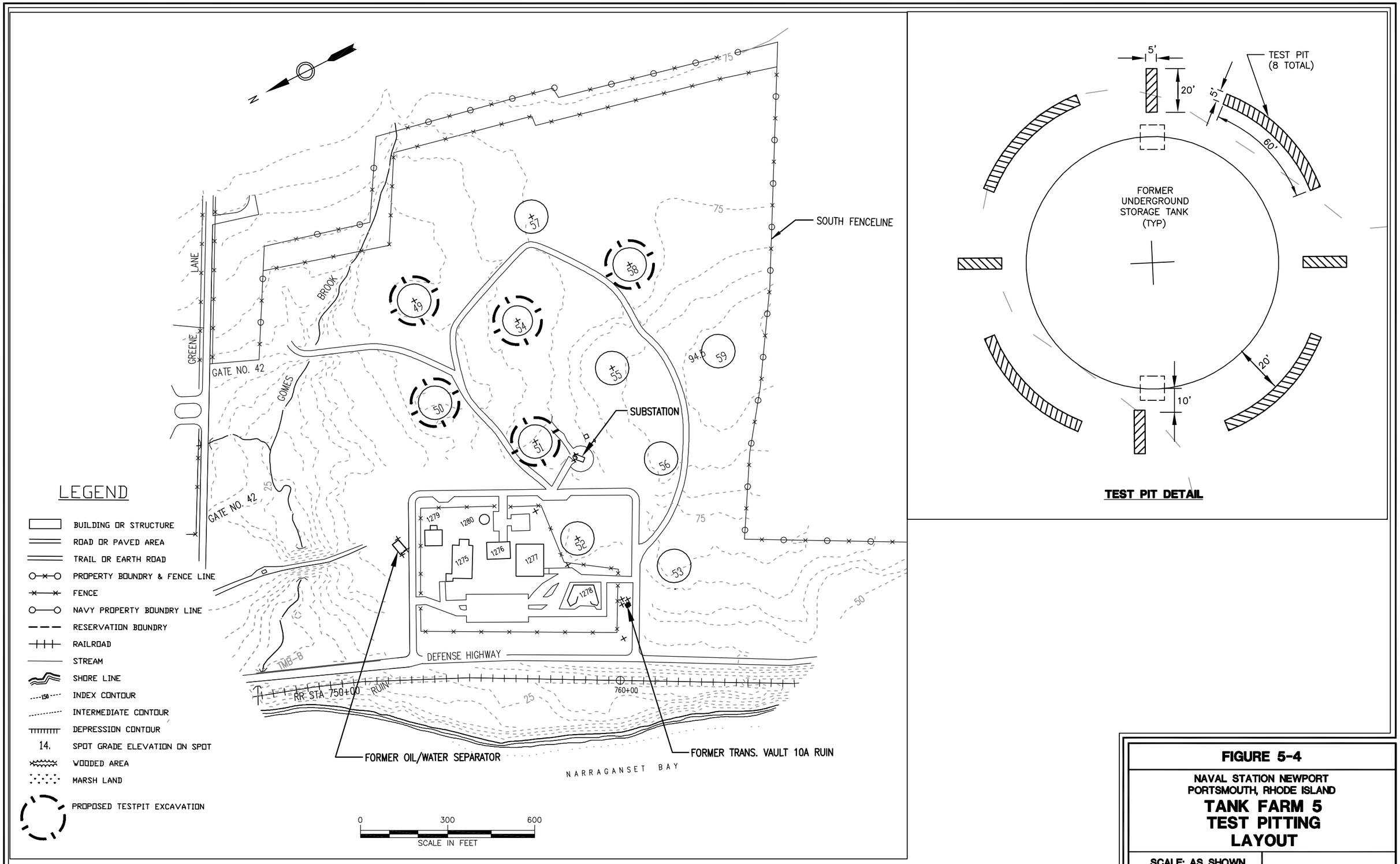


FIGURE 5-4

NAVAL STATION NEWPORT
PORTSMOUTH, RHODE ISLAND

TANK FARM 5
TEST PITTING
LAYOUT

SCALE: AS SHOWN

CAD FILE: 0841_A007-A.DWG

5.8.2 Petroflag Screening of Testpits

All Petroflag samples will be collected using the excavator bucket no personnel will enter the excavation. Field personnel will ensure that material that comes directly into contact with the bucket will not be collected. Instead, material that is 3-6 inches deep from the exposed surface of the soil in the bucket will be collected. If the excavations are left open, prior to sampling the soil, the material will be collected in a manner similar to that identified above with the exception that the soil will be collected from material that is 6-12 inches deep from the exposed surface of the soil in the bucket. The excavator bucket will be dry-brushed between sample collection, as appropriate.

5.8.2.1 Non-Stained and Non-Odorous Soil

Upon testpit completion to a 5-ft depth, the base and sidewalls will be visually screened for odors or staining. If no staining and no odors are noted, Petroflag screening samples will be collected as identified in Figure 5-5. For the perpendicular testpits (20-ft x 5-ft x 5-ft) a total of 4 Petroflag samples will be collected; 2 from the base and 2 from the sidewalls. For base samples, one sample will be collected at the headwall of the testpit, closest to the former UST perimeter, and one base sample will be collected at the 20-ft mark near the end of the testpit. One sample will also be collected from each 20-ft sidewall, approximately 5-7-ft horizontally offset from each other and approximately 1-ft vertically offset from each other. For the parallel testpits (60-ft x 5-ft x 5-ft), 4 equidistant base samples will be collected and one sample will be collected from each 60-ft sidewall. Sidewall samples will be collected approximately 20-ft from each headwall and approximately 1-ft vertically offset from each other (refer to Figure 5-5). If staining is observed or odorous areas are identified, samples will be preferentially collected from these locations.

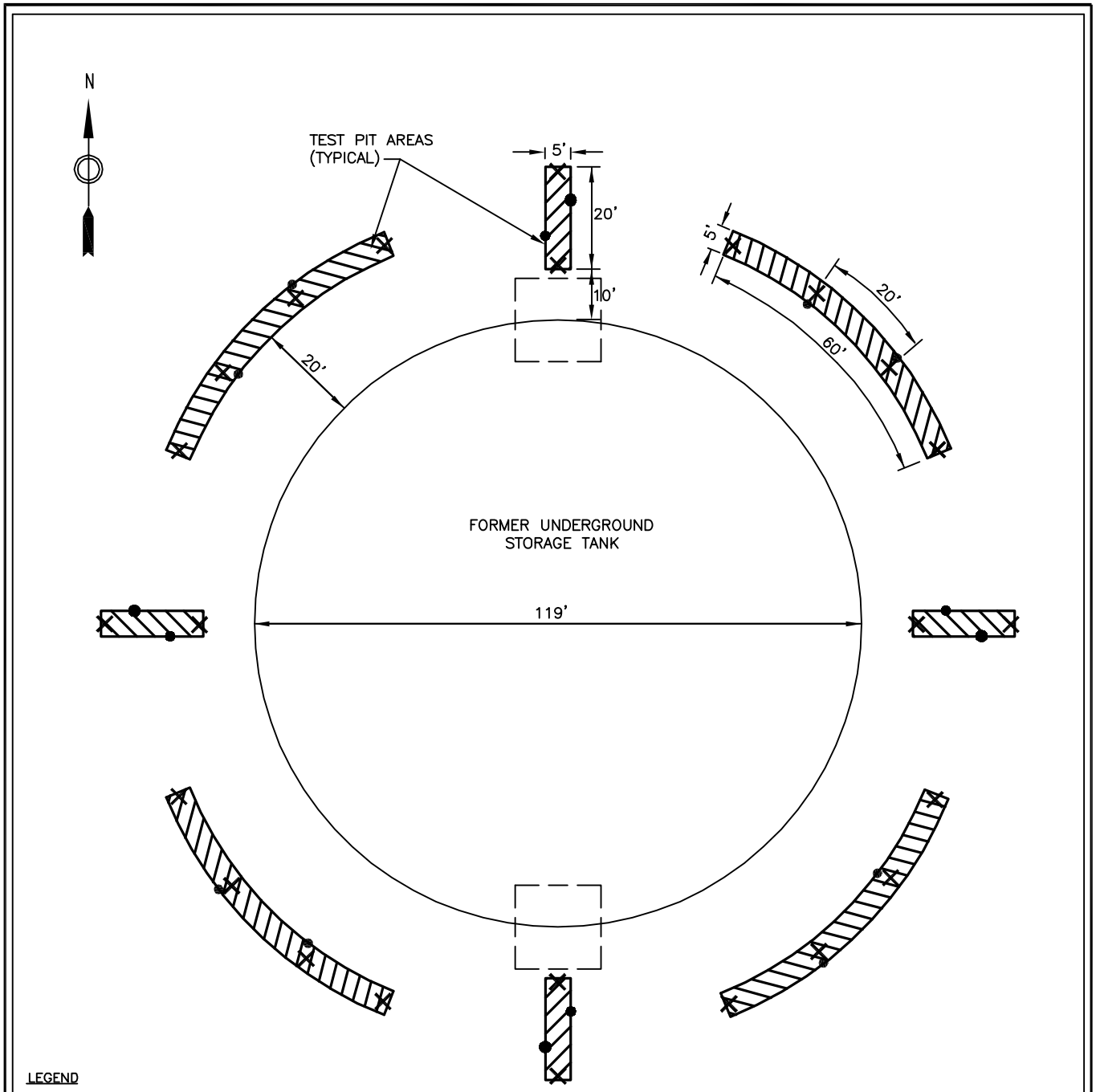
5.8.2.2 Stained or Odoriferous Soil in Testpit

When testpit construction has reached a 5-ft depth, the sidewalls and base will be visually inspected for staining or for odor. If staining or odors are noted, the same Petroflag sample collection protocol described above (a total of 4 Petroflag samples collected from the perpendicular testpits; a total of 6 Petroflag samples collected from the parallel testpits) will be employed. Samples will be preferentially collected from the stained or odorous areas as appropriate. However, a maximum of 4 and 6 samples will be collected for laboratory analysis from the perpendicular and parallel testpits, respectively.

If extensive staining indicative of a tangential or partial sludge disposal trench is encountered, the testpit will be extended in a manner to expose the sludge disposal trench. Once the sludge disposal trench is exposed, the most highly stained soil will be Petroflag field screened using the protocol identified in Flowchart #1 (see Section 5.11) and that process will be followed.

5.8.3 Expansion of Testpitting Protocol to Other Tank Farm USTs

If a sludge pit is found during the investigation of the 5 USTs selected at each tank farm, the UST testpit investigation outlined in this work plan will be expanded to the remaining USTs at the tank farm where the sludge pit was found. A contaminated area will be defined as a sludge pit if both analytical data and field observations, such as stained soil and the shape of the contaminated area, indicate an extensive volume of TPH contamination is present at levels that exceed the applicable criteria. The volume of material that constitutes “extensive” will be discussed during weekly project status meetings.



LEGEND

● PETROFLAG SIDEWALL SAMPLES (THE VERTICAL DISTANCE BETWEEN SIDEWALL SAMPLE DEPTH WILL BE APPROX. 1')

✕ PETROFLAG BASE SAMPLES

NOTE:

SAMPLING LOCATIONS TO BE USED AT THE FOLLOWING, WHERE NON-STAINED NON-ODIFEROUS SOIL IS OBSERVED IN TEST PITS:

TANK FARM 4: FORMER USTs 40, 42, 44, 45, 48.

TANK FARM 5: FORMER USTs 49, 50, 51, 54, 58.

0 30 60

SCALE IN FEET

FIGURE 5-5

NAVAL STATION NEWPORT
PORTSMOUTH, RHODE ISLAND

PETROFLAG TESTPIT SAMPLING LOCATIONS

SCALE: AS SHOWN

CADDFILE: 0841_A011-E.DWG

5.9 BSW and Fuel Piping

Drawings provided in Attachment 2 (627336 and 627343) indicate some BSW and fuel piping are located relatively close to each other and a separate, distinct BSW line are located further away. The fuel and BSW piping that is relatively close to each other will be sampled as one line if it has not already been assessed. If the distinct BSW line is located within 4 ft from the fuel and BSW piping (in close proximity to each other), the sampling for the fuel/BSW line will also serve to assess the soil adjacent to the distinct BSW line. The sampling identified below will occur in the space between the fuel/BSW piping and the distinct BSW piping, as feasible, to assess both lines in as cost-effective a manner as possible. If the distinct BSW line exists at a location that is at a distance that is too great for one sample to adequately assess both pipes or these pipelines are located at different depths, then separate investigations, following the protocols identified below, will occur for each line. If the Navy feels that a single sample is adequate to characterize pipes more than 4 feet apart, the specific-site situation will be discussed with the regulators. The following pipelines have not been assessed to date or cannot be confirmed to have been previously assessed and will be investigated during this field effort.

<u>Tank Farm 4 Piping</u>

- Shunt piping (BSW and fuel) from the former UST pump chambers to the process piping
- BSW piping that connects to the discrete BSW line at Tank Farm 4, associated with USTs 42, 39, and 44.
- Process piping (loop and BSW piping)
- BSW piping between CT E-21 and Ruin 1
- The discrete BSW piping associated with USTs 37, 39, 40, 41, 42, 44, and 48
- Fuel piping from the main line along Defense Highway to the Tank Farm 4 loop

<u>Tank Farm 5 Piping</u>

- Fuel piping from CT-53 to A-19 (clockwise direction, see Attachment 3)
- UST 52 shunt piping
- UST 53 shunt piping
- Fuel piping from A-19 to the northern tank farm boundary (to main pipeline adjacent to Defense Highway)
- 6-inch BSW piping associated with USTs 53 and 56 (runs in a clockwise direction from the vicinity of CT-53 to vicinity of A-19, see Attachment 3)
- The 8-inch BSW piping that connects the 6-inch piping associated with USTs 53 and 56 to the oil/water separator
- The 4-inch BSW piping from A-19 to the oil/water separator
- The 4-inch BSW piping associated with USTs 51 and 52 that were abandoned in place but were not assessed
- The 4-inch BSW piping associated with USTs 53 and 54 that were removed but were not assessed
- The 4-inch BSW piping associated with UST 56 (the Navy cannot confirm if this pipe was removed or assessed)
- The 4-inch and 6-inch BSW lines that run from UST 49 and UST 50 to the 8-inch BSW line that runs to the oil/water separator
- The separate, distinct 4-inch BSW pipe outside the main loop piping
- The 24-inch line from the southern Tank Farm 5 property line to CT-53. Property line will be determined by review of drawings and field observations

- Soil with TPH concentrations greater than the applicable clean-up goal will be removed and disposed from CT-53, CT-56, and A-18. The soil and rubble associated with these previously demolished chambers will be removed, characterized, and properly disposed

The methods by which the above pipelines will be assessed are identified below.

5.9.1 Investigation Approach for All Tank Farm 4 Piping to be Investigated, Tank Farm 5 Fuel Piping from CT 53 to A-19, Tank Farm 5 4-inch BSW from A-19 to Oil/Water Separator, Tank Farm 5 Fuel Line from A-19 to the Main Pipeline, Tank Farm 5 6-inch BSW Line from UST 49 to the 8-inch BSW Line that Runs to the Oil/Water Separator, and Tank Farm 5 24-inch Fuel Line to Southern Property Boundary

After the location and depth of the piping has been determined, the decision-making protocol identified in Flowchart #1, described in Section 5.11, will be used to assess the following pipelines:

- All Tank Farm 4 piping to be investigated
- Tank Farm 5 fuel piping from CT-53 to A-19
- UST 52 shunt piping
- UST 53 shunt piping
- Tank Farm 5 fuel piping from A-19 to the northern tank farm boundary (to main pipeline adjacent to Defense Highway)
- Tank Farm 5 4-inch BSW line from A-19 to oil/water separator
- Tank Farm 5 24-inch line from the southern Tank Farm 5 property line to CT-53
- Soil associated with CT-53, CT-56, and A-18

Geoprobe samples will be collected for Petroflag screening at 50-ft intervals at depths that correspond with the piping depths. The piping depths are anticipated to be approximately 5-8-ft bgs. Upon identification of the piping, a testpit will be dug to expose the piping and the actual depths of the piping will be identified and recorded. One 2-ft core sample will be collected from the appropriate interval that corresponds with the actual buried depth. Samples will be skewed towards the locations of the former chambers and discharge points (if any) for any drain lines, and therefore, the 50-ft interval may be slightly modified. If any discharge points are identified and are located at appreciable distances from the chambers, samples will be collected every 50 lf along the discharge line and the discharge locations will also be sampled. The potential COC that will be analyzed for are identified in Flowchart #1.

5.9.2 Investigation Approach for Tank Farm 5 4-inch BSW Piping Associated with USTs 51, 52, 53, 54 and 56, the 4-inch and 6-inch BSW Piping in a Separate Loop Outside of Main Loop (this line will also be flushed), and the 8-inch BSW Line to the Oil/Water Separator

After the location and depth of the piping has been determined, the decision-making protocol identified in Flowchart #2, described in Section 5.11, will be used to assess the following piping:

- Tank Farm 5 4-inch BSW Piping Associated with USTs 51, 52, 53, 54 and 56
- Tank Farm 5 4-inch and 6-inch BSW Piping in a Separate Loop Outside of Main Loop (this line will also be flushed)
- Tank Farm 5 8-inch BSW Line to the Oil/Water Separator

Because the Navy cannot confirm that the BSW piping outside the main loop was not used during the time that waste oil was stored at Tank Farm 5, samples will be analyzed for the COC identified in Flowchart #2. A 2-ft geoprobe sample will be collected for Petroflag screening at 50-ft intervals at the same depth as the piping and samples will be skewed towards the locations of the former valve chambers

and discharge points for any drain lines. If the discharge points of the valve chambers are located at appreciable distances from the chambers, the discharge locations will also be sampled.

5.9.3 Tank Farm 5 Pipe Chamber and Soil Removal

The rubble of the demolished pipe chambers CT-53, CT-56, and A-18 and any remaining portions of the chambers (foundation, etc) will be removed. Soil located underneath these former chambers will be removed, stockpiled, and sampled for waste characterization. The decision-making protocol identified in Flowchart #2, see Section 5.11, will be used to assess the chamber areas. The concrete, rebar, and rubble will be properly disposed off-site.

5.10 Tank Farm 4 and 5 RA Investigation and Former Oil/Water Separator Removal

Exploratory samples or Petroflag screening samples will be collected from the RAs at Tank Farms 4 and 5 to assess present conditions at these locations. The RAs at Tank Farms 4 and 5 to be investigated are shown on Figures 2-2 and 2-3, respectively. The RAs located within wetlands and wetland buffer zones are shown in Figures 5-1 and 5-2 (all RAs are shown on Figures 2-2 and 2-3). Tables 3-1 and 3-2 identify the contaminants of concern at individual RAs based upon the former use of the structures.

The remediation proposed for Ruins #1 and #2 at Tank Farm 4 and the former oil/water separator at Tank Farm 5 is identified in Section 5.10.3 to Section 5.10.6 of this work plan. If the samples collected from the other RAs investigated in this field effort exceed the applicable criteria for the COC identified in Tables 3-1 and 3-2, a work plan amendment will be developed to identify the activities to address the transformer vaults, substations, storage sheds, fencelines, and groundwater monitoring wells.

If additional potential RAs not identified within this work plan are discovered during this investigation, the Navy will immediately notify the regulatory agencies.

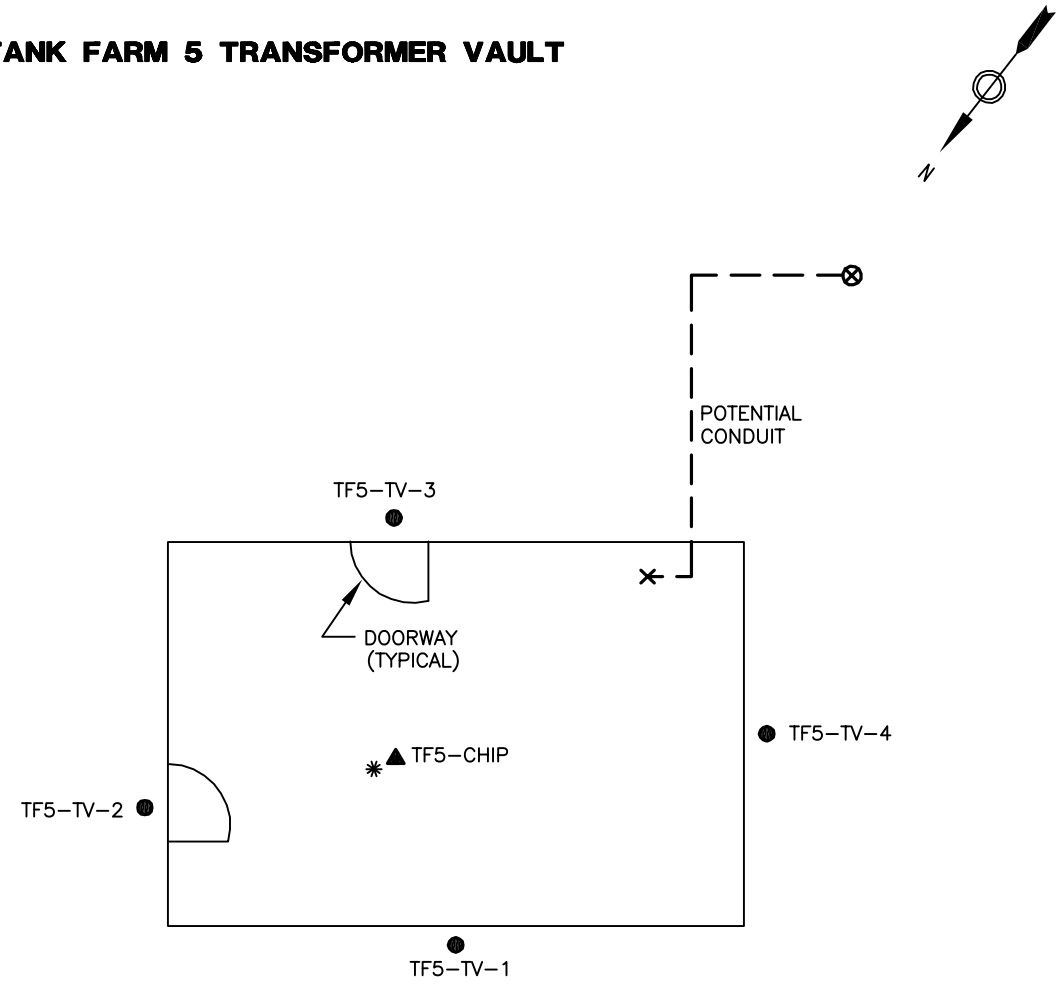
5.10.1 Tank Farms 4 and 5 Transformer Vaults and Substations

Direct push sampling using a hollow stem auger (HSA) or a geoprobe rig will be used to collect exploratory soil samples from the perimeters of the transformer vaults and substations at Tank Farms 4 and 5. One sample will be collected from just outside of each of the structure's sidewalls for a total of four soil cores collected from the perimeter of each structure. Samples will be preferentially collected alongside doorways as shown in example Figure 5-6. The sampling depth will be 0-2 ft. Field personnel will visually screen the sample for staining and will note any odor. Within each core, if stained or odorous areas are identified, the most highly stained or highly odorous portions will be collected for laboratory analysis and the depth will be noted.

If no staining or odor are noted and the area appears to be undisturbed, field personnel will collect one portion of the core that is located within the top 0-6 inches and a second portion of the core from 6-12 inches. If no staining or odor are noted and disturbance is evident or cannot reasonably be determined, soil will be collected from the 0-6 inch interval and the 6-24 inch interval of the 2-ft core. Each discrete sample will be sent off-site for laboratory analysis.

In addition, using a hammer and a chisel, one concrete chip sample will be collected from inside each structure. The sample will be preferentially collected from a stained area, if present. If a floor drain or conduit exists in the structure, field personnel will attempt to retrieve one sediment sample from inside the conduit (if sediment is present). If a sediment sample cannot be collected from inside the conduit, a wipe sample of the inside of the conduit will be collected. Testpits or metal detectors may be used to determine the conduit discharge location. Once found, one surface soil sample will be collected from the discharge location using conventional means.

EXAMPLE: TANK FARM 5 TRANSFORMER VAULT



✳ IF AN OPEN CRAWL SPACE EXISTS UNDER THE TANK FARM 4 SUBSTATION, A SOIL SAMPLE WILL BE COLLECTED FROM THAT LOCATION.

LEGEND:

● PROPOSED SOIL SAMPLE

TF5–TV–1
- SAMPLE NUMBER
- REVIEW AREA
- TANK FARM #

▲ PROPOSED CHIP SAMPLE (TO BE FIELD DETERMINED)

× PROPOSED SEDIMENT SAMPLE (IF POSSIBLE)

⊗ PROPOSED SURFACE SOIL SAMPLE AT CONDUIT DISCHARGE

NOTE:
IF STAINED OR ODOROUS AREAS ARE IDENTIFIED, SAMPLES WILL BE PREFERENTIALLY COLLECTED FROM THOSE AREAS, WHICH CANNOT PRESENTLY BE SHOWN.

FIGURE 5-6

NAVAL STATION NEWPORT
PORTSMOUTH, RHODE ISLAND

- TANK FARMS 4 & 5 -
TRANSFORMER VAULTS AND SUBSTATIONS SAMPLING DETAILS

NOT TO SCALE

CADDFILE: 0841_A010.DWG

For Tank Farm 4, an additional surface soil sample will be collected using conventional means from the crawl space that reportedly exists underneath the Substation. All samples will be analyzed for the constituents identified in Tables 3-1 and 3-2.

5.10.2 Tank Farms 4 and 5 Fencelines

Five (5) surface soil samples will be collected from the south fenceline of Tank Farm 5 and five (5) surface soil samples will be collected from the east fenceline of Tank Farm 4. Field personnel will attempt to collect the samples from easily accessible areas at equidistant intervals along each fenceline. All samples will be analyzed for the potential COC identified in Tables 3-1 and 3-2. These locations will be investigated because soil gas data collected from these areas (see Table 3-1 and 3-2 Supporting Information) contained relatively high readings that may be indicative of potential contaminant concentrations. In addition, previous site walks indicated these fencelines were relatively accessible. Because the accessible areas, and therefore the actual sampling locations, are unknown at this time, they cannot be reasonably approximated with a figure.

5.10.3 Tank Farms 4 and 5 Former Oil/Water Separators

Ruins #1 and #2 at Tank Farms 4 are former oil/water separators. Ruin #1 accepted material from the BSW line and separated the oil and sediment from the water before discharging the water to Normans Brook, refer to Navy drawing entitled "Fuel Distribution System Area III Site Plan - (627297)" in Attachment 2. Ruin #2 is a former oil/water separator built in 1949 specifically to accept groundwater diverted from the UST 41 ring drain system (*Advance Planning Reduction of Hydrostatic Pressure on Underground Petroleum Tanks* [Navy District Public Works Office, August 1956]). The water was treated and then discharged to Normans Brook (see Figure 2-27 of the TRC Environmental Corporation Remedial Investigation Technical Report, Volume 1, 1992).

Due to heavy vegetation, field personnel could not locate Ruin #1 during the October 2003 site walk. A buried foundation was observed near the triangulated coordinates of Ruin #2 and is believed to be the former oil/water separator. Therefore, it appears the structure has been at least partially demolished. Ruins #1 and #2 at Tank Farm 4 will be located during this investigation and removed as identified in Section 5.10.4.

The former oil/water separator at Tank Farm 5 was identified and surveyed in October 2003. Although previous removal actions were conducted in December of 1993, the Tank Farm 5 oil/water separator will be removed as identified in Section 5.10.4.

5.10.4 Oil/Water Separator Removal

For all oil/water separators, the reinforced concrete and steel structures will be demolished, staged, and recycled or characterized and properly disposed off-site.

5.10.4.1 Sampling Chamber Material for Disposal

Ruin #1 at Tank Farm 4 (approximately 35-ft x 35-ft x 8-ft) is believed to have been backfilled with clean material. Therefore, material that exists in the bottom half of the eastern chamber will be sampled for characterization purposes.

For Ruin #2 at Tank Farm 4 (approximately 20-ft x 10-ft x 8-ft), any material existing within chambers or compartments of the separators will be removed, containerized or staged, and sampled for characterization purposes.

The former oil/water separator at Tank Farm 5 (approximately 35-ft x 35-ft x 8-ft) is believed to have contained material in its western chamber at the time it was abandoned so material will be collected from the west-most chamber for characterization.

5.10.4.2 Sampling and Decision-Making Protocols

For each structure, after structure removal, Petroflag field screening will be conducted on the excavation sidewalls and base to serve as an indicator of soil TPH concentrations. Field personnel will determine the appropriate point to employ the Petroflag field screening. One (1) sample will be collected per sidewall for every 20-lf in length per 5-ft sidewall depth. One Petroflag screening sample will be collected for every 100-ft^2 of base. All Petroflag samples will be collected using the excavator bucket no personnel will enter the excavation. Field personnel will ensure that material that comes directly into contact with the bucket will not be collected. Instead, material that is 3-6 inches deep from the exposed surface of the soil in the bucket will be collected. If the excavations are left open, prior to sampling the soil, the material will be collected in a manner similar to that identified above with the exception that the soil will be collected from material that is 6-12 inches deep from the exposed surface of the soil in the bucket. The excavator bucket will be dry-brushed between sample collection, as appropriate. If staining is observed or odor is noted, Petroflag screening samples will be preferentially collected from these locations. The Petroflag sample results will be used to determine if a removal action is appropriate and if so, how the removal action will proceed.

The decision-making protocol identified in Flowchart #4 (described in Section 5.12) is applicable to Tank Farm 4, Ruin #1. The decision-making protocol identified in Flowchart #3 (described in Section 5.11) is applicable to Tank Farm 4, Ruin #2. For the Tank Farm 5 oil/water separator, Flowchart #5 (described in Section 5.12) will be used.

If a removal action is conducted, confirmatory samples will be collected using the methods described in Section 5.14.

5.10.5 Former Oil/Water Separator Discharge Line Assessment and Potential Pipeline Removal

The discharge lines of the former oil/water separators will be investigated as identified below.

<u>Tank Farm 4 Ruin #1 & Tank Farm 5 Former Oil/Water Separator Discharge Lines</u>

For Ruin #1 at Tank Farm 4 and the Tank Farm 5 former oil/water separator, the downstream end of the discharge lines will be inspected with a camera to assess the integrity of the piping and to determine if sludge has accumulated in the piping. Inspection of the upstream end of the discharge pipe may not be possible because in accordance with safe engineering practices, no personnel will enter into the oil water separator excavation because it is expected to be greater than 4 ft deep and the sidewalls are not expected to be reinforced, sloped, or benched. Therefore, inspection of the upstream end may not be possible. If, by expending a reasonable effort, the upstream end of the discharge pipe can be inspected at the point where it intersects the excavation, it will be done.

If the camera inspection indicates the piping has been replaced or a break in the discharge line is evident, subsurface soil samples will be collected adjacent to these areas to identify if a release may or may not have occurred. These samples will be analyzed for the COC identified in flowcharts #4 and #5, respectively.

The investigation will proceed under the following three scenarios:

1. The piping is intact and appears to be free of sludge – no sampling will be conducted along the discharge pipe. The pipe will not be removed.
2. The camera inspection indicates the piping contains sludge. The pipe will be removed and sampled as indicated in Section 5.10.5.2.
3. The camera inspection indicates the piping is free of sludge but there is evidence of sections of breakage or sections of replacement piping – sampling will be conducted adjacent to breaks or the sections of replacement pipe as indicated in Section 5.10.5.1. The pipe will not be removed.

Tank Farm 4 Ruin #2

The discharge line for Tank Farm 4 Ruin #2 will be manually inspected with a flashlight and a rod to determine if sludge is observed in the piping. If sludge is observed, the line will be removed as indicated in Section 5.10.5.2, properly characterized, and disposed off-site. If no sludge is evident from the inspection, no sampling will be conducted and the discharge pipe will not be removed.

5.10.5.1 Sampling Along Discharge Pipe

If sections of the discharge pipe are damaged or appear to have been replaced, direct push sampling will be conducted adjacent to the replacement or damaged piping. If necessary, a metal detector will be used to identify the location of the subsurface discharge line. Once identified, a mini-excavator may be used to expose the discharge line and associated gate boxes. The depth and condition of the line and gate boxes will be recorded. A HSA rig will be used to collect subsurface samples that correspond to the depth of the buried piping along the appropriate areas adjacent to the discharge line and gate boxes. Section 5.10.10 identifies the HSA sampling protocol. Samples will be analyzed for the COCs identified in the appropriate flowchart.

5.10.5.2 Discharge Line Removal

If removal of the discharge line is required, a metal detector may be used to initially identify the location of the pipe and a mini-excavator will be used to expose the discharge line so removal may occur. The pipe will be removed in sections. Personnel will ensure that material inside the pipe is not released into the environment by sealing the ends of the sections before removal. After pipe removal, conventional sampling techniques will be used to collect samples at 50-ft intervals from material that existed underneath the piping. Sample locations will be skewed to ensure that the areas adjacent to any pipe breakage locations are assessed. The sample screening and potential removal actions will comply with the decision-making protocol identified in the flowchart that corresponds to the structure being investigated (Tank Farm 4 Ruin #1-Flowchart #4, Tank Farm 4 Ruin #2-Flowchart #3, Tank Farm 5 oil/water separator-Flowchart #5).

5.10.6 Former Oil/Water Separator Discharge Locations and Downstream of the Discharge Locations

One core sample will be collected directly at the former discharge location of each former oil/water separator, regardless of whether the respective discharge location is in the brook (Normans Brook for Tank Farm 4 and Gomes Brook for Tank Farm 5) or upgradient of the brook. A hand-held hollow stem coring device will be used to manually collect the samples. Section 5.10.11 identifies the manual core sampling protocol.

The former discharge locations will be identified. Petroflag field screening will be used to approximate the TPH concentrations in the sediment or soil at each discharge location.

- If Petroflag results >100 ppm, then one soil/sediment core sample will be manually collected. This sample will be analyzed for the COC identified in the appropriate flowchart that corresponds to the oil/water separator whose discharge location is being investigated.
- If Petroflag results are ≤100 ppm, then one soil/sediment core sample will be manually collected. The sample will be analyzed for only those COC whose criteria were exceeded in samples collected after removal of the former oil/water separator structure(s), if any.
- If contamination at the discharge location is confirmed to exist at concentrations that exceed the applicable criteria, additional samples (quantities to be determined in the field) will be collected downstream of the discharge point. Samples collected downstream of the discharge point will be analyzed for the COCs that exceeded the clean-up criteria at the discharge point.

5.10.7 Tank Farm 4 Drainage Swale

Historical drawings appear to show a streamlet, groundwater seep, or drainage swale in the area southwest of former UST 41 and northeast of Ruin #2. The Navy will search for the swale and contact RIDEM if it is located. If found, one conventional sample will be collected from the swale and laboratory analyzed for TPH. If the sample exceeds 500 ppm, then a second sample will be collected from the same location for laboratory analysis for SVOCs.

5.10.8 Tank Farm 4 Storage Sheds

These two former buildings were located immediately south of the entrance to Tank Farm 4 near Defense Highway. They could not be located during the October 2003 survey. Navy figure #627297 and Navy Public Works Drawing #9762-102 identify these buildings as "storage sheds." However, during the April 7, 2004 meeting at NAVSTA, RIDEM produced a 1945 Navy drawing that referred to the sheds as "Buoy Incubator Sheds." Because of the unusual name of the buildings, RIDEM requested sampling of these former buildings. A metal detector will be used to attempt to locate a foundation or a possible UST formerly associated with these buildings. If the metal detector is not successful in locating a foundation or an UST, the Navy will use Geographic Information System (GIS), aerial photographs, and drawings to attempt to locate the former locations of these buildings. Once the former footprint of the buildings are located, two conventional soil samples will be collected from each former building perimeter. The samples will be laboratory analyzed for lead.

5.10.9 Tank Farm 4 Groundwater Monitoring Well Sampling

The groundwater at Tank Farm 4 is classified by RIDEM as GA. Two groundwater monitoring wells, MW-10 and MW-11, were placed adjacent to Defense Highway in 1985 as part of the *Confirmation Study Report on Hazardous Waste Sites at Naval Education Training Center at Newport, RI*, submitted by Loureiro Engineering Associates, May, 1986. The wells were sampled and MW-10 contained lead concentrations of 27.2 parts per billion (ppb) (estimated value), which exceeded GA groundwater objective for lead.

TtFW personnel will attempt to locate these wells using their GPS coordinates and GPS field instrumentation or by using information on the general vicinity of where the wells were placed. If the wells are located and are still functional, TtFW will collect one groundwater sample from each well using low flow sampling methods or bailers. Before sample collection and during pumping, field personnel will observe the material pumped from the well, specifically looking for light non-aqueous phase liquids

(LNAPL). If LNAPL is observed, it will be recorded. One sample will be collected from each well. Samples will be analyzed for the potential COC shown on Table 3-1.

5.10.10 Geoprobe Sampling Protocol

Subsurface soils will be sampled for the parameters identified in Tables 3-1 and 3-2. One core sample will be collected per location. A direct push or HSA rig capable of collecting representative soil cores from depths that are within the range of 0-10-ft bgs will be used to collect the subsurface samples. Each sample, except the VOC sample (if required), will be collected in dedicated plastic sample sleeves, placed into a disposable aluminum pie pan, homogenized, and then apportioned into the appropriate sample jars for laboratory analysis.

A detailing of the procedure follows:

1. Sampling locations will be selected and marked with flags or another means, if appropriate.
2. A direct push or HSA rig will be used to collect the subsurface soil samples.
3. The sample will be placed into a disposable dedicated aluminum pie pan (except the VOC sample).
4. Soil will be homogenized in the pie pan using a dedicated disposable high density polyethylene (HDPE) scoop (except of the VOC sample).
5. The scoop will then be used to fill all sample containers.
6. Sample containers will all then be placed into a cooler with ice to attempt to cool the samples to 4°C as practical.
7. Remaining soil will be placed at the appropriate sample location as backfill. The pan, scoop, and syringe for each location will be disposed of as according to the site waste management rules.
8. Samples will be packaged in coolers with ice for transportation to the appropriate analytical laboratory.
9. A chain of custody will be completed and will accompany all samples.

The VOC sample(s) will be collected in dedicated plastic sample sleeves and then placed directly into the laboratory glassware/vials for analysis.

5.10.11 Manual Core Sampling Protocol

Core samples will be collected using a Shelby Tube or similar device. Core samples will be collected from the soil/sediment surface at 1-ft depth increments as practical. Field personnel will rely on previous sampling experience and field conditions to determine when refusal has been reached. More than one, 1-ft core sample may be taken for each sampling location if appropriate and necessary. Field personnel will make this determination. From each Shelby Tube core sample except VOC samples, a discrete sample will be generated for the appropriate analysis that will represent the depth over which the sample was collected. A grab sample will be collected directly from the Shelby Tube for VOC analysis, if required.

5.11 Flowcharts #1, #2, and #3 - Decision-Making Protocols

The decision-making protocols described in Flowcharts #1 - #3 will be used to determine if the investigation area may be considered clean, if samples need to be collected for off-site analysis, if the soil will be automatically considered TPH-contaminated (>500 ppm TPH), or if a removal action or additional investigations and/or human health risk assessment are warranted. Section 5.14 identifies how, where,

and under what conditions a confirmatory sample will be collected after a soil removal action has been conducted. If a removal action is not necessary, the unearthed soil will be used to backfill the testpit.

The following decision-making protocols will be used for the investigation area indicated:

- Flowchart #1: Decision-Making Protocol for Tank Farms 4 USTs, Tank Farm 5 USTs, All Tank Farm 4 Piping, Tank Farm 5 fuel piping from CT-53 to A-19, UST 52 and UST 53 shunt piping, Tank Farm 5 fuel piping from A-19 to the northern tank farm boundary, Tank Farm 5 4-inch BSW line from A-19 to oil/water separator, Tank Farm 5 24-inch line from the southern Tank Farm 5 property line to CT-53, Soil associated with CT-53, CT-56, and A-18
- Flowchart #2: Decision-Making Protocol for Tank Farm 5 4-inch BSW Piping Associated with USTs 51, 52, 53, 54 and 56, Tank Farm 5 4-inch and 6-inch BSW Piping in a Separate Loop Outside of Main Loop (this line will also be flushed), Tank Farm 5 8-inch BSW Line to the Oil/Water Separator
- Flowchart #3: Decision-Making Protocol for Tank Farm 4 Ruin #2

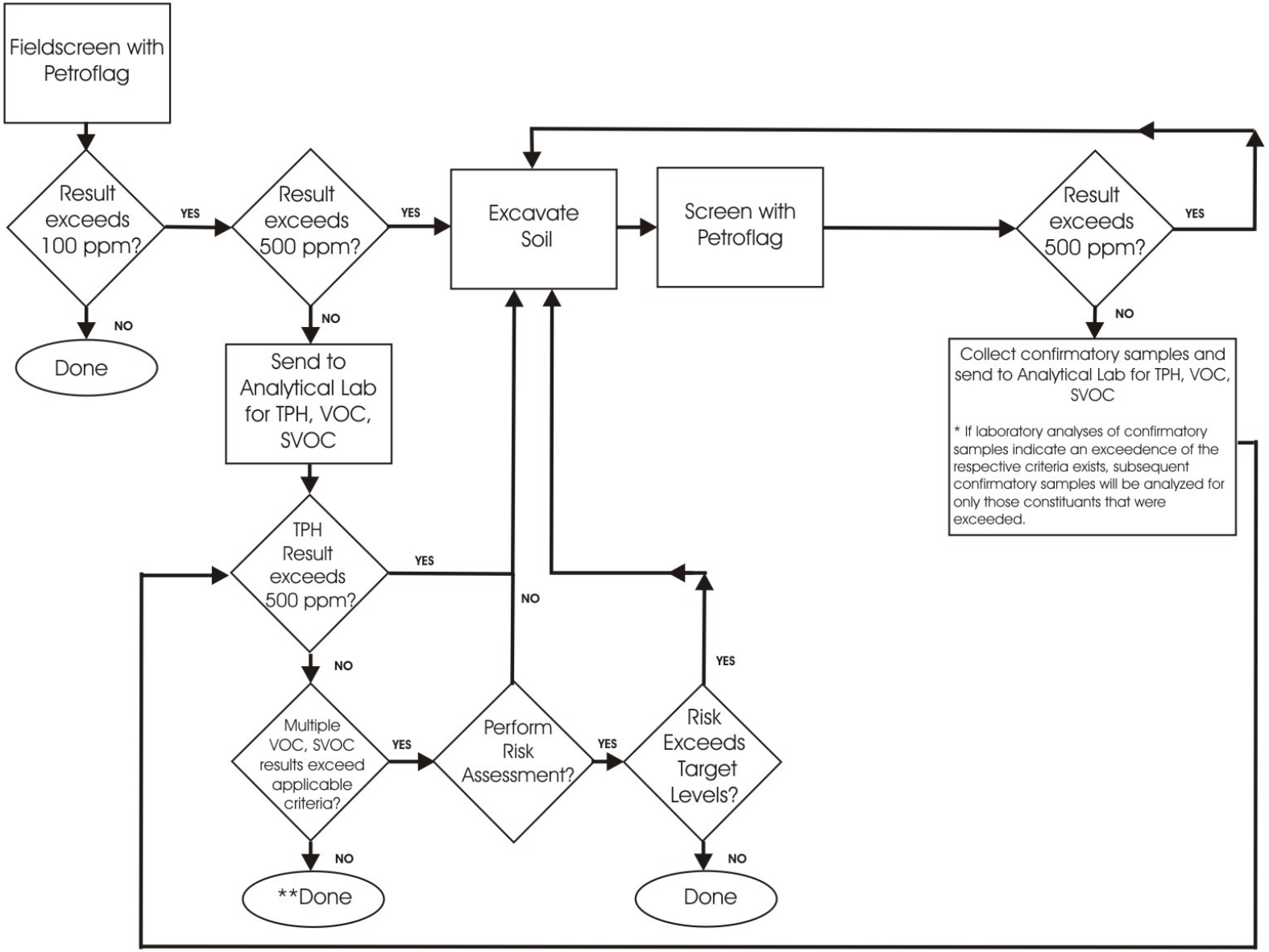
As shown in each respective flowchart, if Petroflag screening indicates that TPH concentrations are less than 100 ppm, the soil will automatically be regarded as uncontaminated and no removal action will be initiated. Unearthed soil will then be used to backfill the excavated area(s).

If Petroflag screening indicates TPH concentrations are greater than 500 ppm, a removal action will be initiated. Soil removal will continue as field personnel determine necessary. Upon completion of soil removal, Petroflag field screening will be used to determine if soil containing less than 500 ppm TPH has been reached. At this point, confirmatory samples will be collected using the methods described in Section 5.14 and analyzed for the potential COC identified in each respective flowchart

If laboratory analyses of confirmatory samples identify COC concentrations in excess of the applicable criteria, soil removal will continue as field personnel determine necessary. Petroflag screening will then be conducted followed by confirmatory sample collection for those parameters that exceeded the criteria. This process will continue until confirmatory sample COC concentrations do not exceed the applicable criteria or the Navy determines that additional investigation and/or a human health risk assessment is warranted. Unearthed soil originating from a testpit which resulted in a removal action as well as the soil generated as the result of the removal action will be properly disposed off-site.

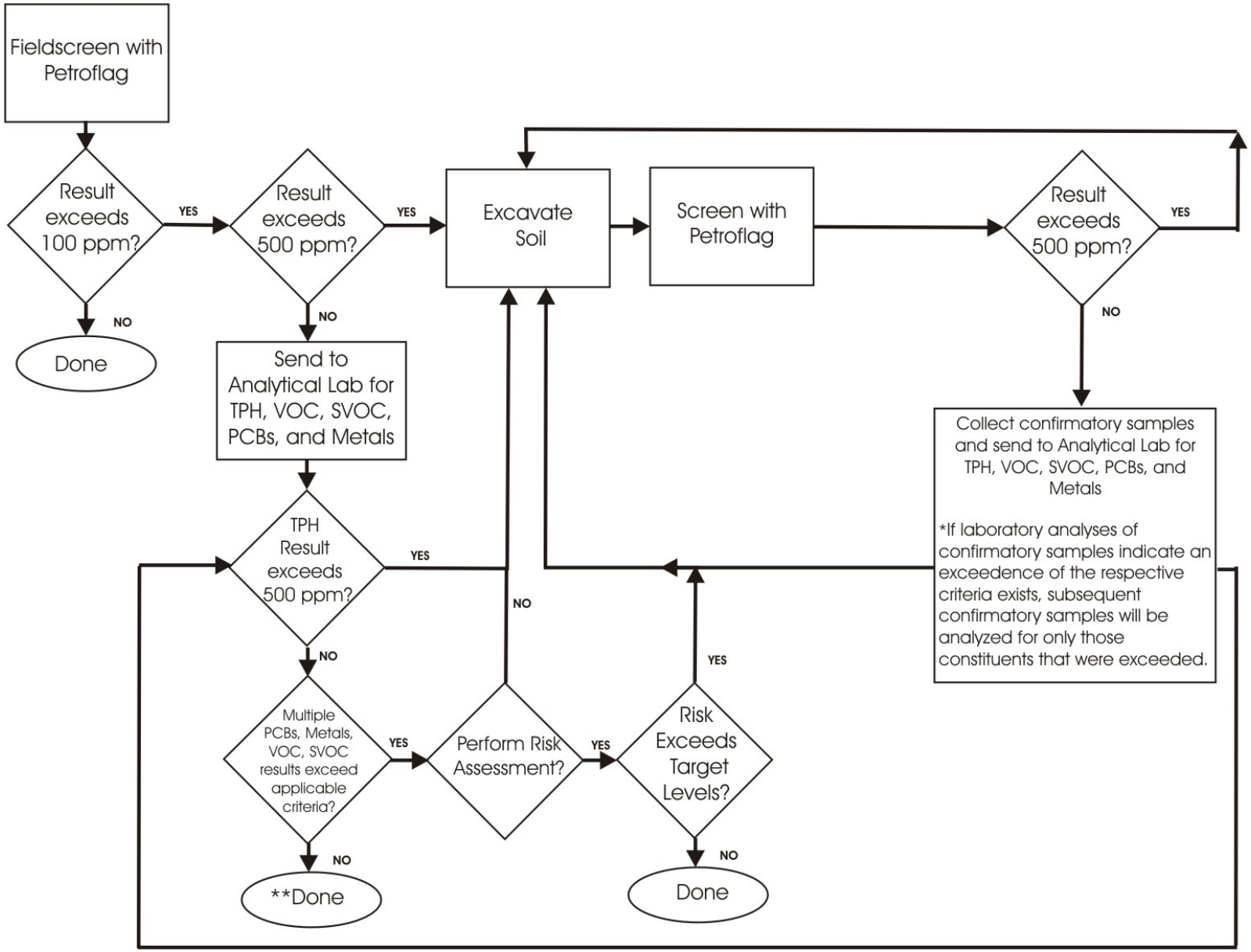
If Petroflag screening indicates TPH concentrations are greater than 100 ppm but less than 500 ppm, samples will be collected using the excavator bucket. No personnel will enter the excavation. These samples will be laboratory analyzed for the potential COC identified in each respective flowchart. If laboratory analyses indicate TPH concentrations do not exceed 500 ppm and other COC concentrations do not exceed their respective criteria , the soil will be considered uncontaminated, no removal action will be initiated, and the unearthed soil will be used to backfill the excavated area(s). If TPH concentrations >500 ppm, a removal action will be initiated followed by Petroflag screening and confirmatory sample collection. This process will continue until confirmatory sample TPH concentrations do not exceed 500 ppm. If other COC exceed their respective criteria, the Navy may conduct a soil removal action or determine that additional investigation and/or a human health a risk assessment is warranted. Unearthed soil originating from a testpit which resulted in a removal action as well as the soil generated as the result of the removal action will be properly disposed off-site.

Flowchart #1:
Decision-Making Protocol for Tank Farm 4 USTs, Tank Farm 5 USTs, All Tank Farm 4 Piping, Tank Farm 5 fuel piping from CT-53 to A-19, UST 52 and UST 53 shunt piping, Tank Farm 5 fuel piping from A-19 to the northern tank farm boundary, Tank Farm 5 4-inch BSW line from A-19 to oil/water separator, Tank Farm 5 24-inch line from the southern Tank Farm 5 property line to CT-53, Soil associated with CT-53, CT-56, and A-18



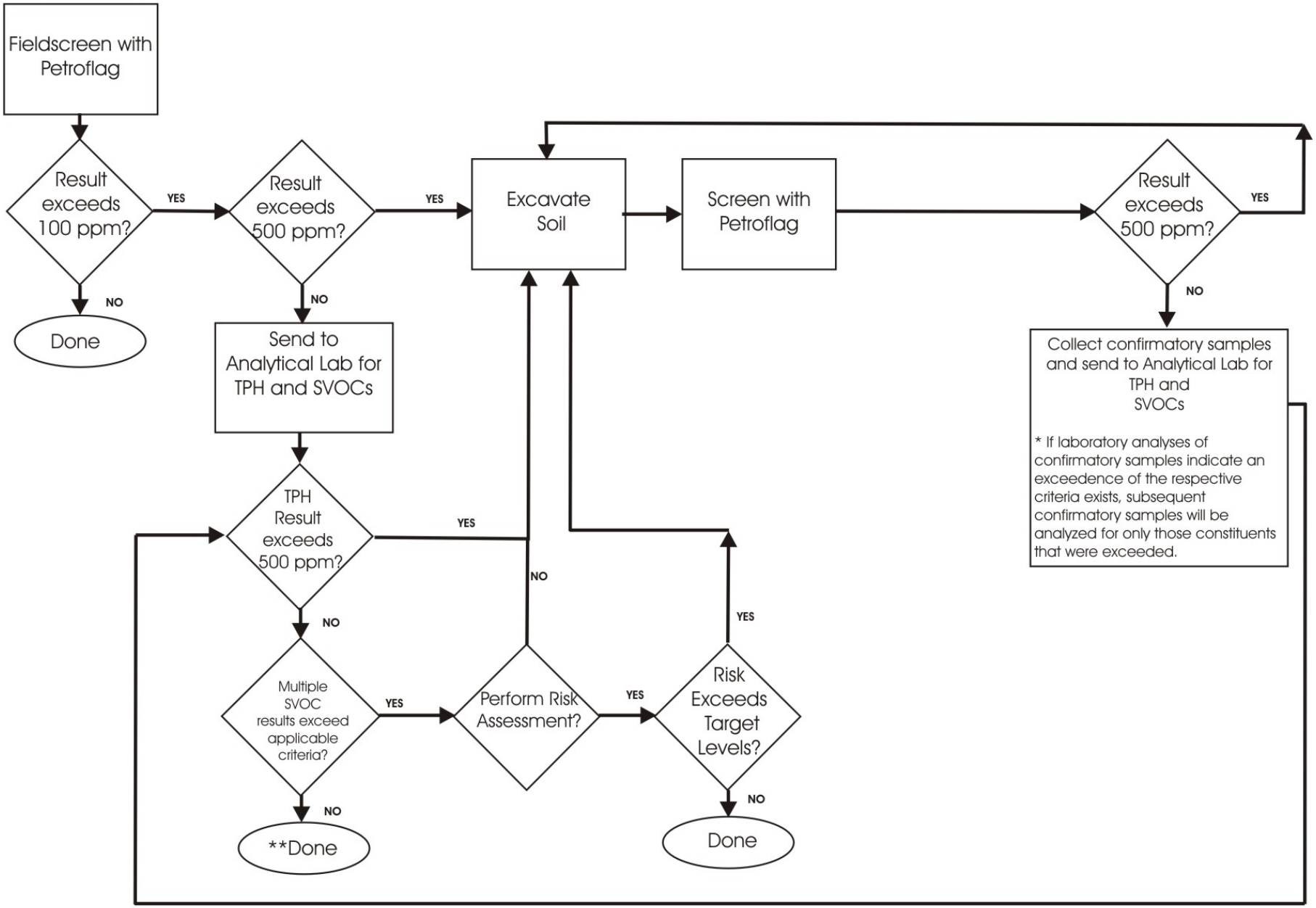
**If a few contaminants exceed applicable criteria, a preliminary evaluation will be conducted

Flowchart #2:
Decision-Making Protocol for Tank Farm 5 4-inch BSW Piping Associated with USTs 51, 52, 53, 54 and 56, Tank Farm 5 4-inch and 6-inch BSW Piping in a Separate Loop Outside of Main Loop (this line will also be flushed), Tank Farm 5 8-inch BSW Line to the Oil/Water Separator



**If a few contaminants exceed applicable criteria, a preliminary evaluation will be conducted

Flowchart #3:
Decision Making Protocol for Tank Farm 4 Ruin #2



**If a few contaminants exceed applicable criteria, a preliminary evaluation will be conducted

5.12 Flowcharts #4 and #5 - Decision-Making Protocols

Because Ruin #1 at Tank Farm 4 and the former Oil/Water Separator at Tank Farm 5 are believed to have been co-located with the former burnpit/chambers, dioxin and furan samples will be collected from both excavation base and sidewall samples after these structures are removed.

The following decision-making protocols will be used for the investigation area indicated:

- Flowchart #4: Decision-Making Protocol for Tank Farm 4 Ruin #1 and Ruin #1 Discharge Piping (if necessary)
- Flowchart #5: Decision-Making Protocol for Tank Farm 5 Oil/Water Separator and Oil/Water Separator Discharge Pipe (if necessary)

As shown in each respective flowchart, if Petroflag screening indicates that TPH concentrations are less than 100 ppm, the soil will automatically be regarded as uncontaminated and no removal action will be initiated. Unearthed soil will then be used to backfill the excavated area(s).

If Petroflag screening indicates TPH concentrations are greater than 500 ppm, a removal action will be initiated. Soil removal will continue as field personnel determine necessary. Upon completion of soil removal, Petroflag field screening will be used to determine if soil containing less than 500 ppm TPH has been reached. At this point, confirmatory base and sidewall samples will be collected using the excavator bucket for the potential COC identified in each respective flowchart. No personnel will enter the excavation.

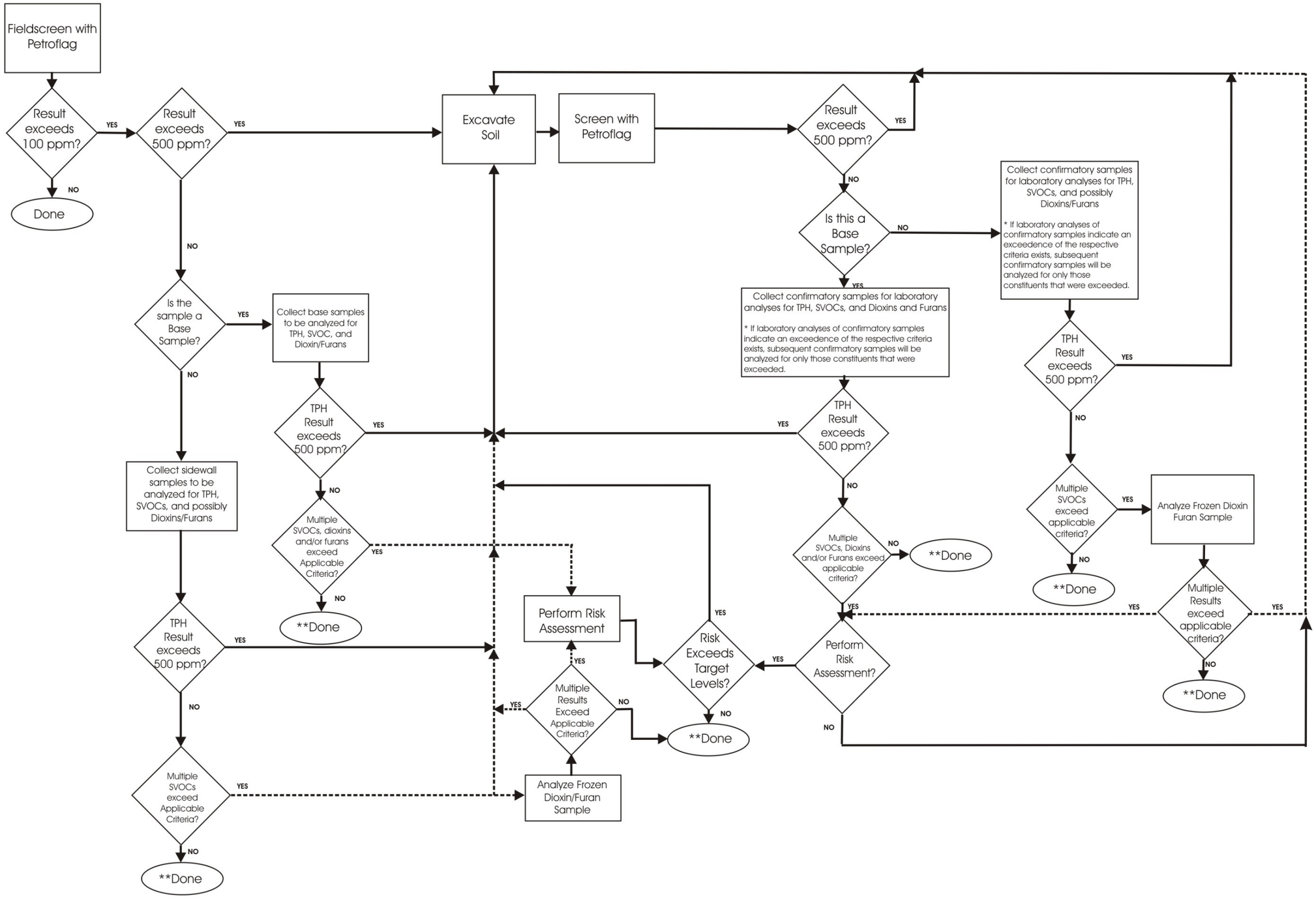
If laboratory analyses of confirmatory samples identify COC concentrations in excess of the applicable criteria, soil removal will continue as field personnel determine necessary. Petroflag screening will then be conducted followed by confirmatory sample collection for only those COC that exceeded the criteria in the first round of confirmatory samples. This process will continue until confirmatory sample COC concentrations do not exceed the applicable criteria or the Navy determines that additional investigation and/or a human health risk assessment is warranted. Unearthed soil originating from a testpit which resulted in a removal action as well as the soil generated as the result of the removal action will be properly disposed off-site.

If Petroflag screening indicates TPH concentrations are greater than 100 ppm but less than 500 ppm, excavation base and sidewall samples will be collected using the excavator bucket (no personnel will enter the excavation). However, only the base samples will be immediately analyzed for dioxins and furans. Field personnel will label the samples collected from the sidewalls for dioxin and furan analyses "to be frozen" so the analytical laboratory knows to freeze these samples upon receipt instead of immediately analyzing them. Upon receipt of the sample analytical results, TtFW personnel will review the analytical results from the samples to determine if potential COC concentrations exceed the applicable criteria.

If laboratory analyses indicate TPH concentrations do not exceed 500 ppm and other COC concentrations do not exceed their respective criteria, the soil will be considered uncontaminated, no removal action will be initiated, and the unearthed soil will be used to backfill the excavated area(s).

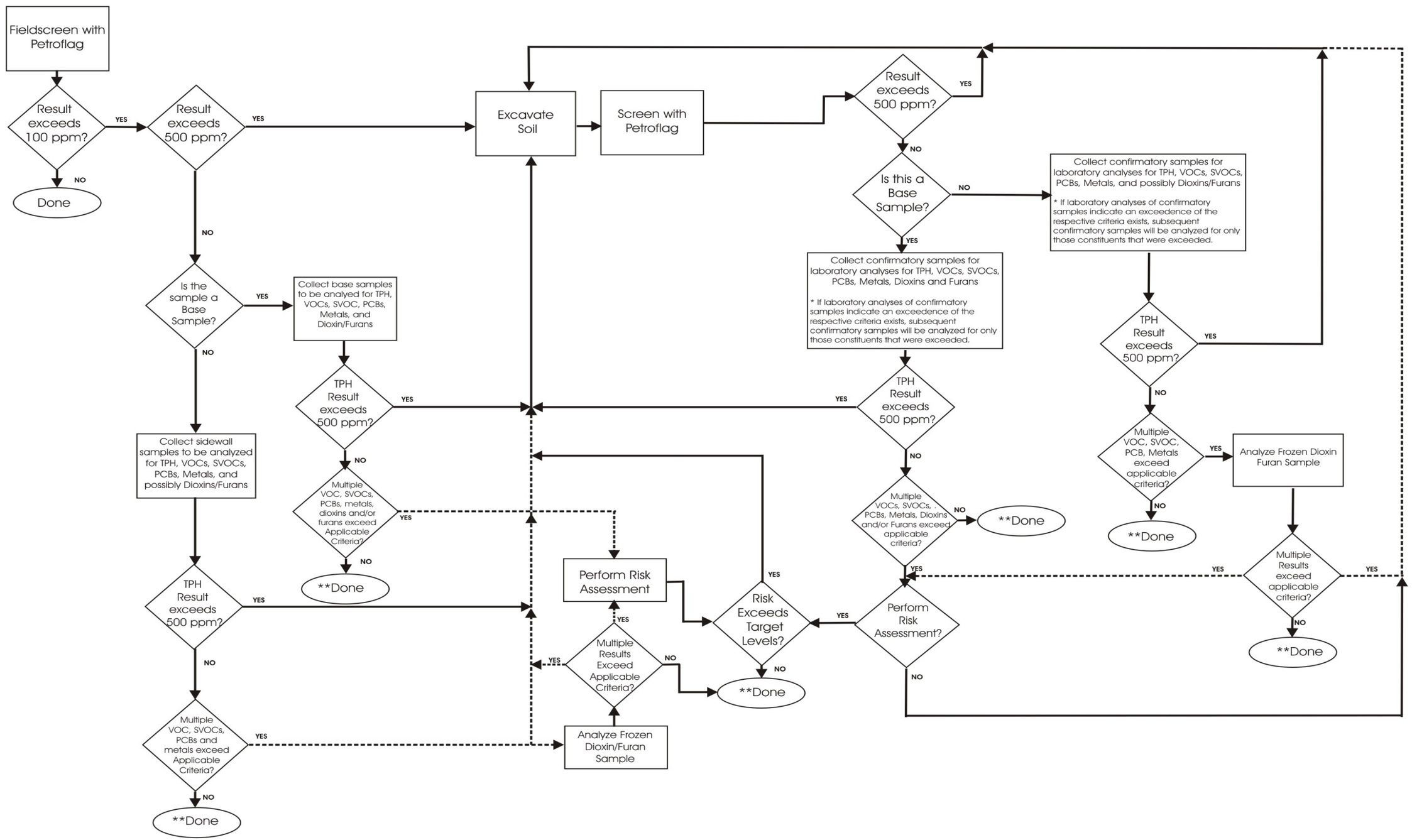
If TPH concentrations >500 ppm, a removal action will be initiated followed by Petroflag screening and confirmatory sample collection. This process will continue until confirmatory sample TPH concentrations do not exceed 500 ppm.

