CONTAMINATION ASSESSMENT REPOT TRUMBO POINT FUEL FARM NAS KEY WEST FL
10/1/1996
ABB ENVIRONMENTAL SERVICES INC

0076

CONTAMINATION ASSESSMENT REPORT

TRUMBO POINT FUEL FARM

NAVAL AIR STATION KEY WEST
TRUMBO POINT ANNEX, KEY WEST, FLORIDA

UNIT IDENTIFICATION CODE: N00213
CONTRACT NO.: N62467-89-D-0317/095

OCTOBER 1996

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA
29419-9010

ABB

8506 009

October 8, 1996

Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418
ATTN: Mr. Byas Glover, Code 18410

SUBJECT: **Contamination Assessment Report**
Trumbo Point Fuel Farm
Naval Air Station Key West, Florida.
Contract No. N62467-89-D-0317, CTO No. 095

Dear Byas:

Enclosed are two copies of the Contamination Assessment Report (CAR) for the Trumbo Point Fuel Farm, Naval Air Station Key West, Florida. Two copies have been mailed to Jorge Caspary at FDEP, two copies to Jim Simmen at the facility, and one copy to Lt. Chad Jacoby at United States Coast Guard Group Key West for their review.

Should you have any questions, please contact me at your earliest convenience.

Sincerely,

ABB ENVIRONMENTAL SERVICES, INC.

Kathleen M. Hodak
Project Manager

Joseph F. Fugitt, P.G.
Senior Geologist

Enclosures

cc: Jim Simmen
Lt. Chad Jacoby
File

CONTAMINATION ASSESSMENT REPORT

TRUMBO POINT FUEL FARM

NAVAL AIR STATION KEY WEST
TRUMBO POINT ANNEX, KEY WEST, FLORIDA

Unit Identification Code: N00213

Contract No.: N62467-89-D-0317/095

Prepared by:

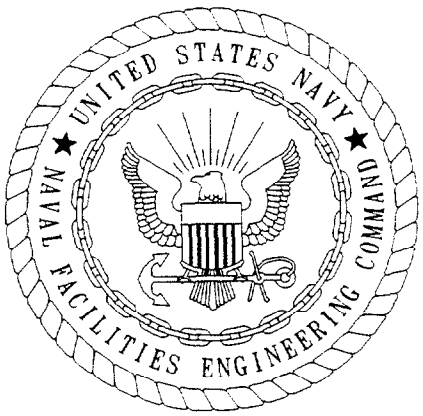
ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301

Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Byas Glover, Code 18410, Engineer-in-Charge

October 1996



CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/095 are complete and accurate and comply with all requirements of this contract.

DATE: October 3, 1996

NAME AND TITLE OF CERTIFYING OFFICIAL: Mark Diblin, P.G.
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Michael J. Williams, P.G.
Project Technical Lead

(DFAR 252.227-7036)

FOREWORD

To meet its mission objectives, the U.S. Navy performs a variety of operations, some requiring the use, handling, storage, or disposal of hazardous materials. Through accidental spills and leaks and conventional methods of past disposal, hazardous materials may have entered the environment in ways unacceptable by today's standards. With growing knowledge of the long-term effects of hazardous materials on the environment, the Department of Defense initiated various programs to investigate and remediate conditions related to suspected past releases of hazardous materials at their facilities.

One of these programs is the Comprehensive Long-Term Environmental Action, Navy Underground Storage Tank (UST) program. This program complies with Subtitle I of the Resource Conservation and Recovery Act and the Hazardous and Solid Waste Amendments of 1984. In addition, the UST program complies with all appropriate State and local storage tank regulations as they pertain to each naval facility.

The UST program includes the following activities:

- registration and management of Navy and Marine Corps storage tank systems,
- contamination assessment planning,
- site field investigations,
- preparation of contamination assessment reports,
- remedial (corrective) action planning,
- implementation of the remedial action plans, and
- tank and pipeline closures.

The Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) manages the UST program and the U.S. Environmental Protection Agency and the Florida Department of Environmental Protection (formerly Florida Department of

Environmental Regulation) oversee the Navy UST program at Naval Air Station (NAS) Key West.

Questions regarding this report should be addressed to the Commanding Officer, NAS Key West, Florida, or to SOUTHNAVFACENGCOM, Byas Glover, Code 18410, at (803) 820-5651.

EXECUTIVE SUMMARY

The Trumbo Point Fuel Farm (TPFF) has been used as a fuel storage and distribution point by the Navy since 1942. The TPFF is the location of several aboveground storage tanks (ASTs), associated pipelines, and various pumphouses used to transport fuel to and from the ASTs. In addition to the various fuel pipelines, which are still active at the site, a large number of abandoned buried fuel pipelines are also present on the site. Fuels reported to have been stored and transported at the site include No. 6 fuel oil, Bunker C oil, diesel fuel, aviation gasoline (AVGAS), jet propellant (JP)-4 and JP-5 jet fuels, motor gasoline (MOGAS), waste oil, and hydraulic fluids. According to Navy personnel, the TPFF is currently used to store and dispense diesel fuel marine, JP-5 fuel, and MOGAS.

The land currently occupied by the U. S. Coast Guard (USCG) facility was previously owned and operated by Naval Air Station (NAS) Key West. The property was leased by the Navy to the Coast Guard in 1983. The facility primarily consists of two concrete piers (D-2 and D-3) and various buildings used to house operational and support services (maintenance shops, administration offices, living quarters, etc.). Pier D-1, located west of Trumbo Road and adjacent to the USCG property, is currently owned and operated by NAS Key West. Ships docking at Pier D-2 offload fuel for storage at the TPFF. Fuel dispensers on Piers D-2 and D-3 are used to support USCG operations.

ABB-Environmental Services, Inc. (ABB-ES), conducted a preliminary contamination assessment (PCA) in August 1993 to verify the findings of previous investigations and assess soil and groundwater contamination in areas not well documented during the previous investigations. The ABB-ES PCA was conducted from July through October 1993. At the request of the Navy, the area of investigation also included parts of the JSCG facility west of the TPFF site. During the PCA, 101 soil borings were drilled and 3 vertical extent monitoring wells were installed. Soil samples were collected from soil borings and analyzed for volatile organic compounds by organic vapor analyzer (OVA) analysis. Groundwater samples were collected from monitoring wells installed during previous investigations and from monitoring wells and specific soil borings completed during the PCA.

From January 1996 to April 1996, ABB-ES conducted a contamination assessment (CA) at the TPFF and USCG sites to collect data required to complete a contamination assessment report (CAR) for Florida Department of Environmental Protection approval and obtain site-specific data to evaluate potential remedial technologies. During the CA, 139 additional soil borings were conducted and 103 additional monitoring wells were installed. Soil samples were collected from soil borings and analyzed for volatile organic compounds by OVA analysis and, in some areas, for the Waste Oil Group parameters. Groundwater samples were collected from monitoring wells and analyzed for either the Kerosene Analytical Group or Waste Oil Group parameters. Sediment and surface water samples were collected and analyzed for the Kerosene Analytical Group parameters.

Based on the findings of the CA field investigations and laboratory analytical results, a summary of existing conditions at the site are presented on Figure 1 and provided below:

FINDINGS

- The sediments encountered during drilling operations are generally composed of silty clay, oolitic lime mud, and oolitic limestone. Groundwater beneath the site was encountered at depths of approximately 4 to 6 feet below land surface (bls) and is classified as G-III. The direction of groundwater flow in the surficial zone has consistently been radially away from the TPFF and toward the northwest on the piers.

- Five areas of excessively contaminated soil were identified by OVA headspace analyses. The largest areal extent of soil contamination is located immediately north of the JP-5 tanks in the area of the former AVGAS ASTs. Other areas of excessively contaminated soil included Pier D-2 in the vicinity of Building 105, the area around the basketball court and softball field, the west end of Pier D-1, and the east end of Pier D-1.

- Four areas of excessively contaminated soil were identified by laboratory analysis. Total recoverable petroleum hydrocarbon (TRPH) concentrations in soil exceed the Chapter 62-770, Florida Administrative Code (FAC) target level of 50 parts per million (ppm) in the former tank D-5 area, the area around tank D-21, the area of the oil-water separator, and the area of the oily-wastewater pump station on Pier D-1.

- The sediment sample analytical data collected from the surface water bodies adjacent to the site indicate no detections above the detection limit for volatile organic compounds and ethylene dibromide; however, elevated concentrations of polynuclear aromatic hydrocarbons, TRPH, and lead were detected in some or all of the samples. The source of contamination in the surface water sediment may be attributed to past oil seepage, bilge water discharges, and particles of lead-based paint from naval vessels operating at the facility.

- Two areas of total volatile organic aromatics (VOA) contamination in groundwater were identified during the CA. One large area is in the northeast part of the fuel farm in the vicinity of the JP-5 tanks. The highest total VOA concentrations in this area were observed in monitoring well MW-4 [1,193 parts per billion (ppb)] and MW-60 (670 ppb), which exceeded the 50 ppb State target level. The second smaller area is on the north side of Pier D-1 in the vicinity of the oily wastewater pipelines. Total VOA concentrations observed in MW-15 (87.2 ppb) exceeded the 50 ppb State target level.

- The benzene contamination plume overlaps the area of total VOA contamination and is generally in the same location. The area of benzene contamination includes the former AVGAS AST area occupied by tanks D-15 through D-18 and the associated pipelines. The highest

benzene concentrations were in the groundwater samples collected from MW-4 (990 ppb) and MW-60 (620 ppb). This area of benzene contamination greatly exceeded the Chapter 62-770, FAC, target level of 1 ppb.

- Total naphthalenes concentrations exceeded the Chapter 62-770, FAC, Class G-II groundwater target level of 100 ppb in the samples collected from monitoring wells MW-15 (174 ppb), MW-50 (196 ppb), and MW-55 (1,750 ppb). MW-15 is located on the north side of Pier D-1, MW-50 is located north of Building D-19 and MW-55 is located north of the JP-5 tank #1.

- Groundwater petroleum contamination appears to extend to below 30 feet bls in the northeast area of the TPFF. Laboratory results reported contaminant concentrations in the groundwater sample collected from vertical extent well MW-74D (30 feet bls) are 38 ppb benzene, 53.7 ppb total VOA, and 19.2 ppb total naphthalenes. MW-74D was resampled in July 1996 and analyzed for U.S. Environmental Protection Agency Method 602 only. Reported concentrations are 57 ppb benzene and 66.6 ppb total VOA.

- Three areas of TRPH contamination in groundwater exceeding the Chapter 62-770, FAC, target level of 5 ppm were identified. These areas are associated with samples collected from monitoring wells MW-55 (157 ppm), KWM-01 (15.7 ppm) and MW-86 (5.1 ppm).

- Lead concentrations in all monitoring well samples did not exceed the Chapter 62-770, FAC, target level of 50 ppb for Class G-II groundwater.

- Chlorinated compounds were detected in low concentrations in monitoring wells in isolated areas of the site.

- Free-floating petroleum product was observed in 18 site monitoring wells during the CA.

- No compounds were detected in any of the surface water samples collected except for toluene (1 ppb) in sample W003 and methylene chloride (3.9 ppb) in sample W011. It is likely these compounds are attributed to activities associated with boats and ships docked at the site.

- No potable water sources were identified within a 0.25-mile radius of the site. Water is supplied via aqueduct from the mainland.

CONCLUSIONS. The following conclusions are based on the findings of the CA and site conditions.

- Excessive soil contamination in the area of the former AVGAS ASTs and associated pipelines is apparently related to leaks or releases from the former ASTs and the fuel lines in the northern area of the TPFF. Overall, soil contamination is limited to an interval 1 to 2 feet above the water table.

- The areal extent of groundwater contamination exceeding Chapter 62-770, FAC, target levels is associated with the areas of excessively contaminated soil.

- Groundwater contamination extends below 30 feet of the surficial aquifer in the northeast area of the TPFF.

- The source of groundwater contamination is apparently due to previous releases from the AVGAS fuel pipelines in the vicinity of the ASTs, releases from pipeline junctions, a release from the oily wastewater pipeline, and a release from the oily wastewater pump station.

- The sources of chlorinated compounds detected in site groundwater samples are suspected to be solvents and degreasing agents used at the site, and compounds used by the analytical laboratory during sample preparation. Chlorinated compounds do not appear to be a significant concern at the site.

- There are no potable water wells within a 0.25-mile radius of the site and drinking water is obtained via aqueduct from the mainland. The risk to human health caused by groundwater contamination is extremely low.

- There is no evidence to indicate that groundwater contaminants are migrating off the facility. Contamination is moving toward Fleming Key Cut, but does not appear to be a threat to surface water because of the sea wall. For this reason, groundwater contamination at the site appears to be a low risk to area fish and wildlife.

RECOMMENDATIONS. Based on the findings, conclusions, and interpretations of the CA, ABB-ES recommends the continued implementation of an interim remedial action and the development of a remedial action plan (RAP). The primary contamination includes excessively contaminated soil, benzene, total VOAs, naphthalenes, and TRPH in groundwater. Free-product recovery efforts initiated at the site should be continued. An RAP will be developed to address the requirements of Chapter 62-770, FAC. One deep monitoring well, screened from 45 to 50 feet bls, should be installed adjacent to MW-74D during the RAP to delineate the vertical extent of groundwater contamination.

ACKNOWLEDGMENTS

In preparing this report, the Underground Storage Tank Section of the Comprehensive Long-Term Environmental Action, Navy Group at ABB Environmental Services, Inc., commends the support, assistance, and cooperation provided by the personnel at Naval Air Station Key West, Key West, Florida, United States Coast Guard Group Key West, and Southern Division, Naval Facilities Engineering Command.

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Naval Air Station Key West
Key West, Florida

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
AST	aboveground storage tank
AVGAS	aviation gasoline
β	Beta
bls	below land surface
BNA	base, neutral, and acid
BTEX	benzene, toluene, ethylbenzene, and xylenes
CA	contamination assessment
CAR	contamination assessment report
CEC	cation exchange capacity
CTO	Contract Task Order
DFM	diesel fuel marine
EDB	ethylene dibromide
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FDER	Florida Department of Environmental Regulation
FL PRO	FDEP Petroleum Range Organics
ft/d	feet per day
ft/ft	feet per foot
ft^2/day	square feet per day
GC	gas chromatograph
g/d/ft	gallons per day per foot
gpm	gallons per minute
ID	inside diameter
ITC	International Technology Corporation
JP	jet propellant
K	hydraulic conductivity
MOGAS	motor gasoline
msl	mean sea level
MTBE	methyl tert-butyl ether
$\mu g/\ell$	micrograms per liter
NAS	Naval Air Station
OVA	organic vapor analyzer
PAH	polynuclear aromatic hydrocarbons
PCA	preliminary contamination assessment
PCAR	preliminary Contamination Assessment Report
ppb	parts per billion
ppm	parts per million
PVC	polyvinyl chloride

GLOSSARY (Continued)

RAP	remedial action plan
S	storativity
SOUTHNAV-FACENGCOM	Southern Division, Naval Facilities Engineering Command
sy	specific yield
T	transmissivity
TCLP	toxicity characteristic leachate procedure
TOC	total organic carbon
TPFF	Trumbo Point Fuel Farm
TRPH	total recoverable petroleum hydrocarbons
USCG	U.S. Coast Guard
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
V	pore water velocity
VOA	volatile organic aromatics
VOCs	volatile organic compounds

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), was contracted by Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to conduct a contamination assessment (CA) and develop a Contamination Assessment Report (CAR) for the Trumbo Point Fuel Farm (TPFF) and the U.S. Coast Guard (USCG) facility at Trumbo Point Annex, Naval Air Station (NAS) Key West, in Key West, Florida. The scope of services for the work is described in Contract Task Order (CTO) No. 95, the Plan of Action, and the Preliminary Contamination Assessment Plan for CTO No. 95.

1.1 PURPOSE. The purpose of the CA was to assess the extent of petroleum contamination in soil and groundwater at the TPFF and USCG facility, and, if needed, recommend appropriate remedial action at the site in accordance with Chapter 62-770, Florida Administrative Code (FAC), guidelines.

1.2 SCOPE. The scope of services developed to perform the CA included

- collecting soil samples in the unsaturated (vadose) zone for headspace analysis using an organic vapor analyzer (OVA) to assess the horizontal and vertical extent of petroleum-contaminated soil;
- installing and sampling groundwater monitoring wells to assess the horizontal and vertical extent of groundwater contamination;
- collecting soil samples for waste-oil compound analyses and remedial alternative evaluation;
- collecting surface water and surface-water sediment samples;
- onsite gas chromatograph (GC) screening of groundwater and soil samples;
- laboratory analysis of soil, groundwater, surface water, and surface water sediment samples;
- collecting water-level data to assess the groundwater flow direction and hydraulic gradient at the site;
- conducting monitoring well and water table elevation surveys;
- a tidal influence study;
- pumping tests;
- vadose-zone air permeability tests;
- a potable well inventory within a 0.25-mile radius of the site; and,
- reducing and analyzing pertinent data gathered during the CA to complete this CAR.

The CA field investigation was conducted from January 1996 through April 1996 and July 1996. The following sections of this CAR present the background information, data compilation, field investigation results, and recommendations for further action at the site.

2.0 SITE DESCRIPTION AND HISTORY

NAS Key West, Monroe County, Florida, is located approximately 150 miles southwest of Miami. The TPFF and USCG sites are located along the northern shore of Key West, south of Fleming Key Cut (Figure 2-1). The TPFF and the USCG facilities are bordered on the north by Fleming Key Cut, on the west by Man of War Harbor, on the east by Mustin Street, and on the south by Whiting Avenue (Figure 2-2). Piers D-1, D-2, and D-3, located at the USCG facility, serve as a fuel depot for ships.

The TPFF has been used as a fuel storage and distribution point since 1942 (Envirodyne Engineers, Inc., 1985). Fuels reported to have been stored and transported at the site include No. 6 fuel oil, Bunker C oil, diesel fuel, aviation gasoline (AVGAS), jet propellant (JP)-4 jet fuel and JP-5 jet fuel, motor gasoline (MOGAS), waste oil, and hydraulic fluids (Geraghty & Miller, 1987). According to Navy personnel, the TPFF is currently used to store and dispense diesel fuel marine (DFM), JP-5 fuel, and MOGAS.

The TPFF is the location of several aboveground storage tanks (ASTs), associated piping, and various pumphouses used to transport fuel from the ASTs (Figure 2-2). The site entrance is located along Trumbo Road near Building D-19. Building D-19 is used as an office and storage facility by site personnel. Buildings D-3A, D-22 through D-26 are pumphouses, which are now used or were formerly used to transport fuel from the site. The TPFF is surrounded by an 8-foot high chain-link fence. A concrete seawall extends along the northern perimeter of the site. The seawall is approximately 1-foot thick and extends to a depth of approximately 15 to 20 feet below land surface (bls).

The land currently occupied by the USCG facility was previously owned and operated by NAS Key West. The property was leased by the Navy to the Coast Guard in 1983. The facility primarily consists of two concrete piers (D-2 and D-3) and various buildings used to house operational and support services (maintenance shops, administration offices, living quarters, etc.). Pier D-1, located west of Trumbo Road and adjacent to the USCG property, is currently owned and operated by NAS Key West. Ships docking at Pier D-2 offload fuel for storage at the TPFF. Fuel dispensers on Piers D-2 and D-3 are used to support U. S. Coast Guard operations.

In addition to the various fuel pipelines, which are still active at the site, a large number of active buried utilities (electric, communications, water, and sewer), abandoned utilities and abandoned buried fuel pipelines are present on the site (see Figure 2-3).

2.1 ABOVEGROUND STORAGE TANKS. There are eight active and five inactive ASTs at the TPFF. AST volumes and construction details are presented in Table 2-1. Three steel JP-5 jet fuel tanks (tanks 1 through 3) are located in the north central and northeastern sections of the site. Tanks 1, 2, and 3 are operated by Key West Pipeline Company. Tanks D-1 through D-3, D-4, and D-6 are concrete earth mounded tanks. Tanks D-1 through D-3, located along the western margin of the TPFF, are maintained by Avantra, Inc., and are used to store DFM. Tank D-2 has recently been emptied and is no longer in use. A 20,000-gallon MOGAS AST is

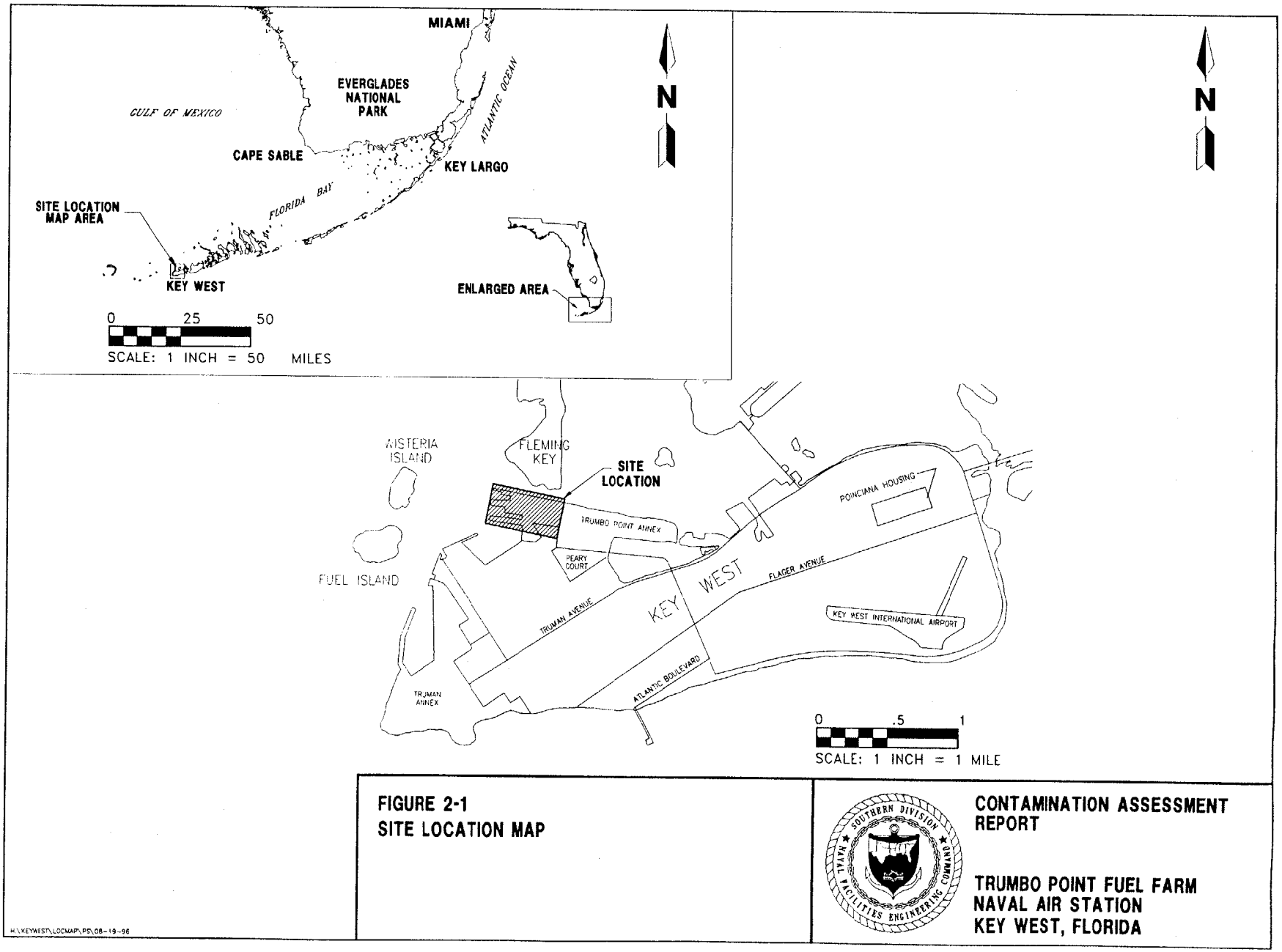


FIGURE 2-1
SITE LOCATION MAP

CONTAMINATION ASSESSMENT REPORT

TRUMBO POINT FUEL FARM
NAVAL AIR STATION
KEY WEST, FLORIDA

H:\KEYWEST\LOCMAP\PS\08-19-96

N

Fleming Key Cut

Man of War Harbor

Key West Bight

Pier D-3
Pier D-3/D-2 slip
Pier D-2
Pier D-1
Pier D-1/D-2 slip
Pier 1
Pier 2
Pier 3
Seawall
Elevated sea wall
Fueling station #4
Fueling station #5
Fueling station #6
Fueling station #7
Fueling station #8
Fueling panel
JP-5 dispensing reel and fuel clarifier
Fuel line (JP-5)
Fuel line (DFM)
Fuel line (buried)
Fuel line (aboveground)
Transformer
Fuel manifold and meter station
Building 108
High voltage transformer
Abandoned USTs (AVGAS)
Pump
Gazebo
Oily wastewater pump station (not used)
Area of satellite dish and cellular phone tower
Basketball court
Softball field
USACE survey marker Jacksonville district KH-19, 1963 Elevation=5.90
USACE survey marker D-2 Elevation=13.16
8-inch fuel line
12-inch fuel line
250-gallon diesel AST
Building 105
Grass
Asphalt
Hazardous material storage area
Utility building
1,000-gallon diesel AST
USCG high frequency radio antenna
Building 107
Building 102
Concrete
Flag pole
Tennis court
Volleyball court
Flammable storage
Building 103
Gravel
Transformer
Concrete
Pressure tank transformer
Sump line and fuel lines (DFM and bunker C)
500-gallon Gasoline AST
12000-gallon diesel ASTs
Diesel UST
B-69
B-68
Fire well
Water tank
Electric
Lift station
101
36000-gallon bilge water tank
Gate
Small boat dock
TRUMBO ROAD
Concrete wall
Tank D-1
Concrete block building
Steps
Tank D-2
Fire wall
Toe of earth-mounded tank
Tank 1
Tank 2
Tank 3
Tank 4
Tank 5
Tank 6
Tank 7
Tank D-3
Tank D-3A
Tank D-23
Former waste oil UST
Toe of earth-mounded tank
Concrete pad
Transformer vault No. 1 and standby generator
Metal utility building
Storage shed
Concrete pad with manhole buried utilities
Diesel aboveground storage tank within concrete berm
Fire well
AST
Truck fill stand
Pumps
Diesel AST
Concrete berm
D-19
D-8
D-9
D-10
D-11
D-12
D-13
D-14
D-15
D-16
D-17
D-18
D-29
D-30
D-5
D-6
D-7
D-3A
D-23
D-24
D-26
D-27
D-28
12-inch pipe
Oil-water separator
Hazardous material storage shed
Asphalt parking
B-46
B-16
Sump tank D-27
Soil cutting piles
Former 550-gallon UST (gasoline)
550-gallon UST (gasoline)
Electric transformer
Guard building
Pump house
Oily wastewater pump station
Oily wastewater line
USACE survey marker Jacksonville district KH-18 Elevation=5.25
Building 28
Gasoline AST
Flammable storage area
Building 27
USACE survey marker Jacksonville district KH-17, 1965 Elevation=6.10
USACE survey marker Jacksonville district KWRIGHT-1, 1991
USACE survey marker Jacksonville district KWRIGHT-2, 1991
Storage shed
Sidewalk
WHITING AVENUE
MATTH STREET

LEGEND

D-19	Building and designation
x—x—x	Fence
	Gravel berm
	Underground pipeline
	Aboveground pipeline
D-5	Former tank and designation
T292 D-4	Tank and designation
AST	Aboveground storage tank
DFM	Diesel fuel marine
JP-5	Jet Propellant 5 jet fuel
AVGAS	Aviation gasoline
MOGAS	Motor gasoline (unleaded gasoline)
UST	Underground storage tank
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard

GRAPHIC SCALE

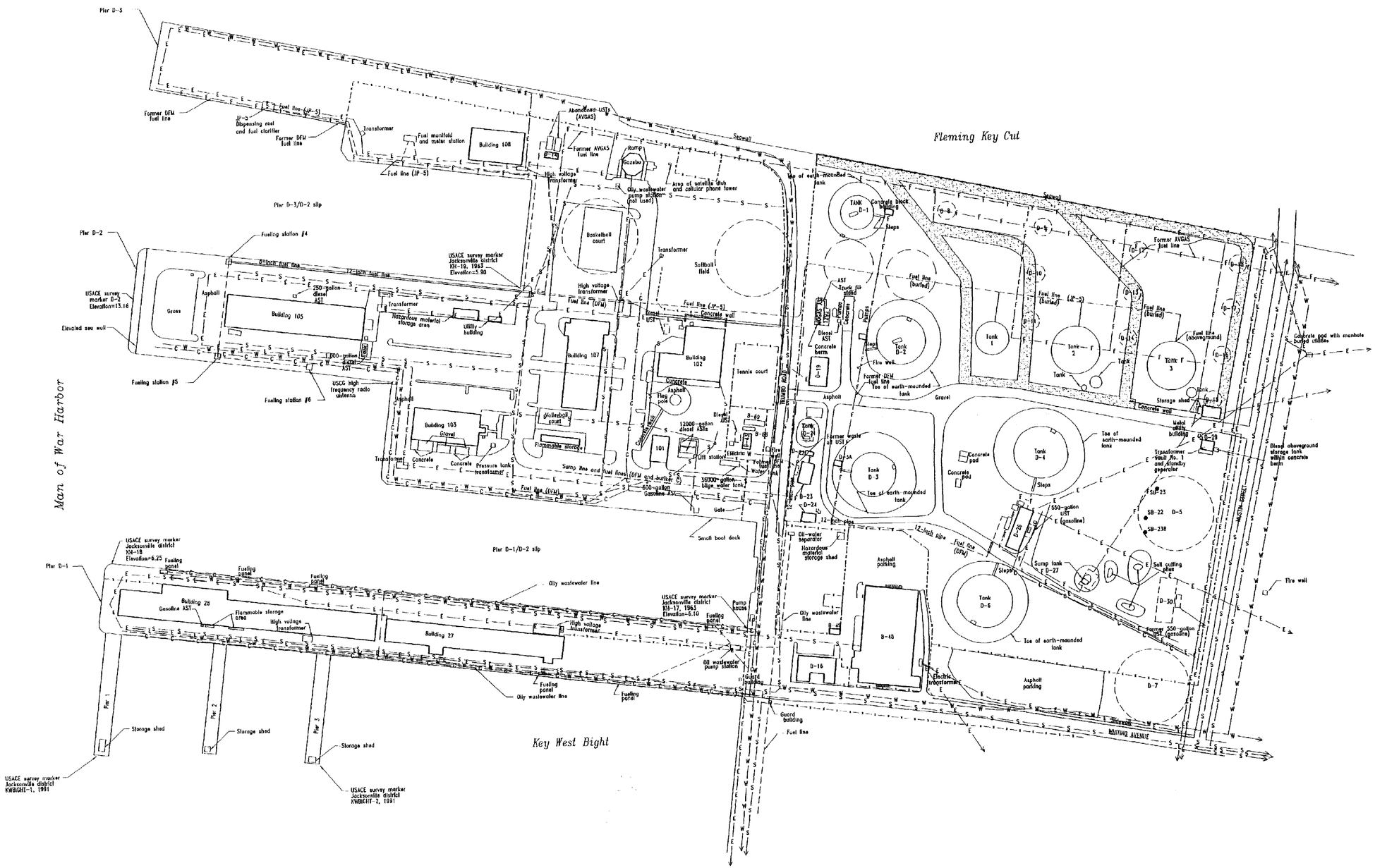
100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

FIGURE 2-2
SITE PLAN MAP

CONTAMINATION ASSESSMENT REPORT
TRUMBO POINT FUEL FARM
NAVAL AIR STATION
KEY WEST, FLORIDA

0076GBIX



LEGEND

D-19	Building and designation
x—x—x	Fence
	Gravel berm
	Underground pipeline
	Aboveground pipeline
(D-5)	Former tank and designation
T282 (D-4)	Tank and designation
AST	Aboveground storage tank
DFM	Diesel fuel marine
JP-5	Jet Propellant 5 jet fuel
AVGAS	Aviation gasoline
MOGAS	Motor gasoline (unleaded gasoline)
UST	Underground storage tank
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
— E —	Buried electric lines
— F — (AVGAS)	Buried fuel lines and fuel type
— S —	Sanitary sewer
— W —	Water line
— C —	Communications line

Note: Utility line locations are approximate
Source – Historical blueprints of utilities and descriptions provided by Public Works, Naval Air Station Key West

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

FIGURE 2-3
SITE UTILITY PLAN MAP

CONTAMINATION ASSESSMENT REPORT
TRUMBO POINT FUEL FARM
NAVAL AIR STATION
KEY WEST, FLORIDA

Table 2-1
Storage Tank Data

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Tank	Contents	Capacity (gallons)	Status	Date Installed	Date Removed
1	[1]JP-5	1,050,000	Active AST	1966	--
2	[1]JP-5	2,310,000	Active AST	1966	--
3	[1]JP-5	2,310,000	Active AST	1966	--
D-1	DFM	563,201	Active AST	1942	--
D-2	DFM	563,201	Inactive AST	1942	--
D-3	DFM	563,201	Active AST	1942	--
D-4	Bunker C/DFM[2]	1,071,450	Inactive AST	1942	--
D-5	Bunker C/waste oil[3]	1,071,450	Removed AST	1942	1985
D-6	Bunker C	1,071,450	Inactive AST	1942	--
D-7	Bunker C	1,071,450	Removed AST	1942	1985
D-8 through D-18	AVGAS	20,000	Removed ASTs	1942	late 1940s
D-21	Sludge/waste oil	1050	Inactive AST	1942	--
UST at D-26	AVGAS	Unknown	Inactive UST	1942	--
D-27	Sludge/waste oil	1050	Inactive AST	1942	--
D-29	Diesel	1,000	Active AST	Unknown	--
D-1292	MOGAS	15,000	Removed AST	Unknown	December 1991
D-1292	MOGAS	20,000	Active AST	December 1991	--
D-1293	MOGAS	15,000	Removed AST	Unknown	December 1991

[1] Contained JP-4 jet fuel prior to 1975.
[2] Converted to DFM storage by 1985.
[3] Used for waste oil overflow from tank D-21 from 1982 to 1985.

Notes: JP-5 = jet propellant 5 jet fuel.
AST = aboveground storage.
-- = not removed.
DFM = diesel fuel marine.
AVGAS = aviation gasoline.
UST = underground storage tank.
MOGAS = motor gasoline.
JP-4 = jet propellant 4 jet fuel.

located west of DFM tank D-2 at the western edge of the TPFF. A 1,000-gallon diesel AST is located on the east side of Building D-29 at the eastern edge of the TPFF.

Several ASTs, which formerly contained fuel, have been removed from the site. Eleven AVGAS tanks, installed in 1942, were abandoned in the late 1940s (Envirodyne Engineers, Inc., 1985). These AVGAS tanks (D-8 through D-18) were formerly located in the area now occupied by the JP-5 tanks. Concrete sump tanks associated with tanks D-15 through D-18 were removed in 1995. DFM ASTs D-5 and D-7, located in the southeast part of the site, were removed in 1985. Two 15,000-gallon MOGAS ASTs located north of Building D-19 were removed in 1992 and replaced with the 20,000-gallon MOGAS AST currently in use. Two inactive DFM ASTs, tanks D-4 and D-6, located in the central and southern sections of the TPFF, respectively, are scheduled for removal in November 1996.

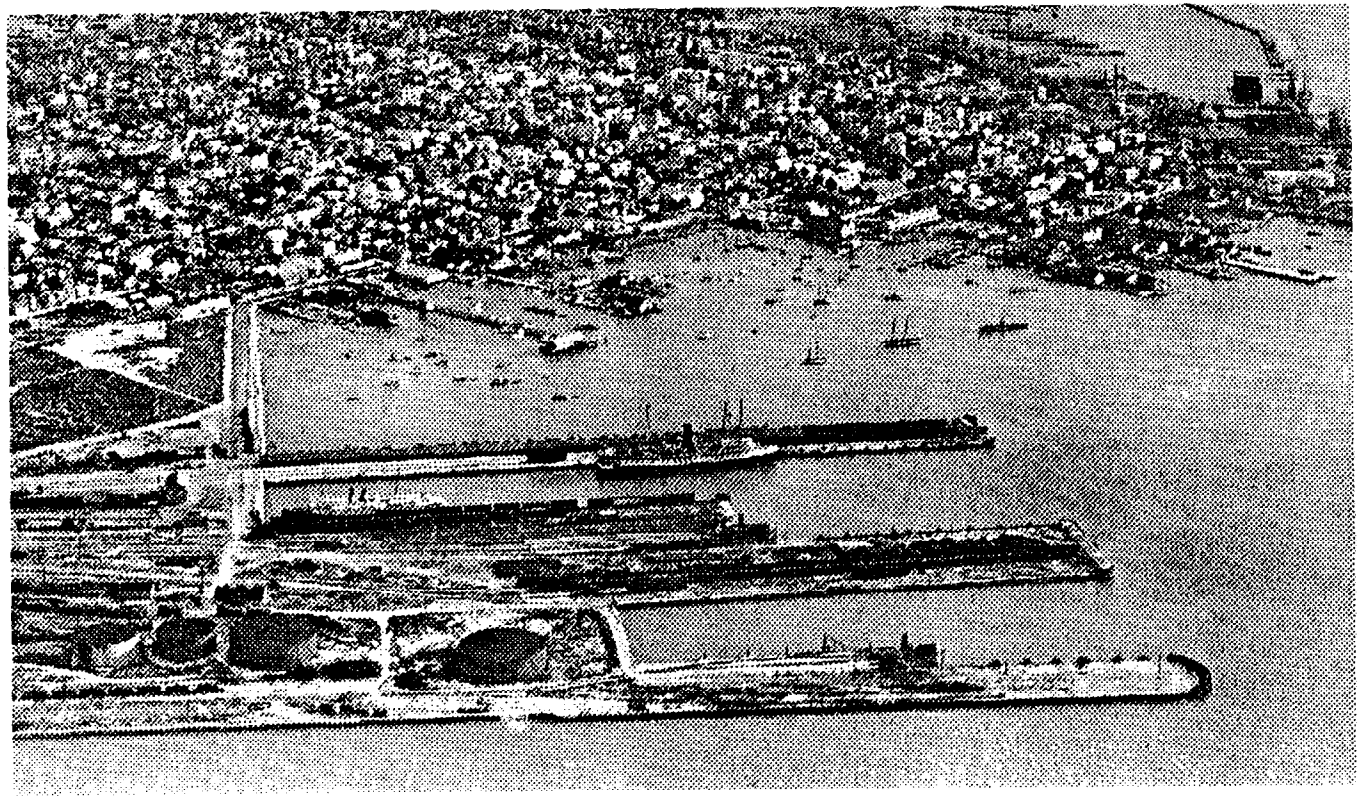
A 1,050-gallon AST, tank D-21, is located on the west side of the site (Figure 2-2). The AST was installed in 1942 and was used as a ballast sludge tank (Envirodyne Engineers, Inc., 1985). By the 1970s, the AST was used for the storage of waste oil and hydraulic fluid. Until the late 1970s, the waste oil was sold to contractors who hauled the material from the TPFF. Subsequently, the waste oil was allowed to accumulate and by 1982 the AST was full. Approximately 200 to 300 gallons of waste oil were transferred each month to tank D-5 between 1982 and 1985. Tank D-5 (discussed above) was removed from the site around 1985.

Historical aerial photographs indicate there were four large ASTs at the site in 1930 (La Gorce, 1930). Two of the four ASTs were located at the USCG facility (Figure 2-2): one near the present location of the basketball court and the second at the present location of the softball field near Trumbo Road. The third and fourth AST were located between DFM tanks D-1 and D-2. The contents of the three ASTs are unknown. Aerial photographs suggest that they may have been used for fuel storage to supply ships docked at Piers D-1, D-2, and D-3 (see Photograph 2-1). The ASTs were reportedly removed durin, the early 1960s.

Several ASTs are currently in use at the USCG Station. Two 12,000-gallon diesel fuel ASTs are located east of USCG Building 101, which is located on the east side of the facility. One 36,000-gallon bilge-water AST is located near the entrance gate. A 1000-gallon diesel AST is located at the southeast corner of Building 105, a 250-gallon diesel AST is located north of Building 105, and a 500-gallon gasoline AST is located at the small boat dock on the southeast corner of Pier D-2 (see Figure 2-2).

2.2 UNDERGROUND STORAGE TANKS. A 550-gallon underground storage tank (UST) is located on the east side of Building D-26. It reportedly contained gasoline to run the equipment in Building D-26 and is currently inactive. A similar UST was located on the east side of Building D-30 in the area between former tanks D-5 and D-7. Building D-30 was removed along with Tanks D-5 and D-7 in 1985.

A UST was also formerly located west of Building D-23 and reported to store solvents, waste oil, pesticides, and polychlorinated biphenyls. The size of the UST and date of removal are not known.



NOTE:
TPFF = Trumbo Point Fuel Farm

SOURCE:
La Gorce, J.O., 1930, "Florida, The Fountain of Youth," *National Geographic*, Volume 42, No. 1

PHOTOGRAPH 2-1
AERIAL VIEW OF PIERS D-1 THROUGH D-3 AND WESTERN PORTION OF TPFF

CONTAMINATION ASSESSMENT REPORT

TRUMBO POINT FUEL FARM
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KEY WEST, FLORIDA

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Two 10,000-gallon USTs used primarily for AVGAS storage are located east of USCG Building 108. These USTs were degassed and abandoned in place in 1995. A diesel fuel UST is located in a small fenced-in area west of Building B-43. This UST is scheduled for removal later in 1996. A diesel UST, located west of Building 102, is the only known active UST on the USCG property.

2.3 FUEL PIPELINES. Several aboveground and underground fuel pipelines are located at the site (see Figures 2-2 and 2-3). DFM and JP-5 pipelines are used to transport fuel to the fuel farm from Pier D-2 at the USCG facility. Aboveground JP-5 pipelines extend north from JP-5 tanks 1 through 3 and connect with an underground JP-5 pipeline, which continues west into the USCG facility along the south side of the softball field to fueling station 4 on Pier D-2. Within the USCG facility, the JP-5 pipeline is aboveground along the north side of Pier D-2. An underground DFM pipeline connects DFM tanks D-1, D-2, and D-3 and extends west to Trumbo Road from DFM tank D-3. The DFM pipeline then continues north along the east side of Trumbo Road to the MOGAS AST. From that point the pipeline extends west to the fueling station on Pier D-2, parallel to the JP-5 pipeline (see Figure 2-3).

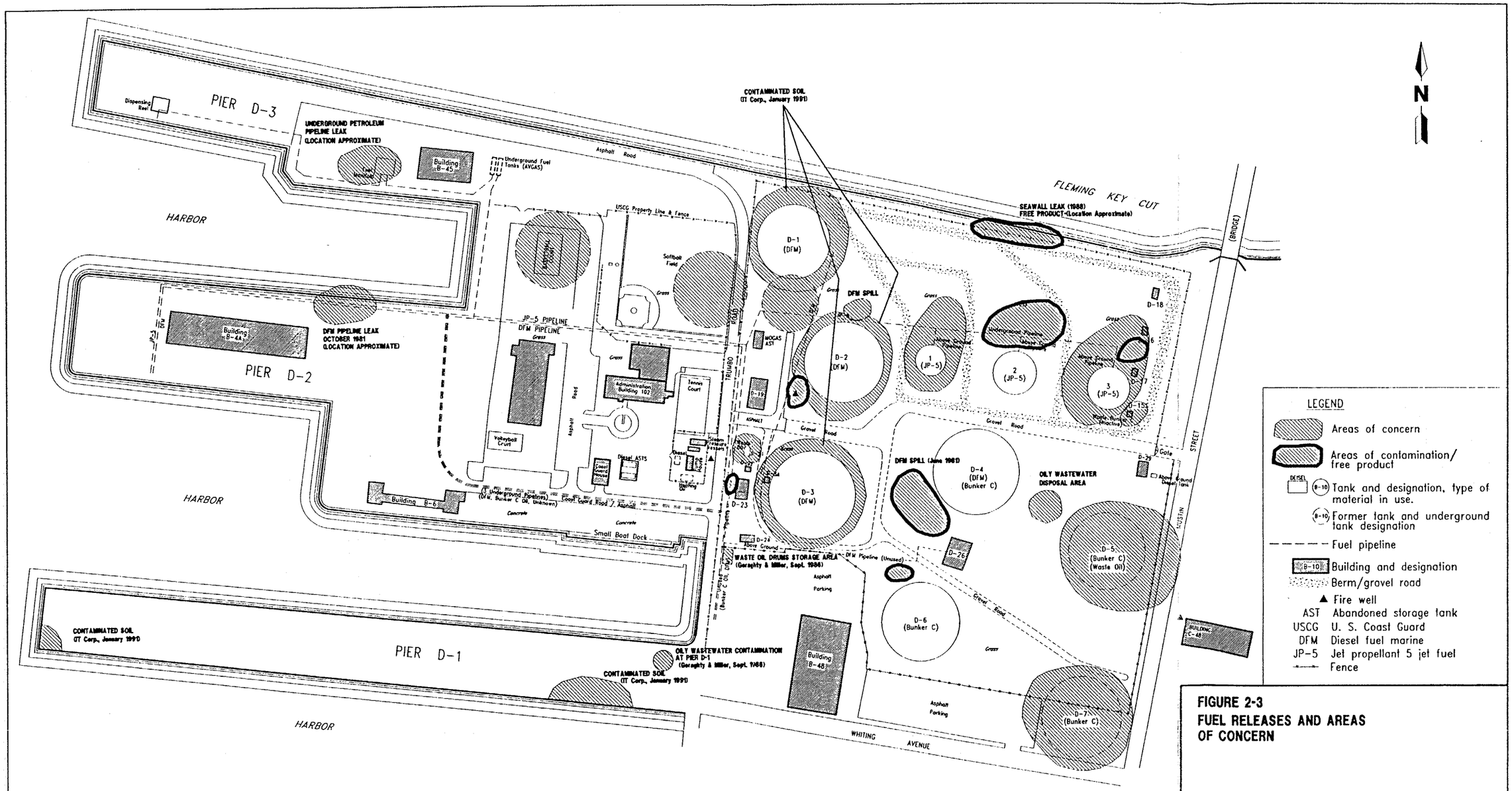
Several unused fuel pipelines are present at the TPFF site. An abandoned DFM pipeline extends from pumphouse D-26 near DFM tank D-4 to another abandoned DFM pipeline located along the west fenceline of the site. An abandoned underground Bunker C oil pipeline reportedly existed along the western fenceline of the TPFF parallel to the abandoned DFM pipeline (see Figure 2-3).

According to USCG facility personnel, three abandoned underground pipelines are located under the USCG facility access road south of the tennis court. One pipeline was used to transport DFM and a second transported Bunker C oil. The third line is described as a 4-inch sump. The pipelines continue west along the access road, then turn north near Building 103 toward the slip north of Pier D-2.

An oily-wastewater pipeline and a pump station are located on Pier D-1. According to facility personnel, the oily-wastewater pipeline continues from the pump station to an oil-water separator located northwest of Building B-48 (see Figure 2-2). The pump station and oil-water separator are no longer in use. An oily-wastewater pipeline and pump station located on the north side of Pier D-3 have never been used according to USCG personnel.

2.4 PREVIOUS FUEL RELEASES AND CAs. An initial assessment study indicated that two fuel releases occurred at the facility in 1981 (Envirodyne Engineers, Inc., 1985). In June 1981, there was a reported release of 5,000 to 6,000 gallons of DFM from a corroded pipeline located between tank D-4 and the D-26 pump house. All DFM was reportedly contained with no discharge to surface waters (Envirodyne Engineers, Inc., 1985). In October 1981, a pipeline leak on Pier D-2 at the USCG facility resulted in the discharge of 300 gallons of DFM into harbor waters. The spill was contained by boom and recovered (Envirodyne Engineers, Inc., 1985).

CA investigations have been conducted at the TPFF since 1985, and several areas of concern were identified during these investigations. Geraghty & Miller (June 1985) conducted a subsurface hydrocarbon investigation, during which, 10 monitoring wells were installed at the TPFF. The Geraghty & Miller investigation confirmed the DFM contamination in the vicinity of tank D-4 reported by Envirodyne Engineers, Inc. (March 1985).



Source: Geraghty & Miller, Sept., 1988c; International Technology Corp., 1991b

FIGURE 2-3
FUEL RELEASES AND AREAS OF CONCERN

PRELIMINARY CONTAMINATION ASSESSMENT REPORT
TRUMBO POINT FUEL FARM

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During a subsequent verification study (Geraghty & Miller, 1987), 15 soil borings were drilled and 6 additional monitoring wells were installed at the TPFF. Free product was detected in monitoring wells in the vicinity of JP-5 tanks 2 and 3, DFM tank D-4, and in the vicinity of Building D-23 located west of DFM tank D-3 and south of former waste-oil tank D-21. Dissolved petroleum constituents were detected in the vicinity of JP-5 tank 3. Additional site investigation and remedial action was recommended (Geraghty & Miller, 1987).

Another area of concern was identified along the northern boundary of the TPFF (Geraghty & Miller, 1988c). Geraghty & Miller personnel observed fuel seeping through openings in the seawall north of JP-5 tank 2 along the northern site boundary. The openings were sealed and a pit was excavated on the landward side of the seawall to recover free product. Several weeks later, fuel was again observed seeping through the seawall. The seawall was again sealed and another pit was excavated to recover the free product.

During an expanded site investigation (Geraghty & Miller, 1988b), free product detected in the vicinity of Building D-23, JP-5 tank 2, and DFM tank D-4 was confirmed. Free product was also detected in a monitoring well (KWM-24) northwest of tank D-6. In addition, the September 1988 Geraghty & Miller investigation identified the following potentially contaminated areas at the site:

- the area north of DFM tank D-2 in the northwest section of the site, reportedly caused by overfilling tank D-2;
- the area between tank D-4 and former tank D-5 in the east-central section of the site, where oily wastewater was reportedly disposed of;
- a waste-oil drum storage area near an oil-water separator located south of Building D-24 on the western perimeter of the site;
- a former waste-oil UST near Building D-23 located on the western perimeter of the site, where site personnel reported that the UST may have been used to store solvents, waste oil, pesticides, and polychlorinated biphenyls;
- in two separate areas on Pier D-1 at the USCG facility suspected to result from releases of oily wastewater; and
- in the south central area of Pier D-3 at the USCG facility, where a release resulting from an underground petroleum pipeline is the reported source of contamination.

Geraghty & Miller (1988a) recommended further investigation at the TPFF and Piers D-1 and D-3 and presented a workplan for an expanded site investigation and remedial field investigation.

A supplemental site investigation was conducted in 1990 by International Technology Corporation (ITC). Forty-four soil borings and four monitoring wells were completed and sampled. Excessive soil contamination as defined in Chapter 62-770, FAC, was detected in the vicinity of DFM tanks D-1 through D-3, and JP-5 tanks 1 and 2, and along the southern boundary of Pier D-1 at two separate locations. ITC (1991b) recommended that remedial action be implemented at the

site. The recommended remedial action included treating excessively contaminated soil and sampling groundwater from existing monitoring wells.

A remedial pilot study was designed to test and evaluate a method for treating contaminated groundwater and recovering free product in the subsurface east of tank D-4 (Geraghty & Miller, 1988a). The pilot study was implemented by ITC in 1990 and 1991. The remedial system consisted of an infiltration gallery with a center sump equipped with groundwater and free product pumps. Recovered free product was pumped into a 5,000-gallon product tank. Contaminated groundwater was treated by an air-sparger system designed to treat groundwater at the rate of 50 gallons per minute (gpm). A leach bed was used for the disposal of treated groundwater.

The remedial system operated for 180 days. Because of the low horizontal permeability of soil, the actual groundwater yield was 1 gpm. Approximately 1,000 gallons of free product were recovered and 155,000 gallons of groundwater were treated. ITC (1991a) concluded that the recovery system used at the TPFF site was not a feasible remedial alternative because the low hydraulic conductivity of the soil limits the formation of a capture zone and inhibits groundwater recovery and the transport of free product. ITC (1991a) recommended extensive trenching to remove contaminated soil and to improve access to free product, and a site bioassessment and biotreatability study to evaluate the feasibility of bioremediation.

ABB-ES was contracted by SOUTHNAVFACENGCOM to conduct a CA and develop a CAR for the TPFF and USCG facilities. During the initial site inspection in November 1992, ABB-ES observed free product in the fire well located between Building D-19 and tank D-2 in the western part of the TPFF. Evidence of soil and groundwater contamination was also observed in the following locations: the area surrounding JP-5 tank 1, located in the north central part of the TPFF; the area surrounding JP-5 tank 3, located in the northeast section of the TPFF; the area surrounding the inactive waste Bunker C tank (sump tank for D-15) and the sump tanks for D-16 through D-18, located near JP-5 tank 3 in the northeastern section of the TPFF; the area surrounding former tank D-5, located in the eastern section of the TPFF; and the area surrounding former tank D-7, located in the southern part of the TPFF.

ABB-ES conducted a preliminary contamination assessment (PCA) in August 1993 to verify the findings of previous investigations and assess soil and groundwater contamination in areas not well documented during the previous investigations. The ABB-ES PCA was conducted from July through October 1993. At the request of the Navy, the area of investigation also included parts of the USCG facility west of the TPFF site. The preliminary CAR (PCAR) was submitted to SOUTHNAVFACENGCOM in April 1994.

During the PCA, 101 soil borings were drilled and 3 vertical extent monitoring wells were installed. Soil samples were collected from soil borings and analyzed for volatile organic compounds (VOCs) by OVA analysis. Groundwater samples were collected from monitoring wells installed during previous investigations and from monitoring wells and specific soil borings completed during the PCA. Groundwater samples collected from soil borings were analyzed for total recoverable petroleum hydrocarbons (TRPH). Groundwater samples collected from monitoring wells were analyzed for constituents of the Kerosene analytical group as defined in Chapter

62-770, FAC. The findings, conclusions, and recommendations of the 1993 PCA are reported in the 1994 PCAR, which is presented in Appendix A.

In early 1995, an unknown quantity of DFM was released on the west side of the Trumbo Point Fuel Farm. The release occurred near the junction of the 12-inch DFM line and a smaller line that extends west to the USCG. An unknown quantity of soil was excavated in the area of the release and three 8-inch recovery wells were installed to a depth of approximately 9 feet bls. An unknown quantity of free product and groundwater were recovered from these wells.

In January 1996, Bechtel Environmental, Inc. (Bechtel), initiated the construction of two gravel-filled trench systems with sumps for the recovery of free product observed in the vicinity of tanks D-2 and D-4 during the PCA. The location of these trenches and the distribution of free product are discussed in Section 5.5.

From January 1996 to April 1996, ABB-ES conducted a CA at the TPFF and USCG sites to collect data required to complete a CAR for Florida Department of Environmental Protection (FDEP) approval and obtain site-specific data to evaluate potential remedial technologies. Analytical laboratory results, findings, conclusions, and recommendations based on the CA data are incorporated in this CAR.

3.0 SITE CONDITIONS

3.1 SITE TOPOGRAPHY AND SURFACE FEATURES. The land surface at both the TPFF and the USCG station is relatively flat, except where 8-foot high, gravel berms separate the JP-5 ASTs in the northern part of the TPFF. Earthen mounds surround tanks D-1 through D-4, and D-6; and several gravel roads in the south section of the TPFF are graded above the surrounding land surface. Except for the berms and mounds, ground elevation at the site varies from approximately 5 to 7 feet above mean sea level (msl).

Most of the TPFF site is covered by grass, except paved areas in the vicinity of Building D-19 and the gravel roads and berms. The USCG station, however, is predominantly covered with asphalt and concrete except for the northeast corner of the site where the softball field and gazebo are located. Parking lots outside the southern edge of the TPFF near Building B-48 are covered with asphalt. Building B-48 activities are not related to activities at the TPFF.

There are three fire wells at or near the site. One fire well is located on the southwest side of DFM tank D-2, another is located near the northwest corner of Building C-48 on the east side of Mustin Street, and the third is located on the west side of Trumbo Road near Building B-43 (the pumphouse) at the USCG facility.

3.2 SITE GEOLOGY. The site is located in the lower Florida Keys which are overlain by a mantle of oolite limestone of the Miami Limestone. The oolite limestone is thickest in the northern part of Stock Island, thinning to the south and southwest. Beneath the Miami Limestone lies the Key Largo Limestone, which is almost entirely composed of ancient coral reef fossils. Hoffmeister (1974) reported the Miami Limestone to be 27 feet thick and the Key Largo Limestone greater than 270 feet thick in the western part of Key West. The natural grade in much of the area in and around Boca Chica Key and Key West has either been altered or is completely manmade consisting of imported fill material. Therefore, it is not uncommon to encounter fill materials at or near the surface.

3.3 REGIONAL HYDROGEOLOGY. The highly transmissive limestone of the lower keys generally contain brackish or saline water. Small areas of fresh groundwater exist on some of the larger islands (Black, Crow, and Eidness, 1977). The water-table aquifer is contained within both the Miami and Key Largo Limestones. Freshwater lenses that do exist are Class G-III groundwater with total dissolved solids exceeding 10,000 parts per million (ppm) and are subject to saltwater intrusion through the porous Key Largo Limestone and upward to the less porous Miami Limestone (Black, Crow, Eidness,1977: McKenzie, 1990).

Groundwater in the Key West area discharges directly to the marine surface waters surrounding the islands. Many of these marine waters have been designated as Outstanding Florida Waters, a classification that affords them the highest environmental protection standards.

Due to the low land surface elevations in the lower keys, the water table is shallow. Recharge to the water table aquifer is directly from precipitation, and infiltration is rapid. Discharge, via groundwater flow, is to the surrounding surface waters. Water table elevations can be greatly influenced by local

rainfall and tides. The volume of fresh groundwater in the Key West area is limited; therefore, freshwater wells of any consequence do not exist. Potable water supplies are obtained by rainwater catchment, reverse osmosis desalination, or imported from the mainland by way of the Florida Keys aqueduct.

3.4 SITE-SPECIFIC HYDROGEOLOGY. Site-specific hydrogeologic characteristics were based on information obtained during soil boring and monitoring well installation and from previous investigations.

Subsurface material from land surface to a depth of approximately 3 feet bls is composed of hard, sandy limestone fill mixed with gravel and shell fragments (ITC, 1991a). Material from 3 feet bls to approximately 13 feet bls is generally a soft, silty to sandy limestone mud. A sandy to gravelly limestone occurs from 13 feet bls to 50 feet bls (the maximum depth of site monitoring wells). Site lithologies are graphically presented in soil boring logs for monitoring wells MW-1D through MW-107. Soil boring logs are attached in Appendix B, Lithologic Logs.

Grain size, permeability, pH, moisture, cation exchange capacity (CEC), and total organic carbon (TOC) analyses were performed on one composite soil sample collected from 0 to 4 feet bls near Trumbo Road, northwest of DFM tank D-3 (ITC, 1991b). Grain size analysis was representative of poorly sorted sand and gravel with an average particle diameter of 3 millimeters. Particles ranged in size from cobble to clay. The permeability was 1.8×10^{-6} centimeters per second, with a uniformity coefficient of 1,025. TOC content was 4,900 milligrams per kilogram, moisture content was 39.2 percent, pH was 8.35, and CEC was 49.22 milliequivalents per gram.

The water table was encountered at depths ranging from 4 to 7 feet bls during this investigation. A tidal study performed during August 1990 indicates that water elevations are tidally influenced (ITC, 1991b). Sea level fluctuations ranged from 0.9 feet below msl to 1.4 feet above msl, and groundwater elevations ranged from 0.4 to 3.0 feet above msl. Groundwater elevation measurements in three wells indicated a northwest flow direction at the TPFF (ITC, 1991b). Measurements recorded during the ABB-ES 1993 PCA indicated groundwater flow direction across the site was radially away from the center.

Recent groundwater, tidal, and hydrogeologic data collected during the CA are presented in Sections 5-6 through 5-11 in this report.

4.0 METHODOLOGIES AND EQUIPMENT

Methodologies and equipment used during the field investigation were in conformance with the ABB-ES, FDEP-approved, Comprehensive Quality Assurance Program Plan.

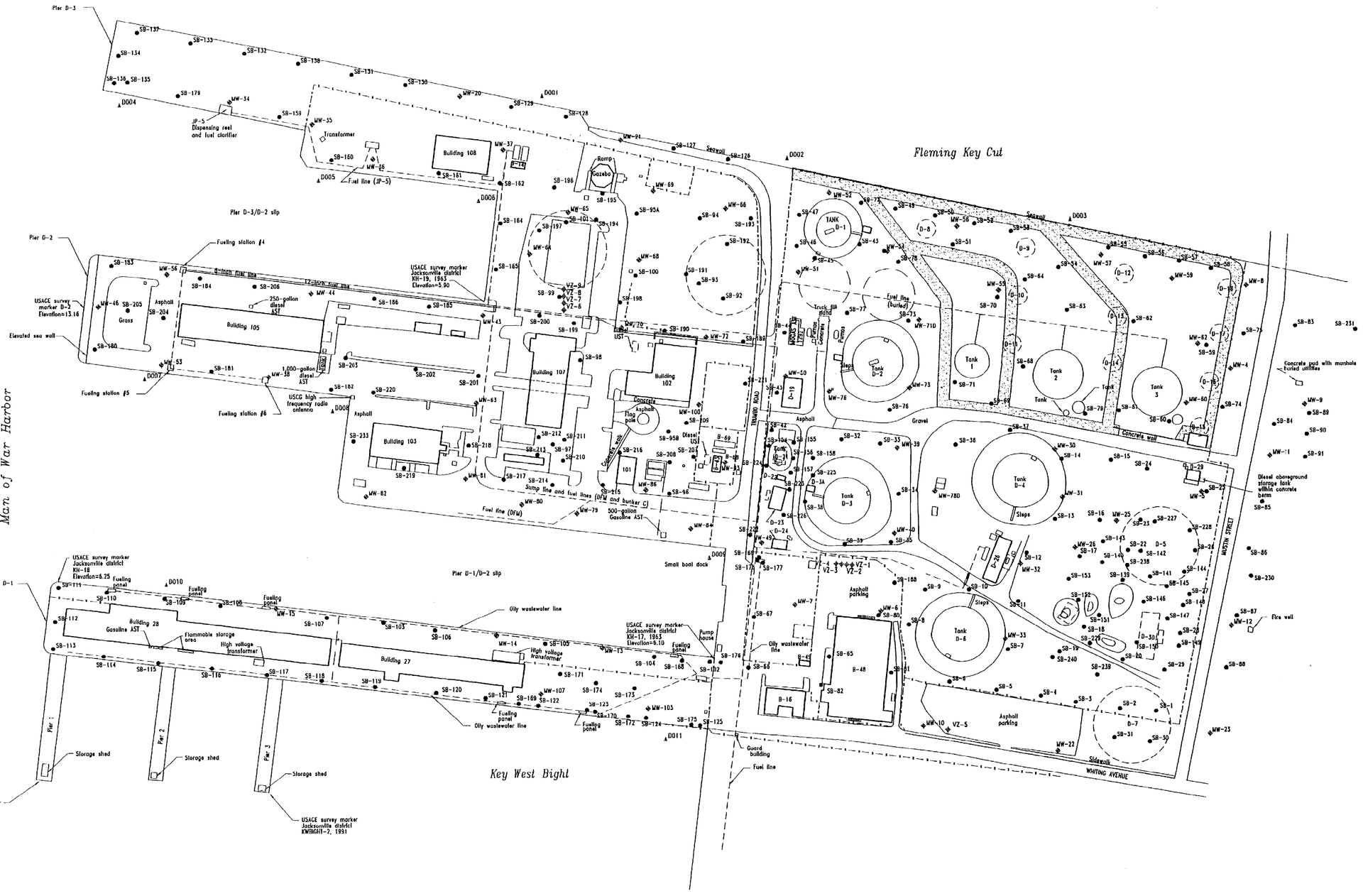
4.1 SOIL BORING PROGRAM. During the CA, 34 soil borings at the TPFF and 105 soil borings at the USCG facility (SB-102 through SB240) were advanced into the water table to assess the horizontal and vertical extent of petroleum contamination in the unsaturated zone, to characterize the type of subsurface material, and to aid in the placement of groundwater monitoring wells. Soil borings SB-1 through SB-101 were performed during the PCA in August 1993. Soil boring locations are presented on Figure 4-1.

The soil borings were advanced using a truck-mounted drill rig equipped with 4.25-inch hollow-stem augers. Soil samples were collected from each boring at the surface and 2-foot vertical intervals thereafter using a split-spoon sampling device. Each sample was placed in a 16-ounce glass jar and covered with a double layer of aluminum foil. Each sample was analyzed for petroleum hydrocarbons using an OVA in accordance with Chapter 62-770, FAC. In addition, soil samples were screened for benzene, toluene, ethylbenzene, and xylenes (BTEX) using a field GC. The results of the soil boring program are discussed in Section 5.1.

4.2 SOIL SAMPLING PROGRAM. Forty-five soil samples were collected from selected soil boring locations for laboratory analysis. Samples were collected directly from 2.25-inch solid-stem augers or from a split-spoon sampling device. Each sample was collected immediately above the water, generally from 3 to 6 feet bls. The samples were placed into appropriate containers, properly preserved, and shipped to EA Laboratories, Sparks, Maryland. Five samples were analyzed for the complete waste oil group list as described in Chapter 62-770, FAC. The remaining 41 soil samples were analyzed for arsenic, cadmium, chromium, lead, and TRPH as outlined in Chapter 62-770, FAC. Results of the soil sampling program are discussed in Section 5.1.

4.3 MONITORING WELL INSTALLATION AND CONSTRUCTION. During the CA, 91 shallow monitoring wells and 13 vertical extent wells were installed at the site (see Figure 4-2).

Borings in which monitoring wells were installed were advanced with 4.25-inch inside diameter (ID), hollow-stem augers. Split-spoon soil samples were collected at 2-foot vertical intervals until reaching the water table, after which, samples were collected at 5-foot intervals. Shallow monitoring wells were installed to depths ranging from 10 to 13 feet bls and were constructed of 2-inch ID, schedule 40, polyvinyl chloride (PVC) with 10 feet of 0.010-inch machine-slotted screen. The annular space around the screened interval was filled with a 20/30 grade silica filter pack to a depth approximately 1 foot above the top of the screen. An 8-inch thick bentonite seal was placed above the filter pack. The remaining annular space was grouted to land surface with portland cement.



LEGEND

D-19	Building and designation
X—X—X	Fence
	Gravel berm
	Underground pipeline
	Aboveground pipeline
(D-5)	Former tank and designation
1292 (D-4)	Tank and designation
AST	Aboveground storage tank
DFM	Diesel fuel marine
JP-5	Jet Propellant 5 jet fuel
AVGAS	Aviation gasoline
MOGAS	Motor gasoline (unleaded gasoline)
UST	Underground storage tank
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
▲ D011	Sediment sample location and designation
✱ VZ-7	Vadose zone well location with soil boring data
● SB-119	Soil boring location and designation
✱ MW-23	Monitoring well location with soil boring data

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

FIGURE 4-1
SOIL BORING AND SEDIMENT SAMPLING LOCATION MAP

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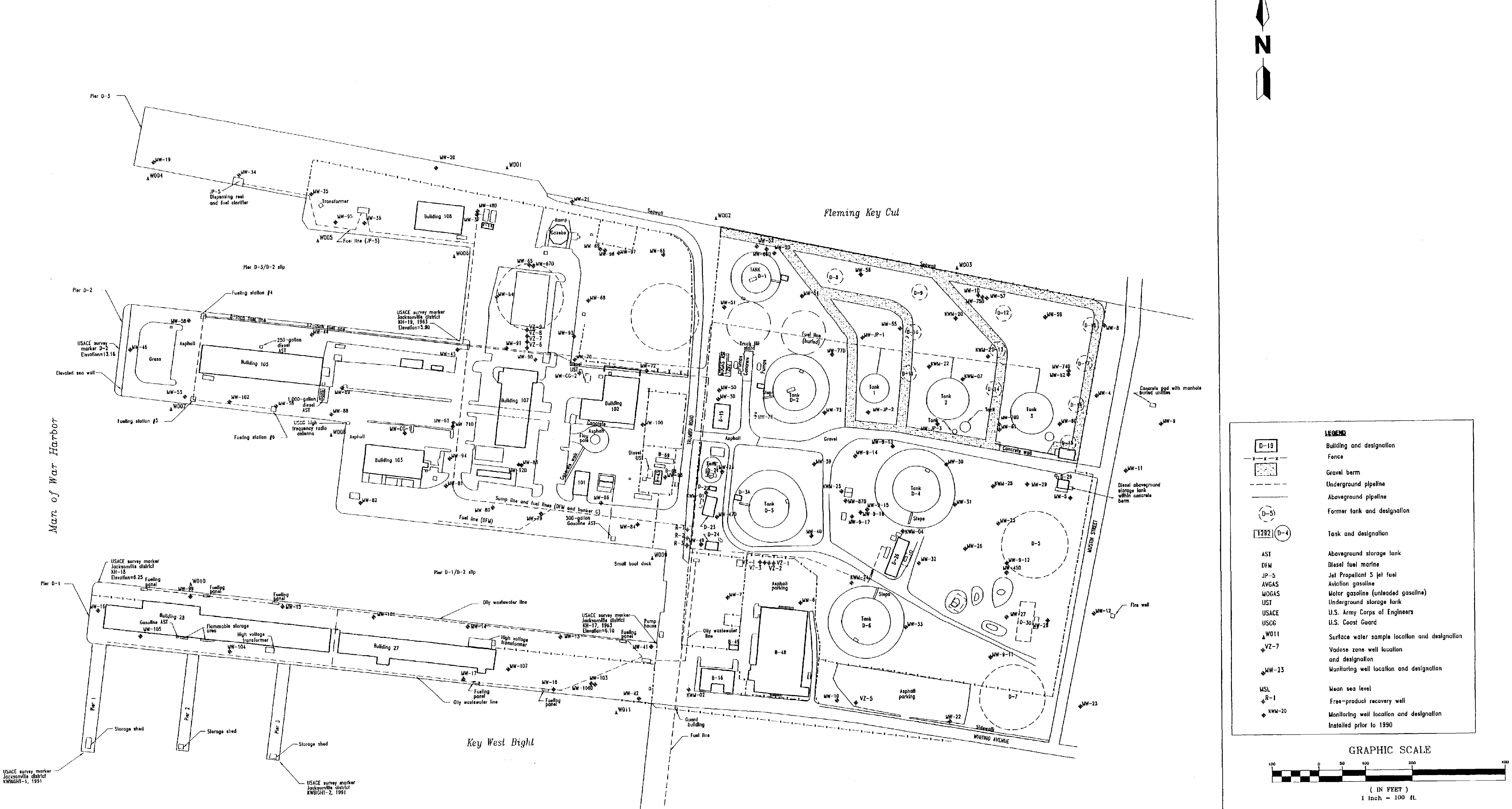

FIGURE 4-2
MONITORING WELL AND SURFACE WATER SAMPLE LOCATION MAP

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TRUMBO POINT FUEL FARM
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Typical shallow monitoring well construction details are presented on Figure 4-3.

Double-cased deep monitoring wells were installed to a depth of 30 feet bls. Six-inch PVC surface casing extended to a depth of 20 feet bls. The wells were constructed of 2-inch ID, schedule 40, PVC with 5 feet of 0.010-inch machine-slotted screen. The annular space around the screened interval was filled with a 20/30 grade silica filter pack to a depth approximately 2 feet above the top of the screen. A 1-foot thick fine-sand seal was placed above the filter pack. The remaining annular space was grouted to land surface with portland cement. Typical deep monitoring well construction details are presented on Figure 4-4.

Monitoring wells were installed below grade in subsurface traffic-bearing vaults protected with metal manhole assemblies and 6-inch thick, 2-foot square concrete pads. Monitoring wells were fitted with a locking, watertight expansion plug.

Upon completion, monitoring wells were developed by pumping a minimum of five well volumes until the purged water was clear and relatively free of sediment.

4.4 WATER-LEVEL MEASUREMENTS. Depth to groundwater was measured and water table elevations were calculated for all site monitoring wells on April 16, 1996, and July 30, 1996. Depth to groundwater was measured to the nearest 0.01-foot using an electronic water-level indicator. Water table elevations were calculated by subtracting the measured depth to groundwater from the top of casing elevation for each respective well. Top-of-casing elevations were referenced to benchmarks located at the southeast corner of the Pier D-3/D-2 slip and the west end of Pier D-2. These benchmarks are part of the U.S. Army Corp of Engineers benchmarking system and have elevations of 5.98 and 13.16 feet, respectively, above the National Geodetic Vertical Datum of 1929. Water table elevation contour maps for each date were prepared using this information and are discussed in Section 5.6.

4.5 GROUNDWATER SAMPLING PROGRAM. Groundwater samples were collected from all site monitoring wells, except those containing free product, during the period April 2, 1996, through April 15, 1996. Before sampling, each monitoring well was purged using a low flow purging technique. Five well volumes were removed from each well. Groundwater samples for lead analysis were collected using Teflon™ and silicon tubing. The other sample parameters were collected using an extruded Teflon™ bailer. The samples were placed into appropriate containers, properly preserved, placed on ice, and shipped to EA Laboratories, Sparks, Maryland. Appropriate quality assurance and quality control samples were also collected and analyzed.

Samples were analyzed for either the constituents of the Kerosene or Waste Oil analytical groups, as defined in Chapter 62-770, FAC. The Kerosene analytical group samples were analyzed for volatile organic halocarbons by U.S. Environmental Protection Agency (USEPA) Method 601, for volatile organic aromatics (VOA) and methyl tert-butyl ether (MTBE) by USEPA Method 602, for polynuclear aromatic hydrocarbons (PAH) by USEPA Method 610, for ethylene dibromide (EDB) by USEPA Method 504, and for lead by USEPA Method 239.2. The waste oil analytical group samples were analyzed for volatile organics by USEPA Method 8240, semivolatiles

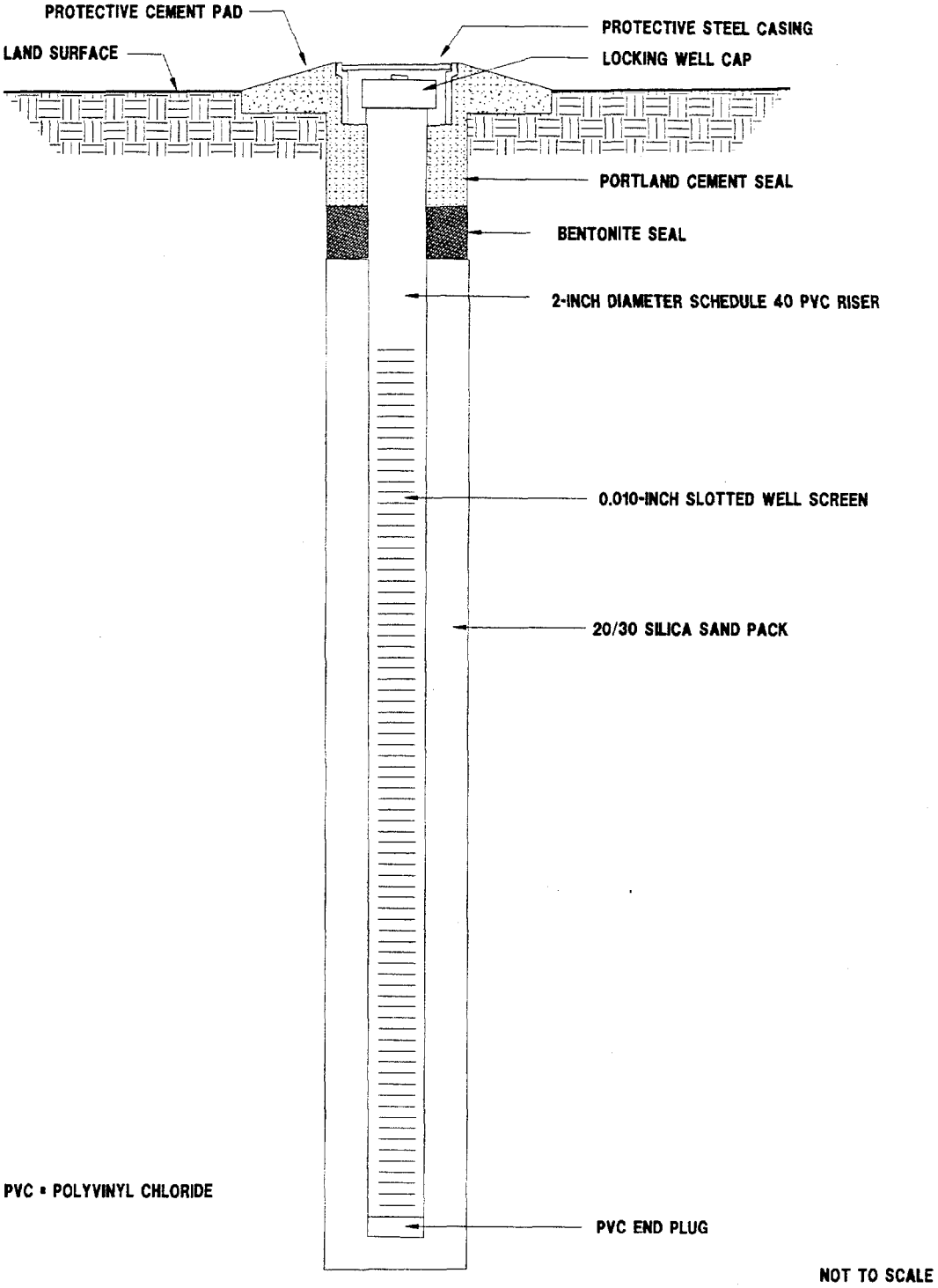

FIGURE 4-3
TYPICAL SHALLOW MONITORING WELL CONSTRUCTION DETAIL

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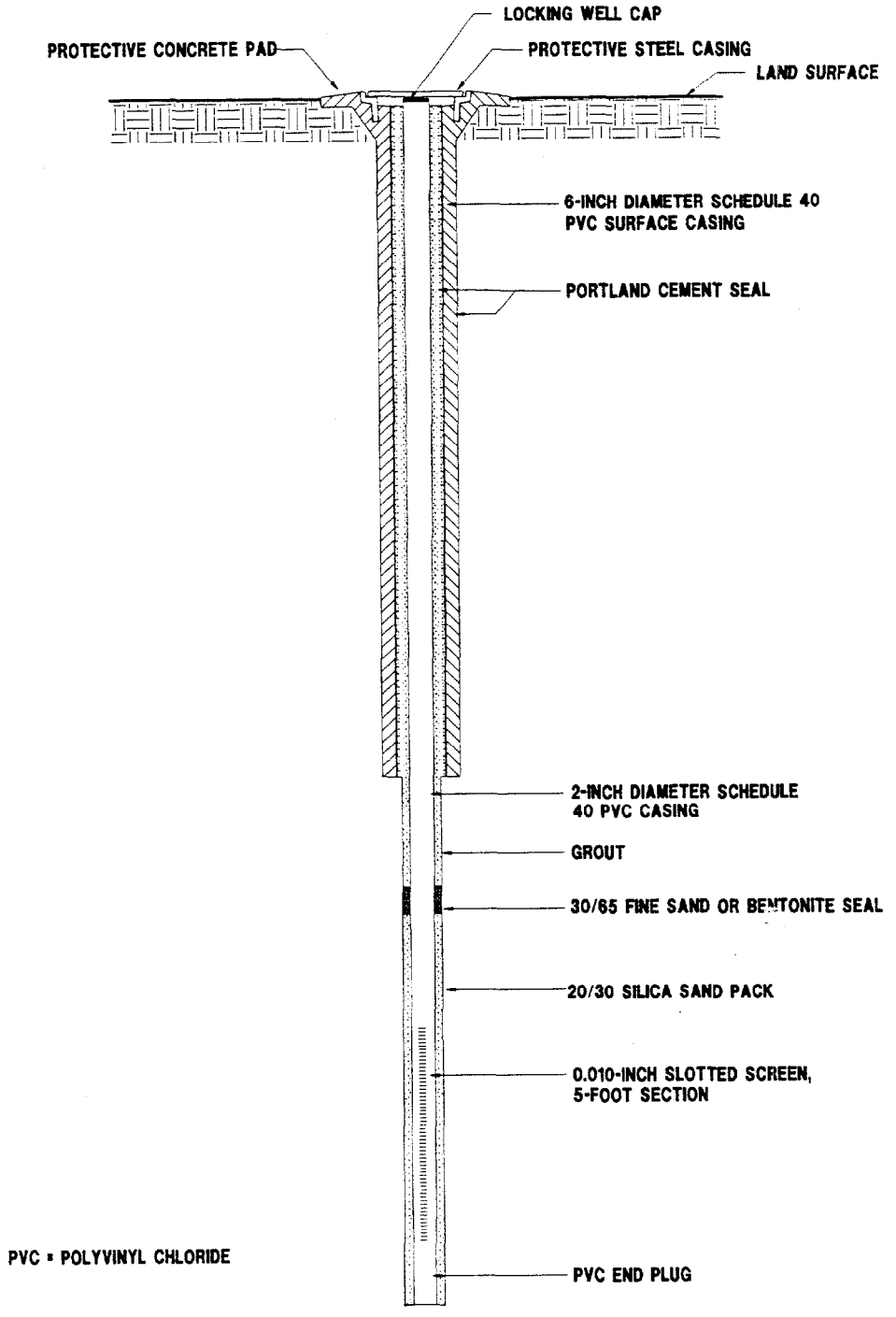

FIGURE 4-4
TYPICAL DEEP MONITORING WELL CONSTRUCTION DETAIL

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TRUMBO POINT FUEL FARM
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by USEPA Method 8270, TRPH by USEPA Method 418.1, and target analyte list metals (Arsenic, Cadmium, Chromium, and Lead). Laboratory analytical results of groundwater samples are discussed in Section 5.2.

