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SITE ASSESSMENT REPORT FOR SITE C-2076 TRUMBO POINT BACHELOR OFFICER QUARTERS NAS KEY WEST FL

6/1/1999

NAVY PUBLIC WORKS CENTER

SITE ASSESSMENT REPORT

SITE C-2076, TRUMBO POINT BOQ
NAS KEY WEST, FLORIDA

PREPARED BY:

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1.0 INTRODUCTION

1.1 PURPOSE

The Navy Public Works Center, Naval Air Station, Pensacola, Florida, was retained by the Navy Public Works Department (PWD), Boca Chica Field, Naval Air Station Key West, Key West, Florida to conduct a site assessment at Site C-2076, Trumbo Point BOQ, NAS Key West, Florida.

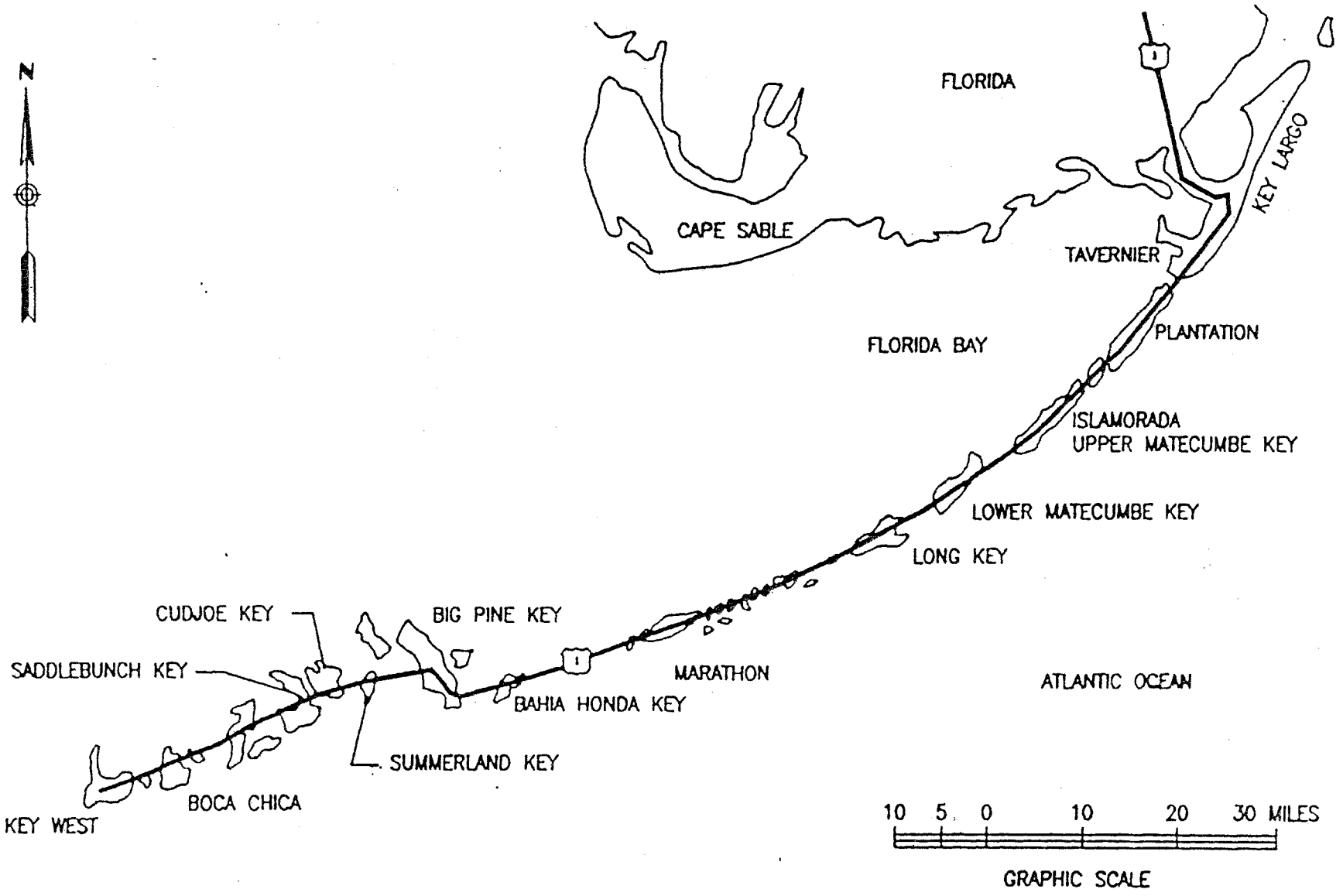
Free petroleum product was discovered at Site C-2076, Trumbo Point BOQ on February 27, 1998, during a routine inspection of a valve pit at the site. PWD, NAS Key West, submitted a Discharge Reporting Form (Appendix D) to the Florida Department of Environmental Protection (FDEP) on March 3, 1998, which estimated the number of gallons discharged to be less than five gallons. The soil at the site was excavated to remove the contaminated soil. Complete soil remediation was not possible due to the proximity of the building structure and an active propane gas supply. Soil samples collected from the excavation site on May 19, 1998, and OVA readings taken at the excavation site, indicated contamination levels greater than the allowable state target levels. In addition, groundwater samples collected on June 15, 1998, from a temporary monitoring well located at Site C-2076 indicated contamination levels greater than the allowable state target levels. The source of the contamination is unknown.

The findings and conclusions of the field investigation for the site assessment for C-2076, Trumbo Point BOQ, Key West, Florida are presented herein.

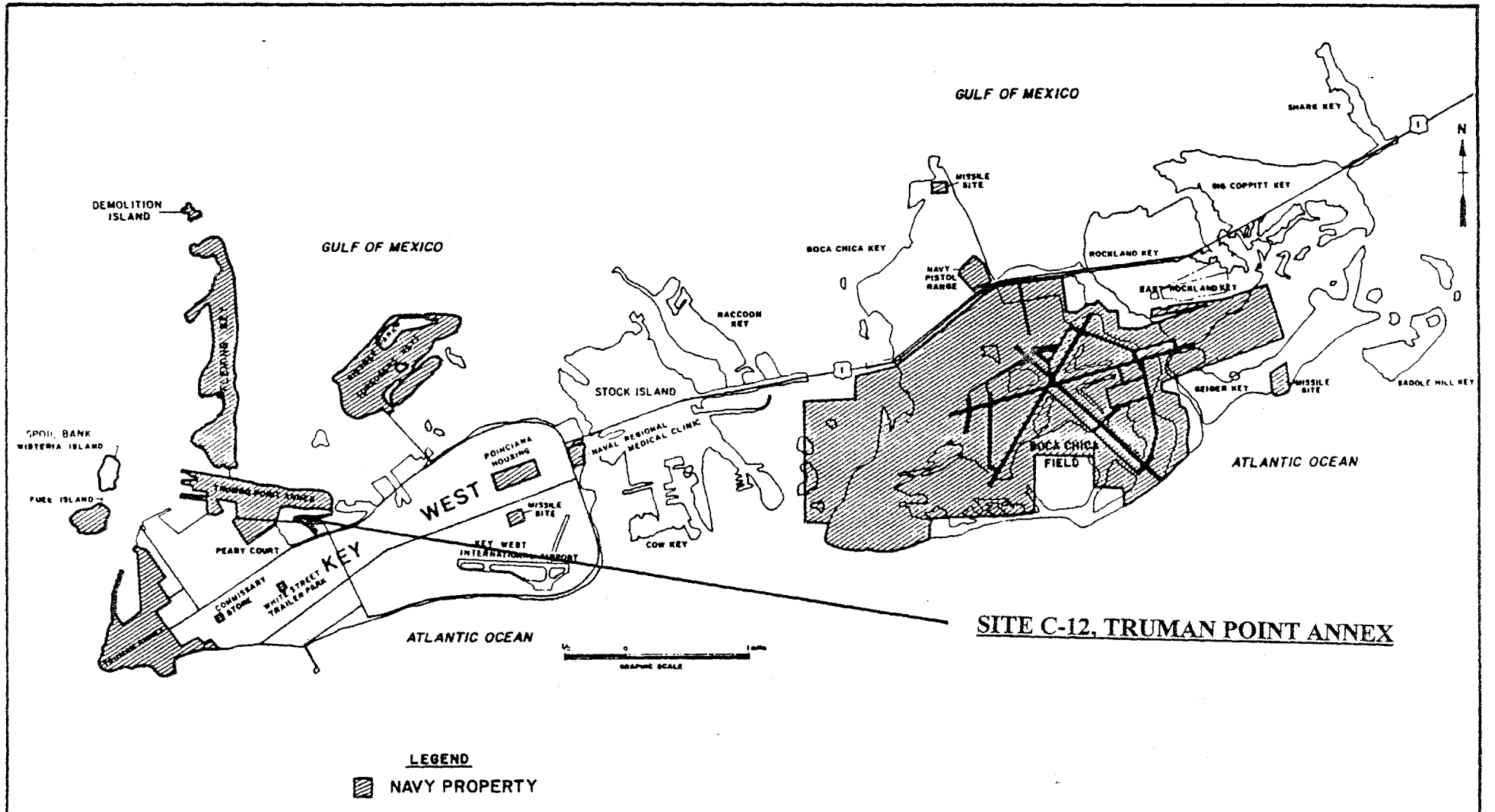
1.2 SITE LOCATION AND AREA OF INVESTIGATION

Key West is located in Monroe County, Florida approximately 150 miles southwest of Miami, Florida on U.S. Highway 1, on the last major island of the Florida Keys (see Figure 1-1). Monroe County can be divided into two distinct zones: the portion on the mainland of Florida, and the Florida Keys, which stretch 135 miles from the mainland to the southwest. The Florida Keys are composed of numerous small islands (keys). The land area of the Florida Keys totals approximately 105 square miles. The Naval Complex at NAS Key West is spread throughout several areas of the lower Florida Keys and encompasses approximately 5,600 acres (Figure 1-2). The climate of the Florida Keys is subtropical to tropical with a winter temperature average of only 14^0F lower than summer. The average annual rainfall is 40 inches, with numerous heavy showers and thunderstorms during the wet season (June through October). Tourism is the primary industry in the Key West area. Visitors are attracted by the tropical climate and the beautiful island setting. Fishing is the second most important industry with shrimping accounting for half of the total catch.

This plan addresses Site C-2076, which is located adjacent to Building C-2076 (Trumbo Point BOQ). Trumbo Point BOQ is located in Section 32, Township 67S, Range 25E, as referenced on the Key West, Florida U.S. Geological Survey (USGS) Topographic Quadrangle Map (Figure 1-3). A vicinity map and site specific map are shown in Figure 1-4 and Figure 1-5,



NAVY PUBLIC WORKS CENTER PENSACOLA, FLORIDA	FIGURE 1-1 KEY WEST VICINITY MAP SITE C-2076, TRUMBO POINT BOQ KEY WEST, FLORIDA
CLIENT: PUBLIC WORKS DEPT., NAVAL AIR STATION KEY WEST, FLORIDA	



NAVY PUBLIC WORKS CENTER PENSACOLA, FLORIDA	FIGURE 1-2 NAS KEY WEST VICINITY MAP SITE C-2076, TRUMBO POINT BOQ KEY WEST, FLORIDA
CLIENT: PUBLIC WORKS DEPT., NAVAL AIR STATION KEY WEST, FLORIDA	

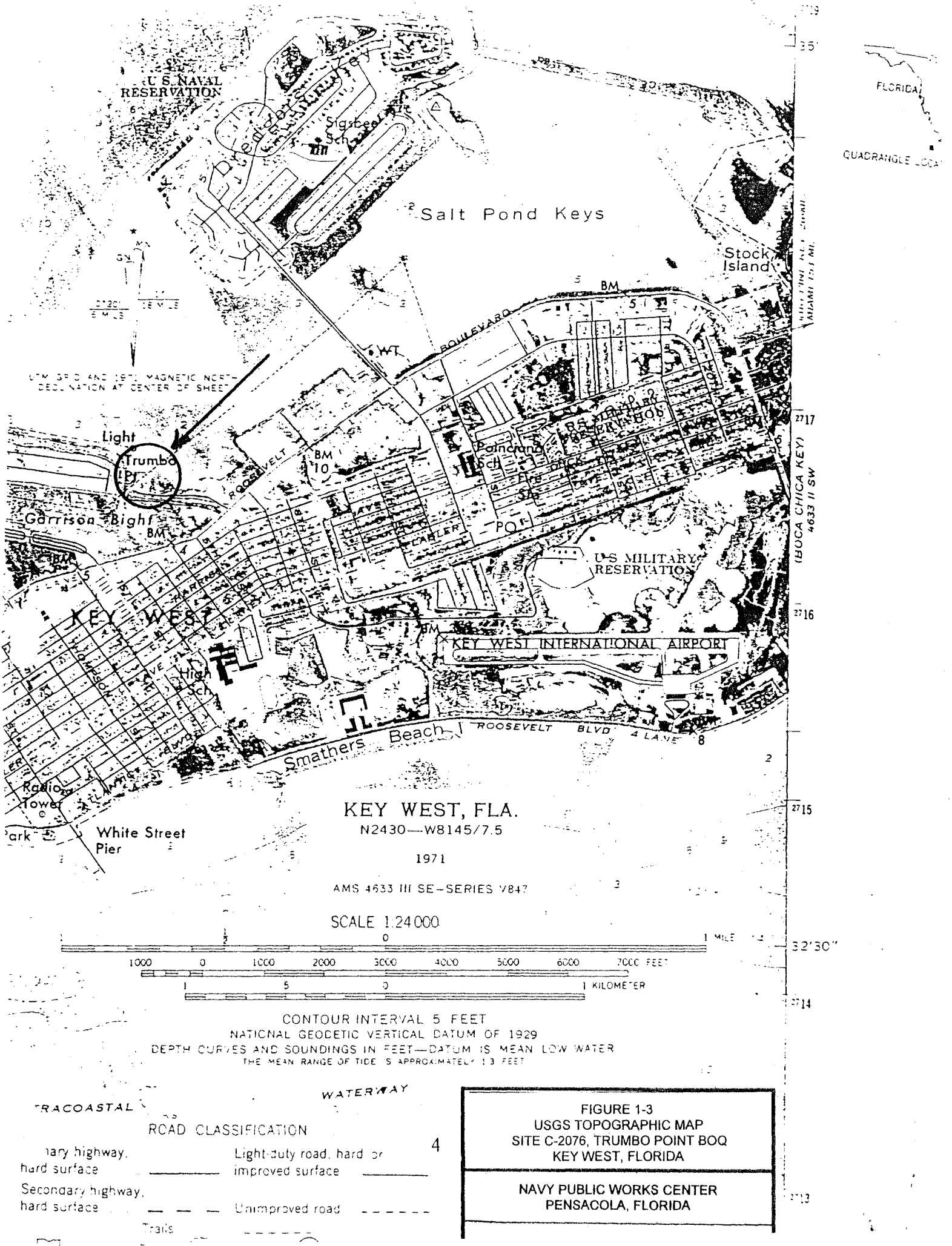


FIGURE 1-3
USGS TOPOGRAPHIC MAP
SITE C-2076, TRUMBO POINT BOQ
KEY WEST, FLORIDA

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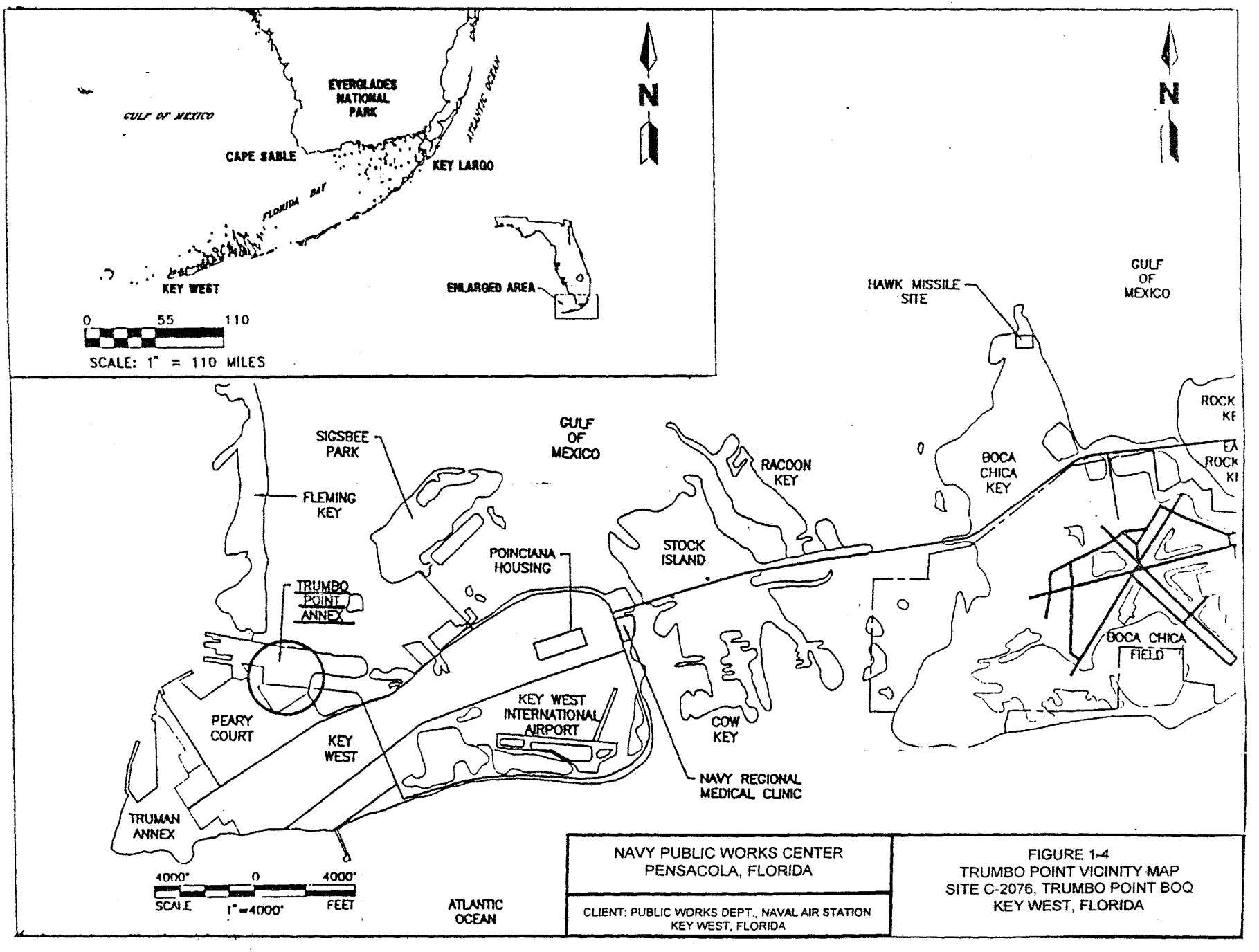
PENSACOLA, FLORIDA



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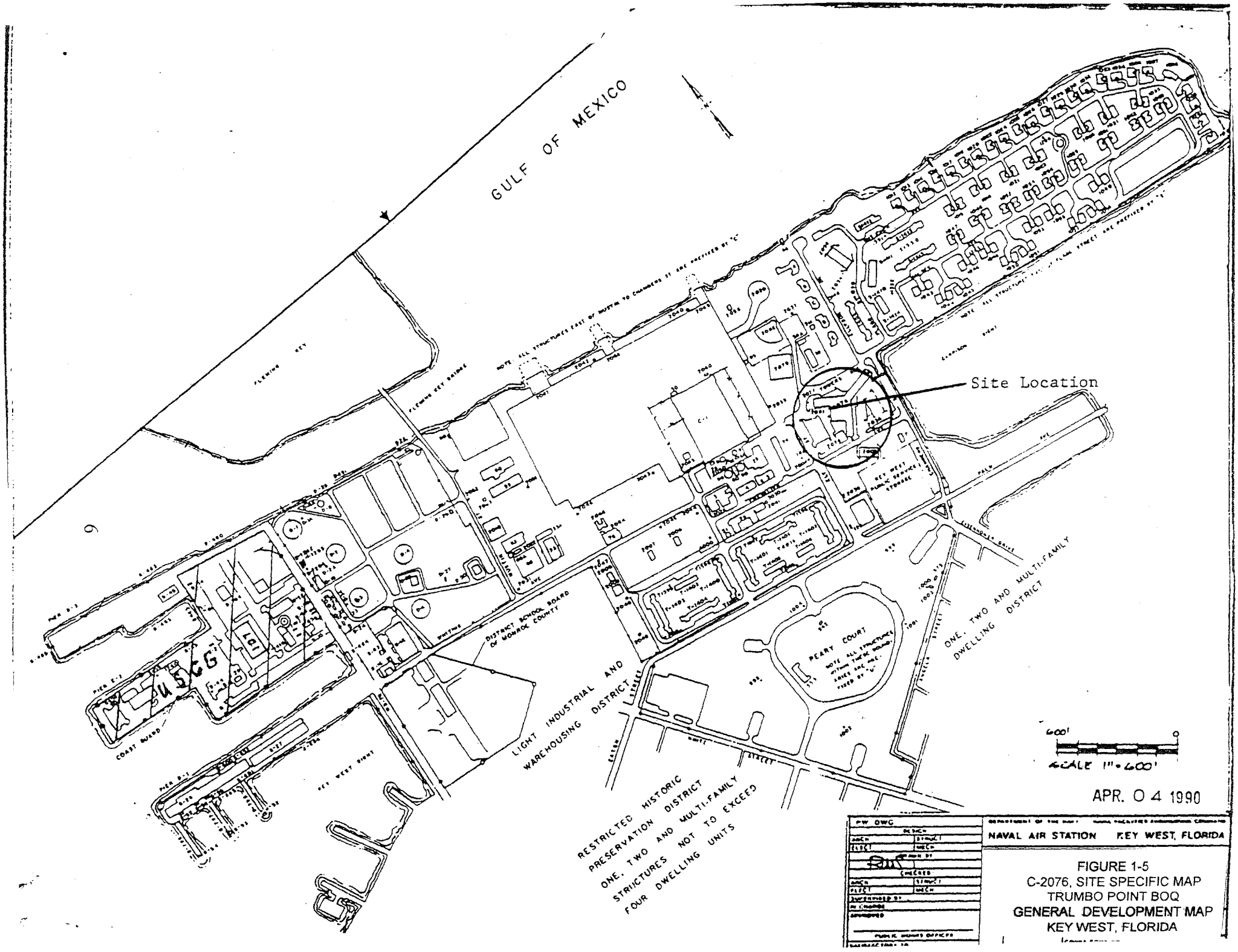
KEY WEST, FLORIDA

FIGURE 1-4
TRUMBO POINT VICINITY MAP
SITE C-2076, TRUMBO POINT BOQ
KEY WEST, FLORIDA


GULF OF MEXICO
Site Location
FLEMING KEY
FLEMING KEY BRIDGE
DISTRICT SCHOOL BOARD OF MONROE COUNTY
LIGHT INDUSTRIAL AND WAREHOUSING DISTRICT
PEARY COURT
ONE, TWO AND MULTI-FAMILY DWELLING DISTRICT
RESTRICTED HISTORIC PRESERVATION DISTRICT
ONE, TWO AND MULTI-FAMILY STRUCTURES NOT TO EXCEED FOUR DWELLING UNITS
COAST GUARD
KEY WEST PORT
USCG
600'
SCALE 1" = 600'
APR. 0 4 1990
NAVAL AIR STATION KEY WEST, FLORIDA
FIGURE 1-5
C-2076, SITE SPECIFIC MAP
TRUMBO POINT BOQ
GENERAL DEVELOPMENT MAP
KEY WEST, FLORIDA

respectively. Trumbo Point is bound by the Gulf of Mexico. Specifically, the site is located on the west side of the Trumbo Point BOQ. The site of contamination is a grassy area located in the west interior corner of Building C-2076, between an aboveground propane tank and Building C-2076.

1.3 SITE HISTORY AND OPERATIONS

Site C-2076, is located adjacent to the west wing of the Trumbo Point BOQ. Also located approximately 60 feet north-northeast of the site is a 1,000-gallon aboveground storage tank which contains diesel used to fuel the BOQ water heaters. The BOQ is used to provide temporary housing to military and civilian employees while on TAD at the Key West Naval Complex.

On February 27, 1998, free petroleum product was discovered during a routine inspection of a valve pit at the site. On March 3, 1998, PWD Key West submitted a Discharge Reporting Form (Appendix D) to the FDEP. PWD Key West reported an estimated 5 gallons of petroleum product was discharged from an unknown source. PWD Key West contracted PWC Pensacola, Florida to cleanup the site. Cleanup operations were performed between March 12 and March 16, 1998. PWC Pensacola, Florida submitted a Source Removal Report to the FDEP on October 14, 1998 (Appendix D).

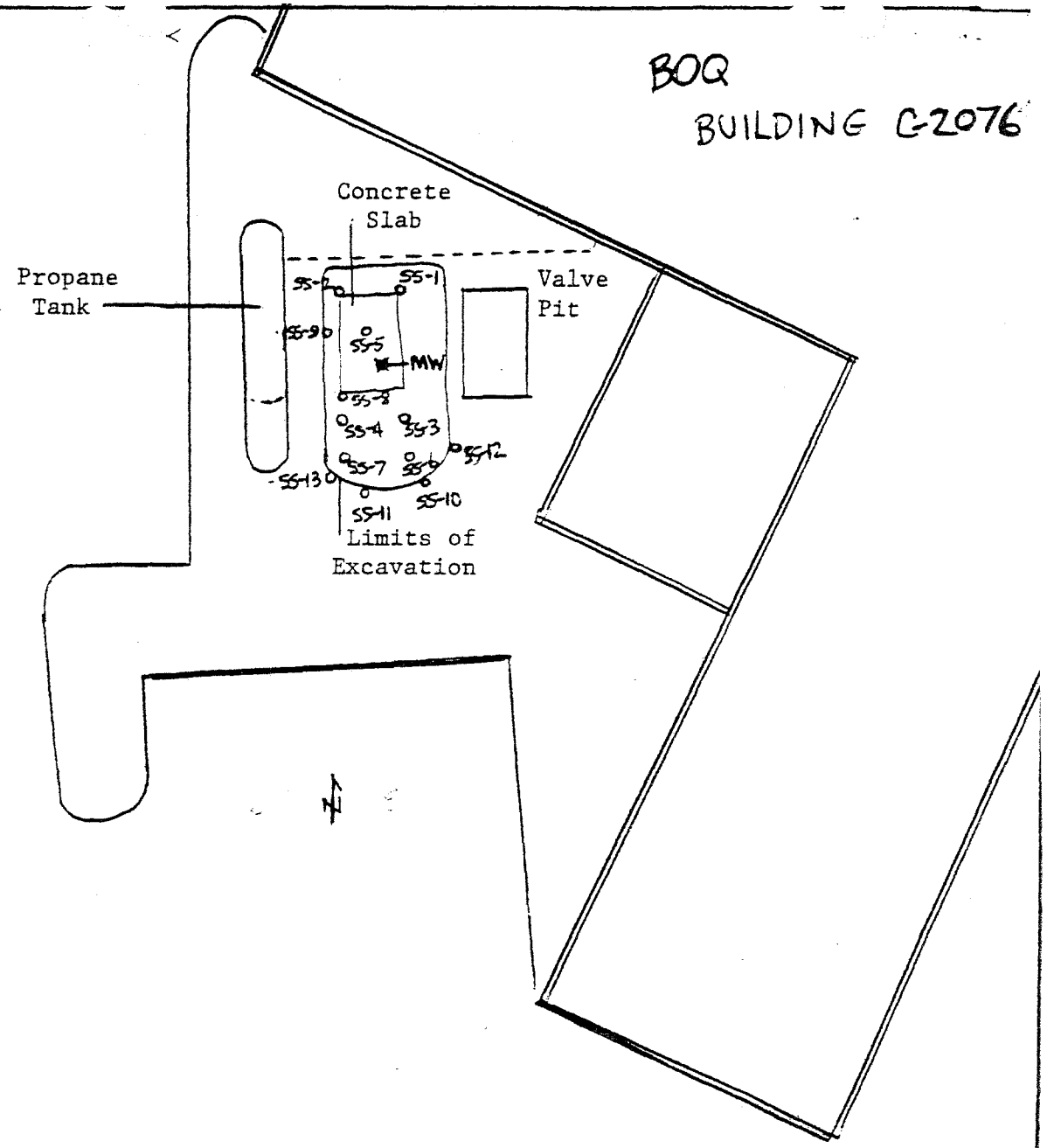
1.4 INITIAL REMEDIAL ACTION

PWD Key West submitted a Discharge Reporting Form to the FDEP on March 3, 1998, reporting the discharge of approximately 5 gallons of petroleum product from an unknown source. The free product was identified and removed by the NAS Key West pumper trucks. Absorbent pads were used daily to clean up the spill. The Fire Department, County Tanks Program and FDEP were notified of the petroleum free product found at the site.

Personnel from the PWC, Pensacola, Florida began excavating contaminated soil from the site on May 12, 1998. Approximately 55 cubic yards of soil and 10-gallons of free product were removed from the site. Soil Tech shipped the contaminated soil, twenty-three tons of RCRA non-hazardous, non-regulated petroleum impacted soil to South Florida Thermal Services, Inc., Moore Haven, Florida. A copy of the Non-Hazardous Waste Manifest and the Certificate of Materials Recycling is included in Appendix D. PWC personnel completed removing contaminated soil from Site C-2076 on May 16, 1998.

During the excavation, PWC personnel analyzed thirteen (13) soil samples, at various depths, for volatile organic compounds (VOCs) using an organic vapor analyzer (OVA). Figure 1-6 shows the location of the 13 soil samples and their respective OVA readings. After the excavation, on May 19, 1998, PWC personnel collected and analyzed soil samples from three areas at Site C-2076 (A, B & C). The soil samples from areas A, B, and C were analyzed for TPHs, 610 PAHs, total volatiles, total RCRA metals (8) and organic halogens using EPA methods FLPRO, SW-8260, SW-8270, SW-6010 & SW-7471 and SW-9020B, respectively. Figure 1-7 shows the

	OVA Readings	Depth
SS-1	835 ppm	3'
SS-2	802 ppm	3'
SS-3	0 ppm	3'
SS-4	635 ppm	3'
SS-5	577 ppm	4'
SS-6	718 ppm	4'
SS-7	1163 ppm	4'
SS-8	1461 ppm	4'
SS-9	3028 ppm	4'
SS-10	0 ppm	3'
SS-11	0 ppm	3'
SS-12	28 ppm	5'
SS-13	34 ppm	5'



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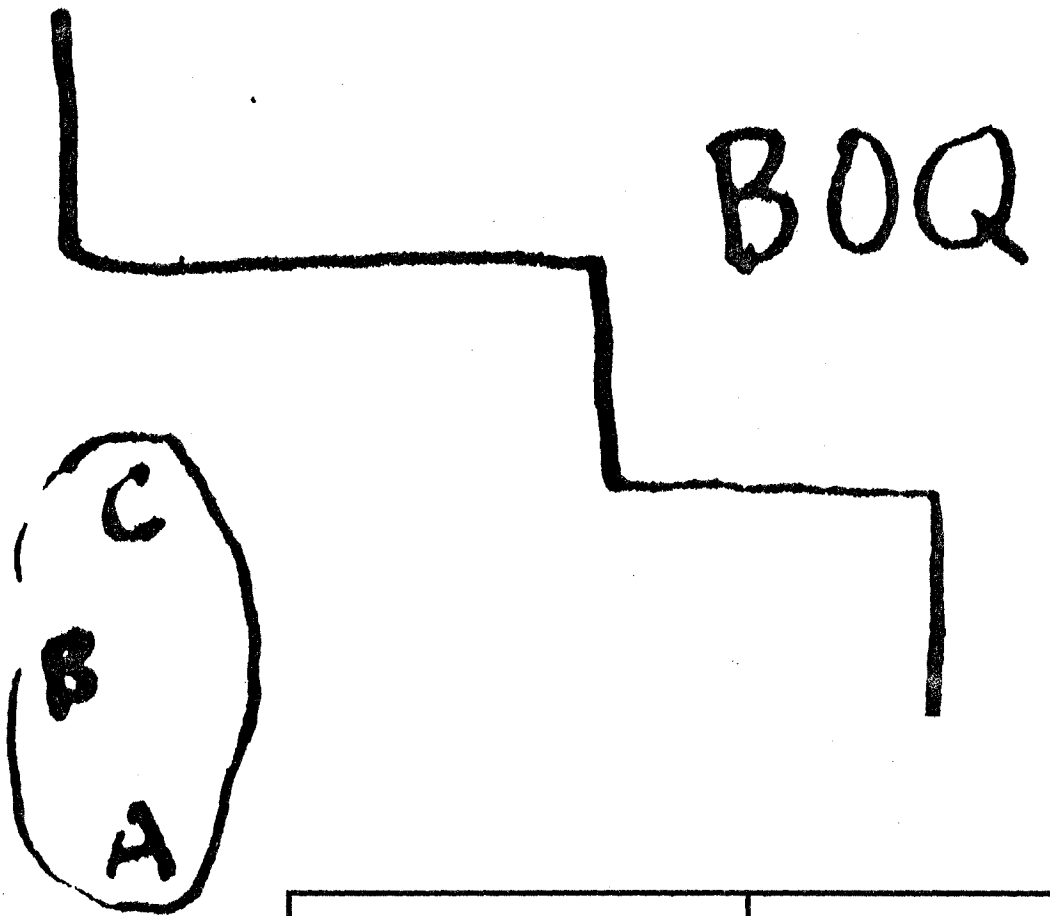
KEY WEST, FLORIDA

FIGURE 1-6
FIELD DRAWING - NOT TO SCALE
EXCAVATION SITE AND OVA READINGS
SITE C-2076, TRUMBO POINT BOQ
KEY WEST, FLORIDA

3/17/98

Notes:



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KEY WEST, FLORIDA

FIGURE 1-7
FIELD DRAWING - NOT TO SCALE
OVA SAMPLING LOCATIONS (BOQ-A,B,C)
SITE C-2076, TRUMBO POINT BOQ
KEY WEST, FLORIDA

FY97 Units	Containers Required (L/S)	Preservative(s) Used (Liquids)

location of areas A, B and C. Table 1-1 is a summary of the analytical results. Complete remediation was not possible due to the proximity of the building structure and an active propane gas supply.

A temporary monitoring well was installed at the site after PWC Pensacola, Florida, completed their initial remediation. The temporary monitoring well was constructed 2-inch diameter schedule 40 PVC riser, 0.010-inch slotted well screen, 20/30 silco sand pack, PVC end plug and a locking well cap limited access to the well. A copy of the typical temporary monitoring well construction details is included in Appendix A. Groundwater samples were collected from the temporary monitoring well on June 15, 1998, and analyzed for VOAs, PAH's, EDBs, TPHs, and Total Lead using EPA Methods 8260, 8270, 504, FLPRO and 239.2, respectively.

1.5 RESULTS OF PREVIOUS INVESTIGATIONS

Navy Public Works Center, Pensacola, Florida monitored Site C-2076 for contamination while removing contaminated soil and free product from the site on May 12 thru May 16, 1998.

On May 12 thru May 16, 1998, during excavation of contaminated soil from Site C-2076, personnel from the Navy Public Works Center, Pensacola, Florida collected thirteen (13) soil samples from the excavation site. The soil borings were analyzed for VOCs using an organic vapor analyzer (OVA). VOCs were detected in SS-1 @ 835 ppm, SS-2 @ 802 ppm, SS-4 @ 635 ppm, SS-5 @ 577 ppm, SS-6 @ 718 ppm, SS-7 @ 1163 ppm, SS-8 @ 1461 ppm, SS-9 @ 3028 ppm, SS-12 @ 28 ppm and SS-13 @ 34 ppm. VOC concentration levels detected in soil samples SS-1, SS-2 and SS-4 thru SS-9 exceeded the 50 ppm level considered to be excessively contaminated by a kerosene analytical product. No VOCs were detected in soil samples SS-3, SS-10 or SS-11. Figure 1-6 shows the location of soil samples SS-1 thru SS-13 in relation to the Trumbo Point BOQ and their respective OVA readings at various depths. The highest net OVA reading observed at Site C-2076 was 3028 ppm (SS-9). The highest net OVA reading observed after excavation was 34 ppm and the lowest reading after excavation was 0 ppm.

On May 19, 1998, after PWC personnel completed the excavation of Site C-2076, PWC personnel collected and analyzed soil samples from three areas at Site C-2076 (A, B, C). The soil samples from areas A, B, and C were analyzed for TPHs, 610 PAHs, total volatiles, total RCRA metals (8) and organic halogens using EPA methods FLPRO, SW-8260, SW-8270, SW-6010 & SW-7471 and SW-9020B, respectively. A soil sample collected and analyzed from BOQ-A indicated contamination levels of TPH, barium and chromium of 12 ppm, 8 ppm, and 5 ppm, respectively. No total volatiles, PAHs, or organic halogens were detected in the soil sample collected from BOQ-A. Soil samples collected and analyzed from BOQ-B indicated contamination levels of TPH, barium, chromium and lead of 9.8 ppm, 13 ppm, 4 ppm, and 22 ppm, respectively. No total volatiles, PAHs, or organic halogens were detected in the soil samples collected from BOQ-B. Soil samples collected and analyzed from BOQ-C indicated contamination levels of 1.3.5-trimethylbenzene, TPH, barium, chromium and lead of 3 ppb, 340 ppm, 17 ppm, 5 ppm, and 26 ppm respectively. No PAHs, or organic halogens were detected in the soil samples collected from BOQ-C. None of the soil samples collected from

TABLE 1-1
SUMMARY OF VOAs, PAHS, TOTAL RCRA METALS,
TPHs, & ORANIC HALOGENS
ANALYTICAL RESULTS FOR SOIL SAMPLES COLLECTED FROM
BOQ-A, BOQ-B AND BOQ-C
SITE C-2076, TRUMBO PARK BOQ
KEY WEST, FLORIDA

PARAMETER	SOIL SAMPLES COLLECTED FROM		
	BOQ-A	BOQ-B	BOQ-C
Total Volatiles			
1,3,5-Trimethylbenzene	BDL	BDL	3
PAHs	BDL	BDL	BDL
TOTAL RCRA METALS			
Barium (ppm)	8	13	17
Chromium (ppm)	5	4	5
Lead (ppm)	BDL	22	26
TPH (ppm)	12	9.8	340
Organic Halogens (ppm)	ND	ND	ND

NOTES: BDL = Below detection limits.
ND = Not detected.
Soil samples were collected on May 19, 1998.
All results are reported in parts per billion (ppb) unless otherwise noted.

BOQ-A, BOQ-B, or BOQ-C exceeded the FDEP soil cleanup target levels defined in 62-700, Table IV, FS. Figure 1-7 shows the location of areas A, B and C. Analytical results for soil samples collected from BOQ-A, BOQ-B, and BOQ-C are included in Appendix C. Table 1-1 is a summary of the analytical results.

A temporary groundwater monitoring well was installed at Site C-2076 after PWC Pensacola completed excavation of the site on May 16, 1998. A construction diagram of the temporary monitoring well is included in Appendix A. A groundwater sample was collected from the temporary monitoring well at Site C-2076 on June 15, 1998 and analyzed for volatile organic aromatics (VOAs), polynuclear aromatic hydrocarbons (PAHs), EDBs, TPHs, and Total Lead using EPA Methods 8260, 8270, 504, FLPRO and 239.1, respectively. Benzene, chlorobenzene, ethylbenzene, toluene, and xylene (total) were detected in the groundwater sample at levels of 5 ppb, 7 ppb, 11 ppb, 3 ppb, and 14 ppb, respectively. The benzene level (5 ppb) exceeded the FDEP groundwater cleanup target level of 1 ppb for benzene. Levels of chlorobenzene, ethylbenzene, toluene, and xylene (total) did not exceed FDEP groundwater cleanup target levels. Acenaphthene, fluoranthene, fluorene, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene, and phenanthrene were detected in the groundwater sample at levels of 50 ppb, 2 ppb, 19 ppb, 13 ppb, 14 ppb, 460 ppb, and 17 ppb, respectively. Levels of acenaphthene (50 ppb) and naphthalene (460 ppb) exceeded the FDEP groundwater cleanup target level of 20 ppb for acenaphthene and 20 ppb for naphthalene. Levels of fluoranthene, fluorene, 1-methylnaphthalene, 2-methylnaphthalene and phenanthrene did not exceed FDEP groundwater cleanup target levels. EDB and Lead were not detected in the groundwater sample. TPH was detected in the groundwater sample at a level of 0.55 ppm which does not exceed the FDEP groundwater cleanup target level of 5 ppm for lead. A copy of the analytical results is included in Appendix C. A summary of the VOA, PAH, EDB, TPH, and Total Lead analytical results for the groundwater samples collected from the temporary monitoring well TMW-1 is shown in Table 1-2.

1.6 REGIONAL GEOLOGY AND HYDROGEOLOGY

1.6.1 Geology

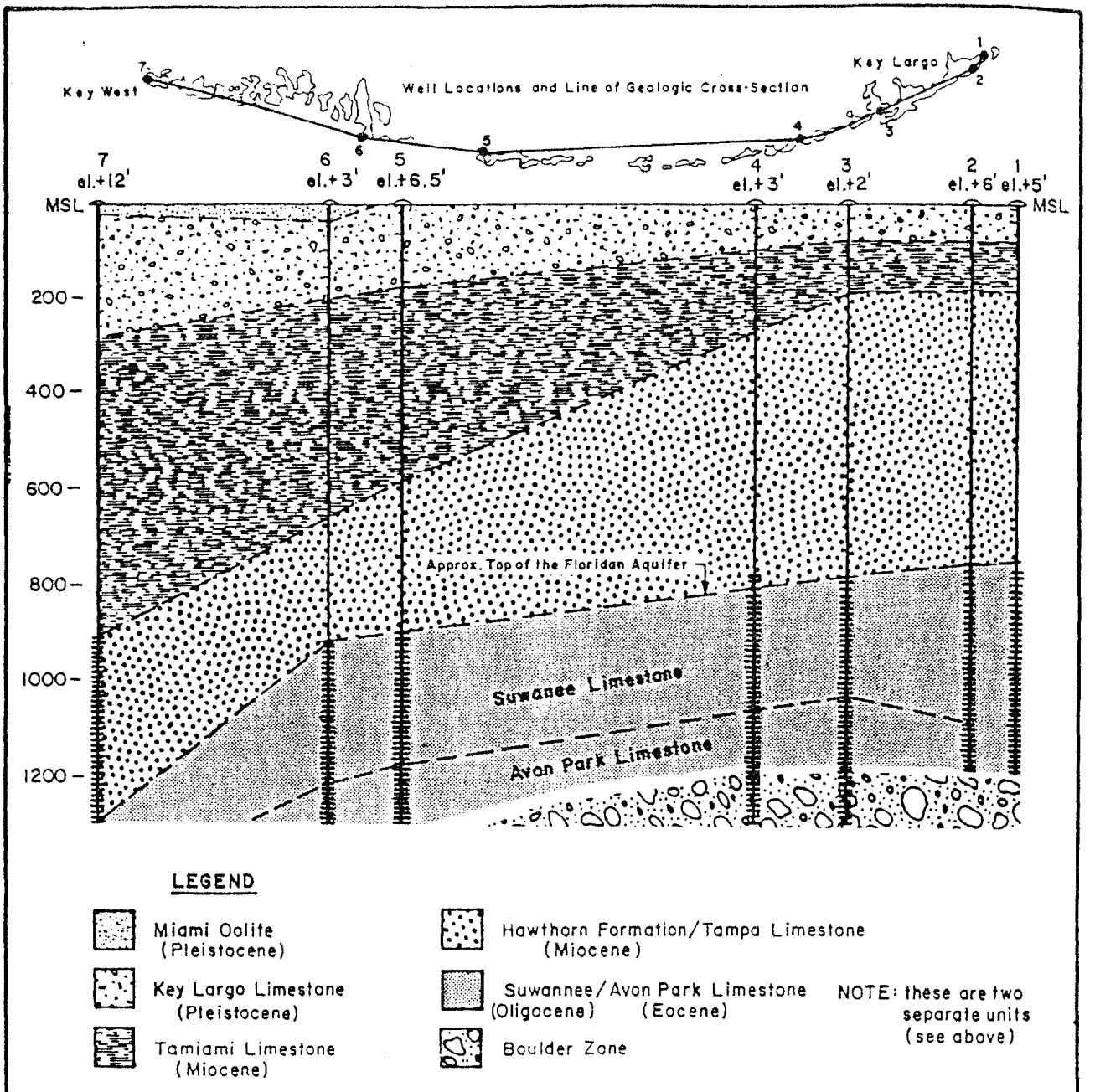
A geologic cross section of the Florida Keys is illustrated in Figure 1-8. The Pleistocene Miami Oolite rests upon the Key Largo limestone in what appears to be a transitional contact, covering all of the Lower Keys from Big Pine Key to Key West (Black, 1977). The formation is soft, white to yellow, stratified to massive and is constituted of pure calcium carbonate (limestone) which may contain shell fragments and minor quartz sand. Its major constituents are tiny solids which are spherical calcareous grains with concentric structure, cemented to form Oolite rock (SOUTHNAVFACENGCOM, 1981a). The formation thickens in a northward direction and its greatest know thickness is 35 feet in the northern part of Stock Island (Black, 1977).

The Pleistocene Key Largo limestone underlies Miami Oolite on all the Lower Keys. Its major constituents are the cemented remains of ancient coral reefs and a subsidiary amount of fossils or coral, shell, algae and echinoids (SOUTHNAVFACENGCOM, 1981a). The formation varies

TABLE 1-2
SUMMARY OF VOAs, PAHS, EDBs and TPHs
ANALYTICAL RESULTS FOR GROUNDWATER SAMPLE COLLECTED FROM TEMPORARY MONITORING WELL TMW-1 AT SITE C-2076, TRUMBO PARK BOQ
KEY WEST, FLORIDA

PARAMETER	GROUNDWATER COLLECTED FROM TMW-1
601/602 Volatiles	
Benzene	5
Chlorobenzene	7
Ethylbenzene	11
Toluene	3
Xylenes (Total)	14
PAHs	
Acenaphthene	50
Fluoranthene	2
Fluorene	19
1-Methylnaphthalene	13
2-Methylnaphthalene	14
Naphthalene	460
Phenanthrene	17
EDBs	BDL
TPH (ppm)	0.55
Total Lead (ppm)	BDL

NOTES: BDL = Below detection limits.
Groundwater samples were collected from TMW-1 on June 15, 1998.
All results are reported in parts per billion (ppb) unless otherwise noted.



SOURCE: (Department of Health, Education and Welfare, 1975)

NAVY PUBLIC WORKS CENTER PENSACOLA, FLORIDA CLIENT: PUBLIC WORKS DEPT., NAVAL AIR STATION KEY WEST, FLORIDA	FIGURE 1-8 GEOLOGIC CROSS SECTION OF FLORIDA KEYS SITE C-2076, TRUMBO POINT BOQ KEY WEST, FLORIDA

from 75 feet in thickness at Key Largo to 180 feet under Key West (Department of Health Education and Welfare, 1975).

The Miocene Tamiami Formation is extremely complex, consisting of many different facies in south Florida. The Tamiami Formation consists of a gray to green, fine-grained sand, clayey sand and clay. Coarse gravel lenses have been located within the Tamiami Formation. Thicknesses of greater than 100 feet have been reported from wells penetrating these strata (Black, 1977).

The Miocene Hawthorn Formation is composed primarily of greenish sediments of marine origin, laid down by a transgressing sea. The Hawthorn consists of blue-green clay, gray-green marl with varying amounts of quartz sand. Occasionally, a lens of porous limestone may occur in the basal section of this formation. Thicknesses range up to 400 to 600 feet, however, in the study area thicknesses probably average 200 feet (Black, 1977).

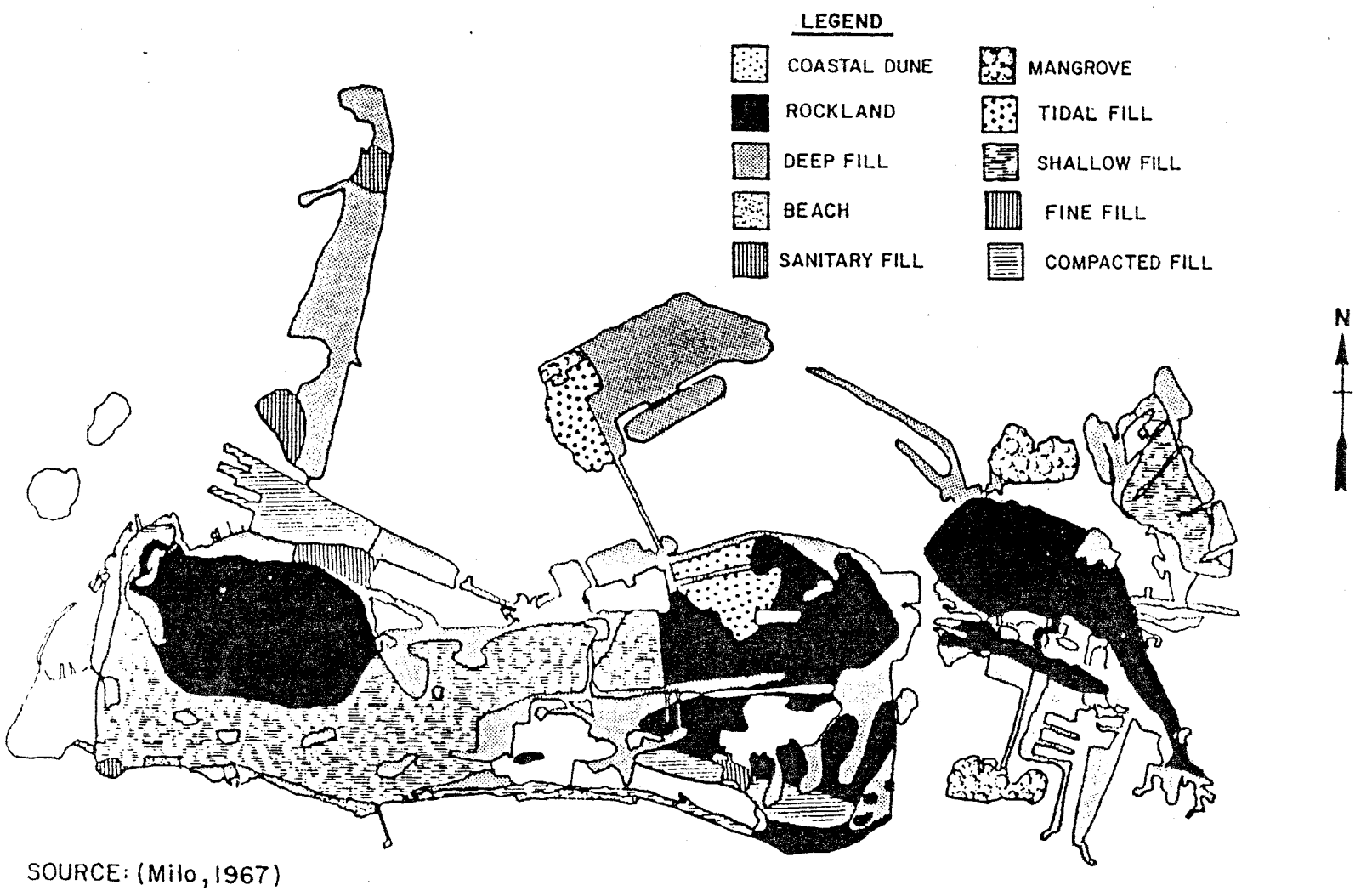
The Tampa Formation is a Lower Miocene sandy limestone. The sand is primarily quartz and occurs in pockets or lenses, or is disseminated in the limestone matrix. Well cuttings reveal the limestone as a dirty bluff color to a very light color with some phosphatic material associated (Black, 1977). In the study area, thicknesses probably average 120 feet (Department of Health, Education and Welfare, 1975).