Flowchart #4:
Decision Making Protocol for Tank Farm 4
Ruin 1 and Ruin 1 Discharge Piping (if necessary)



**If a few contaminants exceed applicable criteria, a preliminary evaluation will be conducted

Flowchart #5:
Decision Making Protocol for Tank Farm 5
Oil/Water Separator and Oil/Water Separator Discharge Pipe (if necessary)



**If a few contaminants exceed applicable criteria, a preliminary evaluation will be conducted

If COC other than TPH exceed their respective criteria, the Navy may either conduct a soil removal followed by Petroflag screening and confirmatory sampling for the COC indicated in the respective flowcharts (which includes dioxin/furan analyses) or authorize the analytical laboratory to analyze the sidewall sample that was initially collected for dioxin and furan analyses. Depending on the concentrations of dioxins/furans and other COC, the Navy may conduct a removal action or determine that additional investigation and/or a human health risk assessment is warranted. Unearthed soil originating from a testpit which resulted in a removal action as well as the soil generated as the result of the removal action will be properly disposed off-site.

5.13 Soil Removal

For the purposes of this work plan, *Soil Removal* is defined as excavation of soil known or suspected to contain contaminant concentrations that exceed the applicable clean-up criteria, as determined by field instrumentation, field observation, or off-site laboratory analysis, for the purposes of achieving the site clean-up goals.

As identified in Flowcharts #1 - #5, if soil removal is necessary, it will be conducted in the appropriate direction to address the contaminated areas not necessarily in all directions.

Excavation, field screening, and confirmatory sample collection will occur until one of the following conditions occurs.

- Uncontaminated soil has been reached (if project funding allows)
- The Navy determines that conducting a human health risk assessment is warranted to assess the risk of residual contaminants. A separate work plan would be developed prior to conducting a human health risk assessment
- Soil removal excavation is greater than 5-ft for the sludge pit testpits or at significant depths for removals at other investigation areas. In this case, discussions will be held with the regulators on the progress of the work, including whether or not to remove soil which exceeds applicable criteria. Depending on the sample results, the location of contamination, and the extent of contamination, an ELUR may be considered in lieu of removal. Additionally, budgetary constraints may preclude removal of contaminated soil during this field effort.

All areas where a soil removal action occurred will be backfilled with certified clean imported fill.

5.14 Confirmatory Samples

For the purposes of this work plan, C*onfirmatory Samples* are defined as samples that are collected after soil removal has occurred to confirm that contaminants have been removed and no longer exist at levels that exceed the applicable clean-up criteria. All confirmatory samples will be sent to an off-site analytical laboratory for analysis.

Confirmatory samples will be collected from locations where soil containing concentrations that exceed the applicable criteria were determined to exist and soil removal occurred. Confirmatory samples will be collected using the excavator bucket no personnel will enter the excavation. Field personnel will ensure that material that comes directly into contact with the bucket will not be collected. Instead, material that is 3-6 inches deep from the exposed surface of the soil in the bucket will be collected. If the excavations are left open, prior to sampling the soil, the material will be collected in a manner similar to that identified above with the exception that the soil will be collected from material that is 6-12 inches deep from the

exposed surface of the soil in the bucket. The excavator bucket will be dry-brushed between sample collection, as appropriate.

The general approach towards confirmatory sample collection is itemized below for each investigation area discussed in this work plan.

5.14.1 Tank Farms 4 and 5 UST Testpits

One confirmatory sample will be collected for every 100-ft^2 of testpit base and one confirmatory sample will be collected for every 20-lf of testpit sidewall for each 5-ft of sidewall depth. Confirmatory samples collected from all testpits associated with Tank Farms 4 and 5 will be analyzed for the constituents identified in Flowchart #1. Following this approach, Figure 5-7 shows the confirmatory sampling scheme to be used depending on plausible field conditions.

5.14.2 Tank Farms 4 and 5 Process Piping (except Tank Farm 5 4-inch, 6-inch and 8-inch BSW Lines Associated with USTs 49, 50, 51, 52, 53 and 56)

Confirmatory samples will be collected from all areas where a soil removal action was conducted. One confirmatory conventional subsurface soil sample will be collected for every 50-lf of area excavated. Samples will be analyzed for the constituents identified in Flowchart #1.

5.14.3 Tank Farm 5 4-inch, 6-inch and 8-inch BSW Lines Associated with USTs 49, 50, 51, 52, 53 and 56

Confirmatory samples will be collected from all areas where a soil removal action was conducted. One confirmatory conventional subsurface soil sample will be collected for every 50-lf of area excavated. Samples will be analyzed for the constituents identified in Flowchart #2.

5.14.4 Ruin #1 and Ruin #2 (Tank Farm 4) and the Former Oil/Water Separator (Tank Farm 5)

One confirmatory sample will be collected for every 100-ft^2 of excavation area base and one confirmatory sidewall sample will be collected for every 20-lf of excavation area sidewall per 5-ft depth. The excavation depth associated with Ruin #2 is anticipated to be approximately 8-ft. If this proves true, then two confirmatory samples will be collected for every 20-lf of excavation area sidewall. Sidewall samples will be collected as equidistantly as feasible. Confirmatory samples collected from Ruin #1 will be analyzed for the constituents identified in Flowchart #4. Confirmatory samples collected from Ruin #2 will be analyzed for the constituents identified in Flowchart #3. Confirmatory samples collected from the former oil/water separator at Tank Farm 5 will be analyzed for the constituents identified in Flowchart #5.

5.14.4.1 Staging Removed Soil

Unearthed soil originating from a testpit which resulted in a removal action as well as the soil generated as the result of the removal action will be covered with polyethylene sheeting, properly staged, and transferred into on-site roll-offs for containment or directly loaded into dump trucks for eventual off-site disposal.

Approximately 2,225 tons of unearthed soil will be generated from testpit operations at each Tank Farm for a total of 4,450 tons unearthed from both tank farms. The unearthed soil will be stockpiled near each testpit and covered with polyethylene sheeting at the end of daily operations and during rainfall events.

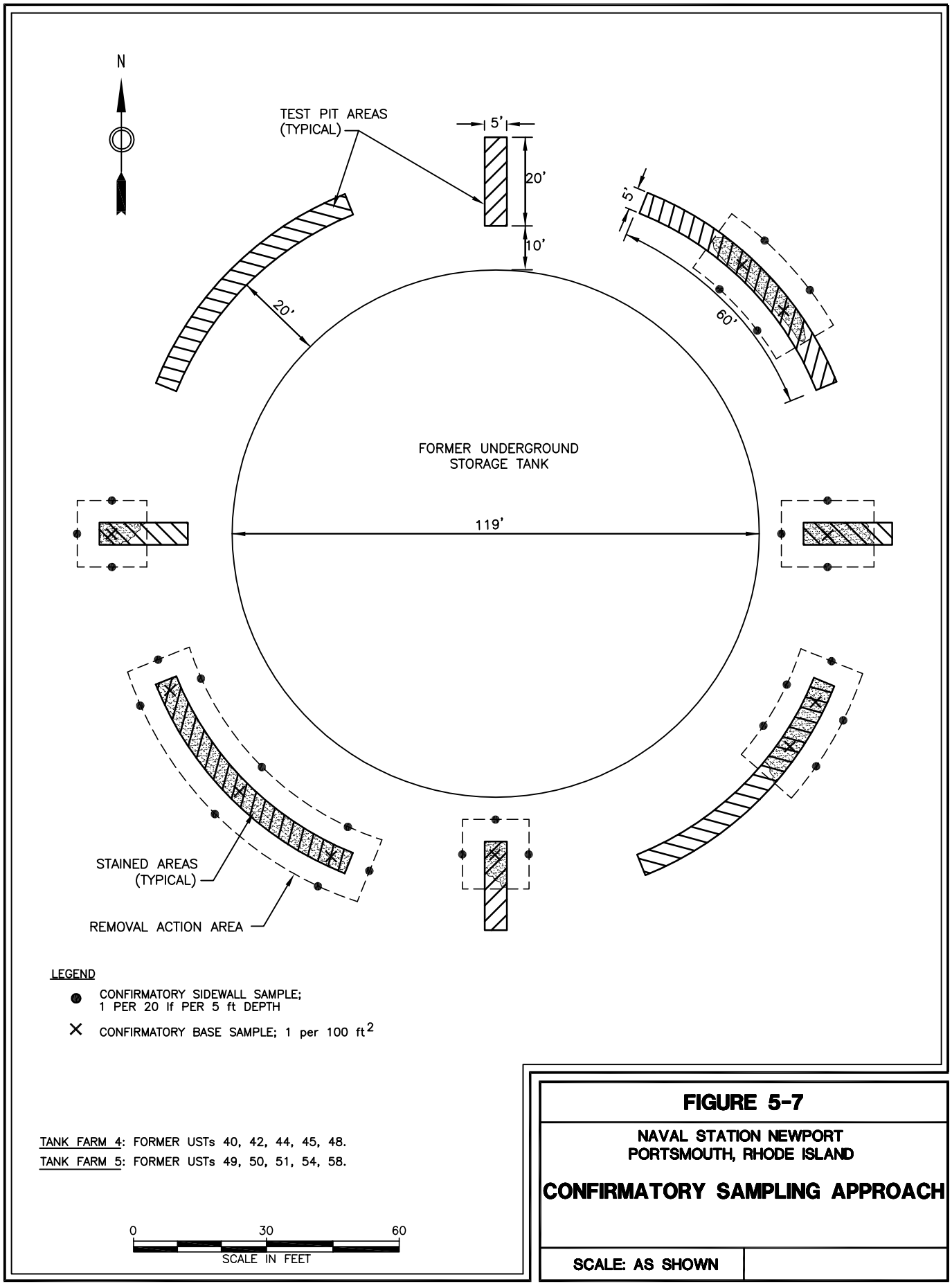


FIGURE 5-7

NAVAL STATION NEWPORT
PORTSMOUTH, RHODE ISLAND

CONFIRMATORY SAMPLING APPROACH

SCALE: AS SHOWN

CADDFILE: 0841_A012-C.DWG

5.14.4.2 Backfilling

Unearthed soil originating from a testpit were no removal action was conducted will be used to backfill the excavation it came from. The backfilled material will be bucket-compacted (it is not necessary to backfill disturbed areas in lifts) and the disturbed areas will be re-seeded with an annual grass that will allow for natural vegetation.

If a removal action is necessary, the excavated area will be backfilled after confirmatory sample analytical data results indicate that TPH soil concentrations do not exceed the criteria. Certified clean imported fill will be used as backfill and disturbed areas will be re-seeded with an annual grass that will allow for natural vegetation.

6.0 SAMPLE MANAGEMENT

The sample identification system to be used during this investigation will assign a unique sample identifier to each sample collected. Data management will be consistent with this sample identification system. The protocols for assigning field sample numbers are described below. Each sample collected will have its own identifier, which will apply for the duration of the project. The sample identifier will consist of an alpha-numeric code that will identify the investigation area, sample location, sample number, and Quality Control (QC) sample designation (if applicable). The QC sample identifier will also consist of an alpha-numeric code that will identify the QC sample designation, sampling date, and sample number (if applicable).

Note: Because of the multitude of investigation areas, potential orientations, locations, and depths (when applicable) planned for investigation, it is impractical to develop a sampling protocol that would account for every potential scenario. Accordingly, a logical sample identification approach has been developed and is discussed in this work plan. Field personnel will use their expertise and will record and sketch sample locations, along with their corresponding identification numbers, in a field notebook to enable sample location identification in the area being investigated.

6.1 Petroflag and Moisture Content

The Navy will attempt to adjust the field work schedule accordingly, to the extent possible, to prevent the collection of samples with atypical moisture contents. In the event that samples collected are very moist or saturated (which is not anticipated), the following procedure will be used:

1. Any free aqueous liquid will be decanted from samples prior to analysis with the Petroflag system
2. A note will be made on the Petroflag analysis log that the sample is moist or saturated
3. The presence of moisture will be considered when decisions are made from the Petroflag results

6.2 Petro-Flag and Laboratory Screening Samples Collected from UST Testpits

Base and sidewall samples will be collected for Petroflag field screening. Petroflag field screening samples and Laboratory samples (Petroflag screening in-between 100 ppm and 500 ppm sent for off-site laboratory analysis) will be assigned identification numbers. An example of the sampling scheme and identification numbers are shown in Figure 6-1 for UST 51. The sample identification scheme will identify the type of sample (P=Petroflag, L=Laboratory), the UST investigated (40, 42, 44, 45, etc.) the testpit sampled (A-D or 1-4), the sample location (base or sidewall), and the sample number.

If there is no visual staining or odorous soil, perpendicular testpits will be labeled 1-4 and parallel testpits will be labeled A-D for each UST to be investigated. Base samples will be collected from perpendicular testpits approximately 1-ft away from each 5-ft sidewall. Base samples to be collected from parallel testpits will be collected at 20-ft intervals. All sidewall samples collected from perpendicular testpits will be collected at horizontal distances approximately 5-7 ft away from each other with an approximate 1-ft vertical distance variance from each other. All sidewall samples collected from parallel testpits will be collected at horizontal distances approximately 20 ft away from each other with an approximate 1-ft vertical distance variance from each other. Qualifiers such as “B” for Base and “SW” for sidewalls will be used to identify sample collection location.

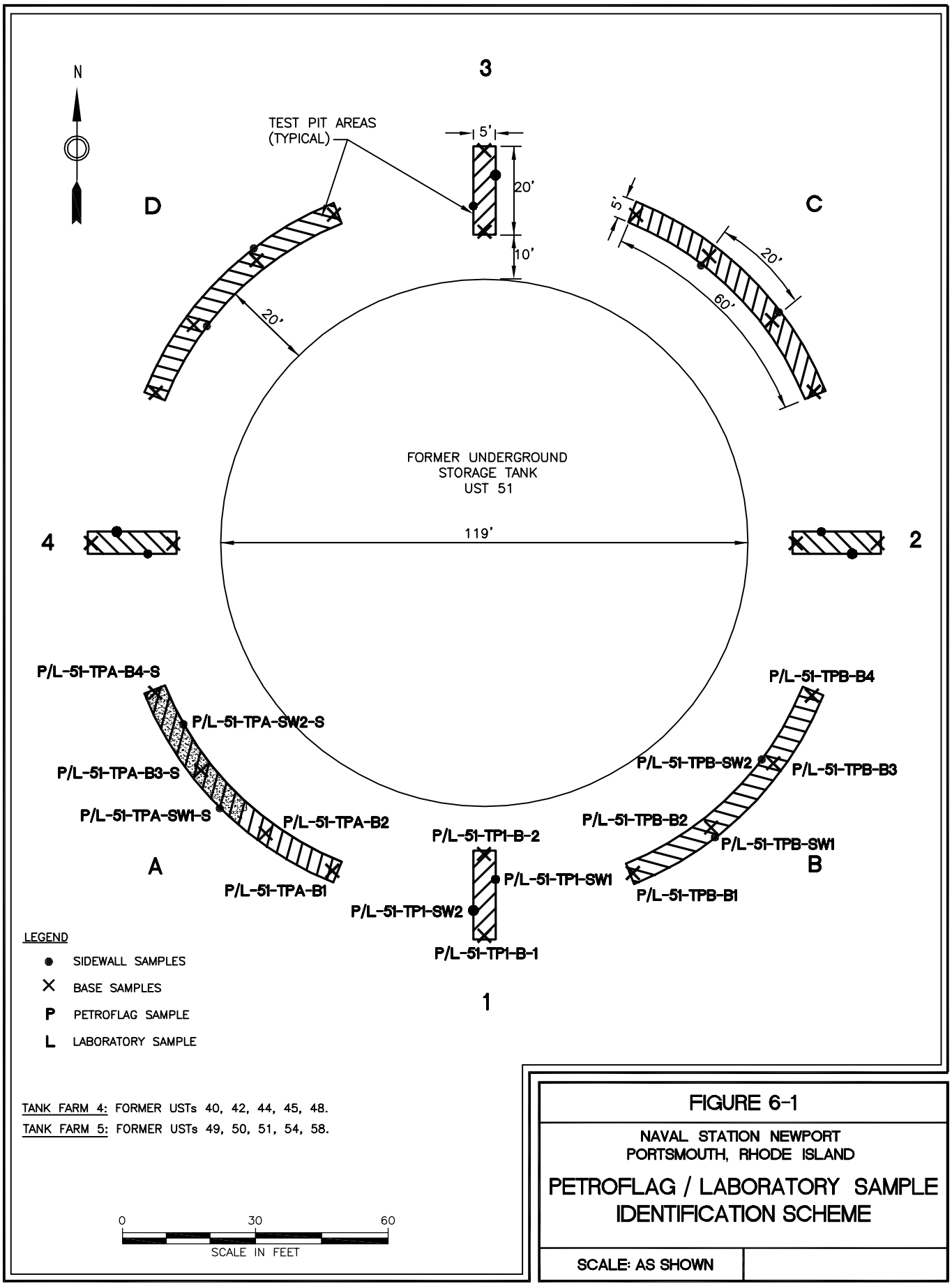


FIGURE 6-1

NAVAL STATION NEWPORT
PORTSMOUTH, RHODE ISLAND

PETROFLAG / LABORATORY SAMPLE IDENTIFICATION SCHEME

SCALE: AS SHOWN

CADDFILE: 0841_A016.DWG

If areas are stained or odorous, samples will be preferentially collected from these areas and field personnel will determine the exact sample collection location keeping in mind that stained and odorous areas are preferentially sampled. For informational purposes, stained or odorous areas will be sampled and an "S" will be added to the sample identification number to indicate that the sample was collected from a stained area. An "O" will be added to the sample identification number if a sample is collected from an odorous area.

6.3 Confirmatory Samples Collected from UST Testpits

Confirmatory samples will be collected from areas where a removal action was conducted. Confirmatory samples will be collected every 20-lf of sidewall for each 5-ft depth and for each 100 ft^2 of removal area base. Confirmatory samples will be assigned unique identification numbers. An example of the sampling scheme and identification numbers are shown in Figure 6-2 for UST 51. The sample identification scheme will identify if type of sample (C=Confirmatory), the UST investigated (40, 42, 44, 45, etc.) the testpit sampled (A-D or 1-4), the sample location (base or sidewall), and the sample number.

Sample types:	P	Petroflag
	L	Laboratory
	C	Confirmatory
	B	Base sample
	SW	Sidewall
	PP	PPE Sample

QC sample designations:	TB	Trip Blank
	ER	Equipment Rinsate
	FB	Field Blank
	D	Duplicate Sample
	MS/MSD	Matrix Spike/Matrix Spike Duplicate
	DR	Decontamination Rinsate Sample

Examples: Petroflag sample collected from the base of UST 48, Testpit 3 (perpendicular orientation)

Identifier: P-48-TP3-B1*

Confirmatory sample collected from the base of UST 48, Testpit 3 (perpendicular orientation)

Identifier: C-48-TP3-B1*

Laboratory sample collected from stained soil from the sidewall of UST 54, Testpit A (parallel orientation)

Identifier: L-54-TPA-SW-1-S*

Laboratory sample collected from the sidewall of UST 54, Testpit A (parallel orientation)

Identifier: L-54-TPA-SW-2*

Laboratory sample collected from odorous soil at the base of UST 51, Testpit 4 (perpendicular orientation)

Identifier: L-51-TP4-B-1-O*

* Because of the multitude of investigation areas, potential orientations, locations, and depths (when applicable) identified in the sampling protocols within this work plan, sample locations will be sketched, along with their corresponding identification numbers, in a field notebook to enable sample location identification in the area being investigated.

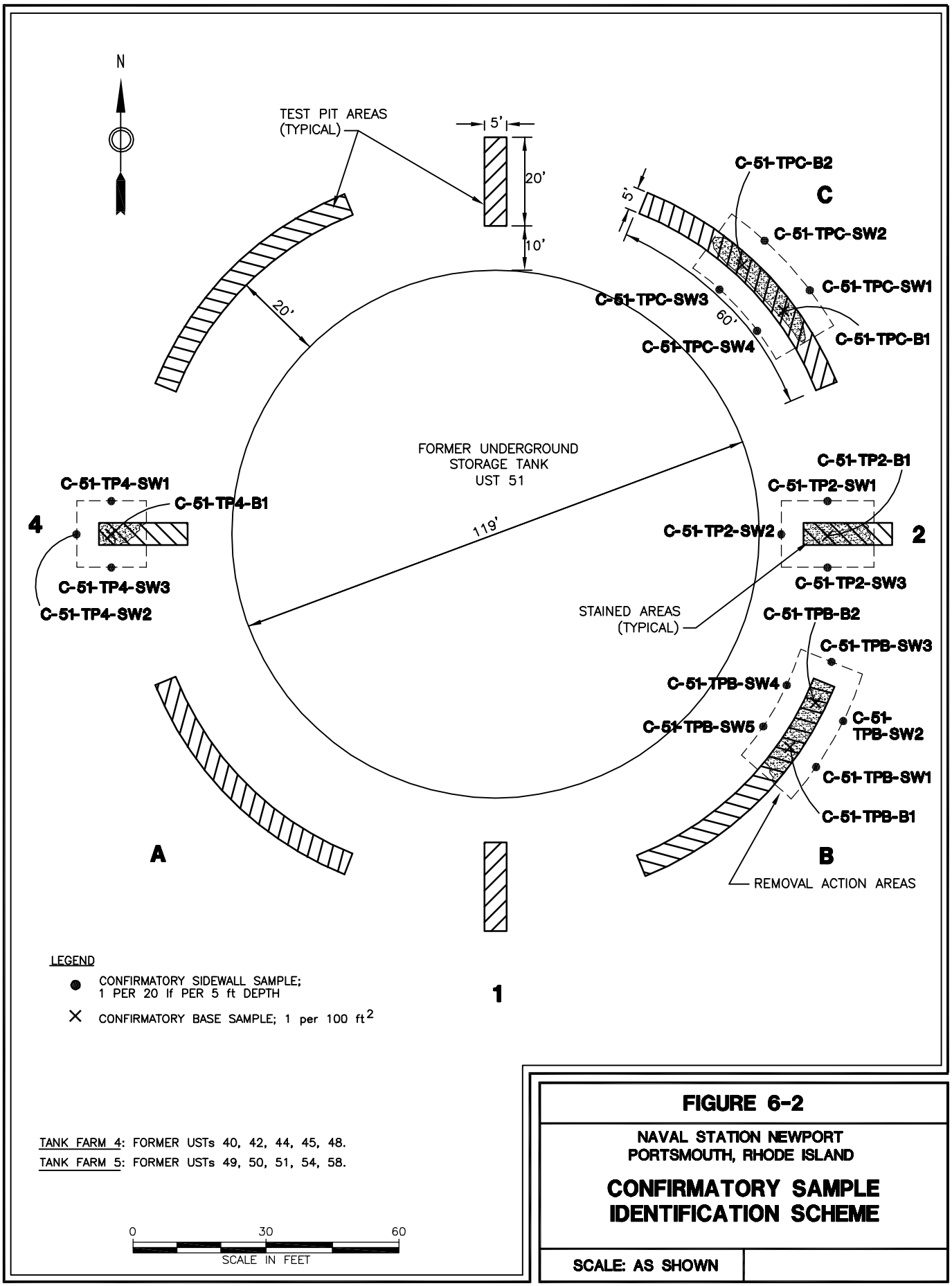


FIGURE 6-2

NAVAL STATION NEWPORT
PORTSMOUTH, RHODE ISLAND

CONFIRMATORY SAMPLE IDENTIFICATION SCHEME

SCALE: AS SHOWN

CADDFILE: 0841_A012-C.DWG

6.4 Petroflag, Laboratory, and Confirmatory Samples Collected from the Oil/Water Separators

Base and sidewall samples will be collected for Petroflag field screening as identified in Section 5.10.4.2 Petroflag field screening samples and samples sent off-site for laboratory analysis (Petroflag screening in between 100 ppm and 500 ppm) will be assigned unique identification numbers. Examples of the sampling scheme and identification numbers are shown below. The sample identification scheme will identify the type of sample (P=Petroflag, L=Laboratory, C=Confirmatory), the Tank Farm (4 or 5), the former oil/water separator investigated (Ruin #1, Ruin #2, O/W Sep), the sample location (base or sidewall), and the sample number. To avoid an overly complex sampling scheme, field notes will be used to record the sample locations and corresponding identification numbers.

Examples: Petroflag sample collected from the base of Ruin #2 at Tank Farm 4
Identifier: P-TF4-R2-B1*

Laboratory sample collected from a sidewall of the former oil/water separator at Tank Farm 5

Identifier: L-TF5-OW-SW-2*

Confirmatory sample collected from a sidewall of Ruin #1 at Tank Farm 4

Identifier: C-TF4-R1-SW2-1*

* Because of the multitude of investigation areas, potential orientations, locations, and depths (when applicable) identified in the sampling protocols within this work plan, sample locations will be sketched, along with their corresponding identification numbers and depths, in a field notebook to enable sample location identification in the area being investigated.

6.5 Subsurface Samples Collected from Transformer Vaults, Substation, Storage Sheds, Fenceline, Groundwater Monitoring Wells

Samples collected from the transformer vaults, substations, storage sheds, fencelines, and groundwater monitoring wells will be assigned unique identification numbers. An example of the sampling scheme and identification numbers are shown below. The sample identification scheme will identify the tank farm (Tank Farm 4 or 5), the RA (transformer vault, substation etc.), sample number (1,2,3,4), and core depth (0-2-ft bgs). To avoid an overly complex sampling scheme, field notes will be used to record the sample locations and corresponding identification numbers.

Examples: Sample collected from the Transformer Vault at Tank Farm 4

Identifier: TF4-TV-1(0-2)*, TF4-TV-2(0-2)*, TF4-TV-3(0-2)*, TF4-TV-4(0-2)*

Sample collected from the Substation at Tank Farm 5

Identifier: TF5-Sub-1(0-2)*, TF5-Sub-2(0-2)*, TF5-Sub-3(0-2)*, TF5-Sub-4(0-2)*

Soil sample collected from the Tank Farm 4 Substation crawl space

Identifier: TF4-Sub-Cwl*

Concrete chip sample collected from the substation at Tank Farm 5

Identifier: TF5-Sub-Chp*

Wipe sample collected from the conduit of the substation at Tank Farm 4

Identifier: TF4-Sub-Wipe*

Wipe sample collected from the conduit of the transformer vault at Tank Farm 5

Identifier: TF5-TV-Wipe*

Soil sample collected from the transformer vault conduit discharge location at Tank Farm 5

Identifier: TF5-TV-Disc*

Sample collected from the former footprint of the northern-most demolished (assumed) storage shed at Tank Farm 4

Identifier: TF4-NShd-1*, TF4-NShd-2*

Sample collected from the former footprint of the southern-most demolished (assumed) storage shed at Tank Farm 4

Identifier: TF4-SShd-1*, TF4-SShd-2*

Sample collected from the eastern fenceline at Tank Farm 4

Identifier: TF4-Fence-1*, TF4-Fence-2*, TF4-Fence-3*, TF4-Fence-4*, TF4-Fence-5*

Sample collected from the southern fenceline at Tank Farm 5

Identifier: TF5-Fence-1*, TF5-Fence-2*, TF5-Fence-3*, TF5-Fence-4*, TF5-Fence-5*

Sample collected from groundwater monitoring wells at Tank Farm 4:

Identifier: TF4-GWMW-10, TF4-GWMW-11

Trip Blank Collected on November 18, 2004: TB-11/18/04**

Equipment Rinsate Collected on December 4, 2004: ER-12/04/04**

MS/MSD: indicate on chain of custody form under remarks section

* Because of the multitude of investigation areas, potential orientations, locations, and depths (when applicable) identified in the sampling protocols within this work plan, sample locations and depths will be sketched, along with their corresponding identification numbers, in a field notebook to enable sample location identification in the area being investigated.

** If greater than 1 trip blank or equipment rinsate is collected per day, an additional qualifier (1,2,3,…) will be added to the sample identification number.

Field personnel will complete sample labels using indelible ink. Labels will include the project identification, sample identification, date and time of collection, sampler's initials, sample matrix, type of sample (grab or composite), analyses to be performed, and preservative used (if applicable).

6.6 Sample Packing and Shipping

Samples for off-site laboratory analysis will be shipped via Federal Express or by courier for overnight delivery in waterproof coolers using the procedures outlined below. The samples taken for this project will be considered low-level or environmental samples for packaging and shipping purposes. The sample packing procedures are as follows.

- Fill out the pertinent information on the sample label, and ensure agreement with the chain of custody
- Place approximately 3 inches of cushioning material, such as vermiculite or bubblepack, in the bottom of the cooler
- Wrap the sample containers in bubblepack. Place containers in the cooler in such a manner that will prevent them from touching during shipment
- Add additional packing material to partially cover sample containers (more than halfway)
- Place ice, sealed in plastic bags, around and on top of the containers. The temperature of the samples will be maintained at 4°C +2°C during shipment to the laboratory
- Fill cooler with cushioning material and secure cooler with custody seals

If a laboratory courier will pick up the cooler, the cooler may be closed and transferred to the courier. The courier will sign the chain of custody as a record of receipt, returning one signed copy to the sampler. If samples are to be shipped via Federal Express or other delivery service, the following steps will be taken.

- Put chain of custody record in a waterproof plastic bag and tape it to the inside lid of the cooler
- Tape the drain shut
- Secure the lid by wrapping the cooler completely with nylon strapping tape or duct tape at a minimum of two locations
- Attach completed shipping label to top of the cooler and secure cooler with custody seals
- From the time of sample collection, samples for off-site analysis will be stored on ice. The laboratory will record the temperature of the samples upon arrival at the facility

6.6.1 Sample Chain of Custody

To maintain and document sample possession, chain of custody records will be kept. These procedures are necessary to ensure sample integrity from the collection time through data reporting. The chain of custody protocol provides the ability to trace sample possession and handling. A sample is considered under custody if it is/was:

- In a person's possession
- In a person's view after being in possession
- In a person's possession and locked up
- In a designated secure area

Personnel collecting samples are responsible for sample care and integrity until the samples are properly transferred or dispatched. The number of people handling a sample will be kept to a minimum.

The sampler(s) will initially complete the chain of custody records which will accompany the samples at all times. The following information will be indicated on the chain of custody record:

- Project identification
- Signature of samplers
- Sample identification, sample matrix, date and time of collection, grab or composite sample designation, number of containers corresponding to that sample identification, analyses required, remarks or sample location (if applicable), and preservation method(s)
- Signature of the individual relinquishing the samples
- Name of the individual(s) receiving the samples and air bill number, if applicable

The individual that completed the chain of custody will then check the sample label and chain of custody record for accuracy and completeness.

6.6.2 Sampling Equipment Decontamination Procedures

Disposable and non-disposable sampling equipment may be used. All non-disposable sampling equipment will be decontaminated prior to collecting each sample. The following sequence will be used:

- Remove all visible contaminants using laboratory detergent and potable water
- Rinse with potable water
- Rinse with deionized water
- Rinse with methanol followed by hexane for organic sampling equipment
- Decontamination fluids generated will be collected and stored on site in RI approved 55-gallon closed top drums for later disposal

6.6.3 Sampling Wastestream Disposal

Waste generated during site activities will be sampled in order to characterize the waste for disposal. Anticipated wastestreams include decontamination rinsate, liquid waste from Petroflag, and soil potentially contaminated with TPH, Polychlorinated Biphenyls (PCBs), lead, VOCs or SVOCs. Sampling equipment, latex gloves, glass jars, sampling scoops, and Petroflag vials and glassware will be combined and disposed with any contaminated soil, or if no contaminated soil is encountered, drummed. For liquid waste, a drum thief will be slowly lowered into the drum and the contents will be placed into the appropriate labeled sample bottle. The drum thief will ensure that the sample is taken over the entire depth of the drum. The sample will be analyzed to satisfy the requirements of the chosen disposal faculty accepting the waste.

A contaminated soil composite sample will be collected. Due to the low levels of contamination and minimal exposure, Personal Protective Equipment (PPE) will be considered non-contaminated waste and will be disposed of with the site debris.

6.6.4 Petroflag Quality Assurance/Quality Control (QA/QC)

The Petroflag sample analysis kits are designed such that there are QC samples with each group of samples analyzed to monitor performance. For each sample batch (approximately 8-12 field samples) analyzed using the Petroflag field screening a method blank sample as well as a calibration sample will be included. The blank and calibration samples will be prepared and analyzed at the same time as the batch of field samples and under the same conditions. The Petroflag analytical instrument will be set for the analysis of a diesel fuel.

7.0 SAMPLE QA/QC

For every 20 confirmatory samples collected, one field duplicate sample, one matrix spike (MS) sample, and one matrix spike duplicate (MSD) sample will be collected and analyzed for the appropriate criteria.

For every 20 exploratory samples collected, one combined equipment rinsate sample/field blank sample will be collected and analyzed for the appropriate criteria. Field blanks are typically collected to check cross contamination during sample collection. Equipment rinsate blanks are typically collected to check field decontamination procedures. Due to the large potential for sample analysis in this field effort, one equipment blank will be taken by collecting the rinsate from reusable field equipment after it has been cleaned and decontaminated with deionized water. This equipment blank will, therefore, provide general information regarding the decontamination procedures, cross contamination issues, and water sources used for decontamination. Because the data review will focus on the highest reported blank sample contamination, these blanks will satisfy the project needs.

Appropriate QA/QC procedures will be implemented throughout the sampling and analyses programs. The sampling and analyses programs will be performed in accordance with the Navy Installation Restoration Chemical Data Quality Manual (September 1999), to ensure attainment of project objectives and to ensure the chemical data meets the Navy QC requirements. A laboratory that has approval by Naval Facilities Engineering Service Center (NFESC) will perform all water, soil, and debris sample laboratory analysis. All laboratory certifications are required to remain current throughout the duration of the project. All QA/QC samples will be indicated as such on the chain of custody. The Navy will perform a QA/QC screening on laboratory data to ensure against bias and error.

Sample containers, preservatives, and holding times are identified in Table 7-1 and a summary of analytical sampling programs are identified in Table 7-2.

Soil samples for VOCs will be collected in accordance with the following procedure for VOC samples with sodium bisulfate and methanol preservation/extraction. In addition, from their origin on-site until they are sent off-site for analysis, samples analyzed for VOCs will be accompanied by a trip blank. The trip blank will also accompany samples analyzed for VOCs to the off-site laboratory for analysis and will, itself, be analyzed for VOCs.

Table 7-1
Sample Containers, Preservatives, and Holding Times

Analysis	Container	Preservative	Holding Time[1]
	Soil	Soil	
VOC	3 x 40 ml VOC vial + 1 2 oz. Jar (% moisture)	1 w/MeOH and 2 w/$NaHSO_4$	14 days
SVOC (including PAHs)	8 oz (or larger) glass	Cool 4°C	7 days to extraction, 40 days to analysis
Metals	8 oz (or larger) glass	Cool 4°C	6 months
Extractable TPH	Min 4 oz. Jar glass	Cool 4°C	14 days
PCBs	Min 4 oz. Jar glass	Cool 4°C	14 days

[1] Holding times are from time of sample collection

7.1 VOC Sampling Procedure Using USEPA Method 5035A

- Obtain the soil sample by inserting the clean coring device into the soil. Wipe excess soil from the outside of the sampler.
- Open the sample containers, which has been pre-preserved by the subcontractor laboratory with sodium bisulfate (2 x 40 ml vials) and methanol (1 x 40 ml vial) and marked with indelible ink to ensure 5 grams of soil is collected, and immediately but slowly extrude the soil core into the container. Avoid splashing preservative out of the bottle and do not immerse the coring device into the methanol. Fill the container until the preservative meniscus reached the pre-marked level indicated by the laboratory. Also, do not leave sample containers open to the atmosphere before or after addition of soil as this will result in loss of preservative and invalidation of sample.
- Remove any soil particles from the threads and/or top of the sample bottle container, to ensure a proper seal and no loss of preservative.
- After securing the lid, gently swirl the sample to mix the soil and preservative solution. Do not shake the bottle.
- Complete sample logs, labels, custody seals, and chain of custody forms. Do not attach any additional labels or tape to the sample containers. Record sample information in the field notebook.
- Place the analytical samples in a cooler for shipment and chill to 4°C ± 2°C.

Table 7-2
Summary of Analytical Sampling Programs

Sampling Task/Matrix	Analysis	Possible Analytical Method(s)	Sample Quantities						
			Field Samples	Field Duplicates	MS	MSD	‡Trip Blanks	Eqpt Rinsate	Total
***Anticipated Waste Characterization Sampling**									
Liquid-6 sample Solid-7 sample	SVOCs	SW846 8270C	13	0	0	0	0	0	13
	PCBs	SW846 8082	13	0	0	0	0	0	13
	Ignitability	SW846 1010 or 1020	13	0	0	0	0	0	13
	pH	USEPA 120.1	13	0	0	0	0	0	13
	Reactivity	SW846	13	0	0	0	0	0	13
	VOCs	SW846 8260	15	0	0	0	0	0	15
	RCRA 8 Metals	SW846 6010/7000	13	0	0	0	0	0	13
Subtotal									93
Testpits: Confirmatory Sampling♦									
Soil	TPH	USEPA 8100M or 8015M	64♦	4	4	4	0	4	80
	VOCs	USEPA SW846 8260B	64♦	4	4	4	4	4	84
	SVOCs	USEPA SW846 8270C	64♦	4	4	4	0	4	80
Subtotal									244
Testpits: Laboratory Samples (100 ppm > Petroflag < 500 ppm) ♦									
Soil	TPH	USEPA 8100M or 8015M	64♦	4	4	4	0	4	80
	VOCs	USEPA SW846 8260B	64♦	4	4	4	4	4	84
	SVOCs	USEPA SW846 8270C	64♦	4	4	4	0	4	80
Subtotal									244
Tank Farms 4 & 5 Process Piping (not including TF5 BSW Piping) √									
Soil	TPH	USEPA 8100M or 8015M	12√	2	2	2	0	2	20
	VOCs	USEPA SW846 8260B	12√	2	2	2	2	2	22
	SVOCs	USEPA SW846 8270C	12√	2	2	2	0	2	20
Subtotal									62
Tank 5 BSW Piping									
Soil	TPH	USEPA 8100M or 8015M	3√	1	1	1	0	1	7
	VOCs	USEPA SW846 8260B	3√	1	1	1	1	1	8
	SVOCs	USEPA SW846 8270C	3√	1	1	1	0	1	7
	PCBs	USEPA SW846 8082	3√	1	1	1	0	1	7
	Metals	SW846 6010 or 6020	3√	1	1	1	0	1	7
Subtotal									36
Tank Farm 4 RAs Soil/Concrete/Wipe									
Transformer Vault (including discharge location)	PCBs	USEPA SW846 8082	7	1	1	1	0	1	11
	Chlorinated Benzenes	SW846 8270	7	1	1	1	0	1	11
Subtotal									22
Ruin 1 (including discharge location) (35 x 35 x 8-ft)	VOCs	USEPA SW846 8260B	29	2	2	2	2	2	39
	SVOCs	USEPA SW846 8270C	29	2	2	2	0	2	37
	Dioxins & Furans	USEPA SW846 8290	2	2	2	2	0	2	10
Subtotal									86
Ruin 2 (including discharge location)	SVOCs	USEPA SW846 8270C	11	2	2	2	0	2	19
	TPH	USEPA 8100M or 8015M	11	2	2	2	0	2	19
Subtotal									38
Substation (including discharge location)	PCBs	USEPA SW846 8082	8	1	1	1	0	1	12
	Chlorinated Benzenes	SW846 8270	8	1	1	1	0	1	12
Subtotal									24

Table 7-2 *(Cont'd)*
Summary of Analytical Sampling Programs

Sampling Task/Matrix	Analysis	Possible Analytical Method(s)	Sample Quantities						
			Field Samples	Field Duplicates	MS	MSD	‡Trip Blanks	Eqpt Rinsate	Total
2 Storage Buildings	Lead	USEPA SW846 6010	2	1	1	1	0	1	6
	TPH	USEPA 8100M or 8015M	2	1	1	1	0	1	6
Subtotal									12
Fenceline	TPH	USEPA 8100M or 8015M	5	1	1	1	0	1	9
	PCBs	USEPA SW846 8082	5	1	1	1	0	1	9
	SVOCs	USEPA SW846 8270C	5	1	1	1	0	1	9
	Lead	USEPA SW846 6010	5	1	1	1	0	1	9
Subtotal									36
Groundwater Monitoring Wells	Lead	USEPA SW846 6010	2	1	1	1	0	1	6
	TPH	USEPA 8100M or 8015M	2	1	1	1	0	1	6
Subtotal									12
Tank Farm 5 RAs Soil Samples									
Transformer Vault (including discharge location)	PCBs	USEPA SW846 8082	7	1	1	1	0	1	11
	Chlorinated Benzenes	SW846 8270	7	1	1	1	0	1	11
Subtotal									22
Substation (including discharge location)	PCBs	USEPA SW846 8082	7	1	1	1	0	1	11
	Chlorinated Benzenes	SW846 8270	7	1	1	1	0	1	11
Subtotal									22
Oil/Water Separator (including discharge location)	VOCs	USEPA SW846 8260B	29	1	1	1	1	1	34
	SVOCs	USEPA SW846 8270C	29	1	1	1	0	1	33
	Dioxins & Furans	USEPA SW846 8290	3	1	1	1	0	1	7
	TPH	USEPA 8100M or 8015M	29	1	1	1	0	1	33
	PCBs	USEPA SW846 8082	29	1	1	1	0	1	33
Subtotal									140
Fenceline	TPH	USEPA 8100M or 8015M	5	1	1	1	0	1	9
	PCBs	USEPA SW846 8082	5	1	1	1	0	1	9
	SVOCs	USEPA SW846 8270C	5	1	1	1	0	1	9
	Lead	USEPA SW846 6010	5	1	1	1	0	1	9
Subtotal									36
TOTAL									**1129**

* Subject to change based on the requirements of the disposal facility.

♦ Listed quantity assumes a total of four testpits (2 parallel and 2 perpendicular) will require laboratory analysis and confirmatory sampling; actual number of confirmatory samples will depend on amount of contaminated material encountered.

√ Listed quantity assumes 5% of piping will require laboratory analysis; actual number of samples will depend on amount of contaminated material encountered.

‡ The quantity of trip blanks identified is an estimated quantity - One (1) field duplicate, 1 matrix spike, 1 matrix spike duplicate, and 1 equipment rinsate will be collected per 20 field samples per matrix.

Samples analyzed for VOCs will be accompanied by a trip blank throughout their origin on-site. The trip blank will also accompany samples analyzed for VOCs to the off-site laboratory for analysis and will, itself, be analyzed for VOCs.

Please note: Method 8015M or 8100M will involve the laboratory reporting the total area response for a range of compounds and quantifying that response against an internal standard, O-terphenyl.

8.0 SITE RESTORATION

Disturbed areas will be reseeded with annual grass that will allow for future natural revegetation.

9.0 WASTE MANAGEMENT AND DISPOSAL

9.1 Soil

Soil requiring off-site disposal will be staged on polyethylene sheeting adjacent to the excavation and will be covered with polyethylene sheeting at the end of daily operations and during rainfall events. If necessary and appropriate, soils will be consolidated and staged in a designated staging area. A composite sample will be taken of contaminated soil at the frequency required by the selected disposal facility (typically 1 sample per 500 tons). The sample will be analyzed to satisfy the requirements of the chosen disposal facility accepting the waste. Wastestreams for off-site disposal are anticipated to be sampled for ignitability, SVOCs, PCBs, pH, reactivity, VOCs, and RCRA 8 Metals (see Table 7-2).

After the soil has been sampled and deemed acceptable by the chosen disposal facility, it will be placed in lined trucks. The material will be covered to prevent soil spillage onto roadways and the trucks will be placarded appropriately. Appropriate documentation (Bills of Lading (BOL), etc.) will be completed and will accompany the transport of the materials from the site to the disposal facility.

Field personnel conducting hauling and trucking operations will ensure that no material adheres to the sides or tires of the transport trucks. If material is observed, it will be removed before the trucks leave the site by dry-brushing.

9.2 Debris

Depending on the acceptability of the material at the disposal/recycling facility(ies), debris such as rebar, concrete, and miscellaneous steel and metal originating from the former oil/water separators, former chambers, etc. may be segregated based on former use or based on composition (metal, concrete, etc.). If required by the disposal/recycling facility accepting the material, the debris will be pressure washed. If pressure washing is required, the rinsate will be collected as identified in Section 9.5. If pressure washing is not required, the material will be sampled and characterized as required by the accepting facility (core samples, wipe samples, etc.) and sound environmental practices.

9.3 Process Piping

Process piping will be visually checked to determine if it contains free product. If residual free product is observed and it can be reasonably removed by flushing, the pipe will be flushed and the rinsate will be containerized, sampled, and disposed. The pipe will then be sampled as required by the accepting facility and transported to the facility. If flushing the line is not required by the facility or is not feasible, the piping will be sampled as required by the disposal/recycling facility and disposed (or recycled).

Piping may be consolidated for staging and transport purposes. Because individual pipe runs from the respective tank farms may have different COC, the accepting facility will be consulted before piping is consolidated to ensure the consolidation is appropriate.

9.4 Oil/Water Separator Chamber Material/Sludge

As identified in Section 5.10.4.1 material existing inside the former oil/water separator chambers will be removed from the chambers before the structure is demolished, sampled for characterization purposes, and staged/containerized. If desired, field personnel may choose to sample the material for characterization purposes before removing it from each structure.

Tank Farm 4, Ruin #1 material existing in the upper portion of the chamber will be removed and will be considered uncontaminated unless visual staining is observed or odors are noted whereas material in the bottom half of the eastern chamber will be sampled for characterization purposes. For Tank Farm 4, Ruin #2, all material existing within chambers will be removed, containerized or staged, and sampled for characterization purposes. For the former oil/water separator at Tank Farm 5, material will be collected from the west-most chamber for characterization. Material existing in other Tank Farm 5 oil/water separator chambers will be removed from the structure and will be considered clean unless visual staining or odors are noted. If the material is liquid, it will be containerized appropriately (drums, roll-off, vacuum-truck, etc.)

Separate composite samples will be collected from the material from each structure for characterization purposes. If, based on the analytical results, the disposal facility indicates the material can be consolidated, it will be. The material will then be transported off-site for disposal in lined trucks or as appropriate (vac-trucks, drums, etc). The material will be covered to prevent spillage onto roadways and the trucks will be placarded appropriately. Appropriate documentation (BOL, etc.) will be completed and will accompany the transport of the materials from the site to the accepting facility.

9.5 Rinsate and Monitoring Well Purge Water

Although disposable sampling equipment will be used to the extent feasible, heavy equipment and hand held equipment that has come into contact with potentially contaminated material will be decontaminated upon completion of the required project operations and after traveling from the exclusion zones into other work zones on-site (as applicable). Decontaminate rinsate will be containerized in RIDEM-approved 55-gallon (g) closed top drums or frac tanks before being sampled appropriately for characterization and properly disposed.

Monitoring well purge water that has a sheen or is odorous will be containerized, characterized, and properly disposed off-site. If the purge water has neither a sheen nor odor, it will be released onto the ground.

9.6 PPE and Disposable Sampling Equipment

If acceptable to the disposal facility, the disposable sampling equipment and used PPE will be disposed of with the soil. If the facility requires that the sampling equipment and PPE be segregated from the soil, it will be containerized appropriately and disposed when the volume of material has accumulated sufficiently. If necessary and required by the accepting facility, the PPE and disposable sampling equipment may be sampled and characterized.

If the facility requires that the disposable sampling equipment and PPE be disposed separately from the soil, it will be containerized in 55-g RIDEM approved open top drums.

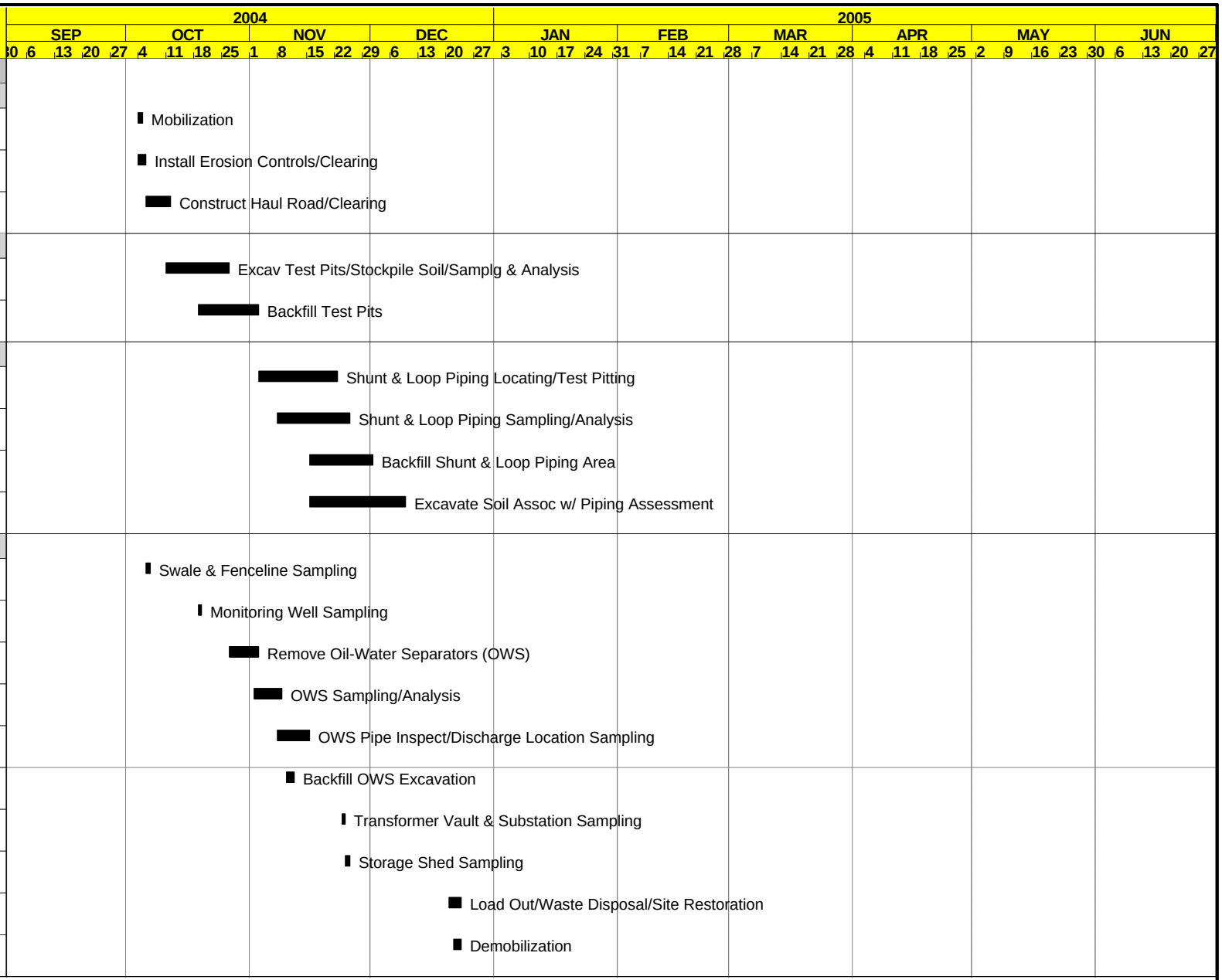
10.0 DEMOBILIZATION

The Navy will demobilize equipment, personnel, and support facilities from the site after completion of required field operations identified in this work plan.

11.0 SCHEDULE

The field work to be performed is scheduled to commence in October 2004. Prior to mobilization, a pre-construction meeting will be held with Navy, NAVSTA, and TtFW personnel, and interested regulators. Mobilization will include establishment of site facilities and utilities, delivery of the heavy equipment to the site, and mobilization of site staff. The first site activity will be the clearing of areas to be investigated to allow access for the surveyor. This will be followed by the collection of samples from the RAs followed by testpitting activities and process pipe investigation. The following dates represent the proposed schedule of activities for the investigation. Some adjustments may be made following mobilization due to weather and other field issues.

Early Start	Early Finish	Orig Dur	
Tank Farm 4 Sludge Pit & Review Area Invest.			
General			
04OCT04*	04OCT04	1	Mobilization
04OCT04	05OCT04	2	Install Erosion Controls/Clearing
06OCT04	11OCT04	3	Construct Haul Road/Clearing
Test Pitting			
11OCT04	26OCT04	10	Excav Test Pits/Stockpile Soil/Samplg & Analysis
19OCT04	02NOV04	9	Backfill Test Pits
Shunt & Loop Piping			
03NOV04	22NOV04	11	Shunt & Loop Piping Locating/Test Pitting
08NOV04	25NOV04	12	Shunt & Loop Piping Sampling/Analysis
16NOV04	01DEC04	10	Backfill Shunt & Loop Piping Area
16NOV04	09DEC04	15	Excavate Soil Assoc w/ Piping Assessment
Review Areas			
06OCT04	06OCT04	1	Swale & Fenceline Sampling
19OCT04	19OCT04	1	Monitoring Well Sampling
27OCT04	02NOV04	4	Remove Oil-Water Separators (OWS)
02NOV04	08NOV04	4	OWS Sampling/Analysis
08NOV04	15NOV04	5	OWS Pipe Inspect/Discharge Location Sampling
10NOV04	11NOV04	2	Backfill OWS Excavation
24NOV04	24NOV04	1	Transformer Vault & Substation Sampling
25NOV04	25NOV04	1	Storage Shed Sampling
21DEC04	23DEC04	3	Load Out/Waste Disposal/Site Restoration
22DEC04	23DEC04	2	Demobilization



Start Date	11JUN04
Finish Date	23DEC04
Data Date	03AUG04
Run Date	24SEP04 09:15

Early Bar
Progress Bar

TF04 Sheet 1 of 1

Contract Task Order 84

Tank Farm 4 Sludge Pit & Review Area Investigation

Newport, RI

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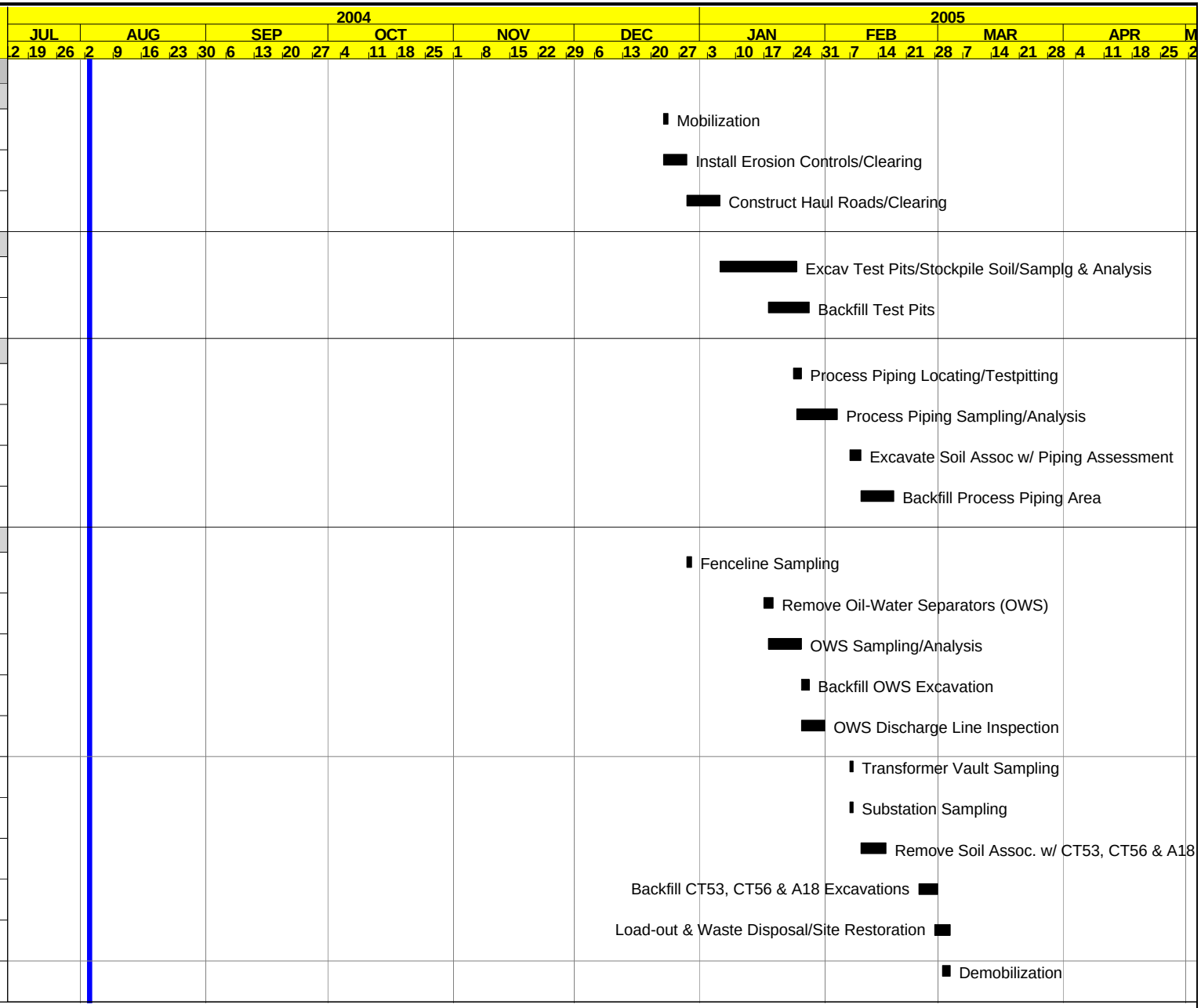
Early Start	Early Finish	Orig Dur	
Tank Farm 5 Sludge Pit & Review Area Invest.			
General			
23DEC04*	23DEC04	1	Mobilization
23DEC04	28DEC04	3	Install Erosion Controls/Clearing
29DEC04	05JAN05	5	Construct Haul Roads/Clearing
Test Pitting			
06JAN05*	24JAN05	10	Excav Test Pits/Stockpile Soil/Samplg & Analysis
18JAN05	27JAN05	7	Backfill Test Pits
Process Piping			
24JAN05*	25JAN05	2	Process Piping Locating/Testpitting
25JAN05	03FEB05	7	Process Piping Sampling/Analysis
07FEB05	09FEB05	3	Excavate Soil Assoc w/ Piping Assessment
10FEB05	17FEB05	5	Backfill Process Piping Area
Review Areas			
29DEC04	29DEC04	1	Fenceline Sampling
17JAN05	18JAN05	2	Remove Oil-Water Separators (OWS)
18JAN05	25JAN05	5	OWS Sampling/Analysis
26JAN05	27JAN05	2	Backfill OWS Excavation
26JAN05	31JAN05	3	OWS Discharge Line Inspection
07FEB05	07FEB05	1	Transformer Vault Sampling
07FEB05	07FEB05	1	Substation Sampling
10FEB05	15FEB05	3	Remove Soil Assoc. w/ CT53, CT56 & A18
24FEB05	28FEB05	2	Backfill CT53, CT56 & A18 Excavations
28FEB05	03MAR05	4	Load-out & Waste Disposal/Site Restoration
02MAR05	03MAR05	2	Demobilization



Start Date	02AUG04
Finish Date	03MAR05
Data Date	03AUG04
Run Date	24SEP04 09:20

Early Bar
Progress Bar

TF05 Sheet 1 of 1

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Tank Farm 5 Sludge Pit
& Review Area Investigation

Newport, RI

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12.0 FINAL REPORT PREPARATION AND SUBMITTAL

The Navy will submit a Draft and a Final Closeout Report for the work described in this work plan. The report will describe how the operations described in this work plan were conducted and will include field screening data, confirmatory sample analytical data, wastestream characterization analytical data, wastestream BOL and weight slips, and other documentation supporting the activities described herein and conducted during field operation implementation.

13.0 REFERENCES

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Loureiro Engineering Associates, Confirmation Study Report on Hazardous Waste Sites at Naval Education Training Center at Newport, RI, May, 1986.

Naval Energy and Environmental Support Activity (NEESA), A Final Initial Assessment Study on the Naval Education and Training Center (NETC), March 1983.

Preliminary Closure Assessment Report of Tank Farms 4 and 5 at Naval Education and Training Center Newport, Rhode Island, Halliburton NUS Corporation, June 1995.

State of Rhode Island and Providence Plantations Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Remediation Regulations: DEM-DSR-01-93), Department of Environmental Management, Division of Site Remediation, March 31, 1993, Amended February 2004.

State of Rhode Island Regulations for Underground Storage Facilities Used for Petroleum Producers and Hazardous Materials (RIDEM UST), Department of Environmental Management, October 2002.

TRC Environmental Corporation Remedial Investigation Technical Report, Volume 1, 1992.

Attachment 1

Meeting Minutes from April 7, 2004 Meeting at NAVSTA

FINAL

Regulatory Meeting at Naval Station Newport, RI
4-7-04
Tank Farms 4 and 5

Meeting Attendees

Name	Affiliation	Phone #	Email Address
Janice McIntosh	TtFW	617-457-8411	Jmcintosh@ttfwi.com
Melanie Weed	TtFW	617-457-8255	Mweed@ttfwi.com
Susan Leach	TtFW	617-457-8240	Sleach@ttfwi.com
Gregory Kemp	Gannett Fleming	603-625-9116	Gkemp@GFNET.com
Kymberlee Keckler	USEPA	617-918-1385	Keckler.Kymberlee@epa.gov
Amanda Cerise	NAVSTA	401-841-6375	Cerisea@nsnpt.navy.mil
Brian Helland	EFANE Navy	610-595-0567	Brian.helland@navy.mil
Curt Frye	EFANE Navy	610-595-0567	Curtis.frye@navy.mil
Arthur Sylvester	NAVSTA	401-841-3919	SylvesterA@nsnpt.navy.mil
Paul Kulpa	RIDEM	401-222-2797	Pkulpa@dem.state.ri.us
Jennifer Stump (via phone)	Gannett Fleming	717-763-7811	Jstump@GFNET.com

General
USEPA and RIDEM each received a packet of Naval drawings relevant to the project scope. The following drawings were contained in the packet:

- 994,207 (18151-188)
- 638081
- 18161-188
- 8386-90
- 627297 (12005-127)
- 627299
- 627336
- 627337 (12045-127)
- 627343
- 638210
- 12044-127
- 2018982
- 9762-104
- 9761-104
- 2018987
- 2018981

1. SLUDGE PIT INVESTIGATION

a) Issue-Selection of Tanks to be Investigated
The Navy, USEPA, and RIDEM agreed to assess only 5 tanks at each tank farm. After discussion, USEPA and RIDEM suggested, and the Navy concurred, to investigate the following tanks:

i) Tank Farm 4 - USTs 40, 42, 44, 45, and 48
ii) Tank Farm 5 – USTs 49, 50 (slop tank), 51, 54, and 58

b) Petroflag Screening Protocol
Flowchart #1 proposed petroflag screening protocol – all agreed that the petroflag screening protocol identified in flowchart #1 was acceptable (flowchart for use at all USTs selected for initial assessment and associated piping at Tank Farms 4 and 5.