4.6 SURFACE WATER AND SEDIMENT SAMPLING. Sediment and surface water samples were collected from 11 locations in Fleming Key Cut and the pier slips to evaluate the potential impact of the TPFF site to the adjacent surface water and bottom sediments (see Figures 4-1 and 4-2). The 11 surface water samples were collected approximately 2 feet below the water surface using a beta bottle sampler. The sediment samples were collected with a sediment bomb sampler. Only six sediment samples were obtained because some locations yielded no sediments or only minor shell fragments in the sampler. All surface water and sediment samples were analyzed for Kerosene analytical group parameters by EA Labs, Sparks, Maryland. Sediment-sampling results are discussed in Section 5.3 and surface-water sampling results are discussed in Section 5.4.

4.7 HYDROGEOLOGIC ASSESSMENT. Water-level measurements were used to establish the direction of groundwater flow and provide data on fluctuations in the water table (see Section 5.6). In addition, a tidal influence study was conducted during a new moon phase to assess the effect of tides on the direction of groundwater flow, hydraulic gradient, and pore water velocity (see Section 5.7).

Aquifer tests were conducted to estimate the hydraulic properties of the water-table aquifer. Constant-rate pumping tests were performed to obtain hydraulic information due to the low horizontal conductivity in shallow and deep monitoring wells (see Sections 5.8 through 5.11).

5.0 CONTAMINATION ASSESSMENT RESULTS

5.1 SOIL CA.

5.1.1 OVA Headspace Data Soil assessment criteria follow Chapter 62-770, FAC, guidelines for the Kerosene analytical group. Soil with OVA headspace readings greater than 10 ppm, therefore, is considered to be petroleum contaminated. Soil with OVA headspace readings greater than 50 ppm is defined as "excessively contaminated." Excessively contaminated soil must be remediated in accordance with *Guidelines for Assessment and Remediation of Petroleum Contaminated Soils* (Florida Department of Environmental Regulation [FDER], May 1992).

All soil samples were collected above the water table, between 0 and 2 feet bls; between 2 and 4 feet bls; and between 4 and 6 feet bls. Soil samples collected between 4 and 6 feet bls were slightly above the water table. An activated charcoal filter was used during OVA headspace screening to measure the effect of methane on the total hydrocarbon concentration in the soil samples. Results of the 1993 and 1996 OVA headspace survey are presented in Appendix C, Soil Sample Organic Vapor Analyzer Headspace Results. The 1996 OVA headspace values listed in Table C, Appendix C were calculated by subtracting the filtered OVA reading from the unfiltered reading to obtain the concentration of petroleum hydrocarbons in the soil sample.

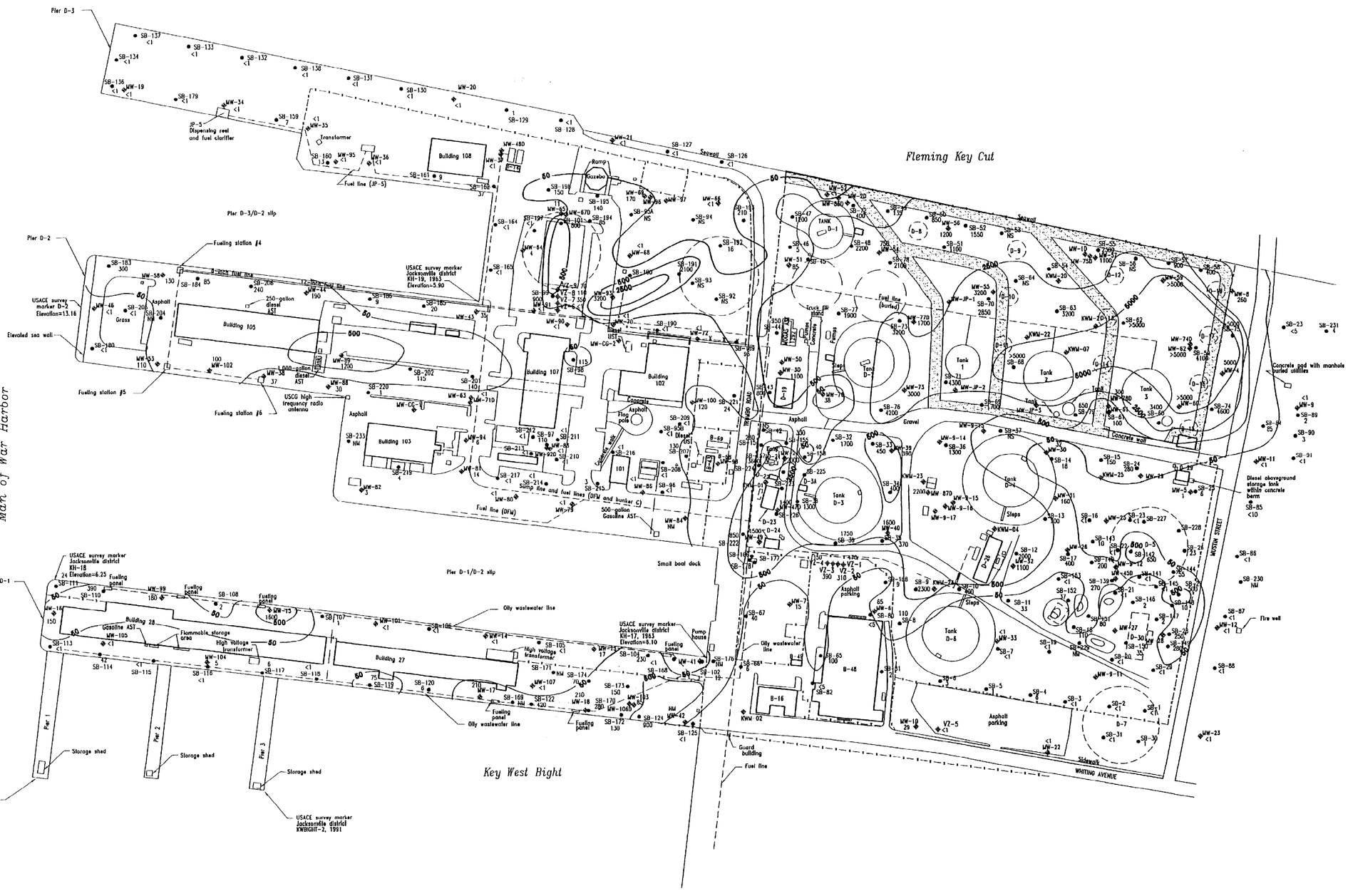
Figure 5-1 presents the area of excessively contaminated soil at the site. Contaminated soil was detected mostly between 4 and 6 feet bls. The areal extent of excessively contaminated soil is shown within the 50 ppm isoconcentration lines. Excessively contaminated soil was found throughout the TPFF and portions of the USCG facility. The highest OVA readings (>2,500 ppm) were found in the vicinity of the three JP-5 tanks, DFM tank D-2, and the west side of the softball field.

The OVA data indicate that the areal extent of soil contamination appears to be delineated along the eastern and southern boundaries of the TPFF. Petroleum-contaminated soil was not detected south of tank D-6 and Building B-48 in the southern part of the site. With the exception of soil boring SB-84, petroleum-contaminated soil was not detected east of Mustin Street. Excessively contaminated soil, however, was detected along the entire northern section of the TPFF and was encountered over much of the western part of the site.

Excessively contaminated soil was also found at the USCG facility at the softball field, the basketball court, and the Pier D-2 area near Building 105. Excessively contaminated soil is present at both the east and west ends of Pier D-1 (see Figure 5-1).

Generally, the soil samples collected from the 0-2 feet bls and 2-4 feet bls intervals exhibited low OVA readings (less than 1 ppm) except for three areas which include a small area at the west end of Pier D-1, the area around tank D-21, and the area immediately west of tank D-4.

5.1.2 Soil Analytical Data Soil samples were collected from borings in the former tank D-5 area, the tank D-21 area, the oil-water separator area, and the area of the oil-water pump station on Pier D-1. The samples were obtained from a depth interval above the water table (approximately 4 feet bls). In each area, a source sample was analyzed for the complete waste-oil group parameters as



N

LEGEND

- D-19 / Building and designation
- Fence
- Gravel berm
- Underground pipeline
- Aboveground pipeline
- (D-5) Former tank and designation
- 1292 (D-4) Tank and designation
- 50 Volatile organic compound isoconcentration line and value in parts per million
- AST Aboveground storage tank
- DFM Diesel fuel marine
- JP-5 Jet Propellant 5 jet fuel
- AVGAS Aviation gasoline
- MOGAS Motor gasoline (unleaded gasoline)
- UST Underground storage tank
- USACE U.S. Army Corps of Engineers
- USCG U.S. Coast Guard
- NM Not measured (soil sample collected for laboratory analysis)
- NS Not sampled (unable to collect sample)
- VZ-7 Vadose zone well location with soil boring data
- SB-119 Soil boring location and designation
- MW-23 Monitoring well location with soil boring data
- KWW-20 Monitoring well location and designation installed prior to 1990
- 230 Concentration of volatile organic compounds in soil

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

FIGURE 5-1
VOLATILE ORGANIC COMPOUNDS IN SOIL

CONTAMINATION ASSESSMENT REPORT
TRUMBO POINT FUEL FARM
NAVAL AIR STATION
KEY WEST, FLORIDA

H:/KYR/TRUMBO/KYW CAR/NF #5/KW-27-96

0076G04X

defined in Chapter 62-770, FAC. Delineation samples were collected and analyzed for TRPH and metals (arsenic, cadmium, chromium, and lead). Analytical laboratory results for the soil samples collected at the site, including equipment rinsate blanks and trip blanks, are summarized in Table 5-1 and attached as Appendix D, Soil Analytical Data.

Total VOAs were not detected in any source soil sample collected. Total PAHs exceeded the State maximum concentration of 1000 parts per billion (ppb) in two source area soil samples, sample 01B156 (east of tank D-21) and sample 01B167 (north of the oil-water pump station). Cadmium, chromium, lead, and arsenic concentrations were below the respective State maximum concentrations. TRPH concentrations greatly exceeded the State maximum concentration of 50 ppm in soil samples collected in the area of tank D-21, the oil-water pump station, the oil-water separator, and the area of former tank D-5.

Figure 5-2 presents TRPH concentrations detected in soil samples collected in these four areas. The extent of TRPH contamination has been assessed in the area of the pump station on Pier D-1 and over most of the former tank D-5 area. The area of the oil-water separator and tank D-21, while not fully assessed for TRPH, are within the 500 ppm OVA headspace area (see Figure 5-1) and will require remediation in accordance with Chapter 62-770, FAC.

On July 31, 1996, confirmation soil samples were collected at a depth of approximately 3.5 feet bls from soil boring locations SB-156 near tank D-21 and SB-229 near former tank D-5. The higher water table observed at this time (see Section 5-6), prevented collecting an unsaturated soil sample at a lower depth. In addition to these confirmation samples, soil samples were collected from soil borings SB-239 and SB-240 to assess the extent of TRPH contamination in soil south of soil boring SB-229.

The four confirmation samples were analyzed for TRPH using USEPA Method 418.1, FDEP Petroleum Range Organics (FL PRO), and Toxicity Characteristic Leaching Procedure (TCLP) with FL PRO. TRPH concentrations detected in these soil samples were SB-156 (30 ppm), SB-229 (420 ppm), SB-239 (1100 ppm), and SB-240 (less than 14 ppm). FL PRO concentrations detected in these soil samples were SB-156 (110 ppm), SB-229 (180 ppm), SB-239 (200 ppm), and SB-240 (less than 14 ppm). TCLP and FL PRO yielded no detections (less than 1 ppm) on leachates prepared from all of the samples.

5.2 GROUNDWATER CA. Groundwater analytical laboratory results for the sampling conducted at the site during March and April 1996, including equipment rinsate blanks and trip blanks, are presented in Table 5-2, Table 5-3, and Appendix E, Groundwater Sample Analytical Data. Table 5-2 presents the groundwater analytical results for the Kerosene analytical group samples only where compounds were detected. Table 5-3 presents the groundwater analytical results for the waste oil analytical group samples. It should be noted that higher method detection limits were reported for VOCs (5 ppb) and semivolatile organic compounds (10 ppb) for the waste-oil analytical group samples.

Table 5-1
Soil Samples, Waste-Oil Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Boring Designation:	SB139	SB140	SB141	SB142	SB143	SB144	SB145	SB146	SB147
Collection Date:	30-JAN-96	30-JAN-96	30-JAN-96	30-JAN-96	30-JAN-96	31-JAN-96	31-JAN-96	31-JAN-96	31-JAN-96
Polynuclear Aromatic Hydrocarbons (ppb)									
Naphthalene	--	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	--	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	--	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	250 J	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	--	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	--	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	--	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	--	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	--	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	--	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	--	NA	NA	NA	NA	NA	NA	NA	NA
Total PAHs	250	NA	NA	NA	NA	NA	NA	NA	NA
Total Recoverable Petroleum Hydrocarbons (ppm)									
Total Petroleum Hydrocarbons	4,960	37,100	191	1,080	41.2	734	62.4	40.2	46
Metals (ppm)									
Cadmium	0.2	0.16	0.29	0.33	0.3	0.33	0.26	0.11	0.41
Chromium	2.4	3.4	3.9	3.8	4.4	4.8	3.7	2.3	2.3
Arsenic	2.7	1.5	5.9	2.4	4.1	6.5	4.8	2.1	3.3 +
Lead	10	3	17.1	27.4	17.2	15.5	12.7	5.8	14.4
Additional RCRA Metals (ppm)									
Silver	7.2	NA	NA	NA	NA	NA	NA	NA	NA
Barium	5.7	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.06	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	0.12	NA	NA	NA	NA	NA	NA	NA	NA

See notes at end of table.

Table 5-1 (Continued)
Soil Samples, Waste-Oil Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Boring Designation:	SB148	SB148D	SB149	SB150	SB151	SB152	SB153	SB154	SB155	SB155D
Collection Date:	31-JAN-96	31-JAN-96	31-JAN-96	31-JAN-96	31-JAN-96	31-JAN-96	31-JAN-96	31-JAN-96	31-JAN-96	31-JAN-96
Polynuclear Aromatic Hydrocarbons (ppb)										
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PAHs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Recoverable Petroleum Hydrocarbons (ppm)										
Total Petroleum Hydrocarbons	31.7	30.1	34.8	52	854	--	--	--	--	--
Metals (ppm)										
Cadmium	0.17	0.16	0.13	0.23	0.16	0.17	0.21	0.17	0.17	0.16
Chromium	3	2.1	2.8	3	2.8	3.5	3.3	2.7	3.3	2.9
Arsenic	14.9	3.4	6.1	6.1	7.1	11.5 +	9.1 +	2.3	6.7	6.4 +
Lead	9.3	6.1	6.5	14.3	8.6	15	19.1	2.1	11	4.9
Additional RCRA Metals (ppm)										
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes at end of table.

Table 5-1 (Continued)
Soil Samples, Waste-Oil Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Boring Designation:	SB156	SB157	SB158	SB166	SB167	SB168	SB169	SB170	SB171	SB172
Collection Date:	31-JAN-96	31-JAN-96	01-FEB-96	05-FEB-96	05-FEB-96	06-FEB-96	06-FEB-96	06-FEB-96	06-FEB-96	06-FEB-96
Polynuclear Aromatic Hydrocarbons (ppb)										
Naphthalene	--	NA	NA	--	540	NA	NA	--	NA	NA
2-Methylnaphthalene	9,300	NA	NA	--	680	NA	NA	--	NA	NA
Dibenzofuran	--	NA	NA	--	190 J	NA	NA	--	NA	NA
Phenanthrene	--	NA	NA	--	580	NA	NA	--	NA	NA
Anthracene	2,100	NA	NA	--	--	NA	NA	--	NA	NA
Fluoranthene	--	NA	NA	--	280 J	NA	NA	--	NA	NA
Pyrene	240	NA	NA	--	390	NA	NA	--	NA	NA
Benzo(a)anthracene	--	NA	NA	--	180 J	NA	NA	--	NA	NA
Chrysene	--	NA	NA	--	230 J	NA	NA	--	NA	NA
bis(2-Ethylhexyl) phthalate	--	NA	NA	--	--	NA	NA	350 J	NA	NA
Benzo(a)pyrene	--	NA	NA	--	150 J	NA	NA	--	NA	NA
Total PAHs	11,640	NA	NA	--	3,220	NA	NA	350	NA	NA
Total Recoverable Petroleum Hydrocarbons (ppm)										
Total Petroleum Hydrocarbons	19,000	7,290	--	--	117	3,580	58	1,600	106	1,170
Metals (ppm)										
Cadmium	0.23	0.13	0.18	23.3	1.0	0.47	0.99	1.0	0.47	0.18
Chromium	3.4	2.9	4.3	5.0	5.0	1.7	11.8	5.0	3	3.2
Arsenic	3.7	2.6	1.6 +	18.0	2.8	0.66	3.5	2.2	0.98	0.62
Lead	4.1	7.2	2.3	1.0	1.0	7	12.8	6.6	56.7	2.4
Additional RCRA Metals (ppm)										
Silver	7.1	NA	NA	16.7	16.8	NA	NA	15.5	NA	NA
Barium	8.8	NA	NA	31.6	67.8	NA	NA	479	NA	NA
Mercury	0.06	NA	NA	0.28	--	NA	NA	--	NA	NA
Selenium	0.14	NA	NA	25.0	25.0	NA	NA	25.0	NA	NA

See notes at end of table.

Table 5-1 (Continued)
Soil Samples, Waste-Oil Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Boring Designation:	SB173	SB174	SB175	SB176	SB177	SB178	SB223	SB224	SB225
Collection Date:	06-FEB-96	06-FEB-96	06-FEB-96	06-FEB-96	07-FEB-96	07-FEB-96	26-MAR-96	26-MAR-96	26-MAR-96
Polynuclear Aromatic Hydrocarbons (ppb)									
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PAHs	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Recoverable Petroleum Hydrocarbons (ppm)									
Total Petroleum Hydrocarbons	52.2	66.7	37.3	87.2	743	5,320	3,070	11,000	9,270
Metals (ppm)									
Cadmium	0.57	0.43	0.15	0.17	0.47	0.29	0.53	0.13	0.14
Chromium	4.3	7.9	2.3	1.9	2.4	22.9	3.2	2.5	2
Arsenic	1.2	3.9	0.36	0.47	1.7	0.59	12.5	2.1	0.85
Lead	59.3	0.78	2.5	6.5	31	146	323	8.3	7.9
Additional RCRA Metals (ppm)									
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes at end of table.

Table 5-1 (Continued)
Soil Samples, Waste-Oil Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Boring Designation:	SB226	SB227	SB228	SB229	SB230	SB239	SB240
Collection Date:	26-MAR-96	26-MAR-96	26-MAR-96	26-MAR-96	26-MAR-96	31-JUL-96	31-JUL-96
Polynuclear Aromatic Hydrocarbons (ppb)							
Naphthalene	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA
Total PAHs	NA	NA	NA	NA	NA	NA	NA
Total Recoverable Petroleum Hydrocarbons (ppm)							
Total Petroleum Hydrocarbons	390	--	--	15,000	52.8	1,110	--
Metals (ppm)							
Cadmium	0.13	0.13	0.12	0.13	0.13	NA	NA
Chromium	2.7	2.8	3.5	2.6	3.2	NA	NA
Arsenic	2.1	0.93	1.4	5.2	3	NA	NA
Lead	1.8	2.2	1.6	2.5	6.7	NA	NA
Additional RCRA Metals (ppm)							
Silver	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA	NA

Notes: ppb = parts per billion.
-- = not detected for this compound.
NA = not analyzed for this compound.
J = estimated value.
PAH = polynulear aromatic hydrocarbons.
ppm = parts per million.
RCRA = Resource Conservation and Recovery Act.

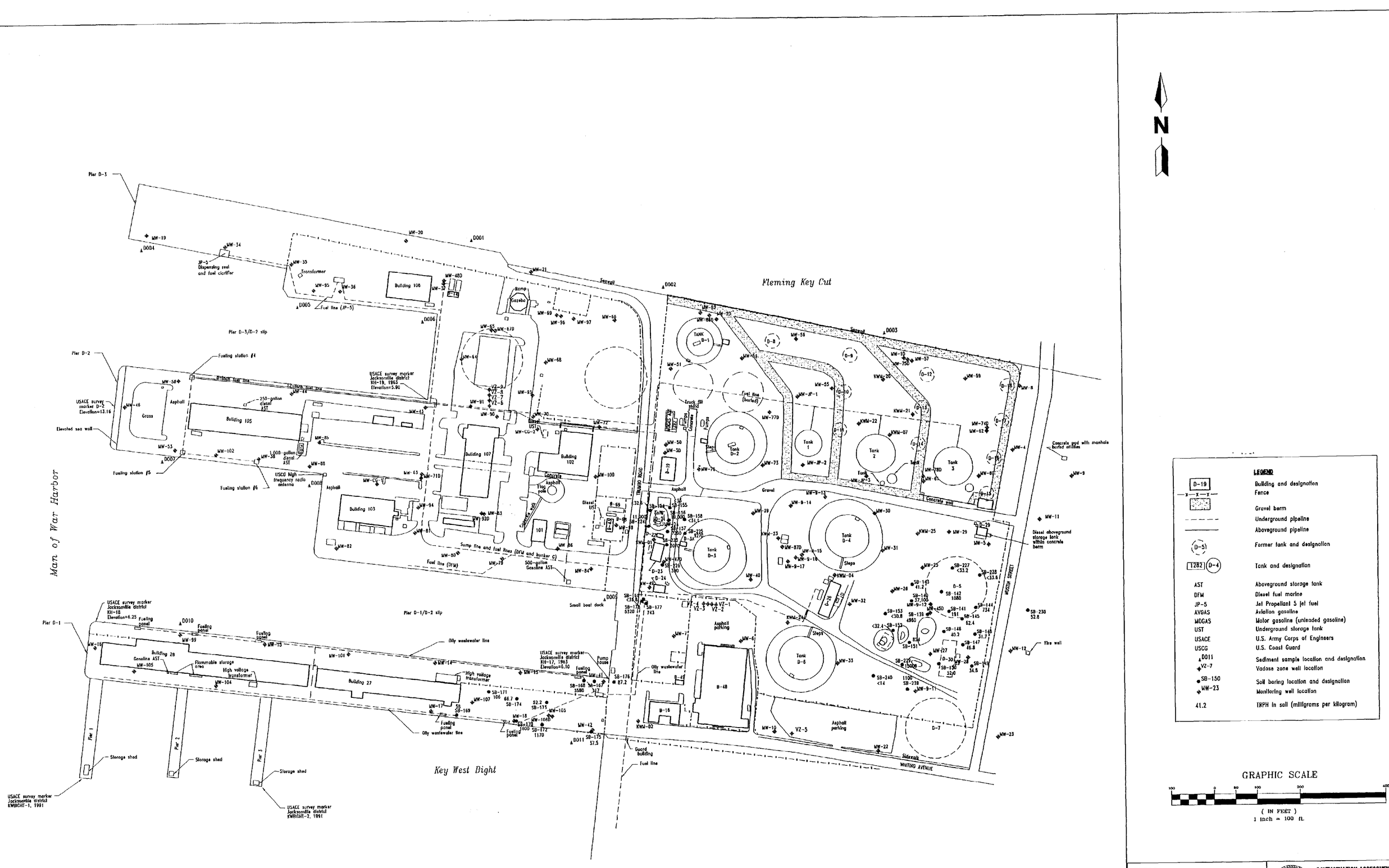


FIGURE 6-2
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPHO IN SOIL

CONTAMINATION ASSESSMENT REPORT
TRUMBO POINT FUEL FARM
NAVAL AIR STATION
KEY WEST, FLORIDA

0076 G05X

Table 5-2
Groundwater and QA/QC Samples, Kerosene Analytical Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Groundwater Sample Location:	G001	G003	G004	G004D	G005	G008	G009	G015	G015D
Monitoring Well:	MW-01	MW-03	MW-04	MW-04-D	MW-05	MW-08	MW-09	MW-15	MW-15-D
Collection Date:	10-APR-96	11-APR-96	02-APR-96	02-APR-96	03-APR-96	02-APR-96	02-APR-96	12-APR-96	12-APR-96
Volatile Organic Compounds (ppb)									
1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	--	--	--	--	--	--	--	3.1	3.3
Bromodichloromethane	--	--	--	--	--	--	--	--	--
Bromoform	--	--	--	--	--	--	--	--	--
Chlorobenzene	--	--	1.6	--	--	--	--	--	--
Dibromochloromethane	--	--	--	--	--	--	--	--	--
Trichloroethene	--	--	--	--	--	--	--	1.1	1.1
Trichlorofluoromethane	--	--	--	--	--	--	--	--	--
Tetrachloroethene	--	--	--	--	--	--	--	6	6.2
Benzene	--	1.1	940	990	1.4	19	--	--	--
Ethylbenzene	--	--	190	190	--	--	--	10	11
Toluene	--	--	2.5	2.2	--	--	--	6.4	7.2
m-Xylene and p-Xylene	--	--	8	8.8	--	3.2	--	29	30
o-Xylene	--	--	2.4	2.6	--	--	--	38	39
Methyl tert-butyl ether	--	--	--	--	--	--	--	--	--
Total VOA	--	1.1	1,142.9	1,193.6	1.4	22.2	--	83.4	87.2
Polynuclear Aromatics (ppb)									
Naphthalene	--	--	6.7	7.1	--	1	--	75	48
2-Methylnaphthalene	--	--	32	4.1	1.4	3.2	--	44	32
1-Methylnaphthalene	--	--	25	40	--	--	--	55	49
Total Naphthalene	--	--	63.7	51.2	1.4	4.2	--	174	129
Acenaphthylene	--	--	1.9	5.4	--	1.8	1.7	3.4	2.9
Acenaphthene	--	--	1.3	2.1	2	--	--	--	--
Fluorene	--	76	17	16	--	--	--	3	2.5

See notes at end of table.

Table 5-2 (Continued)
Groundwater and QA/QC Samples, Kerosene Analytical Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Groundwater Sample Location:	G001	G003	G004	G004D	G005	G008	G009	G015	G015D
Monitoring Well:	MW-01	MW-03	MW-04	MW-04D	MW-05	MW-08	MW-09	MW-15	MW-15-D
Collection Date:	10-APR-96	11-APR-96	02-APR-96	02-APR-96	03-APR-96	02-APR-96	02-APR-96	12-APR-96	12-APR-96
Polynuclear Aromatics (ppb)--continued									
Phenanthrene	--	--	3.6	2.5	1.4	--	--	1.1	1
Anthracene	--	--	--	--	--	1.4	--	--	--
Fluoranthene	--	--	--	--	--	--	--	--	--
Pyrene	--	--	--	--	--	--	--	--	--
Chrysene	--	--	--	--	--	--	--	--	--
Total Recoverable Petroleum Hydrocarbons (ppm)									
Total Petroleum Hydrocarbons	1.1	--	--	--	--	--	--	2.1	--
Metals (ppb)									
Lead	1 U	5 U	--	--	--	1 U	--	1 U	1 U

See notes at end of table.

Table 5-2 (Continued)
Groundwater and QA/QC Samples, Kerosene Analytical Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Groundwater Sample Location:	G033	G035	G036	G037	G039	G040	G044	G047	G048	G050
Monitoring Well:	MW-33	MW-35	MW-36	MW-37	MW-39	MW-40	MW-44	MW-47	MW-48	MW-50
Collection Date:	08-APR-96	11-APR-96	11-APR-96	09-APR-96	09-APR-96	10-APR-96	12-APR-96	12-APR-96	10-APR-96	10-APR-96
Volatile Organic Compounds (ppb)										
1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	--	--	--	--	--	--	--	--	--	--
Bromoform	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	--	--	--	--	--	--	--	--	--	--
Trichloroethene	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	--	--	--	--	--	--	--	--	--	--
Benzene	--	1	--	--	--	--	--	--	--	--
Ethylbenzene	--	--	--	--	2.2	--	--	--	--	3.6
Toluene	1.6	2.4	--	--	--	--	--	--	--	--
m-Xylene and p-Xylene	--	--	--	--	--	--	--	--	--	--
o-Xylene	--	--	--	--	--	--	1	--	--	--
Methyl tert-butyl ether	--	--	--	--	--	--	--	--	--	--
Total VOA	1.6	3.4	--	--	2.2	--	1	--	--	3.6
Polynuclear Aromatics (ppb)										
Naphthalene	--	--	--	--	--	--	--	--	--	7.8
2-Methylnaphthalene	--	--	3.9	1.3	5.3	12	--	--	--	91
1-Methylnaphthalene	--	--	3.1	5	5.4	3.2	--	--	--	98
Total Naphthalene	--	--	7.0	6.3	10.7	15.2	--	--	--	196.8
Acenaphthylene	1.1	--	2.3	--	--	8.5	--	--	1.9	5.6
Acenaphthene	--	--	1.5	--	--	1.5	1.1	--	--	6.6
Fluorene	--	--	--	--	1.2	1.4	--	--	1.8	4.9

See notes at end of table.

Table 5-2 (Continued)
Groundwater and QA/QC Samples, Kerosene Analytical Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Groundwater Sample Location:	G033	G035	G036	G037	G039	G040	G044	G047	G048	G050
Monitoring Well:	MW-33	MW-35	MW-36	MW-37	MW-39	MW-40	MW-44	MW-47	MW-48	MW50
Collection Date:	08-APR-96	11-APR-96	11-APR-96	09-APR-96	09-APR-96	10-APR-96	12-APR-96	12-APR-96	10-APR-96	10-APR-96
Polynuclear Aromatics (ppb)--continued										
Phenanthrene	--	1.5	--	--	2.4	5.3	--	2.6	--	7.7
Anthracene	--	--	--	--	--	2.4	--	--	--	--
Fluoranthene	--	--	--	--	--	2.2	--	--	--	--
Pyrene	--	--	--	--	--	--	--	--	--	--
Chrysene	--	--	--	--	--	--	--	--	--	--
Total Recoverable Petroleum Hydrocarbons (ppm)										
Total Petroleum Hydrocarbons	--	--	--	--	--	1.9	--	--	--	--
Metals (ppb)										
Lead	5 U	1 U	1 U	1 U	1 U	--	1 U	5 U	1 U	--

See notes at end of table.

Table 5-2 (Continued)
Groundwater and QA/QC Samples, Kerosene Analytical Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Groundwater Sample Location:	G051	G051D	G052	G054	G055	G056	G057	G060	G061
Monitoring Well:	MW-51	MW-51-D	MW-52	MW-54	MW-55	MW-56	MW-57	MW-60	MW-61
Collection Date:	10-APR-96	10-APR-96	09-APR-96	10-APR-96	10-APR-96	09-APR-96	09-APR-96	02-APR-96	09-APR-96
Volatile Organic Compounds (ppb)									
1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	--	--	--	--	--	--	--	--	--
Bromodichloromethane	--	--	--	--	--	--	--	--	--
Bromoform	--	--	--	--	--	--	--	--	--
Chlorobenzene	--	--	--	--	--	--	--	--	--
Dibromochloromethane	--	--	--	--	--	--	--	--	--
Trichloroethene	--	--	--	--	--	--	--	--	3.4
Trichlorofluoromethane	--	--	--	--	--	--	--	--	--
Tetrachloroethene	--	--	--	--	--	--	--	--	--
Benzene	--	--	--	--	4.3	--	--	620	53
Ethylbenzene	--	--	--	--	--	1.4	7.5	37	16
Toluene	--	--	1.2	--	--	--	--	--	--
m-Xylene and p-Xylene	--	--	1	--	--	--	--	9.3	1.7
o-Xylene	--	--	--	1.2	--	--	--	3.8	--
Methyl tert-butyl ether	--	--	3.5	--	--	--	--	--	--
Total VOA	--	--	2.2	1.2	4.3	1.4	7.5	670.1	70.7
Polynuclear Aromatics (ppb)									
Naphthalene	1.1	--	--	2.2	130	2.7	4	14	7.6
2-Methylnaphthalene	--	--	--	18	650	20	2.4	72	9.4
1-Methylnaphthalene	2	1.3	--	5	970	4.8	8.9	96	8
Total Naphthalene	3.1	1.3	--	27.2	1,350	27.5	15.3	182	25
Acenaphthylene	--	--	--	1.5	120	--	--	2.1	1
Acenaphthene	--	--	--	2	63	--	--	2	1.6
Fluorene	--	--	--	1.8	--	6.8	--	--	1.4

See notes at end of table.

Table 5-2 (Continued)
Groundwater and QA/QC Samples, Kerosene Analytical Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Groundwater Sample Location:	G051	G051D	G052	G054	G055	G056	G057	G060	G061
Monitoring Well:	MW-51	MS-51-D	MW-52	MW-54	MW-55	MW-56	MW-57	MW-60	MW-61
Collection Date:	10-APR-96	10-APR-96	09-APR-96	10-APR-96	10-APR-96	09-APR-96	09-APR-96	02-APR-96	09-APR-96
Polynuclear Aromatics (ppb)--continued									
Phenanthrene	--	--	--	4.1	--	2.9	--	2.6	2.6
Anthracene	--	--	--	--	16	--	--	2.5	--
Fluoranthene	--	--	--	--	--	--	--	--	--
Pyrene	--	--	--	--	--	--	--	--	--
Chrysene	--	--	--	--	--	--	--	--	--
Total Recoverable Petroleum Hydrocarbons (ppm)									
Total Petroleum Hydrocarbons	--	--	--	--	157	--	3.5	--	--
Metals (ppb)									
Lead	--	--	1 U	--	1.4	1 U	1 U	--	1 U

See notes at end of table.

Table 5-2 (Continued)
Groundwater and QA/QC Samples, Kerosene Analytical Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Groundwater Sample Location:	G063	G064	G066	G070	G071	G073	G074	G077	G078	G079
Monitoring Well:	MW-63	MW-64	MW-66	MW-70	MW-71	MW-73	MW-74	MW-77	MW-78	MW-79
Collection Date:	13-APR-96	11-APR-96	08-APR-96	08-APR-96	10-APR-96	09-APR-96	10-APR-96	11-APR-96	10-APR-96	09-APR-96
Volatile Organic Compounds (ppb)										
1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	--	--	--	--	--	--	--	--	--	1.1
Bromodichloromethane	--	--	--	--	1.1	--	--	--	--	--
Bromoform	--	--	--	--	6.5	--	--	--	--	--
Chlorobenzene	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	--	--	--	--	3.6	--	--	--	--	--
Trichloroethene	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	--	--	--	--	--	--	--	--	--	--
Benzene	--	--	--	--	--	--	38	--	--	--
Ethylbenzene	--	--	--	--	--	--	3.8	--	--	--
Toluene	--	--	--	--	--	--	1.3	--	--	--
m-Xylene and p-Xylene	--	--	--	--	--	--	9.4	--	--	--
o-Xylene	--	--	--	--	--	--	2.5	--	--	--
Methyl tert-butyl ether	--	--	--	--	--	--	--	--	--	--
Total VOA	--	--	--	--	--	--	55	--	--	--
Polynuclear Aromatics (ppb)										
Naphthalene	--	--	--	--	--	--	3.8	--	--	--
2-Methylnaphthalene	--	--	--	--	--	30	10	--	--	--
1-Methylnaphthalene	1.1	--	--	--	--	32	5.4	--	--	--
Total Naphthalene	1.1	--	--	--	--	62	19.2	--	--	--
Acenaphthylene	--	--	3.3	--	--	4.6	11	1.4	1.3	--
Acenaphthene	--	--	--	--	--	--	1.7	--	--	--
Fluorene	1.2	--	--	--	--	1.8	1.7	--	--	--

See notes at end of table.

Table 5-2 (Continued)
Groundwater and QA/QC Samples, Kerosene Analytical Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Groundwater Sample Location:	G063	G064	G066	G070	G071	G073	G074	G077	G078	G079
Monitoring Well:	MW-63	MW-64	MW-66	MW-70	MW-71-D	MW-73	MW-74	MW-77	MW-78	MW-79
Collection Date:	13-APR-96	11-APR-96	08-APR-96	08-APR-96	10-APR-96	09-APR-96	10-APR-96	11-APR-96	10-APR-96	09-APR-96
Polynuclear Aromatics (ppb)--continued										
Phenanthrene	--	--	--	1.5	--	2.4	1.4	--	--	--
Anthracene	--	--	--	--	--	--	1.7	--	--	--
Fluoranthene	--	--	--	--	--	--	--	--	--	--
Pyrene	--	--	--	--	--	--	--	--	--	--
Chrysene	--	--	--	--	--	--	--	--	--	--
Total Recoverable Petroleum Hydrocarbons (ppm)										
Total Petroleum Hydrocarbons	--	1.2	--	--	--	--	--	--	--	--
Metals (ppb)										
Lead	1.2	3.6	1 U	1 U	1 U	1.2	1 U	5 U	1 U	--

See notes at end of table.

Table 5-2 (Continued)
Groundwater and QA/QC Samples, Kerosene Analytical Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Groundwater Sample Location:	G082	G085	G086	G087	G087D	G091	G092	G093	G093D	G094
Monitoring Well:	MW-82	MW-85	MW-86	MW-87	MW-87-D	MW-91	MW-92	MW-93	MW-93-D	MW-94
Collection Date:	08-APR-96	11-APR-96	08-APR-96	11-APR-96	11-APR-96	13-APR-96	11-APR-96	13-APR-96	13-APR-96	13-APR-96
Volatile Organic Compounds (ppb)										
1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	--	--	--	--	--	--	3	--	--	--
Bromodichloromethane	--	--	--	--	--	--	--	--	--	--
Bromoform	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	--	--	--	--	--	--	--	--	--	--
Trichloroethene	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane	--	--	--	--	--	--	--	--	--	2.1
Tetrachloroethene	--	--	--	--	--	--	--	--	--	--
Benzene	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	--	--	--	--	--	--	--	1.5	1.1	--
Toluene	--	--	--	--	--	--	--	--	--	--
m-Xylene and p-Xylene	--	--	--	--	--	--	--	2.8	2.1	--
o-Xylene	--	--	--	--	--	--	--	1.4	1.2	--
Methyl tert-butyl ether	--	--	--	--	--	--	--	--	--	--
Total VOA	--	--	--	--	--	--	--	5.7	4.4	--
Polynuclear Aromatics (ppb)										
Naphthalene	1.8	--	4.8	--	--	--	--	--	--	--
2-Methylnaphthalene	1.3	--	1.9	--	--	14	--	7.5	7.9	--
1-Methylnaphthalene	2.7	--	4.3	--	--	--	--	--	--	--
Total Naphthalene	5.8	--	11	--	--	14	--	7.5	7.9	--
Acenaphthylene	16	1.9	17	--	--	4	--	1.3	2.6	--
Acenaphthene	1.5	--	9.6	--	--	1.7	--	1.4	1.4	--
Fluorene	1.2	--	1.5	--	--	6.3	--	--	--	--

See notes at end of table.

Table 5-2 (Continued)
Groundwater and QA/QC Samples, Kerosene Analytical Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Groundwater Sample Location:	G082	G085	G086	G087	G087D	G091	G092	G093	G093D	G094
Monitoring Well:	MW-82	MW-85	MW-86	MW-87	MW-87-d	MW-91	MW-92	MW-93	MW-93-D	MW-94-D
Collection Date:	08-APR-96	11-APR-96	08-APR-96	11-APR-96	11-APR-96	13-APR-96	11-APR-96	13-APR-96	13-APR-96	13-APR-96
Polynuclear Aromatics (ppb)--continued										
Phenanthrene	2.6	1.5	2	6.4	63	--	--	--	--	--
Anthracene	--	--	--	--	--	3	--	--	--	--
Fluoranthene	--	--	--	--	--	1.3	--	--	--	--
Pyrene	1.1	--	2.3	--	--	--	--	--	--	--
Chrysene	--	--	--	--	--	--	--	--	--	--
Total Recoverable Petroleum Hydrocarbons (ppm)										
Total Petroleum Hydrocarbons	--	--	[illegible]	--	--	3.1	--	--	--	--
Metals (ppb)										
Lead	1 U	5 U	1 U	1 U	5 U	--	1 U	1 U	1 U	1 U

See notes at end of table.

Table 5-2 (Continued)
Groundwater and QA/QC Samples, Kerosene Analytical Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Groundwater Sample Location:	G097	G098	G099	G102	GP02	G913	GK01	GK02	GK20	GK21	R005
Monitoring Well:	MW-97	MW-98	MW-9	MW-102	MW-JP-02	MW-9-13	KWM-01	KWM-02	KWM-20	KWM-21	Rinsate Blank
Collection Date:	13-APR-96	08-APR-96	12-APR-96	13-APR-96	10-APR-96	10-APR-96	11-APR-96	02-APR-96	11-APR-96	11-APR-96	11-APR-96
Volatile Organic Compounds (ppb)											
1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	--	--	4.4	--	--	--	--	--	--	--	--
Bromodichloromethane	--	--	--	--	--	--	--	--	--	--	1.6
Bromoform	--	--	--	--	--	--	--	--	--	--	12
Chlorobenzene	--	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	--	--	--	--	--	--	--	--	--	--	5.5
Trichloroethene	--	--	1	1	--	--	--	--	--	--	--
Trichlorofluoromethane	--	--	2.2	--	--	--	--	--	--	--	--
Benzene	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	--	--	1.6	--	--	--	--	--	--	--	--
Toluene	--	--	2	--	--	--	1	--	--	--	--
m-Xylene and p-Xylene	--	--	--	--	--	1.5	--	--	--	--	--
o-Xylene	--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	--	--	--	--	--	--	--	--	--	--	--
Total VOA	--	--	3.6	--	--	1.5	1	--	--	--	--
Polynuclear Aromatics (ppb)											
Naphthalene	1.3	--	3.7	--	1.5	--	2.6	--	1.4	2.5	--
2-Methylnaphthalene	--	2.5	--	--	--	5	1.6	--	20	24	--
1-Methylnaphthalene	--	1.9	5.7	--	3.4	1.7	3.8	--	34	1.4	--
Total Naphthalene	1.3	4.4	9.4	--	4.9	6.7	8.0	--	55.4	27.9	--
Acenaphthylene	1.1	--	--	--	--	5.5	37	--	11	3.1	--
Acenaphthene	--	--	--	--	6	--	4.8	1.7	2.1	1.2	--
Fluorene	1.5	--	3.2	--	1.7	1.9	4.6	--	26	2.2	--

See notes at end of table.

Table 5-2 (Continued)
Groundwater and QA/QC Samples, Kerosene Analytical Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Groundwater Sample Location:	G097	G098	G099	G102	GP02	G913	GK01	GK02	GK20	GK21	R005
Monitoring Well:	MW-97	MW-98	MW-9	MW-102	MW-JP-02	MW-9-13	KWM-01	KWM-02	KWM-20	KWM-21	Rinsate Blank
Collection Date:	13-APR-96	08-APR-96	12-APR-96	13-APR-96	10-APR-96	10-APR-96	11-APR-96	02-APR-96	11-APR-96	11-APR-96	11-APR-96
Polynuclear Aromatics (ppb)											
Phenanthrene	--	--	--	--	--	5.2	9.1	--	6.1	3.1	--
Anthracene	--	--	--	--	--	5.1	--	--	--	--	--
Fluoranthene	--	--	--	--	--	--	--	--	--	--	--
Pyrene	--	--	--	--	--	--	--	--	--	--	--
Chrysene	--	--	--	--	--	--	--	--	--	--	--
Total Recoverable Petroleum Hydrocarbons (ppm)											
Total Petroleum Hydrocarbons	--	--	--	--	--	--	15.7	--	1.2	1.6	--
Metals (ppb)											
Lead	1 U	1 U	1 U	5 U	1 U	1 U	8.8	12	1.5	5 U	5 U

Notes: QA/QC = quality assurance and quality control.
ppb = parts per billion.
-- = not detected for this compound.
ppm = parts per million.
U = analyte was not detected.
Total VOA = total sum of benzene, ethylbenzene, toluene, and xylenes.
VOA = volatile organic aromatic.
D = duplicate sample.

Table 5-3
Groundwater and QA/QC Samples, Waste Oil Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Groundwater Sample Location:	G013	G014	G017	G018	G024	G025	G026	G028	G042
Monitoring Well:	MW-13	MW-14	MW-17	MW-18	MW-24	MW-25	MW-26	MW-28	MW-42
Collection Date:	14-APR-96	14-APR-96	14-APR-96	14-APR-96	15-APR-96	15-APR-96	15-APR-96	15-APR-96	14-APR-96
Volatile Organic Compounds (ppb)									
1,1-Dichloroethane	--	--	--	--	--	--	--	4 J	--
Dibromochloromethane	--	--	--	--	--	--	--	--	--
Benzene	--	--	--	--	--	--	--	12	--
Bromoform	--	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds (ppb)									
Phenol	--	--	15	92	--	--	--	--	43
2,4-Dimethylphenol	--	--	--	54	--	--	--	--	--
bis(2-Ethylhexyl)-phthalate	--	--	--	--	--	--	--	--	4 J
Total Recoverable Petroleum Hydrocarbons (ppm)									
Total Petroleum Hydrocarbons	--	--	--	--	--	--	--	--	--
Metals (ppb)									
Cadmium	--	--	--	--	1	--	--	--	--
Chromium	--	--	--	7.7	--	--	--	--	--
Arsenic	2.8	2.1	3.1	2.4	10.6	2.6	2.3	14.5	2.6
Lead	1	1	--	--	--	1	1	1	1

See notes at end of table.

Table 5-3 (Continued)
Groundwater and QA/QC Samples, Waste Oil Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Groundwater Sample Location:	G045	G049	G103	G103D	G106	G107	T011	R006
Monitoring Well:	MW-45	MW-49	MW-103	MW-103-D	MW-106	MW-107	Trip Blank	Rinsate Blank
Collection Date:	15-APR-96	15-APR-96	14-APR-96	14-APR-96	14-APR-96	14-APR-96	14-APR-96	14-APR-96
Volatile Organic Compounds (ppb)								
1,1-Dichloroethane	--	--	--	--	--	--	--	--
Dibromochloromethane	--	--	--	--	--	--	--	6
Benzene	--	--	--	--	--	--	--	--
Bromoform	--	--	--	--	--	--	--	10
Semivolatile Organic Compounds (ppb)								
Phenol	--	--	--	--	--	--	NA	--
2,4-Dimethylphenol	--	--	--	--	--	--	NA	--
bis(2-Ethylhexyl)phthalate	--	--	--	--	--	--	NA	--
Total Recoverable Petroleum Hydrocarbons (ppm)								
Total Petroleum Hydrocarbons	2.3	--	--	--	--	--	NA	--
Metals (ppb)								
Cadmium	--	1.1	1	--	--	--	NA	--
Chromium	--	--	--	--	--	--	NA	--
Arsenic	4.2	8	1.8	1.1	8	2.5	NA	1.3
Lead	1	1	--	--	1.3	1	NA	1

Notes: QA/QC = quality assurance and quality control.
ppb = parts per billion.
-- = not detected for this compound.
J = estimated value.
NA = not analyzed for this compound.
ppm = parts per million.

For petroleum compounds regulated under Chapter 62-770, FAC, Class G-II groundwater target levels will be used, where applicable. The following target level concentrations have been established in Chapter 62-770, FAC: benzene 1 ppb, total VOA (the sum of benzene, ethylbenzene, toluene, and xylenes) 50 ppb, TRPH 5 ppm, lead 50 ppb, total naphthalenes (the sum of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene) 100 ppb, individual PAH 10 ppb or best achievable detection limit (excluding naphthalenes), EDB 0.02 ppb, and MTBE 50 ppb.

EDB was not detected in any groundwater sample collected at the site. MTBE was detected in only one groundwater sample collected from MW-52 at a concentration (3.5 ppb) well below the State target level of 50 ppb (see Table 5-2).

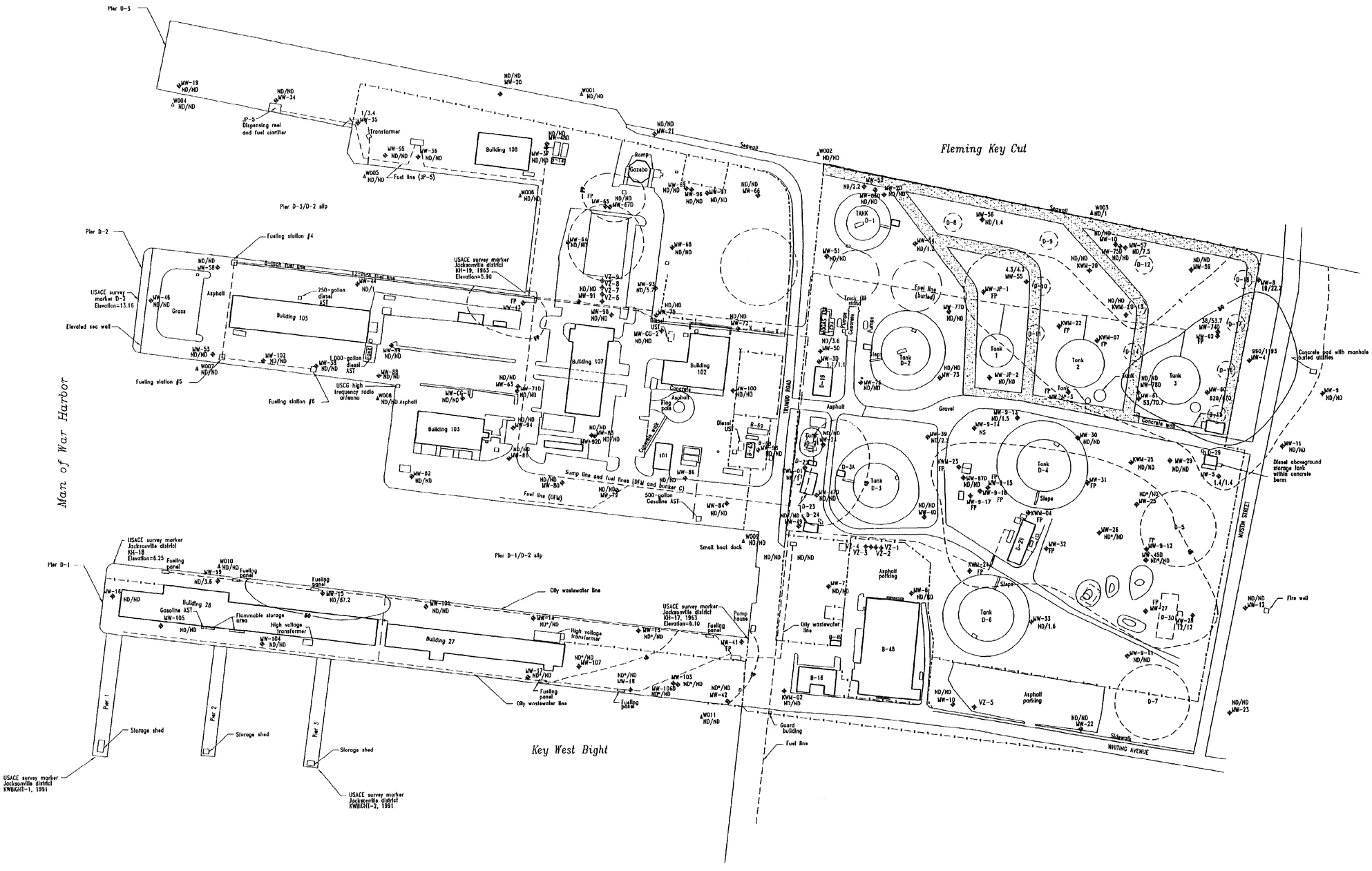
5.2.1 VOCs in Groundwater Several areas of petroleum-contaminated groundwater were assessed at the TPFF and USCG. Presented on Figure 5-3 are total VOA concentrations in groundwater samples from wells in these areas, the areal extent of total VOA contamination, and the location of contaminant plume in relation to the tanks and integral pipes. Monitoring wells which contained free product were not sampled. Presented in Tables 5-2 and 5-3 are a summary of groundwater analytical data from well samples with detectable levels of BTEX, and their sum, total VOA.

Total VOA concentrations exceed the Chapter 62-770, FAC, target level for total VOA of 50 ppb in two areas at the site (see Figure 5-3). Total VOA concentrations greater than the State target level of 50 ppb were detected in groundwater samples collected from monitoring wells MW-4 (1,193 ppb), MW-15 (87.2 ppm), MW-60 (670 ppb), MW-61 (70.7 ppb), and MW-74D (53.7 ppb), which are located in the northeast area of the TPFF. MW-74D is screened from 25 to 30 feet bls and is located approximately 7 feet north of MW-62, which is screened from 3 to 13 feet bls and contained free product. Monitoring wells that contained free-floating petroleum product, however, were not sampled and potentially represent areas that could exceed the State target level of 50 ppb for total VOA.

As part of an alternative procedure granted by FDEP to attempt to lower the VOA concentrations in monitoring well MW-74D, the well was pumped for 3 days starting on July 29, 1996, and resampled on August 2, 1996. Total VOA concentration increased slightly to 66.6 ppb with benzene (57 ppb), ethylbenzene (3.1 ppb), and xylenes (6.5 ppb).

Total VOA concentrations greater than the State target level of 50 ppb were not detected in groundwater samples from the other deep monitoring wells at the site. The total VOA concentration in the sample from MW-1D, which is screened from 40 to 45 feet bls, was 1.1 ppb.

Benzene. Presented on Figure 5-3 are the benzene concentrations in groundwater and the 1 ppb isoconcentration contour line for benzene in groundwater beneath the site. The 1 ppb benzene isoconcentration line overlaps the total VOA isoconcentration line and is generally located in the same area. The highest benzene concentrations were detected in groundwater samples collected from monitoring wells MW-4 (990 ppb), MW-60 (620 ppb), MW-61 (53 ppb), and MW-74D (38 ppb), which coincide with the areas of highest observed soil contamination. High benzene concentrations were also detected in MW-28 (12 ppb) in the former tank D-5 area. Monitoring wells that contained free-floating petroleum product,



LEGEND

- D-19 — Building and designation
- Fence
- Gravel berm
- Underground pipeline
- Aboveground pipeline
- (D-5) — Former tank and designation
- 1292 (D-4) — Tank and designation
- 50 — Volatile organic compound isoconcentration line and value in parts per million
- Benzene isoconcentration line and value
- AST — Aboveground storage tank
- DFM — Diesel fuel marine
- JP-5 — Jet Propellant 5 jet fuel
- AVGAS — Aviation gasoline
- MOGAS — Motor gasoline (unleaded gasoline)
- UST — Underground storage tank
- USACE — U.S. Army Corps of Engineers
- USCG — U.S. Coast Guard
- WO11 — Surface water sample location and designation
- VZ-7 — Vadose zone well location and designation
- MW-23 — Monitoring well location and designation
- Total VOA = Sum of benzene, ethylbenzene, toluene, and xylenes
- KWW-24 — Monitoring well location and designation installed before 1990
- NS = Not sampled
- ND = Not detected
- FP = Free product
- * = Elevated detection limit of 5 micrograms per liter ($\mu g/l$)
- 19/22.2 — Benzene/total VOA concentration ($\mu g/l$)
- MSL = Mean sea level

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

FIGURE 5-3
BENZENE AND TOTAL VOLATILE ORGANIC AROMATICS CONCENTRATION IN GROUNDWATER AND SURFACE WATER

CONTAMINATION ASSESSMENT REPORT

TRUMBO POINT FUEL FARM
NAVAL AIR STATION
KEY WEST, FLORIDA

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however, were not sampled and potentially represent areas that could exceed the State target level of 1 ppb for benzene. Laboratory analytical results of groundwater samples with detectable levels of benzene are presented in Tables 5-2 and 5-3.

Chlorinated Compounds. Several chlorinated compounds were detected in the groundwater samples collected from monitoring wells MW-15, MW-28, MW-61, MW71D, MW-79, MW-92D, MW-94, MW-99, and MW-102 at concentrations ranging from 1.0 to 6.5 ppb (see Tables 5-2 and 5-3). Compounds detected included 1,1-dichloroethane, 1,2 dichlorobenzene, bromodichloromethane, bromoform, dibromochloromethane, trichloroethene, and trichlorofluoromethane. The source of these compounds is not known; however, several of these compounds are commonly used as solvents or degreasing agents and may have been used at the site in the past. Bromodichloromethane, bromoform, and dibromochloromethane were also detected at similar concentrations in equipment rinsate blanks 01R005 and 01R006 (see Tables 5-2 and 5-3) and may have been introduced as contaminants by the laboratory that analyzed the samples.

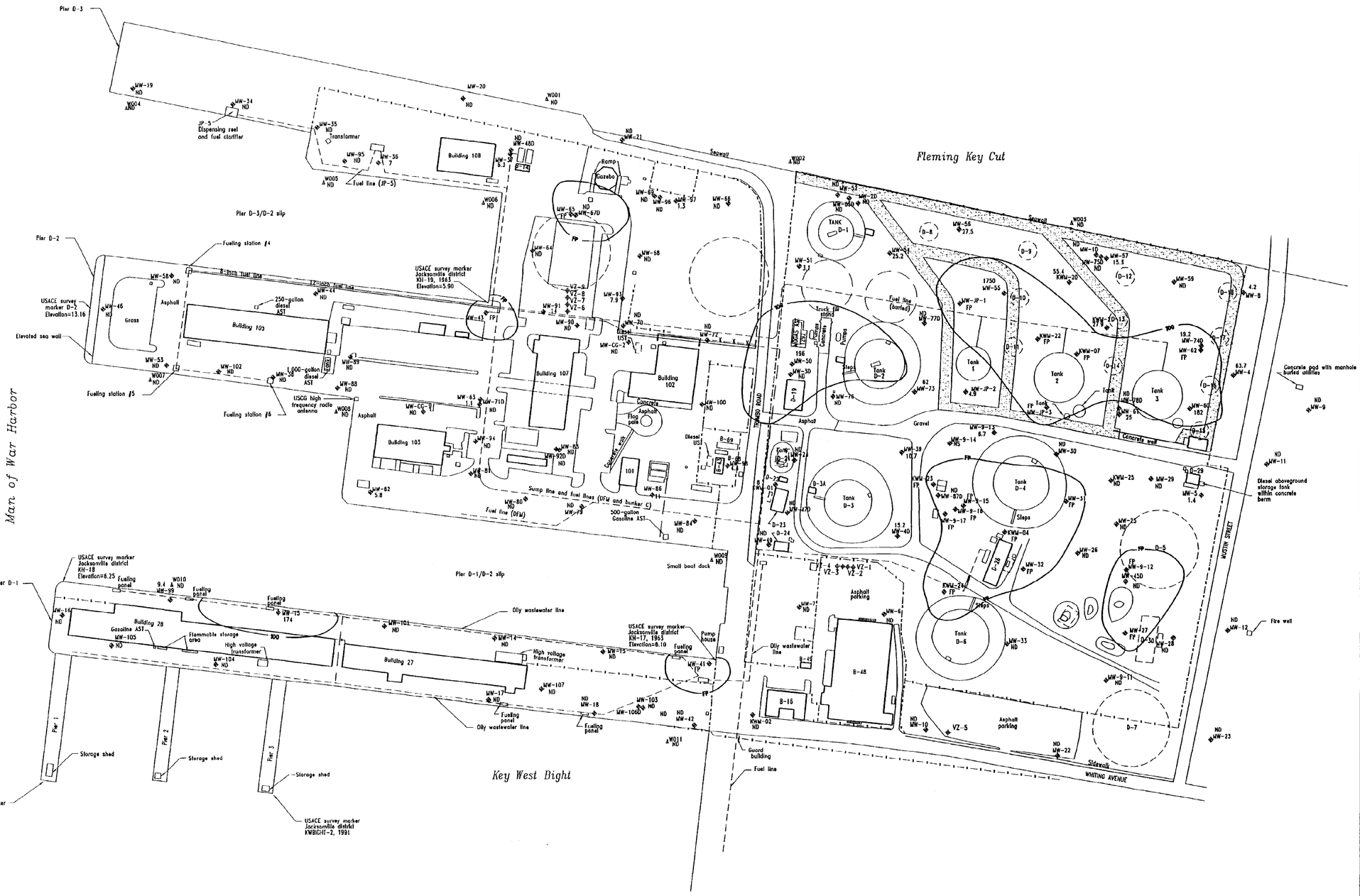
5.2.2 PAHs in Groundwater PAHs were detected in samples collected from monitoring wells MW-1, MW-2, MW-4, MW-5, MW-6, MW-7, MW-12, and MW-15 (see Figure 5-4). PAH detected in groundwater samples include naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, fluoranthene, and fluorene. Tables 5-2 and 5-3 summarize the laboratory data for samples with detectable levels of PAH.

Naphthalenes. Total naphthalene concentrations exceeded the Chapter 62-770, FAC, Class G-II groundwater target level of 100 ppb in the samples collected from monitoring wells MW-15 (174 ppb), MW-50 (196 ppb), MW-55 (1750 ppb), and MW-60 (182 ppb). Monitoring wells that contained free product were not sampled and potentially exceed the State target level of 100 ppb for total naphthalenes. The areal extent of total naphthalenes in groundwater exceeding the State target level of 100 ppb is approximated by the 100 ppb isoconcentration line on Figure 5-4.

Laboratory results of the groundwater sample collected from deep monitoring well MW-74D (19.2 ppb) indicate the vertical extent of PAH (including naphthalenes) above Chapter 62-770, FAC, target levels in groundwater does not extend below 25 feet bls.

Nonnaphthalenes. Nonnaphthalene PAHs detected in groundwater samples collected from monitoring wells onsite included acenaphthene, acenaphthylene, anthracene, fluoranthene, and fluorene (see Table 5-2). The Chapter 62-770, FAC, target level for nonnaphthalene PAHs is 10 ppb or the lowest obtainable detection limit for each compound. Acenaphthene concentrations detected in MW-55 (63 ppb), MW-86 (17 ppb) and KWM-01 (37 ppb) exceeded the Chapter 62-770, FAC, target level. Acenaphthylene concentrations detected in MW-55 (120 ppb) and MW-74D (11 ppb) exceeded the Chapter 62-770, FAC, target level. Fluorene concentrations detected in MW-3 (76 ppb), MW-4 (17 ppb) and KWM-20 (26 ppb) exceeded the Chapter 62-770, FAC, target level.

5.2.3 Base, Neutral, and Acid (BNA) Extractables in Groundwater BNA extractables were detected in three of the groundwater samples analyzed for the waste-oil group parameters. Monitoring wells in which BNA extractables were detected included MW-17 (Phenol 15 ppb), MW-18 (Phenol 92 ppb and 2,4 - Dimethylphenol 54 ppb), and MW-42 (Phenol 43 ppb and bis(2-Ethylhexyl)phthalate 4 ppb) (see Table 5-3).



N

LEGEND

D-19	Building and designation
X—X—X	Fence
	Gravel berm
- - - - -	Underground pipeline
———	Aboveground pipeline
(D-5)	Former tank and designation
1292 (D-4)	Tank and designation
— 100 —	Total naphthalene isoconcentration line and value
—— FP ——	Free-product area
AST	Aboveground storage tank
DFM	Diesel fuel marine
JP-5	Jet Propellant 5 jet fuel
AVGAS	Aviation gasoline
MOGAS	Motor gasoline (unleaded gasoline)
UST	Underground storage tank
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
▲W011	Surface water sample location and designation
VZ-7	Vadose zone well location and designation
MW-23	Monitoring well location and designation
KWM-20	Monitoring well location and designation installed prior to 1990
ND =	Not detected
FP =	Free product in monitoring well not sampled
4.2 =	Total naphthalene concentration in micrograms per liter
MSL =	Mean sea level

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

FIGURE 5-4
TOTAL NAPHTHALENES CONCENTRATION IN GROUNDWATER AND SURFACE WATER

CONTAMINATION ASSESSMENT REPORT

TRUMBO POINT FUEL FARM
NAVAL AIR STATION
KEY WEST, FLORIDA

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5.2.4 TRPH in Groundwater TRPH were detected in groundwater samples collected from monitoring wells MW-1D, MW-15, MW-40, MW-42, MW-55, MW-57, MW-64, MW-86, MW-91, KWM-01, KWM-20 and KWM-21 (see Figure 5-5). Presented in Tables 5-2 and 5-3 is a summary of all TRPH concentrations detected in groundwater samples collected from all of the monitoring wells at the site. Three areas of TRPH contamination in groundwater exceeding the Chapter 62-770, FAC, target level of 5 ppm were identified. Concentrations of TRPH in samples collected from monitoring wells MW-55 (157 ppm), MW-86 (5.1 ppm) and KWM-01 (15.7 ppm) exceed the Chapter 62-770, FAC, target level of 5 ppm for TRPH.

Monitoring wells that contained free-floating petroleum product, however, were not sampled and potentially represent areas that could exceed the State target level of 5 ppm for TRPH. The horizontal and vertical extent of free product at the site is discussed in Section 5.5, Free-Product Assessment.

Groundwater analytical data indicate the vertical extent of TRPH in groundwater is less than 40 feet bls. TRPH was detected in the groundwater sample collected from the vertical extent monitoring well MW-1D (1.1 ppm).

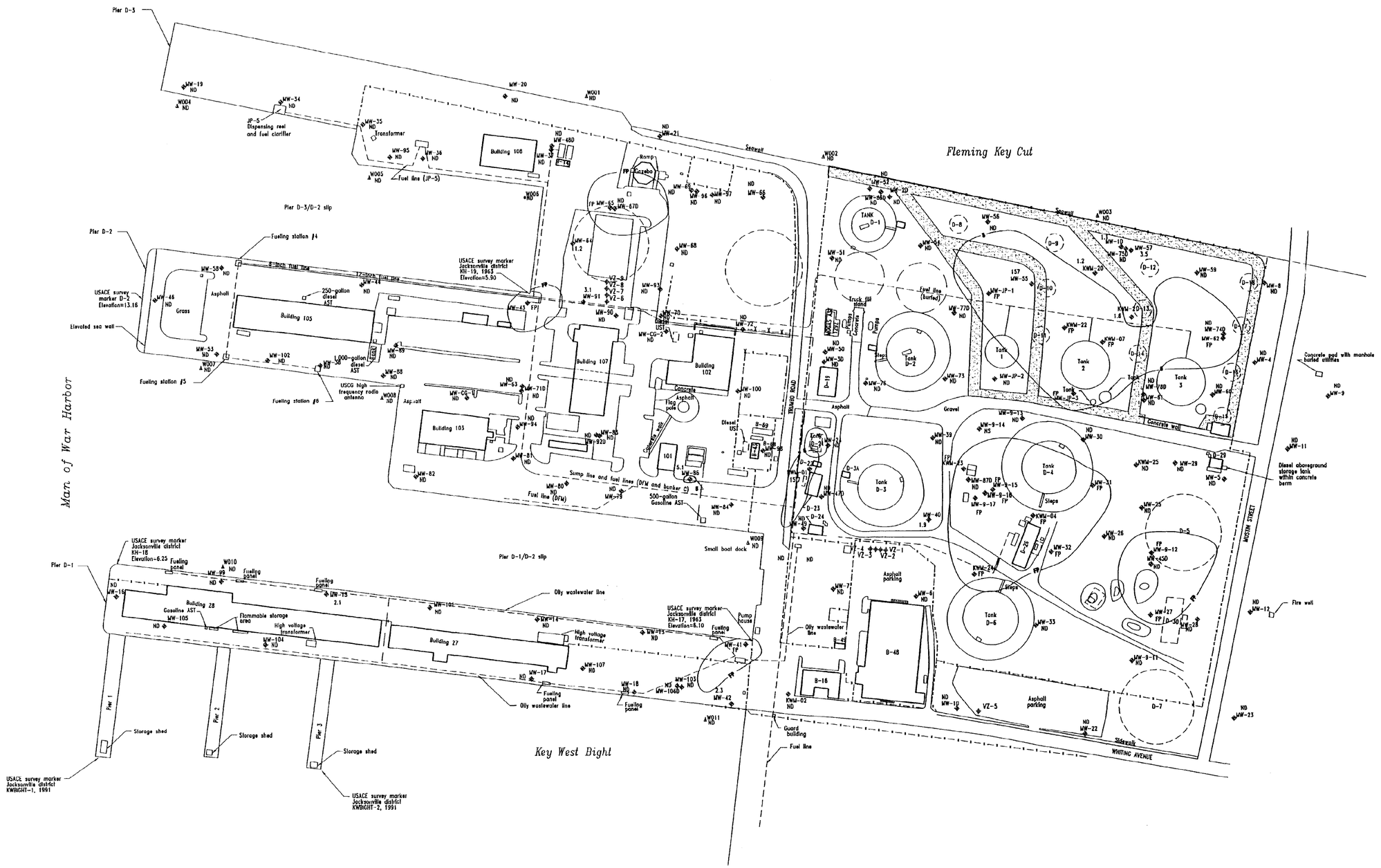
5.2.5 Metals in Groundwater Groundwater samples collected from all monitoring wells on the site were analyzed for lead, and in the case of the waste-oil group samples, for arsenic, chromium, and cadmium. Lead was detected in groundwater samples collected from monitoring wells MW-6, MW-55, MW-63, MW-64, MW-73, MW-96, KWM-01, KWM-02 and KWM-20 in concentrations ranging from 1.2 ppb to 12 ppb (see Tables 5-2 and 5-3), which do not exceed the Chapter 62-770, FAC, target level of 50 ppb for Class G-II groundwater.

The monitoring wells were purged using low-flow techniques and the sample turbidity ranged from 0.33 to 190.1 nephelometric turbidity units. Lead in groundwater is not considered to be a contaminant of concern at the site. Arsenic, chromium, and cadmium were not detected in any groundwater sample analyzed for the waste-oil group parameters (Table 5-3).

5.3 SEDIMENT CA. Analytical laboratory results for sediment samples collected in the surface water adjacent to the site are presented in Table 5-4 and Appendix F. The samples were collected at six locations in Man of War Harbor adjacent to the pier. The samples were analyzed for the Kerosene analytical group to evaluate the potential impact of the site to the surrounding waters. The sediment samples consisted of fine-grained oolitic lime mud with some shell fragments and were very light gray in color. No sediments were recovered from sampling locations D001, D002, and D004. Sampling locations D003 and D007 were not accessible for sampling. Figure 4-1 shows the sample locations.

The sediment sample analytical data indicate no detections above the detection limit for USEPA Methods 601, 602 and EDB; however, elevated concentrations of PAH, TRPH, and lead were detected in some or all of the samples. Target levels are applied using the standards for clean soil as defined in Chapter 62-775.400, FAC.

Lead concentrations detected in the sample from location D008 (732 ppm) exceeded the State target level of 108 ppm. Total PAH concentrations detected from sample locations D008 (3,360 ppb) and D009 (2,030 ppb) exceeded the State target level



N

LEGEND

- D-19 — Building and designation
- x x x — Fence
- Gravel berm
- Underground pipeline
- Aboveground pipeline
- (D-5) — Former tank and designation
- 12921 (D-4) — Tank and designation
- 5 — TRPH isoconcentration line and value (milligrams per liter)
- FP — Free-product area
- AST — Aboveground storage tank
- DFM — Diesel fuel marine
- JP-5 — Jet Propellant 5 (at fuel
- AVGAS — Aviation gasoline
- MOGAS — Motor gasoline (unleaded gasoline)
- UST — Underground storage tank
- USACE — U.S. Army Corps of Engineers
- USCG — U.S. Coast Guard
- ▲W011 — Surface water sample location and designation
- VZ-7 — Vadose zone well location and designation
- MW-23 — Monitoring well location and designation
- KWM-20 — Monitoring well location and designation installed prior to 1990
- ND = Not detected
- FP = Free product in monitoring well not sampled
- 2.6 = TPRH concentration in milligrams per liter
- TPRH = Total recoverable petroleum hydrocarbons
- MSL = Mean sea level

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

FIGURE 6-5
FREE-PRODUCT DISTRIBUTION AND TOTAL RECOVERABLE PETROLEUM HYDROCARBONS CONCENTRATION IN GROUNDWATER AND SURFACE WATER

CONTAMINATION ASSESSMENT REPORT
TRUMBO POINT FUEL FARM
NAVAL AIR STATION
KEY WEST, FLORIDA

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Table 5-4
Sediment, Surface Water, and QA/QC Samples, Kerosene Analytical Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Sample Location:	D005	D006	D008	D009	D009D	D010	D011
Collection Date:	30-MAR-96	30-MAR-96	29-MAR-96	28-MAR-96	28-MAR-96	30-MAR-96	28-MAR-96
Volatile Organic Compounds (ppb)							
1,1-Dichloroethene	--	--	--	--	--	--	--
Methylene chloride	--	--	--	--	--	--	--
Trichlorofluoromethane	--	--	--	--	--	--	--
Toluene	--	--	--	--	--	--	--
Polynuclear Aromatics (ppb)							
Phenanthrene	--	--	150	130	--	--	--
Anthracene	--	--	150	100	--	--	--
Fluoranthene	--	210	770	230	--	220	--
Pyrene	--	200	580	390	190	230	--
Benzo(a)anthracene	--	--	310	210	--	--	--
Chrysene	--	130	330	340	150	130	--
Benzo(a)pyrene	150	170	480	310	150	160	190
Indeno(1,2,3-cd)pyrene	--	110	280	160	--	--	120
Benzo(g,h,i)perylene	--	110	310	160	--	--	130
Total Recoverable Petroleum Hydrocarbons (ppm)							
Total Petroleum Hydrocarbons	244	169	519	244	195	184	1,860
Metals (ppm)							
Lead	45.5	30.4	732	35.3	33.6	33.9	76

See notes at end of table.