The Oligocene Suwannee limestone consists of nodular, granular, chalky limestone, some Oolite, usually very fossiliferous. The color is cream to white and occasionally may contain some clear quartz grains. The formation ranges in thickness from 100 to 250 feet in south Florida; however, well cuttings indicate thicknesses of approximately 400 feet below the Florida Keys (Black, 1977).

The Avon Park Formation consists of chalky, nodular, Oolitic, fragmental limestone and some inter-granular anhydrite and gypsum in the upper unit. This section of the formation is very fossiliferous, usually a cream white and buff color. Commonly, dense to finely crystalline dolomite occurs in the middle sections. The lower unit consists of a massive, dense to finely crystalline or sucrosic dolomite. Thicknesses of greater than 500 feet have been reported from wells in south Florida (Black, 1977).

1.6.1.1 Soils

The original soils in the area are shallow marl over limerock with the substrata rock appearing at the surface in numerous outcroppings. Many areas at the Key West Naval Station have been filled and graded. In particular, areas such as Fleming Key and Dredgers Key are essentially spoil islands created from material dredged from the Seaplane Basin in the Key West Naval Station. Figure 1-9 provides a general soils map of Key West and vicinity.



SOURCE: (Milo, 1967)

NAVY PUBLIC WORKS CENTER PENSACOLA, FLORIDA	FIGURE 1-9 GENERAL SOILS MAP OF KEY WEST AND VICINITY SITE C-2076, TRUMBO POINT BOQ KEY WEST, FLORIDA
CLIENT: PUBLIC WORKS DEPT., NAVAL AIR STATION KEY WEST, FLORIDA	

1.6.2 Hydrogeology

A detailed description of the water-bearing characteristics of the various geologic formations in the Florida Keys follows (Black, 1977).

The Miami limestone, exposed at the surface in the Lower Keys, is a porous solution riddled formation. Much of the total volume of this formation is occupied by voids, producing a very high vertical permeability; however, since many of the solution pipes are not connected, a lower horizontal permeability is observed. In the Key West area, a freshwater lens has developed above a saltwater interface in this formation. There are no freshwater wells of consequence in this formation in the Key West area (SOUTHNAVFACENGCOM, 1980a).

The Key Largo limestone, a remnant reef structure, is extremely permeable. Solution holes and caverns are common throughout this formation. This permeability allows seawater, under tidal influence, to move freely in and out of the rock structure. Rain falling on the surface quickly permeates the rock and escapes to the sea. Although the Key Largo limestone will yield water freely to a well, the quality is poor, being close to that of seawater.

The Tamiami Formation represents a major water-producing zone in south Florida. Permeability is variable and depends on the amount of clay and sand occurring in a section. The gravel lenses represent areas of high permeability and it is within these zones that groundwater yields are highest. Below the Florida Keys, the Tamiami Formation contains mineralized water and does not represent a source of fresh groundwater; however, the formation may contain water of a quality suitable for desalination or reverse osmosis feed water.

The Hawthorn Formation consists of very low permeability clays and sands and, as such, acts as an aquiclude confining the underlying limestones under artesian pressure. The intermittent limestone lenses occurring in the basal section of the Hawthorn are permeable enough to yield water; however, in the Keys, the water is mineralized and of poor quality.

The Tampa Formation, consisting of sandy limestones, represents a source of water supply in parts of southwest Florida. In that part of the state, it is considered part of the upper Floridan aquifer. In the Keys, the permeability is lower and it, together with the underlying Hawthorn Formation, acts as an aquiclude of the underlying Suwannee and Avon Park Formation.

The Suwannee limestone, a fossiliferous limestone, represents the top of the water-producing zone in the Keys. The water is mineralized; however, it is of high enough quality to be treated for use. The transmissivity of the Suwannee limestone is much lower than the prolific Avon Park; however, the quality is much better.

The Avon Park Formation, a very high permeable limestone and dolomitized limestone, represents the deepest formation from which water supply is obtained in the Keys. In certain areas of Florida, particularly central Florida, DeSoto, Hardee and Polk counties, it is the Avon Park Formation that supplies great quantities of water from large diameter wells.

Transmissivites as high as 2 X 106 gallons per day per foot have been recorded. In the Keys, water quality of the Avon Park is poor, containing water high in chlorides and high in total dissolved solids and becoming worse with depth. The high transmissivites associated with this formation are also common in the Keys.

1.6.2.2 Water Quality

Surface waters in the Keys are classified by the Florida Department of Environmental Regulation as Class III Waters, Recreation, Propagation, and Management of Fish and Wildlife. Common activities in area waters include commercial, recreational and shell fishing, boating and swimming. These waters support the richest coral reefs in the Continental United States.

1.6.2.3 Groundwater

Although the Keys are underlain by highly transmissive limestone aquifers, most contain brackish, saline or hypersaline water. Only the larger Keys (Key West, Big Pine Key and Key Largo) have any fresh ground water at all (Black, 1977).

Groundwater flow directions, in general, are to the nearest surface or tidal water in the area. Water table elevations are primarily influenced by local rainfall and tides. No groundwater quality data for the area is available.

Information regarding the hydraulic conductivity of the water table aquifer in the Key West area is limited. However, it can be expected that the hydraulic conductivity of the water table aquifer in Key West is similar to the Biscayne aquifer in South Florida, composed of Miami Oolite and Key Largo Limestone, among other formations. Based on reported hydraulic conductivities in the Biscayne aquifer ranging from approximately 1,300 to 13,000 gallons per day per square foot (Wedderburn, 1982), the rate of groundwater movement in the Key West area can be predicted. Assuming a one-foot head difference between the water table and surface waters, and a distance to surface waters of 200 feet, the groundwater velocity would vary from 0.9 to 9.0 feet per day. Based on the assumed 200-foot travel distance, any contaminants migrating with the groundwater would enter surface waters within 22 to 220 days. This time range is probably low since many areas of NAS Key West are immediately adjacent to surface waters and tidal fluctuations alone would easily account for a head differential of one foot.

1.7 WELL SURVEY

A survey of private or public water supply wells within a one-half mile radius of the site was performed by Blasland, Bouck & Lee, Inc. (BBL) in October of 1996 to identify potential users of groundwater in the immediate area. BBL contacted The Key West office of the Florida Department of Health and Rehabilitative Services (HRS) concerning any public or private, potable or irrigation wells in Boca Chica Key. HRS indicated that according to their records, no wells exist on Boca Chica Key and that all potable water is piped in from Mainland County Florida. (BBL, 10/96). In addition they noted that groundwater in the Florida Keys is not an

approved groundwater source.

2.0 SITE ASSESSMENT

2.1 SOIL BORING AND MONITORING WELL CONSTRUCTION DETAILS

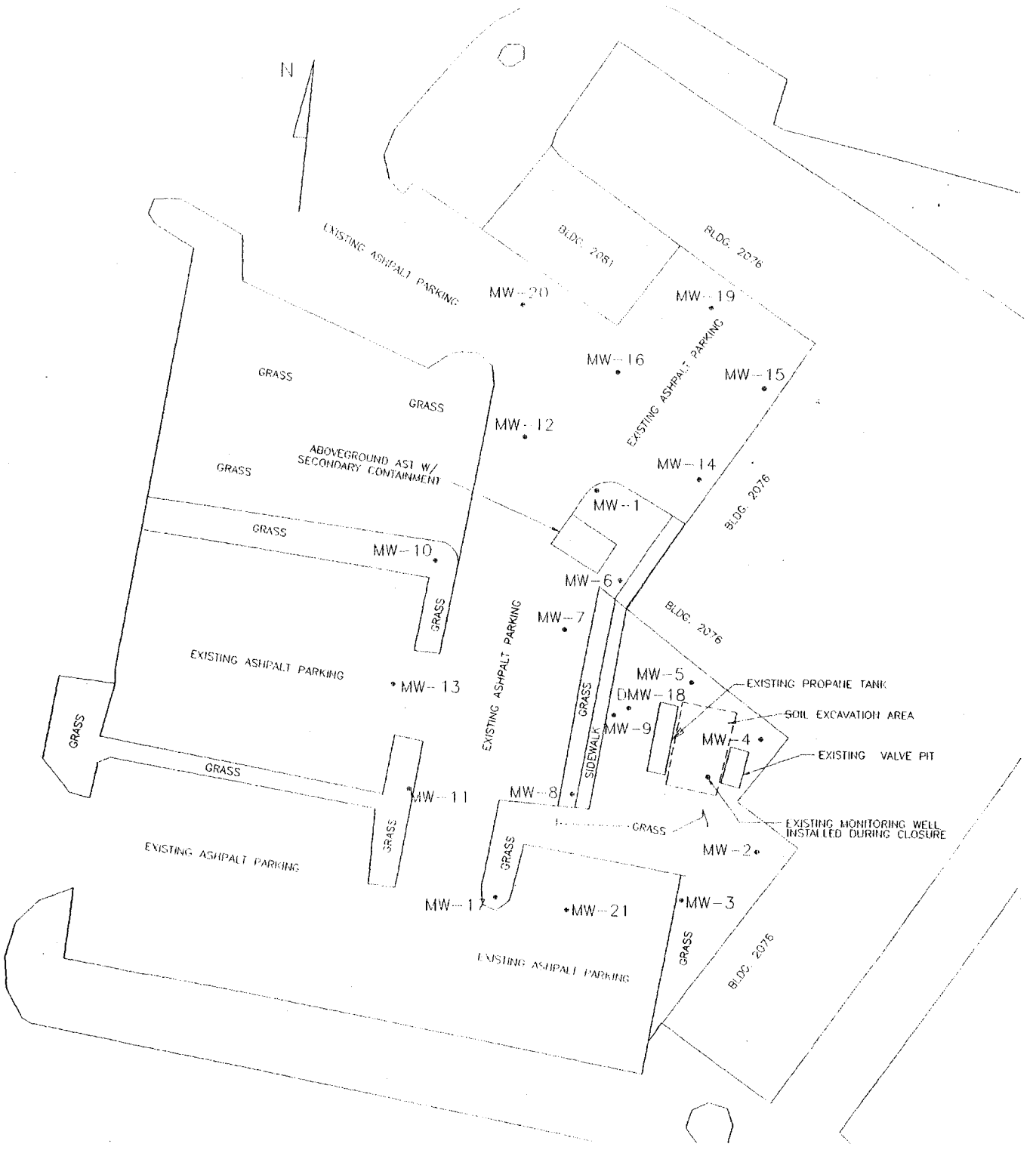
Public Works Center (PWC) Pensacola personnel initiated the investigation on June 22-23, 1998, with the installation of 10 monitoring wells (MW-1 thru MW-10). PWC Pensacola continued its investigation on March 23-26, 1999, with the installation of 10 additional shallow groundwater monitoring wells (MW-11 thru MW-17 and MW-19 thru MW-21) and 1 deep vertical extent groundwater monitoring well (DMW-18) . Monitoring wells MW-1 thru MW-21 were installed at the site by GFA, International, Davie, Florida. Monitoring wells MW-11 thru MW-17 and MW-19 thru MW-21 were installed approximately 12.0 feet BLS using a hollow stem auger with an inside diameter of approximately 4.0 inches. The monitoring wells consist of a 2-inch diameter by 10 feet of 0.020-inch slotted schedule 40 PVC screen, threaded to 2' of solid schedule 40 PVC riser casing. The filter sand pack consisting of course silica sand (sand pack mesh size 6-20) was extended approximately one foot above the top of the well screen. A one-half foot bentonite seal was placed above the sand pack with the remaining annular space filled with neat cement grout. The PVC casing was brought up to 0.2 feet below ground level. A steel manhole casing (8-inches diameter X 12-inches deep) was placed in the borehole around the PVC riser and set with neat cement. An 8-inch diameter steel manhole cover was placed over the manhole. A 6-inch thick concrete encasement (4,000 psi) was installed around the outside of the manhole and flush to the land surface.

Vertical extent groundwater monitoring well DMW-18 was installed by GFA, International, Inc., on March 23, 1999. The monitoring well was set at 30 feet BLS with 5 feet of 2-inch diameter, 0.020-inch slotted schedule 40 PVC screen and 25 feet of schedule 40 PVC riser casing. A filter sand pack consisting of course silica sand (sand pack mesh size 6-20) was placed in the annular space between the outside of the well screen and edge of borehole from the bottom of the borehole to 1 foot above the well screen. A one-foot fine sand seal was placed approximately 1 foot above the sand filter pack with the remaining annular space filled with neat cement grout. A steel manhole with an 8" diameter manhole cover was placed in the borehole around the PVC riser and set with neat cement grout. A locking cap placed at the top of the monitoring well completed the monitoring well construction.

The groundwater extracted during well development of MW-1 thru MW-21 and DMW-18 was placed into steel 55-gallon drums and properly labeled for disposal. Plastic was placed under and on top of drill cuttings. Monitoring well locations are shown in Figure 2-1. Monitoring well construction diagrams for monitoring wells MW-1 thru MW-21 are shown in Appendix A. Lithological logs for monitoring wells MW-1 thru MW-21 are shown in Appendix B.

2.2 GROUNDWATER FLOW DIRECTION

The top of casing (TOC) elevations for shallow monitoring wells MW-1 thru MW-21 were surveyed by the PWC Pensacola personnel on May 12, 1999. No survey bench marks were located near the site and therefore the top of casing elevations were based on an assumed



LEGEND

MW-8 ⊕ MONITORING WELL NUMBER/LOCATION

NAVY PUBLIC WORKS CENTER PENSACOLA, FLORIDA		
SCALE: 1"=40'	FIGURE 2-1	DRAWN BY: DWG. NO. REVISED BY:
MONITORING WELL LOCATION MAP SITE C2076, TRUMBO POINT, KEY WEST		
CLIENT: PWD ENVIRONMENTAL DEPARTMENT, KEY WEST		

benchmark elevation of 10.00 feet above mean sea level (MSL) at the Top of Casing of monitoring well MW-13.

Groundwater elevations for the groundwater level measurements taken from monitoring wells MW-1 thru MW-21 on April 12, 1999, and May 12, 1999, are shown in Table 2-1 and Table 2-2, respectively. Groundwater flow direction maps for the groundwater level measurements taken on April 12, 1999, and May 12, 1999, are shown in Figure 2-2 and Figure 2-3, respectively. The groundwater flow at the site is to the _____ toward _____.

2.3 GROUNDWATER FLOW RATE

A Slug Test was not performed on any of the monitoring wells at Site C-2076. However, results of the Slug Test performed at Site A-317 during preparation of the "Contamination Assessment Report, Public Works Motor Pool Building A-317, Boca Chica Field, NAS, Key West, Florida, Prepared by ABB Environmental Services, Inc. for SOUTHNAVFACENGCOM, dated February 1992" are included in this SAR because the geology and hydrogeology of Site A-317 and C-2076 are considered similar. Presented in Appendix E are the slug test results and aquifer calculations.

> "An aquifer slug test was performed on monitoring well KYW-A317-5 to assess the hydraulic conductivity of the surficial aquifer. The slug was constructed of 1-inch outside diameter PVC pipe, 5 feet in length. The slug was filled with sand and capped watertight at both ends. Water levels changes in the monitoring wells were recorded with a data logger and pressure transducer.
>
> The pressure transducer was suspended less than 6 inches above the bottom of the well and the initial water levels was recorded prior to beginning the test. The slug was then lowered into the well until it was totally submerged beneath the water table. Following recovery, the slug was quickly removed, and water levels measurements were recorded until the water level recovered.
>
> Hydraulic conductivity was calculated from slug test data based on the analytical method of Bouwer and Rice (1976) for partially penetrating wells screened in an unconfined aquifer. The computer program AQTESOLV (Geraghty and Miller, 1989) was used to calculate a hydraulic conductivity (k) value based on linear regression of the data gathered during the slug test."
>
> Hydraulic gradients were assessed for both low tide and high tide periods. The calculated hydraulic gradients vary from approximately 2.5×10^{-3} foot per foot (ft/ft) at low tide to 3.9×10^{-3} ft/ft at high tide. The average hydraulic gradient (I_{av}) for the high and low tide measurements is 3.2×10^{-3} or approximately 17 feet per mile. The calculated hydraulic gradients are significantly higher than the hydraulic gradients reported by McKenzie (1990) for the Key West area, which ranged from 1 to 4 feet per mile. The slug test analyses from well KYWA317-5 indicates a horizontal hydraulic conductivity (K) of 3.8 feet/day (ft/day). This

TABLE 2-1
TOP OF CASING AND GROUNDWATER ELEVATION
SITE C-2076, TRUMBO POINT BOQ
KEY WEST, FLORIDA

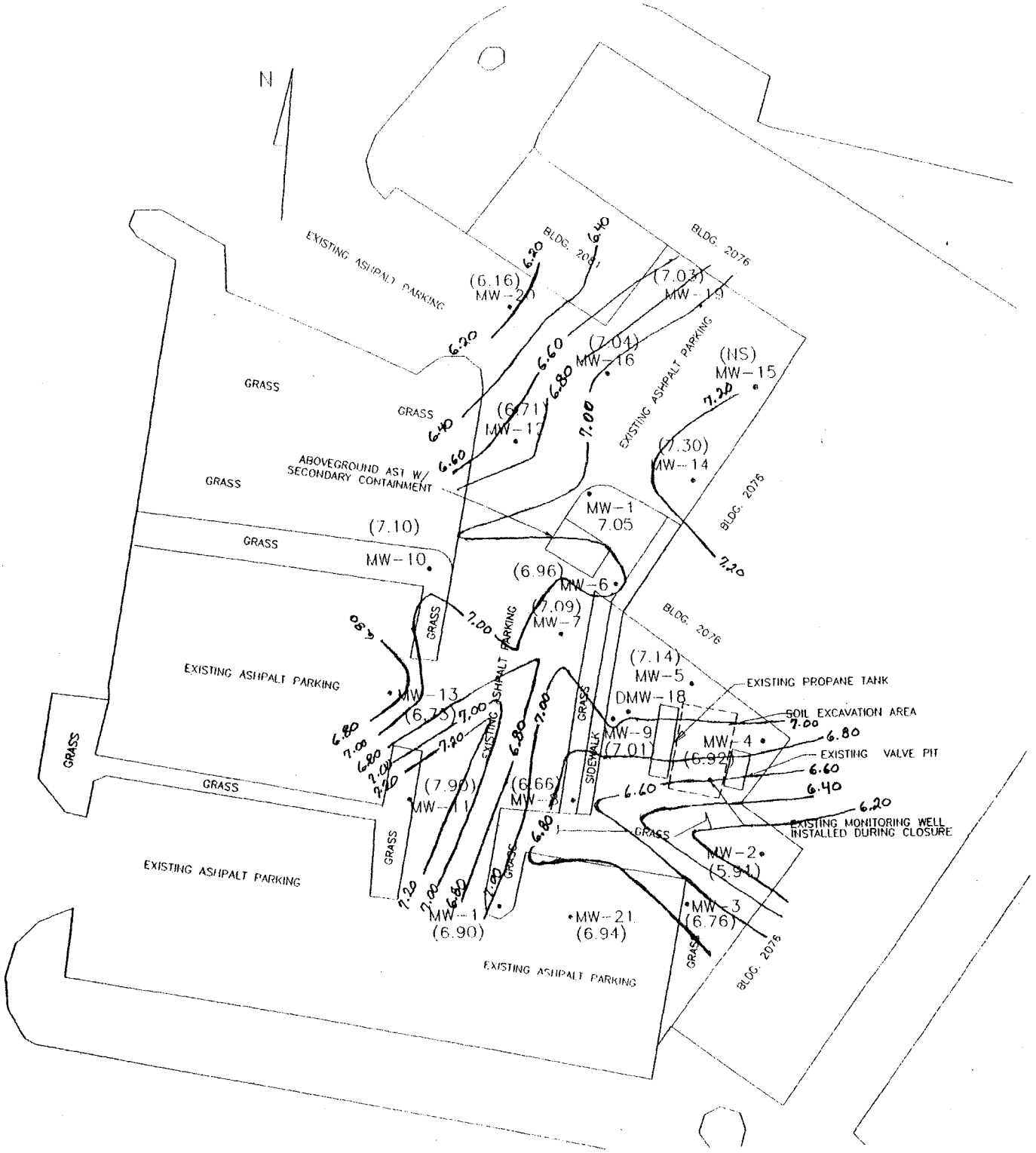
WELL NUMBER	TOC FT. M.S.L.	DTW (FT) 4/12/99**	GROUNDWATER ELEVATION 4/12/99
MW-1	10.20	3.15	7.05
MW-2	10.26	4.35	5.91
MW-3	9.87	3.11	6.76
MW-4	10.70	3.78	6.92
MW-5	10.36	3.22	7.14
MW-6	10.11	3.15	6.96
MW-7	9.93	2.84	7.09
MW-8	9.94	3.28	6.66
MW-9	10.29	3.28	7.01
MW-10	9.88	2.78	7.10
MW-11	9.97	2.94	7.09
MW-12	10.06	3.35	6.71
MW-13	10.00	3.27	6.73
MW-14	10.34	3.04	7.30
MW-15	10.12	*	
MW-16	9.78	2.74	7.04
MW-17	10.01	3.11	6.90
DMW-18	NM	NM	NM
MW-19	10.15	3.12	7.03
MW-20	10.20	4.04	6.16
MW-21	9.63	2.69	6.94

NOTES:
TOC = Top of Casing
DTW = Depth to Water
NM = Not Measured
Benchmark assumes elevation of 10 ft., Top of Casing MW-13, Trumbo Park BOQ, Key West, Florida.
* Free Product Encountered in MW-15 during sampling of 5/12/99.
** DTW information faxed on 4/15/99

TABLE 2-2
TOP OF CASING AND GROUNDWATER ELEVATION
SITE C-2076, TRUMBO POINT BOQ
KEY WEST, FLORIDA

WELL NUMBER	TOC FT. M.S.L.	DTW (FT) 5/12/99	GROUNDWATER ELEVATION 5/12/99
MW-1	10.20	3.43	6.77
MW-2	10.26	3.95	6.31
MW-3	9.87	3.76	6.11
MW-4	10.70	3.93	6.77
MW-5	10.36	3.87	6.49
MW-6	10.11	3.68	6.43
MW-7	9.93	3.54	6.39
MW-8	9.94	3.71	6.23
MW-9	10.29	3.91	6.38
MW-10	9.88	3.53	6.35
MW-11	9.97	3.77	6.20
MW-12	10.06	3.44	6.62
MW-13	10.00	3.66	6.34
MW-14	10.34	3.14	7.20
MW-15	10.12	*	
MW-16	9.78	3.19	6.59
MW-17	10.01	3.89	6.12
DMW-18	NM	NM	NM
MW-19	10.15	3.45	6.70
MW-20	10.20	3.73	6.47
MW-21	9.63	3.52	6.11

NOTES:
TOC = Top of Casing
DTW = Depth to Water
NM = Not Measured
Benchmark assumes elevation of 10 ft., Top of Casing MW-13, Trumbo Park BOQ, Key West, Florida.
* Encountered Free Product



LEGEND

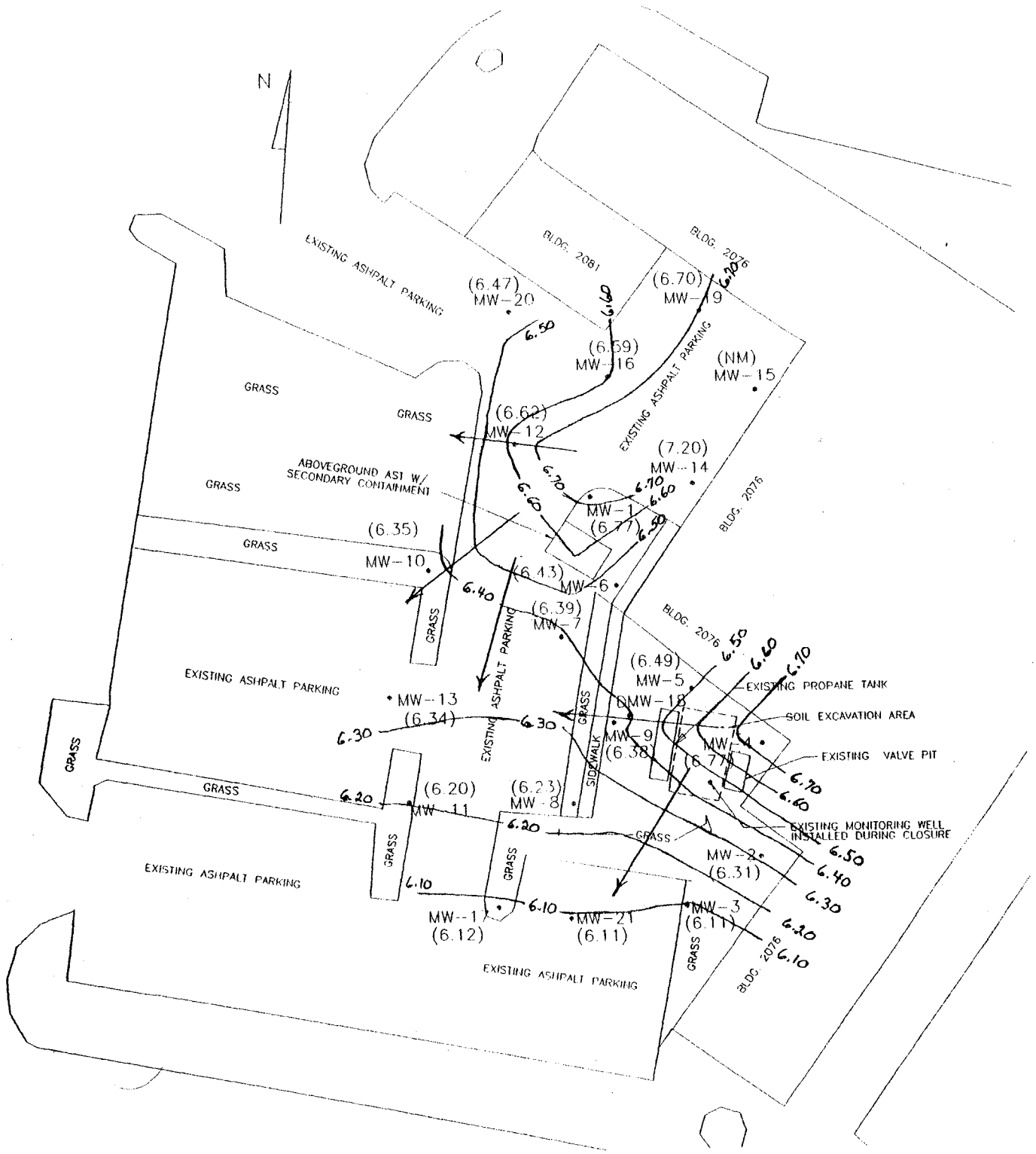
(18.24) MW-8 — GW ELEVATION

⊕ — GW WELL NUMBER/LOCATION

→ — GW FLOW DIRECTION

17.47 — GW CONTOUR

NAVY PUBLIC WORKS CENTER PENSACOLA, FLORIDA		
SCALE: 1"=40'	FIGURE 2-2	DRAWN BY: DWG. NO: REVISED BY:
GROUNDWATER FLOW DIRECTION MAP (4/12/99) SITE C2076, TRUMBO POINT		
CLIENT: PWD ENVIRONMENTAL DEPARTMENT, KEY WEST		



LEGEND

(18.24) GW ELEVATION

MW-8 GW WELL NUMBER/LOCATION

GW FLOW DIRECTION

17.47 GW CONTOUR

NAVY PUBLIC WORKS CENTER PENSACOLA, FLORIDA		
SCALE: 1"=40'	FIGURE 2-3	DRAWN BY: DWG. NO: REVISED BY:
GROUNDWATER FLOW DIRECTION MAP (5/12/99) SITE C2076, TRUMBO POINT		
CLIENT: PWD ENVIROHMENTAL DEPARTMENT, KEY WEST		

value represents a hydraulic conductivity of silty sand to clean sand (Freeze and Cherry, 1979). Using an estimated porosity of 22 percent (Davis and DeWiest, 1966), the calculated average pore water velocity (v) in the surficial aquifer is $5.5x10^{-2}$ ft/day.

The Groundwater Flow Rates were calculated in accordance with the below formula:

Average Pore Water Velocity Calculation: $v = (KI_{av})/n$
v = Average Pore Water Velocity (ft/day)
K = 3.8 ft/day. Hydraulic conductivity from well KYWA317-5. Hydraulic conductivity (ft/day).
I_{av} = 3.2x10-3. Average hydraulic gradient across site. Average of high and low calculated hydraulic gradients of 2.5x10-3 ft/ft to 3.9x10-3 ft/ft .
n = 22 Percent. Estimated porosity (Davis and DeWiest, 1966).
$V = (3.8ft/day)(3.2x10^{-3})/0.22$
$V = 5.5x10^{-2}$ ft/day

Transmissivity for the surficial aquifer was estimated by using formula T = K*b
T = Transmissivity (ft^2/day).
K = 3.8 ft/day. Hydraulic conductivity from well KYWA317-5. Hydraulic conductivity (ft/day).
b = 9.52 ft. Aquifer test interval or thickness (ft).
T = 3.8 ft/day x 9.52 ft
T = 36 ft^2/day. Transmissivity was estimated to be 36 feet squared per day (ft^2/day)."

2.4 SOIL ASSESSMENT

PWC personnel collected soil samples from boreholes during the installation of monitoring wells MW-1 thru MW-10 on June 22-23, 1998, and during the installation of monitoring wells MW-11 thru MW-21 on March 23-26, 1999. The soil samples were collected at 1 and 3 foot intervals BLS and analyzed with an OVA (Foxboro, Century OVA 128) for volatile organic compounds (See Figure 2-1 for locations). In addition, soil samples were collected from MW-1 @ 3' BLS, MW-4 @ 3' BLS and MW-6 @ 1' and 3' BLS and analyzed for VOAs, PAHs and TPHs using EPA Methods 8260, 8270 and FLPRO, respectively. During the initial investigation, monitoring wells (MW-1 thru MW-10) were installed at and around the location of the excavation site at Site C-2076. The placement of monitoring wells (MW-11 thru MW-21), installed at the site at a later date, was determined by the results of previous groundwater analyses performed on MW-1 thru MW-10 and OVA readings recorded during installation of MW-11 thru MW-21. The groundwater at the site was generally found at approximately 3 feet BLS.

OVA analysis, using a Foxboro, Century OVA 128, indicated VOCs were present in the soil samples collected on June 22-23, 1998, from monitoring wells MW-1 (166 ppm @ 3' BLS), MW-4 (849.8 ppm @ 3' BLS), MW-5 (18 ppm @ 3' BLS), MW-6 (130 ppm @ 3' BLS), and MW-9 (6.5 ppm @ 3' BLS). VOCs were detected in the soil samples collected on March 23-26, 1999, from monitoring wells MW-11 (0.2 ppm @ 1' BLS; 0.1 ppm @) 3' BLS), MW-12 (0.5 ppm @ 1' BLS; 0.2 ppm @ 3' BLS), MW-13 (9.5 ppm @ 1' BLS; 3.0 ppm @ 2.5' BLS), MW-14 (>1000 ppm @ 1' BLS and 3' BLS), MW-15 (860 ppm @ 1' BLS; 820 ppm @ 2.5' BLS), wells MW-16 (>1000 ppm @ 1' BLS and 2.5' BLS), and MW-19 (227 ppm @ 1' BLS; >947 @ 3' BLS). VOCs detected in MW-1, MW-4, MW-6, MW-14, MW-15, MW-16, and MW-19 exceeded the FDEP regulatory limits of 50 ppm for soil contaminated by the kerosene analytical group. No VOCs were detected in soil samples collected from monitoring wells MW-2, MW-3, MW-7, MW-8, MW-10, MW-17, DMW-18, MW-20, or MW-21. Table 2-3 is a summary of VOC concentrations found in soil samples collected from monitoring wells MW-1 thru MW-21 at Site C-2076. Figure 2-4 is a VOC Contamination Distribution Map.

Soil samples collected on June 22, 1998, from monitoring wells MW-1 @ 3' BLS, MW-4 @ 3' BLS and MW-6 @ 1' and 3' BLS, and analyzed for VOAs, PAHs and TPHs using EPA Methods 8260, 8270 and FLPRO revealed the following results:

MW-1 @ 3' BLS. Sec-butylbenzene (7 ppb), isopropylbenzene (4 ppb), n-propylbenzene (4 ppb), 1,2,4-trimethylbenzene (3 ppb); fluorene (54 ppb**), phenanthrene (100 ppb**); and TPHs (13 ppm) were detected in soil samples collected from monitoring well MW-1. None of the VOAs, PAHs, or TPHs detected in the soil samples collected from monitoring well MW-1 @ 3' BLS exceeded FS 62-700, Table IV, Selected Soil Cleanup Target Level for Direct Exposure (mg/kg) Values Based on Residential Use Assumptions.

MW-4 @ 3' BLS. N-butylbenzene (14 ppb); benzo(a)anthracene (58 ppb**), benzo(a)pyrene (110 ppb**), benzo(b)fluoranthene (110 ppb**), benzo(g,h,i)perlene (62 ppb**), benzo(k)fluoranthene (86 ppb**), indeno(1,2,3-cd)pyrene (59 ppb**), pyrene (110 ppb**); and TPH (6100 ppm) were detected in the soil samples collected from monitoring well MW-4. Contamination levels of benzo(a)pyrene (110 ppb/Det. limit of 180 ppb) detected in the soil sample collected from monitoring well MW-4 at 3' BLS exceeded FS 62-700, Table IV, Selected Soil Cleanup Target Level of .1 ppm for Direct Exposure (mg/kg) Values Based on Residential Use Assumptions; however, it does not exceed the 0.5 ppm Value Based on Worker Industrial Exposure Assumptions. No other VOAs, PAHs, or TPHs detected in the soil samples collected from monitoring MW-4 @ 3' BLS exceeded FS 62-700, Table IV, Selected Soil Cleanup Target Level for Direct Exposure (mg/kg) Values Based on Residential Use Assumptions.

MW-6 @1' BLS. No VOAs or TPHs were detected in the soil sample collected from MW-6 @ 1' BLS. Benzo(a)anthracene (34 ppb**), benzo(b)fluoranthene (36 ppb**), fluoranthene (49 ppb**), and pyrene (43 ppb**) were detected in the

Table 2-3
Volatile Organic Compounds (VOCs)
Concentrations in Soil
Soil Samples From Monitoring Wells MW-1 thru MW-21
Site C-2076, Trumbo Point BOQ
Key West, Florida

Boring Designation	Depth (Feet BLS)	VOCs Concentration (ppm)[1]
MW-1	1	0
	3	166*
MW-2	1	0
	3	0
MW-3	1	0
	3	0
MW-4	1	0
	3	849.8*
MW-5	1	0
	3	18
MW-6	1	0*
	3	130*
MW-7	1	0
	3	0
MW-8	1	0
	3	0
MW-9	1	0
	2	6.5
MW-10	1	0
	2	0

[1] VOCs concentrations assessed by organic vapor analyzer headspace techniques. VOC concentrations shown are less methane concentration.

Notes: BLS = below land surface
PPM = parts per million
NS = not sampled
Soil samples analyzed and VOC results reported on June 22 & 23, 1998 by NPWC, Pensacola, FL (MW-1 thru MW-10)

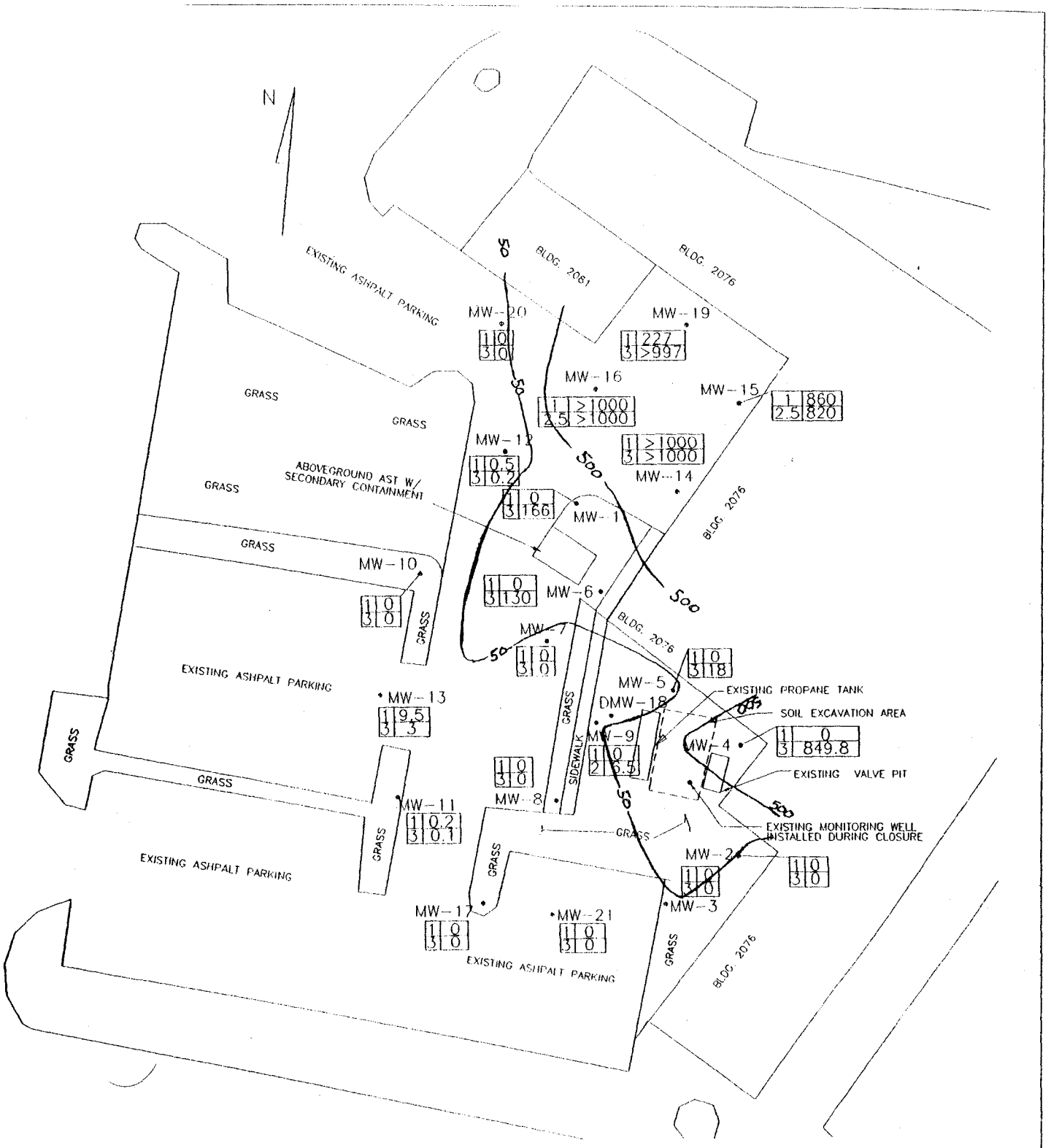
* Soil samples collected and analyzed for VOAs, PAHs, and TPHs. Results on Table 2-5.

Table 2-3 (Cont.)
Volatile Organic Compounds (VOCs)
Concentrations in Soil
Soil Samples From Monitoring Wells MW-1 thru MW-21
Site C-2076, Trumbo Point BOQ
Key West, Florida

Boring Designation	Depth (Feet BLS)	VOCs Concentration (ppm)[1]
MW-11	1	0.2
	3	0.1
MW-12	1	0.5
	3	0.2
MW-13	1	9.5
	2.5	3.0
MW-14	1	>1000
	3	>1000
MW-15	1	860
	2.5	820
MW-16	1	>1000
	2.5	>1000
MW-17	1	0
	3	0
DMW-18	1	0
	3	0
MW-19	1	227
	3	>947
MW-20	1	0
	3	0
MW-21	1	0
	3	0

[1] VOCs concentrations assessed by organic vapor analyzer headspace techniques. VOC concentrations shown are less methane concentration.

Notes: BLS = below land surface
Ppm = parts per million
NS = not sampled
Soil samples analyzed and VOC results reported on March 23-26, 1999 by NPWC, Pensacola, FL (MW-11 thru MW-21)



LEGEND

(21) OVA CONCENTRATION (PPM)

MW-8 GW WELL NUMBER/LOCATION

50 ISOCONCENTRATION CONTOUR (50 PPM)

NAVY PUBLIC WORKS CENTER PENSACOLA, FLORIDA		
SCALE: 1"=40'	FIGURE 2-4	DRAWN BY: DWG. NO: REVISED BY:
SOIL OVA CONTAMINATION DISTRIBUTION MAP SITE C2076, TRUMBO POINT, KEY WEST		
CLIENT: PWD ENVIRONMENTAL DEPARTMENT, KEY WEST		

soil sample collected from monitoring MW-6 @ 1' BLS. None of the PAHs detected in the soil sample collected from monitoring well MW-6 @ 1' BLS exceeded FS 62-700, Table IV, Selected Soil Cleanup Target Level for Direct Exposure (mg/kg) Values Based on Residential Use Assumptions.

MW-6 @ 3' BLS. N-butylbenzene (61 ppb), sec-butylbenzene (82 ppb), ethylbenzene (41 ppb), isopropylbenzene (76 ppb), and p-isopropyltoluene (77 ppb), naphthalene (38 ppb), n-propylbenzene (79 ppb), 1,3,5-trimethylbenzene (81 ppb), m,p-xylene (53 ppb), and 0-xylene (83 ppb); 1-methylnaphthalene (700 ppb), 2-methylnaphthalene (860 ppb), naphthalene (590 ppb) and TPH 910 ppm were detected in the soil sample collected from monitoring MW-6 @ 3' BLS. None of the VOAs, PAHs, or TPHs detected in the soil sample collected from monitoring well MW-6 @ 3' BLS exceeded FS 62-700, Table IV, Selected Soil Cleanup Target Level for Direct Exposure (mg/kg) Values Based on Residential Use Assumptions.

The analytical results for soil samples collected from monitoring well MW-1 @ 3' BLS, MW-4 @ 3' BLS, MW-6 @ 1'BLS and MW-6 @ 3' BLS are included in Appendix C. A summary of the analytical results is included in Table 2-4.

**compound detected, but below detection limits of 160 ppb & 180 ppb, respectively.

TABLE 2-4
SUMMARY OF VOAs, PAHS, TPHs
ANALYTICAL RESULTS FOR SOIL SAMPLES COLLECTED FROM
MW-1 @ 3' BSL, MW-4 @ 3' BLS, MW-6 @ 1' BLS, MW-6 @ 3' BLS
SITE C-2076, TRUMBO PARK BOQ
KEY WEST, FLORIDA

PARAMETER	SOIL SAMPLES COLLECTED FROM			
	MW-1 @ 3' BLS	MW-4 @ 3' BLS	MW-6 @ 1' BLS	MW-6 @ 3' BLS
Total Volatiles				
n-Butylbenzene	BDL	14	BDL	61
sec-Butylbenzene	7	BDL	BDL	82
Ethylbenzene	BDL	BDL	BDL	41
Isopropylbenzene	4	BDL	BDL	76
p-Isopropyltoluene	BDL	BDL	BDL	77
Naphthalene	BDL	BDL	BDL	38
n-Propylbenzene	4	BDL	BDL	79
1,2,4-Trimethylbenzene	3	BDL	BDL	BDL
1,3,5-Trimethylbenzene	BDL	BDL	BDL	81
m,p-Xylene	BDL	BDL	BDL	53
o-Xylene	BDL	BDL	BDL	83
PAHs				
Benzo(a)anthracene	BDL	58**	34**	BDL
Benzo(a)pyrene	BDL	110**	BDL	BDL
Benzo(b)floranthene	BDL	110**	36**	BDL
Benzo(g,h,i)perylene	BDL	62**	BDL	BDL
Benzo(k)fluoranthene	BDL	86**	BDL	BDL
Fluoranthene	BDL	BDL	49**	BDL
Fluorene	54**	BDL	BDL	BDL
Indeno(1,2,3-c,d)pyrene	BDL	59**	BDL	BDL
1-Methylnaphthalene	BDL	BDL	BDL	700
2-Methylnaphthalene	BDL	BDL	BDL	860
Phenanthrene	100**	BDL	BDL	590
Pyrene	BDL	110**	43**	BDL
TPH (ppm)	13	6100	BDL	910

NOTES: BDL = Below detection limits.
ND = Not detected.
Soil samples were collected on June 22, 1998.
All results are reported in parts per billion (ppb) unless otherwise noted.

** Compound detected, but below detection limits

2.5 SITE SPECIFIC GEOLOGY AND HYDROGEOLOGY

The principal aquifer of concern at the site is composed of the Miami Limestone, which is sometimes called the Miami Oolite. The surficial zone was penetrated to a depth of 30.0 feet during this investigation. The lithology at the site was found to be consistent and is generally composed of: (1) either asphalt with a sand/clay road base or sod with black/dark brown top soil mixed with a few rocks and gravel from 0' to .5' BLS (2) medium grey to light brown sand, medium grain with small rocks from .5' BLS to 2' BLS (3) grey, silt, with some clay and small shell fragments from 2' BLS to 8' BLS (4) white, fine grain, oolite limestone from 8'BLS to 30' BLS. The groundwater table at the site was encountered at approximately 2-3 feet BLS. Lithological logs describing the soils encountered at various depths, the approximate groundwater level, and OVA screening results for the soil borings installed during the monitoring well installations are shown in Appendix B.

2.6 SURFACE WATER ASSESSMENT

No surface water was observed directly on the site and therefore no surface water assessment was performed for this report. The Gulf of Mexico is located approximately 1/4 mile north of the site and will not be impacted by the site.

2.7 GROUNDWATER QUALITY ASSESSMENT

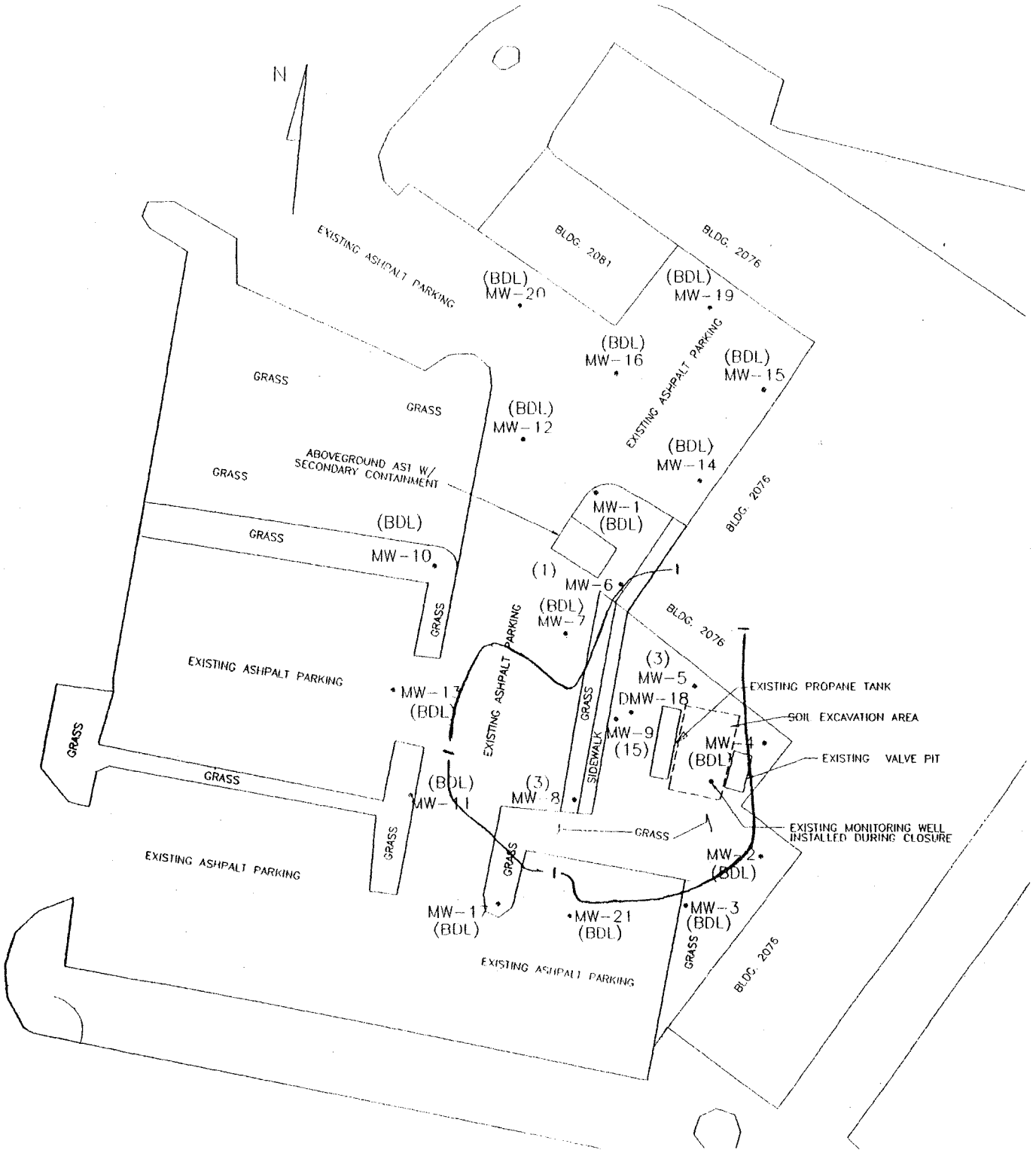
Groundwater samples were extracted from shallow groundwater monitoring wells MW-1 thru MW-10 by John D. Riege, Kappa Laboratories, 12246 SW 131st Ave, Miami, Florida on October 20 & 21, 1998. Groundwater samples were extracted from groundwater monitoring wells MW-11 thru MW-21 by GFA, International, Inc., on March 23-26, 1999. The groundwater samples were shipped to the PWC Pensacola Laboratory in approved storage coolers and were analyzed using the methods and procedures outlined in PWC Pensacola Comprehensive Quality Assurance Plan No. 920121G. The quiescent sampling technique was used to collect the groundwater samples. Monitoring wells MW-1 thru MW-10 and MW-11 thru MW-21 were sampled on October 20 & 21, 1998, and March 23 thru 26, 1999, respectively, and analyzed for the kerosene analytical group outlined in FDEP Rule 62-770.600(4)(a). Groundwater samples were analyzed for volatile organic aromatics (VOAs), polynuclear aromatic hydrocarbons (PAHs), ethylene dibromide (EDB), and total petroleum hydrocarbons (TPHs) utilizing EPA Methods 8260, 8270, 504, and FLPRO, respectively. Analytical results for groundwater samples collected from monitoring wells MW-1 thru MW-21 are included in Appendix C.