Flowchart #2 proposed petroflag-screening protocol – all agreed that the petroflag screening protocol identified in flowchart #2 was acceptable for use at the BSW Lines & oil/water separator at Tank Farm 5.

c) Analytical Requirements at Tank 56
Not discussed because UST 56 was not selected for investigation

d) Sludge Pit Depth
All parties agreed that the testpits will be constructed to a depth of 5-ft. Before testpit construction, the Navy agreed to use a metal detector to look for the steel walls of any burn pits that may exist around the tanks (based on a statement in the Initial Assessment Study, 1983, for Tank Farm 5). If the metal detector provides useful information, the agreed upon pattern for test pits will be skewed accordingly. Additionally, it was agreed that the test pit pattern would be oriented to ensure proper coverage of the area adjacent to the former pumping chambers and access hatches to the tanks.

e) Protocol for Testpit Expansion
All parties agreed that the Navy will use the Petroflag screening protocol (flowchart #1) to determine if and when contaminated soil has been encountered. All parties agreed that RIDEM would provide a confirmation protocol to be used in the event soil removal is necessary. The following procedures will be used: If contamination in excess of the applicable criteria (see flowchart #1) is observed via field screening, a removal action will be conducted and after removal, the Petroflag screening protocol (flowchart #1) will again be used as a guide to indicate when uncontaminated soil has been reached. At this point, one confirmation sample will be collected every 20-lf along each sidewall and one confirmation sample will be collected from the base of the removal area every 100-ft^2. Additional sidewall samples will be collected if the excavation depth exceeds 5 feet. This confirmation sampling protocol was provided by RIDEM on May 11, 2004.

f) Wetland Permit
Regarding wetlands, Paul Kulpa stated that no permit was needed for approved investigation activities in wetlands or wetland buffer areas. He indicated that limited removal actions associated with this investigation and identified in the Work Plan (TF4 & TF5-removal of oil/water separators and associated piping, TF4-Ruin #2 removal, etc.) could be initiated and completed without a wetland permit. He also indicted that large, extensive removal actions associated with this investigation would require a wetland permit.

g) Land Use Controls
General requirements of RIDEM environmental land use restrictions (ELURs) were discussed. Navy indicated that controls will include restrictions on digging and withdrawal of groundwater, and that the controls will be enforceable by RIDEM. Paul Kulpa requested that RIDEM annual reporting requirements be written into the land use controls.

2. <u>SHUNT AND LOOP PIPING INVESTIGATION</u>

TF4 - Direct-push sampling of the shunt piping was performed by Halliburton (1995 Preliminary Closure Assessment Report of Tank Farms 4 and 5) and the results were provided in Table 2-1 of the March 14, 2003 Work Plan. The Navy is still researching if sampling of the loop piping was conducted at TF4. The Navy is still researching whether the shunt piping and loop piping were removed at TF 4. Some recent discussions with personnel who were on-site during the demolition indicated the piping was removed but the reports could not yet be located to confirm this. The maps of the wetlands suggest that the piping was removed and the area has since settled, creating a man-made wetland in the vicinity of the former piping. The Navy and TtFW are continuing to review archived information in an effort to locate data and reports to substantiate the claims of piping removal.

If the Navy/TtFW locate data and/or reports that indicate the TF4 piping was removed and/or sampled, RIDEM and USEPA will receive copies of the reports. If the Navy/TtFW cannot locate any reports/data to support the claim that the piping was removed, future site investigation will include assessment of the loop piping, the piping that runs from the main loop to the mainline adjacent to Defense Highway, and the BSW piping. All parties agreed on the following:

- A metal detector would be used to locate the piping. Once located by the metal detector, a testpit would be constructed to confirm the presence and depth of the piping. If the metal detector does not produce accurate or reliable information, the locations of the shunt and loop piping will be estimated off of existing drawings and testpitting will be employed to confirm the existence of the piping as well as the depths.

- After the location and depths of the piping have been determined, the proposed petroflag screening protocol (flowchart #1) would be used to assess the TF4 shunt and loop piping. Geoprobe samples will be collected at 50-ft intervals, at the appropriate depth, and the samples will be skewed towards the locations of the former chambers and discharge points for any drain lines. If the discharge points of the chambers are located at appreciable distances from the chambers, the discharge locations will be sampled. RIDEM agreed this approach would adequately address all previously raised UIC issues.

- If the BSW lines are greater than 4-ft from the fuel piping, or are located at different depths, then separate investigations of these lines will occur in the same manner as described above (petroflag screening protocol-flowchart #1, geoprobe samples at 50-ft intervals, ..).

- COCs as identified on flowchart #1.

TF 5 - The Brown and Root, October 1995 Process Piping and Closure Assessment Report for TF 5 defines the process piping as consisting of the loop and shunt piping. The process piping includes condensate lines (not asbestos insulated), BS&W lines, steam line (with asbestos insulation), fuel line, and a water line (not always present). All parties agreed that most of the shunt, loop, and BSW piping from TF5 was previously sampled and removed, as indicated by the Brown and Root, October 1995 report. All process piping from CT-53 A-19 moving in a clockwise direction (including the shunt to UST 52) was closed in place and was not sampled. The shunt piping associated with USTs 51 and 56 was removed and sampled. The shunt piping associated with UST 53 was removed and the Navy is researching to determine if it was sampled.

The 6-inch BSW line running clockwise from the approximate location of CT-53 to A-19 was closed in place and was not sampled. Both the 8-inch and the 4-inch BSW lines the are located in-between A-19 and the oil water separator were drained, cleaned, flushed, and closed in place and were not sampled.

All parties agreed that the following pipelines will be assessed:

- Process piping from CT-53 to A-19 (clockwise).
- UST 52 shunt piping.
- UST 53 shunt piping if not previously sampled. Navy is currently researching reports to determine if this line was previously sampled.
- Fuel piping from A-19 to the tank farm boundary.
- 6-inch BSW piping from vicinity of CT-53 to A19 (clockwise direction), the 4-inch and 8-inch BSW piping from A19 to oil water separator.
- The 24-inch line from the TF5 property line to CT-53. Property line will be determined by review of drawings and field observations.

The above piping will be sampled as follows:

- A metal detector would be used to locate the piping. Once located by the metal detector, a testpit would be constructed to confirm the presence and depth of the piping. If the metal detector does not produce accurate or reliable information, the locations of the shunt and loop piping will be estimated off of existing drawings and testpitting will be employed to confirm the existence of the piping as well as the depths.

- After the location and depths of the piping have been determined, the proposed petroflag screening protocol (flowchart #1) would be used to assess piping from A-19 to CT-53 (including shunt to UST 52), the BSW line from A-19 to the oil/water separator/burn chamber, and the fuel line from A-19 to the main fuel pipe adjacent to Defense Highway. Geoprobe samples will be collected at 50-ft intervals, at the appropriate depth, and the samples will be skewed towards the locations of the former chambers and discharge points for any drain lines.

If the discharge points from the chambers are located at appreciable distances from the chambers, the discharge locations will be sampled. COCs as identified on flowchart #1.

- For the BSW piping associated with USTs 53 and 56, the previously proposed petroflag screening protocol (flowchart #2) will be followed, which means samples will be analyzed for PCBs and metals in addition to the other COCs. If the BSW lines are greater than 4-ft from the fuel piping, or are located at different depths, then separate investigations of these lines will occur in the same manner as described above (petroflag screening protocol-flowchart #2, geoprobe samples at 50-ft intervals, ..).

3. OIL/WATER SEPARATOR INVESTIGATION

a & b) TF4 and TF5 oil water separators-The oil/water separator approach that all agreed on is defined below:

- TF4 oil water separator, TF4 Ruin 2, and TF5 oil water separator structures will be removed.
- After removal, petroflag screening will be used by the Navy as a guide to determine if and when uncontaminated soil has been reached.
- After petroflag screening and soil removal (if necessary), sidewall and base samples will be collected from the area of removal as indicated on RIDEM guidance document-to be provided to the Navy and TtFW by Paul Kulpa of RIDEM.
- COCs from the former location of the oil water separators are as follows:
  - TF4 oil water separator-all sidewall and base samples will be collected for dioxins and furans, SVOCs, and TPH analyses. However, only the base dioxin/furan sample will be immediately analyzed. The sidewall samples for dioxin and furan analysis will be frozen and will only be run for the dioxin and furan analysis if the samples collected from the sidewalls contain SVOCs or TPH in excess of the applicable criteria.
  - TF4 Ruin 2-all sidewall and base samples will be collected for SVOCs and TPH analyses.
  - TF5 oil water separator- all sidewall and base samples will be collected for dioxins and furans, SVOCs, TPH, PCBs, VOCs, and metal analyses. However, only the base dioxin/furan sample will be immediately analyzed. The sidewall samples for dioxin and furan analysis will be frozen and will only be run for the dioxin and furan analysis if the samples collected from the sidewalls contain exceedences of the applicable criteria.

c) TF4 and TF5 o/w separator and TF4 Ruin 2 discharge line-assessment will proceed as follows:

- TF4 and TF5 o/w separators-In lieu of sampling along the discharge piping to assess the integrity of the pipelines, it was agreed that all discharge lines will be inspected with a camera to assess the integrity of the piping and potential accumulation of sludge in the piping. Only if it appears the piping has been replaced or a break in the discharge line is evident, will geoprobe samples be collected adjacent to these areas to identify if a release may or may not have occurred. The COCs for each area will be the same as the COCs for each area associated with the oil/water separator removal. If the piping is intact and appears to be free of sludge, no sampling along the discharge pipe is necessary. If the piping contains sludge, then it will be removed.

- TF4 Ruin #2-discharge pipe will be manually inspected with a flashlight and a hand-held probe to determine if sludge is observed in the piping. If sludge is observed, the line will be removed and disposed off-site. If the line appears to be sludge free and intact, then no additional assessment along the discharge pipe is necessary.

d) TF4 and TF5 oil water separator discharge locations-Petroflag screening will be used to field-assess the conditions of the sediment at the discharge pipe. If Petroflag results > 100 ppmv, then one sediment core sample will be manually collected from the discharge pipe drainage location and will be analyzed for the COCs associated with the removal of the oil/water separator. If Petroflag results are < 100 ppmv, then only those analytes whose criteria were exceeded at the former location of the oil water separator will be analyzed off-site.

TF4 Ruin #2 discharge location- Petroflag screening will be used to field-assess the conditions of the sediment at the discharge pipe. If Petroflag results > 100 ppmv, then one sediment core sample will be manually collected from the discharge pipe drainage location and will be analyzed for TPH and SVOCs. If Petroflag results are < 100 ppmv, then only those analytes whose criteria were exceeded at the former location of Ruin #2 will be analyzed off-site.

e) All parties agreed that the oil water separators and burn chambers/pits were co-located.

f) Drainage Swales at TF4- Historical drawings appear to show a streamlet, groundwater seep, or drainage swale in the area southwest of tank #41 in the vicinity of Ruin #2. All parties agreed that the Navy will search for the swale and contact RIDEM if it is located. The Navy agreed to collect one sample from the swale for TPH for off-site analysis. If the sample exceeds the applicable criteria, then another sample will be collected from the same area and will be laboratory analyzed for SVOCs.

4. <u>REVIEW AREA INVESTIGATIONS</u>

a) i) Tank Farms 4 and 5 Fence Line Sampling-all parties agreed that 5 surface soil samples will be collected from within the fenceline from the general areas that exhibited high soil gas concentrations. All parties agreed that samples will be taken from accessible areas. Based on the soil gas concentrations and accessibility issues, it was determined that the south fenceline of TF5 and the east fenceline of TF4 would be sampled for TPH, PCBs, lead, and SVOCs (SVOCs includes chlorinated benzenes).

ii) Foam Storage Buildings-Navy identified that the exposure routes for humans and the toxicity values for PFOA and APFOA have yet to be determined by USEPA. In fact, a Draft USEPA Risk Assessment indicated that the USEPA is, perhaps, years away from determining the toxicity values and exposure routes of these constituents. The literature indicates that APFOA and PFOA are ubiquitous. TtFW gave a copy of the literature to RIDEM. Paul Kulpa (RIDEM) will have RIDEM risk assessors review and RIDEM will provide their thoughts on this subject to the Navy soon. TtFW also pointed out the many products today including Scotchguard and Teflon contain PFOA and APFOA and if the Navy were to collect samples (which they do not propose) they would have to collect background samples also. Navy's position remains that sampling is not warranted.

b) Tank Farm 4
i) Buoy "Incubator" Buildings-RIDEM produced a 1945 Navy drawing that referred to the sheds as "Buoy Incubator Sheds". All parties agreed to assess the former locations of these areas with a metal detector to determine a foundation or a possible UST associated with these buildings. If the metal detector doesn't assist in locating a foundation or an UST, the Navy will use GIS and aerial photographs to locate the former locations of these buildings and a total of four samples (two from each former building) will be collected from these areas. Samples will be analyzed for lead.

ii) Building and Possible Tank NW of Tank 38-The 1992 TRC document referred to a "a building and a possible UST" northwest of tank #38, based on review of a 1951 Facility Map. All parties agreed there maybe a typographical error in the TRC report, since no other historical drawings or aerial photographs show any structures northwest of tank #38. Amanda Cerise will attempt to locate the 1951 Facilities Map in Public Works Department files. Further discussions will be necessary to resolve this issue.

c) Tank Farm 5 – Carr Point. All parties agreed that Carr Point is not part of the IR site, and the Navy will therefore not include the area in this investigation. RIDEM stated that they are concerned about Carr Point due to its reported use as a drum storage area, and they will request the Navy to address Carr Point as a separate site.

5. <u>ADDITIONAL ITEMS</u>

a) Groundwater monitoring wells adjacent to Defense Highway-all parties agreed that the wells will be sampled if they are still present. The Navy will look for LNAPL before the wells are sampled and then the wells will be sampled for TPH and lead via low flow sampling.

b) GIS Information-RIDEM said there was a soil sample collected from UST 50 that did not show up in a query of the GIS. C. Frye said that the missing sample result was listed as something other than TPH (Bunker C) so it did not show up in the query. RIDEM and the Navy to discuss proper querying of the data in the GIS System. In addition, the revised version of the GIS database will also include results for 3 tank farm 5 stream samples that were omitted due to administrative error.

c) Kymberlee Keckler-stated that, to date, USEPA has not received any information on TFs 1-3 and she wanted to make it clear that USEPA is still involved at work at the TFs as per the FFA.

d) Upon review of the draft minutes from the 4/7 meeting, USEPA provided an additional comment (via e-mail). Although not discussed at the 4/7 meeting, the comment and response are included herein for clarity.

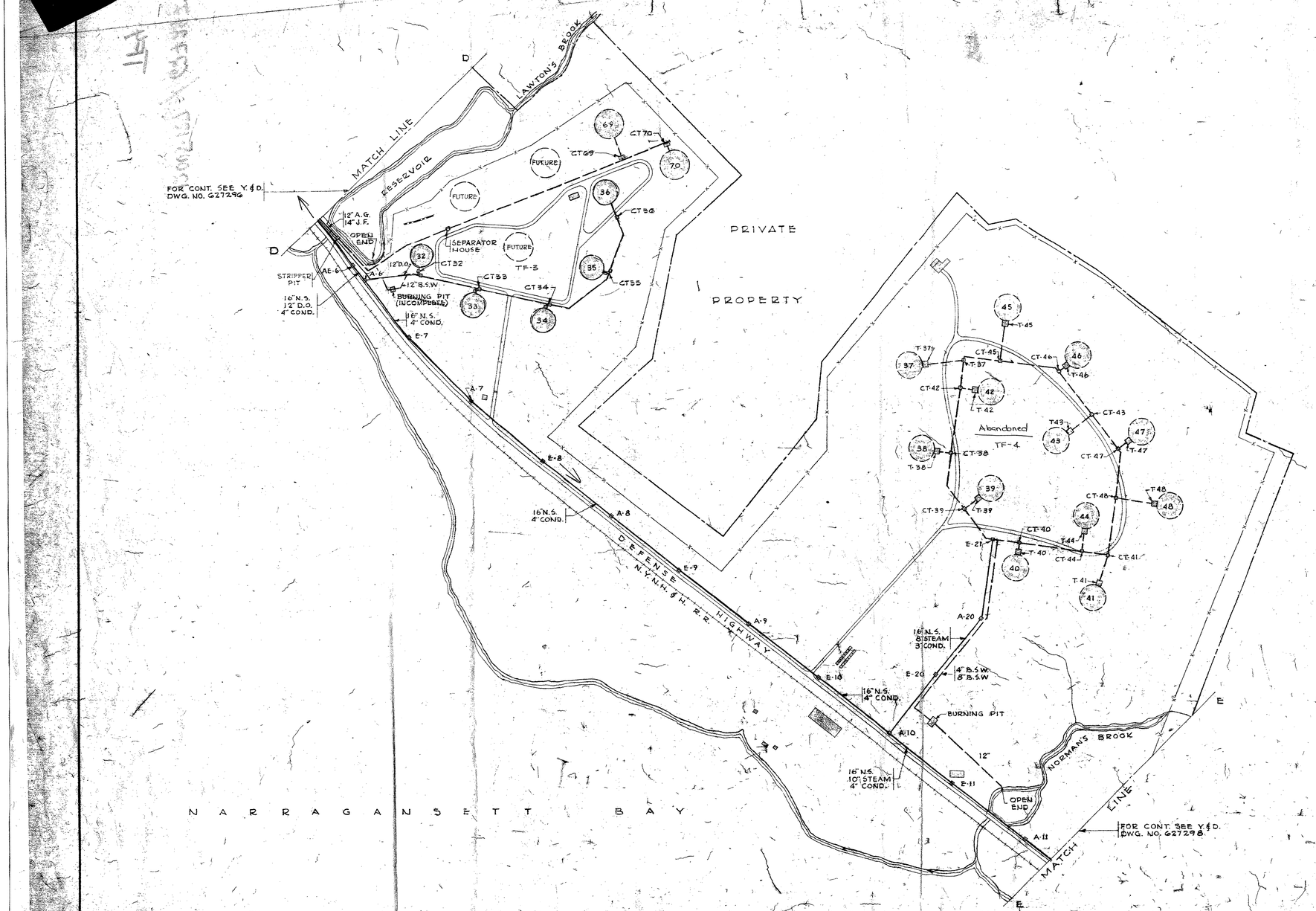
> *USEPA comment - The PetroFlag sampling protocol for the test pits as described in the March 14, 2003 Work Plan in Section 4.5.2.4 is not adequate because it does not include sidewall sampling. If we are to rely on PetroFlag sample results to declare a test pit un-impacted, it will not be sufficient to collect only a few samples from the test pit floor and none from the sidewalls. Therefore, the current protocol must be revised to provide an adequate assessment of the test pit by including sidewall samples.*

Navy response - Section 4.5.2.4.1 focuses on Petroflag screening of stained or odoriferous soil. This section indicates that field personnel will visually screen the testpit sidewalls and base for staining (and seek evidence of olfactory odors). If staining or odorous soil is observed, a sample or samples as appropriate, will be collected for field screening. A reference was made to Figure 4-3, which did not show the sidewall samples.

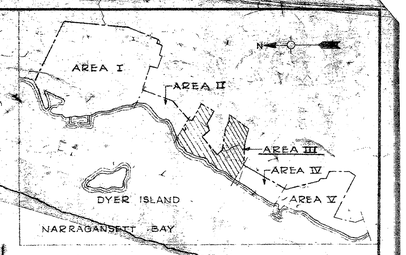
The work plan will be clarified to say, in both Sections 4.5.2.4.1 and 4.5.2.4.2, that from each testpit, a total of two samples will be collected from the testpit sidewalls for Petroflag screening. Petroflag samples will be collected preferentially from stained or odorous area. If no staining or odors are noted, then a total of two samples will be collected for Petroflag screening from each testpit. Figures 4-3 and 4-4 will be revised to show the Petroflag sidewall sampling locations. In this manner, field personnel are utilizing visual screening, olfactory evidence, and Petroflag field screening to assess the condition of the soil within a testpit.

Attachment 2

Navy Tank Farms 4 and 5 Process Piping Drawings



SITE PLAN
SCALE 1" = 200'-0"



LOCATION PLAN
NO SCALE

N

REFERENCE SCHEDULE	
DRAWING	REFER TO Y.&D. DRAWING NUMBERS
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AREA I	627295
AREA II	627296
AREA III	627297
AREA IV	627298
AREA V	627299
PLOT PLANS	
TANKS 32-36	627332
TANKS 37-48	627338
CHAMBERS	
A-6-A-9 & E6-E10 E11, E20, E21, A10	627330
A11 & A20	627331

LEGEND

———	PIPE LINES IN TRENCH
═══	PIPE LINES DIRECT BURIED
A-6 □	ANCHOR CHAMBER
E-6 □	EXPANSION CHAMBER
AE-6 □	ANCHOR & EXPANSION CHAMBER
CT-45 □	TANK JUNCTION CHAMBER
T-45 □	PUMPING SUMP
NS	NAVY SPECIAL (FUEL OIL)
BSW	BOTTOM SEDIMENT & WATER
JF	JET FUEL
AG	AVIATION GASOLINE
DO	DIESEL OIL
—·—·—	U.S. PROPERTY LINE
—x—x—	FENCE

NOTE:
TANKS NO. 69 & 70, SEPARATOR HOUSE & STRIPPER PIT UNDER CONSTRUCTION. CONTRACT NOY 29573

GRAPHIC SCALE IN FEET
1" = 200'-0"
0 200 400 600 800 1000

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		

ENGINEERS JOB NO. E53-279
ENGINEERS DWG. NO. FUD 4

DEPARTMENT OF THE NAVY
DISTRICT PUBLIC WORKS OFFICE
BUREAU OF YARDS & DOCKS
1ST ND BOSTON, MASS
J.M. McCUSKER CO. - ENGRS. & ARCHTS.
BOSTON 30, MASSACHUSETTS

TRACED BY: L.H.M.
DRAWN BY: L.H.M.
CHECKED BY:
D.P.W.O. DWG. NO.
PROJ. ENGR. QUIRK
DIRECTOR SEDDON

U.S. NAVAL BASE NEWPORT, R.I.
NAVY FUEL OIL DEPOT, MELVILLE

FUEL DISTRIBUTION SYSTEM
AREA III
SITE PLAN

APPROVED: REAR ADMIRAL
DATE: JULY 1952
OFFICER IN CHARGE

SATISFACTORY TO
DATE

APPROVED FOR BUREAU OF YARDS AND DOCKS
H.F.O. FOR CHIEF OF BUREAU
DATE: JULY 1952

SCALE: 1" = 200'-0"
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NOY 8119
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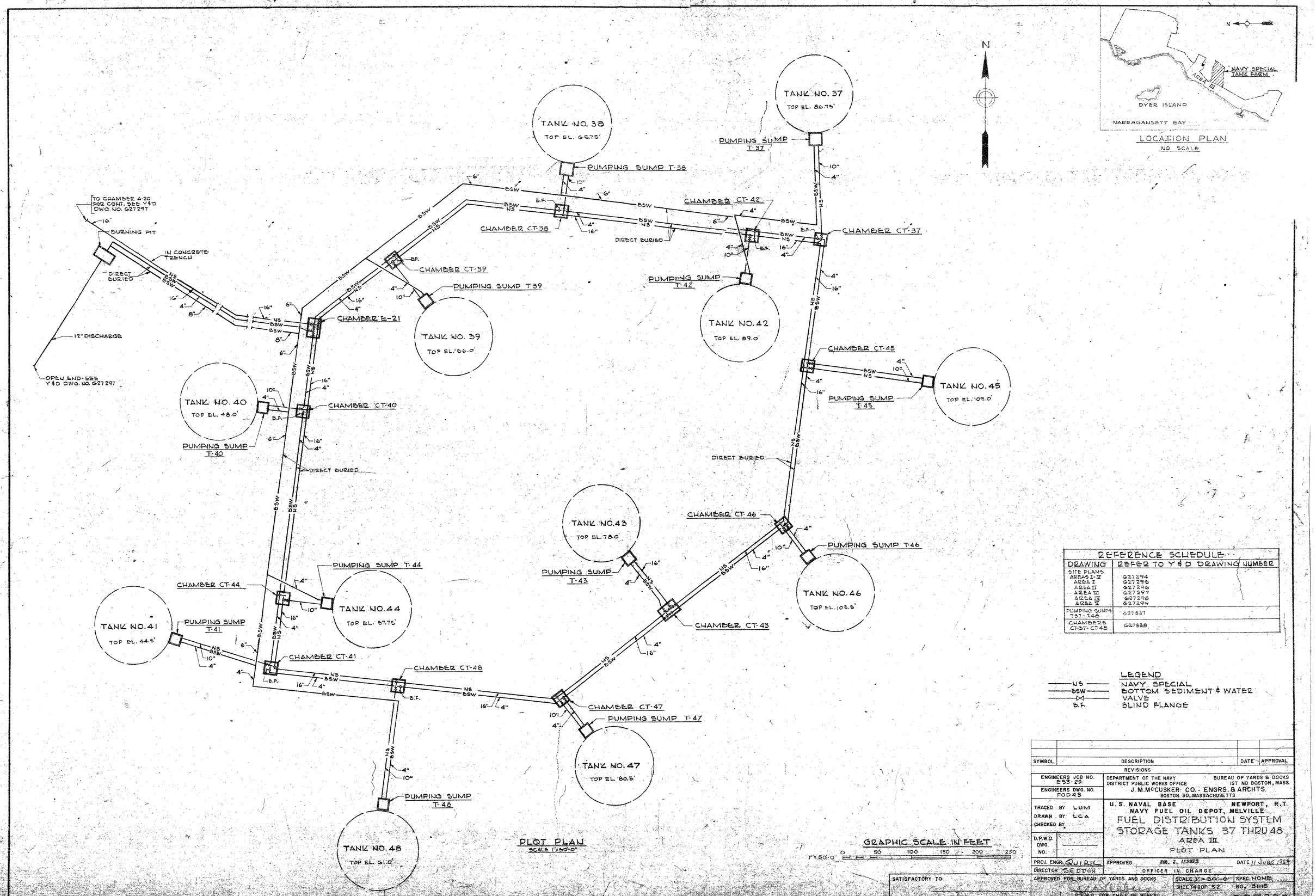
N
TANK NO. 37
TOP EL. 86.75'
DUMPING SUMP T-37
TANK NO. 38
TOP EL. 66.75'
PUMPING SUMP T-38
CHAMBER CT-38
CHAMBER CT-42
CHAMBER CT-37
DIRECT BURIED
PUMPING SUMP T-42
TANK NO. 42
TOP EL. 89.0'
TO CHAMBER A-20 FOR CONT. SEE Y&D DWG. NO. 627297
BURNING PIT
IN CONCRETE TRENCH
DIRECT BURIED
12" DISCHARGE
OPEN END-SEE Y&D DWG. NO. 627297
CHAMBER CT-39
PUMPING SUMP T-39
TANK NO. 39
TOP EL. 66.0'
CHAMBER E-21
TANK NO. 40
TOP EL. 48.0'
CHAMBER CT-40
PUMPING SUMP T-40
DIRECT BURIED
CHAMBER CT-45
PUMPING SUMP T-45
TANK NO. 45
TOP EL. 109.0'
DIRECT BURIED
TANK NO. 43
TOP EL. 78.0'
PUMPING SUMP T-43
CHAMBER CT-46
PUMPING SUMP T-46
TANK NO. 46
TOP EL. 103.5'
CHAMBER CT-43
PUMPING SUMP T-44
TANK NO. 44
TOP EL. 67.75'
CHAMBER CT-44
TANK NO. 41
TOP EL. 44.5'
PUMPING SUMP T-41
CHAMBER CT-41
CHAMBER CT-48
CHAMBER CT-47
PUMPING SUMP T-47
TANK NO. 47
TOP EL. 80.5'
PUMPING SUMP T-48
TANK NO. 48
TOP EL. 61.0'
PLOT PLAN
SCALE 1" = 50'-0"
GRAPHIC SCALE IN FEET
1" = 50'-0"
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NAVY SPECIAL TANK FARM
AREA III
DYER ISLAND
NARRAGANSETT BAY
LOCATION PLAN
NO SCALE
REFERENCE SCHEDULE
DRAWING | REFER TO Y&D DRAWING NUMBER
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AREA I | 627295
AREA II | 627296
AREA III | 627297
AREA IV | 627298
AREA V | 627299
PUMPING SUMPS T37-T48 | 627337
CHAMBERS CT-37-CT-48 | 627338
LEGEND
NS NAVY SPECIAL
BSW BOTTOM SEDIMENT & WATER
VALVE
B.F. BLIND FLANGE
SYMBOL | DESCRIPTION | DATE | APPROVAL
REVISIONS
ENGINEERS JOB NO. 653-29
ENGINEERS DWG. NO. FOD43
DEPARTMENT OF THE NAVY DISTRICT PUBLIC WORKS OFFICE
BUREAU OF YARDS & DOCKS 1ST ND BOSTON, MASS.
J. M. McCUSKER CO. - ENGRS. & ARCHTS. BOSTON 30, MASSACHUSETTS
TRACED BY LHM
DRAWN BY LCA
CHECKED BY
U.S. NAVAL BASE NEWPORT, R.I.
NAVY FUEL OIL DEPOT, MELVILLE
FUEL DISTRIBUTION SYSTEM
STORAGE TANKS 37 THRU 48
AREA III
PLOT PLAN
D.P.W.O. DWG. NO.
PROJ. ENGR. QUIRIC
DIRECTOR SEDTON
APPROVED JNO. J. ALBERS
OFFICER IN CHARGE
DATE 11 JUNE 1954
SATISFACTORY TO
DATE
APPROVED FOR BUREAU OF YARDS AND DOCKS
D.P.W.O. FOR CHIEF OF BUREAU
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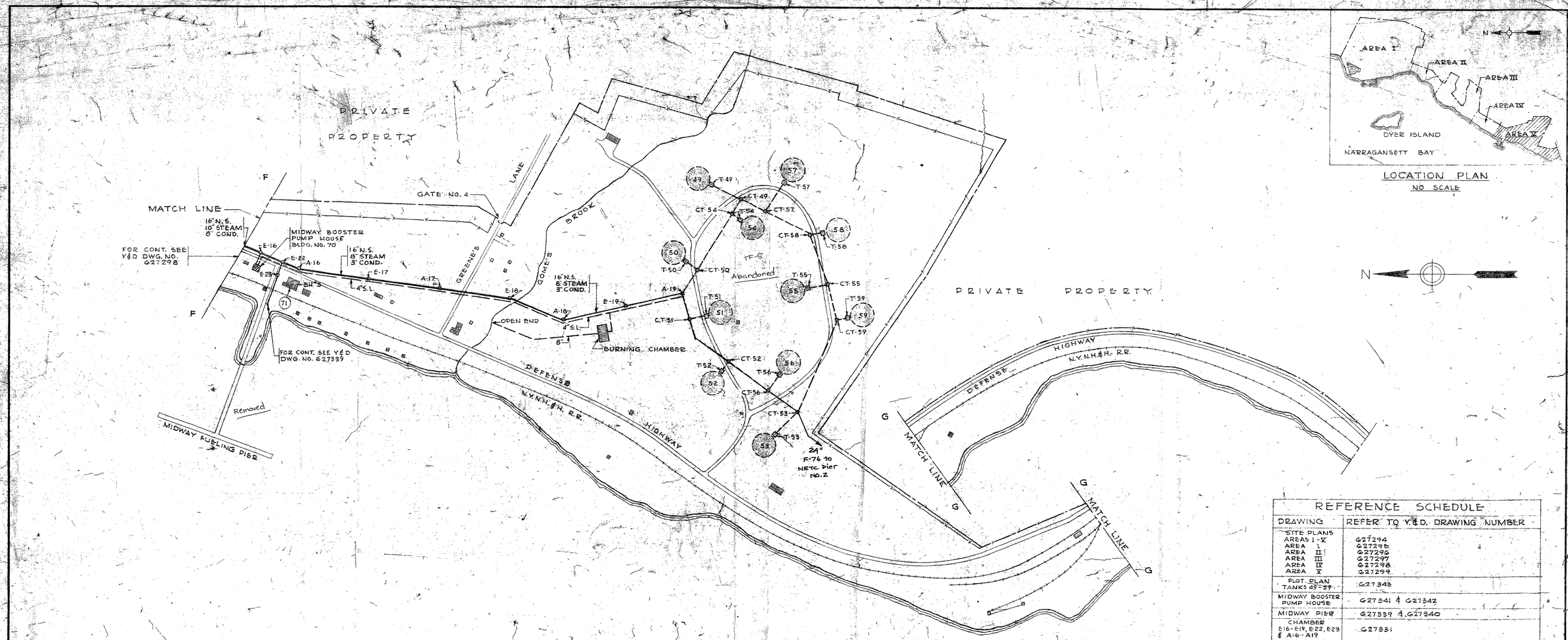
NO. 5115
Y&D DRAWING NO. 627336
PWC DWG. 12044-127



SITE PLAN
SCALE 1" = 200'-0"

LOCATION PLAN
NO SCALE

REFERENCE SCHEDULE

DRAWING	REFER TO Y&D. DRAWING NUMBER
SITE PLANS AREAS I - V	627294
AREA I	627295
AREA II	627296
AREA III	627297
AREA IV	627298
AREA V	627299
PLOT PLAN TANKS 49-59	627343
MIDWAY BOOSTER PUMP HOUSE	627341 & 627342
MIDWAY PIER	627339 & 627340
CHAMBER E16-E19, E22, E23 & A16-A19	627331

LEGEND

———	PIPE LINE IN TRENCH
— — —	PIPE LINE DIRECT BURIED
A-16 □	ANCHOR CHAMBER
E-16 □	EXPANSION CHAMBER
T50 □	PUMPING SUMP
CT-50 □	TANK JUNCTION CHAMBER
NS	NAVY SPECIAL (FUEL OIL)
SL	STRIPPER LINE
—·—·—	U.S. PROPERTY LINE
—x—x—	FENCE
BH	BOILER HOUSE

GRAPHIC SCALE IN FEET
1" = 200'-0" 0 200 400 600 800 1000

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		

ENGINEERS JOB NO. E53-29
ENGINEERS DWG. NO. F0D'D
TRACED BY D.W.F.
DRAWN BY C.H.M.
CHECKED BY
D.P.W.O. DWG. NO.
PROJ. ENGR. QUIRK
DIRECTOR SEDDON

DEPARTMENT OF THE NAVY
DISTRICT PUBLIC WORKS OFFICE
BUREAU OF YARDS & DOCKS
1ST ND. BOSTON, MASS.
J. M. McCUSKER CO. - ENGRS. & ARCHTS.
BOSTON 30, MASSACHUSETTS

U.S. NAVAL BASE NEWPORT, R.I.
NAVY FUEL OIL DEPOT, MELVILLE

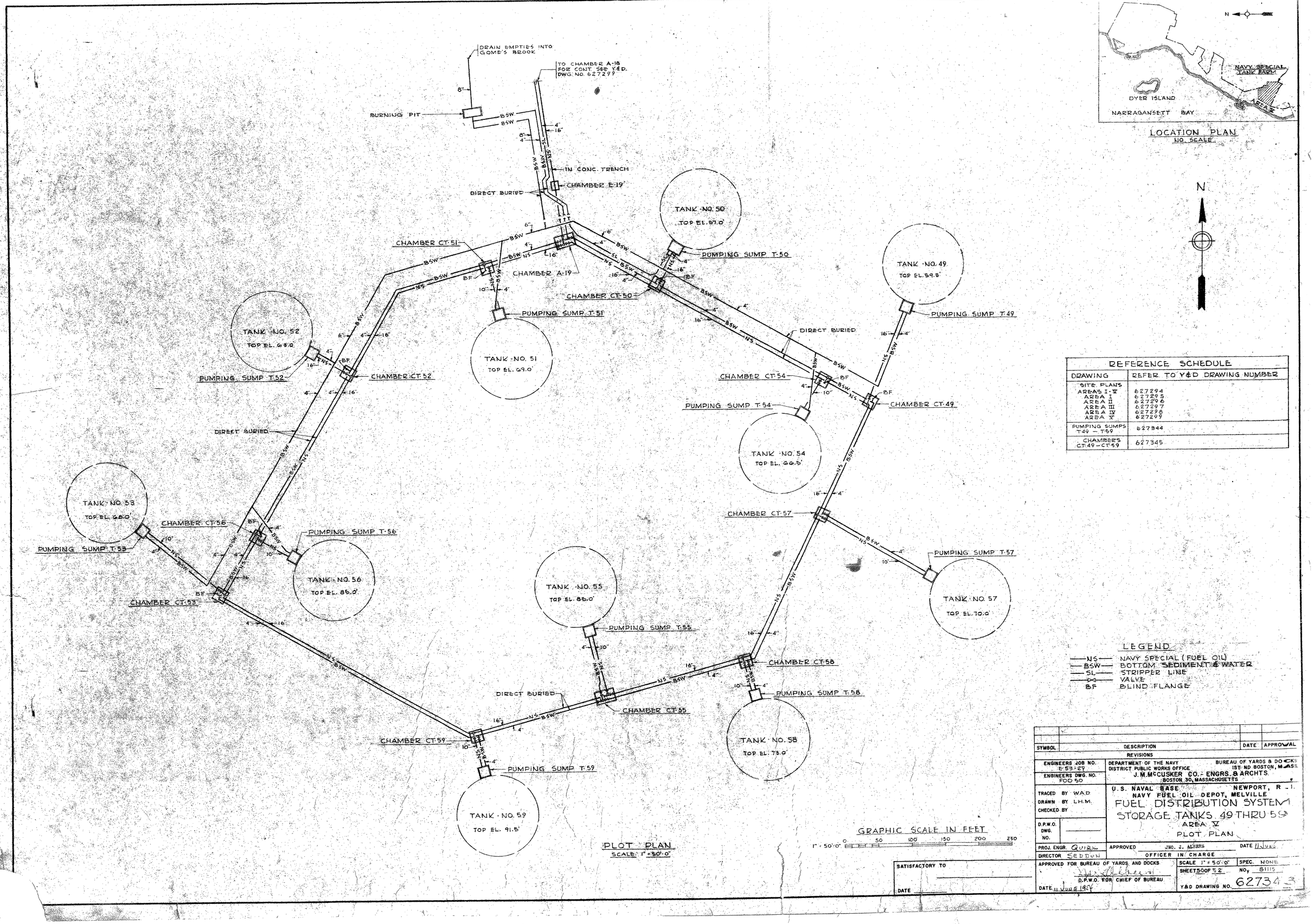
FUEL DISTRIBUTION SYSTEM
AREA V
SITE PLAN

APPROVED FRED. J. ALBERS
OFFICER IN CHARGE
DATE 11 Dec 1951

APPROVED FOR BUREAU OF YARDS AND DOCKS
F.T.W.A. FOR CHIEF OF BUREAU
DATE 11 DEC 1951

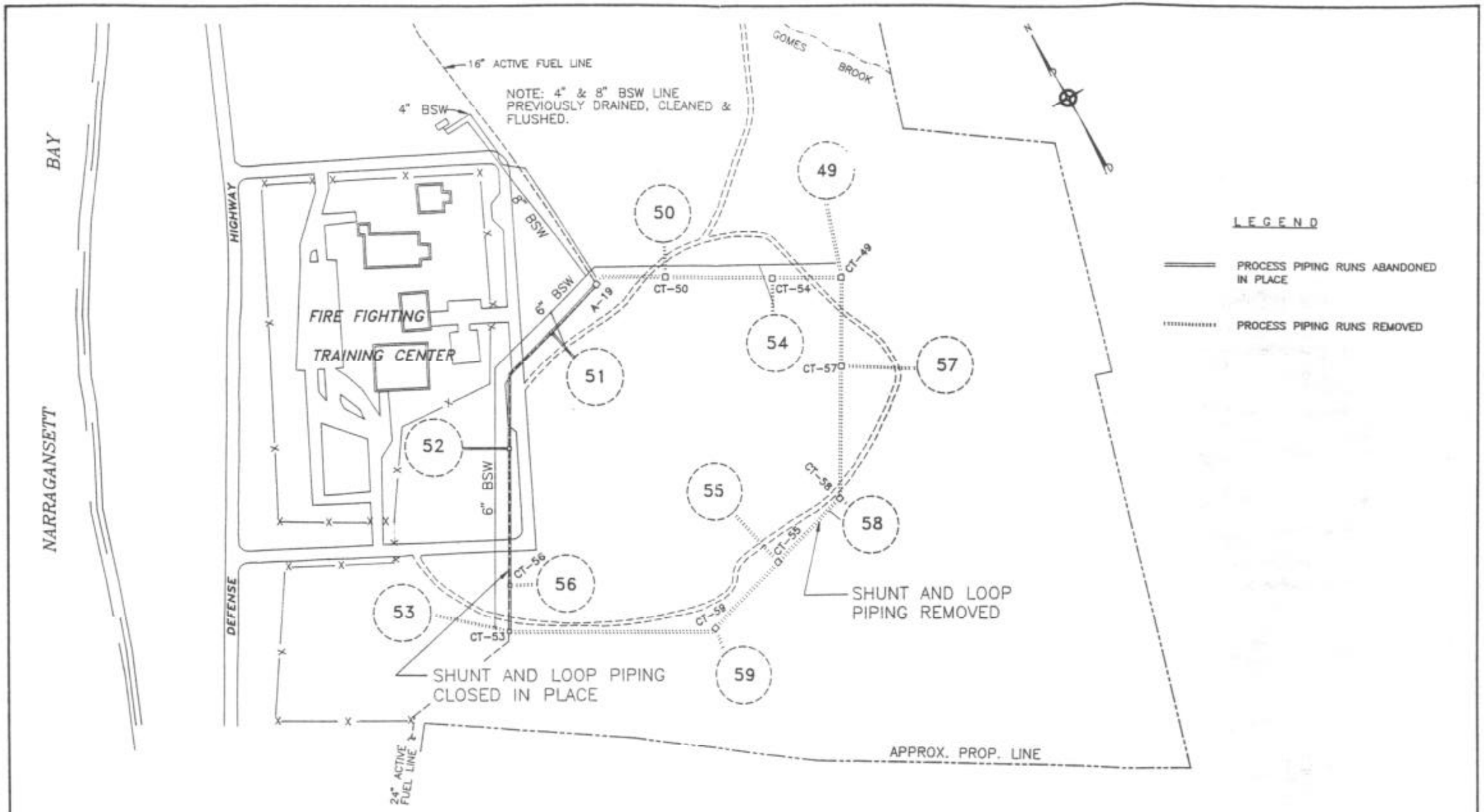
SATISFACTORY TO
DATE

SCALE 1" = 200'-0"
SHEET 2 OF 52
SPEC. NONE
NO. 8113
Y&D. DRAWING NO. 627299


DRAIN EMPTIES INTO GOME'S BROOK
TO CHAMBER A-18 FOR CONT. SEE Y&D. DWG. NO. 627299
BURNING PIT
IN CONC. TRENCH
CHAMBER E-19
DIRECT BURIED
TANK NO. 50 TOP EL. 87.0'
PUMPING SUMP T-50
CHAMBER CT-51
CHAMBER A-19
CHAMBER CT-50
PUMPING SUMP T-51
TANK NO. 51 TOP EL. 69.0'
TANK NO. 52 TOP EL. 63.0
PUMPING SUMP T-52
CHAMBER CT-52
TANK NO. 49 TOP EL. 59.5'
PUMPING SUMP T-49
DIRECT BURIED
CHAMBER CT-54
PUMPING SUMP T-54
CHAMBER CT-49
TANK NO. 54 TOP EL. 66.5'
DIRECT BURIED
TANK NO. 53 TOP EL. 68.0'
CHAMBER CT-56
PUMPING SUMP T-53
PUMPING SUMP T-56
TANK NO. 56 TOP EL. 85.0'
CHAMBER CT-53
CHAMBER CT-57
PUMPING SUMP T-57
TANK NO. 57 TOP EL. 70.0'
TANK NO. 55 TOP EL. 85.0'
PUMPING SUMP T-55
CHAMBER CT-58
PUMPING SUMP T-58
DIRECT BURIED
CHAMBER CT-55
CHAMBER CT-59
PUMPING SUMP T-59
TANK NO. 58 TOP EL. 73.0'
TANK NO. 59 TOP EL. 91.5'
NAVY SPECIAL TANK FARM
DYER ISLAND
NARRAGANSETT BAY
AREA V
N
LOCATION PLAN
NO SCALE
N
PLOT PLAN
SCALE: 1" = 50'-0"
GRAPHIC SCALE IN FEET
1" = 50'-0"
0 50 100 150 200 250
LEGEND
NS — NAVY SPECIAL (FUEL OIL)
BSW — BOTTOM SEDIMENT & WATER
SL — STRIPPER LINE
VALVE
BF BLIND FLANGE
REFERENCE SCHEDULE
DRAWING | REFER TO Y&D DRAWING NUMBER
SITE PLANS
AREAS I-V 627294
AREA I 627295
AREA II 627296
AREA III 627297
AREA IV 627298
AREA V 627299
PUMPING SUMPS T-49 — T-59 627344
CHAMBERS CT-49 — CT-59 627345
SYMBOL | DESCRIPTION | DATE | APPROVAL
REVISIONS
ENGINEERS JOB NO. E-53-29
ENGINEERS DWG. NO. FOD 50
DEPARTMENT OF THE NAVY DISTRICT PUBLIC WORKS OFFICE
J. M. McCUSKER CO. - ENGRS. & ARCHTS. BOSTON 30, MASSACHUSETTS
BUREAU OF YARDS & DOCKS 1ST ND BOSTON, MASS
TRACED BY W.A.D.
DRAWN BY L.H.M.
CHECKED BY
D.P.W.O. DWG. NO.
U.S. NAVAL BASE NEWPORT, R.I.
NAVY FUEL OIL DEPOT, MELVILLE
FUEL DISTRIBUTION SYSTEM
STORAGE TANKS 49 THRU 59
AREA V
PLOT PLAN
PROJ. ENGR. QUIRK
DIRECTOR SEDDON
APPROVED JNO. J. ALBERS
OFFICER IN CHARGE
DATE 11 JUNE
SATISFACTORY TO
DATE
APPROVED FOR BUREAU OF YARDS AND DOCKS
D.P.W.O. FOR CHIEF OF BUREAU
DATE 11 JUNE 1954
SCALE 1" = 50'-0"
SPEC. NONE
SHEET 5 OF 5 2
NO. 81115
Y&D DRAWING NO. 627343

Attachment 3

Figure 2-1 and Figure 3-1 (Brown & Root, October 1995)



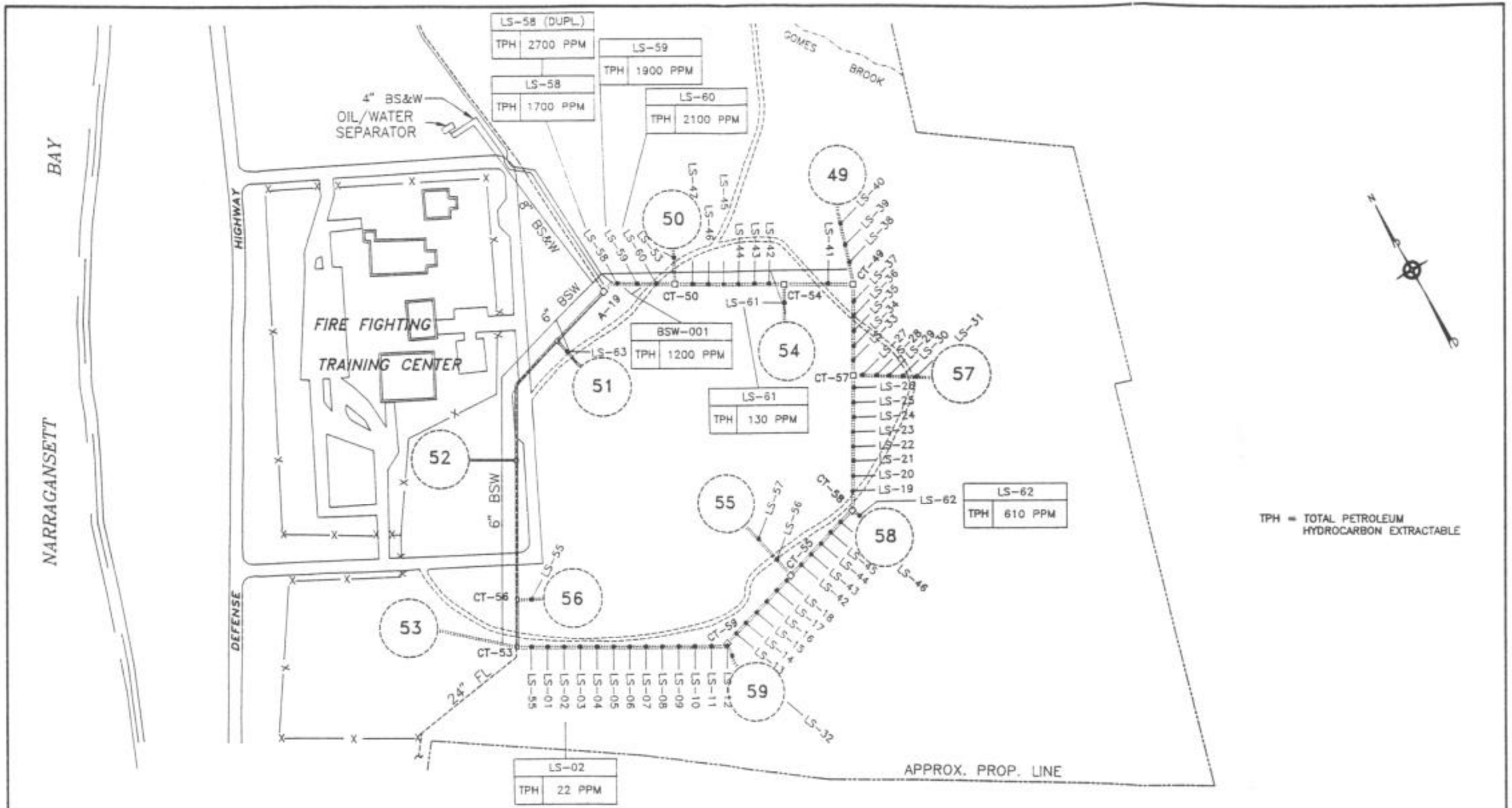
NOTES:

1. PLAN LOCATIONS DEVELOPED FROM A PLAN BY TRC ENVIRONMENTAL CORPORATION, DATED: JUNE 18,1993, ENTITLED:"PROCESS PIPING SYSTEM", DWG. NO. C-2.
2. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE.
3. PLAN NOT TO BE USED FOR DESIGN.
4. SHUNT PIPING RUN CT-53 TO UST 53 WAS PREVIOUSLY REMOVED BY ORHERS.

GRAPHIC SCALE
200 0 200
1 INCH = 200 FEET

TANK FARM 5 – PROCESS PIPING CLOSED			FIGURE 2-1
PROCESS PIPING CLOSURE ASSESSMENT REPORT			
NETC – NEWPORT, RHODE ISLAND			
DRAWN BY:	R.G. DEWSNAP	REV.:	0
CHECKED BY:	J. FORRELLI	DATE:	29 SEP 95
SCALE:	1" = 200'	FILE NO.:	\DWG\NETC\CLOSURE\PIPING.DWG

Brown & Root Environmental
A Division of Halliburton NUS Corporation
55 Jonspin Road Wilmington, MA 01887
(508)658-7899



NOTES:

1. PLAN LOCATIONS DEVELOPED FROM A PLAN BY TRC ENVIRONMENTAL CORPORATION, DATED JUNE 18,1993, ENTITLED:"PROCESS PIPING SYSTEM", DWG. NO. C-2.
2. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE.
3. PLAN NOT TO BE USED FOR DESIGN.

GRAPHIC SCALE
200 0 200
1 INCH = 200 FEET

TANK FARM 5 – SOIL SAMPLING LOCATIONS & TPH DETECTIONS	FIGURE 3-1
PROCESS PIPING CLOSURE ASSESSMENT REPORT	
NETC – NEWPORT, RHODE ISLAND	
DRAWN BY: R.G. DEWSNAP / REV.: 0	
CHECKED BY: J. FORRELLI / DATE: 29 SEP 95	
SCALE: 1" = 200' / FILE NO.: \DWG\NETC\CLOSURE\SOIL_SMP.DWG	

Brown & Root Environmental
A Division of Halliburton NUS Corporation
55 Jonspin Road Wilmington, MA 01887
(508)658-7899

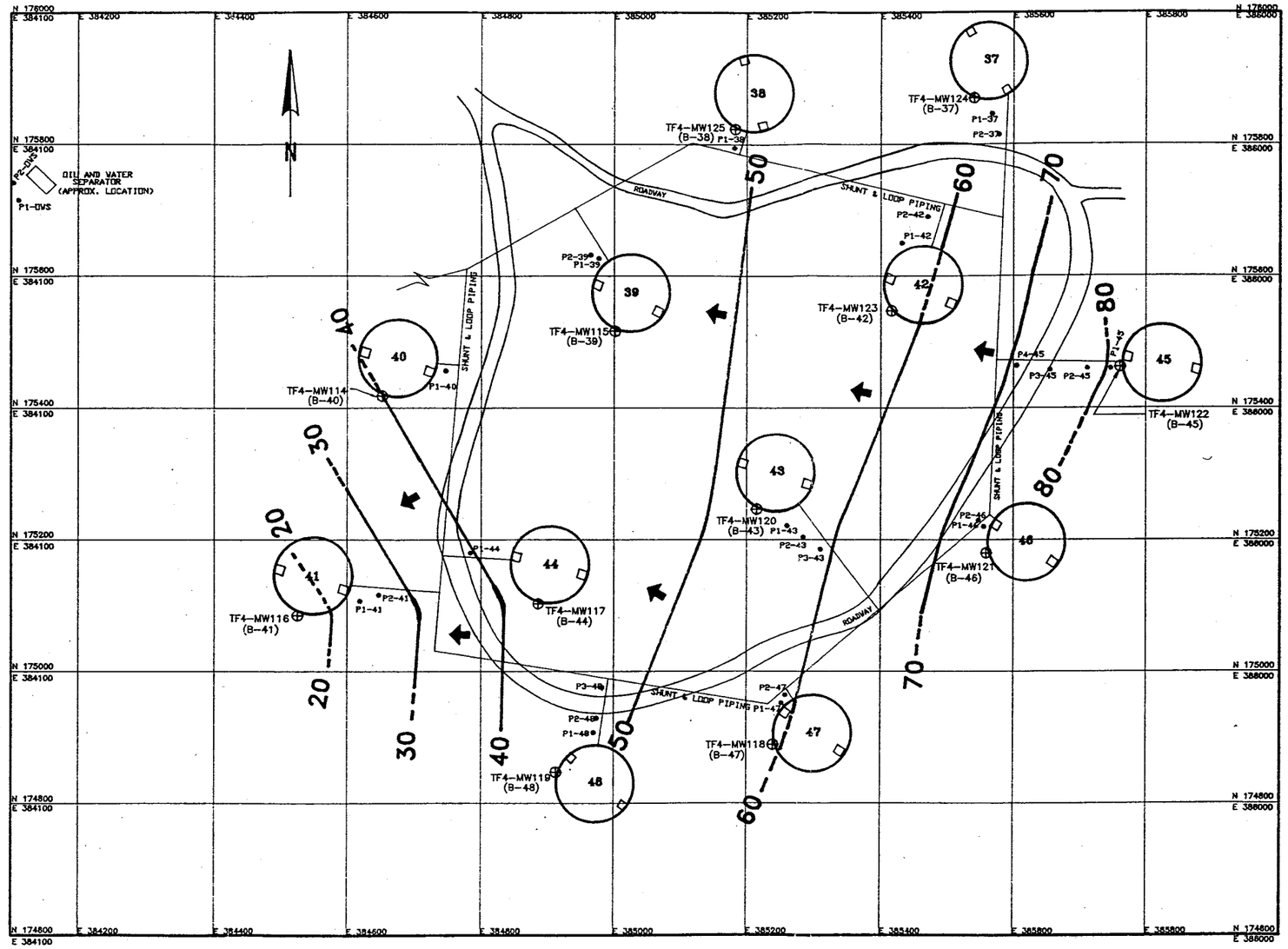
W5295094F

Appendix A

Groundwater Monitoring Wells at Tank Farms 4 and 5 (Halliburton NUS, 1995)

LEGEND

48	UNDERGROUND STORAGE TANK
TF4-MW117 ⊕	MONITORING WELL NUMBER AND LOCATION
(B-44)	BORING NUMBER
•P1-44	SOIL PROBING POINT
➘	APPROXIMATE GROUNDWATER FLOW DIRECTION
—— 30	GROUNDWATER CONTOUR LINE
- - - 30	APPROXIMATE GROUNDWATER CONTOUR LINE



TANK FARM 4

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 INCH = 200 FT.

NOTES:

1) VERTICAL DATUM BASED ON LOCAL MEAN LOW WATER.
2) HORIZONTAL DATUM BASED ON STATE OF RHODE ISLAND GRID COORDINATE SYSTEM (NAD 1983).
3) BASE MAP BY LOUIS FEDERICI & ASSOCIATES, 235 PROMENADE STREET, PROVIDENCE, RI.
4) TANKS, ROADWAY, AND SHUNT & LOOP PIPING LOCATIONS FROM AVAILABLE PLANS AND ARE TO BE CONSIDERED APPROXIMATE.
5) MONITORING WELL LOCATIONS FROM ACTUAL FIELD SURVEY.
6) SOIL PROBING POINTS ARE TO BE CONSIDERED APPROXIMATE

MONITORING WELLS AT TANK FARM #4			FIGURE 2-1
NETC-NEWPORT, RI			Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT			55 Jonspin Road Wilmington, MA 01887
DRAWN BY: R.G. DEWSNAP	REV.: 0		(508)658-7899
CHECKED BY: K. JALKUT	DATE: 5 JUN 95		
SCALE: 1" = 200'	FILE NO.: C:\DWG\NETC\TNK_FM4.DWG		

LEGEND

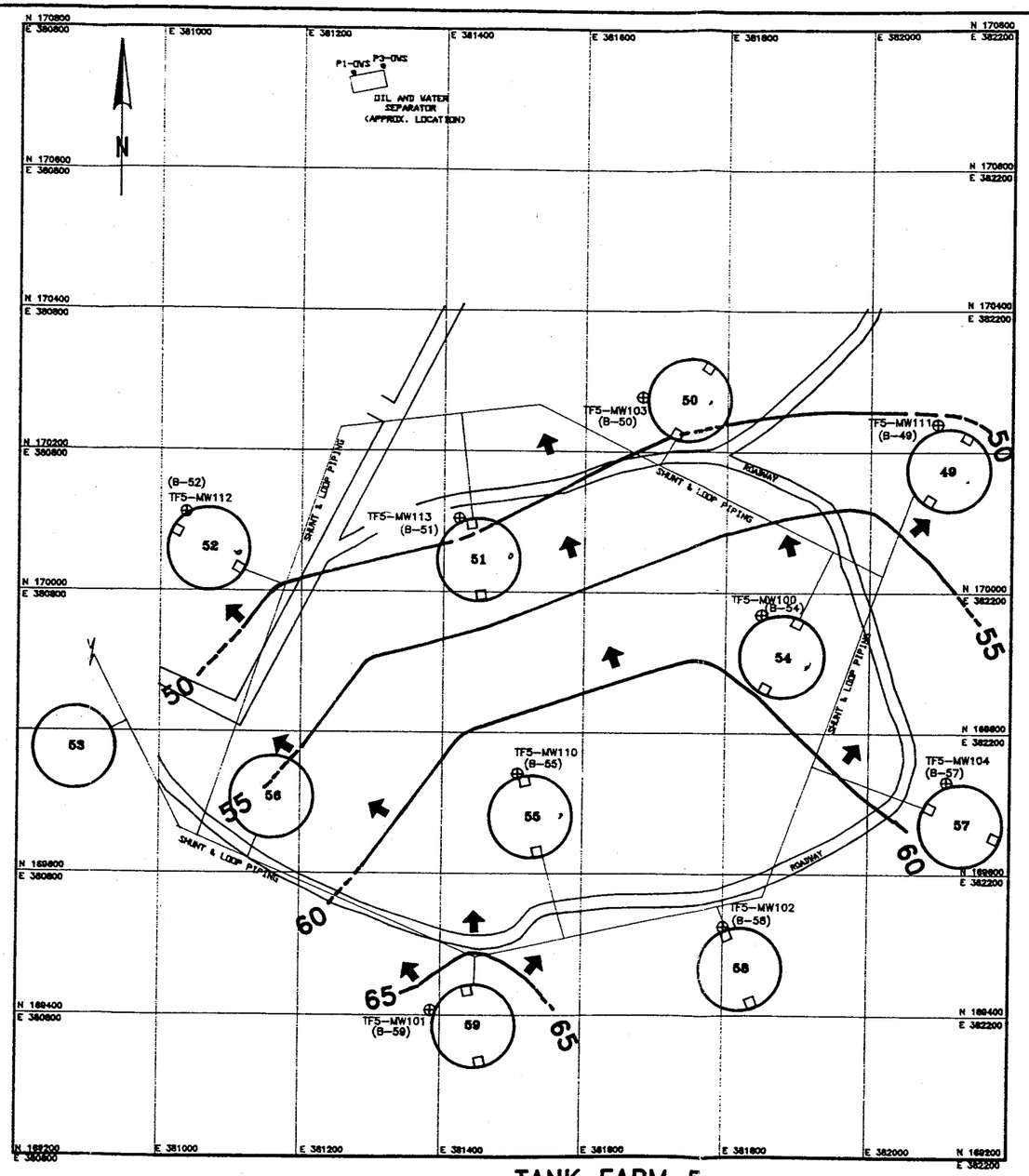
55	UNDERGROUND STORAGE TANK
TF5-MW112 ⊕	MONITORING WELL NUMBER AND LOCATION
(B-51)	BORING NUMBER
•P1-OVS	SOIL PROBING POINT
➡	APPROXIMATE GROUNDWATER FLOW DIRECTION
—— 30	GROUNDWATER CONTOUR LINE
- - - 30	APPROXIMATE GROUNDWATER CONTOUR LINE

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 INCH = 200 FT.