Table 5-4 (Continued)
Sediment, Surface Water, and QA/QC Samples, Kerosene Analytical Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Sample Location:	W001	W002	W002D	W003	W004	W005	W006	W007	W008	W009
Collection Date:	14-FEB-96	14-FEB-96	14-FEB-96	14-FEB-96	27-MAR-96	27-MAR-96	27-MAR-96	27-MAR-96	27-MAR-96	27-MAR-96
Volatile Organic Compounds (ppb)										
1,1-Dichloroethene	--	--	--	--	--	--	--	--	--	--
Methylene chloride	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane	--	--	--	--	--	--	--	--	--	--
Toluene	--	--	--	1	--	--	--	--	--	--
Polynuclear Aromatics (ppb)										
Phenanthrene	--	--	--	--	--	--	--	--	--	--
Anthracene	--	--	--	--	--	--	--	--	--	--
Fluoranthene	--	--	--	--	--	--	--	--	--	--
Pyrene	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	--	--	--	--	--	--	--	--	--	--
Chrysene	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	--	--	--	--	--	--	--	--	--	--
Total Recoverable Petroleum Hydrocarbons (ppm)										
Total Petroleum Hydrocarbons	--	--	--	--	--	--	--	--	--	--
Metals (ppb)										
Lead	1	1	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U

See notes at end of table.

Table 5-4 (Continued)
Sediment, Surface Water, and QA/QC Samples, Kerosene Analytical Group

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Sample Location:	W010	W011	T002 Trip Blank	T003 Trip Blank	T004 Trip Blank	R002 Rinsate Blank	R003 Rinsate Blank
Collection Date:	27-MAR-96	27-MAR-96	14-FEB-96	27-MAR-96	31-MAR-96	14-FEB-96	31-MAR-96
Volatile Organic Compounds (ppb)							
1,1-Dichloroethene	--	--	3	3	--	3	--
Methylene chloride	--	3.9	--	--	--	--	--
Trichlorofluoromethane	--	--	1.1	1.1	--	1.1	--
Toluene	--	--	--	--	--	--	--
Polynuclear Aromatics (ppb)							
Phenanthrene	--	--	NA	NA	NA	--	--
Anthracene	--	--	NA	NA	NA	--	--
Fluoranthene	--	--	NA	NA	NA	--	--
Pyrene	--	--	NA	NA	NA	--	--
Benzo(a)anthracene	--	--	NA	NA	NA	--	--
Chrysene	--	--	NA	NA	NA	--	--
Benzo(a)pyrene	--	--	NA	NA	NA	--	--
Indeno(1,2,3-cd)pyrene	--	--	NA	NA	NA	--	--
Benzo(g,h,i)perylene	--	--	NA	NA	NA	--	--
Total Recoverable Petroleum Hydrocarbons (ppm)							
Total Petroleum Hydrocarbons	--	--	NA	NA	NA	--	--
Metals (ppb)							
Lead	5 U	5 U	NA	NA	NA	1	--

Notes: QA/QC = quality assurance and quality control.
ppb = parts per billion.
-- = not detected for this compound.
ppm = parts per million.
U - analyte analyzed for but not detected (concentration is less than instrument detection limit).
NA = not analyzed for this compound.

of 1,000 ppb. TRPH concentrations detected from all sediment samples collected, D005 (244 ppm), D006 (169 ppm), D008 (519 ppm), D009 (244 ppm), D010 (184 ppm), and D011 (1860 ppm), exceeded the State target level of 50 ppm (see Table 5-4).

The source of PAH, TRPH, and lead contamination in surface water sediment may be attributed to past oil seepage, bilge water discharges, and particles of lead-base paint from naval vessels operating at the facility.

5.4 SURFACE WATER CA. Analytical laboratory results of surface water samples collected in Fleming Key Cut and Man of War Harbor are presented in Table 5-4 and Appendix F. The sampling locations and results are included on Figures 5-3, 5-4, and 5-5 with the groundwater data. No compounds were detected in any of the surface water samples collected except for toluene (1 ppb) in sample W003 and methylene chloride (3.9 ppb) in sample W011. It is likely these compounds are attributed to activities associated with boats and ships docked at the site.

5.5 FREE-PRODUCT ASSESSMENT. During the 1993 PCA, free product was detected in monitoring wells KWM-07, KWM-22, KWM-23, KWM-24, MW9-10, MW9-12, MW9-13, MW9-15, MW9-17, MW-JP-1, and the fire well located southwest of DFM tank D-2. Viscous free product having a consistency similar to tar was detected in SB-44 (located near the MOGAS AST), the underground JP-5 pipeline, and an abandoned Bunker-C oil pipeline. Viscous free product was also detected in soil boring SB-101, located near the basketball court at the USCG facility.

The 1993 PCA showed an extensive area of free product in soil borings and monitoring wells in the northern part of the TPFF around JP-5 tanks 1, 2, and 3 and DFM tank D-2. The free product, however, did not extend to the seawall. Free product was observed in three other areas of the TPFF: the area along the south and west sides of DFM tank D-4; an area in the vicinity of the former DFM and waste oil tank D-5, near monitoring well MW9-12; and an area surrounding monitoring well KWM-01, which was previously reported to contain free product (Geraghty & Miller, 1987). Free product appeared to extend west from the TPFF toward the USCG facility, but was not assessed further in that direction. Free product was also encountered at the USCG facility in SB-101, north of the basketball court.

In January 1996, Bechtel began installing a gravel trench recovery system with sumps to remove free product in the vicinity of tanks D-2 and D-4. The approximate location of the trenches and sumps are shown on Figure 5-6.

During the CA free product was observed in a number of soil borings. Table 5-5 presents a characterization of observed free product during soil boring or monitoring well installation. After monitoring well installation was completed, free-product thickness measurements were recorded in all monitoring wells during the water-level elevation survey conducted on April 16, 1996, and July 30, 1996. Table 5-6 presents the apparent thickness of free product measured in each monitoring well where free product was observed.

Figure 5-6 presents the distribution of free product observed in soil borings and monitoring wells at the site. In some areas, free product observed in borings

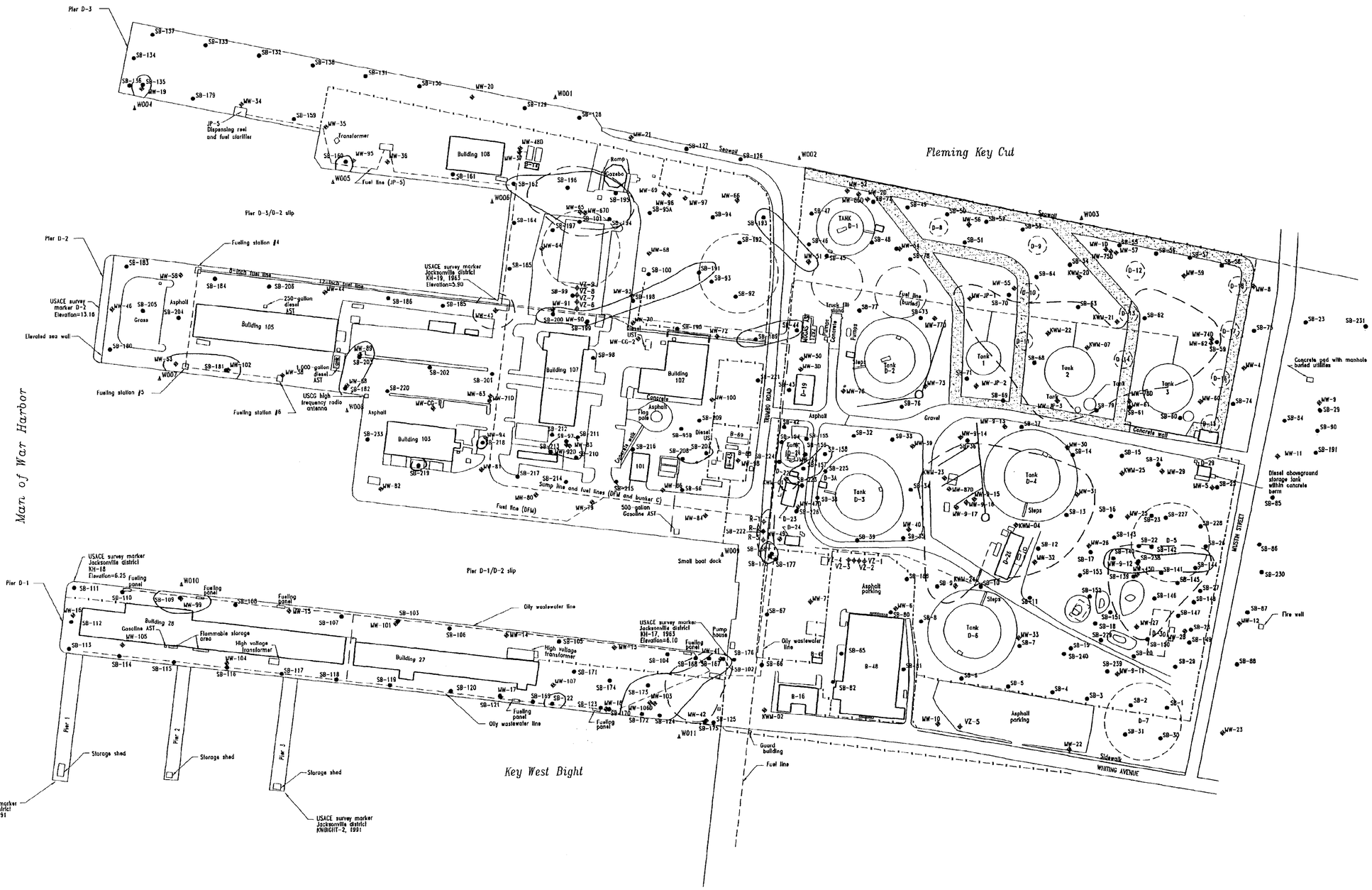

Pier D-3
Pier D-2
Pier D-1
Pier D-3/D-2 slip
Pier D-1/D-2 slip
Fleming Key Cut
Key West Bight
Strait of Key West Harbor
Fueling station #4
Fueling station #5
Fueling station #6
USACE survey marker Jacksonville district KH-19, 1963 Elevation=5.90
USACE survey marker D-2 Elevation=13.16
USACE survey marker Jacksonville district KH-18 Elevation=6.25
USACE survey marker Jacksonville district KH-17, 1963 Elevation=6.10
USACE survey marker Jacksonville district KWBIGHT-1, 1991
USACE survey marker Jacksonville district KWBIGHT-2, 1991
8-inch fuel line
12-inch fuel line
250-gallon diesel AST
1,000 gallon diesel AST
500-gallon Gasoline AST
Gasoline AST
USCG high frequency radio antenna
Elevated sea wall
Seawall
Ramp
Gazebo
Building 108
Building 105
Building 107
Building 103
Building 102
Building 28
Building 27
Transformer
Sump line and fuel lines (DFM and bunker C)
Fuel line (DFM)
Fuel line (JP-5)
Fuel line (buried)
Oily wastewater line
Small boat dock
Pump house
Flammable storage area
High voltage transformer
Storage shed
Guard building
Fuel line
Truck fill stand
Concrete
Asphalt
Gravel
Grass
Steps
Flag pole
Concrete pad with manhole buried utilities
Diesel aboveground storage tank within concrete berm
Fire well
Asphalt parking
Concrete wall
Sidewalk
AUSTIN STREET
WHITING AVENUE
TRUMBO ROAD
Tank D-1
Tank D-2
Tank D-3
Tank D-4
Tank D-6
Tank 1
Tank 2
Tank 3
Tank 4
Tank 5
Tank 6
Tank 7
Tank 8
Tank 9
Tank 10
Tank 11
Tank 12
Tank 13
Tank 14
Tank 15
Tank 16
Tank 17
Tank 18
Tank 19
Tank 20
Tank

Table 5-5
Free-Product Visual Inspection Data
January through March, 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Location	Free-Product Description	Estimated Thickness[1]	Apparent Thickness[2]
MW-31	Black to dark gray, low to medium viscosity	1.17 feet	2.02 feet
MW-32	Very dark brown, low to medium viscosity	variable	5.33 feet
MW-41	Dark green-brown, medium to high viscosity	trace	0.02 feet
MW-42	Red-brown, low to medium viscosity	trace	0.01 feet
MW-43	Black, high viscosity	trace	nm
MW-62	Pale yellow-gold, low viscosity	trace	0.06 feet
MW-65	Black, high viscosity	trace	nm
[3]MW-82	Dark brown, medium viscosity	trace	nm
[3]MW-83	Dark brown to black, high viscosity, degraded	trace	nm
[3]MW-86	Very dark brown to black, high viscosity, degraded	trace	nm
[3]MW-97	Very dark red-brown, high viscosity	trace	nm
MW9-12	Black, thick, very high viscosity	unknown	nm
MW9-15	Dark red-brown, low to medium viscosity	>3 feet	3.28 feet
MW9-16	Clear yellow-gold, low viscosity	2.33 feet	2.16 feet
MW9-17	Red-brown, low to medium viscosity	>3 feet	3.10 feet
MWJP-1	Clear golden-orange, low viscosity	nm	1.07 feet
MWJP-3	Brown-black, medium viscosity	0.5 feet	0.68 feet
KWM-01	Grayish brown, opaque, very degraded	0.02 feet	0.10 feet
KWM-07	Red-brown, clear, low viscosity	nm	2.85 feet
KWM-22	No description	nm	2.47 feet
KWM-23	No description	nm	0.93 feet
KWM-24	Yellow-gold, clear, low viscosity	nm	2.46 feet
RC-1	Black, opaque, high viscosity	nm	nm
SB-102	Black to very dark brown, low viscosity	unknown	nm
SB-109	Brown, degraded	trace	nm
SB-122	Grayish brown, opaque, very degraded	unknown	nm
SB-124	Black to very dark gray, low to medium viscosity	unknown	nm
SB-135	Red-brown, medium to high viscosity	trace	nm
SB-144	Blue-black, very degraded, opaque	unknown	nm
SB-157	Yellow-brown to gray, very degraded	unknown	nm
SB-140	Brown, medium viscosity	trace	nm

See notes at end of table.

Table 5-5 (Continued)
Free-Product Visual Inspection Data
January through March, 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Location	Free-Product Description	Estimated Thickness[1]	Apparent Thickness[2]
SB-158	Brown to grayish brown, very degraded	unknown	nm
SB-159	Red-brown, medium viscosity	trace	nm
SB-160	Very dark red-brown, medium to high viscosity	unknown	nm
SB-166	Yellowish gray, very degraded	unknown	nm
SB-172	Very dark red-brown to grayish brown, degraded	unknown	nm
SB-173	Dark red-brown to yellowish gray, degraded	unknown	nm
SB-178	Dark brown, very degraded	unknown	nm
SB-181	Dark red-brown, high viscosity	unknown	nm
SB-182	Black to dark red-brown, very degraded	unknown	nm
SB-189	Red-brown, medium to high viscosity	trace	nm
SB-190	Dark red-brown to black, high viscosity	unknown	nm
SB-194	Dark red-brown, high viscosity	unknown	nm
SB-195	Dark red-brown, high viscosity	unknown	nm
SB-196	Dark red-brown to black, medium to high viscosity, degraded	unknown	nm
SB-198	Red-brown to black, medium to high viscosity, degraded	unknown	nm
SB-199	Red-brown to black, medium to high viscosity, degraded	unknown	nm
SB-200	Dark red-brown to black, medium to high viscosity, degraded	unknown	nm
SB-203	Dark red-brown to black, high viscosity, degraded	trace	nm
SB-207	Very dark brown to black, high viscosity, degraded	trace	nm
SB-208	Pale gray-brown, very degraded	unknown	nm
SB-210	Dark red-brown, high viscosity	unknown	nm
SB-213	Very dark red-brown to black, high viscosity	unknown	nm
SB-218	Red-brown, medium viscosity	trace	nm
SB-219	Very dark brown to black, medium to high viscosity	unknown	nm

[1] Estimated thicknesses were measured by visual inspection of a bailer lowered into the well.
[2] Apparent thickness was measured with an oil-water interface probe. The greatest thickness detected during the field investigation is presented in this table.
[3] Product detected in soil and/or groundwater samples collected prior to monitoring well installation.

Notes: nm = not measured.
> = greater than.

Table 5-6
Free-Product Measurements

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Well Number	Apparent Thickness (feet)	
	April 16, 1996	July 30, 1996
MW-27	NM	0.23
MW-31	1.52	TR
MW-32	5.35	2.52
MW-41	0.08	0.13
MW-43	TR	0.03
MW-62	0.02	TR
MW-65	TR	TR
MWJP-1	0.52	NP
MWJP-3	0.57	0.49
MW9-12	NM[1]	NM[1]
MW9-15	1.48	1.81
MW9-16	1.66	1.89
MW9-17	TR	0.84
KWM-01	0.02	NP
KWM-04	NM	0.21
KWM-22	2.61	0.82
KWM-23	1.00	0.93
KWM-24	2.27	0.36

[1] Product in this well has very high viscosity. Oil-water interface probe was damaged during initial product measurement in this well.

Notes: NM = not measured.
TR = less than 0.01 foot.
NP = no product observed.

was not observed in monitoring wells installed later at those locations. Product occurrence and apparent thickness observed in the monitoring wells are apparently influenced by product viscosity and seasonal fluctuations of the water table.

Lower-viscosity product likely migrates into monitoring wells more quickly than high viscosity product types, which may explain why product observed in soil borings was not observed later in monitoring wells at the same location.

A low viscosity, gold to amber color, product was observed in the area north of the JP-5 tanks and the area west of tank D-4. A high viscosity black color product was observed in the former tank D-5 area.

Low to medium viscosity black degraded product was observed in the area of the oily wastewater pump station on pier D-1, along the fuel lines on piers D-2 and D-3, and the area west of tank D-3 near Trumbo Road.

Low to medium viscosity, amber to brown color, product was observed in the vicinity of the basketball court at the USCG facility. A tar-like black color product was observed in soil borings near the softball field and south of the basketball court (see Figure 5-6).

In 10 of the 18 monitoring wells with free product, a reduction in the apparent thickness was observed when the water table was higher on July 30, 1996 (see Table 5-6). Six monitoring wells, however, exhibited no change or a slight increase in the measured apparent free-product thickness. One monitoring well (MW9-12) was not measured on either of the survey dates because of the high viscosity of the product (see Table 5-6).

5.6 GROUNDWATER ELEVATION SURVEY. Depth to water beneath the site is typically between 4 and 6 feet bls. Depth-to-water measurements were recorded on two occasions during the CA field investigation. Presented in Table 5-7 are top-of-casing elevations, depth-to-water measurements, and water table elevations recorded on April 16, 1996 and July 29, 1996. Water table elevation contour maps for these dates are presented on Figures 5-7 and 5-8, respectively. Also presented in Table 5-7 is the total depth and screened interval of each monitoring well.

Groundwater elevation data indicate that groundwater has been consistently flowing radially away from the fuel farm and in a northwest direction. The data was collected during a 3-month time frame during both dry and wet periods of the spring and summer seasons. The recorded shallow water table elevations are approximately 0.50 foot higher in July 1996 than in April 1996.

Comparison of shallow monitoring well water-elevation data and the deeper monitoring well data indicate mostly an upward vertical hydraulic gradient; however, the monitoring wells located on the east side of Pier D-1 and the monitoring wells north of Building D-19 exhibited a downward vertical hydraulic gradient (see Table 5-7 and Figures 5-7 and 5-8).

Table 5-7
Top-of-Casing and Groundwater Elevations, April 16, 1996 and July 30, 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Well Number	Total Depth (feet bls)	Screened Interval (feet bls)	Top-of-Casing Elevation (feet NGVD)	April 16, 1996			July 30, 1996		
				Depth to Product (feet btoc)	Depth to Water (feet btoc)	Water Table Elevation (feet NGVD)	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Water Table Elevation (feet NGVD)
MW-1D	45	40 to 45	6.59	NA	5.04	1.55	NA	4.93	1.66
MW-2D	50	45 to 50	6.50	NA	4.67	1.83	NA	4.23	2.27
MW-3D	50	45 to 50	6.12	NA	4.97	1.15	NA	4.46	1.66
MW-4	13	3 to 13	5.61	NA	4.44	1.17	NA	4.99	0.62
MW-5	13	3 to 13	6.92	NA	5.39	1.53	NA	5.29	1.63
MW-6	13	3 to 13	6.17	NA	4.40	1.77	NA	4.46	1.71
MW-7	13	3 to 13	6.29	NA	4.89	1.40	NA	4.95	1.34
MW-8	13	3 to 13	6.03	NA	5.35	0.68	NA	5.54	0.49
MW-9	13	3 to 13	6.17	NA	4.90	1.27	NA	5.27	0.90
MW-10	13	3 to 13	8.79	NA	7.17	1.62	NA	7.45	1.34
MW-11	13	3 to 13	6.48	NA	5.20	1.28	NA	5.47	1.01
MW-12	13	3 to 13	6.77	NA	5.23	1.54	NA	5.82	0.95
MW-13	13	3 to 13	5.85	NA	4.70	1.15	NA	4.49	1.36
MW-14	13	3 to 13	5.88	NA	4.79	1.09	NA	4.60	1.28
MW-15	13	3 to 13	5.97	NA	5.01	0.96	NA	4.81	1.16
MW-16	13	3 to 13	6.24	NA	5.32	0.92	NA	5.05	1.19
MW-17	13	3 to 13	6.41	NA	5.13	1.24	NA	4.86	1.55
MW-18	13	3 to 13	6.43	NA	4.99	1.44	NA	4.72	1.71
MW-19	13	3 to 13	6.81	NA	6.24	0.57	NA	6.18	0.63
MW-20	13	3 to 13	6.82	NA	6.20	0.62	NA	6.17	0.65
MW-21	13	3 to 13	6.12	NA	5.10	1.02	NA	5.17	0.95

See notes at end of table.

Table 5-7 (Continued)
Top-of-Casing and Groundwater Elevations, April 16, 1996 and July 30, 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Well Number	Total Depth (feet bls)	Screened Interval (feet bls)	Top-of-Casing Elevation (feet NGVD)	April 16, 1996			July 30, 1996		
				Depth to Product (feet btoc)	Depth to Water (feet btoc)	Water Table Elevation (feet NGVD)	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Water Table Elevation (feet NGVD)
MW-22	13	3 to 13	7.05	NA	5.27	1.78	NA	4.86	2.19
MW-23	13	3 to 13	6.05	NA	4.55	1.50	NA	5.10	0.95
MW-24	13	3 to 13	6.52	NA	5.02	1.50	NA	4.72	1.80
MW-25	13	3 to 13	6.98	NA	5.23	1.75	NA	4.72	2.26
MW-26	13	3 to 13	6.86	NA	4.95	1.91	NA	4.71	2.15
MW-27	13	3 to 13	7.33	NM	NM	NM	4.62	4.85	x
MW-28	13	3 to 13	7.64	NA	5.79	1.85	NA	5.06	2.58
MW-29	13	3 to 13	6.89	NA	5.06	1.83	NA	4.49	2.40
MW-30	13	3 to 13	7.02	NA	5.24	1.78	NA	4.80	2.22
MW-31	13	3 to 13	6.73	4.62	6.14	NI	NA	4.20	2.53
MW-32	13	3 to 13	6.46	4.30	9.65	NI	3.68	6.20	x
MW-33	13	3 to 13	7.83	NA	6.64	1.19	NA	6.42	1.41
MW-34	13	3 to 13	7.01	NA	6.32	0.69	NA	6.40	0.61
MW-35	13	3 to 13	6.81	NA	6.17	0.64	NA	6.00	0.81
MW-36	13	3 to 13	6.60	NA	5.97	0.63	NA	5.85	0.75
MW-37	10	3 to 10	6.88	NA	6.25	0.63	NA	5.99	0.89
MW-38	13	3 to 13	6.21	NA	5.09	1.12	NA	5.03	1.18
MW-39	13	3 to 13	5.99	NA	4.38	1.61	NA	4.35	1.64
MW-40	13	3 to 13	6.15	NA	4.56	1.59	NA	4.13	2.02

See notes at end of table.

Table 5-7 (Continued)
Top-of-Casing and Groundwater Elevations, April 16, 1996 and July 30, 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Well Number	Total Depth (feet bls)	Screened Interval (feet bls)	Top-of-Casing Elevation (feet NGVD)	April 16, 1996			July 30, 1996		
				Depth to Product (feet btoc)	Depth to Water (feet btoc)	Water Table Elevation (feet NGVD)	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Water Table Elevation (feet NGVD)
MW-41	13	3 to 13	5.83	4.79	4.87	x	4.44	4.57	x
MW-42	13	3 to 13	6.36	NA	5.08	1.28	NA	4.74	1.62
MW-43	13	3 to 13	6.21	TR	4.97	1.24	5.69	5.72	0.49
MW-44	13	3 to 13	6.15	NA	5.12	1.03	NA	4.97	1.18
MW-45D	30	25 to 30	6.69	NA	NM	NM	NA	3.97	2.72
MW-46	13	3 to 13	6.56	NA	5.65	0.91	NA	5.91	0.65
MW-47D	30	25 to 30	5.60	NA	3.99	1.61	NA	3.09	2.51
MW-48D	30	25 to 30	6.80	NA	5.58	1.22	NA	6.78	0.02
MW-49	13	3 to 13	5.73	NA	4.50	1.23	NA	4.21	1.52
MW-50	13	3 to 13	6.04	NA	4.34	1.70	NA	3.83	2.21
MW-51	13	3 to 13	6.55	NA	5.44	1.11	NA	5.23	1.32
MW-52	13	3 to 13	6.11	NA	5.22	0.89	NA	5.08	1.03
MW-53	13	3 to 13	6.20	NA	5.13	1.07	NA	5.15	1.05
MW-54	13	3 to 13	6.99	NA	5.21	1.78	NA	5.03	1.96
MW-55	13	3 to 13	7.04	NA	5.95	1.09	NA	5.86	1.18
MW-56	13	3 to 13	6.29	NA	5.40	0.89	NA	5.45	0.84
MW-57	13	3 to 13	6.25	NA	4.94	1.31	NA	4.95	1.30
MW-58	13	3 to 13	6.16	NA	5.07	1.09	NA	5.37	0.79
MW-59	13	3 to 13	6.51	NA	5.36	1.15	NA	5.41	1.10

See notes at end of table.

Table 5-7 (Continued)
Top-of-Casing and Groundwater Elevations, April 16, 1996 and July 30, 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Well Number	Total Depth (feet bls)	Screened Interval (feet bls)	Top-of-Casing Elevation (feet NGVD)	April 16, 1996			July 30, 1996		
				Depth to Product (feet btoc)	Depth to Water (feet btoc)	Water Table Elevation (feet NGVD)	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Water Table Elevation (feet NGVD)
MW-60	13	3 to 13	7.46	NA	5.68	1.78	NA	5.66	1.80
MW-61	13	3 to 13	7.26	NA	5.39	1.87	NA	5.22	2.04
MW-62	13	3 to 13	7.58	6.70	6.72	0.86	TR	5.95	1.63
MW-63	13	3 to 13	6.59	NA	5.57	1.02	NA	5.20	1.39
MW-64	13	3 to 13	6.52	NA	5.66	0.86	NA	5.20	1.32
MW-65	13	3 to 13	6.41	TR	5.17	1.24	TR	4.88	1.53
MW-66	13	3 to 13	6.68	NA	5.62	1.06	NA	5.36	1.32
MW-67D	30	25 to 30	6.46	NA	5.20	1.26	NA	6.55	-0.09
MW-68	13	3 to 13	6.39	NA	5.14	1.25	NA	4.79	1.60
MW-69	13	3 to 13	6.53	NA	5.12	1.41	NA	4.53	2.00
MW-70	13	3 to 13	6.57	NA	5.31	1.26	NA	5.06	1.51
MW-71D	30	25 to 30	6.62	NA	4.90	1.72	NA	6.32	0.30
MW-72	13	3 to 13	6.56	NA	4.90	1.66	NA	4.65	1.91
MW-73	13	3 to 13	6.30	NA	4.72	1.58	NA	4.31	1.99
MW-74D	30	25 to 30	7.71	NA	5.92	1.79	NA	5.74	1.97
MW-75D	30	25 to 30	6.19	NA	4.83	1.36	NA	4.74	1.45
MW-76	13	3 to 13	6.23	NA	4.47	1.76	NA	3.98	2.25
MW-77D	30	25 to 30	6.60	NA	4.82	1.78	NA	4.27	2.33
MW-78D	30	25 to 30	7.29	NA	5.40	1.89	NA	5.34	1.95

See notes at end of table.

Table 5-7 (Continued)
Top-of-Casing and Groundwater Elevations, April 16, 1996 and July 30, 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Well Number	Total Depth (feet bls)	Screened Interval (feet bls)	Top-of-Casing Elevation (feet NGVD)	April 16, 1996			July 30, 1996		
				Depth to Product (feet btoc)	Depth to Water (feet btoc)	Water Table Elevation (feet NGVD)	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Water Table Elevation (feet NGVD)
MW-79	13	3 to 13	6.24	NA	5.07	1.17	NA	4.79	1.45
MW-80	13	3 to 13	6.45	NA	5.33	1.12	NA	5.13	1.32
MW-81	13	3 to 13	6.14	NA	4.97	1.17	NA	4.23	1.91
MW-82	13	3 to 13	6.35	NA	5.22	1.13	NA	5.03	1.32
MW-83	13	3 to 13	6.91	NA	5.93	0.98	NA	5.60	1.31
MW-84	13	3 to 13	6.18	NA	5.10	1.08	NA	5.18	1.00
MW-85D	30	25 to 30	6.39	NA	5.07	1.32	NA	4.61	1.78
MW-86	13	3 to 13	6.99	NA	6.01	0.98	NA	5.68	1.31
MW-87D	30	25 to 30	5.75	NA	3.83	1.92	NA	3.17	2.58
MW-88	13	3 to 13	6.14	NA	5.04	1.10	NA	4.90	1.24
MW-89	13	3 to 13	5.73	NA	4.49	1.24	NA	4.12	1.61
MW-90	13	3 to 13	6.88	NA	5.73	1.15	NA	5.50	1.38
MW-91	13	3 to 13	6.61	NA	5.56	1.05	NA	5.24	1.37
MW-92D	30	25 to 30	6.97	NA	5.27	1.70	NA	6.57	0.40
MW-93	13	3 to 13	6.45	NA	5.29	1.16	NA	4.95	1.50
MW-94	13	3 to 13	6.69	NA	5.67	1.02	NA	5.23	1.46
MW-95	13	3 to 13	6.34	NA	5.73	0.61	NA	5.57	0.77
MW-96	13	3 to 13	6.61	NA	5.24	1.37	NA	4.65	1.96
MW-97	13	3 to 13	6.56	NA	5.33	1.23	NA	4.85	1.71
MW-98	13	3 to 13	6.48	NA	5.62	0.86	NA	5.20	1.28
MW-99	13	3 to 13	6.00	NA	5.07	0.93	NA	4.85	1.15

See notes at end of table.

Table 5-7 (Continued)
Top-of-Casing and Groundwater Elevations,
April 16, 1996 and July 30, 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Well Number	Total Depth (feet bls)	Screened Interval (feet bls)	Top-of-Casing Elevation (feet NGVD)	April 16, 1996			July 30, 1996		
				Depth to Product (feet btoc)	Depth to Water (feet btoc)	Water Table Elevation (feet NGVD)	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Water Table Elevation (feet NGVD)
MW-100	13	3 to 13	6.90	NA	5.43	1.47	NA	4.69	2.21
MW-101	13	3 to 13	6.00	NA	4.93	1.07	NA	4.89	1.11
MW-102	13	3 to 13	6.22	NA	5.13	1.09	NA	5.14	1.08
MW-103	13	3 to 13	6.70	NA	5.10	1.60	NA	4.74	1.96
MW-104	13	3 to 13	6.01	NA	5.02	0.99	NA	4.78	1.23
MW-105	13	3 to 13	5.98	NA	5.28	0.70	NA	5.05	0.93
MW-106D	30	25 to 30	6.42	NA	5.30	1.12	NA	5.64	0.78
MW-107	13	3 to 13	6.39	NM	NM	NM	NA	5.05	1.34
MWJP-1	NA	NA	8.81	7.50	8.02	x	NA	7.42	1.39
MWJP-2	NA	NA	9.41	NA	7.63	1.78	NA	7.37	2.04
MWJP-3	NA	NA	10.15	8.35	8.92	x	7.39	7.88	x
MW9-11	NA	NA	10.50	NA	9.51	0.99	NA	9.85	0.65
MW9-12	NA	NA	9.61	NM	NM	NM	NM	NM	NM
MW9-13	15	5 to 15	6.69	NA	4.94	1.75	NA	4.51	2.18
MW9-14	15	5 to 15	6.21	NM	NM	NM	NM	NM	NM
MW9-15	15	5 to 15	5.94	4.20	5.68	x	3.50	5.31	x
MW9-16	15	5 to 15	5.79	3.93	5.59	x	3.74	5.63	x
MW9-17	15	5 to 15	5.91	TR	4.28	1.63	3.46	4.30	x
KWM-01	NA	NA	6.02	4.24	4.26	x	NA	4.10	1.92
KWM-02	NA	NA	6.18	NA	5.11	1.07	NA	4.82	1.36

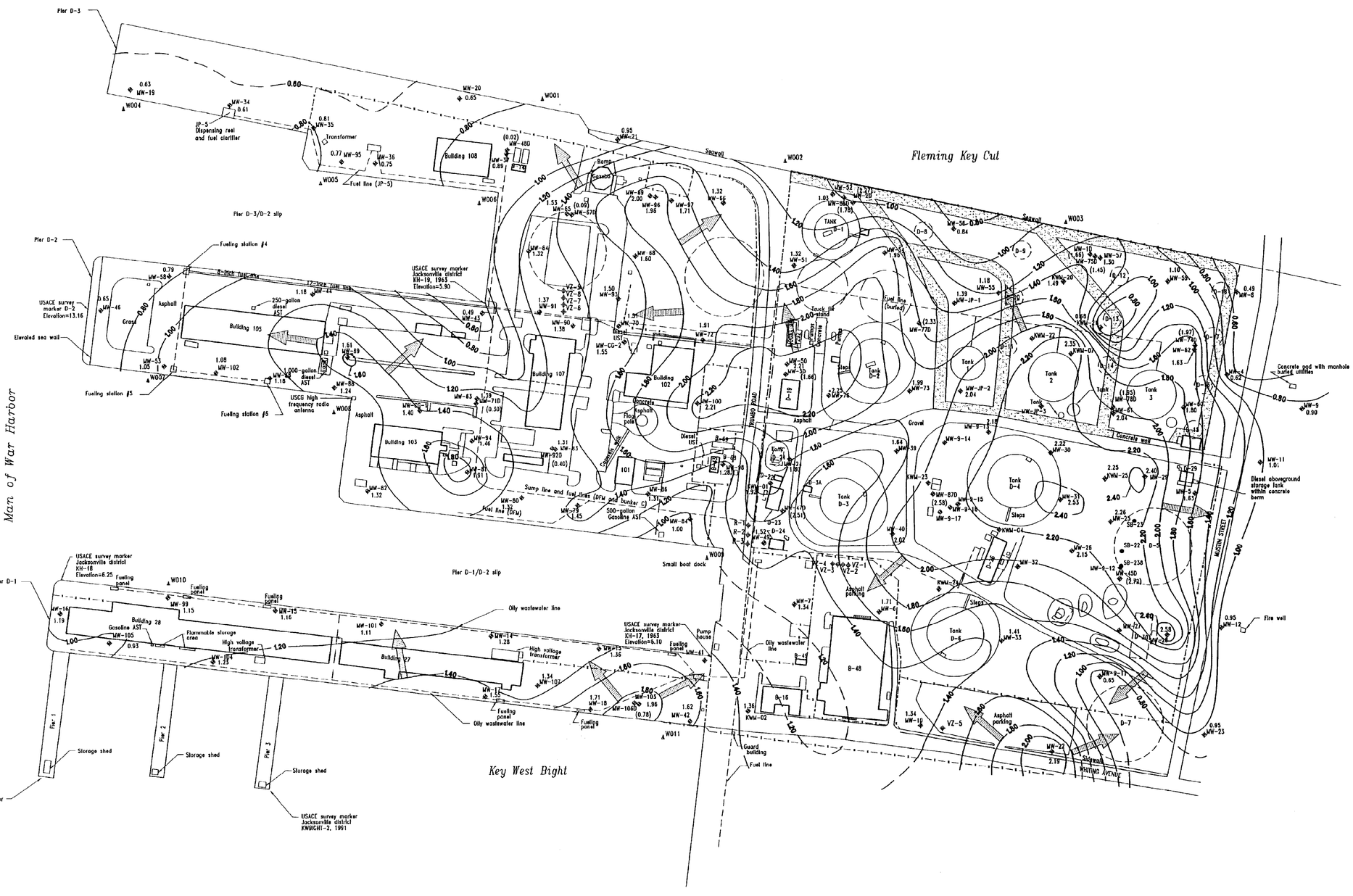
See notes at end of table.

Table 5-7 (Continued)
Top-of-Casing and Groundwater Elevations,
April 16, 1996 and July 30, 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Well Number	Total Depth (feet bls)	Screened Interval (feet bls)	Top-of-Casing Elevation (feet NGVD)	April 16, 1996			July 30, 1996		
				Depth to Product (feet btoc)	Depth to Water (feet btoc)	Water Table Elevation (feet NGVD)	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Water Table Elevation (feet NGVD)
KWM-04	NA	NA	7.30	NM	NM	NM	6.61	6.82	x
KWM-07	NA	NA	7.38	NM	NM	NM	NA	5.03	2.35
KWM-20	15	1 to 15	6.79	NA	5.32	1.47	NA	5.30	1.49
KWM-21	15	1 to 15	6.50	NA	6.01	0.49	NA	5.82	0.68
KWM-22	15	1 to 15	6.82	6.10	8.71	x	5.91	6.73	x
KWM-23	15	0.5 to 15	6.96	5.20	6.20	x	4.71	5.64	x
KWM-24	15	0.5 to 15	6.44	4.38	6.65	x	4.20	4.56	x
KWM-25	15	0.5 to 14	7.05	NA	5.29	1.76	NA	4.80	2.25
MWCG-1	NA	NA	6.45	NA	5.39	1.06	NA	5.05	1.40
MWCG-2	NA	NA	6.68	NA	5.38	1.30	NA	5.13	1.55

Notes: bls = below land surface
NGVD = National Geodetic Vertical Datum
btoc = below top of casing
NA = Not Applicable
NM = Not Measured
x = not calculated
TR = Trace measured (less than 0.01 feet)


Pier D-3
Pier D-3/D-2 slip
Pier D-2
Pier D-1
Seawall
Fleming Key Cut
Man of War Harbor
Key West Bight
Building 108
Building 105
Building 107
Building 102
Building 103
Building 101
Building 28
Building 27
Ramp
Gazebo
Fueling station #4
Fueling station #5
Fueling station #6
8-inch Tug-ana
12-inch fuel line
Elevated sea wall
Asphalt
Gravel
Concrete
Concrete wall
Concrete pad
Transformer
Fuel line (JP-5)
Dispensing reel and fuel clarifier
250-gallon diesel AST
1,000-gallon diesel AST
500-gallon Gasoline AST
USCG high frequency radio antenna
USACE survey marker Jacksonville district KH-19, 1965 Elevation=5.90
USACE survey marker Jacksonville district KH-16 Elevation=6.25
USACE survey marker Jacksonville district KH-17, 1963 Elevation=5.10
USACE survey marker Jacksonville district KWRIGHT-1, 1991
USACE survey marker Jacksonville district KWRIGHT-2, 1991
USACE survey marker D-2 Elevation=13.16
Sump line and fuel lines (DFM and bunker C)
Fuel line (buried)
Truck fill
Fuel line
Oily wastewater line
Flammable storage area
High voltage transformer
Pump house
Small boat dock
Guard building
Storage shed
Diesel aboveground storage tank within concrete berm
Fire well
Concrete pad with manhole buried utilities
AUSTIN STREET
WHITING AVENUE
Tank D-1
Tank D-2
Tank D-3
Tank D-4
Tank D-5
Tank D-6
Tank 1
Tank 2
Tank 3
Steps
Sump
Pipe
Fuel pump
Fuel dispenser
Fuel filter
Flood pole
Pier 1
Pier 2
Pier 3
W001
W002
W003
W004
W005
W006
W007
W008
W009
W010
W011
MW-20 0.65
MW-19 0.63
MW-34 0.61
MW-35 0.81
MW-95 0.77
MW-36 10.75
MW-480 (0.02)
MW-30 0.89
MW-21 0.95
MW-58 0.79
MW-46 0.65
MW-45 0.49
MW-44 1.18
MW-55 1.05
MW-102 1.08
MW-89 1.61
MW-88 1.24
MW-83 1.18
MW-71D (0.50)
MW-94 1.46
MW-93 (0.40)
MW-81 1.61
MW-87 1.32
MW-80 1.72
MW-79 1.45
MW-86 1.31
MW-84 1.00
MW-85 1.53
MW-870 (0.09)
MW-64 1.32
MW-69 2.00
MW-96 1.98
MW-97 1.71
MW-66 1.32
MW-68 1.60
MW-90 1.38
MW-91 1.37
MW-93 1.50
MW-77 1.91
MW-CG-2 1.55
MW-100 2.21
MW-50 2.20
MW-55 (1.64)
MW-76 2.00
MW-73 1.99
MW-JP-2 2.04
MW-JP-3 2.04
MW-JP-1 1.39
MW-51 1.32
MW-780 (1.78)
MW-56 0.84
MW-10 (1.65)
MW-75D 1.50
MW-57 1.50
MW-20 1.49
MW-22 2.35
MW-07 2.04
MW-78D (1.25)
MW-61 2.04
MW-62 1.80
MW-74D (1.97)
MW-52 1.63
MW-4 0.62
MW-8 0.49
MW-9 0.90
MW-11 1.01
MW-12 0.95
MW-23 0.95
MW-39 1.64
MW-30 2.22
MW-25 2.25
MW-26 2.40
MW-29 2.40
MW-5 0.65
MW-87D (2.58)
MW-9-15
MW-9-16
MW-9-17
MW-9-18
MW-9-19
MW-9-14
MW-9-11 0.65
MW-31 2.55
MW-40 2.02
MW-33 1.41
MW-32
MW-22 2.19
MW-27 2.56
MW-28 2.58
MW-450 (2.92)
MW-35 2.26
MW-24 2.15
MW-JP-4 2.01
MW-JP-5 2.01
MW-JP-6 2.01
MW-JP-7 2.01
MW-JP-8 2.01
MW-JP-9 2.01
MW-JP-10 2.01
MW-JP-11 2.01
MW-JP-12 2.01
MW-JP-13 2.01
MW-JP-14 2.01
MW-JP-15 2.01
MW-JP-16 2.01
MW-JP-17 2.01
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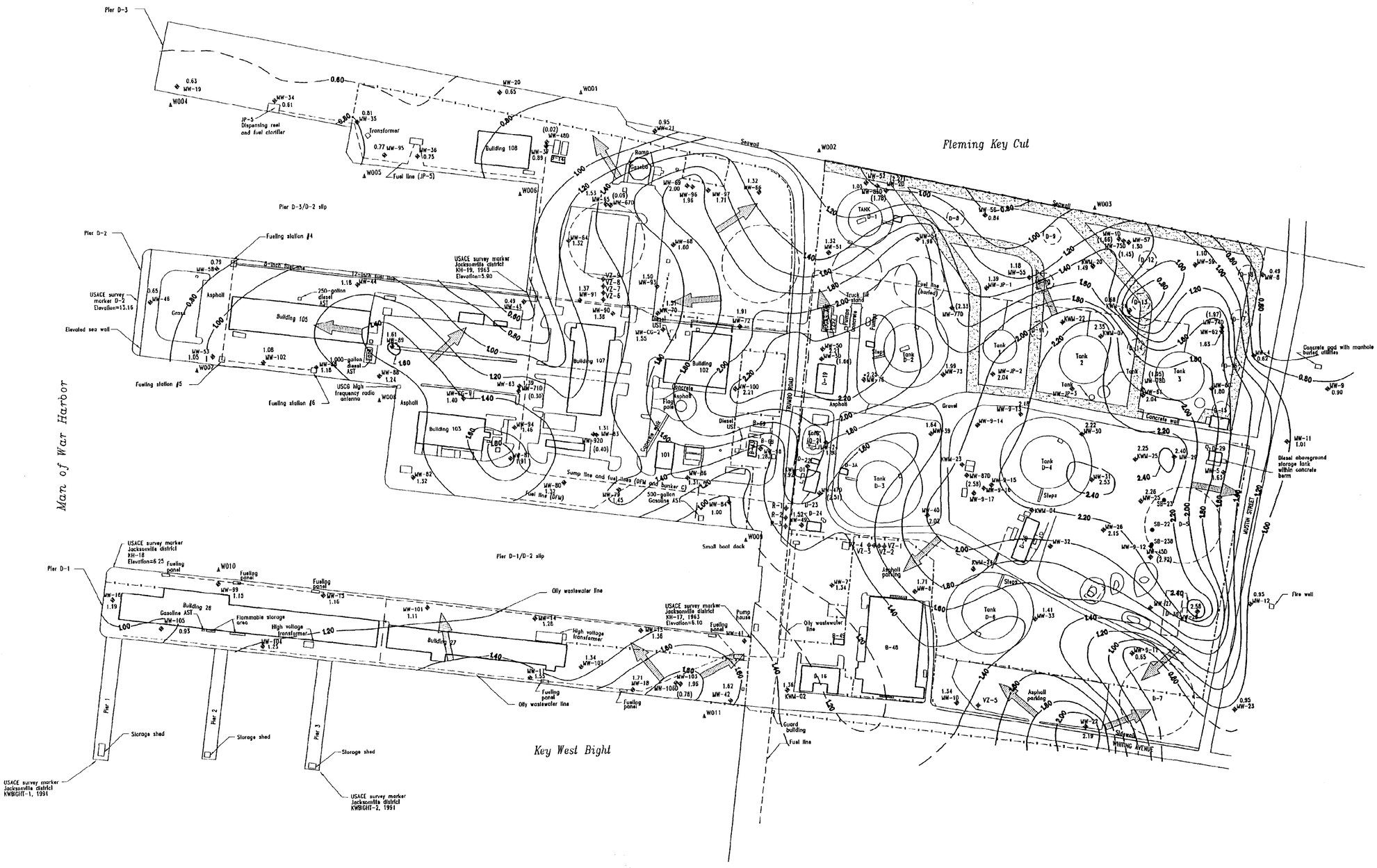
MW-JP-21 2.01
MW-JP-22 2.01
MW-JP-23 2.01



LEGEND

D-19	Building and designation
x—x—x	Fence
	Gravel berm
	Underground pipeline
	Aboveground pipeline
(D-5)	Former tank and designation
1292 (D-4)	Tank and designation
1.20	Water table elevation value feet above MSL
	Groundwater flow direction
AST	Aboveground storage tank
DFM	Diesel fuel marine
JP-5	Jet Propellant 5 jet fuel
AVGAS	Aviation gasoline
MOGAS	Motor gasoline (unleaded gasoline)
UST	Underground storage tank
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
VZ-7	Vadose zone well location and designation
MW-23	Monitoring well location and designation
KMW-20	Monitoring well location and designation installed prior to 1990
2.6	Water table elevation value, feet above MSL
(2.72)	Water-level elevation from deep monitoring well
MSL	Mean sea level

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

FIGURE 5-8
WATER TABLE ELEVATION MAP
JULY 30,1996

CONTAMINATION ASSESSMENT REPORT
TRUMBO POINT FUEL FARM
NAVAL AIR STATION
KEY WEST, FLORIDA

H:\KW\TRUMBO\KWCAD\TPS\TA-25-96

5.7 TIDAL INFLUENCE STUDY.

5.7.1 Purpose and Scope A tidal influence study was conducted to assess the effect of tidal fluctuations on groundwater elevations and flow direction at the site. The study was conducted during a 39-hour period to record one or more tidal cycles when tidal fluctuations were near maximum levels.

5.7.2 Background The tide is the periodic rise and fall of the Earth's water resulting from gravitational interactions between the Sun, Moon, and Earth. There are generally two high and two low waters in a day. Tides follow the Moon more closely than they do the Sun, and the lunar or tidal day is about 50 minutes longer than the solar day. When the two high waters and two low waters of each tidal day are approximately equal in height, the tide is said to be semidiurnal. When there is a relatively large diurnal inequality in the high or low waters or both, the tide is said to be mixed. Finally, when there is only one high water and one low water in each tidal day, the tide is said to be diurnal.

When water is falling or moving away from a shoreline, the tide is said to be an ebb tide. Under conditions when water is rising, the tide is said to be a flood tide. The time and heights of the rising and falling of the tide can be predicted based on our knowledge of gravitational interactions. Daily tide predictions in the United States are available and are based upon analyses of tidal observations for periods of at least 1 year. Extreme meteorological conditions are excluded from the analyses and predictions; therefore, the predicted tidal heights are those expected under average weather conditions. Prolonged onshore winds or low barometric pressure can produce higher tidal levels than predicted. In addition, prolonged offshore winds or high barometric pressure can produce lower tidal levels than predicted.

Exclusive of weather conditions, the astronomical tide is also subject to range variations. Decreased ranges may be expected near the times when the Moon is in apogee (farthest from the Earth) or in quadrature (angular separation of the Moon and Sun from the Earth is 90 degrees; also called Neap tides). Increased ranges may be expected when the Moon is in perigee (nearest to Earth in its orbit) or in a new or full position (spring tides). A larger diurnal range may also result when the Moon is in its maximum declination (tropic tides). The actual tidal range will depend upon the extent to which combinations of these positions reinforce or detract from one another. These range variations based on astronomical conditions are included in the daily tide predictions.

Groundwater aquifers that are in hydraulic connection with surface water bodies such as rivers, lakes, oceans, etc., are influenced by fluctuations of the water bodies. These fluctuations may be the result of tidal influences, flooding, rainfall, or the influence of manmade control structures such as dams and locks. During high surface water conditions the aquifer may be recharged, whereas, during low surface water conditions the aquifer will usually discharge into the surface water body. In a groundwater aquifer, the effects of surface water fluctuations will diminish with distance from the source (river, ocean, etc.).

The Lower Keys, including Key West, are overlain by an oolitic member of the Pleistocene Miami Limestone, except in those areas where fill material has been imported. Overlying the oolite to a depth approximately 10 feet bls is a clayey calcareous fill material dredged from the channel bottom of Fleming Key Cut. The surficial aquifer is contained within the fill material and oolitic limestone.

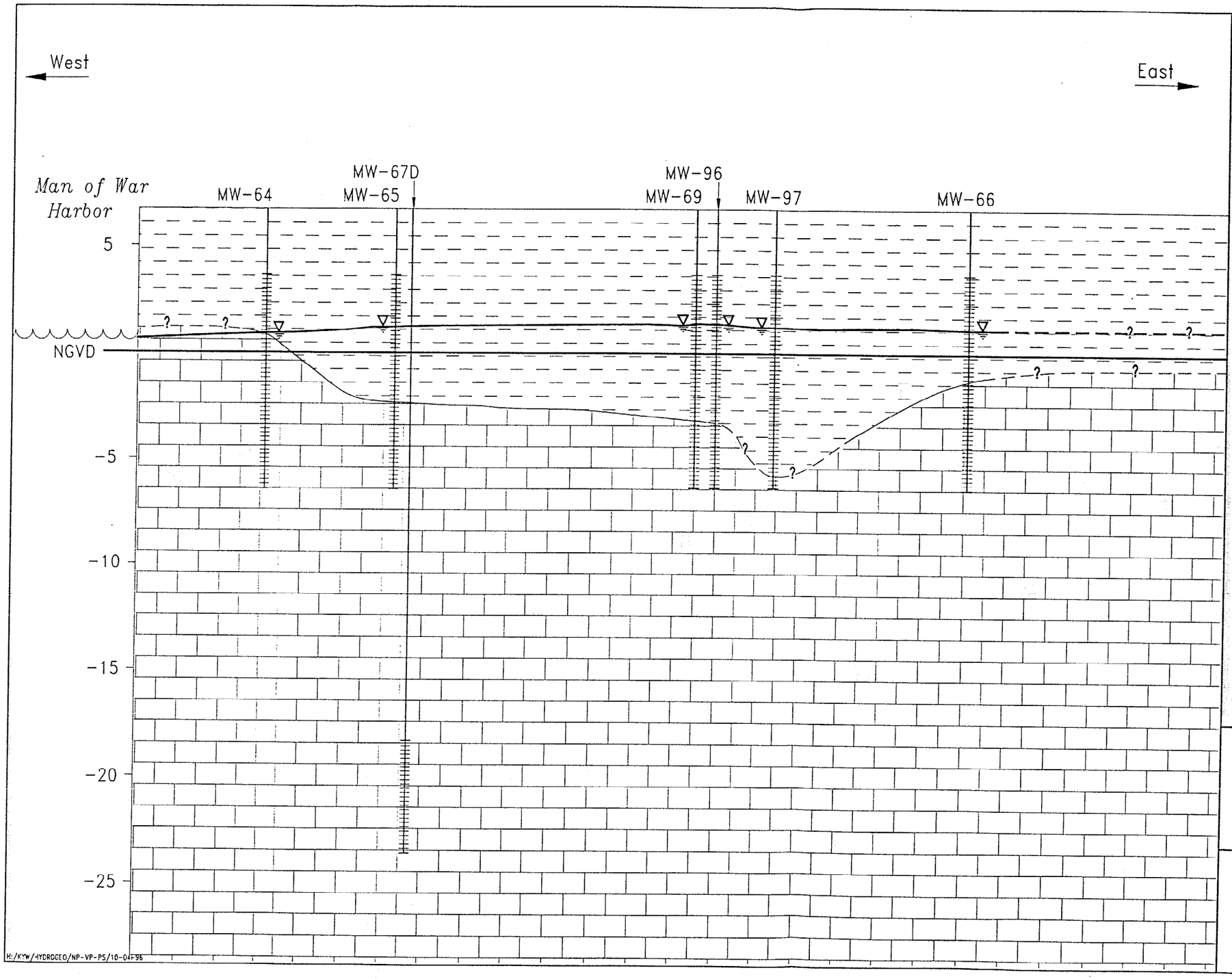
Groundwater at the site is encountered approximately 4 to 5 feet bls. Because of the high hydraulic conductivity of the limestone, groundwater elevations in site monitoring wells screened in the oolitic zone of the surficial aquifer are expected to be significantly influenced by tidal fluctuations. On the other hand, low permeability in the fill material and the seawall on the north side of the site are expected to attenuate tidal influences on the water table in the upper 10 feet of the shallow aquifer.

5.7.3 Tidal Study Methodologies A tidal influence study was conducted at the USCG facility beginning 16:06 on March 15th, and ending 08:30 on March 17th, 1996. The tidal influence study was conducted between the last quarter and the new Moon when tidal fluctuations are near maximum levels. Water levels were monitored for approximately 39 hours at 15-minute intervals using a data logger and pressure transducers. Pressure transducers were placed in five shallow and two deep monitoring wells and in the harbor adjacent to Pier D-3 to monitor tidal fluctuations in open water for comparison with water levels recorded in the monitoring wells. The top-of-casing elevation at each monitoring station was surveyed and referenced to a benchmark at the site.

Shallow monitoring wells are screened across the water table predominantly in the clayey calcareous fill material, which ranges from approximately 5 feet to 10 feet in thickness. The shallow wells have 10-foot screen intervals that penetrate approximately 2 to 3 feet into the oolitic limestone below the clayey fill. Deep monitoring wells at the site are screened in the oolitic limestone. Deep monitoring wells MW-67D and MW-48D extend to a total depth of 30 feet bls with a 5-foot screen interval from 25 to 30 feet bls. A hydrogeological cross section of the tidal influence study area showing site lithology,well locations, screen intervals, and water table elevations are presented on Figure 5-9.

5.7.4 Tidal Influence Study Results Water-level data recorded in the harbor during the tidal influence study (Table 5-8) indicate the tidal cycle at the site is semi-diurnal (two high tides and two low tides of similar magnitude in a 24-hour period). Water-level elevations plotted at 15-minute time intervals show deep monitoring wells MW-67D and MW-48D which are screened in the oolitic limestone were significantly affected by tides (Figure 5-10). Water levels in deep monitoring well MW-67D fluctuated approximately 1.5 feet, exceeding those in the harbor (0.9 foot) and in MW-48D (0.6 foot). Water-level fluctuations in the deep wells showed a time lag with tidal fluctuations in the harbor ranging from 0 to 30 minutes.

Water-level elevation and elapsed time data in shallow wells MW-37, MW-64, MW-65, MW-68, and MW-69 show tidal influence is minimal in monitoring wells MW-65, MW-68, and MW-69, and significantly attenuated in monitoring well MW-37 (Figure 5-11). MW-64 water-level elevation data, however, show significant water-level fluctuations corresponding to the first flood tide and second ebb tide of the semi-diurnal cycle. The water level in well MW-64 rose during the first flood tide (0 to 165 minutes elapsed time), but did not fall as the tide ebbed (195 to 570 minutes elapsed time, Figure 5-11 and Table 5-8). The groundwater elevation remained high during the second flood tide (570 to 975 minutes elapsed time) then began to fall 60 to 90 minutes before the second ebb tide. This phenomenon was repeated during the next tidal cycle.



N

LEGEND

- Water table elevation
- -?-?- Elevation dashed where inferred
- Calcareous fill material
- Oolitic limestone
- Screen interval
- MW-64 Monitoring well designation
- NGVD National Geodetic Vertical Datum of 1929

0 25 50
HORIZONTAL SCALE: 1 INCH = 50 FEET

0 2.5 5
VERTICAL SCALE: 1 INCH = 5 FEET

FIGURE 5-9
TIDAL INFLUENCE STUDY
HYDROGEOLOGICAL CROSS SECTION

CONTAMINATION ASSESSMENT REPORT

TRUMBO POINT FUEL FARM
NAVAL AIR STATION
KEY WEST, FLORIDA

0076443

Table 5-8
Tidal Study Data,
March 15-17, 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Elapsed Time (minutes)	Water Table Elevation (feet NGVD)							
	MW-67D	MW-65	MW-64	MW-68	MW-37	MW-48D	Harbor	MW-69
0	0.647	1.03	0.59	1.16	0.22	0.82	0.68	1.42
15	0.704	1.028	0.628	1.16	0.23	0.846	0.797	1.42
30	0.767	1.028	0.677	1.159	0.238	0.871	0.819	1.421
45	0.825	1.028	0.704	1.159	0.243	0.893	0.826	1.421
60	0.882	1.028	0.747	1.157	0.249	0.915	0.87	1.421
75	0.939	1.028	0.802	1.154	0.257	0.939	0.913	1.42
90	0.989	1.028	0.859	1.154	0.267	0.961	0.914	1.42
105	1.034	1.028	0.926	1.152	0.275	0.979	0.929	1.419
120	1.078	1.03	0.997	1.152	0.284	0.996	0.975	1.419
135	1.116	1.031	1.059	1.153	0.295	1.009	0.981	1.419
150	1.161	1.033	1.116	1.152	0.305	1.03	0.986	1.419
165	1.186	1.034	1.146	1.152	0.313	1.041	0.999	1.419
180	1.199	1.035	1.168	1.153	0.323	1.044	0.997	1.42
195	1.211	1.035	1.187	1.153	0.334	1.048	0.975	1.42
210	1.199	1.037	1.203	1.153	0.343	1.045	0.946	1.419
225	1.18	1.037	1.222	1.15	0.353	1.031	0.892	1.417
240	1.142	1.038	1.241	1.152	0.361	1.023	0.998	1.419
255	1.104	1.039	1.247	1.152	0.37	1.001	0.937	1.419
270	1.053	1.039	1.249	1.153	0.375	0.983	0.882	1.419
285	0.983	1.041	1.257	1.152	0.3[illegible]	0.954	0.838	1.419
300	0.926	1.042	1.268	1.153	0.386	0.933	0.785	1.42
315	0.85	1.041	1.276	1.152	0.389	0.903	0.759	1.417
330	0.793	1.041	1.293	1.152	0.391	0.878	0.711	1.419
345	0.704	1.041	1.304	1.152	0.391	0.846	0.662	1.419
360	0.615	1.042	1.304	1.153	0.389	0.807	0.634	1.419
375	0.527	1.042	1.304	1.153	0.385	0.772	0.591	1.419
390	0.444	1.041	1.323	1.153	0.382	0.74	0.548	1.419
405	0.349	1.042	1.323	1.153	0.375	0.705	0.493	1.419
420	0.254	1.044	1.339	1.154	0.371	0.662	0.448	1.419
435	0.178	1.044	1.342	1.154	0.364	0.632	0.374	1.419
450	0.108	1.045	1.363	1.156	0.357	0.603	0.35	1.419
465	0.032	1.046	1.355	1.159	0.352	0.575	0.305	1.421
480	-0.044	1.046	1.363	1.159	0.345	0.541	0.284	1.421
495	-0.107	1.046	1.358	1.16	0.339	0.519	0.284	1.421
510	-0.171	1.048	1.358	1.161	0.334	0.492	0.224	1.421
525	-0.215	1.048	1.35	1.163	0.327	0.477	0.218	1.423
540	-0.259	1.046	1.385	1.161	0.32	0.452	0.206	1.421

See notes at end of table.

Table 5-8 (Continued)
Tidal Study Data,
March 15-17, 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Elapsed Time (minutes)	Water Table Elevation (feet NGVD)							
	MW-67D	MW-65	MW-64	MW-68	MW-37	MW-48D	Harbor	MW-69
555	-0.291	1.045	1.399	1.161	0.313	0.447	0.196	1.421
570	-0.31	1.048	1.388	1.163	0.308	0.433	0.106	1.424
585	-0.316	1.046	1.366	1.164	0.301	0.433	0.213	1.423
600	-0.323	1.048	1.358	1.165	0.294	0.436	0.214	1.424
615	-0.291	1.046	1.358	1.165	0.287	0.45	0.231	1.423
630	-0.24	1.046	1.371	1.167	0.282	0.466	0.268	1.424
645	-0.183	1.045	1.358	1.165	0.276	0.494	0.33	1.424
660	-0.152	1.044	1.369	1.164	0.269	0.512	0.339	1.423
675	-0.139	1.044	1.35	1.163	0.265	0.512	0.354	1.423
690	-0.12	1.044	1.325	1.165	0.26	0.521	0.383	1.423
705	-0.063	1.044	1.314	1.165	0.256	0.548	0.415	1.424
720	0	1.044	1.312	1.165	0.252	0.568	0.452	1.424
735	0.064	1.042	1.32	1.165	0.247	0.593	0.48	1.423
750	0.127	1.041	1.339	1.163	0.245	0.618	0.502	1.421
765	0.178	1.041	1.358	1.161	0.242	0.639	0.53	1.421
780	0.222	1.039	1.314	1.16	0.241	0.654	0.554	1.42
795	0.273	1.038	1.32	1.157	0.241	0.676	0.587	1.419
810	0.336	1.037	1.323	1.156	0.242	0.698	0.612	1.419
825	0.406	1.035	1.309	1.153	0.242	0.723	0.631	1.417
840	0.47	1.037	1.314	1.153	0.245	0.747	0.668	1.417
855	0.495	1.037	1.301	1.153	0.249	0.762	0.686	1.417
870	0.533	1.034	1.274	1.149	0.249	0.773	0.69	1.416
885	0.571	1.035	1.233	1.15	0.253	0.791	0.697	1.416
900	0.603	1.034	1.217	1.148	0.257	0.799	0.706	1.414
915	0.634	1.035	1.135	1.148	0.26	0.817	0.715	1.414
930	0.672	1.035	1.097	1.146	0.265	0.831	0.763	1.413
945	0.717	1.035	1.032	1.146	0.268	0.848	0.76	1.412
960	0.755	1.038	0.978	1.142	0.274	0.859	0.786	1.412
975	0.793	1.038	0.902	1.141	0.279	0.878	0.847	1.41
990	0.806	1.041	0.845	1.139	0.282	0.878	0.797	1.41
1005	0.774	1.042	0.81	1.141	0.287	0.871	0.778	1.412
1020	0.723	1.042	0.747	1.139	0.295	0.853	0.756	1.41
1035	0.704	1.045	0.693	1.141	0.298	0.848	0.739	1.41
1050	0.672	1.048	0.628	1.141	0.302	0.835	0.667	1.41
1065	0.647	1.049	0.653	1.143	0.311	0.828	0.693	1.41
1080	0.609	1.052	0.628	1.143	0.312	0.805	0.672	1.41
1095	0.577	1.052	0.582	1.143	0.309	0.792	0.667	1.412

See notes at end of table.

Table 5-8 (Continued)
Tidal Study Data,
March 15-17, 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Elapsed Time (minutes)	Water Table Elevation (feet NGVD)							
	MW-67D	MW-65	MW-64	MW-68	MW-37	MW-48D	Harbor	MW-69
1110	0.533	1.053	0.544	1.143	0.312	0.774	0.661	1.41
1125	0.482	1.055	0.501	1.145	0.319	0.759	0.566	1.41
1140	0.425	1.055	0.465	1.142	0.311	0.736	0.58	1.41
1155	0.374	1.056	0.463	1.148	0.315	0.718	0.613	1.413
1170	0.317	1.059	0.422	1.152	0.317	0.69	0.526	1.414
1185	0.26	1.059	0.392	1.148	0.304	0.664	0.436	1.414
1200	0.241	1.057	0.373	1.15	0.301	0.653	0.486	1.413
1215	0.178	1.06	0.319	1.149	0.293	0.635	0.401	1.413
1230	0.153	1.06	0.403	1.15	0.293	0.624	0.426	1.412
1245	0.121	1.06	0.379	1.15	0.301	0.613	0.387	1.416
1260	0.089	1.059	0.371	1.149	0.289	0.599	0.392	1.414
1275	0.07	1.059	0.365	1.149	0.28	0.59	0.467	1.414
1290	0.083	1.059	0.33	1.15	0.287	0.599	0.414	1.414
1305	0.089	1.059	0.305	1.154	0.264	0.595	0.383	1.416
1320	0.102	1.057	0.343	1.152	0.269	0.607	0.44	1.414
1335	0.096	1.063	0.379	1.153	0.272	0.606	0.425	1.414
1350	0.096	1.066	0.373	1.153	0.267	0.604	0.401	1.414
1365	0.102	1.07	0.436	1.154	0.274	0.614	0.46	1.416
1380	0.127	1.071	0.463	1.156	0.268	0.621	0.445	1.416
1395	0.184	1.072	0.498	1.153	0.26	0.642	0.57	1.416
1410	0.229	1.071	0.498	1.154	0.252	0.661	0.541	1.421
1425	0.305	1.07	0.555	1.16	0.256	0.693	0.568	1.423
1440	0.374	1.07	0.541	1.154	0.253	0.718	0.638	1.421
1455	0.438	1.07	0.615	1.154	0.26	0.748	0.69	1.421
1470	0.495	1.07	0.655	1.154	0.264	0.767	0.682	1.421
1485	0.552	1.07	0.696	1.156	0.265	0.791	0.682	1.421
1500	0.622	1.071	0.734	1.156	0.271	0.817	0.772	1.421
1515	0.71	1.07	0.788	1.157	0.275	0.849	0.745	1.421
1530	0.78	1.068	0.842	1.154	0.282	0.881	0.921	1.42
1545	0.856	1.068	0.894	1.152	0.289	0.91	0.876	1.419
1560	0.913	1.068	0.948	1.15	0.294	0.931	0.893	1.419
1575	0.977	1.07	1.005	1.15	0.302	0.955	0.942	1.417
1590	1.046	1.07	1.049	1.15	0.311	0.983	0.926	1.419
1605	1.11	1.072	1.07	1.152	0.319	1.012	0.997	1.419
1620	1.161	1.072	1.084	1.152	0.328	1.03	0.988	1.419
1635	1.205	1.074	1.097	1.152	0.337	1.049	1.034	1.417
1650	1.249	1.075	1.108	1.152	0.348	1.059	1.025	1.417

See notes at end of table.

Table 5-8 (Continued)
Tidal Study Data,
March 15-17, 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Elapsed Time (minutes)	Water Table Elevation (feet NGVD)							
	MW-67D	MW-65	MW-64	MW-68	MW-37	MW-48D	Harbor	MW-69
1665	1.275	1.075	1.116	1.152	0.357	1.059	1.001	1.417
1680	1.306	1.074	1.127	1.148	0.367	1.059	1.042	1.413
1695	1.338	1.077	1.135	1.149	0.376	1.059	0.988	1.414
1710	1.319	1.078	1.146	1.149	0.387	1.059	1.061	1.414
1725	1.281	1.079	1.157	1.149	0.397	1.059	0.973	1.414
1740	1.243	1.079	1.168	1.149	0.405	1.059	0.957	1.413
1755	1.218	1.081	1.171	1.15	0.412	1.055	0.966	1.414
1770	1.142	1.082	1.176	1.15	0.418	1.026	0.954	1.416
1785	1.072	1.082	1.179	1.15	0.423	0.997	0.866	1.414
1800	1.008	1.081	1.187	1.149	0.427	0.968	0.804	1.413
1815	0.945	1.082	1.187	1.15	0.429	0.947	0.807	1.414
1830	0.875	1.083	1.187	1.153	0.43	0.922	0.763	1.416
1845	0.793	1.083	1.187	1.152	0.429	0.884	0.693	1.414
1860	0.704	1.083	1.19	1.153	0.427	0.849	0.684	1.416
1875	0.615	1.085	1.192	1.153	0.422	0.814	0.627	1.416
1890	0.527	1.083	1.203	1.153	0.418	0.774	0.559	1.414
1905	0.425	1.083	1.209	1.153	0.411	0.738	0.517	1.414
1920	0.336	1.083	1.209	1.154	0.405	0.697	0.456	1.416
1935	0.241	1.083	1.219	1.154	0.398	0.662	0.397	1.414
1950	0.159	1.083	1.217	1.156	0.393	0.628	0.397	1.416
1965	0.076	1.083	1.2	1.159	0.385	0.595	0.364	1.417
1980	0.007	1.083	1.198	1.16	0.379	0.561	0.324	1.419
1995	-0.057	1.085	1.19	1.163	0.372	0.543	0.294	1.419
2010	-0.095	1.083	1.187	1.163	0.367	0.528	0.309	1.419
2025	-0.133	1.079	1.195	1.16	0.361	0.514	0.272	1.416
2040	-0.177	1.082	1.184	1.163	0.354	0.496	0.262	1.419
2055	-0.196	1.082	1.184	1.163	0.348	0.49	0.223	1.419
2070	-0.215	1.081	1.173	1.163	0.342	0.484	0.256	1.417
2085	-0.221	1.081	1.173	1.164	0.335	0.483	0.262	1.419
2100	-0.221	1.081	1.173	1.165	0.328	0.483	0.275	1.42
2115	-0.202	1.079	1.165	1.164	0.323	0.495	0.213	1.419
2130	-0.133	1.079	1.157	1.164	0.316	0.523	0.313	1.42
2145	-0.076	1.079	1.154	1.165	0.312	0.548	0.343	1.42
2160	-0.031	1.079	1.154	1.164	0.306	0.564	0.438	1.419
2175	0.007	1.077	1.152	1.161	0.301	0.578	0.456	1.417
2190	0.045	1.078	1.154	1.163	0.298	0.593	0.46	1.419
2205	0.096	1.074	1.157	1.159	0.294	0.611	0.507	1.416

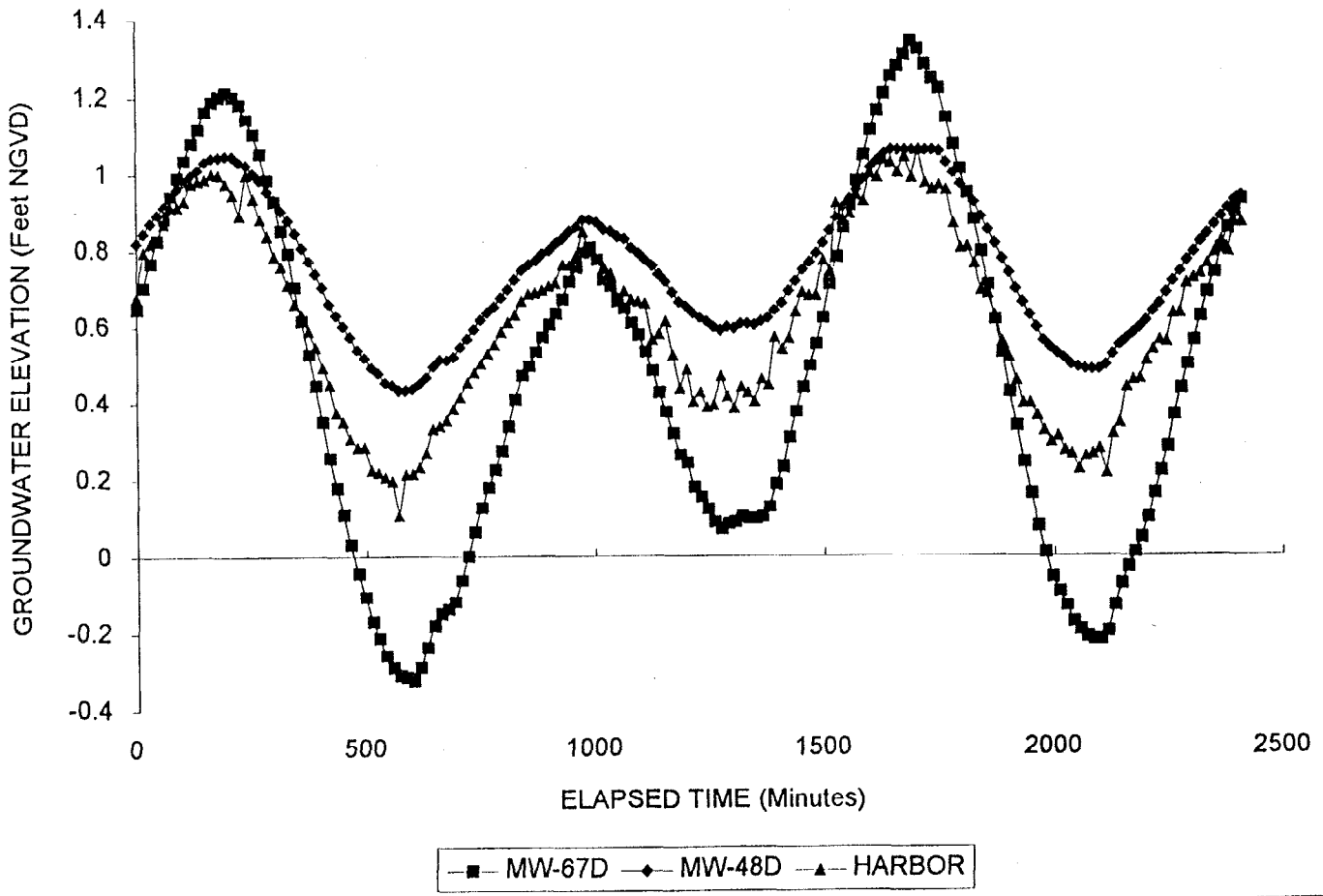
See notes at end of table.

Table 5-8 (Continued)
Tidal Study Data,
March 15-17, 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Elapsed Time (minutes)	Water Table Elevation (feet NGVD)							
	MW-67D	MW-65	MW-64	MW-68	MW-37	MW-48D	Harbor	MW-69
2220	0.159	1.074	1.157	1.159	0.29	0.636	0.537	1.416
2235	0.216	1.075	1.16	1.157	0.287	0.657	0.562	1.416
2250	0.279	1.074	1.162	1.157	0.286	0.684	0.557	1.414
2265	0.362	1.072	1.16	1.156	0.286	0.714	0.632	1.413
2280	0.431	1.072	1.16	1.153	0.284	0.74	0.634	1.413
2295	0.495	1.071	1.16	1.152	0.287	0.769	0.709	1.41
2310	0.558	1.071	1.154	1.15	0.289	0.79	0.723	1.41
2325	0.622	1.07	1.135	1.149	0.291	0.817	0.735	1.41
2340	0.685	1.07	1.1	1.148	0.294	0.837	0.761	1.409
2355	0.736	1.07	1.103	1.149	0.3	0.86	0.79	1.409
2370	0.799	1.07	1.065	1.148	0.304	0.881	0.819	1.409
2385	0.85	1.071	1.019	1.145	0.305	0.903	0.794	1.409
2400	0.894	1.07	0.918	1.148	0.312	0.924	0.866	1.407
2415	0.926	1.071	0.916	1.145	0.319	0.936	0.869	1.406

Notes: NGVD = National Geodetic Vertical Datum of 1929.