Free-phase petroleum hydrocarbons were detected at the site in monitoring well MW-15 on May 12, 1999, while taking depth to groundwater measurements from monitoring wells MW-1 thru MW-21. The thickness of the free product was determined to be 1.51" using an oil/water interface probe.

No VOAs were detected in the groundwater samples collected and analyzed from monitoring

wells MW-1, MW-10, MW-11, MW-12, MW-14, MW-16, or MW-19 thru MW-21. Benzene was detected in groundwater collected from monitoring wells MW-5, MW-6, MW-8 and MW-9 at contamination levels of 3 ppb, 1 ppb, 3 ppb, and 15 ppb, respectively. Chlorobenzene was detected in groundwater samples collected from monitoring wells MW-2 and MW-3 at contamination levels of 2 ppb and 2 ppb, respectively. 1,4-Dichlorobenzene was detected in groundwater samples collected from monitoring wells MW-2, MW-3 and MW-5 at contamination levels of 5 ppb, 2 ppb, and 1 ppb, respectively. Ethylbenzene was detected in groundwater samples collected from monitoring wells MW-4 thru MW-9 at contamination levels of 2 ppb, 29 ppb, 9 ppb, 11 ppb, 2 ppb and 16 ppb, respectively, and from MW-17 at a contamination level of 2 ppb. MTBE was detected in groundwater samples collected from monitoring wells MW-13 and MW-15 at a concentration of 3 ppb. Toluene was detected in groundwater samples collected from monitoring wells MW-5 and MW-9 at contamination levels of 1 ppb and 6 ppb, respectively. Xylenes (total) were detected in groundwater samples collected from monitoring wells MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-17, and DMW-18 at contamination levels of 17 ppb, 36 ppb, 11 ppb, 9 ppb, 4 ppb, 32 ppb, 2 ppb, and 1 ppb, respectively. Benzene and xylenes (total) contamination levels were the only VOAs that exceeded FDEP groundwater target cleanup levels. Benzene levels detected in monitoring wells MW-5 (3 ppb), MW-6 (1 ppb), MW-8 (3 ppb) and MW-9 (15 ppb) equaled or exceeded the FDEP groundwater target cleanup level of 1 ppb for benzene. Xylenes (total) levels detected in monitoring wells MW-5 (36 ppb) and MW-9 (32 ppb) exceeded the FDEP groundwater target cleanup levels of 20 ppb for xylenes (total). Figures 2-5 and 2-6 are Benzene and Xylenes (total) Contamination Distribution Maps, respectively.

No PAHs were detected in groundwater samples collected and analyzed from monitoring wells MW-1, MW-2, MW-10, MW-12, MW-13, MW-15, MW-17, MW-19, MW-20, or MW-21. Groundwater samples collected from **MW-3** indicated contamination levels of acenaphthene (20 ppb) and naphthalene (11 ppb). Groundwater samples collected from **MW-4** indicated contamination levels of acenaphthene (52 ppb), fluoranthene (29 ppb), 1-methylnaphthalene (190 ppb), 2-methylnaphthalene (280 ppb), naphthalene (150 ppb) and pyrene (31 ppb). Groundwater samples collected from **MW-5** indicated contamination levels of acenaphthene (5 ppb), fluorene (2 ppb), 1-methylnaphthalene (19 ppb), 2-methylnaphthalene (34 ppb) and naphthalene (290 ppb). Groundwater samples collected from **MW-6** indicated contamination levels of acenaphthene (75 ppb), anthracene (9 ppb), benzo(a)anthracene (3 ppb), chrysene (3 ppb), fluoranthene (15 ppb), fluorene (72 ppb), 1-methylnaphthalene (30 ppb), 2-methylnaphthalene (76 ppb), naphthalene (230 ppb), phenanthrene (120 ppb) and pyrene (16 ppb). Groundwater samples collected from **MW-7** indicated contamination levels of acenaphthene (18 ppb), fluorene (7 ppb), 1-methylnaphthalene (13 ppb), 2-methylnaphthalene (20 ppb), naphthalene (150 ppb) and phenanthrene (4 ppb). Groundwater samples collected from **MW-8** indicated contamination levels of acenaphthene (15 ppb), fluorene (6 ppb), 1-methylnaphthalene (6 ppb), 2-methylnaphthalene (8 ppb), naphthalene (110 ppb) and phenanthrene (3 ppb). Groundwater samples collected from **MW-9** indicated contamination levels of acenaphthene (22 ppb), fluorene (11 ppb), 1-methylnaphthalene (16 ppb), 2-methylnaphthalene (37 ppb), naphthalene (880 ppb) and phenanthrene (7 ppb). Groundwater samples collected from **MW-11** indicated contamination levels of acenaphthene (10 ppb) and



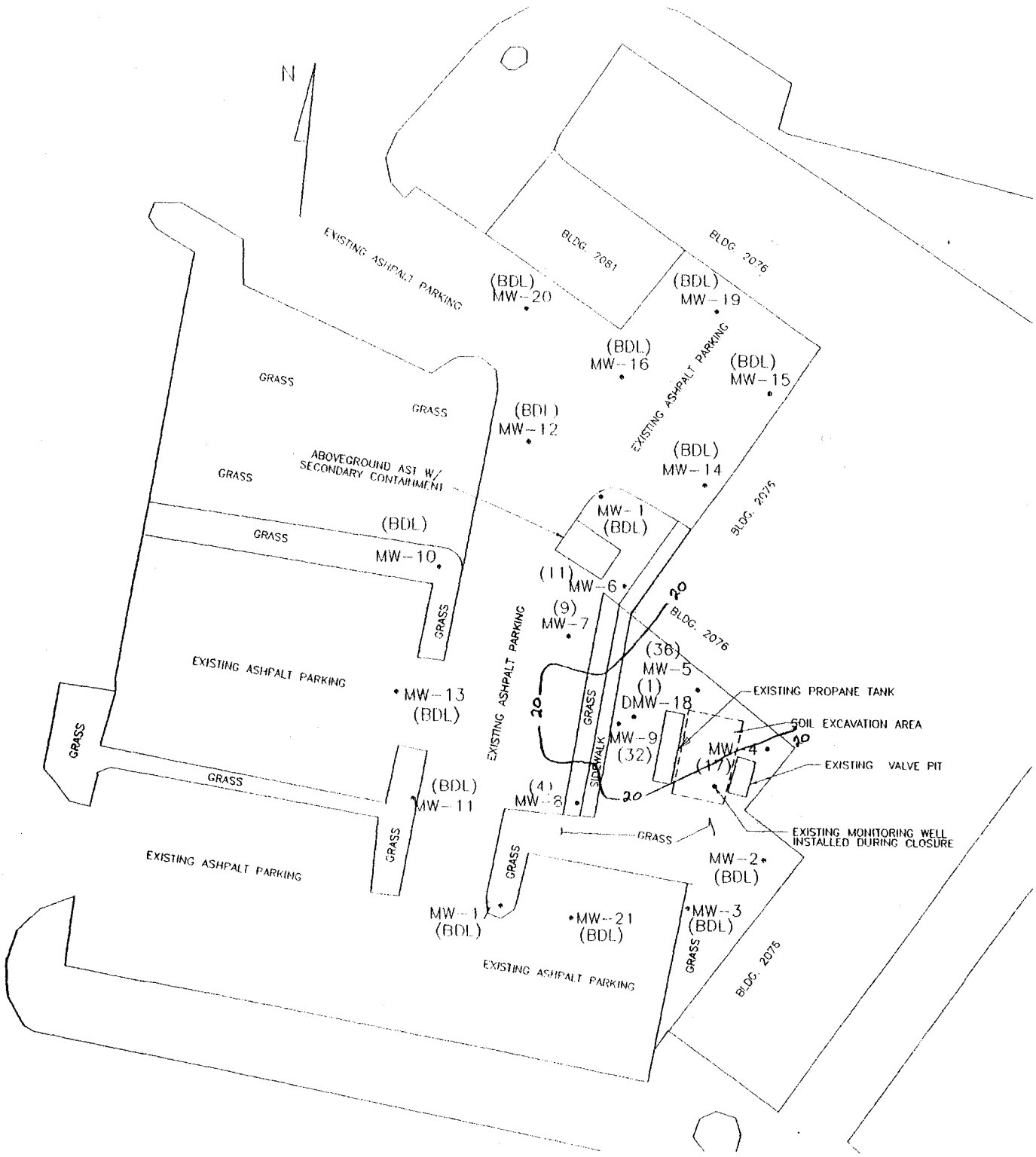
LEGEND

(21) MW-8 — BENZENE CONCENTRATION (PPB)

⊕ — GW WELL NUMBER/LOCATION

1 — ISOCONCENTRATION CONTOUR (1 PPB)

NAVY PUBLIC WORKS CENTER PENSACOLA, FLORIDA		
SCALE: 1"=40'	FIGURE 2-5	DRAWN BY: DWG. NO: REVISED BY:
BENZENE CONTAMINATION DISTRIBUTION MAP SITE C2076, TRUMBO POINT, KEY WEST		
CLIENT: PWD ENVIRONMENTAL DEPARTMENT, KEY WEST		



LEGEND

(21) XYLENE CONCENTRATION (PPB)

MW-8 GW WELL NUMBER/LOCATION

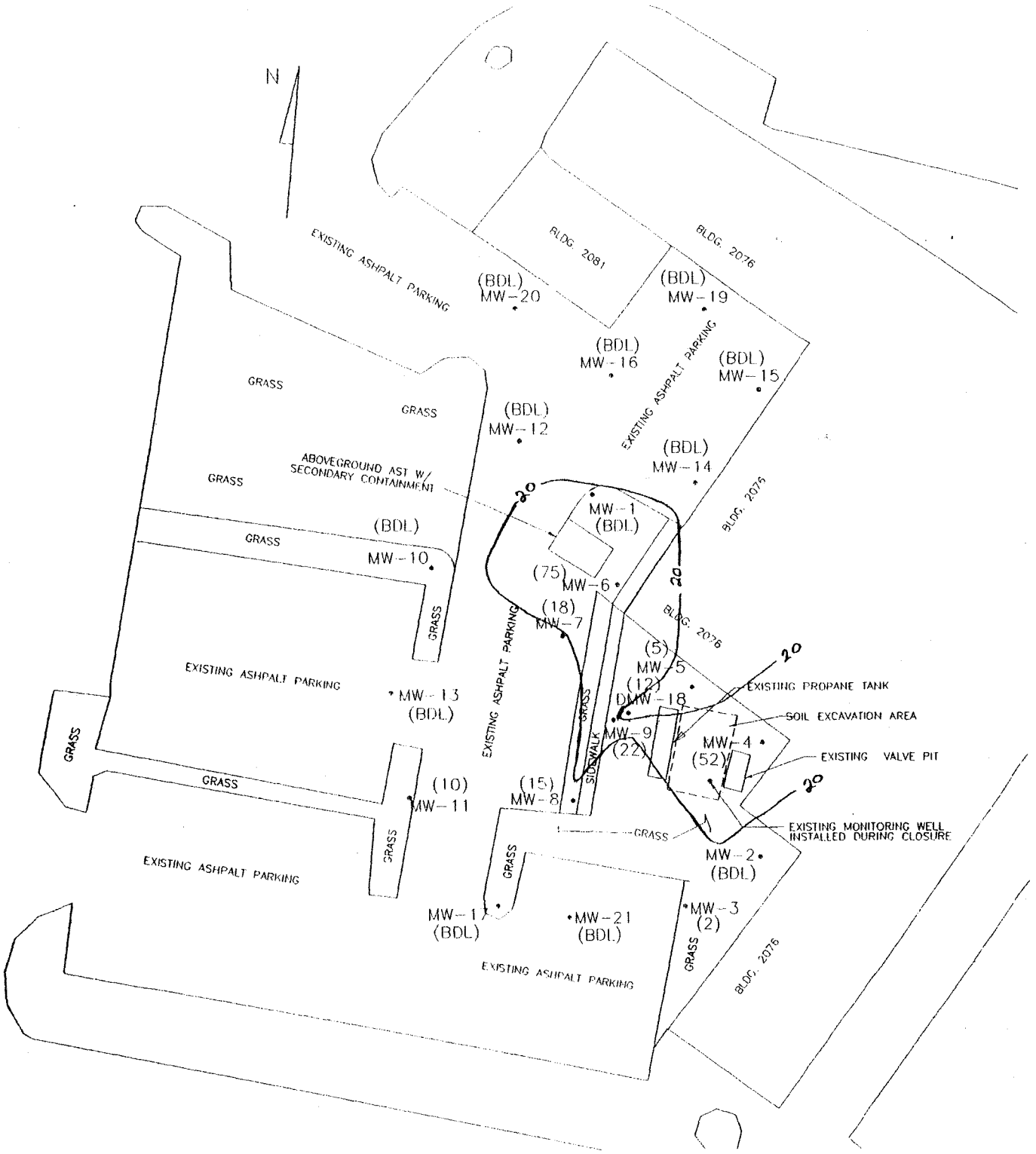
20 ISOCONCENTRATION CONTOUR (20 PPB)

NAVY PUBLIC WORKS CENTER PENSACOLA, FLORIDA		
SCALE: 1"=40'	FIGURE 2-6	DRAWN BY: DWG. NO: REVISED BY:
XYLENE CONTAMINATION DISTRIBUTION MAP SITE C2076, TRUMBO POINT, KEY WEST		
CLIENT: PWD ENVIRONMENTAL DEPARTMENT, KEY WEST		

fluorene (4 ppb). Groundwater samples collected from **MW-14** indicated contamination levels of fluorene (3 ppb). Groundwater samples collected from **MW-16** indicated contamination levels of phenanthrene (2 ppb). Groundwater samples collected from **DMW-8** indicated contamination levels of acenaphthene (12 ppb), anthracene (3 ppb), fluoranthene (5 ppb), fluorene (9 ppb), 1-methylnaphthalene (4 ppb), 2-methylnaphthalene (9 ppb), naphthalene (47 ppb), phenanthrene (17 ppb), and pyrene (3 ppb). Contamination levels of acenaphthene detected in groundwater collected from monitoring wells MW-4 (52 ppb), MW-6 (75 ppb), and MW-9 (22 ppb) exceeded FDEP groundwater target cleanup levels of 20 ppb for acenaphthene. Contamination levels of benzo(a)anthracene detected in groundwater collected from monitoring well MW-6 (3 ppb) exceeded FDEP groundwater target cleanup levels of 0.2 ppb for benzo(a)anthracene. Contamination levels of naphthalene detected in groundwater collected from monitoring wells MW-4 (150 ppb), MW-5 (290 ppb), MW-6 (230 ppb), MW-7 (150 ppb), MW-8 (110 ppb), MW-9 (880 ppb) and DMW-18 (47 ppb) exceeded FDEP groundwater target cleanup levels of 20 ppb for naphthalene. Figures 2-7, 2-8 and 2-9 are Contamination Distribution Maps for Acenaphthene, Benzo(a)anthracene and naphthalene, respectively.

No EDBs were detected in the groundwater samples collected and analyzed from monitoring wells MW-1 thru MW-21. Groundwater collected from monitoring wells MW-12, MW-16, and MW-21 detected contamination levels of lead of 0.065 ppm, 0.005 ppm, and 0.005 ppm, respectively, which is well below the FDEP groundwater target cleanup level of 5 ppm for lead. No lead was detected in the remaining monitoring wells sampled at Site C-2076. TRPH was detected in groundwater samples collected and analyzed from monitoring wells MW-1, MW-4 thru MW-7, MW-9, MW-14, MW-15, and MW-16 at contamination levels of 1.5 ppm, 970 ppm, 2.1 ppm, 3.3 ppm, 1.4 ppm, 2.2 ppm, 1.7 ppm, 0.9 ppm, and 8.1 ppm, respectively. TRPH contamination levels detected in groundwater collected from monitoring wells MW-4 and MW-16 exceeded the FDEP groundwater cleanup target level of 5 ppm for TRPH. Figure 2-10 is a TRPH Contamination Distribution Map.

The analytical results of groundwater samples collected for monitoring wells MW-1 thru MW-21 are shown in Appendix C. A summary of the VOA, PAH, EDB, TRPH, and Lead analytical results is included in Table 2-5.



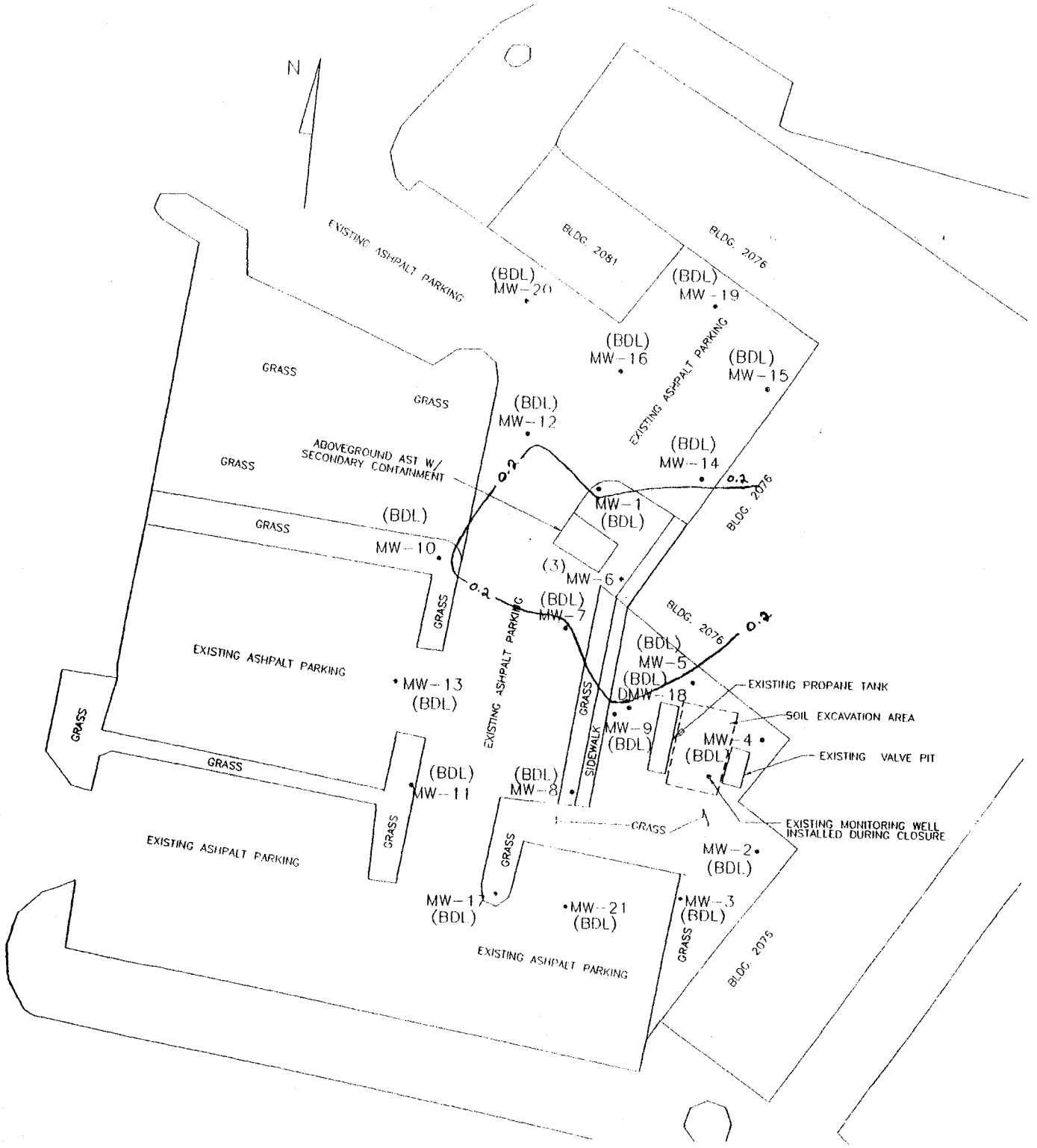
LEGEND

(21) MW-8 — ACENAPHTHENE CONCENTRATION (PPB)

⊕ — GW WELL NUMBER/LOCATION

20 —— ISOCONCENTRATION CONTOUR (20 PPB)

NAVY PUBLIC WORKS CENTER PENSACOLA, FLORIDA		
SCALE: 1"=40'	FIGURE 2-7	DRAWN BY: DWG NO: REVISED BY:
ACENAPHTHENE CONTAMINATION DISTRIBUTION MAP, SITE C2076, TRUMBO POINT		
CLIENT: PWD ENVIRONMENTAL DEPARTMENT, KEY WEST		



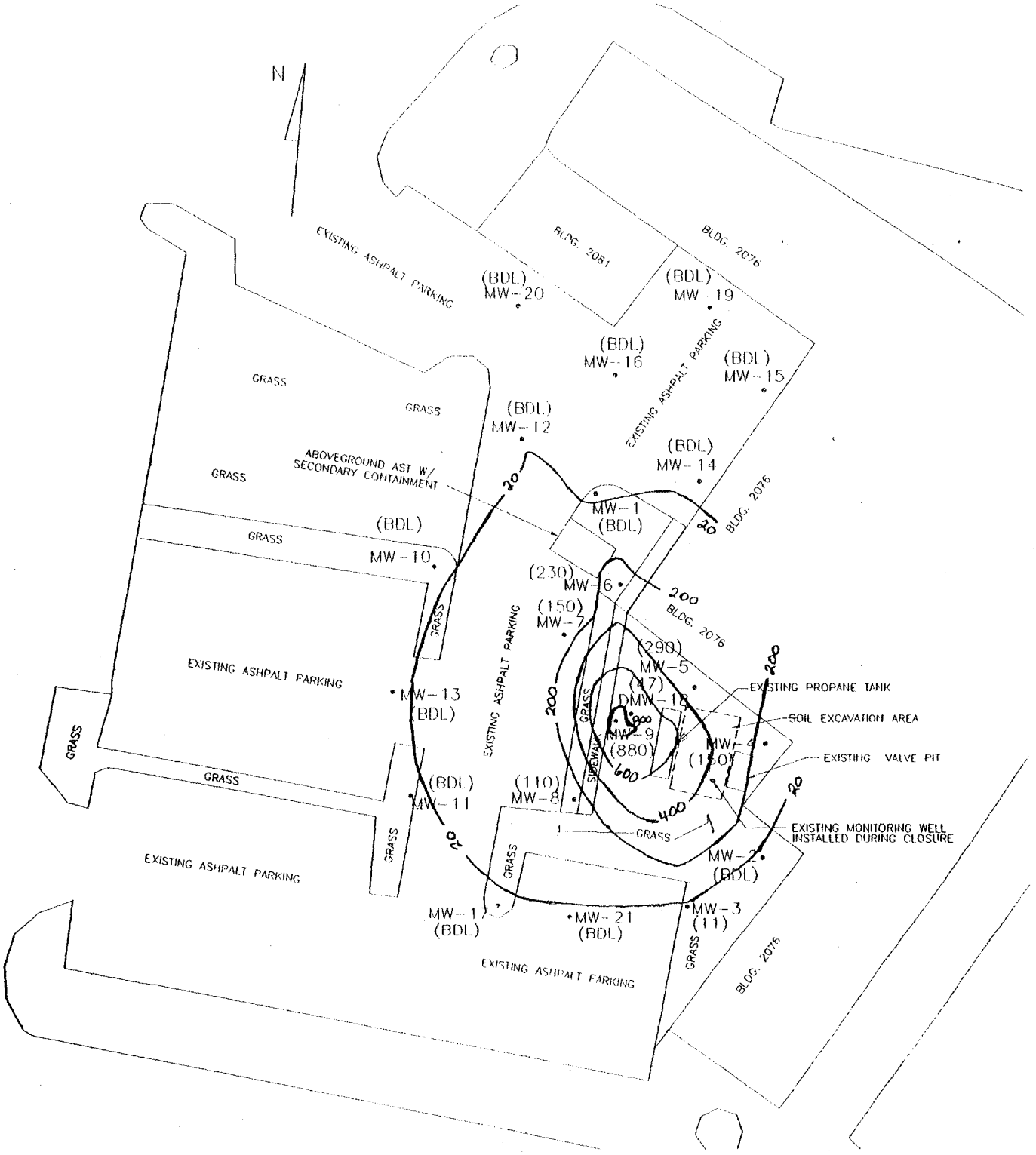
LEGEND

(21) MW-8 — BENZO(A)ANTHRACENE CONCENTRATION (PPB)

⊕ — GW WELL NUMBER/LOCATION

0.2 — ISOCONCENTRATION CONTOUR (0.2 PPB)

NAVY PUBLIC WORKS CENTER PENSACOLA, FLORIDA		
SCALE: 1"=40'	FIGURE 2-8	DRAWN BY: DWG NO: REVISED BY:
BENZO(A)ANTHRACENE CONTAMINATION MAP SITE C2076, TRUMBO POINT, KEY WEST		
CLIENT: PWD ENVIRONMENTAL DEPARTMENT, KEY WEST		



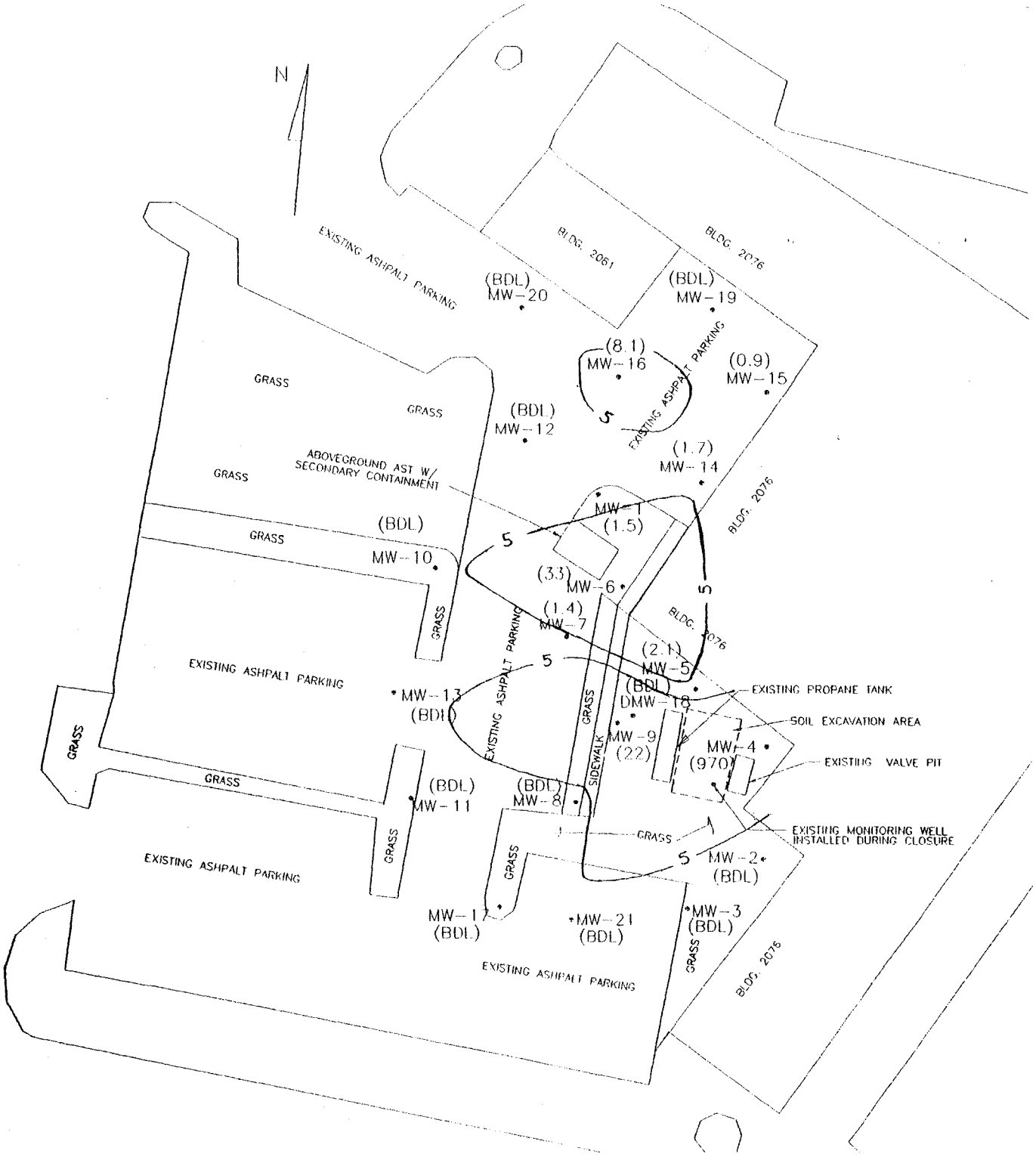
LEGEND

(21) MW-8 — NAPHTHALENE CONCENTRATION (PPB)

⊕ — GW WELL NUMBER/LOCATION

20 — ISOCONCENTRATION CONTOUR (20 PPB)

NAVY PUBLIC WORKS CENTER PENSACOLA, FLORIDA		
SCALE: 1"=40'	FIGURE 2-9	DRAWN BY: DWG. NO: REVISED BY:
NAPHTHALENE CONTAMINATION DISTRIBUTION MAP -SITE C2076, TRUMBO POINT		
CLIENT: PWD ENVIRONMENTAL DEPARTMENT, KEY WEST		



LEGEND

(21) MW-8 — TRPH CONCENTRATION (PPM)

⊕ — GW WELL NUMBER/LOCATION

5 — ISOCONCENTRATION CONTOUR (5 PPM)

NAVY PUBLIC WORKS CENTER PENSACOLA, FLORIDA		
SCALE: 1"=40'	FIGURE 2-10	DRAWN BY: DWG. NO: REVISED BY:
TRPH CONTAMINATION DISTRIBUTION MAP SITE C2076, TRUMBO POINT, KEY WEST		
CLIENT: PWD ENVIRONMENTAL DEPARTMENT, KEY WEST		

SUMMARY TABLE 2-5
BOQ 2076, TRUMBO POINT, KEY WEST
LABORATORY RESULTS OF GROUNDWATER COLLECTED FROM
MONITORING WELLS MW-1 THRU MW-10 ON OCT 20 & 21, 1998
AND ANALYZED FOR VOA's, PAH's, EDB, TRPH, AND LEAD

CHEMICAL	MONITORING WELL NUMBER									
VOA's	**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-6**	**MW-7**	**MW-8**	**MW-9**	**MW-10**
Benzene	BDL	BDL	BDL	BDL	3	1	BDL	3	15	BDL
Chlorobenzene	BDL	2	2	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	BDL	5	2	BDL	1	BDL	BDL	BDL	BDL	BDL
Ethylbenzene	BDL	BDL	BDL	2	29	9	11	2	16	BDL
Toluene	BDL	BDL	BDL	BDL	1	BDL	BDL	BDL	6	BDL
Xylenes (Total)	BDL	BDL	BDL	17	36	11	9	4	32	BDL
PAH's										
Acenaphthene	BDL	BDL	2	52	5	75	18	15	22	BDL
Anthracene	BDL	BDL	BDL	BDL	BDL	9	BDL	BDL	BDL	BDL
Benzo(a)anthracene	BDL	BDL	BDL	BDL	BDL	3	BDL	BDL	BDL	BDL
Chrysene	BDL	BDL	BDL	BDL	BDL	3	BDL	BDL	BDL	BDL
Fluoranthene	BDL	BDL	BDL	29	BDL	15	BDL	BDL	BDL	BDL
Fluorene	BDL	BDL	BDL	BDL	2	72	7	6	11	BDL
1-Methylnaphthalene	BDL	BDL	BDL	190	19	30	13	6	16	BDL
2-Methylnaphthalene	BDL	BDL	BDL	280	34	76	20	8	37	BDL
Naphthalene	BDL	BDL	11	150	290	230	150	110	880	BDL
Phenanthrene	BDL	BDL	BDL	BDL	BDL	120	4	3	7	BDL
Pyrene	BDL	BDL	BDL	31	BDL	16	BDL		BDL	BDL
EDB	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TRPH (ppm)	1.5	BDL	BDL	970	2.1	3.3	1.4	BDL	2.2	BDL
LEAD	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

NOTES: BDL = Below detection limits.
Groundwater samples from MW-1 thru MW-10 were collected on October 20 & 21, 1998.
All results are reported in parts per billion (ppb) unless otherwise noted.

SUMMARY TABLE 2-5 (Cont.)
BOQ 2076, TRUMBO POINT, KEY WEST
LABORATORY RESULTS OF GROUNDWATER COLLECTED FROM
MONITORING WELLS MW-1 THRU MW-10 ON OCT 20 & 21, 1998
AND ANALYZED FOR VOAs, PAHs, EDB, TRPH, AND LEAD

CHEMICAL	MONITORING WELL NUMBER										
VOAs	MW-11	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	DMW-18	MW-19	MW-20	MW-21
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	2	BDL	BDL	BDL	BDL
MTBE	BDL	BDL	3	BDL	3	BDL	BDL	BDL	BDL	BDL	BDL
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Xylenes (Total)	BDL	BDL	BDL	BDL	BDL	BDL	2	1	BDL	BDL	BDL
PAHs											
Acenaphthene	10	BDL	BDL	BDL	BDL	BDL	BDL	12	BDL	BDL	BDL
Anthracene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3	BDL	BDL	BDL
Benzo(a)anthracene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chrysene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Fluoranthene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL
Fluorene	4	BDL	BDL	3	BDL	BDL	BDL	9	BDL	BDL	BDL
1-Methylnaphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4	BDL	BDL	BDL
2-Methylnaphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	9	BDL	BDL	BDL
Naphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	47	BDL	BDL	BDL
Phenanthrene	BDL	BDL	BDL	BDL	BDL	2	BDL	17	BDL	BDL	BDL
Pyrene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3	BDL	BDL	BDL
EDB	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TRPH (ppm)	BDL	BDL	BDL	1.7	0.9	8.1	BDL	BDL	BDL	BDL	BDL
LEAD (ppm)	BDL	0.065	BDL	BDL	BDL	0.005	BDL	BDL	BDL	BDL	0.005

NOTES: BDL = Below detection limits.
Groundwater samples from MW-11 thru MW-21 were collected on March 23 thru 26, 1999.
All results are reported in parts per billion (ppb) unless otherwise noted.

APPENDICES

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 CONCLUSIONS

- The source of the contamination is unknown, but is assumed to be diesel. The approximate number of gallons of diesel released is estimated to be 10 gallons.

- Volatile organic vapors detected in the soil borings collected from monitoring wells MW-1, MW-4, MW-6, MW-14, MW-15, MW-16, and MW-19 exceeded the FDEP regulatory limits of 50 ppm for soil contaminated by the kerosene analytical group.

- No VOCs were detected in soil samples collected from monitoring wells MW-2, MW-3, MW-7, MW-8, MW-10, MW-17, DMW-18, MW-20, or MW-21.

- Benzo(a)pyrene detected in the soil boring collected from monitoring well MW-4 at 110 ppm exceeded the FS 62-700 Table IV, Selected Soil Cleanup Target Level for Direct Exposure (mg/kg) Values based on Residential Use Assumptions of 100 ppm.

- Twenty shallow groundwater monitoring wells (MW-1 thru MW-17 and MW-19 thru MW-21) and one deep vertical extent monitoring well (DMW-18) were installed at the site and groundwater samples were collected from each well and analyzed for VOAs, PAHs, EDBs, TRPHs and Lead.

- Free-phase petroleum hydrocarbons were detected in monitoring well MW-15.

- Groundwater depths measured in monitoring wells MW-1 thru MW-21 on April 12, 1999 and May 12, 1999, indicate the groundwater flows toward the _____.

- Benzene levels in monitoring wells MW-5, MW-6, MW-8 and MW-9 meet or exceed FDEP groundwater target cleanup levels of 1 ppb for benzene.

- Xylenes (total) levels in monitoring wells MW-5 and MW-9 exceed FDEP groundwater target cleanup levels of 20 ppb for xylenes (total).

- Acenaphthene levels in monitoring wells MW-4, MW-6, and MW-9 exceed FDEP groundwater target cleanup levels of 20 ppb for acenaphthene.

- Benzo(a)anthracene levels in monitoring well MW-6 exceed FDEP groundwater target cleanup levels of 0.2 ppb for benzo(a)anthracene.

- Napththalene levels in monitoring wells MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, and DMW-18 exceed FDEP groundwater target cleanup levels of 20 ppb for naphthalene.

- TRPH was detected at contamination levels that exceeded the groundwater target cleanup levels of 5 ppm for TRPH in MW-4, at concentration levels of 970 ppm, and in MW-16, at concentration levels of 8.1 ppm.

- No EDBs were detected in the groundwater samples collected from monitoring wells MW-1 thru MW-21.

- Contamination levels of lead detected in groundwater samples collected from monitoring wells MW-1 thru MW-21 did not exceed FDEP groundwater cleanup target levels of 5 ppm for lead.

- The average estimated horizontal hydraulic conductivity at the site is 3.8 feet per day (ft/day). (Test conducted at Site A-317, similar site.)

- The average estimated linear velocity at the site is 5.5×10^{-2} ft/day. (Test conducted at Site A-317, similar site.)

- The estimated transmissivity for the surficial aquifer is 36 ft^2/day. (Test conducted at Site A-317, similar site.)

- The areal extent of soil and groundwater contamination at the site appears extensive.

3.2 RECOMMENDATIONS

Based upon the conclusions, PWC Pensacola recommends a remedial action plan be implemented to remediate both soil and groundwater media.

4.0 PROFESSIONAL REVIEW CERTIFICATION

The Site Assessment contained in this report was prepared using sound, hydrogeologic principles and judgement. This assessment is based on the geologic investigation and associated information detailed in the text and appended to this report. If conditions are determined to exist that differ from those described, the undersigned engineer should be notified to evaluate the effects of any additional information on the assessment described in this report. This Site Assessment Report was developed for Key West, Florida Site C-2076, Trumbo Point BOQ and should not be construed to apply to any other site.

Gregory Allen Campbell

Gregory Allen Campbell
Professional Engineer
P.E. No. 38572

6/17/95

Date

5.0 REFERENCES

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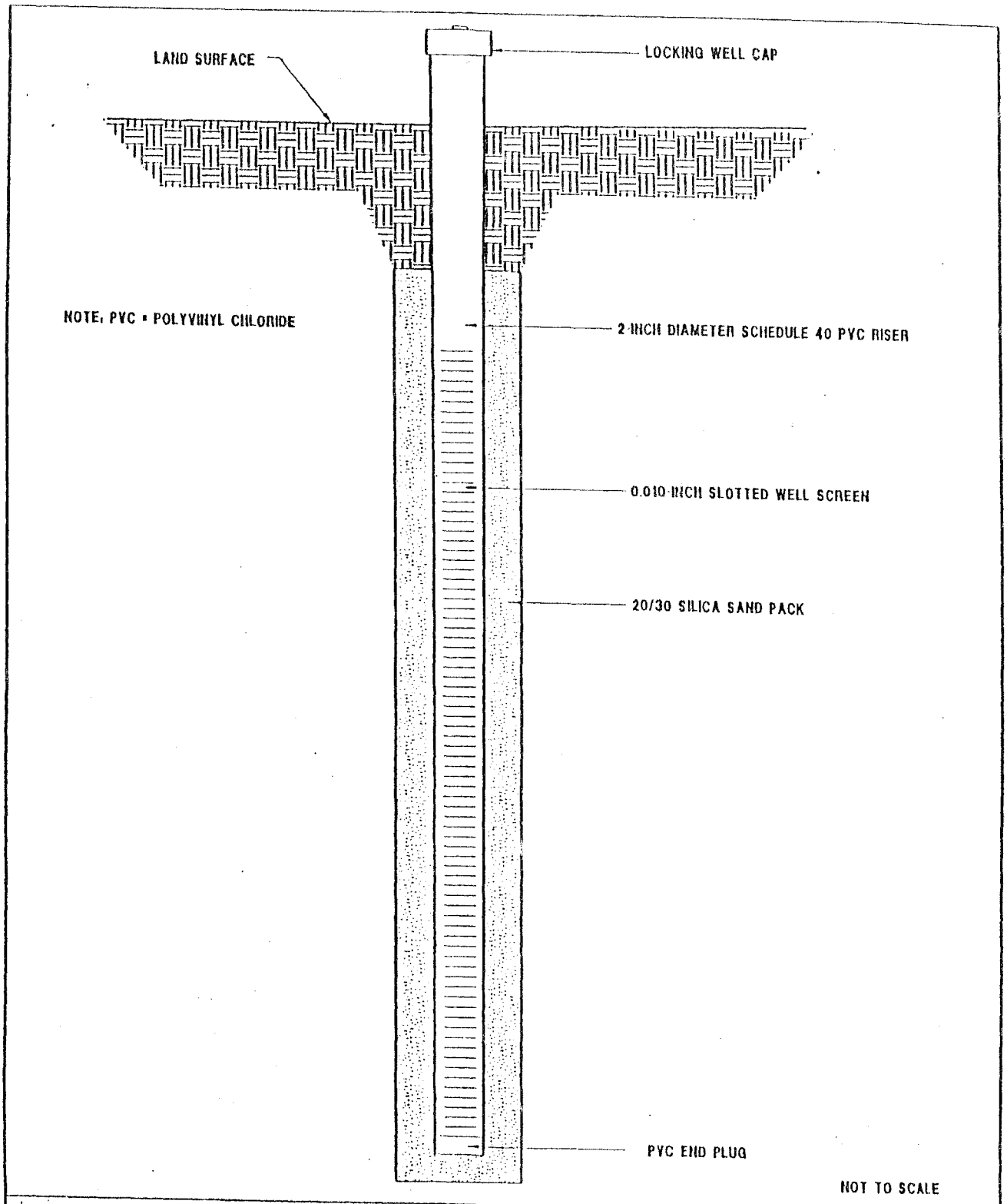
Naval Energy and Environmental Support Activity, Port Hueneme, California, Initial Assessment Study of Naval Air Station, Key West, Florida, May 1985.

APPENDIX A

MONITORING WELL CONSTRUCTION DIAGRAMS



TYPICAL TEMPORARY MONITORING WELL INSTALLATION DETAIL

NPWC

ENVIRONMENTAL

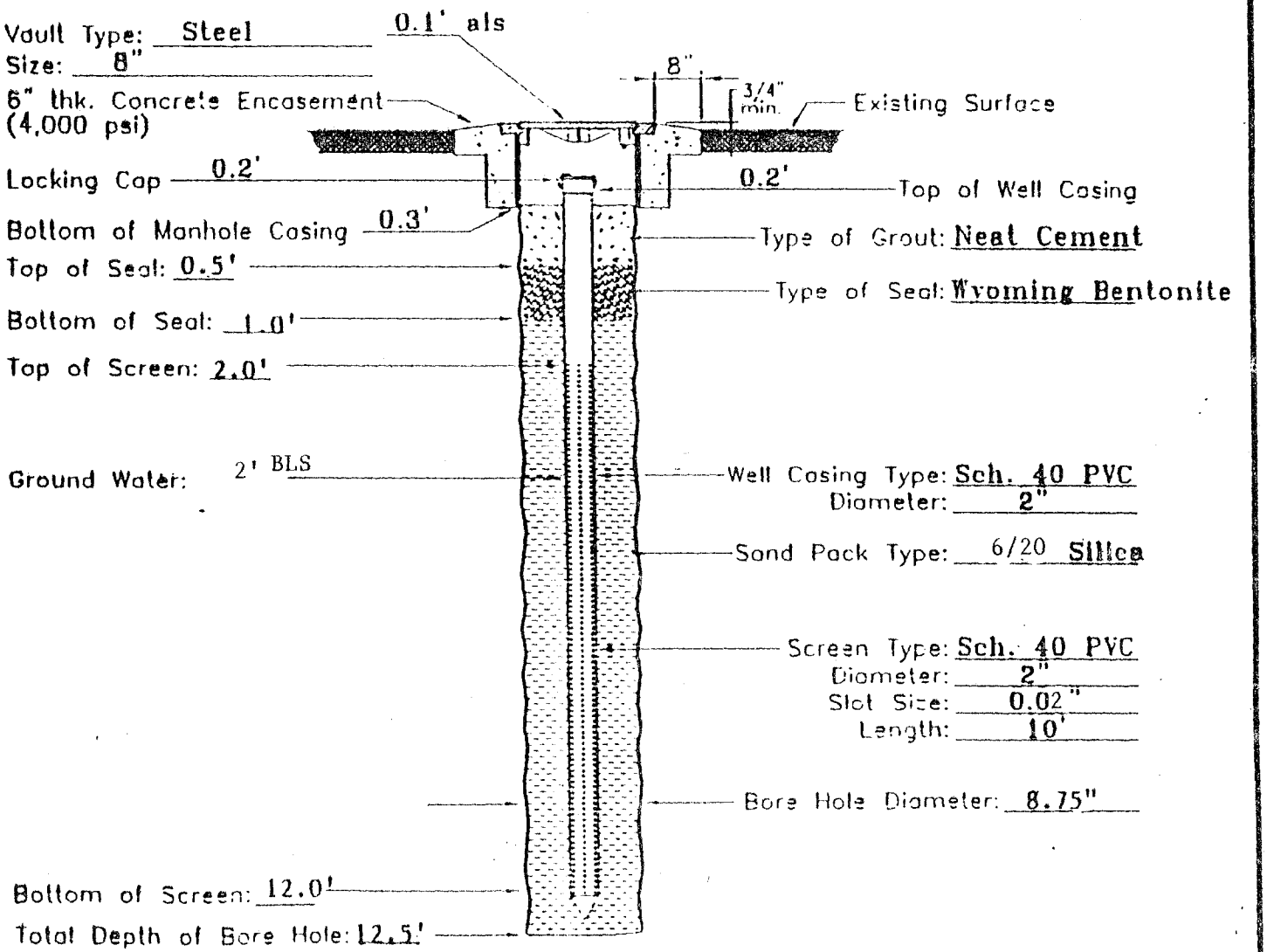
MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: GFA, International, Inc.
DRILLER'S NAME:
WELL NUMBER: MW-1

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITE C-2076
JOB NUMBER:
DATE Start: 6/22/98 Finish: 6/22/98
TIME Start: 1030 Finish: 1110

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (B.L.S.)