TANK FARM 5

NOTES:

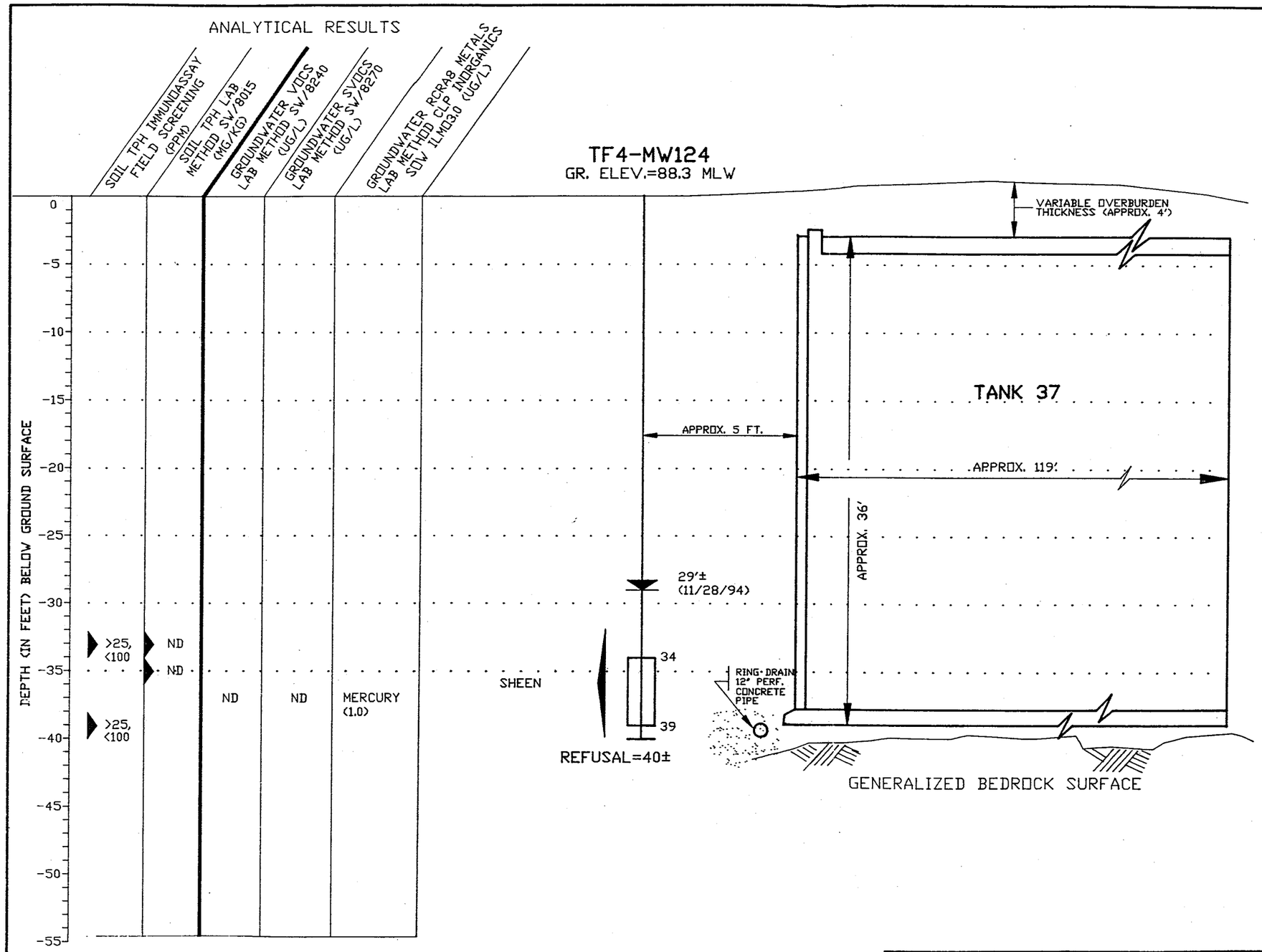
1) VERTICAL DATUM BASED ON LOCAL MEAN LOW WATER.
2) HORIZONTAL DATUM BASED ON STATE OF RHODE ISLAND GRID COORDINATE SYSTEM (NAD 1983).
3) BASE MAP BY LOUIS FEDERICI & ASSOCIATES, 235 PROMENADE STREET, PROVIDENCE, RI.
4) TANKS, ROADWAY, AND SHUNT & LOOP PIPING LOCATIONS FROM AVAILABLE PLANS AND ARE TO BE CONSIDERED APPROXIMATE.
5) MONITORING WELL LOCATIONS FROM ACTUAL FIELD SURVEY.
6) SOIL PROBING POINTS ARE TO BE CONSIDERED APPROXIMATE

MONITORING WELLS AT TANK FARM #5			FIGURE 2-2
NETC-NEWPORT, RI			Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT			55 Jonspin Road Wilmington, MA 01887
DRAWN BY: R.G. DEWSNAP	REV.: 0		(508)658-7899
CHECKED BY: K. JALKUT	DATE: 5 JUN 95		
SCALE: 1" = 200'	FILE NO.: C:\DWG\NETC\TNK_FM5.DWG		

W5295063F

Appendix B

Soil Boring Data Summaries (Halliburton NUS, 1995)

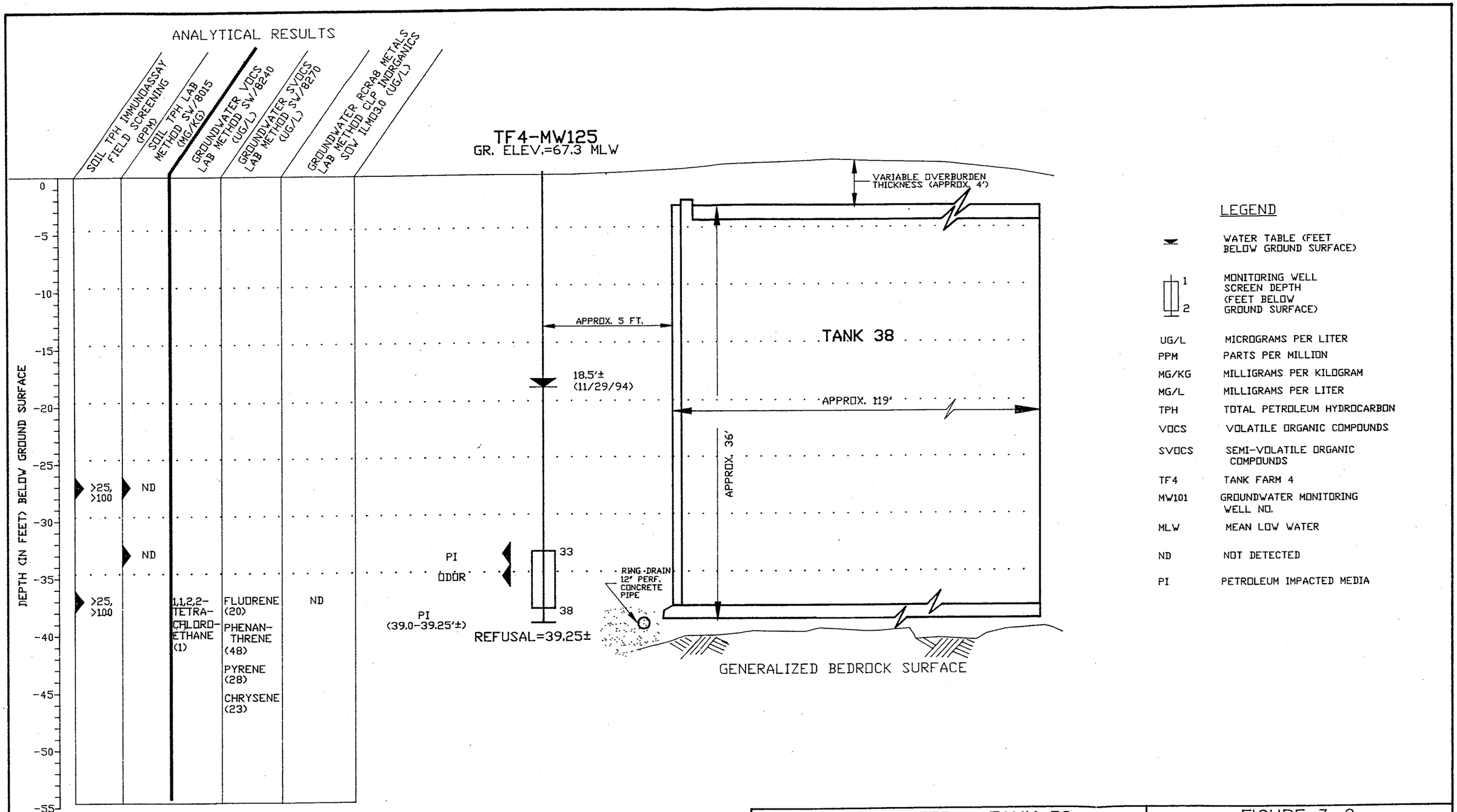


LEGEND

▼	WATER TABLE (FEET BELOW GROUND SURFACE)
1 / 2	MONITORING WELL SCREEN DEPTH (FEET BELOW GROUND SURFACE)
UG/L	MICROGRAMS PER LITER
PPM	PARTS PER MILLION
MG/KG	MILLIGRAMS PER KILOGRAM
MG/L	MILLIGRAMS PER LITER
TPH	TOTAL PETROLEUM HYDROCARBON
VOCS	VOLATILE ORGANIC COMPOUNDS
SVOCS	SEMI-VOLATILE ORGANIC COMPOUNDS
TF4	TANK FARM 4
MW101	GROUNDWATER MONITORING WELL NO.
MLW	MEAN LOW WATER
ND	NOT DETECTED

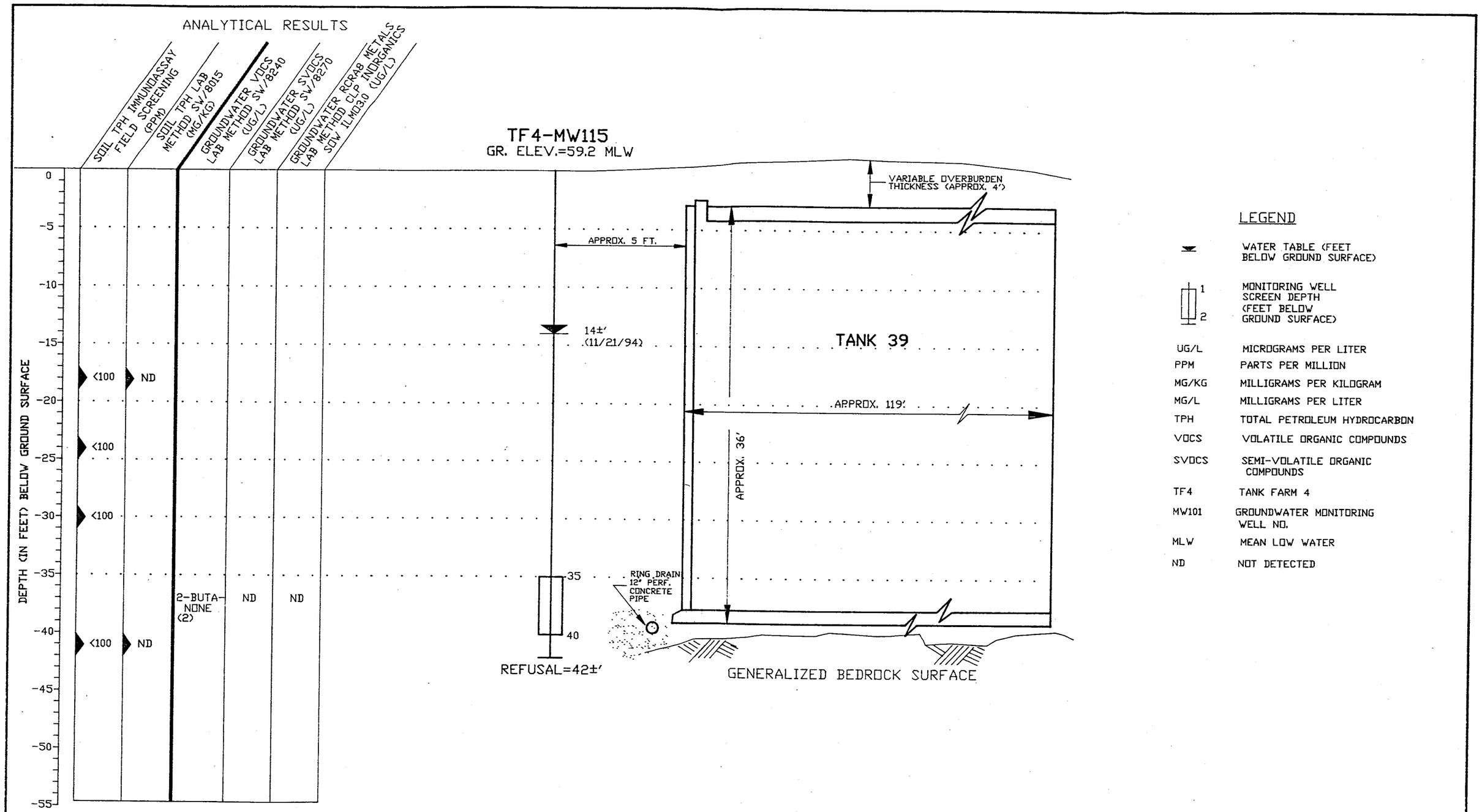
DATA SHEET – TANK 37			FIGURE 3–1
NETC–NEWPORT, RI			Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT			55 Jonspin Road Wilmington, MA 01887
DRAWN BY: R.G. DEWSNAP	REV.: 1		(508)658–7899
CHECKED BY: J.B. HOLDEN	DATE: 5 JUN 95		
SCALE: 1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG_3–1		

W5295063F



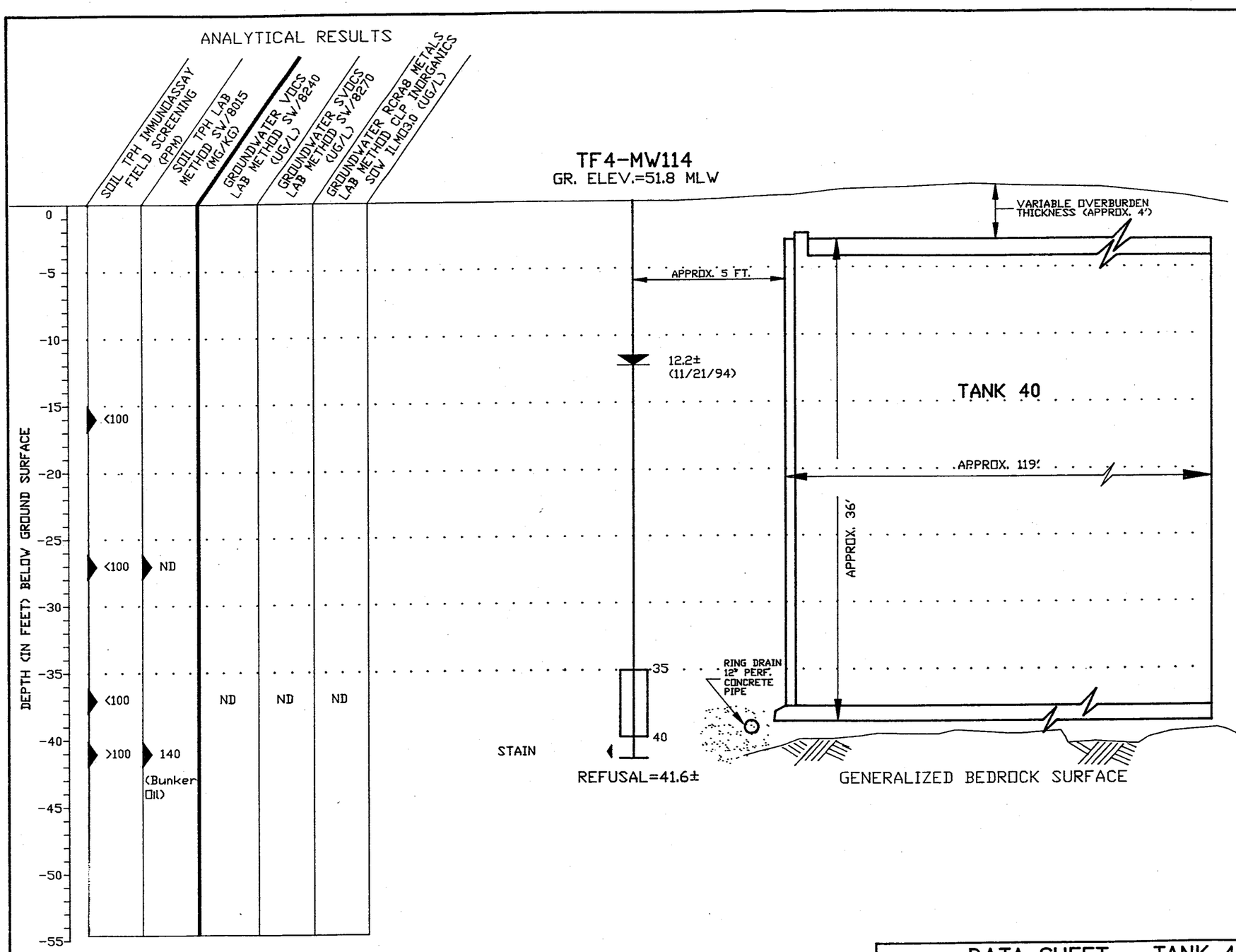
DATA SHEET – TANK 38		FIGURE 3-2
NETC–NEWPORT, RI		Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT		
DRAWN BY: R.G. DEWSNAP	REV.: 1	
CHECKED BY: J.B. HOLDEN	DATE: 5 JUN 95	
SCALE: 1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG 3-2	

55 Jonspin Road Wilmington, MA 01887
(508)658-7899



DATA SHEET – TANK 39		FIGURE 3–3
NETC–NEWPORT, RI		Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT		55 Jonspin Road Wilmington, MA 01887 (508)658–7899
DRAWN BY: R.G. DEWSNAP	REV.: 1	
CHECKED BY: J.B. HOLDEN	DATE: 5 JUN 95	
SCALE: 1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG_3-3	

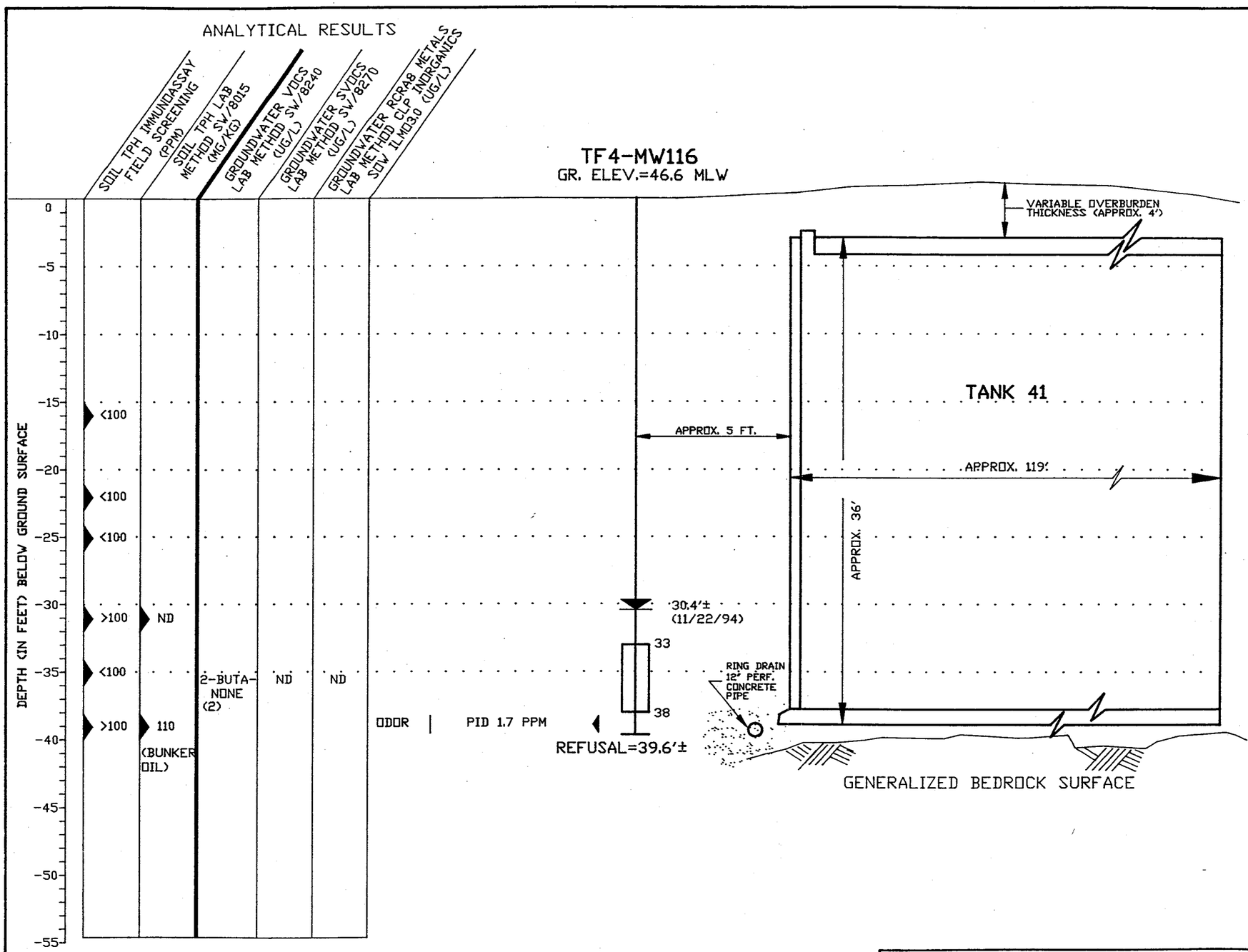
W5295063F



LEGEND

▼	WATER TABLE (FEET BELOW GROUND SURFACE)
1 / 2	MONITORING WELL SCREEN DEPTH (FEET BELOW GROUND SURFACE)
UG/L	MICROGRAMS PER LITER
PPM	PARTS PER MILLION
MG/KG	MILLIGRAMS PER KILOGRAM
MG/L	MILLIGRAMS PER LITER
TPH	TOTAL PETROLEUM HYDROCARBON
VOCS	VOLATILE ORGANIC COMPOUNDS
SVOCS	SEMI-VOLATILE ORGANIC COMPOUNDS
TF4	TANK FARM 4
MW101	GROUNDWATER MONITORING WELL NO.
MLW	MEAN LOW WATER
PID	PHOTOIONIZATION DETECTOR-SCREENING OF SAMPLE PRIOR TO REMOVING FROM SPLIT BARREL SAMPLER
ND	NOT DETECTED

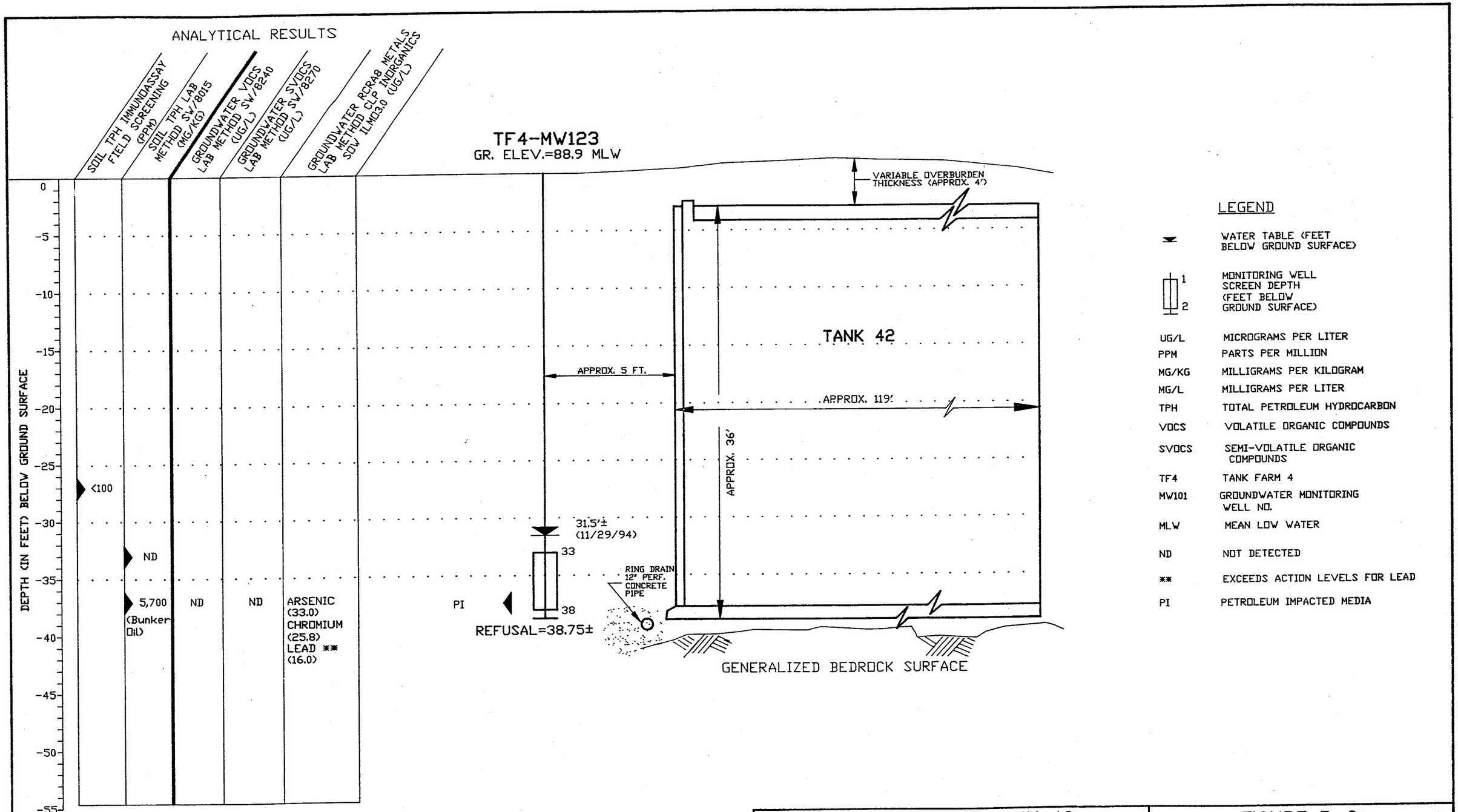
DATA SHEET – TANK 40		FIGURE 3-4
NETC-NEWPORT, RI		Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT		
DRAWN BY: R.G. DEWSNAP	REV.: 1	55 Jonspin Road Wilmington, MA 01887
CHECKED BY: J.B. HOLDEN	DATE: 5 JUN 95	(508)658-7899
SCALE: 1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG_3-4	



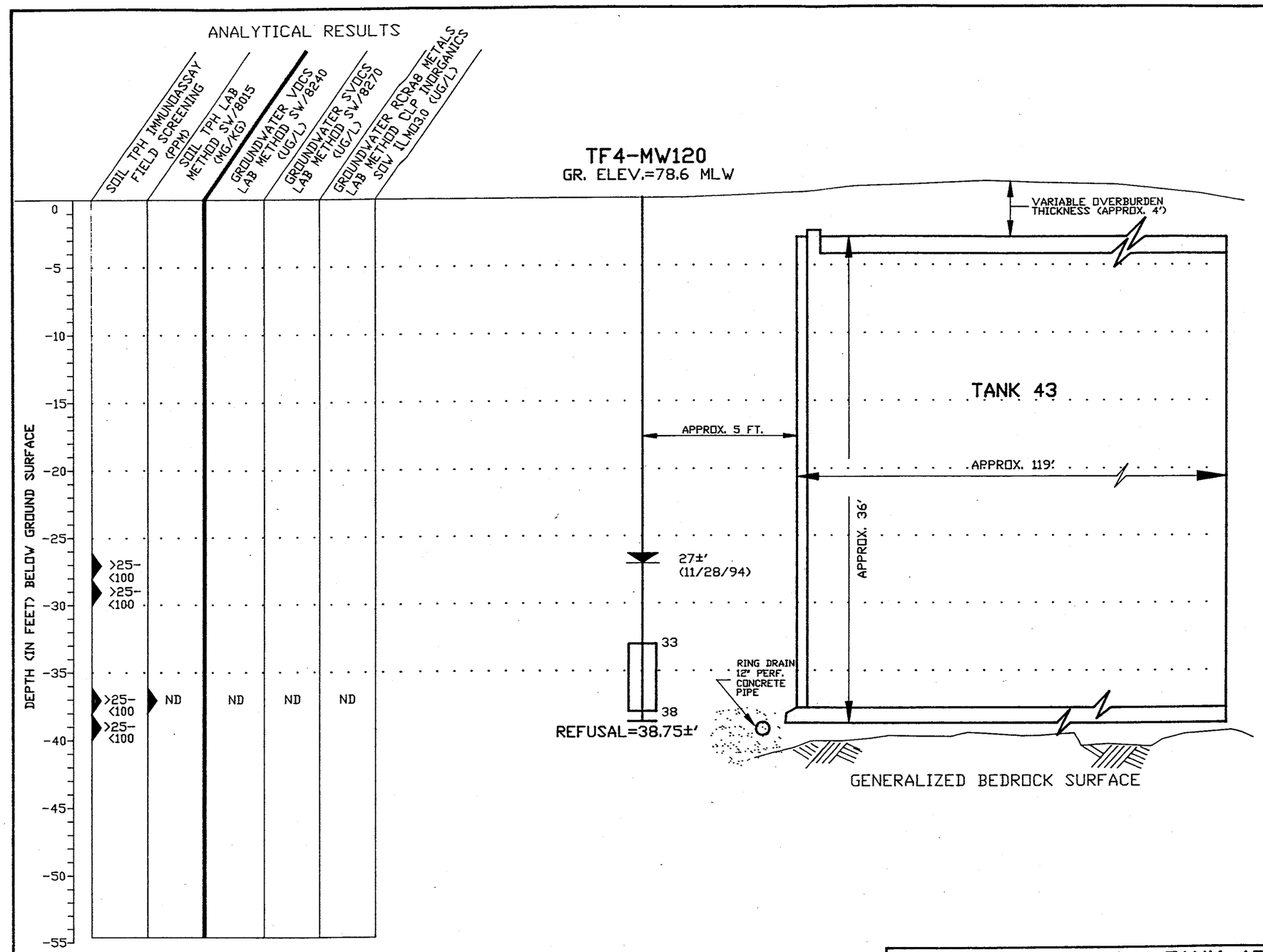
LEGEND

▼	WATER TABLE (FEET BELOW GROUND SURFACE)
1 / 2	MONITORING WELL SCREEN DEPTH (FEET BELOW GROUND SURFACE)
UG/L	MICROGRAMS PER LITER
PPM	PARTS PER MILLION
MG/KG	MILLIGRAMS PER KILOGRAM
MG/L	MILLIGRAMS PER LITER
TPH	TOTAL PETROLEUM HYDROCARBON
VOCS	VOLATILE ORGANIC COMPOUNDS
SVOCS	SEMI-VOLATILE ORGANIC COMPOUNDS
TF4	TANK FARM 4
MW101	GROUNDWATER MONITORING WELL NO.
MLW	MEAN LOW WATER
PID	PHOTOIONIZATION DETECTOR-SCREENING OF SOIL SAMPLE PRIOR TO REMOVING FROM SPLIT BARREL SAMPLER
ND	NOT DETECTED

DATA SHEET – TANK 41		FIGURE 3–5
NETC–NEWPORT, RI		Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT		
DRAWN BY: R.G. DEWSNAP	REV.: 1	55 Jonspin Road Wilmington, MA 01887
CHECKED BY: J.B. HOLDEN	DATE: 5 JUN 95	(508)658–7899
SCALE: 1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG_3–5	



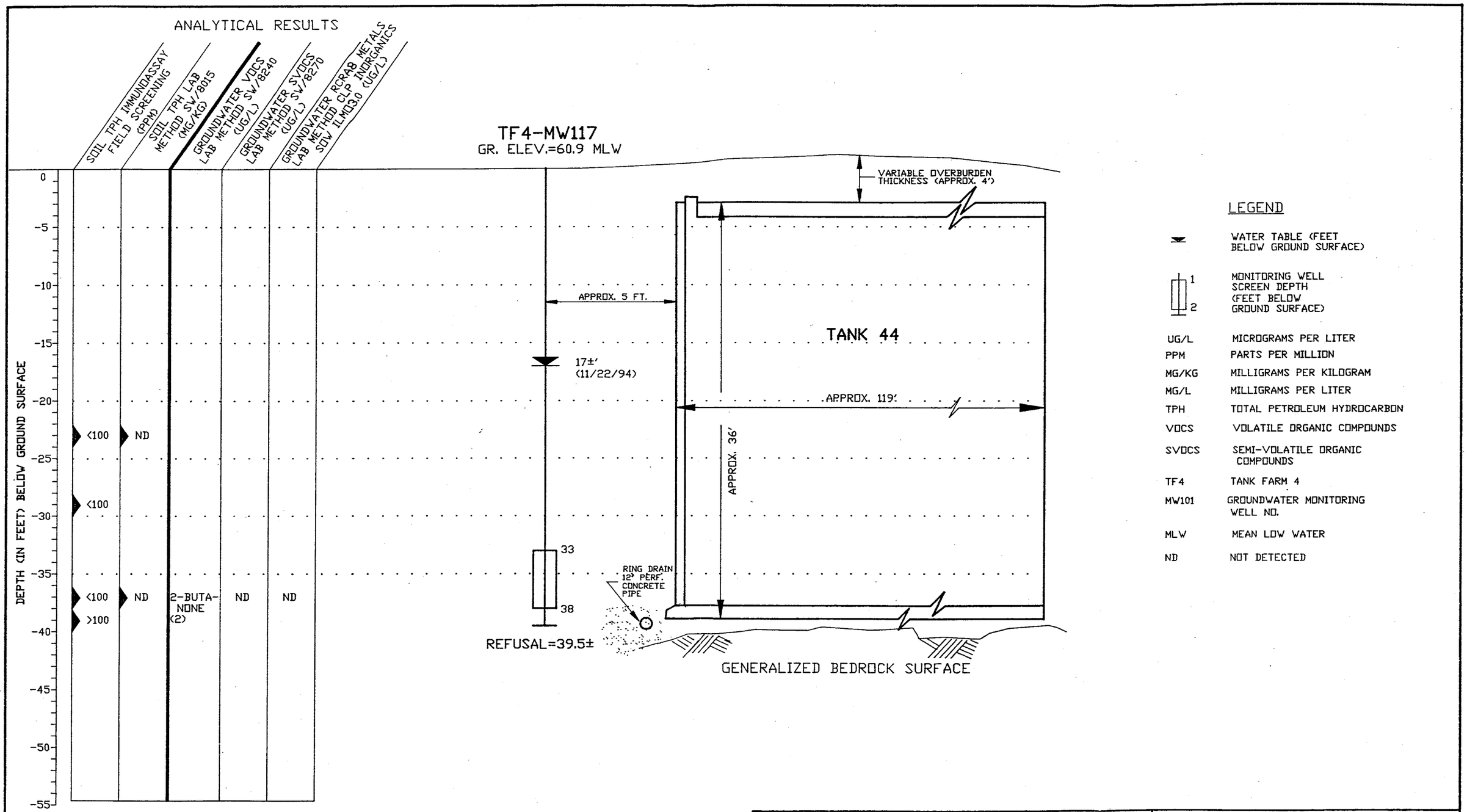
DATA SHEET – TANK 42		FIGURE 3–6
NETC–NEWPORT, RI		Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT		55 Jonspin Road Wilmington, MA 01887 (508)658–7899
DRAWN BY: R.G. DEWSNAP	REV.: 1	
CHECKED BY: J.B. HOLDEN	DATE: 5 JUN 95	
SCALE: 1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG_3–6	



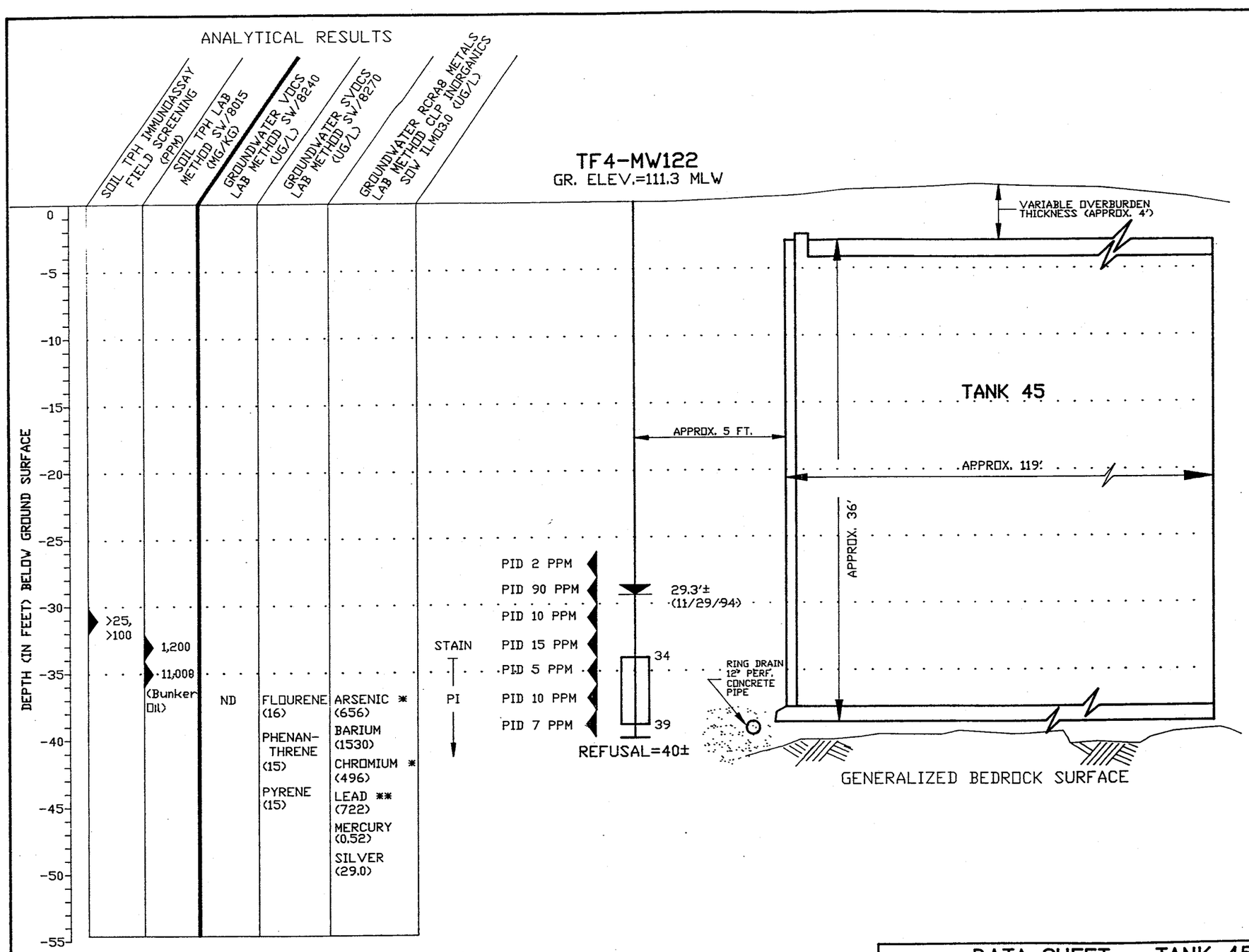
LEGEND

▼	WATER TABLE (FEET BELOW GROUND SURFACE)
1 / 2	MONITORING WELL SCREEN DEPTH (FEET BELOW GROUND SURFACE)
UG/L	MICROGRAMS PER LITER
PPM	PARTS PER MILLION
MG/KG	MILLIGRAMS PER KILOGRAM
MG/L	MILLIGRAMS PER LITER
TPH	TOTAL PETROLEUM HYDROCARBON
VOCS	VOLATILE ORGANIC COMPOUNDS
SVOCS	SEMI-VOLATILE ORGANIC COMPOUNDS
TF4	TANK FARM 4
MW101	GROUNDWATER MONITORING WELL NO.
MLW	MEAN LOW WATER
ND	NOT DETECTED

DATA SHEET – TANK 43			FIGURE 3-7
NETC-NEWPORT, RI			Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT			55 Jonspin Road Wilmington, MA 01887
DRAWN BY: R.G. DEWSNAP	REV.: 1		(508)658-7899
CHECKED BY: J.B. HOLDEN	DATE: 5 JUN 95		
SCALE: 1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG_3-7		



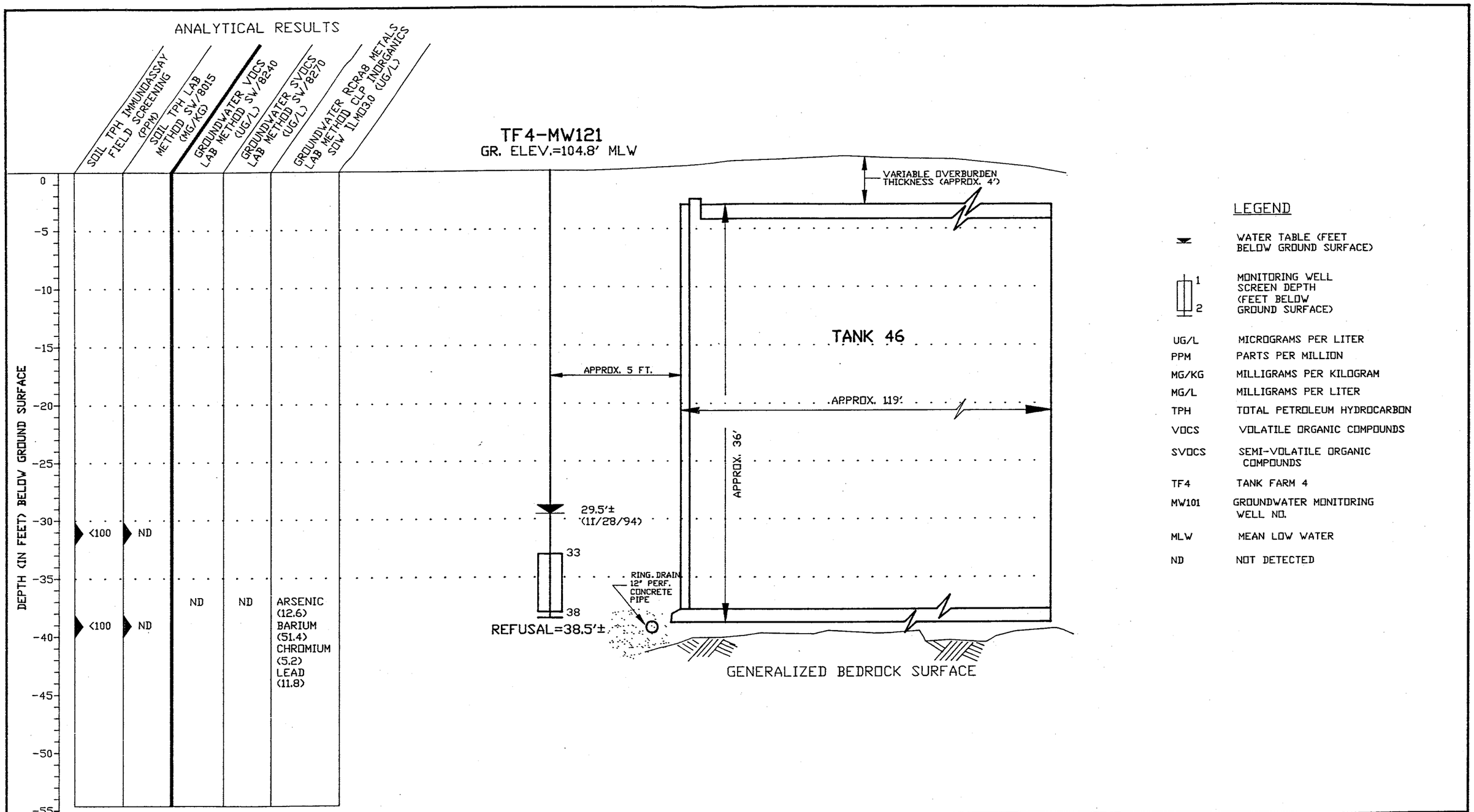
DATA SHEET – TANK 44			FIGURE 3–8
NETC–NEWPORT, RI			Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT			55 Jonspin Road Wilmington, MA 01887
DRAWN BY: R.G. DEWSNAP	REV.: 1		(508)658–7899
CHECKED BY: J.B. HOLDEN	DATE: 5 JUN 95		
SCALE: 1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG_3–8		



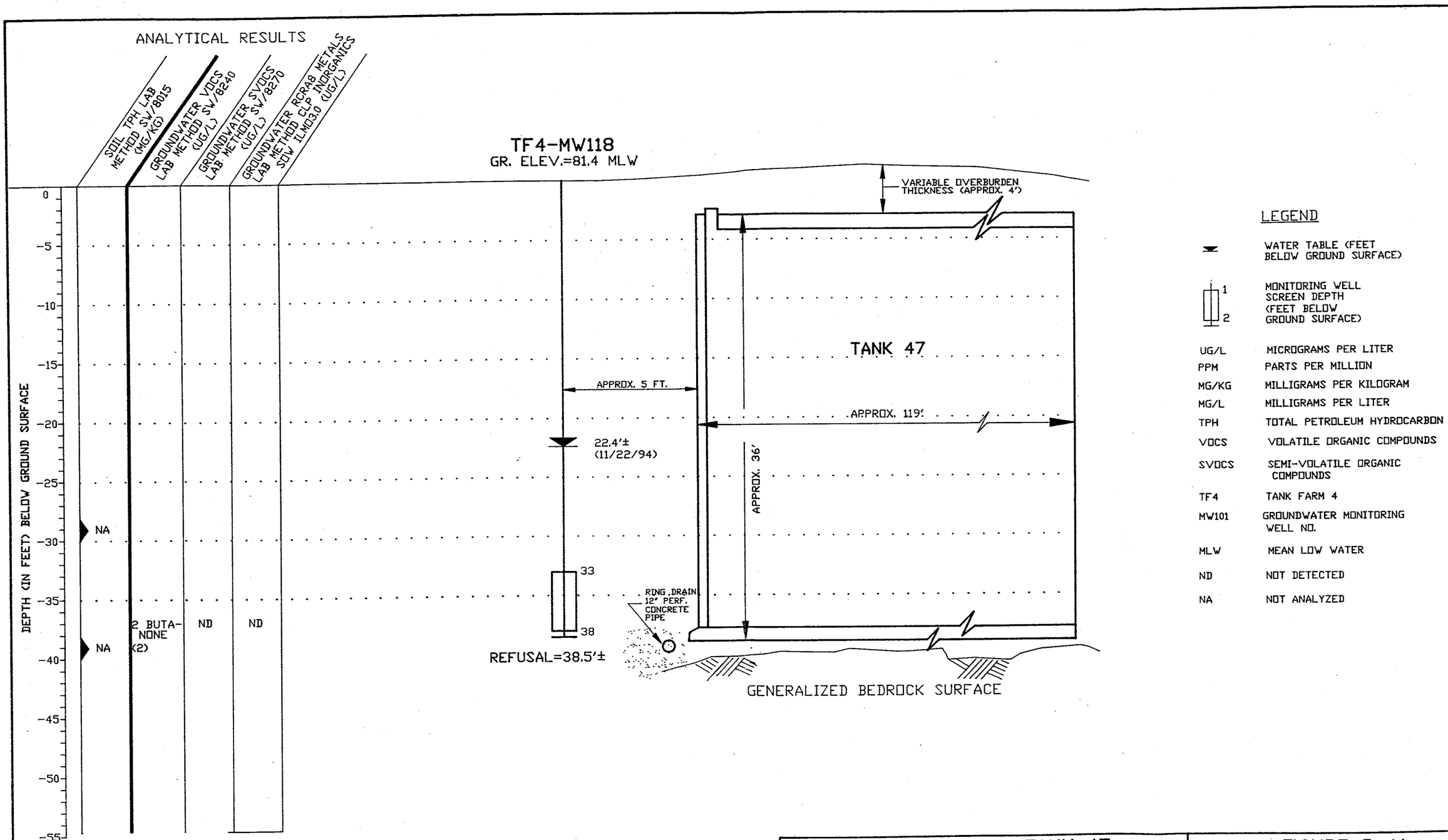
LEGEND

▼	WATER TABLE (FEET BELOW GROUND SURFACE)
1 / 2	MONITORING WELL SCREEN DEPTH (FEET BELOW GROUND SURFACE)
UG/L	MICROGRAMS PER LITER
PPM	PARTS PER MILLION
MG/KG	MILLIGRAMS PER KILOGRAM
MG/L	MILLIGRAMS PER LITER
TPH	TOTAL PETROLEUM HYDROCARBON
VOCS	VOLATILE ORGANIC COMPOUNDS
SVOCS	SEMI-VOLATILE ORGANIC COMPOUNDS
TF4	TANK FARM 4
MW101	GROUNDWATER MONITORING WELL NO.
MLW	MEAN LOW WATER
PID	PHOTOIONIZATION DETECTOR-SCREENING OF SOIL SAMPLE PRIOR TO REMOVING FROM SPLIT BARREL SAMPLER
ND	NOT DETECTED
*	EXCEEDS MAX. CONTAMINANT LEVEL
**	EXCEEDS ACTION LEVELS FOR LEAD
PI	PETROLEUM IMPACTED MEDIA

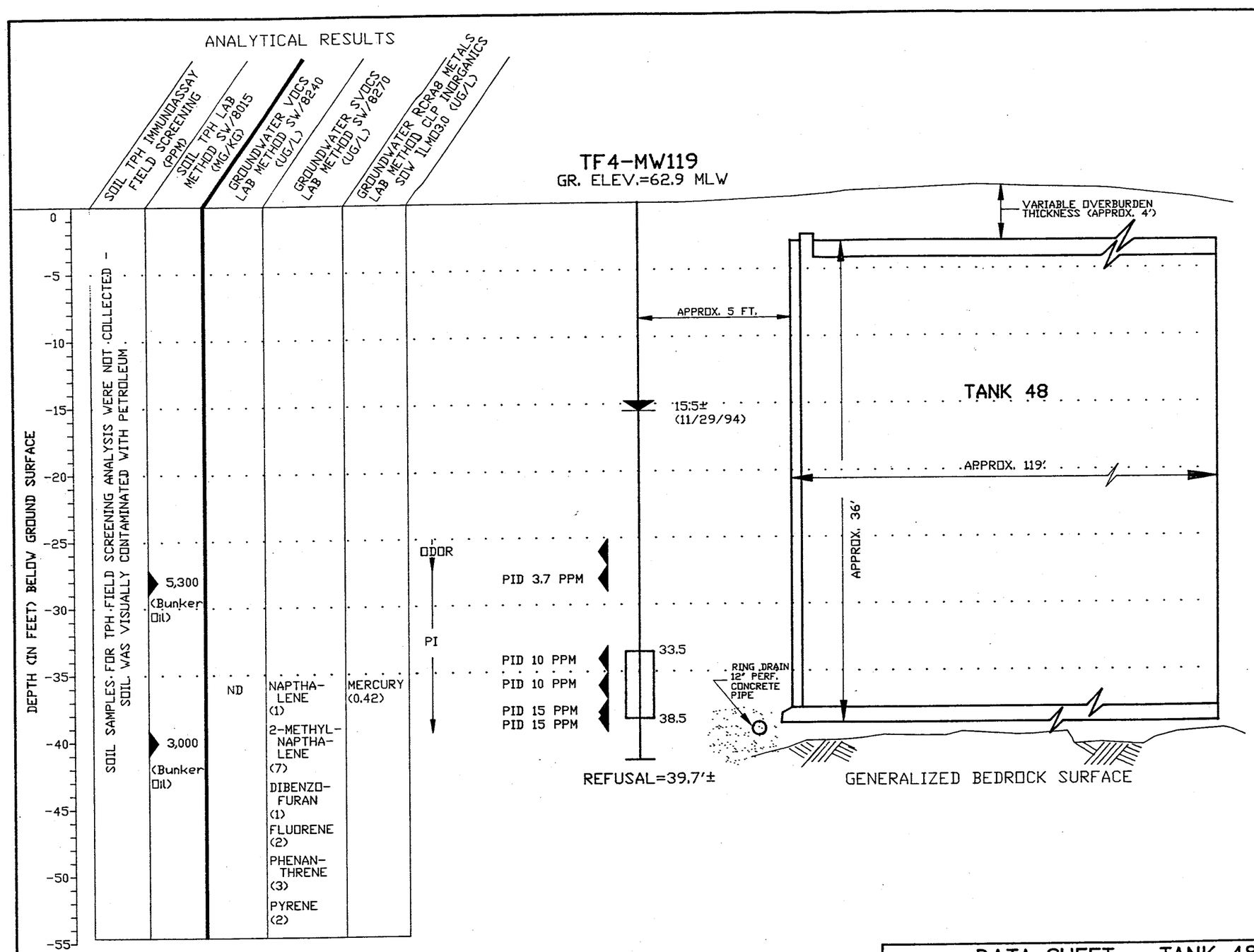
DATA SHEET – TANK 45			FIGURE 3-9
NETC-NEWPORT, RI			Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT			55 Jonspin Road Wilmington, MA 01887
DRAWN BY:	R.G. DEWSNAP	REV.: 1	(508)658-7899
CHECKED BY:	J.B. HOLDEN	DATE: 5 JUN 95	
SCALE:	1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG_3-9	



DATA SHEET – TANK 46		FIGURE 3–10
NETC–NEWPORT, RI		Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT		55 Jonspin Road Wilmington, MA 01887 (508)658–7899
DRAWN BY: R.G. DEWSNAP	REV.: 1	
CHECKED BY: J.B. HOLDEN	DATE: 5 JUN 95	
SCALE: 1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG_3–10	



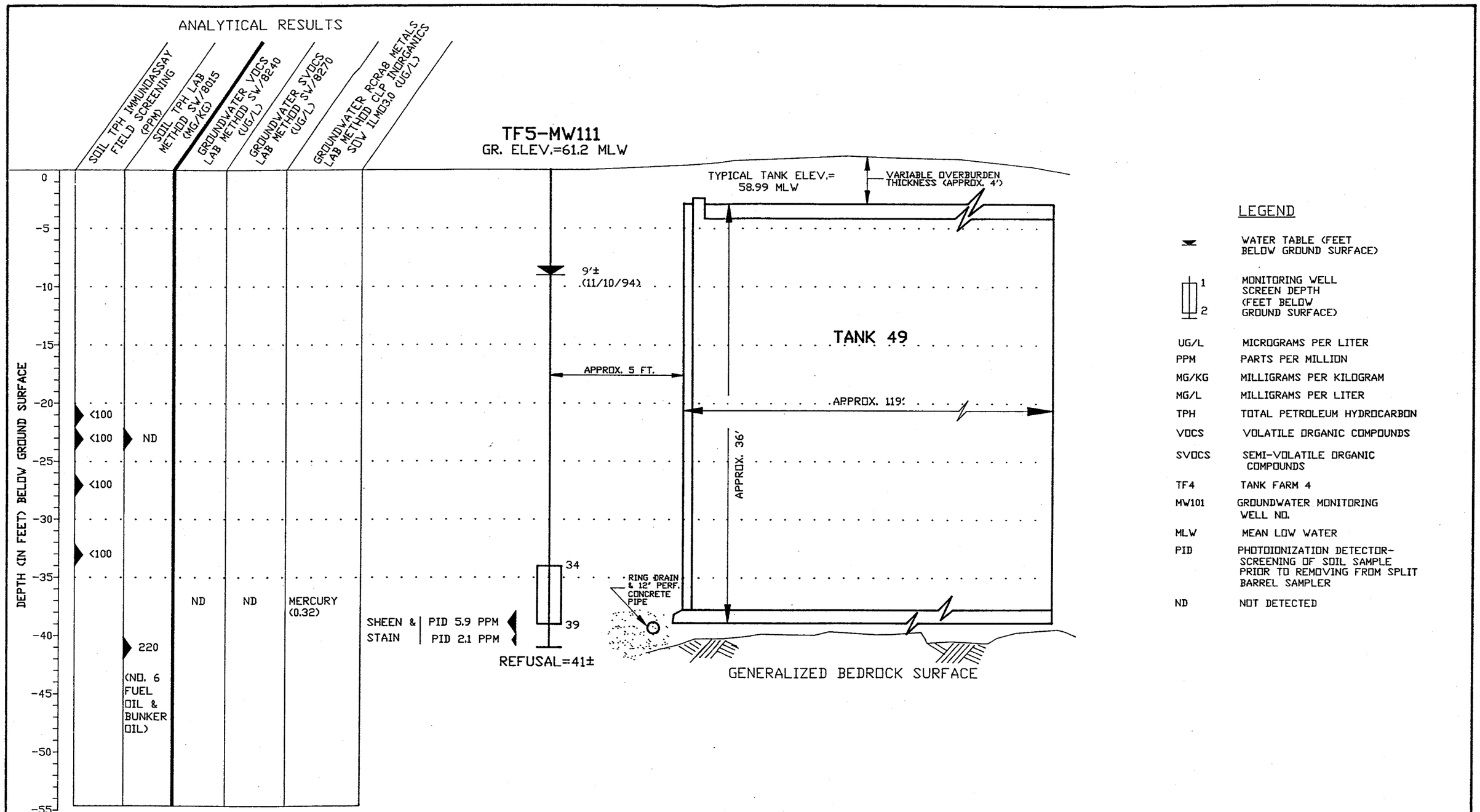
DATA SHEET – TANK 47		FIGURE 3–11
NETC–NEWPORT, RI		Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT		55 Jonspin Road Wilmington, MA 01887 (508)658–7899
DRAWN BY: R.G. DEWSNAP	REV.: 1	
CHECKED BY: J.B. HOLDEN	DATE: 5 JUN 95	
SCALE: 1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG_3–11	



LEGEND

▼	WATER TABLE (FEET BELOW GROUND SURFACE)
1 / 2	MONITORING WELL SCREEN DEPTH (FEET BELOW GROUND SURFACE)
UG/L	MICROGRAMS PER LITER
PPM	PARTS PER MILLION
MG/KG	MILLIGRAMS PER KILOGRAM
MG/L	MILLIGRAMS PER LITER
TPH	TOTAL PETROLEUM HYDROCARBON
VOCS	VOLATILE ORGANIC COMPOUNDS
SVOCS	SEMI-VOLATILE ORGANIC COMPOUNDS
TF4	TANK FARM 4
MW101	GROUNDWATER MONITORING WELL NO.
MLW	MEAN LOW WATER
PID	PHOTOIONIZATION DETECTOR-SCREENING OF SAMPLE PRIOR TO REMOVING FROM SPLIT BARREL SAMPLER
ND	NOT DETECTED
PI	PETROLEUM IMPACTED MEDIA

DATA SHEET – TANK 48		FIGURE 3-12
NETC-NEWPORT, RI		Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT		55 Jonspin Road Wilmington, MA 01887 (508)658-7899
DRAWN BY: R.G. DEWSNAP	REV.: 1	
CHECKED BY: J.B. HOLDEN	DATE: 5 JUN 95	
SCALE: 1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG_3-12	

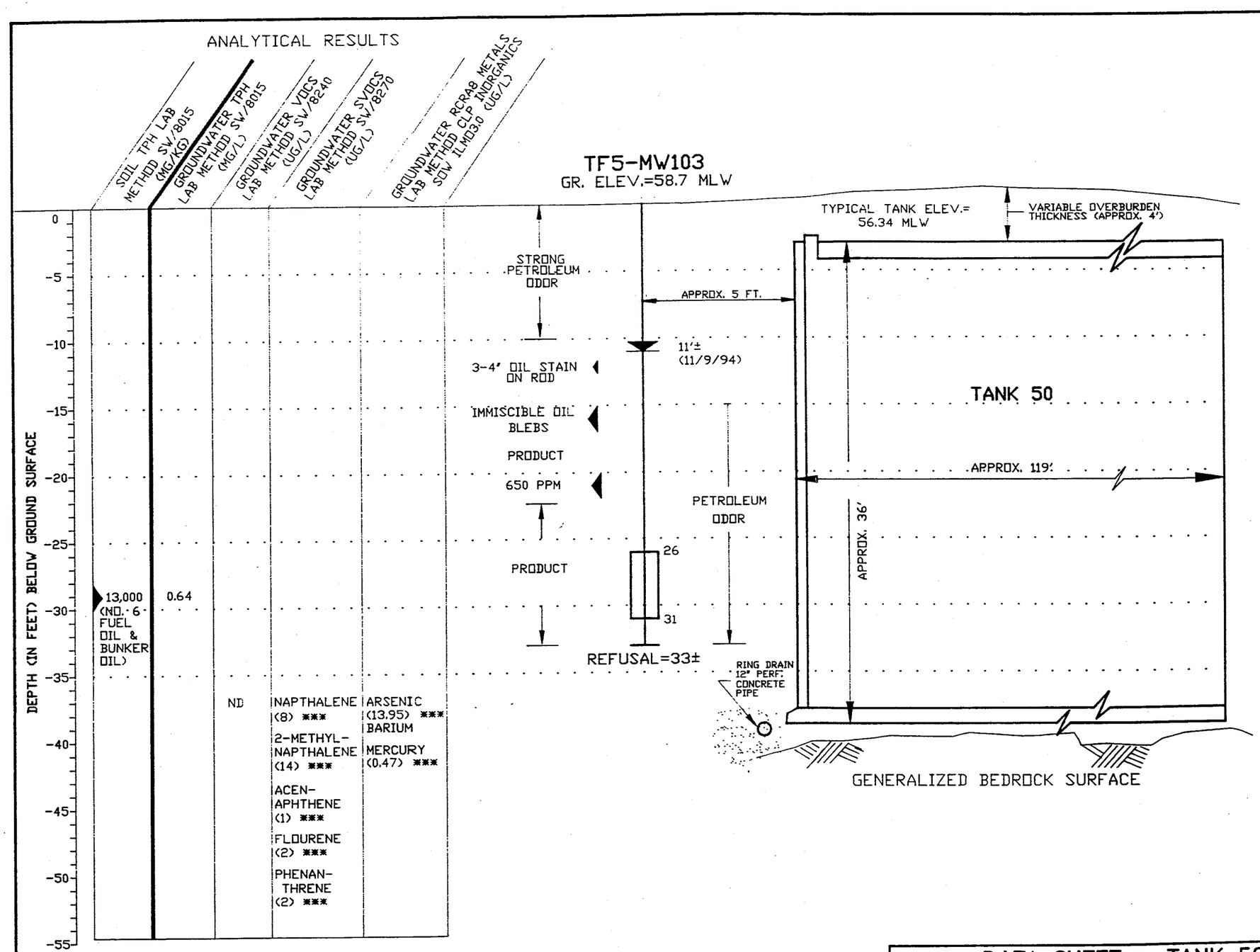


DATA SHEET – TANK 49			
NETC–NEWPORT, RI			
PRELIMINARY CLOSURE ASSESSMENT REPORT			
DRAWN BY:	R.G. DEWSNAP	REV.:	0
CHECKED BY:	J.B. HOLDEN	DATE:	21 FEB 95
SCALE:	1" = 8' (APPROX.)	FILE NO.:	C:\DWG\NETC\FIG_4-1