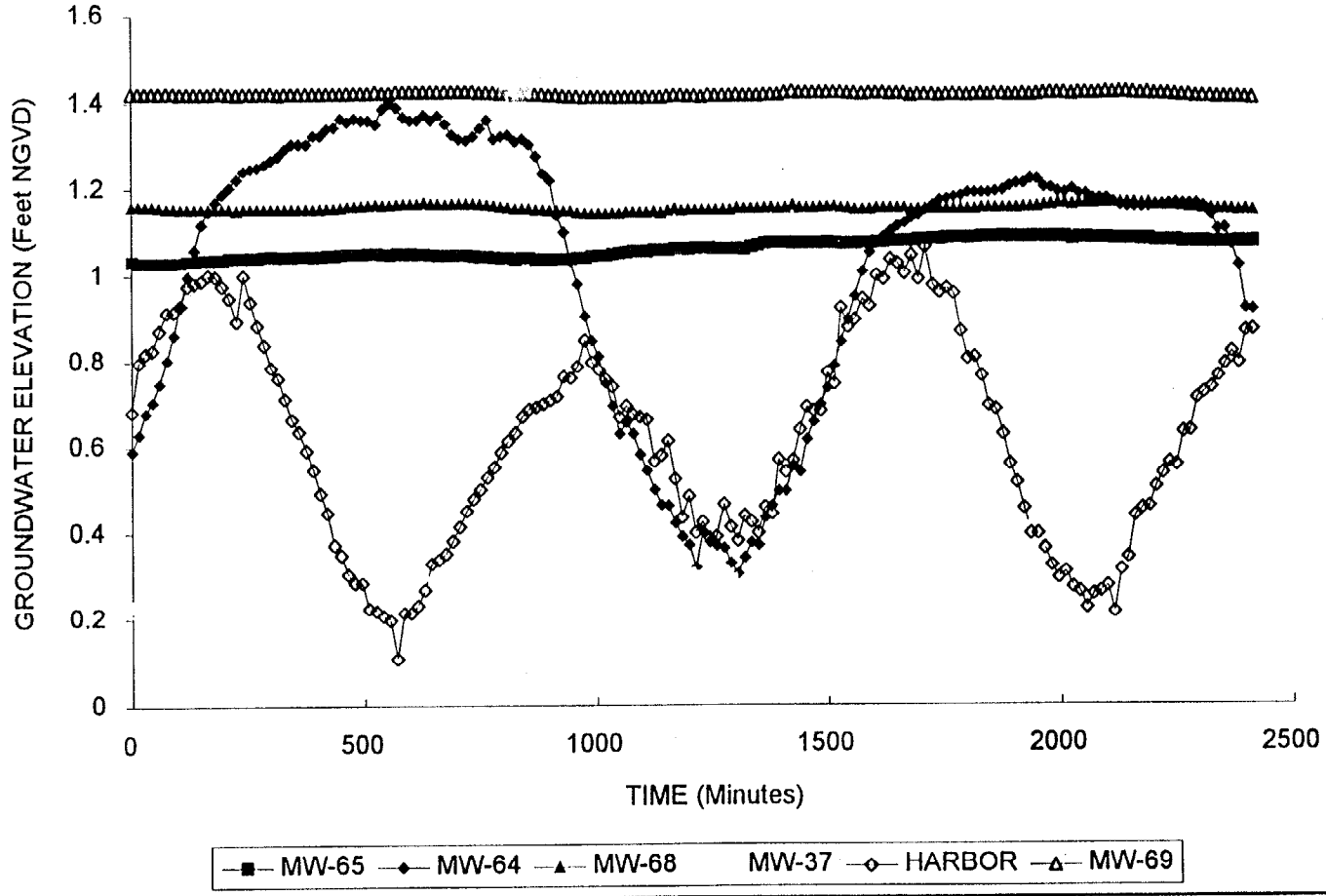
NOTES:
MW = monitoring well
NGVD = National Geodetic Vertical Datum of 1929

FIGURE 5-10
DEEP MONITORING WELL TIDAL INFLUENCE DATA,
MARCH 15, 16, AND 17, 1996

CONTAMINATION ASSESSMENT REPORT

TRUMBO POINT FUEL FARM
NAVAL AIR STATION
KEY WEST, FLORIDA

8506-41-000 FIG 5-9 090396HAS



NOTES:
MW = monitoring well
NGVD = National Geodetic Vertical Datum of 1929

FIGURE 5-11
SHALLOW MONITORING WELL TIDAL INFLUENCE DATA, MARCH 15, 16, AND 17, 1996

CONTAMINATION ASSESSMENT REPORT

TRUMBO POINT FUEL FARM
NAVAL AIR STATION
KEY WEST, FLORIDA

8506-41-000 FIG 5-10 090396HAS

The reason shallow monitoring well MW-64 is so strongly influenced by tidal fluctuations appears to be because most of the well screen (approximately 70 percent) is in the limestone. Lithologic logs indicate shallow well MW-64 penetrates approximately 7 feet into the oolitic limestone below the clayey fill material, which is less than 6 feet thick in this area.

Shallow monitoring well water-level elevation data indicate that a reversal in groundwater flow direction may occur at the site in the vicinity of well MW-64. The groundwater flow direction at the water table, which is generally westward toward the harbor, is shown by the elevation data on Figure 5-11. Monitoring wells farther inland have higher water-level elevations than wells closer to the harbor. However, during approximately 12.5 to 13.5 hours of the tidal cycle (180 to 915 minutes and 135 to 945 minutes elapsed time), the water-level elevation was higher in MW-64 than in MW-65 and MW-68, which are farther inland. Water-level fluctuations in well MW-37 are significantly less than those in well MW-64 and, apparently, are not large enough to cause reversals in groundwater flow direction near well MW-37.

5.8 PUMPING TEST.

5.8.1 Purpose and Scope Constant-rate pumping tests at the USCG facility were conducted on March 19th and 20th, and April 11th and 12th, 1996, to estimate hydraulic characteristics of the upper and lower zones of the surficial aquifer. The purpose of the pumping tests was to support the design of a groundwater treatment system. This section presents the data collected during the pumping tests, and discusses the hydraulic characteristics used to calculate the capture zone for the recovery well(s) that may be proposed as part of a groundwater treatment system.

5.8.2 Background The aquifer characterization pumping tests were conducted on the north side of the Coast Guard station, south of Fleming Key Cut and east of Pier D-3 using monitoring wells MW-37, MW-48D, MW-64, MW-65, MW-66, MW-67D, MW-68, MW-69, MW-96, and MW-97. The surface area in the vicinity of the pumping test wells primarily consists of asphalt pavement and grass. The seawall north of the site is constructed of concrete and extends to a depth of approximately 40 feet bls. Locations of pumping well MW-69 and adjacent observation wells MW-96, MW-97, and MW-66 are shown on Figure 4-2.

5.8.3 Pumping-Test Methodologies Beginning at 20:30 on March 19, 1996, deep monitoring well MW-67D was pumped at a constant rate of 5 gpm for 540 minutes. Water levels in pumping well MW-67D and six nearby monitoring wells (MW-65, MW-64, MW-68, MW-37, MW-48D, and MW-69) were recorded using pressure transducers and a data logger for the duration of the pumping test. Water levels in the harbor at the southeast corner of Pier D-3 were also monitored to record open-water tidal fluctuations. The water level in MW-67D was approximately 6.0 feet bls at the start of the pumping test.

Beginning at 08:01 on April 11, 1994, shallow monitoring well MW-69 was pumped at a constant rate of 0.87 gpm for 1,000 minutes. Water levels in pumping well MW-69 and three adjacent monitoring wells (MW-96, MW-97, and MW-66) were recorded using pressure transducers and a data logger for the duration of the pumping

test. Water-level monitoring in all four wells continued for 860 minutes after the pump was shut off. The water level in MW-69 was approximately 4.6 feet bls at the start of the pumping test.

5.8.4 Deep Monitoring Well Pumping-Test Results Water-level measurements in deep and shallow observation wells in the vicinity of pumping well MW-67D indicate that observation wells were unaffected by pumping during the deep well pumping test. The water level in shallow observation well MW-65, located 7 feet west of pumping well MW-67D, fluctuated less than 0.04 foot during the pumping test and showed little or no response to tidal fluctuations. Water-level fluctuations in shallow observation wells MW-37 and MW-64, and deep observation well MW-48D, appear to be related solely to tidal influence. Deep monitoring well MW-67D was pumped approximately 9 hours at a measured discharge rate of approximately 5 gpm.

5.8.5 Shallow Monitoring Well Pumping-Test Results Groundwater elevation measurements from the two observation wells and one pumped well were plotted and analyzed to calculate transmissivity and storage coefficient values for the clayey fill material. Water-level data collected at wells MW-69, MW-96, and MW-97 show a substantial difference in the magnitude of drawdown measured in the recovery well and the drawdowns measured in the monitoring wells. Pumping test results are presented graphically as log-log plots of time versus drawdown and time versus displacement in Appendix G.

5.9 AQUIFER CHARACTERIZATION.

5.9.1 Deep Well Type-Curve Analysis Type curves for an unconfined aquifer developed by S.P. Neuman and M.S. Hantush were fitted to the data using AQTESOLV (Geraghty & Miller, 1989). Log-log plots of drawdown versus time data for pumping well MW-67D are shown in Appendix G (Figures G-1 and G-2).

Drawdown data from pumping well MW-67D did not fit well with the type curves; however, best-fit curves were used to obtain a rough estimate of aquifer parameters. Factors that may have contributed to the deviation from typical time-drawdown response curves in the well include lithological variations between the limestone and overlying fill material, well inefficiency, and variations in permeability or porosity within the oolitic limestone.

Values for transmissivity (T), storativity (S), and specific yield (s_y) were obtained by matching the data with the Neuman type curve using a compressibility factor (β) of 0.001 for water in the aquifer. The Neuman type-curve solution assumes a partially penetrating well in an unconfined aquifer and the Hantush curve assumes there is a confining layer with leakage occurring. Estimated values of T for all of the solutions was approximately 50 square feet per day (ft^2/d). The estimated value for both S and s_y was 1.5×10^{-3}. The calculated T value gave a reasonable hydraulic conductivity (K) value for porous limestone of 1.63 feet per day (ft/d) or 12.2 gallons per day per foot (g/d/ft). Typical K values for limestone range from 10^{-2} to 10 g/d/ft (Freeze and Cherry, 1979).

Well-recovery data was not collected in the pumping well because the pump failed and shut down during the night when the equipment was unattended.

5.9.2 Shallow Well Type-Curve Analysis Type curves for an unconfined aquifer developed by S.P. Neuman (1975) were fitted to the data using AQTESOLV (Geraghty & Miller, 1989). Log-log plots of drawdown data for observation wells MW-96 and MW-97 throughout the duration of pumping are shown in Appendix G (Figures G-3 and G-4).

Drawdown data from pumping well MW-69 were not fitted to type curves because lithologic variations in the screened interval are not representative of the clayey fill material. MW-69 is screened approximately 3 feet into the limestone, which is much more transmissive than the overlying fill material. Water from the underlying limestone, therefore, flowed to the pumping well at a higher rate than water in the fill material, giving the aquifer the appearance of having higher values for the estimated aquifer parameters.

Values for T, S, and s_y were obtained by matching the data with the type curves using a β of 0.001 for water in the aquifer. Estimated values of T range from 174.2 ft^2/d in MW-96 to 334.7 ft^2/day in MW-97 for an average value of 254.5 ft^2/d. Values for S range from 0.007 to 0.013 for an average of 0.010. Values for s_y range from 0.006 to 0.011 for an average of 0.009. Using the value of T estimated from the pumping test data, however, did not give reasonable K values for the clayey fill material. Typical K values for clay deposited in a marine environment range from 10^{-5} to 10^{-2} g/d/ft (Freeze and Cherry, 1979).

Well-recovery data, however, give a much more reasonable value for hydraulic conductivity than do the pumping test data. Recovery data from well MW-69 were entered into the AQTESOLV program using the formula developed by Bouwer and Rice (1976) for estimating K in unconfined aquifers with completely or partially penetrating wells. A log-log, time versus displacement plot of the recovery data in pumping well MW-69 is shown in Appendix G (Figure G-5). The calculated value of K using the Bouwer and Rice method was 2.0×10^{-5} feet per minute or 2.15×10^{-1} g/d/ft. Inserting this K value into the equation:

$$T = Kb \qquad (1)$$

where:

b = aquifer thickness (10 feet); then,
T = (0.215 g/d/ft) (10 feet); or,
T = 2.15 g/d

5.10 HYDRAULIC GRADIENT AND GROUNDWATER FLOW VELOCITY. The hydraulic gradient and groundwater flow direction were assessed in both the shallow water table zone and deep zone using groundwater elevations in site monitoring wells. Shallow monitoring wells have screen intervals typically from 3 feet to 13 feet bls. Deep monitoring wells are screened from 25 feet to 30 feet bls. The hydraulic gradient was calculated using the following equation:

$$i=h/d \quad (2)$$

where:

i = hydraulic gradient (feet per foot [ft/ft])
h = hydraulic head difference between two monitoring points parallel with groundwater flow direction
d = distance between gradient monitoring points (feet)

5.10.1 Shallow Zone Hydraulic Gradient Groundwater levels measured on April 16, 1996, were used to calculate a range for the hydraulic gradient of the water table at the site. The hydraulic gradient in the shallow zone is lowest in the southwest area of the fuel farm between Tank D-3 and Building B-48. Therefore, using the equation:

$$i=h/d \quad (3)$$

where:

h = 0.19 foot hydraulic head difference between monitoring points MW-40 and MW-7 (1.59 feet minus 1.40 feet)
d = 225 feet
i = 0.19 foot / 225 feet

$$i = 8.0\text{x}10^{-4} \text{ ft/ft}$$

The greatest shallow zone hydraulic gradient is in the north central area of the fuel farm approximately 100 feet east of Tank D-1. Therefore, using equation (3),

h = 0.89 foot hydraulic head difference between monitoring points MW-54 and MW-56 (1.78 feet minus 0.89 foot)
d = 90 feet
i = 0.89 foot / 90 feet

$$i = 1.0\text{x}10^{-2} \text{ ft/ft}$$

5.10.2 Deep Zone Hydraulic Gradient The hydraulic gradient in the deep zone over most of the site is approximately $1.0\text{x}10^{-3}$ ft/ft.

The hydraulic gradient in the deep zone is lowest in the north central area of the USCG facility north of the basketball court. Terefore using equation (3),

h = 0.04 foot hydraulic head difference between monitoring points MW-67D and MW-48D (1.26 feet minus 1.22 feet)
d = 160 feet
i = 0.04 foot / 160 feet

$$i = 2.5\text{x}10^{-4} \text{ ft/ft}$$

5.10.3 Shallow Zone Groundwater Flow Velocity By calculating the hydraulic conductivity, hydraulic gradient, and effective porosity, the average pore water velocity (ν) can be estimated from the relationship:

$$v = K \times i / n_e \quad (4)$$

where:

ν = average linear pore water velocity in ft/day,
K = hydraulic conductivity in ft/day,
i = hydraulic gradient in ft/ft, and
n_e = effective porosity in percent.

The shallow zone K value calculated from pumping test well recovery data equals 2.15×10^{-1} g/d/ft or 2.88×10^{-2} ft/day.

The predominant lithology of the shallow water table aquifer is fill material consisting primarily of calcareous mud (clay- and silt-size particles); therefore, an effective porosity of 45 percent or 0.45 was estimated for the shallow aquifer (Freeze and Cherry, 1979).

K = 2.88×10^{-2} ft/d
i = 8.0×10^{-4} ft/ft (smallest gradient)
i = 1.0×10^{-2} ft/ft (largest gradient)
n_e = 0.45

Substituting these parameters into equation (4) gives a range of ν from 5.12×10^{-5} ft/d to 6.4×10^{-4} ft/d.

5.10.4 Deep Zone Groundwater Flow Velocity The deep zone hydraulic conductivity value calculated from pumping test well recovery data equals 12.2 g/d/ft or 1.63 ft/d.

The predominant lithology of the deep zone of water table aquifer is oolitic limestone; therefore, an effective porosity of 20 percent or 0.20 was estimated for the shallow aquifer (Freeze and Cherry, 1979).

K = 1.63 ft/d
i = 2.5×10^{-4} ft/ft (smallest gradient)
i = 1.0×10^{-3} ft/ft (largest gradient)
n_e = 0.20

Substituting these parameters into equation (4) gives a range of ν from 2.04×10^{-3} ft/d to 8.15×10^{-3} ft/d.

5.11 AQUIFER TEST CONCLUSIONS. Hydraulic conductivity data were calculated for the clayey fill material and underlying limestone aquifer using shallow pumping well recovery data and transmissivity values from type-curve analysis of deep well pumping data. Water-level elevation data were used to calculate hydraulic gradients in the shallow and deep zones of the water table. Hydraulic conductivity and water-level elevation data were used to calculate groundwater flow

velocity in both the shallow and deep zones of the water table aquifer. The results illustrate substantial differences between the clayey fill material and the underlying limestone of the oolitic Miami Limestone.

Plots of the corrected drawdown data from shallow observation wells MW-96 and MW-97 are uncharacteristic of an aquifer with radial flow to a pumped well. The drawdown data indicates the existence of a zone of higher hydraulic conductivity. Flow into the shallow wells from the underlying oolitic limestone is believed to be the explanation for the high transmissivity values calculated from the pumping test data.

The aquifer parameters calculated in this section represent estimates. The numbers provide a conceptual picture for the local aquifer conditions at the TPFF and USCG site, but should not be viewed as precise values.

6.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

6.1 SUMMARY. Based on the findings of the CA field investigations and laboratory analytical results, the following is a summary of existing conditions at the site.

Aquifer Characteristics and Hydrogeologic Parameters Summary.

- The sediments encountered during drilling operations are generally composed of silty clay, oolitic lime mud, and oolitic limestone.
- Groundwater beneath the site was encountered at depths of approximately 4 to 6 feet bls and is classified as G-III.
- The direction of groundwater flow in the surficial zone has consistently been radially away from the TPFF and toward the northwest on the piers.
- The average hydraulic gradient in the shallow zone at the site ranges from $8x10^{-4}$ to $1x10^{-2}$ ft/ft.
- The average hydraulic gradient in the deep zone at the site ranges from $2.5x10^{-4}$ to $1x10^{-3}$ ft/ft.
- The hydraulic conductivity in the shallow zone at the site is $2.88x10^{-2}$ ft/d.
- The hydraulic conductivity in the deep zone at the site is 1.63 ft/d.
- The shallow zone pore water velocity ranges from $5.12x10^{-5}$ to $6.4x10^{-4}$ ft/d.
- The deep zone pore water velocity ranges from $2.04x10^{-3}$ to $8.15x10^{-3}$ ft/d.

Soil CA Summary.

- Five areas of excessively contaminated soil were identified by OVA headspace analyses. The largest areal extent of soil contamination is located immediately north of the JP-5 tanks. Other areas of excessively contaminated soil included Pier D-2 in the vicinity of Building 105, the area around the basketball court and softball field, the west end of Pier D-1, and the east end of Pier D-1 (see Figure 5-1).
- Four areas of excessively contaminated soil were identified by laboratory analysis. TRPH concentrations in soil exceed the Chapter 62-770, FAC, target level of 50 ppm in the former tank D-5 area, the area around tank D-21, the area of the oil-water separator, and the area of the oily-waste water pump station on Pier D-1.
- The sediment sample analytical data collected from the surface water bodies adjacent to the site indicate no detections above the detection limit for VOCs and EDB, however, elevated concentrations of PAH, TRPH,

and lead were detected in some or all of the samples. The source of contamination in surface water sediment may be attributed to past oil seepage, bilge water discharges, and particles of lead-based paint from naval vessels operating at the facility.

Groundwater CA Summary.

- Two areas of total VOA contamination in groundwater were identified during the CA. One large area is in the northeast part of the fuel farm in the vicinity of the JP-5 tanks. The highest total VOA concentrations in this area were observed in MW-4 (1,193 ppb) and MW-60 (670 ppb), which exceeded the 50 ppb State target level. The second smaller area is on the north side of Pier D-1 in the vicinity of the oily-wastewater pipelines. Total VOA concentrations observed in MW-15 (87.2 ppb) exceeded the 50 ppb State target level (see Figure 5-2).

- The benzene contamination plume overlaps the area of total VOA contamination and is generally in the same location. The area of benzene contamination includes the former AVGAS AST area occupied by tanks D-15 through D-18 and the associated pipelines (see Figure 5-2). The highest benzene concentrations were in the groundwater samples collected from MW-4 (990 ppb) and MW-60 (620 ppb). This area of benzene contamination greatly exceeded the Chapter 62-770, FAC, target level of 1 ppb.

- Total naphthalenes concentrations exceeded the Chapter 62-770, FAC, Class G-II groundwater target level of 100 ppb in the samples collected from monitoring wells MW-15 (174 ppb), MW-50 (196 ppb), and MW-55 (1,750 ppb). MW-15 is located on the north side of Pier D-1, MW-50 is located north of Building D-19 and MW-55 is located north of the JP-5 tank #1 (see Figure 5-3).

- Three areas of TRPH contamination in groundwater exceeding the Chapter 62-770, FAC, target level of 5 ppm were identified (see Figure 5-4). These areas are associated with samples collected from monitoring wells MW-55 (157 ppm), KWM-01 (15.7 ppm) and MW-86 (5.1 ppm).

- Lead concentrations in all monitoring well samples did not exceed the Chapter 62-770, FAC, target level of 50 ppb for Class G-II groundwater.

- Chlorinated compounds were detected in low concentrations in monitoring wells in isolated areas of the site.

- Free-floating petroleum product was observed in 18 site monitoring wells during the CA.

- No compounds were detected in any of the surface water samples collected except for toluene (1 ppb) in sample W003 and methylene chloride (3.9 ppb) in sample well. It is likely these compounds are attributed to activities associated with boats and ships docked at the site.

- No potable water sources were identified within a 0.25-mile radius of the site. Water is supplied via aqueduct from the mainland.

6.2 CONCLUSIONS. Based on the findings of the CA and site conditions, the following can be concluded:

- Excessive soil contamination in the area of the former AVGAS ASTs and associated piping is apparently related to leaks or releases from the ASTs and the fuel lines in the northern area of the TPFF. Overall, soil contamination is limited to a 1- to 2-foot interval immediately above the water table.

- The areal extent of groundwater contamination exceeding Chapter 62-770, FAC, target levels is associated with the areas of excessively contaminated soil.

- The vertical extent of groundwater petroleum contamination appears to extend to greater than 30 feet of the surficial aquifer. Laboratory results reported contaminant concentrations in the groundwater samples collected from vertical extent well MW-74D (30 feet bls) exceeded Chapter 62-770, FAC, target levels for total VOAs both before and after a 3-day overdevelopment alternate procedure.

- The source of groundwater contamination is apparently due to previous releases from the associated AVGAS fuel pipelines in the vicinity of the ASTs, releases from pipeline junctions, a release from the oily-waste water line, and a release from the oily-waste water pump station.

- The sources of chlorinated compounds detected in site groundwater samples are suspected to be solvents and degreasing agents used at the site, and compounds used by the analytical laboratory during sample extraction. Chlorinated compounds do not appear to be a significant concern at the site.

- There are no potable water wells within a 0.25-mile radius of the site and drinking water is obtained via aqueduct from the mainland. The risk to human health caused by groundwater contamination is extremely low.

- There is no evidence to indicate that groundwater contaminants are migrating off the facility. Contamination is moving toward Fleming Key Cut, but does not appear to be a threat to surface water. For this reason, groundwater contamination at the site appears to be a low risk to area fish and wildlife.

6.3 RECOMMENDATIONS. Based on the findings, conclusions, and interpretations of the CA, ABB-ES recommends the continued implementation of an interim remedial action and the development of a remedial action plan (RAP). The primary contamination includes excessively contaminated soil, benzene, total VOAs, naphthalenes, and TRPH in groundwater. Free-product recovery efforts initiated at the site should be continued. An RAP will be developed to address the requirements of Chapter 62-770, FAC. One deep monitoring well, screened from 45 to 50 feet bls, should be installed adjacent to MW-74D during RAP preparation to delineate the vertical extent of groundwater contamination.

7.0 PROFESSIONAL REVIEW CERTIFICATION

This CAR was prepared under the direct supervision of a professional geologist registered in the State of Florida. The work and professional opinions rendered in this report were conducted or developed in accordance with commonly accepted procedures consistent with applicable standards of practice. This assessment is based on the geologic investigation and associated information detailed in the text and appended to this report referenced in public literature. Recommendations are based upon interpretations of the applicable regulatory requirements, guidelines, and relevant issues discussed with regulatory personnel during the site assessment. If conditions that differ from those described are determined to exist, the undersigned geologist should be notified to evaluate the effects of any additional information on this assessment or the recommendations made in this report. This report meets the criteria set forth in Chapter 492 of the Florida Statutes with regard to good professional practices as applied to Chapter 62-770, FAC. This CAR was developed for Trumbo Point Fuel Farm, NAS Key West, Key West, Florida, and should not be construed to apply to any other site.

Michael J. Williams
Professional Geologist
P.G. No. 344

10/8/96
Date

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APPENDIX A

PRELIMINARY CONTAMINATION ASSESSMENT REPORT

PRELIMINARY CONTAMINATION ASSESSMENT REPORT

TRUMBO POINT FUEL FARM
NAVAL AIR STATION KEY WEST
TRUMBO POINT ANNEX, KEY WEST, FLORIDA

Contract Task Order No. 095

Contract No. N62467-89-D-0317

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April 1994

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
AST	aboveground storage tank
AVGAS	aviation gasoline
bls	below land surface
CA	contamination assessment
CAR	contamination assessment report
CEC	cation exchange capacity
cm/sec	centimeters per second
COD	chemical oxygen demand
CompQAP	Comprehensive Quality Assurance Plan
CTO	Contract Task Order
DFM	diesel fuel marine
EDB	ethylene dibromide
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FDER	Florida Department of Environmental Regulation
FOC	fraction of organic carbon
gpm	gallons per minute
ID	inside diameter
ITC	International Technology Corporation
JP-4	jet propellant 4 jet fuel
JP-5	jet propellant 5 jet fuel
meq/g	milliequivalents per gram
mg/kg	milligrams per kilogram
mm	millimeters
MOGAS	motor gasoline
msl	mean sea level
MTBE	methyl tert-butyl ether
NAS	Naval Air Station
OD	outside diameter
OVA	organic vapor analyzer
PAH	polynuclear aromatic hydrocarbons
PCA	preliminary contamination assessment
PCAP	Preliminary Contamination Assessment Plan
PCAR	Preliminary Contamination Assessment Report
PCBs	polychlorinated biphenyls
POA	Plan of Action

GLOSSARY (continued)

ppb	parts per billion
ppm	parts per million
PVC	polyvinyl chloride
SOUTHNAV-FACENGCOM	Southern Division, Naval Facilities Engineering Command
SPT	standard penetration test
TOC	total organic carbon
TPFF	Trumbo Point Fuel Farm
TRPH	total recoverable petroleum hydrocarbons
USCG	U.S. Coast Guard
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UST	underground storage tank
VOA	volatile organic aromatics
VOCs	volatile organic compounds

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), was contracted by Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to conduct a preliminary contamination assessment (PCA) and develop a Preliminary Contamination Assessment Report (PCAR) for the Trumbo Point Fuel Farm (TPFF) at Trumbo Point Annex, Naval Air Station (NAS) Key West, Florida. The scope of services for the work is described in Contract Task Order (CTO) No. 95, the Plan of Action (POA), and the Preliminary Contamination Assessment Plan (PCAP) for CTO No. 95.

1.1 PURPOSE. The purpose of the PCA was to assess the extent of petroleum contamination in soil and groundwater at the TPFF and recommend appropriate site investigations in accordance with Chapter 17-770, Florida Administrative Code (FAC), guidelines.

1.2 SCOPE. The scope of services developed to perform the PCA included:

- collection of soil samples and groundwater samples using a Geoprobe™ system,
- assessment of soil contamination by organic vapor analyzer (OVA) headspace techniques,
- installation of vertical extent monitoring wells to assess the vertical extent of groundwater contamination at the site,
- laboratory analyses of groundwater samples collected from Geoprobe™ borings and groundwater samples obtained from the vertical extent monitoring wells and previously installed monitoring wells, and
- reduction and analyses of all data gathered during the PCA to prepare a PCAR.

The following chapters of the report present the background information, data compilation, results, conclusions, and recommendations of the PCAR.

2.0 SITE DESCRIPTION AND HISTORY

NAS Key West, Monroe County, Florida, is located approximately 150 miles southwest of Miami. The TPFF is located along the northern shore of Key West, south of Fleming Key Cut (Figure 2-1). The TPFF is bordered on the north by Fleming Key Cut, on the west by a U.S. Coast Guard (USCG) facility, on the east by Mustin Street, and on the south by Whiting Avenue (Figure 2-2). Piers D-1, D-2, and D-3, located at the USCG facility, serve as a fuel depot for ships and aircraft.

The TPFF has been used as a fuel storage and distribution point since 1942 (Envirodyne Engineers, Inc., 1985). Fuels reported to have been stored and transported at the site include No. 6 fuel oil, Bunker C oil, diesel fuel, aviation gasoline (AVGAS), JP-4 and JP-5 jet fuels, motor gasoline (MOGAS), waste oil, and hydraulic fluids (Geraghty & Miller, 1987). According to Navy personnel, the TPFF is currently used to store and dispense diesel fuel marine (DFM), JP-5 fuel, and MOGAS.

The TPFF is the location of several aboveground storage tanks (ASTs), associated piping, and various pumphouses used to transport fuel from the ASTs (Figure 2-2). The site entrance is located along Trumbo Road near Building D-19. Building D-19 is used as an office and storage facility by site personnel. Buildings D-3A, D-15 through D-18, D-22 through D-25, D-26, and D-29 are pumphouses, which are now used or were formerly used to transport fuel from the site. The TPFF is surrounded by an 8-foot high chain-link fence. A concrete seawall extends along the northern perimeter of the site. The seawall is approximately 1-foot thick and extends to a depth of approximately 15 to 20 feet below land surface (bls).

Parts of the USCG facility were investigated during this preliminary assessment. Details of features at the USCG facility will be discussed in later sections.

2.1 ABOVEGROUND STORAGE TANKS. There are eight active and two inactive ASTs at the TPFF. AST volumes and construction details are presented in Table 2-1. Three JP-5 jet fuel tanks (tanks 1 through 3) are located in the north central and northeastern sections of the site. Tanks 1, 2, and 3 are operated by Key West Pipeline Company. Tanks D-1 through D-3, located along the western margin of the TPFF, are maintained by Avantra, Inc., and are used to store DFM. A 20,000-gallon MOGAS AST is located west of DFM tank D-2 at the western edge of the TPFF. A 1,000-gallon diesel AST is located on the east side of Building D-29 at the eastern edge of the TPFF. Two inactive DFM ASTs, tanks D-4 and D-6, are located in the central and southern sections of the TPFF, respectively.

Several ASTs, which formerly contained fuel, have been removed from the site. Eleven AVGAS tanks, installed in 1942 were abandoned in the late 1940's (Envirodyne Engineers, Inc., 1985). The locations of these former AVGAS tanks are not known. DFM ASTs D-5 and D-7, located in the southeast part of the site, were removed in 1985. Two 15,000-gallon MOGAS tanks located north of Building D-19 were removed in 1992 and replaced with the 20,000-gallon MOGAS tank currently in use.

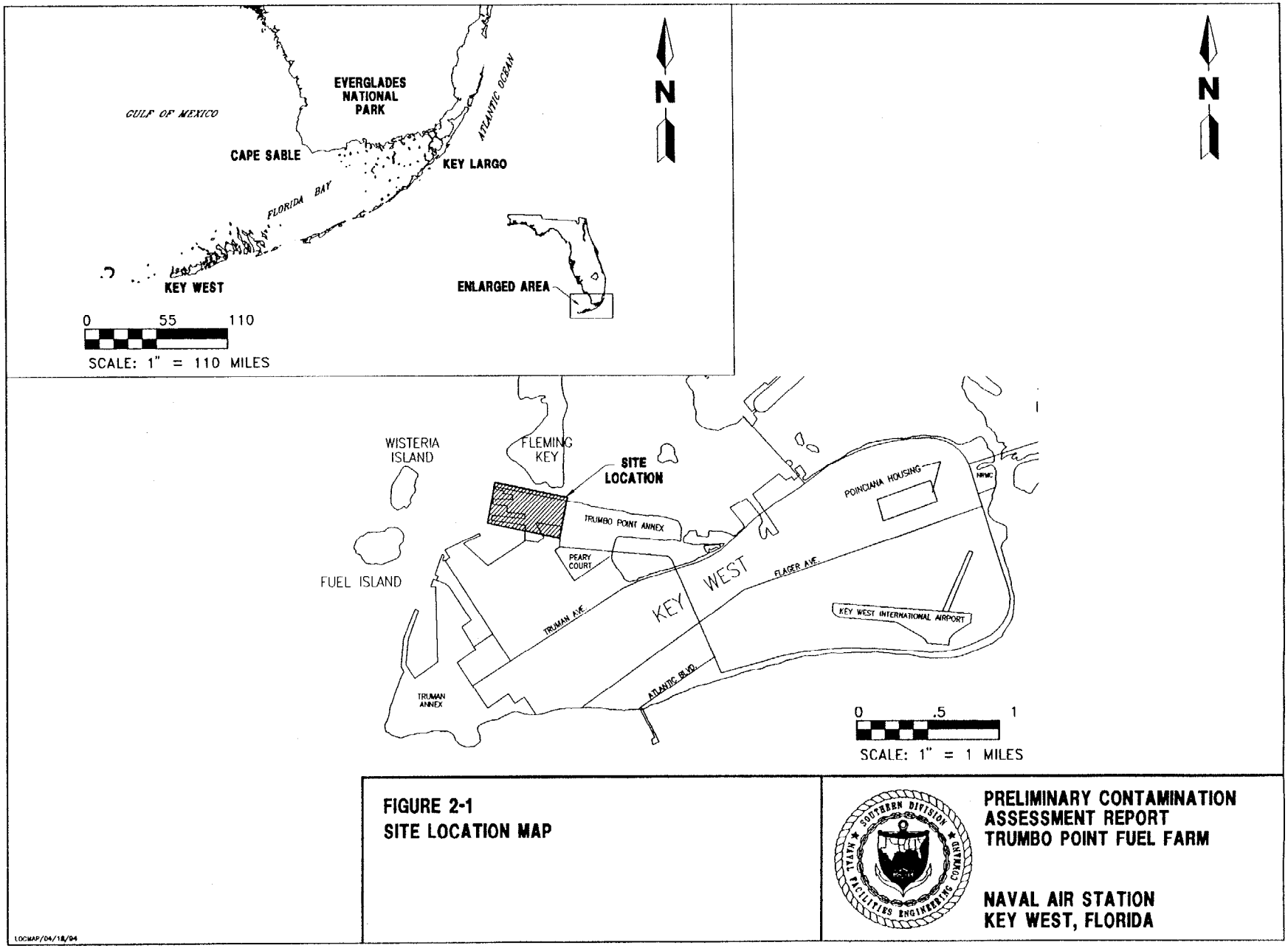
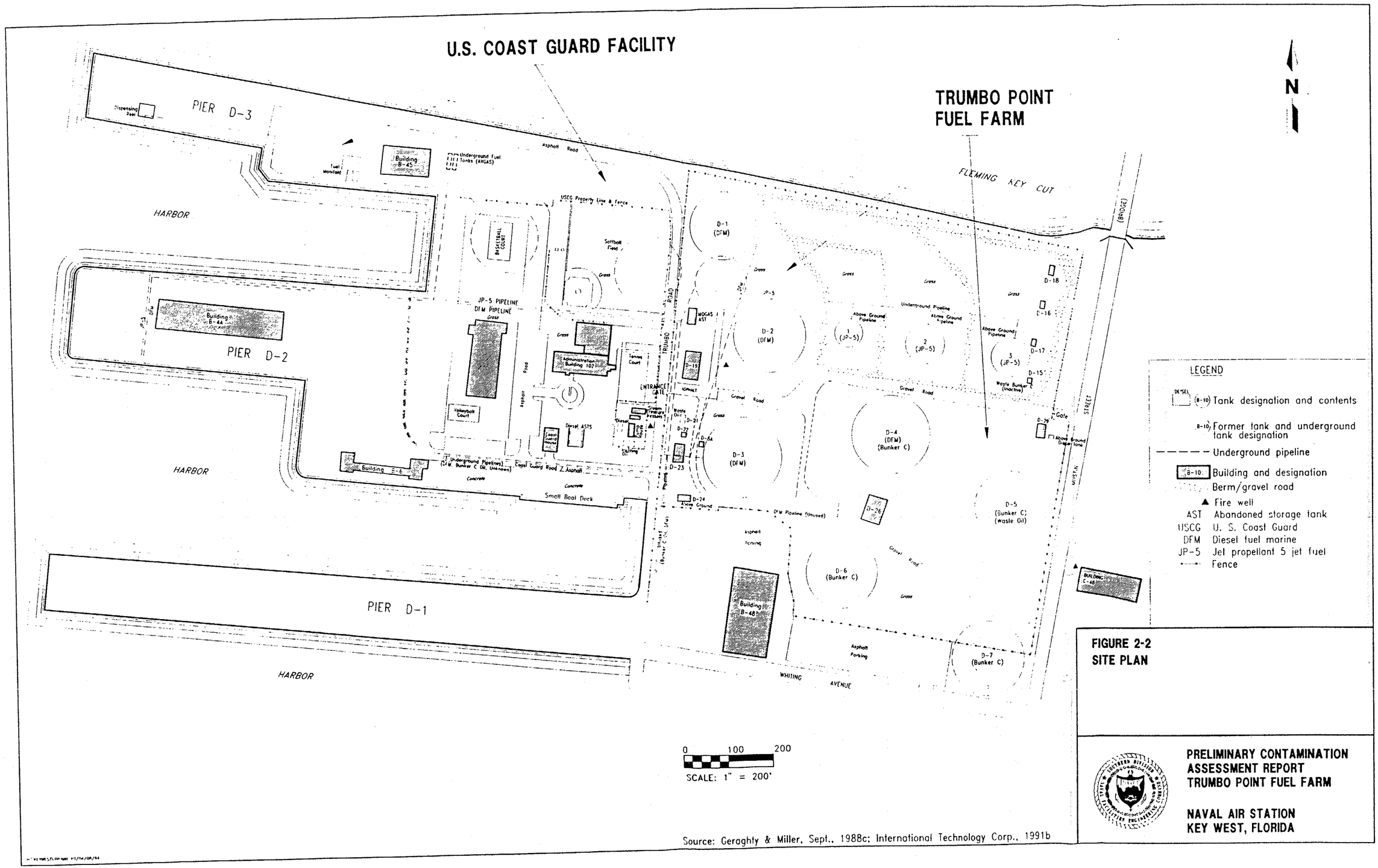


FIGURE 2-1
SITE LOCATION MAP

PRELIMINARY CONTAMINATION ASSESSMENT REPORT
TRUMBO POINT FUEL FARM

NAVAL AIR STATION
KEY WEST, FLORIDA

LOCMAP/04/18/94



Source: Geraghty & Miller, Sept., 1988c; International Technology Corp., 1991b

FIGURE 2-2
SITE PLAN

PRELIMINARY CONTAMINATION ASSESSMENT REPORT
TRUMBO POINT FUEL FARM

NAVAL AIR STATION
KEY WEST, FLORIDA

0076473

Table 2-1
Storage Tank Data

Preliminary Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Trumbo Annex, Key West, Florida

Tank	Contents	Capacity (gallons)	Status	Date Installed	Date Removed
1	JP-5[1]	1,050,000	Active AST	1966	--
2	JP-5[1]	2,310,000	Active AST	1966	--
3	JP-5[1]	2,310,000	Active AST	1966	--
D-1	DFM	563,201	Active AST	1942	--
D-2	DFM	563,201	Active AST	1942	--
D-3	DFM	563,201	Active AST	1942	--
D-4	Bunker C/DFM[2]	1,071,450	Inactive AST	1942	--
D-5	Bunker C/waste oil[3]	1,071,450	Removed AST	1942	1985
D-6	Bunker C	1,071,450	Inactive AST	1942	--
D-7	Bunker C	1,071,450	Removed AST	1942	1985
D-15	Unknown	20,000	Inactive UST	Unknown	--
D-16	Unknown	20,000	Inactive UST	Unknown	--
D-17	Unknown	20,000	Inactive UST	Unknown	--
D-18	Waste Bunker C	20,000	Inactive UST	Unknown	--
D-21[4]	Sludge/waste oil	1,050	Inactive UST	1942	1985
D-29	Diesel	1,000	Active AST	Unknown	--
D-1292	MOGAS	15,000	Removed AST	Unknown	December 1991
D-1292	MOGAS	20,000	Active AST	December 1991	--
D-1293	MOGAS	15,000	Removed AST	Unknown	December 1991

[1] Contained JP-4 jet fuel prior to 1975.
[2] Converted to DFM storage by 1985.
[3] Used for waste oil overflow from tank D-21 from 1982 to 1985.
[4] Underground storage tank.

Notes: JP-5 = jet propellant 5 jet fuel.
JP-4 = jet propellant 4 jet fuel.
DFM = diesel fuel marine.
MOGAS = motor gasoline.
-- = not removed.

Historical areal photographs indicate there were three large ASTs at the site in 1930 (La Gorce, 1930). Two of the three ASTs were located at the USCG facility (Figure 2-2); one near the present location of the basketball court and the second at the present location of the softball field near Trumbo Road. The third AST was located between DFM tanks D-1 and D-2. The contents of the three ASTs are unknown. Areal photographs suggest that they may have been used for fuel storage to supply ships docked at Piers D-1 through D-3. The ASTs were reportedly removed sometime during the early 1960's.

2.2 UNDERGROUND STORAGE TANKS. A 1,050-gallon underground storage tank (UST), tank D-21, was located north of Building D-22 on the west side of the site (Figure 2-2). The UST was installed in 1942 and was used as a ballast sludge tank (Envirodyne Engineers, Inc., 1985). By the 1970's, the UST was used for the storage of waste oil and hydraulic fluid. Until the late 1970's, the waste oil was sold to contractors who hauled the material from the TPFF. Subsequently, the waste oil was allowed to accumulate and, by 1982, the UST was full. Approximately 200 to 300 gallons of waste oil were transferred each month to tank D-5. Both tanks D-5 and D-21 were removed from the site around 1985. Four 20,000-gallon USTs (tanks D-15 through D-18) are located in the northeast corner of the TPFF and are associated with Buildings D-15 through D-18. All four tanks are inactive. Tank D-18 was used to store waste Bunker C oil. The former contents of the other three tanks are unknown.

2.3 FUEL PIPELINES. Several aboveground and underground fuel pipelines are located at the site (Figure 2-2). DFM and JP-5 pipelines are used to transport fuel to and from Pier D-2 at the USCG facility. Aboveground JP-5 pipelines extend north from JP-5 tanks 1 through 3 and connect with an underground JP-5 pipeline, which continues west to the USCG facility. Within the USCG facility, the JP-5 pipeline is aboveground along the north side of Pier D-2 and along the south side of the softball field. An underground DFM pipeline connects DFM tanks D-1, D-2, and D-3 and extends west to Trumbo Road from DFM tank D-3. The DFM pipeline then continues north along the east side of Trumbo Road to the MOGAS AST. From that point the pipeline extends west to Pier D-2, parallel to the JP-5 pipeline.

Several unused fuel pipelines are present at the TPFF site. An abandoned DFM pipeline extends from pumphouse D-26 near DFM tank D-4 to another abandoned DFM pipeline located along the west fenceline of the site. An abandoned underground Bunker C oil pipeline reportedly existed along the western fenceline of the TPFF parallel to the abandoned DFM pipeline.

According to USCG facility personnel, three abandoned underground pipelines are located under the USCG facility access road south of the tennis courts. One pipeline was used to transport DFM and a second transported Bunker C oil. The contents of the third line are unknown. The pipelines continue west along the access road, then turn north near Building B-6 toward the slip north of Pier D-2.

2.4 SITE TOPOGRAPHY AND SURFACE FEATURES. The land surface at the site is relatively flat, except where 8-foot high, gravel berms separate the JP-5 ASTs in the northern part of the site. Earthen mounds surround tanks D-1 through D-4, and D-6; and several gravel roads in the south section of the TPFF are graded

above the surrounding land surface. Except for the berms and mounds, ground elevations at the site vary from approximately 5 to 7 feet above mean sea level (msl). Most of the site is covered by grass, except paved areas in the vicinity of Building D-19 and the gravel roads and berms. Parking lots outside the southern edge of the TPFF near Building B-48 are covered with asphalt. Building B-48 activities are not related to activities at the TPFF.

There are three fire wells at or near the site. One fire well is located on the southwest side of DFM tank D-2, another is located near the northwest corner of Building C-48 on the west side of Mustin Street, and the third is located on the west side of Trumbo Road near the pumphouse at the USCG facility.

2.5 PREVIOUS FUEL RELEASES AND CONTAMINATION ASSESSMENTS. An initial assessment study indicated that two fuel releases occurred at the facility in 1981 (Envirodyne Engineers, Inc., 1985). In June 1981, there was a reported release of 5,000 to 6,000 gallons of DFM from a corroded pipeline located between tank D-4 and the D-26 pump house (Figure 2-3). All DFM was reportedly contained with no discharge to surface waters (Envirodyne Engineers, Inc., 1985). In October 1981, a pipeline leak on Pier D-2 at the USCG facility resulted in the discharge of 300 gallons of DFM into harbor waters. The spill was contained by boom and recovered (Envirodyne Engineers, Inc., 1985).

Contamination assessment investigations have been conducted at the TPFF since 1985, and several areas of concern were identified during these investigations (Figure 2-3). Geraghty & Miller (June 1985) conducted a subsurface hydrocarbon investigation during which 10 monitoring wells were installed at the TPFF. The Geraghty & Miller investigation confirmed the DFM contamination in the vicinity of tank D-4 reported by Envirodyne Engineers, Inc. (March 1985).

During a subsequent verification study (Geraghty & Miller, 1987), 15 soil borings were drilled and 6 additional monitoring wells were installed at the TPFF. Free product was detected in monitoring wells in the vicinity of JP-5 tanks 2 and 3, DFM tank D-4, and in the vicinity of Building D-23 located west of DFM tank D-3 and south of former waste oil tank D-21 (Figure 2-3). Dissolved petroleum constituents were detected in the vicinity of JP-5 tank 3. Additional site investigation and remedial action was recommended (Geraghty & Miller, 1987).

Another area of concern was identified along the northern boundary of the TPFF (Geraghty & Miller, 1988c). Geraghty & Miller personnel observed fuel seeping through openings in the seawall north of JP-5 tank 2 along the northern site boundary (Figure 2-3). The openings were sealed and a pit was excavated on the landward side of the seawall to recover free product. Several weeks later, fuel was again observed seeping through the seawall. The seawall was again sealed and another pit was excavated to recover the free product.

During an expanded site investigation (Geraghty & Miller, 1988b), free product detected in the vicinity of Building D-23, JP-5 tank 2, and DFM tank D-4 was confirmed. Free product was also detected in a monitoring well northwest of tank D-6. In addition, the September 1988 Geraghty & Miller investigation identified the following six other potentially contaminated areas at the site (Figure 2-3):

- the area north of DFM tank D-2 in the northwest section of the site, reportedly caused by overfilling tank D-2;

- the area between tank D-4 and former tank D-5 in the east-central section of the site, where oily wastewater was reportedly disposed;

- a waste oil drums storage area near an oil-water separator located south of Building D-24 on the western perimeter of the site;

- the former waste oil UST near Building D-23 located on the western perimeter of the site, where site personnel reported that the UST may have been used to store solvents, waste oil, pesticides, and polychlorinated biphenyls (PCBs);

- in two separate areas on Pier D-1 at the USCG facility suspected to result from releases of oily wastewater; and

- in the south central area of Pier D-3 at the USCG facility, where a release resulting from an underground petroleum pipeline is the reported source of contamination.

Geraghty & Miller (1988a) recommended further investigation at the TPFF and Piers D-1 and D-3 and presented a workplan for an expanded site investigation and remedial field investigation.

A supplemental site investigation was conducted by International Technology Corporation (ITC). Forty-four soil borings and four monitoring wells were completed and sampled. Excessive soil contamination as defined in Chapter 17-770, FAC, was detected in the vicinity of DFM tanks D-1 through D-3, and JP-5 tanks 1 and 2. Excessive soil contamination as defined in Chapter 17-770, FAC, was detected along the southern boundary of Pier D-1 at two separate locations (see Figure 2-3). ITC (1991b) recommended that remedial action be implemented at the site. The recommended remedial action included treating excessively contaminated soil and sampling groundwater from existing monitoring wells.

During an initial site inspection in November 1992, ABB-ES observed several other areas of concern (Figure 2-3):

- free product observed in a fire well located between Building D-19 and tank D-2 in the western part of the TPFF;

- the area surrounding JP-5 tank 1, located in the north central part of the TPFF;

- the area surrounding JP-5 tank 3, located in the northeast section of the TPFF;

- the area surrounding the inactive waste Bunker C tank (tank D-15) and tanks D-16 through D-18, located near JP-5 tank 3 in the northeastern section of the TPFF;

- the area surrounding former tank D-5 located in the eastern section of the TPFF; and

- the area surrounding former tank D-7 located in the southern part of the TPFF.

2.6 REMEDIAL PILOT STUDY NEAR DIESEL FUEL MARINE (DFM) TANK D-4. A remedial pilot study was designed to test and evaluate a method for treating contaminated groundwater and recovering subsurface liquid-phase hydrocarbons east of tank D-4 (Geraghty & Miller, 1988a). The pilot study was implemented by ITC in 1990 and 1991. The remedial system consisted of an infiltration gallery with a center sump equipped with groundwater and free product pumps. Recovered free product was pumped into a 5,000-gallon product tank. Contaminated groundwater was treated by an air sparger system designed to treat groundwater at the rate of 50 gallons per minute (gpm). A leach bed was used for the disposal of treated groundwater.

The remedial system operated for 180 days. Because of the low horizontal permeability of soil, the actual groundwater yield was 1 gpm. Approximately 1,000 gallons of free product were recovered and 155,000 gallons of groundwater were treated. ITC (1991a) concluded that the recovery system used at the TPFF site was not a feasible remedial alternative because the low hydraulic conductivity of the soil limits the formation of a capture zone and inhibits groundwater recovery and the transport of free product. ITC (1991a) recommended extensive trenching to remove contaminated soil and to improve access to free product, and a site bioassessment and biotreatability study to evaluate the feasibility of bioremediation.

3.0 PRELIMINARY CONTAMINATION ASSESSMENT

Data from previous field investigations indicate significant soil and groundwater petroleum contamination at the TPFF site. The horizontal and vertical extent of soil and groundwater contamination in many areas has not been adequately assessed. ABB-ES conducted a PCA to verify the findings of previous investigations and assess soil and groundwater contamination in areas not well documented during the previous investigations. The ABB-ES PCA was conducted from July through October 1993. At the request of the Navy, the area of investigation also included parts of the USCG facility, located west of the TPFF site.

During the PCA, 101 soil borings were drilled and 3 vertical extent monitoring wells were installed. Soil samples were collected from soil borings and analyzed for volatile organic compounds (VOCs) by OVA analysis. Groundwater samples were collected from monitoring wells installed during previous investigations and from monitoring wells and specific soil borings completed during this investigation. Groundwater samples collected from soil borings were analyzed for total recoverable petroleum hydrocarbons (TRPH). Groundwater samples collected from monitoring wells were analyzed for constituents of the kerosene and mixed product analytical group as defined in Chapter 17-770, FAC. Methodologies and equipment used during the PCA are discussed in Appendix A, Methodologies and Equipment.

3.1 SITE-SPECIFIC HYDROGEOLOGY. Site-specific hydrogeologic characteristics were based on information obtained during soil boring and monitoring well installation and from previous investigations.

Subsurface material from land surface to a depth of approximately 3 feet bls is composed of hard, sandy limestone fill mixed with gravel and shell fragments (ITC, 1991a). Material from 3 feet bls to approximately 13 feet bls is generally a soft, silty to sandy limestone mud. A sandy to gravelly limestone occurs from 13 feet bls to 50 feet bls (the maximum depth of site monitoring wells). Site lithologies are graphically presented in soil boring logs for monitoring wells MW-1D through MW-3D. Soil boring logs are attached in Appendix B, Soil Boring Logs.

Grain size, permeability, pH, moisture, cation exchange capacity (CEC), and total organic carbon (TOC) analyses were performed for a composite soil sample collected from 0 to 4 feet bls near Trumbo Road, northwest of DFM tank D-3 (ITC, 1991b). Grain size analysis was representative of poorly sorted sand and gravel with an average particle diameter of 3 millimeters (mm). Particles ranged in size from cobble to clay. The permeability was 1.8×10^{-6} centimeters per second (cm/sec), with a uniformity coefficient of 1,025.00. TOC content was 4,900 milligrams per kilogram (mg/kg), moisture content was 39.2 percent, pH was 8.35, and CEC was 49.22 milliequivalents per gram (meq/g).

The water table was encountered at depths from 4 to 7 feet bls during this investigation. A tidal study performed during August 1990 indicates that water elevations are tidally influenced (ITC, 1991b). Sea level fluctuations ranged from 0.9 feet below msl to 1.4 feet above msl, and groundwater elevations ranged from 0.4 to 3.0 feet above msl. Groundwater elevations derived from water level measurements in three wells indicated a northwest flow direction at the TPFF (ITC, 1991b). Measurements recorded during the investigation indicated no

consistent groundwater flow direction across the site, which suggests that tidal fluctuations are affecting groundwater flow direction.

3.2 SOIL ASSESSMENT. Soil borings SB-1 through SB-101 were drilled during the PCA. Soil borings SB-1 through SB-91 were drilled at the TPFF, and soil borings SB-92 through SB-101 were drilled at the USCG facility. Soil boring locations and corresponding OVA headspace measurements are presented on Figure 3-1. The highest OVA readings from samples collected above the water table for each soil boring are shown on Figure 3-1. Results of the OVA headspace survey are presented in Appendix C, Soil Sample Organic Vapor Analyzer (OVA) Headspace Results.

Soil with an OVA headspace reading greater than 10 parts per million (ppm) is considered to be petroleum-contaminated; soil with an OVA headspace reading greater than 50 ppm is considered to be excessively contaminated (FDER, 1992). Excessively contaminated soil was found throughout the TPFF and the USCG facility (Figure 3-1). The highest OVA readings (>2,500 ppm) were found in the vicinity of the three JP-5 tanks and DFM tank D-2.

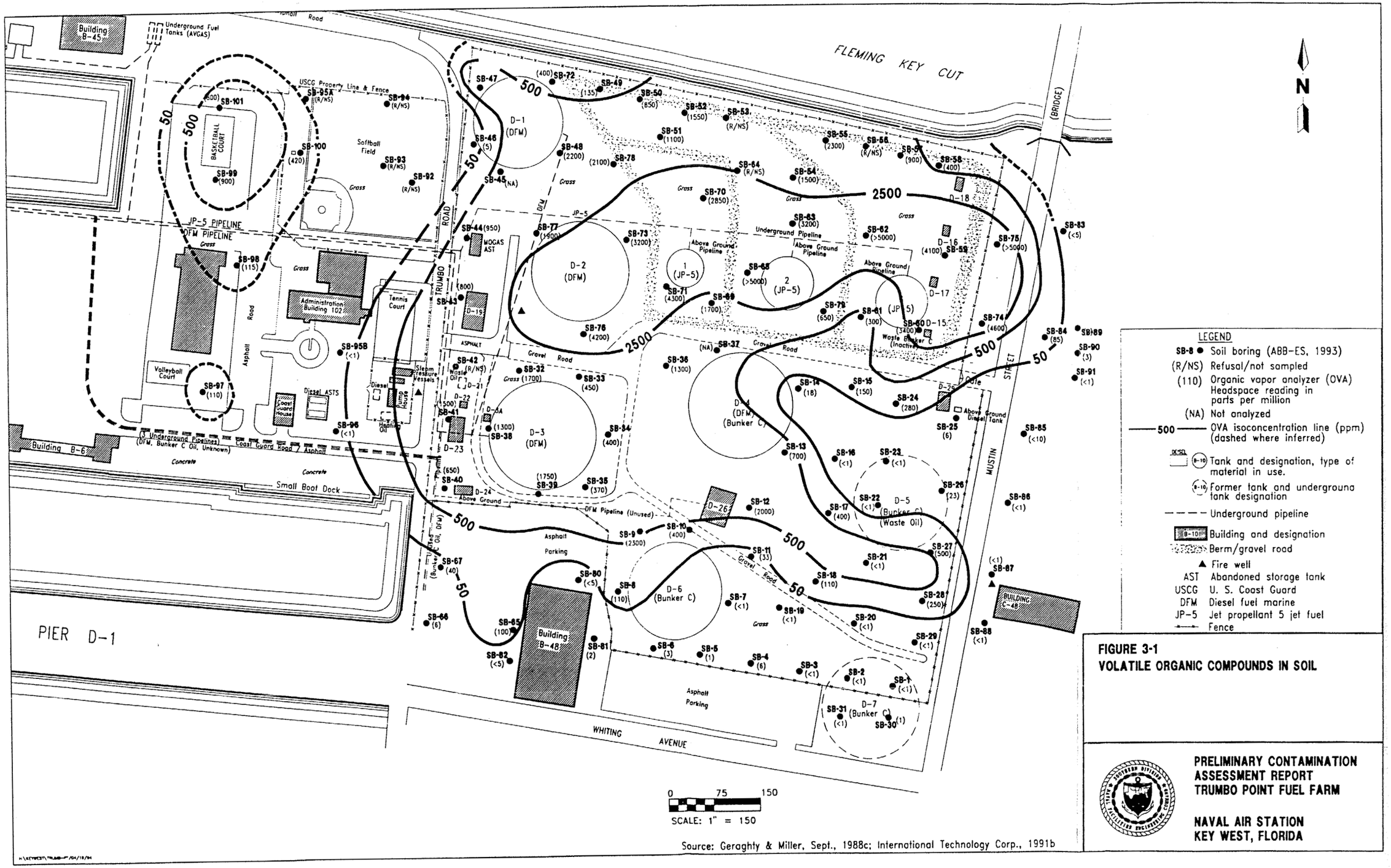
Based on the OVA data, the areal extent of soil contamination appears to be delineated along the eastern and southern boundaries of the TPFF. Petroleum-contaminated soil does not appear to extend south of tank D-6 and Building B-48 along the southern boundary of the site. With the exception of soil boring SB-84, petroleum-contaminated soil was not identified on the east side of Mustin Street. Excessive soil contamination is present along the entire northern section of the TPFF and was encountered over much of the western part of the site.

Excessively contaminated soil was also found at the USCG facility near the volleyball court and in the vicinity of the basketball court. Sufficient information is not currently available to determine the source(s) of soil contamination at the USCG facility; however, the low OVA headspace readings in soil borings SB-95 and SB-96, located southwest of the tennis courts, suggest that contamination near the volleyball court in soil boring SB-97 may be from a local source.

A soil sample was collected from soil boring SB-9, located near tank D-6, and analyzed for TRPH, arsenic, cadmium, chromium, and lead. Soil sample laboratory analyses are attached in Appendix D, Soil Analytical Data. The TRPH concentration was 3,600 ppm. Total metal concentrations were below detection limits.

3.2 GROUNDWATER ASSESSMENT. Monitoring well locations and soil borings from which groundwater samples were collected are shown on Figure 3-2. Monitoring wells KWM-01 through KWM-10, and KWM-20 through KWM-25 were installed during the Geraghty & Miller investigations conducted from 1985 to 1988. Monitoring wells MW9-10 through MW9-17 were installed by ITC from 1989 to 1991. Monitoring wells MW-1D through MW-3D are the vertical extent wells installed by ABB-ES during this investigation. Well construction information details are presented in Table 3-1.

No information was found concerning the installation history and construction details for monitoring well MW-JP-1, located near JP-5 tank 1.



LEGEND

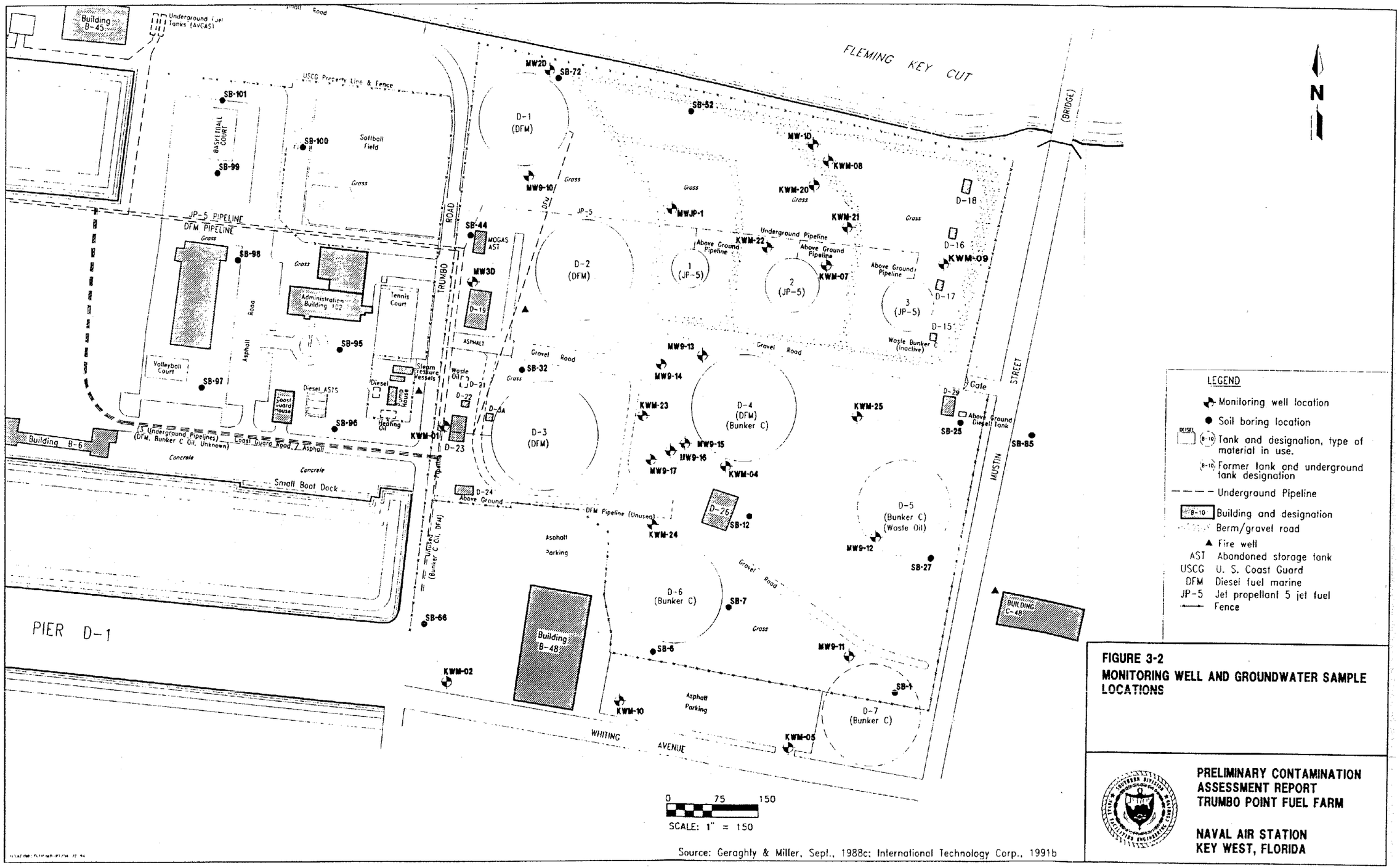
- SB-8 ● Soil boring (ABB-ES, 1993)
- (R/NS) Refusal/not sampled
- (110) Organic vapor analyzer (OVA) Headspace reading in parts per million
- (NA) Not analyzed
- 500 OVA isoconcentration line (ppm) (dashed where inferred)
- (B-10) Tank and designation, type of material in use.
- (B-10) Former tank and underground tank designation
- Underground pipeline
- B-10 Building and designation
- Berm/gravel road
- ▲ Fire well
- AST Abandoned storage tank
- USCG U. S. Coast Guard
- DFM Diesel fuel marine
- JP-5 Jet propellant 5 jet fuel
- Fence

Source: Geraghty & Miller, Sept., 1988c; International Technology Corp., 1991b

FIGURE 3-1
VOLATILE ORGANIC COMPOUNDS IN SOIL

PRELIMINARY CONTAMINATION ASSESSMENT REPORT
TRUMBO POINT FUEL FARM

NAVAL AIR STATION
KEY WEST, FLORIDA



Source: Geraghty & Miller, Sept., 1988c; International Technology Corp., 1991b

FIGURE 3-2
MONITORING WELL AND GROUNDWATER SAMPLE LOCATIONS

PRELIMINARY CONTAMINATION ASSESSMENT REPORT
TRUMBO POINT FUEL FARM

NAVAL AIR STATION
KEY WEST, FLORIDA

Table 3-1
Monitoring Well Construction Information

Preliminary Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Well	Top of Casing (feet)	Screened Interval (feet)	Total Depth (feet)	Date	Status	Installed By
KWM-01	--	NA	NA	6/85	CNL	G&M
KWM-02	6.15	NA	NA	6/85	Active	G&M
KWM-03	--	NA	NA	6/85	Destroyed	G&M
KWM-04	7.3	NA	NA	6/85	Active	G&M
KWM-05	6.76	NA	NA	6/85	Active	G&M
KWM-06	--	NA	NA	6/85	Destroyed	G&M
KWM-07	7.38	NA	NA	6/85	Active	G&M
KWM-08	6.31	NA	NA	6/85	Active	G&M
KWM-09	7.03	NA	NA	6/85	Active	G&M
KWM-10	--	NA	NA	6/85	CNL	G&M
KWM-20	6.81	1 to 15	15	7/86	Active	G&M
KWM-21	7.51	1 to 15	15	7/86	Active	G&M
KWM-22	7.76	1 to 15	15	7/86	Active	G&M
KWM-23	6.94	0.5 to 15	15	7/86	Active	G&M
KWM-24	6.41	0.5 to 15	15	7/86	Active	G&M
KWM-25	7.05	0.5 to 15	15	7/86	Active	G&M
MW9-10	9.73	NA	NA	NA	Active	ITC
MW9-11	10.47	NA	NA	NA	Active	ITC
MW9-12	9.57	NA	NA	NA	Active	ITC
MW9-13	6.66	5 to 15	15	6/5/90	Active	ITC
MW9-14	NM	5 to 15	15	6/5/90	Active	ITC
MW9-15	5.9	5 to 15	15	6/5/90	Active	ITC
MW9-16	5.73	5 to 15	15	6/5/90	Active	ITC
MW9-17	5.86	5 to 15	15	6/6/90	Active	ITC
MW-1D	6.58	40 to 45	45	8/17/93	Active	ABB
MW-2D	6.45	45 to 50	50	8/18/93	Active	ABB
MW-3D	6.11	45 to 50	50	8/18/93	Active	ABB
MW-JP-1	8.78	NA	NA	NA	Active	NA

Notes: NA = information not currently available.
CNL = could not locate well.
G&M = Geraghty & Miller, Inc.
ITC = ITC Corporation.
ABB-ES = ABB Environmental Services, Inc.
-- = unknown.

Groundwater samples were collected from soil borings in July and August 1993. TRPH analyses were performed for samples collected from soil borings SB-1, SB-6, SB-7, SB-12, SB-25, SB-27, SB-32, SB-44, SB-52, SB-66, SB-72, SB-85, SB-95, SB-96, SB-97, SB-98, and SB-99. Duplicate analyses were performed for samples collected from soil borings SB-1, SB-32, and SB-97.

Groundwater samples were collected from monitoring wells MW-1D through MW-3D, KWM-08, KWM-09, KWM-20, KWM-21, KWM-24, KWM-25, MW9-11, and MW9-13 from August 31 through September 2, 1993. A duplicate sample was collected from monitoring well MW-3D. Monitoring wells KWM-01 and KWM-10 could not be located and apparently have been destroyed. Monitoring wells KWM-02 and KWM-05, located along Whiting Avenue south of the TPFF, were not sampled because they are outside the contaminated area. The remaining monitoring wells were not sampled because they contained free product.

3.2.1 Free Product Contamination Free product was detected in monitoring wells KWM-07, KWM-22, KWM-23, MW9-10, MW9-12, MW9-13, MW9-15, MW9-17, MW-JP-1, and the fire well located southwest of DFM tank D-2. Viscous free product was also detected in SB-44 (located near the MOGAS AST), the underground JP-5 pipeline, and an abandoned Bunker C oil pipeline. Viscous free product was also detected in soil boring SB-101, located near the basketball court at the USCG facility.

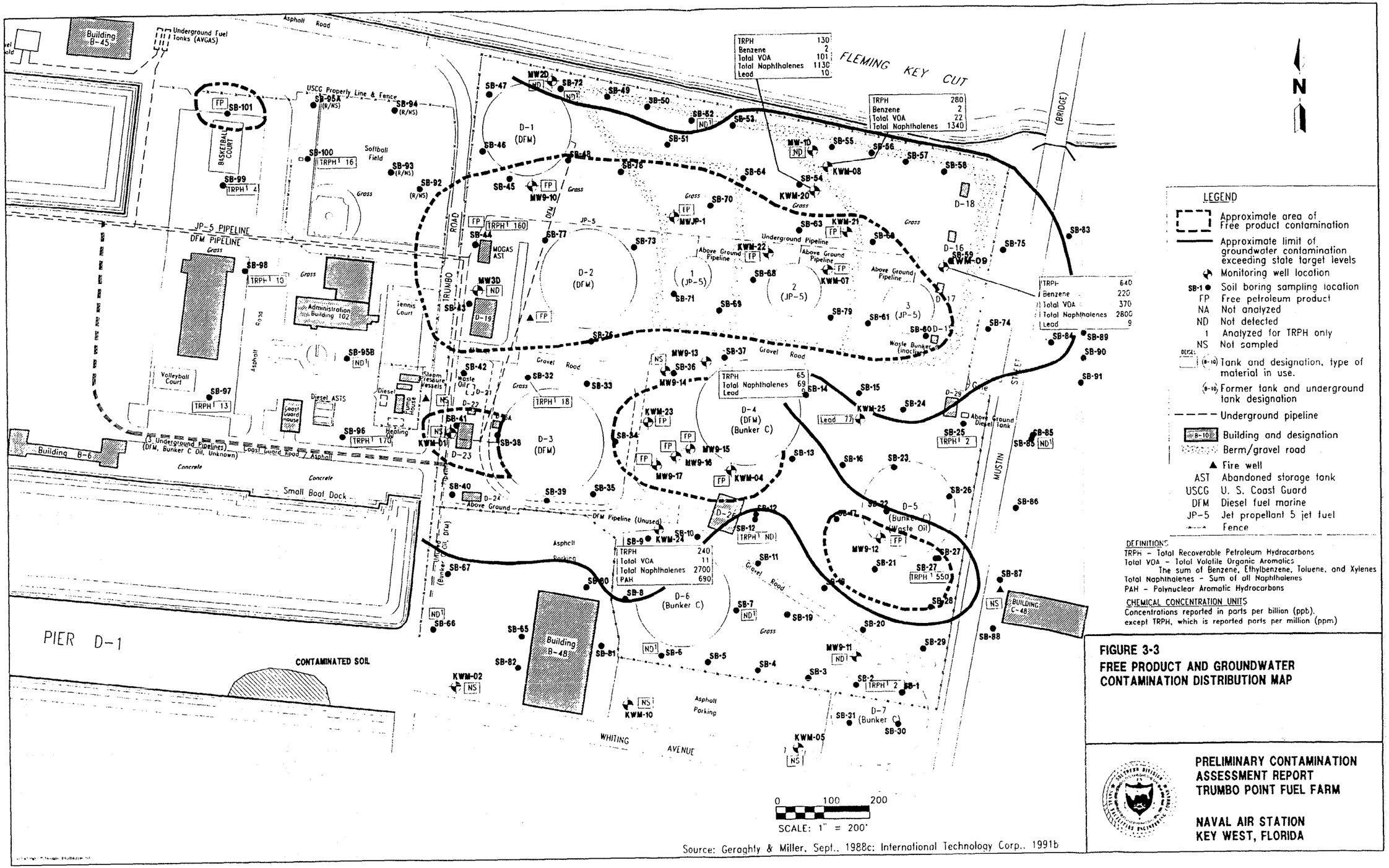
The approximate areal extent of free product in soil and groundwater is shown on Figure 3-3. Free product is extensive in the northern part of the TPFF around JP-5 tanks 1, 2, and 3 and DFM tank D-2. Current data indicate that free product does not extend to the seawall. Free product appears to extend west to the USCG facility; however, it has not been delineated in this direction.

Free product was observed in three other areas of the TPFF: the area along the south and west sides of DFM tank D-4; an area in the vicinity of the former DFM and waste oil tank D-5, near monitoring well MW9-12; and an area surrounding monitoring well KWM-01, which was reported to previously contain free product (Geraghty & Miller, 1987). Free product was also encountered at the USCG facility in SB-101 north of the basketball court.

3.2.2 Groundwater Contamination Analytical results indicate petroleum contamination in groundwater at the site. TRPH laboratory analyses for groundwater samples collected from soil borings are summarized in Table 3-2. Groundwater laboratory analyses for samples collected from monitoring wells are summarized in Table 3-3. Groundwater sample laboratory data sheets are attached in Appendix E, Groundwater Sample Laboratory Data.

Volatile organic aromatics (VOAs; including benzene), polynuclear aromatic hydrocarbons (PAHs; including naphthalenes), TRPH, and lead were detected in groundwater samples. Benzene, VOA, TRPH, and lead groundwater concentrations are herein compared to Class G-III groundwater target levels established by Chapter 17-770, FAC. Because no PAHs (including naphthalenes) target levels have been established for Class G-III groundwater, total naphthalenes concentrations will be compared to Class G-II target levels. Other PAH concentrations will be compared to State groundwater guidance concentrations (FDER, 1989a).

VOAs detected in groundwater samples include benzene, ethylbenzene, toluene, and xylenes. Benzene and total VOA concentrations exceeded the State target level of 200 parts per billion (ppb) in only the sample collected from monitoring well



Source: Geraghty & Miller, Sept., 1988c; International Technology Corp., 1991b

FIGURE 3-3
FREE PRODUCT AND GROUNDWATER CONTAMINATION DISTRIBUTION MAP

PRELIMINARY CONTAMINATION ASSESSMENT REPORT
TRUMBO POINT FUEL FARM

NAVAL AIR STATION
KEY WEST, FLORIDA

Table 3-2
Summary of Groundwater Sample Total Recoverable Petroleum Hydrocarbons (TRPH) Analyses, July and August 1993

Preliminary Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Key West, Florida

Boring Designation	Screened Interval (feet bls)	TRPH Concentration (ppm)
SB-1	7 to 9	2
SB-1 Dup	7 to 9	1
SB-6	9 to 11	<1
SB-7	10 to 12	<1
SB-12	10 to 12	<1
SB-25	9 to 11	2
SB-27	9 to 11	550
SB-32	9 to 11	1
SB-32 Dup	9 to 11	18
SB-44	9 to 11	160
SB-52	9 to 11	<1
SB-66	9 to 11	<1
SB-72	9 to 11	<1
SB-85	7 to 9	<1
SB-95	7 to 9	<1
SB-96	7 to 9	170
SB-97	7 to 9	13
SB-97 Dup	7 to 9	12
SB-98	7 to 9	10
SB-99	7 to 9	4
SB-100	7 to 9	16

Notes: bls = below land surface.
ppm = parts per million.
Dup = duplicate sample.

Table 3-3
Summary of Groundwater Sample Laboratory Analyses, August 31 through September 2, 1993

Preliminary Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Compound	Applied Standard	MW-1D	MW-2D	MW-3D	MW-3D DUP	KWM-08	KWM-09	KWM-20	KWM-24	KWM-25	MW9-11	MW9-13
Benzene	[1]200	<1	<1	<1	<1	2	220	2	<1	<1	<1	<1
Ethylbenzene		<1	<1	<1	<1	3	<50	30	1	<1	<1	<1
Toluene		<1	<1	<1	<1	1	<50	1	<1	<1	<1	<1
Xylenes		<1	<1	<1	<1	16	150	68	10	<1	<1	<1
Total VOAs	[1]200	ND	ND	ND	ND	22	370	101	11	ND	ND	ND
1-Methylnaphthalene		<5	<5	<5	<5	630	1,200	530	1,300	<5	<5	34
2-Methylnaphthalene		<5	<5	<5	<5	710	1,600	600	1,400	<5	<5	35
Total naphthalenes	[2]100	ND	ND	ND	ND	1,340	2,800	1,130	2,700	ND	ND	69
Fluorene	[3]10	<5	<5	<5	<5	<100	<110	<55	260	<5	<5	<5
Phenanthrene	[3]10	<5	<5	<5	<5	<100	<110	<55	430	<5	<5	<5
Total PAHs	[3]10	ND	ND	ND	ND	ND	ND	ND	690	ND	ND	ND
TRPH	[1]5	<1	<1	<1	<1	280	640	130	240	<1	<1	65
Lead	[1]50	<10	<10	<10	<10	<5	9	10	<5	77	<5	9

[1] State target level for Class G-III groundwater (Chapter 17-770, Florida Administrative Code [FAC]).
[2] State target level for Class G-II groundwater (Chapter 17-770, FAC).
[3] Groundwater guidance concentration (Florida Department of Environmental Regulation [FDER], 1989a).

Notes: Concentrations are in parts per billion, except TRPH which is reported in parts per million.
DUP = duplicate sample.
Total VOAs = total volatile organic aromatics (the sum of benzene, ethylbenzene, toluene, and xylenes).
Total naphthalenes is the sum of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene.
Total PAHs = total polynuclear aromatic hydrocarbons, excluding naphthalenes.
TRPH = total recoverable petroleum hydrocarbons.
ND = not detected.

KWM-09, located near JP-5 tank 3. (Total VOAs is the sum of benzene, ethylbenzene, toluene, and xylenes.)

Total naphthalenes (the sum of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene) were detected in concentrations exceeding the State G-II groundwater target level of 100 ppb in the samples collected from monitoring wells KWM-08, KWM-09, KWM-20, and KWM-24.

PAHs were detected in only the sample collected from monitoring well KWM-24, located near tank D-6. Fluorene and phenanthrene concentrations of 260 ppb and 430 ppb, respectively, exceed the State groundwater guidance concentration of 10 ppb.

TRPHs were detected at concentrations exceeding the Class G-III groundwater State target level of 5 ppm in the samples collected from soil borings SB-27, SB-32, and SB-44 at the TPFF, and soil borings SB-96, SB-97, SB-98, and SB-100 at the USCG facility. TRPHs were also detected in concentrations above 5 ppm in samples collected from monitoring wells KWM-08, KWM-09, KWM-20, KWM-24, and MW9-13.

Lead concentrations exceeding the Class G-III State target level of 50 ppb was detected in only the sample collected from monitoring well KWM-25, located east of former DFM tank D-4.

3.2.2.1 **Areal Extent of Groundwater Contamination** The approximate areal extent of groundwater contamination is presented on Figure 3-3. Groundwater contamination is widespread throughout the TPFF, except along the southern part of the site. The eastern and western extent of groundwater contamination, however, has not been adequately assessed. Groundwater contaminant migration in the northern part of the site is apparently being attenuated by the seawall. However, the potential exists for groundwater contaminant migration into Fleming Key Cut through cracks in the seawall (Geraghty & Miller, 1988c) or under the seawall.