A-2

DRAWING ABOVE IS NOT TO SCALE

NPWC

ENVIRONMENTAL

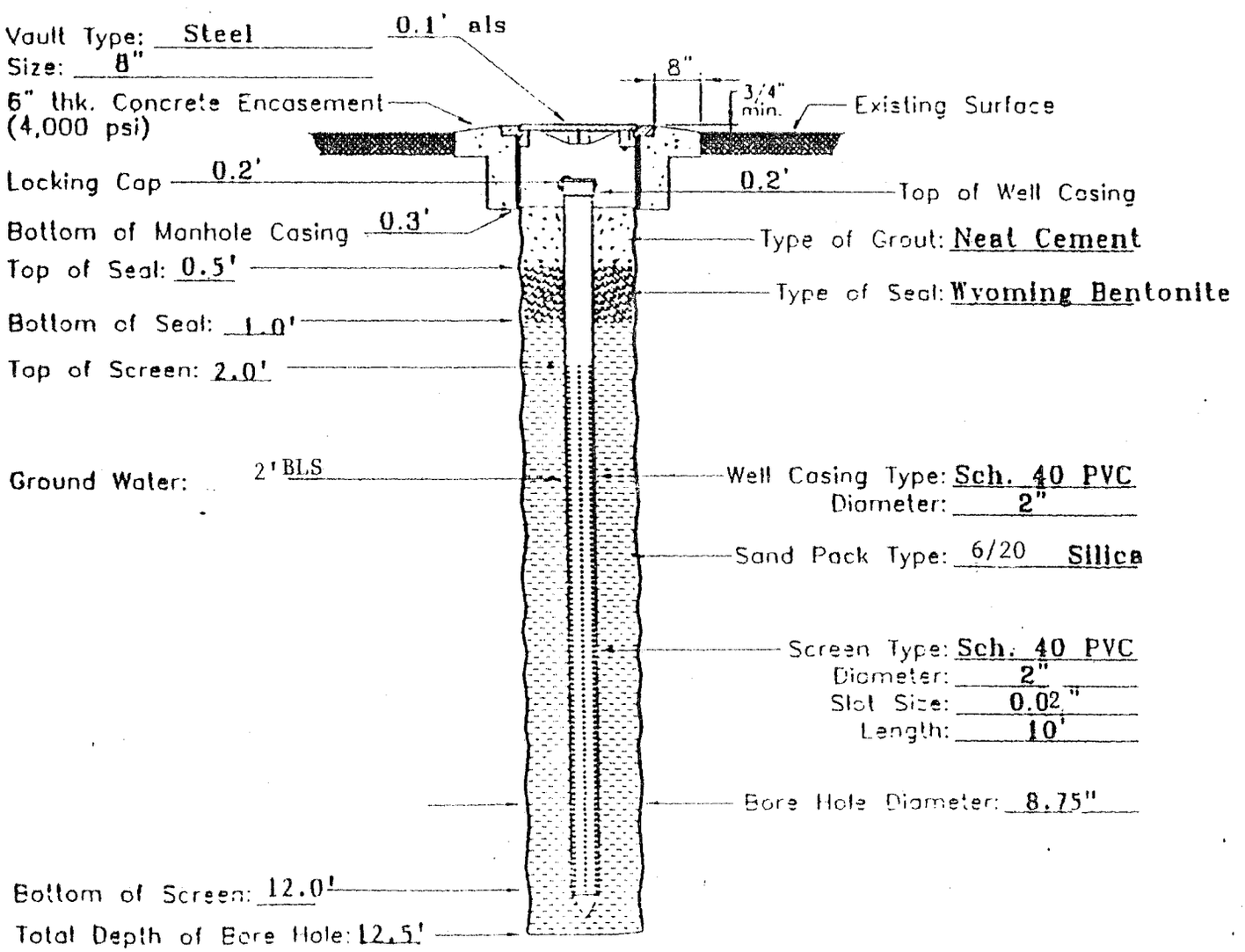
310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

MONITOR WELL CONSTRUCTION DETAIL

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: GFA, International,
DRILLER'S NAME:
WELL NUMBER: MW-2

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITE C2076
JOB NUMBER:
DATE Start: 6/22/98 Finish: 6/22/98
TIME Start: 1143 Finish: 1200

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



A-3

NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (B.L.S.)

DRAWING ABOVE IS NOT TO SCALE

NPWC

ENVIRONMENTAL

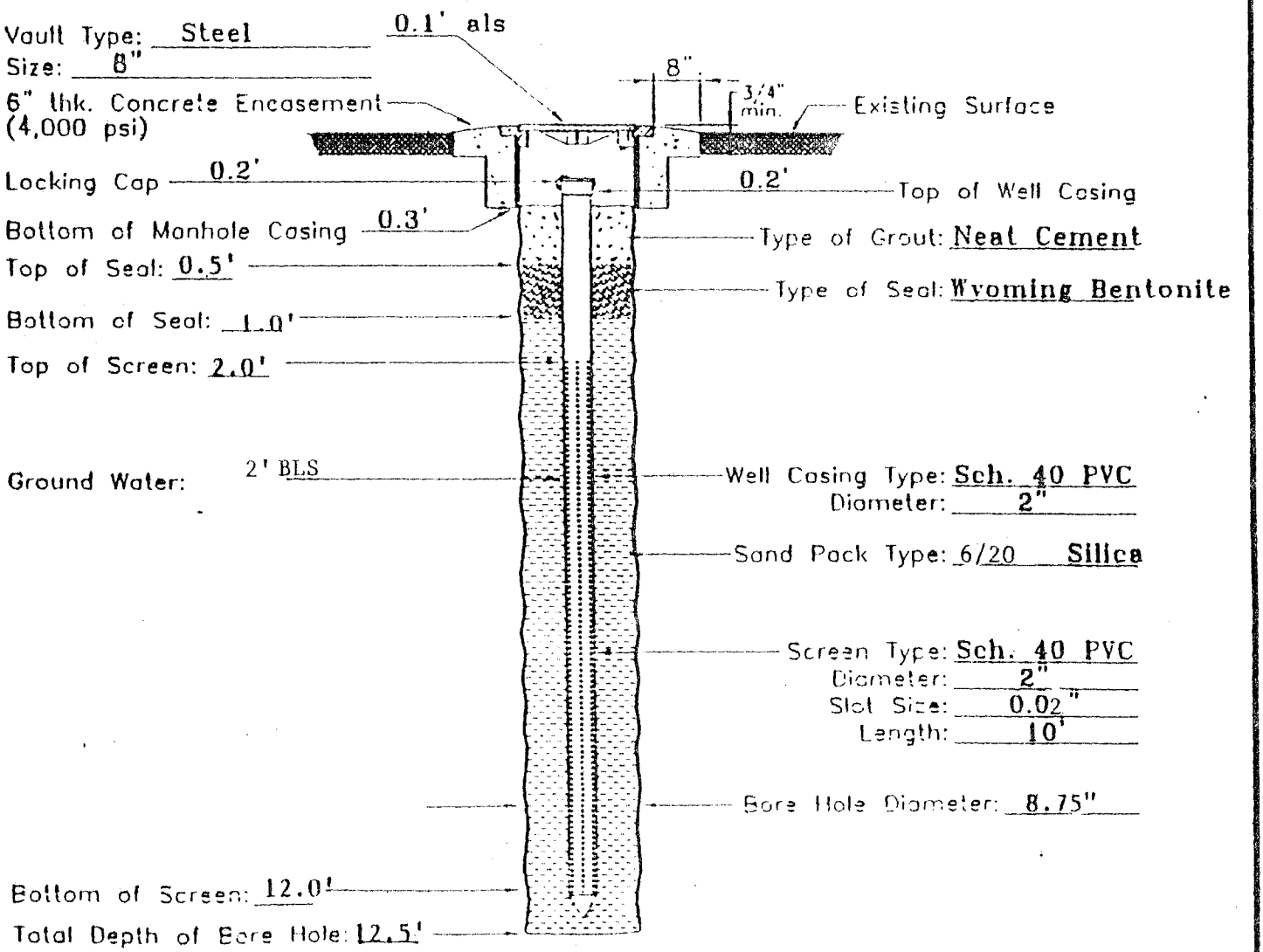
MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: GFA, International, Inc.
DRILLER'S NAME:
WELL NUMBER: MW-3

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITE G2076
JOB NUMBER:
DATE Start: 6/22/98 Finish: 6/22/98
TIME Start: 1330 Finish: 1410

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (BLS)

A-4

DRAWING ABOVE IS NOT TO SCALE

NPWC

ENVIRONMENTAL

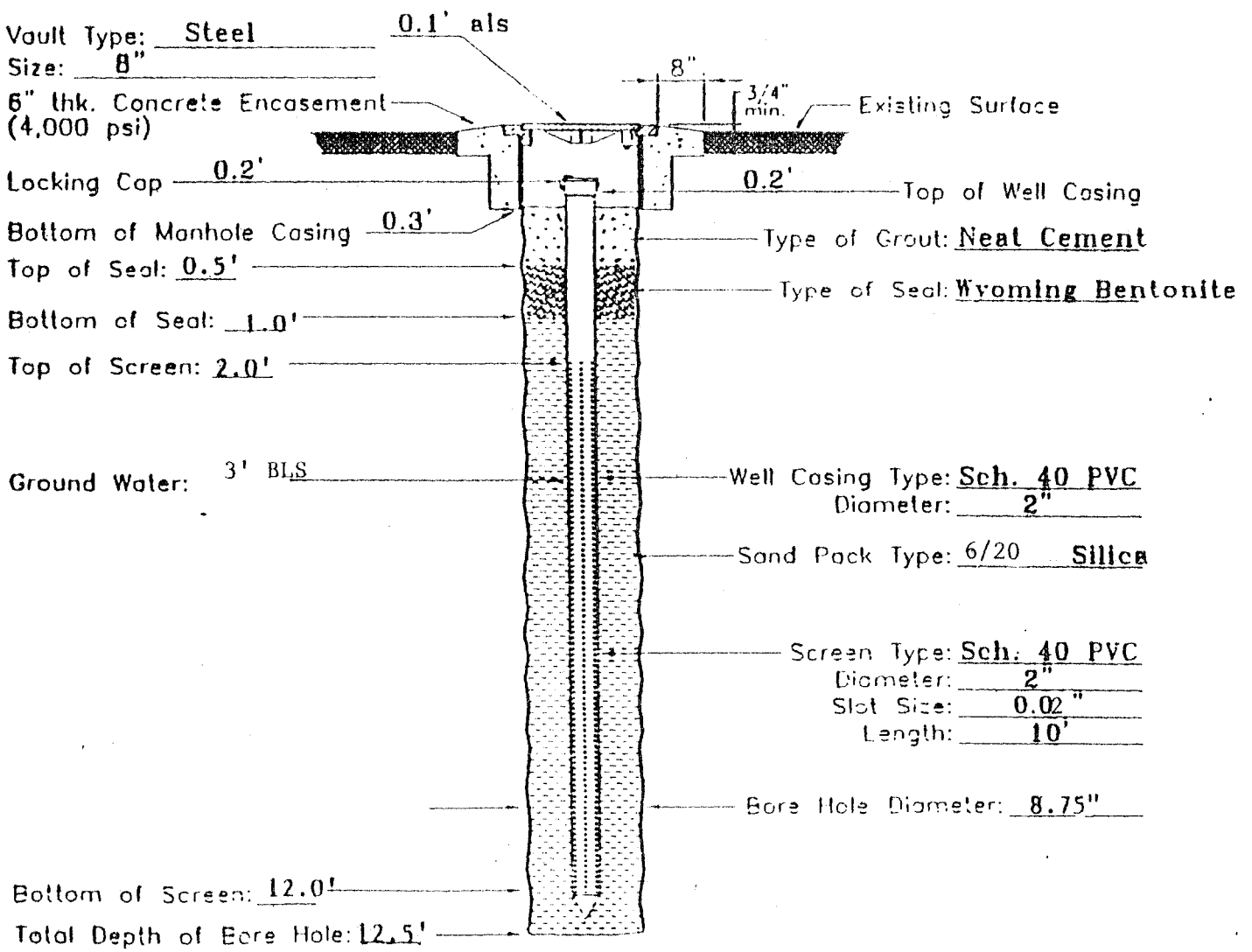
MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: GFA, International
DRILLER'S NAME:
WELL NUMBER: MW-4

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITE C-2076
JOB NUMBER:
DATE Start: 6/22/98 Finish: 6/22/98
TIME Start: 1430 Finish: 1500

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



A-5

NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (B.L.S.)

DRAWING ABOVE IS NOT TO SCALE

NPWC

ENVIRONMENTAL

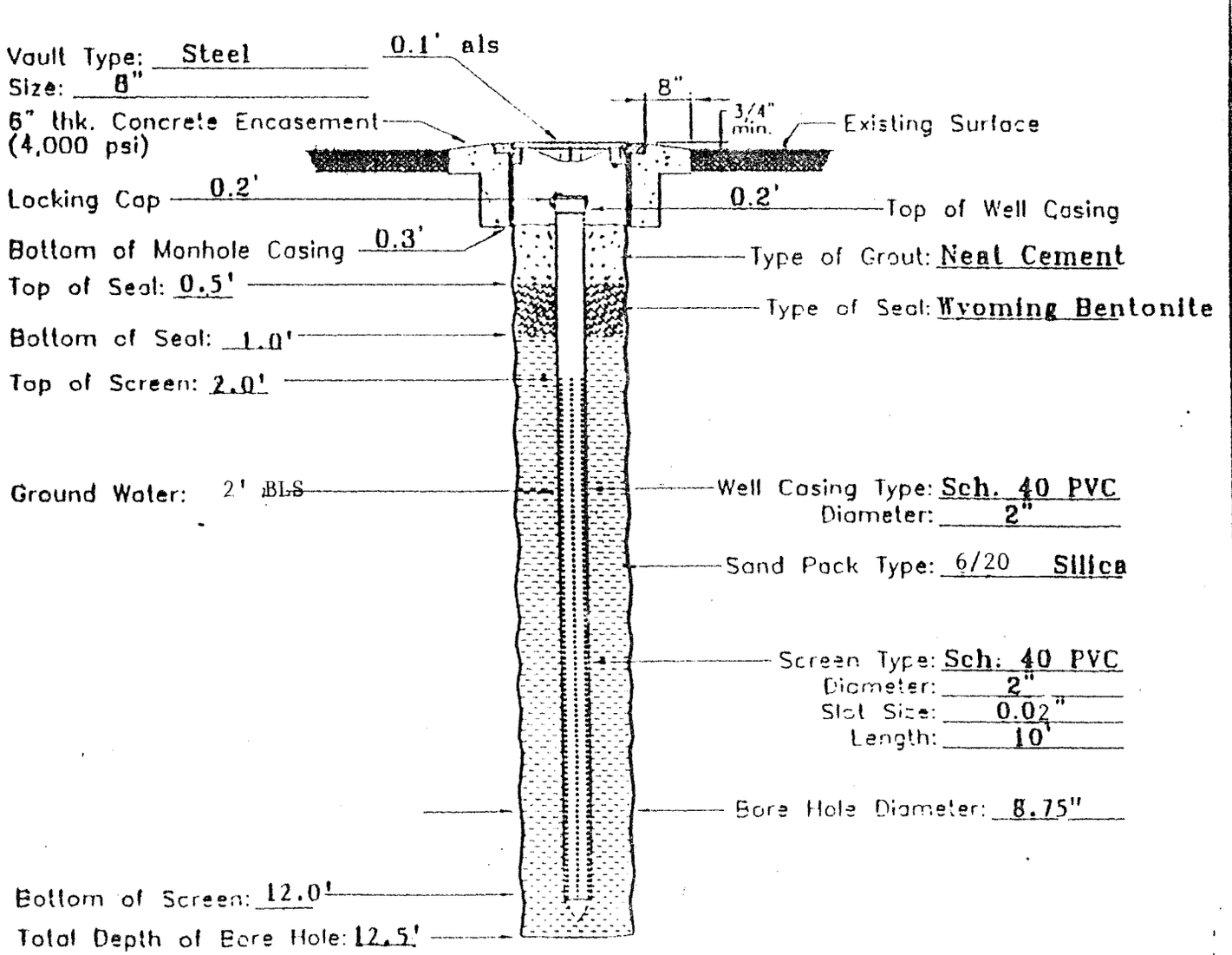
MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: GEA, International,
DRILLER'S NAME:
WELL NUMBER: MW-5

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITE C-2076
JOB NUMBER:
DATE Start: 6/22/98 Finish: 6/22/98
TIME Start: 1530 Finish: 1600

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (BLS)

A-6

DRAWING ABOVE IS NOT TO SCALE

NPWC

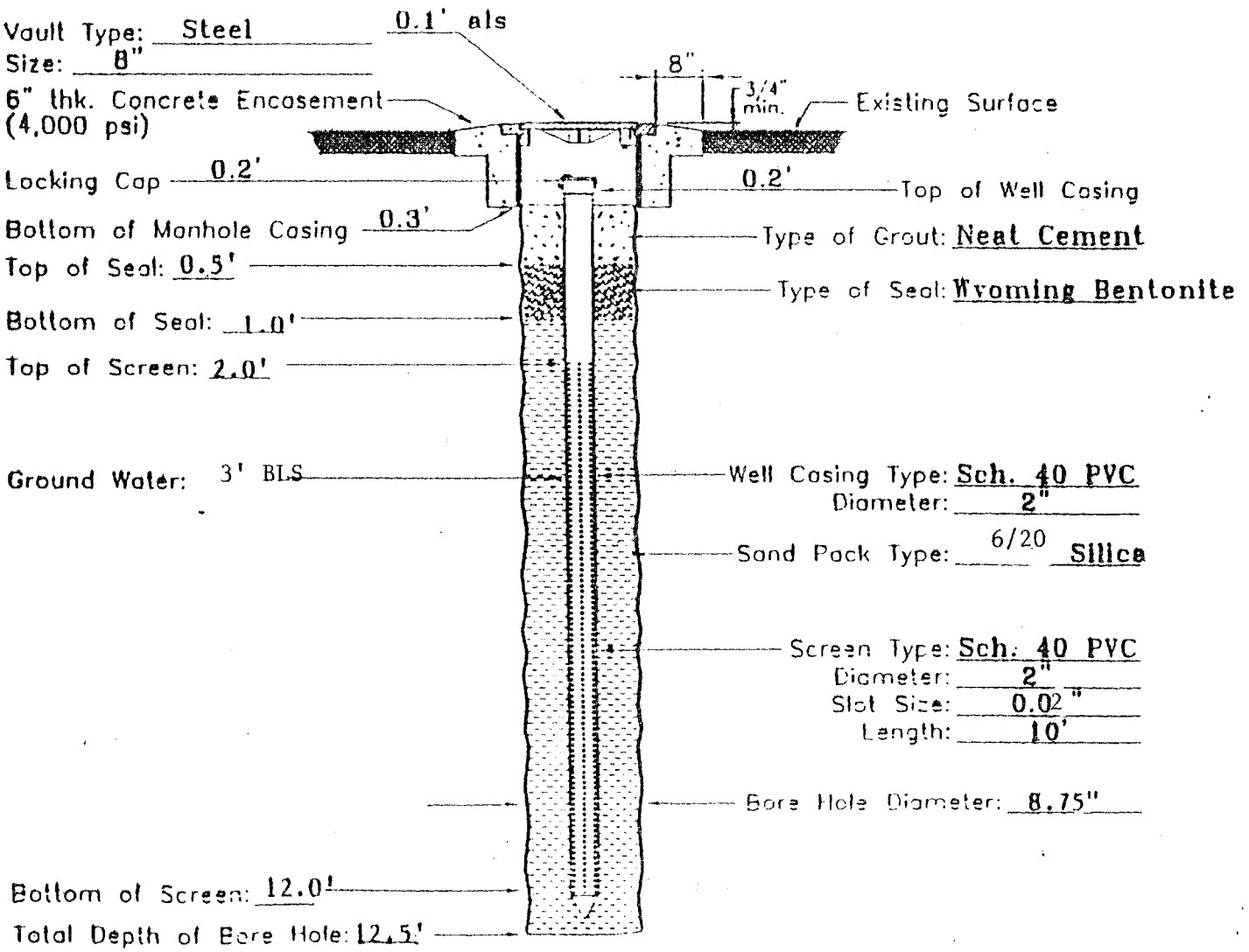
ENVIRONMENTAL

MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

LOGGED BY: GREG CAMPBELL
CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
DRILLING CONTRACTOR: GEA, International, Inc.
LOCATION: SITE C-2076
DRILLER'S NAME:
JOB NUMBER:
WELL NUMBER: MW-6
DATE Start: 6/22/98 Finish: 6/22/98
TIME Start: 1643 Finish: 1730

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



A-7

NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (B.L.S.)

DRAWING ABOVE IS NOT TO SCALE

NPWC

ENVIRONMENTAL

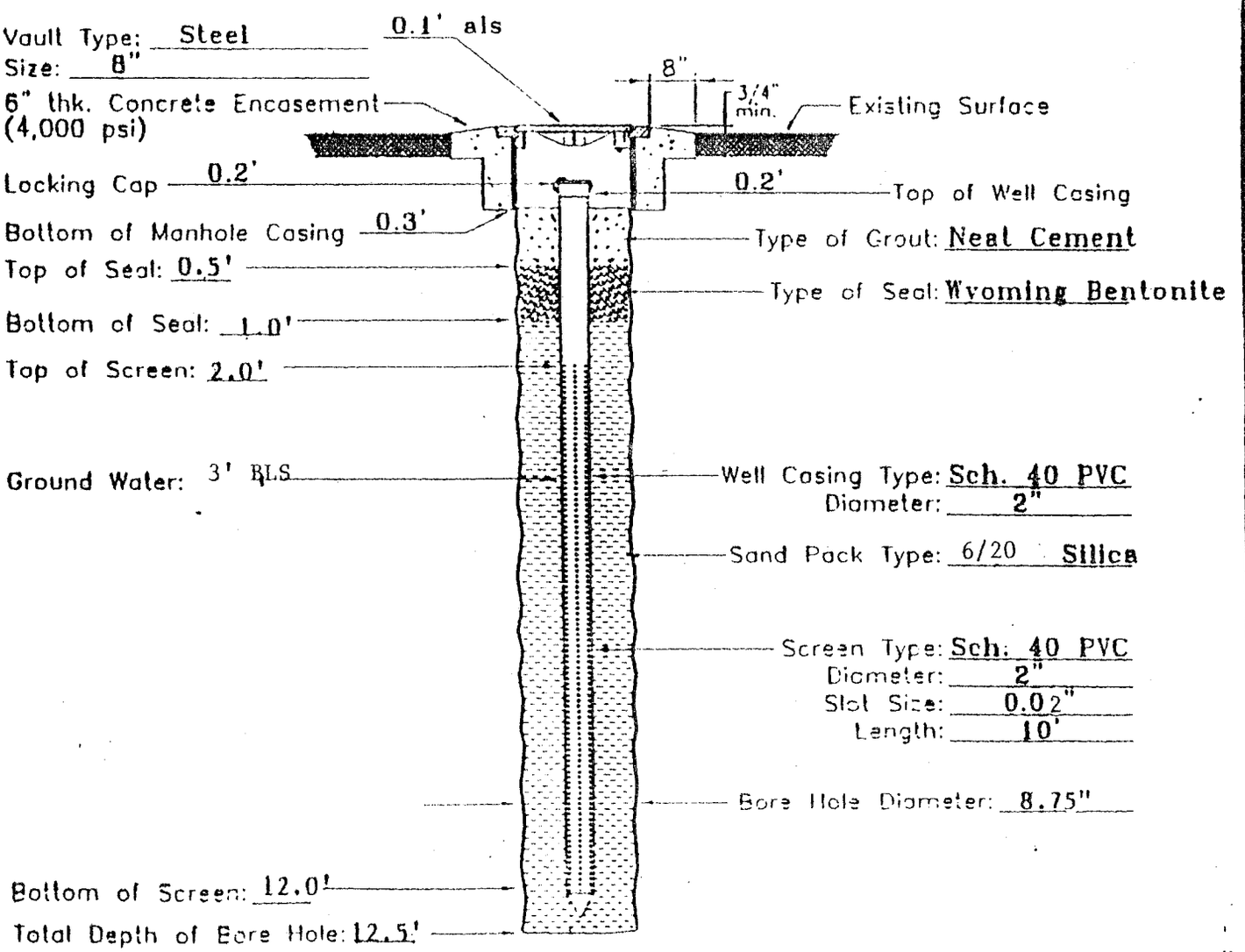
MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: GFA, International,
DRILLER'S NAME:
WELL NUMBER: MW-7

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITE C-2076
JOB NUMBER:
DATE Start: 6/22/98 Finish: 6/22/98
TIME Start: 1750 Finish: 1810

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (B.L.S.)

DRAWING ABOVE IS NOT TO SCALE

NPWC

ENVIRONMENTAL

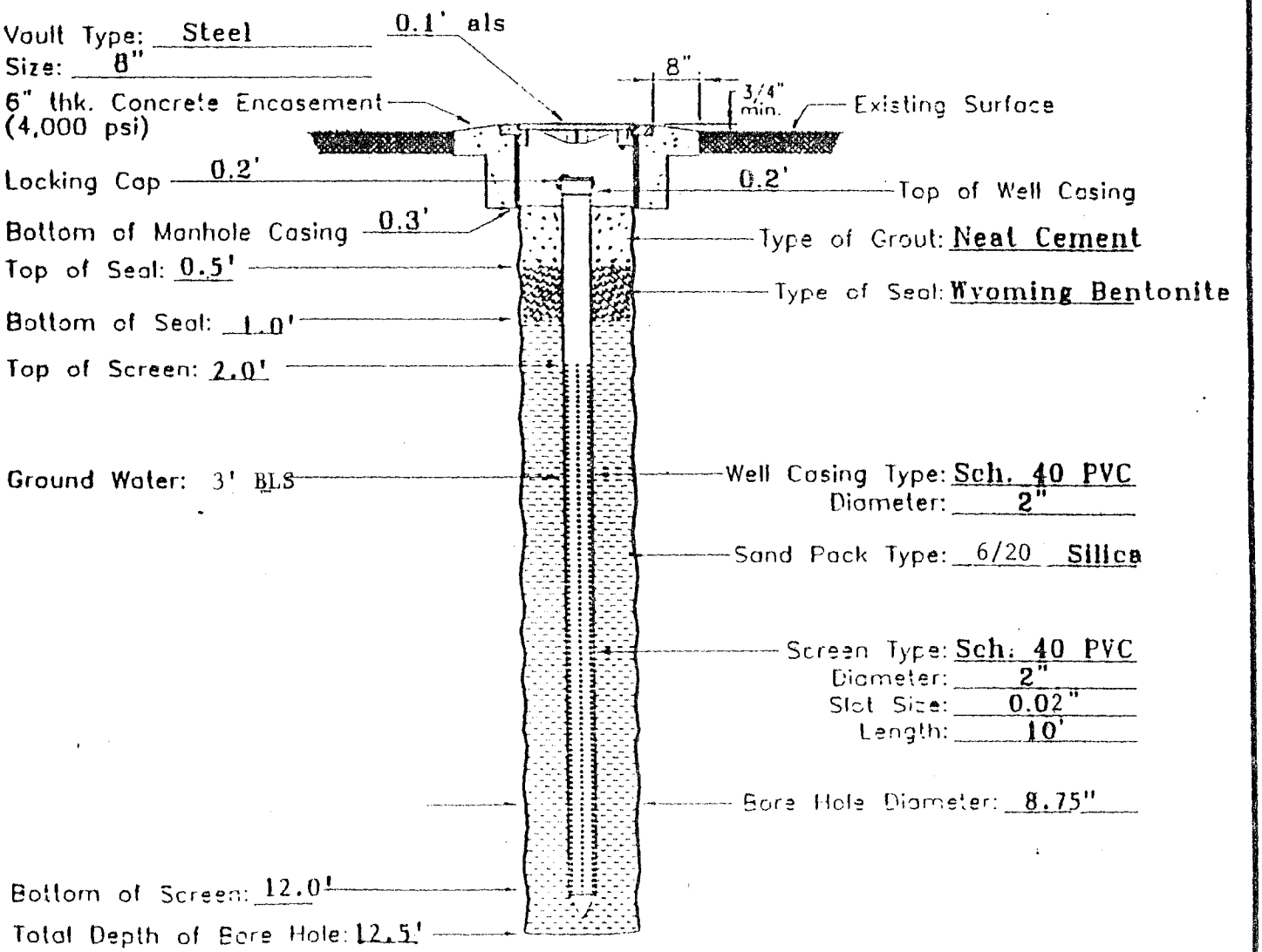
MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: GEA, International, Inc
DRILLER'S NAME:
WELL NUMBER: MW-8

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITE C-2076
JOB NUMBER:
DATE Start: 6/23/98 Finish: 6/23/98
TIME Start: 0800 Finish: 0945

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



A-9

NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (B.L.S.)

DRAWING ABOVE IS NOT TO SCALE

NPWC

ENVIRONMENTAL

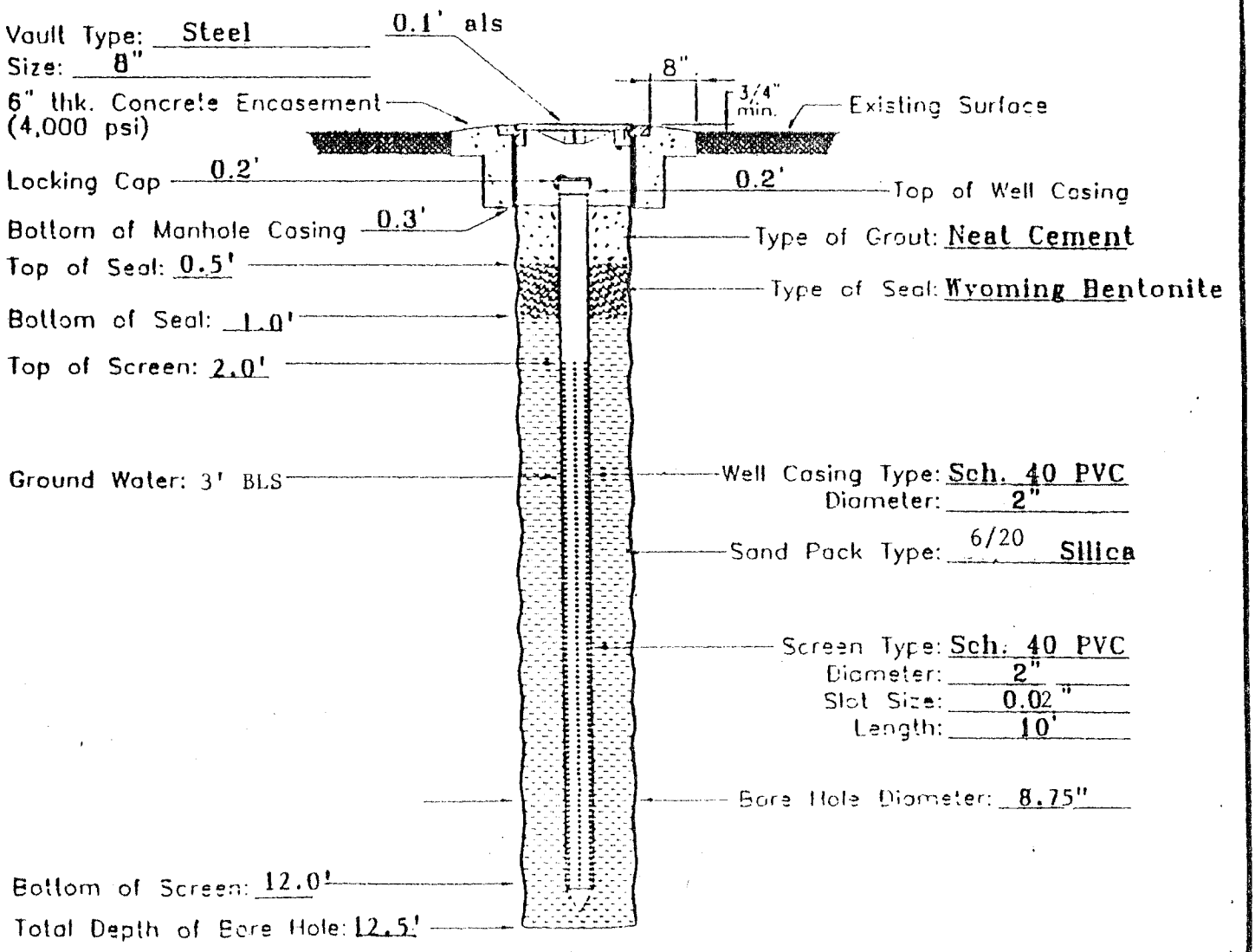
MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: GEA, International, Inc
DRILLER'S NAME:
WELL NUMBER: MW-9

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITE C-2076
JOB NUMBER:
DATE Start: 6/23/98 Finish: 6/23/98
TIME Start: 1000 Finish: 1030

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



A-10

NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (B.L.S.)

DRAWING ABOVE IS NOT TO SCALE

NPWC

ENVIRONMENTAL

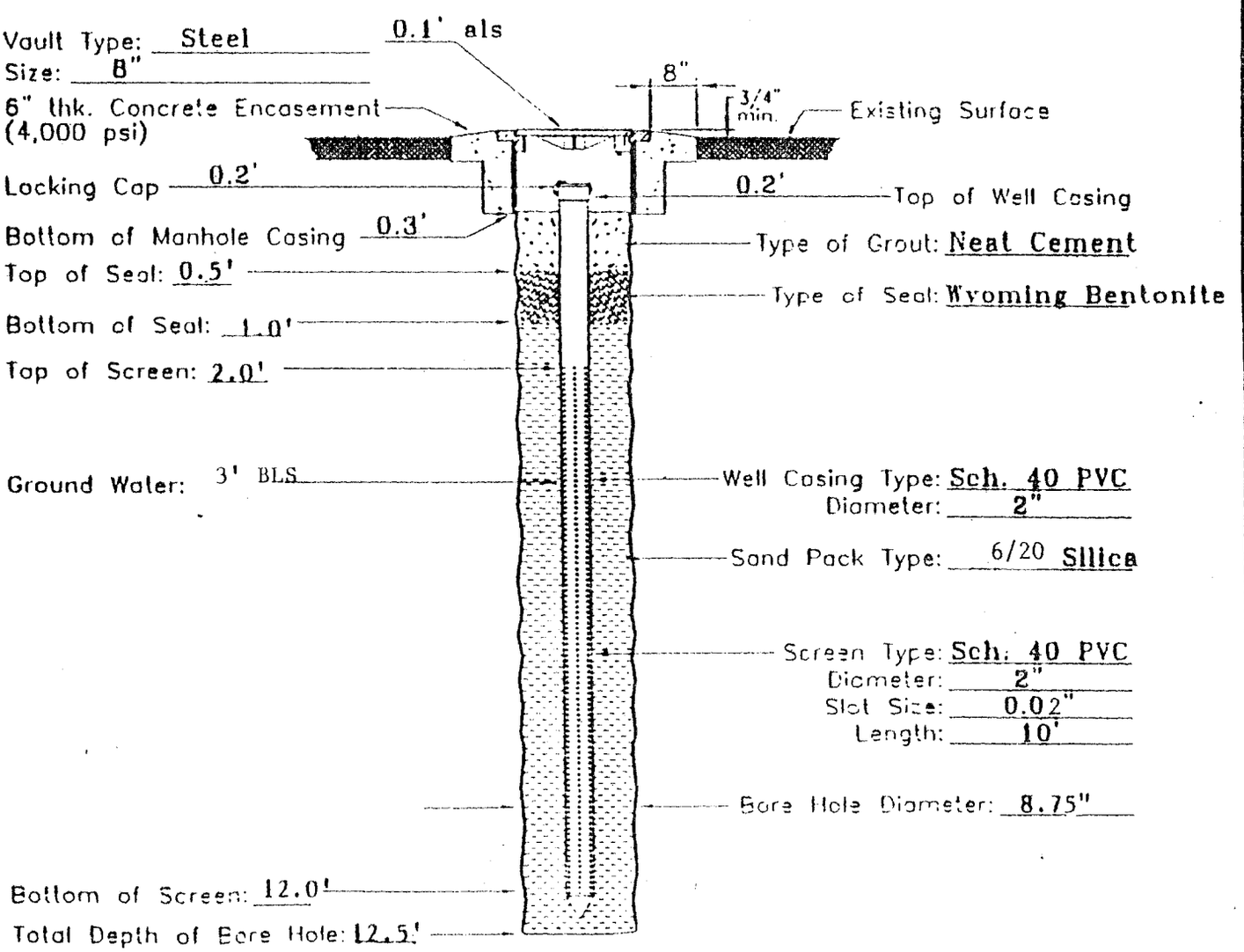
MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: GEA, International, Inc.
DRILLER'S NAME:
WELL NUMBER: MW-10

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITE C-2076
JOB NUMBER:
DATE Start: 6/23/98 Finish: 6/23/98
TIME Start: 1050 Finish: 1110

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



A-11

NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (BLS)

DRAWING ABOVE IS NOT TO SCALE

NPWC

ENVIRONMENTAL

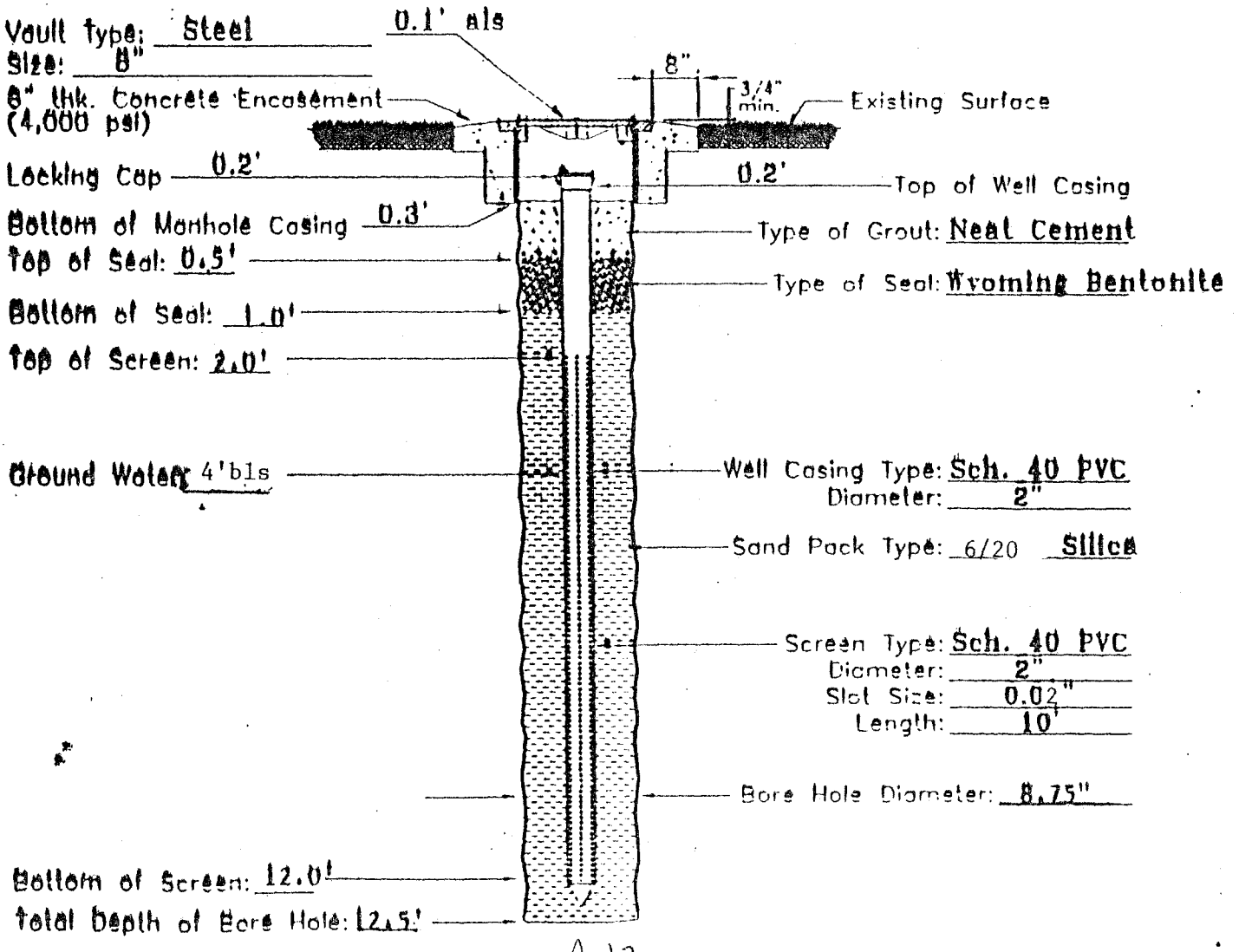
MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5138 FAX

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: GFA International
DRILLER'S NAME:
WELL NUMBER: MW-11

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITE C-2076 BOQ Trumbo Point
JOB NUMBER:
DATE Start: 3/22/99 Finish: 3/22/99
TIME Start: 745 Finish: 815

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



A-12

NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (B.L.S.)

DRAWING ABOVE IS NOT TO SCALE

NPWC

ENVIRONMENTAL

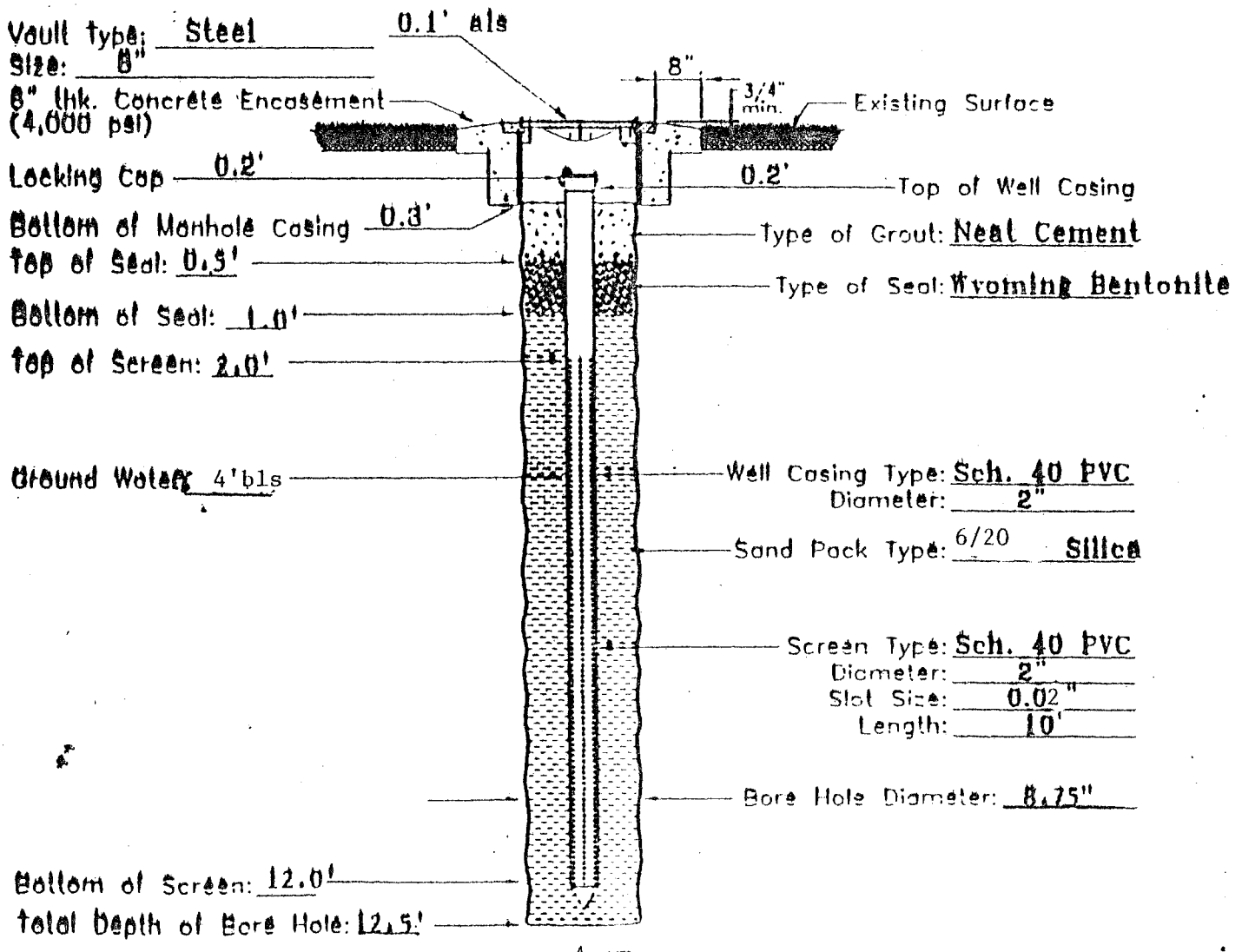
MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: BFA International
DRILLER'S NAME:
WELL NUMBER: MW-12

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITE C-2076 Trumbo Point BOQ
JOB NUMBER:
DATE Start: 3/22/99 Finish: 3/22/99
TIME Start: 905 Finish: 920

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



A-13

NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (B.L.S.)

DRAWING ABOVE IS NOT TO SCALE

NPWC

ENVIRONMENTAL

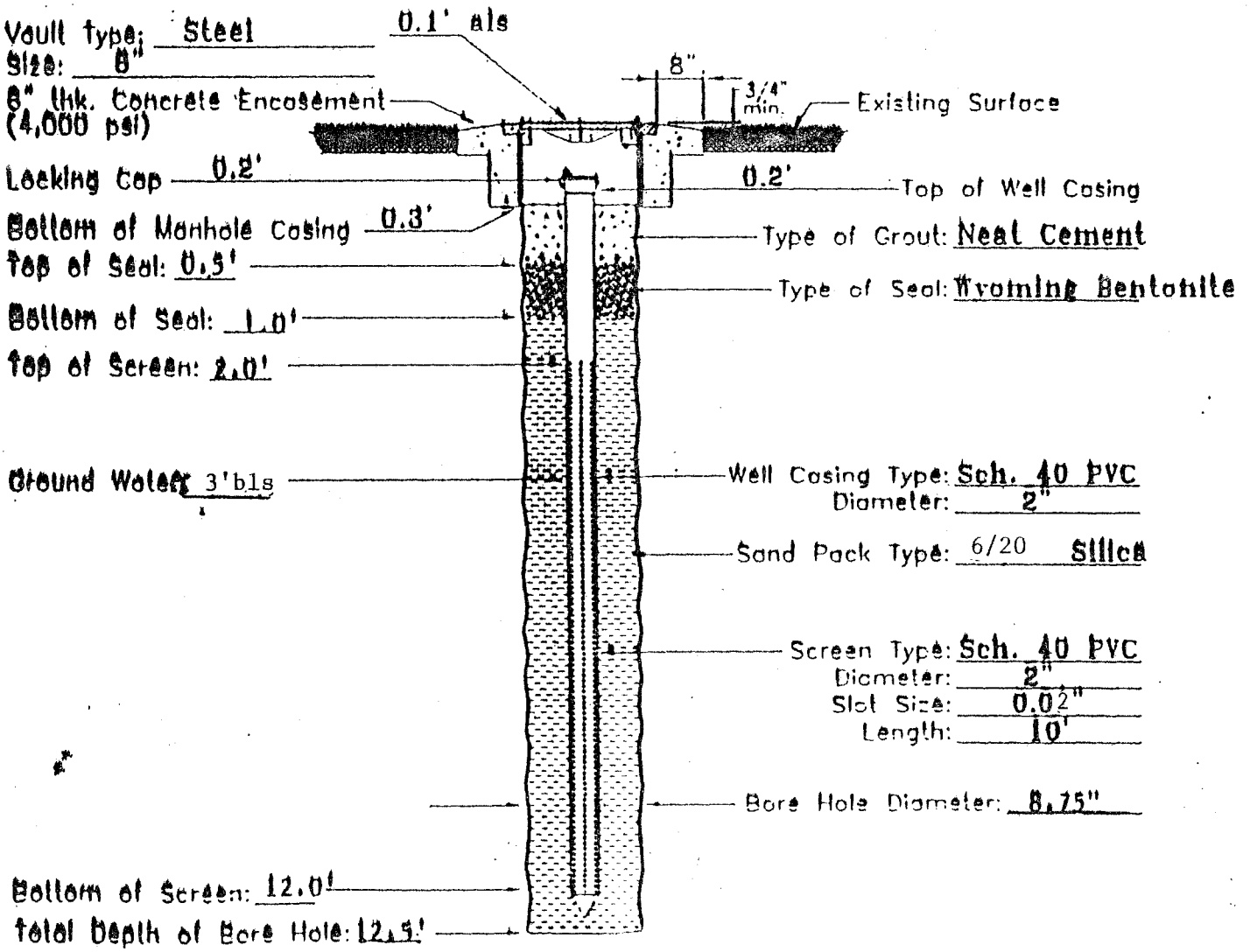
MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: GFA International
DRILLER'S NAME:
WELL NUMBER: MW-13

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITEC-2076 Trumbo Point BOQ
JOB NUMBER:
DATE Start: 3/22/99 Finish: 3/22/99
TIME Start: 935 Finish: 1040

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (B.L.S.)

DRAWING ABOVE IS NOT TO SCALE.

NPWC

ENVIRONMENTAL

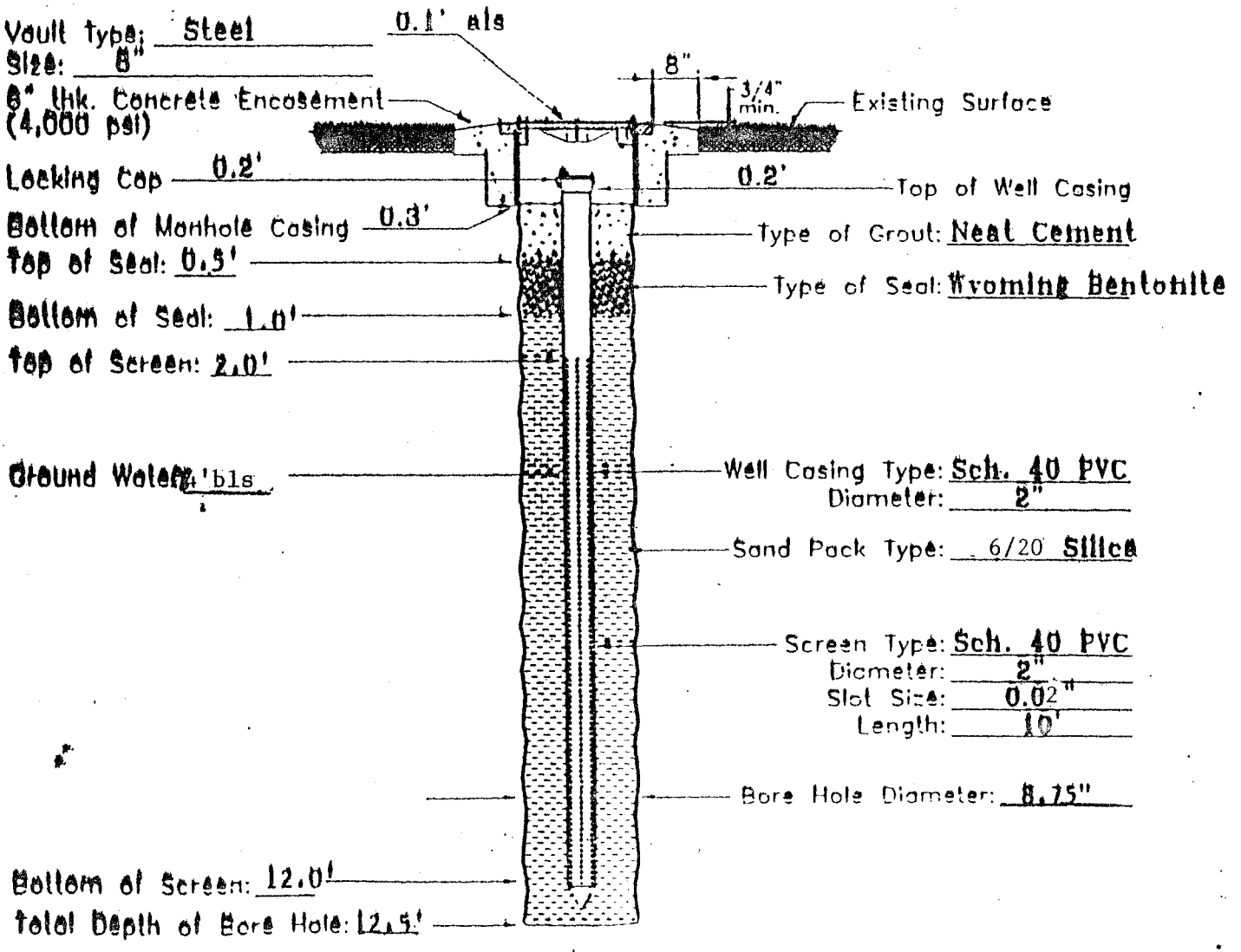
MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: GFA International
DRILLER'S NAME:
WELL NUMBER: MW-14

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITE C-2076, Trumbo Point BOQ
JOB NUMBER:
DATE Start: 3/22/99 Finish: 3/22/99
TIME Start: 1048 Finish: 1109

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



4-15

NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (B.L.S.)