FIGURE 4–1

Halliburton NUS CORPORATION
55 Jonspin Road Wilmington, MA 01887
(508)658-7899

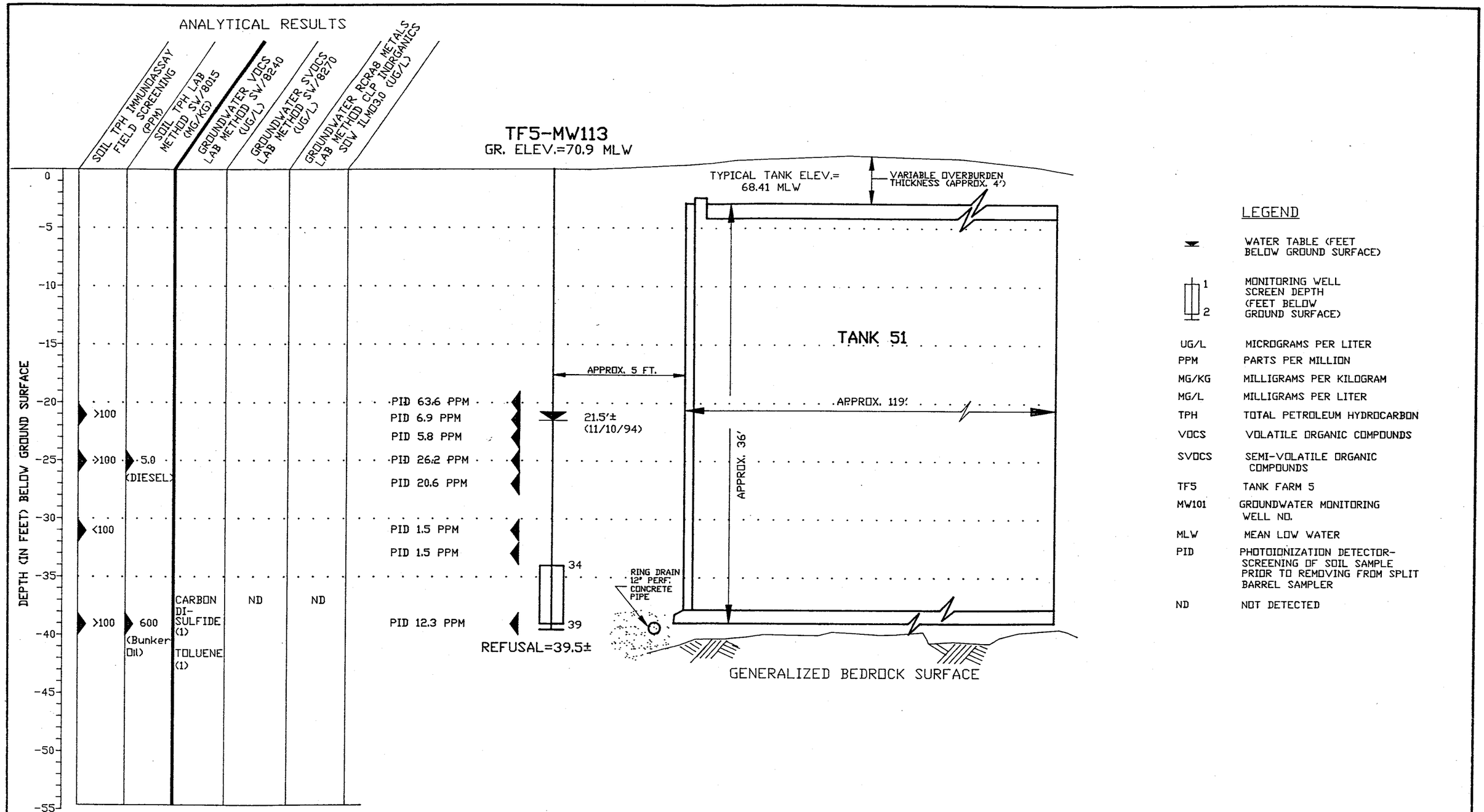
W5295063F



LEGEND

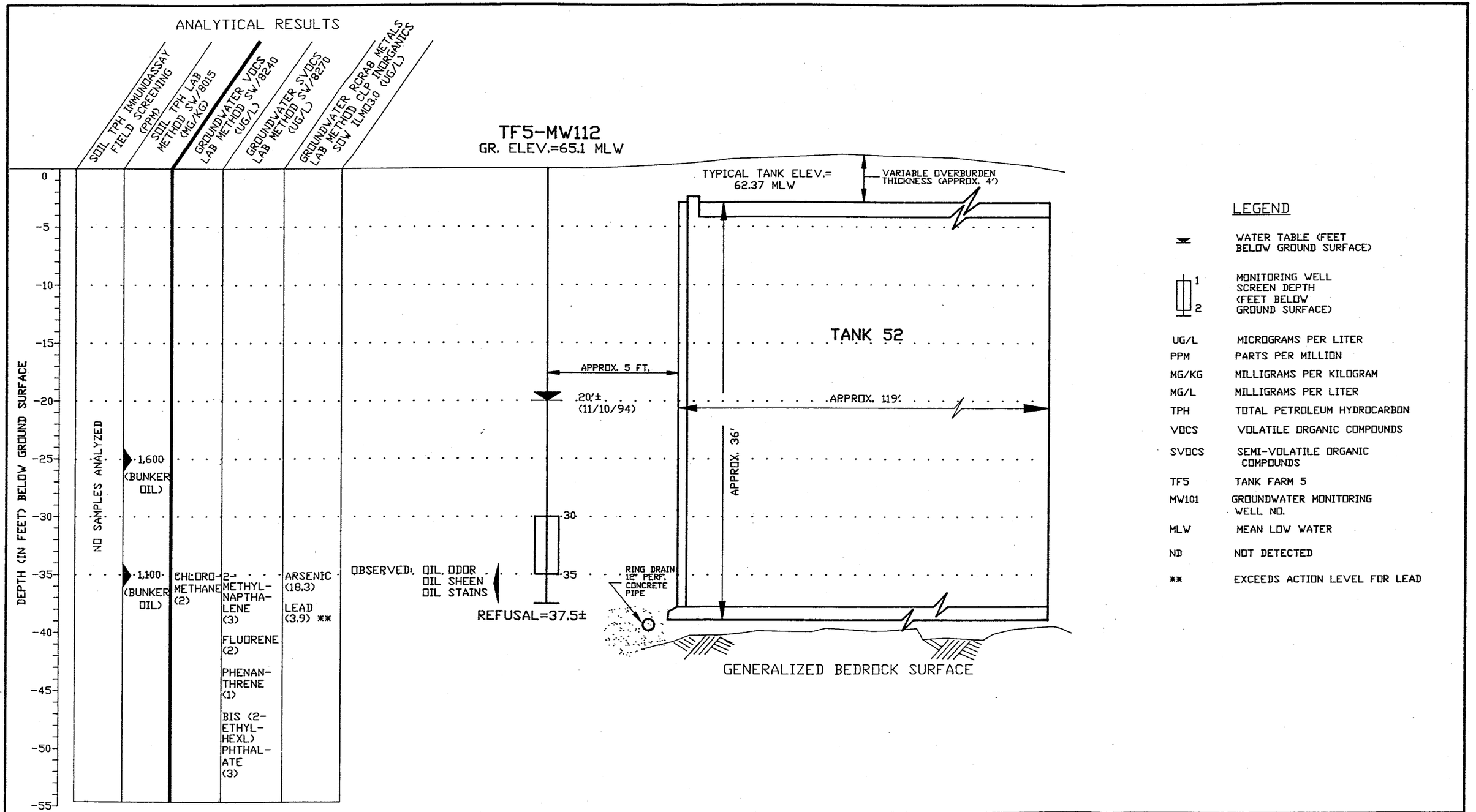
▼	WATER TABLE (FEET BELOW GROUND SURFACE)
1 / 2	MONITORING WELL SCREEN DEPTH (FEET BELOW GROUND SURFACE)
UG/L	MICROGRAMS PER LITER
PPM	PARTS PER MILLION
MG/KG	MILLIGRAMS PER KILOGRAM
MG/L	MILLIGRAMS PER LITER
TPH	TOTAL PETROLEUM HYDROCARBON
VOCS	VOLATILE ORGANIC COMPOUNDS
SVOCS	SEMI-VOLATILE ORGANIC COMPOUNDS
TF5	TANK FARM 5
MW101	GROUNDWATER MONITORING WELL NO.
MLW	MEAN LOW WATER
PID	PHOTOIONIZATION DETECTOR-SCREENING OF SOIL SAMPLE PRIOR TO REMOVING FROM SPLIT BARREL SAMPLER
ND	NOT DETECTED
***	REPRESENTS AVERAGE CONCENTRATION OF FIELD DUPLICATE PAIR

DATA SHEET – TANK 50			FIGURE 4-2
NETC-NEWPORT, RI			Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT			55 Jonspin Road Wilmington, MA 01887
DRAWN BY: R.G. DEWSNAP	REV.: 2		(508)658-7899
CHECKED BY: J.B. HOLDEN	DATE: 15 JUN 95		
SCALE: 1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG_4-2		



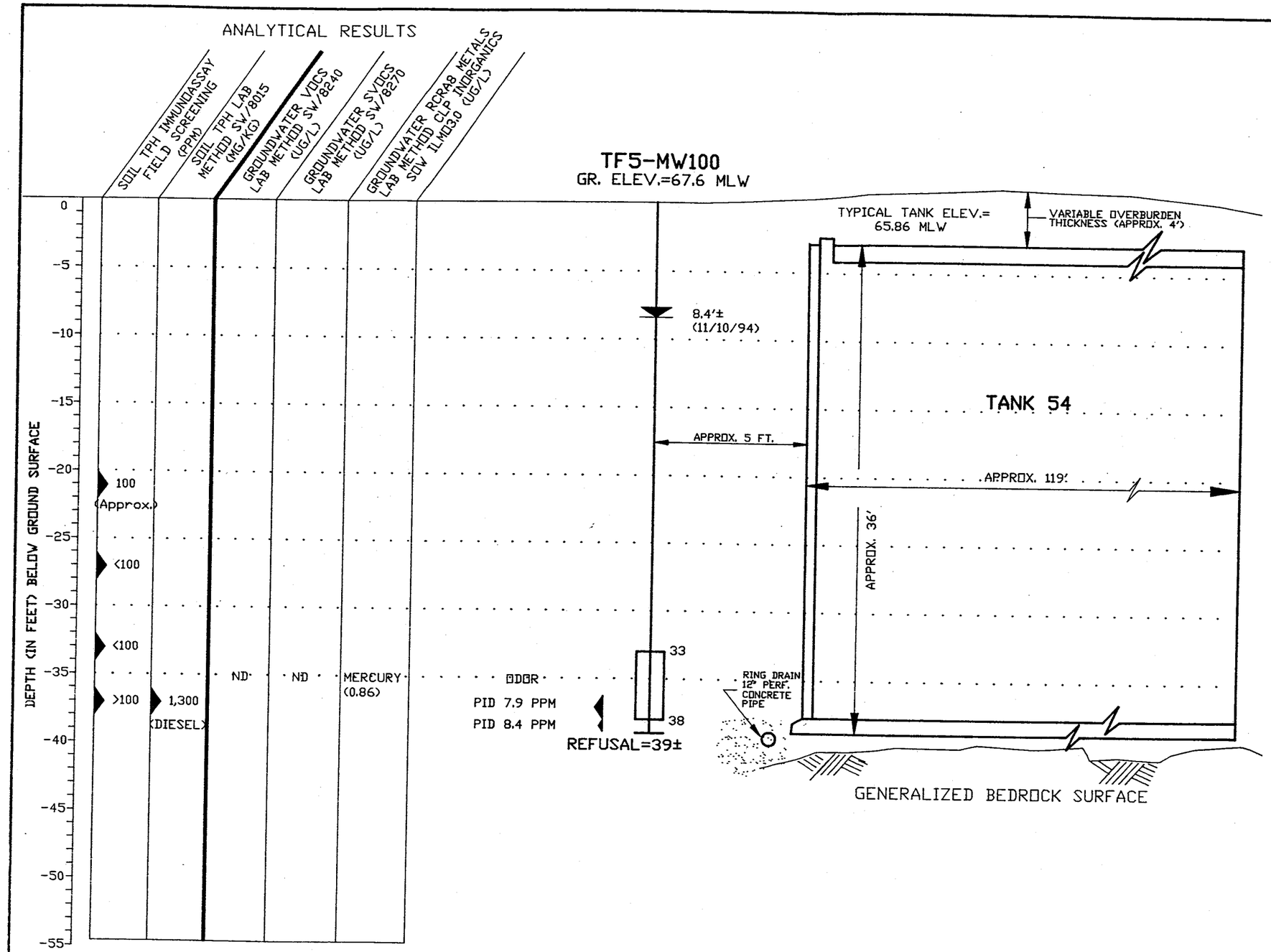
DATA SHEET – TANK 51			FIGURE 4–3
NETC–NEWPORT, RI			Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT			55 Jonspin Road Wilmington, MA 01887
DRAWN BY: R.G. DEWSNAP	REV.: 1		(508)658–7899
CHECKED BY: J.B. HOLDEN	DATE: 5 JUN 95		
SCALE: 1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG_4–3		

W5295063F



DATA SHEET – TANK 52		FIGURE 4–4
NETC–NEWPORT, RI		Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT		
DRAWN BY: R.G. DEWSNAP	REV.: 1	
CHECKED BY: J.B. HOLDEN	DATE: 5 JUN 95	55 Jonspin Road Wilmington, MA 01887
SCALE: 1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG_4-4	(508)658-7899

W5295063F

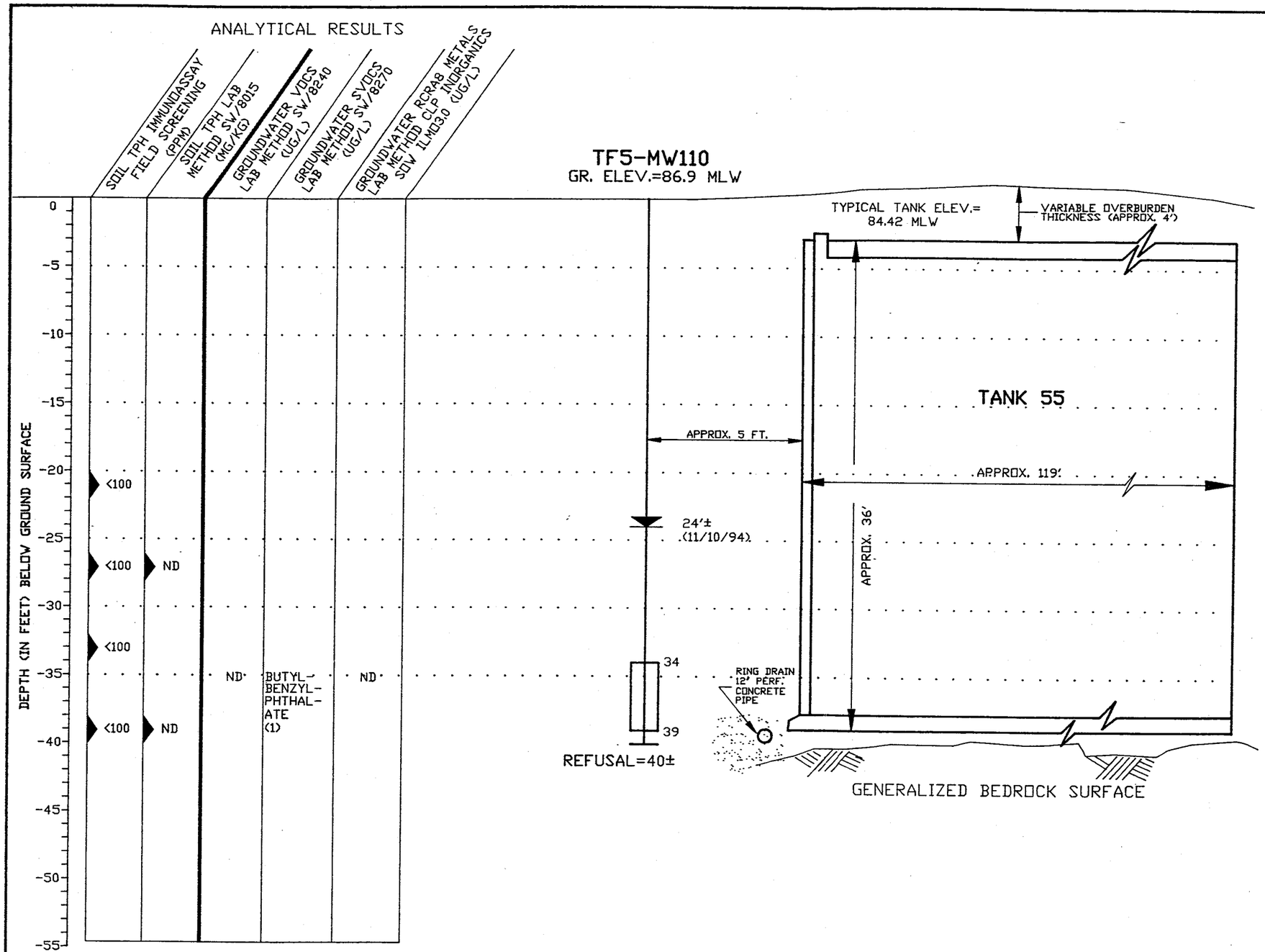


LEGEND

▼	WATER TABLE (FEET BELOW GROUND SURFACE)
1 / 2	MONITORING WELL SCREEN DEPTH (FEET BELOW GROUND SURFACE)
UG/L	MICROGRAMS PER LITER
PPM	PARTS PER MILLION
MG/KG	MILLIGRAMS PER KILOGRAM
MG/L	MILLIGRAMS PER LITER
TPH	TOTAL PETROLEUM HYDROCARBON
VOCS	VOLATILE ORGANIC COMPOUNDS
SVOCS	SEMI-VOLATILE ORGANIC COMPOUNDS
TF5	TANK FARM 5
MW101	GROUNDWATER MONITORING WELL NO.
MLW	MEAN LOW WATER
PID	PHOTOIONIZATION DETECTOR-SCREENING OF SOIL SAMPLE PRIOR TO REMOVING FROM SPLIT BARREL SAMPLER
ND	NOT DETECTED

DATA SHEET – TANK 54			FIGURE 4–5
NETC–NEWPORT, RI			Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT			55 Jonspin Road Wilmington, MA 01887
DRAWN BY: R.G. DEWSNAP	REV.: 1		(508)658–7899
CHECKED BY: J.B. HOLDEN	DATE: 5 JUN 95		
SCALE: 1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG_4–5		

W5295063F

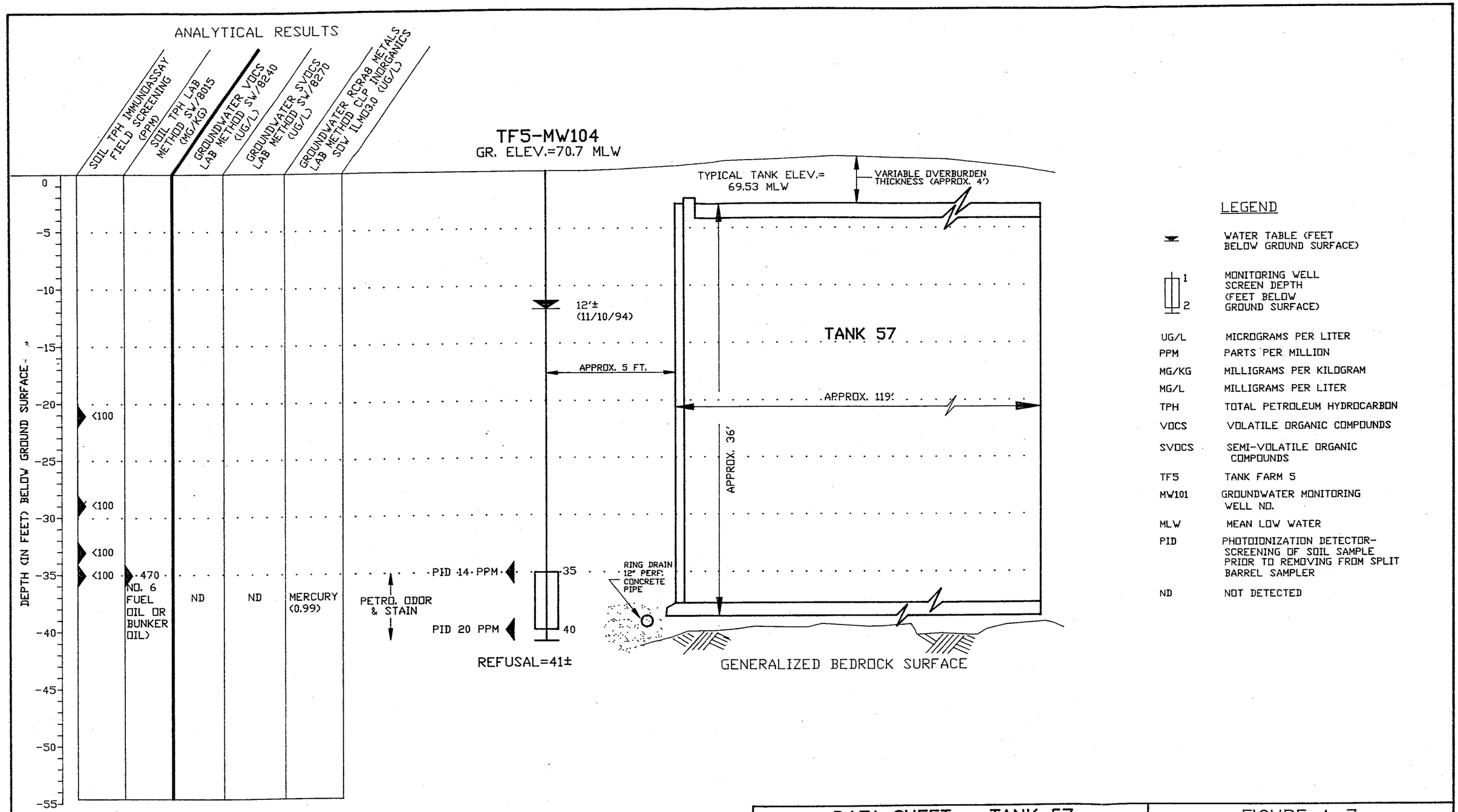


LEGEND

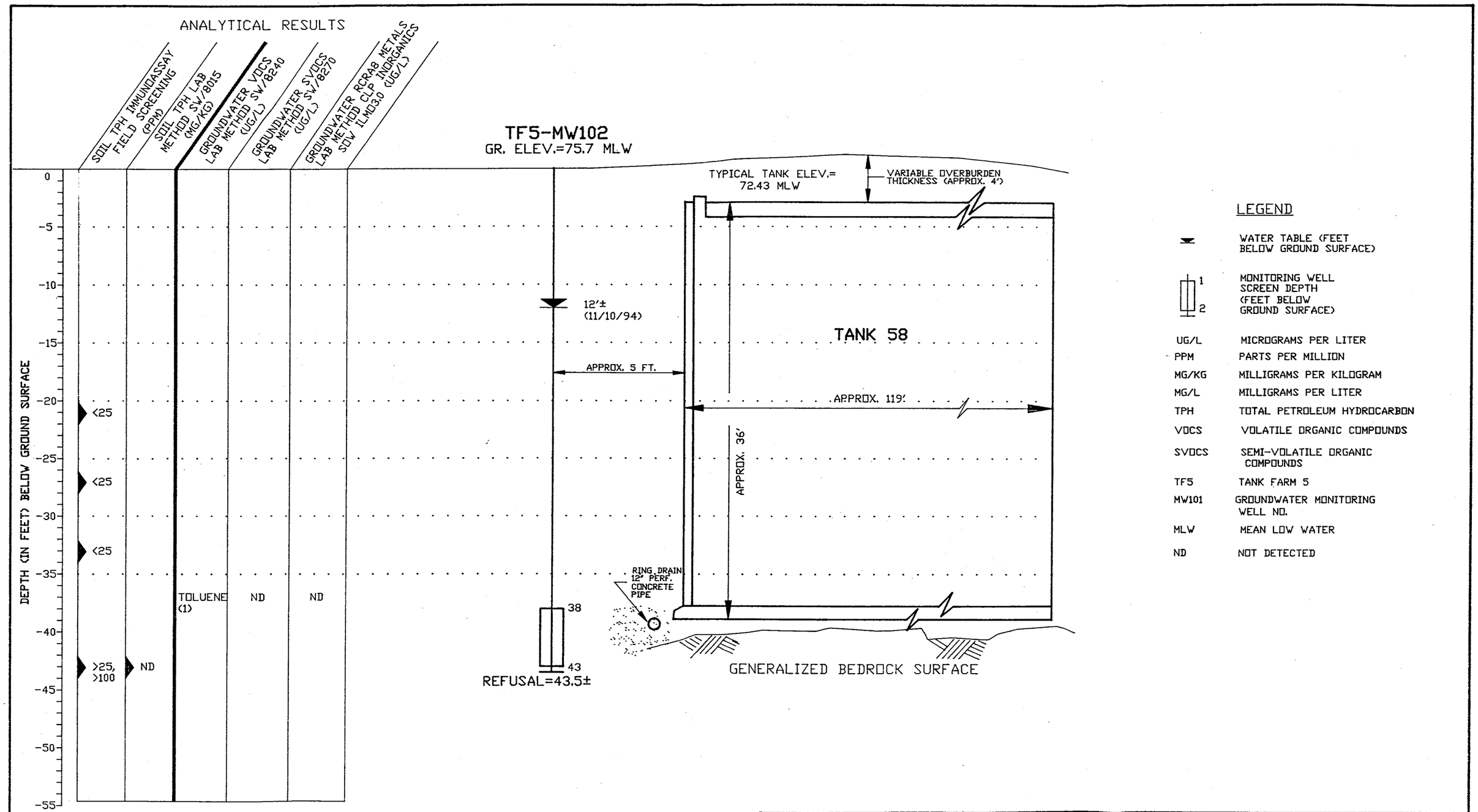
▼	WATER TABLE (FEET BELOW GROUND SURFACE)
1 / 2	MONITORING WELL SCREEN DEPTH (FEET BELOW GROUND SURFACE)
UG/L	MICROGRAMS PER LITER
PPM	PARTS PER MILLION
MG/KG	MILLIGRAMS PER KILOGRAM
MG/L	MILLIGRAMS PER LITER
TPH	TOTAL PETROLEUM HYDROCARBON
VOCS	VOLATILE ORGANIC COMPOUNDS
SVOCS	SEMI-VOLATILE ORGANIC COMPOUNDS
TF5	TANK FARM 5
MW101	GROUNDWATER MONITORING WELL NO.
MLW	MEAN LOW WATER
ND	NOT DETECTED

DATA SHEET – TANK 55			FIGURE 4–6
NETC–NEWPORT, RI			Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT			55 Jonspin Road Wilmington, MA 01887
DRAWN BY: R.G. DEWSNAP	REV.: 1		(508)658–7899
CHECKED BY: J.B. HOLDEN	DATE: 5 JUN 95		
SCALE: 1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG_4–6		

W5295063F



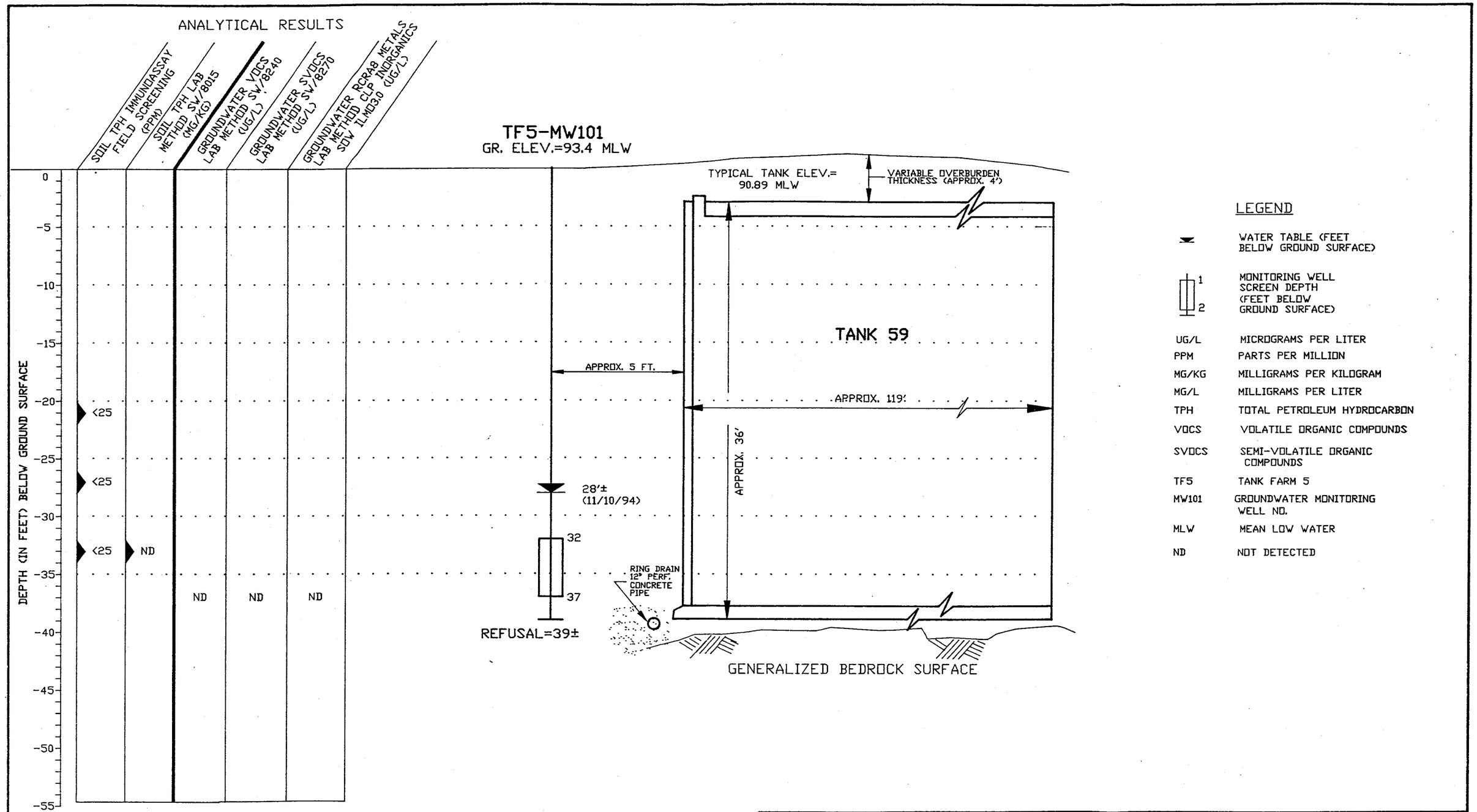
DATA SHEET – TANK 57		FIGURE 4–7
NETC–NEWPORT, RI		Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT		55 Jonspin Road Wilmington, MA 01887 (508)658–7899
DRAWN BY: R.G. DEWSNAP	REV.: 1	
CHECKED BY: J.B. HOLDEN	DATE: 5 JUN 95	
SCALE: 1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG_4–7	



DATA SHEET – TANK 58		FIGURE 4–8
NETC–NEWPORT, RI		Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT		
DRAWN BY: R.G. DEWSNAP	REV.: 1	
CHECKED BY: J.B. HOLDEN	DATE: 5 JUN 95	
SCALE: 1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG_4–8	

55 Jonspin Road Wilmington, MA 01887
(508)658–7899

W5295063F



DATA SHEET – TANK 59			FIGURE 4–9
NETC–NEWPORT, RI			Halliburton NUS CORPORATION
PRELIMINARY CLOSURE ASSESSMENT REPORT			55 Jonspin Road Wilmington, MA 01887
DRAWN BY: R.G. DEWSNAP	REV.: 1		(508)658–7899
CHECKED BY: J.B. HOLDEN	DATE: 5 JUN 95		
SCALE: 1" = 8' (APPROX.)	FILE NO.: C:\DWG\NETC\FIG_4–9		

Appendix C

Soil Boring Analytical Data (Halliburton NUS, 1995)

DATA QUALIFIERS

J	Quantitation is estimated
U	Parameter is not detected at the listed detection limit
UJ	Parameter is not detected at the estimated detection limit

SAMPLE NUMBER KEY

Field samples collected from both sites, Tank Farms 4 and 5, are assigned a unique field sample tracking number. This numbering system as presented in Appendix C is explained here. Sample numbers are keyed to specific tanks in each tank farm and will consists of a five-segment alphanumeric code that identifies the sample matrix, the site and sample location, sample depth, and the quality control (QC) identifier.

The alphanumeric coding to be used in the sample numbering system is explained in the following diagram and the subsequent definitions:

AA	= (Matrix)
TFN-AA-NN	= (Sample location, site identifier - borehole/probe - number)
NN	= (Sample depth)
A	= (QC identifier)

Character type: A = Alpha
N = Numeric

Matrix: SO = Soil
GW = Groundwater

Sample location: Sample locations will be identified by specific tank farm and borehole or groundwater monitoring well number. Two alpha characters will indicate the specific tank farm; a pair of numeric characters will be assigned to correspond with individual tank numbers so that location is identifiable from all other locations of a similar type.

TF-4 = Tank Farm 4
TF-5 = Tank Farm 5
B = Borehole (subsequent monitoring well installation)
P = Probe

Sample identifier: Depth in feet below ground surface representing the top of the interval sample was collected.

QC Identifier: The QC identifier will be assigned only when applicable. The following identifiers will be utilized.

D = Field Duplicate
R = Equipment Rinsate Blank
F = Field Blank
T = Trip Blank

Example: A soil sample collected from 2 to 4 feet below ground surface from a boring located in Tank Farm 4, adjacent to tank number 39 will be numbered:

SO-TF4-B-39-02

TCL SOIL VOLATILE ORGANICS

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL VOLATILE ORGANICS (ug/Kg)

STATION ID:			SOTF5B492224		SOTF5B494042		SOTF5B502830		SOTF5B552628		SOTF5B553840	
LABORATORY ID:			940957-15		940957-16		940957-01		940957-17		940957-18	
ANALYTE	CRQL	MDL/IDL										
Chloromethane	10	2	11	U	11	U	1500	U	13	U	11	U
Bromomethane	10	2	11	U	11	U	1500	U	13	U	11	U
Vinyl Chloride	10	2	11	U	11	U	1500	U	13	U	11	U
Chloroethane	10	2	11	U	11	U	1500	U	13	U	11	U
Methylene Chloride	10	2	11	U	11	U	1500	U	13	U	11	U
Acetone	10	2	11	U	26	U	1500	U	13	U	11	U
Carbon Disulfide	10	2	11	U	11	U	1500	U	13	U	11	U
1,1-Dichloroethene	10	2	11	U	11	U	1500	U	13	U	11	U
1,1-Dichloroethane	10	2	11	U	11	U	1500	U	13	U	11	U
1,2-Dichloroethene (total)	10	2	11	U	11	U	1500	U	13	U	11	U
Chloroform	10	2	11	U	11	U	1500	U	13	U	11	U
1,2-Dichloroethane	10	2	11	U	11	U	1500	U	13	U	11	U
2-Butanone	10	2	11	U	11	U	1500	U	13	U	11	U
1,1,1-Trichloroethane	10	2	11	U	11	U	1500	U	13	U	11	U
Carbon Tetrachloride	10	2	11	U	11	U	1500	U	13	U	11	U
Bromodichloromethane	10	2	11	U	11	U	1500	U	13	U	11	U
1,2-Dichloropropane	10	2	11	U	11	U	1500	U	13	U	11	U
cis-1,3-Dichloropropene	10	2	11	U	11	U	1500	U	13	U	11	U
Trichloroethene	10	2	11	U	11	U	1500	U	13	U	11	U
Dibromochloromethane	10	2	11	U	11	U	1500	U	13	U	11	U
1,1,2-Trichloroethane	10	2	11	U	11	U	1500	U	13	U	11	U
Benzene	10	2	11	U	11	U	1500	U	13	U	11	U
trans-1,3-Dichloropropene	10	2	11	U	11	U	1500	U	13	U	11	U
Bromoform	10	2	11	U	11	U	1500	U	13	U	11	U
4-Methyl-2-Pentanone	10	2	11	U	11	U	1500	U	13	U	11	U
2-Hexanone	10	2	11	U	11	U	1500	U	13	U	11	U
Tetrachloroethene	10	2	11	U	11	U	1500	U	13	U	11	U
1,1,2,2-Tetrachloroethane	10	2	11	U	11	U	1500	U	13	U	11	U
Toluene	10	2	11	U	11	U	1500	U	13	U	11	U
Chlorobenzene	10	2	11	U	11	U	1500	U	13	U	11	U
Ethylbenzene	10	2	11	U	11	U	1500	U	13	U	11	U
Styrene	10	2	11	U	11	U	1500	U	13	U	11	U
Xylene (total)	10	2	11	U	11	U	1500	U	13	U	11	U
DILUTION FACTOR:			1		1		1		1		1	
% SOLIDS			87		91		84		75		87	

:ASE NO. CTO143

:EIMIC CORPORATION

:CL SOIL VOLATILE ORGANICS (ug/Kg)

;TATION ID:			SOTF4B373234		SOTF4B373436		SOTF4B37DUP		SOTF4B382628		SOTF4B463032	
.ABORATORY ID:			940996-17		940996-18		940996-19		940996-20		940996-09	
					FIELD DUPLICATE PAIR							
\NALYTE	CRQL	MDL/IDL										
:hloromethane	10	2	11	U	11	U	11	U	11	U	11	U
3romomethane	10	2	11	U	11	U	11	U	11	U	11	U
/inyl Chloride	10	2	11	U	11	U	11	U	11	U	11	U
:hloroethane	10	2	11	U	11	U	11	U	11	U	11	U
/lethylene Chloride	10	2	11	U	11	U	11	U	11	U	13	U
\cetone	10	2	11	U	11	U	19	UJ	11	U	11	U
:arbon Disulfide	10	2	11	U	11	U	11	U	11	U	11	U
1,1-Dichloroethene	10	2	11	U	11	U	11	U	11	U	11	U
1,1-Dichloroethane	10	2	11	U	11	U	11	U	11	U	11	U
1,2-Dichloroethene (total)	10	2	11	U	11	U	11	U	11	U	11	U
:hloroform	10	2	11	U	11	U	11	U	11	U	11	U
1,2-Dichloroethane	10	2	11	U	11	U	11	U	11	U	11	U
2-Butanone	10	2	11	U	11	U	11	U	11	U	11	U
1,1,1-Trichloroethane	10	2	11	U	11	U	11	U	11	U	11	U
:arbon Tetrachloride	10	2	11	U	11	U	11	U	11	U	11	U
3romodichloromethane	10	2	11	U	11	U	11	U	11	U	11	U
1,2-Dichloropropane	10	2	11	U	11	U	11	U	11	U	11	U
:is-1,3-Dichloropropene	10	2	11	U	11	U	11	U	11	U	11	U
Trichloroethene	10	2	11	U	11	UJ	1	J	11	U	11	U
Dibromochloromethane	10	2	11	U	11	U	11	U	11	U	11	U
1,1,2-Trichloroethane	10	2	11	U	11	U	11	U	11	U	11	U
3enzene	10	2	11	U	11	U	11	U	11	U	11	U
trans-1,3-Dichloropropene	10	2	11	U	11	U	11	U	11	U	11	U
Bromoform	10	2	11	U	11	U	11	U	11	U	11	U
4-Methyl-2-Pentanone	10	2	11	U	11	U	11	U	11	U	11	U
2-Hexanone	10	2	11	U	11	U	11	U	11	U	11	U
Tetrachloroethene	10	2	11	U	11	U	11	U	11	U	11	U
1,1,2,2-Tetrachloroethane	10	2	11	U	11	U	11	U	11	U	11	U
Toluene	10	2	11	U	11	U	11	U	11	U	11	U
:hlorobenzene	10	2	11	U	11	U	11	U	11	U	11	U
Ethylbenzene	10	2	11	U	11	U	11	U	11	U	11	U
Styrene	10	2	11	U	11	U	11	U	11	U	2	J
Xylene (total)	10	2	11	U	11	U	11	U	11	U	11	U
DILUTION FACTOR:			1		1		1		1		1	
% SOLIDS			87		88		89		88		91	

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL VOLATILE ORGANICS (ug/Kg)

STATION ID:			SOTF438DUP		SOTF4B383234		SOTF4B423234		SOTF4B423638		SOTF4B453234	
LABORATORY ID:			940996-22		940996-21		940996-23		940996-24		940996-25	
			FIELD DUPLICATE PAIR									
ANALYTE	CRQL	MDL/IDL										
Chloromethane	10	2	12	U	60	U	11	U	57	U	59	U
Bromomethane	10	2	12	U	60	U	11	U	57	U	59	U
Vinyl Chloride	10	2	12	U	60	U	11	U	57	U	59	U
Chloroethane	10	2	12	U	60	U	11	U	57	U	59	U
Methylene Chloride	10	2	12	U	60	U	11	U	57	U	59	U
Acetone	10	2	21	U	60	UJ	11	U	57	U	59	U
Carbon Disulfide	10	2	12	U	60	U	11	U	57	U	59	U
1,1-Dichloroethene	10	2	12	U	60	U	11	U	57	U	59	U
1,1-Dichloroethane	10	2	12	U	60	U	11	U	57	U	59	U
1,2-Dichloroethene (total)	10	2	12	U	60	U	11	U	57	U	59	U
Chloroform	10	2	12	U	60	U	11	U	57	U	59	U
1,2-Dichloroethane	10	2	12	U	60	U	11	U	57	U	59	U
2-Butanone	10	2	12	UJ	12	J	11	U	57	U	59	U
1,1,1-Trichloroethane	10	2	12	U	60	U	11	U	57	U	59	U
Carbon Tetrachloride	10	2	12	U	60	U	11	U	57	U	59	U
Bromodichloromethane	10	2	12	U	60	U	11	U	57	U	59	U
1,2-Dichloropropane	10	2	12	U	60	U	11	U	57	U	59	U
cis-1,3-Dichloropropene	10	2	12	U	60	U	11	U	57	U	59	U
Trichloroethene	10	2	12	U	60	U	11	U	57	U	59	U
Dibromochloromethane	10	2	12	U	60	U	11	U	57	U	59	U
1,1,2-Trichloroethane	10	2	12	U	60	U	11	U	57	U	59	U
Benzene	10	2	12	U	60	U	11	U	57	U	59	U
trans-1,3-Dichloropropene	10	2	12	U	60	U	11	U	57	U	59	U
Bromoform	10	2	12	U	60	U	11	U	57	U	59	U
4-Methyl-2-Pentanone	10	2	12	U	60	U	11	U	57	U	59	U
2-Hexanone	10	2	12	U	60	U	11	U	57	U	59	U
Tetrachloroethene	10	2	12	U	60	U	11	U	57	U	59	U
1,1,2,2-Tetrachloroethane	10	2	12	U	60	U	11	U	57	U	59	U
Toluene	10	2	12	U	60	U	11	U	57	U	59	U
Chlorobenzene	10	2	12	U	60	U	11	U	57	U	59	U
Ethylbenzene	10	2	12	U	60	U	11	U	57	U	59	U
Styrene	10	2	12	U	60	U	11	U	57	U	59	U
Xylene (total)	10	2	12	U	60	U	11	U	57	U	59	U
DILUTION FACTOR:			1		5		1		5		5	
% SOLIDS			86		84		90		87		85	

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL VOLATILE ORGANICS (ug/Kg)

STATION ID:			SOTF4B453436		SOTF4B45DUP	
LABORATORY ID:			940996-26		940996-27	
			FIELD DUPLICATE PAIR			
ANALYTE	CRQL	MDL/IDL				
Chloromethane	10	2	60	U	58	U
Bromomethane	10	2	60	U	58	U
Vinyl Chloride	10	2	60	U	58	U
Chloroethane	10	2	60	U	58	U
Methylene Chloride	10	2	60	U	58	U
Acetone	10	2	91	U	100	U
Carbon Disulfide	10	2	60	U	58	U
1,1-Dichloroethene	10	2	60	U	58	U
1,1-Dichloroethane	10	2	60	U	58	U
1,2-Dichloroethene (total)	10	2	60	U	58	U
Chloroform	10	2	60	U	58	U
1,2-Dichloroethane	10	2	60	U	58	U
2-Butanone	10	2	60	U	58	U
1,1,1-Trichloroethane	10	2	60	U	58	U
Carbon Tetrachloride	10	2	60	U	58	U
Bromodichloromethane	10	2	60	U	58	U
1,2-Dichloropropane	10	2	60	U	58	U
cis-1,3-Dichloropropene	10	2	60	U	58	U
Trichloroethene	10	2	60	U	58	U
Dibromochloromethane	10	2	60	U	58	U
1,1,2-Trichloroethane	10	2	60	U	58	U
Benzene	10	2	60	U	58	U
trans-1,3-Dichloropropene	10	2	60	U	58	U
Bromoform	10	2	60	U	58	U
4-Methyl-2-Pentanone	10	2	60	U	58	U
2-Hexanone	10	2	60	U	58	U
Tetrachloroethene	10	2	60	U	58	U
1,1,2,2-Tetrachloroethane	10	2	60	U	58	U
Toluene	10	2	60	UJ	7	J
Chlorobenzene	10	2	60	U	58	U
Ethylbenzene	10	2	60	U	58	U
Styrene	10	2	60	U	58	U
Xylene (total)	10	2	60	U	58	U
DILUTION FACTOR:			5		5	
% SOLIDS			83		86	

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL VOLATILE ORGANICS (ug/Kg)

STATION ID:			SOTF4B391719		SOTF4B394042		SOTF4B402628		SOTF4B404042		SOTF5B512426	
LABORATORY ID:			940980-11		940980-12		940980-13		940980-14		940980-04	
ANALYTE	CRQL	MDL/IDL										
Chloromethane	10	2	11	U	12	U	12	U	13	U	11	U
Bromomethane	10	2	11	U	12	U	12	U	13	U	11	U
Vinyl Chloride	10	2	11	U	12	U	12	U	13	U	11	U
Chloroethane	10	2	11	U	12	U	12	U	13	U	11	U
Methylene Chloride	10	2	11	U	12	U	12	U	13	U	11	U
Acetone	10	2	11	U	12	U	12	U	13	U	11	U
Carbon Disulfide	10	2	11	U	12	U	12	U	13	U	11	U
1,1-Dichloroethene	10	2	11	U	12	U	12	U	13	U	11	U
1,1-Dichloroethane	10	2	11	U	12	U	12	U	13	U	11	U
1,2-Dichloroethene (total)	10	2	11	U	12	U	12	U	13	U	11	U
Chloroform	10	2	11	U	12	U	12	U	13	U	11	U
1,2-Dichloroethane	10	2	11	U	12	U	12	U	13	U	11	U
2-Butanone	10	2	11	U	12	U	12	U	13	U	11	U
1,1,1-Trichloroethane	10	2	11	U	12	U	12	U	13	U	11	U
Carbon Tetrachloride	10	2	11	U	12	U	12	U	13	U	11	U
Bromodichloromethane	10	2	11	U	12	U	12	U	13	U	11	U
1,2-Dichloropropane	10	2	11	U	12	U	12	U	13	U	11	U
cis-1,3-Dichloropropene	10	2	11	U	12	U	12	U	13	U	11	U
Trichloroethene	10	2	11	U	12	U	12	U	13	U	11	U
Dibromochloromethane	10	2	11	U	12	U	12	U	13	U	11	U
1,1,2-Trichloroethane	10	2	11	U	12	U	12	U	13	U	11	U
Benzene	10	2	11	U	12	U	12	U	13	U	11	U
trans-1,3-Dichloropropene	10	2	11	U	12	U	12	U	13	U	11	U
Bromoform	10	2	11	U	12	U	12	U	13	U	11	U
4-Methyl-2-Pentanone	10	2	11	U	12	U	12	U	13	U	11	U
2-Hexanone	10	2	11	U	12	U	12	U	13	U	11	U
Tetrachloroethene	10	2	11	U	12	U	12	U	13	U	11	U
1,1,2,2-Tetrachloroethane	10	2	11	U	12	U	12	U	13	U	11	U
Toluene	10	2	11	U	12	U	12	U	13	U	3	J
Chlorobenzene	10	2	11	U	12	U	12	U	13	U	11	U
Ethylbenzene	10	2	11	U	12	U	12	U	13	U	11	U
Styrene	10	2	11	U	12	U	12	U	13	U	11	U
Xylene (total)	10	2	11	U	12	U	12	U	13	U	11	U
DILUTION FACTOR:			1		1		1		1		1	
% SOLIDS			87		82		86		79		89	

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL VOLATILE ORGANICS (ug/Kg)

STATION ID:			SOTF5B513840		SOTF5B522426		SOTF5B523436	
LABORATORY ID:			940980-05		940980-06		940980-07	
ANALYTE	CRQL	MDL/IDL						
Chloromethane	10	2	12	U	60	U	1400	U
Bromomethane	10	2	12	U	60	U	1400	U
Vinyl Chloride	10	2	12	U	60	U	1400	U
Chloroethane	10	2	12	U	60	U	1400	U
Methylene Chloride	10	2	12	U	60	U	1400	U
Acetone	10	2	34	U	60	U	1400	U
Carbon Disulfide	10	2	12	U	60	U	1400	U
1,1-Dichloroethene	10	2	12	U	60	U	1400	U
1,1-Dichloroethane	10	2	12	U	60	U	1400	U
1,2-Dichloroethene (total)	10	2	12	U	60	U	1400	U
Chloroform	10	2	12	U	60	U	1400	U
1,2-Dichloroethane	10	2	12	U	60	U	1400	U
2-Butanone	10	2	12	U	60	U	1400	U
1,1,1-Trichloroethane	10	2	12	U	60	U	1400	U
Carbon Tetrachloride	10	2	12	U	60	U	1400	U
Bromodichloromethane	10	2	12	U	60	U	1400	U
1,2-Dichloropropane	10	2	12	U	60	U	1400	U
cis-1,3-Dichloropropene	10	2	12	U	60	U	1400	U
Trichloroethene	10	2	12	U	60	U	1400	U
Dibromochloromethane	10	2	12	U	60	U	1400	U
1,1,2-Trichloroethane	10	2	12	U	60	U	1400	U
Benzene	10	2	12	U	60	U	1400	U
trans-1,3-Dichloropropene	10	2	12	U	60	U	1400	U
Bromoform	10	2	12	U	60	U	1400	U
4-Methyl-2-Pentanone	10	2	12	U	60	U	1400	U
2-Hexanone	10	2	12	U	60	U	1400	U
Tetrachloroethene	10	2	12	U	60	U	1400	U
1,1,2,2-Tetrachloroethane	10	2	12	U	60	U	1400	U
Toluene	10	2	12	U	60	U	1400	U
Chlorobenzene	10	2	3	J	60	U	1400	U
Ethylbenzene	10	2	12	U	60	U	1400	U
Styrene	10	2	12	U	60	U	1400	U
Xylene (total)	10	2	12	U	60	U	1400	U
DILUTION FACTOR:			1		1		1	
% SOLIDS			86		84		92	

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL VOLATILE ORGANICS (ug/Kg)

STATION ID:			SOTF4B413032		SOTF4B413840		SOTF4B432830		SOTF4B433638		SOTF4B442224	
LABORATORY ID:			940980-18		940980-19		940980-20		940980-21		940980-22	
ANALYTE	CRQL	MDL/IDL										
Chloromethane	10	2	12	U	13	U	11	U	11	U	11	U
Bromomethane	10	2	12	U	13	U	11	U	11	U	11	U
Vinyl Chloride	10	2	12	U	13	U	11	U	11	U	11	U
Chloroethane	10	2	12	U	13	U	11	U	11	U	11	U
Methylene Chloride	10	2	12	U	13	U	11	U	11	U	11	U
Acetone	10	2	12	U	33	U	11	U	11	U	11	U
Carbon Disulfide	10	2	12	U	13	U	11	U	11	U	11	U
1,1-Dichloroethene	10	2	12	U	13	U	11	U	11	U	11	U
1,1-Dichloroethane	10	2	12	U	13	U	11	U	11	U	11	U
1,2-Dichloroethene (total)	10	2	12	U	13	U	11	U	11	U	11	U
Chloroform	10	2	12	U	13	U	11	U	11	U	11	U
1,2-Dichloroethane	10	2	12	U	13	U	11	U	11	U	11	U
2-Butanone	10	2	12	U	9	J	11	U	11	U	11	U
1,1,1-Trichloroethane	10	2	12	U	13	U	11	U	11	U	11	U
Carbon Tetrachloride	10	2	12	U	13	U	11	U	11	U	11	U
Bromodichloromethane	10	2	12	U	13	U	11	U	11	U	11	U
1,2-Dichloropropane	10	2	12	U	13	U	11	U	11	U	11	U
cis-1,3-Dichloropropene	10	2	12	U	13	U	11	U	11	U	11	U
Trichloroethene	10	2	12	U	13	U	11	U	11	U	11	U
Dibromochloromethane	10	2	12	U	13	U	11	U	11	U	11	U
1,1,2-Trichloroethane	10	2	12	U	13	U	11	U	11	U	11	U
Benzene	10	2	12	U	13	U	11	U	11	U	11	U
trans-1,3-Dichloropropene	10	2	12	U	13	U	11	U	11	U	11	U
Bromoform	10	2	12	U	13	U	11	U	11	U	11	U
4-Methyl-2-Pentanone	10	2	12	U	13	U	11	U	11	U	11	U
2-Hexanone	10	2	12	U	13	U	11	U	11	U	11	U
Tetrachloroethene	10	2	12	U	13	U	11	U	11	U	11	U
1,1,2,2-Tetrachloroethane	10	2	12	U	13	U	11	U	11	U	11	U
Toluene	10	2	12	U	13	U	11	U	11	U	11	U
Chlorobenzene	10	2	12	U	13	U	11	U	11	U	11	U
Ethylbenzene	10	2	12	U	13	U	11	U	11	U	11	U
Styrene	10	2	12	U	13	U	11	U	11	U	11	U
Xylene (total)	10	2	12	U	13	U	11	U	11	U	11	U
DILUTION FACTOR:			1		1		1		1		1	
% SOLIDS			84		76		87		89		89	

SE NO. CTO143

MIC CORPORATION

. SOIL VOLATILE ORGANICS (ug/Kg)

ATION ID:			SOTF4B463840	
BORATORY ID:			940996-10	
ALYTE	CRQL	MDL/IDL		
oromethane	10	2	12	U
momethane	10	2	12	U
l Chloride	10	2	12	U
oroethane	10	2	12	U
hylene Chloride	10	2	12	U
tone	10	2	12	U
bon Disulfide	10	2	12	U
Dichloroethene	10	2	12	U
Dichloroethane	10	2	12	U
Dichloroethene (total)	10	2	12	U
oroform	10	2	12	U
Dichloroethane	10	2	12	U
utanone	10	2	12	U
1-Trichloroethane	10	2	12	U
bon Tetrachloride	10	2	12	U
modichloromethane	10	2	12	U
Dichloropropane	10	2	12	U
1,3-Dichloropropene	10	2	12	U
hloroethene	10	2	12	U
romochloromethane	10	2	12	U
,2-Trichloroethane	10	2	12	U
nzene	10	2	12	U
s-1,3-Dichloropropene	10	2	12	U
moform	10	2	12	U
lethyl-2-Pentanone	10	2	12	U
lexanone	10	2	12	U
rachloroethene	10	2	12	U
,2,2-Tetrachloroethane	10	2	12	U
uene	10	2	12	U
orobenzene	10	2	12	U
ylbenzene	10	2	12	U
ene	10	2	12	U
ene (total)	10	2	12	U
UTION FACTOR:			1	
SOLIDS			83	

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL VOLATILE ORGANICS (ug/Kg)

STATION ID:			SOTF4B443638	SOTF4B472830	SOTF4B473840	SOTF4B482729	SOTF4B483941
LABORATORY ID:			940980-23	940980-24	940980-25	940980-27	940980-28
ANALYTE	CRQL	MDL/IDL					
Chloromethane	10	2	11 U	11 U	12 U	1400 U	59 U
Bromomethane	10	2	11 U	11 U	12 U	1400 U	59 U
Vinyl Chloride	10	2	11 U	11 U	12 U	1400 U	59 U
Chloroethane	10	2	11 U	11 U	12 U	1400 U	59 U
Methylene Chloride	10	2	11 U	11 U	12 U	1500 U	59 U
Acetone	10	2	11 U	11 U	12 U	1400 U	59 U
Carbon Disulfide	10	2	11 U	11 U	12 U	1400 U	59 U
1,1-Dichloroethene	10	2	11 U	11 U	12 U	1400 U	59 U
1,1-Dichloroethane	10	2	11 U	11 U	12 U	1400 U	59 U
1,2-Dichloroethene (total)	10	2	11 U	11 U	12 U	1400 U	59 U
Chloroform	10	2	11 U	11 U	12 U	1400 U	59 U
1,2-Dichloroethane	10	2	11 U	11 U	12 U	1400 U	59 U
2-Butanone	10	2	11 U	11 U	12 U	1400 U	59 U
1,1,1-Trichloroethane	10	2	11 U	11 U	12 U	1400 U	59 U
Carbon Tetrachloride	10	2	11 U	11 U	12 U	1400 U	59 U
Bromodichloromethane	10	2	11 U	11 U	12 U	1400 U	59 U
1,2-Dichloropropane	10	2	11 U	11 U	12 U	1400 U	59 U
cis-1,3-Dichloropropene	10	2	11 U	11 U	12 U	1400 U	59 U
Trichloroethene	10	2	11 U	11 U	12 U	1400 U	59 U
Dibromochloromethane	10	2	11 U	11 U	12 U	1400 U	59 U
1,1,2-Trichloroethane	10	2	11 U	11 U	12 U	260 J	59 U
Benzene	10	2	11 U	11 U	12 U	1400 U	59 U
trans-1,3-Dichloropropene	10	2	11 U	11 U	12 U	1400 U	59 U
Bromoform	10	2	11 U	11 U	12 U	1400 U	59 U
4-Methyl-2-Pentanone	10	2	11 U	11 U	12 U	1400 U	59 U
2-Hexanone	10	2	11 U	11 U	12 U	1400 U	59 U
Tetrachloroethene	10	2	11 U	11 U	12 U	1400 U	59 U
1,1,2,2-Tetrachloroethane	10	2	11 U	11 U	12 U	1400 U	59 U
Toluene	10	2	11 U	11 U	12 U	1400 U	59 U
Chlorobenzene	10	2	11 U	11 U	12 U	1400 U	59 U
Ethylbenzene	10	2	11 U	11 U	12 U	1400 U	59 U
Styrene	10	2	11 U	11 U	12 U	1400 U	59 U
Xylene (total)	10	2	11 U	11 U	12 U	1400 U	59 U
DILUTION FACTOR:			1	1	1	1	1
% SOLIDS			87	87	82	87	85

:ASE NO. CTO143

:EIMIC CORPORATION

CL SOIL VOLATILE ORGANICS (ug/Kg)

:TATION ID:			SOTF5B543638		SOTF5B584244		SOTF5B593234		
ABORATORY ID:			940948-01		940948-02		940948-03		
NALYTE	CRQL	MDL/IDL							
:hloromethane	10	2	5300	U	11	U	11	U	
ıromomethane	10	2	5300	U	11	U	11	U	
'inyl Chloride	10	2	5300	U	11	U	11	U	
:hloroethane	10	2	5300	U	11	U	11	U	
lethylene Chloride	10	2	5300	U	11	U	11	U	
cetone	10	2	5300	U	11	U	11	U	
arbon Disulfide	10	2	5300	U	11	U	11	U	
,1-Dichloroethene	10	2	5300	U	11	U	11	U	
,1-Dichloroethane	10	2	5300	U	11	U	11	U	
,2-Dichloroethene (total)	10	2	5300	U	11	U	11	U	
hloroform	10	2	5300	U	11	U	11	U	
,2-Dichloroethane	10	2	5300	U	11	U	11	U	
-Butanone	10	2	5300	U	11	U	11	U	
,1,1-Trichloroethane	10	2	5300	U	11	U	11	U	
arbon Tetrachloride	10	2	5300	U	11	U	11	U	
romodichloromethane	10	2	5300	U	11	U	11	U	
,2-Dichloropropane	10	2	5300	U	11	U	11	U	
is-1,3-Dichloropropene	10	2	5300	U	11	U	11	U	
richloroethene	10	2	5300	U	11	U	11	U	
ibromochloromethane	10	2	5300	U	11	U	11	U	
,1,2-Trichloroethane	10	2	5300	U	11	U	11	U	
enzene	10	2	5300	U	11	U	11	U	
'ans-1,3-Dichloropropene	10	2	5300	U	11	U	11	U	
ıromoform	10	2	5300	U	11	U	11	U	
-Methyl-2-Pentanone	10	2	5300	U	11	U	11	U	
-Hexanone	10	2	5300	U	11	U	11	U	
etrachloroethene	10	2	5300	U	11	U	11	U	
,1,2,2-Tetrachloroethane	10	2	5300	U	11	U	11	U	
oluene	10	2	5300	U	11	U	11	U	
:hlorobenzene	10	2	5300	U	11	U	11	U	
thylbenzene	10	2	5300	U	3	J	2	J	
tyrene	10	2	5300	U	11	U	11	U	
ylene (total)	10	2	5300	U	9	J	6	J	
ILUTION FACTOR:			1		1		1		
; SOLIDS			94		88		87		

E NO. C1O143

IIC CORPORATION

SOIL VOLATILE ORGANICS (ug/Kg)

TION ID: SOTF5B573436
ORATORY ID: 940957-03

LYTE	CRQL	MDL/IDL		
romethane	10	2	62	U
omethane	10	2	62	U
Chloride	10	2	62	U
roethane	10	2	62	U
ylene Chloride	10	2	62	U
one	10	2	62	U
on Disulfide	10	2	62	U
Dichloroethene	10	2	62	U
Dichloroethane	10	2	62	U
Dichloroethene (total)	10	2	62	U
roform	10	2	62	U
Dichloroethane	10	2	62	U
tanone	10	2	62	U
1-Trichloroethane	10	2	62	U
on Tetrachloride	10	2	62	U
nodichloromethane	10	2	62	U
Dichloropropane	10	2	62	U
1,3-Dichloropropene	10	2	62	U
hloroethene	10	2	62	U
omochloromethane	10	2	62	U
2-Trichloroethane	10	2	62	U
zene	10	2	62	U
s-1,3-Dichloropropene	10	2	62	U
moform	10	2	62	U
ethyl-2-Pentanone	10	2	62	U
exanone	10	2	62	U
achloroethene	10	2	62	U
2,2-Tetrachloroethane	10	2	62	U
ene	10	2	62	U
robenzene	10	2	62	U
ylbenzene	10	2	62	U
ene	10	2	62	U
ne (total)	10	2	62	U

UTION FACTOR: 1
SOLIDS 81

CASE NO. CTO143

CEIMIC CORPORATION

TCL AQUEOUS VOLATILE ORGANICS (ug/L)

STATION ID:			SOTF4BRB1		SOTF5BTB1	
LABORATORY ID:			940980-17		940980-08	
ANALYTE	CRQL	MDL/IDL				
Chloromethane	10	2	10	U	10	U
Bromomethane	10	2	10	U	10	U
Vinyl Chloride	10	2	10	U	10	U
Chloroethane	10	2	10	U	10	U
Methylene Chloride	10	2	2	J	1	J
Acetone	10	2	10		6	J
Carbon Disulfide	10	2	10	U	10	U
1,1-Dichloroethene	10	2	10	U	10	U
1,1-Dichloroethane	10	2	10	U	10	U
1,2-Dichloroethene (total)	10	2	10	U	10	U
Chloroform	10	2	55		10	U
1,2-Dichloroethane	10	2	10	U	10	U
2-Butanone	10	2	10	U	10	U
1,1,1-Trichloroethane	10	2	10	U	10	U
Carbon Tetrachloride	10	2	10	U	10	U
Bromodichloromethane	10	2	2	J	10	U
1,2-Dichloropropane	10	2	10	U	10	U
cis-1,3-Dichloropropene	10	2	10	U	10	U
Trichloroethene	10	2	10	U	10	U
Dibromochloromethane	10	2	10	U	10	U
1,1,2-Trichloroethane	10	2	10	U	10	U
Benzene	10	2	10	U	10	U
trans-1,3-Dichloropropene	10	2	10	U	10	U
Bromoform	10	2	10	U	10	U
4-Methyl-2-Pentanone	10	2	10	U	10	U
2-Hexanone	10	2	10	U	10	U
Tetrachloroethene	10	2	10	U	10	U
1,1,2,2-Tetrachloroethane	10	2	10	U	10	U
Toluene	10	2	10	U	10	U
Chlorobenzene	10	2	10	U	10	U
Ethylbenzene	10	2	10	U	10	U
Styrene	10	2	10	U	10	U
Xylene (total)	10	2	10	U	10	U
DILUTION FACTOR:			1		1	