Groundwater contamination detected at the USCG facility also has not been adequately assessed. Current data indicate, however, that contamination at the USCG facility may result from onsite petroleum product releases and contaminant migration from the TPFF.

3.2.2.2 **Vertical Extent of Groundwater Contamination** Monitoring wells MW-1D through MW-3D were installed to assess possible contaminant migration below the seawall on the northern site boundary and the vertical extent of contamination on the western boundary of the TPFF. No contaminants were detected in samples from the three vertical extent wells. Wells MW-1D, MW-2D, and MW-3D were screened over intervals ranging from 40 to 50 feet bls, which indicates that contamination in the vicinity of these three wells does not exceed 40 feet bls. Deep vertical migration of petroleum contamination does not appear to be occurring along the northern and western boundaries of the TPFF; however, the extent of contaminant migration at depths ranging from 15 feet to 40 feet bls has not been evaluated. Also, there are little data to assess the vertical extent of groundwater contamination in other areas at the TPFF, particularly areas where free product was observed.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The PCA indicates the extent of soil petroleum contamination is widespread at the TPFF and the USCG facility. The extent of soil contamination at the TPFF appears to be adequately assessed. Excessive soil contamination along the northern and western perimeter of the TPFF may be a cause of concern for petroleum contamination in adjacent surface water sediment.

Areas of free product and groundwater contamination are widespread. The southern extent of groundwater contamination at the TPFF appears to be adequately assessed. Groundwater contamination is present along the northern and western perimeter of the TPFF and may be a cause of concern for petroleum contamination in adjacent surface water bodies. The western extent of groundwater contamination has not been adequately assessed.

Soil and groundwater contamination at the USCG facility has not been adequately assessed and also appears to be widespread. Contamination at the USCG facility appears to be from both onsite and offsite sources.

ABB-ES recommends that a contamination assessment (CA) be conducted at the TPFF and a PCA be conducted at the USCG facility to adequately assess the extent of soil and groundwater contamination so that recommendations can be made to address Florida Department of Environmental Protection (FDEP) cleanup criteria. ABB-ES recommends that the PCA at the USCG facility be completed first. The PCA would consist of a soil assessment only. Upon completion of the PCA, recommendations can be made for additional site investigation at the USCG facility. Assuming excessive soil contamination is discovered, ABB-ES would recommend that a CA be conducted at the USCG facility to assess the extent of groundwater contamination. The CA at the USCG facility could be conducted at the same time as the CA at the TPFF. If, however, the CA at the TPFF is completed and the corresponding contamination assessment report (CAR) is submitted to the FDEP before the extent of groundwater contamination has been adequately assessed at the USCG facility, it is unlikely that the CAR will be approved.

Completing the investigation will involve the following tasks:

- additional soil and groundwater assessment at the TPFF;
- surface sediment and surface water assessment at the TPFF;
- additional soil assessment at the USCG facility;
- aquifer characterization tests;
- a 24-hour tidal influence study;
- elevation and location survey of soil borings and monitoring wells;
- collection of soil and groundwater samples to support the evaluation of remedial design alternatives; and
- report preparation.

4.1 SOIL ASSESSMENT AT THE U.S. COAST GUARD (USCG) FACILITY. Approximately 48 additional soil borings will be drilled at the USCG facility to a depth of 6 feet bls to assess the extent of soil contamination at the USCG facility, particularly in areas of known or suspected contamination. Proposed soil boring locations are presented on Figure 4-1. Soil borings will be advanced with 3.75-inch diameter, solid-stem flight augers using a truck-mounted drill rig. Soil samples will be collected directly from the flight augers from depths of 0 to 2 feet bls, 2 to 4 feet bls, and 4 to 6 feet bls. Samples collected above the water table will be analyzed by OVA headspace techniques in accordance with Chapter 17-770, FAC, guidelines. Groundwater samples will be collected from each soil boring and screened for petroleum constituents using a gas chromatograph.

Soil OVA analyses will be used to assess the extent of petroleum contamination at the USCG facility so that the scope of a comprehensive contamination assessment can be estimated.

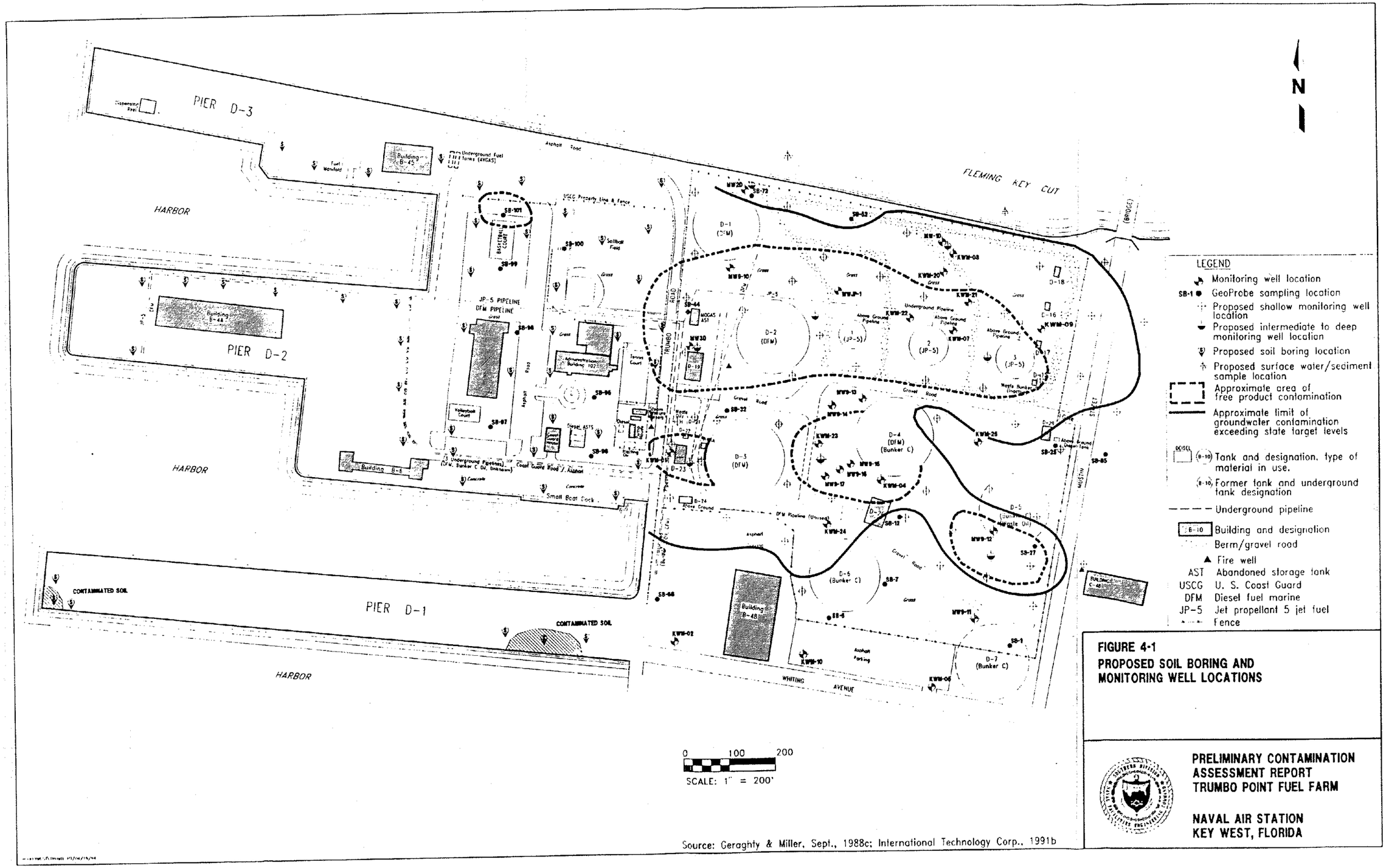
ABB-ES personnel and their subcontractors will coordinate efforts with the USCG facility and the NAS Key West Environmental Coordinator for proper disposal of contaminated soil. It will be the Navy's or USCG's responsibility to properly dispose hazardous soil.

4.2 GROUNDWATER ASSESSMENT AT THE TRUMBO POINT FUEL FARM (TPFF). The horizontal and vertical extent of groundwater contamination at the TPFF will be assessed by installing and developing groundwater monitoring wells and collecting groundwater samples for laboratory analyses. Approximately 50 shallow monitoring wells, 3 intermediate monitoring wells, and 4 deep monitoring wells are proposed.

Intermediate and deep wells are proposed in highly contaminated areas and will be clustered with shallow monitoring wells in the same general location. Proposed monitoring well locations are presented on Figure 4-1. Three intermediate wells are proposed to be installed at the locations of the three vertical extent wells, MW-1D through MW-3D. Two surface water and surface sediment samples will be collected along the seawall on the northern boundary of the site to assess the possibility of contaminant migration into Fleming Key Cut.

4.2.1 Monitoring Well Installation and Development Borings in which monitoring wells will be installed will be advanced with 4.25-inch inside diameter (ID), hollow-stem augers. Soil samples will be collected at 2-foot vertical intervals above the water table, and at 5-foot vertical intervals thereafter, until total depth is reached. Samples collected above the water table will be analyzed by OVA headspace techniques in accordance with Chapter 17-770, FAC, guidelines. Soils will be described and lithologic boring logs will be prepared.

Shallow wells will be installed to a depth of approximately 12 feet bls and will be constructed of 10 feet of 2-inch ID, 0.010-inch slotted, schedule 40, polyvinyl chloride (PVC) screen and flush-threaded riser. The screened interval will be approximately 2 to 12 feet bls. The annular space around the screened interval will be filled with a 20/30 grade silica filter pack to a depth approximately 6 inches above the top of the screen. A 3- to 4-inch thick bentonite seal will be placed above the filter pack. The remaining annular space will be grouted to land surface with portland cement. Typical shallow well installation details are presented on Figure 4-2.



LEGEND

- Monitoring well location
- SB-1 ● GeoProbe sampling location
- Proposed shallow monitoring well location
- Proposed intermediate to deep monitoring well location
- Proposed soil boring location
- Proposed surface water/sediment sample location
- Approximate area of free product contamination
- Approximate limit of groundwater contamination exceeding state target levels
- (DIESEL) (B-10) Tank and designation, type of material in use.
- (B-10) Former tank and underground tank designation
- Underground pipeline
- B-10 Building and designation
- Berm/gravel road
- ▲ Fire well
- AST Abandoned storage tank
- USCG U. S. Coast Guard
- DFM Diesel fuel marine
- JP-5 Jet propellant 5 jet fuel
- Fence

Source: Geraghty & Miller, Sept., 1988c; International Technology Corp., 1991b

FIGURE 4-1
PROPOSED SOIL BORING AND MONITORING WELL LOCATIONS

PRELIMINARY CONTAMINATION ASSESSMENT REPORT
TRUMBO POINT FUEL FARM

NAVAL AIR STATION
KEY WEST, FLORIDA

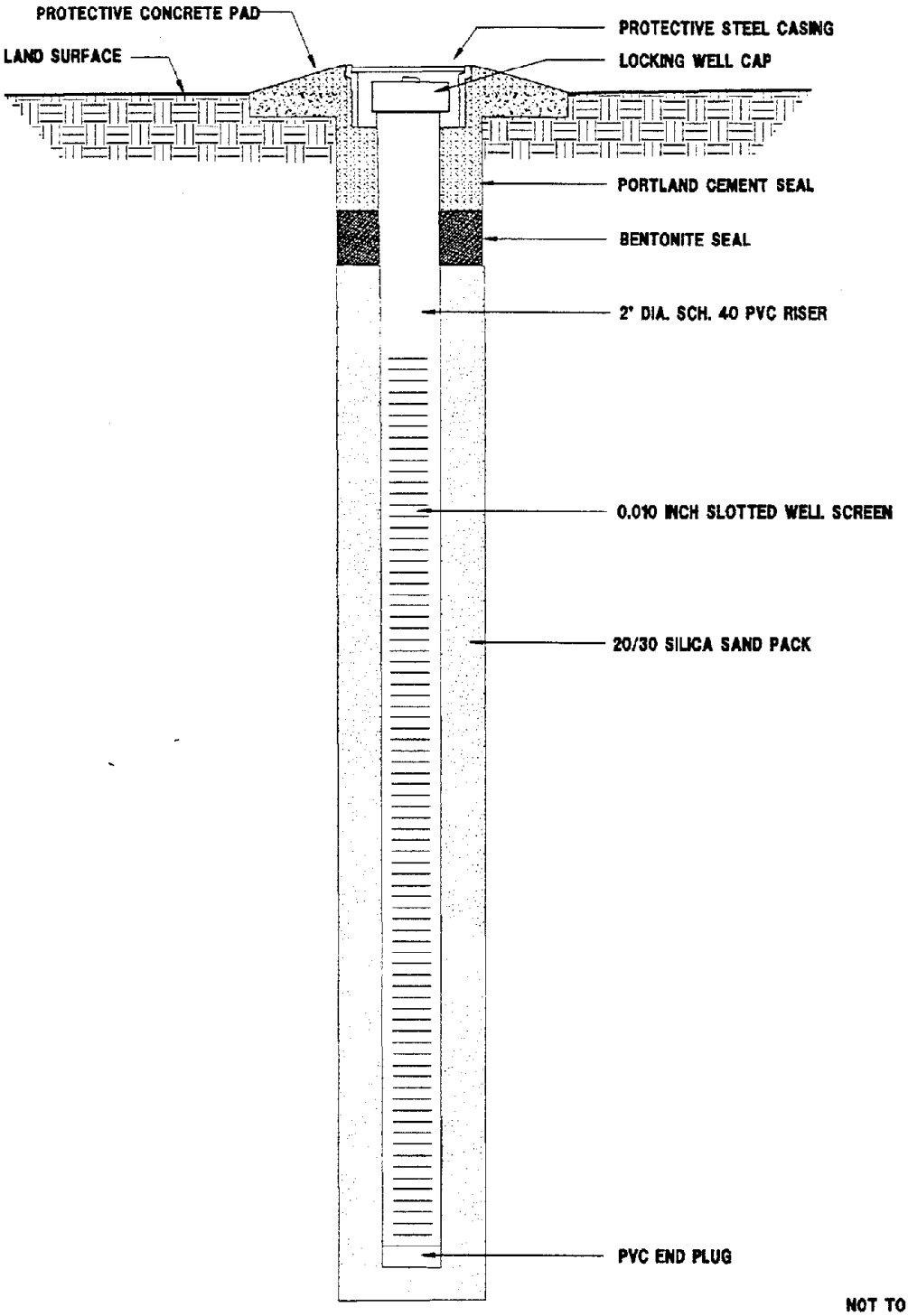


FIGURE 4-2
TYPICAL SHALLOW MONITORING WELL INSTALLATION DETAIL

KEYWELL/04/08/94

PRELIMINARY CONTAMINATION ASSESSMENT REPORT
TRUMBO POINT FUEL FARM

NAVAL AIR STATION
KEY WEST, FLORIDA

Intermediate and deep wells will be constructed of the same materials as the shallow wells and will be installed inside 6-inch outside diameter (OD), Schedule 40 PVC surface casing. No confining layers are anticipated to be encountered; however, the intermediate and deep wells will be double cased to preclude the possibility of cross contamination with the upper part of the aquifer. The surface casing for intermediate and deep wells will extend to depths of approximately 20 feet bls and 40 feet bls, respectively. Intermediate wells will be screened from approximately 25 to 30 feet bls, and deep wells from 45 to 50 feet bls. A 20/30 grade silica filter pack will extend to at least 2 feet above the top of the screened interval. A 1-foot thick, fine-grained sand (or bentonite) seal will be placed above the filter pack, and the remaining annular space will be grouted to land surface with neat cement. Typical intermediate and deep monitoring well installation details are presented on Figure 4-3.

Monitoring wells will be fitted with a locking, watertight cap. Each well will be installed below grade in a subsurface traffic-bearing vault and protected with a metal manhole assembly.

Upon completion, newly installed monitoring wells will be developed by pumping a minimum of 10 well volumes until the purged water is clear and relatively free of sediment to provide a good hydraulic connection with the surrounding aquifer.

ABB-ES personnel and their subcontractors will coordinate efforts with the NAS Key West Environmental Coordinator to dispose contaminated drill cuttings and fluids. Proper hazardous waste disposal will be the Navy's responsibility.

4.2.2 **Groundwater Sample Collection and Analyses** Groundwater samples will be collected from all monitoring wells that do not contain free product. Groundwater samples will be collected with either Teflon™ bailers or disposable polyethylene bailers. The analytical sampling program will comply with the ABB-ES FDEP-approved Comprehensive Quality Assurance Plan (CompQAP).

Groundwater samples will be shipped to an FDEP-approved analytical laboratory. With the exceptions described in the next paragraph, groundwater samples will be analyzed for constituents of the kerosene and mixed products analytical group as defined in Chapter 17-770, FAC. Analyses will be performed for volatile organic halocarbons by U.S. Environmental Protection Agency (USEPA) Method 601, for VOAs by USEPA Method 602, for PAHs by USEPA Method 610, for TRPH by USEPA Method 418.1, and for lead by USEPA Method 239.2. Because ethylene dibromide (EDB) has not been detected during previous site investigations, it does not appear to be a contaminant of concern; therefore, EDB analyses will not be performed for groundwater samples collected during the CA.

Groundwater samples collected from monitoring wells in the vicinity of tanks D-5 and D-21, which were reportedly used for waste oil storage, will be analyzed for used oil constituents as described in Chapter 17-770, FAC. Analyses will be performed for total metal contents of arsenic, cadmium, chromium, and lead; for volatile organics by USEPA Method 624; for extractable organics by USEPA Method 625; and for TRPH by USEPA Method 418.1.

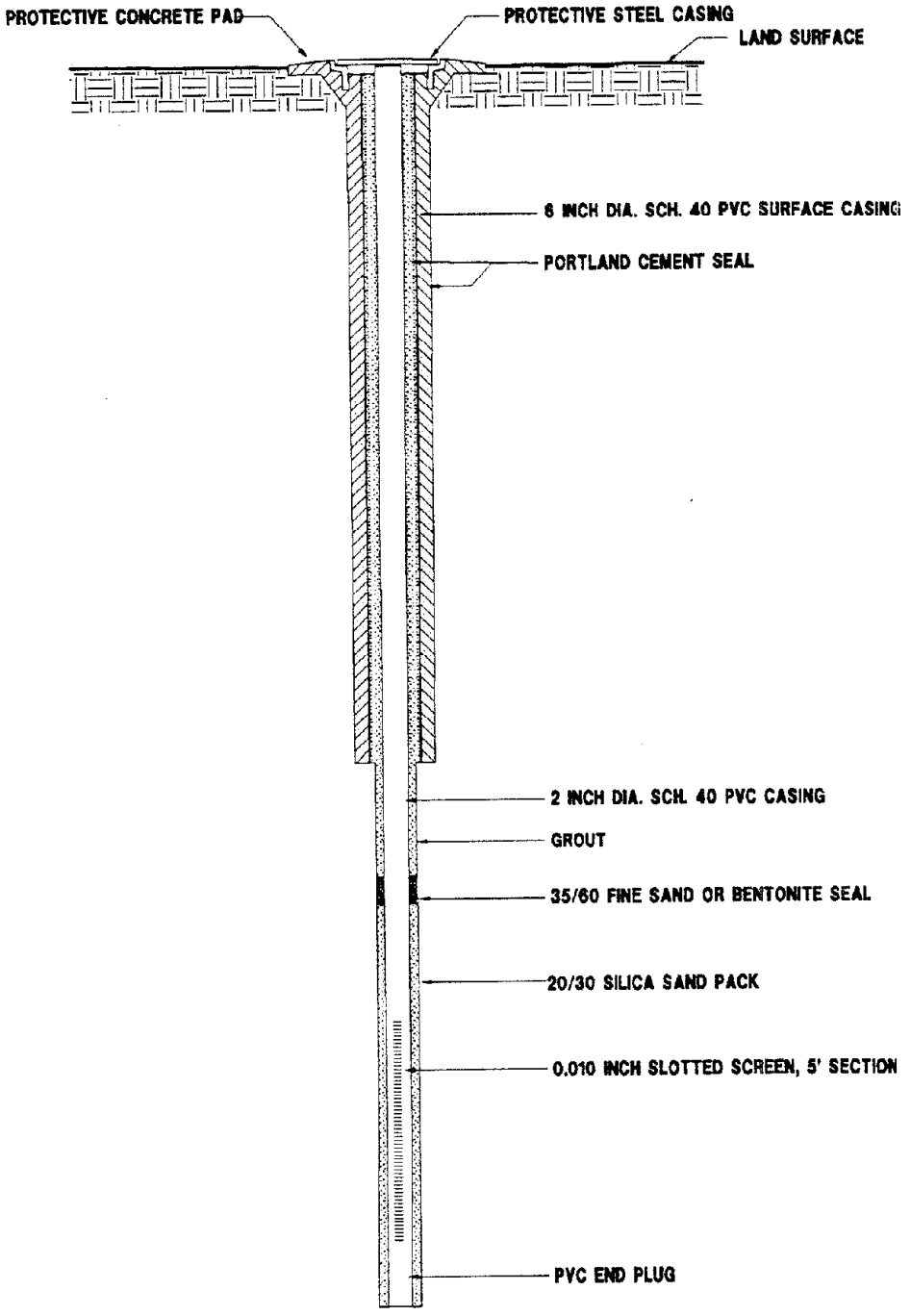


FIGURE 4-3
TYPICAL INTERMEDIATE AND DEEP MONITORING WELL INSTALLATION DETAIL

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PRELIMINARY CONTAMINATION ASSESSMENT REPORT
TRUMBO POINT FUEL FARM

NAVAL AIR STATION
KEY WEST, FLORIDA

4.3 SOIL LABORATORY ANALYSES AT THE TRUMBO POINT FUEL FARM. Approximately 14 soil samples will be collected during the monitoring well installation phase. Of the 14, 10 samples will be collected in the vicinity of AST D-5 and 4 samples will be collected in the vicinity of AST D-21. The samples will be collected immediately above the water table (3 to 5 feet bls). The samples will be sent to an FDEP-approved analytical laboratory to be analyzed for used oil constituents as defined in Chapter 17-770, FAC. TRPH analyses will be performed by USEPA Method 418.1. Total metals analyses for arsenic, cadmium, chromium, and lead will be performed by USEPA Method 7060. One sample will be collected from the area of highest contamination associated with each tank and analyzed for the metals arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver by USEPA Method 1310, for volatile organics by USEPA Method 8240, for extractable organics by USEPA Method 8270, and for TRPH by USEPA Method 418.1.

4.4 AQUIFER CHARACTERIZATION. Aquifer tests will be conducted to estimate the hydraulic properties of the water table aquifer. Rising-head slug tests will be performed on a minimum of three shallow monitoring wells, two intermediate wells, and two deep wells to collect data for calculating hydraulic conductivity. Hydraulic conductivity will be calculated using the computer program AQTESOLV™ (Geraghty & Miller, 1989). The AQTESOLV™ program calculates hydraulic conductivity from slug test data following the methods of Bouwer and Rice (1976) for partially penetrating wells screened in unconfined aquifers.

Depth to groundwater will be measured and recorded in all monitoring wells at the site a minimum of two times on two separate dates not less than 1 month apart. Water levels will be measured during different moon phases to assess tidal effects on the direction of groundwater flow and the hydraulic gradient at the site.

4.5 TIDAL INFLUENCE STUDY. A 24-hour tidal influence study will be conducted during a new moon or full moon phase to assess the effect of tides on the direction of groundwater flow, hydraulic gradient, and pore water velocity.

4.6 ELEVATION AND LOCATION SURVEY. Soil boring locations will be surveyed by ABB-ES personnel. A Florida-licensed professional surveyor will survey the horizontal and vertical coordinates of each monitoring well, referenced to the U.S. Geological Survey (USGS) North American Datum of 1927 and incorporated into the NAS Key West coordinate grid system.

4.7 COLLECTION OF SAMPLES FOR REMEDIAL DESIGN. Soil and groundwater samples to be analyzed for remedial design parameters will be collected during the additional site assessment.

4.7.1 Soil Samples and Analyses for Remedial Design Approximately 10 soil samples will be collected in the vadose zone within contaminated areas. Vadose soil samples will be analyzed for the following parameters:

- total kjeldahl nitrogen, ammonia-nitrogen, and nitrate plus nitrite by USEPA Methods 351.3, 350.2, and 353.2, respectively;

- total phosphorus by USEPA Method 365.1;
- TOC and fraction of organic carbon (FOC) by USEPA Method 415.2;
- TRPH by USEPA Method 418.1;
- total bacteria and specific petroleum degraders by Modified USEPA Method 907B; and
- fingerprint by Modified USEPA Method 3550/8100 with major constituents tentatively identified.

Ten additional soil samples will be collected from representative strata below the water table. Five samples will be collected from the silty oolitic mud at depths of approximately 8 to 10 feet bls. The remaining five samples will be collected from the sandy limestone at depths of approximately 13 to 15 feet bls. These samples will be analyzed for FOC, TRPH, grain size distribution, and uniformity coefficient.

4.7.2 Groundwater Samples and Analyses for Remedial Design Approximately 10 groundwater samples will be collected from monitoring wells within contaminated areas and analyzed for the following parameters:

- iron (Fe^{2+}), manganese, chloride, sulfate, phosphorus, and sulfide by USEPA Methods 236.1, 243.1, 325.1, 375.4, 365.1, and 376.1 respectively;
- alkalinity, hardness, color, total solids, total suspended solids, and total dissolved solids by USEPA Methods 310.1, 130.2, 110.2, 160.3, 160.2, and 160.1, respectively;
- nitrate plus nitrite, total kjeldahl nitrogen, and ammonia-nitrogen by USEPA Methods 353.2, 351.3, and 350.2, respectively;
- TOC, dissolved oxygen, biological oxygen demand, and chemical oxygen demand (COD) by USEPA Methods 415.1, 360.1, 405.1, and 410.1/410.2, respectively;
- TRPH by USEPA Method 418.1;
- total bacteria and specific petroleum degraders by Modified USEPA Method 907B; and
- fingerprint by USEPA Method 8100 with major constituents tentatively identified.

4.8 REPORT PREPARATION. After completion of the soil assessment at the USCG facility, a PCAR will be prepared and submitted to the Navy for review and approval. Recommendations will be made concerning the need for additional site investigation. After completion of the field investigations at both facilities and receipt of laboratory analytical results, a CAR will be prepared for the entire site and submitted to the Navy for review and approval. The CAR will follow guidelines set forth by the FDEP (FDER, 1989b).

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APPENDIX B

LITHOLOGIC LOGS

TITLE: NAS Key West, Trumbo Point Fuel Farm	LOG of WELL: KWY-TPFF-1D	BORING NO. SB55
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506-30
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 8/17/93	COMPLTD: 8/17/93
METHOD: 4.25" HSA	CASE SIZE: 2 inch	SCREEN INT.: 40 - 45 FT.	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 47FT.	DPTH TO ▽ FT.
LOGGED BY: R. Durham	WELL DEVELOPMENT DATE: 8/18/93	SITE: Trumbo Point Fuel Farm

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Limerock and sandy fill		FL		
				120	SAND: clayey, mixed with limerock pebbles, brown-gray, diesel odor		GC		
5				1400	SAND: clayey, mixed with limerock pebbles, strong odor				
							SC		
10			14/24	700	SAND: clayey, gray, some medium plasticity clay, wet, slight hydrogen sulfide and diesel odor			1,2,1,1	
							LS		
15			19/24	800	LIMESTONE: light brown, sandy, coarse grained, mixed with shell fragment granules, hydrogen sulfide and diesel odor, saturated			13,13,14,17	
20			24/24	35	LIMESTONE: light brown, coarse to gravelly, some shell fragments, hydrogen sulfide and diesel odor			10,11,11,17	
25			24/24	40	LIMESTONE: light brown, medium- to coarse-grained, some limestone pebbles, hydrogen sulfide and diesel odor, saturated			8,11,11,20	
30			24/24	70	LIMESTONE: As above			13,16,18,20	
35			24/24	25	LIMESTONE: as above, light brown to gray, some wood fragments, hydrogen sulfide odor			13,14,13,17	
40			24/24	5	LIMESTONE: light brown, sandy to gravelly, some wood fragments, no odor			8,11,11,11	
45			24/24	2	LIMESTONE: as above, except no wood fragments			7,13,13,9	
50									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Key West, Trumbo Point Fuel Farm	LOG of WELL: KWY-TPFF-2D	BORING NO. SB72
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506-30
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 8/18/93	COMPLTD: 8/18/93
METHOD: 4.25" HSA	CASE SIZE: 2 inch	SCREEN INT.: 40 - 45 FT.	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 47FT.	DPTH TO ▽ FT.
LOGGED BY: R. Durham	WELL DEVELOPMENT DATE: 8/19/93	SITE: Trumbo Point Fuel Farm

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Limerock and sandy fill		FL		
5			24/24	600	SAND: clayey, mixed with limerock pebbles, brown-gray, moist, diesel odor		GC	5,4,5,2	
					CLAY: sandy, brown-gray, moist, diesel odor		CL		
10			8/24	1150	CLAY: sandy, brown-gray, some wood fragments, saturated, diesel odor			6,6,4,2	
							SC		
15			18/24	400	SAND: brown-gray, fine-grained to clayey, saturated, diesel			6,6,2,2	
							LS		
20			18/24	450	CLAY: sandy, brown-gray, strong diesel and hydrogen sulfide odor			8,10,25,36	
					LIMESTONE: light brown, sandy to gravelly, some limerock pebbles hydrogen sulfide and diesel odor				
25			21/24	55	LIMESTONE: as above, strong diesel odor			8,9,11,14	
30			22/24	20	LIMESTONE: sandy, light brown, saturated, strong diesel and hydrogen sulfide odor			11,13,35,35	
35			24/24	4	LIMESTONE: as above			8,29,40,0	
40			24/24	4	LIMESTONE: sandy, light brown, calcareous gravel, sub-rounded, hydrogen sulfide odor			15,30,30,30	
45			20/24	2	LIMESTONE: sandy, light brown, some fine gravel, angular to sub-angular, saturated, no odor			13,13,60,0	
50									

TITLE: NAS Key West, Trumbo Point Fuel Farm	LOG of WELL: KWY-TPFF-3D	BORING NO. SB43
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506-30
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 8/18/93	COMPLTD: 8/18/93
METHOD: 4.25" HSA	CASE SIZE: 2 inch	SCREEN INT.: 45 - 50 FT.	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 50FT.	DPTH TO ▽ FT.
LOGGED BY: R. Durham	WELL DEVELOPMENT DATE: 8/19/93	SITE: Trumbo Point Fuel Farm

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<10	Limerock and sandy fill		FL		
				<10					
				40	As above, with clayey, dark gray sand, diesel odor				
5			14/24	400	SAND: gray, fine to clayey, some limerock pebbles, saturated, diesel odor		GC	5,4,4,4	
							SC		
10			18/24	300	SAND: brown-gray, fine to clayey, saturated, diesel odor			4,1,1,1	
15			24/24	1000	SAND: brown-gray, fine to silty, some clay, saturated, diesel odor			2,6,1,1	
							LS		
20			22/24	300	LIMESTONE: brown-gray, sandy to fine gravel, some limerock pebbles, saturated, diesel and hydrogen sulfide odor			5,11,13,11	
25			20/24	250	LIMESTONE: light brown, sandy to fine gravel, some limerock pebbles, saturated, hydrogen sulfide and diesel odor			6,12,12,18	
30			17/24	230	LIMESTONE: as above, diesel and hydrogen sulfide odor			5,10,13,10	
35			12/24	85	LIMESTONE: as above, diesel and hydrogen sulfide odor			10,9,10,13	
40			18/24	50	LIMESTONE: as above, hydrogen sulfide odor			11,8,13,15	
45			12/24	9	LIMESTONE: as above, slight odor			19,6,6,10	
50					LIMESTONE: as above				
55									

TITLE: NAS KEY WEST	LOG of WELL: MW-4		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 01/17/96	COMPLTD: 01/17/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 5.61 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 4.44 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/18/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	CLAY, LIMEROCK, and SHELL FRAGMENTS, light brown to white, low plasticity, 50% clay, no odor.		CL		
				15	As above, slight petroleum odor.				
5				5000	As above, strong petroleum odor, wet.				▽
				3200	As above, 75% clay.				
				1700	As above.				
10				1300	As above, changing to 100% limerock at bottom of spoon.				
15									
20									

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TITLE: NAS KEY WEST	LOG of WELL: MW-5	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 01/17/96	COMPLTD: 01/17/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13
TOC ELEV.: 6.92 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/18/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	CLAYEY LIMEROCK, light brown, no odor.		CL		
				0	As above.				
5				1	CLAY, LIMEROCK, and SHELL FRAGMENTS, light brown, 70% clay, no odor.				
10				400	CLAY, light brown, low plasticity, slight petroleum odor.				
				350	As above.				
15									
20									

TITLE: NAS KEY WEST	LOG of WELL: MW-6		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 01/17/96	COMPLTD: 01/17/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.17 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 4.40 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/18/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT, light brown, no odor.		GM		
				0	LIMEROCK and SHELL FRAGMENTS, no odor.				
5				65	CLAYEY LIMEROCK, light brown to white, some shell fragments, 50% clay, no odor, wet at 5' bls.		GC		
							CL		
10				1800	CLAY, light brown to white, soft, some shell fragments, rotten egg odor.				
				1300	CLAYEY LIMEROCK, light brown to white, 30% clay, rotten egg odor.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-7	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35

CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 01/17/96	COMPLTD: 01/17/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.29 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 4.89 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/18/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT, light brown to dark brown, no odor.		GM		
				0	LIMEROCK and SHELL FRAGMENTS, light brown, no odor.				
5				15	CLAYEY LIMEROCK, light brown to white, rotten egg odor, wet at 5' bls.		GC		
10				1100	CLAY, light brown to white, high plasticity, rotten egg odor.		CH		
				1000	CLAYEY LIMEROCK, light brown to white, 30% clay, rotten egg odor.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-8		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 01/18/96	COMPLTD: 01/18/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.03 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.35 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/19/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	CLAY, low plasticity, light brown, no odor.		CL		
				0	As above.				
5				260	CLAY, high plasticity, light brown to light gray, rotten egg odor, wet at 5' bls.		CH		
							CH		
10				N/A	No recovery.				
							GC		
				900	LIMEROCK, CLAY (40%), and SHELL FRAGMENTS, light brown to light gray, rotten egg odor.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-9	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 01/18/96	COMPLTD: 01/18/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.17 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 4.90 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/19/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (30%), light brown, no odor.		GC		
				0	LIMEROCK, CLAY, and SHELL FRAGMENTS, light brown, no odor.				
5				0	CLAY, high plasticity, light brown to light gray, some shell fragments, no odor.		CH		▽
10				16	LIMEROCK and CLAY (30%), light brown to light gray, rotten egg odor.				
				17	LIMEROCK, hard, light brown, rotten egg odor.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-10		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 01/18/96	COMPLTD: 01/18/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 4-14	PROTECTION LEVEL: D
TOC ELEV.: 8.79 FEET.	MONITOR INST.: OVA	TOT DPTH: 14 FEET.	DPTH TO ▽ 7.17 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/19/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT, light brown to medium brown, no odor.		GM		
				0	As above.				
5				0	CLAY, low plasticity, light brown to light gray, no odor, dry.		CL		
				29	LIMEROCK and CLAY (30%), light brown, no odor, wet.		GC		▽
10				27	LIMEROCK and CLAY (50%), light brown to light gray, rotten egg odor.				
				220	CLAY, high plasticity, light brown to light gray, rotten egg odor.		CH		
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-11	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 01/18/96	COMPLTD: 01/18/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.48 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.20 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/19/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (40%), light brown to light gray, no odor.		GC		
				0	CLAY, low plasticity, light brown to light gray, no odor.		CL		
5				0	LIMEROCK and SHELL FRAGMENTS, light brown, no odor, wet at 5' bls.				▽
10				1000	Oolitic LIMEROCK, light brown, some clay (20%), rotten egg odor.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-12	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 01/18/96	COMPLTD: 01/18/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2" / SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.77 FEET.	MONITOR INST.: OVA / TOT DPTH: 13 FEET.	DPTH TO ▽ 5.23 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/19/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILT and LIMEROCK, light brown to dark brown, no odor.		GM		
				0	LIMEROCK and CLAY (20%), light brown to medium brown, no odor.		GC		
5				0	LIMEROCK and CLAY (20%), light brown to light gray, no odor, wet at 5' bls.				▽
10				800	LIMEROCK and CLAY (20%), light brown to light gray, rotten egg odor.				
				500	LIMEROCK and CLAY (40%), light brown, rotten egg odor.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-13	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 01/20/96	COMPLTD: 01/20/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13
TOC ELEV.: 5.85 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/21/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (20%), light brown, no odor.		GC		
				0	As above.				
5				17	LIMEROCK and CLAY (20%), light brown to light gray, no odor, wet at 5' bls.				
10				13	Oolitic LIMEROCK, light brown to white, no odor.				
				130	Oolitic LIMEROCK, light brown to white, rotten egg odor.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-14		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 01/20/96	COMPLTD: 01/20/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 5.88 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 4.79 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/21/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (20%), light brown, no odor.		GC		
				0	As above.				
5				0	LIMEROCK and CLAY (10%), light brown to white, no odor.				▽
10				12	Oolitic LIMEROCK, light brown to white, slight rotten egg odor.				
				16	Oolitic LIMEROCK, light brown to white, strong rotten egg odor.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST		LOG of WELL: MW-15	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 01/20/96	COMPLTD: 01/20/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 5.97 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.01 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/21/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (20%), light brown, slight pine odor.		GC		
				0	LIMEROCK and CLAY (30%), light brown, no odor.				
5				1600	LIMEROCK and CLAY (20%), stained by product, medium gray to dark gray, strong petroleum-like odor, wet at 5' bls.				
10				200	Oolitic LIMEROCK, hard, light brown, rotten egg odor.				
				220	Oolitic LIMEROCK, hard, light brown to gray, rotten egg odor.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-16	BORING NO. SB112
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 01/22/96	COMPLTD: 01/22/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.24 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.32 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/23/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				150	LIMEROCK and CLAY (20%), some asphalt-like black material, no odor.		GC		
				15	LIMEROCK and CLAY (40%), light brown to light gray, no odor.				
5				0	As above, wet.				▽
10									
15									
20									

TITLE: NAS KEY WEST	LOG of WELL: MW-17	BORING NO. SB121
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 01/23/96	COMPLTD: 01/23/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 2-12	PROTECTION LEVEL: D
TOC ELEV.: 6.41 FEET.	MONITOR INST.: OVA	TOT DPTH: 12 FEET.	DPTH TO ▽ 5.13 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/24/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (20%), light brown to light gray, no odor.		GC	15,8,5,4	
				1	As above, moist.			4,2,2,1	
5				210	Oolitic LIMEROCK, light brown to medium gray, slight petroleum-like odor, wet at 6' bls.			4,6,4,4	▽
				240	As above, wet.			4,4,4,3	
				380	LIMEROCK, hard, light brown to medium gray.			7,11,18,18	
10				800	LIMEROCK, hard, light brown to medium gray, rotten egg odor.			refusal	
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-18		BORING NO. SB123
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 01/23/96	COMPLTD: 01/23/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 2-12	PROTECTION LEVEL: D
TOC ELEV.: 6.43 FEET.	MONITOR INST.: OVA	TOT DPTH: 12 FEET.	DPTH TO ▽ 4.99 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/24/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (50%), light brown to light gray, no odor.		GC	11,9,6,4	
				0	As above.			2,2,2,3	
5				280	Oolitic LIMEROCK, stained by product, light gray to medium gray, petroleum-like odor, wet.			2,3,5,7	▽
				1300	As above.			11,8,8,8	
				900	LIMEROCK and CLAY (20%), medium gray, rotten egg odor.		GC	7,8,6,4	
10				1100	LIMEROCK and CLAY (10%), medium gray, rotten egg odor.			5,5,5,6	
				800	LIMEROCK and CLAY (20%), medium gray, rotten egg odor.			9,7,6,6	
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-19		BORING NO. SB135
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 01/29/96	COMPLTD: 01/29/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.81 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 6.24 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/30/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (10%), light brown to light gray, no odor, dry.		GC		
				0	As above.				
5				0	As above, moist.				
				380	Oolitic LIMEROCK, stained by product, medium gray, strong diesel-like odor, wet.				
10									
15									
20									

TITLE: NAS KEY WEST	LOG of WELL: MW-20	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 01/29/96	COMPLTD: 01/29/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2" / SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.82 FEET.	MONITOR INST.: OVA / TOT DPTH: 13 FEET.	DPTH TO ▽ 6.20 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/30/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (20%), light brown, no odor.		GC		
				0	As above.				
5				0	As above, with pieces of coal.				
				0	LIMEROCK and CLAY (20%), light brown, no odor, wet.				
10									
				0	LIMEROCK and CLAY (20%), light brown to white, no odor, wet.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-21		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 01/29/96	COMPLTD: 01/29/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.12 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.10 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/30/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK, SILT, and CLAY (20%), light brown, no odor.		GC		
				0	LIMEROCK and CLAY (40%), light brown, no odor.				
5				N/A	No recovery.				
				0	LIMEROCK and SHELL FRAGMENTS, light brown, no odor, wet.				
10				0	LIMEROCK and CLAY (30%), light brown to medium gray, no odor.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-22		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 01/29/96	COMPLTD: 01/29/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 7.05 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.27 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/30/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (30%), light brown to dark brown, no odor.		GC		
				0	LIMEROCK and CLAY (50%), light brown to light gray, no odor, moist.				
5				0	CLAY, high plasticity, light brown, light gray, medium gray, no odor, wet.		CH		
				0	As above.				
10				0	As above.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-23	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 01/30/96	COMPLTD: 01/30/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13
TOC ELEV.: 6.05 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 01/31/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (30%), light brown, dark brown, black, no odor.		GC		
				0	CLAY, low plasticity, light brown to light gray, no odor, moist.		CL		
5				0	CLAY, high plasticity, light brown to light gray, no odor, moist.		CH		
				430	As above, rotten egg odor, moist.				
10							GC		
				310	LIMEROCK and CLAY (30%), light brown to light gray, rotten egg odor, wet.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-24		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/01/96	COMPLTD: 02/01/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 2-12	PROTECTION LEVEL: D
TOC ELEV.: 6.52 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.02 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/02/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				1	SILT and CLAY (20%), light gray to dark brown, no odor, dry.		GC		
				3	CLAY, low plasticity, light brown to gray, petroleum-like odor, moist.		CL		
5				400	As above.				
				480	As above, wet.				
10				400	CLAY, high plasticity, light gray, petroleum-like odor, wet.		CH		
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-25	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 02/01/96	COMPLTD: 02/01/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.98 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.23 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/02/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SILT, CLAY (30%), and LIMEROCK, light brown to dark brown, no odor.		GC		
					LIMEROCK, CLAY (30%), and SHELL FRAGMENTS, light brown, dark brown, gray, no odor, moist.				
5					LIMEROCK and CLAY (50%), light brown to light gray, no odor, moist.				
					CLAY, low plasticity, light brown to light gray, rotten egg odor, wet.		CL		
10				160	Oolitic LIMEROCK, light brown, rotten egg odor, wet.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-26	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 02/01/96	COMPLTD: 02/01/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.86 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 4.95 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/02/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SILT, CLAY (30%), and LIMEROCK, light brown to dark brown, no odor.		GC		
					LIMEROCK, CLAY (30%), and SHELL FRAGMENTS, light brown, dark brown, gray, no odor, moist.				
5					LIMEROCK and CLAY (50%), light brown to light gray, no odor, moist.				
							CL		
					CLAY, low plasticity, light brown to light gray, rotten egg odor, wet.				
10									
				700	Oolitic LIMEROCK and CLAY (50%), light brown, rotten egg odor.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-27	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 02/01/96	COMPLTD: 02/01/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13
TOC ELEV.: 7.33 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/02/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					LIMEROCK, SILT, and CLAY (20%) fill material, light brown to gray, no odor, dry.		GC		
					As above.				
5					LIMEROCK and CLAY (20%) fill material, light brown to gray, no odor, moist.				
					Oolitic LIMEROCK and CLAY (30%), light brown to light gray, no odor, wet.				
10				900	Oolitic LIMEROCK and CLAY (30%), light brown, rotten egg odor, wet.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-28		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/01/96	COMPLTD: 02/01/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 7.64 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.79 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/02/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SILT and LIMEROCK fill material, light brown, medium brown, black, no odor, dry.		GM		
					LIMEROCK and CLAY (30%) fill material, light brown to gray, no odor, moist.		GC		
5					LIMEROCK and CLAY (50%), light brown to light gray, no odor, moist.				
					CLAY, low plasticity, light brown to light gray, rotten egg odor, wet.		CL		
10				700	Oolitic LIMEROCK and CLAY (30%), light brown to gray, rotten egg odor, wet.				
15									
20									

TITLE: NAS KEY WEST	LOG of WELL: MW-29	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 02/02/96	COMPLTD: 02/02/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.89 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.06 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/03/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILT, CLAY (20%), and LIMEROCK, light brown, no odor, dry.		GC		
				0	As above, with roots and coal.				
							CL		
5				50	CLAY, low plasticity, light brown to light gray, few limerock pebbles, moist.				▽
				350	CLAY, low plasticity, light brown to light gray, rotten egg odor, wet.				
				180	As above.				
10									
				250	CLAY, low plasticity to high plasticity, light brown to light gray; changing to oolitic limerock at the bottom of the spoon.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-30		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/02/96	COMPLTD: 02/02/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 7.02 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.24 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/03/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILT, LIMEROCK, CLAY (20%), and ASPHALT-like material, light gray to black, no odor, dry.		GC		
				1	ASPHALT-like material, black, no odor, dry.				
5				32	CLAY, low plasticity, light brown to light gray, no odor, moist.		CL		▽
				110	As above, rotten egg odor, wet.				
				230	As above.				
10				480	As above.				
15									
20									

TITLE: NAS KEY WEST	LOG of WELL: MW-31	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 02/02/96	COMPLTD: 02/02/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13
TOC ELEV.: 6.73 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/03/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILT, LIMEROCK, CLAY (20%), light brown, no odor, dry.		GC		
				0	LIMEROCK, CLAY (20%), and SHELL FRAGMENTS, light brown, no odor, dry.				
5				160	CLAY, low plasticity, light brown to light gray, moist.		CL		
				300	CLAY, high plasticity, light brown to light gray, rotten egg odor, wet.		CH		
				180	CLAY, low plasticity, light brown to light gray, rotten egg odor, wet.		CL		
10				3000	As above, slight petroleum odor, wet.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-32	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 02/02/96	COMPLTD: 02/02/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.46 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 9.65 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/03/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILT AND LIMEROCK, medium brown, no odor, dry.		GM		
				0	2 - 3: SILT AND LIMEROCK, medium brown. 3 - 4: LIMEROCK, CLAY (30%), and SHELL FRAGMENTS, light brown to light gray, no odor.		GC		
5				1100	CLAY, high plasticity, light gray, petroleum-like odor, moist.		CH		
				1200	As above, wet.				
				900	CLAY, low plasticity, light brown to light gray, rotten egg odor, wet.		CL		
10				800	CLAY, high plasticity, light gray to light brown, slight petroleum- like odor, wet.		CH		
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-33	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 02/02/96	COMPLTD: 02/02/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 7.83 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 6.64 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/03/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILT and LIMEROCK, light brown, no odor, dry.		GM		
				0	SILT, LIMEROCK, and pieces of asphalt-like material, light brown, dark brown, black. No odor, dry.				
5				0	CLAY, low plasticity, light brown to light gray, moist.		CL		
				6	As above, rotten egg odor, wet.				
				15	As above.				
10				42	As above.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST H1-MW-34		LOG of WELL: MW-34	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCO			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/03/96	COMPLTD: 02/03/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 7.01 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 6.32 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/04/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK AND CLAY (20%), light brown to light gray, no odor, dry.		GC		
				0	As above, with shell fragments.				
5				0	As above.				
				240	LIMEROCK and CLAY (30%), rotten egg odor.				
				60	LIMEROCK and CLAY (20%), appears to be stained by product, rotten egg odor, wet.				
10				50	LIMEROCK, CLAY (20%), and SHELL FRAGMENTS, light brown to medium gray, appears to be stained by product, rotten egg odor.				
15									
20									

TITLE: NAS KEY WEST	LOG of WELL: MW-35	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 02/03/96	COMPLTD: 02/03/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.81 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 6.17 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/04/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	H1-MW-35 PTION S	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK AND BLACK MATERIAL (coal?, asphalt?), light brown to black, no odor, dry.		GM		
				0	As above, tar-like odor, dry.				
5				0	LIMEROCK, light brown to dark gray, no odor, dry.				
				230	LIMEROCK, hard, light brown, dark brown, green, gray, black, rotten egg odor. Moist.				
				31	LIMEROCK, hard, appears to be stained by product, gray, slight petroleum-like odor, wet.				
10				37	As above.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-36		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/03/96	COMPLTD: 02/03/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.60 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.97 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/04/96		SITE: TRUMBO POINT FUEL FARM

H1-MW-36

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (20%) fill material, light brown, no odor, dry.		GC		
				0	As above, with shell fragments.				
5				0	As above.				
				150	LIMEROCK and CLAY (30%), gray, appears to be stained by product, petroleum-like odor and rotten egg odor.				
				41	As above.				
10				16	Oolitic LIMEROCK and CLAY (20%), light brown to gray, petroleum-like odor and rotten egg odor.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-37		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/04/96	COMPLTD: 02/04/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-10	PROTECTION LEVEL: D
TOC ELEV.: 6.88 FEET.	MONITOR INST.: OVA	TOT DPTH: 10 FEET.	DPTH TO ▽ 6.25 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/05/96		SITE: TRUMBO POINT FUEL FARM

Hi-MW-37

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (20%) fill material, light brown, no odor, dry.		GC		
				0	As above.				
5				0	As above, wood at 6' bls, moist.				
				1	As above.				
				80	LIMEROCK and CLAY (30%), light brown to gray, slight petroleum-like odor, wet.				
10				45	As above, wood at 12' bls.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST		LOG of WELL: MW-38	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/04/96	COMPLTD: 02/04/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.21 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.09 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/05/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (20%) fill material, light brown to white, no odor, dry.		GC		
				0	Oolitic LIMEROCK, light brown to gray, no odor, dry.				
5				37	Oolitic LIMEROCK and CLAY (30%), light brown to gray, petroleum-like odor, moist.				
				140	As above, with free product, wet.				
				95	As above.				
10				55	Oolitic LIMEROCK, light brown, rotten egg odor, wet.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	**LOG of WELL:** MW-39	**BORING NO.** N/A
CLIENT: SOUTHNAVFACENGCOM		**PROJECT NO:** 8506.35
CONTRACTOR: Groundwater Protection, Inc.	**DATE STARTED:** 02/05/96	**COMPLTD:** 02/05/96
METHOD: 4.25" I.D. HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 2-12	**PROTECTION LEVEL:** D
TOC ELEV.: 5.99 FEET.	**MONITOR INST.:** OVA	**TOT DPTH:** 12 FEET.	**DPTH TO ▽** 4.38 FEET.
LOGGED BY: J. Koch	**WELL DEVELOPMENT DATE:** 02/06/96		**SITE:** TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK, CLAY (20%), and SILT fill material, no odor, dry.		GC		
				0	LIMEROCK, CLAY (30%), and SHELL FRAGMENTS, light brown, light gray, black, no odor, moist.				
5				390	CLAY, low plasticity, light brown to light gray, no odor, wet.		CL		▽
				1000	As above, rotten egg odor, wet.				
				900	As above.				
10				800	CLAY, high plasticity, light brown to light gray, rotten egg odor, wet.		CH		
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	**LOG of WELL:** MW-40		**BORING NO.** SB167
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8506.35
CONTRACTOR: Groundwater Protection, Inc.		**DATE STARTED:** 02/05/96	**COMPLTD:** 02/05/96
METHOD: 4.25" I.D. HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 3-10	**PROTECTION LEVEL:** D
TOC ELEV.: 6.15 FEET.	**MONITOR INST.:** OVA	**TOT DPTH:** 10 FEET.	**DPTH TO ▽** 4.56 FEET.
LOGGED BY: J. Koch	**WELL DEVELOPMENT DATE:** 02/08/96		**SITE:** TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				12	LIMEROCK and SILT fill material, light brown to dark brown, no odor, dry.		GC		
				0	LIMEROCK and CLAY (30%) fill material, light brown to light gray, slight petroleum-like odor, dry.				
5				–	CLAY, low plasticity, light brown to light gray, slight petroleum-like odor, wet.				
				290	As above, with a 2" layer of shell fragments at 7' bls.				
				–	CLAY, low plasticity, light brown to light gray, slight petroleum-like odor, wet.				
10					As above.				
15									
20									

TITLE: NAS KEY WEST	LOG of WELL: MW-41	BORING NO. SB167
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 02/05/96	COMPLTD: 02/05/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-10	PROTECTION LEVEL: D
TOC ELEV.: 5.83 FEET.	MONITOR INST.: OVA	TOT DPTH: 10 FEET.	DPTH TO ▽ 4.87 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/06/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				12	LIMEROCK and CLAY (20%) fill material, light brown to black, petroleum-like odor, moist.		GC		
				0	LIMEROCK and CLAY (20%) fill material, light brown, moist.				
5				-	No return.				
				290	LIMEROCK, covered with black free product, petroleum-like odor, wet.				
				-	No return.				
10									
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-42		BORING NO. SB175
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/06/96	COMPLTD: 02/06/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-10	PROTECTION LEVEL: D
TOC ELEV.: 6.36 FEET.	MONITOR INST.: OVA	TOT DPTH: 10 FEET.	DPTH TO ▽ 5.08 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/07/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (30%) fill material, light brown to dark brown, no odor, dry.		GC		
				0	As above, no odor, moist.				
5				–	No return.				
				240	LIMEROCK and CLAY (20%), light brown, petroleum-like odor, wet.				
				250	LIMEROCK and CLAY (20%), light brown to gray, appears to be stained by product, petroleum-like odor, wet.				
10									
15									
20									

TITLE: NAS KEY WEST	LOG of WELL: MW-43		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/12/96	COMPLTD: 02/12/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.21 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 4.97 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/13/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (50%) fill material, light brown to gray, no odor, moist.		GC		
				5	As above, no odor, dry.				
5				35	As above, slight petroleum-like odor, moist.				
				210	LIMEROCK and CLAY (40%) fill material, light brown to gray, stained by free product, petroleum-like odor.				
				165	As above.				
10				330	As above.				
15									
20									

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TITLE: NAS KEY WEST	LOG of WELL: MW-44	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 02/12/96	COMPLTD: 02/12/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.15 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.12 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/13/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				23	LIMEROCK and CLAY (50%) fill material, gray, black, no odor, dry. Coal at 1' bls.		GC		
				1	LIMEROCK and CLAY (40%) fill material, light brown to light gray, no odor, dry.				
5				190	LIMEROCK and CLAY (40%), light brown, gray, black, visible free product, petroleum-like odor, wet at 5' bls.				▽
				460	LIMEROCK and CLAY (60%), light brown to light gray, some free product, petroleum-like odor, wet.				
				270	As above.				
10				145	Oolitic LIMEROCK and CLAY (30%), light brown to light gray, visible free product, petroleum-like odor.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	**LOG of WELL:** MW-45D		**BORING NO.** SB139
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8506.35
CONTRACTOR: Groundwater Protection, Inc.		**DATE STARTED:** 02/12/96	**COMPLTD:** 03/29/96
METHOD: HSA, Mud Rotary	**CASE SIZE:** 6" / 2"	**SCREEN INT.:** 25-30	**PROTECTION LEVEL:** D
TOC ELEV.: 6.69 FEET.	**MONITOR INST.:** OVA	**TOT DPTH:** 30 FEET.	**DPTH TO ▽** FEET.
LOGGED BY: J. Koch	**WELL DEVELOPMENT DATE:** 03/30/96		**SITE:** TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILT and CLAY (30%) fill material, light brown to black, no odor.		ML		
				0	As above.				
5				270	SILTY CLAY, gray to black, slight petroleum odor, moist.		OL		
				1000	CLAY, low plasticity, gray to black, petroleum odor, wet.		CL		
10				1400	10 - 11: CLAY, low plasticity, light brown to gray, rotten egg odor, wet. 11 - 12: Oolitic LIMEROCK, light brown to white, rotten egg odor, wet.				
15				600	Oolitic LIMEROCK, light brown to white, rotten egg odor, wet.				
20				80	As above.				
25				120	Oolitic LIMEROCK and CLAY (20%), light brown to white, rotten egg odor, wet.				
30				26	As above.				
35									
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST		LOG of WELL: MW-46	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/12/96	COMPLTD: 02/12/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.56 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.65 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/13/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (50%) fill material, light brown to dark brown, no odor, dry.		GC		
				0	As above.				
5				0	As above. Moist.				
				0	Oolitic LIMEROCK, light brown to gray, wet.				
				4	Oolitic LIMEROCK, light brown to gray, few shell fragments, rotten egg odor, wet, wood at 10' bls.				
10				11	Oolitic LIMEROCK, light brown to gray, rotten egg odor, wet.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	**LOG of WELL:** MW-47D	**BORING NO.** N/A
CLIENT: SOUTHNAVFACENGCOM		**PROJECT NO:** 8506.35
CONTRACTOR: Groundwater Protection, Inc.	**DATE STARTED:** 02/13/96	**COMPLTD:** 03/28/96
METHOD: HSA, Mud Rotary	**CASE SIZE:** 6" / 2"	**SCREEN INT.:** 25-30
TOC ELEV.: 5.60 FEET.	**MONITOR INST.:** OVA	**TOT DPTH:** 30 FEET.
LOGGED BY: J. Koch	**WELL DEVELOPMENT DATE:** 03/29/96	**SITE:** TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK, SILT, and SHELL FRAGMENT fill material, light brown to medium brown, no odor, dry.		GM		
				2	As above, slight petroleum-like odor, moist.				
5				1400	4 - 5.5: CLAY, low plasticity, light brown to light gray, petroleum- like odor, moist. 5.5 - 6: LIMEROCK, fine-grained, with shell fragments, light brown to light gray, petroleum-like odor, wet.		CL		
10				1400	CLAY, low plasticity, light brown to light gray, rotten egg odor, wet.		CL		
15				380	Oolitic LIMEROCK and CLAY (20%), light brown to light gray, few shell fragments, rotten egg odor, wet.				
20				100	Oolitic LIMEROCK, light brown to white, rotten egg odor, wet.				
25				220	As above.				
30				130	As above.				
35									
40									

TITLE: NAS KEY WEST	LOG of WELL: MW-48D		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/13/96	COMPLTD: 02/19/96
METHOD: HSA, Mud Rotary	CASE SIZE: 6" / 2"	SCREEN INT.: 25-30	PROTECTION LEVEL: D
TOC ELEV.: 6.80 FEET.	MONITOR INST.: OVA	TOT DPTH: 30 FEET.	DPTH TO ▽ 5.58 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/20/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					H1-MW-48D				
				0	LIMEROCK and CLAY (20%) fill material, light brown, no odor, dry.		GC		
				0	As above.				
5				0	As above, wood at 6' bls, moist.				
				1	As above.				
				80	LIMEROCK and CLAY (30%), light brown to gray, slight petroleum-like odor, wet.				
10				45	As above, wood at 12' bls.				
15				-	No return.				
				17	LIMEROCK, SHELL FRAGMENTS, and WOOD, rotten egg odor, pine odor, wet.				
20				20	Oolitic LIMEROCK and CLAY (20%), light brown to gray, rotten egg odor.				
25				3	Oolitic LIMEROCK, light brown to white, rotten egg odor, wet.				
30				8	As above.				
35									
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-49	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 02/14/96	COMPLTD: 02/14/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 2-12	PROTECTION LEVEL: D
TOC ELEV.: 5.73 FEET.	MONITOR INST.: OVA	TOT DPTH: 12 FEET.	DPTH TO ▽ 4.50 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/15/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				4	LIMEROCK and SILT fill material, light brown to dark brown, dry, no odor.		GM		
				0	LIMEROCK, SILT, and SHELL FRAGMENT fill material, light brown, no odor, dry.				
5				1500	CLAY (50%), LIMEROCK, and SHELL FRAGMENTS, low plasticity, light brown to light gray, petroleum-like odor, wet.		GC		
				2000	As above.				
				1000	CLAY, low plasticity, light brown to light gray, petroleum-like odor, wet.		CL		
10				1100	As above, few snell fragments.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-50	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 02/14/96	COMPLTD: 02/14/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13
TOC ELEV.: 6.04 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/13/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown to medium brown, no odor, dry.		GM		
				18	LIMEROCK and SILT fill material, few shell fragments, light brown to medium brown, petroleum-like odor, moist.				
5				1100	Oolitic LIMEROCK, light brown to gray, appears to be stained by product, petroleum-like odor, clay at the bottom of the spoon, wet.		CL		
				190	CLAY, low plasticity, light brown to gray, few shell fragments, petroleum-like odor, wet.				
				90	As above.				
10				400	As above.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-51		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/14/96	COMPLTD: 02/14/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.55 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.44 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/15/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK, SILT, and COAL fill material, medium brown to black, hard, no odor, dry.		GM		
				240	LIMEROCK and COAL fill material, medium brown to black, petroleum-like odor, wet, very hard.				
5				85	LIMEROCK, COAL, and TAR-like substance, medium brown to black, petroleum-like odor, wet.				
				1200	6 - 7: CLAY, low plasticity, light brown to gray, rotten egg odor, wet. 7 - 8: Oolitic LIMEROCK, few shell fragments, light brown to light gray, rotten egg odor, wet.		CL GM		
				250	CLAY (50%) and oolitic LIMEROCK, low plasticity, light brown to light gray, rotten egg odor, wet.		GC		
10				1200	CLAY (70%) and oolitic LIMEROCK, low plasticity, light brown to light gray, rotten egg odor.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-52		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/14/96	COMPLTD: 02/14/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.11 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.22 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/15/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown to medium brown, no odor, dry.		GM		
				0	LIMEROCK and CLAY (20%) fill material, light brown, no odor, dry.		GC		
5				0	CLAY (50%) and oolitic LIMEROCK, light brown, no odor, wet at 5' bls.				▽
				>5000	CLAY (50%) and oolitic LIMEROCK, low plasticity, light brown, slight unknown odor, wet.				
				>5000	Oolitic LIMEROCK, fine-grained, light brown, petroleum-like odor, wet.				
10				1500	As above.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-53		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/14/96	COMPLTD: 02/14/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.20 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.13 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/15/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				1	LIMEROCK and CLAY (20%) fill material, light brown to gray, no odor, dry.		GC		
				0	Oolitic LIMEROCK fill material, light brown, no odor, moist.		GM		
5				110	LIMEROCK and CLAY (20%) fill material, light brown to dark brown, appears to be stained by product, petroleum-like odor, wet at 5' bls.		GC		▽
				55	Oolitic LIMEROCK, light brown, rotten egg odor, wet.				
				46	As above.				
10				33	As above.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-54		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/15/96	COMPLTD: 02/15/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.99 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.21 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/16/96		SITE: TRUMBO POINT FUEL FARM

DEPTH, FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, medium brown, no odor, dry.		GM		
				0	LIMEROCK, SILT, and CLAY (20%) fill material, light brown, medium brown, light gray, no odor, dry.		GC		
5				750	CLAY, low plasticity, light brown to light gray, petroleum-like odor, wet at 5' bls.		CL		▽
				410	As above.				
				2000	As above.				
10				1300	As above.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-55	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 02/15/96	COMPLTD: 02/15/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 7.04 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.95 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/16/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown to medium brown, no odor, dry.		GM		
				0	As above.				
5				3200	CLAY, low plasticity, light brown to light gray, petroleum-like odor, wet.		CL		
				2400	As above.				
				1400	CLAY (70%), LIMEROCK, and SHELL FRAGMENTS, low plasticity, light brown to light gray, petroleum-like odor, wet.		GC		
10				1800	CLAY, low plasticity, light brown to light gray, petroleum-like odor, wet.		CL		
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-56		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/15/96	COMPLTD: 02/15/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.29 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.40 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/16/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown, no odor, dry.		GM		
				0	LIMEROCK, SILT, and CLAY (20%) fill material, light brown to light gray, no odor, dry.		GC		
5				1200	CLAY, low plasticity, light brown to light gray, petroleum-like odor, wet at 5' bls.		CL		
					6 - 7: CLAY, as above. 7 - 8: Oolitic LIMEROCK, light brown to light gray, petroleum-like odor, wet.				
				1500					
				1400	Oolitic LIMEROCK, very fine-grained, light brown to light gray, rotten egg odor, wet.				
10							CL		
				1000	CLAY, low plasticity to high plasticity at the bottom of the spoon, light gray to light brown, rotten egg odor.				
15									
20									

TITLE: NAS KEY WEST	**LOG of WELL:** MW-57		**BORING NO.** N/A
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8506.35
CONTRACTOR: Groundwater Protection, Inc.		**DATE STARTED:** 02/15/96	**COMPLTD:** 02/15/96
METHOD: 4.25" I.D. HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 3-13	**PROTECTION LEVEL:** D
TOC ELEV.: 6.25 FEET.	**MONITOR INST.:** OVA	**TOT DPTH:** 13 FEET.	**DPTH TO ▽** 4.94 FEET.
LOGGED BY: J. Koch	**WELL DEVELOPMENT DATE:** 02/16/96		**SITE:** TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown, no odor, dry.		GM		
				0	LIMEROCK, SILT, and SHELL FRAGMENT fill material, light brown to white, no odor, dry.				
5				1100	CLAY, low plasticity, light brown to light gray, petroleum-like odor, moist.		CL		
				3200	6 - 7: CLAY, high plasticity, light brown to light gray, petroleum- like odor, wet. 7 - 8: Oolitic LIMEROCK, light brown to white, petroleum-like odor, wet.		CH		
				700	CLAY, low plasticity, light brown to ligh gray, petroleum-like odor, wet.		CL		
10				1000	CLAY, high plasticity, light brown to light gray, petroleum-like odor, wet.		CH		
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-58		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/15/96	COMPLTD: 02/15/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.16 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.07 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/16/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (50%) fill material, light brown, dry, no odor.		GC		
				0	As above, moist.				
5				130	LIMEROCK and CLAY (50%) fill material, light brown to gray, petroleum- like odor, wet.				
				330	Oolitic LIMEROCK and CLAY (30%), light brown to gray, petroleum-like odor, wet.				
				160	Oolitic LIMEROCK, light brown to white, petroleum-like odor, wet.				
10				110	As above.				
15									
20									

TITLE: NAS KEY WEST	**LOG of WELL:** MW-59	**BORING NO.** N/A
CLIENT: SOUTHNAVFACENGCOM		**PROJECT NO:** 8506.35
CONTRACTOR: Groundwater Protection, Inc.	**DATE STARTED:** 02/16/96	**COMPLTD:** 02/16/96
METHOD: 4.25" I.D. HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 3-13
TOC ELEV.: 6.51 FEET.	**MONITOR INST.:** OVA	**TOT DPTH:** 13 FEET.
LOGGED BY: J. Koch	**WELL DEVELOPMENT DATE:** 02/17/96	**SITE:** TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown, no odor, dry.		GM		
				1	LIMEROCK, SILT, and CLAY (20%) fill material, few shell fragments, light brown to light gray, no odor, dry.		GC		
5				>5000	CLAY, low plasticity, light brown to gray, petroleum-like odor, wet.		CL		
				900	As above.				
				1200	CLAY, low plasticity to high plasticity, light brown to gray, rotten egg odor, wet.		CH		
10				1300	CLAY, high plasticity, light brown to gray, rotten egg odor, wet.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-60		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/16/96	COMPLTD: 02/16/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 7.46 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.68 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/17/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown to light gray, no odor, dry.		GM		
				0	LIMEROCK, SILT, and CLAY (20%) fill material, light brown to medium brown, no odor, dry.		GC		
5				>5000	CLAY (50%) and LIMEROCK, low plasticity, light brown to gray, petroleum-like odor, wet.				
				3800	CLAY, low plasticity, light brown to gray, petroleum-like odor, wet.		CL		
				1000	As above.				
10				800	As above.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	**LOG of WELL:** MW-61	**BORING NO.** N/A
CLIENT: SOUTHNAVFACENGCOM		**PROJECT NO:** 8508.35
CONTRACTOR: Groundwater Protection, Inc.	**DATE STARTED:** 02/16/96	**COMPLTD:** 02/16/96
METHOD: 4.25" I.D. HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 3-13	**PROTECTION LEVEL:** D
TOC ELEV.: 7.26 FEET.	**MONITOR INST.:** OVA	**TOT DPTH:** 13 FEET.	**DPTH TO ▽** 5.39 FEET.
LOGGED BY: J. Koch	**WELL DEVELOPMENT DATE:** 02/17/96	**SITE:** TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK, SILT, and CLAY (20%) fill material, light brown, no odor, dry.		GC		
				0	LIMEROCK, SILT, and CLAY (40%) fill material, light brown to light gray, no odor, dry.				
5				100	CLAY (50%) and LIMEROCK, low plasticity, light brown to light gray, petroleum-like odor, wet.				
				280	CLAY, low plasticity, light brown, wet.		CL		
				1200	LIMEROCK, CLAY (50%), and SHELL FRAGMENTS, light brown, petroleum-like odor, wet.		GC		
10				390	CLAY, low plasticity, light brown, petroleum-like odor, wet.		CL		
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-62		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/16/96	COMPLTD: 02/16/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 7.58 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 6.72 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/17/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK, SILT, and CLAY (20%) fill material, light brown, no odor, dry.		GC		
				0	As above.				
5				>5000	CLAY, low plasticity, light gray to gray, petroleum-like odor, moist.		CL		
				>5000	CLAY, low plasticity, light brown to light gray, petroleum-like odor, wet.				
				1300	As above.				
10				1500	As above.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	**LOG of WELL:** MW-63	**BORING NO.** N/A
CLIENT: SOUTHNAVFACENGCOM		**PROJECT NO:** 8506.35
CONTRACTOR: Groundwater Protection, Inc.	**DATE STARTED:** 02/16/96	**COMPLTD:** 02/16/96
METHOD: 4.25" I.D. HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 3-13	**PROTECTION LEVEL:** D
TOC ELEV.: 6.59 FEET.	**MONITOR INST.:** OVA	**TOT DPTH:** 13 FEET.	**DPTH TO ▽** 5.57 FEET.
LOGGED BY: J. Koch	**WELL DEVELOPMENT DATE:** 02/17/96	**SITE:** TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (30%) fill material, light brown, no odor, dry.		GC		
				0	As above.				
5				0	LIMEROCK and CLAY (30%) fill material, light brown to medium brown, wet at 5' bls.				
				115	Oolitic LIMEROCK, light brown, wet.				
				140	As above, with visible free product, diesel-like odor, wet.				
10				250	As above.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-64		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/17/96	COMPLTD: 02/17/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.52 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.66 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/18/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown to medium brown, no odor, dry.		GM		
				0	As above.				
5				4	CLAY, low plasticity, light brown to black, moist.		CL		
				2000	LIMEROCK and CLAY (30%), light brown to light gray, petroleum-like odor, wet.		GC		
				50	Oolitic LIMEROCK, very fine-grained, light brown to gray, wet.				
10				60	As above.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	**LOG of WELL:** MW-65	**BORING NO.** N/A
CLIENT: SOUTHNAVFACENGCOM		**PROJECT NO:** 8506.35
CONTRACTOR: Groundwater Protection, Inc.	**DATE STARTED:** 02/17/96	**COMPLTD:** 02/17/96
METHOD: 4.25" I.D. HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 3-13	**PROTECTION LEVEL:** D
TOC ELEV.: 6.41 FEET.	**MONITOR INST.:** OVA	**TOT DPTH:** 13 FEET.	**DPTH TO ▽** 5.17 FEET.
LOGGED BY: J. Koch	**WELL DEVELOPMENT DATE:** 02/18/96	**SITE:** TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown to light gray, no odor, dry.		GM		
				0	LIMEROCK, SILT, and CLAY (40%) fill material, light brown to light gray, no odor, moist.		GC		
					CLAY, high plasticity, light brown to gray, no odor, moist.		CH		
5				11	Oolitic LIMEROCK and CLAY (30%), gray to black, no odor, wet.		GC		
				1100	Oolitic LIMEROCK, gray to black, contains free product, petroleum- like odor, wet.				
					CLAY, high plasticity, gray to black, free product at the top of the spoon, petroleum-like odor, wet.		CH		
				350	Oolitic LIMEROCK, very fine-grained, light brown to gray, rotten egg odor, wet.				
10				270					
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-66		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 02/17/96	COMPLTD: 02/17/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.68 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.62 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/18/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown, dark brown, gray, no odor, dry.		GM		
				0	LIMEROCK, SILT, and CLAY (30%) fill material, light brown to light gray, no odor, dry.		GC		
5				0	Oolitic LIMEROCK, light brown, light gray, orange, no odor, wet at 5'bls.				
				360	CLAY, low plasticity, light brown to light gray, rotten egg odor, wet.		CL		
				1000	Oolitic LIMEROCK, very fine-grained, light brown to light gray, rotten egg odor, wet.				
10				1200	As above.				
15									
20									