DRAWING ABOVE IS NOT TO SCALE

NPWC

ENVIRONMENTAL

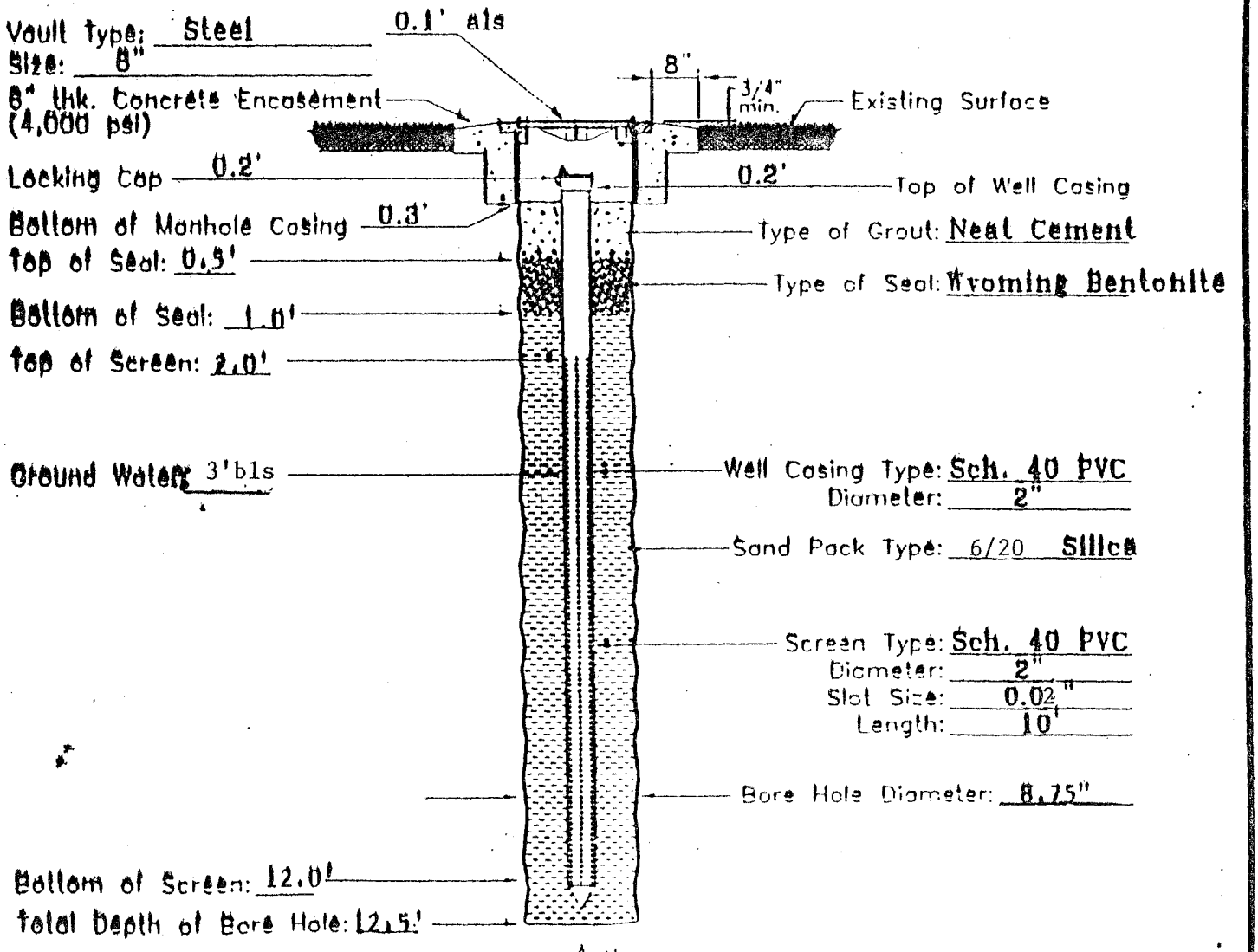
MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: GFA International
DRILLER'S NAME:
WELL NUMBER: MW-15

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITE C-2076, Trumbo Point BOQ
JOB NUMBER:
DATE Start: 3/22/99 Finish: 3/22/99
TIME Start: 1245 Finish: 1312

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



A-16

NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (B.L.S.)

DRAWING ABOVE IS NOT TO SCALE

NPWC

ENVIRONMENTAL

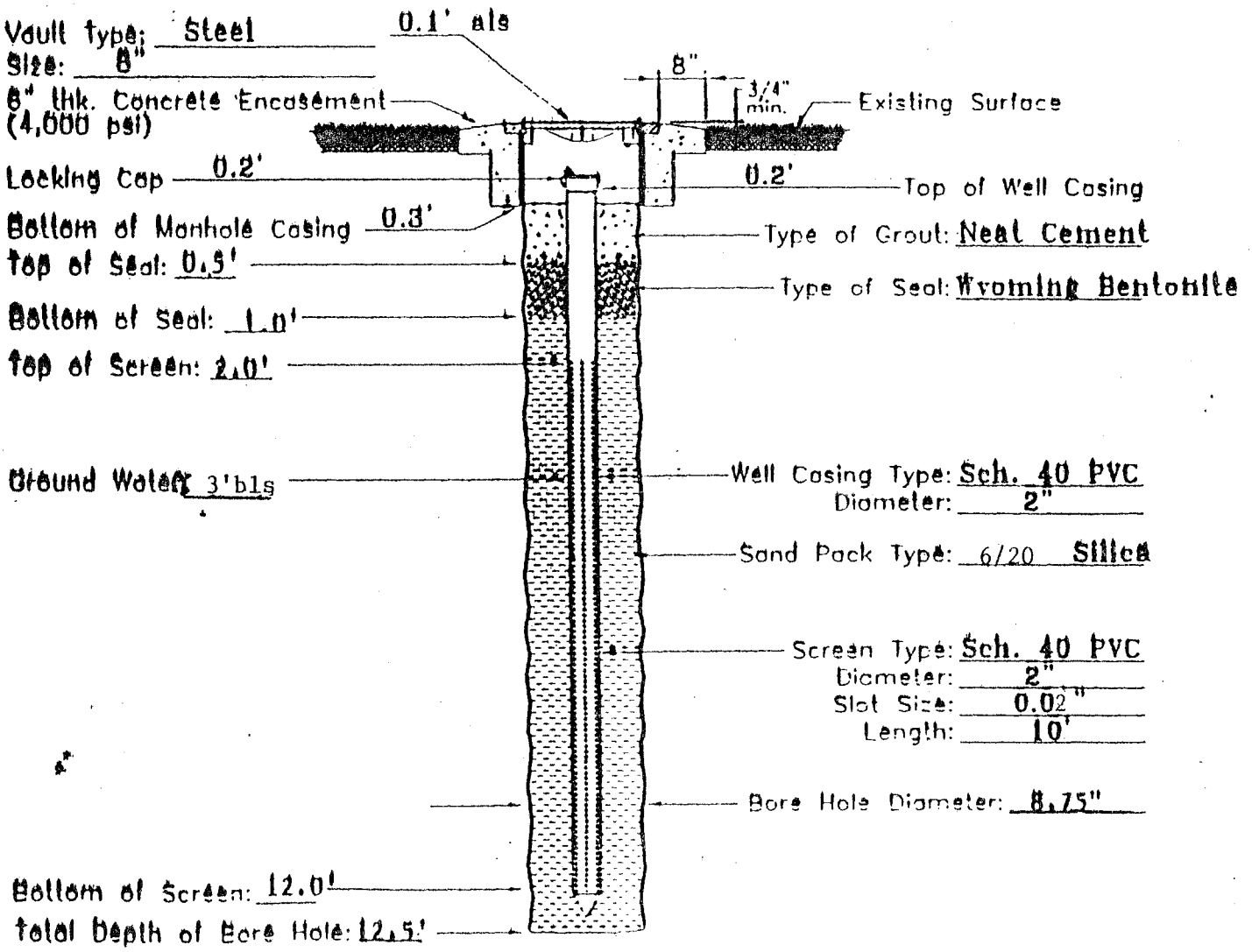
MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: GFA International
DRILLER'S NAME:
WELL NUMBER: MW-I6

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITE C-2076, Trumbo Point BOQ
JOB NUMBER:
DATE Start: 3/22/99 Finish: 3/22/99
TIME Start: 1436 Finish: 1442

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



A-17

NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (B.L.S.)

DRAWING ABOVE IS NOT TO SCALE

NPWC

ENVIRONMENTAL

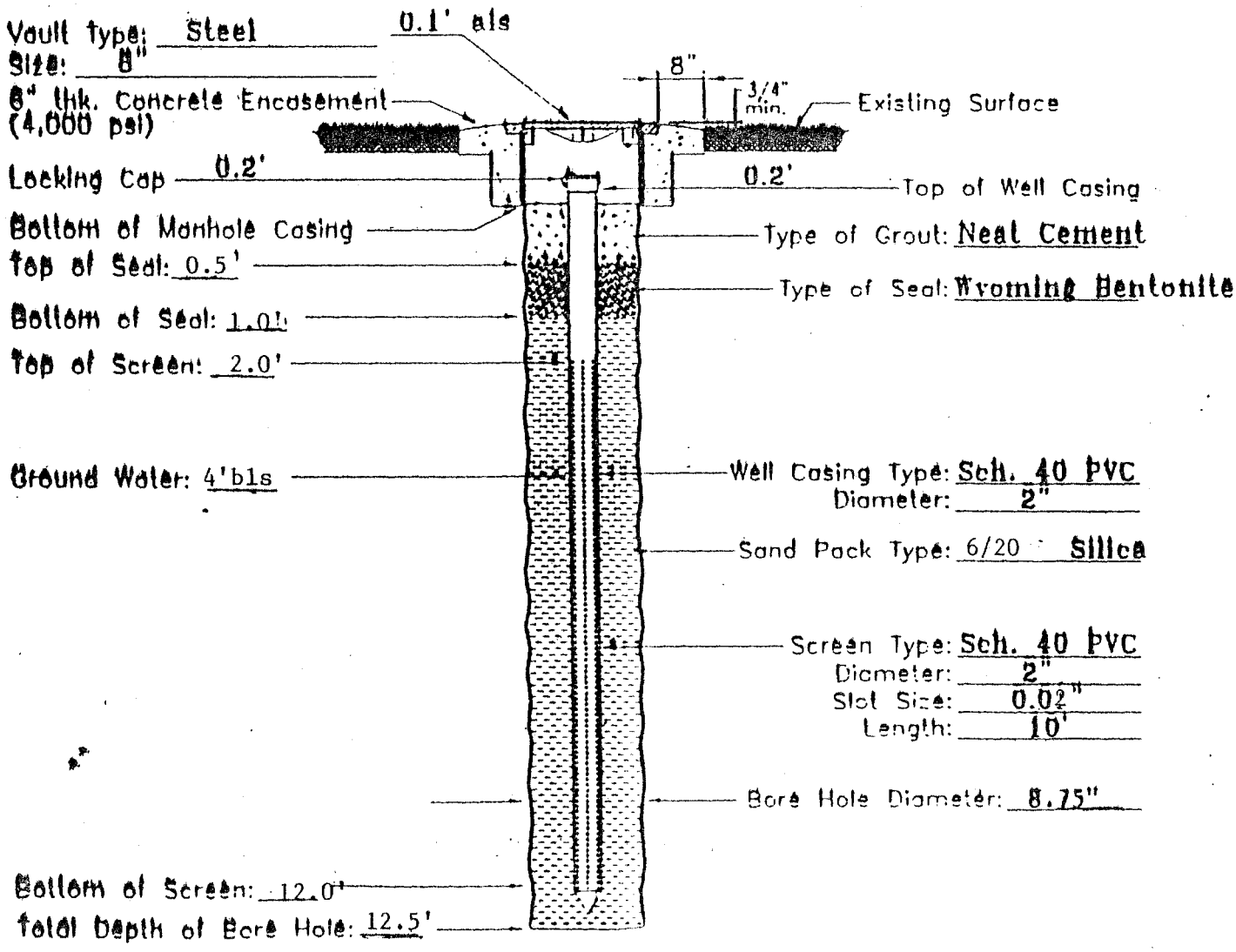
MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: GEA International
DRILLER'S NAME:
WELL NUMBER: MW-17

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITE C-2076, Trumbo Point BOQ
JOB NUMBER:
DATE Start: 3/22/99 Finish: 3/22/99
TIME Start: 1522 Finish: 1615

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



4-18

NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (B.L.S.)

DRAWING ABOVE IS NOT TO SCALE

NPWC

ENVIRONMENTAL

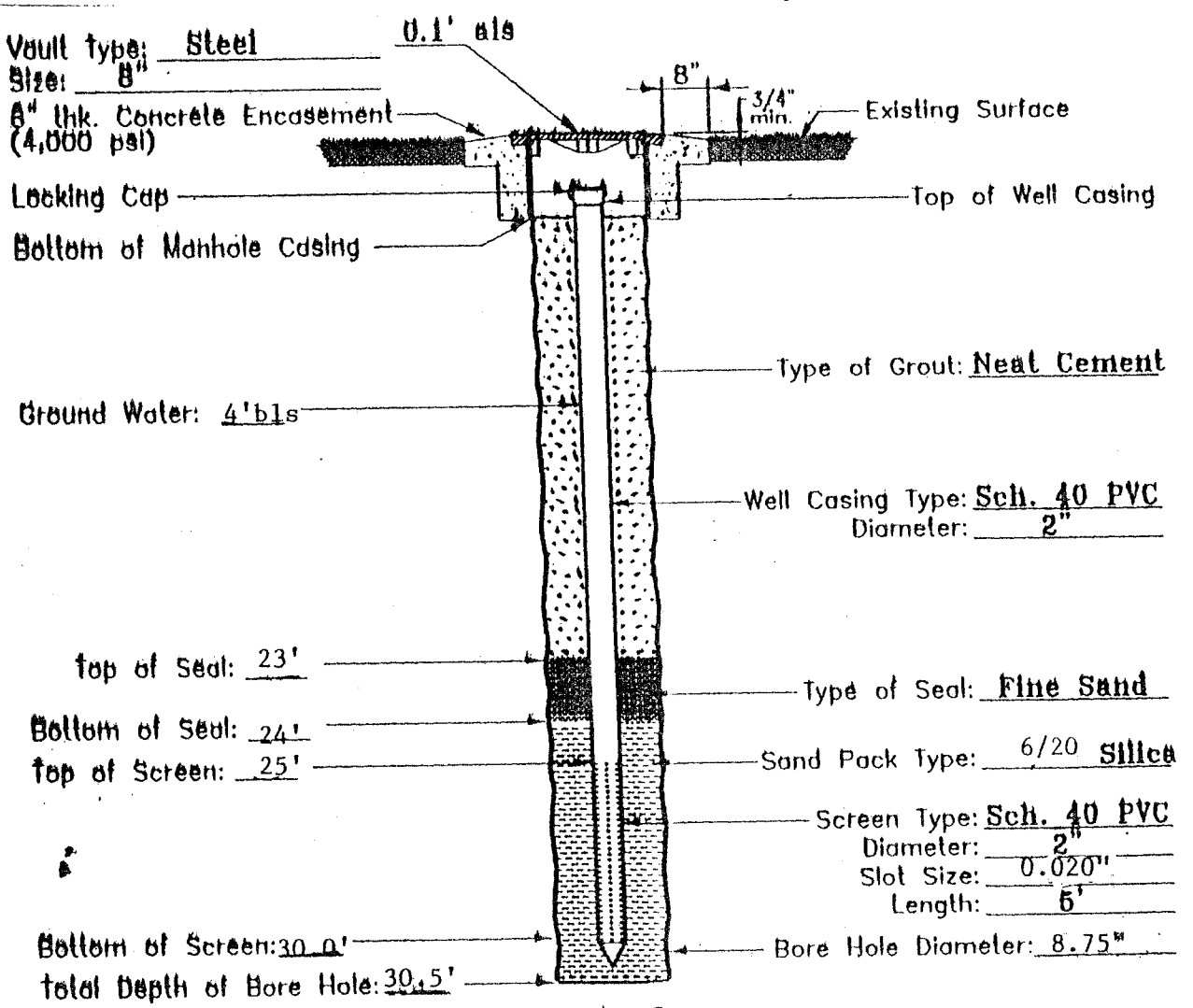
MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: GFA International
DRILLER'S NAME:
WELL NUMBER: BMW-18

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITE C-2076, Trumbo Point BOQ
JOB NUMBER:
DATE Start: 3/23/99 Finish: 3/23/99
TIME Start: 0915 Finish: 0935

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



A-19

NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (B.L.S.)

DRAWING ABOVE IS NOT TO SCALE

CAD FILE DSTA3> C:\ACADR13\MW-DETL1.DWG STA3-19951128.1143

NPWC

ENVIRONMENTAL

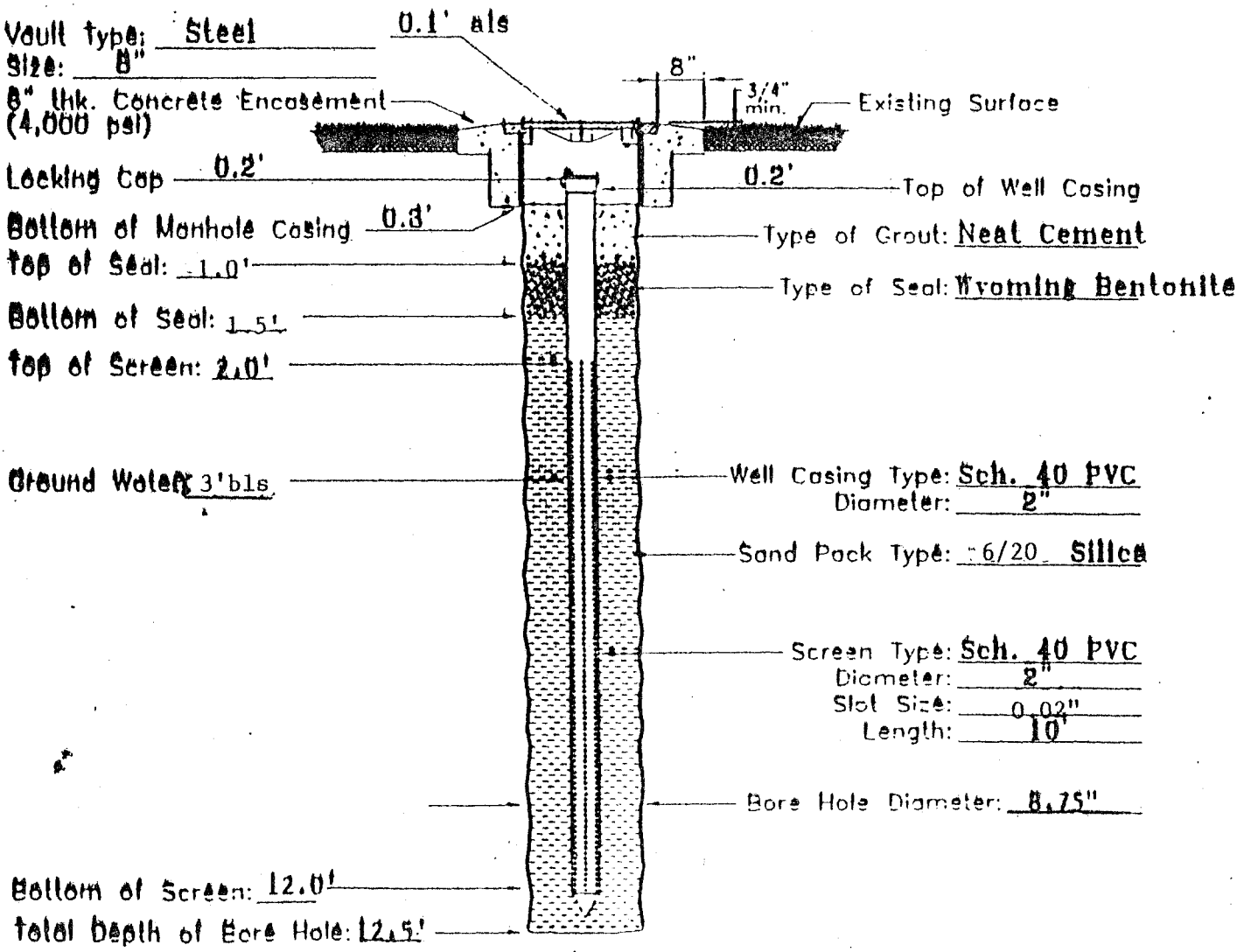
MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: GFA International
DRILLER'S NAME:
WELL NUMBER: MW-19

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITE C-2076, Trumbo Point BOQ
JOB NUMBER:
DATE Start: 3/26/99 Finish: 3/26/99
TIME Start: 0958 Finish: 1038

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



A-20

NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (B.L.S.)

DRAWING ABOVE IS NOT TO SCALE

NPWC

ENVIRONMENTAL

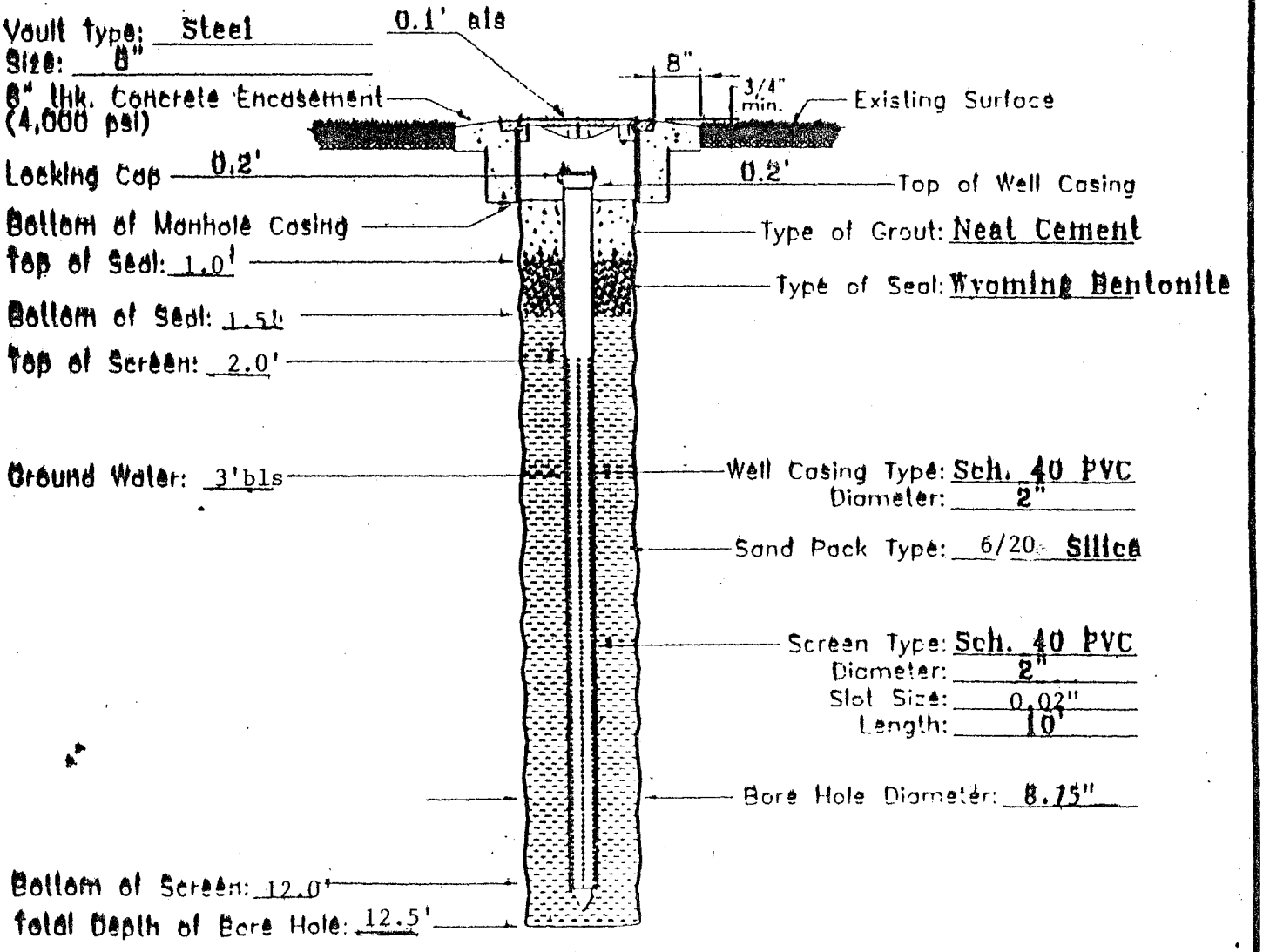
MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: GFA International
DRILLER'S NAME:
WELL NUMBER: MW-20

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITE C-2076, Trumbo Point BOQ
JOB NUMBER:
DATE Start: 3/26/99 Finish: 3/26/99
TIME Start: 1053 Finish: 1126

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



4-21

NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (BLS)

DRAWING ABOVE IS NOT TO SCALE

NPWC

ENVIRONMENTAL

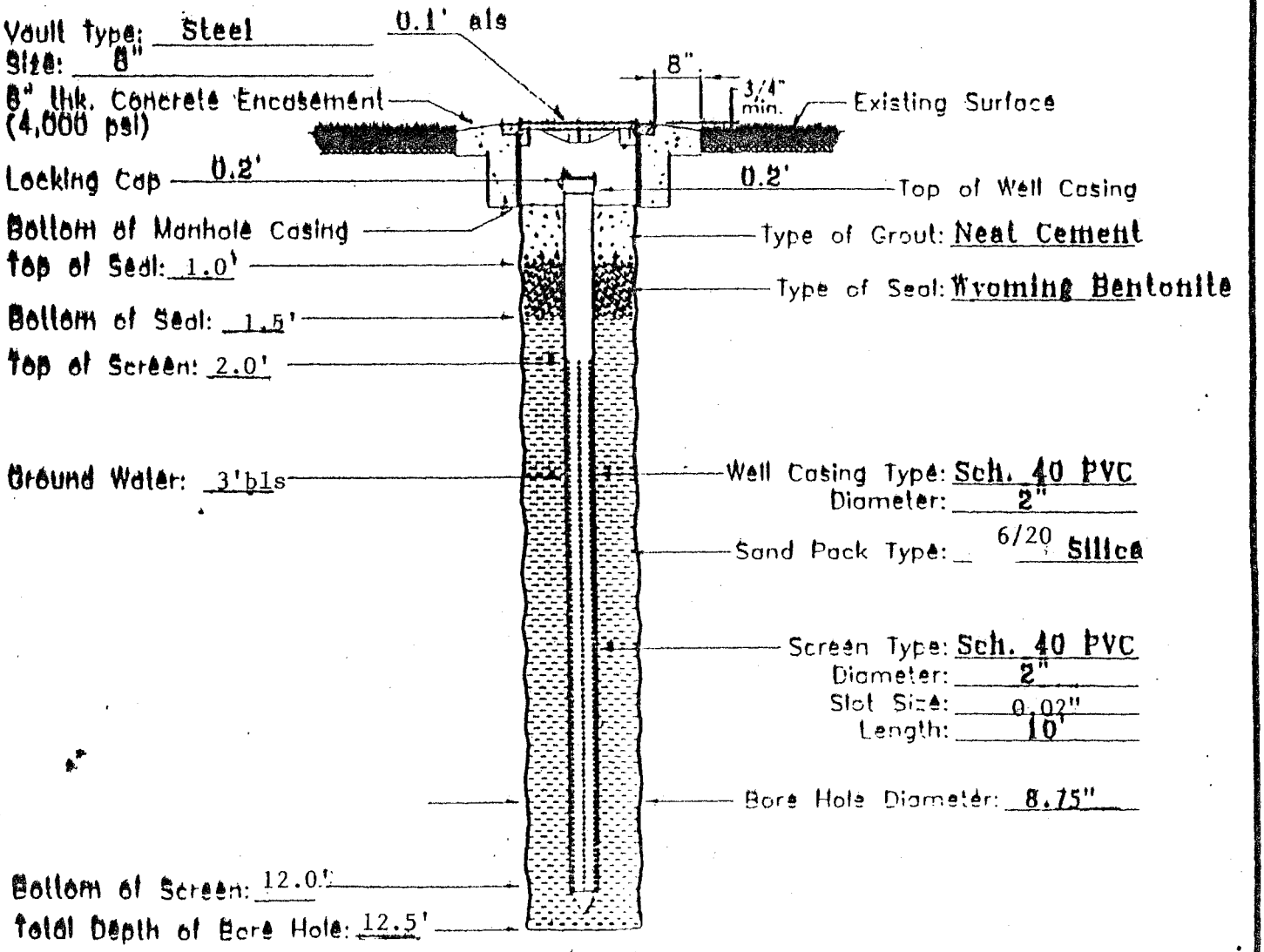
MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4611 ext 113
(850) 452-5136 FAX

LOGGED BY: GREG CAMPBELL
DRILLING CONTRACTOR: GFA International
DRILLER'S NAME:
WELL NUMBER: MW-21

CLIENT: PUBLIC WORKS DEPARTMENT, NAS KEY WEST
LOCATION: SITEC-2076, Trumbo Point BOQ
JOB NUMBER:
DATE Start: 3/26/99 Finish: 3/26/99
TIME Start: 1247 Finish: 1334

COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



A-22

NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (BLS)

DRAWING ABOVE IS NOT TO SCALE

APPENDIX B

LITHOLOGIC LOGS

Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method: HSA
Key West, Florida	Driller: GFA, International	Dr. Rig: Mobile
MONITORING WELL NO.: MW1	Start Date: 06/22/98	Completed: 06/22/98
	Start Time: 1030	Finish Time: 1110
	Contract No.	

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	CONTAMINATION DATA OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST HOLE HSA HA				100%	0	0'-1.5'; Black Top Soil, Few Rocks and Gravel	0	N/A	0
			Water Table @ approx. 2' bls						
					4	2'-8'; Grey Sludge, Clayey consistency	180	14	166
				100%	8	8'-10'; White Oolite			
				100%	12	10'-12.5'; Limestone. Slight petro odor at 10-12'bls			
						End of Boring @ 12.5' BLS			
					16				
					20				

I certify that this lithologic log, including geologic and hydrogeologic interpretations, has been prepared under my direct supervision and meets the minimal technical requirements as set forth in Chapter 492 of the Florida Statues.

Prepared by: Greg Campbell, P.E.
Florida Professional Engineer, No. 0038572

Date

Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method: HSA
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig: Mobile
MONITORING WELL NO.: MW2	Start Date: 06/22/98	Completed: 06/22/98
	Start Time: 1143	Finish Time: 1200
	Contract No.	CONTAMINATION DATA

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST HOLE HSA HA				100%	0	0'-.5'; Dark Brown Top Soil			
						0.5'-3'; Med Grey to light brown sand, med grain, with small rocks	0.0	0.0	0.0
			Water Table @ approx. 2' bls			3'-8'; Grey sludge, sticky, clayey	0.0	0.0	0.0
					4				
				100%	8	8'-12.5'; White, Fine Grain, Oolite Limestone			
						10'-12; Light Petro Odor			
				100%	12				
						End of Boring @ 12.5' BLS			
					16				
					20				

I certify that this lithologic log, including geologic and hydrogeologic interpretations, has been prepared under my direct supervision and meets the minimal technical requirements as set forth in Chapter 492 of the Florida Statues.

Prepared by: Greg Campbell, P.E.
Florida Professional Engineer, No. 0038572

Date

Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method: HSA
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig: Mobile
MONITORING WELL NO.: MW3	Start Date: 06/22/98	Completed: 06/22/98
	Start Time: 1330	Finish Time: 1410
	Contract No.	

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	CONTAMINATION DATA: OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST HOLE HSA HA				100%	0	0'-1'; Dark Top Soil			
						1'-3'; Med Grey to Light Brown Sand w/small rocks	0.0	N/A	0.0
			Water Table @ approx. 2' bls						
						3'-10'; Greg Sludge, sticky, clayey	0.0	N/A	0.0
					4				
				100%	8				
						10'-12.5'; White, Fine Grain, Oolite Limestone, Light Petro Odor			
				100%	12				
						End of Boring @ 12.5' BLS			
					16				
					20				

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Prepared by: Greg Campbell, P.E.
Florida Professional Engineer, No. 0038572

Date

Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method: HSA
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig: Mobile
MONITORING WELL NO.: MW4	Start Date: 06/22/98	Completed: 06/22/98
	Start Time: 1430	Finish Time: 1500
	Contract No.	

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	CONTAMINATION DATA: OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST				100%	0	0'-.5'; Dark Brown Top Soil			
						0.5'-3'; Med Grey to light brown sand, med grain, with small rocks	0.0	NA	0.0
			Water Table @ approx. 3' bls			3'-8'; Grey sludge, sticky, clayey	850.0	0.2	849.8
HOLE					4				
				100%	8	8'-12.5'; White, Fine Grain, Oolite Limestone			
HSA				100%	12	10'-12; Light Petro Odor			
						End of Boring @ 12.5' BLS			
HA					16				
					20				

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Prepared by: Greg Campbell, P.E.
Florida Professional Engineer, No. 0038572

Date

Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method: HSA
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig: Mobile
MONITORING WELL NO.: MW5	Start Date: 06/22/98	Completed: 06/22/98
	Start Time: 1530	Finish Time: 1600
	Contract No.	

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	CONTAMINATION DATA OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST				100%	0	0'-1'; Dark Top Soil			
						1'-3'; Med Grey to Light Brown Sand w/small rocks	0.0	N/A	0.0
			Water Table @ approx. 2' bls						
						3'-10'; Greg Sludge, sticky, clayey	24.0	6.0	18.0
HOLE					4				
				100%	8				
HSA						10'-12.5'; White, Fine Grain, Oolite Limestone, Light Petro Odor			
				100%	12				
						End of Boring @ 12.5' BLS			
HA					16				
					20				

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Prepared by: Greg Campbell, P.E.
Florida Professional Engineer, No. 0038572

Date

Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method: HSA
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig: Mobile
MONITORING WELL NO.: MW6	Start Date: 06/22/98	Completed: 06/22/98
	Start Time: 1643	Finish Time: 1730
	Contract No.	

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	CONTAMINATION DATA: OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST HOLE HSA HA				100%	0	0'-8.5'; Light Grey, White, Silty Clay w/some gravel (0-1")	0	N/A	0
			Water Table @ approx. 3' bls			3'; Strong petro odor @ GW	160.0	30.0	130.0
					4				
				100%	8	8.5'-12.5'; White, Fine Grain, Oolite Limestone			
				100%	12				
						End of Boring @ 12.5' BLS			
					16				
					20				

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Prepared by: Greg Campbell, P.E.
Florida Professional Engineer, No. 0038572

Date

Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1	
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method:	HSA
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig:	Mobile
MONITORING WELL NO.: MW7	Start Date: 06/22/98	Completed:	06/22/98
	Start Time: 1750	Finish Time:	1810
	Contract No.		

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	CONTAMINATION DATA OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST HOLE HSA HA				100%	0	0-2"; Asphalt			
						2"-8"; Sand/Clay Road Base	0	N/A	0
						8"-4'; Light Brown to White Silt w/			
			Water Table @ approx. 3' bls			some clay and small shell fragments	0.8	0.8	0.0
					4				
				100%	8	8'-12.5'; White, Fine Grain, Oolite Limestone			
				100%	12				
						End of Boring @ 12.5' BLS			
					16				
					20				

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Prepared by: Greg Campbell, P.E.
Florida Professional Engineer, No. 0038572

Date

Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1	
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method: HSA	
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig: Mobile	
MONITORING WELL NO.: MW8	Start Date: 06/23/98	Completed: 06/23/98	
	Start Time: 800	Finish Time: 945	
	Contract No.	CONTAMINATION DATA	

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST HOLE HSA				100%	0	0-6"; Top Soil & Grass			
						6"-2'; Light Brown Compact Fine Grain Sand w/small rocks	0.0	N/A	0.0
			Water Table @ approx. 3' bls			2'-8'; Light Grey Silt with some clay and shell fragments	0.0	N/A	0.0
					4				
				100%	8	8'-12.5'; White, Fine Grain, Oolite Limestone			
				100%	12				
						End of Boring @ 12.5' BLS			
HA					16				
					20				

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Prepared by: Greg Campbell, P.E.
Florida Professional Engineer, No. 0038572

Date

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Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1
Trumbo Point BOQ	Contractor: NPWC, Pensacola, Fl.	Dr. Method: HSA
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig: Mobile
MONITORING WELL NO.: MW-9	Start Date: 06/23/98	Completed: 06/23/98
	Start Time: 1000	Finish Time: 1030
	Contract No.	

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	CONTAMINATION DATA OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NET	NOTES
POST				100%	0	0-6"; Top Soil & Grass				
						6"-2'; Light Brown Compact Fine Grain Sand w/small rocks	0.3	0.3	0.0	
			Water Table @ approx. 3' bls			2'-8', Light Grey Silt with some clay and shell fragments	8.0	1.5	6.5	
HOLE					4					
				100%	8	8'-12.5'; White, Fine Grain, Oolite Limestone				
HSA				100%	12					
						End of Boring @ 12.5' BLS				
HA					16					
					20					

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Prepared by: Greg Campbell, P.E.
Florida Professional Engineer, No. 0038572

Date

Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method: HSA
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig: Mobile
MONITORING WELL NO.: MW-10	Start Date: 06/23/98	Completed: 06/23/98
	Start Time: 1050	Finish Time: 1110
	Contract No.	

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	CONTAMINATION DATA: OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST HOLE HSA HA				100%	0	0-6"; Top Soil & Grass			
						6"-3.5'; Light Brown Compact Fine Grain Sand w/small rocks	0.0	0.0	0.0
			Water Table @ approx. 3' bls		4	3.5'-8'; Light Grey Silt with some clay and shell fragments	0.0	0.0	0.0
				100%	8	8'-12.5'; White, Fine Grain, Oolite Limestone			
				100%	12				
						End of Boring @ 12.5' BLS			
					16				
					20				

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Prepared by: Greg Campbell, P.E.
Florida Professional Engineer, No. 0038572

Date

Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1	
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method: HSA	
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig: Mobile	
MONITORING WELL NO.: MW-11	Start Date: 03/22/99	Completed: 03/22/99	
	Start Time: 745	Finish Time: 815	
	Contract No.	CONTAMINATION DATA	

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST				100%	0	0'-8.5'; Light Grey, White, Silty Clay w/some gravel (0-1")	0.2	0.0	0.2
			Water Table @ approx. 4' bls				0.1	0.0	0.1
HOLE					4				
				100%	8	8.5'-12.5'; White, Fine Grain, Oolite Limestone			
HSA				100%	12				
						End of Boring @ 12.5' BLS			
HA					16				
					20				

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Prepared by: Greg Campbell, P.E.
Florida Professional Engineer, No. 0038572

Date _____

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Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method: HSA
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig: Mobile
MONITORING WELL NO.: MW-12	Start Date: 03/22/99	Completed: 03/22/99
	Start Time: 905	Finish Time: 920
	Contract No.	

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	CONTAMINATION DATA OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST				100%	0	0'-8.5'; Light Grey, White, Silty Clay w/some gravel (0-1")	0.6	0.1	0.5
							0.2	0.0	0.2
HOLE			Water Table @ approx. 4' bls		4				
				100%	8	8.5'-12.5'; White, Fine Grain, Oolite Limestone			
HSA				100%	12				
						End of Boring @ 12.5' BLS			
HA					16				
					20				

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Prepared by: Greg Campbell, P.E.
Florida Professional Engineer, No. 0038572

Date _____

Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1	
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method:	HSA
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig:	Mobile
MONITORING WELL NO.: MW-13	Start Date: 03/22/99	Completed:	03/22/99
	Start Time: 935	Finish Time:	1040
	Contract No.	CONTAMINATION DATA	

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST				100%	0	0'-8.5'; Light Grey, White, Silty Clay w/some gravel (0-1")	9.5	0.0	9.5
			Water Table @ approx. 3' bls			3'; Strong Petroleum Odor	3.0	0.0	3.0
HOLE					4				
				100%	8	8.5'-12.5'; White, Fine Grain, Oolite Limestone			
HSA				100%	12				
						End of Boring @ 12.5' BLS			
HA					16				
					20				

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Prepared by: Greg Campbell, P.E.
Florida Professional Engineer, No. 0038572

Date _____

Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method: HSA
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig: Mobile
MONITORING WELL NO.: MW-14	Start Date: 03/22/99	Completed: 03/22/99
	Start Time: 1048	Finish Time: 1109
	Contract No.	

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	CONTAMINATION DATA: OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST				100%	0	0'-8.5'; Light Grey, White, Silty Clay w/some gravel (0-1")	>1000	0.0	>1000
							>1000	0.0	>1000
HOLE			Water Table @ approx. 4' bls		4				
				100%	8	8.5'-12.5'; White, Fine Grain, Oolite Limestone			
HSA				100%	12				
						End of Boring @ 12.5' BLS			
HA					16				
					20				

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Florida Professional Engineer, No. 0038572

Date _____

Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1	
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method:	HSA
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig:	Mobile
MONITORING WELL NO.: MW-15	Start Date: 03/22/99	Completed:	03/22/99
	Start Time: 1245	Finish Time:	1312
	Contract No.	CONTAMINATION DATA	

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST				100%	0	0'-8.5'; Light Grey, White, Silty Clay w/some gravel (0-1")	860.0	0.0	860.0
			Water Table @ approx. 3' bls			3'; Extra Strong Petroleum Odor	820.0	0.0	820.0
HOLE					4				
				100%	8	8.5'-12.5'; White, Fine Grain, Oolite Limestone			
HSA				100%	12				
						End of Boring @ 12.5' BLS			
HA					16				
					20				

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Prepared by: Greg Campbell, P.E.
Florida Professional Engineer, No. 0038572

Date

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Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1	
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method: HSA	
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig: Mobile	
MONITORING WELL NO.: MW-16	Start Date: 03/22/99	Completed: 03/22/99	
	Start Time: 1436	Finish Time: 1442	
	Contract No.	CONTAMINATION DATA	

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST				100%	0	0'-8.5'; Light Grey, White, Silty Clay w/some gravel (0-1")	>1000	0.0	>1000
			Water Table @ approx. 3' bls			3'; Extra Strong Petroleum Odor	>1000	0.0	>1000
HOLE					4				
				100%	8	8.5'-12.5'; White, Fine Grain, Oolite Limestone			
HSA				100%	12				
						End of Boring @ 12.5' BLS			
HA					16				
					20				

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Prepared by: Greg Campbell, P.E.
Florida Professional Engineer, No. 0038572

Date

Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1	
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method: HSA	
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig: Mobile	
MONITORING WELL NO.: MW-17	Start Date: 03/22/99	Completed: 03/22/99	
	Start Time: 1522	Finish Time: 1615	
	Contract No.	CONTAMINATION DATA	

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST HOLE HSA				100%	0	0'-8.5'; Light Grey, White, Silty Clay w/some gravel (0-1")	0.0	0.0	0.0
							0.0	0.0	0.0
			Water Table @ approx. 4' bls		4				
				100%	8	8.5'-12.5'; White, Fine Grain, Oolite Limestone			
				100%	12				
						End of Boring @ 12.5' BLS			
					16				
					20				

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Prepared by: Greg Campbell, P.E.
Florida Professional Engineer, No. 0038572

Date

Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1	
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method: HSA	
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig: Mobile	
MONITORING WELL NO.: DMW-18	Start Date: 03/23/99	Completed: 03/23/99	
	Start Time: 915	Finish Time: 935	
	Contract No.	CONTAMINATION DATA	

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST				100%	0	0'-8.5'; Light Grey, White, Silty Clay w/some gravel (0-1")	0.0	0.0	0.0
							0.0	0.0	0.0
HOLE			Water Table @ approx. 4' bls		4				
				100%	8	8.5'-30.5'; White, Fine Grain, Oolite Limestone			
HSA				100%	12				
HA					16				
					20				
					30	End of Boring @ 30.5' BLS			

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Florida Professional Engineer, No. 0038572

Date

Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1	
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method: HSA	
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig: Mobile	
MONITORING WELL NO.: MW-19	Start Date: 03/26/99	Completed: 03/26/99	
	Start Time: 958	Finish Time: 1038	
	Contract No.	CONTAMINATION DATA	

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST				100%	0	0'-8'; Sand with Some Clay	280.0	53.0	227.0
			Water Table @ approx. 3' bls				>1000	54.0	>946
HOLE					4				
				100%	8	8'-12.5'; White, Fine Grain, Oolite Limestone			
HSA				100%	12				
						End of Boring @ 12.5' BLS			
HA					16				
					20				

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Prepared by: Greg Campbell, P.E.
Florida Professional Engineer, No. 0038572

Date

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Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1	
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method: HSA	
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig: Mobile	
MONITORING WELL NO.: MW-20	Start Date: 03/26/99	Completed: 03/26/99	
	Start Time: 1053	Finish Time: 1126	
	Contract No.	CONTAMINATION DATA	

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST				100%	0	0'-8'; Sand with Some Clay	0.0	0.0	0.0
			Water Table @ approx. 3' bls				0.0	0.0	0.0
HOLE					4				
				100%	8	8'-12.5'; White, Fine Grain, Oolite Limestone			
HSA				100%	12				
						End of Boring @ 12.5' BLS			
HA					16				
					20				

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Prepared by: Greg Campbell, P.E.
Florida Professional Engineer, No. 0038572

Date _____

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Site C-2076	LOGGED BY: Greg Campbell, P. E.	SHEET 1 OF 1	
Trumbo Point BOQ	Contractor: NPWC, Pensacola, FL	Dr. Method:	HSA
Key West, Florida	Driller: GFA, International, Inc.	Dr. Rig:	Mobile
MONITORING WELL NO.: MW-21	Start Date: 03/26/99	Completed:	03/26/99
	Start Time: 1247	Finish Time:	1334
	Contract No.	CONTAMINATION DATA	

TYPE	NUMB	BLOW	SAMP. INTV. (FT.)	SAMP. RECV. (IN)	DEPTH	DESCRIPTION OF MATERIALS AND CONDITIONS	OVA RESULTS (PPM) CARBON FILTER W/O	WITH	NOTES NET
POST				100%	0	0'-8'; Sand with Some Clay	0.0	0.0	0.0
			Water Table @ approx. 3' bls				0.0	0.0	0.0
HOLE					4				
				100%	8	8'-12.5'; White, Fine Grain, Oolite Limestone			
HSA				100%	12				
						End of Boring @ 12.5' BLS			
HA					16				
					20				

I certify that this lithologic log, including geologic and hydrogeologic interpretations, has been prepared under my direct supervision and meets the minimal technical requirements as set forth in Chapter 492 of the Florida Statues.