CASE NO. CTO143

CEIMIC CORPORATION

TCL AQUEOUS VOLATILE ORGANICS (ug/L)

STATION ID:			SOTF4BRB2	
LABORATORY ID:			940996-28	
ANALYTE	CRQL	MDL/IDL		
Chloromethane	10	2	10	U
Bromomethane	10	2	10	U
Vinyl Chloride	10	2	10	U
Chloroethane	10	2	10	U
Methylene Chloride	10	2	10	U
Acetone	10	2	10	U
Carbon Disulfide	10	2	10	U
1,1-Dichloroethene	10	2	10	U
1,1-Dichloroethane	10	2	10	U
1,2-Dichloroethene (total)	10	2	10	U
Chloroform	10	2	42	
1,2-Dichloroethane	10	2	10	U
2-Butanone	10	2	10	U
1,1,1-Trichloroethane	10	2	10	U
Carbon Tetrachloride	10	2	10	U
Bromodichloromethane	10	2	2	J
1,2-Dichloropropane	10	2	10	U
cis-1,3-Dichloropropene	10	2	10	U
Trichloroethene	10	2	10	U
Dibromochloromethane	10	2	10	U
1,1,2-Trichloroethane	10	2	10	U
Benzene	10	2	10	U
trans-1,3-Dichloropropene	10	2	10	U
Bromoform	10	2	10	U
4-Methyl-2-Pentanone	10	2	10	U
2-Hexanone	10	2	10	U
Tetrachloroethene	10	2	10	U
1,1,2,2-Tetrachloroethane	10	2	10	U
Toluene	10	2	10	U
Chlorobenzene	10	2	10	U
Ethylbenzene	10	2	10	U
Styrene	10	2	10	U
Xylene (total)	10	2	10	U
DILUTION FACTOR:			1	

ASE NO. CTO143

EIMIC CORPORATION

CL AQUEOUS VOLATILE ORGANICS (ug/L)

STATION ID:			SOTF4BTB2	
ABORATORY ID:			940980-29	
ANALYTE	CRQL	MDL/IDL		
Chloromethane	10	2	1	J
Bromomethane	10	2	10	U
Vinyl Chloride	10	2	10	U
Chloroethane	10	2	10	U
Methylene Chloride	10	2	2	J
Acetone	10	2	10	
Carbon Disulfide	10	2	10	U
1,1-Dichloroethene	10	2	10	U
1,1-Dichloroethane	10	2	10	U
1,2-Dichloroethene (total)	10	2	10	U
Chloroform	10	2	10	U
1,2-Dichloroethane	10	2	10	U
2-Butanone	10	2	10	U
1,1,1-Trichloroethane	10	2	10	U
Carbon Tetrachloride	10	2	10	U
Bromodichloromethane	10	2	10	U
1,2-Dichloropropane	10	2	10	U
cis-1,3-Dichloropropene	10	2	10	U
Trichloroethene	10	2	10	U
Dibromochloromethane	10	2	10	U
1,1,2-Trichloroethane	10	2	10	U
Benzene	10	2	10	U
trans-1,3-Dichloropropene	10	2	10	U
Bromoform	10	2	10	U
4-Methyl-2-Pentanone	10	2	10	U
2-Hexanone	10	2	10	U
Tetrachloroethene	10	2	10	U
1,1,2,2-Tetrachloroethane	10	2	10	U
Toluene	10	2	10	U
Chlorobenzene	10	2	10	U
Ethylbenzene	10	2	10	U
Styrene	10	2	10	U
Xylene (total)	10	2	10	U
DILUTION FACTOR:			1	

CASE NO. CTO143

CEIMIC CORPORATION

TCL AQUEOUS VOLATILE ORGANICS (ug/L)

STATION ID:			SOTF5BFB1		SOTF5BFB2	
LABORATORY ID:			940957-04		940957-05	
ANALYTE	CRQL	MDL/IDL				
Chloromethane	10	2	10	U	10	U
Bromomethane	10	2	10	U	10	U
Vinyl Chloride	10	2	10	U	10	U
Chloroethane	10	2	10	U	10	U
Methylene Chloride	10	2	10	U	6	J
Acetone	10	2	19		13	
Carbon Disulfide	10	2	10	U	10	U
1,1-Dichloroethene	10	2	10	U	10	U
1,1-Dichloroethane	10	2	10	U	10	U
1,2-Dichloroethene (total)	10	2	10	U	10	U
Chloroform	10	2	24		10	U
1,2-Dichloroethane	10	2	10	U	10	U
2-Butanone	10	2	10	U	10	U
1,1,1-Trichloroethane	10	2	10	U	10	U
Carbon Tetrachloride	10	2	10	U	10	U
Bromodichloromethane	10	2	10		10	U
1,2-Dichloropropane	10	2	10	U	10	U
cis-1,3-Dichloropropene	10	2	10	U	10	U
Trichloroethene	10	2	10	U	10	U
Dibromochloromethane	10	2	5	J	10	U
1,1,2-Trichloroethane	10	2	10	U	10	U
Benzene	10	2	10	U	10	U
trans-1,3-Dichloropropene	10	2	10	U	10	U
Bromoform	10	2	10	U	10	U
4-Methyl-2-Pentanone	10	2	10	U	10	U
2-Hexanone	10	2	10	U	10	U
Tetrachloroethene	10	2	10	U	10	U
1,1,2,2-Tetrachloroethane	10	2	10	U	10	U
Toluene	10	2	10	U	10	U
Chlorobenzene	10	2	10	U	10	U
Ethylbenzene	10	2	10	U	10	U
Styrene	10	2	10	U	10	U
Xylene (total)	10	2	10	U	10	U
DILUTION FACTOR:			1		1	

TCL AQUEOUS VOLATILE ORGANICS

CASE NO. CTO143

CEIMIC CORPORATION

TCL AQUEOUS VOLATILE ORGANICS (ug/L)

STATION ID:			GWTF4DUP1	GWTF4MW119	GWTF4MW120	GWTF4MW121	GWTF4MW122
LABORATORY ID:			941038-08	941038-09	941038-01	941038-02	941038-10
			FIELD DUPLICATE PAIR				
ANALYTE	CRQL	MDL/IDL					
Chloromethane	10	2	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	2	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	2	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	2	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	10	2	10 U	10 U	10 U	10 U	10 U
Acetone	10	2	10 UJ	10 UJ	10 U	14 U	37 U
Carbon Disulfide	10	2	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene	10	2	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	10	2	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethene (total)	10	2	10 U	10 U	10 U	10 U	10 U
Chloroform	10	2	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	10	2	10 U	10 U	10 U	10 U	10 U
2-Butanone	10	2	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	10	2	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride	10	2	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	10	2	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	10	2	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	10	2	10 U	10 U	10 U	10 U	10 U
Trichloroethene	10	2	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	10	2	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	10	2	10 U	10 U	10 U	10 U	10 U
Benzene	10	2	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	10	2	10 U	10 U	10 U	10 U	10 U
Bromoform	10	2	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	10	2	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	2	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	10	2	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	10	2	10 U	10 U	10 U	10 U	10 U
Toluene	10	2	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	10	2	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	10	2	10 U	10 U	10 U	10 U	10 U
Styrene	10	2	10 U	10 U	10 U	10 U	10 U
Xylene (total)	10	2	10 U	10 U	10 U	10 U	10 U
DILUTION FACTOR:			1	1	1	1	1

CASE NO. CTO143

CEIMIC CORPORATION

TCL AQUEOUS VOLATILE ORGANICS (ug/L)

STATION ID:			GWTF4MW123		GWTF4MW124		GWTF4MW125		GWTF4TB1		GWTF5MW100	
LABORATORY ID:			941038-11		941038-03		941038-12		941038-04		941038-14	
ANALYTE	CRQL	MDL/IDL										
Chloromethane	10	2	10	U	10	U	10	U	10	U	10	U
Bromomethane	10	2	10	U	10	U	10	U	10	U	10	U
Vinyl Chloride	10	2	10	U	10	U	10	U	10	U	10	U
Chloroethane	10	2	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	10	2	10	U	10	U	10	U	10	U	10	U
Acetone	10	2	10	U	16	U	50	U	10	U	10	U
Carbon Disulfide	10	2	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethene	10	2	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethane	10	2	10	U	10	U	10	U	10	U	10	U
1,2-Dichloroethene (total)	10	2	10	U	10	U	10	U	10	U	10	U
Chloroform	10	2	10	U	10	U	10	U	10	U	10	U
1,2-Dichloroethane	10	2	10	U	10	U	10	U	10	U	10	U
2-Butanone	10	2	10	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane	10	2	10	U	10	U	10	U	10	U	10	U
Carbon Tetrachloride	10	2	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane	10	2	10	U	10	U	10	U	10	U	10	U
1,2-Dichloropropane	10	2	10	U	10	U	10	U	10	U	10	U
cis-1,3-Dichloropropene	10	2	10	U	10	U	10	U	10	U	10	U
Trichloroethene	10	2	10	U	10	U	10	U	10	U	10	U
Dibromochloromethane	10	2	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichloroethane	10	2	10	U	10	U	10	U	10	U	10	U
Benzene	10	2	10	U	10	U	10	U	10	U	10	U
trans-1,3-Dichloropropene	10	2	10	U	10	U	10	U	10	U	10	U
Bromoform	10	2	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-Pentanone	10	2	10	U	10	U	10	U	10	U	10	U
2-Hexanone	10	2	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	10	2	10	U	10	U	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane	10	2	10	U	10	U	1	J	10	U	10	U
Toluene	10	2	10	U	10	U	10	U	10	U	10	U
Chlorobenzene	10	2	10	U	10	U	10	U	10	U	10	U
Ethylbenzene	10	2	10	U	10	U	10	U	10	U	10	U
Styrene	10	2	10	U	10	U	10	U	10	U	10	U
Xylene (total)	10	2	10	U	10	U	10	U	10	U	10	U
DILUTION FACTOR:			1		1		1		1		1	

CASE NO. CTO143

CEIMIC CORPORATION

TCL AQUEOUS VOLATILE ORGANICS (ug/L)

STATION ID:			GWTF5MW101	GWTF5MW103	GWTF5DUP2	GWTF5MW104	GWTF5MW111
LABORATORY ID:			941038-05	941038-15	941038-13	941038-06	941038-20
				FIELD DUPLICATE PAIR			
ANALYTE	CRQL	MDL/IDL					
Chloromethane	10	2	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	2	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	2	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	2	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	10	2	10 U	10 U	10 U	10 U	10 U
Acetone	10	2	11 U	23 U	20 U	15 U	29 U
Carbon Disulfide	10	2	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene	10	2	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	10	2	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethene (total)	10	2	10 U	10 U	10 U	10 U	10 U
Chloroform	10	2	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	10	2	10 U	10 U	10 U	10 U	10 U
2-Butanone	10	2	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	10	2	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride	10	2	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	10	2	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	10	2	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	10	2	10 U	10 U	10 U	10 U	10 U
Trichloroethene	10	2	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	10	2	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	10	2	10 U	10 U	10 U	10 U	10 U
Benzene	10	2	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	10	2	10 U	10 U	10 U	10 U	10 U
Bromoform	10	2	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	10	2	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	2	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	10	2	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	10	2	10 U	10 U	10 U	10 U	10 U
Toluene	10	2	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	10	2	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	10	2	10 U	10 U	10 U	10 U	10 U
Styrene	10	2	10 U	10 U	10 U	10 U	10 U
Xylene (total)	10	2	10 U	10 U	10 U	10 U	10 U
DILUTION FACTOR:			1	1	1	1	1

CASE NO. CTO143

CEIMIC CORPORATION

TCL AQUEOUS VOLATILE ORGANICS (ug/L)

STATION ID:			GW-TF5-MW102		GW-TF5-MW110		GW-TF5-MW112	
LABORATORY ID:			941027-06		941027-08		941027-09	
ANALYTE	CRQL	MDL/IDL						
Chloromethane	10	2	10	U	10	U	2	J
Bromomethane	10	2	10	U	10	U	10	U
Vinyl Chloride	10	2	10	U	10	U	10	U
Chloroethane	10	2	10	U	10	U	10	U
Methylene Chloride	10	2	10	U	10	U	10	U
Acetone	10	2	35	U	19	U	29	U
Carbon Disulfide	10	2	10	U	10	U	10	U
1,1-Dichloroethene	10	2	10	U	10	U	10	U
1,1-Dichloroethane	10	2	10	U	10	U	10	U
1,2-Dichloroethene (total)	10	2	10	U	10	U	10	U
Chloroform	10	2	10	U	10	U	10	U
1,2-Dichloroethane	10	2	10	U	10	U	10	U
2-Butanone	10	2	10	U	10	U	10	U
1,1,1-Trichloroethane	10	2	10	U	10	U	10	U
Carbon Tetrachloride	10	2	10	U	10	U	10	U
Bromodichloromethane	10	2	10	U	10	U	10	U
1,2-Dichloropropane	10	2	10	U	10	U	10	U
cis-1,3-Dichloropropene	10	2	10	U	10	U	10	U
Trichloroethene	10	2	10	U	10	U	10	U
Dibromochloromethane	10	2	10	U	10	U	10	U
1,1,2-Trichloroethane	10	2	10	U	10	U	10	U
Benzene	10	2	10	U	10	U	10	U
trans-1,3-Dichloropropene	10	2	10	U	10	U	10	U
Bromoform	10	2	10	U	10	U	10	U
4-Methyl-2-Pentanone	10	2	10	U	10	U	10	U
2-Hexanone	10	2	10	U	10	U	10	U
Tetrachloroethene	10	2	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane	10	2	10	U	10	U	10	U
Toluene	10	2	1	J	10	U	10	U
Chlorobenzene	10	2	10	U	10	U	10	U
Ethylbenzene	10	2	10	U	10	U	10	U
Styrene	10	2	10	U	10	U	10	U
Xylene (total)	10	2	10	U	10	U	10	U
DILUTION FACTOR:			1		1		1	

CASE NO. CTO143

CEIMIC CORPORATION

TCL AQUEOUS VOLATILE ORGANICS (ug/L)

STATION ID: GWTF5MW113
LABORATORY ID: 941038-07

ANALYTE	CRQL	MDL/IDL		
Chloromethane	10	2	10	U
Bromomethane	10	2	10	U
Vinyl Chloride	10	2	10	U
Chloroethane	10	2	10	U
Methylene Chloride	10	2	10	U
Acetone	10	2	25	U
Carbon Disulfide	10	2	1	J
1,1-Dichloroethene	10	2	10	U
1,1-Dichloroethane	10	2	10	U
1,2-Dichloroethene (total)	10	2	10	U
Chloroform	10	2	10	U
1,2-Dichloroethane	10	2	10	U
2-Butanone	10	2	10	U
1,1,1-Trichloroethane	10	2	10	U
Carbon Tetrachloride	10	2	10	U
Bromodichloromethane	10	2	10	U
1,2-Dichloropropane	10	2	10	U
cis-1,3-Dichloropropene	10	2	10	U
Trichloroethene	10	2	10	U
Dibromochloromethane	10	2	10	U
1,1,2-Trichloroethane	10	2	10	U
Benzene	10	2	10	U
trans-1,3-Dichloropropene	10	2	10	U
Bromoform	10	2	10	U
4-Methyl-2-Pentanone	10	2	10	U
2-Hexanone	10	2	10	U
Tetrachloroethene	10	2	10	U
1,1,2,2-Tetrachloroethane	10	2	10	U
Toluene	10	2	1	J
Chlorobenzene	10	2	10	U
Ethylbenzene	10	2	10	U
Styrene	10	2	10	U
Xylene (total)	10	2	10	U

DILUTION FACTOR: 1

ASE NO. CTO143

EIMIC CORPORATION

CL AQUEOUS VOLATILE ORGANICS (ug/L)

TATION ID:			GW-TF4-MW114		GW-TF4-MW115		GW-TF4-MW116		GW-TF4-MW117		GW-TF4-MW118	
ABORATORY ID:			941027-01		941027-02		941027-03		941027-04		941027-05	
NALYTE	CRQL	MDL/IDL										
hloromethane	10	2	10	U	10	U	10	U	10	U	10	U
romomethane	10	2	10	U	10	U	10	U	10	U	10	U
nyl Chloride	10	2	10	U	10	U	10	U	10	U	10	U
loroethane	10	2	10	U	10	U	10	U	10	U	10	U
lethylene Chloride	10	2	10	U	10	U	10	U	10	U	10	U
cetone	10	2	13	U	14	U	18	U	21	U	25	U
arbon Disulfide	10	2	10	U	10	U	10	U	10	U	10	U
,1-Dichloroethene	10	2	10	U	10	U	10	U	10	U	10	U
,1-Dichloroethane	10	2	10	U	10	U	10	U	10	U	10	U
,2-Dichloroethene (total)	10	2	10	U	10	U	10	U	10	U	10	U
hloroform	10	2	10	U	10	U	10	U	10	U	10	U
,2-Dichloroethane	10	2	10	U	10	U	10	U	10	U	10	U
-Butanone	10	2	10	U	2	J	2	J	2	J	2	J
,1,1-Trichloroethane	10	2	10	U	10	U	10	U	10	U	10	U
arbon Tetrachloride	10	2	10	U	10	U	10	U	10	U	10	U
romodichloromethane	10	2	10	U	10	U	10	U	10	U	10	U
,2-Dichloropropane	10	2	10	U	10	U	10	U	10	U	10	U
is-1,3-Dichloropropene	10	2	10	U	10	U	10	U	10	U	10	U
richloroethene	10	2	10	U	10	U	10	U	10	U	10	U
ibromochloromethane	10	2	10	U	10	U	10	U	10	U	10	U
,1,2-Trichloroethane	10	2	10	U	10	U	10	U	10	U	10	U
enzene	10	2	10	U	10	U	10	U	10	U	10	U
rans-1,3-Dichloropropene	10	2	10	U	10	U	10	U	10	U	10	U
romoform	10	2	10	U	10	U	10	U	10	U	10	U
-Methyl-2-Pentanone	10	2	10	U	10	U	10	U	10	U	10	U
-Hexanone	10	2	10	U	10	U	10	U	10	U	10	U
etrachloroethene	10	2	10	U	10	U	10	U	10	U	10	U
,1,2,2-Tetrachloroethane	10	2	10	U	10	U	10	U	10	U	10	U
oluene	10	2	10	U	10	U	10	U	10	U	10	U
hlorobenzene	10	2	10	U	10	U	10	U	10	U	10	U
thylbenzene	10	2	10	U	10	U	10	U	10	U	10	U
tyrene	10	2	10	U	10	U	10	U	10	U	10	U
ylene (total)	10	2	10	U	10	U	10	U	10	U	10	U
ILUTION FACTOR:			1		1		1		1		1	

CASE NO. CTO143

CEIMIC CORPORATION

TCL AQUEOUS VOLATILE ORGANICS (ug/L)

STATION ID:			GWTF5RB1		GWTF5TB2	
LABORATORY ID:			941038-21		941038-22	
ANALYTE	CRQL	MDL/IDL				
Chloromethane	10	2	10	U	10	U
Bromomethane	10	2	10	U	10	U
Vinyl Chloride	10	2	10	U	10	U
Chloroethane	10	2	10	U	10	U
Methylene Chloride	10	2	3	J	10	U
Acetone	10	2	10		10	U
Carbon Disulfide	10	2	10	U	10	U
1,1-Dichloroethene	10	2	10	U	10	U
1,1-Dichloroethane	10	2	10	U	10	U
1,2-Dichloroethene (total)	10	2	10	U	10	U
Chloroform	10	2	53		10	U
1,2-Dichloroethane	10	2	10	U	10	U
2-Butanone	10	2	10	U	10	U
1,1,1-Trichloroethane	10	2	10	U	10	U
Carbon Tetrachloride	10	2	10	U	10	U
Bromodichloromethane	10	2	10	U	10	U
1,2-Dichloropropane	10	2	10	U	10	U
cis-1,3-Dichloropropene	10	2	10	U	10	U
Trichloroethene	10	2	10	U	10	U
Dibromochloromethane	10	2	10	U	10	U
1,1,2-Trichloroethane	10	2	10	U	10	U
Benzene	10	2	10	U	10	U
trans-1,3-Dichloropropene	10	2	10	U	10	U
Bromoform	10	2	10	U	10	U
4-Methyl-2-Pentanone	10	2	10	U	10	U
2-Hexanone	10	2	10	U	10	U
Tetrachloroethene	10	2	10	U	10	U
1,1,2,2-Tetrachloroethane	10	2	10	U	10	U
Toluene	10	2	10	U	10	U
Chlorobenzene	10	2	10	U	10	U
Ethylbenzene	10	2	10	U	10	U
Styrene	10	2	10	U	10	U
Xylene (total)	10	2	10	U	10	U
DILUTION FACTOR:			1		1	

TCL SOIL SEMI-VOLATILE ORGANICS

:ASE NO. CTO143

:EIMIC CORPORATION

'CL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

;TATION ID:			SOTF4B373234	SOTF4B373436	SOTF4B37DUP	SOTF4B382628	SOTF4B463032
.ABORATORY ID:			940996-17	940996-18	940996-19	940996-20	940996-09
				FIELD DUPLICATE PAIR			
\NALYTE	CRQL	MDL/IDL					
'HENOL	300	30	370 U	380 U	380 U	380 U	370
3IS(2-CHLOROETHYL)ETHER	300	30	370 U	380 U	380 U	380 U	370
2-CHLOROPHENOL	300	30	370 U	380 U	380 U	380 U	370
1,3-DICHLOROBENZENE	300	30	370 U	380 U	380 U	380 U	370
1,4-DICHLOROBENZENE	300	30	370 U	380 U	380 U	380 U	370
1,2-DICHLOROBENZENE	300	30	370 U	380 U	380 U	380 U	370
2-METHYLPHENOL	300	30	370 U	380 U	380 U	380 U	370
2,2'-OXYBIS(1-CHLOROPROPANE)	300	30	370 U	380 U	380 U	380 U	370
4-METHYLPHENOL	300	30	370 U	380 U	380 U	380 U	370
N-NITROSO-DI-n-PROPYLAMINE	300	30	370 U	380 U	380 U	380 U	370
HEXACHLOROETHANE	300	30	370 U	380 U	380 U	380 U	370
NITROBENZENE	300	30	370 U	380 U	380 U	380 U	370
SOPHORONE	300	30	370 U	380 U	380 U	380 U	370
2-NITROPHENOL	300	30	370 U	380 U	380 U	380 U	370
2,4-DIMETHYLPHENOL	300	30	370 U	380 U	380 U	380 U	370
3IS(2-CHLOROETHOXY)METHANE	300	30	370 U	380 U	380 U	380 U	370
2,4-DICHLOROPHENOL	300	30	370 U	380 U	380 U	380 U	370
1,2,4-TRICHLOROBENZENE	300	30	370 U	380 U	380 U	380 U	370
NAPHTHALENE	300	30	370 U	380 U	380 U	380 U	370
4-CHLOROANILINE	300	30	370 U	380 U	380 U	380 U	370
HEXACHLOROBUTADIENE	300	30	370 U	380 U	380 U	380 U	370
4-CHLORO-3-METHYLPHENOL	300	30	370 U	380 U	380 U	380 U	370
2-METHYLNAPHTHALENE	300	30	370 U	380 U	380 U	380 U	370
HEXACHLOROCYCLOPENTADIENE	300	30	370 U	380 U	380 U	380 U	370
2,4,6-TRICHLOROPHENOL	300	30	370 U	380 U	380 U	380 U	370
2,4,5-TRICHLOROPHENOL	800	80	890 U	920 U	910 U	910 U	890
2-CHLORONAPHTHALENE	300	30	370 U	380 U	380 U	380 U	370
2-NITROANILINE	800	80	890 U	920 U	910 U	910 U	890
DIMETHYLPHTHALATE	300	30	370 U	380 U	380 U	380 U	370
ACENAPHTHYLENE	300	30	370 U	380 U	380 U	380 U	370
2,6-DINITROTOLUENE	300	30	370 U	380 U	380 U	380 U	370
3-NITROANILINE	800	80	890 U	920 U	910 U	910 U	890

SE NO. CTO143

IMIC CORPORATION

L SOIL SEMI-VOLATILE ORGANICS (ug/kg)

ATION ID:			SOTF4B373234	SOTF4B373436	SOTF4B37DUP	SOTF4B382628	SOTF4B463032
BORATORY ID:			940996-17	940996-18	940996-19	940996-20	940996-09
				FIELD DUPLICATE PAIR			
ALYTE	CRQL	MDL/IDL					
ENAPHTHENE	300	30	370 U	380 U	380 U	380 U	370 U
-DINITROPHENOL	800	80	890 U	920 U	910 U	910 U	890 U
IITROPHENOL	800	80	890 U	920 U	910 U	910 U	890 U
)ENZOFURAN	300	30	370 U	380 U	380 U	380 U	370 U
-DINITROTOLUENE	300	30	370 U	380 U	380 U	380 U	370 U
:THYL PHTHALATE	300	30	370 U	380 U	380 U	380 U	370 U
:HLOROPHENYL-PHENYL ETHER	300	30	370 U	380 U	380 U	380 U	370 U
UORENE	300	30	370 U	380 U	380 U	380 U	370 U
IITROANILINE	800	80	890 U	920 U	910 U	910 U	890 U
-DINITRO-2-METHYLPHENOL	800	80	890 U	920 U	910 U	910 U	890 U
NITROSODIPHENYLAMINE	300	30	370 U	380 U	380 U	380 U	370 U
3ROMOPHENYL-PHENYL ETHER	300	30	370 U	380 U	380 U	380 U	370 U
:XACHLOROBENZENE	300	30	370 U	380 U	380 U	380 U	370 U
NTACHLOROPHENOL	800	80	890 U	920 U	910 U	910 U	890 U
IENANTHRENE	300	30	370 U	380 U	380 U	380 U	370 U
ITHRACENE	300	30	370 U	380 U	380 U	380 U	370 U
n-BUTYLPHTHALATE	300	30	370 U	380 U	380 U	380 U	370 U
UORANTHENE	300	30	370 U	380 U	380 U	380 U	370 U
RBAZOLE	300	30	370 U	380 U	380 U	380 U	370 U
'RENE	300	30	370 U	380 U	380 U	380 U	370 U
ITYLBENZYLPHTHALATE	300	30	370 U	380 U	380 U	380 U	370 U
'-DICHLOROBENZIDINE	300	30	370 U	380 U	380 U	380 U	370 U
:NZO(a)ANTHRACENE	300	30	370 U	380 U	380 U	380 U	370 U
IRYSENE	300	30	370 U	380 U	380 U	380 U	370 U
S(2-ETHYLHEXYL)PHTHALATE	300	30	66 J	380 UJ	39 J	74 J	41 J
-n-OCTYLPHTHALATE	300	30	370 U	380 U	380 U	380 U	370 U
:NZO(b)FLUORANTHENE	300	30	370 U	380 U	380 U	380 U	370 U
:NZO(k)FLUORANTHENE	300	30	370 U	380 U	380 U	380 U	370 U
:NZO(a)PYRENE	300	30	370 U	380 U	380 U	380 U	370 U
DENO(1,2,3-cd)PYRENE	300	30	370 U	380 U	380 U	380 U	370 U
BENZO(a,h)ANTHRACENE	300	30	370 U	380 U	380 U	380 U	370 U
:NZO(g,h,i)PERYLENE	300	30	370 U	380 U	380 U	380 U	370 U
LUTION FACTOR:			1	1	1	1	1
SOLIDS			88	86	87	87	89

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID:			SOTF438DUP		SOTF4B383234		SOTF4B423234		SOTF4B423638		SOTF4B453234	
LABORATORY ID:			940996-22		940996-21		940996-23		940996-24		940996-25	
			FIELD DUPLICATE PAIR									
ANALYTE	CRQL	MDL/IDL										
PHENOL	300	30	380	U	390	U	370	U	1900	U	390	U
BIS(2-CHLOROETHYL)ETHER	300	30	380	U	390	U	370	U	1900	U	390	U
2-CHLOROPHENOL	300	30	380	U	390	U	370	U	1900	U	390	U
1,3-DICHLOROBENZENE	300	30	380	U	390	U	370	U	1900	U	390	U
1,4-DICHLOROBENZENE	300	30	380	U	390	U	370	U	1900	U	390	U
1,2-DICHLOROBENZENE	300	30	380	U	390	U	370	U	1900	U	390	U
2-METHYLPHENOL	300	30	380	U	390	U	370	U	1900	U	390	U
2,2'-OXYBIS(1-CHLOROPROPANE)	300	30	380	U	390	U	370	U	1900	U	390	U
4-METHYLPHENOL	300	30	380	U	390	U	370	U	1900	U	390	U
N-NITROSO-DI-n-PROPYLAMINE	300	30	380	U	390	U	370	U	1900	U	390	U
HEXACHLOROETHANE	300	30	380	U	390	U	370	U	1900	U	390	U
NITROBENZENE	300	30	380	U	390	U	370	U	1900	U	390	U
ISOPHORONE	300	30	380	U	390	U	370	U	1900	U	390	U
2-NITROPHENOL	300	30	380	U	390	U	370	U	1900	U	390	U
2,4-DIMETHYLPHENOL	300	30	380	U	390	U	370	U	1900	U	390	U
BIS(2-CHLOROETHOXY)METHANE	300	30	380	U	390	U	370	U	1900	U	390	U
2,4-DICHLOROPHENOL	300	30	380	U	390	U	370	U	1900	U	390	U
1,2,4-TRICHLOROBENZENE	300	30	380	U	390	U	370	U	1900	U	390	U
NAPHTHALENE	300	30	380	U	390	U	370	U	1900	U	390	U
4-CHLOROANILINE	300	30	380	U	390	U	370	U	1900	U	390	U
HEXACHLOROBUTADIENE	300	30	380	U	390	U	370	U	1900	U	390	U
4-CHLORO-3-METHYLPHENOL	300	30	380	U	390	U	370	U	1900	U	390	U
2-METHYLNAPHTHALENE	300	30	380	U	390	U	370	U	1900	U	390	U
HEXACHLOROCYCLOPENTADIENE	300	30	380	U	390	U	370	U	1900	U	390	U
2,4,6-TRICHLOROPHENOL	300	30	380	U	390	U	370	U	1900	U	390	U
2,4,5-TRICHLOROPHENOL	800	80	930	U	940	U	910	U	4600	U	950	U
2-CHLORONAPHTHALENE	300	30	380	U	390	U	370	U	1900	U	390	U
2-NITROANILINE	800	80	930	U	940	U	910	U	4600	U	950	U
DIMETHYLPHTHALATE	300	30	380	U	390	U	370	U	1900	U	390	U
ACENAPHTHYLENE	300	30	380	U	390	U	370	U	1900	U	390	U
2,6-DINITROTOLUENE	300	30	380	U	390	U	370	U	1900	U	390	U
3-NITROANILINE	800	80	930	U	940	U	910	U	4600	U	950	U

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID:			SOTF438DUP		SOTF4B383234		SOTF4B423234		SOTF4B423638		SOTF4B453234	
LABORATORY ID:			940996-22		940996-21		940996-23		940996-24		940996-25	
			FIELD DUPLICATE PAIR									
ANALYTE	CRQL	MDL/IDL										
ACENAPHTHENE	300	30	380	U	390	U	370	U	1900	U	390	U
2,4-DINITROPHENOL	800	80	930	U	940	U	910	U	4600	U	950	U
4-NITROPHENOL	800	80	930	U	940	U	910	U	4600	U	950	U
DIBENZOFURAN	300	30	380	U	390	U	370	U	1900	U	390	U
2,4-DINITROTOLUENE	300	30	380	U	390	U	370	U	1900	U	390	U
DIETHYL PHTHALATE	300	30	380	U	390	U	370	U	1900	U	390	U
4-CHLOROPHENYL-PHENYL ETHER	300	30	380	U	390	U	370	U	1900	U	390	U
FLUORENE	300	30	380	UJ	40	J	370	U	1900	U	52	J
4-NITROANILINE	800	80	930	U	940	U	910	U	4600	U	950	U
4,6-DINITRO-2-METHYLPHENOL	800	80	930	U	940	U	910	U	4600	U	950	U
N-NITROSODIPHENYLAMINE	300	30	380	U	390	U	370	U	1900	U	390	U
4-BROMOPHENYL-PHENYL ETHER	300	30	380	U	390	U	370	U	1900	U	390	U
HEXACHLOROBENZENE	300	30	380	U	390	U	370	U	1900	U	390	U
PENTACHLOROPHENOL	800	80	930	U	940	U	910	U	4600	U	950	U
PHENANTHRENE	300	30	380	U	390	U	370	U	1900	U	130	J
ANTHRACENE	300	30	380	U	390	U	370	U	1900	U	390	U
DI-n-BUTYLPHTHALATE	300	30	380	U	390	U	370	U	1900	U	390	U
FLUORANTHENE	300	30	380	U	390	U	370	U	1900	U	390	U
CARBAZOLE	300	30	380	U	390	U	370	U	1900	U	390	U
PYRENE	300	30	380	U	390	U	370	U	440	J	59	J
BUTYLBENZYLPHTHALATE	300	30	380	U	390	U	370	U	1900	U	390	U
3,3'-DICHLOROBENZIDINE	300	30	380	U	390	U	370	U	1900	U	390	U
BENZO(a)ANTHRACENE	300	30	380	U	390	U	370	U	1900	U	390	U
CHRYSENE	300	30	380	U	390	U	370	U	1900	U	390	U
BIS(2-ETHYLHEXYL)PHTHALATE	300	30	380	U	390	U	93	J	1900	U	830	
DI-n-OCTYLPHTHALATE	300	30	380	U	390	U	370	U	1900	U	390	U
BENZO(b)FLUORANTHENE	300	30	380	U	390	U	370	U	1900	U	390	U
BENZO(k)FLUORANTHENE	300	30	380	U	390	U	370	U	1900	U	390	U
BENZO(a)PYRENE	300	30	380	U	390	U	370	U	1900	U	390	U
INDENO(1,2,3-cd)PYRENE	300	30	380	U	390	U	370	U	1900	U	390	U
DIBENZO(a,h)ANTHRACENE	300	30	380	U	390	U	370	U	1900	U	390	U
BENZO(g,h,i)PERYLENE	300	30	380	U	390	U	370	U	1900	U	390	U
DILUTION FACTOR:			1		1		1		5		1	
% SOLIDS			86		85		88		87		83	

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID:			SOTF4B391719		SOTF4B394042		SOTF4B402628		SOTF4B404042		SOTF5B51242
LABORATORY ID:			940980-11		940980-12		940980-13		940980-14		940980-04
ANALYTE	CRQL	MDL/IDL									
PHENOL	300	30	380	U	370	U	370	U	380	U	380
BIS(2-CHLOROETHYL)ETHER	300	30	380	U	370	U	370	U	380	U	380
2-CHLOROPHENOL	300	30	380	U	370	U	370	U	380	U	380
1,3-DICHLOROBENZENE	300	30	380	U	370	U	370	U	380	U	380
1,4-DICHLOROBENZENE	300	30	380	U	370	U	370	U	380	U	380
1,2-DICHLOROBENZENE	300	30	380	U	370	U	370	U	380	U	380
2-METHYLPHENOL	300	30	380	U	370	U	370	U	380	U	380
2,2'-OXYBIS(1-CHLOROPROPANE)	300	30	380	U	370	U	370	U	380	U	380
4-METHYLPHENOL	300	30	380	U	370	U	370	U	380	U	380
N-NITROSO-DI-n-PROPYLAMINE	300	30	380	U	370	U	370	U	380	U	380
HEXACHLOROETHANE	300	30	380	U	370	U	370	U	380	U	380
NITROBENZENE	300	30	380	U	370	U	370	U	380	U	380
ISOPHORONE	300	30	380	U	370	U	370	U	380	U	380
2-NITROPHENOL	300	30	380	U	370	U	370	U	380	U	380
2,4-DIMETHYLPHENOL	300	30	380	U	370	U	370	U	380	U	380
BIS(2-CHLOROETHOXY)METHANE	300	30	380	U	370	U	370	U	380	U	380
2,4-DICHLOROPHENOL	300	30	380	U	370	U	370	U	380	U	380
1,2,4-TRICHLOROBENZENE	300	30	380	U	370	U	370	U	380	U	380
NAPHTHALENE	300	30	380	U	370	U	370	U	380	U	380
4-CHLOROANILINE	300	30	380	U	370	U	370	U	380	U	380
HEXACHLOROBUTADIENE	300	30	380	U	370	U	370	U	380	U	380
4-CHLORO-3-METHYLPHENOL	300	30	380	U	370	U	370	U	380	U	380
2-METHYLNAPHTHALENE	300	30	380	U	370	U	370	U	380	U	380
HEXACHLOROCYCLOPENTADIENE	300	30	380	U	370	U	370	U	380	U	380
2,4,6-TRICHLOROPHENOL	300	30	380	U	370	U	370	U	380	U	380
2,4,5-TRICHLOROPHENOL	800	80	920	U	890	U	900	U	920	U	920
2-CHLORONAPHTHALENE	300	30	380	U	370	U	370	U	380	U	380
2-NITROANILINE	800	80	920	U	890	U	900	U	920	U	920
DIMETHYLPHTHALATE	300	30	380	U	370	U	370	U	380	U	380
ACENAPHTHYLENE	300	30	380	U	370	U	370	U	380	U	380
2,6-DINITROTOLUENE	300	30	380	U	370	U	370	U	380	U	380
3-NITROANILINE	800	80	920	U	890	U	900	U	920	U	920

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID:			SOTF4B391719		SOTF4B394042		SOTF4B402628		SOTF4B404042		SOTF5B512426	
LABORATORY ID:			940980-11		940980-12		940980-13		940980-14		940980-04	
ANALYTE	CRQL	MDL/IDL										
ACENAPHTHENE	300	30	380	U	370	U	370	U	380	U	380	U
2,4-DINITROPHENOL	800	80	920	U	890	U	900	U	920	U	920	U
4-NITROPHENOL	800	80	920	U	890	U	900	U	920	U	920	U
DIBENZOFURAN	300	30	380	U	370	U	370	U	380	U	380	U
2,4-DINITROTOLUENE	300	30	380	U	370	U	370	U	380	U	380	U
DIETHYL PHTHALATE	300	30	380	U	370	U	370	U	380	U	380	U
4-CHLOROPHENYL-PHENYL ETHER	300	30	380	U	370	U	370	U	380	U	380	U
FLUORENE	300	30	380	U	370	U	370	U	380	U	380	U
4-NITROANILINE	800	80	920	U	890	U	900	U	920	U	920	U
4,6-DINITRO-2-METHYLPHENOL	800	80	920	U	890	U	900	U	920	U	920	U
N-NITROSODIPHENYLAMINE	300	30	380	U	370	U	370	U	380	U	380	U
4-BROMOPHENYL-PHENYL ETHER	300	30	380	U	370	U	370	U	380	U	380	U
HEXACHLOROBENZENE	300	30	380	U	370	U	370	U	380	U	380	U
PENTACHLOROPHENOL	800	80	920	U	890	U	900	U	920	U	920	U
PHENANTHRENE	300	30	380	U	370	U	370	U	380	U	380	U
ANTHRACENE	300	30	380	U	370	U	370	U	380	U	380	U
DI-n-BUTYLPHTHALATE	300	30	380	U	370	U	370	U	380	U	380	U
FLUORANTHENE	300	30	380	U	370	U	370	U	380	U	380	U
CARBAZOLE	300	30	380	U	370	U	370	U	380	U	380	U
PYRENE	300	30	380	U	370	U	370	U	39	J	380	U
BUTYLBENZYLPHTHALATE	300	30	380	U	370	U	370	U	380	U	380	U
3,3'-DICHLOROBENZIDINE	300	30	380	U	370	U	370	U	380	U	380	U
BENZO(a)ANTHRACENE	300	30	380	U	370	U	370	U	380	U	380	U
CHRYSENE	300	30	380	U	370	U	370	U	380	U	380	U
BIS(2-ETHYLHEXYL)PHTHALATE	300	30	260	J	47	J	370	U	77	J	92	J
DI-n-OCTYLPHTHALATE	300	30	380	U	370	U	370	U	380	U	380	U
BENZO(b)FLUORANTHENE	300	30	380	U	370	U	370	U	380	U	380	U
BENZO(k)FLUORANTHENE	300	30	380	U	370	U	370	U	380	U	380	U
BENZO(a)PYRENE	300	30	380	U	370	U	370	U	380	U	380	U
INDENO(1,2,3-cd)PYRENE	300	30	380	U	370	U	370	U	380	U	380	U
DIBENZO(a,h)ANTHRACENE	300	30	380	U	370	U	370	U	380	U	380	U
BENZO(g,h,i)PERYLENE	300	30	380	U	370	U	370	U	380	U	380	U
DILUTION FACTOR:			1		1		1		1		1	
% SOLIDS			86		90		88		86		86	

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID:			SOTF4B413032		SOTF4B413840		SOTF4B432830		SOTF4B433638		SOTF4B4422
LABORATORY ID:			940980-18		940980-19		940980-20		940980-21		940980-22
ANALYTE	CRQL	MDL/IDL									
ACENAPHTHENE	300	30	380	U	380	U	380	U	380	U	380
2,4-DINITROPHENOL	800	80	930	U	920	U	930	U	930	U	920
4-NITROPHENOL	800	80	930	U	920	U	930	U	930	U	920
DIBENZOFURAN	300	30	380	U	380	U	380	U	380	U	380
2,4-DINITROTOLUENE	300	30	380	U	380	U	380	U	380	U	380
DIETHYL PHTHALATE	300	30	380	U	380	U	380	U	380	U	380
4-CHLOROPHENYL-PHENYL ETHER	300	30	380	U	380	U	380	U	380	U	380
FLUORENE	300	30	380	U	380	U	380	U	380	U	380
4-NITROANILINE	800	80	930	U	920	U	930	U	930	U	920
4,6-DINITRO-2-METHYLPHENOL	800	80	930	U	920	U	930	U	930	U	920
N-NITROSODIPHENYLAMINE	300	30	380	U	63	J	380	U	380	U	380
4-BROMOPHENYL-PHENYL ETHER	300	30	380	U	380	U	380	U	380	U	380
HEXACHLOROBENZENE	300	30	380	U	380	U	380	U	380	U	380
PENTACHLOROPHENOL	800	80	930	U	920	U	930	U	930	U	920
PHENANTHRENE	300	30	380	U	100	J	380	U	380	U	380
ANTHRACENE	300	30	380	U	380	U	380	U	380	U	380
DI-n-BUTYLPHTHALATE	300	30	380	U	380	U	380	U	380	U	380
FLUORANTHENE	300	30	380	U	380	U	380	U	380	U	380
CARBAZOLE	300	30	380	U	380	U	380	U	380	U	380
PYRENE	300	30	380	U	51	J	380	U	380	U	380
BUTYLBENZYLPHTHALATE	300	30	380	U	380	U	380	U	380	U	380
3,3'-DICHLOROBENZIDINE	300	30	380	U	380	U	380	U	380	U	380
BENZO(a)ANTHRACENE	300	30	380	U	380	U	380	U	380	U	380
CHRYSENE	300	30	380	U	380	U	380	U	380	U	380
BIS(2-ETHYLHEXYL)PHTHALATE	300	30	97	J	60	J	85	J	66	J	870
DI-n-OCTYLPHTHALATE	300	30	380	U	380	U	380	U	380	U	380
BENZO(b)FLUORANTHENE	300	30	380	U	380	U	380	U	380	U	380
BENZO(k)FLUORANTHENE	300	30	380	U	380	U	380	U	380	U	380
BENZO(a)PYRENE	300	30	380	U	380	U	380	U	380	U	380
INDENO(1,2,3-cd)PYRENE	300	30	380	U	380	U	380	U	380	U	380
DIBENZO(a,h)ANTHRACENE	300	30	380	U	380	U	380	U	380	U	380
BENZO(g,h,i)PERYLENE	300	30	380	U	380	U	380	U	380	U	380
DILUTION FACTOR:			1		1		1		1		1
% SOLIDS			86		86		86		86		86

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID:			SOTF4B413032	SOTF4B413840	SOTF4B432830	SOTF4B433638	SOTF4B442224
LABORATORY ID:			940980-18	940980-19	940980-20	940980-21	940980-22
ANALYTE	CRQL	MDL/IDL					
PHENOL	300	30	380 U	380 U	380 U	380 U	380 U
BIS(2-CHLOROETHYL)ETHER	300	30	380 U	380 U	380 U	380 U	380 U
2-CHLOROPHENOL	300	30	380 U	380 U	380 U	380 U	380 U
1,3-DICHLOROBENZENE	300	30	380 U	380 U	380 U	380 U	380 U
1,4-DICHLOROBENZENE	300	30	380 U	380 U	380 U	380 U	380 U
1,2-DICHLOROBENZENE	300	30	380 U	380 U	380 U	380 U	380 U
2-METHYLPHENOL	300	30	380 U	380 U	380 U	380 U	380 U
2,2'-OXYBIS(1-CHLOROPROPANE)	300	30	380 U	380 U	380 U	380 U	380 U
4-METHYLPHENOL	300	30	380 U	380 U	380 U	380 U	380 U
N-NITROSO-DI-n-PROPYLAMINE	300	30	380 U	380 U	380 U	380 U	380 U
HEXACHLOROETHANE	300	30	380 U	380 U	380 U	380 U	380 U
NITROBENZENE	300	30	380 U	380 U	380 U	380 U	380 U
ISOPHORONE	300	30	380 U	380 U	380 U	380 U	380 U
2-NITROPHENOL	300	30	380 U	380 U	380 U	380 U	380 U
2,4-DIMETHYLPHENOL	300	30	380 U	380 U	380 U	380 U	380 U
BIS(2-CHLOROETHOXY)METHANE	300	30	380 U	380 U	380 U	380 U	380 U
2,4-DICHLOROPHENOL	300	30	380 U	380 U	380 U	380 U	380 U
1,2,4-TRICHLOROBENZENE	300	30	380 U	380 U	380 U	380 U	380 U
NAPHTHALENE	300	30	380 U	380 U	380 U	380 U	380 U
4-CHLOROANILINE	300	30	380 U	380 U	380 U	380 U	380 U
HEXACHLOROBUTADIENE	300	30	380 U	380 U	380 U	380 U	380 U
4-CHLORO-3-METHYLPHENOL	300	30	380 U	380 U	380 U	380 U	380 U
2-METHYLNAPHTHALENE	300	30	380 U	49 J	380 U	380 U	380 U
HEXACHLOROCYCLOPENTADIENE	300	30	380 U	380 U	380 U	380 U	380 U
2,4,6-TRICHLOROPHENOL	300	30	380 U	380 U	380 U	380 U	380 U
2,4,5-TRICHLOROPHENOL	800	80	930 U	920 U	930 U	930 U	920 U
2-CHLORONAPHTHALENE	300	30	380 U	380 U	380 U	380 U	380 U
2-NITROANILINE	800	80	930 U	920 U	930 U	930 U	920 U
DIMETHYLPHTHALATE	300	30	380 U	380 U	380 U	380 U	380 U
ACENAPHTHYLENE	300	30	380 U	380 U	380 U	380 U	380 U
2,6-DINITROTOLUENE	300	30	380 U	380 U	380 U	380 U	380 U
3-NITROANILINE	800	80	930 U	920 U	930 U	930 U	920 U

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID:			SOTF4B443638		SOTF4B472830		SOTF4B473840		SOTF4B482729		SOTF4B483941	
LABORATORY ID:			940980-23		940980-24		940980-25		940980-27		940980-28	
ANALYTE	CRQL	MDL/IDL										
ACENAPHTHENE	300	30	380	U	370	U	390	U	290	J	110	J
2,4-DINITROPHENOL	800	80	930	U	900	U	950	U	920	U	900	U
4-NITROPHENOL	800	80	930	U	900	U	950	U	920	U	900	U
DIBENZOFURAN	300	30	380	U	370	U	390	U	210	J	370	U
2,4-DINITROTOLUENE	300	30	380	U	370	U	390	U	380	U	370	U
DIETHYL PHTHALATE	300	30	380	U	370	U	390	U	380	U	370	U
4-CHLOROPHENYL-PHENYL ETHER	300	30	380	U	370	U	390	U	380	U	370	U
FLUORENE	300	30	380	U	370	U	390	U	570		240	J
4-NITROANILINE	800	80	930	U	900	U	950	U	920	U	900	U
4,6-DINITRO-2-METHYLPHENOL	800	80	930	U	900	U	950	U	920	U	900	U
N-NITROSODIPHENYLAMINE	300	30	380	U	370	U	390	U	1100		370	U
4-BROMOPHENYL-PHENYL ETHER	300	30	380	U	370	U	390	U	380	U	370	U
HEXACHLOROBENZENE	300	30	380	U	370	U	390	U	380	U	370	U
PENTACHLOROPHENOL	800	80	930	U	900	U	950	U	920	U	900	U
PHENANTHRENE	300	30	380	U	370	U	390	U	1400		560	
ANTHRACENE	300	30	380	U	370	U	390	U	270	J	290	J
DI-n-BUTYLPHTHALATE	300	30	380	U	370	U	390	U	380	U	370	U
FLUORANTHENE	300	30	380	U	370	U	390	U	120	J	81	J
CARBAZOLE	300	30	380	U	370	U	390	U	380	U	370	U
PYRENE	300	30	380	U	370	U	390	U	620		1300	
BUTYLBENZYLPHTHALATE	300	30	380	U	370	U	390	U	380	U	370	U
3,3'-DICHLOROBENZIDINE	300	30	380	U	370	U	390	U	380	U	370	U
BENZO(a)ANTHRACENE	300	30	380	U	370	U	390	U	96	J	370	U
CHRYSENE	300	30	380	U	370	U	390	U	150	J	160	J
BIS(2-ETHYLHEXYL)PHTHALATE	300	30	73	J	370	U	87	J	71	J	640	
DI-n-OCTYLPHTHALATE	300	30	380	U	370	U	390	U	380	U	370	U
BENZO(b)FLUORANTHENE	300	30	380	U	370	U	390	U	380	U	370	U
BENZO(k)FLUORANTHENE	300	30	380	U	370	U	390	U	380	U	370	U
BENZO(a)PYRENE	300	30	380	U	370	U	390	U	76	J	76	J
INDENO(1,2,3-cd)PYRENE	300	30	380	U	370	U	390	U	380	U	370	U
DIBENZO(a,h)ANTHRACENE	300	30	380	U	370	U	390	U	380	U	370	U
BENZO(g,h,i)PERYLENE	300	30	380	U	370	U	390	U	380	U	64	J
DILUTION FACTOR:			1		1		1		1		1	
% SOLIDS			86		88		83		87		87	

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID:			SOTF4B443638		SOTF4B472830		SOTF4B473840		SOTF4B482729		SOTF4B483941	
LABORATORY ID:			940980-23		940980-24		940980-25		940980-27		940980-28	
ANALYTE	CRQL	MDL/IDL										
PHENOL	300	30	380	U	370	U	390	U	380	U	370	U
BIS(2-CHLOROETHYL)ETHER	300	30	380	U	370	U	390	U	380	U	370	U
2-CHLOROPHENOL	300	30	380	U	370	U	390	U	380	U	370	U
1,3-DICHLOROBENZENE	300	30	380	U	370	U	390	U	380	U	370	U
1,4-DICHLOROBENZENE	300	30	380	U	370	U	390	U	380	U	370	U
1,2-DICHLOROBENZENE	300	30	380	U	370	U	390	U	380	U	370	U
2-METHYLPHENOL	300	30	380	U	370	U	390	U	380	U	370	U
2,2'-OXYBIS(1-CHLOROPROPANE)	300	30	380	U	370	U	390	U	380	U	370	U
4-METHYLPHENOL	300	30	380	U	370	U	390	U	380	U	370	U
N-NITROSO-DI-n-PROPYLAMINE	300	30	380	U	370	U	390	U	380	U	370	U
HEXACHLOROETHANE	300	30	380	U	370	U	390	U	380	U	370	U
NITROBENZENE	300	30	380	U	370	U	390	U	380	U	370	U
ISOPHORONE	300	30	380	U	370	U	390	U	380	U	370	U
2-NITROPHENOL	300	30	380	U	370	U	390	U	380	U	370	U
2,4-DIMETHYLPHENOL	300	30	380	U	370	U	390	U	380	U	370	U
BIS(2-CHLOROETHOXY)METHANE	300	30	380	U	370	U	390	U	380	U	370	U
2,4-DICHLOROPHENOL	300	30	380	U	370	U	390	U	380	U	370	U
1,2,4-TRICHLOROBENZENE	300	30	380	U	370	U	390	U	380	U	370	U
NAPHTHALENE	300	30	380	U	370	U	390	U	380	U	370	U
4-CHLOROANILINE	300	30	380	U	370	U	390	U	380	U	370	U
HEXACHLOROBUTADIENE	300	30	380	U	370	U	390	U	380	U	370	U
4-CHLORO-3-METHYLPHENOL	300	30	380	U	370	U	390	U	380	U	370	U
2-METHYLNAPHTHALENE	300	30	380	U	370	U	390	U	1200		71	J
HEXACHLOROCYCLOPENTADIENE	300	30	380	U	370	U	390	U	380	U	370	U
2,4,6-TRICHLOROPHENOL	300	30	380	U	370	U	390	U	380	U	370	U
2,4,5-TRICHLOROPHENOL	800	80	930	U	900	U	950	U	920	U	900	U
2-CHLORONAPHTHALENE	300	30	380	U	370	U	390	U	380	U	370	U
2-NITROANILINE	800	80	930	U	900	U	950	U	920	U	900	U
DIMETHYLPHTHALATE	300	30	380	U	370	U	390	U	380	U	370	U
ACENAPHTHYLENE	300	30	380	U	370	U	390	U	380	U	43	J
2,6-DINITROTOLUENE	300	30	380	U	370	U	390	U	380	U	370	U
3-NITROANILINE	800	80	930	U	900	U	950	U	920	U	900	U

:ASE NO. CTO143

:EIMIC CORPORATION

'CL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

;TATION ID:			TF4B482729RE		TF4B483941RE	
.ABORATORY ID:			940980-27RE		940980-28RE	
\NALYTE	CRQL	MDL/IDL				
\CENAPHTHENE	300	30	270	J	110	J
2,4-DINITROPHENOL	800	80	920	U	900	U
4-NITROPHENOL	800	80	920	U	900	U
DIBENZOFURAN	300	30	210	J	100	J
2,4-DINITROTOLUENE	300	30	380	U	370	U
DIETHYL PHTHALATE	300	30	380	U	370	U
4-CHLOROPHENYL-PHENYL ETHER	300	30	380	U	370	U
FLUORENE	300	30	500		230	J
4-NITROANILINE	800	80	920	U	900	U
4,6-DINITRO-2-METHYLPHENOL	800	80	920	U	900	U
N-NITROSODIPHENYLAMINE	300	30	380	U	370	U
4-BROMOPHENYL-PHENYL ETHER	300	30	380	U	370	U
HEXACHLOROBENZENE	300	30	380	U	370	U
PENTACHLOROPHENOL	800	80	920	U	900	U
PHENANTHRENE	300	30	1300		590	
ANTHRACENE	300	30	340	J	280	J
DI-n-BUTYLPHTHALATE	300	30	380	U	370	U
FLUORANTHENE	300	30	78	J	93	J
CARBAZOLE	300	30	380	U	370	U
PYRENE	300	30	1200		940	
BUTYLBENZYLPHTHALATE	300	30	380	U	370	U
3,3'-DICHLOROBENZIDINE	300	30	380	U	370	U
BENZO(a)ANTHRACENE	300	30	99	J	92	J
CHRYSENE	300	30	150	J	150	J
BIS(2-ETHYLHEXYL)PHTHALATE	300	30	84	J	450	
DI-n-OCTYLPHTHALATE	300	30	380	U	370	U
BENZO(b)FLUORANTHENE	300	30	380	U	370	U
BENZO(k)FLUORANTHENE	300	30	380	U	370	U
BENZO(a)PYRENE	300	30	69	J	79	J
INDENO(1,2,3-cd)PYRENE	300	30	380	U	45	J
DIBENZO(a,h)ANTHRACENE	300	30	380	U	370	U
BENZO(g,h,i)PERYLENE	300	30	61	J	40	J
DILUTION FACTOR:			1		1	
% SOLIDS			87		87	

ASE NO. CTO143

EIMIC CORPORATION

CL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

TATION ID:			TF4B482729RE		TF4B483941RE	
ABORATORY ID:			940980-27RE		940980-28RE	
NALYTE	CRQL	MDL/IDL				
PHENOL	300	30	380	U	370	U
BIS(2-CHLOROETHYL)ETHER	300	30	380	U	370	U
2-CHLOROPHENOL	300	30	380	U	370	U
1,3-DICHLOROBENZENE	300	30	380	U	370	U
1,4-DICHLOROBENZENE	300	30	380	U	370	U
1,2-DICHLOROBENZENE	300	30	380	U	370	U
2-METHYLPHENOL	300	30	380	U	370	U
2,2'-OXYBIS(1-CHLOROPROPANE)	300	30	380	U	370	U
4-METHYLPHENOL	300	30	380	U	370	U
N-NITROSO-DI-n-PROPYLAMINE	300	30	380	U	370	U
HEXACHLOROETHANE	300	30	380	U	370	U
NITROBENZENE	300	30	380	U	370	U
ISOPHORONE	300	30	380	U	370	U
2-NITROPHENOL	300	30	380	U	370	U
2,4-DIMETHYLPHENOL	300	30	380	U	370	U
BIS(2-CHLOROETHOXY)METHANE	300	30	380	U	370	U
2,4-DICHLOROPHENOL	300	30	380	U	370	U
1,2,4-TRICHLOROBENZENE	300	30	380	U	370	U
NAPHTHALENE	300	30	380	U	370	U
4-CHLOROANILINE	300	30	380	U	370	U
HEXACHLOROBUTADIENE	300	30	380	U	370	U
4-CHLORO-3-METHYLPHENOL	300	30	380	U	370	U
2-METHYLNAPHTHALENE	300	30	440		72	J
HEXACHLOROCYCLOPENTADIENE	300	30	380	U	370	U
2,4,6-TRICHLOROPHENOL	300	30	380	U	370	U
2,4,5-TRICHLOROPHENOL	800	80	920	U	900	U
2-CHLORONAPHTHALENE	300	30	380	U	370	U
2-NITROANILINE	800	80	920	U	900	U
DIMETHYLPHTHALATE	300	30	380	U	370	U
ACENAPHTHYLENE	300	30	380	U	40	J
2,6-DINITROTOLUENE	300	30	380	U	370	U
3-NITROANILINE	800	80	920	U	900	U

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID:			SOTF4B453436		B453436RE		SOTF4B45DUP	
LABORATORY ID:			940996-26		940996-26RE		940996-27	
					FIELD DUPLICATE PAIR			
ANALYTE	CRQL	MDL/IDL						
PHENOL	300	30	2000	U	2000	U	380	U
BIS(2-CHLOROETHYL)ETHER	300	30	2000	U	2000	U	380	U
2-CHLOROPHENOL	300	30	2000	U	2000	U	380	U
1,3-DICHLOROBENZENE	300	30	2000	U	2000	U	380	U
1,4-DICHLOROBENZENE	300	30	2000	U	2000	U	380	U
1,2-DICHLOROBENZENE	300	30	2000	U	2000	U	380	U
2-METHYLPHENOL	300	30	2000	U	2000	U	380	U
2,2'-OXYBIS(1-CHLOROPROPANE)	300	30	2000	U	2000	U	380	U
4-METHYLPHENOL	300	30	2000	U	2000	U	380	U
N-NITROSO-DI-n-PROPYLAMINE	300	30	2000	U	2000	U	380	U
HEXACHLOROETHANE	300	30	2000	U	2000	U	380	U
NITROBENZENE	300	30	2000	U	2000	U	380	U
ISOPHORONE	300	30	2000	U	2000	U	380	U
2-NITROPHENOL	300	30	2000	U	2000	U	380	U
2,4-DIMETHYLPHENOL	300	30	2000	U	2000	U	380	U
BIS(2-CHLOROETHOXY)METHANE	300	30	2000	U	2000	U	380	U
2,4-DICHLOROPHENOL	300	30	2000	U	2000	U	380	U
1,2,4-TRICHLOROBENZENE	300	30	2000	U	2000	UJ	70	J
NAPHTHALENE	300	30	2000	U	2000	U	380	U
4-CHLOROANILINE	300	30	2000	U	2000	U	380	U
HEXACHLOROBUTADIENE	300	30	2000	U	2000	U	380	U
4-CHLORO-3-METHYLPHENOL	300	30	2000	U	2000	U	380	U
2-METHYLNAPHTHALENE	300	30	2000	U	2000	U	380	U
HEXACHLOROCYCLOPENTADIENE	300	30	2000	U	2000	U	380	U
2,4,6-TRICHLOROPHENOL	300	30	2000	U	2000	U	380	U
2,4,5-TRICHLOROPHENOL	800	80	4800	U	4800	U	920	U
2-CHLORONAPHTHALENE	300	30	2000	U	2000	U	380	U
2-NITROANILINE	800	80	4800	U	4800	UJ	56	J
DIMETHYLPHTHALATE	300	30	2000	U	2000	U	380	U
ACENAPHTHYLENE	300	30	2000	U	2000	U	380	U
2,6-DINITROTOLUENE	300	30	2000	U	2000	U	380	U
3-NITROANILINE	800	80	4800	U	4800	U	920	U

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID:			SOTF4B453436		B453436RE		SOTF4B45DUP	
LABORATORY ID:			940996-26		940996-26RE		940996-27	
					FIELD DUPLICATE PAIR			
ANALYTE	CRQL	MDL/IDL						
ACENAPHTHENE	300	30	2000	U	2000	U	380	U
2,4-DINITROPHENOL	800	80	4800	U	4800	U	920	U
4-NITROPHENOL	800	80	4800	U	4800	U	920	U
DIBENZOFURAN	300	30	2000	U	2000	U	380	U
2,4-DINITROTOLUENE	300	30	2000	U	2000	U	380	U
DIETHYL PHTHALATE	300	30	2000	U	2000	UJ	1000	J
4-CHLOROPHENYL-PHENYL ETHER	300	30	2000	U	2000	U	380	U
FLUORENE	300	30	600	J	590	J	380	UJ
4-NITROANILINE	800	80	4800	U	4800	U	920	U
4,6-DINITRO-2-METHYLPHENOL	800	80	4800	U	4800	U	920	U
N-NITROSODIPHENYLAMINE	300	30	2000	U	2000	U	380	U
4-BROMOPHENYL-PHENYL ETHER	300	30	2000	U	2000	U	380	U
HEXACHLOROBENZENE	300	30	2000	U	2000	U	380	U
PENTACHLOROPHENOL	800	80	4800	U	4800	U	920	U
PHENANTHRENE	300	30	390	J	340	J	380	UJ
ANTHRACENE	300	30	390	J	290	J	380	UJ
DI-n-BUTYLPHTHALATE	300	30	2000	U	2000	UJ	75	J
FLUORANTHENE	300	30	2000	U	2000	UJ	39	J
CARBAZOLE	300	30	2000	U	2000	U	380	U
PYRENE	300	30	1300	J	980	J	380	UJ
BUTYLBENZYLPHTHALATE	300	30	2000	U	2000	U	380	U
3,3'-DICHLOROBENZIDINE	300	30	2000	U	2000	U	380	U
BENZO(a)ANTHRACENE	300	30	2000	U	2000	U	380	U
CHRYSENE	300	30	390	J	310	J	380	UJ
BIS(2-ETHYLHEXYL)PHTHALATE	300	30	2000	U	2000	UJ	110	J
DI-n-OCTYLPHTHALATE	300	30	2000	U	2000	U	380	U
BENZO(b)FLUORANTHENE	300	30	2000	U	2000	U	380	U
BENZO(k)FLUORANTHENE	300	30	2000	U	2000	U	380	U
BENZO(a)PYRENE	300	30	2000	U	2000	U	380	U
INDENO(1,2,3-cd)PYRENE	300	30	2000	U	2000	U	380	U
DIBENZO(a,h)ANTHRACENE	300	30	2000	U	2000	U	380	U
BENZO(g,h,i)PERYLENE	300	30	2000	U	2000	U	380	U
DILUTION FACTOR:			5		5		1	
% SOLIDS			83		83		87	