TITLE: NAS KEY WEST	**LOG of WELL:** MW-67D		**BORING NO.** N/A
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8506.35
CONTRACTOR: Groundwater Protection, Inc.		**DATE STARTED:** 02/17/96	**COMPLTD:** 02/19/96
METHOD: HSA, Mud Rotary	**CASE SIZE:** 6" / 2"	**SCREEN INT.:** 25-30	**PROTECTION LEVEL:** D
TOC ELEV.: 6.46 FEET.	**MONITOR INST.:** OVA	**TOT DPTH:** 30 FEET.	**DPTH TO ▽** 5.20 FEET.
LOGGED BY: J. Koch	**WELL DEVELOPMENT DATE:** 02/20/96		**SITE:** TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown to light gray, no odor, dry.		GM		
				0	LIMEROCK, SILT, and CLAY (40%) fill material, light brown to light gray, no odor, moist.		GC		
5				11	CLAY, high plasticity, light brown to gray, no odor, moist.		CH		
				1100	Oolitic LIMEROCK and CLAY (30%), gray to black, no odor, wet.		GC		
				350	Oolitic LIMEROCK, gray to black, contains free product, petroleum- like odor, wet.		CH		
10				270	CLAY, high plasticity, gray to black, free product at the top of the spoon, petroleum-like odor, wet.				
					Oolitic LIMEROCK, very fine-grained, light brown to gray, rotten egg odor, wet.				
15									
20				50	Oolitic LIMEROCK and CLAY (30%), light brown, rotten egg odor, wet.				
25				20	Oolitic LIMEROCK, light brown to white, rotten egg odor, wet.				
30				7	As above.				
35									
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-68	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 02/18/96	COMPLTD: 02/18/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13
TOC ELEV.: 6.39 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/19/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown, no odor, dry.		GM		
				0	As above.				
5				0	LIMEROCK and CLAY (50%), few pieces of coal, light gray, light brown, black, no odor, moist.		GC		
				41	CLAY, low plasticity, light brown to light gray, rotten egg odor, wet.		CL		
				800	CLAY, LIMEROCK, and SHELL FRAGMENTS, light brown to light gray, rotten egg odor, wet.		GC		
10				1100	LIMEROCK and SHELL FRAGMENTS, light brown to light gray, rotten egg odor, wet.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-69	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 02/18/96	COMPLTD: 02/18/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.53 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.12 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/19/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown to gray, no odor, dry.		GM		
				0	LIMEROCK, SILT, and CLAY (30%) fill material, light brown to gray, no odor, dry.		GC		
5				170	LIMEROCK and CLAY (30%) fill material, light brown, dark brown, orange, black, no odor, wet.				▽
				800	CLAY (70%) and LIMEROCK, low plasticity, light brown, light gray, black, no odor, wet.				
				95	CLAY (70%) and SHELL FRAGMENTS, light brown to light gray, rotten egg odor, wet.		CL		
10				400	LIMEROCK and SHELL FRAGMENTS, fine-grained, light brown to light gray, no odor, wet.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-70	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 02/18/96	COMPLTD: 02/18/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.57 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.31 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 02/19/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown to light gray, no odor, dry.		GM		
				0	SILT and CLAY (40%) fill material, calcareous, light brown to light gray, no odor, dry.		GC		
5				0	CLAY, low plasticity, light brown to light gray, no odor, wet.		SC		
				50	SAND, calcareous, very fine-grained, no odor, wet.				
				160	As above.				
10				410	CLAY (50%) and SAND, calcareous, very fine-grained, light brown to light gray, slight rotten egg odor, wet.		CL		
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	**LOG of WELL:** MW-71D	**BORING NO.** N/A
CLIENT: SOUTHNAVFACENGCOM		**PROJECT NO:** 8506.35
CONTRACTOR: Groundwater Protection, Inc.	**DATE STARTED:** 02/18/96	**COMPLTD:** 03/16/96
METHOD: HSA, Mud Rotary	**CASE SIZE:** 6" / 2"	**SCREEN INT.:** 25-30	**PROTECTION LEVEL:** D
TOC ELEV.: 6.62 FEET.	**MONITOR INST.:** OVA	**TOT DPTH:** 30 FEET.	**DPTH TO ▽** 4.90 FEET.
LOGGED BY: J. Koch	**WELL DEVELOPMENT DATE:** 03/17/96	**SITE:** TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (30%) fill material, light brown, no odor, dry.		GC		
				0	As above.				
5				0	LIMEROCK and CLAY (30%) fill material, light brown to medium brown, wet at 5' bls.				
				115	Oolitic LIMEROCK, light brown, wet.				
				140	As above, with visible free product, diesel-like odor, wet.				
10				250	As above.				
15									
20				470	Oolitic LIMEROCK, light brown to light gray, rotten egg odor, wet.				
25				130	Oolitic LIMEROCK, light brown to white, rotten egg odor, wet.				
30				7	As above.				
35									
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 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	**LOG of WELL:** MW-72	**BORING NO.** N/A
CLIENT: SOUTHNAVFACENGCOM		**PROJECT NO:** 8506.35
CONTRACTOR: Groundwater Protection, Inc.	**DATE STARTED:** 02/19/96	**COMPLTD:** 02/19/96
METHOD: 4.25" I.D. HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 3-13	**PROTECTION LEVEL:** D
TOC ELEV.: 6.56 FEET.	**MONITOR INST.:** OVA	**TOT DPTH:** 13 FEET.	**DPTH TO ▽** 4.90 FEET.
LOGGED BY: J. Koch	**WELL DEVELOPMENT DATE:** 02/20/96		**SITE:** TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown to black, no odor, dry. dry.		GM		
				0	LIMEROCK, SILT, and CLAY (20%) fill material, light brown to light gray, no odor, dry.		GC		
5				0	LIMEROCK and SHELL FRAGMENTS, very fine-grained, light brown to white, no odor, wet.				
				28	CLAY (50%) and LIMEROCK, very fine-grained, light brown to light gray, no odor, wet.		GC		
				100	SAND, calcareous, very fine-grained, light brown, no odor, wet.		SM		
10				380	SAND and SHELL FRAGMENTS, calcareous, very fine-grained, light brown, rotten egg odor, wet.				
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 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-73	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 03/11/96	COMPLTD: 03/11/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13
TOC ELEV.: 6.30 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/12/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILTY SAND fill material, light brown, dark brown, black, no odor, dry.		SM		
				180	LIMEROCK and CLAY (50%) fill material, light brown to gray, petroleum- like odor, moist.		GC		
5				3000	LIMEROCK, CLAY (50%), and SHELL FRAGMENTS, fine-grained to very fine- grained, light brown to gray, petroleum-like odor, wet.				
				460	LIMEROCK and CLAY (50%), light brown to gray, petroleum-like odor, wet.				
				450	LIMEROCK and CLAY (40%), fine-grained to very fine-grained, light brown to gray, petroleum-like odor, wet.				
10				150	As above.				
15									
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 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-74D		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 03/11/96	COMPLTD: 03/19/96
METHOD: HSA, Mud Rotary	CASE SIZE: 6" / 2"	SCREEN INT.: 25-30	PROTECTION LEVEL: D
TOC ELEV.: 7.71 FEET.	MONITOR INST.: OVA	TOT DPTH: 30 FEET.	DPTH TO ▽ 4.83 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/20/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK, SILT and CLAY (20%) fill material, light brown to gray, no odor, dry.		GC		
				0	As above.				
5				39	4 - 4.5: Cemented LIMEROCK, very hard, light brown to dark gray.				
				>5000	4.5 - 5.5: SHELL FRAGMENTS, light brown.		CL		
					5.5 - 6: CLAY, gray, no odor, moist.				
				1800	SHELL FRAGMENTS and CLAY (50%), low plasticity, light brown to gray, strong petroleum-like odor, wet.				
10					Oolitic LIMEROCK, gray, fine-grained to very fine-grained, strong petroleum-like odor, wet.				
15				1000	Oolitic LIMEROCK, light brown, medium brown, gray, rotten egg odor, wet.				
20				1000	Oolitic LIMEROCK, light brown, rotten egg odor, wet.				
25				260	Oolitic LIMEROCK, light brown to white, rotten egg odor, wet.				
30				75	As above.				
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 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	**LOG of WELL:** MW-75D	**BORING NO.** N/A
CLIENT: SOUTHNAVFACENGCOM		**PROJECT NO:** 8506.35
CONTRACTOR: Groundwater Protection, Inc.	**DATE STARTED:** 03/11/96	**COMPLTD:** 03/18/96
METHOD: HSA, Mud Rotary	**CASE SIZE:** 6" / 2"	**SCREEN INT.:** 25-30	**PROTECTION LEVEL:** D
TOC ELEV.: 6.19 FEET.	**MONITOR INST.:** OVA	**TOT DPTH:** 30 FEET.	**DPTH TO ▽** 4.83 FEET.
LOGGED BY: J. Koch	**WELL DEVELOPMENT DATE:** 03/19/96	**SITE:** TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown to white, no odor, dry.		GM		
				0	SILT, CLAY (30%), and SHELL FRAGMENT fill material, light brown to light gray, no odor, dry.		GC		
5				2100	CLAY, low plasticity to high plasticity, few shell fragments, light brown to light gray, petroleum-like odor, wet at 6' bls.		CL		
				1700					
				1300	Oolitic LIMEROCK, fine-grained to very fine-grained, light brown to light gray, petroleum-like odor, wet.				
10					Oolitic LIMEROCK and CLAY (20%), fine-grained to very fine-grained, light brown to light gray, petroleum-like odor, wet.				
15				130	Oolitic LIMEROCK, light brown to white, rotten egg odor, wet.				
20				44	As above.				
25				27	Oolitic LIMEROCK, light brown to white, rotten egg odor, wet.				
30				2	As above.				
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 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-76	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 03/12/96	COMPLTD: 03/12/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.23 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 4.47 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/13/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	Oolitic LIMEROCK fill material, medium gray, dry, no odor.		GW		
				0	LIMEROCK, SILT, and CLAY (20%) fill material, light brown to medium gray, no odor, dry.		GC		
5				38	Oolitic LIMEROCK and CLAY (50%), very fine-grained to coarse-grained, light brown to light gray, no odor, wet.				
				1000	CLAY, low plasticity to high plasticity, light gray to medium gray, rotten egg odor, wet.		CL		
				1400	Oolitic LIMEROCK, fine-grained to very fine-grained, light gray to medium gray, rotten egg odor.				
10				1500	As above.				
15									
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 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-77D		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 03/13/96	COMPLTD: 03/20/96
METHOD: HSA, Mud Rotary	CASE SIZE: 6" / 2"	SCREEN INT.: 25-30	PROTECTION LEVEL: D
TOC ELEV.: 6.60 FEET.	MONITOR INST.: OVA	TOT DPTH: 30 FEET.	DPTH TO ▽ 4.82 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/26/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILT and LIMEROCK fill material, light brown to gray, no odor, dry.		GM		
				175	SILT, LIMEROCK, and CLAY (30%) fill material, light brown to gray, no odor, dry.		GC		
5				1700	CLAY (60%) and LIMEROCK, low plasticity, light brown to gray, strong petroleum-like odor, wet.				
				2600	As above.				
				2000	CLAY, low plasticity to high plasticity, light brown to gray, strong petroleum-like odor, wet.		CL		
10									
15				1000	Oolitic LIMEROCK and CLAY (20%), light brown to white, rotten egg odor, wet.				
20				330	As above.				
25				900	Oolitic LIMEROCK, light brown to white, rotten egg odor, wet.				
30				270	As above.				
35									
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 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-78D		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 03/13/96	COMPLTD: 03/19/96
METHOD: HSA, Mud Rotary	CASE SIZE: 6" / 2"	SCREEN INT.: 25-30	PROTECTION LEVEL: D
TOC ELEV.: 7.29 FEET.	MONITOR INST.: OVA	TOT DPTH: 30 FEET.	DPTH TO ▽ 5.40 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/20/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILT, LIMEROCK, and SHELL FRAGMENT fill material, light brown, no odor, dry.		GM		
				18	SILT, CLAY (20%), COAL, and LIMEROCK fill material, petroleum-like odor, dry.		GC		
5				850	LIMEROCK and CLAY (50%), fine-grained to very fine-grained, light brown to gray, strong petroleum-like odor, wet.				
				220	CLAY, low plasticity to high plasticity, light brown to gray, strong petroleum-like odor, wet.		CL		
				350	CLAY, low plasticity, light brown to gray, petroleum-like odor, wet.				
10									
15				360	Oolitic LIMEROCK, light brown, rotten egg odor, wet.				
20				190	As above.				
25				22	Oolitic LIMEROCK, light brown to white, rotten egg odor, wet.				
30				300	As above.				
35									
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TITLE: NAS KEY WEST	LOG of WELL: MW-79	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35

CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 03/13/96	COMPLTD: 03/13/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.24 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.07 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/14/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	ASPHALT, SILT, and LIMEROCK fill material, light brown, light gray, black, no odor, dry.		GM		
				0	Oolitic LIMEROCK and SILT fill material, light brown to gray, no odor, dry.				
5				0	Oolitic LIMEROCK fill material, light gray to medium gray, slight unknown odor, wet at 6' bls.				▽
				0	Oolitic LIMEROCK, light brown to gray, slight petroleum-like odor, wet.				
				25	Oolitic LIMEROCK and CLAY (30%), light gray to medium gray, slight petroleum-like odor, wet.				
10				0	As above.				
15									
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 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-80		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 03/13/96	COMPLTD: 03/13/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.45 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.33 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/14/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown to gray, no odor, dry.		GM		
				0	As above.				
5				0	LIMEROCK and CLAY (10%) fill material, light brown to medium brown, no odor, moist.		GC		
				48	Oolitic LIMEROCK and CLAY (30%), light brown to gray, slight petroleum-like odor, wet.				
				14	Oolitic LIMEROCK and CLAY (30%), light gray to gray, slight petroleum- like odor, wet.				
10				7	As above.				
15									
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 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-81	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35

CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 03/14/96	COMPLTD: 03/14/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.14 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 4.97 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/15/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK, SILT, and CLAY (30%) fill material, light brown to gray, no odor, dry.		GC		
				0	LIMEROCK, SILT, and CLAY (40%) fill material, light brown to light gray, no odor, dry.				
5				14	LIMEROCK and CLAY (50%), light brown to gray, no odor, wet.				▽
				950	CLAY (60%) and LIMEROCK, high plasticity, light brown to light gray, rotten egg odor, wet.				
				130	As above.				
10				340	As above.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-82		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 03/14/96	COMPLTD: 03/14/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.35 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.22 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/15/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILT and LIMEROCK fill material, light brown, dry.		GM		
				0	As above.				
5				3	LIMEROCK and CLAY (30%), light brown, dark brown, orange, appears to be stained by product, diesel-like odor, wet.		GC		
				95	Oolitic LIMEROCK and CLAY (20%), light brown to orange, appears to be stained by product, petroleum-like odor, wet.				
				190	As above, visible free product.				
10				160	As above, appears to be stained by product.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-83	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 03/14/96	COMPLTD: 03/14/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13
TOC ELEV.: 6.91 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/15/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILT and LIMEROCK fill material, light brown to light gray, no odor, dry.		GM		
				0	As above.				
5				0	Oolitic LIMEROCK fill material, light brown to light gray, no odor, dry.				
				39	Oolitic LIMEROCK and free product, gray to black, petroleum-like odor, wet.		GC		
				360	CLAY (70%) and oolitic LIMEROCK, gray, petroleum-like odor, wet.				
10				430	As above, rotten egg odor.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-84		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 03/14/96	COMPLTD: 03/14/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.18 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.10 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/15/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	ASPHALT, LIMEROCK, and SILT fill material, no odor, dry.		GM		
				0	ASPHALT, LIMEROCK, and SILT fill material, light gray to medium brown, no odor, dry.				
5				–	No return.				
				50	Oolitic LIMEROCK, appears to be stained by free product, light brown to gray, petroleum-like odor, wet.				
				1100	CLAY (60%) and oolitic LIMEROCK, light brown, light gray, dark gray, petroleum-like odor, wet.		GC		
10				800	CLAY (80%) and oolitic LIMEROCK, high plasticity, light brown, light gray, dark gray, petroleum-like odor, wet.				
15									
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 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-85D	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 03/14/96	COMPLTD: 03/18/96
METHOD: HSA, Mud Rotary	CASE SIZE: 6" / 2"	SCREEN INT.: 25-30	PROTECTION LEVEL: D
TOC ELEV.: 6.39 FEET.	MONITOR INST.: OVA	TOT DPTH: 30 FEET.	DPTH TO ▽ 5.07 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/19/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown to medium brown, no odor, dry.		GM		
				0	LIMEROCK and CLAY (20%) fill material, light brown, no odor, dry.		GC		
5				0	CLAY (50%) and oolitic LIMEROCK, light brown, no odor, wet at 5' bls.				
				>5000	CLAY (50%) and oolitic LIMEROCK, low plasticity, light brown, slight unknown odor, wet.				
				>5000	Oolitic LIMEROCK, fine-grained, light brown, petroleum-like odor, wet.				
10				1500	As above.				
							CL		
15				100	CLAY, low plasticity, light brown to gray, rotten egg odor, wet.				
20				65	LIMEROCK, oolitic, light brown, rotten egg odor, wet.				
25				46	LIMEROCK, oolitic, light brown to white, rotten egg odor, wet.				
30				16	As above.				
35									
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 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-86	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 03/14/96	COMPLTD: 03/14/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13
TOC ELEV.: 6.99 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/15/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILT and LIMEROCK fill material, light brown to black, no odor, dry.		GM		
				0	As above.				
5				0	Oolitic LIMEROCK fill material, light brown, dark brown, black, slight petroleum-like odor, dry.				
				210	As above, appears to be stained by free product.				
				130	No description.				
10				22	Oolitic LIMEROCK and free product, light gray, dark gray, black, strong petroleum-like odor, wet.				
15									
20									

TITLE: NAS KEY WEST	LOG of WELL: MW-87D	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 03/15/96	COMPLTD: 03/29/96
METHOD: HSA, Mud Rotary	CASE SIZE: 6" / 2"	SCREEN INT.: 25-30	PROTECTION LEVEL: D
TOC ELEV.: 5.75 FEET.	MONITOR INST.: OVA	TOT DPTH: 30 FEET.	DPTH TO ▽ 3.83 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/30/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown to gray, no odor, dry. dry.		GM		
				310	LIMEROCK, SILT, and CLAY (20%) fill material, light brown to gray, few shell fragments, petroleum-like odor, moist.		GC		
5				2200	CLAY, low plasticity, light brown to gray, petroleum-like odor, wet.		CL		
				1400	CLAY, low plasticity to high plasticity, light brown to gray, petroleum-like odor, wet.				
				1000	As above. Rotten egg odor.				
10									
15				900	Oolitic LIMEROCK and CLAY (20%), light brown to white, rotten egg odor, wet.				
20				400	As above.				
25				700	Oolitic LIMEROCK, light brown to white, rotten egg odor, wet.				
30				270	As above.				
35									
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-88		BORING NO. SB182
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 03/15/96	COMPLTD: 03/15/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.14 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.04 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/16/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (30%) fill material, light brown to light gray, no odor, moist.		GC		
				0	As above.				
5				30	As above, petroleum-like odor, wet.				
				70	Oolitic LIMEROCK, light brown to gray, visible free product, petroleum-like odor, wet.				
10				0	Oolitic LIMEROCK and CLAY (20%), light brown to light gray, rotten egg odor, wet.				
15									
20									

TITLE: NAS KEY WEST	**LOG of WELL:** MW-89	**BORING NO.** SB203
CLIENT: SOUTHNAVFACENGCOM		**PROJECT NO:** 8506.35
CONTRACTOR: Groundwater Protection, Inc.	**DATE STARTED:** 03/15/96	**COMPLTD:** 03/15/96
METHOD: 4.25" I.D. HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 3-13
TOC ELEV.: 5.73 FEET.	**MONITOR INST.:** OVA	**TOT DPTH:** 13 FEET.
LOGGED BY: J. Koch	**WELL DEVELOPMENT DATE:** 03/16/96	**SITE:** TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (30%) fill material, light brown, no odor, moist.		GC		
				0	As above.				
5				1200	LIMEROCK and CLAY (50%), light brown, gray, black, 1" layer of free product, petroleum-like odor, wet.				
				750	CLAY (80%) and LIMEROCK, low plasticity, light brown to gray, slight petroleum-like odor, wet.				
10				460	Oolitic LIMEROCK and CLAY (40%), light brown to gray, rotten egg odor, wet.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	**LOG of WELL:** MW-90		**BORING NO.** SB199
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8506.35
CONTRACTOR: Groundwater Protection, Inc.		**DATE STARTED:** 03/15/96	**COMPLTD:** 03/15/96
METHOD: 4.25" I.D. HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 3-13	**PROTECTION LEVEL:** D
TOC ELEV.: 6.88 FEET.	**MONITOR INST.:** OVA	**TOT DPTH:** 13 FEET.	**DPTH TO ▽** 5.73 FEET.
LOGGED BY: J. Koch	**WELL DEVELOPMENT DATE:** 03/16/96		**SITE:** TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK, SILT, and CLAY (20%) fill material, light brown, gray, black, no odor, dry.		GC		
				0	As above.				
5				0	Oolitic LIMEROCK, light brown to white, no odor, moist.				
				1100	Calcareous SAND, very fine-grained, light brown to black, appears to be stained by product, petroleum-like odor, wet.		SM		
10							CL		
				1600	CLAY, low plasticity, light brown to light gray, rotten egg odor, wet.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	**LOG of WELL:** MW-91		**BORING NO.** SB200
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8506.35
CONTRACTOR: Groundwater Protection, Inc.		**DATE STARTED:** 03/15/96	**COMPLTD:** 03/15/96
METHOD: 4.25" I.D. HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 3-13	**PROTECTION LEVEL:** D
TOC ELEV.: 6.61 FEET.	**MONITOR INST.:** OVA	**TOT DPTH:** 13 FEET.	**DPTH TO ▽** 5.56 FEET.
LOGGED BY: J. Koch	**WELL DEVELOPMENT DATE:** 03/16/96		**SITE:** TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown to medium brown, no odor, dry.		GM		
				0	As above.				
5				0	Oolitic LIMEROCK and COAL, light brown to black, no odor, moist.				
				1200	LIMEROCK and CLAY (30%), light brown, light gray, black, 2" layer of stained soil at 6' bls, petroleum-like odor, wet.		GC		
10							CL		
				320	CLAY, low plasticity, light gray to medium gray, rotten egg odor, wet.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-92D	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 03/15/96	COMPLTD: 03/17/96
METHOD: HSA, Mud Rotary	CASE SIZE: 6" / 2"	SCREEN INT.: 25-30	PROTECTION LEVEL: D
TOC ELEV.: 6.97 FEET.	MONITOR INST.: OVA	TOT DPTH: 30 FEET.	DPTH TO ▽ 5.27 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/18/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILT and LIMEROCK fill material, light brown to light gray, no odor, dry.		GM		
				0	As above.				
5				0	Oolitic LIMEROCK fill material, light brown to light gray, no odor, dry.				
				39	Oolitic LIMEROCK and free product, gray to black, petroleum-like odor, wet.				
				360	CLAY (70%) and oolitic LIMEROCK, gray, petroleum-like odor, wet.		GC		
10				430	As above, rotten egg odor.				
15				900	Oolitic LIMEROCK and CLAY (30%), light brown to gray, rotten egg odor, wet.				
20				290	Oolitic LIMEROCK and CLAY (20%), light brown to gray, rotten egg odor, wet.				
25				0	Oolitic LIMEROCK, light brown to white, rotten egg odor, wet.				
30				0	As above.				
35									
40									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-93	BORING NO. SB198
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35

CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 03/16/96	COMPLTD: 03/16/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.45 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.29 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/17/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				1	Calcareous SAND, very fine-grained to coarse-grained, light brown, no odor, dry.		SM		
				180	CLAY, high plasticity, gray, rotten egg odor, moist.		CH		
5				3200	Oolitic LIMEROCK and CLAY (30%), light brown to black, free product at 5' bls, petroleum-like odor, wet.		GC		
				900	CLAY, low plasticity, light brown to gray, no odor, wet.		CL		
10							CH		
				1100	CLAY, high plasticity, light brown to light gray, rotten egg odor, wet.				
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-94	BORING NO. SB218
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 03/17/96	COMPLTD: 03/17/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.69 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.67 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/18/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (20%) fill material, light brown to gray, no odor, dry.		GC		
				0	LIMEROCK and CLAY (40%) fill material, light brown to gray, no odor, dry.				
5				6	LIMEROCK and CLAY (30%) fill material, light brown to dark brown, appears to be stained by product, slight petroleum-like odor, wet at 6' bls.				
				150	CLAY (60%) and oolitic LIMEROCK, light brown to gray, visible free product, petroleum-like odor, wet.				
10									
				180	CLAY (60%) and oolitic LIMEROCK, gray to light brown, rotten egg odor, wet.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-95		BORING NO. SB160
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 03/26/96	COMPLTD: 03/26/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.34 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.73 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/27/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	H1-MW-95 ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (20%) fill material, light brown, no odor, dry.		GC		
				0	As above.				
5				13	LIMEROCK and CLAY fill material, light brown to gray, dry.				
				40	Oolitic LIMEROCK and CLAY (30%), light brown, rotten egg odor, wet.				
10				5	Oolitic LIMEROCK and SHELL FRAGMENTS, light brown to gray, no odor, wet.				
15									
20									

TITLE: NAS KEY WEST	LOG of WELL: MW-96		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 03/27/96	COMPLTD: 03/27/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.61 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.24 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/28/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown to gray, no odor, dry.		GM		
				0	LIMEROCK, SILT, and CLAY (30%) fill material, light brown to gray, no odor, dry.		GC		
5				170	LIMEROCK and CLAY (30%) fill material, light brown, dark brown, orange, black, no odor, wet.				
				800	CLAY (70%) and LIMEROCK, low plasticity, light brown, light gray, black, no odor, wet.				
				95	CLAY (70%) and SHELL FRAGMENTS, light brown to light gray, rotten egg odor, wet.		CL		
10				400	LIMEROCK and SHELL FRAGMENTS, fine-grained, light brown to light gray, no odor, wet.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-97	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 03/27/96	COMPLTD: 03/27/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.56 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.33 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/28/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light gray to brown, no odor, dry.		GM		
				0	As above.				
5				1200	Calcareous SAND and a 6" layer of black tar-like substance, diesel-like odor, wet at 5' bls.		SM		
				1900	6 - 7: CLAY, low plasticity, light brown to light gray, slight petroleum-like odor, wet. 7 - 8: Calcareous SAND and SHELL FRAGMENTS, light brown to light gray, slight petroleum-like odor, wet.		CL / SM		
				1000	Calcareous SAND and SHELL FRAGMENTS, very fine-grained to coarse- grained, petroleum-like odor, free product at the top of the spoon.				
10				1100	CLAY, low plasticity, light brown to light gray, rotten egg odor, wet, free product at the top of the spoon.		CL		
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	**LOG of WELL:** MW-98	**BORING NO.** N/A
CLIENT: SOUTHNAVFACENGCOM		**PROJECT NO:** 8506.35
CONTRACTOR: Groundwater Protection, Inc.	**DATE STARTED:** 03/27/96	**COMPLTD:** 03/27/96
METHOD: 4.25" I.D. HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 3-13	**PROTECTION LEVEL:** D
TOC ELEV.: 6.48 FEET.	**MONITOR INST.:** OVA	**TOT DPTH:** 13 FEET.	**DPTH TO ▽** 5.62 FEET.
LOGGED BY: J. Koch	**WELL DEVELOPMENT DATE:** 03/28/96	**SITE:** TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown to medium brown, no odor, dry.		GM		
				0	LIMEROCK and SILT fill material, light brown to light gray, no odor, dry.				
5				0	Oolitic LIMEROCK and CLAY (20%), light brown to white, no odor, dry.		GC		▽
				32	Calcareous SAND and SHELL FRAGMENTS, light brown to gray, petroleum- like odor, wet.		SM		
				60	Calcareous SAND and CLAY (30%), light brown to gray, fine-grained to coarse-grained, rotten egg odor, wet.		SC		
10				300	CLAY, low plasticity, light brown to light gray, rotten egg odor, wet.		CL		
15									
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	**LOG of WELL:** MW-99		**BORING NO.** SB109
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8506.35
CONTRACTOR: Groundwater Protection, Inc.		**DATE STARTED:** 03/27/96	**COMPLTD:** 03/27/96
METHOD: 4.25" I.D. HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 3-13	**PROTECTION LEVEL:** D
TOC ELEV.: 6.00 FEET.	**MONITOR INST.:** OVA	**TOT DPTH:** 13 FEET.	**DPTH TO ▽** 5.07 FEET.
LOGGED BY: J. Koch	**WELL DEVELOPMENT DATE:** 03/28/96		**SITE:** TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (30%), light brown to white, no odor.		GC		
				0	As above. Moist.				
5				180	Oolitic LIMEROCK, medium gray, appears to be stained by product, strong petroleum odor, wet.				
				390	As above.				
					H4-MW-99				
10				270	Cemented LIMEROCK, very hard, blue-green, wet.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	**LOG of WELL:** MW-100		**BORING NO.** N/A
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8506.35
CONTRACTOR: Groundwater Protection, Inc.		**DATE STARTED:** 03/28/96	**COMPLTD:** 03/28/96
METHOD: 4.25" I.D. HSA	**CASE SIZE:** 2"	**SCREEN INT.:** 3-13	**PROTECTION LEVEL:** D
TOC ELEV.: 6.90 FEET.	**MONITOR INST.:** OVA	**TOT DPTH:** 13 FEET.	**DPTH TO ▽** 5.43 FEET.
LOGGED BY: J. Koch	**WELL DEVELOPMENT DATE:** 03/29/96		**SITE:** TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILT and LIMEROCK, light brown to gray, no odor, dry.		GM		
				0	SILT, LIMEROCK, and CLAY (20%) fill material, light brown to gray, no odor, dry.		GC		
5				120	CLAY (60%) and calcareous SAND, light brown to light gray, no odor, moist.		SC		▽
				220	CLAY, low plasticity, light brown to light gray, no odor, wet.		CL		
				440	CLAY, high plasticity, light brown to light gray, no odor, wet.		CH		
10				1200	CLAY, low plasticity, light brown to light gray, slight rotten egg odor, wet.		CL		
15									
20									

TITLE: NAS KEY WEST		LOG of WELL: MW-101	BORING NO. SB103
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 03/28/96	COMPLTD: 03/28/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.00 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 4.93 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/29/96		SITE: TRUMBO POINT FUEL FARM

H4-MW-101

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (20%) fill material, light brown, no odor.		GC		
				0	LIMEROCK and CLAY (30%) fill material, light brown, no odor.				
5				–	Oolitic LIMEROCK, light brown to white, no odor, wet at 5' bls.				
10									
				2	Oolitic LIMEROCK and SHELL FRAGMENTS, light brown to white, no odor, wet.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-102		BORING NO. SB181
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 03/29/96	COMPLTD: 03/29/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.22 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.13 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/30/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and CLAY (50%) fill material, light brown to light gray, no odor, moist.		GC		
				0	As above. Coal at 3' bls.				
5				100	As above. Free product at 5' bls. Petroleum-like odor. Wet.				▽
				80	As above, with free product.				
10									
				21	Oolitic LIMEROCK, light brown to light gray, rotten egg odor.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-103		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 03/30/96	COMPLTD: 03/30/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.70 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.10 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/31/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK, SILT, and CLAY (20%) fill material, light brown to light gray, no odor, dry.		GC		
				0	LIMEROCK and CLAY (30%) fill material, some coal and styrofoam, light brown to light gray, no odor, dry.				
5				85	LIMEROCK and CLAY (40%) fill material, light brown to gray, slight petroleum-like odor, moist.				
				140	Oolitic LIMEROCK, light brown to gray, petroleum-like odor, wet.				
				47	As above.				
10							CH		
				95	CLAY, high plasticity, gray, rotten egg odor, wet.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-104		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 03/31/96	COMPLTD: 03/31/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.01 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.02 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 03/31/96		SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND MW-104	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK and SILT fill material, light brown to light gray, no odor, dry.		GM		
				0	LIMEROCK, CLAY (30%), and SHELL FRAGMENT fill material, light brown to light gray, no odor, dry.		GC		
5				5	Oolitic LIMEROCK and CLAY (30%), light brown to gray, no odor, wet.				
				37	Oolitic LIMEROCK, light brown to gray, no odor, wet.				
10				75	Oolitic LIMEROCK and SHELL FRAGMENTS, light brown to light gray, slight petroleum-like odor, wet.				
				48	As above.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-105	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.	DATE STARTED: 03/31/96	COMPLTD: 03/31/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 5.98 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ 5.28 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 04/01/96	SITE: TRUMBO POINT FUEL FARM

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND CC	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	LIMEROCK, SILT, and CLAY (20%) fill material, light brown to gray, no odor, dry.		GC		
				0	LIMEROCK and CLAY (30%) fill material, light brown to light gray, no odor, dry.				
5				0	Oolitic LIMEROCK and CLAY (20%), light brown to white, no odor, wet.				
				23	Oolitic LIMEROCK, light brown to light gray, no odor, wet.				
				35	Oolitic LIMEROCK and SHELL FRAGMENTS, light brown to light gray, no odor, wet.				
10				70	As above.				
15									
20									

H4-MW-105

TITLE: NAS KEY WEST	LOG of WELL: MW-106D		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 04/01/96	COMPLTD: 04/02/96
METHOD: HSA/Mud Rotary	CASE SIZE: 6"/2"	SCREEN INT.: 25-30	PROTECTION LEVEL: D
TOC ELEV.: 6.42 FEET.	MONITOR INST.: OVA	TOT DPTH: 30 FEET.	DPTH TO ▽ 5.30 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 04/02/96		SITE: TRUMBO POINT FUEL FARM

H4-106D-MW

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0				0	LIMEROCK, SILT, and CLAY (20%) fill material, light brown to light gray, no odor, dry.		GC		
				0	LIMEROCK and CLAY (30%) fill material, some coal and styrofoam, light brown to light gray, no odor, dry.				
5				85	LIMEROCK and CLAY (40%) fill material, light brown to gray, slight petroleum-like odor, moist.				
				140	Oolitic LIMEROCK, light brown to gray, petroleum-like odor, wet.				
				47	As above.				
10				95	CLAY, high plasticity, gray, rotten egg odor, wet.		CH		
15				100	CLAY (60%) and calcareous SAND, low plasticity, light brown to gray, rotten egg odor, wet.		CL		
20				70	Oolitic LIMEROCK, light brown to white, rotten egg odor, wet.				
25				95	As above.				
30				10	As above, no odor.				
35									
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS KEY WEST	LOG of WELL: MW-107		BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8506.35
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 04/02/96	COMPLTD: 04/02/96
METHOD: 4.25" I.D. HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: 6.39 FEET.	MONITOR INST.: OVA	TOT DPTH: 13 FEET.	DPTH TO ▽ FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 04/02/96		SITE: TRUMBO POINT FUEL FARM

H4-MW-107

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SAND and LIMEROCK fill material, light brown to gray, no odor, dry.		GM		
				0	As above, with shell fragments.				
5				0	LIMEROCK and CLAY (20%) fill material, light brown to light gray, no odor, moist.		GC		
				85	Oolitic LIMEROCK and CLAY (50%), light brown to light gray, slight petroleum-like odor, wet.				
				110	Oolitic LIMEROCK and CLAY (20%), light brown to light gray, no odor, wet.				
10				230	As above, rotten egg odor.				
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

APPENDIX C

SOIL SAMPLE ORGANIC VAPOR ANALYZER (OVA) HEADSPACE RESULTS

Table C-1
Soil Sample Organic Vapor Analyzer (OVA) Headspace Analyses Between July 20 and August 27, 1993

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Boring Designation	Depth (feet bls)	Concentration[1] (ppm)	Comments
SB1	1 to 2	<1	No odor
	4 to 5	<1	
SB2	1 to 2	<1	No odor
	5 to 7	1	Wet
SB3	1 to 2	<1	No odor
	4 to 6	<1	H_2S odor
SB4	1 to 2	6	
	4 to 6	6	H_2S odor
	8 to 10	–	Wet
SB5	1 to 2	0	No odor
	4 to 6	1	
	8 to 10	–	H_2S odor, wet
SB6	0 to 2	–	No odor
	2 to 3	3	
	4 to 6	3	
SB7	0 to 2	–	No odor
	2 to 3	<1	
	4 to 6	<1	H_2S odor
	8 to 10	–	
SB8	0 to 2	–	
	2 to 3	<1	No odor
	5 to 7	110	H_2S odor, wet
SB9	0 to 2	–	No odor
	2 to 3	0	
	4 to 6	2,300	Diesel odor
SB10	0 to 2	–	No odor
	2 to 3	160	
	4 to 6	400	Diesel odor
SB11	0 to 2	–	No odor
	2 to 3	0	
	4 to 6	33	H_2S odor
SB12	0 to 2	–	
	2 to 3	<1	No odor
	4 to 6	2,000	H_2S odor
SB13	0 to 2	–	
	2 to 3	<1	No odor
	4 to 6	700	Diesel odor
SB14	0 to 2	–	
	2 to 3	<1	No odor
	4 to 6	18	H_2S odor
SB15	0 to 2	–	No odor
	3 to 5	150	Diesel odor

See notes at end of table.

Table C-1 (Continued)
Soil Sample Organic Vapor Analyzer (OVA) Headspace Analyses
Between July 20 and August 27, 1993

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Boring Designation	Depth (feet bls)	Concentration[1] (ppm)	Comments
SB16	0 to 2	–	No odor
	3 to 5	<1	
SB17	0 to 2	–	No odor
	3 to 5	400	Diesel odor
SB18	0 to 2	–	No odor
	3 to 5	110	Diesel and H_2S odor
SB19	0 to 2	–	No odor
	3 to 5	<1	
SB20	0 to 2	–	No odor
	3 to 5	<1	Slight diesel odor
SB21	0 to 2	–	
	3 to 5	<1	Slight petroleum odor
SB22	0 to 2	–	No odor
	3 to 5	<1	
SB23	0 to 2	–	No odor
	3 to 5	<1	
SB24	0 to 2.5	–	No odor
	4 to 6	280	H_2S odor
SB25	0 to 2.5	–	No odor
	3 to 5	6	Slight diesel odor
SB26	0 to 2.5	–	No odor
	4 to 6	23	H_2S odor
SB27	0 to 3	–	No odor
	4 to 6	500	Diesel odor
SB28	0 to 2	–	Diesel odor
	4 to 6	250	
SB29	0 to 2	–	No odor
	4 to 6	<1	
SB30	0 to 2	–	No odor
	4 to 6	1	
SB31	0 to 2	–	No odor
	4 to 6	<1	
SB32	0 to 2	–	No odor
	3 to 5	360	
	5 to 7	1,700	Wet, Diesel odor
SB33	0 to 2	–	No odor
	4 to 6	450	Diesel odor
SB34	0 to 2	–	No odor
	4 to 6	400	Diesel odor, Wet

See notes at end of table.

Table C-1 (Continued)
Soil Sample Organic Vapor Analyzer (OVA) Headspace Analyses
Between July 20 and August 27, 1993

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Boring Designation	Depth (feet bls)	Concentration[1] (ppm)	Comments
SB35	0 to 2	–	No odor
	4 to 6	370	Diesel odor
SB36	0 to 2	–	No odor
	4 to 6	1,300	Diesel and H_2S odor
SB37	0 to 2	–	No odor
	4 to 6	–	Diesel odor, wet
SB38	0 to 2	–	No odor
	4 to 6	1,300	Diesel odor
SB39	0 to 2	–	No odor
	5 to 7	1,750	Diesel odor
SB40	0 to 2	–	No odor
	4 to 6	650	Diesel odor
SB41	0 to 2	–	No odor
	4 to 6	1,500	Diesel odor
SB42	0 to 2	R/NS	No odor
SB43	0 to 2	–	No odor
	4 to 6	800	Diesel odor
SB44	0 to 2	–	No odor
		950	Petroleum odor
SB45	0 to 2	–	No odor
	4 to 6		
SB46	0 to 2	–	No odor
	4 to 6	5	Diesel odor
SB47	0 to 2	–	No odor
	4 to 6	1,200	Diesel odor
SB48	0 to 2	–	No odor
	4 to 6	2,200	Diesel odor
SB49	0 to 2	–	No odor
	5 to 7	135	H_2S odor
SB50	0 to 2	–	No odor
	5 to 7	850	Diesel odor, wet
SB51	0 to 2	–	No odor
	5 to 7	1,100	Diesel odor
SB52	0 to 2	–	No odor
	5 to 7	1,550	Diesel odor
SB53	0 to2	R/NS	No odor
SB54	0 to 2	–	No odor
	5 to 7	1,500	Diesel odor
SB55	0 to 2	–	
	5 to 7	2,300	Diesel odor

See notes at end of table.

Table C-1 (Continued)
Soil Sample Organic Vapor Analyzer (OVA) Headspace Analyses
Between July 20 and August 27, 1993

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Boring Designation	Depth (feet bls)	Concentration[1] (ppm)	Comments
SB56	0 to 2	R/NS	No odor
SB57	0 to 2	--	No odor
	5 to 7	900	Diesel and H_2S odor
SB58	0 to 2	--	No odor
	5 to 7	400	Diesel and H_2S odor
SB59	0 to 2	--	No odor
	4 to 6	4,100	Diesel odor
SB60	0 to 2	--	No odor
	4 to 6	3,400	Diesel odor
SB61	0 to 2	--	No odor
	4 to 6	300	Diesel odor
SB62	0 to 2	--	Diesel odor
	4 to 6	>5,000	
SB63	0 to 2	--	No odor
	4 to 6	3,200	Diesel odor
SB64	0 to 2	R/NS	No odor
SB65	0 to 2	--	Wet
	4 to 6	100	
SB66	0 to 2	--	No odor
	4 to 6	6	H_2S odor, Wet
SB67	0 to 1	--	No odor
	3 to 5	40	H_2S odor
SB68	0 to 3	--	No odor
	4 to 6	>5,000	Diesel odor
SB69	0 to 2	--	No odor
	4 to 6	1,700	Diesel odor
SB70	0 to 2	--	No odor
	3 to 5	2,850	Diesel odor
SB71	0 to 2	--	No odor
	4 to 6	4,300	Wet
SB72	0 to 2	--	No odor
	4 to 6	400	Wet
SB73	0 to 2	--	No odor
	4 to 6	3,200	Diesel odor
SB74	0 to 1.5	--	No odor
	4 to 6	4,600	Diesel odor
SB75	0 to 1.5	--	No odor
	4 to 6	>5,000	Diesel odor, Wet

See notes at end of table.

Table C-1 (Continued)
Soil Sample Organic Vapor Analyzer (OVA) Headspace Analyses
Between July 20 and August 27, 1993

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Boring Designation	Depth (feet bls)	Concentration[1] (ppm)	Comments
SB76	0 to 2	–	No odor
	4 to 6	4,200	Strong odor
SB77	0 to 1.5	–	
	4 to 6	1,900	Diesel odor
SB78	0 to 2	–	No odor
	3 to 5	2,100	Diesel odor
SB79	0 to 2	–	No odor
	3 to 5	650	Diesel odor
SB80	0 to 2	–	No odor
	3 to 5	<5	
SB81	0 to 1.5	–	No odor
	3 to 5	2	H_2S odor
SB82	0 to 1.5	–	No odor
	3 to 5	<5	Slight H_2S odor
SB83	0 to 1	–	No odor
	3 to 5	<5	Slight odor, Wet
SB84	0 to 1.5	–	No odor
	3 to 5	85	Wet
SB85	0 to 2	–	No odor
	3 to 5	<10	
SB86	0 to 1.5	–	No odor
	3 to 5	<1	
SB87	0 to 2	–	No odor
	3 to 5	<1	
SB88	0 to 1.5	–	No odor
	3 to 5	<1	H_2S odor
SB89	0 to 2	–	No odor
	3 to 5	2	
SB90	0 to 2	–	No odor
	3 to 5	3	
SB91	0 to 2	–	No odor
	3 to 5	<1	
SB92	0 to 1.5		Refusal
SB93	0 to 1		Refusal
SB94	0 to 1		Refusal
SB95A	0 to 1.5		Refusal

See notes at end of table.

Table C-1 (Continued)
Soil Sample Organic Vapor Analyzer (OVA) Headspace Analyses
Between July 20 and August 27, 1993

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Boring Designation	Depth (feet bls)	Concentration[1] (ppm)	Comments
SB95B	0 to 2.5	--	No odor
	3 to 5	<1	
	5 to 7	3	Slight diesel and H_2S odor
SB96	0 to 2	--	No odor
	3 to 5	<1	
	5 to 7	280	Diesel odor
SB97	0 to 2	--	
	3 to 5	<1	No odor
	5 to 7	110	Diesel odor, wet
SB98	0 to 2	--	No odor
	3 to 5	<1	
	5 to 7	115	Fuel odor, wet
SB99	0 to 2	--	No odor
	3 to 5	9	
	5 to 7	900	Fuel odor
SB100	0 to 2	--	
	3 to 5	170	Diesel odor
	5 to 7	420	Diesel odor, wet
SB101	0 to 2	--	No odor
	3 to 5	<10	
	5 to 7	800	diesel odor, wet

[1] Corrected for methane.

Notes: bls = below land surface.
ppm = parts per million.
R/NS = refusal/not sampled.

Table C-2
Organic Vapor Analyzer (OVA) Soil Screening Data
January Through March 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
MW-04	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	15	<1	15
	4.0 to 6.0	5000	<1	5000
	6.0 to 8.0	3200	<1	3200
	8.0 to 10.0	1700	<1	1700
	10.0 to 12.0	1300	<1	1300
MW-05	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	1	nm	1
	10.0 to 12.0	400	<1	400
	12.0 to 14.0	350	<1	350
MW-06	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	65	<1	65
	10.0 to 12.0	1800	<1	1800
	12.0 to 14.0	1300	<1	1300
MW-07	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	15	<1	15
	10.0 to 12.0	1100	<1	1100
	12.0 to 14.0	1000	<1	1000
MW-08	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	260	<1	260
	12.0 to 14.0	900	<1	<1
MW-09	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	10.0 to 12.0	16	<1	16
	12.0 to 14.0	17	<1	17
MW-10	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	29	<1	29
	10.0 to 12.0	27	<1	27
	12.0 to 14.0	220	<1	220

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
January Through March 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
MW-11	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	10.0 to 12.0	1000	<1	1000
MW-12	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	10.0 to 12.0	800	<1	800
	12.0 to 14.0	500	<1	500
MW-13	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	17	<1	17
	10.0 to 12.0	13	<1	13
	12.0 to 14.0	130	<1	130
MW-14	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 8.0	<1	nm	<1
	10.0 to 12.0	12	<1	12
	12.0 to 14.0	16	<1	16
MW-15	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	1600	<1	1600
	10.0 to 12.0	200	<1	200
	12.0 to 14.0	220	<1	220
MW-20	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	<1	nm	<1
	13.0 to 15.0	<1	nm	<1
MW-21	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	nm	nm	nm
	6.0 to 8.0	<1	nm	<1
	11.0 to 13.0	<1	nm	<1

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
January Through March 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
MW-22	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	<1	nm	<1
	11.0 to 13.0	<1	nm	<1
MW-23	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	430	<1	430
	11.0 to 13.0	310	<1	310
MW-24	10.0 to 12.0	400	<1	400
MW-25	11.0 to 13.0	160	<1	160
MW-26	11.0 to 13.0	700	<1	700
MW-27	11.0 to 13.0	900	<1	900
MW-28	11.0 to 13.0	700	<1	700
MW-29	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	50	<1	50
	6.0 to 8.0	350	<1	350
	8.0 to 10.0	180	<1	180
	10.0 to 12.0	250	<1	250
MW-30	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	1	nm	1
	4.0 to 6.0	32	<1	32
	6.0 to 8.0	110	<1	110
	8.0 to 10.0	230	<1	230
	10.0 to 12.0	480	<1	480
MW-31	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	160	<1	160
	6.0 to 8.0	300	<1	300
	8.0 to 10.0	180	<1	180
	10.0 to 12.0	3000	<1	3000

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
January Through March 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
MW-32	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	1100	<1	1100
	6.0 to 8.0	1200	<1	1200
	8.0 to 10.0	900	<1	900
	10.0 to 12.0	800	<1	800
MW-33	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	6	<1	6
	8.0 to 12.0	15	<1	15
	12.0 to 14.0	42	<1	42
MW-34	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	240	<1	240
	8.0 to 10.0	60	<1	60
	10.0 to 12.0	50	<1	50
MW-35	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	230	<1	230
	8.0 to 10.0	31	<1	31
	10.0 to 12.0	37	<1	37
MW-36	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 5.0	<1	nm	<1
	6.0 to 8.0	150	150	150
	8.0 to 10.0	41	41	41
	10.0 to 12.0	16	16	16
MW-38	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	37	<1	37
	6.0 to 8.0	140	<1	140
	8.0 to 10.0	95	<1	95
	10.0 to 12.0	55	<1	55

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
January Through March 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
MW-39	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	390	<1	390
	6.0 to 8.0	1000	<1	1000
	8.0 to 10.0	900	<1	900
	10.0 to 12.0	800	<1	800
MW-40	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	9	<1	9
	4.0 to 6.0	1600	<1	1600
	6.0 to 8.0	1400	<1	1400
	8.0 to 10.0	1100	<1	1100
	10.0 to 12.0	700	<1	700
MW-43	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	5	<1	5
	4.0 to 6.0	35	<1	35
	6.0 to 8.0	210	<1	210
	8.0 to 10.0	165	<1	165
	10.0 to 12.0	330	<1	330
MW-44	0.0 to 2.0	23	<1	23
	2.0 to 4.0	1	nm	1
	4.0 to 6.0	190	<1	190
	6.0 to 8.0	460	<1	460
	8.0 to 10.0	270	<1	270
	10.0 to 12.0	145	<1	145
MW-45D	10.0 to 12.0	1400	<1	1400
	15.0 to 17.0	600	<1	600
	20.0 to 22.0	80	<1	80
	25.0 to 27.0	120	<1	120
	30.0 to 32.0	26	<1	26
MW-46	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	<1	nm	<1
	8.0 to 10.0	4	<1	4
	10.0 to 12.0	11	<1	11

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
January Through March 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
MW-47D	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	2	<1	2
	4.0 to 6.0	1400	<1	1400
	10.0 to 12.0	1400	<1	1400
	15.0 to 17.0	380	<1	380
	20.0 to 22.0	100	<1	100
	25.0 to 27.0	220	<1	220
	30.0 to 32.0	130	<1	130
MW-48D	10.0 to 12.0	170	<1	170
	17.0 to 19.0	17	<1	17
	20.0 to 22.0	20	<1	20
MW-49	0.0 to 2.0	4	<1	4
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	1500	<1	1500
	6.0 to 8.0	2000	<1	2000
	8.0 to 10.0	1000	<1	1000
	10.0 to 12.0	1100	<1	1100
MW-50	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	18	<1	18
	4.0 to 6.0	1100	<1	1100
	6.0 to 8.0	190	<1	190
	8.0 to 10.0	90	<1	90
	10.0 to 12.0	400	<1	400
MW-51	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	240	<1	240
	4.0 to 6.0	85	<1	85
	6.0 to 8.0	1200	<1	1200
	8.0 to 10.0	250	<1	250
	10.0 to 12.0	1200	<1	1200
MW-52	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	>5000	<1	>5000
	8.0 to 10.0	>5000	<1	>5000
	10.0 to 12.0	1500	<1	1500

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
MW-53	0.0 to 2.0	1	nm	1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	110	<1	110
	6.0 to 8.0	55	<1	55
	8.0 to 10.0	46	<1	46
	10.0 to 12.0	33	<1	33
MW-54	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	750	<1	750
	6.0 to 8.0	410	<1	410
	8.0 to 10.0	2000	<1	2000
	10.0 to 12.0	1300	<1	1300
MW-55	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	3200	<1	3200
	6.0 to 8.0	2400	<1	2400
	8.0 to 10.0	1400	<1	1400
	10.0 to 12.0	1800	<1	1800
MW-56	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	1200	<1	1200
	6.0 to 8.0	1500	<1	1500
	8.0 to 10.0	1400	<1	1400
	10.0 to 12.0	1000	<1	1000
MW-57	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	1100	<1	1100
	6.0 to 8.0	3200	<1	3200
	8.0 to 10.0	700	<1	700
	10.0 to 12.0	1000	<1	1000
MW-58	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	130	<1	130
	6.0 to 8.0	330	<1	330
	8.0 to 10.0	160	<1	160
	10.0 to 12.0	110	<1	110

See notes at end of table.

Table C-2 (Continued)
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
MW-59	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	1	nm	1
	4.0 to 6.0	>5000	<1	>5000
	6.0 to 8.0	900	<1	900
	8.0 to 10.0	1200	<1	1200
	10.0 to 12.0	1300	<1	1300
MW-60	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	>5000	<1	>5000
	6.0 to 8.0	3800	<1	3800
	8.0 to 10.0	1000	<1	1000
	10.0 to 12.0	800	<1	800
MW-61	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	100	<1	100
	6.0 to 8.0	280	<1	280
	8.0 to 10.0	1200	<1	1200
	10.0 to 12.0	390	<1	390
MW-62	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	>5000	<1	>5000
	6.0 to 8.0	>5000	<1	>5000
	8.0 to 10.0	1300	<1	1300
	10.0 to 12.0	1500	<1	1500
MW-63	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	115	<1	115
	8.0 to 10.0	140	<1	140
	10.0 to 12.0	250	<1	250
MW-64	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	4	<1	4
	6.0 to 8.0	2000	<1	2000
	8.0 to 10.0	50	<1	50
	10.0 to 12.0	60	<1	60

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
MW-65	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	11	<1	11
	6.0 to 8.0	1100	<1	1100
	8.0 to 10.0	350	<1	350
	10.0 to 12.0	270	<1	270
MW-66	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	360	<1	360
	8.0 to 10.0	1000	<1	1000
	10.0 to 12.0	1200	<1	1200
MW-67D	20.0 to 22.0	50	<1	50
MW-68	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	41	<1	41
	8.0 to 10.0	800	<1	800
	10.0 to 12.0	1100	<1	1100
MW-69	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	170	<1	170
	6.0 to 8.0	800	<1	800
	8.0 to 10.0	95	<1	95
	10.0 to 12.0	400	<1	400
MW-70	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	50	<1	50
	8.0 to 10.0	160	<1	160
	10.0 to 12.0	410	<1	410
MW-71D	20.0 to 22.0	470	<1	470
	25.0 to 27.0	130	<1	130
	30.0 to 32.0	7	<1	7

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
MW-72	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	28	<1	28
	8.0 to 10.0	100	<1	100
	10.0 to 12.0	380	<1	380
MW-73	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	180	<1	180
	4.0 to 6.0	3000	<1	3000
	6.0 to 8.0	460	<1	460
	8.0 to 10.0	450	<1	450
	10.0 to 12.0	150	<1	150
MW-74D	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	39	<1	39
	6.0 to 8.0	>5000	<1	>5000
	8.0 to 10.0	1800	<1	1800
	15.0 to 17.0	1000	<1	1000
	20.00 to 22.0	1000	<1	1000
	25.0 to 27.0	260	<1	260
	30.0 to 32.0	75	<1	75
MW-75D	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	2100	<1	2100
	6.0 to 8.0	1700	<1	1700
	8.0 to 10.0	1300	<1	1300
	15.0 to 17.0	130	<1	130
	20.0 to 22.0	44	<1	44
	25.0 to 27.0	27	<1	27
	30.0 to 32.0	2	<1	2
MW-76	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	38	<1	38
	6.0 to 8.0	1000	<1	1000
	8.0 to 10.0	1400	<1	1400
	10.0 to 12.0	1500	<1	1500

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
MW-77D	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	175	<1	175
	4.0 to 6.0	1700	<1	1700
	6.0 to 8.0	2600	<1	2600
	8.0 to 10.0	2000	<1	2000
	15.0 to 17.0	1000	<1	1000
	20.0 to 22.0	330	<1	330
	25.0 to 27.0	900	<1	900
	30.0 to 32.0	270	<1	270
MW-78D	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	18	<1	18
	4.0 to 6.0	850	<1	850
	6.0 to 8.0	220	<1	220
	8.0 to 10.0	350	<1	350
	15.0 to 17.0	360	<1	360
	20.0 to 22.0	190	<1	190
	25.0 to 27.0	22	<1	22
	30.0 to 32.0	300	<1	300
MW-79	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	<1	nm	<1
	8.0 to 10.0	25	<1	25
	10.0 to 12.0	<1	nm	<1
MW-80	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	48	<1	48
	8.0 to 10.0	14	<1	14
	10.0 to 12.0	7	<1	7
MW-81	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	14	<1	14
	6.0 to 8.0	950	<1	950
	8.0 to 10.0	130	<1	130
	10.0 to 12.0	340	<1	340

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
MW-82	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	3	<1	3
	6.0 to 8.0	95	<1	95
	8.0 to 10.0	190	<1	190
	10.0 to 12.0	160	<1	160
MW-83	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	39	<1	39
	8.0 to 10.0	360	<1	360
	10.0 to 12.0	430	<1	430
MW-84	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	nm	nm	nm
	6.0 to 8.0	50	<1	50
	8.0 to 10.0	1100	<1	1100
	10.0 to 12.0	800	<1	800
MW-85D	15.0 to 17.0	100	<1	100
	20.0 to 22.0	65	<1	65
	25.0 to 27.0	46	<1	46
	30.0 to 32.0	16	<1	16
MW-86	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	210	<1	210
	8.0 to 10.0	130	<1	130
	10.0 to 12.0	22	<1	22
MW-87D	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	310	<1	310
	4.0 to 6.0	2200	<1	2200
	6.0 to 8.0	1400	<1	1400
	8.0 to 10.0	1000	<1	1000
	15.0 to 17.0	900	<1	900
	20.0 to 22.0	400	<1	400
	25.0 to 27.0	700	<1	700
	30.0 to 32.0	270	<1	270

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
MW-88	11.0 to 13.0	<1	nm	<1
MW-89	11.0 to 13.0	460	<1	460
MW-90	11.0 to 13.0	1600	<1	1600
MW-91	11.0 to 13.0	320	<1	320
MW-92D	15.0 to 17.0	900	<1	900
	20.0 to 22.0	290	<1	290
	25.0 to 27.0	<1	nm	<1
	30.0 to 32.0	<1	nm	<1
MW-93	11.0 to 13.0	1100	<1	1100
MW-94	11.0 to 13.0	180	<1	180
MW-95	11.0 to 13.0	5	<1	5
MW-96	nm	nm	nm	nm
MW-97	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	1200	<1	1200
	6.0 to 8.0	1900	<1	1900
	8.0 to 10.0	1000	<1	1000
	10.0 to 12.0	1100	<1	1100
MW-98	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	32	<1	32
	8.0 to 10.0	60	<1	60
	10.0 to 12.0	300	<1	300
MW-99	10.0 to 12.0	270	<1	270
MW-100	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	120	<1	120
	6.0 to 8.0	220	<1	220
	8.0 to 10.0	440	<1	440
	10.0 to 12.0	1200	<1	1200
MW-101	13.0 to 15.0	2	<1	2

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Table C-2 (Continued)
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
MW-102	11.0 to 13.0	21	<1	21
MW-103	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	85	<1	85
	6.0 to 8.0	140	<1	140
	8.0 to 10.0	47	<1	47
	10.0 to 12.0	95	<1	95
MW-104	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	5	<1	5
	6.0 to 8.0	37	<1	37
	8.0 to 10.0	75	<1	75
	10.0 to 12.0	48	<1	48
MW-105	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	23	<1	23
	8.0 to 10.0	35	<1	35
	10.0 to 12.0	70	<1	70
MW-106D	15.0 to 17.0	100	<1	100
	20.0 to 22.0	70	<1	70
	25.0 to 27.0	95	<1	95
	30.0 to 32.0	10	<1	10
MW-107	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	85	<1	85
	8.0 to 10.0	110	<1	110
	10.0 to 12.0	230	<1	230

See notes at end of table.

Table C-2 (Continued)
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
SB-102	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	160	<1	160
SB-103[4]	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	nm	nm	nm
SB-104	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	230	<1	230
SB-105	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	nm	nm	nm
SB-106	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
SB-107	0.0 to 2.0	<1	<1	<1
	2.0 to 4.0	<1	<1	<1
	4.0 to 6.0	1	<1	1
SB-108	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	2	<1	2
	6.0 to 8.0	2	<1	2
SB-109	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	180	<1	180
	6.0 to 8.0	390	<1	390
SB-110	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	15	<1	15
	4.0 to 6.0	390	<1	390
SB-111	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	24	<1	24
SB-112[4]	0.0 to 2.0	150	<1	150
	2.0 to 4.0	15	<1	15
	4.0 to 6.0	<1	nm	<1

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Table C-2 (Continued)
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
SB-113	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
SB-114	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	42	<1	42
SB-115	0.0 to 2.0	<1	nm	<1
	2.0 to 3.0	<1	nm	<1
SB-116	0.0 to 2.0	<1	nm	<1
	2.0 to 3.0	<1	nm	<1
SB-117	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 4.5	6	<1	6
SB-118	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 4.5	<1	nm	<1
SB-119	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	75	<1	75
	6.0 to 8.0	130	<1	130
SB-120	0.0 to 2.0	6	<1	6
	2.0 to 3.0	1	<1	1
SB-121[4]	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	1	<1	1
	4.0 to 6.0	210	<1	210
	6.0 to 8.0	240	<1	240
	8.0 to 10.0	380	<1	380
	10.0 to 12.0	800		
SB-122	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	420	<1	420

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Table C-2 (Continued)
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
SB-123[4]	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	280	<1	280
	6.0 to 8.0	1300	<1	1300
	8.0 to 10.0	900	<1	900
	10.0 to 12.0	1100	<1	1100
	12.0 to 14.0	800	<1	800
SB-124	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	900	<1	900
SB-125	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
SB-126	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	nm	nm	nm
	8.0 to 10.0	<1	nm	<1
SB-127	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	2	<1	2
SB-128	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	<1	nm	<1
SB-129	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	1	nm	1
	6.0 to 8.0	<1	nm	<1
	8.0 to 10.0	nm	nm	nm
SB-130	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	<1	nm	<1
	8.0 to 10.0	<1	nm	<1

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
January Through March 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
SB-131	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	2	<1	2
SB-132	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	3	<1	3
SB-133	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	3	<1	3
SB-134	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	32	<1	32
	8.0 to 10.0	15	<1	15
SB-135[4]	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	380	<1	380
SB-136	0.0 to 2.0	<	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	110	<1	110
SB-137	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 6.5	<1	nm	<1
SB-138	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	85	<1	85

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
SB-139	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	270	<1	270
	6.0 to 8.0	1000	<1	1000
SB-140	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	200	<1	200
	6.0 to 8.0	900	<1	900
SB-141	0.0 to 2.0	1	nm	1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	19	<1	19
SB-142	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	7	<1	7
	4.0 to 6.0	650	<1	650
	6.0 to 8.0	230	<1	230
SB-143	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	10	<1	10
	6.0 to 8.0	3	<1	3
SB-144	0.0 to 2.0	5	<1	5
	2.0 to 4.0	13	<1	13
	4.0 to 6.0	55	<1	55
	6.0 to 8.0	28	<1	28
SB-145	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	23	<1	23
SB-146	0.0 to 2.0	1	nm	1
	2.0 to 4.0	nm	nm	nm
	4.0 to 6.0	2	<1	2
	6.0 to 8.0	440	<1	440
SB-147	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	2	<1	2
	6.0 to 8.0	420	<1	420

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
SB-148	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	10	<1	10
	6.0 to 8.0	270	<1	270
SB-149	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	280	<1	280
	6.0 to 8.0	100	<1	100
SB-150	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	35	<1	35
	6.0 to 8.0	220	<1	220
SB-151	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	80	<1	80
	6.0 to 8.0	800	<1	800
SB-152	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	37	<1	37
	6.0 to 8.0	170	<1	170
SB-153	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	<1	nm	<1
SB-154	0.0 to 2.0	6	<1	6
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	280	<1	280
	6.0 to 8.0	3100	<1	3100
SB-155	0.0 to 2.0	2	nm	2
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	330	<1	330
	6.0 to 8.0	2000	<1	2000
SB-156	0.0 to 2.0	320	<1	320
	2.0 to 4.0	1400	<1	1400
	4.0 to 6.0	2000	<1	2000
	6.0 to 8.0	1600	<1	1600

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
SB-157	0.0 to 2.0	1100	<1	1100
	2.0 to 4.0	1500	<1	1500
	4.0 to 6.0	3600	<1	3600
	6.0 to 8.0	4000	<1	4000
SB-158	0.0 to 2.0	1	nm	1
	2.0 to 4.0	3	<1	3
	4.0 to 6.0	400	<1	400
	6.0 to 8.0	480	<1	480
SB-159	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	7	<1	7
	6.0 to 8.0	180	<1	180
SB-160	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	13	<1	13
	6.0 to 8.0	40	<1	40
SB-161	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	9	<1	9
	4.0 to 6.0	nm	nm	nm
	6.0 to 8.0	nm	nm	nm
SB-162	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	37	<1	37
	6.0 to 8.0	150	<1	150
SB-163[4]	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	1	nm	1
	8.0 to 10.0	80	<1	80
	10.0 to 12.0	45	<1	45
SB-164	0.0 to 2.0	<1	nm	<1
SB-165	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	120	<1	120

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
SB-166	0.0 to 2.0			
	2.0 to 4.0			
	4.0 to 6.0			
	6.0 to 8.0			
SB-167	0.0 to 2.0	12	<1	12
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	nm	nm	nm
	6.0 to 8.0	290	<1	290
	8.0 to 10.0	nm	nm	nm
SB-168	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	nm	nm	nm
	6.0 to 8.0	90	<1	90
SB-169	--	nm	nm	nm
SB-170	--	nm	nm	nm
SB-171	--	nm	nm	nm
SB-172	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	2	<1	2
	4.0 to 6.0	130	<1	130
	6.0 to 8.0	190	<1	190
SB-173	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	150	<1	150
	6.0 to 8.0	140	<1	140
SB-174	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	70	<1	70
	6.0 to 8.0	140	<1	140
SB-175	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	nm	nm	nm
	6.0 to 8.0	240	<1	240
	8.0 to 10.0	250	<1	250
SB-176	--	nm	nm	nm

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
SB-177	–	nm	nm	nm
SB-178	–	nm	nm	nm
SB-179	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	26	<1	26
SB-180	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	7	<1	7
SB-181[4]	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	100	<1	100
	6.0 to 8.0	80	<1	80
SB-182[4]	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	30	<1	30
	6.0 to 8.0	70	<1	70
SB-183	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	300	<1	300
	6.0 to 8.0	420	<1	420
SB-184	0.0 to 2.0	1	nm	1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	85	<1	85
SB-185	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	20	<1	20
	6.0 to 8.0	8	<1	8
SB-186	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	9	<1	9
	6.0 to 8.0	650	<1	650

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
SB-187	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	330	<1	330
	6.0 to 8.0	800	<1	800
SB-188	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	9	<1	9
	6.0 to 8.0	110	<1	110
SB-189	0.0 to 2.0	3	<1	3
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	95	<1	95
	6.0 to 8.0	700	<1	700
SB-190	0.0 to 2.0			
	2.0 to 4.0			
	4.0 to 6.0			
	6.0 to 8.0			
SB-191	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	2100	<1	2100
	6.0 to 8.0	350	<1	350
SB-192	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	16	<1	16
	6.0 to 8.0	470	<1	470
SB-193	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	210	<1	210
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	210	<1	210
SB-194	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	24	<1	24
	4.0 to 6.0	85	<1	85
	6.0 to 8.0	460	<1	460
SB-195	0.0 to 2.0	2	<1	2
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	140	<1	140
	6.0 to 8.0	1000	<1	1000

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
SB-196	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	150	<1	150
	6.0 to 8.0	300	<1	300
SB-197	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	36	<1	36
SB-198	0.0 to 2.0	1	nm	1
	2.0 to 4.0	180	<1	180
	4.0 to 6.0	3200	<1	3200
	6.0 to 8.0	900	<1	900
SB-199[4]	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	1100	<1	1100
SB-200[4]	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	1200	<1	1200
SB-201	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	140	<1	140
	6.0 to 8.0	900	<1	900
SB-202	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	115	<1	115
	6.0 to 8.0	450	<1	450
SB-203[4]	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	1200	<1	1200
	6.0 to 8.0	750	<1	750
SB-204	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	nm	nm	nm
	6.0 to 8.0	50	<1	50

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
SB-205	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	12.0 to 14.0	750	<1	750
SB-206	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	240	<1	240
	6.0 to 8.0	110	<1	110
SB-207	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	130	<1	130
SB-208	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	130	<1	130
SB-209	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	38	<1	38
SB-210	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	170	<1	170
SB-211	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	1000	<1	1000
SB-212	0.0 to 2.0	<1	nm	<1
SB-213	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	280	<1	280

See notes at end of table.

Table C-2 (Continued)
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
SB-214	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	nm	nm	nm
	4.0 to 6.0	<1	nm	<1
	6.0 to 8.0	380	<1	380
SB-215	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	3	<1	3
	6.0 to 8.0	80	<1	80
SB-216	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	nm
	6.0 to 8.0	100	<1	100
SB-217	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	nm	nm	nm
	6.0 to 8.0	290	<1	290
SB-218	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	6	<1	6
	6.0 to 8.0	150	<1	150
SB-219	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	4	<1	4
	6.0 to 8.0	50	<1	50
SB-220	0.0 to 2.0	1	nm	1
SB-221	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	24	<1	24
	6.0 to 8.0	220	<1	220
SB-222	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	850	<1	850
	6.0 to 8.0	1000	<1	1000
SB-223	nm	nm	nm	nm
SB-224	nm	nm	nm	nm

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
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Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
SB-225	nm	nm	nm	nm
SB-226	nm	nm	nm	nm
SB-227	nm	nm	nm	nm
SB-228	nm	nm	nm	nm
SB-229	nm	nm	nm	nm
SB-230	nm	nm	nm	nm
SB-231	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	7	<1	7
	4.0 to 6.0	4	<1	4
	6.0 to 8.0	260	<1	260
SB-232	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	150	<1	150
	6.0 to 8.0	900	<1	900
SB-233	nm	nm	nm	nm
SB-234	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	50	<1	50
	6.0 to 8.0	270	<1	270
	8.0 to 10.0	300	<1	300
SB-235	15.0 to 17.0	50	<1	50
	20.0 to 22.0	50	<1	50
SB-236	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
SB-237	nm	nm	nm	nm
SB-238	1.0 to 3.0	<1	nm	<1
	3.0 to 5.0	2	<1	2
	6.0 to 8.0	850	<1	850

See notes at end of table.

Table C-2 (Continued)
Organic Vapor Analyzer (OVA) Soil Screening Data
January Through March 1996

Contamination Assessment Report
Trumbo Point Fuel Farm
Naval Air Station Key West
Key West, Florida

Sample Location	Sample Depth[1]	OVA Screening Results[2]		
		Unfiltered Reading	Filtered Reading	Actual Reading[3]
SB-239	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	50	<1	50
	4.0 to 6.0	1200	<1	1200
VZ-1	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	470	<1	470
VZ-2	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	310	<1	310
VZ-3	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	390	<1	390
VZ-4	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	150	<1	150
VZ-5	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
VZ-6	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	<1	nm	<1
VZ-7	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	350	<1	350
VZ-8	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	1	nm	1
	4.0 to 6.0	110	<1	110
VZ-9	0.0 to 2.0	<1	nm	<1
	2.0 to 4.0	<1	nm	<1
	4.0 to 6.0	70	<1	70

[1]All sample depths are recorded in feet below land surface.
[2]All OVA readings are recorded in parts per million (ppm).
[3]The actual reading is determined by subtracting the filtered OVA reading from the unfiltered OVA reading.
[4]A monitoring well was installed in this soil boring location.

Notes: nm = not measured.
< = less than.

APPENDIX D

SOIL SAMPLE ANALYTICAL DATA

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC #

Task Order #: 095
Job #:
Office Ph #: 904 656-1293
Field Office Ph #: 305 293-3063

PROJECT NAME: NAS Key West
SITE NAME: Trumbo Point Fuel Farm
PROJECT MANAGER: Mark Diblin
COPY TO: Joe Fugitt
REQ. COMPLETION DATE:

WASTE OIL GROUP — LAB TEST CODES

A0102

Boring Comments Depth	SAMPLE IDENTIFIER (depth suffix)	SAMPLE DATE 1996	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	1: 8 RCRA metals and TRPH 4/16	2: USEPA 8240	3: USEPA 8270	4: Metals (As, Cd, CR, Pb) and TRPH	5	6	7	8	LEA #	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME / Comments
SB139 4-5'	01B13903	1-30	1146	S		X	Y	3	1	1	1						96012331	Near Source area not
SB140 4-5'	01B14003	1-30	1227	S		X	N	1				1					96012332	delineation sample not
SB141 4-5'	01B14103	1-30	1410	S		X	N	1				1					96012333	delineation sample
SB142 4-5'	01B14203	1-30	1445	S		X	N	1				1					96012334	delineation sample
SB 143 4-5'	01B14303	1-30	1520	S		X	N	1				1					96012335	delineation sample
SB144 4-5'	01B14403	1-31	0815	S		X	N	1				1					96012336	delineation sample
SB 145 4-5'	01B14503	1-31	0845	S		X	N	1				1					96012337	delineation sample
SB 146 4-5'	01B14603	1-31	0920	S		X	N	1				1					96012338	delineation sample
SB 147 4-5'	01B14703	1-31	1005	S		X	N	1				1					96012339	delineation sample
SB 148 4-5'	01B14803	1-31	1025	S		X	N	1				1					96012340	delineation sample
SB 148 4-5'	01B14803D	1-31	1025	S		X	N	1				1					96012341	delineation sample dup.
TOTAL PARAMETERS PER COLUMN									1	1	1	10						

NEESA QC LEVEL

NOTES: Soil Samples not preserved. On ice
Soil jar lot # D5214030

LAB COMMENTS: RPT# 960138 Cooler temp: 2+2.3+2
Locator Code: F5

SAMPLED BY	RECEIVED BY	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
J. Fugitt							
RELINQUISHED BY: P. WAGNER	DATE 2-1-96	TIME 1400	RECEIVED BY: Archer	2-2-96	1145		

SHIPPING AIRBILL NUMBER:

SHIPPED VIA: FEDERAL EXPRESS # 4426387755

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EA 3D W/ ABB ASCII EDD
SITE QC REQ'D
DUE 2/23/96

020001

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC #

Task Order #: 095
Job #:
Office Ph #: 904 656-1293
Field Office Ph #: 305 293-3063

PROJECT NAME: NAS KEY WEST
SITE NAME: TRUMBO POINT FUEL FARM
PROJECT MANAGER: MARK DIBLIN
COPY TO: JOE FUGITT
REQ. COMPLETION DATE:

WASTE OIL GROUP — LAB TEST CODES

A 0103

LAB BATCH NO:

Boring Comments Depth	SAMPLE IDENTIFIER (depth sequence)	SAMPLE DATE 1996	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	1: 8 RCRA METALS AND TRPH	2: USEPA 8240 VOA	3: USEPA 8270 BNA	4: METALS (As Cd Cr Pb) AND TRPH	5	6	7	8	EA #	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME / Comments
SB 149 4-5'	01B14903	1-31	1055	S		X	N	1				1					9601242	delineation Sample
SB 150 4-5'	01B15003	1-31	1115	S		X	N	1				1					9601243	delineation Sample
SB 151 4-5'	01B15103	1-31	1140	S		X	N	1				1					9601244	delineation Sample
SB 152 4-5'	01B15203	1-31	1320	S		X	N	1				1					9601245	delineation Sample
SB 153 4-5'	01B15303	1-31	1350	S		X	N	1				1					9601246	delineation Sample
SB 154 4-5'	01B15403	1-31	1418	S		X	N	1				1					9601247	delineation Sample
SB 155 4-5'	01B15503	1-31	1430	S		X	N	1				1					9601248	delineation sample
SB 155 4-5'	01B15503D	1-31	1430	S		X	N	1				1					9601249	duplicate Sample
SB 156 4-5'	01B15603	1-31	1505	S		X	Y	3	1	1	1						9601250	Source area
SB 157 4-5'	01B15703	1-31	1525	S		X	N	1				1					9601251	delineation Sample
SB 158 4-5	01B15803	2-1	0755	S		X	N	1				1					9601252	delineation Sample
TOTAL PARAMETERS PER COLUMN									1	1	1	10						

NEESA QC LEVEL

NOTES: Soil Samples not preserved. on ice
Soil jar lot # 05214030

LAB COMMENTS: RPT#960138 Cooler temp: 2+2.3
Locator Code: F5

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
J. Fugitt							
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE TIME
P. WAGNER	2-1-96 1400	Archer 2-2-96 1145					
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE TIME

SHIPPING AIRBILL NUMBER:

SHIPPED VIA: FEDERAL EXPRESS 4426387755

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SITE QC REQ'D
DUE 2/23/96

020020

ABB ENVIRONMENTAL SERVICES, INC.

Note Oil Group — SDG # — w/HNO3 Pres. — USEPA 610 Screening — COC #

Task Order #: 095
Job #:
Office Ph #: 904 656-1293
Field Office Ph #: 305 293-3063

PROJECT NAME: NAS KEY WEST
SITE NAME: TRUMBO POINT FUEL FARM
PROJECT MANAGER: MARK DIBLIN
COPY TO: JOE FUGITT
REQ. COMPLETION DATE:

A0104

Comments	SAMPLE IDENTIFIER	SAMPLE DATE 1996	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	LAB TEST CODES 1: USEPA 624 VOC w/HCl Presev.	2: USEPA 625 BNA	3: TAL METALS (As, Cd, Cr, Pb)	4: TRPH 418.1 w/H2SO4 Presev.	5: USEPA 610 PAH	6	7 EA#	8	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME / Comments	LAB BATCH NO:
EQUIPMENT BLANK	ØIBØEBØ1	2-1	0815	W		X	Y	7	3	2	1	1			9601253			
TRIP BLANK	ØITBØ1	2-1	0815	W		X	N	3	3						9601254			
MW-22	ØIGØ22	2-1	0945	W		X	N		2				2		9601255		No Preservative	
MW-23	ØIGØ23	2-1	0950	W		X	N		2				2		9601256		No Preservative	
TOTAL PARAMETERS PER COLUMN									6	2	1	1	4					NEESA QC LEVEL

NOTES: -ON ICE
-ON 610 PAH include 1-methylnaphthalene and 2-methylnaphthalene in analysis.

LAB COMMENTS: RPT# 960138 Cooler temp: 2+2.3+2
Locator Code: F5

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
J. Fugitt							
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE TIME
[signature]	2-1-96 1400	Archer					
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE TIME

SHIPPING AIRBILL NUMBER:
SHIPPED VIA: FEDERAL EXPRESS # 4426387755

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SITE QC REQ'D

L00030

Report# 960157 Locator code. #3

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC #

Task Order #: 095
Job #: 8506.33
Office Ph #: 904 656-1293
Field Office Ph #: 305 293-3063

PROJECT NAME: NAS KEY WEST
SITE NAME: TRUMBO POINT FUEL FARM
PROJECT MANAGER: MARK DIBLIN
COPY TO: JOE FUGITT
REQ. COMPLETION DATE:

WASTE OIL & ROUP

LAB TEST CODES

A 0105

Boring/Comments Depth	SAMPLE IDENTIFIER	SAMPLE DATE 1996	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	1 8 RCRA METALS AND TRPH 418.1	2 USEPA 8240	3 USEPA 8270	4 METALS (As, Cd, Cr, Pb) AND TRPH 418.1	5 AS 7060 Cd, Cr, Pb 7421	6	7	8	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME	LAB BATCH NO: Comments
SB166 4-5'	01B166603	2-5	1430	S		X	Y	3	1	1	1			9601400				Source Sample
9.7. SB167 2-3'	01B16702	2-5	1550	S		X	Y	3	1	1	1			9601401				Source Sample
SB168 2-4'	01B16802	2-6	0810	S		X	N	1				1		9601402				delineation sample
SB169 2-4'	01B16902	2-6	0935	S		X	N	1				1		9601403				delineation Sample
SB170 2-4'	01B17002	2-6	1017	S		X	Y	3	1	1	1			9601404				Source Sample
SB171 0-2'	01B17101	2-6	1100	S		X	N	1				1		9601405				delineation Sample
SB172 4-6'	01B17203	2-6	1130	S		X	N	1				1		9601406				delineation Sample
SB173 2-4'	01B17302	2-6	1200	S		X	N	1				1		9601407				delineation Sample
SB174 4-6'	01B17403	2-6	1420	S		X	N	1				1		9601408				delineation sample
SB175 2-4'	01B17502	2-6	1510	S		X	N	1				1		9601409				delineation sample
SB176 3'	01B17602	2-6	1720	S		X	N	1				1		9601410				delineation sample
TOTAL PARAMETERS PER COLUMN									3	3	3	8						NEESA QC LEVEL

NOTES: Soil Samples not Preserved. on ice.
Soil jar lot # D521 4030

LAB COMMENTS: Temp of Cooler 2.1 Custody seals intact

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
J. Fugitt	P. Walker				Janal McCloud 02:08:96		1030
RELINQUISHED BY: P. Walker	DATE 2-7-96 TIME 1300	RECEIVED BY:					
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:				

SHIPPING AIRBILL NUMBER: 360428 9791
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020001

EA ~~?~~ W/ABB ASC II Edd site QC REQD L0697 Ba, Hg, Se, Ag
Due 2/29/96 700107.10 RELEASE 673

Report # 960157 Locator code

ABB ENVIRONMENTAL SERVICES, INC.

SDG #

COC #

Task Order #: 095
Job #: 8506.33
Office Ph #: 904 656-1293
Field Office Ph #: 305 293-3063

PROJECT NAME: NAS KEY WEST
SITE NAME: TRUMBO POINT FUEL FARM
PROJECT MANAGER: MARK DIBLIN
COPY TO: JOE FUGITT
REQ. COMPLETION DATE:

WASTE OIL GROUP

LAB TEST CODES

A0106

Bang Comments Depth	SAMPLE IDENTIFIER	SAMPLE DATE 1996	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	Metals (As, Cd, Cr, Pb) and TRPH	418.1 Solids	AS 7060, CD 7130, CR 7190, PB 7421						LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME / Comments
SB177 3'	01B17702	2-7	0800	S		X	N	1	1						9601411		delineation Sample
SB178 3.5-4'	01B17802	2-7	0920	S		X	N	1	1						9601412		delineation sample
																	L8697
TOTAL PARAMETERS PER COLUMN									2								NEESA QC LEVEL

NOTES: Soil Samples not preserved. On ice.
Soil jar lot # D5214030

LAB COMMENTS: Temp of Cooler 2.1°C Custody Seals intact.