Prepared by: Greg Campbell, P.E.
Florida Professional Engineer, No. 0038572

Date _____

APPENDIX C

SOIL AND GROUNDWATER ANALYTICAL RESULTS

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452 4315
Contact: Paul Semmes

Analytical Report

Total Volatiles by Method 8260

Lab Report Number: 81892
Sample Date: 19 May 98
Received Date: 20 May 98
Sample Site: NAS Key West
Job Order No.: 102 6292

LAB Sample ID#	1- 81892
Sample Name / Location	BOQ-A
Collector's Name	P.R.S.
Date & Time Collected	19 May 98 @ 1715
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	28 May 98 MC
Date of Analysis	28 May 98
Sample Matrix	Soil
Dilution	X 1

Compound Name	1- 81892	units	Det. Limit	Flags
Benzene	BDL	ug/Kg	1	
Bromobenzene	BDL	ug/Kg	2	
Bromochloromethane	BDL	ug/Kg	2	
Bromodichloromethane	BDL	ug/Kg	1	
Bromoform	BDL	ug/Kg	2	
Bromomethane	BDL	ug/Kg	4	
n-Butylbenzene	BDL	ug/Kg	3	
sec-Butylbenzene	BDL	ug/Kg	3	
tert-Butylbenzene	BDL	ug/Kg	3	
Carbon Tetrachloride	BDL	ug/Kg	1	
Chlorobenzene	BDL	ug/Kg	2	
Chloroethane	BDL	ug/Kg	4	
Chloroform	BDL	ug/Kg	1	
Chloromethane	BDL	ug/Kg	1	
2-Chlorotoluene *	BDL	ug/Kg	2	
4-Chlorotoluene *	BDL	ug/Kg	2	
Dibromochloromethane	BDL	ug/Kg	2	
1,2-Dibromo-3-chloropropane *	BDL	ug/Kg	4	
1,2-Dibromoethane	BDL	ug/Kg	2	
Dibromomethane	BDL	ug/Kg	2	
1,2-Dichlorobenzene	BDL	ug/Kg	3	
1,3-Dichlorobenzene	BDL	ug/Kg	3	
1,4-Dichlorobenzene	BDL	ug/Kg	3	
Dichlorodifluoromethane	BDL	ug/Kg	2	
1,1-Dichloroethane	BDL	ug/Kg	1	
1,2-Dichloroethane	BDL	ug/Kg	1	
1,1-Dichloroethene	BDL	ug/Kg	2	
cis-1,2-Dichloroethene	BDL	ug/Kg	2	
trans-1,2-Dichloroethene	BDL	ug/Kg	1	
1,2-Dichloropropane	BDL	ug/Kg	2	
1,3-Dichloropropane	BDL	ug/Kg	2	
2,2-Dichloropropane	BDL	ug/Kg	1	
1,1-Dichloropropene	BDL	ug/Kg	2	
Ethylbenzene	BDL	ug/Kg	2	
Ethyl ether *	BDL	ug/Kg	2	
Hexachlorobutadiene	BDL	ug/Kg	5	
2-Hexanone *	BDL	ug/Kg	2	
Isopropylbenzene	BDL	ug/Kg	2	
p-Isopropyltoluene	BDL	ug/Kg	3	

Navy Public Works Center
Environmental Laboratory

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.S Pensacola, FL 32508
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.SN 922-3180/3642
FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452 4315
Contact: Paul Semmes

Analytical Report

Total Volatiles by Method 8260

Lab Report Number: 81892
Sample Date: 19 May 98
Received Date: 20 May 98
Sample Site: NAS Key West
Job Order No.: 102 6292

Compound Name	1- 81892	units	Det. Limit	Flags
Methylene Chloride	BDL	ug/Kg	1	
Methyl ethyl ketone (MEK) *	BDL	ug/Kg	4	
Methyl isobutyl ketone (MIBK) *	BDL	ug/Kg	3	
Methyl-tert-butyl ether (MTBE)	BDL	ug/Kg	2	
Naphthalene	BDL	ug/Kg	4	
n-Propylbenzene	BDL	ug/Kg	2	
Styrene	BDL	ug/Kg	2	
1,1,1,2-Tetrachloroethane	BDL	ug/Kg	2	
1,1,2,2-Tetrachloroethane	BDL	ug/Kg	3	
Tetrachloroethene	BDL	ug/Kg	2	
Toluene	BDL	ug/Kg	4	
1,2,3-Trichlorobenzene	BDL	ug/Kg	4	
1,2,4-Trichlorobenzene	BDL	ug/Kg	2	
1,1,1-Trichloroethane	BDL	ug/Kg	1	
1,1,2-Trichloroethane	BDL	ug/Kg	2	
Trichloroethene	BDL	ug/Kg	2	
Trichlorofluoromethane	BDL	ug/Kg	2	
1,1,2-Trichloro-1,2,2-Trifluoroethane *	BDL	ug/Kg	1	
1,2,3-Trichloropropane	BDL	ug/Kg	3	
1,2,4-Trimethylbenzene	BDL	ug/Kg	3	
1,3,5-Trimethylbenzene	BDL	ug/Kg	3	
l Chloride	BDL	ug/Kg	1	
p-Xylene	BDL	ug/Kg	4	
ylene	BDL	ug/Kg	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-120	109
Toluene-d8	81-117	106
Bromofluorobenzene	74-121	97

Explanation of Flags:

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

C-2

Approved by : Jerry Dees, Laboratory Director

Date: 6/10/98
Report Generated

End of Report

Navy Public Works Center
Environmental Laboratory

dg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Paul Sommes

Analytical Report
610 PAH's by Method 8270

Lab Report Number: 81892
Sample Date: 19 May 98
Received Date: 20 May 98
Sample Site: NAS Key West
Job Order No.: 102 6292

LAB Sample ID#	1- 81892
Sample Name / Location	BOQ-A
Collector's Name	P.R.S.
Date & Time Collected	19 May 98 @ 1715
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	27 May 98 JJ
Date of Analysis	5 Jun 98
Sample Matrix	Soil
Dilution	X 10

Compound Name	1- 81892	units	Det. Limit	Flags
Acenaphthene	BDL	ug/Kg	1600	
Acenaphthylene	BDL	ug/Kg	1900	
Anthracene	BDL	ug/Kg	1700	
Benzo(a)anthracene	BDL	ug/Kg	1600	
Benzo(a)pyrene	BDL	ug/Kg	1800	
Benzo(b)fluoranthene	BDL	ug/Kg	1600	
Benzo(g,h,i)perylene	BDL	ug/Kg	1800	
Benzo(k)fluoranthene	BDL	ug/Kg	2100	
rysene	BDL	ug/Kg	1700	
benz(a,h)anthracene	BDL	ug/Kg	1700	
uoranthene	BDL	ug/Kg	1800	
Fluorene	BDL	ug/Kg	1600	
Indeno(1,2,3-cd)pyrene	BDL	ug/Kg	1800	
1-Methylnaphthalene *	BDL	ug/Kg	2000	
2-Methylnaphthalene	BDL	ug/Kg	2200	
Naphthalene	BDL	ug/Kg	1600	
Phenanthrene	BDL	ug/Kg	1800	
Pyrene	BDL	ug/Kg	2000	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	23-120	104
2-Fluorobiphenyl	30-115	95
Terphenyl -d14	18-137	91

COMMENTS : ** - Detected, but Below Detection Limits.

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

C-3

Approved by : Jerry Bees, Laboratory Director

Date: 6/9/98
Report Generated

End of Report

Navy Public Works Center
Environmental Laboratory

Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg. 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Paul Semmes

Lab Report Number: 81892
Sample Date: 19 May 98
Received Date: 20 May 98
Sample Site: NAS Key West
Job Order No.: 102 6292

LAB Sample ID#	1- 81892			
Sample Name / Location	BOQ-A			
Collector's Name	P.R.S.			
Date & Time Collected	19 May 98 @ 1715			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	27 May 98 JJ			
Date of Analysis	8 Jun 98			
Sample Matrix	Soil			
Dilution			x 1	
Parameter	1- 81892	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	12	mg/Kg	5	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142	105
Nonatriacontane (C-39)	42-193	87

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Deed, Laboratory Director

Date: 6/9/98

C-4

Navy . ublic Works Center
Environmental Laboratory

Bldg 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Laboratory I p rt
Total RCRA Metals

Requester:	Naval Air Station Key West	Report Number:	9806025 A
Address:	Bldg. 629	Sample Date:	19 May 98
	Key West, FL 33040	Received Date:	20 May 98
Phone #:	(305) 293-4335	Sample Site:	BOQ
Contact:	Paul Semmes	Job Order #:	102 6292

Sample ID#	Lab	1- 81892	2-	3-	4-	Analyst(s):
Sample Name	Requester	BOQ-A				ICP - Brian Nelson
Collector Name		P R S				Mercury - Brian Nelson
Date/Time	Comp start					
Collected	Comp stop					Date(s) of analysis:
(Military)	Grab	19 May 98 @ 1715				ICP - 25 May 98
Sample Type	Comp/Grab	Grab				Mercury - 1 Jun 98
Sample Matrix		Soil				

PARAMETER Metals:	METHOD #	ID# 1- 81892	units	Det. Limit	ID# 2-	units	Det. Limit	ID# 3-	units	Det. Limit	ID# 4-	units	Det. Limit	Preservative(s)
Arsenic(As)	SW 6010	X BDL	mg/kg	20		mg/kg	20		mg/kg	20		mg/kg	20	None
Barium(Ba)	SW 6010	X 8	mg/kg	1.0		mg/kg	1.0		mg/kg	1.0		mg/kg	1.0	None
Cadmium(Cd)	SW 6010	X BDL	mg/kg	1.0		mg/kg	1.0		mg/kg	1.0		mg/kg	1.0	None
Chromium(Cr)	SW 6010	X 5	mg/kg	1.0		mg/kg	1.0		mg/kg	1.0		mg/kg	1.0	None
Lead(Pb)	SW 6010	X BDL	mg/kg	5.0		mg/kg	5.0		mg/kg	5.0		mg/kg	5.0	None
Mercury(Hg)	SW 7471	X BDL	mg/kg	0.10		mg/kg	0.10		mg/kg	0.10		mg/kg	0.10	None
Selenium(Se)	SW 6010	X BDL	mg/kg	20		mg/kg	20		mg/kg	20		mg/kg	20	None
Silver(Ag)	SW 6010	X BDL	mg/kg	2.0		mg/kg	2.0		mg/kg	2.0		mg/kg	2.0	None

Comments: mg/kg=milligrams per kilogram. mg/l=milligrams per liter. BDL=Below Detection Limits (Method).

Approved by: Jerry Dees, Laboratory Director

Date/Time: 03-Jun-98 13:13

End of Report

PWC 5090/14

TEST DATA REPORT

06/08/98

--- Project Information ---

Mr. Jerry Dees

NPWC ENV. LAB CODE 440

chase #

Order #1026292

Page 1

Project Name: NPWC12

Stub #

--- Sample Information ---

Station ID: 81892 NAS K.W. BOQ-A

Lab ID: AB49438

Collector: PRS

Date Sampled: 05/19/98

Time Sampled: 17:15

Log In Date: 05/26/98

Log In Time: 15:22

--- Test Information ---

Parameter	Units	Method	Rpt Lim	Result	Analysis Date	Analysis Tech
10621-5050/9020 Org Halogens	mg/Kg	SW9020B	46.3	Not Det	06/04/98	BB

Remarks:

Signed: CBCausey

Carl B. Causey

Technical Services Director

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
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FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg. 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Paul Semmes

Analytical Report

Total Volatiles by Method 8260

Lab Report Number: 81893
Sample Date: 19 May 98
Received Date: 20 May 98
Sample Site: NAS Key West
Job Order No.: 102 6292

LAB Sample ID#	1- 81893
Sample Name / Location	BOQ-B
Collector's Name	P.R.S.
Date & Time Collected	19 May 98 @ 1720
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	28 May 98 MC
Date of Analysis	28 May 98
Sample Matrix	Soil
Dilution	X 5

Compound Name	1- 81893	units	Det. Limit	Flags
Benzene	BDL	ug/Kg	5	
Bromobenzene	BDL	ug/Kg	10	
Bromochloromethane	BDL	ug/Kg	10	
Bromodichloromethane	BDL	ug/Kg	5	
Bromoform	BDL	ug/Kg	10	
Bromomethane	BDL	ug/Kg	20	
n-Butylbenzene	BDL	ug/Kg	15	
sec-Butylbenzene	BDL	ug/Kg	15	
-Butylbenzene	BDL	ug/Kg	15	
arbon Tetrachloride	BDL	ug/Kg	5	
lorobenzene	BDL	ug/Kg	10	
Chloroethane	BDL	ug/Kg	20	
Chloroform	BDL	ug/Kg	5	
Chloromethane	BDL	ug/Kg	5	
2-Chlorotoluene *	BDL	ug/Kg	10	
4-Chlorotoluene *	BDL	ug/Kg	10	
Dibromochloromethane	BDL	ug/Kg	10	
1,2-Dibromo-3-chloropropane *	BDL	ug/Kg	20	
1,2-Dibromoethane	BDL	ug/Kg	10	
Dibromomethane	BDL	ug/Kg	10	
1,2-Dichlorobenzene	BDL	ug/Kg	15	
1,3-Dichlorobenzene	BDL	ug/Kg	15	
1,4-Dichlorobenzene	BDL	ug/Kg	15	
Dichlorodifluoromethane	BDL	ug/Kg	10	
1,1-Dichloroethane	BDL	ug/Kg	5	
1,2-Dichloroethane	BDL	ug/Kg	5	
1,1-Dichloroethene	BDL	ug/Kg	10	
cis-1,2-Dichloroethene	BDL	ug/Kg	10	
trans-1,2-Dichloroethene	BDL	ug/Kg	5	
1,2-Dichloropropane	BDL	ug/Kg	10	
1,3-Dichloropropane	BDL	ug/Kg	10	
2,2-Dichloropropane	BDL	ug/Kg	5	
1,1-Dichloropropene	BDL	ug/Kg	10	
Ethylbenzene	BDL	ug/Kg	10	
Ethyl ether *	BDL	ug/Kg	10	
Hexachlorobutadiene	BDL	ug/Kg	25	
2-Hexanone *	BDL	ug/Kg	10	
propylbenzene	BDL	ug/Kg	10	
-Isopropyltoluene	BDL	ug/Kg	15	

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
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DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Paul Semmes

Analytical Report

Total Volatiles by Method 8260

Lab Report Number: 81893
Sample Date: 19 May 98
Received Date: 20 May 98
Sample Site: NAS Key West
Job Order No.: 102 6292

Compound Name	1- 81893	units	Det. Limit	Flags
Methylene Chloride	BDL	ug/Kg	5	
Methyl ethyl ketone (MEK) *	BDL	ug/Kg	20	
Methyl isobutyl ketone (MIBK) *	BDL	ug/Kg	15	
Methyl-tert-butyl ether (MTBE)	BDL	ug/Kg	10	
Naphthalene	BDL	ug/Kg	20	
n-Propylbenzene	BDL	ug/Kg	10	
Styrene	BDL	ug/Kg	10	
1,1,1,2-Tetrachloroethane	BDL	ug/Kg	10	
1,1,2,2-Tetrachloroethane	BDL	ug/Kg	15	
Tetrachloroethene	BDL	ug/Kg	10	
Toluene	BDL	ug/Kg	20	
1,2,3-Trichlorobenzene	BDL	ug/Kg	20	
1,2,4-Trichlorobenzene	BDL	ug/Kg	10	
1,1,1-Trichloroethane	BDL	ug/Kg	5	
1,1,2-Trichloroethane	BDL	ug/Kg	10	
Trichloroethene	BDL	ug/Kg	10	
Trichlorofluoromethane	BDL	ug/Kg	10	
1,1,2-Trichloro-1,2,2-Trifluoroethane *	BDL	ug/Kg	5	
1,2,3-Trichloropropane	BDL	ug/Kg	15	
1,2,4-Trimethylbenzene	BDL	ug/Kg	15	
1,3,5-Trimethylbenzene	BDL	ug/Kg	15	
[illegible]yl Chloride	BDL	ug/Kg	5	
[illegible]p-Xylene	BDL	ug/Kg	20	
[illegible] Xylene	BDL	ug/Kg	10	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	76-120	63
Toluene-d8	81-117	106
Bromofluorobenzene	74-121	88

Explanation of Flags:

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter, ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : C-8
Jerry Dees, Laboratory Director

Date: 6/10/98
Report Generated

End of Report

Navy Public Works Center
Environmental Laboratory

dg. 3887, Code 440
NAS Pensacola, FL 32508
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DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg. 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Paul Semmes

Analytical Report
610 PAH's by Method 8270

Lab Report Number: 81893
Sample Date: 19 May 98
Received Date: 20 May 98
Sample Site: NAS Key West
Job Order No.: 102 6292

LAB Sample ID#	1- 81893
Sample Name / Location	BOQ-B
Collector's Name	P.R.S.
Date & Time Collected	19 May 98 @ 1720
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	27 May 98 JJ
Date of Analysis	5 Jun 98
Sample Matrix	Soil
Dilution	X 10

Compound Name	1- 81893	units	Det. Limit	Flags
Acenaphthene	BDL	ug/Kg	1600	
Acenaphthylene	BDL	ug/Kg	1900	
Anthracene	BDL	ug/Kg	1700	
Benzo(a)anthracene	BDL	ug/Kg	1600	
Benzo(a)pyrene	BDL	ug/Kg	1800	
Benzo(b)fluoranthene	BDL	ug/Kg	1600	
Benzo(g,h,I)perylene	BDL	ug/Kg	1800	
Benzo(k)fluoranthene	BDL	ug/Kg	2100	
ysene	BDL	ug/Kg	1700	
benz(a,h)anthracene	BDL	ug/Kg	1700	
uoranthene	BDL	ug/Kg	1800	
Fluorene	BDL	ug/Kg	1600	
Indeno(1,2,3-cd)pyrene	BDL	ug/Kg	1800	
1-Methylnaphthalene *	BDL	ug/Kg	2000	
2-Methylnaphthalene	BDL	ug/Kg	2200	
Naphthalene	BDL	ug/Kg	1600	
Phenanthrene	BDL	ug/Kg	1800	
Pyrene	BDL	ug/Kg	2000	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	23-120	107
2-Fluorobiphenyl	30-115	100
Terphenyl -d14	18-137	92

COMMENTS : ** - Detected, but Below Detection Limits.

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

C-9

Approved by : Jerry Dees, Laboratory Director

Date: 6/9/98
Report Generated

End of Report

Navy Public Works Center
Environmental Laboratory

Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg. 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Paul Semmes

Lab Report Number: 81893
Sample Date: 19 May 98
Received Date: 20 May 98
Sample Site: NAS Key West
Job Order No.: 102 6292

LAB Sample ID#	1- 81893			
Sample Name / Location	BOQ-B			
Collector's Name	P.R.S.			
Date & Time Collected	19 May 98 @ 1720			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	27 May 98 JJ			
Date of Analysis	8 Jun 98			
Sample Matrix	Soil			
Dilution	x 1			
Parameter	1- 81893	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	9.8	mg/Kg	5	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142	98
Nonatriacontane (C-39)	42-193	72

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Deer, Laboratory Director

Date: 6/10/98

C - 10

End of Report

Navy Public Works Center
Environmental Laboratory
Bldg 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Laboratory Report

Total RCRA Metals

Requester:	Naval Air Station Key West	**Report Number:**	9806025 B
Address:	Bldg. 629	**Sample Date:**	19 May 98
	Key West, FL 33040	**Received Date:**	20 May 98
Phone #:	(305) 293-4335	**Sample Site:**	BOQ
Contact:	Paul Semmes	**Job Order #:**	102 6292

Sample ID#	Lab	1- 81893	2-	3-	4-	**Analyst(s):**
Sample Name	Requester	BOQ-B				ICP - Brian Nelson
Collector Name		P R S				Mercury - Brian Nelson
Date/Time	Comp start					
Collected	Comp stop					**Date(s) of analysis:**
(Military)	Grab	19 May 98 @ 1720				ICP - 25 May 98
Sample Type	Comp/Grab	Grab				Mercury - 1 Jun 98
Sample Matrix		Soil				

PARAMETER		ID#		Det.	ID#		Det.	ID#		Det.	ID#		Det.	
Metals:	METHOD #	1- 81893	units	Limit	2-	units	Limit	3-	units	Limit	4-	units	Limit	Preservative(s)
Arsenic(As)	SW 6010	X BDL	mg/kg	20		mg/kg	20		mg/kg	20		mg/kg	20	None
Barium(Ba)	SW 6010	X 13	mg/kg	1.0		mg/kg	1.0		mg/kg	1.0		mg/kg	1.0	None
Cadmium(Cd)	SW 6010	X BDL	mg/kg	1.0		mg/kg	1.0		mg/kg	1.0		mg/kg	1.0	None
Chromium(Cr)	SW 6010	X 4	mg/kg	1.0		mg/kg	1.0		mg/kg	1.0		mg/kg	1.0	None
Lead(Pb)	SW 6010	X 22	mg/kg	5.0		mg/kg	5.0		mg/kg	5.0		mg/kg	5.0	None
Mercury(Hg)	SW 7471	X BDL	mg/kg	0.10		mg/kg	0.10		mg/kg	0.10		mg/kg	0.10	None
Selenium(Se)	SW 6010	X BDL	mg/kg	20		mg/kg	20		mg/kg	20		mg/kg	20	None
Silver(Ag)	SW 6010	X BDL	mg/kg	2.0		mg/kg	2.0		mg/kg	2.0		mg/kg	2.0	None

Comments: mg/kg=milligrams per kilogram. mg/l=milligrams per liter. BDL=Below Detection Limits (Method).

Approved by: Jerry Dees, Laboratory Director

Date/Time: 03-Jun-98 13:14

End of Report

PWC 5090/14

TEST DATA REPORT

06/08/98

--- Project Information ---

Mr. Jerry Dees

NPWC ENV. LAB CODE 440

.chase #

Order #1026292

Page 1

Project Name: NPWC12

Stub #

--- Sample Information ---

Station ID: 81893 NAS K.W. BOQ-B

Lab ID: AB49439

Collector: PRS

Date Sampled: 05/19/98

Time Sampled: 17:20

Log In Date: 05/26/98

Log In Time: 15:22

--- Test Information ---

Parameter	Units	Method	Rpt Lim	Result	Analysis Date	Analysis Tech
10621-5050/9020 Org Halogens	mg/Kg	SW9020B	49.2	Not Det	06/04/98	BB

Remarks:

Signed: CBCausey

Carl B. Causey

Technical Services Director

Navy Public Works Center
Environmental Laboratory

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DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Paul Semmes

Analytical Report

Total Volatiles by Method 8260

Lab Report Number: 81894
Sample Date: 19 May 98
Received Date: 20 May 98
Sample Site: NAS Key West
Job Order No.: 102 6292

LAB Sample ID#	1- 81894
Sample Name / Location	BOQ-C
Collector's Name	P.R.S.
Date & Time Collected	19 May 98 @ 1725
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	28 May 98 MC
Date of Analysis	28 May 98
Sample Matrix	Soil
Dilution	X 1

Compound Name	1- 81894	units	Det. Limit	Flags
Benzene	BDL	ug/Kg	1	
Bromobenzene	BDL	ug/Kg	2	
Bromochloromethane	BDL	ug/Kg	2	
Bromodichloromethane	BDL	ug/Kg	1	
Bromoform	BDL	ug/Kg	2	
Bromomethane	BDL	ug/Kg	4	
n-Butylbenzene	BDL	ug/Kg	3	
ec-Butylbenzene	BDL	ug/Kg	3	
-Butylbenzene	BDL	ug/Kg	3	
arbon Tetrachloride	BDL	ug/Kg	1	
hlorobenzene	BDL	ug/Kg	2	
Chloroethane	BDL	ug/Kg	4	
Chloroform	BDL	ug/Kg	1	
Chloromethane	BDL	ug/Kg	1	
2-Chlorotoluene *	BDL	ug/Kg	2	
4-Chlorotoluene *	BDL	ug/Kg	2	
Dibromochloromethane	BDL	ug/Kg	2	
1,2-Dibromo-3-chloropropane *	BDL	ug/Kg	4	
1,2-Dibromoethane	BDL	ug/Kg	2	
Dibromomethane	BDL	ug/Kg	2	
1,2-Dichlorobenzene	BDL	ug/Kg	3	
1,3-Dichlorobenzene	BDL	ug/Kg	3	
1,4-Dichlorobenzene	BDL	ug/Kg	3	
Dichlorodifluoromethane	BDL	ug/Kg	2	
1,1-Dichloroethane	BDL	ug/Kg	1	
1,2-Dichloroethane	BDL	ug/Kg	1	
1,1-Dichloroethene	BDL	ug/Kg	2	
cis-1,2-Dichloroethene	BDL	ug/Kg	2	
trans-1,2-Dichloroethene	BDL	ug/Kg	1	
1,2-Dichloropropane	BDL	ug/Kg	2	
1,3-Dichloropropane	BDL	ug/Kg	2	
2,2-Dichloropropane	BDL	ug/Kg	1	
1,1-Dichloropropene	BDL	ug/Kg	2	
Ethylbenzene	BDL	ug/Kg	2	
Ethyl ether *	BDL	ug/Kg	2	
Hexachlorobutadiene	BDL	ug/Kg	5	
2-Hexanone *	BDL	ug/Kg	2	
opropylbenzene	BDL	ug/Kg	2	
-Isopropyltoluene	BDL	ug/Kg	3	

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Client: NPWC Engineering
Address: Bldg 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Paul Semmes

Analytical Report

Total Volatiles by Method 8260

Lab Report Number: 81894
Sample Date: 19 May 98
Received Date: 20 May 98
Sample Site: NAS Key West
Job Order No.: 102 6292

Compound Name	1- 81894	units	Det. Limit	Flags
Methylene Chloride	BDL	ug/Kg	1	
Methyl ethyl ketone (MEK) *	BDL	ug/Kg	4	
Methyl isobutyl ketone (MIBK) *	BDL	ug/Kg	3	
Methyl-tert-butyl ether (MTBE)	BDL	ug/Kg	2	
Naphthalene	BDL	ug/Kg	4	
n-Propylbenzene	BDL	ug/Kg	2	
Styrene	BDL	ug/Kg	2	
1,1,1,2-Tetrachloroethane	BDL	ug/Kg	2	
1,1,2,2-Tetrachloroethane	BDL	ug/Kg	3	
Tetrachloroethene	BDL	ug/Kg	2	
Toluene	BDL	ug/Kg	4	
1,2,3-Trichlorobenzene	BDL	ug/Kg	4	
1,2,4-Trichlorobenzene	BDL	ug/Kg	2	
1,1,1-Trichloroethane	BDL	ug/Kg	1	
1,1,2-Trichloroethane	BDL	ug/Kg	2	
Trichloroethene	BDL	ug/Kg	2	
Trichlorofluoromethane	BDL	ug/Kg	2	
1,1,2-Trichloro-1,2,2-Trifluoroethane *	BDL	ug/Kg	1	
1,2,3-Trichloropropane	BDL	ug/Kg	3	
1,2,4-Trimethylbenzene	BDL	ug/Kg	3	
1,3,5-Trimethylbenzene	3	ug/Kg	3	
[illegible]yl Chloride	BDL	ug/Kg	1	
[illegible],p-Xylene	BDL	ug/Kg	4	
[illegible] Xylene	BDL	ug/Kg	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-120	95
Toluene-d8	81-117	109
Bromofluorobenzene	74-121	86

Explanation of Flags:

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : C-14
Jerry Dees, Laboratory Director

Date: 6/10/98
Report Generated
End of Report

Navy Public Works Center
Environmental Laboratory

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Client: NPWC Engineering
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NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Paul Semmes

Analytical Report
610 PAH's by Method 8270

Lab Report Number: 81894
Sample Date: 19 May 98
Received Date: 20 May 98
Sample Site: NAS Key West
Job Order No.: 102 6292

LAB Sample ID#	1- 81894
Sample Name / Location	BOQ-C
Collector's Name	P.R.S.
Date & Time Collected	19 May 98 @ 1725
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	27 May 98 JJ
Date of Analysis	5 Jun 98
Sample Matrix	Soil
Dilution	X 10

Compound Name	1- 81894	units	Det. Limit	Flags
Acenaphthene	BDL	ug/Kg	1600	
Acenaphthylene	BDL	ug/Kg	1900	
Anthracene	BDL	ug/Kg	1700	
Benzo(a)anthracene	BDL	ug/Kg	1600	
Benzo(a)pyrene	BDL	ug/Kg	1800	
Benzo(b)fluoranthene	BDL	ug/Kg	1600	
Benzo(g,h,i)perylene	BDL	ug/Kg	1800	
Benzo(k)fluoranthene	BDL	ug/Kg	2100	
rysene	BDL	ug/Kg	1700	
benz(a,h)anthracene	BDL	ug/Kg	1700	
uoranthene	BDL	ug/Kg	1800	
Fluorene	BDL	ug/Kg	1600	
Indeno(1,2,3-cd)pyrene	BDL	ug/Kg	1800	
1-Methylnaphthalene *	BDL	ug/Kg	2000	
2-Methylnaphthalene	BDL	ug/Kg	2200	
Naphthalene	BDL	ug/Kg	1600	
Phenanthrene	BDL	ug/Kg	1800	
Pyrene	BDL	ug/Kg	2000	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	23-120	116
2-Fluorobiphenyl	30-115	102
Terphenyl -d14	18-137	90

COMMENTS : ** - Detected, but Below Detection Limits.

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 6/9/98
Report Generated

End of Report

Navy Public Works Center

Environmental Laboratory

Analytical Report

Petroleum Range Organics by FLPRO

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DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg. 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Paul Semmes

Lab Report Number: 81894
Sample Date: 19 May 98
Received Date: 20 May 98
Sample Site: NAS Key West
Job Order No.: 102 6292

LAB Sample ID#	1- 81894			
Sample Name / Location	BOQ-C			
Collector's Name	P.R.S.			
Date & Time Collected	19 May 98 @ 1725			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	27 May 98 JJ			
Date of Analysis	8 Jun 98			
Sample Matrix	Soil			
Dilution	x 1			
Parameter	1- 81894	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	340	mg/Kg	5	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142	104
Nonatriacontane (C-39)	42-193	85

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Deas, Laboratory Director

Date: 6/10/98

C-16

End of Report

Navy . ublic Works Center
Environmental Laboratory

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Laboratory R..t rt
Total RCRA Metals

Requester:	Naval Air Station Key West	Report Number:	9806025 C
Address:	Bldg. 629	Sample Date:	19 May 98
	Key West, FL 33040	Received Date:	20 May 98
Phone #:	(305) 293–4335	Sample Site:	BOQ
Contact:	Paul Semmes	Job Order #:	102 6292

Sample ID#	Lab	1– 81894	2–	3–	4–	Analyst(s):
Sample Name	Requester	BOQ–C				ICP – Brian Nelson
Collector Name		P R S				Mercury – Brian Nelson
Date/Time	Comp start					
Collected	Comp stop					Date(s) of analysis:
(Military)	Grab	19 May 98 @ 1725				ICP – 25 May 98
Sample Type	Comp/Grab	Grab				Mercury – 1 Jun 98
Sample Matrix		Soil				

PARAMETER Metals:	METHOD #	ID# 1– 81894	units	Det. Limit	ID# 2–	units	Det. Limit	ID# 3–	units	Det. Limit	ID# 4–	units	Det. Limit	Preservative(s)
Arsenic(As)	SW 6010	X BDL	mg/kg	20		mg/kg	20		mg/kg	20		mg/kg	20	None
Barium(Ba)	SW 6010	X 17	mg/kg	1.0		mg/kg	1.0		mg/kg	1.0		mg/kg	1.0	None
Cadmium(Cd)	SW 6010	X BDL	mg/kg	1.0		mg/kg	1.0		mg/kg	1.0		mg/kg	1.0	None
Chromium(Cr)	SW 6010	X 5	mg/kg	1.0		mg/kg	1.0		mg/kg	1.0		mg/kg	1.0	None
Lead(Pb)	SW 6010	X 26	mg/kg	5.0		mg/kg	5.0		mg/kg	5.0		mg/kg	5.0	None
Mercury(Hg)	SW 7471	X BDL	mg/kg	0.10		mg/kg	0.10		mg/kg	0.10		mg/kg	0.10	None
Selenium(Se)	SW 6010	X BDL	mg/kg	20		mg/kg	20		mg/kg	20		mg/kg	20	None
Silver(Ag)	SW 6010	X BDL	mg/kg	2.0		mg/kg	2.0		mg/kg	2.0		mg/kg	2.0	None

Comments: mg/kg=milligrams per kilogr..m. mg/l=milligrams per liter. BDL=Below Detection Limits (Method).

Approved by: Jerry Dees, Laboratory Director

Date/Time: 03–Jun–98 13:15

End of Report

PWC 5090/14

TEST DATA REPORT

06/08/98

--- Project Information ---

Mr. Jerry Dees

NPWC ENV. LAB CODE 440

.rchase #

b Order #1026292

Page 1

Project Name: NPWC12

Stub #

--- Sample Information ---

Station ID: 81894 NAS K.W. BOQ-C

Lab ID: AB49440

Collector: PRS

Date Sampled: 05/19/98

Time Sampled: 17:25

Log In Date: 05/26/98

Log In Time: 15:22

--- Test Information ---

Parameter	Units	Method	Rpt Lim	Result	Analysis Date	Analysis Tech
10621-5050/9020 Org Halogens	mg/Kg	SW9020B	43.9	Not Det	06/04/98	BB

Remarks:

Signed: CBCausey

Carl B. Causey

Technical Services Director

HAZARDOUS WASTE CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

C Environmental Laboratory
Bldg. 3887, Code 440
Pensacola, Fl. 32508
Ph#: (850) 452-3180/3642
DSN: 922-3180/3642
FAX: (850) 452-2799/2387

Requester: NAS KEY WEST
Address: B.629 NAS KW KEY WEST 33040
Phone #: (305) 293-4375
Contact: PAUL SEMMES
Job Order #: 1026292

Report Required? (Yes) No DEP? Yes No
Lab ID Number:
Sample Date: 5/19/98
Received Date:
Sample Site:
Lab Due Date:

Sample ID #	Lab	#1-8-	#2-8-1892	#3-8-1893	#4-8-1894
Sample Name or Location			BOQ-A	BOQ-B	BOQ-C
Sampled by			PRS	PRS	PRS
Collection Date/Time	Date		5/19/98	5/19/98	5/19/98
	Time		1715	1720	1725
Sample Matrix			SOIL	SOIL	SOIL

Notes: BOQ (C, B, A)

GROUP PARAMETERS by Method Name	METHOD #	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	FY97 Units	Containers Required (L/S)	Preservative(s) Used (Liquids)
HW Charact. (complete)	EPA SW 846									56	See below	See below
Ignitability (Flashpoint)	SW 846 1010									2	250ml/4 oz.	4° C
Reactivity (Cyanide & Sulfide)	EPA SW-846									4	1L/4 oz.	4° C
Corrosivity (pH)	SW 846 9040/9045									0.5	250ml/4 oz.	4° C
Toxicity (TCLP) complete	EPA SW-846									50	See below	See below
Toxicity (TCLP) complete	EPA SW-846									50	See below	See below
TCLP Non Volatile Extraction	SW 846 1311									4	40 mlx3/4 oz.	4° C
Volatile ZHE Extraction	SW 846 1311									4	1Lx4/32 oz.	HCl to pH<2/4° C
BNA Extractables	SW 846 8270									16	1Lx3/4 oz.	4° C
TCLP Acid Extractables	SW 846 8270									8	1Lx3/4 oz.	4° C
TCLP B/N Extractables	SW 846 8270									8	1Lx3/4 oz.	4° C
TCLP Pesticides	SW 846 8080									9	1Lx3/4 oz.	4° C
TCLP Herbicides	SW 846 8150									9	1Lx3/4 oz.	4° C
TCLP Volatiles	SW 846 8260									8	40 ml x 3/4 oz.	HCl to pH<2/4° C
TCLP Metals (8)	EPA SW-846									8.5	500 ml/4 oz.	HNO_3 to pH<2
Multiphasic Samples	EPA SW-846									+50%	See above	See above
Complete Priority Pollutants	EPA SW-846									40	See below	See below
PP Acid Extractables	SW 846 8270									9	1Lx3/4 oz.	4° C
PP B/N Extractables	SW 846 8270									9	1Lx3/4 oz.	4° C
PP Pesticide/PCB's	SW 846 8080									9	1Lx3/4 oz.	4° C
PP Volatiles	SW 846 8260									8	40 ml x 3/4 oz.	HCl to pH<2/4° C
PP Metals (13)	EPA SW-846									9	500 ml/4 oz.	HNO_3 to pH<2
PP Cyanide/Phenol	EPA SW-846									4	1L Plastic/1L Glass	NaOH/H_2SO_4
Toxicity (TCLP) less Pest/Herb	EPA SW-846									38	See below	See below
F001 - F005 Solvents	EPA SW-846									24	1Lx3,40mlx4/16 oz	4° C
Kerosene Anal. Group (FL-PRO)	SW-846/FL DEP									24	Multiple	As Required
FL-PRO	FL DEP		X		X		X			5	1Lx3/16 oz.	H_2SO_4 to pH<2/4°C
Total Volatiles	SW 846 8260		X		X		X			8	40 mlx3/4 oz.	HCl to pH<2/4° C
Total BNA Extractables (PAH)	SW 846 8270		X		X		X			16	1Lx2/16 oz.	4° C
Total RCRA Metals (8)	EPA SW-846		X		X		X			8.5	500 ml/4 oz.	HNO_3 to pH<2
Single Metals	EPA SW-846									1	500 ml/4 oz.	HNO_3 to pH<2
PCB's in Oil	SW 846 8080									3	40 ml/4 oz	None
PCB's in Water/Soil/Wipes	SW 846 8080									4	1L/4 oz.	None
Other TOX			X		X		X					

Comments:

Relinquished by: [signature]
Date/Time: 5/19/98 1800

Received by: B. Hoyt [signature]
Date/Time: 5-20-98 1300

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Address: Bldg 158, Code 400
NAS Pensacola,FL 32508
Phone #: 452-4315
Contact: Paul Semmes

Analytical Report
601/602 Volatiles by Method 8260

Lab Report Number: 82347
Sample Date: 15 Jun 98
Received Date: 16 Jun 98
Sample Site: NAS KW, Trumbo Point
Job Order No.: 102 6293

LAB Sample ID#	1- 82347			
Sample Name / Location	Trumbo MW #2076 BOQ			
Collector's Name	P. Semmes			
Date & Time Collected	15 Jun 98 @ 1610			
Sample Type (composite or grab)	Grab			
Analyst	M. Chambers			
Date of Extraction / Initials	17 Jun 98 MC			
Date of Analysis	17 Jun 98			
Sample Matrix	GW			
Dilution	x 1			
Compound Name	1- 82347	units	Det. Limit	Flags
Benzene	5	ug/l	1	
Bromodichloromethane	BDL	ug/l	1	
Bromoform	BDL	ug/l	2	
Bromomethane	BDL	ug/l	3	
Carbon Tetrachloride	BDL	ug/l	1	
Chlorobenzene	7	ug/l	1	
Chloroethane	BDL	ug/l	1	
2-Chloroethylvinyl ether	BDL	ug/l	1	
Chloroform	BDL	ug/l	1	
Chloromethane	BDL	ug/l	1	
Dibromochloromethane	BDL	ug/l	1	
1,2-Dichlorobenzene	BDL	ug/l	1	
1,3-Dichlorobenzene	BDL	ug/l	1	
1,4-Dichlorobenzene	BDL	ug/l	1	
Dichlorodifluoromethane	BDL	ug/l	1	
1,1-Dichloroethane	BDL	ug/l	1	
1,2-Dichloroethane	BDL	ug/l	1	
1,1-Dichloroethene	BDL	ug/l	1	
trans-1,2-Dichloroethene	BDL	ug/l	1	
1,2-Dichloropropane	BDL	ug/l	1	
cis-1,3-Dichloropropene	BDL	ug/l	1	
trans-1,3-Dichloropropene	BDL	ug/l	1	
Ethylbenzene	11	ug/l	1	
Methylene Chloride	BDL	ug/l	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/l	1	
1,1,2,2-Tetrachloroethane	BDL	ug/l	1	
Tetrachloroethene	BDL	ug/l	1	
Toluene	3	ug/l	1	
1,1,1-Trichloroethane	BDL	ug/l	1	
1,1,2-Trichloroethane	BDL	ug/l	1	
Trichloroethene	BDL	ug/l	1	
Trichlorofluoromethane	BDL	ug/l	1	
Vinyl Chloride	BDL	ug/l	1	
Xylenes (Total)	14	ug/l	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	93
Toluene-d8	86-119	109
Bromofluorobenzene	85-116	110

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Deer, Laboratory Director

Date: 7/6/98
Report Generated

Navy Public Works Center
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Address: Bldg 458, Code 400
NAS Pensacola,FL 32508
Phone #: 452 4315
Contact: Paul Semmes

Analytical Report
610 PAH's by Method 8270

Lab Report Number: 82347
Sample Date: 15 Jun 98
Received Date: 16 Jun 98
Sample Site: NAS KW, Trumbo Point
Job Order No.: 102 6293

LAB Sample ID#	1- 82347
Sample Name / Location	Trumbo MW #2076 BOQ
Collector's Name	P. Semmes
Date & Time Collected	15 Jun 98 @ 1610
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	18 Jun 98 JJ
Date of Analysis	26 Jun 98
Sample Matrix	GW
Dilution	X 1

Compound Name	1- 82347	units	Det. Limit	Flags
Acenaphthene	50	ug/l	2	
Acenaphthylene	BDL	ug/l	2	
Anthracene	BDL	ug/l	2	
Benzo(a)anthracene	BDL	ug/l	2	
Benzo(a)pyrene	BDL	ug/l	2	
Benzo(b)fluoranthene	BDL	ug/l	2	
Benzo(g,h,i)perylene	BDL	ug/l	2	
Benzo(k)fluoranthene	BDL	ug/l	3	
Chrysene	BDL	ug/l	2	
Dibenz(a,h)anthracene	BDL	ug/l	2	
Fluoranthene	2	ug/l	2	
Fluorene	19	ug/l	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/l	2	
1-Methylnaphthalene *	13	ug/L	2	
2-Methylnaphthalene	14	ug/l	3	
Naphthalene	460	ug/l	20	
Phenanthrene	17	ug/l	2	
Pyrene	BDL	ug/l	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	64
2-Fluorobiphenyl	43-116	66
Terphenyl -d14	33-141	65

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 7/6/98
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DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report

Ethylene Dibromide by Method 504

Client:	NPWC Engineering
Address:	Bldg 458, Code 400 NAS Pensacola,FL 32508
Phone #:	452 4315
Contact:	Paul Semmes

Lab Report Number:	82347
Sample Date:	15 Jun 98
Received Date:	16 Jun 98
Sample Site:	NAS KW, Trumbo Point
Job Order No.:	102 6293

LAB Sample ID#	1- 82347			
Sample Name / Location	Trumbo MW #2076 BOQ			
Collector's Name	P. Semmes			
Date & Time Collected	15 Jun 98 @ 1610			
Sample Type (composite or grab)	Grab			
Analyst	M. Chambers			
Date of Extraction / Initials	25 Jun 98 MC			
Date of Analysis	25 Jun 98			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 82347	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	86

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 7/6/98
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Analytical Report

Petroleum Range Organics by FLPRO

Client: NPWC Engineering
Address: Bldg 158, Code 400
NAS Pensacola,FL 32508
Phone #: 452 4315
Contact: Paul Semmes

Lab Report Number: 82347
Sample Date: 15 Jun 98
Received Date: 16 Jun 98
Sample Site: NAS KW, Trumbo Point
Job Order No.: 102 6293

LAB Sample ID#	1- 82347			
Sample Name / Location	Trumbo MW #2076 BOQ			
Collector's Name	P. Semmes			
Date & Time Collected	15 Jun 98 @ 1610			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	19 Jun 98 JJ			
Date of Analysis	2 Jul 98			
Sample Matrix	GW			
Dilution	1			
Parameter	1- 82347	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	0.55	mg/l	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	62-142 *	112
Nonatriacontane (C-39)	42-193 *	107

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Beus, Laboratory Director

Date: 7/6/98

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End of Report

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FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg 158, Code 400
NAS Pensacola,FL 32508
Phone #: 452-4315
Contact: Paul Semmes

Analytical Report

Total Lead by Method 239.2

Lab Report Number: 82347
Sample Date: 15 Jun 98
Received Date: 16 Jun 98
Sample Site: NAS KW, Trumbo Point
Job Order No.: 102 6293

LAB Sample ID#	1- 82347			
Sample Name / Location	Trumbo MW #2076 BOQ			
Collector's Name	P. Semmes			
Date & Time Collected	15 Jun 98 @ 1610			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	1 Jul 98			
Sample Matrix	GW			
Dilution		x	1	
Element Name	1- 82347	units	Det. Limit	Flags
Lead	BDL	mg/l	0.003	

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 7/6/98
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Client: NPWC Engineering
Address: Bldg. 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Greg Campbell

Analytical Report
Total Volatiles by Method 8260

Lab Report Number: 82532
Sample Date: 22 Jun 98
Received Date: 29 Jun 98
Sample Site: NAS Key West
Job Order No.: 102 6293

LAB Sample ID#	1- 82532			
Sample Name / Location	BOQ 2076 MW #1 (3')			
Collector's Name	G. Campbell			
Date & Time Collected	22 Jun 98 @ 1050			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	2 Jul 98 JM			
Date of Analysis	2 Jul 98			
Sample Matrix	Soil			
Dilution	X 1			
Compound Name	1- 82532	units	Det. Limit	Flags
Benzene	BDL	ug/Kg	1	
Bromobenzene	BDL	ug/Kg	2	
Bromochloromethane	BDL	ug/Kg	2	
Bromodichloromethane	BDL	ug/Kg	1	
Bromoform	BDL	ug/Kg	2	
Bromomethane	BDL	ug/Kg	4	
n-Butylbenzene	BDL	ug/Kg	3	
c-Butylbenzene	7	ug/Kg	3	
t-Butylbenzene	BDL	ug/Kg	3	
arbon Tetrachloride	BDL	ug/Kg	1	
Chlorobenzene	BDL	ug/Kg	2	
Chloroethane	BDL	ug/Kg	4	
Chloroform	BDL	ug/Kg	1	
Chloromethane	BDL	ug/Kg	1	
2-Chlorotoluene *	BDL	ug/Kg	2	
4-Chlorotoluene *	BDL	ug/Kg	2	
Dibromochloromethane	BDL	ug/Kg	2	
1,2-Dibromo-3-chloropropane *	BDL	ug/Kg	4	
1,2-Dibromoethane	BDL	ug/Kg	2	
Dibromomethane	BDL	ug/Kg	2	
1,2-Dichlorobenzene	BDL	ug/Kg	3	
1,3-Dichlorobenzene	BDL	ug/Kg	3	
1,4-Dichlorobenzene	BDL	ug/Kg	3	
Dichlorodifluoromethane	BDL	ug/Kg	2	
1,1-Dichloroethane	BDL	ug/Kg	1	
1,2-Dichloroethane	BDL	ug/Kg	1	
1,1-Dichloroethene	BDL	ug/Kg	2	
cis-1,2-Dichloroethene	BDL	ug/Kg	2	
trans-1,2-Dichloroethene	BDL	ug/Kg	1	
1,2-Dichloropropane	BDL	ug/Kg	2	
1,3-Dichloropropane	BDL	ug/Kg	2	
2,2-Dichloropropane	BDL	ug/Kg	1	
1,1-Dichloropropene	BDL	ug/Kg	2	
Ethylbenzene	BDL	ug/Kg	2	
Ethyl ether *	BDL	ug/Kg	2	
Hexachlorobutadiene	BDL	ug/Kg	5	
Hexanone *	BDL	ug/Kg	2	
propylbenzene	4	ug/Kg	2	
Isopropyltoluene	BDL	ug/Kg	3	

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Client: NPWC Engineering
Address: Bldg. 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Greg Campbell

Analytical Report

Total Volatiles by Method 8260

Lab Report Number: 82532
Sample Date: 22 Jun 98
Received Date: 29 Jun 98
Sample Site: NAS Key West
Job Order No.: 102 6293

Compound Name	1- 82532	units	Det. Limit	Flags
Methylene Chloride	BDL	ug/Kg	1	
Methyl ethyl ketone (MEK) *	BDL	ug/Kg	4	
Methyl isobutyl ketone (MIBK) *	BDL	ug/Kg	3	
Methyl-tert-butyl ether (MTBE)	BDL	ug/Kg	2	
Naphthalene	BDL	ug/Kg	4	
n-Propylbenzene	4	ug/Kg	2	
Styrene	BDL	ug/Kg	2	
1,1,1,2-Tetrachloroethane	BDL	ug/Kg	2	
1,1,2,2-Tetrachloroethane	BDL	ug/Kg	3	
Tetrachloroethene	BDL	ug/Kg	2	
Toluene	BDL	ug/Kg	4	
1,2,3-Trichlorobenzene	BDL	ug/Kg	4	
1,2,4-Trichlorobenzene	BDL	ug/Kg	2	
1,1,1-Trichloroethane	BDL	ug/Kg	1	
1,1,2-Trichloroethane	BDL	ug/Kg	2	
Trichloroethene	BDL	ug/Kg	2	
Trichlorofluoromethane	BDL	ug/Kg	2	
1,1,2-Trichloro-1,2,2-Trifluoroethane *	BDL	ug/Kg	1	
1,2,3-Trichloropropane	BDL	ug/Kg	3	
1,2,4-Trimethylbenzene	3	ug/Kg	3	
1,3,5-Trimethylbenzene	BDL	ug/Kg	3	
[illegible]yl Chloride	BDL	ug/Kg	1	
[illegible],p-Xylene	BDL	ug/Kg	4	
[illegible]-Xylene	BDL	ug/Kg	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-120	110
Toluene-d8	81-117	104
Bromofluorobenzene	74-121	93

Explanation of Flags:

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : C-26
Jerry Dees, Laboratory Director

Date: 7/20/98
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End of Report

Navy Public Works Center

Environmental Laboratory

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Analytical Report

610 PAH's by Method 8270

Client:	NPWC Engineering	Lab Report Number:	82532
Address:	Bldg. 458, Code 400	Sample Date:	22 Jun 98
	NAS Pensacola,FL 32508	Received Date:	29 Jun 98
Phone #:	452-4315	Sample Site:	Key West
Contact:	Greg Campbell	Job Order No.:	102 6293

LAB Sample ID#	1- 82532			
Sample Name / Location	BOQ 2076 MW #1 (3')			
Collector's Name	G. Campbell			
Date & Time Collected	22 Jun 98 @ 1050			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	2 Jul 98 JJ			
Date of Analysis	13 Jul 98			
Sample Matrix	Soil			
Dilution	X 1			
Compound Name	1- 82532	units	Det. Limit	Flags
Acenaphthene	BDL	ug/Kg	160	
Acenaphthylene	BDL	ug/Kg	190	
Anthracene	BDL	ug/Kg	170	
Benzo(a)anthracene	BDL	ug/Kg	160	
Benzo(a)pyrene	BDL	ug/Kg	180	
Benzo(b)fluoranthene	BDL	ug/Kg	160	
Benzo(g,h,i)perylene	BDL	ug/Kg	180	
Benzo(k)fluoranthene	BDL	ug/Kg	210	
Chrysene	BDL	ug/Kg	170	
Dibenz(a,h)anthracene	BDL	ug/Kg	170	
Fluoranthene	BDL	ug/Kg	180	
Fluorene	54**	ug/Kg	160	
Indeno(1,2,3-cd)pyrene	BDL	ug/Kg	180	
1-Methylnaphthalene *	BDL	ug/Kg	200	
2-Methylnaphthalene	BDL	ug/Kg	220	
Naphthalene	BDL	ug/Kg	160	
Phenanthrene	100**	ug/Kg	180	
Pyrene	BDL	ug/Kg	200	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	23-120	64
2-Fluorobiphenyl	30-115	79
Terphenyl -d14	18-137	98