ASE NO. CTO143

EIMIC CORPORATION

CL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

TATION ID: SOTF4B463840
ABORATORY ID: 940996-10

NALYTE	CRQL	MDL/IDL		
HENOL	300	30	380	U
IS(2-CHLOROETHYL)ETHER	300	30	380	U
-CHLOROPHENOL	300	30	380	U
,3-DICHLOROBENZENE	300	30	380	U
,4-DICHLOROBENZENE	300	30	380	U
,2-DICHLOROBENZENE	300	30	380	U
-METHYLPHENOL	300	30	380	U
,2'-OXYBIS(1-CHLOROPROPANE)	300	30	380	U
-METHYLPHENOL	300	30	380	U
I-NITROSO-DI-n-PROPYLAMINE	300	30	380	U
IEXACHLOROETHANE	300	30	380	U
IITROBENZENE	300	30	380	U
SOPHORONE	300	30	380	U
-NITROPHENOL	300	30	380	U
,4-DIMETHYLPHENOL	300	30	380	U
IS(2-CHLOROETHOXY)METHANE	300	30	380	U
,4-DICHLOROPHENOL	300	30	380	U
,2,4-TRICHLOROBENZENE	300	30	380	U
IAPHTHALENE	300	30	380	U
-CHLOROANILINE	300	30	380	U
IEXACHLOROBUTADIENE	300	30	380	U
-CHLORO-3-METHYLPHENOL	300	30	380	U
-METHYLNAPHTHALENE	300	30	380	U
IEXACHLOROCYCLOPENTADIENE	300	30	380	U
,4,6-TRICHLOROPHENOL	300	30	380	U
,4,5-TRICHLOROPHENOL	800	80	920	U
-CHLORONAPHTHALENE	300	30	380	U
-NITROANILINE	800	80	920	U
IIMETHYLPHTHALATE	300	30	380	U
CENAPHTHYLENE	300	30	380	U
,6-DINITROTOLUENE	300	30	380	U
-NITROANILINE	800	80	920	U

ASE NO. CTO143

IMIC CORPORATION

L SOIL SEMI-VOLATILE ORGANICS (ug/kg)

ATION ID:			SOTF4B463840	
BORATORY ID:			940996-10	
IALYTE	CRQL	MDL/IDL		
ENAPHTHENE	300	30	380	U
I-DINITROPHENOL	800	80	920	U
NITROPHENOL	800	80	920	U
BENZOFURAN	300	30	380	U
I-DINITROTOLUENE	300	30	380	U
ETHYL PHTHALATE	300	30	380	U
CHLOROPHENYL-PHENYL ETHER	300	30	380	U
UORENE	300	30	380	U
NITROANILINE	800	80	920	U
3-DINITRO-2-METHYLPHENOL	800	80	920	U
NITROSODIPHENYLAMINE	300	30	380	U
BROMOPHENYL-PHENYL ETHER	300	30	380	U
EXACHLOROBENZENE	300	30	380	U
ENTACHLOROPHENOL	800	80	920	U
IENANTHRENE	300	30	380	U
ITHRACENE	300	30	380	U
-n-BUTYLPHTHALATE	300	30	380	U
UORANTHENE	300	30	380	U
ARBAZOLE	300	30	380	U
RENE	300	30	380	U
UTYLBENZYLPHTHALATE	300	30	380	U
3'-DICHLOROBENZIDINE	300	30	380	U
ENZO(a)ANTHRACENE	300	30	380	U
HRYSENE	300	30	380	U
S(2-ETHYLHEXYL)PHTHALATE	300	30	44	J
-n-OCTYLPHTHALATE	300	30	380	U
ENZO(b)FLUORANTHENE	300	30	380	U
ENZO(k)FLUORANTHENE	300	30	380	U
ENZO(a)PYRENE	300	30	380	U
DENO(1,2,3-cd)PYRENE	300	30	380	U
BENZO(a,h)ANTHRACENE	300	30	380	U
ENZO(g,h,i)PERYLENE	300	30	380	U
LUTION FACTOR:			1	
SOLIDS			86	

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID:			SOTF5B492224		SOTF5B494042		SOTF5B502830		SOTF5B552628		SOTF5B553840	
LABORATORY ID:			940957-15		940957-16		940957-01		940957-17		940957-18	
ANALYTE	CRQL	MDL/IDL										
ACENAPHTHENE	300	30	380	U	360	U	610	J	370	U	330	U
2,4-DINITROPHENOL	800	80	920	U	860	U	4800	U	890	U	790	U
4-NITROPHENOL	800	80	920	U	860	U	4800	U	890	U	790	U
DIBENZOFURAN	300	30	380	U	360	U	360	J	370	U	330	U
2,4-DINITROTOLUENE	300	30	380	U	360	U	2000	U	370	U	330	U
DIETHYL PHTHALATE	300	30	380	U	360	U	2000	U	370	U	330	U
4-CHLOROPHENYL-PHENYL ETHER	300	30	380	U	360	U	2000	U	370	U	330	U
FLUORENE	300	30	380	U	360	U	1300	J	370	U	330	U
4-NITROANILINE	800	80	920	U	860	U	4800	U	890	U	790	U
4,6-DINITRO-2-METHYLPHENOL	800	80	920	U	860	U	4800	U	890	U	790	U
N-NITROSODIPHENYLAMINE	300	30	380	U	360	U	2000	U	370	U	330	U
4-BROMOPHENYL-PHENYL ETHER	300	30	380	U	360	U	2000	U	370	U	330	U
HEXACHLOROBENZENE	300	30	380	U	360	U	2000	U	370	U	330	U
PENTACHLOROPHENOL	800	80	920	U	860	U	4800	U	890	U	790	U
PHENANTHRENE	300	30	380	U	360	U	3700		370	U	330	U
ANTHRACENE	300	30	380	U	360	U	510	J	370	U	330	U
DI-n-BUTYLPHTHALATE	300	30	380	U	360	U	2000	U	370	U	330	U
FLUORANTHENE	300	30	380	U	360	U	250	J	370	U	330	U
CARBAZOLE	300	30	380	U	360	U	2000	U	370	U	330	U
PYRENE	300	30	380	U	360	U	1500	J	370	U	330	U
BUTYLBENZYLPHTHALATE	300	30	380	U	360	U	2000	U	370	U	330	U
3,3'-DICHLOROBENZIDINE	300	30	380	U	360	U	2000	U	370	U	330	U
BENZO(a)ANTHRACENE	300	30	380	U	360	U	250	J	370	U	330	U
CHRYSENE	300	30	380	U	360	U	840	J	370	U	330	U
BIS(2-ETHYLHEXYL)PHTHALATE	300	30	220	J	77	J	2000	U	340	J	110	J
DI-n-OCTYLPHTHALATE	300	30	380	U	360	U	2000	U	370	U	330	U
BENZO(b)FLUORANTHENE	300	30	380	U	360	U	2000	U	370	U	330	U
BENZO(k)FLUORANTHENE	300	30	380	U	360	U	2000	U	370	U	330	U
BENZO(a)PYRENE	300	30	380	U	360	U	2000	U	370	U	330	U
INDENO(1,2,3-cd)PYRENE	300	30	380	U	360	U	2000	U	370	U	330	U
DIBENZO(a,h)ANTHRACENE	300	30	380	U	360	U	2000	U	370	U	330	U
BENZO(g,h,i)PERYLENE	300	30	380	U	360	U	2000	U	370	U	330	U
DILUTION FACTOR:			1		1		1		1		1	

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID:			SOTF5B492224		SOTF5B494042		SOTF5B502830		SOTF5B552628		SOTF5B553840	
LABORATORY ID:			940957-15		940957-16		940957-01		940957-17		940957-18	
ANALYTE	CRQL	MDL/IDL										
PHENOL	300	30	380	U	360	U	2000	U	370	U	330	U
BIS(2-CHLOROETHYL)ETHER	300	30	380	U	360	U	2000	U	370	U	330	U
2-CHLOROPHENOL	300	30	380	U	360	U	2000	U	370	U	330	U
1,3-DICHLOROBENZENE	300	30	380	U	360	U	2000	U	370	U	330	U
1,4-DICHLOROBENZENE	300	30	380	U	360	U	2000	U	370	U	330	U
1,2-DICHLOROBENZENE	300	30	380	U	360	U	2000	U	370	U	330	U
2-METHYLPHENOL	300	30	380	U	360	U	2000	U	370	U	330	U
2,2'-OXYBIS(1-CHLOROPROPANE)	300	30	380	U	360	U	2000	U	370	U	330	U
4-METHYLPHENOL	300	30	380	U	360	U	2000	U	370	U	330	U
N-NITROSO-DI-n-PROPYLAMINE	300	30	380	U	360	U	2000	U	370	U	330	U
HEXACHLOROETHANE	300	30	380	U	360	U	2000	U	370	U	330	U
NITROBENZENE	300	30	380	U	360	U	2000	U	370	U	330	U
ISOPHORONE	300	30	380	U	360	U	2000	U	370	U	330	U
2-NITROPHENOL	300	30	380	U	360	U	2000	U	370	U	330	U
2,4-DIMETHYLPHENOL	300	30	380	U	360	U	2000	U	370	U	330	U
BIS(2-CHLOROETHOXY)METHANE	300	30	380	U	360	U	2000	U	370	U	330	U
2,4-DICHLOROPHENOL	300	30	380	U	360	U	2000	U	370	U	330	U
1,2,4-TRICHLOROBENZENE	300	30	380	U	360	U	2000	U	370	U	330	U
NAPHTHALENE	300	30	380	U	360	U	420	J	370	U	330	U
4-CHLOROANILINE	300	30	380	U	360	U	2000	U	370	U	330	U
HEXACHLOROBUTADIENE	300	30	380	U	360	U	2000	U	370	U	330	U
4-CHLORO-3-METHYLPHENOL	300	30	380	U	360	U	2000	U	370	U	330	U
2-METHYLNAPHTHALENE	300	30	380	U	360	U	1300	J	370	U	330	U
HEXACHLOROCYCLOPENTADIENE	300	30	380	U	360	U	2000	U	370	U	330	U
2,4,6-TRICHLOROPHENOL	300	30	380	U	360	U	2000	U	370	U	330	U
2,4,5-TRICHLOROPHENOL	800	80	920	U	860	U	4800	U	890	U	790	U
2-CHLORONAPHTHALENE	300	30	380	U	360	U	2000	U	370	U	330	U
2-NITROANILINE	800	80	920	U	860	U	4800	U	890	U	790	U
DIMETHYLPHTHALATE	300	30	380	U	360	U	2000	U	370	U	330	U
ACENAPHTHYLENE	300	30	380	U	360	U	2000	U	370	U	330	U
2,6-DINITROTOLUENE	300	30	380	U	360	U	2000	U	370	U	330	U
3-NITROANILINE	800	80	920	U	860	U	4800	U	890	U	790	U

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID:			SOTF5B513840		SOTF5B522426		SOTF5B523436	
LABORATORY ID:			940980-05		940980-06		940980-07	
ANALYTE	CRQL	MDL/IDL						
PHENOL	300	30	370	U	390	U	360	U
BIS(2-CHLOROETHYL)ETHER	300	30	370	U	390	U	360	U
2-CHLOROPHENOL	300	30	370	U	390	U	360	U
1,3-DICHLOROBENZENE	300	30	370	U	390	U	360	U
1,4-DICHLOROBENZENE	300	30	370	U	390	U	360	U
1,2-DICHLOROBENZENE	300	30	370	U	390	U	360	U
2-METHYLPHENOL	300	30	370	U	390	U	360	U
2,2'-OXYBIS(1-CHLOROPROPANE)	300	30	370	U	390	U	360	U
4-METHYLPHENOL	300	30	370	U	390	U	360	U
N-NITROSO-DI-n-PROPYLAMINE	300	30	370	U	390	U	360	U
HEXACHLOROETHANE	300	30	370	U	390	U	360	U
NITROBENZENE	300	30	370	U	390	U	360	U
ISOPHORONE	300	30	370	U	390	U	360	U
2-NITROPHENOL	300	30	370	U	390	U	360	U
2,4-DIMETHYLPHENOL	300	30	370	U	390	U	360	U
BIS(2-CHLOROETHOXY)METHANE	300	30	370	U	390	U	360	U
2,4-DICHLOROPHENOL	300	30	370	U	390	U	360	U
1,2,4-TRICHLOROBENZENE	300	30	370	U	390	U	360	U
NAPHTHALENE	300	30	370	U	390	U	360	U
4-CHLOROANILINE	300	30	370	U	390	U	360	U
HEXACHLOROBUTADIENE	300	30	370	U	390	U	360	U
4-CHLORO-3-METHYLPHENOL	300	30	370	U	390	U	360	U
2-METHYLNAPHTHALENE	300	30	370	U	390	U	360	U
HEXACHLOROCYCLOPENTADIENE	300	30	370	U	390	U	360	U
2,4,6-TRICHLOROPHENOL	300	30	370	U	390	U	360	U
2,4,5-TRICHLOROPHENOL	800	80	910	U	950	U	880	U
2-CHLORONAPHTHALENE	300	30	370	U	390	U	360	U
2-NITROANILINE	800	80	910	U	950	U	880	U
DIMETHYLPHTHALATE	300	30	370	U	390	U	360	U
ACENAPHTHYLENE	300	30	370	U	390	U	360	U
2,6-DINITROTOLUENE	300	30	370	U	390	U	360	U
3-NITROANILINE	800	80	910	U	950	U	880	U

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID:			SOTF5B513840		SOTF5B522426		SOTF5B523436	
LABORATORY ID:			940980-05		940980-06		940980-07	
ANALYTE	CRQL	MDL/IDL						
ACENAPHTHENE	300	30	370	U	390	U	360	U
2,4-DINITROPHENOL	800	80	910	U	950	U	880	U
4-NITROPHENOL	800	80	910	U	950	U	880	U
DIBENZOFURAN	300	30	370	U	390	U	360	U
2,4-DINITROTOLUENE	300	30	370	U	390	U	360	U
DIETHYL PHTHALATE	300	30	370	U	390	U	360	U
4-CHLOROPHENYL-PHENYL ETHER	300	30	370	U	390	U	360	U
FLUORENE	300	30	370	U	51	J	68	J
4-NITROANILINE	800	80	910	U	950	U	880	U
4,6-DINITRO-2-METHYLPHENOL	800	80	910	U	950	U	880	U
N-NITROSODIPHENYLAMINE	300	30	370	U	390	U	360	U
4-BROMOPHENYL-PHENYL ETHER	300	30	370	U	390	U	360	U
HEXACHLOROBENZENE	300	30	370	U	390	U	360	U
PENTACHLOROPHENOL	800	80	910	U	950	U	880	U
PHENANTHRENE	300	30	47	J	100	J	120	J
ANTHRACENE	300	30	370	U	390	U	360	U
DI-n-BUTYLPHTHALATE	300	30	370	U	390	U	360	U
FLUORANTHENE	300	30	56	J	390	U	360	U
CARBAZOLE	300	30	370	U	390	U	360	U
PYRENE	300	30	45	J	390	U	360	U
BUTYLBENZYLPHTHALATE	300	30	370	U	390	U	360	U
3,3'-DICHLOROBENZIDINE	300	30	370	U	390	U	360	U
BENZO(a)ANTHRACENE	300	30	370	U	390	U	360	U
CHRYSENE	300	30	370	U	390	U	360	U
BIS(2-ETHYLHEXYL)PHTHALATE	300	30	81	J	90	J	48	J
DI-n-OCTYLPHTHALATE	300	30	370	U	390	U	360	U
BENZO(b)FLUORANTHENE	300	30	370	U	390	U	360	U
BENZO(k)FLUORANTHENE	300	30	370	U	390	U	360	U
BENZO(a)PYRENE	300	30	370	U	390	U	360	U
INDENO(1,2,3-cd)PYRENE	300	30	370	U	390	U	360	U
DIBENZO(a,h)ANTHRACENE	300	30	370	U	390	U	360	U
BENZO(g,h,i)PERYLENE	300	30	370	U	390	U	360	U
DILUTION FACTOR:			1		1		1	
% SOLIDS			88		83		90	

:ASE NO. CTO143

:EIMIC CORPORATION

'CL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

;TATION ID:			SOTF5B543638		SOTF5B584244		SOTF5B593234			
ABORATORY ID:			940948-01		940948-02		940948-03			
ANALYTE	CRQL	MDL/IDL								
ACENAPHTHENE	300	30	3800	U	380	U	380	U		
2,4-DINITROPHENOL	800	80	9200	U	910	U	910	U		
4-NITROPHENOL	800	80	9200	U	910	U	910	U		
DIBENZOFURAN	300	30	3800	U	380	U	380	U		
2,4-DINITROTOLUENE	300	30	3800	U	380	U	380	U		
DIETHYL PHTHALATE	300	30	3800	U	380	U	380	U		
4-CHLOROPHENYL-PHENYL ETHER	300	30	3800	U	380	U	380	U		
FLUORENE	300	30	3800	U	380	U	380	U		
4-NITROANILINE	800	80	9200	U	910	U	910	U		
4,6-DINITRO-2-METHYLPHENOL	800	80	9200	U	910	U	910	U		
N-NITROSODIPHENYLAMINE	300	30	3800	U	380	U	380	U		
4-BROMOPHENYL-PHENYL ETHER	300	30	3800	U	380	U	380	U		
HEXACHLOROBENZENE	300	30	3800	U	380	U	380	U		
PENTACHLOROPHENOL	800	80	9200	U	910	U	910	U		
PHENANTHRENE	300	30	3800	U	380	U	380	U		
ANTHRACENE	300	30	3800	U	380	U	380	U		
DI-n-BUTYLPHTHALATE	300	30	3800	U	380	U	380	U		
FLUORANTHENE	300	30	3800	U	380	U	380	U		
CARBAZOLE	300	30	3800	U	380	U	380	U		
PYRENE	300	30	3800	U	380	U	380	U		
BUTYLBENZYLPHTHALATE	300	30	3800	U	380	U	380	U		
3,3'-DICHLOROBENZIDINE	300	30	3800	U	380	U	380	U		
BENZO(a)ANTHRACENE	300	30	3800	U	380	U	380	U		
CHRYSENE	300	30	3800	U	380	U	380	U		
BIS(2-ETHYLHEXYL)PHTHALATE	300	30	3800	U	380	U	380	U		
DI-n-OCTYLPHTHALATE	300	30	3800	U	380	U	380	U		
BENZO(b)FLUORANTHENE	300	30	3800	U	380	U	380	U		
BENZO(k)FLUORANTHENE	300	30	3800	U	380	U	380	U		
BENZO(a)PYRENE	300	30	3800	U	380	U	380	U		
INDENO(1,2,3-cd)PYRENE	300	30	3800	U	380	U	380	U		
DIBENZO(a,h)ANTHRACENE	300	30	3800	U	380	U	380	U		
BENZO(g,h,i)PERYLENE	300	30	3800	U	380	U	380	U		
DILUTION FACTOR:			10		1		1			
% SOLIDS			87		87		87			

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID:			SOTF5B543638		SOTF5B584244		SOTF5B593234	
LABORATORY ID:			940948-01		940948-02		940948-03	
ANALYTE	CRQL	MDL/IDL						
PHENOL	300	30	3800	U	380	U	380	U
BIS(2-CHLOROETHYL)ETHER	300	30	3800	U	380	U	380	U
2-CHLOROPHENOL	300	30	3800	U	380	U	380	U
1,3-DICHLOROBENZENE	300	30	3800	U	380	U	380	U
1,4-DICHLOROBENZENE	300	30	3800	U	380	U	380	U
1,2-DICHLOROBENZENE	300	30	3800	U	380	U	380	U
2-METHYLPHENOL	300	30	3800	U	380	U	380	U
2,2'-OXYBIS(1-CHLOROPROPANE)	300	30	3800	U	380	U	380	U
4-METHYLPHENOL	300	30	3800	U	380	U	380	U
N-NITROSO-DI-n-PROPYLAMINE	300	30	3800	U	380	U	380	U
HEXACHLOROETHANE	300	30	3800	U	380	U	380	U
NITROBENZENE	300	30	3800	U	380	U	380	U
ISOPHORONE	300	30	3800	U	380	U	380	U
2-NITROPHENOL	300	30	3800	U	380	U	380	U
2,4-DIMETHYLPHENOL	300	30	3800	U	380	U	380	U
BIS(2-CHLOROETHOXY)METHANE	300	30	3800	U	380	U	380	U
2,4-DICHLOROPHENOL	300	30	3800	U	380	U	380	U
1,2,4-TRICHLOROBENZENE	300	30	3800	U	380	U	380	U
NAPHTHALENE	300	30	3800	U	380	U	380	U
4-CHLOROANILINE	300	30	3800	U	380	U	380	U
HEXACHLOROBUTADIENE	300	30	3800	U	380	U	380	U
4-CHLORO-3-METHYLPHENOL	300	30	3800	U	380	U	380	U
2-METHYLNAPHTHALENE	300	30	3800	U	380	U	380	U
HEXACHLOROCYCLOPENTADIENE	300	30	3800	U	380	U	380	U
2,4,6-TRICHLOROPHENOL	300	30	3800	U	380	U	380	U
2,4,5-TRICHLOROPHENOL	800	80	9200	U	910	U	910	U
2-CHLORONAPHTHALENE	300	30	3800	U	380	U	380	U
2-NITROANILINE	800	80	9200	U	910	U	910	U
DIMETHYLPHTHALATE	300	30	3800	U	380	U	380	U
ACENAPHTHYLENE	300	30	3800	U	380	U	380	U
2,6-DINITROTOLUENE	300	30	3800	U	380	U	380	U
3-NITROANILINE	800	80	9200	U	910	U	910	U

:EIMIC CORPORATION

'CL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

;TATION ID:			SOTF5B573436		TF5B502830RE	
.ABORATORY ID:			940957-03		940957-01RE	
\NALYTE	CRQL	MDL/IDL				
\CENAPHTHENE	300	30	400	U	530	J
2,4-DINITROPHENOL	800	80	970	U	4800	U
4-NITROPHENOL	800	80	970	U	4800	U
DIBENZOFURAN	300	30	400	U	320	J
2,4-DINITROTOLUENE	300	30	400	U	2000	U
DIETHYL PHTHALATE	300	30	400	U	2000	U
4-CHLOROPHENYL-PHENYL ETHER	300	30	400	U	2000	U
FLUORENE	300	30	400	U	1100	J
4-NITROANILINE	800	80	970	U	4800	U
4,6-DINITRO-2-METHYLPHENOL	800	80	970	U	4800	U
N-NITROSODIPHENYLAMINE	300	30	400	U	2000	U
4-BROMOPHENYL-PHENYL ETHER	300	30	400	U	2000	U
HEXACHLOROBENZENE	300	30	400	U	2000	U
PENTACHLOROPHENOL	800	80	970	U	4800	U
PHENANTHRENE	300	30	400	U	3800	
ANTHRACENE	300	30	400	U	620	J
DI-n-BUTYLPHTHALATE	300	30	400	U	2000	U
FLUORANTHENE	300	30	400	U	2000	U
CARBAZOLE	300	30	400	U	2000	U
PYRENE	300	30	400	U	1300	J
BUTYLBENZYLPHTHALATE	300	30	400	U	2000	U
3,3'-DICHLOROBENZIDINE	300	30	400	U	2000	U
BENZO(a)ANTHRACENE	300	30	400	U	2000	U
CHRYSENE	300	30	400	U	1100	J
BIS(2-ETHYLHEXYL)PHTHALATE	300	30	42	J	2000	U
DI-n-OCTYLPHTHALATE	300	30	400	U	2000	U
BENZO(b)FLUORANTHENE	300	30	400	U	2000	U
BENZO(k)FLUORANTHENE	300	30	400	U	2000	U
BENZO(a)PYRENE	300	30	400	U	300	J
INDENO(1,2,3-cd)PYRENE	300	30	400	U	2000	U
DIBENZO(a,h)ANTHRACENE	300	30	400	U	2000	U
BENZO(g,h,i)PERYLENE	300	30	400	U	2000	U
DILUTION FACTOR:			1		1	

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID:			SOTF5B573436		TF5B502830RE	
LABORATORY ID:			940957-03		940957-01RE	
ANALYTE	CRQL	MDL/IDL				
PHENOL	300	30	400	U	2000	U
BIS(2-CHLOROETHYL)ETHER	300	30	400	U	2000	U
2-CHLOROPHENOL	300	30	400	U	2000	U
1,3-DICHLOROBENZENE	300	30	400	U	2000	U
1,4-DICHLOROBENZENE	300	30	400	U	2000	U
1,2-DICHLOROBENZENE	300	30	400	U	2000	U
2-METHYLPHENOL	300	30	400	U	2000	U
2,2'-OXYBIS(1-CHLOROPROPANE)	300	30	400	U	2000	U
4-METHYLPHENOL	300	30	400	U	2000	U
N-NITROSO-DI-n-PROPYLAMINE	300	30	400	U	2000	U
HEXACHLOROETHANE	300	30	400	U	2000	U
NITROBENZENE	300	30	400	U	2000	U
ISOPHORONE	300	30	400	U	2000	U
2-NITROPHENOL	300	30	400	U	2000	U
2,4-DIMETHYLPHENOL	300	30	400	U	2000	U
BIS(2-CHLOROETHOXY)METHANE	300	30	400	U	2000	U
2,4-DICHLOROPHENOL	300	30	400	U	2000	U
1,2,4-TRICHLOROBENZENE	300	30	400	U	2000	U
NAPHTHALENE	300	30	400	U	2000	U
4-CHLOROANILINE	300	30	400	U	2000	U
HEXACHLOROBUTADIENE	300	30	400	U	2000	U
4-CHLORO-3-METHYLPHENOL	300	30	400	U	2000	U
2-METHYLNAPHTHALENE	300	30	400	U	490	J
HEXACHLOROCYCLOPENTADIENE	300	30	400	U	2000	U
2,4,6-TRICHLOROPHENOL	300	30	400	U	2000	U
2,4,5-TRICHLOROPHENOL	800	80	970	U	4800	U
2-CHLORONAPHTHALENE	300	30	400	U	2000	U
2-NITROANILINE	800	80	970	U	4800	U
DIMETHYLPHTHALATE	300	30	400	U	2000	U
ACENAPHTHYLENE	300	30	400	U	2000	U
2,6-DINITROTOLUENE	300	30	400	U	2000	U
3-NITROANILINE	800	80	970	U	4800	U

CASE NO. CTO143

CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

STATION ID:			SOTF4BRB1	
LABORATORY ID:			940980-17	
ANALYTE	CRQL	MDL/IDL		
PHENOL	10	1	10	U
BIS(2-CHLOROETHYL)ETHER	10	1	10	U
2-CHLOROPHENOL	10	1	10	U
1,3-DICHLOROBENZENE	10	1	10	U
1,4-DICHLOROBENZENE	10	1	10	U
1,2-DICHLOROBENZENE	10	1	10	U
2-METHYLPHENOL	10	1	10	U
2,2'-OXYBIS(1-CHLOROPROPANE)	10	1	10	U
4-METHYLPHENOL	10	1	10	U
N-NITROSO-DI-n-PROPYLAMINE	10	1	10	U
HEXACHLOROETHANE	10	1	10	U
NITROBENZENE	10	1	10	U
ISOPHORONE	10	1	10	U
2-NITROPHENOL	10	1	10	U
2,4-DIMETHYLPHENOL	10	1	10	U
BIS(2-CHLOROETHOXY)METHANE	10	1	10	U
2,4-DICHLOROPHENOL	10	1	10	U
1,2,4-TRICHLOROBENZENE	10	1	10	U
NAPHTHALENE	10	1	10	U
4-CHLOROANILINE	10	1	10	U
HEXACHLOROBUTADIENE	10	1	10	U
4-CHLORO-3-METHYLPHENOL	10	1	10	U
2-METHYLNAPHTHALENE	10	1	10	U
HEXACHLOROCYCLOPENTADIENE	10	1	10	U
2,4,6-TRICHLOROPHENOL	10	1	10	U
2,4,5-TRICHLOROPHENOL	25	2.5	25	U
2-CHLORONAPHTHALENE	10	1	10	U
2-NITROANILINE	25	2.5	25	U
DIMETHYLPHTHALATE	10	1	10	U
ACENAPHTHYLENE	10	1	10	U
2,6-DINITROTOLUENE	10	1	10	U
3-NITROANILINE	25	2.5	25	U

CASE NO. CTO143

CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

STATION ID:			SOTF4BRB1	
LABORATORY ID:			940980-17	
ANALYTE	CRQL	MDL/IDL		
ACENAPHTHENE	10	1	10	U
2,4-DINITROPHENOL	25	2.5	25	U
4-NITROPHENOL	25	2.5	25	U
DIBENZOFURAN	10	1	10	U
2,4-DINITROTOLUENE	10	1	10	U
DIETHYL PHTHALATE	10	1	10	U
4-CHLOROPHENYL-PHENYL ETHER	10	1	10	U
FLUORENE	10	1	10	U
4-NITROANILINE	25	2.5	25	U
4,6-DINITRO-2-METHYLPHENOL	25	2.5	25	U
N-NITROSODIPHENYLAMINE	10	1	10	U
4-BROMOPHENYL-PHENYL ETHER	10	1	10	U
HEXACHLOROBENZENE	10	1	10	U
PENTACHLOROPHENOL	25	2.5	25	U
PHENANTHRENE	10	1	10	U
ANTHRACENE	10	1	10	U
DI-n-BUTYLPHTHALATE	10	1	10	U
FLUORANTHENE	10	1	10	U
CARBAZOLE	10	1	10	U
PYRENE	10	1	10	U
BUTYLBENZYLPHTHALATE	10	1	10	U
3,3'-DICHLOROBENZIDINE	10	1	10	U
BENZO(a)ANTHRACENE	10	1	10	U
CHRYSENE	10	1	10	U
BIS(2-ETHYLHEXYL)PHTHALATE	10	1	10	U
DI-n-OCTYLPHTHALATE	10	1	10	U
BENZO(b)FLUORANTHENE	10	1	10	U
BENZO(k)FLUORANTHENE	10	1	10	U
BENZO(a)PYRENE	10	1	10	U
INDENO(1,2,3-cd)PYRENE	10	1	10	U
DIBENZO(a,h)ANTHRACENE	10	1	10	U
BENZO(g,h,i)PERYLENE	10	1	10	U
DILUTION FACTOR:			1	

:ASE NO. CTO143

:EIMIC CORPORATION

'CL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

:TATION ID:			SOTF4BRB2	
.ABORATORY ID:			940996-28	
ANALYTE	CRQL	MDL/IDL		
PHENOL	10	1	10	U
BIS(2-CHLOROETHYL)ETHER	10	1	10	U
2-CHLOROPHENOL	10	1	10	U
1,3-DICHLOROBENZENE	10	1	10	U
1,4-DICHLOROBENZENE	10	1	10	U
1,2-DICHLOROBENZENE	10	1	10	U
2-METHYLPHENOL	10	1	10	U
2,2'-OXYBIS(1-CHLOROPROPANE)	10	1	10	U
4-METHYLPHENOL	10	1	10	U
N-NITROSO-DI-n-PROPYLAMINE	10	1	10	U
HEXACHLOROETHANE	10	1	10	U
NITROBENZENE	10	1	10	U
ISOPHORONE	10	1	10	U
2-NITROPHENOL	10	1	10	U
2,4-DIMETHYLPHENOL	10	1	10	U
BIS(2-CHLOROETHOXY)METHANE	10	1	10	U
2,4-DICHLOROPHENOL	10	1	10	U
1,2,4-TRICHLOROBENZENE	10	1	10	U
NAPHTHALENE	10	1	10	U
4-CHLOROANILINE	10	1	10	U
HEXACHLOROBUTADIENE	10	1	10	U
4-CHLORO-3-METHYLPHENOL	10	1	10	U
2-METHYLNAPHTHALENE	10	1	10	U
HEXACHLOROCYCLOPENTADIENE	10	1	10	U
2,4,6-TRICHLOROPHENOL	10	1	10	U
2,4,5-TRICHLOROPHENOL	25	2.5	25	U
2-CHLORONAPHTHALENE	10	1	10	U
2-NITROANILINE	25	2.5	25	U
DIMETHYLPHTHALATE	10	1	10	U
ACENAPHTHYLENE	10	1	10	U
2,6-DINITROTOLUENE	10	1	10	U
3-NITROANILINE	25	2.5	25	U

CASE NO. CTO143

CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

STATION ID:			SOTF4BRB2	
LABORATORY ID:			940996-28	
ANALYTE	CRQL	MDL/IDL		
ACENAPHTHENE	10	1	10	U
2,4-DINITROPHENOL	25	2.5	25	U
4-NITROPHENOL	25	2.5	25	U
DIBENZOFURAN	10	1	10	U
2,4-DINITROTOLUENE	10	1	10	U
DIETHYL PHTHALATE	10	1	10	U
4-CHLOROPHENYL-PHENYL ETHER	10	1	10	U
FLUORENE	10	1	10	U
4-NITROANILINE	25	2.5	25	U
4,6-DINITRO-2-METHYLPHENOL	25	2.5	25	U
N-NITROSODIPHENYLAMINE	10	1	10	U
4-BROMOPHENYL-PHENYL ETHER	10	1	10	U
HEXACHLOROBENZENE	10	1	10	U
PENTACHLOROPHENOL	25	2.5	25	U
PHENANTHRENE	10	1	10	U
ANTHRACENE	10	1	10	U
DI-n-BUTYLPHTHALATE	10	1	10	U
FLUORANTHENE	10	1	10	U
CARBAZOLE	10	1	10	U
PYRENE	10	1	10	U
BUTYLBENZYLPHTHALATE	10	1	10	U
3,3'-DICHLOROBENZIDINE	10	1	10	U
BENZO(a)ANTHRACENE	10	1	10	U
CHRYSENE	10	1	10	U
BIS(2-ETHYLHEXYL)PHTHALATE	10	1	10	U
DI-n-OCTYLPHTHALATE	10	1	10	U
BENZO(b)FLUORANTHENE	10	1	10	U
BENZO(k)FLUORANTHENE	10	1	10	U
BENZO(a)PYRENE	10	1	10	U
INDENO(1,2,3-cd)PYRENE	10	1	10	U
DIBENZO(a,h)ANTHRACENE	10	1	10	U
BENZO(g,h,i)PERYLENE	10	1	10	U
DILUTION FACTOR:			1	

CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

STATION ID:			SOTF5BFB1		SOTF5BFB1RE		SOTF5BFB2	
LABORATORY ID:			940957-04		940957-04RE		940957-05	
ANALYTE	CRQL	MDL/IDL						
ACENAPHTHENE	10	1	10	U	10	U	10	U
2,4-DINITROPHENOL	25	2.5	25	U	25	U	25	U
4-NITROPHENOL	25	2.5	25	U	25	U	25	U
DIBENZOFURAN	10	1	10	U	10	U	10	U
2,4-DINITROTOLUENE	10	1	10	U	10	U	10	U
DIETHYL PHTHALATE	10	1	10	U	10	U	10	U
4-CHLOROPHENYL-PHENYL ETHER	10	1	10	U	10	U	10	U
FLUORENE	10	1	10	U	10	U	10	U
4-NITROANILINE	25	2.5	25	U	25	U	25	U
4,6-DINITRO-2-METHYLPHENOL	25	2.5	25	U	25	U	25	U
N-NITROSODIPHENYLAMINE	10	1	10	U	10	U	10	U
4-BROMOPHENYL-PHENYL ETHER	10	1	10	U	10	U	10	U
HEXACHLOROBENZENE	10	1	10	U	10	U	10	U
PENTACHLOROPHENOL	25	2.5	25	U	25	U	25	U
PHENANTHRENE	10	1	10	U	10	U	10	U
ANTHRACENE	10	1	10	U	10	U	10	U
DI-n-BUTYLPHTHALATE	10	1	10	U	10	U	10	U
FLUORANTHENE	10	1	10	U	10	U	10	U
CARBAZOLE	10	1	10	U	10	U	10	U
PYRENE	10	1	10	U	10	U	10	U
BUTYLBENZYLPHTHALATE	10	1	10	U	10	U	10	U
3,3'-DICHLOROBENZIDINE	10	1	10	U	10	U	10	U
BENZO(a)ANTHRACENE	10	1	10	U	10	U	10	U
CHRYSENE	10	1	10	U	10	U	10	U
BIS(2-ETHYLHEXYL)PHTHALATE	10	1	2	J	2	J	2	J
DI-n-OCTYLPHTHALATE	10	1	10	U	10	U	10	U
BENZO(b)FLUORANTHENE	10	1	10	U	10	U	10	U
BENZO(k)FLUORANTHENE	10	1	10	U	10	U	10	U
BENZO(a)PYRENE	10	1	10	U	10	U	10	U
INDENO(1,2,3-cd)PYRENE	10	1	10	U	10	U	10	U
DIBENZO(a,h)ANTHRACENE	10	1	10	U	10	U	10	U
BENZO(g,h,i)PERYLENE	10	1	10	U	10	U	10	U
DILUTION FACTOR:			1		1		1	

CASE NO. CTO143

CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

STATION ID:			SOTF5BFB1		SOTF5BFB1RE		SOTF5BFB2	
LABORATORY ID:			940957-04		940957-04RE		940957-05	
ANALYTE	CRQL	MDL/IDL						
PHENOL	10	1	10	U	10	U	10	U
BIS(2-CHLOROETHYL)ETHER	10	1	10	U	10	U	10	U
2-CHLOROPHENOL	10	1	10	U	10	U	10	U
1,3-DICHLOROBENZENE	10	1	10	U	10	U	10	U
1,4-DICHLOROBENZENE	10	1	10	U	10	U	10	U
1,2-DICHLOROBENZENE	10	1	10	U	10	U	10	U
2-METHYLPHENOL	10	1	10	U	10	U	10	U
2,2'-OXYBIS(1-CHLOROPROPANE)	10	1	10	U	10	U	10	U
4-METHYLPHENOL	10	1	10	U	10	U	10	U
N-NITROSO-DI-n-PROPYLAMINE	10	1	10	U	10	U	10	U
HEXACHLOROETHANE	10	1	10	U	10	U	10	U
NITROBENZENE	10	1	10	U	10	U	10	U
ISOPHORONE	10	1	10	U	10	U	10	U
2-NITROPHENOL	10	1	10	U	10	U	10	U
2,4-DIMETHYLPHENOL	10	1	10	U	10	U	10	U
BIS(2-CHLOROETHOXY)METHANE	10	1	10	U	10	U	10	U
2,4-DICHLOROPHENOL	10	1	10	U	10	U	10	U
1,2,4-TRICHLOROBENZENE	10	1	10	U	10	U	10	U
NAPHTHALENE	10	1	10	U	10	U	10	U
4-CHLOROANILINE	10	1	10	U	10	U	10	U
HEXACHLOROBUTADIENE	10	1	10	U	10	U	10	U
4-CHLORO-3-METHYLPHENOL	10	1	10	U	10	U	10	U
2-METHYLNAPHTHALENE	10	1	10	U	10	U	10	U
HEXACHLOROCYCLOPENTADIENE	10	1	10	U	10	U	10	U
2,4,6-TRICHLOROPHENOL	10	1	10	U	10	U	10	U
2,4,5-TRICHLOROPHENOL	25	2.5	25	U	25	U	25	U
2-CHLORONAPHTHALENE	10	1	10	U	10	U	10	U
2-NITROANILINE	25	2.5	25	U	25	U	25	U
DIMETHYLPHTHALATE	10	1	10	U	10	U	10	U
ACENAPHTHYLENE	10	1	10	U	10	U	10	U
2,6-DINITROTOLUENE	10	1	10	U	10	U	10	U
3-NITROANILINE	25	2.5	25	U	25	U	25	U

TCL AQUEOUS SEMI-VOLATILE ORGANICS

CASE NO. CTO143

CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

STATION ID:			GW-TF4-MW114	GW-TF4-MW115	GW-TF4-MW116	GW-TF4-MW117	GW-TF4-MW118
LABORATORY ID:			941027-01	941027-02	941027-03	941027-04	941027-05
ANALYTE	CRQL	MDL/IDL					
PHENOL	10	1	10 U	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10	1	10 U	10 U	10 U	10 U	10 U
2-CHLOROPHENOL	10	1	10 U	10 U	10 U	10 U	10 U
1,3-DICHLOROBENZENE	10	1	10 U	10 U	10 U	10 U	10 U
1,4-DICHLOROBENZENE	10	1	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	10	1	10 U	10 U	10 U	10 U	10 U
2-METHYLPHENOL	10	1	10 U	10 U	10 U	10 U	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10	1	10 U	10 U	10 U	10 U	10 U
4-METHYLPHENOL	10	1	10 U	10 U	10 U	10 U	10 U
N-NITROSO-DI-n-PROPYLAMINE	10	1	10 U	10 U	10 U	10 U	10 U
HEXACHLOROETHANE	10	1	10 U	10 U	10 U	10 U	10 U
NITROBENZENE	10	1	10 U	10 U	10 U	10 U	10 U
ISOPHORONE	10	1	10 U	10 U	10 U	10 U	10 U
2-NITROPHENOL	10	1	10 U	10 U	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10	1	10 U	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10	1	10 U	10 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10	1	10 U	10 U	10 U	10 U	10 U
1,2,4-TRICHLOROBENZENE	10	1	10 U	10 U	10 U	10 U	10 U
NAPHTHALENE	10	1	10 U	10 U	10 U	10 U	10 U
4-CHLOROANILINE	10	1	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10	1	10 U	10 U	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10	1	10 U	10 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10	1	10 U	10 U	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10	1	10 U	10 U	10 U	10 U	10 U
2,4,6-TRICHLOROPHENOL	10	1	10 U	10 U	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	25	2.5	25 U	25 U	25 U	25 U	25 U
2-CHLORONAPHTHALENE	10	1	10 U	10 U	10 U	10 U	10 U
2-NITROANILINE	25	2.5	25 U	25 U	25 U	25 U	25 U
DIMETHYLPHTHALATE	10	1	10 U	10 U	10 U	10 U	10 U
ACENAPHTHYLENE	10	1	10 U	10 U	10 U	10 U	10 U
2,6-DINITROTOLUENE	10	1	10 U	10 U	10 U	10 U	10 U
3-NITROANILINE	25	2.5	25 U	25 U	25 U	25 U	25 U

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:EIMIC CORPORATION

'CL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

;TATION ID:			GW-TF4-MW114	GW-TF4-MW115	GW-TF4-MW116	GW-TF4-MW117	GW-TF4-MW118
.ABORATORY ID:			941027-01	941027-02	941027-03	941027-04	941027-05
\NALYTE	CRQL	MDL/IDL					
\CENAPHTHENE	10	1	10 U	10 U	10 U	10 U	10 U
2,4-DINITROPHENOL	25	2.5	25 U	25 U	25 U	25 U	25 U
4-NITROPHENOL	25	2.5	25 U	25 U	25 U	25 U	25 U
DIBENZOFURAN	10	1	10 U	10 U	10 U	10 U	10 U
2,4-DINITROTOLUENE	10	1	10 U	10 U	10 U	10 U	10 U
DIETHYL PHTHALATE	10	1	10 U	10 U	10 U	10 U	10 U
4-CHLOROPHENYL-PHENYL ETHER	10	1	10 U	10 U	10 U	10 U	10 U
FLUORENE	10	1	10 U	10 U	10 U	10 U	10 U
4-NITROANILINE	25	2.5	25 U	25 U	25 U	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	25	2.5	25 U	25 U	25 U	25 U	25 U
N-NITROSODIPHENYLAMINE	10	1	10 U	10 U	10 U	10 U	10 U
4-BROMOPHENYL-PHENYL ETHER	10	1	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBENZENE	10	1	10 U	10 U	10 U	10 U	10 U
PENTACHLOROPHENOL	25	2.5	25 U	25 U	25 U	25 U	25 U
PHENANTHRENE	10	1	10 U	10 U	10 U	10 U	10 U
ANTHRACENE	10	1	10 U	10 U	10 U	10 U	10 U
DI-n-BUTYLPHTHALATE	10	1	10 U	10 U	10 U	10 U	10 U
FLUORANTHENE	10	1	10 U	10 U	10 U	10 U	10 U
CARBAZOLE	10	1	10 U	10 U	10 U	10 U	10 U
PYRENE	10	1	10 U	10 U	10 U	10 U	10 U
BUTYLBENZYLPHTHALATE	10	1	10 U	10 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10	1	10 U	10 U	10 U	10 U	10 U
BENZO(a)ANTHRACENE	10	1	10 U	10 U	10 U	10 U	10 U
CHRYSENE	10	1	10 U	10 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	10	1	10 U	10 U	10 U	10 U	10 U
DI-n-OCTYLPHTHALATE	10	1	10 U	10 U	10 U	10 U	10 U
BENZO(b)FLUORANTHENE	10	1	10 U	10 U	10 U	10 U	10 U
BENZO(k)FLUORANTHENE	10	1	10 U	10 U	10 U	10 U	10 U
BENZO(a)PYRENE	10	1	10 U	10 U	10 U	10 U	10 U
INDENO(1,2,3-cd)PYRENE	10	1	10 U	10 U	10 U	10 U	10 U
DIBENZO(a,h)ANTHRACENE	10	1	10 U	10 U	10 U	10 U	10 U
BENZO(g,h,i)PERYLENE	10	1	10 U	10 U	10 U	10 U	10 U
DILUTION FACTOR:			1	1	1	1	1

CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

STATION ID:			GW-TF4-DUP1	GW-TF4-MW119	GW-TF4-MW120	GW-TF4-MW121	GW-TF4-MW12
LABORATORY ID:			941038-08	941038-09	941038-01	941038-02	941038-10
			FIELD DUPLICATE PAIR				
ANALYTE	CRQL	MDL/IDL					
PHENOL	10	1	10 U	10 U	10 U	10 U	100
BIS(2-CHLOROETHYL)ETHER	10	1	10 U	10 U	10 U	10 U	100
2-CHLOROPHENOL	10	1	10 U	10 U	10 U	10 U	100
1,3-DICHLOROBENZENE	10	1	10 U	10 U	10 U	10 U	100
1,4-DICHLOROBENZENE	10	1	10 U	10 U	10 U	10 U	100
1,2-DICHLOROBENZENE	10	1	10 U	10 U	10 U	10 U	100
2-METHYLPHENOL	10	1	10 U	10 U	10 U	10 U	100
2,2'-OXYBIS(1-CHLOROPROPANE)	10	1	10 U	10 U	10 U	10 U	100
4-METHYLPHENOL	10	1	10 U	10 U	10 U	10 U	100
N-NITROSO-DI-n-PROPYLAMINE	10	1	10 U	10 U	10 U	10 U	100
HEXACHLOROETHANE	10	1	10 U	10 U	10 U	10 U	100
NITROBENZENE	10	1	10 U	10 U	10 U	10 U	100
ISOPHORONE	10	1	10 U	10 U	10 U	10 U	100
2-NITROPHENOL	10	1	10 U	10 U	10 U	10 U	100
2,4-DIMETHYLPHENOL	10	1	10 U	10 U	10 U	10 U	100
BIS(2-CHLOROETHOXY)METHANE	10	1	10 U	10 U	10 U	10 U	100
2,4-DICHLOROPHENOL	10	1	10 U	10 U	10 U	10 U	100
1,2,4-TRICHLOROBENZENE	10	1	10 U	10 U	10 U	10 U	100
NAPHTHALENE	10	1	1 J	1 J	10 U	10 U	100
4-CHLOROANILINE	10	1	10 U	10 U	10 U	10 U	100
HEXACHLOROBUTADIENE	10	1	10 U	10 U	10 U	10 U	100
4-CHLORO-3-METHYLPHENOL	10	1	10 U	10 U	10 U	10 U	100
2-METHYLNAPHTHALENE	10	1	7 J	7 J	10 U	10 U	100
HEXACHLOROCYCLOPENTADIENE	10	1	10 U	10 U	10 U	10 U	100
2,4,6-TRICHLOROPHENOL	10	1	10 U	10 U	10 U	10 U	100
2,4,5-TRICHLOROPHENOL	25	2.5	25 U	25 U	25 U	25 U	250
2-CHLORONAPHTHALENE	10	1	10 U	10 U	10 U	10 U	100
2-NITROANILINE	25	2.5	25 U	25 U	25 U	25 U	250
DIMETHYLPHTHALATE	10	1	10 U	10 U	10 U	10 U	100
ACENAPHTHYLENE	10	1	10 U	10 U	10 U	10 U	100
2,6-DINITROTOLUENE	10	1	10 U	10 U	10 U	10 U	100
3-NITROANILINE	25	2.5	25 U	25 U	25 U	25 U	250

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CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

STATION ID:			GW-TF4-DUP1		GW-TF4-MW119		GW-TF4-MW120		GW-TF4-MW121		GW-TF4-MW122	
LABORATORY ID:			941038-08		941038-09		941038-01		941038-02		941038-10	
			FIELD DUPLICATE PAIR									
ANALYTE	CRQL	MDL/IDL										
ACENAPHTHENE	10	1	1	J	1	J	10	U	10	U	100	U
2,4-DINITROPHENOL	25	2.5	25	U	25	U	25	U	25	U	250	U
4-NITROPHENOL	25	2.5	25	U	25	U	25	U	25	U	250	U
DIBENZOFURAN	10	1	1	J	1	J	10	U	10	U	100	U
2,4-DINITROTOLUENE	10	1	10	U	10	U	10	U	10	U	100	U
DIETHYL PHTHALATE	10	1	10	U	10	U	10	U	10	U	100	U
4-CHLOROPHENYL-PHENYL ETHER	10	1	10	U	10	U	10	U	10	U	100	U
FLUORENE	10	1	2	J	2	J	10	U	10	U	16	J
4-NITROANILINE	25	2.5	25	U	25	U	25	U	25	U	250	U
4,6-DINITRO-2-METHYLPHENOL	25	2.5	25	U	25	U	25	U	25	U	250	U
N-NITROSODIPHENYLAMINE	10	1	10	U	10	U	10	U	10	U	100	U
4-BROMOPHENYL-PHENYL ETHER	10	1	10	U	10	U	10	U	10	U	100	U
HEXACHLOROBENZENE	10	1	10	U	10	U	10	U	10	U	100	U
PENTACHLOROPHENOL	25	2.5	25	U	25	U	25	U	25	U	250	U
PHENANTHRENE	10	1	3	J	3	J	10	U	10	U	15	J
ANTHRACENE	10	1	1	J	10	UJ	10	U	10	U	100	U
DI-n-BUTYLPHTHALATE	10	1	10	U	10	U	10	U	10	U	100	U
FLUORANTHENE	10	1	10	U	10	U	10	U	10	U	100	U
CARBAZOLE	10	1	10	U	10	U	10	U	10	U	100	U
PYRENE	10	1	2	J	2	J	10	U	10	U	15	J
BUTYLBENZYLPHTHALATE	10	1	10	U	10	U	10	U	10	U	100	U
3,3'-DICHLOROBENZIDINE	10	1	10	U	10	U	10	U	10	U	100	U
BENZO(a)ANTHRACENE	10	1	10	U	10	U	10	U	10	U	100	U
CHRYSENE	10	1	10	U	10	U	10	U	10	U	100	U
BIS(2-ETHYLHEXYL)PHTHALATE	10	1	10	U	10	UJ	10	U	10	U	100	U
DI-n-OCTYLPHTHALATE	10	1	10	U	10	U	10	U	10	U	100	U
BENZO(b)FLUORANTHENE	10	1	10	U	10	U	10	U	10	U	100	U
BENZO(k)FLUORANTHENE	10	1	10	U	10	U	10	U	10	U	100	U
BENZO(a)PYRENE	10	1	10	U	10	U	10	U	10	U	100	U
INDENO(1,2,3-cd)PYRENE	10	1	10	U	10	U	10	U	10	U	100	U
DIBENZO(a,h)ANTHRACENE	10	1	10	U	10	U	10	U	10	U	100	U
BENZO(g,h,i)PERYLENE	10	1	10	U	10	U	10	U	10	U	100	U
DILUTION FACTOR:			1		1		1		1		10	

CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

STATION ID:			GW-TF4-MW123	GW-TF4-MW124	GW-TF4-MW125	GW-TF5-MW100	GW-TF5-MW101
LABORATORY ID:			941038-11	941038-03	941038-12	941038-14	941038-05
ANALYTE	CRQL	MDL/IDL					
PHENOL	10	1	10 U	10 U	200 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10	1	10 U	10 U	200 U	10 U	10 U
2-CHLOROPHENOL	10	1	10 U	10 U	200 U	10 U	10 U
1,3-DICHLOROBENZENE	10	1	10 U	10 U	200 U	10 U	10 U
1,4-DICHLOROBENZENE	10	1	10 U	10 U	200 U	10 U	10 U
1,2-DICHLOROBENZENE	10	1	10 U	10 U	200 U	10 U	10 U
2-METHYLPHENOL	10	1	10 U	10 U	200 U	10 U	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10	1	10 U	10 U	200 U	10 U	10 U
4-METHYLPHENOL	10	1	10 U	10 U	200 U	10 U	10 U
N-NITROSO-DI-n-PROPYLAMINE	10	1	10 U	10 U	200 U	10 U	10 U
HEXACHLOROETHANE	10	1	10 U	10 U	200 U	10 U	10 U
NITROBENZENE	10	1	10 U	10 U	200 U	10 U	10 U
ISOPHORONE	10	1	10 U	10 U	200 U	10 U	10 U
2-NITROPHENOL	10	1	10 U	10 U	200 U	10 U	10 U
2,4-DIMETHYLPHENOL	10	1	10 U	10 U	200 U	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10	1	10 U	10 U	200 U	10 U	10 U
2,4-DICHLOROPHENOL	10	1	10 U	10 U	200 U	10 U	10 U
1,2,4-TRICHLOROBENZENE	10	1	10 U	10 U	200 U	10 U	10 U
NAPHTHALENE	10	1	10 U	10 U	200 U	10 U	10 U
4-CHLOROANILINE	10	1	10 U	10 U	200 U	10 U	10 U
HEXACHLOROBUTADIENE	10	1	10 U	10 U	200 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10	1	10 U	10 U	200 U	10 U	10 U
2-METHYLNAPHTHALENE	10	1	10 U	10 U	200 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10	1	10 U	10 U	200 U	10 U	10 U
2,4,6-TRICHLOROPHENOL	10	1	10 U	10 U	200 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	25	2.5	25 U	25 U	500 U	25 U	25 U
2-CHLORONAPHTHALENE	10	1	10 U	10 U	200 U	10 U	10 U
2-NITROANILINE	25	2.5	25 U	25 U	500 U	25 U	25 U
DIMETHYLPHTHALATE	10	1	10 U	10 U	200 U	10 U	10 U
ACENAPHTHYLENE	10	1	10 U	10 U	200 U	10 U	10 U
2,6-DINITROTOLUENE	10	1	10 U	10 U	200 U	10 U	10 U
3-NITROANILINE	25	2.5	25 U	25 U	500 U	25 U	25 U

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CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

STATION ID:			GW-TF4-MW123		GW-TF4-MW124		GW-TF4-MW125		GW-TF5-MW100		GW-TF5-MW101	
LABORATORY ID:			941038-11		941038-03		941038-12		941038-14		941038-05	
ANALYTE	CRQL	MDL/IDL										
ACENAPHTHENE	10	1	10	U	10	U	200	U	10	U	10	U
2,4-DINITROPHENOL	25	2.5	25	U	25	U	500	U	25	U	25	U
4-NITROPHENOL	25	2.5	25	U	25	U	500	U	25	U	25	U
DIBENZOFURAN	10	1	10	U	10	U	200	U	10	U	10	U
2,4-DINITROTOLUENE	10	1	10	U	10	U	200	U	10	U	10	U
DIETHYL PHTHALATE	10	1	10	U	10	U	200	U	10	U	10	U
4-CHLOROPHENYL-PHENYL ETHER	10	1	10	U	10	U	200	U	10	U	10	U
FLUORENE	10	1	10	U	10	U	20	J	10	U	10	U
4-NITROANILINE	25	2.5	25	U	25	U	500	U	25	U	25	U
4,6-DINITRO-2-METHYLPHENOL	25	2.5	25	U	25	U	500	U	25	U	25	U
N-NITROSODIPHENYLAMINE	10	1	10	U	10	U	200	U	10	U	10	U
4-BROMOPHENYL-PHENYL ETHER	10	1	10	U	10	U	200	U	10	U	10	U
HEXACHLOROBENZENE	10	1	10	U	10	U	200	U	10	U	10	U
PENTACHLOROPHENOL	25	2.5	25	U	25	U	500	U	25	U	25	U
PHENANTHRENE	10	1	10	U	10	U	48	J	10	U	10	U
ANTHRACENE	10	1	10	U	10	U	200	U	10	U	10	U
DI-n-BUTYLPHTHALATE	10	1	10	U	10	U	200	U	10	U	10	U
FLUORANTHENE	10	1	10	U	10	U	200	U	10	U	10	U
CARBAZOLE	10	1	10	U	10	U	200	U	10	U	10	U
PYRENE	10	1	10	U	10	U	28	J	10	U	10	U
BUTYLBENZYLPHTHALATE	10	1	10	U	10	U	200	U	10	U	10	U
3,3'-DICHLOROBENZIDINE	10	1	10	U	10	U	200	U	10	U	10	U
BENZO(a)ANTHRACENE	10	1	10	U	10	U	200	U	10	U	10	U
CHRYSENE	10	1	10	U	10	U	23	J	10	U	10	U
BIS(2-ETHYLHEXYL)PHTHALATE	10	1	10	U	10	U	200	U	10	U	10	U
DI-n-OCTYLPHTHALATE	10	1	10	U	10	U	200	U	10	U	10	U
BENZO(b)FLUORANTHENE	10	1	10	U	10	U	200	U	10	U	10	U
BENZO(k)FLUORANTHENE	10	1	10	U	10	U	200	U	10	U	10	U
BENZO(a)PYRENE	10	1	10	U	10	U	200	U	10	U	10	U
INDENO(1,2,3-cd)PYRENE	10	1	10	U	10	U	200	U	10	U	10	U
DIBENZO(a,h)ANTHRACENE	10	1	10	U	10	U	200	U	10	U	10	U
BENZO(g,h,i)PERYLENE	10	1	10	U	10	U	200	U	10	U	10	U
DILUTION FACTOR:			1		1		20		1		1	

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: CORPORATION

QUEOUS SEMI-VOLATILE ORGANICS (ug/L)

ON ID:			GW-TF5-MW102	GW-TF5-MW110	GW-TF5-MW112	GWTF4MW115RE
RATORY ID:			941027-06	941027-08	941027-09	941027-02RE
TE	CRQL	MDL/IDL				
OL	10	1	10 U	10 U	10 U	10 U
CHLOROETHYL)ETHER	10	1	10 U	10 U	10 U	10 U
OROPHENOL	10	1	10 U	10 U	10 U	10 U
CHLOROBENZENE	10	1	10 U	10 U	10 U	10 U
CHLOROBENZENE	10	1	10 U	10 U	10 U	10 U
CHLOROBENZENE	10	1	10 U	10 U	10 U	10 U
THYLPHENOL	10	1	10 U	10 U	10 U	10 U
XYBIS(1-CHLOROPROPANE)	10	1	10 U	10 U	10 U	10 U
THYLPHENOL	10	1	10 U	10 U	10 U	10 U
ROSO-DI-n-PROPYLAMINE	10	1	10 U	10 U	10 U	10 U
CHLOROETHANE	10	1	10 U	10 U	10 U	10 U
OBENZENE	10	1	10 U	10 U	10 U	10 U
HORONE	10	1	10 U	10 U	10 U	10 U
ROPHENOL	10	1	10 U	10 U	10 U	10 U
IMETHYLPHENOL	10	1	10 U	10 U	10 U	10 U
-CHLOROETHOXY)METHANE	10	1	10 U	10 U	10 U	10 U
ICHLOROPHENOL	10	1	10 U	10 U	10 U	10 U
TRICHLOROBENZENE	10	1	10 U	10 U	10 U	10 U
ITHALENE	10	1	10 U	10 U	10 U	10 U
LOROANILINE	10	1	10 U	10 U	10 U	10 U
CHLOROBUTADIENE	10	1	10 U	10 U	10 U	10 U
LORO-3-METHYLPHENOL	10	1	10 U	10 U	3 J	10 U
THYLNAPHTHALENE	10	1	10 U	10 U	10 U	10 U
CHLOROCYCLOPENTADIENE	10	1	10 U	10 U	10 U	10 U
-TRICHLOROPHENOL	25	2.5	25 U	25 U	25 U	25 U
-TRICHLOROPHENOL	10	1	10 U	10 U	10 U	10 U
LORONAPHTHALENE	25	2.5	25 U	25 U	25 U	25 U
TROANILINE	10	1	10 U	10 U	10 U	10 U
THYLPHTHALATE	10	1	10 U	10 U	10 U	10 U
NAPHTHYLENE	10	1	10 U	10 U	10 U	10 U
INITROTOLUENE	25	2.5	25 U	25 U	25 U	25 U
TROANILINE						

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CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

STATION ID:			GW-TF5-MW102		GW-TF5-MW110		GW-TF5-MW112		GWTF4MW115RE	
LABORATORY ID:			941027-06		941027-08		941027-09		941027-02RE	
ANALYTE	CRQL	MDL/IDL								
ACENAPHTHENE	10	1	10	U	10	U	10	U	10	U
2,4-DINITROPHENOL	25	2.5	25	U	25	U	25	U	25	U
4-NITROPHENOL	25	2.5	25	U	25	U	25	U	25	U
DIBENZOFURAN	10	1	10	U	10	U	10	U	10	U
2,4-DINITROTOLUENE	10	1	10	U	10	U	10	U	10	U
DIETHYL PHTHALATE	10	1	10	U	10	U	10	U	10	U
4-CHLOROPHENYL-PHENYL ETHER	10	1	10	U	10	U	10	U	10	U
FLUORENE	10	1	10	U	10	U	2	J	10	U
4-NITROANILINE	25	2.5	25	U	25	U	25	U	25	U
4,6-DINITRO-2-METHYLPHENOL	25	2.5	25	U	25	U	25	U	25	U
N-NITROSODIPHENYLAMINE	10	1	10	U	10	U	10	U	10	U
4-BROMOPHENYL-PHENYL ETHER	10	1	10	U	10	U	10	U	10	U
HEXACHLOROBENZENE	10	1	10	U	10	U	10	U	10	U
PENTACHLOROPHENOL	25	2.5	25	U	25	U	25	U	25	U
PHENANTHRENE	10	1	10	U	10	U	1	J	10	U
ANTHRACENE	10	1	10	U	10	U	10	U	10	U
DI-n-BUTYLPHTHALATE	10	1	10	U	10	U	10	U	10	U
FLUORANTHENE	10	1	10	U	10	U	10	U	10	U
CARBAZOLE	10	1	10	U	10	U	10	U	10	U
PYRENE	10	1	10	U	10	U	10	U	10	U
BUTYLBENZYLPHTHALATE	10	1	10	U	1	J	10	U	10	U
3,3'-DICHLOROBENZIDINE	10	1	10	U	10	U	10	U	10	U
BENZO(a)ANTHRACENE	10	1	10	U	10	U	10	U	10	U
CHRYSENE	10	1	10	U	10	U	10	U	10	U
BIS(2-ETHYLHEXYL)PHTHALATE	10	1	10	U	10	U	3	J	10	U
DI-n-OCTYLPHTHALATE	10	1	10	U	10	U	10	U	10	U
BENZO(b)FLUORANTHENE	10	1	10	U	10	U	10	U	10	U
BENZO(k)FLUORANTHENE	10	1	10	U	10	U	10	U	10	U
BENZO(a)PYRENE	10	1	10	U	10	U	10	U	10	U
INDENO(1,2,3-cd)PYRENE	10	1	10	U	10	U	10	U	10	U
DIBENZO(a,h)ANTHRACENE	10	1	10	U	10	U	10	U	10	U
BENZO(g,h,i)PERYLENE	10	1	10	U	10	U	10	U	10	U
DILUTION FACTOR:			1		1		1		1	

CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

STATION ID:			GW-TF5-MW103		GW-TF5-DUP2		GW-TF5-MW104		GW-TF5-MW111		GW-TF5-MW
LABORATORY ID:			941038-15		941038-13		941038-06		941038-20		941038-07
ANALYTE	CRQL	MDL/IDL									
PHENOL	10	1	10	U	10	U	10	U	10	U	1
BIS(2-CHLOROETHYL)ETHER	10	1	10	U	10	U	10	U	10	U	1
2-CHLOROPHENOL	10	1	10	U	10	U	10	U	10	U	1
1,3-DICHLOROBENZENE	10	1	10	U	10	U	10	U	10	U	1
1,4-DICHLOROBENZENE	10	1	10	U	10	U	10	U	10	U	1
1,2-DICHLOROBENZENE	10	1	10	U	10	U	10	U	10	U	1
2-METHYLPHENOL	10	1	10	U	10	U	10	U	10	U	1
2,2'-OXYBIS(1-CHLOROPROPANE)	10	1	10	U	10	U	10	U	10	U	1
4-METHYLPHENOL	10	1	10	U	10	U	10	U	10	U	1
N-NITROSO-DI-n-PROPYLAMINE	10	1	10	U	10	U	10	U	10	U	1
HEXACHLOROETHANE	10	1	10	U	10	U	10	U	10	U	1
NITROBENZENE	10	1	10	U	10	U	10	U	10	U	1
ISOPHORONE	10	1	10	U	10	U	10	U	10	U	1
2-NITROPHENOL	10	1	10	U	10	U	10	U	10	U	1
2,4-DIMETHYLPHENOL	10	1	10	U	10	U	10	U	10	U	1
BIS(2-CHLOROETHOXY)METHANE	10	1	10	U	10	U	10	U	10	U	1
2,4-DICHLOROPHENOL	10	1	10	U	10	U	10	U	10	U	1
1,2,4-TRICHLOROBENZENE	10	1	10	U	10	U	10	U	10	U	1
NAPHTHALENE	10	1	8	J	8	J	10	U	10	U	1
4-CHLOROANILINE	10	1	10	U	10	U	10	U	10	U	1
HEXACHLOROBUTADIENE	10	1	10	U	10	U	10	U	10	U	1
4-CHLORO-3-METHYLPHENOL	10	1	10	U	10	U	10	U	10	U	1
2-METHYLNAPHTHALENE	10	1	15		13		10	U	10	U	1
HEXACHLOROCYCLOPENTADIENE	10	1	10	U	10	U	10	U	10	U	1
2,4,6-TRICHLOROPHENOL	10	1	10	U	10	U	10	U	10	U	1
2,4,5-TRICHLOROPHENOL	25	2.5	25	U	25	U	25	U	25	U	2
2-CHLORONAPHTHALENE	10	1	10	U	10	U	10	U	10	U	1
2-NITROANILINE	25	2.5	25	U	25	U	25	U	25	U	2
DIMETHYLPHTHALATE	10	1	10	U	10	U	10	U	10	U	1
ACENAPHTHYLENE	10	1	10	U	10	U	10	U	10	U	1
2,6-DINITROTOLUENE	10	1	10	U	10	U	10	U	10	U	1
3-NITROANILINE	25	2.5	25	U	25	U	25	U	25	U	2

CASE NO. CTO143

CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

STATION ID:			GW-TF5-MW103	GW-TF5-DUP2	GW-TF5-MW104	GW-TF5-MW111	GW-TF5-MW113
LABORATORY ID:			941038-15	941038-13	941038-06	941038-20	941038-07
ANALYTE	CRQL	MDL/IDL					
ACENAPHTHENE	10	1	1 J	1 J	10 U	10 U	10 U
2,4-DINITROPHENOL	25	2.5	25 U	25 U	25 U	25 U	25 U
4-NITROPHENOL	25	2.5	25 U	25 U	25 U	25 U	25 U
DIBENZOFURAN	10	1	10 U	10 U	10 U	10 U	10 U
2,4-DINITROTOLUENE	10	1	10 U	10 U	10 U	10 U	10 U
DIETHYL PHTHALATE	10	1	10 U	10 U	10 U	10 U	10 U
4-CHLOROPHENYL-PHENYL ETHER	10	1	10 U	10 U	10 U	10 U	10 U
FLUORENE	10	1	2 J	2 J	10 U	10 U	10 U
4-NITROANILINE	25	2.5	25 U	25 U	25 U	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	25	2.5	25 U	25 U	25 U	25 U	25 U
N-NITROSODIPHENYLAMINE	10	1	10 U	10 U	10 U	10 U	10 U
4-BROMOPHENYL-PHENYL ETHER	10	1	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBENZENE	10	1	10 U	10 U	10 U	10 U	10 U
PENTACHLOROPHENOL	25	2.5	25 U	25 U	25 U	25 U	25 U
PHENANTHRENE	10	1	2 J	2 J	10 U	10 U	10 U
ANTHRACENE	10	1	10 U	10 U	10 U	10 U	10 U
DI-n-BUTYLPHTHALATE	10	1	10 U	10 U	10 U	10 U	10 U
FLUORANTHENE	10	1	10 U	10 U	10 U	10 U	10 U
CARBAZOLE	10	1	10 U	10 U	10 U	10 U	10 U
PYRENE	10	1	10 U	10 U	10 U	10 U	10 U
BUTYLBENZYLPHTHALATE	10	1	10 U	10 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10	1	10 U	10 U	10 U	10 U	10 U
BENZO(a)ANTHRACENE	10	1	10 U	10 U	10 U	10 U	10 U
CHRYSENE	10	1	10 U	10 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	10	1	10 U	10 U	10 U	10 U	10 U
DI-n-OCTYLPHTHALATE	10	1	10 U	10 U	10 U	10 U	10 U
BENZO(b)FLUORANTHENE	10	1	10 U	10 U	10 U	10 U	10 U
BENZO(k)FLUORANTHENE	10	1	10 U	10 U	10 U	10 U	10 U
BENZO(a)PYRENE	10	1	10 U	10 U	10 U	10 U	10 U
INDENO(1,2,3-cd)PYRENE	10	1	10 U	10 U	10 U	10 U	10 U
DIBENZO(a,h)ANTHRACENE	10	1	10 U	10 U	10 U	10 U	10 U
BENZO(g,h,i)PERYLENE	10	1	10 U	10 U	10 U	10 U	10 U
DILUTION FACTOR:			1	1	1	1	1

CASE NO. CTO143

CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

STATION ID:			GW-TF5-RB1	
LABORATORY ID:			941038-21	
ANALYTE	CRQL	MDL/IDL		
PHENOL	10	1	10	U
BIS(2-CHLOROETHYL)ETHER	10	1	10	U
2-CHLOROPHENOL	10	1	10	U
1,3-DICHLOROBENZENE	10	1	10	U
1,4-DICHLOROBENZENE	10	1	10	U
1,2-DICHLOROBENZENE	10	1	10	U
2-METHYLPHENOL	10	1	10	U
2,2'-OXYBIS(1-CHLOROPROPANE)	10	1	10	U
4-METHYLPHENOL	10	1	10	U
N-NITROSO-DI-n-PROPYLAMINE	10	1	10	U
HEXACHLOROETHANE	10	1	10	U
NITROBENZENE	10	1	10	U
ISOPHORONE	10	1	10	U
2-NITROPHENOL	10	1	10	U
2,4-DIMETHYLPHENOL	10	1	10	U
BIS(2-CHLOROETHOXY)METHANE	10	1	10	U
2,4-DICHLOROPHENOL	10	1	10	U
1,2,4-TRICHLOROBENZENE	10	1	10	U
NAPHTHALENE	10	1	10	U
4-CHLOROANILINE	10	1	10	U
HEXACHLOROBUTADIENE	10	1	10	U
4-CHLORO-3-METHYLPHENOL	10	1	10	U
2-METHYLNAPHTHALENE	10	1	10	U
HEXACHLOROCYCLOPENTADIENE	10	1	10	U
2,4,6-TRICHLOROPHENOL	10	1	10	U
2,4,5-TRICHLOROPHENOL	25	2.5	25	U
2-CHLORONAPHTHALENE	10	1	10	U
2-NITROANILINE	25	2.5	25	U
DIMETHYLPHTHALATE	10	1	10	U
ACENAPHTHYLENE	10	1	10	U
2,6-DINITROTOLUENE	10	1	10	U
3-NITROANILINE	25	2.5	25	U

CASE NO. CTO145

CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

STATION ID:			GW-TF5-RB1	
LABORATORY ID:			941038-21	
ANALYTE	CRQL	MDL/IDL		
ACENAPHTHENE	10	1	10	U
2,4-DINITROPHENOL	25	2.5	25	U
4-NITROPHENOL	25	2.5	25	U
DIBENZOFURAN	10	1	10	U
2,4-DINITROTOLUENE	10	1	10	U
DIETHYL PHTHALATE	10	1	10	U
4-CHLOROPHENYL-PHENYL ETHER	10	1	10	U
FLUORENE	10	1	10	U
4-NITROANILINE	25	2.5	25	U
4,6-DINITRO-2-METHYLPHENOL	25	2.5	25	U
N-NITROSODIPHENYLAMINE	10	1	10	U
4-BROMOPHENYL-PHENYL ETHER	10	1	10	U
HEXACHLOROBENZENE	10	1	10	U
PENTACHLOROPHENOL	25	2.5	25	U
PHENANTHRENE	10	1	10	U
ANTHRACENE	10	1	10	U
DI-n-BUTYLPHTHALATE	10	1	10	U
FLUORANTHENE	10	1	10	U
CARBAZOLE	10	1	10	U
PYRENE	10	1	10	U
BUTYLBENZYLPHTHALATE	10	1	10	U
3,3'-DICHLOROBENZIDINE	10	1	10	U
BENZO(a)ANTHRACENE	10	1	10	U
CHRYSENE	10	1	10	U
BIS(2-ETHYLHEXYL)PHTHALATE	10	1	10	U
DI-n-OCTYLPHTHALATE	10	1	10	U
BENZO(b)FLUORANTHENE	10	1	10	U
BENZO(k)FLUORANTHENE	10	1	10	U
BENZO(a)PYRENE	10	1	10	U
INDENO(1,2,3-cd)PYRENE	10	1	10	U
DIBENZO(a,h)ANTHRACENE	10	1	10	U
BENZO(g,h,i)PERYLENE	10	1	10	U
DILUTION FACTOR:			1	

RCRA SOIL METALS

:ASE NO. CTO143

:EIMIC CORPORATION
'OTAL
:CRA SOIL METALS (mg/Kg)

STATION ID:			SOTF4B373234		SOTF4B373436		SOTF4B37DUP		SOTF4B382628		SOTF4B463032		SOTF4B463840	
ABORATORY ID:			940996-17		940996-18		940996-19		940996-20		940996-09		940996-10	
NALYTE	CRDL	IDL												
RSENIC	1	0.2	12.2		12.3		12.9		12.2		10.5		10.8	
ARIUM	20	0.1	15.6		7.9		10.3		12.1		2.8	U	16.1	
ADMIUM	0.5	0.3	2.6		2.6		2.7		2.5		2.3		3.2	
HROMIUM	1	0.5	14.1		14.1		15.0		13.7		13.6		15.9	
EAD	0.3	0.1	13.2		9.5		13.3		10.5		7.6		7.1	
ERCURY	0.1	0.05	0.09	UJ	0.08	UJ	0.08	UJ	0.09	UJ	0.05	U	0.05	U
ELENIUM	0.5	0.2	0.16	U	0.15	U	0.18	U	0.16	U	0.21	U	0.21	U
ILVER	1	0.4	0.89	UJ	1.3	U	1.3	U	0.84	UJ	1.9	U	1.8	U
% SOLIDS			84.4		83.8		84.7		84.6		86		83.7	

CASE NO. CT0143

CEIMIC CORPORATION
TOTAL
RCRA SOIL METALS (mg/Kg)

STATION ID:			SOTF4B391719		SOTF4B394042		SOTF4B402628		SOTF4B404042		SOTF4B413032		SOTF4B413840	
LABORATORY ID:			940980-11		940980-12		940980-13		940980-14		940980-18		940980-19	
ANALYTE	CRDL	IDL												
ARSENIC	1	0.2	16.1		21.6		18.0		17.3		15.9		14.9	
BARIUM	20	0.3	9.3		9.7		6.5		9.2		8.0		12.5	
CADMIUM	0.5	0.4	1.7		2.2		2.3		2.3		2.2		2.1	
CHROMIUM	1	0.7	7.3		8.5		11.0		13.2		14.6		11.8	
LEAD	0.3	0.1	5.5	U	6.2	U	6.6	U	8.3	U	6.3	U	7.3	U
MERCURY	0.1	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.06	U
SELENIUM	0.5	0.2	0.46	U	0.46	U	0.38	U	0.47	U	0.19	U	0.31	U
SILVER	1	0.4	1.1	U	1.2	U	1.7	U	1.4	U	1.5	U	1.4	U
% SOLID			85.9		87.8		86.2		84.1		82.9		85.6	

:ASE NO. CTO143

:EIMIC CORPORATION
'OTAL
:CRA SOIL METALS (mg/Kg)

:TATION ID:			SOTF4B433638		SOTF4B442224		SOTF4B443638		SOTF4B472830		SOTF4B473840		SOTF4B482729	
.ABORATORY ID:			940980-21		940980-22		940980-23		940980-24		940980-25		940980-27	
\NALYTE	CRDL	IDL												
\RSENIC	1	0.2	9.4		13.3		12.9		19.2		16.5		10.4	
3ARIUM	20	0.3	19.3		6.6		6.9		8.9		14.6		11.5	
:ADMIUM	0.5	0.4	1.4		1.7		2.4		2.2		2.3		1.8	
:HROMIUM	1	0.7	9.0		11.9		10.8		11.1		15.1		12.6	
.EAD	0.3	0.1	10.4		6.9		4.8		5.8		7.8		9.0	
MERCURY	0.1	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
SELENIUM	0.5	0.2/0.4	0.38	U	0.21	U	0.33	U	0.18	U	0.32	U	0.19	U
SILVER	1	0.4	0.38	UJ	1.1	U	1.8	U	1.2	U	1.4	U	0.81	UJ
% SOLIDS			81.3		86.6		85.8		87.8		83.7		84	

CASE NO. CTO143

CEIMIC CORPORATION
TOTAL
RCRA SOIL METALS (mg/Kg)

STATION ID:			SOTF4B483941	
LABORATORY ID:			940980-28	
ANALYTE	CRDL	IDL		
ARSENIC	1	0.2	10.6	
BARIUM	20	0.3	11.5	
CADMIUM	0.5	0.4	1.7	
CHROMIUM	1	0.7	15.1	
LEAD	0.3	0.1	6.1	
MERCURY	0.1	0.05	0.05	U
SELENIUM	0.5	0.2/0.4	0.19	U
SILVER	1	0.4	0.65	UJ
% SOLIDS			84	

CASE NO. CTO143

CEIMIC CORPORATION
TOTAL
RCRA SOIL METALS (mg/Kg)

STATION ID:			SOTF438DUP		SOTF4B383234		SOTF4B423234		SOTF4B423638		SOTF4B453234	
LABORATORY ID:			941996-22		941996-21		941996-23		941996-24		941996-25	
			FIELD DUPLICATE PAIR									
ANALYTE	CRDL	IDL										
ARSENIC	1	0.2	14.9		17.8		31.5		11.4		9.0	
BARIUM	20	0.3	9.3		12.3		6.0		6.4		14.4	
CADMIUM	0.5	0.4	2.8		3.1		4.7		2.8		1.8	
CHROMIUM	1	0.7	8.9		8.9		15.9		16.0		11.0	
LEAD	0.3	0.1	8.9		7.2		10.6		6.6		8.0	
MERCURY	0.1	0.05	0.09	UJ	0.09	UJ	0.08	UJ	0.08	UJ	0.09	UJ
SELENIUM	0.5	0.2	0.15	U	0.19	U	0.19	U	0.19	U	0.18	U
SILVER	1	0.4	1.2	U	1.7	U	2.8	U	1.7	U	0.65	UJ
% SOLIDS			85.1		84.7		84.3		82.9		82	

CASE NO. CTO143

CEIMIC CORPORATION
TOTAL
RCRA SOIL METALS (mg/Kg)

STATION ID:			SOTF4B453436		SOTF4B45DUP	
LABORATORY ID:			941996-26		941996-27	
			FIELD DUPLICATE PAIR			
ANALYTE	CRDL	IDL				
ARSENIC	1	0.2	11.1		11.7	
BARIUM	20	0.3	12.3		6.1	
CADMIUM	0.5	0.4	2.3		1.8	
CHROMIUM	1	0.7	12.0		9.4	
LEAD	0.3	0.1	8.2		7.1	
MERCURY	0.1	0.05	0.10	UJ	0.08	UJ
SELENIUM	0.5	0.2	0.18	U	0.16	U
SILVER	1	0.4	0.79	UJ	0.84	UJ
% SOLIDS			83		84.1	

CEIMIC CORPORATION
TOTAL
RCRA SOIL METALS (mg/Kg)

STATION ID:			SOTF5B492224		SOTF5B494042		SOTF5B502830		SOTF5B552628		SOTF5B553840		SOTF5B573436	
LABORATORY ID:			940957-15		940957-16		940957-01		940957-17		940957-18		940957-03	
ANALYTE	CRDL	IDL												
ARSENIC	2	0.4	29.8		15.9		14.9		41.1		26.2		13.8	
BARIUM	40	0.6	14.1	U	7.4	U	6.2	U	10.2	U	11.0	U	17.0	
CADMIUM	1	0.8	1.9		1.4		1.8		2.3		1.7		1.9	
CHROMIUM	2	1.4	10.5		7.1		6.4		7.3		4.6		6.9	
LEAD	0.6	0.2	8.0		27.3		5.3		6.6		6.3		7.4	
MERCURY	0.1	0.05	0.05	U	0.05	U	0.05	U	0.06	U	0.05	U	0.16	U
SELENIUM	1	0.8	0.92	U	0.81	U	0.67	U	0.84	U	0.90	U	0.74	U
SILVER	2	0.8	0.92	U	0.81	U	1.1	UJ	0.84	U	0.90	U	0.74	U
% SOLIDS			82.3		90.3		87		85.3		86.7		83.4	

ANALYTE	CRQL	IDL	[illegible]		[illegible]		[illegible]		[illegible]		[illegible]	
ARSENIC	1	[illegible]	[illegible]		[illegible]		[illegible]		[illegible]		[illegible]	
BARIUM	20	[illegible]	[illegible]		[illegible]		[illegible]		7.8		[illegible]	
CADMIUM	0.5	[illegible]	[illegible]		[illegible]		[illegible]		2.0		[illegible]	
CHROMIUM	1	0.7	10.3		9.9		8.1		10.3		10.3	
LEAD	0.3	0.1	[illegible]	U	[illegible]	U	12.0		9.3	U	7.7	U
MERCURY	0.1	0.05	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
SELENIUM	0.5	0.2	0.18	U	0.21	U	0.31	U	0.42	U	0.42	U
SILVER	1	0.4	0.67	UJ	0.66	UJ	1.6	U	1.3	U	1.8	U
% SOLID			83.8		86.6		87.1		81.5		88.2	

CASE NO. CT0143

CEIMIC CORPORATION
TOTAL
RCRA SOIL METALS (mg/Kg)

STATION ID:			SOTF5B543638		SOTF5B584244		SOTF5B593234	
LABORATORY ID:			940948-01		940948-02		940948-03	
ANALYTE	CRDL	IDL						
ARSENIC	2	0.4	23.7		18.3		38.0	
BARIUM	40	0.6	5.2	U	6.3	U	13.4	
CADMIUM	1	0.8	1.8		1.2		2.3	
CHROMIUM	2	1.4	9.1		6.0		10.3	
LEAD	0.6	0.2	12.1		10.7		7.0	
MERCURY	0.04	0.02	0.06	U	0.05	U	0.05	U
SELENIUM	1	0.8	0.84	U	0.80	U	0.63	U
SILVER	2	0.8	1.3	U	0.80	U	1.0	U
% SOLIDS			86.4		88.8		86.2	

CASE NO. CT0143

CEIMIC CORPORATION
TOTAL
RCRA AQUEOUS METALS (ug/L)

STATION ID			SOTF4BRB1	
LABORATORY ID:			940980-17	
ANALYTE	CRDL	IDL		
ARSENIC	10	2	2.0	U
BARIUM	200	3	3.6	
CADMIUM	5	4	4.0	U
CHROMIUM	10	7	7.0	U
LEAD	3	1	1.0	U
MERCURY	0.2	0.1	0.10	U
SELENIUM	5	4	4.0	U
SILVER	10	4	4.0	U

CASE NO. CTO143

CEIMIC CORPORATION
TOTAL
RCRA AQUEOUS METALS (ug/L)

STATION ID			SOTF4BRB2	
LABORATORY ID:			941996-28	
ANALYTE	CRDL	IDL		
ARSENIC	10	2	2.0	U
BARIUM	200	1	4.5	
CADMIUM	5	3	3.0	U
CHROMIUM	10	5	5.0	U
LEAD	3	1	1.0	U
MERCURY	0.2	0.1	0.20	
SELENIUM	5	2	2.0	U
SILVER	10	4	4.5	

CASE NO. CTO143

CEIMIC CORPORATION
TOTAL
TAL AQUEOUS METALS (ug/L)

STATION ID			SOTF5BFB1		SOTF5BFB2	
LABORATORY ID:			940957-04		940957-05	
ANALYTE	CRDL	IDL				
ARSENIC	10	2	2.0	U	2.0	U
BARIUM	200	3	8.6		3.0	U
CADMIUM	10	4	4.0	U	4.0	U
CHROMIUM	10	7	7.0	U	7.0	U
LEAD	3	1	2.6		1.0	U
MERCURY	0.2	0.1	0.13	U	0.13	U
SELENIUM	5	4	4.0	U	4.0	U
SILVER	10	4	4.0	U	4.0	U

RCRA AQUEOUS METALS

CEIMIC CORPORATION
TOTAL
RCRA AQUEOUS METALS (ug/L)

STATION ID			GW-TF4-DUP1		GW-TF4-MW119		GW-TF4-MW120		GW-TF4-MW121		GW-TF4-MW122		GW-TF4-MW123	
LABORATORY ID:			941038-08		941038-09		941038-01		941038-02		941038-10		941038-11	
			FIELD DUPLICATE PAIR											
ANALYTE	CRDL	IDL												
ARSENIC	10	2	5.9	U	7.5	U	2.4	UJ	12.6		656		33.0	
BARIUM	200	1	16.4	U	20.8	U	11.3	U	51.4		1530		37.9	U
CADMIUM	5	3	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
CHROMIUM	10	5	5.0	U	5.0	U	5.0	U	5.2		496		25.8	
LEAD	3	1	2.9	U	5.2	U	1.0	U	11.8		722		16.0	
MERCURY	0.2	0.1	0.13	UJ	0.42	J	0.13	UJ	0.14	UJ	0.52	J	0.13	U
SELENIUM	5	2	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
SILVER	10	4	4.0	U	4.0	U	4.0	U	4.0	U	29.0		4.0	U

CASE NO. CTO143

CEIMIC CORPORATION
TOTAL
RCRA AQUEOUS METALS (ug/L)

STATION ID			GW-TF4-MW124		GW-TF4-MW125		GW-TF5-MW100		GW-TF5-MW101		GW-TF5-MW103		GW-TF5-DUP2	
LABORATORY ID:			941038-03		941038-12		941038-14		941038-05		941038-15		941038-13	
											FIELD DUPLICATE PAIR			
ANALYTE	CRDL	IDL												
ARSENIC	10	2	2.0	U	9.8	U	9.6	U	3.1	UJ	13.5		14.4	
BARIUM	200	1	9.2	U	18.4	U	11.9	U	12.9	U	19.3	U	20.3	U
CADMIUM	5	3	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
CHROMIUM	10	5	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
LEAD	3	1	1.6	UJ	1.8	UJ	2.6	U	1.0	U	1.0	U	1.5	UJ
MERCURY	0.2	0.1	1.0	J	0.13	UJ	0.86	J	0.13	UJ	0.14	UJ	0.47	J
SELENIUM	5	2	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
SILVER	10	4	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U

CEIMIC CORPORATION
TOTAL
RCRA AQUEOUS METALS (ug/L)

STATION ID			GW-TF5-MW104		GW-TF5-MW111		GW-TF5-MW113	
LABORATORY ID:			941038-06		941038-20		941038-07	
ANALYTE	CRDL	IDL						
ARSENIC	10	2	7.8	U	5.0	U	5.4	U
BARIUM	200	1	6.0	U	14.8	U	14.3	U
CADMIUM	5	3	3.0	U	3.0	U	3.0	U
CHROMIUM	10	5	5.0	U	5.0	U	5.0	U
LEAD	3	1	1.5	UJ	2.6	U	2.2	U
MERCURY	0.2	0.1	0.99	J	0.32	J	0.14	UJ
SELENIUM	5	2	2.0	U	2.0	U	2.0	U
SILVER	10	4	4.0	U	4.0	U	4.0	U

CASE NO. CTO143

CEIMIC CORPORATION
TOTAL
RCRA AQUEOUS METALS (ug/L)

STATION ID			GW-TF5-MW110		GW-TF5-MW112	
LABORATORY ID:			941027-08		941027-09	
ANALYTE	CRDL	IDL				
ARSENIC	10	2	3.1	B	18.3	
BARIUM	200	1	23.4	U	27.8	U
CADMIUM	5	3	3.0	U	5.1	U
CHROMIUM	10	5	5.0	U	5.0	U
LEAD	3	1	1.2	B	3.9	
MERCURY	0.2	0.1	0.14	UJ	0.14	UJ
SELENIUM	5	2	2.0	U	2.0	U
SILVER	10	4	4.0	U	4.0	U

SE NO. CTO143

IMIC CORPORATION
TAL
RA AQUEOUS METALS (ug/L)

ATION ID BORATORY ID:			GW-TF4-MW114 941027-01		GW-TF4-MW115 941027-02		GW-TF4-MW116 941027-03		GW-TF4-MW117 941027-04		GW-TF4-MW118 941027-05		GW-TF5-MW102 941027-06	
IALYTE	CRDL	IDL												
SENIC	10	2	2.0	U	2.0	U	2.0	U	2.0	U	2.6	B	2.6	B
RIUM	200	1	15.2	U	10.9	U	17.5	U	8.8	U	18.4	U	8.9	U
DMIUM	5	3	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
ROMIUM	10	5	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
D	3	1	1.0	U	1.0	U	1.1	B	1.0	U	1.0	U	1.0	U
RCURY	0.2	0.1	0.13	UJ	0.15	UJ	0.14	UJ	0.14	UJ	0.13	UJ	0.14	UJ
LENIUM	5	2	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
LVER	10	4	4.0	U	4.3	UJ	4.0	U	4.0	U	4.0	U	4.0	U

CASE NO. CTO143

CEIMIC CORPORATION
TOTAL
TAL AQUEOUS METALS (ug/L)

STATION ID			GW-TF5-RB1	
LABORATORY ID:			942038-21	
ANALYTE	CRDL	IDL		
ARSENIC	10	2	2.0	U
BARIUM	200	1	1.0	U
CADMIUM	5	3	3.0	U
CHROMIUM	10	5	5.0	U
LEAD	3	1	1.0	U
MERCURY	0.2	0.1	0.13	U
SELENIUM	5	2	2.0	U
SILVER	10	4	4.0	U

SOIL BORING TOTAL PETROLEUM HYDROCARBONS (EXTRACTABLES)

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-37-3436

Laboratory ID: 940996-18

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	ND	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	ND	5.8
Residual Range Organics (C28 to C40)	ND	5.8

ND = Not detected
+ = dry weigh basis, solids = 86%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: AL

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-37-DUP

Laboratory ID: 940996-19

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.7
Residual Range Organics (C28 to C40)	ND	5.7

ND = Not detected
+ = dry weigh basis, solids = 87%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: AT

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-38-2628

Laboratory ID: 940996-20

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.7
Residual Range Organics (C28 to C40)	ND	5.7

ND = Not detected
+ = dry weigh basis, solids = 87%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: AL

Approved by: HL

335A

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-38-3234

Laboratory ID: 940996-21

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	ND	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	ND	5.9
Residual Range Organics (C28 to C40)	ND	5.9

ND = Not detected
+ = dry weigh basis, solids = 85%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-38-DUP

Laboratory ID: 940996-22

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	ND	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	ND	5.8
Residual Range Organics (C28 to C40)	ND	5.8

ND = Not detected
+ = dry weigh basis, solids = 86%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-39-1719

Laboratory ID: 940980-11

Date Sample Received: 11/08/94

Date Sample Prepared: 11/17/94

Date Sample Analyzed: 11/25/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	ND	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	ND	5.8
Residual Range Organics (C28 to C40)	ND	5.8

ND = Not detected
+ Dry weight basis, solid = 86%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-39-4042

Laboratory ID: 940980-12

Date Sample Received: 11/08/94

Date Sample Prepared: 11/17/94

Date Sample Analyzed: 11/23/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.6
Residual Range Organics (C28 to C40)	ND	5.6

ND = Not detected
+ Dry weight basis, solid = 90%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-40-2628

Laboratory ID: 940980-13

Date Sample Received: 11/08/94

Date Sample Prepared: 11/17/94

Date Sample Analyzed: 11/23/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.7
Residual Range Organics (C28 to C40)	ND	5.7

ND = Not detected
+ Dry weight basis, solid = 88%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-40-4042

Laboratory ID: 940980-14

Date Sample Received: 11/08/94

Date Sample Prepared: 11/17/94

Date Sample Analyzed: 11/25/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	140	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	PM	5.8
Residual Range Organics (C28 to C40)	PM	5.8

ND = Not detected
PM = Pattern matches target analyte
+ Dry weight basis, solid = 86%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: B

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-41-3032

Laboratory ID: 940980-18

Date Sample Received: 11/10/94

Date Sample Prepared: 11/21/94

Date Sample Analyzed: 11/24/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	ND	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	ND	5.8
Residual Range Organics (C28 to C40)	ND	5.8

ND = Not detected
+ Dry weight basis, solid = 86%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: B

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-41-3840

Laboratory ID: 940980-19

Date Sample Received: 11/10/94

Date Sample Prepared: 11/17/94

Date Sample Analyzed: 11/24/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	110	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	PM	5.8
Residual Range Organics (C28 to C40)	PM	5.8

ND = Not detected
PM = Pattern matches target analyte
+ Dry weight basis, solid = 86%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-42-3234

Laboratory ID: 940996-23

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.7
Residual Range Organics (C28 to C40)	ND	5.7

ND = Not detected
+ = dry weigh basis, solids = 88%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: B

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-42-3638

Laboratory ID: 940996-24

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/02/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	110
JP-4 Jet Fuel	ND	110
Kerosene	ND	110
Jet Fuel A	ND	110
JP-5 Jet Fuel	ND	110
JP-8 Jet Fuel	ND	110
Mineral Oil	ND	110
Naphtha	ND	110
Diesel Fuel	ND	110
Fuel Oil #2	ND	110
Fuel Oil #4	ND	110
Fuel Oil #5	ND	110
Fuel Oil #6	ND	110
Bunker Oil	5,700	110
Motor Oil	ND	110
Hydraulic Jack Oil	ND	110
Transmission Fluid	ND	110
Lubricating Oil	ND	110
Compressor Oil	ND	110
Creosote	ND	110
Diesel Range Organics (C10 to C28)	PM	57
Residual Range Organics (C28 to C40)	PM	57

ND = Not detected
PM = Pattern matches target analyte
+ = dry weigh basis, solids = 87%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-43-3638

Laboratory ID: 940980-21

Date Sample Received: 11/10/94

Date Sample Prepared: 11/17/94

Date Sample Analyzed: 11/24/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	ND	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	ND	5.8
Residual Range Organics (C28 to C40)	ND	5.8

ND = Not detected
+ Dry weight basis, solid = 86%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-44-2224

Laboratory ID: 940980-22

Date Sample Received: 11/09/94

Date Sample Prepared: 11/21/94

Date Sample Analyzed: 11/24/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	ND	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	ND	5.8
Residual Range Organics (C28 to C40)	ND	5.8

ND = Not detected
+ Dry weight basis, solid = 86%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-44-3638

Laboratory ID: 940980-23

Date Sample Received: 11/09/94

Date Sample Prepared: 11/17/94

Date Sample Analyzed: 11/24/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.7
Residual Range Organics (C28 to C40)	ND	5.7

ND = Not detected
+ Dry weight basis, solid = 88%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-45-3234

Laboratory ID: 940996-25

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	1,200	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	PM	6.0
Residual Range Organics (C28 to C40)	PM	6.0

ND = Not detected
PM = Pattern matches target analyte
+ = dry weigh basis, solids = 83%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: B

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-45-3436

Laboratory ID: 940996-26

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/02/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	120
JP-4 Jet Fuel	ND	120
Kerosene	ND	120
Jet Fuel A	ND	120
JP-5 Jet Fuel	ND	120
JP-8 Jet Fuel	ND	120
Mineral Oil	ND	120
Naphtha	ND	120
Diesel Fuel	ND	120
Fuel Oil #2	ND	120
Fuel Oil #4	ND	120
Fuel Oil #5	ND	120
Fuel Oil #6	ND	120
Bunker Oil	11,000 J	120
Motor Oil	ND	120
Hydraulic Jack Oil	ND	120
Transmission Fluid	ND	120
Lubricating Oil	ND	120
Compressor Oil	ND	120
Creosote	ND	120
Diesel Range Organics (C10 to C28)	PM	60
Residual Range Organics (C28 to C40)	PM	60

ND = Not detected
PM = Pattern matches target analyte
+ = dry weigh basis, solids = 83%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-45-DUP

Laboratory ID: 940996-27

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11 WJ
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.7
Residual Range Organics (C28 to C40)	ND	5.7

ND = Not detected
+ = dry weigh basis, solids = 87%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-46-3032

Laboratory ID: 940996-09

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 11/30/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.6
Residual Range Organics (C28 to C40)	ND	5.6

ND = Not detected
+ = dry weight basis, solids = 89%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: AL

Approved by: AL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-46-3840

Laboratory ID: 940996-10

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 11/30/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	ND	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	ND	5.8
Residual Range Organics (C28 to C40)	ND	5.8

ND = Not detected
+ = dry weight basis. solids = 86%
The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: AL

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-6-47-2830

Laboratory ID: 940980-24

Date Sample Received: 11/10/94

Date Sample Prepared: 11/21/94

Date Sample Analyzed: 11/24/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	ND	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	ND	5.8
Residual Range Organics (C28 to C40)	ND	5.8

ND = Not detected
+ Dry weight basis. solid = 88%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-47-3840

Laboratory ID: 940980-25

Date Sample Received: 11/10/94

Date Sample Prepared: 11/17/94

Date Sample Analyzed: 11/24/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	ND	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	ND	6.0
Residual Range Organics (C28 to C40)	ND	6.0

ND = Not detected
+ Dry weight basis, solid = 83%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-48-2729

Laboratory ID: 940980-27

Date Sample Received: 11/10/94

Date Sample Prepared: 11/17/94

Date Sample Analyzed: 11/24/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	110
JP-4 Jet Fuel	ND	110
Kerosene	ND	110
Jet Fuel A	ND	110
JP-5 Jet Fuel	ND	110
JP-8 Jet Fuel	ND	110
Mineral Oil	ND	110
Naphtha	ND	110
Diesel Fuel	ND	110
Fuel Oil #2	ND	110
Fuel Oil #4	ND	110
Fuel Oil #5	ND	110
Fuel Oil #6	ND	110
Bunker Oil	5,300	110
Motor Oil	ND	110
Hydraulic Jack Oil	ND	110
Transmission Fluid	ND	110
Lubricating Oil	ND	110
Compressor Oil	ND	110
Creosote	ND	110
Diesel Range Organics (C10 to C28)	PM	57
Residual Range Organics (C28 to C40)	PM	57

ND = Not detected
PM = Pattern matches target analyte
+ Dry weight basis, solid = 87%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-48-3941

Laboratory ID: 940980-28

Date Sample Received: 11/11/94

Date Sample Prepared: 11/17/94

Date Sample Analyzed: 11/24/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	110
JP-4 Jet Fuel	ND	110
Kerosene	ND	110
Jet Fuel A	ND	110
JP-5 Jet Fuel	ND	110
JP-8 Jet Fuel	ND	110
Mineral Oil	ND	110
Naphtha	ND	110
Diesel Fuel	ND	110
Fuel Oil #2	ND	110
Fuel Oil #4	ND	110
Fuel Oil #5	ND	110
Fuel Oil #6	ND	110
Bunker Oil	3,000	110
Motor Oil	ND	110
Hydraulic Jack Oil	ND	110
Transmission Fluid	ND	110
Lubricating Oil	ND	110
Compressor Oil	ND	110
Creosote	ND	110
Diesel Range Organics (C10 to C28)	PM	57
Residual Range Organics (C28 to C40)	PM	57

ND = Not detected
PM = Pattern matches target analyte
+ Dry weight basis, solid = 87%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF5-B-49-2224

Laboratory ID: 940957-15

Date Sample Received: 11/04/94

Date Sample Prepared: 11/16/94

Date Sample Analyzed: 11/19/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	ND	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	ND	5.8
Residual Range Organics (C28 to C40)	ND	5.8

ND = Not detected

+ Dry weight basis, solid = 86%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF5-B-49-4042

Laboratory ID: 940957-16

Date Sample Received: 11/04/94

Date Sample Prepared: 11/16/94

Date Sample Analyzed: 11/19/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	220*	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	PM	5.4
Residual Range Organics (C28 to C40)	PM	5.4

ND = Not detected
PM = Pattern matches target analyte
+ Dry weight basis, solid = 92%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

* The pattern detected shows similarities to both #6 Fuel Oil and Bunker Oil.

Reported by: _____

Approved by: HL

786

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF5-B-50-2830

Laboratory ID: 940957-01

Date Sample Received: 10/28/94

Date Sample Prepared: 10/31/94

Date Sample Analyzed: 10/31/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	1,200
JP-4 Jet Fuel	ND	1,200
Kerosene	ND	1,200
Jet Fuel A	ND	1,200
JP-5 Jet Fuel	ND	1,200
JP-8 Jet Fuel	ND	1,200
Mineral Oil	ND	1,200
Naphtha	ND	1,200
Diesel Fuel	ND	1,200
Fuel Oil #2	ND	1,200
Fuel Oil #4	ND	1,200
Fuel Oil #5	ND	1,200
Fuel Oil #6	13,000*	1,200
Bunker Oil	ND	1,200
Motor Oil	ND	1,200
Hydraulic Jack Oil	ND	1,200
Transmission Fluid	ND	1,200
Lubricating Oil	ND	1,200
Compressor Oil	ND	1,200
Creosote	ND	1,200
Diesel Range Organics (C10 to C28)	PM	600
Residual Range Organics (C28 to C40)	PM	600

ND = Not detected
PM = Pattern matches target analyte
+ Dry weight basis, solid = 86%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

* The pattern detected shows similarities to both #6 Fuel oil and Bunker Oil.

Reported by: _____

Approved by: HL

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF5-B-51-2426

Laboratory ID: 940980-04

Date Sample Received: 11/04/94

Date Sample Prepared: 11/17/94

Date Sample Analyzed: 11/25/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	5.0J	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	ND	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	PM	5.8
Residual Range Organics (C28 to C40)	PM	5.8

ND = Not detected
PM = Pattern matches target analyte
+ Dry weight basis, solid = 86%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF5-B-51-3840

Laboratory ID: 940980-05

Date Sample Received: 11/04/94

Date Sample Prepared: 11/17/94

Date Sample Analyzed: 11/25/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	600	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	PM	5.7
Residual Range Organics (C28 to C40)	PM	5.7

ND = Not detected
PM = Pattern matches target analyte
+ Dry weight basis, solid = 88%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF5-B-52-2426

Laboratory ID: 940980-06

Date Sample Received: 11/04/94

Date Sample Prepared: 11/17/94

Date Sample Analyzed: 11/25/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	ND	12
Bunker Oil	1,600	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	ND	12
Diesel Range Organics (C10 to C28)	PM	6
Residual Range Organics (C28 to C40)	PM	6

ND = Not detected
PM = Pattern matches target analyte
+ Dry weight basis, solid = 83%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF5-B-52-3436

Laboratory ID: 940980-07

Date Sample Received: 11/04/94

Date Sample Prepared: 11/17/94

Date Sample Analyzed: 11/25/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	1,100	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	PM	5.6
Residual Range Organics (C28 to C40)	PM	5.6

ND = Not detected
PM = Pattern matches target analyte
+ Dry weight basis, solid = 90%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015
GC/FID Fingerprint

Client: Halliburton NUS Environmental Corporation

Client Sample ID: SO-TF5-B-54-3638

Laboratory ID: 940948-01

Date Sample Received: 10/26/94

Date Sample Prepared: 10/28/94

Date Sample Analyzed: 10/31/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	110
JP-4 Jet Fuel	ND	110
Kerosene	ND	110
Jet Fuel A	ND	110
JP-5 Jet Fuel	ND	110
JP-8 Jet Fuel	ND	110
Mineral Oil	ND	110
Naphtha	ND	110
Diesel Fuel	1,300	110
Fuel Oil #2	ND	110
Fuel Oil #4	ND	110
Fuel Oil #5	ND	110
Fuel Oil #6	ND	110
Bunker Oil	ND	110
Motor Oil	ND	110
Hydraulic Jack Oil	ND	110
Transmission Fluid	ND	110
Lubricating Oil	ND	110
Compressor Oil	ND	110
Creosote	ND	110
Diesel Range Organics (C10 to C28)	PM	57
Residual Range Organics (C28 to C40)	ND	57

ND = Not detected
PM = Pattern matches target analyte
+ = Dry weight basis, solids = 87%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____
Revised: 12/09/94

(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF5-B-55-2628

Laboratory ID: 940957-17

Date Sample Received: 11/04/94

Date Sample Prepared: 11/16/94

Date Sample Analyzed: 11/19/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.7
Residual Range Organics (C28 to C40)	ND	5.7

ND = Not detected

+ Dry weight basis. solid = 88%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

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(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF5-B-55-3840

Laboratory ID: 940957-18

Date Sample Received: 11/04/94

Date Sample Prepared: 11/16/94

Date Sample Analyzed: 11/19/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	10
JP-4 Jet Fuel	ND	10
Kerosene	ND	10
Jet Fuel A	ND	10
JP-5 Jet Fuel	ND	10
JP-8 Jet Fuel	ND	10
Mineral Oil	ND	10
Naphtha	ND	10
Diesel Fuel	ND	10
Fuel Oil #2	ND	10
Fuel Oil #4	ND	10
Fuel Oil #5	ND	10
Fuel Oil #6	ND	10
Bunker Oil	ND	10
Motor Oil	ND	10
Hydraulic Jack Oil	ND	10
Transmission Fluid	ND	10
Lubricating Oil	ND	10
Compressor Oil	ND	10
Creosote	ND	10
Diesel Range Organics (C10 to C28)	ND	5
Residual Range Organics (C28 to C40)	ND	5

ND = Not detected

+ Dry weight basis, solid = 100%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF5-B-57-3436

Laboratory ID: 940957-03

Date Sample Received: 10/28/94

Date Sample Prepared: 11/16/94

Date Sample Analyzed: 11/20/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	470*	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	PM	5.7
Residual Range Organics (C28 to C40)	PM	5.7

ND = Not detected
PM = Pattern matches target analyte
+ Dry weight basis, solid = 88%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

* The pattern detected shows similarities to both #6 Fuel Oil and Bunker Oil.

Reported by: _____

Approved by: HL 11/23/94 761A 461A

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015
GC/FID Fingerprint

Client: Halliburton NUS Environmental Corporation

Client Sample ID: SO-TF5-B-58-4244

Laboratory ID: 940948-02

Date Sample Received: 10/26/94

Date Sample Prepared: 10/28/94

Date Sample Analyzed: 10/31/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.7
Residual Range Organics (C28 to C40)	ND	5.7

ND = Not detected

+ = Dry weight basis, solids = 87%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: HL
Revised: 12/09/94

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Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015
GC/FID Fingerprint

Client: Halliburton NUS Environmental Corporation

Client Sample ID: SO-TF5-B-59-3234

Laboratory ID: 940948-03

Date Sample Received: 10/26/94

Date Sample Prepared: 10/28/94

Date Sample Analyzed: 10/31/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	11
JP-4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuel A	ND	11
JP-5 Jet Fuel	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid	ND	11
Lubricating Oil	ND	11
Compressor Oil	ND	11
Creosote	ND	11
Diesel Range Organics (C10 to C28)	ND	5.7
Residual Range Organics (C28 to C40)	ND	5.7

ND = Not detected

+ = Dry weight basis, solids = 87%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: HL
Revised: 12/09/94

Total Petroleum Hydrocarbons
(Extractables)

EPA Method 8015B
GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-RB1

Laboratory ID: 940980-17

Date Sample Received: 11/08/94

Date Sample Prepared: 11/11/94

Date Sample Analyzed: 11/24/94

Concentration in: mg/L

Target Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	ND	1.0
JP-4 Jet Fuel	ND	1.0
Kerosene	ND	1.0
Jet Fuel A	ND	1.0
JP-5 Jet Fuel	ND	1.0
JP-8 Jet Fuel	ND	1.0
Mineral Oil	ND	1.0
Naphtha	ND	1.0
Diesel Fuel	ND	1.0
Fuel Oil #2	ND	1.0
Fuel Oil #4	ND	1.0
Fuel Oil #5	ND	1.0
Fuel Oil #6	ND	1.0
Bunker Oil	ND	1.0
Motor Oil	ND	1.0
Hydraulic Jack Oil	ND	1.0
Transmission Fluid	ND	1.0
Lubricating Oil	ND	1.0
Compressor Oil	ND	1.0
Creosote	ND	1.0
Diesel Range Organics (C10 to C28)	ND	0.50
Residual Range Organics (C28 to C40)	ND	0.50

ND = Not detected

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by: _____

Approved by: _____

Appendix D

Soil Boring for TPH Field Screening - Data Sheet Replicas

Data Sheet for PETRO RISC® SamplePro Test

Operator: Garry F Glennon Date: 10/25/94 - 10/26/94 Location: Navy Clean CTO 143

Sample ID	Low Test Level			High Test Level			Comments
	? OD Standards	OD sample 25 ppm	Interpretation	? OD Standards	OD Sample 100 ppm	Interpretation	
Replicate Standard				-0.24		QC OK*	Left std tube retained
SO-TF5-B-54-3234				-0.09		> 100 ppm	
SO-TF5-B-54-2628				0.29		< 100 ppm	
SO-TF5-B-54-3234				0.13		< 100 ppm	
SO-TF5-B-54-3638				-0.8		> 100 ppm	
Replicate Standard				-0.06		QC OK	Left std tube retained
SO-TF5-B-54-2628RE				0.98		< 100 ppm	Agrees w/original analysis
Replicate Standard				-0.02		QC OK	Left std retained
SO-TF5-B-54-2022RE				0.08		< 100 ppm	Disagrees w/original analysis
Replicate Standard				-0.37		QC OUT	Left std retained
SO-TF5-B-59-2022				-0.1		NA - QC OUT	
SO-TF5-B-59-2628				-0.13		NA - QC OUT	
SO-TF5-B-59-3234				-0.16		NA - QC OUT	
SO-TF5-B-54-2022RE				-0.2		NA - QC OUT	
Replicate Standard				0.05		QC OK	Right std tube retained
SO-TF5-B-59-2022				0.12		< 25 ppm	
SO-TF5-B-59-2628				0.16		< 25 ppm	
SO-TF5-B-59-3234				0.24		< 25 ppm	
SO-TF5-B-54-2022RE				-0.18		> 25 ppm	
Replicate Standard			0.01 QC OK				
SO-TF5-B-58-2022			0.33 < 25 ppm				Right std retained
SO-TF5-B-58-2628			0.23 < 25 ppm				
SO-TF5-B-58-3234			0.44 < 25 ppm				
SO-TF5-B-58-4244			> 25 ppm				

* Criteria: ? OD for stds is -0.3<? OD<0.3

Data Sheet for PETRO RISC® SamplePro Test

Operator: Garry F Glennon Date: 10/26/94 - 10/27/94 Location: Navy Clean CTO 143

Sample ID	Low Test Level			High Test Level			Comments
	? OD Standards	OD sample 25 ppm	Interpretation	? OD Standards	OD Sample 100 ppm	Interpretation	
Replicate Standard				-0.02		QC OK*	Retain left std tube
SO-TF5-B-58-4244				-0.2		> 100 ppm	
SO-TF5-B-57-2022				0.33		< 100 ppm	
SO-TF5-B-57-2830				0.4		< 100 ppm	
SO-TF5-B-57-AA				0.29		< 100 ppm	Cuttings while pulling pipe
SO-TF5-B-57-AB				0.28		< 100 ppm	Cuttings while pulling pipe
Replicate Standard				0.16		QC OK	Retain right standard tube
Replicate Standard				-0.07		QC OK	Retain right standard tube
SO-TF5-B-57-3234				0.23		< 100 ppm	
SO-TF5-B-57-3234RE				0.29		< 100 ppm	Same abstract, reanalyzed
SO-TF5-B-57-3436				0.08		< 100 ppm	
SO-TF5-B-57-3431				0.02		< 100 ppm	Same abstract, reanalyzed

* Criteria: ? OD for stds is -0.3<? OD<0.3

Data Sheet for PETRO RISC® SamplePro Test

Operator: Garry F Glennon Date: 11/02/94 Location: Navy Clean CTO 143

Sample ID	Low Test Level			High Test Level			Comments
	? OD Standards	OD sample 25 ppm	Interpretation	? OD Standards	OD Sample 100 ppm	Interpretation	
Replicate Standard				0.05		QC OK	Retain right standard tube
SO-TF5-B-55-2022				0.24		< 100 ppm	
SO-TF5-B-55-2628				0.28		< 100 ppm	
SO-TF5-B-55-3234				0.38		< 100 ppm	
SO-TF5-B-55-3840				0.19		< 100 ppm	
Replicate Standard				-0.04		QC OK	Retain left std tube
SO-TF5-B49-2022				0.34		< 100 ppm	
SO-TF5-B49-2224				0.65		< 100 ppm	
SO-TF5-B49-2628				0.46		< 100 ppm	
SO-TF5-B49-3234				0.24		< 100 ppm	

Data Sheet for PETRO RISC® SamplePro Test

Operator: Garry F Glennon Date: 11/04/94 Location: Navy Clean CTO 143

Sample ID	Low Test Level ? OD Standards	Low Test Level OD sample 25 ppm	Low Test Level Interpretation	High Test Level ? OD Standards	High Test Level OD Sample 100 ppm	High Test Level Interpretation	Comments
Replicate Standard				0.18		QC OK*	Retain right standard tube
SO-TF5-B-51-2022				-0.02		> 100 ppm	
SO-TF5-B-51-2426				-0.09		> 100 ppm	
SO-TF5-B-51-3032				0.79		< 100 ppm	
SO-TF5-B-51-3840				-0.52		> 100 ppm	

?? Tubes containing DF water: ? OD = -0.00

* Criteria: ? OD for stds is -0.3<? OD<0.3

Data Sheet for PETRO RISC® SamplePro Test

Operator: Garry F Glennon Date: 11/14/94 - 11/15/94 Location: Navy Clean CTO 143

Sample ID	Low Test Level			High Test Level			Comments
	? OD Standards	OD sample 25 ppm	Interpretation	? OD Standards	OD Sample 100 ppm	Interpretation	
Replicate Standard	0.19		QC OK	0.23		QC OK*	
SO-TF4-P1-43-0406	-0.01		> 25 ppm	0.09		< 100 ppm	Discard
SO-TF4-P1-43-0608	-0.09		> 25 ppm	-0.15		> 100 ppm	Send to lab
SO-TF4-P2-46-0406	-0.09		> 25 ppm	0.05		< 100 ppm	Discard
SO-TF4-P2-46-0608	-0.01		> 25 ppm	-0.13		> 100 ppm	Send to lab
SO-TF4-P1-41-0406	-0.18		NA-QC OUT	0.29		< 100 ppm	Discard
SO-TF4-P1-41-0608	-0.12		NA-QC OUT	0.22		< 100 ppm	Send to lab
SO-TF4-P2-41-0406	0.2		NA-QC OUT	0.41		< 100 ppm	Discard
SO-TF4-P2-41-0608	-0.34		NA-QC OUT	0.47		< 100 ppm	Send to lab
Replicate Standard	0.4		OC OUT*	0		QC OK*	
Replicate Standard	-0.23		QC OK*	0.03		QC OK*	
SO-TF4-P1-48-0406	-0.1		> 25 ppm	0.53		< 100 ppm	Discard
SO-TF4-P1-48-0608	-0.05		> 25 ppm	0.48		< 100 ppm	Send to lab
SO-TF4-P2-48-0406	-0.03		> 25 ppm	0.76		< 100 ppm	Discard
SO-TF4-P2-48-0608	-0.29		> 25 ppm	-0.15		> 100 ppm	Send to lab
Replicate Standard	0.1		OC OK*	0.12		QC OK*	
SO-TF4-P3-48-0406	-0.12		> 25 ppm	0.22		< 100 ppm	Send to lab
SO-TF4-P3-48-0608	0.09		< 25 ppm	0.2		< 100 ppm	Discard
SO-TF4-P1-45-0406	-0.33		> 25 ppm	0.25		< 100 ppm	Discard
SO-TF4-P1-45-0608	-0.42		> 25 ppm	0.2		< 100 ppm	Send to lab

* Criteria: ? OD for stds is -0.3<? OD<0.3

Data Sheet for PETRO RISC® SamplePro Test

Operator: Garry F Glennon Date: 11/10/94 - 11/11/94 Location: Navy Clean CTO 143

Sample ID	Low Test Level			High Test Level			Comments
	? OD Standards	OD sample 25 ppm	Interpretation	? OD Standards	OD Sample 100 ppm	Interpretation	
Replicate Standard	-0.2		OC OK - Retain	0.05		QC OK*	Retain right tube
SO-TF4-B43-2628	-0.08		> 25 ppm	0.71		< 100 ppm	
SO-TF4-B43-2830	-0.53		> 25 ppm	0.15		< 100 ppm	
SO-TF4-B43-3638	-0.12		> 25 ppm	0.36		< 100 ppm	
SO-TF4-B43-3840	-0.24		> 25 ppm	0.33		< 100 ppm	
Replicate Standard	-0.06		QC OK - Retain	0.02		QC OK	Retain right tube
SO-TF4-P1-44-0406	-0.05		> 25 ppm	0.12		< 100 ppm	Discard
SO-TF4-P1-44-0608	-0.27		> 25 ppm	0.35		< 100 ppm	Send to lab
SO-TF4-P1-46-0608	0.13		> 25 ppm	0.21		< 100 ppm	Discard
SO-TF4-P1-46-0406	0.02		> 25 ppm	0.1		< 100 ppm	Send to lab
Replicate Standard	-0.03		QC OK - Retain	0.07		QC OK	
SO-TF4-P2-43-0406	0.41		< 25 ppm	0.25		< 100 ppm	Discard
SO-TF4-P2-43-0608	0.38		< 25 ppm	0.2		< 100 ppm	Send to lab
SO-TF4-P3-43-0406	0.68		< 25 ppm	0.46		< 100 ppm	Discard
SO-TF4-P3-43-0608	0.35		< 25 ppm	-0.01		> 100 ppm	Send to lab

* Criteria: ? OD for stds is -0.3<? OD<0.3

Data Sheet for PETRO RISC® SamplePro Test

Operator: Garry F Glennon Date: 11/18/94 Location: Navy Clean CTO 143

Sample ID	Low Test Level			High Test Level			Comments
	? OD Standards	OD sample 25 ppm	Interpretation	? OD Standards	OD Sample 100 ppm	Interpretation	
Replicate Standard	0.07		OC OK	-0.01		QC OK*	
SO-TF4-P2-OWS-0406	-0.34		> 25 ppm	-0.22		> 100 ppm	Send to lab
SO-TF4-P2-OWS-0608	-0.18		> 25 ppm	0.03		< 100 ppm	Discard
SO-TF4-P1-38-0406	0.05		< 25 ppm	0.06		< 100 ppm	Discard
SO-TF4-P1-38-0608	0.1		< 25 ppm	-0.05		> 100 ppm	Send to lab
Replicate Standard	0.1		QC OK	0.12		QC OK	
SO-TF4-P1-42-0406	0.07		< 25 ppm	0.3		< 100 ppm	Send to lab
SO-TF4-P1-42-0608	0.22		< 25 ppm	0.49		< 100 ppm	Discard
SO-TF4-P2-42-0406	-0.35		> 25 ppm	1.36		< 100 ppm	Send to lab
SO-TF4-P2-42-0608	0.17		< 25 ppm	0.29		< 100 ppm	Discard
SO-TF4-P2-47-0406	-0.18		> 25 ppm	0.32		< 100 ppm	Send to lab
SO-TF4-P2-47-0608	-0.18		> 25 ppm	0.63		< 100 ppm	Discard
SO-TF4-P1-OWS-0406	0.11		< 25 ppm	0.42		< 100 ppm	Discard
SO-TF4-P1-OWS-0608	0.2		< 25 ppm	0.02		> 100 ppm	Send to lab
Replicate Standard	0.18		QC OK	0.05		QC OK	
Replicate Standard	0.1		QC OK	0.21		QC OK	
SO-TF4-B-37-3234	-0.39		> 25 ppm	0.49		< 100 ppm	
SO-TF4-B-37-3840	-0.18		> 25 ppm	-0.01		> 100 ppm	
SO-TF4-B-38-2628	0		> 25 ppm	-0.15		> 100 ppm	
SO-TF4-B-38-3638	-0.67		> 25 ppm	-0.71		> 100 ppm	

Data Sheet for PETRO RISC® SamplePro Test

Operator: Garry F Glennon Date: 11/15/94 Location: Navy Clean CTO 143

Sample ID	Low Test Level			High Test Level			Comments
	? OD Standards	OD sample 25 ppm	Interpretation	? OD Standards	OD Sample 100 ppm	Interpretation	
Replicate Standard	0.17		QC OK*	0.24		QC OK*	
SO-TF4-P2-45-0406	-0.02		> 25 ppm	0.22		< 100 ppm	Discard
SO-TF4-P2-45-0608	0.07		< 25 ppm	-0.18		> 100 ppm	Send to lab
SO-TF4-P3-45-0406	0.04		< 25 ppm	-0.31		> 100 ppm	Send to lab
SO-TF4-P3-45-0608	0.39		< 25 ppm	-0.16		> 100 ppm	Discard
Replicate Standard	-0.03		QC OK*	0.01		QC OK*	
SO-TF4-P4-45-0406	-0.21		> 25 ppm	0.38		< 100 ppm	Send to lab
SO-TF4-P4-45-0608	0.39		< 25 ppm	Lost tube during washing			Discard
SO-TF4-P1-47-0406	0.01		< 25 ppm	0.06		< 100 ppm	Send to lab
SO-TF4-P1-47-0608	0.23		< 25 ppm	0.37		< 100 ppm	Discard

* Criteria: ? OD for stds is -0.3<? OD<0.3

Data Sheet for PETRO RISC® SamplePro Test

Operator: Garry F Glennon Date: 11/07/94 - 11/08/94 Location: Navy Clean CTO 143

Sample ID	Low Test Level			High Test Level			Comments
	? OD Standards	OD sample 25 ppm	Interpretation	? OD Standards	OD Sample 100 ppm	Interpretation	
Replicate Standard				0.05		QC OK	Retain right standard tube
SO-TF4-B-40-1517				0.1		< 100 ppm	
SO-TF4-B-40-2628				0.56		< 100 ppm	
SO-TF4-B-40-3638				0.1		< 100 ppm	
SO-TF4-B-40-4042				-0.24		> 100 ppm	
Replicate Standard				0.15		QC OK	Retain right standard tube
SO-TF4-B-39-1719				0.7		< 100 ppm	
SO-TF4-B-39-2325				0.39		< 100 ppm	
SO-TF4-B-39-2931				0.46		< 100 ppm	
SO-TF4-B-39-4042				0.19		< 100 ppm	
Replicate Standard							Retain left standard tube
SO-TF4-39-P1-0406	-0.05		QC OK				
SO-TF4-39-P1-0608	0.11		< 25 ppm				
SO-TF4-39-P2-0406	0.23		< 25 ppm				
SO-TF4-39-P2-0608	0.05		< 25 ppm				
	-0.09		> 25 ppm				

Data Sheet for PETRO RISC® SamplePro Test

Operator: Garry F Glennon Date: See below Location: Navy Clean CTO 143

Sample ID	Low Test Level ? OD Standards	Low Test Level OD sample 25 ppm	Low Test Level Interpretation	High Test Level ? OD Standards	High Test Level OD Sample 100 ppm	High Test Level Interpretation	Comments
Replicate Standard				0.06		QC OK*	Retain right std tube
SO-TF4-B-41-1517				0.32		< 100 ppm	
SO-TF4-B-41-2123				0.3		< 100 ppm	
SO-TF4-B-41-2426				0.44		< 100 ppm	
SO-TF4-B-41-3032				-0.64		> 100 ppm	
Replicate Standard	11/9/94	1030		-0.04		QC OK	Retain left std tube
SO-TF4-B-46-2224	11/9/94	1030		0.37		< 100 ppm	
SO-TF4-B-46-2830	11/9/94	1030		0.35		< 100 ppm	
SO-TF4-B-46-3638	11/9/94	1030		0.4		< 100 ppm	
SO-TF4-B-46-3840	11/9/94	1030		-0.06		> 100 ppm	
Replicate Standard	-0.1		QC OK - Retain	0		QC OK	Retain left std tube
SO-TF4-B-41-3436	0.03		< 25 ppm	0.27		< 100 ppm	
SO-TF4-B-41-3840	-0.45		> 25 ppm	-0.07		> 100 ppm	
SO-TF4-P1-40-0406	0.04		< 25 ppm	0.27		< 100 ppm	
SO-TF4-P1-40-0608	-0.02		> 25 ppm	0.22		< 100 ppm	

* Criteria: ? OD for stds is -0.3<? OD<0.3

Data Sheet for PETRO RISC® SamplePro Test

Operator: Garry F Glennon Date: 11/18/94 Location: Navy Clean CTO 143

Sample ID	Low Test Level			High Test Level			Comments
	? OD Standards	OD sample 25 ppm	Interpretation	? OD Standards	OD Sample 100 ppm	Interpretation	
Replicate Standard	0.07		QC OK	-0.06		QC OK	
SO-TF4-B-42-2628	-0.49		> 25 ppm	0.08		< 100 ppm	
SO-TF4-B-45-3032	-0.62		> 25 ppm	-0.08		> 100 ppm	
SO-TF4-B-46-3032	0.03		< 25 ppm	0.13		< 100 ppm	
SO-TF4-B-46-3840	0.25		< 25 ppm	0.49		< 100 ppm	