SAMPLED BY	RECEIVED BY	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
J. Fugitt	R. WAGNER				Donna McCloud	020896	1030
R. WAGNER			2-7-96	1300			

SHIPPING AIRBILL NUMBER: 360428979 1
SHIPPED VIA: FEDERAL EXPRESS

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EA 3D W/ABB ASC II. Edd Site QC Reqd Due 2/29/96 L8697 70067.10

200020

ABB ENVIRONMENTAL SERVICES, INC.

SDG #

COC # REPORT # 960405 M7

Task Order #: 095
Job #: 8506.33
Office Ph #: 904 656-1293
Field Office Ph #: 305 293-3063

PROJECT NAME: NAS KEY WEST
SITE NAME: TRUMBO POINT FUEL FARM
PROJECT MANAGER: MARK DIBLIN
COPY TO: JOE FUGITT
REQ. COMPLETION DATE: 4-27-96

WASTE OIL GROUP LAB TEST CODES

A0108

Boring Comments depth	SAMPLE IDENTIFIER depth sequence #	SAMPLE DATE 1996	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	1 Metals (As, Cd, Cr, Pb) and TRPH	2	3	4	5	6	7	8	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME / Comments
SB223 4-4.5	01B22303	3-26	0925	S		X	N	1	1			9603648					delineation sample
SB224 3-3.5	01B22402	3-26	0950	S		X	N	1	1			9603649					delineation sample
SB225 3-3.5	01B22502	3-26	1010	S		X	N	1	1			9603650					delineation sample
SB226 3-3.5	01B22602	3-26	1105	S		X	N	1	1			9603651					delineation sample
SB227 4-4.5	01B22703	3-26	1120	S		X	N	1	1			9603652					delineation sample
SB228 4-4.5	01B22803	3-26	1139	S		X	N	1	1			9603653					delineation sample
SB229 3-3.5	01B22902	3-26	1155	S		X	N	1	1			9603654					delineation sample
SB230 3-3.5	01B23002	3-26	1325	S		X	N	1	1			9603655					delineation sample
																	LB986
TOTAL PARAMETERS PER COLUMN									8								

LAB BATCH NO:

NEESA QC LEVEL

NOTES:
Soil samples not preserved. On ice.
Soil jar lot # D521 4030

LAB COMMENTS:
Samples received in good condition cooler temp 4.0°C, PH NONE (SOIL) CUSTODY SEALS INTACT

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
Joseph Fugitt 3/27/96 950	KRISTIN Lewis SAIC						
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE TIME
Joseph J Fugitt	3-26-96 1700						
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE TIME

SHIPPING AIRBILL NUMBER: 4426 385 736
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EA 3D REPORT W/ABB ASCII EDD
DUE 4/10/96 LPM=JOD
RELEASE #677

09/05/96 KEY WEST SOIL SAMPLES 08:28:31
Waste Oil Group

Lab Sample Number:	9601231				9601231RE				9601232				9601233			
Site	TRUMBO PT.				TRUMBO PT.				TRUMBO PT.				TRUMBO PT.			
Locator	01B13903				01B13903				01B14003				01B14103			
Collect Date:	30-JAN-96				30-JAN-96				30-JAN-96				30-JAN-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
SEMIVOLATILES (SW-846,8270)																
Naphthalene	-	U	ug/kg	390	-	U	ug/kg	390	-				-			
2-Methylnaphthalene	-	U	ug/kg	390	-	U	ug/kg	390	-				-			
Dibenzofuran	-	U	ug/kg	390	-	U	ug/kg	390	-				-			
Phenanthrene	230	J	ug/kg		250	J	ug/kg		-				-			
Anthracene	-	U	ug/kg	390	-	U	ug/kg	390	-				-			
Fluoranthene	-	U	ug/kg	390	-	U	ug/kg	390	-				-			
Pyrene	-	U	ug/kg	390	-	U	ug/kg	390	-				-			
Benzo (a) anthracene	-	U	ug/kg	390	-	U	ug/kg	390	-				-			
Chrysene	-	U	ug/kg	390	-	U	ug/kg	390	-				-			
bis(2-Ethylhexyl) phthalate	-	U	ug/kg	390	-	U	ug/kg	390	-				-			
Benzo (a) pyrene	-	U	ug/kg	390	-	U	ug/kg	390	-				-			
TRPH																
Total petroleum hydrocarbons	4960		mg/kg		-				37100		mg/kg		191		mg/kg	
TOTAL METALS																
Cadmium	.2	BN	mg/kg		-				.16	BN	mg/kg		.29	BN	mg/kg	
Chromium	2.4		mg/kg		-				3.4		mg/kg		3.9		mg/kg	
Arsenic	2.7	NS	mg/kg		-				1.5		mg/kg		5.9	S	mg/kg	
Lead	10	N	mg/kg		-				3		mg/kg		17.1		mg/kg	
USED OIL METALS																
Silver, extracted	-				-				-				-			
Barium, extracted	-				-				-				-			
Cadmium, extracted	-				-				-				-			
Lead, extracted	-				-				-				-			
Arsenic, extracted	-				-				-				-			
Mercury, extracted	-				-				-				-			

U= NOT DETECTED J OR B= ESTIMATED VALUE

09/05/96 KEY WEST SOIL SAMPLES 08:28:31
Waste Oil Group

Lab Sample Number:	9601234				9601235				9601236				9601237			
Site	TRUMBO PT.				TRUMBO PT.				TRUMBO PT.				TRUMBO PT.			
Locator	01B14203				01B14303				01B14403				01B14503			
Collect Date:	30-JAN-96				30-JAN-96				31-JAN-96				31-JAN-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
SEMIVOLATILES (SW-846,8270)																
Naphthalene	-				-				-				-			
2-Methylnaphthalene	-				-				-				-			
Dibenzofuran	-				-				-				-			
Phenanthrene	-				-				-				-			
Anthracene	-				-				-				-			
Fluoranthene	-				-				-				-			
Pyrene	-				-				-				-			
Benzo (a) anthracene	-				-				-				-			
Chrysene	-				-				-				-			
bis(2-Ethylhexyl) phthalate	-				-				-				-			
Benzo (a) pyrene	-				-				-				-			
TRPH																
Total petroleum hydrocarbons	1080		mg/kg		41.2		mg/kg		734		mg/kg		62.4		mg/kg	
TOTAL METALS																
Cadmium	.33	BN	mg/kg		.3	BN	mg/kg		.33	BN	mg/kg		.26	BN	mg/kg	
Chromium	3.8		mg/kg		4.4		mg/kg		4.8		mg/kg		3.7		mg/kg	
Arsenic	2.4	S	mg/kg		4.1		mg/kg		6.5	S	mg/kg		4.8	S	mg/kg	
Lead	27.4		mg/kg		17.2		mg/kg		15.5		mg/kg		12.7		mg/kg	
USED OIL METALS																
Silver, extracted	-				-				-				-			
Barium, extracted	-				-				-				-			
Cadmium, extracted	-				-				-				-			
Lead, extracted	-				-				-				-			
Arsenic, extracted	-				-				-				-			
Mercury, extracted	-				-				-				-			

U= NOT DETECTED J OR B= ESTIMATED VALUE

09/05/96 KEY WEST SOIL SAMPLES 08:28:31
Waste Oil Group

	9601238				9601239				9601240				9601241			
Lab Sample Number:																
Site	TRUMBO PT.				TRUMBO PT.				TRUMBO PT.				TRUMBO PT.			
Locator	01B14603				01B14703				01B14803				01B14803D			
Collect Date:	31-JAN-96				31-JAN-96				31-JAN-96				31-JAN-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
SEMIVOLATILES (SW-846,8270)																
Naphthalene	-				-				-				-			
2-Methylnaphthalene	-				-				-				-			
Dibenzofuran	-				-				-				-			
Phenanthrene	-				-				-				-			
Anthracene	-				-				-				-			
Fluoranthene	-				-				-				-			
Pyrene	-				-				-				-			
Benzo (a) anthracene	-				-				-				-			
Chrysene	-				-				-				-			
bis(2-Ethylhexyl) phthalate	-				-				-				-			
Benzo (a) pyrene	-				-				-				-			
TRPH																
Total petroleum hydrocarbons	40.2		mg/kg		46		mg/kg		31.7		mg/kg		30.1		mg/kg	
TOTAL METALS																
Cadmium	.11	UN	mg/kg		.41	BN	mg/kg		.17	BN	mg/kg		.16	BN	mg/kg	
Chromium	2.3		mg/kg		2.3		mg/kg		3		mg/kg		2.1		mg/kg	
Arsenic	2.1	S	mg/kg		3.3	+	mg/kg		14.9		mg/kg		3.4	S	mg/kg	
Lead	5.8		mg/kg		14.4		mg/kg		9.3		mg/kg		6.1		mg/kg	
USED OIL METALS																
Silver, extracted	-				-				-				-			
Barium, extracted	-				-				-				-			
Cadmium, extracted	-				-				-				-			
Lead, extracted	-				-				-				-			
Arsenic, extracted	-				-				-				-			
Mercury, extracted	-				-				-				-			

U= NOT DETECTED J OR B= ESTIMATED VALUE

09/05/96 KEY WEST SOIL SAMPLES 08:28:31
Waste Oil Group

	Lab Sample Number:	9601242			9601243			9601244			9601245		
	Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
	Locator	01B14903			01B15003			01B15103			01B15203		
	Collect Date:	31-JAN-96			31-JAN-96			31-JAN-96			31-JAN-96		
		VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
SEMIVOLATILES (SW-846,8270)													
Naphthalene		-			-			-			-		
2-Methylnaphthalene		-			-			-			-		
Dibenzofuran		-			-			-			-		
Phenanthrene		-			-			-			-		
Anthracene		-			-			-			-		
Fluoranthene		-			-			-			-		
Pyrene		-			-			-			-		
Benzo (a) anthracene		-			-			-			-		
Chrysene		-			-			-			-		
bis(2-Ethylhexyl) phthalate		-			-			-			-		
Benzo (a) pyrene		-			-			-			-		
TRPH													
Total petroleum hydrocarbons		34.8	mg/kg		52	mg/kg		854	mg/kg		- U	mg/kg	32.4
TOTAL METALS													
Cadmium		.13 UN	mg/kg		.23 BN	mg/kg		.16 BN	mg/kg		.17 BN	mg/kg	
Chromium		2.8	mg/kg		3	mg/kg		2.8	mg/kg		3.5	mg/kg	
Arsenic		6.1 S	mg/kg		6.1 S	mg/kg		7.1 S	mg/kg		11.5 +	mg/kg	
Lead		6.5	mg/kg		14.3	mg/kg		8.6	mg/kg		15	mg/kg	
USED OIL METALS													
Silver, extracted		-			-			-			-		
Barium, extracted		-			-			-			-		
Cadmium, extracted		-			-			-			-		
Lead, extracted		-			-			-			-		
Arsenic, extracted		-			-			-			-		
Mercury, extracted		-			-			-			-		

U= NOT DETECTED J OR B= ESTIMATED VALUE

09/05/96 KEY WEST SOIL SAMPLES 08:28:31
Waste Oil Group

Lab Sample Number:	9601246				9601247				9601248				9601249			
Site	TRUMBO PT.				TRUMBO PT.				TRUMBO PT.				TRUMBO PT.			
Locator	01B15303				01B15403				01B15503				01B15503D			
Collect Date:	31-JAN-96				31-JAN-96				31-JAN-96				31-JAN-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
SEMIVOLATILES (SW-846,8270)																
Naphthalene	-				-				-				-			
2-Methylnaphthalene	-				-				-				-			
Dibenzofuran	-				-				-				-			
Phenanthrene	-				-				-				-			
Anthracene	-				-				-				-			
Fluoranthene	-				-				-				-			
Pyrene	-				-				-				-			
Benzo (a) anthracene	-				-				-				-			
Chrysene	-				-				-				-			
bis(2-Ethylhexyl) phthalate	-				-				-				-			
Benzo (a) pyrene	-				-				-				-			
TRPH																
Total petroleum hydrocarbons	-	U	mg/kg	30.8	-	U	mg/kg	32.6	-	U	mg/kg	33	-	U	mg/kg	33.4
TOTAL METALS																
Cadmium	.21	BN	mg/kg		.17	BN	mg/kg		.17	BN	mg/kg		.16	BN	mg/kg	
Chromium	3.3		mg/kg		2.7		mg/kg		3.3		mg/kg		2.9		mg/kg	
Arsenic	9.1	+	mg/kg		2.3	S	mg/kg		6.7	S	mg/kg		6.4	+	mg/kg	
Lead	19.1		mg/kg		2.1		mg/kg		11	S	mg/kg		4.9		mg/kg	
USED OIL METALS																
Silver, extracted	-				-				-				-			
Barium, extracted	-				-				-				-			
Cadmium, extracted	-				-				-				-			
Lead, extracted	-				-				-				-			
Arsenic, extracted	-				-				-				-			
Mercury, extracted	-				-				-				-			

U= NOT DETECTED J OR B= ESTIMATED VALUE

09/05/96 KEY WEST SOIL SAMPLES 08:28:31
Waste Oil Group

	9601250				9601250DL				9601251				9601252			
Lab Sample Number:																
Site	TRUMBO PT.				TRUMBO PT.				TRUMBO PT.				TRUMBO PT.			
Locator	01B15603				01B15603				01B15703				01B15803			
Collect Date:	31-JAN-96				31-JAN-96				31-JAN-96				01-FEB-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
SEMIVOLATILES (SW-846,8270)																
Naphthalene	-	U	ug/kg	460	-	U	ug/kg	920	-				-			
2-Methylnaphthalene	9000	E	ug/kg		9300	D	ug/kg		-				-			
Dibenzofuran	-	U	ug/kg	460	-	U	ug/kg	920	-				-			
Phenanthrene	-	U	ug/kg	460	-	U	ug/kg	920	-				-			
Anthracene	1800		ug/kg		2100	D	ug/kg		-				-			
Fluoranthene	-	U	ug/kg	460	-	U	ug/kg	920	-				-			
Pyrene	220	J	ug/kg		240	DJ	ug/kg		-				-			
Benzo (a) anthracene	-	U	ug/kg	460	-	U	ug/kg	920	-				-			
Chrysene	-	U	ug/kg	460	-	U	ug/kg	920	-				-			
bis(2-Ethylhexyl) phthalate	-	U	ug/kg	460	-	U	ug/kg	920	-				-			
Benzo (a) pyrene	-	U	ug/kg	460	-	U	ug/kg	920	-				-			
TRPH																
Total petroleum hydrocarbons	19000		mg/kg		-				7290		mg/kg		-	U	mg/kg	34.1
TOTAL METALS																
Cadmium	.23	BN	mg/kg		-				.13	UN	mg/kg		.18	BN	mg/kg	
Chromium	3.4		mg/kg		-				2.9		mg/kg		4.3		mg/kg	
Arsenic	3.7	NS	mg/kg		-				2.6	S	mg/kg		1.6	+	mg/kg	
Lead	4.1	N	mg/kg		-				7.2		mg/kg		2.3		mg/kg	
USED OIL METALS																
Silver, extracted	-				-				-				-			
Barium, extracted	-				-				-				-			
Cadmium, extracted	-				-				-				-			
Lead, extracted	-				-				-				-			
Arsenic, extracted	-				-				-				-			
Mercury, extracted	-				-				-				-			

U= NOT DETECTED J OR B= ESTIMATED VALUE

09/05/96 KEY WEST SOIL SAMPLES 08:28:31
Waste Oil Group

	9601400				9601401				9601402				9601403			
Lab Sample Number:																
Site	TRUMBO PT.				TRUMBO PT.				TRUMBO PT.				TRUMBO PT.			
Locator	01B16603				01B16702				01B16802				01B16902			
Collect Date:	05-FEB-96				05-FEB-96				06-FEB-96				06-FEB-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
SEMIVOLATILES (SW-846,8270)																
Naphthalene	-	U	ug/kg	480	540		ug/kg		-				-			
2-Methylnaphthalene	-	U	ug/kg	480	680		ug/kg		-				-			
Dibenzofuran	-	U	ug/kg	480	190	J	ug/kg		-				-			
Phenanthrene	-	U	ug/kg	480	580		ug/kg		-				-			
Anthracene	-	U	ug/kg	480	-	U	ug/kg	380	-				-			
Fluoranthene	-	U	ug/kg	480	280	J	ug/kg		-				-			
Pyrene	-	U	ug/kg	480	390		ug/kg		-				-			
Benzo (a) anthracene	-	U	ug/kg	480	180	J	ug/kg		-				-			
Chrysene	-	U	ug/kg	480	230	J	ug/kg		-				-			
bis(2-Ethylhexyl) phthalate	-	U	ug/kg	480	-	U	ug/kg	380	-				-			
Benzo (a) pyrene	-	U	ug/kg	480	150	J	ug/kg		-				-			
TRPH																
Total petroleum hydrocarbons	-	U	mg/kg	35.8	117		mg/kg		3580		mg/kg		58		mg/kg	
TOTAL METALS																
Cadmium	-				-				.47	BN	mg/kg		.99	N	mg/kg	
Chromium	-				-				1.7		mg/kg		11.8		mg/kg	
Arsenic	-				-				.66	BW	mg/kg		3.5	BS	mg/kg	
Lead	-				-				7	E	mg/kg		12.8	E	mg/kg	
USED OIL METALS																
Silver, extracted	16.7	B	ug/l		16.8	B	ug/l		-				-			
Barium, extracted	31.6	B	ug/l		67.8	B	ug/l		-				-			
Cadmium, extracted	23.3	BN	ug/l		1	UN	ug/l		-				-			
Lead, extracted	-	U	ug/l	1	-	U	ug/l	1	-				-			
Arsenic, extracted	18	B	ug/l		2.8	B	ug/l		-				-			
Mercury, extracted	.28	B	ug/l		-	U	ug/l	.1	-				-			

U= NOT DETECTED J OR B= ESTIMATED VALUE

09/05/96 KEY WEST SOIL SAMPLES 08:28:31
Waste Oil Group

Lab Sample Number:	9601404				9601404RE				9601405				9601406			
Site	TRUMBO PT.				TRUMBO PT.				TRUMBO PT.				TRUMBO PT.			
Locator	01B17002				01B17002				01B17101				01B17203			
Collect Date:	06-FEB-96				06-FEB-96				06-FEB-96				06-FEB-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
SEMIVOLATILES (SW-846,8270)																
Naphthalene	-	U	ug/kg	400	-	U	ug/kg	400	-				-			
2-Methylnaphthalene	-	U	ug/kg	400	-	U	ug/kg	400	-				-			
Dibenzofuran	-	U	ug/kg	400	-	U	ug/kg	400	-				-			
Phenanthrene	-	U	ug/kg	400	-	U	ug/kg	400	-				-			
Anthracene	-	U	ug/kg	400	-	U	ug/kg	400	-				-			
Fluoranthene	-	U	ug/kg	400	-	U	ug/kg	400	-				-			
Pyrene	-	U	ug/kg	400	-	U	ug/kg	400	-				-			
Benzo (a) anthracene	-	U	ug/kg	400	-	U	ug/kg	400	-				-			
Chrysene	-	U	ug/kg	400	-	U	ug/kg	400	-				-			
bis(2-Ethylhexyl) phthalate	250	J	ug/kg		350	J	ug/kg		-				-			
Benzo (a) pyrene	-	U	ug/kg	400	-	U	ug/kg	400	-				-			
TRPH																
Total petroleum hydrocarbons	1600		mg/kg		-				106		mg/kg		1170		mg/kg	
TOTAL METALS																
Cadmium	-				-				.47	BN	mg/kg		.18	BN	mg/kg	
Chromium	-				-				3		mg/kg		3.2		mg/kg	
Arsenic	-				-				.98	BW	mg/kg		.62	BW	mg/kg	
Lead	-				-				56.7	E	mg/kg		2.4	E	mg/kg	
USED OIL METALS																
Silver, extracted	15.5	B	ug/l		-				-				-			
Barium, extracted	479	B	ug/l		-				-				-			
Cadmium, extracted	1	UN	ug/l		-				-				-			
Lead, extracted	6.6	B	ug/l		-				-				-			
Arsenic, extracted	2.2	B	ug/l		-				-				-			
Mercury, extracted	-	U	ug/l	.1	-				-				-			

U= NOT DETECTED J OR B= ESTIMATED VALUE

09/05/96 KEY WEST SOIL SAMPLES 08:28:31
Waste Oil Group

Lab Sample Number:	9601407				9601408				9601409				9601410		
Site	TRUMBO PT.				TRUMBO PT.				TRUMBO PT.				TRUMBO PT.		
Locator	01B17302				01B17403				01B17502				01B17602		
Collect Date:	06-FEB-96				06-FEB-96				06-FEB-96				06-FEB-96		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
SEMIVOLATILES (SW-846,8270)																
Naphthalene	-				-				-				-			
2-Methylnaphthalene	-				-				-				-			
Dibenzofuran	-				-				-				-			
Phenanthrene	-				-				-				-			
Anthracene	-				-				-				-			
Fluoranthene	-				-				-				-			
Pyrene	-				-				-				-			
Benzo (a) anthracene	-				-				-				-			
Chrysene	-				-				-				-			
bis(2-Ethylhexyl) phthalate	-				-				-				-			
Benzo (a) pyrene	-				-				-				-			
TRPH																
Total petroleum hydrocarbons	52.2		mg/kg		66.7		mg/kg		37.3		mg/kg		87.2		mg/kg	
TOTAL METALS																
Cadmium	.57	N	mg/kg		.43	BN	mg/kg		.15	BN	mg/kg		.17	BN	mg/kg	
Chromium	4.3		mg/kg		7.9		mg/kg		2.3		mg/kg		1.9		mg/kg	
Arsenic	1.2		mg/kg		3.9	S	mg/kg		.36	BW	mg/kg		.47	BW	mg/kg	
Lead	59.3	E	mg/kg		.78	E	mg/kg		2.5	E	mg/kg		6.5	E	mg/kg	
USED OIL METALS																
Silver, extracted	-				-				-				-			
Barium, extracted	-				-				-				-			
Cadmium, extracted	-				-				-				-			
Lead, extracted	-				-				-				-			
Arsenic, extracted	-				-				-				-			
Mercury, extracted	-				-				-				-			

U= NOT DETECTED J OR B= ESTIMATED VALUE

09/05/96 KEY WEST SOIL SAMPLES 08:28:31
Waste Oil Group

Lab Sample Number:	9601411			9601412			9603648			9603649		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01B17702			01B17802			01B22303			01B22402		
Collect Date:	07-FEB-96			07-FEB-96			26-MAR-96			26-MAR-96		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
SEMIVOLATILES (SW-846,8270)												
Naphthalene	-			-			-			-		
2-Methylnaphthalene	-			-			-			-		
Dibenzofuran	-			-			-			-		
Phenanthrene	-			-			-			-		
Anthracene	-			-			-			-		
Fluoranthene	-			-			-			-		
Pyrene	-			-			-			-		
Benzo (a) anthracene	-			-			-			-		
Chrysene	-			-			-			-		
bis(2-Ethylhexyl) phthalate	-			-			-			-		
Benzo (a) pyrene	-			-			-			-		
TRPH												
Total petroleum hydrocarbons	743	mg/kg		5320	mg/kg		3070	mg/kg		11000	mg/kg	
TOTAL METALS												
Cadmium	.47 BN	mg/kg		.29 BN	mg/kg		.53 BN	mg/kg		.13 UN	mg/kg	
Chromium	2.4	mg/kg		22.9	mg/kg		3.2 N	mg/kg		2.5 N	mg/kg	
Arsenic	1.7 S	mg/kg		.59 BW	mg/kg		12.5 NS	mg/kg		2.1 NS	mg/kg	
Lead	31 E	mg/kg		146 E	mg/kg		323	mg/kg		8.3	mg/kg	
USED OIL METALS												
Silver, extracted	-			-			-			-		
Barium, extracted	-			-			-			-		
Cadmium, extracted	-			-			-			-		
Lead, extracted	-			-			-			-		
Arsenic, extracted	-			-			-			-		
Mercury, extracted	-			-			-			-		

U= NOT DETECTED J OR B= ESTIMATED VALUE

09/05/96 KEY WEST SOIL SAMPLES 08:28:31
Waste Oil Group

	Lab Sample Number:	9603650			9603651			9603652			9603653		
	Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
	Locator	01B22502			01B22602			01B22703			01B22803		
	Collect Date:	26-MAR-96			26-MAR-96			26-MAR-96			26-MAR-96		
		VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
SEMIVOLATILES (SW-846,8270)													
Naphthalene		-			-			-			-		
2-Methylnaphthalene		-			-			-			-		
Dibenzofuran		-			-			-			-		
Phenanthrene		-			-			-			-		
Anthracene		-			-			-			-		
Fluoranthene		-			-			-			-		
Pyrene		-			-			-			-		
Benzo (a) anthracene		-			-			-			-		
Chrysene		-			-			-			-		
bis(2-Ethylhexyl) phthalate		-			-			-			-		
Benzo (a) pyrene		-			-			-			-		
TRPH													
Total petroleum hydrocarbons		9270	mg/kg		390	mg/kg		- U	mg/kg	33.2	- U	mg/kg	33.6
TOTAL METALS													
Cadmium		.14 UN	mg/kg		.13 UN	mg/kg		.13 UN	mg/kg		.12 UN	mg/kg	
Chromium		2 N	mg/kg		2.7 N	mg/kg		2.8 N	mg/kg		3.5 N	mg/kg	
Arsenic		.85 BNS	mg/kg		2.1 NS	mg/kg		.93 BNW	mg/kg		1.4 NS	mg/kg	
Lead		7.9 E	mg/kg		1.8	mg/kg		2.2 S	mg/kg		1.6 S	mg/kg	
USED OIL METALS													
Silver, extracted		-			-			-			-		
Barium, extracted		-			-			-			-		
Cadmium, extracted		-			-			-			-		
Lead, extracted		-			-			-			-		
Arsenic, extracted		-			-			-			-		
Mercury, extracted		-			-			-			-		

U= NOT DETECTED J OR B= ESTIMATED VALUE

Lab Sample Number:	9603654				9603655			
Site	TRUMBO PT.				TRUMBO PT.			
Locator	01822902				01823002			
Collect Date:	26-MAR-96				26-MAR-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
SEMIVOLATILES (SW-846,8270)								
Naphthalene	-				-			
2-Methylnaphthalene	-				-			
Dibenzofuran	-				-			
Phenanthrene	-				-			
Anthracene	-				-			
Fluoranthene	-				-			
Pyrene	-				-			
Benzo (a) anthracene	-				-			
Chrysene	-				-			
bis(2-Ethylhexyl) phthalate	-				-			
Benzo (a) pyrene	-				-			
TRPH								
Total petroleum hydrocarbons	15000		mg/kg		52.8		mg/kg	
TOTAL METALS								
Cadmium	.13	UN	mg/kg		.13	UN	mg/kg	
Chromium	2.6	N	mg/kg		3.2	N	mg/kg	
Arsenic	5.2	NS	mg/kg		3	N+	mg/kg	
Lead	2.5		mg/kg		6.7	E	mg/kg	
USED OIL METALS								
Silver, extracted	-				-			
Barium, extracted	-				-			
Cadmium, extracted	-				-			
Lead, extracted	-				-			
Arsenic, extracted	-				-			
Mercury, extracted	-				-			

U= NOT DETECTED J OR B= ESTIMATED VALUE

Qu # 15719 STEVE TAFUNI

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC #

Task Order #: 095
Job #: 8506.33
Office Ph #: 904 656-1293
Field Office Ph #: —

PROJECT NAME: NAS KEY WEST
SITE NAME: TRUMBO POINT FUEL FARM
PROJECT MANAGER: MARK DIBLIN
COPY TO: JOE FUGITT
REQ. COMPLETION DATE: 14 DAYS

LAB TEST CODES (1 2 3 4 5 6 7 8)

A0224

Comments	SAMPLE IDENTIFIER	SAMPLE DATE 1996	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	1: TCLP FL PRO3, FL PRO3 418.1 TRPH	2: US EPA 602	3	4	5	6	7	8	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME / Comments
SB-156	01B156 02	7-31	0838	S		X	N	1	1								3 FT BLS
SB-229	01B229 02	7-31	0920	S		X	N	1	1								3.5 FT BLS
SB-239	01B239 02	7-31	1035	S		X	N	1	1								3 FT BLS
SB-240	01B240 02	7-31	1150	S		X	N	1	1								3.5 FT BLS
MW-74D	01G074 02	8-2	0830	W		X	N	3		3							Preserve w/HCL
TRIP BLANK	01T014	8-2	—	W		X	N	3		3							Preserve w/ HCL
TEMP BLANK	—	—	—					1									TEMPERATURE BLANK

LAB BATCH NO:

TOTAL PARAMETERS PER COLUMN

NEESA QC LEVEL

NOTES: ALL SAMPLES ON ICE

LAB COMMENTS:

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
J. Fugitt							
RELINQUISHED BY: J. Fugitt	DATE 8-2-96	TIME 1500	RECEIVED BY: Carol McNulty	8/3/96 0900			
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:				

SHIPPING AIRBILL NUMBER: 938512732 7732

SHIPPED VIA: FEDERAL EXPRESS

WHITE/YELLOW COPY – LABORATORY PINK COPY – ABB-ES

Quanterra
Environmental Services

EXECUTIVE SUMMARY - Detection Highlights

B6H030106

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD
01B15602 07/31/96 08:38				
TPH (C8-C40)	110	13	mg/kg	FL-DEP FL-PRO
Total recoverable petroleum hydrocarbons	30	13	mg/kg	MCAWW 418.1
Percent Solids	79.0	0.10	%	MCAWW 160.3 MOD
01B22902 07/31/96 09:20				
TPH (C8-C40)	180	120	mg/kg	FL-DEP FL-PRO
Total recoverable petroleum hydrocarbons	420	58	mg/kg	MCAWW 418.1
Percent Solids	85.7	0.10	%	MCAWW 160.3 MOD
01B23902 07/31/96 10:35				
TPH (C8-C40)	200	110	mg/kg	FL-DEP FL-PRO
Total recoverable petroleum hydrocarbons	1100	110	mg/kg	MCAWW 418.1
Percent Solids	94.0	0.10	%	MCAWW 160.3 MOD
01B24002 07/31/96 11:50				
Percent Solids	69.0	0.10	%	MCAWW 160.3 MOD
01G07402 08/02/96 08:30				
Benzene	57	1.0	ug/L	CFR136A 602
Ethylbenzene	3.1	1.0	ug/L	CFR136A 602
Xylenes (total)	6.5	1.0	ug/L	CFR136A 602

APPENDIX E

GROUNDWATER SAMPLE ANALYTICAL DATA

KEROSENE ANALYTICAL GROUP

LOCATION D7-D10

ABB ENVIRONMENTAL SERVICES, INC.

SDG #

COC # APT# 9604604

Task Order #: 095
Job #: 8506.33
Office Ph #: (904) 656-1293
Field Office Ph #: (305) 293-3063

PROJECT NAME: NAS KEY WEST
SITE NAME: TRUMBO POINT FUEL FARM
PROJECT MANAGER: MARK DIBLIN
COPY TO: JOE FUGITT
REQ. COMPLETION DATE: STANDARD

A0114

Comments	SAMPLE IDENTIFIER	SAMPLE DATE 1996	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	1: 601/602 + MTBE	2: 504 - EDB	3: 239.2 - LEAD	6: 610 PAH + 1-methyl naphthalene 2-methyl naphthalene	5: 418.1 TRPH	6	7	8	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME	LAB BATCH NO: / Comments
TRIP BLANK	DITØØ5	—	—	W		✓	N	3	3					9604202				
EQUIP BLANK	DIRØØ4	4-2	Ø915	W		✓	N	10	3	3	1	2	1	9604203				
MW-8	ØIGØØ8Ø1	4-2	Ø935	W		✓	N	10	3	3	1	2	1	9604204				
MW-6	DIGØØ6Ø1	4-2	1115	W		✓	N	8	2	2	1	2	1	9604205				
MW-4	DIGØØ4Ø1	4-2	1145	W		✓	N	8	2	2	1	2	1	9604206				
Duplicate	DIGØØ4Ø1D	4-2	1145	W		✓	N	8	2	2	1	2	1	9604206				
MATRIX spike	DIGØØ4Ø1MS	4-2	1145	W		✓	N	1				1		9604206				
MS duplicate	DIGØØ4Ø1MSD	4-2	1145	W		✓	N	1				1		9604206				
MW-60	ØIGØ6ØØ1	4-2	1400	W		✓	N	8	2	2	1	2	1	9604207				
MW-7	DIGØØ7Ø1	4-2	1530	W		✓	N	8	2	2	1	2	1	9604208				L9034
MW-9	ØIGØØ9Ø1	4-2	1645	W		✓	N	8	2	2	1	2	1	9604209				

TOTAL PARAMETERS PER COLUMN

NEESA QC LEVEL

NOTES: 5 coolers in shipment

LAB COMMENTS: SAMPLES IN GOOD CONDITION
FIVE COOLERS: 2.1 2-3 1.7 CUSTODY SEALS TEN 1.8 1.9 PHC, HL2 INTACT

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY: DATE TIME	RECEIVED BY: DATE TIME
Jay Koch Joe Fugitt	P. WAGNER		
RELINQUISHED BY: DATE TIME	RECEIVED BY:	RELINQUISHED BY: DATE TIME	RECEIVED BY: DATE TIME
P. WAGNER 4-3-96 1600	KRISTIN LEWIS SAIC 4/4/96 10:00		
RELINQUISHED BY: DATE TIME	RECEIVED BY:	RELINQUISHED BY: DATE TIME	RECEIVED BY: DATE TIME

SHIPPING AIRBILL NUMBER:

SHIPPED VIA: FED EX #938507Ø365

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EAZE REPORT W/ABB ASCII
DUE 4/25/96 LPM = JJD

KEROSENE ANALYTICAL GROUP

LOCATION DT-D10
RPT 960460

ABB ENVIRONMENTAL SERVICES, INC.

SDG #

COC #

A 0115

Task Order #: 095
Job #: 8506.33
Office Ph #: (904) 656-1293
Field Office Ph #: (305) 293-3063

PROJECT NAME: NAS KEY WEST
SITE NAME: TRUMBO POINT FUEL FARM
PROJECT MANAGER: MARK DIBLIN
COPY TO: JOE FUGITT
REQ. COMPLETION DATE: STANDARD

LAB TEST CODES

Comments	SAMPLE IDENTIFIER	SAMPLE DATE 1996	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	1: 601/602 + MTBE	2: 504 - EDB	3: 239.2 - Lead	4: 610 - PAH + 1-methylnaphthalene, 2-methylnaphthalene	5: 418.1 - TRPH	6	7	8	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME	LAB BATCH NO: / Comments
KWM-02	01GK0201	4-2	1715	W		✓	N	8	2	2	1	2	1	9604210				
MW-11	01G01101	4-3	0800	W		✓	N	8	2	2	1	2	1	9604211				
MW-5	01G00501	4-3	0945	W		✓	N	8	2	2	1	2	1	9604212				
MW-10	01G01001	4-3	1030	W		✓	N	8	2	2	1	2	1	9604213				
MW-12	01G01201	4-3	1145	W		✓	N	8	2	2	1	2	1	9604214				
MW-22	01G02201	4-3	1400	W		✓	N	8	2	2	1	2	1	9604215				
MW-23	01G02301	4-3	1425	W		✓	N	8	2	2	1	2	1	9604216				
																	L9034	

TOTAL PARAMETERS PER COLUMN

NEESA QC LEVEL

NOTES: 5 coolers in shipment

LAB COMMENTS: samples in good condition
COOLER TEMPS 2.1 2.3 1.7 1.8 1.9

PH C, H<2
INTACT (10) TEN
CUSTODY SEALS TOTAL

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
Jay Koch Joe Fugitt	P. WAGNER SMO						
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
P. WAGNER	4-3-96 1600	KRISTIN Lewis 4/4/96 1000					
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME

SHIPPING AIRBILL NUMBER:

SHIPPED VIA: FED EX # 938507036 5

WHITE/YELLOW COPY – LABORATORY PINK COPY – ABB-ES

N. Ohsene Analytical Group

REPORT # 960492 Location DI

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC #

Task Order #: 095
Job #: 8506.33
Office Ph #: (904) 656-1293
Field Office Ph #: (305) 293-3063

PROJECT NAME: NAS KEY WEST
SITE NAME: TRUMBO POINT FUEL FARM
PROJECT MANAGER: MARK DIBLIN
COPY TO: JOE FUGITT
REQ. COMPLETION DATE: STANDARD

A0116

Comments	SAMPLE IDENTIFIER	SAMPLE DATE 1996	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	LAB TEST CODES 1: 601/602 + MTBE	2: 504 - EDB	3: 239.2 - Lead	4: 610 - PAH + 1-methyl-2-methylnaphthalene	5: 418.1 - TRPH	6	7	8	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME / Comments
MW-30	01G03001	4-8	1045	W		X	N	8	2	2	1	2	1	9604474			
MW-30 dup	01G03001D	4-8	1045	W		X	N	8	2	2	1	2	1	9604475			
MW-33	01G03301	4-8	1130	W		X	N	8	2	2	1	2	1	9604476			LEAD sample is unpreserved AND needs to be filtered.
TRIP BLANK	01T0006	4-8	—	W		X	N	2	2					9604477			
MW-29	01G02901	4-8	1300	W		X	N	8	2	2	1	2	1	9604478			
KWM-25	01GK2501	4-8	1400	W		X	N	8	2	2	1	2	1	9604479			
MW-98	01G09801	4-8	1500	W		X	N	8	2	2	1	2	1	9604480			
MW-59	01G05901	4-8	1435	W		X	N	8	2	2	1	2	1	9604481			
MW-9-11	01G91101	4-8	1500	W		X	N	1			1			9604482			
MW-84	01G08401	4-8	1630	W		X	N	8	2	2	1	2	1	9604483			
MW-66	01G06601	4-8	1615	W		X	N	8	2	2	1	2	1	9604484			L9082
TOTAL PARAMETERS PER COLUMN																	

LAB BATCH NO:

NEESA QC LEVEL

NOTES: LEAD SAMPLE FROM MW-33 NEEDS TO BE FILTERED & PRESERVED.

LAB COMMENTS: TEMP 2.1 CUSTODY SEALS INTACT PK2 C+H BOTTLES

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
Joe Fugitt, Jay Koch, P. WAGNER	P. WAGNER						
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE TIME
P. WAGNER	4-9-96 1500						
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE TIME
						James MC Lowell	4.10.96 930

SHIPPING AIRBILL NUMBER:

SHIPPED VIA: FED EX # 938507037 6

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EA TYPE 2D W/ ABB ASCII EDD
DUE 5/1/96 WATCH COMMENTS!
LDM = IND

Kerosene Analytical Group
Report 960492 Location code D1

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC #

Task Order #: 095
Job #: 8506.33
Office Ph #: 904-656-1293
Field Office Ph #: 305-293-3063

PROJECT NAME: NAS Key West
SITE NAME: Trumbo Point Fuel Farm
PROJECT MANAGER: Mark Diblin
COPY TO: Joe Fugitt
REQ. COMPLETION DATE: Standard

LAB TEST CODES

A 0117

LAB CODE
PARAMETER
METHOD
PRESERVATIVE
VOLUME

LAB BATCH NO:

Comments	SAMPLE IDENTIFIER	SAMPLE DATE 1996	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	601/602 + MTBE	504 - EDB	239.2 - Lead	610 PAH + 1-methyl, 2-methyl naphthalene	418.1-TRPH				Comments
MW-21	01G02101	4-8	1720	W		X	N	8	2	2	1	2	1.			960 4485	
MW-86	01G08601	4-8	1730	W		X	N	8	2	2	1	2	1.			960 4486	Hot!
MW-70	01G07001	4-8	1800	W		X	N	8	2	2	1	2	1.			960 4487	
MW-20	01G02001	4-8	1820	W		X	N	8	2	2	1	2	1.			960 4488	
MW-82	01G08201	4-8	1850	W		X	N	8	2	2	1	2	1.			960 4489	Hot!
MW-9-11	01G91101	4-9	0800	W		X	N	7	2	2		2	1.			960 4490	
MW-61	01G06101	4-9	0820	W		X	N	8	2	2	1	2	1.			960 4491	
MW-56	01G05601	4-9	0945	W		X	N	8	2	2	1	2	1.			960 4492	
MW-57	01G05701	4-9	1000	W		X	N	8	2	2	1	2	1.			960 4493	
MW-52	01G05201	4-9	1325	W		X	N	8	2.	2	1	2	1.			960 4494	L9082

TOTAL PARAMETERS PER COLUMN

NOTES:

LAB COMMENTS:
Temp 2.1
Custody seals intact pH<2 (4 HCl bottles

NEESA QC LEVEL

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY: DATE TIME	RECEIVED BY: DATE TIME
Joe Fugitt, Jay Kocks, P. WAGNER	P. WAGNER		
RELINQUISHED BY: DATE TIME	RECEIVED BY:	RELINQUISHED BY: DATE TIME	RECEIVED BY: DATE TIME
P. WAGNER 4-9-96 1500			
RELINQUISHED BY: DATE TIME	RECEIVED BY:	RELINQUISHED BY: DATE TIME	RECEIVED BY: DATE TIME
			Jamal McCloud 4-10-96 930

SHIPPING AIRBILL NUMBER:

SHIPPED VIA: FED-EX #938507037 6

WHITE/YELLOW COPY – LABORATORY PINK COPY – ABB – ES

EA TYPE 2D W/ABB ASCII EDD
DUE 5/1/96 WA, COMMENTS!

F. brT #960503
Location D8

Kerosene Analytical Group

78067.13
EA 2E W.
DUE 5/2/96 LPM=JOD
ASCII
L9804

ABB ENVIRONMENTAL SERVICES, INC.

SDG #

COC #

Task Order #: 095
Job #: 8506.33
Office Ph #: 904 656-1293
Field Office Ph #: 305-293-3063

PROJECT NAME: NAS Key West
SITE NAME: Trumbo Point Fuel Farm
PROJECT MANAGER: Mark Diblin
COPY TO: Joe Fugitt
REQ. COMPLETION DATE: STANDARD

A 0118

SAMPLE IDENTIFIER	SAMPLE DATE 1996	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	LAB TEST CODES 1: 601/602 + MTBE, XYLENES	2: EDB - 504	3: TRPH - 418.1	4: LEAD - 239.2	5: PAH SW 610 + 1,4,2-methylnaphthalene	6	7	8	EA #	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME	LAB BATCH NO: / Comments
Trip Blank	01T0007	4-9	—	W		X	N	2	2							9604549		
MW-73	01G07301	4-9	1415	W		X	N	8	2	2	1	1	2			9604550		
MW-39	01G03901	4-9	1430	W		X	N	8	2	2	1	1	2			9604551		
#1 MW-37	01G03701	4-9	1600	W		X	N	8	2	2	1	1	2			9604552		
MW-79	01G07901	4-9	1630	W		X	N	8	2	2	1	1	2			9604553		
MW-81	01G08101	4-9	1730	W		X	N	8	2	2	1	1	2			9604554		
MW-80	01G08001	4-10	0830	W		X	N	8	2	2	1	1	2			9604555		
MW-40	01G04001	4-10	0830	W		X	N	8	2	2	1	1	2			9604556		
MW-51	01G05101	4-10	0815	W		X	N	8	2	2	1	1	2			9604557	L9084	
MW-51 dup	01G05101D	4-10	0815	W		X	N	8	2	2	1	1	2			9604558		
MW-50	01G05001	4-10	0930	W		X	N	8	2	2	1	1	2			9604559		

TOTAL PARAMETERS PER COLUMN

NOTES:

LAB COMMENTS: TEMP Cooler 1.1°C custody seals intact
Ph<2 CH bottles

NEESA QC LEVEL

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY: DATE TIME	RECEIVED BY: DATE TIME
P. WAGNER, J. Fugitt J. Koch	P. Wagner		
RELINQUISHED BY: DATE TIME	RECEIVED BY:	RELINQUISHED BY: DATE TIME	RECEIVED BY: DATE TIME
P. Wag 4-10-96 1500			
RELINQUISHED BY: DATE TIME	RECEIVED BY:	RELINQUISHED BY: DATE TIME	RECEIVED BY: DATE TIME
			Jonas McCloud 4-11-96 945

SHIPPING AIRBILL NUMBER:

SHIPPED VIA: FED EX # 938507039 1

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Report 960503
Location D8

Kerosene Analytical Group

Invest. 13
EA ZE w/ABB ASCII
DUE 5/2/96 LPM=JOD

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC #

Task Order #: 095
Job #: 8506.33
Office Ph #: 904 656-1293
Field Office Ph #: 305-293-3063

PROJECT NAME: NAS Key West
SITE NAME: Trumbo Point Fuel Farm
PROJECT MANAGER: Mark Diblin
COPY TO: Joe Fugitt
REQ. COMPLETION DATE: Standard

A 0119

Comments	SAMPLE IDENTIFIER	SAMPLE DATE 1996	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	1: 601/602 & MTBE, XYLENES	2: 504 - EDB	3: 418.1 - TRPH	4: 239.2 - Lead	5: 610 GC-PAH & 1 methyl, 2 methyl naphthalene	6: EA #'s	7	8	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME	LAB BATCH NO: / Comments
MW-54	01G05401	4-10	1000	W		X	N	8	2	2	1	1	2	96045600				
MW-76	01G07601	4-10	1030	W		X	N	8	2	2	1	1	2	96045601				
MW-55	01G05501	4-10	1040	W		X	N	8	2	2	1	1	2	96045602				very hot!
MW-9-13	01G91301	4-10	1130	W		X	N	8	2	2	1	1	2	96045603				
MW-74D	01G07401	4-10	1205	W		X	N	8	2	2	1	1	2	96045604				
MW-1D	01G00101	4-10	1340	W		X	N	8	2	2	1	1	2	96045605				
MW-78D	01G07801	4-10	1415	W		X	N	8	2	2	1	1	2	96045606				
																		L9089

TOTAL PARAMETERS PER COLUMN

NOTES:

LAB COMMENTS:
Cooler Temp 1.1°C Custody Seals intact
Ph<2 ct HH bottles

NEESA QC LEVEL

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY: DATE TIME	RECEIVED BY: DATE TIME
JK. JF. PW	P. WAGNER		
RELINQUISHED BY: DATE TIME	RECEIVED BY:	RELINQUISHED BY: DATE TIME	RECEIVED BY: DATE TIME
P. WAG 4-10-96 1500			
RELINQUISHED BY: DATE TIME	RECEIVED BY:	RELINQUISHED BY: DATE TIME	RECEIVED BY: DATE TIME
			James McCloud 4-11-96 945

SHIPPING AIRBILL NUMBER:

SHIPPED VIA: FEDEX # 938507039 1

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EPORT960517
Location @C7

Kerosene Analytical Group

ABB ENVIRONMENTAL SERVICES, INC.

SDG #

COC #

Task Order #: 095
Job #: 8506.33
Office Ph #: (904) 656-1293
Field Office Ph #: (305) 293-3063

PROJECT NAME: NAS Key West
SITE NAME: Trumbo Point Fuel Farm
PROJECT MANAGER: Mark Diblin
COPY TO: Joe Fugitt
REQ. COMPLETION DATE: STANDARD

LAB TEST CODES: 1 = 601/602 + MTBE, Xylene; 2 = EDB - 504; 3 = TRPH - 418.1; 4 = LEAD - 239.2; 5 = PAH - 610 6C + 1-#2 - Methylnaphthalene; 6 = Naphthalene; 7 = ; 8 = ; TOTAL CONTAINERS

A0120

LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME

LAB BATCH NO:

	SAMPLE IDENTIFIER	SAMPLE DATE 1996	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	1	2	3	4	5	6	7	8	Comments
TRIP BLANK	01T0008	—	—	W		X	N	2	2					9604641			
MW-JP-2	01GP0201	4-10	1430	W		X	N	8	2	2	1	1	2	9604642			
MW-75D	01G07501	4-10	1545	W		X	N	8	2	2	1	1	2	9604643			
MW-19	01G01901	4-10	1630	W		X	N	8	2	2	1	1	2	9604644			
MW-71D	01G07101	4-10	1650	W		X	N	8	2	2	1	1	2	9604645			Time: 1650
MW-34	01G03401	4-10	1730	W		X	N	8	2	2	1	1	2	9604646			
MW-48D	01G04801	4-10	1745	W		X	N	8	2	2	1	1	2	9604647			
MW-67D	01G06701	4-10	1840	W		X	N	8	2	2	1	1	2	9604648			
MW-35	01G03501	4-11	0830	W		X	N	8	2	2	1	1	2	9604649			
MW-77D	01G07701	4-11	0915	W		X	N	8	2	2	1	1	2	9604650			L9098
MW-2D	01G00201	4-11	1015	W		X	N	8	2	2	1	1	2	9604651			

TOTAL PARAMETERS PER COLUMN

NEESA QC LEVEL

NOTES:

LAB COMMENTS: Temp of cooler 1.2 Ph<2 C+H bottles
Custody Seals intact

SAMPLED BY: P. WAGNER, J. Fugitt, J. Koch

RECEIVED BY: P. WAGNER

RELINQUISHED BY: P. WAGNER DATE 4-11-96 TIME 1500

RECEIVED BY:

RELINQUISHED BY: DATE TIME

RECEIVED BY:

RELINQUISHED BY: DATE TIME

RECEIVED BY: DATE TIME

RELINQUISHED BY: DATE TIME

RECEIVED BY: DATE TIME

RELINQUISHED BY: DATE TIME

RECEIVED BY: DATE TIME

SHIPPING AIRBILL NUMBER:

SHIPPED VIA: FED-EX #4426384023

70067.12

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PAGE 1 OF 2

EA 2D 4/ABB ASCII
DUE 5/3/96 LPM = JOD
WATCH COMMENTS

Report 960517
Location C7

KEROSENE ANALYTICAL GROUP

ABB ENVIRONMENTAL SERVICES, INC.

SDG #

COC #

Task Order #: 095
Job #: 8506.33
Office Ph #: (904) 656-1293
Field Office Ph #: (305) 293-3063

PROJECT NAME: NAS Key West
SITE NAME: Trumbo Pt. Fuel Farm
PROJECT MANAGER: Mark Diblin
COPY TO: Joe Fugitt
REQ. COMPLETION DATE: Standard

A 0121

Comments	SAMPLE IDENTIFIER	SAMPLE DATE 1996	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	1 601/602 + MTBE, XYLENES	2 EDB - 504	3 TRPH - 418.1	4 LEAD - 239.2	5 PAH - 610 GC + 1-& 2-METHYLNAPHTHALENE	6	7	8	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME	LAB BATCH NO: / Comments
~~KWM~~ JK																		
KMW-20	01GK2001	4-11	1000	W		X	N	8	2	2	1	1	2		9604652			HOT!
MW-87D	01G08701	4-11	1150	W		X	N	8	2	2	1	1	2		9604653			
MW-87D dup	01G08701D	4-11	1150	W		X	N	8	2	2	1	1	2		9604654			
matrix spike	01G08701MS	4-11	1150	W		X	N						1		9604653			
matrix spikedup	01G08701MSD	4-11	1150	W		X	N						1		9604653			
KWM-21	01GK2101	4-11	1200	W		X	N	8	2	2	1	1	2		~~9604654~~ 9604669			
MW-3D	01G00301	4-11	1250	W		X	N	8	2	2	1	1	2		9604655			
KWM-1	01GK0101	4-11	1315	W		X	N	8	2	2	1	1	2		9604656			very hot!
RINSATE	01R005	4-11	1400	W		X	N	8	2	2	1	1	2		9604657			
MW-85D	01G08501	4-11	1410	W		X	N	8	2	2	1	1	2		9604658			L9098

TOTAL PARAMETERS PER COLUMN

NEESA QC LEVEL

NOTES:

LAB COMMENTS:
Temp of cooler 1.2
Custody seals intact
Pres. OK HCl only.

SAMPLED BY:		RECEIVED BY:		RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
J. Fugitt, P. Wagner, J. Koch		P. Wagner							
RELINQUISHED BY:	DATE / TIME	RECEIVED BY:		RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
P. Wag	4-11-96 1500								
RELINQUISHED BY:	DATE / TIME	RECEIVED BY:		RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
							Jonae McCloud	4.12.96	1000

SHIPPING AIRBILL NUMBER:

SHIPPED VIA: FED-EX #244263840 23

WHITE/YELLOW COPY – LABORATORY PINK COPY – ABB-ES

EA TYPE 2D W/ ABB ASCII 70067.12
DUE 4/13/96 LPM = JOD
WATCH COMMENT.

Kerosene Analytical Group C3-C6

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC # 960535 LOCATION

Task Order #: 095
Job #: 8506.33
Office Ph #: 904 6561293
Field Office Ph #: 305 2933063

PROJECT NAME: NAS Key West
SITE NAME: Trumbo Point Fuel Farm
PROJECT MANAGER: M. Diblin
COPY TO: J. Fusith
REQ. COMPLETION DATE: STANDARD

A 0081

	SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	LAB TEST CODES 1: 601/602 + MTBE	2: EDB - 504	3: TRPH - 418.1	4: LEAD - 239.2	5: DAH - 610 + 1,2-methylnaphthalene	6	7	8	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME	LAB BATCH NO: / Comments
	TRIPBLANK	01T0009	—	—	W		X	N	2	2							9604838	
H1	MW-36	01G03601	4-11	1620	W		X	N	8	2	2	1	1	2			9604824	
H1	MW-95	01G09501	4-11	1710	W		X	N	8	2	2	1	1	2			9604825	
H4	MW-101	01G10101	4-11	1735	W		X	N	8	2	2	1	1	2			9604826	
	MW-92D	01G09201	4-11	1745	W		X	N	8	2	2	1	1	2			9604827	
	MW-64	01G06401	4-11	1745	W		X	N	8	2	2	1	1	2			9604828	Hot!
H4	MW-16	01G01601	4-11	1845	W		X	N	8	2	2	1	1	2			9604829	
H4	MW-105	01G10501	4-12	0835	W		X	N	8	2	2	1	1	2			9604830	
	MW-47D	01G04701	4-12	0845	W		X	N	8	2	2	1	1	2			9604831	
H4	MW-104	01G10401	4-12	1000	W		X	N	8	2	2	1	1	2			9604832	
	MW-38	01G03801	4-12	1015	W		X	N	8	2	2	1	1	2			9604833	L9120
	TOTAL PARAMETERS PER COLUMN																	

NOTES: EA 2D W/ ABB ASCII
DUE 5/6/96 4PM = JOD

LAB COMMENTS: 5 COOLERS 1.8/1.7/1.3/.4/.7
CUSTODY SEALS INTACT
PH H,C L2

NEESA QC LEVEL

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
J. Fusith, J Koch, P. Wagner	P.W.J.S	P.W.J.S	4-12-96	1500			
RELINQUISHED BY:	DATE TIME	RECEIVED BY:					
	11:00 4/13/96	Kristen Jewers SMO					

SHIPPING AIRBILL NUMBER:
SHIPPED VIA: FED-EX # 442638 4034

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Kerosene Analytical Group

ABB ENVIRONMENTAL SERVICES, INC.

SDG #

COC # 960535 LOCATION C3-C6

Task Order #: 095
Job #: 8506.33
Office Ph #: 904 6561293
Field Office Ph #: 305 2933063

PROJECT NAME: NAS Key West
SITE NAME: Trumbo Point Fuel Farm
PROJECT MANAGER: M. Diblin
COPY TO: J. Fugia
REQ. COMPLETION DATE: STANDARD

SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	LAB TEST CODES 1: 601/602 + MTBE	2: EDB - 504	3: TRPH - 418.1	4: LEAD - 239.2	5: PAH - 610 + 1,2-Methylnaphthalene	6	7	8	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME	Comments
	1996																
MW-99 01G09901	4-12	1130	W		X	N	8	2	2	1	1	2	9604834				
MW-44 01G04401	4-12	1445	W		X	N	8	2	2	1	1	2	9604835				
MW-15 01G01501	4-12	1445	W		X	N	8	2	2	1	1	2	9604836				
duplicate 01G01501D	4-12	1445	W		X	N	8	2	2	1	1	2	9604837				

A0082

LAB BATCH NO:

L9120

TOTAL PARAMETERS PER COLUMN

NEESA QC LEVEL

NOTES: EA 2D w/ ABB ASCII
DUE 5/6/96 LPM=JOD

LAB COMMENTS: COOLER TEMP 1.8/1.7/1.3/4/.7
CUSTODY SEALS INTACT
PH H,C LZ

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
JF, JK, PW	P. WAGNER						
RELINQUISHED BY:	DATE TIME	RECEIVED BY:					
P. W	4-12-96 1500						
RELINQUISHED BY:	DATE TIME	RECEIVED BY:					
	4/13/96 11.00						

SHIPPING AIRBILL NUMBER:

SHIPPED VIA: FED-EX #442638403 4

WHITE/YELLOW COPY – LABORATORY PINK COPY – ABB-ES

Report #9604960543 (Location) Kerosene Analytical Group, Inc. 1462

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC #

Task Order #: 095
Job #: 8506.33
Office Ph #: 904 6561293
Field Office Ph #: 305 2933063

PROJECT NAME: NAS Key West
SITE NAME: Trumbo Point Fuel Farm
PROJECT MANAGER: M. Diblin
COPY TO: J. Fugitt
REQ. COMPLETION DATE: STANDARD

A 0083

SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	1 GRO/BTEX + MTBE, XYLENES	2 EDB - 504	3 TRPH - 418.1	4 LEAD - 239.2	5 PAH - 610 + 1-3-2-methylnaphthalene	6	7	8	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME	LAB BATCH NO: / Comments
Comments	1996																
TRIP BLANK 01T010	—	—	W		X	N	2	2						960413			
MW-46 01G04601	4-12	1630	W		X	N	8	2	2	1	1	2		960414			
MW-100 01G10001	4-12	1640	W		X	N	8	2	2	1	1	2		960415			
~~MW-57 01G05301~~	~~4-12~~	~~1750~~	W													JK	
MW-53 01G05301	4-12	1750	W		X	N	8	2	2	1	1	2		960416			
MW-83 01G08301	4-12	1800	W		X	N	8	2	2	1	1	2		960417			
MW-58 01G05801	4-13	0830	W		X	N	8	2	2	1	1	2		960418			
MW-63 01G06301	4-13	0840	W		X	N	8	2	2	1	1	2		960419			
MW-68 01G06801	4-13	1000	W		X	N	8	2	2	1	1	2		960420			
MW-69 01G06901	4-13	1005	W		X	N	8	2	2	1	1	2		960421		L9133	
MW-88 01G08801	4-13	1130	W		X	N	8	2	2	1	1	2		960422			

TOTAL PARAMETERS PER COLUMN

NEESA QC LEVEL

NOTES: 8 coolers in shipment

LAB COMMENTS: TEMP OF COOLERS 4.0, 3.7, 2.1, 2.7, 4.2, 3.9, 1.2, 1.5 Ph<2 C+HBottles Custody Seals intact All samples in good condition.

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY: DATE TIME	RECEIVED BY: DATE TIME
RW., JK., JF.	P. Wagner		
RELINQUISHED BY: DATE TIME	RECEIVED BY:	RELINQUISHED BY: DATE TIME	RECEIVED BY: DATE TIME
P. WAGNER 4-15-96 1500			
RELINQUISHED BY: DATE TIME	RECEIVED BY:	RELINQUISHED BY: DATE TIME	RECEIVED BY: DATE TIME
			Jan Mc Clone 4-16-96 10:00

SHIPPING AIRBILL NUMBER:

SHIPPED VIA: FED-EX #442638407 1

WHITE/YELLOW COPY – LABORATORY PINK COPY – ABB – ES

EA 2B AD W/ ABB ASCII

DUE 5/6/96 LPM=JOD

Report # 100545

Kerosene Analytical Group PROCESSED

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC #

Task Order #: 095
Job #: 8506.33
Office Ph #: 904 6561293
Field Office Ph #: 305 2933063

PROJECT NAME: NAS Key West
SITE NAME: Trumbo Point Key West
PROJECT MANAGER: M. Dibling
COPY TO: J. Fusiti
REQ. COMPLETION DATE: STANDARD

A0084

Comments	SAMPLE IDENTIFIER	SAMPLE DATE 1996	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	1 601/602 + MTBE	2 EDB-504	3 TRPH-418.1	4 LEAD-239.2	5 PAH-610 + 1-2-methylnaphthalene	6	7	8	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME / Comments
MW-96	01G09601	4-13	1115	W		X	N	8	2	2	1	1	2		9604923		
MW-97	01G09701	4-13	1215	W		X	N	8	2	2	1	1	2		9604924		
MW-91	01G09101	4-13	1430	W		X	N	8	2	2	1	1	2		9604925		LEAD sample needs to be filtered AND preserved.
MW-72	01G07201	4-13	1440	W		X	N	8	2	2	1	1	2		9604926		
MW-89	01G08901	4-13	1400	W		X	N	8	2	2	1	1	2		9604927		
MW-94	01G09401	4-13	1700	W		X	N	8	2	2	1	1	2		9604928		
MW-102	01G10201	4-13	1710	W		X	N	8	2	2	1	1	2		9604929		
MW-93	01G09301	4-13	1700	W		X	N	8	2	2	1	1	2		9604930		Hot !
MW-93 dup	01G09301D	4-13	1700	W		X	N	8	2	2	1	1	2		9604931		Hot !
MWCG-2	01GC0201	4-14	0750	W		X	N	8	2	2	1	1	2		9604932		L9133
MW-90	01G09001	4-14	0930	W		X	N	8	2	2	1	1	2		9604933		
TOTAL PARAMETERS PER COLUMN																	NEESA QC LEVEL

NOTES: MW-91 LEAD SAMPLE IS UNpreserved.
8 coolers in shipment

LAB COMMENTS:

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
RW, JF, JK.	P. WANER						
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE TIME
P. WANER	4-15-96 1500						
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY: Jana McCloud	DATE TIME 4-16-96 1017

SHIPPING AIRBILL NUMBER:
SHIPPED VIA: FED-EX #4426384071

WHITE/YELLOW COPY – LABORATORY PINK COPY – ABB-ES

EA 2D w/ABB ASCII

DUE 5/6/96 LPM = JOD

Kerosene Analytical Group

TCLP 3403

ABB ENVIRONMENTAL SERVICES, INC.

SDG #

COC #

Task Order #: 095
Job #: 8506.33
Office Ph #: 904 656 1293
Field Office Ph #: 305-293-3063

PROJECT NAME: NAS Key West
SITE NAME: Trumbo Point Fuel Farm
PROJECT MANAGER: M. Dolin
COPY TO: J. Inglett
REQ. COMPLETION DATE: Standard

A 0088

LAB BATCH NO:

SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	LAB TEST CODES 1: 601/602 + MTBE	2: EDB - 504	3: TRPH - 418.1	4: Lead - 239.2	5: PAH 610 + 1&2 methylnaphthalene	6	7	8	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME	Comments
Comments	1996																
MWCG01	OIGC01 01	4-14	1130	W		X	N	8	2	2	1	1	2			96044934	

19133

TOTAL PARAMETERS PER COLUMN

NEESA QC LEVEL

NOTES:
8 coolers in this shipment

LAB COMMENTS:

SAMPLED BY: PW, JF, JK	RECEIVED BY: P. WAGNER			RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
RELINQUISHED BY: P. WAGNER	DATE: 4-15-96	TIME: 1500	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY: Jana McCloud 4/16-9:15	DATE	TIME

SHIPPING AIRBILL NUMBER:

SHIPPED VIA: FED-EX # 4426384071

WHITE/YELLOW COPY – LABORATORY PINK COPY – ABB-ES

4DD
EA 2DD W/ ABB
DUE 5/6/96 LPM=JDD

Lab Sample Number:	9604565			9604651			9604655			9604206		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G00101			01G00201			01G00301			01G00401		
Collect Date:	10-APR-96			11-APR-96			11-APR-96			02-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	1.6		ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Tetrachloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	-	U	ug/l	-	U	ug/l	1.1		ug/l	910	E	ug/l
Ethylbenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	170		ug/l
Toluene	-	U	ug/l	-	U	ug/l	-	U	ug/l	2.5		ug/l
m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	8		ug/l
o-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	2.4		ug/l
Methyl tert-butyl ether	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	6.7		ug/l
2-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	32		ug/l
1-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	25		ug/l
Acenaphthylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	1.9		ug/l
Acenaphthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	1.3		ug/l
Fluorene	-	U	ug/l	-	U	ug/l	76		ug/l	17		ug/l
Phenanthrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	3.6		ug/l
Anthracene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Pyrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	1.1		mg/l	-	U	mg/l	-	U	mg/l	-	U	mg/l
EDB												
LEAD	1	UW	ug/l	5	UN	ug/l	5	UN	ug/l	-	U	ug/l

07/29/96 KEY WEST GROUNDWATER AND QA/QC SAMPLES 12:16:39
KEROSENE ANALYTICAL GROUP

	9604206DL			9604206B			9604212			9604205		
Lab Sample Number:												
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G00401			01G00401D			01G00501			01G00601		
Collect Date:	02-APR-96			02-APR-96			03-APR-96			02-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
Chlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
Tetrachloroethene	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	940		ug/l	990		ug/l	1.4		ug/l	-	U	ug/l
Ethylbenzene	190		ug/l	190		ug/l	-	U	ug/l	-	U	ug/l
Toluene	2.1		ug/l	2.2		ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	7		ug/l	8.8		ug/l	-	U	ug/l	-	U	ug/l
o-Xylene	-	U	ug/l	2.6		ug/l	-	U	ug/l	-	U	ug/l
Methyl tert-butyl ether	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-			7.1		ug/l	-	U	ug/l	-	U	ug/l
2-Methylnaphthalene	-			4.1		ug/l	1.4		ug/l	-	U	ug/l
1-Methylnaphthalene	-			40		ug/l	-	U	ug/l	-	U	ug/l
Acenaphthylene	-			5.4		ug/l	-	U	ug/l	-	U	ug/l
Acenaphthene	-			2.1		ug/l	2		ug/l	-	U	ug/l
Fluorene	-			16		ug/l	-	U	ug/l	-	U	ug/l
Phenanthrene	-			2.5		ug/l	1.4		ug/l	-	U	ug/l
Anthracene	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
Pyrene	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-			-	U	mg/l	-	U	mg/l	-	U	mg/l
EDB												
LEAD	-			-	U	ug/l	-	U	ug/l	1.4	BS	ug/l

07/29/96 KEY WEST GROUNDWATER AND QA/QC SAMPLES 12:16:39
KEROSENE ANALYTICAL GROUP

Lab Sample Number:	9604208			9604204			9604209			9604213		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G00701			01G00801			01G00901			01G01001		
Collect Date:	02-APR-96			02-APR-96			02-APR-96			03-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Tetrachloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	-	U	ug/l	19		ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Toluene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	-	U	ug/l	3.2		ug/l	-	U	ug/l	-	U	ug/l
o-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Methyl tert-butyl ether	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-	U	ug/l	1		ug/l	-	U	ug/l	-	U	ug/l
2-Methylnaphthalene	-	U	ug/l	3.2		ug/l	-	U	ug/l	-	U	ug/l
1-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Acenaphthylene	-	U	ug/l	1.8		ug/l	1.7		ug/l	-	U	ug/l
Acenaphthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluorene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Phenanthrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Anthracene	-	U	ug/l	1.4		ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Pyrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	-	U	mg/l	-	U	mg/l	-	U	mg/l
EDB												
LEAD	-	U	ug/l	1	UW	ug/l	-	U	ug/l	-	U	ug/l

07/29/96 KEY WEST GROUNDWATER AND QA/QC SAMPLES 12:16:39
KEROSENE ANALYTICAL GROUP

	Lab Sample Number:	9604211			9604214			9604836			9604837		
	Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
	Locator	01G01101			01G01201			01G01501			01G01501D		
	Collect Date:	03-APR-96			03-APR-96			12-APR-96			12-APR-96		
		VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602													
	1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	3.1		ug/l	3.3		ug/l
	1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
	Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
	Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
	Chlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
	Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
	Tetrachloroethene	-	U	ug/l	-	U	ug/l	6		ug/l	6.2		ug/l
	Trichloroethene	-	U	ug/l	-	U	ug/l	1.1		ug/l	1.1		ug/l
	Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
	Benzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
	Ethylbenzene	-	U	ug/l	-	U	ug/l	10		ug/l	11		ug/l
	Toluene	-	U	ug/l	-	U	ug/l	6.4		ug/l	7.2		ug/l
	m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	29		ug/l	30		ug/l
	o-Xylene	-	U	ug/l	-	U	ug/l	38		ug/l	39		ug/l
	Methyl tert-butyl ether	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS													
	Naphthalene	-	U	ug/l	-	U	ug/l	75		ug/l	48		ug/l
	2-Methylnaphthalene	-	U	ug/l	-	U	ug/l	44		ug/l	32		ug/l
	1-Methylnaphthalene	-	U	ug/l	-	U	ug/l	55		ug/l	49		ug/l
	Acenaphthylene	-	U	ug/l	-	U	ug/l	3.4		ug/l	2.9		ug/l
	Acenaphthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
	Fluorene	-	U	ug/l	-	U	ug/l	3		ug/l	2.5		ug/l
	Phenanthrene	-	U	ug/l	-	U	ug/l	1.1		ug/l	1		ug/l
	Anthracene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
	Fluoranthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
	Pyrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
	Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH													
	Total petroleum hydrocarbons	-	U	mg/l	-	U	mg/l	2.1		mg/l	-	U	mg/l
EDB													
	LEAD	-	U	ug/l	-	U	ug/l	1	UNW	ug/l	1	UNW	ug/l

07/29/96 KEY WEST GROUNDWATER AND QA/QC SAMPLES 12:16:39
KEROSENE ANALYTICAL GROUP

Lab Sample Number:	9604829			9604644			9604488			9604485		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G01601			01G01901			01G02001			01G02101		
Collect Date:	11-APR-96			10-APR-96			08-APR-96			08-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Tetrachloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Toluene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
o-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Methyl tert-butyl ether	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
2-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Acenaphthylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Acenaphthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluorene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Phenanthrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Anthracene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Pyrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	-	U	mg/l	-	U	mg/l	-	U	mg/l
EDB												
LEAD	1	UNW	ug/l	1	UN	ug/l	1	UNW	ug/l	1	UNW	ug/l

07/29/96 KEY WEST GROUNDWATER AND QA/QC SAMPLES 12:16:39
KEROSENE ANALYTICAL GROUP

	9604215			9604216			9604478			9604474		
Lab Sample Number:												
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G02201			01G02301			01G02901			01G03001		
Collect Date:	03-APR-96			03-APR-96			08-APR-96			08-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Tetrachloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Toluene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
o-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Methyl tert-butyl ether	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
2-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Acenaphthylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Acenaphthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluorene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Phenanthrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Anthracene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Pyrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	-	U	mg/l	-	U	mg/l	-	U	mg/l
EDB												
LEAD	-	U	ug/l	-	U	ug/l	5	UN	ug/l	1	UNW	ug/l

07/29/96 KEY WEST GROUNDWATER AND QA/QC SAMPLES 12:16:39
KEROSENE ANALYTICAL GROUP

	Lab Sample Number:	9604475			9604476			9604646			9604649		
	Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
	Locator	01G03001D			01G03301			01G03401			01G03501		
	Collect Date:	08-APR-96			08-APR-96			10-APR-96			11-APR-96		
		VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602													
1,1-Dichloroethane		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1,2-Dichlorobenzene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chlorobenzene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Tetrachloroethene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene		-	U	ug/l	-	U	ug/l	-	U	ug/l	1		ug/l
Ethylbenzene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Toluene		-	U	ug/l	1.6		ug/l	-	U	ug/l	2.4		ug/l
m-Xylene and p-Xylene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
o-Xylene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Methyl tert-butyl ether		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS													
Naphthalene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
2-Methylnaphthalene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1-Methylnaphthalene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Acenaphthylene		-	U	ug/l	1.1		ug/l	-	U	ug/l	-	U	ug/l
Acenaphthene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluorene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Phenanthrene		-	U	ug/l	-	U	ug/l	-	U	ug/l	1.5		ug/l
Anthracene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Pyrene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH													
Total petroleum hydrocarbons		-	U	mg/l	-	U	mg/l	-	U	mg/l	-	U	mg/l
EDB													
LEAD		1	UNW	ug/l	5	UN	ug/l	1	UN	ug/l	1	UN	ug/l

07/29/96 KEY WEST GROUNDWATER AND QA/QC SAMPLES 12:16:39
KEROSENE ANALYTICAL GROUP

Lab Sample Number:	9604824			9604552			9604833			9604551		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G03601			01G03701			01G03801			01G03901		
Collect Date:	11-APR-96			09-APR-96			12-APR-96			09-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Tetrachloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	2.2		ug/l
Toluene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
o-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Methyl tert-butyl ether	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
2-Methylnaphthalene	3.9		ug/l	1.3		ug/l	-	U	ug/l	5.3		ug/l
1-Methylnaphthalene	3.1		ug/l	5		ug/l	-	U	ug/l	5.4		ug/l
Acenaphthylene	2.3		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Acenaphthene	1.5		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluorene	-	U	ug/l	-	U	ug/l	-	U	ug/l	1.2		ug/l
Phenanthrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	2.4		ug/l
Anthracene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Pyrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	-	U	mg/l	-	U	mg/l	-	U	mg/l
EDB												
LEAD	1	UNW	ug/l	1	UW	ug/l	1	UNW	ug/l	1	UW	ug/l

Lab Sample Number:	9604556			9604835			9604914			9604831		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G04001			01G04401			01G04601			01G04701		
Collect Date:	10-APR-96			12-APR-96			12-APR-96			12-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Tetrachloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Toluene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
o-Xylene	-	U	ug/l	1		ug/l	-	U	ug/l	-	U	ug/l
Methyl tert-butyl ether	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
2-Methylnaphthalene	12		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1-Methylnaphthalene	3.2		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Acenaphthylene	8.5		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Acenaphthene	1.5		ug/l	1.1		ug/l	-	U	ug/l	-	U	ug/l
Fluorene	1.4		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Phenanthrene	5.3		ug/l	-	U	ug/l	-	U	ug/l	2.6		ug/l
Anthracene	2.4		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene	2.2		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Pyrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	1.9		mg/l	-	U	mg/l	-	U	mg/l	-	U	mg/l
EDB												
LEAD	-	U	ug/l	1	UNW	ug/l	1	UNW	ug/l	5	UN	ug/l

07/29/96 KEY WEST GROUNDWATER AND QA/QC SAMPLES 12:16:39
KEROSENE ANALYTICAL GROUP

	9604647			9604559			9604557			9604558		
Lab Sample Number:												
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G04801			01G05001			01G05101			01G05101D		
Collect Date:	10-APR-96			10-APR-96			10-APR-96			10-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Tetrachloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene	-	U	ug/l	3.6		ug/l	-	U	ug/l	-	U	ug/l
Toluene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
o-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Methyl tert-butyl ether	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-	U	ug/l	7.8		ug/l	1.1		ug/l	-	U	ug/l
2-Methylnaphthalene	-	U	ug/l	91		ug/l	-	U	ug/l	-	U	ug/l
1-Methylnaphthalene	-	U	ug/l	98		ug/l	2		ug/l	1.3		ug/l
Acenaphthylene	1.9		ug/l	5.6		ug/l	-	U	ug/l	-	U	ug/l
Acenaphthene	-	U	ug/l	6.6		ug/l	-	U	ug/l	-	U	ug/l
Fluorene	1.8		ug/l	4.9		ug/l	-	U	ug/l	-	U	ug/l
Phenanthrene	-	U	ug/l	7.7		ug/l	-	U	ug/l	-	U	ug/l
Anthracene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Pyrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	-	U	mg/l	-	U	mg/l	-	U	mg/l
EDB												
LEAD	1	UN	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l

07/29/96 KEY WEST GROUNDWATER AND QA/QC SAMPLES 12:16:39
KEROSENE ANALYTICAL GROUP

Lab Sample Number:	9604494			9604916			9604560			9604562		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G05201			01G05301			01G05401			01G05501		
Collect Date:	09-APR-96			12-APR-96			10-APR-96			10-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Tetrachloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	4.3		ug/l
Ethylbenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Toluene	1.2		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	1		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
o-Xylene	-	U	ug/l	-	U	ug/l	1.2		ug/l	-	U	ug/l
Methyl tert-butyl ether	3.5		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-	U	ug/l	-	U	ug/l	2.2		ug/l	130		ug/l
2-Methylnaphthalene	-	U	ug/l	-	U	ug/l	18		ug/l	650		ug/l
1-Methylnaphthalene	-	U	ug/l	-	U	ug/l	5		ug/l	970		ug/l
Acenaphthylene	-	U	ug/l	-	U	ug/l	1.5		ug/l	120		ug/l
Acenaphthene	-	U	ug/l	-	U	ug/l	2		ug/l	63		ug/l
Fluorene	-	U	ug/l	-	U	ug/l	1.8		ug/l	-	U	ug/l
Phenanthrene	-	U	ug/l	-	U	ug/l	4.1		ug/l	-	U	ug/l
Anthracene	-	U	ug/l	-	U	ug/l	-	U	ug/l	16		ug/l
Fluoranthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Pyrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	-	U	mg/l	-	U	mg/l	157		mg/l
EDB												
LEAD	1	UN	ug/l	5	UN	ug/l	-	U	ug/l	1.4	BW	ug/l