COMMENTS : **-compound detected, but below detection limits

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

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Approved by : Jerry Dees, Laboratory Director

Date: 7/22/98
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Analytical Report
Petroleum Range Organics by FLPRO

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DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg. 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Greg Campbell

Lab Report Number: 82532
Sample Date: 22 Jun 98
Received Date: 29 Jun 98
Sample Site: Key West
Job Order No.: 102 6293

LAB Sample ID#	1- 82532			
Sample Name / Location	BOQ 2076 MW #1 (3')			
Collector's Name	G. Campbell			
Date & Time Collected	22 Jun 98 @ 1050			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	2 Jul 98 JJ			
Date of Analysis	15 Jul 98			
Sample Matrix	Soil			
Dilution	x 1			
Parameter	1- 82532	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	13	mgkg	8	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	
ortho-Terphenyl	82-142	107
Nonatriacontane (C-39)	42-193	120

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees/Laboratory Director

Date: 7/22/98

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End of Report

Navy Public Works Center

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FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg. 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Greg Campbell

Analytical Report

Total Volatiles by Method 8260

Lab Report Number: 82533
Sample Date: 22 Jun 98
Received Date: 29 Jun 98
Sample Site: NAS Key West
Job Order No.: 102 6293

LAB Sample ID#	1- 82533
Sample Name / Location	BOQ 2076 MW #4 (3')
Collector's Name	G. Campbell
Date & Time Collected	22 Jun 98 @ 1445
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	2 Jul 98 JM
Date of Analysis	2 Jul 98
Sample Matrix	Soil
Dilution	X 1

Compound Name	1- 82533	units	Det. Limit	Flags
Benzene	BDL	ug/Kg	1	
Bromobenzene	BDL	ug/Kg	2	
Bromochloromethane	BDL	ug/Kg	2	
Bromodichloromethane	BDL	ug/Kg	1	
Bromoform	BDL	ug/Kg	2	
Bromomethane	BDL	ug/Kg	4	
n-Butylbenzene	14	ug/Kg	3	
sec-Butylbenzene	BDL	ug/Kg	3	
t-Butylbenzene	BDL	ug/Kg	3	
Carbon Tetrachloride	BDL	ug/Kg	1	
Chlorobenzene	BDL	ug/Kg	2	
Chloroethane	BDL	ug/Kg	4	
Chloroform	BDL	ug/Kg	1	
Chloromethane	BDL	ug/Kg	1	
2-Chlorotoluene *	BDL	ug/Kg	2	
4-Chlorotoluene *	BDL	ug/Kg	2	
Dibromochloromethane	BDL	ug/Kg	2	
1,2-Dibromo-3-chloropropane *	BDL	ug/Kg	4	
1,2-Dibromoethane	BDL	ug/Kg	2	
Dibromomethane	BDL	ug/Kg	2	
1,2-Dichlorobenzene	BDL	ug/Kg	3	
1,3-Dichlorobenzene	BDL	ug/Kg	3	
1,4-Dichlorobenzene	BDL	ug/Kg	3	
Dichlorodifluoromethane	BDL	ug/Kg	2	
1,1-Dichloroethane	BDL	ug/Kg	1	
1,2-Dichloroethane	BDL	ug/Kg	1	
1,1-Dichloroethene	BDL	ug/Kg	2	
cis-1,2-Dichloroethene	BDL	ug/Kg	2	
trans-1,2-Dichloroethene	BDL	ug/Kg	1	
1,2-Dichloropropane	BDL	ug/Kg	2	
1,3-Dichloropropane	BDL	ug/Kg	2	
2,2-Dichloropropane	BDL	ug/Kg	1	
1,1-Dichloropropene	BDL	ug/Kg	2	
Ethylbenzene	BDL	ug/Kg	2	
Ethyl ether *	BDL	ug/Kg	2	
Hexachlorobutadiene	BDL	ug/Kg	5	
2-Hexanone *	BDL	ug/Kg	2	
Isopropylbenzene	BDL	ug/Kg	2	
Isopropyltoluene	BDL	ug/Kg	3	

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Client: NPWC Engineering
Address: Bldg. 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Greg Campbell

Analytical Report
Total Volatiles by Method 8260

Lab Report Number: 82533
Sample Date: 22 Jun 98
Received Date: 29 Jun 98
Sample Site: NAS Key West
Job Order No.: 102 6293

Compound Name	1- 82533	units	Det. Limit	Flags
Methylene Chloride	BDL	ug/Kg	1	
Methyl ethyl ketone (MEK) *	BDL	ug/Kg	4	
Methyl isobutyl ketone (MIBK) *	BDL	ug/Kg	3	
Methyl-tert-butyl ether (MTBE)	BDL	ug/Kg	2	
Naphthalene	BDL	ug/Kg	4	
n-Propylbenzene	BDL	ug/Kg	2	
Styrene	BDL	ug/Kg	2	
1,1,1,2-Tetrachloroethane	BDL	ug/Kg	2	
1,1,2,2-Tetrachloroethane	BDL	ug/Kg	3	
Tetrachloroethene	BDL	ug/Kg	2	
Toluene	BDL	ug/Kg	4	
1,2,3-Trichlorobenzene	BDL	ug/Kg	4	
1,2,4-Trichlorobenzene	BDL	ug/Kg	2	
1,1,1-Trichloroethane	BDL	ug/Kg	1	
1,1,2-Trichloroethane	BDL	ug/Kg	2	
Trichloroethene	BDL	ug/Kg	2	
Trichlorofluoromethane	BDL	ug/Kg	2	
1,1,2-Trichloro-1,2,2-Trifluoroethane *	BDL	ug/Kg	1	
1,2,3-Trichloropropane	BDL	ug/Kg	3	
1,2,4-Trimethylbenzene	BDL	ug/Kg	3	
1,3,5-Trimethylbenzene	BDL	ug/Kg	3	
yl Chloride	BDL	ug/Kg	1	
,p-Xylene	BDL	ug/Kg	4	
-Xylene	BDL	ug/Kg	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-120	110
Toluene-d8	81-117	110
Bromofluorobenzene	74-121	114

Explanation of Flags:

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 7/20/98
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End of Report

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Analytical Report
610 PAH's by Method 8270

Client:	NPWC Engineering	Lab Report Number:	82533
Address:	Bldg. 458, Code 400	Sample Date:	22 Jun 98
	NAS Pensacola,FL 32508	Received Date:	29 Jun 98
Phone #:	452-4315	Sample Site:	Key West
Contact:	Greg Campbell	Job Order No.:	102 6293

LAB Sample ID#	1- **82533**
Sample Name / Location	BOQ 2076 MW #4 (3')
Collector's Name	G. Campbell
Date & Time Collected	22 Jun 98 @ 1445
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	2 Jul 98 JJ
Date of Analysis	13 Jul 98
Sample Matrix	Soil
Dilution	X 1

Compound Name	1- 82533	units	Det. Limit	Flags
Acenaphthene	BDL	ug/Kg	160	
Acenaphthylene	BDL	ug/Kg	190	
Anthracene	BDL	ug/Kg	170	
Benzo(a)anthracene	58**	ug/Kg	160	
Benzo(a)pyrene	110**	ug/Kg	180	
Benzo(b)fluoranthene	110**	ug/Kg	160	
Benzo(g,h,I)perylene	62**	ug/Kg	180	
Benzo(k)fluoranthene	86**	ug/Kg	210	
Chrysene	BDL	ug/Kg	170	
Dibenz(a,h)anthracene	BDL	ug/Kg	170	
Fluoranthene	BDL	ug/Kg	180	
Fluorene	BDL	ug/Kg	160	
Indeno(1,2,3-cd)pyrene	59**	ug/Kg	180	
1-Methylnaphthalene *	BDL	ug/Kg	200	
2-Methylnaphthalene	BDL	ug/Kg	220	
Naphthalene	BDL	ug/Kg	160	
Phenanthrene	BDL	ug/Kg	180	
Pyrene	110**	ug/Kg	200	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	23-120	56
2-Fluorobiphenyl	30-115	57
Terphenyl -d14	18-137	98

COMMENTS : **-compound detected, but below detection limits

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 7/22/98
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End of Report

Navy Public Works Center
Environmental Laboratory

Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg. 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Greg Campbell

Lab Report Number: 82533
Sample Date: 22 Jun 98
Received Date: 29 Jun 98
Sample Site: Key West
Job Order No.: 102 6293

LAB Sample ID#	1- 82533			
Sample Name / Location	BOQ 2076 MW #4 (3')			
Collector's Name	G. Campbell			
Date & Time Collected	22 Jun 98 @ 1445			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	2 Jul 98 JJ			
Date of Analysis	15 & 16 Jul 98			
Sample Matrix	Soil			
Dilution	x 10			
Parameter	1- 82533	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	6100	mgkg	83	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	
ortho-Terphenyl	82-142	93
Nonatriacontane (C-39)	42-193	100

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 7/22/98

C-32

End of Report

Navy Public Works Center

Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg. 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Greg Campbell

Analytical Report

Total Volatiles by Method 8260

Lab Report Number: 82534
Sample Date: 22 Jun 98
Received Date: 29 Jun 98
Sample Site: NAS Key West
Job Order No.: 102 6293

LAB Sample ID#	1- 82534			
Sample Name / Location	BOQ 2076 MW #6 (1')			
Collector's Name	G. Campbell			
Date & Time Collected	22 Jun 98 @ 1650			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	2 Jul 98 JM			
Date of Analysis	2 Jul 98			
Sample Matrix	Soil			
Dilution	X 1			
Compound Name	1- 82534	units	Det. Limit	Flags
Benzene	BDL	ug/Kg	1	
Bromobenzene	BDL	ug/Kg	2	
Bromochloromethane	BDL	ug/Kg	2	
Bromodichloromethane	BDL	ug/Kg	1	
Bromoform	BDL	ug/Kg	2	
Bromomethane	BDL	ug/Kg	4	
n-Butylbenzene	BDL	ug/Kg	3	
-Butylbenzene	BDL	ug/Kg	3	
-Butylbenzene	BDL	ug/Kg	3	
arbon Tetrachloride	BDL	ug/Kg	1	
Chlorobenzene	BDL	ug/Kg	2	
Chloroethane	BDL	ug/Kg	4	
Chloroform	BDL	ug/Kg	1	
Chloromethane	BDL	ug/Kg	1	
2-Chlorotoluene *	BDL	ug/Kg	2	
4-Chlorotoluene *	BDL	ug/Kg	2	
Dibromochloromethane	BDL	ug/Kg	2	
1,2-Dibromo-3-chloropropane *	BDL	ug/Kg	4	
1,2-Dibromoethane	BDL	ug/Kg	2	
Dibromomethane	BDL	ug/Kg	2	
1,2-Dichlorobenzene	BDL	ug/Kg	3	
1,3-Dichlorobenzene	BDL	ug/Kg	3	
1,4-Dichlorobenzene	BDL	ug/Kg	3	
Dichlorodifluoromethane	BDL	ug/Kg	2	
1,1-Dichloroethane	BDL	ug/Kg	1	
1,2-Dichloroethane	BDL	ug/Kg	1	
1,1-Dichloroethene	BDL	ug/Kg	2	
cis-1,2-Dichloroethene	BDL	ug/Kg	2	
trans-1,2-Dichloroethene	BDL	ug/Kg	1	
1,2-Dichloropropane	BDL	ug/Kg	2	
1,3-Dichloropropane	BDL	ug/Kg	2	
2,2-Dichloropropane	BDL	ug/Kg	1	
1,1-Dichloropropene	BDL	ug/Kg	2	
Ethylbenzene	BDL	ug/Kg	2	
Ethyl ether *	BDL	ug/Kg	2	
Hexachlorobutadiene	BDL	ug/Kg	5	
Hexanone *	BDL	ug/Kg	2	
propylbenzene	BDL	ug/Kg	2	
-Isopropyltoluene	BDL	ug/Kg	3	

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Navy Public Works Center
Environmental Laboratory

.dg. 3887, Code 440
NAS Pensacola, FL 32508
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DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Greg Campbell

Analytical Report

Total Volatiles by Method 8260

Lab Report Number: 82534
Sample Date: 22 Jun 98
Received Date: 29 Jun 98
Sample Site: NAS Key West
Job Order No.: 102 6293

Compound Name	1- 82534	units	Det. Limit	Flags
Methylene Chloride	BDL	ug/Kg	1	
Methyl ethyl ketone (MEK) *	BDL	ug/Kg	4	
Methyl isobutyl ketone (MIBK) *	BDL	ug/Kg	3	
Methyl-tert-butyl ether (MTBE)	BDL	ug/Kg	2	
Naphthalene	BDL	ug/Kg	4	
n-Propylbenzene	BDL	ug/Kg	2	
Styrene	BDL	ug/Kg	2	
1,1,1,2-Tetrachloroethane	BDL	ug/Kg	2	
1,1,2,2-Tetrachloroethane	BDL	ug/Kg	3	
Tetrachloroethene	BDL	ug/Kg	2	
Toluene	BDL	ug/Kg	4	
1,2,3-Trichlorobenzene	BDL	ug/Kg	4	
1,2,4-Trichlorobenzene	BDL	ug/Kg	2	
1,1,1-Trichloroethane	BDL	ug/Kg	1	
1,1,2-Trichloroethane	BDL	ug/Kg	2	
Trichloroethene	BDL	ug/Kg	2	
Trichlorofluoromethane	BDL	ug/Kg	2	
1,1,2-Trichloro-1,2,2-Trifluoroethane *	BDL	ug/Kg	1	
1,2,3-Trichloropropane	BDL	ug/Kg	3	
1,2,4-Trimethylbenzene	BDL	ug/Kg	3	
1,3,5-Trimethylbenzene	BDL	ug/Kg	3	
yl Chloride	BDL	ug/Kg	1	
n,p-Xylene	BDL	ug/Kg	4	
-Xylene	BDL	ug/Kg	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-120	108
Toluene-d8	81-117	117
Bromofluorobenzene	74-121	85

Explanation of Flags:

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 7/20/98
Report Generated

End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg. 458, Code 400
NAS Pensacola,FL 32508
Phone #: 452-4315
Contact: Greg Campbell

Analytical Report
610 PAH's by Method 8270

Lab Report Number: 82534
Sample Date: 22 Jun 98
Received Date: 29 Jun 98
Sample Site: Key West
Job Order No.: 102 6293

LAB Sample ID#	1- 82534			
Sample Name / Location	BOQ 2076 MW #6 (1')			
Collector's Name	G. Campbell			
Date & Time Collected	22 Jun 98 @ 1650			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	2 Jul 98 JJ			
Date of Analysis	13 Jul 98			
Sample Matrix	Soil			
Dilution	X 1			
Compound Name	**1- 82534**	**units**	**Det. Limit**	**Flags**
Acenaphthene	BDL	ug/Kg	160	
Acenaphthylene	BDL	ug/Kg	190	
Anthracene	BDL	ug/Kg	170	
Benzo(a)anthracene	34**	ug/Kg	160	
Benzo(a)pyrene	BDL	ug/Kg	180	
Benzo(b)fluoranthene	36**	ug/Kg	160	
Benzo(g,h,i)perylene	BDL	ug/Kg	180	
Benzo(k)fluoranthene	BDL	ug/Kg	210	
Chrysene	BDL	ug/Kg	170	
Dibenz(a,h)anthracene	BDL	ug/Kg	170	
Fluoranthene	49**	ug/Kg	180	
Fluorene	BDL	ug/Kg	160	
Indeno(1,2,3-cd)pyrene	BDL	ug/Kg	180	
1-Methylnaphthalene *	BDL	ug/Kg	200	
2-Methylnaphthalene	BDL	ug/Kg	220	
Naphthalene	BDL	ug/Kg	160	
Phenanthrene	BDL	ug/Kg	180	
Pyrene	43**	ug/Kg	200	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	23-120	64
2-Fluorobiphenyl	30-115	79
Terphenyl -d14	18-137	95

COMMENTS : **-compound detected, but below detection limits

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 7/22/98
Report Generated

End of Report

Navy Public Works Center
Environmental Laboratory

Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg. 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Greg Campbell

Lab Report Number: 82534
Sample Date: 22 Jun 98
Received Date: 29 Jun 98
Sample Site: Key West
Job Order No.: 102 6293

LAB Sample ID#	1- 82534			
Sample Name / Location	BOQ 2076 MW #6 (1')			
Collector's Name	G. Campbell			
Date & Time Collected	22 Jun 98 @ 1650			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	2 Jul 98 JJ			
Date of Analysis	15 Jul 98			
Sample Matrix	Soil			
Dilution	x 1			
Parameter	1- 82534	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	BDL	mgkg	8	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	
ortho-Terphenyl	82-142	98
Nonatriacontane (C-39)	42-193	96

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 7/22/98

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End of Report

Navy Public Works Center

Environmental Laboratory

Bldg. 3887, Code 440
S Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg. 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Greg Campbell

Analytical Report

Total Volatiles by Method 8260

Lab Report Number: 82535
Sample Date: 22 Jun 98
Received Date: 29 Jun 98
Sample Site: NAS Key West
Job Order No.: 102 6293

LAB Sample ID#	1- 82535			
Sample Name / Location	BOQ 2076 MW #6 (3')			
Collector's Name	G. Campbell			
Date & Time Collected	22 Jun 98 @ 1700			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	2 Jul 98 JM			
Date of Analysis	2 Jul 98			
Sample Matrix	Soil			
Dilution		X	1	
Compound Name	**1- 82535**	**units**	**Det. Limit**	**Flags**
Benzene	BDL	ug/Kg	1	
Bromobenzene	BDL	ug/Kg	2	
Bromochloromethane	BDL	ug/Kg	2	
Bromodichloromethane	BDL	ug/Kg	1	
Bromoform	BDL	ug/Kg	2	
Bromomethane	BDL	ug/Kg	4	
n-Butylbenzene	61	ug/Kg	3	
Butylbenzene	82	ug/Kg	3	
-Butylbenzene	BDL	ug/Kg	3	
bon Tetrachloride	BDL	ug/Kg	1	
Chlorobenzene	BDL	ug/Kg	2	
Chloroethane	BDL	ug/Kg	4	
Chloroform	BDL	ug/Kg	1	
Chloromethane	BDL	ug/Kg	1	
2-Chlorotoluene *	BDL	ug/Kg	2	
4-Chlorotoluene *	BDL	ug/Kg	2	
Dibromochloromethane	BDL	ug/Kg	2	
1,2-Dibromo-3-chloropropane *	BDL	ug/Kg	4	
1,2-Dibromoethane	BDL	ug/Kg	2	
Dibromomethane	BDL	ug/Kg	2	
1,2-Dichlorobenzene	BDL	ug/Kg	3	
1,3-Dichlorobenzene	BDL	ug/Kg	3	
1,4-Dichlorobenzene	BDL	ug/Kg	3	
Dichlorodifluoromethane	BDL	ug/Kg	2	
1,1-Dichloroethane	BDL	ug/Kg	1	
1,2-Dichloroethane	BDL	ug/Kg	1	
1,1-Dichloroethene	BDL	ug/Kg	2	
cis-1,2-Dichloroethene	BDL	ug/Kg	2	
trans-1,2-Dichloroethene	BDL	ug/Kg	1	
1,2-Dichloropropane	BDL	ug/Kg	2	
1,3-Dichloropropane	BDL	ug/Kg	2	
2,2-Dichloropropane	BDL	ug/Kg	1	
1,1-Dichloropropene	BDL	ug/Kg	2	
Ethylbenzene	41	ug/Kg	2	
Ethyl ether *	BDL	ug/Kg	2	
Hexachlorobutadiene	BDL	ug/Kg	5	
'exanone *	BDL	ug/Kg	2	
,ropylbenzene	76	ug/Kg	2	
sopropyltoluene	77	ug/Kg	3	

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Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NPWC Engineering
Address: Bldg. 458, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Greg Campbell

Analytical Report
Total Volatiles by Method 8260

Lab Report Number: 82535
Sample Date: 22 Jun 98
Received Date: 29 Jun 98
Sample Site: NAS Key West
Job Order No.: 102 6293

Compound Name	1- 82535	units	Det. Limit	Flags
Methylene Chloride	BDL	ug/Kg	1	
Methyl ethyl ketone (MEK) *	BDL	ug/Kg	4	
Methyl isobutyl ketone (MIBK) *	BDL	ug/Kg	3	
Methyl-tert-butyl ether (MTBE)	BDL	ug/Kg	2	
Naphthalene	38	ug/Kg	4	
n-Propylbenzene	79	ug/Kg	2	
Styrene	BDL	ug/Kg	2	
1,1,1,2-Tetrachloroethane	BDL	ug/Kg	2	
1,1,2,2-Tetrachloroethane	BDL	ug/Kg	3	
Tetrachloroethene	BDL	ug/Kg	2	
Toluene	BDL	ug/Kg	4	
1,2,3-Trichlorobenzene	BDL	ug/Kg	4	
1,2,4-Trichlorobenzene	BDL	ug/Kg	2	
1,1,1-Trichloroethane	BDL	ug/Kg	1	
1,1,2-Trichloroethane	BDL	ug/Kg	2	
Trichloroethene	BDL	ug/Kg	2	
Trichlorofluoromethane	BDL	ug/Kg	2	
1,1,2-Trichloro-1,2,2-Trifluoroethane *	BDL	ug/Kg	1	
1,2,3-Trichloropropane	BDL	ug/Kg	3	
1,2,4-Trimethylbenzene	BDL	ug/Kg	3	
1,3,5-Trimethylbenzene	81	ug/Kg	3	
Vinyl Chloride	BDL	ug/Kg	1	
m,p-Xylene	53	ug/Kg	4	
o-Xylene	83	ug/Kg	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-120	113
Toluene-d8	81-117	107
Bromofluorobenzene	74-121	104

Explanation of Flags:

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 7/20/98
Report Generated

End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report
610 PAH's by Method 8270

Client:	NPWC Engineering	Lab Report Number:	82535
Address:	Bldg. 458, Code 400 NAS Pensacola,FL 32508	Sample Date:	22 Jun 98
		Received Date:	29 Jun 98
Phone #:	452-4315	Sample Site:	Key West
Contact:	Greg Campbell	Job Order No.:	102 6293

LAB Sample ID#	1- **82535**
Sample Name / Location	BOQ 2076 MW #6 (3')
Collector's Name	G. Campbell
Date & Time Collected	22 Jun 98 @ 1700
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	2 Jul 98 JJ
Date of Analysis	13 Jul 98
Sample Matrix	Soil
Dilution	X 1

Compound Name	1- 82535	units	Det. Limit	Flags
Acenaphthene	BDL	ug/Kg	160	
Acenaphthylene	BDL	ug/Kg	190	
Anthracene	BDL	ug/Kg	170	
Benzo(a)anthracene	BDL	ug/Kg	160	
Benzo(a)pyrene	BDL	ug/Kg	180	
Benzo(b)fluoranthene	BDL	ug/Kg	160	
Benzo(g,h,i)perylene	BDL	ug/Kg	180	
zo(k)fluoranthene	BDL	ug/Kg	210	
ysene	BDL	ug/Kg	170	
enz(a,h)anthracene	BDL	ug/Kg	170	
Fluoranthene	BDL	ug/Kg	180	
Fluorene	BDL	ug/Kg	160	
Indeno(1,2,3-cd)pyrene	BDL	ug/Kg	180	
1-Methylnaphthalene *	**700**	ug/Kg	200	
2-Methylnaphthalene	**860**	ug/Kg	220	
Naphthalene	**590**	ug/Kg	160	
Phenanthrene	BDL	ug/Kg	180	
Pyrene	BDL	ug/Kg	200	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	23-120	109
2-Fluorobiphenyl	30-115	96
Terphenyl -d14	18-137	87

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 7/22/98
Report Generated

End of Report

Navy Public Works Center
Environmental Laboratory

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NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report
Petroleum Range Organics by FLPRO

Client: NPWC Engineering
Address: Bldg. 456, Code 400
NAS Pensacola, FL 32508
Phone #: 452-4315
Contact: Greg Campbell

Lab Report Number: 82535
Sample Date: 22 Jun 98
Received Date: 29 Jun 98
Sample Site: Key West
Job Order No.: 102 6293

LAB Sample ID#	1- 82535			
Sample Name / Location	BOQ 2076 MW #6 (3')			
Collector's Name	G. Campbell			
Date & Time Collected	22 Jun 98 @ 1120			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	2 Jul 98 JJ			
Date of Analysis	15 Jul 98			
Sample Matrix	Soil			
Dilution	x 1			
Parameter	1- 82535	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	910	mgkg	8	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	
ortho-Terphenyl	82-142	108
Nonatriacontane (C-39)	42-193	116

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Does, Laboratory Director

Date: 7/22/98

C-40

End of Report

HAZARDOUS WASTE CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

NPWC Environmental Laboratory
Bldg. 3267, Code 920
NAS Pensacola, FL 32508
Phone: (904) 452-4728/3842
DSN: 922-4728/3842
FAX: (904) 452-2799/2387

Requestor:
Address:
Phone #: 452-4815
Contact: Cdr Campbell
Job Order #: 105-5-6-6-1024-228

Project Requirement: Yes No DERP? Yes No
Lab ID Number:
Sample Date: 4/22/98
Received Date: 4/29/98
Sample Size:
Comm:

Sample ID #	Lab	a-8-2532	m-8-2533	o-8-2534	y-2535	Notes:
Sample Name	----------	BOP 2026	BOP 2026	BOP 6-2026	BOP 2026	
or Location	----------	mw#4 (3')	mw#4 3'	mw#6 (1')	mw#6 (3')	
Sampled by	----------	GC	GC	GC	GC	
Collection	Date	4/22/98	4/22/98	4/22/98	4/22/98	
Date/Time	Time	1050	1415	1650	1200	
Sample Matrix	----------	Soil	Soil	Soil	Soil	

GROUP PARAMETERS by Method Name	METHOD #	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Form Units	Container Required (L/#)	Preservative(s) Used (Ulsorbic)
HW Charact. (complete)	EPA SW 846									35	See below	See below
Ignitability (Flashpoint)	SW 846 1010									2	250ml/4 oz.	4° C
Reactivity (Cyanide & Sulfide)	EPA SW-846									4	1L/4 oz.	4° C
Corrosivity (pH)	EPA SW 846 9040/9045									0.5	250ml/4 oz.	4° C
Toxicity (TCLP) complete	EPA SW-846									50	See below	See below
Toxicity (TCLP) complete	EPA SW-846									50	See below	See below
TCLP Non Volatile Extraction	SW 846 1311									4	40 mls/4 oz.	4° C
TCLP Volatile ZHE Extraction	SW 846 1311									4	1L/4 oz.	HCl to pH< 2/4° C
TCLP BNA Extractables	SW 846 8270									16	1Ls/4 oz.	4° C
TCLP Acid Extractables	SW 846 8270									8	1Ls/4 oz.	4° C
TCLP B/N Extractables	SW 846 8270									8	1Ls/4 oz.	4° C
TCLP Pesticides	SW 846 8080									8	1Ls/4 oz.	4° C
TCLP Herbicides	SW 846 8150									8	1Ls/4 oz.	4° C
TCLP Volatiles	SW 846 8260									8	40 ml x 3/4 oz.	HCl to pH< 2/4° C
TCLP Metals (8)	EPA SW-846									8.5	500 ml/4 oz.	HNO3 to pH< 2
Mutagenic Screen	EPA SW-846									+50%	See above	See above
Complete Priority Pollutants	EPA SW-846									40	See below	See below
PP Acid Extractables	SW 846 8270									8	1Ls/4 oz.	4° C
PP B/N Extractables	SW 846 8270									8	1Ls/4 oz.	4° C
PP Pesticides/PCB's	SW 846 8080									8	1Ls/4 oz.	4° C
PP Volatiles	SW 846 8260									6	40 ml x 3/4 oz.	HCl to pH< 2/4° C
PP Metals (13)	EPA SW-846									8	500 ml/4 oz.	HNO3 to pH< 2
PP Cyanide/Phenol	EPA SW-846									4	1L Phenol/1L Cyan.	NaOH/AA, SO3
Toxicity (TCLP) Ion Pest/Herb	EPA SW-846									38	See below	See below
F001 - F005 Solvents	EPA SW-846									24	1L/4 Comp/4 oz.	4° C
Kerosene And Cetane (FL-PRO)	SW-846/FL PRO									24	50 ml	As Received
FL-PRO	FL DEP	X		X		X		X		9	1Ls/16 oz.	HCl, N pH< 2/4° C
Total Volatiles	SW 846 8260	X	+MTBE	X	+MTBE	X	+MTBE	X	+MTBE	6	40 ml/4 oz.	HCl to pH< 2/4° C
Total BNA Extractables	SW 846 8270									16	1Ls/16 oz.	4° C
Total RCRA Metals (8)	EPA SW-846									8.5	500 ml/4 oz.	HNO3 to pH< 2
Single Metals	EPA SW-846									8	500 ml/4 oz.	HNO3 to pH< 2
PCB's in Oil	SW 846 8080									3	40 ml/4 oz.	None
PCB's in Water/Soil/Wipes	SW 846 8080									4	1L/4 oz.	None
Other: PAH	610	X		X		X		X		9		

Comments:

Relinquished by:
Date/Time:

Received by:
Date/Time: 4/29/98 1345

J:\Zip 2\Labwork\Labwork\Forms\Lab Lt.rev 10/2/98

MEMORANDUM

23-Oct-98

From: Laboratory (Code 690)
To: Greg Campbell (Code 400)

Subj: GROUNDWATER SAMPLING, KEY WEST, FL

Encl: Sampling Logs

1. Attached are groundwater sampling logs for monitoring wells at ~~Boca Chica~~ and Trumbo Pt., Key West, FL. Sampling was competed on 21 Oct 98 by John D. Riege, Kappa Laboritories, 12246 SW 131st Ave, Miami, Florida 33186.

2. If you need any further information, just let us know.

Kathy

KATHY REVELS

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS (UST Projects)

NPWC Environmental Laboratory
Bldg. 3937, Code 920
NAS Pensacola, FL 32508
Phone – (904) 452–4728/3642
DSN 922–4728/3642
FAX (904) 452–2799/2387

Requestor: NPWC ENGINEERING CODE 400
Address: BLDG 4[illegible]
NAS PENSACOLA, FL 32508
Phone #: 452-4[illegible]
Contact: GREG CAMPBELL
Job Order #: 102 5[illegible]

Report Required? Yes No QC Required? Yes No
2026 THUMBO
Lab ID Number:
Sample Date: 21 OCT '98
Received Date:
Sample Site: THUMBS PT. Key West
Lab Due Date:

Sample ID #	Lab	#1- 15956	#2- 8[illegible]	#3-	#4-	Notes
Sample Name	----------	MW	MW			
or Location	----------	#1	#10			
Sampled by	----------	JDR	JDR			
Composite	Begin					
Date/Time	Frequency	10-21-98	10-21-98			
Collected	End					
Grab Time	----------	23:55	23:00			
Sample Matrix	----------	GW	GW			

PARAMETER by Method Name	METHOD #	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Ethylene Dibromide (EDB)	EPA 504	X	2 AMB	X	2 AMB					3	120ml A VOA/4 oz.	None/4° C
Purg. Halocarbons/GC	EPA 601									4	40 ml VOA Vial x 2	HCl/4° C
Purg. Aromatics/GC	EPA 602									3	40 ml VOA Vial x 2	HCl/4° C
Purg. Halo. & Aro./GC	EPA 601/602	X	4 VOA	X	4 VOA					6	40 ml VOA Vial x 2	HCl/4° C
Polynuclear Aromatics/HPLC	EPA 610									7	1L Amber x 2	4° C
Purgeables/GCMS	EPA 624									8	40 ml VOA Vial x 2	HCl/4° C
Base/Neutrals & Acids/GCMS	EPA 625									15	1L Amber x 2	4° C
Gas Chromatography	EPA SW 8000									5	40mlx2/1Lx2/4 oz.	HCl/4° C/None
Halo. Vol. Org./GC	EPA SW 8010									4	40ml VOAx2/4 oz.	HCl/4° C/None
Non-Halo. Vol. Org./GC	EPA SW 8015(MOD)									4	40mlx2/1Lx2/4 oz.	HCl/4° C/None
Arom. Vol. Org./GC	EPA SW 8020									3	40ml VOAx2/4 oz.	HCl/4° C/None
Halo./Arom. Vol. Org./GC	EPA SW 8010/8020									6	40ml VOAx2/4 oz.	HCl/4° C/None
Polynuclear Aromatics/GC	EPA SW 8100									6	1Lx2/4 oz.	4° C/None
VOC/GCMS	EPA SW 8240A									8	40ml VOAx2/4 oz.	HCl/4° C/None
VOC/GCMS – Cap.	EPA SW 8260									8	40ml VOAx2/4 oz.	HCl/4° C/None
Semivol. Org./GCMS – Cap.	EPA SW 8270A									16	1Lx3/4 oz.	4° C/None
Polynuclear Aromatics (PAH's)	EPA SW 8310	X	2 AMB	X	2 AMB					9	1Lx3/4 oz.	4° C/None

PARAMETER by Group Name	METHOD SOURCE	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Gasoline Analytical Group	EPA SW-846									47	Consult Lab	Consult Lab
Kerosene Analytical Group	EPA SW-846									39	Consult Lab	Consult Lab
Mixed Product Analytical Group	EPA SW-846									24	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	EPA 418.1									2	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	FL-PRO	X	2 AMB	X	2 AMB					7	Consult Lab	Consult Lab
RCRA Metals (8)	EPA Various									8	Consult Lab	Consult Lab
TCLP Metals (8) w/extraction	EPA SW-846									10	Consult Lab	Consult Lab
Lead (Pb) only	EPA 239.2	X	1 PE	X	1 PE					1	250ml/4 oz.	HNO3/None
Other:												

Comments:

Relinquished by: John D. Rage
Date/Time: 22 OCT '98 @ 15:00

Received by: Kathy Brooks
Date/Time: 10/23/98 0900

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CHAIN OF CUSTODY/REQUEST FOR ANALYSIS (UST Projects)

NPWC Environmental Laboratory
Bldg. 3887, Code 920
NAS Pensacola, FL 32508
Phone – (904) 452–4728/3642
DSN 922–4728/3642
FAX (904) 452–2799/2387

Report Required? Yes No QC Required? Yes No

Requester: NPWC ENGINEERING CODE 400
Address: BLDG 4[illegible]3
NAS PENSACOLA, FL 32508
Phone #: 452-4[illegible]5
Contact: GREG CAMPBELL
Job Order #: 102 5[illegible]0

Lab ID Number: 2076 Trumbo
Sample Date: 21 OCT '98
Received Date:
Sample Site: Trumbo PL
Lab Due Date:

Sample ID #	Lab	#1- 8395	#2- 3[illegible]57	#3-	#4-	Notes
Sample Name or Location	----------	MW #6	MW #7			
Sampled by	----------	JDR	JDR			
Composite Date/Time Collected	Begin					
	Frequency	21 OCT-98	10-21-98			
	End					
Grab Time	----------	20:30	21:30			
Sample Matrix	----------	GW	GW			

PARAMETER by Method Name	METHOD #	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Ethylene Dibromide (EDB)	EPA 504	X	2AMB	X	2AMB					3	120ml A VOA/4 oz.	None/4° C
Purg Halocarbons/GC	EPA 601									4	40 ml VOA Vial x 2	HCl/4° C
Purg Aromatics/GC	EPA 602									3	40 ml VOA Vial x 2	HCl/4° C
Purg Halo & Aro /GC	EPA 601/602	X	4 VOA	X	4 VOA					6	40 ml VOA Vial x 2	HCl/4° C
Polynuclear Aromatics/HPLC	EPA 610									7	1L Amber x 2	4° C
Purgeables/GCMS	EPA 624									8	40 ml VOA Vial x 2	HCl/4° C
Base/Neutrals & Acids/GCMS	EPA 625									15	1L Amber x 2	4° C
Gas Chromatography	EPA SW 8000									5	40mlx2/1Lx2/4 oz.	HCl/4° C:None
Halo Vol Org /GC	EPA SW 8010									4	40ml VOAx2/4 oz.	HCl/4° C:None
Non-Halo Vol Org /GC	EPA SW 8015(MOD)									4	40mlx2/1Lx2/4 oz.	HCl/4° C:None
Arom Vol Org /GC	EPA SW 8020									3	40ml VOAx2/4 oz.	HCl/4° C:None
Halo /Arom Vol Org /GC	EPA SW 8010/8020									6	40ml VOAx2/4 oz.	HCl/4° C:None
Polynuclear Aromatics/GC	EPA SW 8100									6	1Lx2/4 oz.	4° C:None
VOC/GCMS	EPA SW 8240A									8	40ml VOAx2/4 oz.	HCl/4° C:None
VOC/GCMS – Cap	EPA SW 8260									8	40ml VOAx2/4 oz.	HCl/4° C:None
Semivol Org /GCMS – Cap	EPA SW 8270A									16	1Lx3/4 oz.	4° C:None
Polynuclear Aromatics (PAHs)	EPA SW 8310	X	2AMB	X	2AMB					9	1Lx3/4 oz.	4° C:None

PARAMETER by Group Name	METHOD SOURCE	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Gasoline Analytical Group	EPA SW-846									47	Consult Lab	Consult Lab
Kerosene Analytical Group	EPA SW-846									39	Consult Lab	Consult Lab
Mixed Product Analytical Group	EPA SW-846									24	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	EPA 418.1									2	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	FL-PRO	X	2AMB	X	2AMB					7	Consult Lab	Consult Lab
RCRA Metals (8)	EPA Various									8	Consult Lab	Consult Lab
TCLP Metals (8) w/extraction	EPA SW-846									10	Consult Lab	Consult Lab
Lead (Pb) only	EPA 239.2	X	1PL	X	1PL					1	250ml/4 oz	HNO3:None
Other:												

Comments

Relinquished by: John D. Rizzo
Date/Time: 22 OCT '98 @ 15:00

Received by: Kathy Brewis
Date/Time: 10/23/98 @ 0900

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CHAIN OF CUSTODY/REQUEST FOR ANALYSIS (UST Projects)

NPWC Environmental Laboratory
Bldg. 3887, Code 920,
NAS Pensacola, FL 32508
Phone – (904) 452–4728/3642
DSN 922–4728/3642
FAX (904) 452–2799/2387

Requester: NPWC ENGINEERING CODE 400
Address: BLDG 158
NAS PENSACOLA, FL 32508
Phone #: 452-4215
Contact: GREG CAMPBELL
Job Order #: 102 5050

Report Required? Yes No QC Required? Yes No
2076 TRUMBO
Lab ID Number:
Sample Date: 21 OCT '98
Received Date:
Sample Site: TRUMBO PT. KEY WEST
Lab Due Date:

Sample ID #	Lab	#1 53760	#2- 53761	#3- 53762	#4-	Notes
Sample Name	----------	MW	FIELD BLANK	TRIP BLANK		
or Location	----------	# 8				
Sampled by	----------					
Composite	Begin					
Date/Time	Frequency	10-21-98	10-21-98	10/21/98		
Collected	End					
Grab Time	----------	18:10	18:15			
Sample Matrix	----------	GW	WATER	SPRINGS – MIAMI FLA		

PARAMETER by Method Name	METHOD #	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Ethylene Dibromide (EDB)	EPA 504	X	2 AMB	X	3 AMB					3	120ml A VOA/4 oz	None/4° C
Purg. Halocarbons/GC	EPA 601									4	40 ml VOA Vial x 2	HCL/4° C
Purg. Aromatics/GC	EPA 602									3	40 ml VOA Vial x 2	HCL/4° C
Purg. Halo. & Aro./GC	EPA 601/602	X	4 VOA	X	4 VOA		1 VOA			6	40 ml VOA Vial x 2	HCL/4° C
Polynuclear Aromatics/HPLC	EPA 610									7	1L Amber x 2	4° C
Purgeables/GCMS	EPA 624									8	40 ml VOA Vial x 2	HCL/4° C
Base/Neutrals & Acids/GCMS	EPA 625									15	1L Amber x 2	4° C
Gas Chromatography	EPA SW 8000									5	40mlx2/1Lx2/4 oz.	HCL/4° C None
Halo. Vol. Org./GC	EPA SW 8010									4	40ml VOAx2/4 oz.	HCL/4° C None
Non–Halo. Vol. Org./GC	EPA SW 8015(MOD)									4	40mlx2/1Lx2/4 oz.	HCL/4° C None
Arom. Vol. Org./GC	EPA SW 8020									3	40ml VOAx2/4 oz.	HCL/4° C None
Halo./Arom. Vol. Org./GC	EPA SW 8010/8020									6	40ml VOAx2/4 oz.	HCL/4° C None
Polynuclear Aromatics/GC	EPA SW 8100									6	1Lx2/4 oz.	4° C None
VOC/GCMS	EPA SW 8240A									8	40ml VOAx2/4 oz.	HCL/4° C None
VOC/GCMS–Cap.	EPA SW 8260									8	40ml VOAx2/4 oz.	HCL/4° C None
Semivol. Org./GCMS–Cap.	EPA SW 8270A									10	1Lx3/4 oz.	4° C None
Polynuclear Aromatics (PAH's)	EPA SW 8310	X	2 AMB	X	3 AMB					9	1Lx3/4 oz	4° C None

PARAMETER by Group Name	METHOD SOURCE	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Gasoline Analytical Group	EPA SW–846									47	Consult Lab	Consult Lab
Kerosene Analytical Group	EPA SW–846									39	Consult Lab	Consult Lab
Mixed Product Analytical Group	EPA SW–846									24	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	EPA 418.1									2	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	FL–PRO	X	2 AMB	X	3 AMB					7	Consult Lab	Consult Lab
RCRA Metals (8)	EPA Various									6	Consult Lab	Consult Lab
TCLP Metals (8) w/extraction	EPA SW–846									10	Consult Lab	Consult Lab
Lead (Pb) only	EPA 239.2	X	1 PL	X	1 PL					1	250ml/4 oz	HNO_3 None
Other:												

Comments

Relinquished by: John D. Rizzo
Date/Time: 22 OCT '98 @ 15:00

Received by: Kathy Bergeron
Date/Time: 10/25/98 8:00

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Groundwater Sampling Log

NPWC Env. Lab., Bldg 3691, Code 920, NAS Pensacola, Fl 32508, CompQAP #920121G

Sampling Event Information: TRANSO PT. 2076

Location or name of groundwater well: HEY WEST BOB-~~2260~~ MW#1

Contact person and phone number: JOHN D. RIEGL (305) 905-7655

Date of sampling event: 21 OCT '98 DARK

Ambient conditions: HOT - HUMID - ~~SHOWER~~ - 10 kn

Person responsible for sampling: JDR

Initial Assessment:

How is the well labeled? #1 DOW PLAN

Is the well cover intact? (Yes) No

Is the well cover locked? Yes (No)

Is the well cap in place? (Yes) No

Is the well cap locked? (Yes) No

Is the well casing intact? (Yes) No

Is there an odor when cap removed? Yes (No) Describe:

Description of any discrepancies:

Well Volume Information:

What is the diameter of the well? (2") 4" 6" 8" 12" other:

What is the distance to the water table? (in feet): 37" ~ 3FT @ 16:56

What is the distance to the bottom of the well casing? (in feet): 12.0 FT

What is the water column height? (in feet): ~ 9FT

Well volume in gallons is equal to the height of the water column multiplied by the following factors: 2" = H x 0.17, 4" = H x 0.66, 6" = H x 1.48, 8" = H x 2.62, 12" = H x 5.90

What is the well volume? (show calculation): 0.17 X 9' ~ 1.53 GAL

Well Purging Information:

Purging equipment used: PERISTALTIC Material: TYGON

Cleaning protocol: — Date cleaned: NEW Cleaned by: —

If bailer used, what is volume? —

If submersible pump used, what is flow rate? 0.13 GPM ~ 0.51 L/MIN

What time did purging begin? (Date/Time 24 hr): 22:40 10-21-98 End?: 23:40

Describe appearance of water on initial purging: CLEAR

Meter calibration record:

pH meter: Time calib.: Standards: 4 7 10 Analyst:

Temperature: Correction factor: Analyst:

Conductivity meter: Standard used: Analyst:

Record stabilization criteria in table below:

Vol Evacuated in Gal	Time Analyzed	pH	Temperature	Conductivity

Total volume purged from well: 8 GAL How many well volumes: 5.2

Did well go dry? Yes (No) Did criteria stabilize? Yes No

Describe appearance of water after purging complete: CLEAR

Is there any odor not previously described? If so, what: * FUEL ODOR WHEN BAILING

Describe any problems or discrepancies:

ıpling Information:
pling device used: BAILER Material: HDPE
n protocol: — Date cleaned: NEW Cleaned by: —
parameters collected: EDB, PAH, TPH-FLA PRO, 601-602
sampling initiated: 23:40 Time sampling completed: 23:55
sampling completed within 6 hours of well purging? Yes No
ord sample information below: 21 OCT 19 MW#1

Field ID	Time collected	Bottle material	Preservative	pH after	Sampler
PB QUIET	23:40	1 HDPE	HNO_3	—	JDR
EDB	23:55	2 ACB	—	—	↓
PAH	↓	2 ACB	—	—	↓
TPH-FLA PRO	↓	2 ACB	H_2SO_4	—	↓
601/602	↓	4 FLINT	—	—	↓

ature of sampling person # 1: John D. Rieger
ature of sampling person # 2:
ature of sampling person # 3:

Minimum Field Quality Control Requirements

). amples	Precleaned EqB	Field Cleaned EqB	Trip Blank (VOCs)	Field Duplicates
10+	Minimum of one then 5%	Minimum of one then 5%	One per cooler	Minimum of one then 10%
5–9	one*	one*	Not Required	one
<5	one*	one*	Not Required	Not Required

For <9 samples, only one EqB required, Field cleaned EqB if field cleaning used.

es:

Groundwater Sampling Log

NPWC Env. Lab., Bldg 3691, Code 920, NAS Pensacola, Fl 32508, CompQAP #920121G

Sampling Event Information:

Location or name of groundwater well: TRUMBO PT REY WEST BOD 2076 MW #6

Contact person and phone number: JOHN D. RIGGS (305) 905-7655

Date of sampling event: 21 OCT 98

Ambient conditions: HOT - HUMID - SUNNY - 10 KN

Person responsible for sampling: JDR

Initial Assessment:

How is the well labeled? #6 on PLAN

Is the well cover intact? (Yes) No

Is the well cover locked? Yes (No)

Is the well cap in place? (Yes) No

Is the well cap locked? (Yes) No

Is the well casing intact? (Yes) No

Is there an odor when cap removed? Yes (No) Describe:

Description of any discrepancies:

Well Volume Information:

What is the diameter of the well? (2") 4" 6" 8" 12" other:

What is the distance to the water table? (in feet): 35.5" @ 16:44 ~ 3'

What is the distance to the bottom of the well casing? (in feet): 14'2"

What is the water column height? (in feet): 11.1 FT

Well volume in gallons is equal to the height of the water column multiplied by the following factors: 2" = H x 0.17, 4" = H x 0.66, 6" = H x 1.48, 8" = H x 2.62, 12" = H x 5.90

What is the well volume? (show calculation): 0.17 X 11.1 = 1.89 GAL

Well Purging Information:

Purging equipment used: PERISTALTIC Material: TYGON

Cleaning protocol: — Date cleaned: NEW Cleaned by: —

If bailer used, what is volume? —

If submersible pump used, what is flow rate? — 0.125 GPM = 0.48 L/MIN

What time did purging begin? (Date/Time 24 hr): 17:43 10-21-98 End?: 18:55

Describe appearance of water on initial purging: CLEAR

Meter calibration record:

pH meter: Time calib.: Standards: 4 7 10 Analyst:

Temperature: Correction factor: Analyst:

Conductivity meter: Standard used: Analyst:

Record stabilization criteria in table below:

Vol Evacuated in Gal	Time Analyzed	pH	Temperature	Conductivity

Total volume purged from well: 9 GAL How many well volumes: 4.8

Did well go dry? Yes (No) Did criteria stabilize? Yes No

Describe appearance of water after purging complete:

Is there any odor not previously described? If so, what: SLIGHT FUEL ODOR

Describe any problems or discrepancies: WHEN BAILING

ıpling Information:
pling device used: BAILER Material: HDPE
n. protocol: — Date cleaned: NEW Cleaned by: —
parameters collected: EDB, PAH, TPH-FLA PRO - 601/602
s. pling initiated: 20:15 Time sampling completed: 20:30
sampling completed within 6 hours of well purging? Yes No
ord sample information below: 21 OCT 98 MW #6

Field ID	Time collected	Bottle material	Preservative	pH after	Sampler
PD QUIET	18:55	1 HDPE	HNO_3	—	JDR
EDB	20:30	2 AMB	—		
PAH		2 AMB	—		
TPH-FLA PRO		2 AMB	H_2SO_4		
601/602		4 FLINT			

ıature of sampling person # 1: John D. Rieger
ıature of sampling person # 2:
ıature of sampling person # 3:

Minimum Field Quality Control Requirements

o. samples	Precleaned EqB	Field Cleaned EqB	Trip Blank (VOCs)	Field Duplicates
10+	Minimum of one then 5%	Minimum of one then 5%	One per cooler	Minimum of one then 10%
5–9	one*	one*	Not Required	one
<5	one*	one*	Not Required	Not Required

– For <9 samples, only one EqB required, Field cleaned EqB if field cleaning used.

tes:

Groundwater Sampling Log

NPWC Env. Lab., Bldg 3691, Code 920, NAS Pensacola, Fl 32508, Comp QAP #920121G

Sampling Event Information: TRANSO AT

Location or name of groundwater well: KEY WEST BOQ 2076 MW#7

Contact person and phone number: JOHN D. RIBE (305) 905-2655

Date of sampling event: 21 OCT '98

Ambient conditions: HOT - HUMID - SUNNY - 10 KN

Person responsible for sampling: JDR

Initial Assessment:

How is the well labeled? #7 ON PLAN

Is the well cover intact? (Yes) No

Is the well cover locked? Yes (No)

Is the well cap in place? (Yes) No

Is the well cap locked? (Yes) No

Is the well casing intact? (Yes) No

Is there an odor when cap removed? Yes (No) Describe:

Description of any discrepancies:

Well Volume Information:

What is the diameter of the well? (2") 4" 6" 8" 12" other:

What is the distance to the water table? (in feet): 32.75" @ 16:46 ~ 2.73'

What is the distance to the bottom of the well casing? (in feet): 14'3" ~ 14.2'

What is the water column height? (in feet): ~ 11.5 FT

Well volume in gallons is equal to the height of the water column multiplied by the following factors: 2" = H x 0.17, 4" = H x 0.66, 6" = H x 1.48, 8" = H x 2.62, 12" = H x 5.90

What is the well volume? (show calculation): 0.17 X 11.5 = 1.95 GAL

Well Purging Information:

Purging equipment used: PERISTALTIC Material: TYGON

Cleaning protocol: — Date cleaned: NEW Cleaned by: —

If bailer used, what is volume?