07/29/96 KEY WEST GROUNDWATER AND QA/QC SAMPLES 12:16:39
KEROSENE ANALYTICAL GROUP

Lab Sample Number:	9604492			9604493			9604918			9604481		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G05601			01G05701			01G05801			01G05901		
Collect Date:	09-APR-96			09-APR-96			13-APR-96			08-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Tetrachloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene	1.4		ug/l	7.5		ug/l	-	U	ug/l	-	U	ug/l
Toluene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
o-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Methyl tert-butyl ether	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	2.7		ug/l	4		ug/l	-	U	ug/l	-	U	ug/l
2-Methylnaphthalene	20		ug/l	2.4		ug/l	-	U	ug/l	-	U	ug/l
1-Methylnaphthalene	4.8		ug/l	8.9		ug/l	-	U	ug/l	-	U	ug/l
Acenaphthylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Acenaphthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluorene	6.8		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Phenanthrene	2.9		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Anthracene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Pyrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	3.5		mg/l	-	U	mg/l	-	U	mg/l
EDB												
LEAD	1	UNW	ug/l	1	UNW	ug/l	1	UN	ug/l	5	UN	ug/l

Lab Sample Number:	9604207			9604207DL			9604491			9604919		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G06001			01G06001			01G06101			01G06301		
Collect Date:	02-APR-96			02-APR-96			09-APR-96			13-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-			-	U	ug/l	-	U	ug/l
1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-			-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-			-	U	ug/l	-	U	ug/l
Chlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-			-	U	ug/l	-	U	ug/l
Tetrachloroethene	-	U	ug/l	-			-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-			3.4		ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-			-	U	ug/l	-	U	ug/l
Benzene	560	E	ug/l	620		ug/l	53		ug/l	-	U	ug/l
Ethylbenzene	33		ug/l	37		ug/l	16		ug/l	-	U	ug/l
Toluene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	8.4		ug/l	9.3		ug/l	1.7		ug/l	-	U	ug/l
o-Xylene	2.6		ug/l	3.8		ug/l	-	U	ug/l	-	U	ug/l
Methyl tert-butyl ether	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	14		ug/l	-			7.6		ug/l	-	U	ug/l
2-Methylnaphthalene	72		ug/l	-			9.4		ug/l	-	U	ug/l
1-Methylnaphthalene	96		ug/l	-			8		ug/l	1.1		ug/l
Acenaphthylene	2.1		ug/l	-			1		ug/l	-	U	ug/l
Acenaphthene	2		ug/l	-			1.6		ug/l	-	U	ug/l
Fluorene	-	U	ug/l	-			1.4		ug/l	1.2		ug/l
Phenanthrene	2.6		ug/l	-			2.6		ug/l	-	U	ug/l
Anthracene	2.5		ug/l	-			-	U	ug/l	-	U	ug/l
Fluoranthene	-	U	ug/l	-			-	U	ug/l	-	U	ug/l
Pyrene	-	U	ug/l	-			-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-			-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	-			-	U	mg/l	-	U	mg/l
EDB												
LEAD	-	U	ug/l	-			1	UN	ug/l	1.2	BNW	ug/l

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KEROSENE ANALYTICAL GROUP

	9604828			9604484			9604648			9604920		
Lab Sample Number:												
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G06401			01G06601			01G06701			01G06801		
Collect Date:	11-APR-96			08-APR-96			10-APR-96			13-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Tetrachloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Toluene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
o-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Methyl tert-butyl ether	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
2-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Acenaphthylene	-	U	ug/l	3.3		ug/l	-	U	ug/l	-	U	ug/l
Acenaphthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluorene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Phenanthrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Anthracene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Pyrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	1.2		mg/l	-	U	mg/l	-	U	mg/l	-	U	mg/l
EDB												
LEAD	3.6	NW	ug/l	1	UN	ug/l	1	UN	ug/l	1	UN	ug/l

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KEROSENE ANALYTICAL GROUP

Lab Sample Number:	9604921			9604487			9604645			9604926		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G06901			01G07001			01G07101			01G07201		
Collect Date:	13-APR-96			08-APR-96			10-APR-96			13-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	1.1		ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	6.5		ug/l	-	U	ug/l
Chlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	3.6		ug/l	-	U	ug/l
Tetrachloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Toluene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
o-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Methyl tert-butyl ether	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
2-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Acenaphthylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Acenaphthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluorene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Phenanthrene	-	U	ug/l	1.5		ug/l	-	U	ug/l	-	U	ug/l
Anthracene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Pyrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	-	U	mg/l	-	U	mg/l	-	U	mg/l
EDB												
LEAD	1	UN	ug/l	1	UN	ug/l	1	UN	ug/l	1	UN	ug/l

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KEROSENE ANALYTICAL GROUP

Lab Sample Number:	9604550			9604564			9604643			9604561		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G07301			01G07401			01G07501			01G07601		
Collect Date:	09-APR-96			10-APR-96			10-APR-96			10-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Tetrachloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	-	U	ug/l	38		ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene	-	U	ug/l	3.8		ug/l	-	U	ug/l	-	U	ug/l
Toluene	-	U	ug/l	1.3		ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	-	U	ug/l	9.4		ug/l	-	U	ug/l	-	U	ug/l
o-Xylene	-	U	ug/l	2.5		ug/l	-	U	ug/l	-	U	ug/l
Methyl tert-butyl ether	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-	U	ug/l	3.8		ug/l	-	U	ug/l	-	U	ug/l
2-Methylnaphthalene	30		ug/l	10		ug/l	-	U	ug/l	-	U	ug/l
1-Methylnaphthalene	32		ug/l	5.4		ug/l	-	U	ug/l	-	U	ug/l
Acenaphthylene	4.6		ug/l	11		ug/l	-	U	ug/l	-	U	ug/l
Acenaphthene	-	U	ug/l	1.7		ug/l	-	U	ug/l	-	U	ug/l
Fluorene	1.8		ug/l	1.7		ug/l	-	U	ug/l	-	U	ug/l
Phenanthrene	2.4		ug/l	1.4		ug/l	-	U	ug/l	-	U	ug/l
Anthracene	-	U	ug/l	1.7		ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Pyrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	-	U	mg/l	-	U	mg/l	-	U	mg/l
EDB												
LEAD	1.2	B	ug/l	1	UW	ug/l	1	UN	ug/l	-	U	ug/l

Lab Sample Number:	9604650			9604566			9604553			9604555		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G07701			01G07801			01G07901			01G08001		
Collect Date:	11-APR-96			10-APR-96			09-APR-96			10-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	1.1		ug/l	-	U	ug/l
1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Tetrachloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Toluene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
o-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Methyl tert-butyl ether	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
2-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Acenaphthylene	1.4		ug/l	1.3		ug/l	-	U	ug/l	-	U	ug/l
Acenaphthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluorene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Phenanthrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Anthracene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Pyrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	-	U	mg/l	-	U	mg/l	-	U	mg/l
EDB												
LEAD	5	UN	ug/l	1	UW	ug/l	-	U	ug/l	-	U	ug/l

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ROSENE ANALYTICAL GROUP

	9604554			9604489			9604917			9604483		
Lab Sample Number:												
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G08101			01G08201			01G08301			01G08401		
Collect Date:	09-APR-96			08-APR-96			12-APR-96			08-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Tetrachloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Toluene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
o-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Methyl tert-butyl ether	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-	U	ug/l	1.8		ug/l	-	U	ug/l	-	U	ug/l
2-Methylnaphthalene	-	U	ug/l	1.3		ug/l	-	U	ug/l	-	U	ug/l
1-Methylnaphthalene	-	U	ug/l	2.7		ug/l	-	U	ug/l	-	U	ug/l
Acenaphthylene	-	U	ug/l	16		ug/l	-	U	ug/l	-	U	ug/l
Acenaphthene	-	U	ug/l	1.5		ug/l	-	U	ug/l	-	U	ug/l
Fluorene	-	U	ug/l	1.2		ug/l	-	U	ug/l	-	U	ug/l
Phenanthrene	-	U	ug/l	2.6		ug/l	-	U	ug/l	-	U	ug/l
Anthracene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Pyrene	-	U	ug/l	1.1		ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	-	U	mg/l	-	U	mg/l	-	U	mg/l
EDB												
LEAD	-	U	ug/l	1	UNW	ug/l	1	UN	ug/l	1	UNW	ug/l

Lab Sample Number:	9604658			9604486			9604653			9604654		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G08501			01G08601			01G08701			01G08701D		
Collect Date:	11-APR-96			08-APR-96			11-APR-96			11-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Tetrachloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Toluene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
o-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Methyl tert-butyl ether	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-	U	ug/l	4.8		ug/l	-	U	ug/l	-	U	ug/l
2-Methylnaphthalene	-	U	ug/l	1.9		ug/l	-	U	ug/l	-	U	ug/l
1-Methylnaphthalene	-	U	ug/l	4.3		ug/l	-	U	ug/l	-	U	ug/l
Acenaphthylene	1.9		ug/l	17		ug/l	-	U	ug/l	-	U	ug/l
Acenaphthene	-	U	ug/l	9.6		ug/l	-	U	ug/l	-	U	ug/l
Fluorene	-	U	ug/l	1.5		ug/l	-	U	ug/l	-	U	ug/l
Phenanthrene	1.5		ug/l	2		ug/l	6.4		ug/l	63		ug/l
Anthracene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Pyrene	-	U	ug/l	2.3		ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	5.1		mg/l	-	U	mg/l	-	U	mg/l
EDB												
LEAD	5	UN	ug/l	1	UNW	ug/l	1	UN	ug/l	5	UN	ug/l

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KEROSENE ANALYTICAL GROUP

Lab Sample Number:	9604922			9604927			9604952			9604933		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G08801			01G08901			01G09001			01G09001		
Collect Date:	13-APR-96			13-APR-96			14-APR-96			14-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Chlorobenzene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Tetrachloroethene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Benzene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Ethylbenzene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Toluene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
o-Xylene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Methyl tert-butyl ether	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
2-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
1-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Acenaphthylene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Acenaphthene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Fluorene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Phenanthrene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Anthracene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Fluoranthene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Pyrene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	-	U	mg/l	-			-	U	mg/l
EDB												
LEAD	1	UN	ug/l	5	UN	ug/l	-	U	ug/l	1	UNW	ug/l

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KEROSENE ANALYTICAL GROUP

Lab Sample Number:	9604925			9604827			9604930			9604931		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G09101			01G09201			01G09301			01G09301D		
Collect Date:	13-APR-96			11-APR-96			13-APR-96			13-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	3		ug/l	-	U	ug/l	-	U	ug/l
1,2-Dichlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chlorobenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Tetrachloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene	-	U	ug/l	-	U	ug/l	1.5		ug/l	1.1		ug/l
Toluene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	2.8		ug/l	2.1		ug/l
o-Xylene	-	U	ug/l	-	U	ug/l	1.4		ug/l	1.2		ug/l
Methyl tert-butyl ether	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
2-Methylnaphthalene	14		ug/l	-	U	ug/l	7.5		ug/l	7.9		ug/l
1-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Acenaphthylene	4		ug/l	-	U	ug/l	1.3		ug/l	2.6		ug/l
Acenaphthene	1.7		ug/l	-	U	ug/l	1.4		ug/l	1.4		ug/l
Fluorene	6.3		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Phenanthrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Anthracene	3		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene	1.3		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Pyrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	3.1		mg/l	-	U	mg/l	-	U	mg/l	-	U	mg/l
EDB												
LEAD	-			1	UNW	ug/l	1	UN	ug/l	1	UN	ug/l

09/05/96 AR01 - Trend Report 07:50:51
KEROSENE ANALYTICAL GROUP

Lab Sample Number:	9604928			9604825			9604923			9604924		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G09401			01G09501			01G09601			01G09701		
Collect Date:	13-APR-96			11-APR-96			13-APR-96			13-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	2.1		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Toluene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	1.3		ug/l
2-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Acenaphthylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	1.1		ug/l
Acenaphthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluorene	-	U	ug/l	-	U	ug/l	-	U	ug/l	1.5		ug/l
Phenanthrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Anthracene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	-	U	mg/l	-	U	mg/l	-	U	mg/l
EDB												
LEAD	1	UNW	ug/l	1	UNW	ug/l	1.4	BN	ug/l	1	UNW	ug/l

	Lab Sample Number:	9604480			9604834			9604915			9604826		
	Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
	Locator	01G09801			01G09901			01G10001			01G10101		
	Collect Date:	08-APR-96			12-APR-96			12-APR-96			11-APR-96		
		VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602													
1,1-Dichloroethane		-	U	ug/l	4.4		ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene		-	U	ug/l	1		ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane		-	U	ug/l	2.2		ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene		-	U	ug/l	1.6		ug/l	-	U	ug/l	-	U	ug/l
Toluene		-	U	ug/l	2		ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS													
Naphthalene		-	U	ug/l	3.7		ug/l	-	U	ug/l	-	U	ug/l
2-Methylnaphthalene		2.5		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1-Methylnaphthalene		1.9		ug/l	5.7		ug/l	-	U	ug/l	-	U	ug/l
Acenaphthylene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Acenaphthene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluorene		-	U	ug/l	3.2		ug/l	-	U	ug/l	-	U	ug/l
Phenanthrene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Anthracene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene		-	U	ug/l	4.4		ug/l	-	U	ug/l	-	U	ug/l
TRPH													
Total petroleum hydrocarbons		-	U	mg/l	-	U	mg/l	-	U	mg/l	-	U	mg/l
EDB													
LEAD		1	UNW	ug/l	1	UNW	ug/l	1	UN	ug/l	1	UNW	ug/l

Lab Sample Number:	9604929			9604832			9604830			9604642		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G10201			01G10401			01G10501			01GP0201		
Collect Date:	13-APR-96			12-APR-96			12-APR-96			10-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	1		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Toluene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	1.5		ug/l
2-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
1-Methylnaphthalene	-	U	ug/l	-	U	ug/l	-	U	ug/l	3.4		ug/l
Acenaphthylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Acenaphthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	6		ug/l
Fluorene	-	U	ug/l	-	U	ug/l	-	U	ug/l	1.7		ug/l
Phenanthrene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Anthracene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	-	U	mg/l	-	U	mg/l	-	U	mg/l
EDB												
LEAD	5	UN	ug/l	5	UN	ug/l	1	UNW	ug/l	1	UN	ug/l

Lab Sample Number:	9604482			9604490			9604563			9604656		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01G91101			01G91101			01G91301			01GK0101		
Collect Date:	08-APR-96			09-APR-96			10-APR-96			11-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
Toluene	-			-	U	ug/l	-	U	ug/l	1		ug/l
m-Xylene and p-Xylene	-			-	U	ug/l	1.5		ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-			-	U	ug/l	-	U	ug/l	2.6		ug/l
2-Methylnaphthalene	-			-	U	ug/l	5		ug/l	1.6		ug/l
1-Methylnaphthalene	-			-	U	ug/l	1.7		ug/l	3.8		ug/l
Acenaphthylene	-			-	U	ug/l	5.5		ug/l	37		ug/l
Acenaphthene	-			-	U	ug/l	-	U	ug/l	4.8		ug/l
Fluorene	-			-	U	ug/l	1.9		ug/l	4.6		ug/l
Phenanthrene	-			-	U	ug/l	5.2		ug/l	9.1		ug/l
Anthracene	-			-	U	ug/l	5.1		ug/l	-	U	ug/l
Fluoranthene	-			-	U	ug/l	-	U	ug/l	3.3		ug/l
Chrysene	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-			-	U	mg/l	-	U	mg/l	15.7		mg/l
EDB												
LEAD	1	UN	ug/l	-			1	UW	ug/l	8.8	BN	ug/l

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KEROSENE ANALYTICAL GROUP

Lab Sample Number:	9604210			9604652			9604669			9604479		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01GK0201			01GK2001			01GK2101			01GK2501		
Collect Date:	02-APR-96			11-APR-96			11-APR-96			08-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Toluene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-	U	ug/l	1.4		ug/l	2.5		ug/l	-	U	ug/l
2-Methylnaphthalene	-	U	ug/l	20		ug/l	24		ug/l	-	U	ug/l
1-Methylnaphthalene	-	U	ug/l	34		ug/l	1.4		ug/l	-	U	ug/l
Acenaphthylene	-	U	ug/l	11		ug/l	3.1		ug/l	-	U	ug/l
Acenaphthene	1.7		ug/l	2.1		ug/l	1.2		ug/l	-	U	ug/l
Fluorene	-	U	ug/l	26		ug/l	2.2		ug/l	-	U	ug/l
Phenanthrene	-	U	ug/l	6.1		ug/l	3.1		ug/l	-	U	ug/l
Anthracene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Fluoranthene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chrysene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	1.2		mg/l	1.6		mg/l	-	U	mg/l
EDB												
LEAD	12		ug/l	1.5	BN	ug/l	5	UN	ug/l	5	UN	ug/l

	Lab Sample Number:	9604934			9604932			9604202			9604477		
	Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
	Locator	01GC0101			01GC0201			01T005			01T006		
	Collect Date:	14-APR-96			14-APR-96			02-APR-96			08-APR-96		
		VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602													
1,1-Dichloroethane		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Toluene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene		-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS													
Naphthalene		-	U	ug/l	-	U	ug/l	-			-		
2-Methylnaphthalene		-	U	ug/l	-	U	ug/l	-			-		
1-Methylnaphthalene		-	U	ug/l	-	U	ug/l	-			-		
Acenaphthylene		-	U	ug/l	-	U	ug/l	-			-		
Acenaphthene		-	U	ug/l	-	U	ug/l	-			-		
Fluorene		-	U	ug/l	-	U	ug/l	-			-		
Phenanthrene		-	U	ug/l	-	U	ug/l	-			-		
Anthracene		-	U	ug/l	-	U	ug/l	-			-		
Fluoranthene		-	U	ug/l	-	U	ug/l	-			-		
Chrysene		-	U	ug/l	-	U	ug/l	-			-		
TRPH													
Total petroleum hydrocarbons		-	U	mg/l	-	U	mg/l	-			-		
EDB													
LEAD		1	UNW	ug/l	1	UN	ug/l	-			-		

Lab Sample Number:	9604549			9604641			9604838			9604913		
Site	TRUMBO PT.			TRUMBO PT.			TRUMBO PT.			TRUMBO PT.		
Locator	01T007			01T008			01T009			01T010		
Collect Date:	09-APR-96			10-APR-96			11-APR-96			13-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
EPA 601/602												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromodichloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichloroethene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Ethylbenzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Toluene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
POLYNUCLEAR AROMATICS												
Naphthalene	-			-			-			-		
2-Methylnaphthalene	-			-			-			-		
1-Methylnaphthalene	-			-			-			-		
Acenaphthylene	-			-			-			-		
Acenaphthene	-			-			-			-		
Fluorene	-			-			-			-		
Phenanthrene	-			-			-			-		
Anthracene	-			-			-			-		
Fluoranthene	-			-			-			-		
Chrysene	-			-			-			-		
TRPH												
Total petroleum hydrocarbons	-			-			-			-		
EDB												
LEAD	-			-			-			-		

Lab Sample Number:	9604203			9604657			
Site	TRUMBO PT.			TRUMBO PT.			
Locator	01R004			01R005			
Collect Date:	02-APR-96			11-APR-96			
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	
EPA 601/602							
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	
Bromodichloromethane	-	U	ug/l	1.6		ug/l	
Bromoform	-	U	ug/l	12		ug/l	
Dibromochloromethane	-	U	ug/l	5.5		ug/l	
Trichloroethene	-	U	ug/l	-	U	ug/l	
Trichlorofluoromethane	-	U	ug/l	-	U	ug/l	
Ethylbenzene	-	U	ug/l	-	U	ug/l	
Toluene	-	U	ug/l	-	U	ug/l	
m-Xylene and p-Xylene	-	U	ug/l	-	U	ug/l	
POLYNUCLEAR AROMATICS							
Naphthalene	-	U	ug/l	-	U	ug/l	
2-Methylnaphthalene	-	U	ug/l	-	U	ug/l	
1-Methylnaphthalene	-	U	ug/l	-	U	ug/l	
Acenaphthylene	-	U	ug/l	-	U	ug/l	
Acenaphthene	-	U	ug/l	-	U	ug/l	
Fluorene	-	U	ug/l	-	U	ug/l	
Phenanthrene	-	U	ug/l	-	U	ug/l	
Anthracene	-	U	ug/l	-	U	ug/l	
Fluoranthene	-	U	ug/l	-	U	ug/l	
Chrysene	-	U	ug/l	-	U	ug/l	
TRPH							
Total petroleum hydrocarbons	-	U	mg/l	-	U	mg/l	
EDB							
LEAD	-	U	ug/l	5	UN	ug/l	

Qu # 15719 STEVE TAFUNI

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC #

Task Order #: 095
Job #: 8506.33
Office Ph #: 904 656-1293
Field Office Ph #: —

PROJECT NAME: NAS KEY WEST
SITE NAME: TRUMBO POINT FUEL FARM
PROJECT MANAGER: MARK DIBLIN
COPY TO: JOE FUGITT
REQ. COMPLETION DATE: 14 DAYS

A0224

Comments	SAMPLE IDENTIFIER	SAMPLE DATE 1996	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICs (Y/N)	TOTAL CONTAINERS	LAB TEST CODES 1: TCLP FL PRO, FL PRO, 418.1 TRPH	LAB TEST CODES 2: US EPA 602	LAB TEST CODES 3	LAB TEST CODES 4	LAB TEST CODES 5	LAB TEST CODES 6	LAB TEST CODES 7	LAB TEST CODES 8	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME / Comments
SB-156	01B156 02	7-31	0838	S		X	N	1	1								3 FT BLS
SB-229	01B229 02	7-31	0920	S		X	N	1	1								3.5 FT BLS
SB-239	01B239 02	7-31	1035	S		X	N	1	1								3 FT BLS
SB-240	01B240 02	7-31	1150	S		X	N	1	1								3.5 FT BLS
MW-74D	01G074 02	8-2	0830	W		X	N	3		3							Preserve w/HCL
TRIP BLANK	01T014	8-2	—	W		X	N	3		3							Preserve w/HCL
TEMP BLANK	—	—	—					1									TEMPERATURE BLANK

LAB BATCH NO:

TOTAL PARAMETERS PER COLUMN

NEESA QC LEVEL

NOTES: ALL SAMPLES ON ICE

LAB COMMENTS:

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
J. Fugitt							
RELINQUISHED BY:	DATE TIME	RECEIVED BY:					
J. Fugitt	8-2-96 1500	Chad McNulty	8/3/96 0900				
RELINQUISHED BY:	DATE TIME	RECEIVED BY:					

SHIPPING AIRBILL NUMBER: 938512732
SHIPPED VIA: FEDERAL EXPRESS

WHITE/YELLOW COPY – LABORATORY PINK COPY – ABB-ES

Quanterra
Environmental Services

EXECUTIVE SUMMARY - Detection Highlights

B6H030106

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD
01B15602 07/31/96 08:38				
TPH (C8-C40)	110	13	mg/kg	FL-DEP FL-PRO
Total recoverable petroleum hydrocarbons	30	13	mg/kg	MCAWW 418.1
Percent Solids	79.0	0.10	%	MCAWW 160.3 MOD
01B22902 07/31/96 09:20				
TPH (C8-C40)	180	120	mg/kg	FL-DEP FL-PRO
Total recoverable petroleum hydrocarbons	420	58	mg/kg	MCAWW 418.1
Percent Solids	85.7	0.10	%	MCAWW 160.3 MOD
01B23902 07/31/96 10:35				
TPH (C8-C40)	200	110	mg/kg	FL-DEP FL-PRO
Total recoverable petroleum hydrocarbons	1100	110	mg/kg	MCAWW 418.1
Percent Solids	94.0	0.10	%	MCAWW 160.3 MOD
01B24002 07/31/96 11:50				
Percent Solids	69.0	0.10	%	MCAWW 160.3 MOD
01G07402 08/02/96 08:30				
Benzene	57	1.0	ug/L	CFR136A 602
Ethylbenzene	3.1	1.0	ug/L	CFR136A 602
Xylenes (total)	6.5	1.0	ug/L	CFR136A 602

REPORT 960544
Locatic ode F10

~~Tote~~ USED OIL ANAZYTICF GROUP

ABB ENVIRONMENTAL SERVICES, INC.

SDG #

COC #

A 0087

Task Order #: 095
Job #: 8506.33
Office Ph #: 904 656-1293
Field Office Ph #: 305 293 3063

PROJECT NAME: NAS Key West
SITE NAME: Trumbo Point Fuel Farm
PROJECT MANAGER: M. Dibin
COPY TO: J. Fagin
REQ. COMPLETION DATE: Standard

LAB TEST CODES: 1 2 3 4 5 6 7 8

Comments	SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	624 - VOLATILES	625 - BNA	418.1 - TRPH	CA, Cr, As, Pb (total)			LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME / Comments
MW-13	01G01301	4-14	0900	W		X	Y	7	3	2	1	1		9604935	
TRIPBLANK	01T0011	—	—	W		X	N	3	3					9604936	
RINSATE	01R0006	4/4	0915	W		X	~~Y~~	7	3	2	1	1		9604937	
MW-14	01G01401	4-14	1020	W		X	Y	7	3	2	1	1		9604938	
MW-17	01G01701	4-14	1020	W		X	Y	7	3	2	1	1		9604939	L9165
MW-18	01G01801	4-14	1130	W		X	Y	7	3	2	1	1		9604940	METALS SAMPLE NEEDS TO BE Filtered & preserved.
MW-107	01G10701	4-14	1145	W		X	Y	7	3	2	1	1		9604941	
MW-42	01G04201	4-14	1310	W		X	Y	7	3	2	1	1		9604942	very hot!
MW-106D	01G10601	4-14	1330	W		X	Y	7	3	2	1	1		9604943	
MW-103	01G10301	4-14	1430	W		X	Y	7	3	2	1	1		9604944	Hot
MW-103dup	01G10301D	4-14	1430	W		X	Y	7	3	2	1	1		9604945	Hot

TOTAL PARAMETERS PER COLUMN

LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME / LAB BATCH NO: / Comments

NEESA QC LEVEL

NOTES: MW-18 METALS sample is unpreserved.
5 coolers in shipment

LAB COMMENTS: Temp of coolers 1.2, 1.1, 3.3, 2.4+2.1 Ph<2 C+H bottles
custody seals intact

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
JF, JK, PW	R. Wagner						
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE TIME
P. WAGNER	4-15-96 1500						
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE TIME
						Jamae McClow	4.16.96 1000

SHIPPING AIRBILL NUMBER:

SHIPPED VIA: FED-EX #442638 4093

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PAGE 1 OF 2

EA 2D REPORT W/ABB ASCII

DUE 5/6/96 LPM=JOD

REPORT: 960544
LOCATION CODE FID

WASTE OIL ANALYTICAL GROUP

ABB ENVIRONMENTAL SERVICES, INC.

SDG #

COC #

Task Order #: 095
Job #: 8506.33
Office Ph #: 904 656-1293
Field Office Ph #: 305-293-3063

PROJECT NAME: NAS Key West
SITE NAME: Trumbo Point Fuel Farm
PROJECT MANAGER: M. Diblin
COPY TO: J. Fusitt
REQ. COMPLETION DATE: Standard

LAB TEST CODES

A 0089

LAB CODE
PARAMETER
METHOD
PRESERVATIVE
VOLUME

LAB BATCH NO:

Comments	SAMPLE IDENTIFIER	SAMPLE DATE 1996	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	624	625	418.1 TRPH	TAL metals (As Cd Cr Pb)				Comments
MW-24	01G02401	4-15	0820	W		X	Y	7	3	2	1	1			9604946	
MW-45D	01G04501	4-15	0840	W		X	Y	7	3	2	1	1			9604947	
MW-25	01G02501	4-15	1010	W		X	Y	7	3	2	1	1			9604948	
MW-26	01G02601	4-15	1010	W		X	Y	7	3	2	1	1			9604949	
MW-28	01G02801	4-15	1310	W		X	Y	7	3	2	1	1			9604950	
MW-49	01G04901	4-15	1345	W		X	Y	7	3	2	1	1			9604951	

L9765

TOTAL PARAMETERS PER COLUMN

NEESA QC LEVEL

NOTES:
Coolers in shipment

LAB COMMENTS:

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
J.F., J.K., PW	P. WAGNER						
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE TIME
P. WAGNER	4-15-96 1500						
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE TIME
						Jamae McClure	4/16/96 1000

SHIPPING AIRBILL NUMBER:

SHIPPED VIA: FED. EX # 442638 4093

WHITE/YELLOW COPY – LABORATORY PINK COPY – ABB-ES

EA 2D REPORT W/ABB ASCII
DUE 5/6/96 LPM=JOD

Lab Sample Number:	9604935			9604938			9604939			9604940		
Site	KEY WEST			KEY WEST			KEY WEST			KEY WEST		
Locator	01G01301			01G01401			01G01701			01G01801		
Collect Date:	14-APR-96			14-APR-96			14-APR-96			14-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
VOLATILES (SW-846, 8240)												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
SEMIVOLATILES (SW-846,8270)												
Phenol	-	U	ug/l	-	U	ug/l	15		ug/l	92		ug/l
2,4-Dimethylphenol	-	U	ug/l	-	U	ug/l	-	U	ug/l	54		ug/l
bis(2-Ethylhexyl) phthalate	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	-	U	mg/l	-	U	mg/l	-	U	mg/l
TOTAL METALS												
Cadmium	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chromium	-	U	ug/l	-	U	ug/l	-	U	ug/l	7.7	B	ug/l
Arsenic	2.8	BN	ug/l	2.1	BN	ug/l	3.1	BN	ug/l	2.4	BN	ug/l
Lead	1	UW	ug/l	1	UW	ug/l	-	U	ug/l	-	U	ug/l

U = NOT DETECTED
J OR B = ESTIMATED VALUE

06/27/96 KEY WEST GROUNDWATER AND QA/QC SAMPLES 13:34:07
WASTE OIL GROUP

Lab Sample Number:	9604946			9604954			9604946			9604954		
Site	KEY WEST			KEY WEST			KEY WEST			KEY WEST		
Locator	01G02401			01G02401			01G02401			01G02401		
Collect Date:	15-APR-96			15-APR-96			15-APR-96			15-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
VOLATILES (SW-846, 8240)												
1,1-Dichloroethane	-	U	ug/l	-			-	U	ug/l	-		
Dibromochloromethane	-	U	ug/l	-			-	U	ug/l	-		
Benzene	-	U	ug/l	-			-	U	ug/l	-		
Bromoform	-	U	ug/l	-			-	U	ug/l	-		
SEMIVOLATILES (SW-846,8270)												
Phenol	-	U	ug/l	-			-	U	ug/l	-		
2,4-Dimethylphenol	-	U	ug/l	-			-	U	ug/l	-		
bis(2-Ethylhexyl) phthalate	-	U	ug/l	-			-	U	ug/l	-		
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	-			-	U	mg/l	-		
TOTAL METALS												
Cadmium	-	U	ug/l	1	UN	ug/l	-	U	ug/l	1	UN	ug/l
Chromium	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Arsenic	5.8	BN	ug/l	10.6		ug/l	5.8	BN	ug/l	10.6		ug/l
Lead	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l

U = NOT DETECTED
J OR B = ESTIMATED VALUE

Lab Sample Number:	9604948			9604949			9604955			9604950		
Site	KEY WEST			KEY WEST			KEY WEST			KEY WEST		
Locator	01G02501			01G02601			01G02601			01G02801		
Collect Date:	15-APR-96			15-APR-96			15-APR-96			15-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
VOLATILES (SW-846, 8240)												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-			4	J	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
Benzene	-	U	ug/l	-	U	ug/l	-			12		ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
SEMIVOLATILES (SW-846,8270)												
Phenol	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
2,4-Dimethylphenol	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
bis(2-Ethylhexyl) phthalate	-	U	ug/l	-	U	ug/l	-			-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-	U	mg/l	-	U	mg/l	-			-	U	mg/l
TOTAL METALS												
Cadmium	-	U	ug/l	-	U	ug/l	1	UNW	ug/l	-	U	ug/l
Chromium	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Arsenic	2.6	BNW	ug/l	1.9	BNW	ug/l	2.3	B	ug/l	14.5	N	ug/l
Lead	1	UW	ug/l	1	UW	ug/l	-	U	ug/l	1	UW	ug/l

U = NOT DETECTED
J OR B = ESTIMATED VALUE

06/27/96 KEY WEST GROUNDWATER AND QA/QC SAMPLES 13:34:07
WASTE OIL GROUP

Lab Sample Number:	9604942			9604947			9604951			9604944		
Site	KEY WEST			KEY WEST			KEY WEST			KEY WEST		
Locator	01G04201			01G04501			01G04901			01G10301		
Collect Date:	14-APR-96			15-APR-96			15-APR-96			14-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
VOLATILES (SW-846, 8240)												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
SEMIVOLATILES (SW-846,8270)												
Phenol	43		ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
2,4-Dimethylphenol	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
bis(2-Ethylhexyl) phthalate	4	J	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	2.3		mg/l	-	U	mg/l	-	U	mg/l	-	U	mg/l
TOTAL METALS												
Cadmium	-	U	ug/l	-	U	ug/l	1.1	B	ug/l	-	U	ug/l
Chromium	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Arsenic	2.6	BN	ug/l	4.2	BNW	ug/l	8	BN	ug/l	1.8	BN	ug/l
Lead	1	UW	ug/l	1	UW	ug/l	1	UW	ug/l	-	U	ug/l

U = NOT DETECTED
J OR B = ESTIMATED VALUE

06/27/96 KEY WEST GROUNDWATER AND QA/QC SAMPLES 13:34:07
WASTE OIL GROUP

Lab Sample Number:	9604953			9604945			9604943			9604941		
Site	KEY WEST			KEY WEST			KEY WEST			KEY WEST		
Locator	01G10301			01G10301D			01G10601			01G10701		
Collect Date:	14-APR-96			14-APR-96			14-APR-96			14-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
VOLATILES (SW-846, 8240)												
1,1-Dichloroethane	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
Benzene	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
SEMIVOLATILES (SW-846,8270)												
Phenol	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
2,4-Dimethylphenol	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
bis(2-Ethylhexyl) phthalate	-			-	U	ug/l	-	U	ug/l	-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-			-	U	mg/l	-	U	mg/l	-	U	mg/l
TOTAL METALS												
Cadmium	1	UN	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Chromium	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Arsenic	1.1	BW	ug/l	1.1	BN	ug/l	8	BN	ug/l	2.5	BN	ug/l
Lead	-	U	ug/l	-	U	ug/l	1.3	BW	ug/l	1	UW	ug/l

U = NOT DETECTED
J OR B = ESTIMATED VALUE

06/27/96 KEY WEST GROUNDWATER AND QA/QC SAMPLES 13:34:07
WASTE OIL GROUP

Lab Sample Number:	9601254			9601253			9604936			9604937		
Site	KEY WEST			KEY WEST			KEY WEST			KEY WEST		
Locator	01TB01			01B0EB01			01T011			01R006		
Collect Date:	01-FEB-96			01-FEB-96			14-APR-96			14-APR-96		
	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS	VALUE	QUAL	UNITS
VOLATILES (SW-846, 8240)												
1,1-Dichloroethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Dibromochloromethane	-	U	ug/l	-	U	ug/l	-	U	ug/l	6		ug/l
Benzene	-	U	ug/l	-	U	ug/l	-	U	ug/l	-	U	ug/l
Bromoform	-	U	ug/l	-	U	ug/l	-	U	ug/l	10		ug/l
SEMIVOLATILES (SW-846,8270)												
Phenol	-			-	U	ug/l	-			-	U	ug/l
2,4-Dimethylphenol	-			-	U	ug/l	-			-	U	ug/l
bis(2-Ethylhexyl) phthalate	-			-	U	ug/l	-			-	U	ug/l
TRPH												
Total petroleum hydrocarbons	-			-	U	mg/l	-			-	U	mg/l
TOTAL METALS												
Cadmium	-			-	U	ug/l	-			-	U	ug/l
Chromium	-			-	U	ug/l	-			-	U	ug/l
Arsenic	-			-	U	ug/l	-			1.3	BN	ug/l
Lead	-			-	U	ug/l	-			1	UW	ug/l

U = NOT DETECTED
J OR B = ESTIMATED VALUE

APPENDIX F

SEDIMENT AND SURFACE WATER SAMPLE ANALYTICAL DATA

RI F# 960189 Locator Code: 03 Cooler temp: 7.1.1.5

ABB ENVIRONMENTAL SERVICES, INC.

SDG #

COC #

Task Order #: 095
Job #: 8506.33
Office Ph #: (904)656-1293
Field Office Ph #: (305)293-6036
PO #

PROJECT NAME: NAS Key West
SITE NAME: Trumbo Point Fuel Farm
PROJECT MANAGER: Mark Diblin
COPY TO: Joe Fugitt
REQ. COMPLETION DATE: STANDARD TURNAROUND

A 0107

SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	1 USEPA 601/602 + MTBE Volatile Organics	2 USEPA 610 Polynuclear Aromatic Hydrocarbons	3 USEPA 418.1 TRPH	4 USEPA 504 EDB	5 Method 239.2 LEAD	6	7	8	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME / Comments
9601681	01TOOZ	2-14-96	0820	W		X	N	3	3							
9601682	01ROOZ	2-14-96	0820	W		X	N	10	3	2	1	3	1			SEE NOTES
9601683	01WOO101	2-14	1100	W		X	N	10	3	2	1	3	1			602 + MTBE, XYLENES
9601684	01WOO201	2-14	1145	W		X	N	10	3	2	1	3	1			610 + METHYL NAPHTHALENES
9601685	01WOO201D	2-14	1145	W		X	N	10	3	2	1	3	1			
9601686	01WOO301	2-14-96	1245	W		X	N	10	3	2	1	3	1			
																L8745

LAB BATCH NO:

TOTAL PARAMETERS PER COLUMN

NEESA QC LEVEL

NOTES: TRPH & 601/602 bottles preserved w/ H_2SO_4 & HCl
LEAD bottles preserved w/ HNO_3.
1-methylnapthalene & 2-methylnaphthalene are required for the 610 Analysis

LAB COMMENTS:

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
T. WAGNER	P. Wagner				Fletcher	2/15/96	1000
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
P. WAGNER	2-14-96 1600						
RELINQUISHED BY:	DATE TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME

SHIPPING AIRBILL NUMBER: FEDERAL EXPRESS # 4426384620
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DUE 3/7/96 LPM = JOD

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10000

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC # Ref # 960421 LOCATION B3

Task Order #:
Job #: 8506.33
Office Ph #: 904 656 1293
Field Office Ph #: 305 293 3063

PROJECT NAME: NAS KEY WEST
SITE NAME: TRUMBO POINT FUEL FARM
PROJECT MANAGER: Mark Diblin
COPY TO: Joe Fusitt
REQ. COMPLETION DATE: STANDARD TURNAROUND

LAB TEST CODES

SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	1 USEPA 601/602 + MTBE	2 USEPA 610 + 1-METHYLNAPTHALENE 2-METHYLNAPTHALENE	3 USEPA 418.1 TRPH	4 LEAD	5 USEPA 504 EDB	6	7	8	Comments
9603742 01WQ0401	3-27	0945	W		X	N		3	2	1	1	3				
9603743 01WQ0501	3-27	1100	W		X	N		3	2	1	1	3				
9603744 01WQ0601	3-27	1140	W		X	N		3	2	1	1	3				
9603745 01WQ0701	3-27	1420	W		X	N		3	2	1	1	3				
9603746 01WQ0801	3-27	1500	W		X	N		3	2	1	1	3				
9603747 01WQ0901	3-27	1530	W		X	N		3	2	1	1	3				
9603748 01WQ1001	3-27	1605	W		X	N		3	2	1	1	3				
~~01WQ1101~~																
9603749 01WQ1101	3-27	1630	W		X	N		3	2	1	1	3				
9603750 01TQ03	3-27	—	W		X	N		3								

A 0109

LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME: L9005

LAB BATCH NO:

Comments

TOTAL PARAMETERS PER COLUMN

NOTES: 602 + MTBE; NAPH.
610 + METHYL NAPHTHALENES

LAB COMMENTS: SAMPLES IN GOOD CONDITION
THREE COOLERS 1.1/1.9/3.5 COOLER TEMPS
CUSTODY SEALS INTACT pH C<2 H<2

NEESA QC LEVEL

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY: DATE TIME	RECEIVED BY: DATE TIME
3/29/96 9:45	KRISTIN KWID		
RELINQUISHED BY: DATE TIME	RECEIVED BY:	RELINQUISHED BY: DATE TIME	RECEIVED BY: DATE TIME
RELINQUISHED BY: DATE TIME	RECEIVED BY:	RELINQUISHED BY: DATE TIME	RECEIVED BY: DATE TIME

SHIPPING AIRBILL NUMBER:

SHIPPED VIA: FEDEX 4426385773

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EA 3D W/ ABB ASCII EDD
DUE 4/19/96 LPM = JOD
FOOC 7.12

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Kerosene Analytical Group

ABB ENVIRONMENTAL SERVICES, INC.

SDG # COC # Rpt # 960433

Task Order #:
Job #: 8506.33
Office Ph #: (904) 656-1293
Field Office Ph #: (305) 293 3063

PROJECT NAME: NAS KEY WEST
SITE NAME: TRUMBO POINT FUEL FARM
PROJECT MANAGER: Mark Diblin
COPY TO: Joe Fugitt
REQ. COMPLETION DATE: STANDARD

LOCATION: C 2
A0110

LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME
LAB BATCH NO:

EA #	SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	1 601/602+MTBE	2 504 - EDB	3 239.2 - LEAD	4 418.1 - TRPH	5 610 - PAH + 1-methylnaphthalene 2-methylnaphthalene	6	7	8	Comments
9603856	01D011101	3-28	1425	S	✓		N	3	✓	✓	✓	✓	✓	9	TKH	3/30/96	
9603857	01D009901	3-28	1625	S	✓		N	3	✓	✓	✓	✓	✓				
9603858	01D009901D	3-28	1625	S	✓		N	2	✓	✓	✓	✓	✓				duplicate sample
9603859	01D008801	3-29	1630	S	✓		N	3	✓	✓	✓	✓	✓				high liquid content

L9007

TOTAL PARAMETERS PER COLUMN

NEESA QC LEVEL

NOTES: unpreserved sediment samples. Samples on ice

LAB COMMENTS: SAMPLES IN GOOD CONDITION COOLER TEMP 1.8°C / CUSTODY SEALS TWO INTACT PH - NONE SOILS

SAMPLED BY:	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
Joe Fugitt							
RELINQUISHED BY: Joseph Fugitt	DATE 6/29/96 TIME 1730 RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
RELINQUISHED BY:	DATE TIME RECEIVED BY: Kristin Lewis SMO 3/30/96 9:50	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME

SHIPPING AIRBILL NUMBER:

SHIPPED VIA: FED-EX #442638576 2 1 cooler

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PAGE 1 OF 1

EA 3D W/ ABB ASCII
DUE 4/23/96 LPM = JOD
70067.12 RELEASE 672

KEROSENE ANALYTICA GROUP

Aug 1996

ABB ENVIRONMENTAL SERVICES, INC.

SDG #

COC # Report 960444

Task Order #: 095
Job #: 8506.33
Office Ph #: (904) 656-1293
Field Office Ph #: (305) 293-3063

PROJECT NAME: NAS KEY WEST
SITE NAME: TRUMBO POINT FUEL FARM
PROJECT MANAGER: MARK DIBLIN
COPY TO: JOE FUGITT
REQ. COMPLETION DATE: STANDARD

LAB TEST CODES

A 0111

SAMPLE IDENTIFIER	SAMPLE DATE (1996)	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	1: 601/602 + MTBE	2: 504 - EDB	3: 239.2 - LEAD	4: 418.1 - TRPH	5: 610 PAH + 1-methylnaphthalene 2-methylnaphthalene	6: Total Kjeld/AH/ Nitrogen, Nitrate/ Nitrite, TOC	7: Ammonia-Nitrogen Total phosphorus TPH, Sieve	8	LAB BATCH NO: / Comments
Sediment Sample 01D01001	3-30 ~~1200~~	1200	S	✓		N	3	✓	✓	✓	✓	✓				9603990
Sediment Sample 01D00601	3-30 ~~1510~~	1510	S	✓		N	3	✓	✓	✓	✓	✓				9603991
Sediment Sample 01D00501	3-30 ~~1800~~	1800	S	✓		N	3	✓	✓	✓	✓	✓				9603992
TRIP BLK. 01T0004	3-31	0820	W		✓	N	~~3~~ 10	3	~~3~~	~~+~~ J.F.					9603993	Trip is USEPA 601/602 LMI ONLY
EQUIP. RINSATE 01R0003	3-31	0820	W		✓	N	10	3	3	1	1	2.				9603994
RAP DRY SOIL 01B124001	3-31	1120	S	✓		N	2						1	1		9603995
RAP WET SOIL 01B124002	3-31	1120	S	✓		N	2						1	1	-	9603996
RAP DRY SOIL 01B199001	3-31	1245	S	✓		N	2						1	1		9603997
RAP WET SOIL 01B199002	3-31	1245	S	✓		N	2						1	1	-	9603998
RAP DRY SOIL 01B156001	4-1-96	0830	S	✓		N	2						1	1		9603999
RAP WET SOIL 01B156002	4-1-96	0830	S	✓		N	2						1	1	-	9604000
TOTAL PARAMETERS PER COLUMN																

NEESA QC LEVEL

NOTES: SEDIMENT SAMPLES NOT PRESERVED, ON ICE
TRIP AND RINSATE BLK. PRESERVED AS REQUIRED

LAB COMMENTS: TEMP 2.5 + .9 Custody Seals intact
LOCATION CODE C10
L9053

SAMPLED BY: JOE FUGITT / PAM WAGNER

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
P. WAGNER	4-1-96	1500	FED-EX

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
			Jonathan Cloud 4-2-96 NS

SHIPPING AIRBILL NUMBER:

SHIPPED VIA: FED EX # 4426385740

ZE

~~EA~~ 5D REPORT W/ ABB ASCII

DUE 4/23/96 LDM = JJD

WHITE/YELLOW COPY – LABORATORY PINK COPY – ABB-ES

ABB ENVIRONMENTAL SERVICES, INC.

SDG #

COC # 960444

Task Order #:

Job #: 8506.33

Office Ph #: 904 656-1293

Field Office Ph #: 305 293-3063

PROJECT NAME: NAS KEY WEST
SITE NAME: TRUMBO POINT FUEL FARM
PROJECT MANAGER: Mark Diblin
COPY TO: Joe Fugitt
REQ. COMPLETION DATE: STANDARD

LAB TEST CODES: 1 2 3 4 5 6 7 8

A 0113

SAMPLE IDENTIFIER	SAMPLE DATE	SAMPLE TIME	MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	TICS (Y/N)	TOTAL CONTAINERS	1: Total Kjeldahl Nitrogen, TOC, Nitrate/Nitrite	2: Ammonia-nitrogen, total phosphorus, TPH, sieve	LAB CODE PARAMETER METHOD PRESERVATIVE VOLUME	LAB BATCH NO: / Comments
01B23701	4-1-96	0800	S	✓		N	2	1	1		96044001
01B23702	4-1	0800	S	✓		N	2	1	1	-	96044002
01B23901	4-1	0945	S	✓		N	2	1	1		96044003
01B23902	4-1	0945	S	✓		N	2	1	1	-	96044004
01B23801	4-1	0900	S	✓		N	2	1	1		96044005
01B23802	4-1	0900	S	✓		N	2	1	1	-	96044006
										L9053	

TOTAL PARAMETERS PER COLUMN

NEESA QC LEVEL

NOTES: Sediment samples and soil samples not preserved, on ice.

LAB COMMENTS: LOCATION CODE C10

SAMPLED BY: Joe Fugitt / Pam Wagner

RELINQUISHED BY: P. WAGNER 4-1-96 1500 RECEIVED BY: FED-EX

RECEIVED BY: Jmae McCloud 4-2-96 945

SHIPPING AIRBILL NUMBER:

SHIPPED VIA: FED EX # 442638574 0

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PAGE 2 OF 2

EXCEL REPORT W/ ABB ASCII
DUE 4/23/96 UPU = JOD

KEROSENE ANALYTICAL GROUP

Lab Sample Number:	9603992				9603991				9603859				9603857			
Site	TRUMBO PT.				TRUMBO PT.				TRUMBO PT.				TRUMBO PT.			
Locator	01D00501				01D00601				01D00801				01D00901			
Collect Date:	30-MAR-96				30-MAR-96				29-MAR-96				28-MAR-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
EPA 601/602																
1,1-Dichloroethene	-	U	ug/kg	3	-	U	ug/kg	2.9	-	U	ug/kg	2	-	U	ug/kg	2.9
Methylene chloride	-	U	ug/kg	3	-	U	ug/kg	2.9	-	U	ug/kg	2	-	U	ug/kg	2.9
Trichlorofluoromethane	-	U	ug/kg	3	-	U	ug/kg	2.9	-	U	ug/kg	2	-	U	ug/kg	2.9
Toluene	-	U	ug/kg	3	-	U	ug/kg	2.9	-	U	ug/kg	2	-	U	ug/kg	2.9
POLYNUCLEAR AROMATICS																
Phenanthrene	-	U	ug/kg	100	-	U	ug/kg	95	150		ug/kg		130		ug/kg	
Anthracene	-	U	ug/kg	100	-	U	ug/kg	95	150		ug/kg		100		ug/kg	
Fluoranthene	-	U	ug/kg	100	210		ug/kg		770		ug/kg		230		ug/kg	
Pyrene	-	U	ug/kg	100	200		ug/kg		580		ug/kg		390		ug/kg	
Benzo (a) anthracene	-	U	ug/kg	100	-	U	ug/kg	95	310		ug/kg		210		ug/kg	
Chrysene	-	U	ug/kg	100	130		ug/kg		330		ug/kg		340		ug/kg	
Benzo (a) pyrene	150		ug/kg		170		ug/kg		480		ug/kg		310		ug/kg	
Indeno (1,2,3-cd) pyrene	-	U	ug/kg	100	110		ug/kg		280		ug/kg		160		ug/kg	
Benzo (g,h,i) perylene	-	U	ug/kg	100	110		ug/kg		310		ug/kg		160		ug/kg	
TRPH																
Total petroleum hydrocarbons	244		mg/kg		169		mg/kg		519		mg/kg		244		mg/kg	
TOTAL METALS																
Lead	45.5	E*	mg/kg		30.4	E*	mg/kg		732	E	mg/kg		35.3	E	mg/kg	

U = NOT DETECTED
J OR B = ESTIMATED VALUE

KEROSENE ANALYTICAL GROUP

Lab Sample Number:	9603858				9603990				9603856				9601683			
Site	TRUMBO PT.				TRUMBO PT.				TRUMBO PT.				TRUMBO PT.			
Locator	01D00901D				01D01001				01D01101				01W00101			
Collect Date:	28-MAR-96				30-MAR-96				28-MAR-96				14-FEB-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
EPA 601/602																
1,1-Dichloroethene	-	U	ug/kg	2.9	-	U	ug/kg	2.9	-	U	ug/kg	2.3	-	U	ug/l	1
Methylene chloride	-	U	ug/kg	2.9	-	U	ug/kg	2.9	-	U	ug/kg	2.3	-	U	ug/l	1
Trichlorofluoromethane	-	U	ug/kg	2.9	-	U	ug/kg	2.9	-	U	ug/kg	2.3	-	U	ug/l	1
Toluene	-	U	ug/kg	2.9	-	U	ug/kg	2.9	-	U	ug/kg	2.3	-	U	ug/l	1
POLYNUCLEAR AROMATICS																
Phenanthrene	-	U	ug/kg	96	-	U	ug/kg	95	-	U	ug/kg	77	-	U	ug/l	1
Anthracene	-	U	ug/kg	96	-	U	ug/kg	95	-	U	ug/kg	77	-	U	ug/l	1
Fluoranthene	-	U	ug/kg	96	220		ug/kg		-	U	ug/kg	77	-	U	ug/l	1
Pyrene	190		ug/kg		230		ug/kg		-	U	ug/kg	77	-	U	ug/l	1
Benzo (a) anthracene	-	U	ug/kg	96	-	U	ug/kg	95	-	U	ug/kg	77	-	U	ug/l	1
Chrysene	150		ug/kg		130		ug/kg		-	U	ug/kg	77	-	U	ug/l	1
Benzo (a) pyrene	150		ug/kg		160		ug/kg		190		ug/kg		-	U	ug/l	1
Indeno (1,2,3-cd) pyrene	-	U	ug/kg	96	-	U	ug/kg	95	120		ug/kg		-	U	ug/l	1
Benzo (g,h,i) perylene	-	U	ug/kg	96	-	U	ug/kg	95	130		ug/kg		-	U	ug/l	1
TRPH																
Total petroleum hydrocarbons	195		mg/kg		184		mg/kg		1860		mg/kg		-	U	mg/l	1
TOTAL METALS																
Lead	33.6	E	mg/kg		33.9	E*	mg/kg		76	E	mg/kg		1	UW	ug/l	

U = NOT DETECTED
J OR B = ESTIMATED VALUE

07/26/96 KEY WEST SEDIMENT, SURFACE WATER, AND QA/QC SAMPLES 18:48:17
KEROSENE ANALYTICAL GROUP

	9601684				9601685				9601686				9603742			
Lab Sample Number:																
Site	TRUMBO PT.				TRUMBO PT.				TRUMBO PT.				TRUMBO PT.			
Locator	01W00201				01W00201D				01W00301				01W00401			
Collect Date:	14-FEB-96				14-FEB-96				14-FEB-96				27-MAR-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
EPA 601/602																
1,1-Dichloroethene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Methylene chloride	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Trichlorofluoromethane	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Toluene	-	U	ug/l	1	-	U	ug/l	1	1		ug/l		-	U	ug/l	1
POLYNUCLEAR AROMATICS																
Phenanthrene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Anthracene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Fluoranthene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Pyrene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Benzo (a) anthracene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Chrysene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Benzo (a) pyrene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Indeno (1,2,3-cd) pyrene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Benzo (g,h,i) perylene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
TRPH																
Total petroleum hydrocarbons	-	U	mg/l	1	-	U	mg/l	1	-	U	mg/l	1	-	U	mg/l	1
TOTAL METALS																
Lead	1	UW	ug/l		1	UW	ug/l		5	US	ug/l		5	UNW	ug/l	

U = NOT DETECTED
J OR B = ESTIMATED VALUE

	9603743				9603744				9603745				9603746			
Lab Sample Number:																
Site	TRUMBO PT.				TRUMBO PT.				TRUMBO PT.				TRUMBO PT.			
Locator	01W00501				01W00601				01W00701				01W00801			
Collect Date:	27-MAR-96				27-MAR-96				27-MAR-96				27-MAR-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
EPA 601/602																
1,1-Dichloroethene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Methylene chloride	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Trichlorofluoromethane	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Toluene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
POLYNUCLEAR AROMATICS																
Phenanthrene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Anthracene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Fluoranthene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Pyrene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Benzo (a) anthracene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Chrysene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Benzo (a) pyrene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Indeno (1,2,3-cd) pyrene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Benzo (g,h,i) perylene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
TRPH																
Total petroleum hydrocarbons	-	U	mg/l	1	-	U	mg/l	1	-	U	mg/l	1	-	U	mg/l	1
TOTAL METALS																
Lead	5	UNW	ug/l		5	UNW	ug/l		5	UNW	ug/l		5	UNW	ug/l	

U = NOT DETECTED
J OR B = ESTIMATED VALUE

07/26/96 KEY WEST SEDIMENT, SURFACE WATER, AND QA/QC SAMPLES 18:48:17
KEROSENE ANALYTICAL GROUP

Lab Sample Number:	9603747				9603748				9603749				9601681			
Site	TRUMBO PT.				TRUMBO PT.				TRUMBO PT.				TRUMBO PT.			
Locator	01W00901				01W01001				01W01101				01T002			
Collect Date:	27-MAR-96				27-MAR-96				27-MAR-96				14-FEB-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
EPA 601/602																
1,1-Dichloroethene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	3		ug/l	
Methylene chloride	-	U	ug/l	1	-	U	ug/l	1	3.9		ug/l		-	U	ug/l	1
Trichlorofluoromethane	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	1.1		ug/l	
Toluene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
POLYNUCLEAR AROMATICS																
Phenanthrene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-			
Anthracene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-			
Fluoranthene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-			
Pyrene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-			
Benzo (a) anthracene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-			
Chrysene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-			
Benzo (a) pyrene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-			
Indeno (1,2,3-cd) pyrene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-			
Benzo (g,h,i) perylene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-			
TRPH																
Total petroleum hydrocarbons	-	U	mg/l	1	-	U	mg/l	1	-	U	mg/l	1	-			
TOTAL METALS																
Lead	5	UNW	ug/l		5	UNW	ug/l		5	UNW	ug/l		-			

U = NOT DETECTED
J OR B = ESTIMATED VALUE

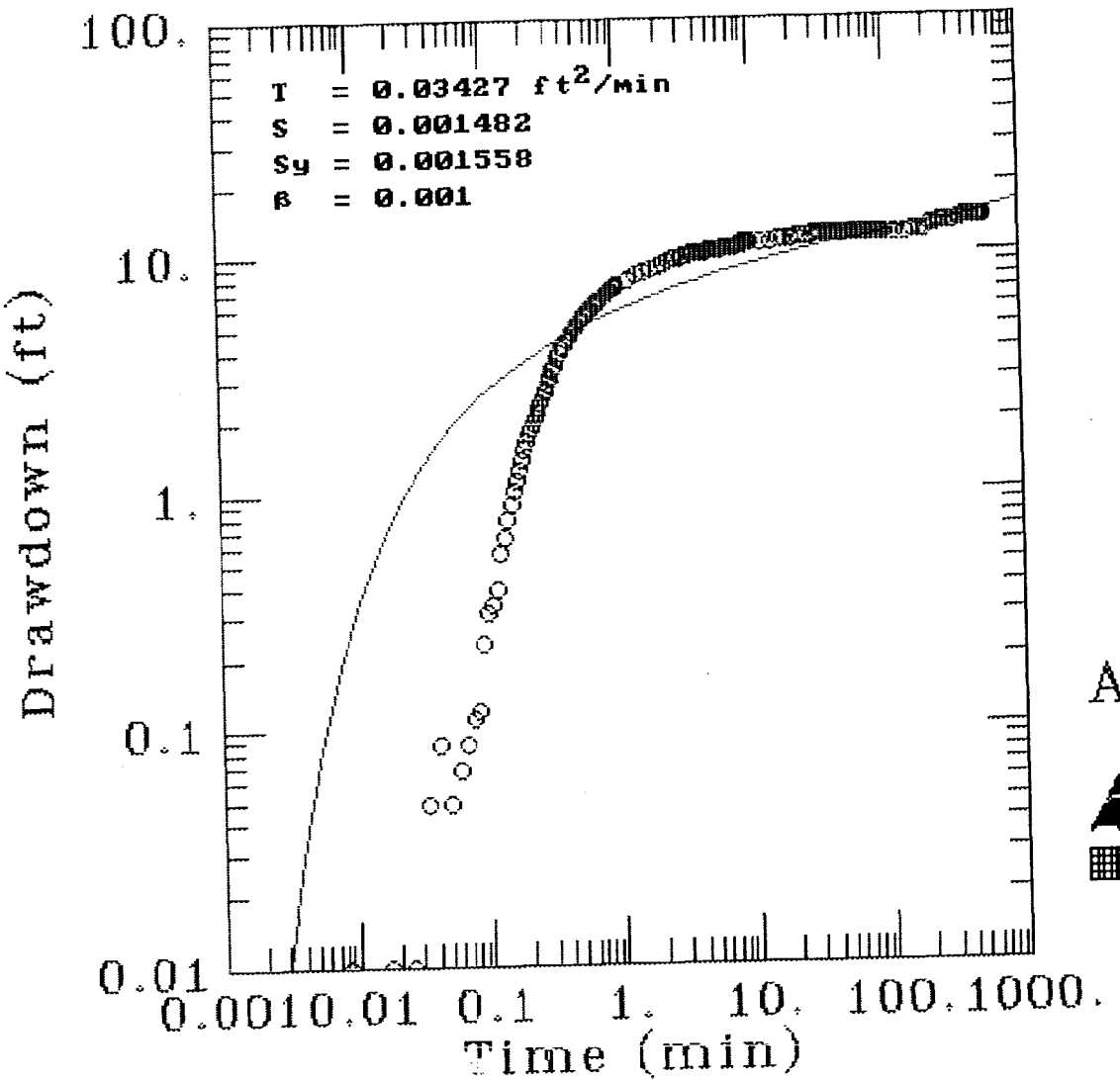
Lab Sample Number:	9603750				9603993				9601682				9603994			
Site	TRUMBO PT.				TRUMBO PT.				TRUMBO PT.				TRUMBO PT.			
Locator	01T003				01T004				01R002				01R003			
Collect Date:	27-MAR-96				31-MAR-96				14-FEB-96				31-MAR-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
EPA 601/602																
1,1-Dichloroethene	-	U	ug/l	1	-	U	ug/l	1	3		ug/l		-	U	ug/l	1
Methylene chloride	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
Trichlorofluoromethane	-	U	ug/l	1	-	U	ug/l	1	1.1		ug/l		-	U	ug/l	1
Toluene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
POLYNUCLEAR AROMATICS																
Phenanthrene	-				-				-	U	ug/l	1	-	U	ug/l	1
Anthracene	-				-				-	U	ug/l	1	-	U	ug/l	1
Fluoranthene	-				-				-	U	ug/l	1	-	U	ug/l	1
Pyrene	-				-				-	U	ug/l	1	-	U	ug/l	1
Benzo (a) anthracene	-				-				-	U	ug/l	1	-	U	ug/l	1
Chrysene	-				-				-	U	ug/l	1	-	U	ug/l	1
Benzo (a) pyrene	-				-				-	U	ug/l	1	-	U	ug/l	1
Indeno (1,2,3-cd) pyrene	-				-				-	U	ug/l	1	-	U	ug/l	1
Benzo (g,h,i) perylene	-				-				-	U	ug/l	1	-	U	ug/l	1
TRPH																
Total petroleum hydrocarbons	-				-				-	U	mg/l	1	-	U	mg/l	1
TOTAL METALS																
Lead	-				-				1	UW	ug/l		-	U	ug/l	1

U = NOT DETECTED
J OR B = ESTIMATED VALUE

APPENDIX G

AQUIFER DATA

TPFF PUMPING TEST WELL MW-67D

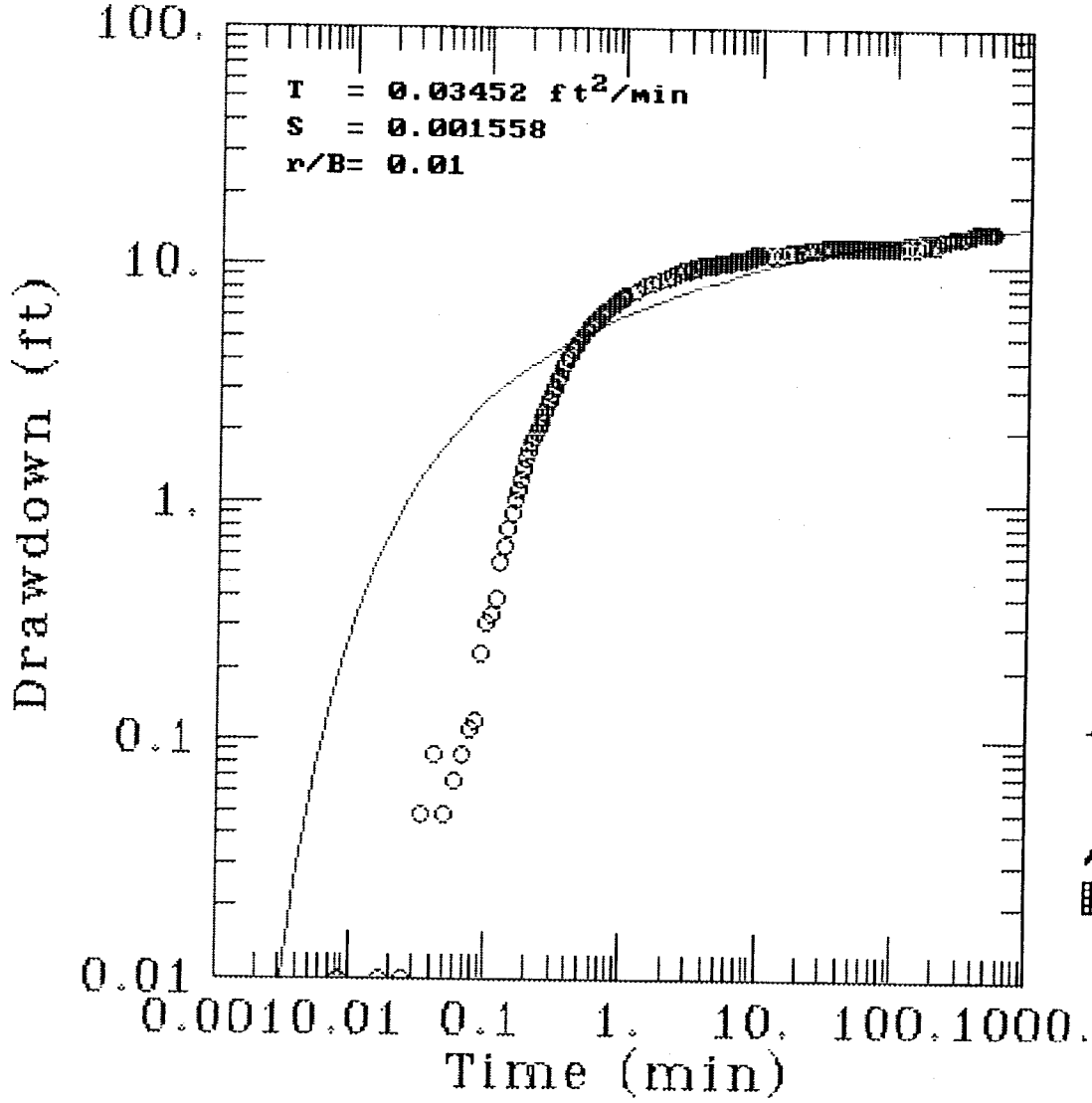


AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

TPFF PUMPING TEST WELL MW-67D



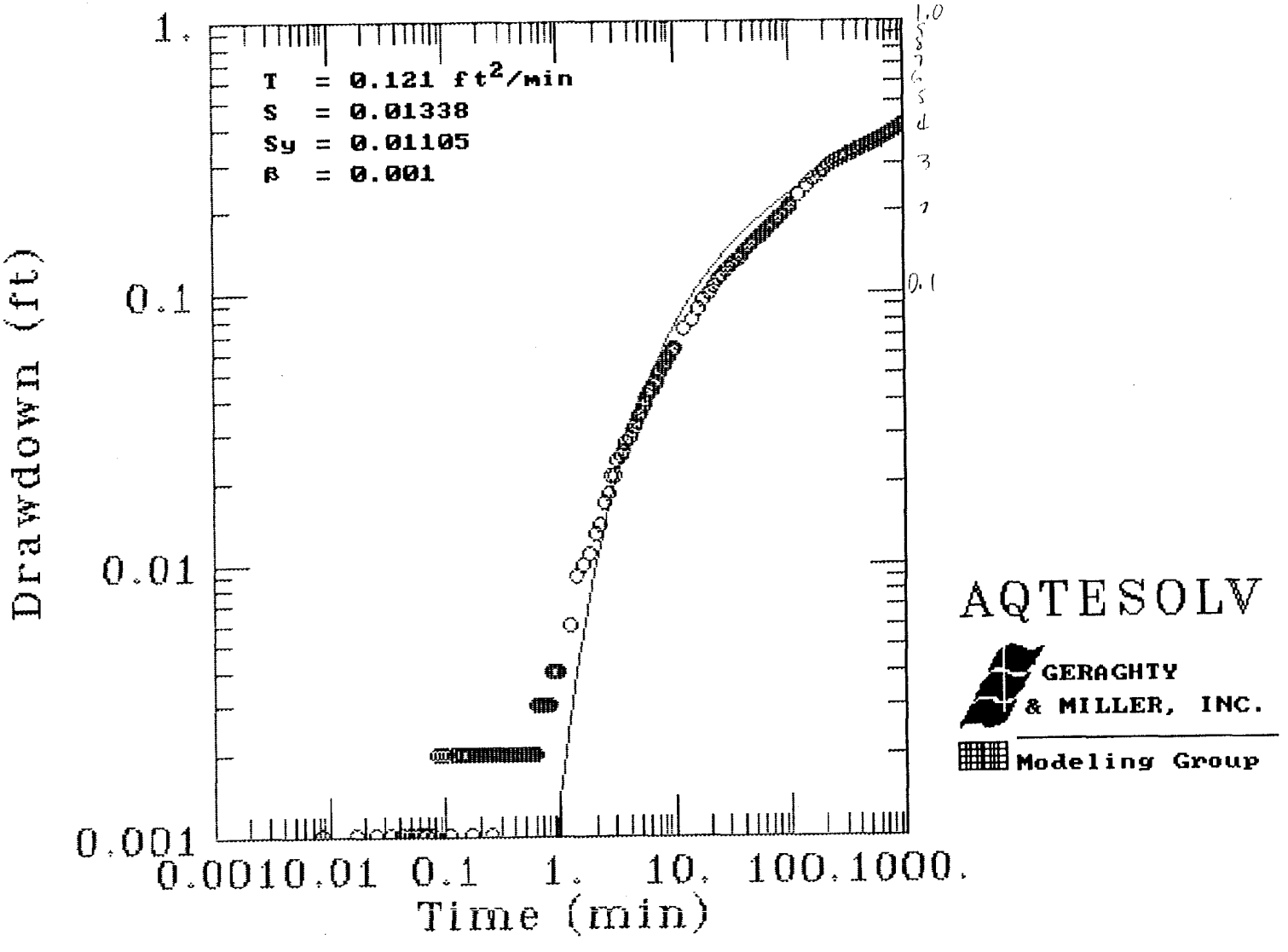
AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

TPFF OBS.DAT
UNCO.
AQUIF.
TYPE 4)

TPFF PUMPING TEST (Obs Well MW-96)



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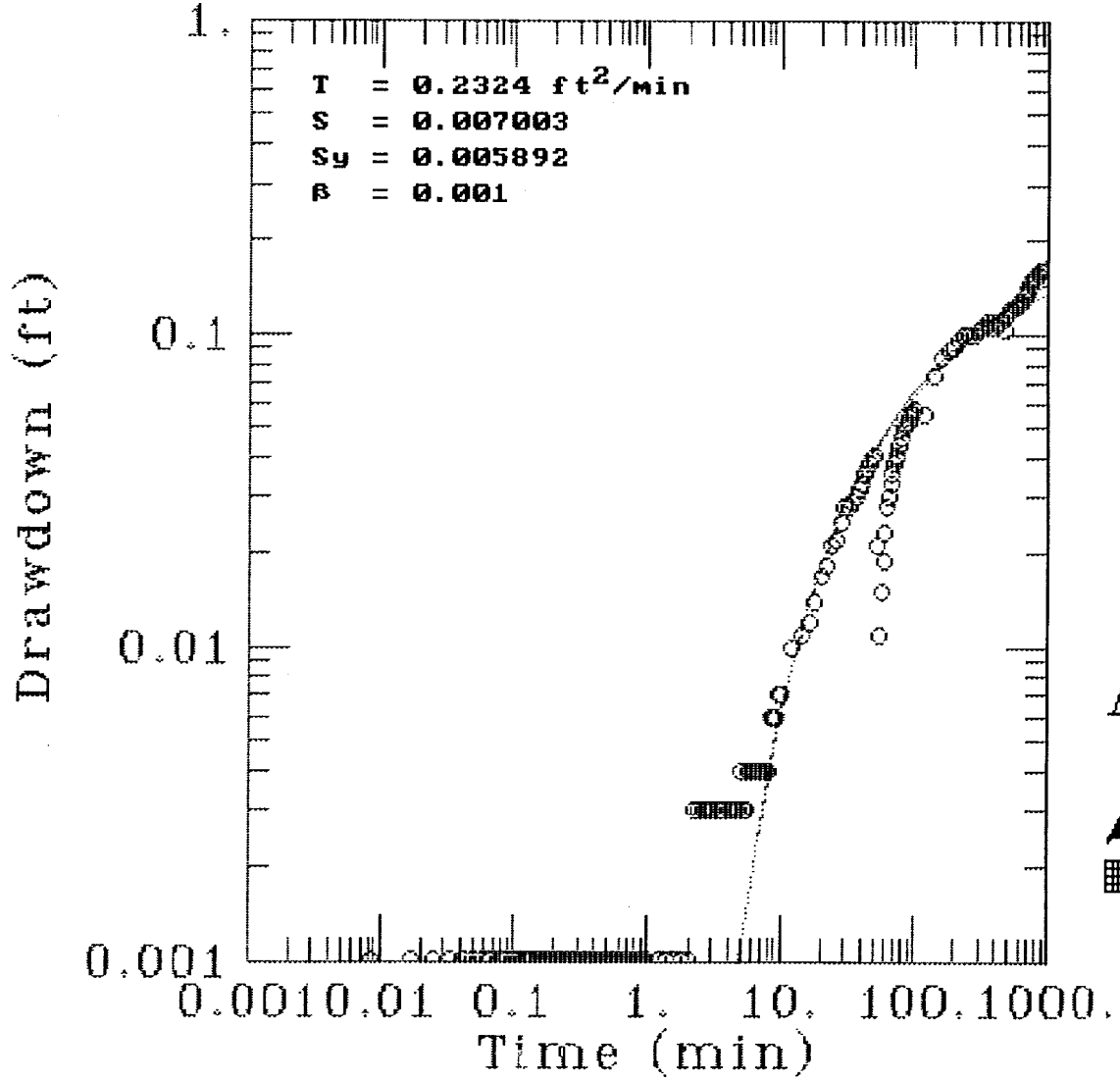
TPFF OBS W, DAT
UNCONFINED
RECOVERY
(Type A)

TPFF Shallow Pumptest Obs Well MW-97



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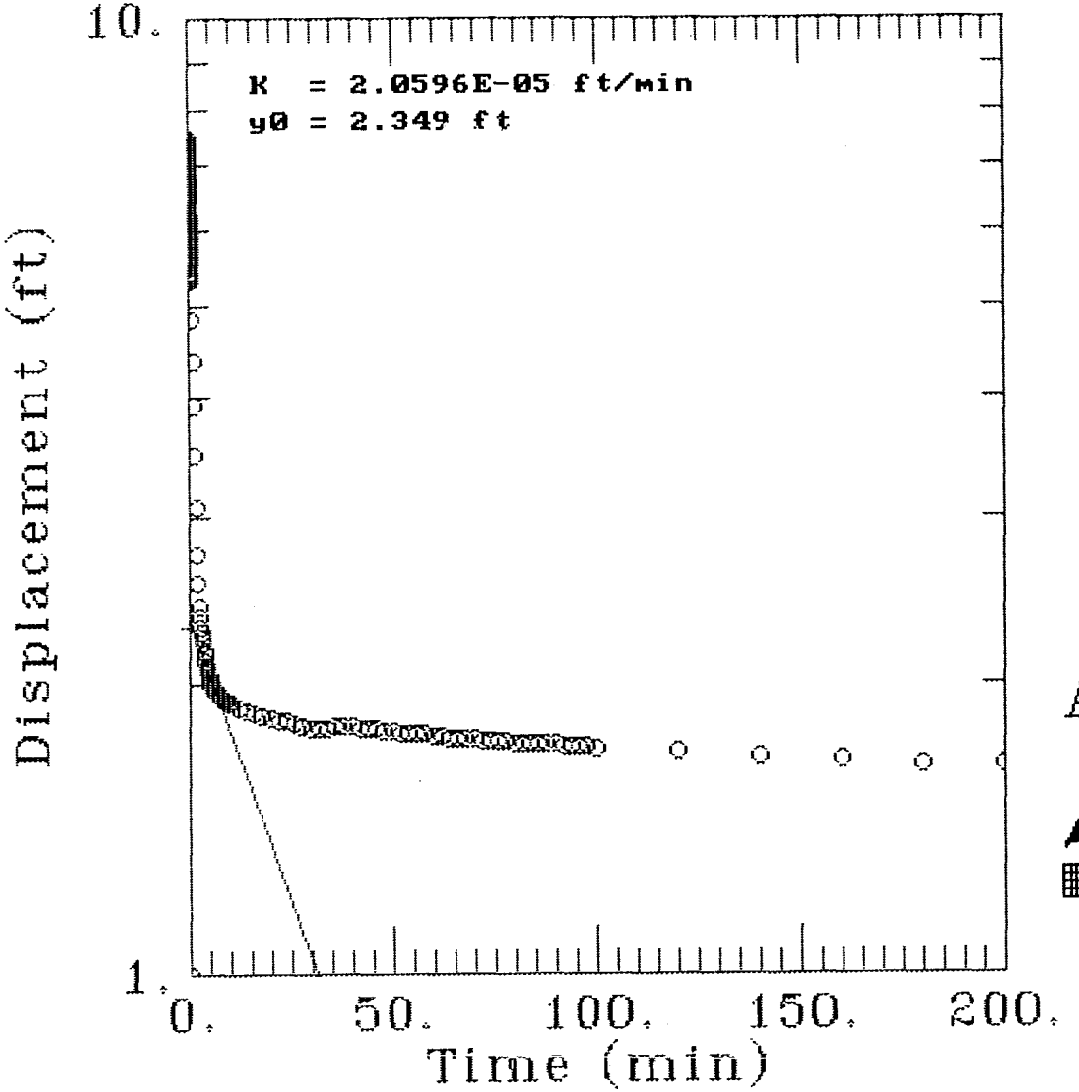
7PFFRD69.DAT
Bouwer Rice
UNCONFINED

TRUMBO POINT RECOVERY DATA (MW-69)



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