If submersible pump used, what is flow rate? 0.10 GPM ~ 0.37 L/MIN

What time did purging begin? (Date/Time 24 hr): 19:13 10-21-98 End?: 20:55

Describe appearance of water on initial purging: CLEAR

Meter calibration record:

pH meter: Time calib.: Standards: 4 7 10 Analyst:

Temperature: Correction factor: Analyst:

Conductivity meter: Standard used: Analyst:

Record stabilization criteria in table below:

Vol Evacuated in Gal	Time Analyzed	pH	Temperature	Conductivity

Total volume purged from well: 10 GAL How many well volumes: 5.1

Did well go dry? Yes (No) Did criteria stabilize? Yes No

Describe appearance of water after purging complete: CLEAR

Was there any odor not previously described? If so, what:

Describe any problems or discrepancies:

pling Information:
pling device used: BAILER Material: HDPE
ni protocol: — Date cleaned: Nbl Cleaned by: —
arameters collected: EDB, PAH, TPH-FLA PRD, 601/602
sampling initiated: 21:15 Time sampling completed: 21:30
sampling completed within 6 hours of well purging? Yes No
rd sample information below: 21 OCT 98 MW#7

Field ID	Time collected	Bottle material	Preservative	pH after	Sampler
D QUIET	20:55	1 HDPE	HNO_3	—	JDR
EDB	21:30	2 AMB	—	—	↓
PAH	↓	2 AMB	—	—	↓
TPH-FLA PRD	↓	2 AMB	H_2SO_4	—	↓
601/602	↓	4 FLINT	—	—	↓

ature of sampling person # 1: John D. Briggs
ature of sampling person # 2:
ature of sampling person # 3:

Minimum Field Quality Control Requirements

of Samples	Precleaned EqB	Field Cleaned EqB	Trip Blank (VOCs)	Field Duplicates
10+	Minimum of one then 5%	Minimum of one then 5%	One per cooler	Minimum of one then 10%
5–9	one*	one*	Not Required	one
<5	one*	one*	Not Required	Not Required

- For <9 samples, only one EqB required, Field cleaned EqB if field cleaning used.

es:

Groundwater Sampling Log

NPWC Env. Lab., Bldg 3691, Code 920, NAS Pensacola, Fl 32508, CompQAP #920121G

Sampling Event Information: TRUMBO PT.

Location or name of groundwater well: KEY WEST BOQ 2076 MW#8

Contact person and phone number: JOHN D. RIGGS (305) 905-7655

Date of sampling event: 21 OCT-98

Ambient conditions: HOT - HUMID - SUNNY - 10 KN

Person responsible for sampling: JDR

Initial Assessment:

How is the well labeled? #8 ON PLAN Is the well cover intact? (Yes) No

Is the well cover locked? Yes (No) Is the well cap in place? (Yes) No

Is the well cap locked? (Yes) No Is the well casing intact? (Yes) No

Is there an odor when cap removed? Yes (No) Describe:

Description of any discrepancies:

Well Volume Information:

What is the diameter of the well? (2") 4" 6" 8" 12" other:

What is the distance to the water table? (in feet): 32.5" @ 16:10 ~ 2.7 FT

What is the distance to the bottom of the well casing? (in feet): 14 FT

What is the water column height? (in feet): 11.3 FT

Well volume in gallons is equal to the height of the water column multiplied by the following factors: 2" = H x 0.17, 4" = H x 0.66, 6" = H x 1.48, 8" = H x 2.62, 12" = H x 5.90

What is the well volume? (show calculation): 0.17 X 11.3' ~ 1.92

Well Purging Information:

Purging equipment used: BAILER Material: HDPE

Cleaning protocol: — Date cleaned: NEW Cleaned by: —

If bailer used, what is volume?

If submersible pump used, what is flow rate? 0.145 GPM ~ 0.55 L/MIN

What time did purging begin? (Date/Time 24 hr): 16:20 10-21-98 End?: 17:15

Describe appearance of water on initial purging: CLEAR, H_2S

Meter calibration record:

pH meter: Time calib.: Standards: 4 7 10 Analyst:

Temperature: Correction factor: Analyst:

Conductivity meter: Standard used: Analyst:

Record stabilization criteria in table below:

Vol Evacuated in Gal	Time Analyzed	pH	Temperature	Conductivity

Total volume purged from well: 8 GAL How many well volumes: 4.2

Did well go dry? Yes (No) Did criteria stabilize? Yes No

Describe appearance of water after purging complete: CLEAR

Is there any odor not previously described? If so, what:

Describe any problems or discrepancies: * SOME MINOR FLOATING DEBRIS IN BAILED WATER

ıpling Information:
ıpling device used: BAILER Material: HDPE
ınıng protocol: — Date cleaned: New Cleaned by: —
pa neters collected: EDB, PAH TPH-FLA PRO, 601/602
e sampling initiated: 17:35 Time sampling completed: 18:10
sa ıpling completed within 6 hours of well purging? Yes No
ord sample information below: 21 OCT 98 MW#8

Field ID	Time collected	Bottle material	Preservative	pH after	Sampler
Pb QUILT	17:15	1 HDPE	HNO3	—	JAR
EDB	18:10	2 AMB	—	—	↓
PAH	↓	2 AMB	—	—	↓
TPH-FL PRO	↓	2 AMB	H2SO4	—	↓
601/602	↓	4 FLMT		—	↓

ıature of sampling person # 1: John D. Ruge
ıature of sampling person # 2:
ıature of sampling person # 3:

Minimum Field Quality Control Requirements

o' amples	Precleaned EqB	Field Cleaned EqB	Trip Blank (VOCs)	Field Duplicates
10+	Minimum of one then 5%	Minimum of one then 5%	One per cooler	Minimum of one then 10%
5–9	one*	one*	Not Required	one
<5	one*	one*	Not Required	Not Required

- For <9 samples, only one EqB required, Field cleaned EqB if field cleaning used.

:es:

Groundwater Sampling Log

NPWC Env. Lab., Bldg 3691, Code 920, NAS Pensacola, Fl 32508, CompQAP #920121G

Sampling Event Information:

Location or name of groundwater well: TRUMBO PT. KEY WEST BOR 2076 MW #10

Contact person and phone number: JOHN D. KIELE (305) 905-7655

Date of sampling event: 21 OCT -98

Ambient conditions: HOT - HUMID - DARK - 10 KN

Person responsible for sampling: JDK

Initial Assessment:

How is the well labeled? #10 ON PLATE Is the well cover intact? (Yes) No

Is the well cover locked? Yes (No) Is the well cap in place? (Yes) No

Is the well cap locked? Yes (No) Is the well casing intact? (Yes) No

Is there an odor when cap removed? Yes (No) Describe:

Description of any discrepancies:

Well Volume Information:

What is the diameter of the well? (2") 4" 6" 8" 12" other:

What is the distance to the water table? (in feet): 34.25" @ 16:58 ~ 2.85 FT

What is the distance to the bottom of the well casing? (in feet): 14'2"

What is the water column height? (in feet): 11.3 FT

Well volume in gallons is equal to the height of the water column multiplied by the following factors: 2" = H x 0.17, 4" = H x 0.66, 6" = H x 1.48, 8" = H x 2.62, 12" = H x 5.90

What is the well volume? (show calculation): 0.17 X 11.3 ~ 1.92 GAL

Well Purging Information:

Purging equipment used: PERISTALTIC Material: TYGON

Cleaning protocol: — Date cleaned: NEW Cleaned by: —

If bailer used, what is volume? —

If submersible pump used, what is flow rate? 0.125 GPM ~ 0.48 L/MIN

What time did purging begin? (Date/Time 24 hr): 21:10 10-21-98 End?: 22:30

Describe appearance of water on initial purging: CLEAR

Meter calibration record:

pH meter: Time calib.: Standards: 4 7 10 Analyst:

Temperature: Correction factor: Analyst:

Conductivity meter: Standard used: Analyst:

Record stabilization criteria in table below:

Vol Evacuated in Gal	Time Analyzed	pH	Temperature	Conductivity

Total volume purged from well: 10 GAL How many well volumes: 5.2

Did well go dry? Yes (No) Did criteria stabilize? Yes No

Describe appearance of water after purging complete: CLEAR

Is there any odor not previously described? If so, what:

Describe any problems or discrepancies:

npling Information:
npling device used: BAILER Material: HDPE
a n protocol: — Date cleaned: NEW Cleaned by: —
pa. neters collected: EDB, PAH, TPH-FLA PRO 601/602
e npling initiated: 22:45 Time sampling completed: 23:00
s sampling completed within 6 hours of well purging? (Yes) No
ord sample information below: 21 OCT 98 MW #10

Field ID	Time collected	Bottle material	Preservative	pH after	Sampler
Pb QUIET	22:30	1 HDPE	HNO3	—	JAR
EDB	23:00	2 AMB	—	—	
PAH	↓	2 AMB	—	—	
TPH FL PRO	↓	2 AMB	H_2SO_4	—	
601/602	↓	4 FLINT			

nature of sampling person # 1: John D. Ruge
nature of sampling person # 2:
nature of sampling person # 3:

Minimum Field Quality Control Requirements

c amples	Precleaned EqB	Field Cleaned EqB	Trip Blank (VOCs)	Field Duplicates
10+	Minimum of one then 5%	Minimum of one then 5%	One per cooler	Minimum of one then 10%
5–9	one*	one*	Not Required	one
<5	one*	one*	Not Required	Not Required

– For <9 samples, only one EqB required, Field cleaned EqB if field cleaning used.

tes:

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1734
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
601/602 Volatiles by Method 8260

Lab Report Number: 83931
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83931
Sample Name / Location	BOQ 2076 MW #4
Collector's Name	JDR
Date & Time Collected	20 Oct 98 @ 1730
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	23 Oct 98 MC
Date of Analysis	22 Oct 98
Sample Matrix	Groundwater
Dilution	X 1

Compound Name	1- 83931	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	2	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/L	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	17	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	101
Toluene-d8	86-119	103
Bromofluorobenzene	85-116	105

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Ueda, Laboratory Director

Date: 11/10/98
Report Generated

Navy Public Works Center
Environmental Laboratory

Analytical Report
610 PAH's by Method 8270

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1734
NAS Pensacola, FL 32508
Phone #: 452-4911
Contact: Greg Campbell

Lab Report Number: 83931
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83931			
Sample Name / Location	BOQ 2076 MW #4			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 1730			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	26 Oct 98 JJ			
Date of Analysis	2 Nov 98			
Sample Matrix	Groundwater			
Dilution	X 10			
Compound Name	1- 83931	units	Det. Limit	Flags
Acenaphthene	52	ug/L	20	
Acenaphthylene	BDL	ug/L	20	
Anthracene	BDL	ug/L	20	
Benzo(a)anthracene	BDL	ug/L	20	
Benzo(a)pyrene	BDL	ug/L	20	
Benzo(b)fluoranthene	BDL	ug/L	20	
Benzo(g,h,i)perylene	BDL	ug/L	20	
Benzo(k)fluoranthene	BDL	ug/L	30	
Chrysene	BDL	ug/L	20	
Dibenz(a,h)anthracene	BDL	ug/L	20	
Fluoranthene	29	ug/L	20	
Fluorene	BDL	ug/L	20	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	20	
1-Methylnaphthalene *	190	ug/L	20	
2-Methylnaphthalene	280	ug/L	30	
Naphthalene	150	ug/L	20	
Phenanthrene	BDL	ug/L	20	
Pyrene	31	ug/L	20	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	64
2-Fluorobiphenyl	43-116	95
Terphenyl -d14	33-141	83

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 11/12/98
Report Generated

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Navy Public Works Center
Environmental Laboratory

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Phone (850) 452-3180/3642
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FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1794
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
Ethylene Dibromide by Method 504

Lab Report Number: 83931
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83931			
Sample Name / Location	BOQ 2076 MW #4			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 1730			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	9 Nov 98 JM			
Date of Analysis	9 Nov 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Compound Name	1- 83931	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	90

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Deas, Laboratory Director

Date: 11/10/98
Report Generated

Navy Public Works Center
Environmental Laboratory

Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1764
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 83931
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83931			
Sample Name / Location	BOQ 2076 MW #4			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 1730			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	27 Oct 98 JJ			
Date of Analysis	29 Oct 98			
Sample Matrix	Groundwater			
Dilution	x 200			
Parameter	1- 83931	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	970	mg/L	50	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	84
Nonatriacontane (C-39)	42-193 *	128

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/12/98

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End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
Total Lead by Method 239.2

Lab Report Number: 83931
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83931			
Sample Name / Location	BOQ 2076 MW #4			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 1730			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	23 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83931	units	Det. Limit	Flags
Lead	BDL	mg/L	0.010	

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Deets, Laboratory Director

Date: 11/10/98
Report Generated

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End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4[illegible]
Contact: Greg Campbell

Analytical Report

601/602 Volatiles by Method 8260

Lab Report Number: 83932
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83932
Sample Name / Location	BOQ 2076 MW #4 Duplicate
Collector's Name	JDR
Date & Time Collected	20 Oct 98 @ 1740
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	23 Oct 98 MC
Date of Analysis	23 Oct 98
Sample Matrix	Groundwater
Dilution	X 1

Compound Name	1- 83932	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	BDL	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/L	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	17	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	102
Toluene-d8	86-119	105
Bromofluorobenzene	85-116	103

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

End of Report

Navy Public Works Center - Environmental Laboratory

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Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report

610 PAH's by Method 8270

Lab Report Number: 83932
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83932
Sample Name / Location	BOQ 2076 MW #4 Duplicate
Collector's Name	JDR
Date & Time Collected	20 Oct 98 @ 1740
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	26 Oct 98 JJ
Date of Analysis	2 Nov 98
Sample Matrix	Groundwater
Dilution	X 10

Compound Name	1- 83932	units	Det. Limit	Flags
Acenaphthene	35	ug/L	20	
Acenaphthylene	BDL	ug/L	20	
Anthracene	BDL	ug/L	20	
Benzo(a)anthracene	BDL	ug/L	20	
Benzo(a)pyrene	BDL	ug/L	20	
Benzo(b)fluoranthene	BDL	ug/L	20	
Benzo(g,h,i)perylene	BDL	ug/L	20	
Benzo(k)fluoranthene	BDL	ug/L	30	
Chrysene	BDL	ug/L	20	
Dibenz(a,h)anthracene	BDL	ug/L	20	
Fluoranthene	20	ug/L	20	
Fluorene	BDL	ug/L	20	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	20	
1-Methylnaphthalene *	130	ug/L	20	
2-Methylnaphthalene	200	ug/L	30	
Naphthalene	120	ug/L	20	
Phenanthrene	BDL	ug/L	20	
Pyrene	22	ug/L	20	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	59
2-Fluorobiphenyl	43-116	82
Terphenyl -d14	33-141	83

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

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End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report

Ethylene Dibromide by Method 504

Lab Report Number: 83932
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83932			
Sample Name / Location	BOQ 2076 MW #4 Duplicate			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 1740			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	9 Nov 98 JM			
Date of Analysis	9 Nov 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Compound Name	1- 83932	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	91

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

Navy Public Works Center
Environmental Laboratory

Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 83932
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83932			
Sample Name / Location	BOQ 2076 MW #4 Duplicate			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 1740			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	27 Oct 98 JJ			
Date of Analysis	29 Oct 98			
Sample Matrix	Groundwater			
Dilution	x 50			
Parameter	1- 83932	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	720	mg/L	12.5	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	117
Nonatriacontane (C-39)	42-193 *	125

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Deer, Laboratory Director

Date: 11/12/98

C-64

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
Total Lead by Method 239.2

Lab Report Number: 83932
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83932			
Sample Name / Location	BOQ 2076 MW #4 Duplicate			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 1740			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	23 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83932	units	Det. Limit	Flags
Lead	BDL	mg/L	0.010	

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

C-65

End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
601/602 Volatiles by Method 8260

Lab Report Number: 83933
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83933
Sample Name / Location	BOQ 2076 MW #2
Collector's Name	JDR
Date & Time Collected	20 Oct 98 @ 1530
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	23 Oct 98 MC
Date of Analysis	23 Oct 98
Sample Matrix	Groundwater
Dilution	X 1

Compound Name	1- 83933	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	2	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	5	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	BDL	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/L	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	BDL	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	101
Toluene-d8	86-119	104
Bromofluorobenzene	85-116	102

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

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Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
610 PAH's by Method 8270

Lab Report Number: 83933
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83933			
Sample Name / Location	BOQ 2076 MW #2			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 1530			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	26 Oct 98 JJ			
Date of Analysis	2 Nov 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Compound Name	1- 83933	units	Det. Limit	Flags
Acenaphthene	BDL	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene	BDL	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	BDL	ug/L	2	
2-Methylnaphthalene	BDL	ug/L	3	
Naphthalene	BDL	ug/L	2	
Phenanthrene	BDL	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	98
2-Fluorobiphenyl	43-116	81
Terphenyl -d14	33-141	101

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

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End of Report

Navy Public Works Center
Environmental Laboratory

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FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-46[illegible]
Contact: Greg Campbell

Analytical Report

Ethylene Dibromide by Method 504

Lab Report Number: 83933
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83933			
Sample Name / Location	BOQ 2076 MW #2			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 1530			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	10 Nov 98 JM			
Date of Analysis	10 Nov 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Compound Name	1- 83933	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	119

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Deas, Laboratory Director

Date: 11/10/98
Report Generated

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Navy Public Works Center
Environmental Laboratory

Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4011
Contact: Greg Campbell

Lab Report Number: 83933
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83933			
Sample Name / Location	BOQ 2076 MW #2			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 1530			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	27 Oct 98 JJ			
Date of Analysis	29 Oct 98			
Sample Matrix	Groundwater			
Dilution	x 1			
Parameter	1- 83933	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	BDL	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	93
Nonatriacontane (C-39)	42-193 *	103

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98

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End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report

Total Lead by Method 239.2

Lab Report Number: 83933
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83933			
Sample Name / Location	BOQ 2076 MW #2			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 1530			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	23 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83933	units	Det. Limit	Flags
Lead	BDL	mg/L	0.010	

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

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End of Report

Navy Public Works Center
Environmental Laboratory

Analytical Report
601/602 Volatiles by Method 8260

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 83934
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83934
Sample Name / Location	BOQ 2076 MW #3
Collector's Name	JDR
Date & Time Collected	20 Oct 98 @ 1630
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	23 Oct 98 MC
Date of Analysis	23 Oct 98
Sample Matrix	Groundwater
Dilution	X 1

Compound Name	1- 83934	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	2	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	2	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	BDL	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/L	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	BDL	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	98
Toluene-d8	86-119	102
Bromofluorobenzene	85-116	103

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

End of Report

Navy Public Works Center
Environmental Laboratory

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FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
610 PAH's by Method 8270

Lab Report Number: 83934
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83934			
Sample Name / Location	BOQ 2076 MW #3			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 1630			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	26 Oct 98 JJ			
Date of Analysis	30 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Compound Name	1- 83934	units	Det. Limit	Flags
Acenaphthene	2	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene	BDL	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	BDL	ug/L	2	
2-Methylnaphthalene	BDL	ug/L	3	
Naphthalene	11	ug/L	2	
Phenanthrene	BDL	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	75
2-Fluorobiphenyl	43-116	95
Terphenyl -d14	33-141	97

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 11/12/98
Report Generated

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End of Report

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FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report

Ethylene Dibromide by Method 504

Lab Report Number: 83934
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83934			
Sample Name / Location	BOQ 2076 MW #3			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 1630			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	10 Nov 98 JM			
Date of Analysis	10 Nov 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Compound Name	1- 83934	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	107

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Does, Laboratory Director

Date: 11/10/98
Report Generated

C-73

End of Report

Navy Public Works Center

Environmental Laboratory

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Phone (850) 452-3180/3642
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FAX (850) 452-2799/2387

Analytical Report

Petroleum Range Organics by FLPRO

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 83934
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83934			
Sample Name / Location	BOQ 2076 MW #3			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 1630			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	27 Oct 98 JJ			
Date of Analysis	29 Oct 98			
Sample Matrix	Groundwater			
Dilution	x 1			
Parameter	1- 83934	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	BDL	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	97
Nonatriacontane (C-39)	42-193 *	128

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98

C-74

End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
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DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
Total Lead by Method 239.2

Lab Report Number: 83934
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- **83934**			
Sample Name / Location	BOQ 2076 MW #3			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 1630			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	23 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83934	units	Det. Limit	Flags
Lead	BDL	mg/L	0.010	

COMMENTS :

BDL = Below Detection Limit. mg/L = millgram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

C-75

End of Report

Navy Public Works Center
Environmental Laboratory

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FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
601/602 Volatiles by Method 8260

Lab Report Number: 83935
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- **83935**
Sample Name / Location	BOQ 2076 MW #5
Collector's Name	JDR
Date & Time Collected	20 Oct 98 @ 1940
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	23 Oct 98 MC
Date of Analysis	23 Oct 98
Sample Matrix	Groundwater
Dilution	X 1

Compound Name	1- 83935	units	Det. Limit	Flags
Benzene	3	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	1	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	29	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/L	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	1	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	36	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	100
Toluene-d8	86-119	101
Bromofluorobenzene	85-116	100

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

End of Report

Navy Public Works Center
Environmental Laboratory

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NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
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FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
610 PAH's by Method 8270

Lab Report Number: 83935
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- **83935**
Sample Name / Location	BOQ 2076 MW #5
Collector's Name	JDR
Date & Time Collected	20 Oct 98 @ 1940
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	26 Oct 98 JJ
Date of Analysis	2 Nov 98
Sample Matrix	Groundwater
Dilution	X 1

Compound Name	1- 83935	units	Det. Limit	Flags
Acenaphthene	5	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene	2	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	19	ug/L	2	
2-Methylnaphthalene	34	ug/L	3	
Naphthalene	290	ug/L	10	
Phenanthrene	BDL	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	104
2-Fluorobiphenyl	43-116	107
Terphenyl -d14	33-141	92

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

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End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
Ethylene Dibromide by Method 504

Lab Report Number: 83935
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83935			
Sample Name / Location	BOQ 2076 MW #5			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 1940			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	10 Nov 98 JM			
Date of Analysis	10 Nov 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Compound Name	1- 83935	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	106

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

Navy Public Works Center

Environmental Laboratory

Analytical Report

Petroleum Range Organics by FLPRO

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 83935
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83935			
Sample Name / Location	BOQ 2076 MW #5			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 1940			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	27 Oct 98 JJ			
Date of Analysis	3 Nov 98			
Sample Matrix	Groundwater			
Dilution	x 1			
Parameter	1- 83935	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	2.1	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	102
Nonatriacontane (C-39)	42-193 *	94

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/12/98

C-79

End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
Total Lead by Method 239.2

Lab Report Number: 83935
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83935			
Sample Name / Location	BOQ 2076 MW #5			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 1940			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	23 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83935	units	Det. Limit	Flags
Lead	BDL	mg/L	0.010	

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

C-80

End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
601/602 Volatiles by Method 8260

Lab Report Number: 83936
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83936			
Sample Name / Location	BOQ 2076 MW #9			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 2000			
Sample Type (composite or grab)	Grab			
Analyst	M. Chambers			
Date of Extraction / Initials	23 Oct 98 MC			
Date of Analysis	23 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Compound Name	1- 83936	units	Det. Limit	Flags
Benzene	15	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	16	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/L	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	6	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	32	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	102
Toluene-d8	86-119	101
Bromofluorobenzene	85-116	103

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
610 PAH's by Method 8270

Lab Report Number: 83936
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83936			
Sample Name / Location	BOQ 2076 MW #9			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 2000			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	26 Oct 98 JJ			
Date of Analysis	2 Nov 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Compound Name	1- 83936	units	Det. Limit	Flags
Acenaphthene	22	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene	11	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	16	ug/L	2	
2-Methylnaphthalene	37	ug/L	3	
Naphthalene	880	ug/L	20	
Phenanthrene	7	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	102
2-Fluorobiphenyl	43-116	91
Terphenyl -d14	33-141	79

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 443
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
Ethylene Dibromide by Method 504

Lab Report Number: 83936
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83936			
Sample Name / Location	BOP 2076 MW12			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 2000			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	10 Nov 98 JM			
Date of Analysis	10 Nov 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Compound Name	1- 83936	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	108

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dean, Laboratory Director

Date: 11/10/98
Report Generated

Navy Public Works Center
Environmental Laboratory

Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3687, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 83936
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83936
Sample Name / Location	BOQ 2076 W/149
Collector's Name	JDR
Date & Time Collected	20 Oct 98 @ 2000
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of extraction / Initials	27 Oct 98 JJ
Date of Analysis	2 Nov 98
Sample Matrix	Groundwater
Dilution	x 1

Parameter	1- 83936	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	2.2	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	104
Nonatriacontane (C-39)	42-133 *	95

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/12/98

Navy Public Works Center
Environmental Laboratory

Bldg. 3687, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3100/3642
DSN 922-3100/3342
FAX (850) 452-2799/2387

Analytical Report
Total Lead by Method 239.2

Client: NAS Environmental
Address: Bldg. 1704
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 83936
Sample Date: 20 Oct 98
Received Date: 22 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83936			
Sample Name / Location	BOQ 2078 MW #9			
Collector's Name	JDR			
Date & Time Collected	20 Oct 98 @ 2000			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	23 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83936	units	Det. Limit	Flags
Lead	BDL	mg/L	0.010	

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Davis, Laboratory Director

Date: 11/10/98
Report Generated

C-85

End of Report

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS (UST Projects)

IC Environmental Laboratory
Bldg. 3587, Code 920
245 Pensacola, Fl. 32508
Phone – (904) 452–4728/3642
DSN 922–4728/3642
FAX (904) 452–2798/2397

Report Required? Yes No QC Required? Yes No

Requestor: NPWC ENGINEERING CODE 400
Address: BLDG 4[illegible]
NAS PENSACOLA, FL 32508
Phone #: 452-4[illegible]
Contact: GREG CAMPBELL
Job Order #: 102 50[illegible]

Lab ID Number:
Sample Date: 20 OCT 198
Received Date:
Sample Site: TRUMAN AT. - KEY WEST
Lab Due Date:

Sample ID #	Lab	#1- 83431	#2- 8[illegible]32	#3-	#4-
Sample Name	----------		DUPLICATE		
or Location	----------	MW #4	MW-[illegible]		
Sampled by	----------	JOR	J[illegible]		
Composite	Begin				
Date/Time	Frequency	12:30	12:[illegible]		
Collected	End	↑	↑		
Grab Time	----------				
Sample Matrix	----------	GW	GW		

Notes: SITE BLDG 2076

PARAMETER by Method Name	METHOD #	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Ethylene Dibromide (EDB)	EPA 504	X	2 amb	X	2 amb					3	120ml/4 oz VOA/4 oz	None/4° C
Purg. Halocarbons/GC	EPA 601									4	40 ml VOA Vial x 2	HCl/4° C
Purg. Aromatics/GC	EPA 602									3	40 ml VOA Vial x 2	HCl/4° C
Purg. Halo. & Aro./GC	EPA 601/602	X	4 voa	X	4 voa					6	40 ml VOA Vial x 2	HCl/4° C
Polynuclear Aromatics/HPLC	EPA 610									7	1L Amber x 2	4° C
Purgeables/GCMS	EPA 624									8	40 ml VOA Vial x 2	HCl/4° C
Semi/Volatile Org./GCMS	EPA 625									15	1L Amber x 2	4° C
Gas Chromatography	EPA SW 8000									5	40mlx2/1Lx2/4 oz.	HCl/4° C/None
Halo. Vol. Org./GC	EPA SW 8010									4	40ml VOAx2/4 oz.	HCl/4° C/None
Non-Halo. Vol. Org./GC	EPA SW 8015/MOD									4	40mlx2/1Lx2/4 oz.	HCl/4° C/None
Arom. Vol. Org./GC	EPA SW 8020									3	40ml VOAx2/4 oz.	HCl/4° C/None
Halo./Arom. Vol. Org./GC	EPA SW 8010/8020									6	40ml VOAx2/4 oz.	HCl/4° C/None
Polynuclear Aromatics/GC	EPA SW 8100									6	1Lx2/4 oz.	4° C/None
VOC/GCMS	EPA SW 8240A									8	40ml VOAx2/4 oz.	HCl/4° C None
VOC/GCMS–Cap.	EPA SW 8260									8	40ml VOAx2/4 oz.	HCl/4° C None
Semivol. Org./GCMS–Cap.	EPA SW 8270A									16	1Lx3/4 oz.	4° C/None
Polynuclear Aromatics (PAHs)	EPA SW 8310	X	2 amb	X	2 amb					9	1Lx3/4 oz.	4° C/None

PARAMETER by Group Name	METHOD SOURCE	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Gasoline Analytical Group	EPA SW–846									47	Consult Lab	Consult Lab
Kerosene Analytical Group	EPA SW–846									36	Consult Lab	Consult Lab
Mixed Product Analytical Group	EPA SW–846									24	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	EPA 418.1									2	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	FL–PRO	X	amb	X	amb					7	Consult Lab	Consult Lab
RCRA Metals (8)	EPA Various									6	Consult Lab	Consult Lab
TCLP Metals (8) w/extraction	EPA SW–846									10	Consult Lab	Consult Lab
Lead (Pb) only	EPA 239.2	X	1 PE	X	1 PE					1	250ml/4 oz.	HNO3/None
Other:												

Comments: X MW #4 HAS STRONG DIESEL ODOR + FLOATING PRODUCT

Relinquished by: John D. Gage
Date/Time: 10-21-98 @ 13:30

Received by: Kathy Revels
Date/Time: 10/22/98 0930

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CHAIN OF CUSTODY/REQUEST FOR ANALYSIS (UST Projects)

NWC Environmental Laboratory
P.O. 3597, Code 920
NAS Pensacola, FL 32508
Phone – (904) 452-4728/3642
DSN 922-4728/3642
FAX (904) 452-2789/2387

Report Required? Yes No QC Required? Yes No

Requestor: NFWC ENGINEERING CODE 400
Address: BLDG 4[illegible]
NAS PENSACOLA, FL 32508
Phone #: 452-4[illegible]
Contact: GREG C[illegible]BELL
Job Order #: 102 50[illegible]

Lab ID Number:
Sample Date: 20 OCT 98
Received Date:
Sample Site: TRUMAN PT. – HOT WAST
Lab Due Date:

Sample ID #	Lab	#1- 83433	#2- 83[illegible]	#3-	#4-
Sample Name or Location	---------- / ----------	MW #2	MW #3		
Sampled by	----------	JAR	JAR		
Composite Date/Time Collected	Grab / Frequency / End	15:30 ↑	16:30 ↑		
Grab Time	----------				
Sample Matrix	----------	GW	GW		

Notes: SITE 30Q 2076

PARAMETER by Method Name	METHOD #	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Ethylene Dibromide (EDB)	EPA 504	X	2 pos	X	2 pos					3	120ml A VOA/4 oz.	None/4° C
Purg. Halocarbons/GC	EPA 601									4	40 ml VOA Vial x 2	HCl/4° C
Purg. Aromatics/GC	EPA 602									3	40 ml VOA Vial x 2	HCl/4° C
Purg. Halo. & Aro./GC	EPA 601/602	X	4 VOA	X	4 VOA					6	40 ml VOA Vial x 2	HCl/4° C
Polynuclear Aromatics/HPLC	EPA 610									7	1L Amber x 2	4° C
Purgeables/GCMS	EPA 624									8	40 ml VOA Vial x 2	HCl/4° C
Base/Neutrals & Acids/GCMS	EPA 625									15	1L Amber x 2	4° C
Ion Chromatography	EPA SW 9000									5	40mlx2/1Lx2/4 oz.	HCl/4° C/None
Halo. Vol. Org./GC	EPA SW 8010									4	40ml VOAx2/4 oz.	HCl/4° C/None
Non-Halo. Vol. Org./GC	EPA SW 8015M(GC)									4	40mlx2/1Lx2/4 oz.	HCl/4° C/None
Arom. Vol. Org./GC	EPA SW 8020									3	40ml VOAx2/4 oz.	HCl/4° C/None
Halo./Arom. Vol. Org./GC	EPA SW 8010/8020									6	40ml VOAx2/4 oz.	HCl/4° C/None
Polynuclear Aromatics/GC	EPA SW 8100									8	1Lx2/4 oz.	4° C/None
VOC/GCMS	EPA SW 8240A									8	40ml VOAx2/4 oz.	HCl/4° C/None
VOC/GCMS–Cap.	EPA SW 8260									8	40ml VOAx2/4 oz.	HCl/4° C/None
Semivol. Org./GCMS–Cap.	EPA SW 8270A									16	1Lx3/4 oz.	4° C/None
Polynuclear Aromatics (PAH's)	EPA SW 8310	X	2 pos	X	2 pos					9	1Lx3/4 oz.	4° C/None

PARAMETER by Group Name	METHOD SOURCE	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Gasoline Analytical Group	EPA SW-846									47	Consult Lab	Consult Lab
Kerosene Analytical Group	EPA SW-846									30	Consult Lab	Consult Lab
Mixed Product Analytical Group	EPA SW-846									24	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	EPA 418.1									2	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	TL-PRO	X	2 pos	X	2 pos					7	Consult Lab	Consult Lab
RCRA Metals (8)	EPA Various									8	Consult Lab	Consult Lab
TCLP Metals (8) w/extraction	EPA SW-846									10	Consult Lab	Consult Lab
Lead (Pb) only	EPA 239.2	X	1 RE	X	1 RE					1	250ml/4 oz.	HNO_3/None
Other:												

Comments:

Relinquished by: John D. Riggs
Date/Time: 10-21-98 [illegible]:30

Received by: Kathy Lewis
Date/Time: 10/22/98 0930

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CHAIN OF CUSTODY/REQUEST FOR ANALYSIS (UST Projects)

WC Environmental Laboratory
Bldg. 3667, Code 920
NAS Pensacola, FL 32508
Phone – (904) 452–4728/3642
DSN 922–4728/3642
FAX (904) 452–2799/2387

Report Required? Yes No QC Required? Yes No

Requester: NPWC ENGINEERING CODE 400
Address: BLDG 422
NAS PENSACOLA, FL 32508
Phone #: 452-4315
Contact: GREG CAMPBELL
Job Order #: 102 5000

Lab ID Number
Sample Date: 20 OCT 98
Received Date
Sample Site: TRUMBO PT. – KEY WEST
Lab Due Date

Sample ID #	Lab	#1- 83935	#2- 83936	#3-	#4-
Sample Name or Location	----------	MW#5	MW #9		
Sampled by	----------	JDR	JDR		
Composite Date/Time Collected	Begin				
	Frequency	19:40	20:00		
	End	↑	↑		
Grab Time	----------				
Sample Matrix	----------	GW	GW		

Notes: SITE BOX 2076

PARAMETER by Method Name	METHOD #	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Container Required	Preservative(s) Used
Ethylene Dibromide (EDB)	EPA 504	X	2 AOC	X	2 AOC					3	120ml A VOA/4 oz.	None/4° C
Purg. Halocarbons/GC	EPA 601									4	40 ml VOA Vial x 2	HCl/4° C
Purg. Aromatics/GC	EPA 602									3	40 ml VOA Vial x 2	HCl/4° C
Purg. Halo. & Aro./GC	EPA 601/602	X	4 VOA	X	4 VOA					8	40 ml VOA Vial x 2	HCl/4° C
Polynuclear Aromatics/HPLC	EPA 610									7	1L Amber x 2	4° C
Purgeables/GCMS	EPA 624									8	40 ml VOA Vial x 2	HCl/4° C
Base/Neutrals & Acids/GCMS	EPA 625									15	1L Amber x 2	4° C
Gas Chromatography	EPA SW 8000									5	40mlx2/1Lx2/4 oz.	HCl/4° C None
Halo. Vol. Org./GC	EPA SW 8010									4	40ml VOAx2/4 oz.	HCl/4° C None
Non–Halo. Vol. Org./GC	EPA SW 8015(MOD)									4	40mlx2/1Lx2/4 oz.	HCl/4° C None
Arom. Vol. Org./GC	EPA SW 8020									3	40ml VOAx2/4 oz.	HCl/4° C None
Halo./Arom. Vol. Org./GC	EPA SW 8010/8020									6	40ml VOAx2/4 oz.	HCl/4° C None
Polynuclear Aromatics/GC	EPA SW 8100									6	1Lx2/4 oz.	4° C/None
VOC/GCMS	EPA SW 8240A									8	40ml VOAx2/4 oz.	HCl/4° C None
VOC/GCMS – Cap.	EPA SW 8260									8	40ml VOAx2/4 oz.	HCl/4° C None
Semivol. Org./GCMS – Cap.	EPA SW 8270A									16	1Lx3/4 oz.	4° C/None
Polynuclear Aromatics (PAHs)	EPA SW 8310	X	2 AOC	X	2 AOC					9	1Lx3/4 oz.	4° C/None

PARAMETER by Group Name	METHOD SOURCE	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Container Required	Preservative(s) Used
Gasoline Analytical Group	EPA SW–846									47	Consult Lab	Consult Lab
Kerosene Analytical Group	EPA SW–846									39	Consult Lab	Consult Lab
Mixed Product Analytical Group	EPA SW–846									24	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	EPA 418.1									2	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	FL–PRO	X	2 AOC	X	2 AOC					7	Consult Lab	Consult Lab
RCRA Metals (8)	EPA Various									6	Consult Lab	Consult Lab
TCLP Metals (8) w/extraction	EPA SW–846									10	Consult Lab	Consult Lab
Lead (Pb) only	EPA 239.2	X	1 PL	X	1 PL					1	250ml/4 oz.	HNO_3 None
Other:												

Comments:

Relinquished by: John D. Bugg
Date/Time: 10-21-98 @ 1:30

Received by: Kathy Bewley
Date/Time: 10/22/98 0930

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Navy Public Works Center
Environmental Laboratory

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FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg [illegible]54
NAS Pensacola, FL 32508
Phone #: 452-[illegible]1
Contact: Gre[illegible] Campbell

Analytical Report
601/602 Volatiles by Method 8260

Lab Report Number: 83956
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83956
Sample Name / Location	Trumbo Point MW #1
Collector's Name	JDR
Date & Time Collected	21 Oct 98 @ 2355
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	28 Oct 98 MC
Date of Analysis	28 Oct 98
Sample Matrix	Groundwater
Dilution	X 1

Compound Name	1- 83956	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	BDL	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/L	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	BDL	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	93
Toluene-d8	86-119	91
Bromofluorobenzene	86-116	91

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : C-89
Gary Dees, Laboratory Director

Date: 11/10/98
Report Generated

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Environmental Laboratory

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Client: NAS Environmental
Address: Bldg. [illegible]54
NAS Pensacola, FL 32508
Phone #: 452-[illegible]
Contact: Greg [illegible]mpbell

Analytical Report
610 PAH's by Method 8270

Lab Report Number: 83956
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83956
Sample Name / Location	Trumbo Point MW #1
Collector's Name	JDR
Date & Time Collected	21 Oct 98 @ 2355
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	26 Oct 98 JJ
Date of Analysis	29 Oct 98
Sample Matrix	Groundwater
Dilution	X 1

Compound Name	1- 83956	units	Det. Limit	Flags
Acenaphthene	BDL	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene	BDL	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	BDL	ug/L	2	
2-Methylnaphthalene	BDL	ug/L	3	
Naphthalene	BDL	ug/L	2	
Phenanthrene	BDL	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	107
2-Fluorobiphenyl	43-116	111
Terphenyl -d14	33-141	87

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Geese, Laboratory Director

Date: 11/10/98
Report Generated

C-90

Navy Public Works Center

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Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report

Ethylene Dibromide by Method 504

Client:	NAS Environmental
Address:	Bldg. 1754
	NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	83956
Sample Date:	21 Oct 98
Received Date:	23 Oct 98
Sample Site:	Trumbo Point-Key West
Job Order No.:	102 5050

LAB Sample ID#	1- 83956			
Sample Name / Location	Trumbo Point MW #1			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 2355			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	10 Nov 98 JM			
Date of Analysis	10 Nov 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Compound Name	1- 83956	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	96

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

C-91

Navy Public Works Center

Environmental Laboratory

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Phone (850) 452-3180/3642
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FAX (850) 452-2799/2387

Analytical Report

Petroleum Range Organics by FLPRO

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 83956
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83956			
Sample Name / Location	Trumbo Point MW #1			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 2355			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	27 Oct 98 JJ			
Date of Analysis	4 Nov 98			
Sample Matrix	Groundwater			
Dilution	x 1			
Parameter	1- 83956	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	1.5	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	109
Nonatriacontane (C-39)	42-193 *	104

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98

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Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
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FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
Total Lead by Method 239.2

Lab Report Number: 83956
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83956			
Sample Name / Location	Trumbo Point MW #1			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 2355			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	29 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83956	units	Det. Limit	Flags
Lead	BDL	mg/L	0.010	

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

C-93

End of Report

Navy Public Works Center
Environmental Laboratory

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NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
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FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
601/602 Volatiles by Method 8260

Lab Report Number: 83957
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- **83957**
Sample Name / Location	Trumbo Point MW #10
Collector's Name	JDR
Date & Time Collected	21 Oct 98 @ 2300
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	28 Oct 98 MC
Date of Analysis	28 Oct 98
Sample Matrix	Groundwater
Dilution	X 1

Compound Name	1- 83957	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	BDL	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/L	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	BDL	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	92
Toluene-d8	86-119	90
Bromofluorobenzene	85-116	92

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter, ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
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Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
610 PAH's by Method 8270

Lab Report Number: 83957
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- **83957**
Sample Name / Location	Trumbo Point MW #10
Collector's Name	JDR
Date & Time Collected	21 Oct 98 @ 2300
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	26 Oct 98 JJ
Date of Analysis	2 Nov 98
Sample Matrix	Groundwater
Dilution	X 1

Compound Name	1- 83957	units	Det. Limit	Flags
Acenaphthene	BDL	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene	BDL	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	BDL	ug/L	2	
2-Methylnaphthalene	BDL	ug/L	3	
Naphthalene	BDL	ug/L	2	
Phenanthrene	BDL	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	79
2-Fluorobiphenyl	43-116	82
Terphenyl -d14	33-141	93

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Deen, Laboratory Director

Date: 11/10/98
Report Generated

C-95

Navy Public Works Center

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FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report

Ethylene Dibromide by Method 504

Lab Report Number: 83957
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83957			
Sample Name / Location	Trumbo Point MW #10			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 2300			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	10 Nov 98 JM			
Date of Analysis	10 Nov 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Compound Name	1- 83957	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	87

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

C-96

Navy Public Works Center
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Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 83957
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83957			
Sample Name / Location	Trumbo Point MW #10			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 2300			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	27 Oct 98 JJ			
Date of Analysis	4 Nov 98			
Sample Matrix	Groundwater			
Dilution	x 1			
Parameter	1- 83957	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	BDL	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	95
Nonatriacontane (C-39)	42-193 *	94

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = millgram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98

C-97

End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
Total Lead by Method 239.2

Lab Report Number: 83957
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83957			
Sample Name / Location	Trumbo Point MW #10			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 2300			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	29 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83957	units	Det. Limit	Flags
Lead	BDL	mg/L	0.010	

COMMENTS :

BDL = Below Detection Limit. mg/L = millgram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

C-98

End of Report

Navy Public Works Center
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Phone (850) 452-3180/3642
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FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
601/602 Volatiles by Method 8260

Lab Report Number: 83958
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83958			
Sample Name / Location	Trumbo Point MW #6			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 2030			
Sample Type (composite or grab)	Grab			
Analyst	M. Chambers			
Date of Extraction / Initials	4 Nov 98 MC			
Date of Analysis	4 Nov 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Compound Name	1- 83958	units	Det. Limit	Flags
Benzene	1	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	9	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/L	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	11	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	88
Toluene-d8	86-119	102
Bromofluorobenzene	85-116	103

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

Navy Public Works Center
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FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
610 PAH's by Method 8270

Lab Report Number: 83958
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- **83958**
Sample Name / Location	Trumbo Point MW #6
Collector's Name	JDR
Date & Time Collected	21 Oct 98 @ 2030
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	26 Oct 98 JJ
Date of Analysis	30 Oct 98
Sample Matrix	Groundwater
Dilution	X 1

Compound Name	1- 83958	units	Det. Limit	Flags
Acenaphthene	75	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	9	ug/L	2	
Benzo(a)anthracene	3	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	3	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	15	ug/L	2	
Fluorene	72	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	30	ug/L	2	
2-Methylnaphthalene	76	ug/L	3	
Naphthalene	230	ug/L	2	
Phenanthrene	120	ug/L	2	
Pyrene	16	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	103
2-Fluorobiphenyl	43-116	109
Terphenyl -d14	33-141	91

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

C-100

End of Report

Navy Public Works Center

Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report

Ethylene Dibromide by Method 504

Lab Report Number: 83958
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83958			
Sample Name / Location	Trumbo Point MW #6			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 2030			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	10 Nov 98 JM			
Date of Analysis	10 Nov 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Compound Name	1- 83958	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	97

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

C-101

Navy Public Works Center

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NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
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FAX (850) 452-2799/2387

Analytical Report

Petroleum Range Organics by FLPRO

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 83958
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83958			
Sample Name / Location	Trumbo Point MW #6			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 2030			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	27 Oct 98 JJ			
Date of Analysis	4-Nov-98			
Sample Matrix	Groundwater			
Dilution	x 1			
Parameter	1- 83958	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	3.3	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	122
Nonatriacontane (C-39)	42-193 *	104

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = millgram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98

C-102

End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
Total Lead by Method 239.2

Lab Report Number: 83958
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83958			
Sample Name / Location	Trumbo Point MW #6			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 2030			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	29 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83958	units	Det. Limit	Flags
Lead	BDL	mg/L	0.010	

COMMENTS :

BDL = Below Detection Limit. mg/L = millgram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

C-103

End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
601/602 Volatiles by Method 8260

Lab Report Number: 83959
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- **83959**
Sample Name / Location	Trumbo Point MW #7
Collector's Name	JDR
Date & Time Collected	21 Oct 98 @ 2130
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	28 Oct 98 MC
Date of Analysis	28 Oct 98
Sample Matrix	Groundwater
Dilution	X 1

Compound Name	1- 83959	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	11	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/L	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	9	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	91
Toluene-d8	86-119	91
Bromofluorobenzene	85-116	90

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

C-104

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

Navy Public Works Center
Environmental Laboratory

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Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
610 PAH's by Method 8270

Lab Report Number: 83959
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- **83959**
Sample Name / Location	Trumbo Point MW #7
Collector's Name	JDR
Date & Time Collected	21 Oct 98 @ 2130
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	26 Oct 98 JJ
Date of Analysis	2 Nov 98
Sample Matrix	Groundwater
Dilution	X 1

Compound Name	1- 83959	units	Det. Limit	Flags
Acenaphthene	18	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene	7	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	13	ug/L	2	
2-Methylnaphthalene	20	ug/L	3	
Naphthalene	150	ug/L	2	
Phenanthrene	4	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	79
2-Fluorobiphenyl	43-116	72
Terphenyl -d14	33-141	90

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

C-105

End of Report

Navy Public Works Center
Environmental Laboratory

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Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
Ethylene Dibromide by Method 504

Lab Report Number: 83959
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83959			
Sample Name / Location	Trumbo Point MW #7			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 2130			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	10 Nov 98 JM			
Date of Analysis	10 Nov 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Compound Name	1- 83959	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	99

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

C-106

Navy Public Works Center
Environmental Laboratory

Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 83959
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83959			
Sample Name / Location	Trumbo Point MW #7			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 2130			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	27 Oct 98 JJ			
Date of Analysis	4 Nov 98			
Sample Matrix	Groundwater			
Dilution	x 1			
Parameter	1- 83959	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	1.4	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	99
Nonatriacontane (C-39)	42-193 *	98

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98

C-107

End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report
Total Lead by Method 239.2

Client:	NAS Environmental
Address:	Bldg. 1754
	NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	83959
Sample Date:	21 Oct 98
Received Date:	23 Oct 98
Sample Site:	Trumbo Point-Key West
Job Order No.:	102 5050

LAB Sample ID#	1- 83959			
Sample Name / Location	Trumbo Point MW #7			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 2130			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	29 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83959	units	Det. Limit	Flags
Lead	BDL	mg/L	0.010	

COMMENTS :

BDL = Below Detection Limit. mg/L = millgram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Deets, Laboratory Director

Date: 11/10/98
Report Generated

C-108

End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
601/602 Volatiles by Method 8260

Lab Report Number: 83960
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83960			
Sample Name / Location	Trumbo Point MW #8			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 1810			
Sample Type (composite or grab)	Grab			
Analyst	M. Chambers			
Date of Extraction / Initials	28 Oct 98 MC			
Date of Analysis	28 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Compound Name	1- 83960	units	Det. Limit	Flags
Benzene	3	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	2	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/L	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	4	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	92
Toluene-d8	86-119	90
Bromofluorobenzene	85-116	91

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
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Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
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FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
610 PAH's by Method 8270

Lab Report Number: 83960
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- **83960**
Sample Name / Location	Trumbo Point MW #8
Collector's Name	JDR
Date & Time Collected	21 Oct 98 @ 1810
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	26 Oct 98 JJ
Date of Analysis	2 Nov 98
Sample Matrix	Groundwater
Dilution	X 1

Compound Name	1- 83960	units	Det. Limit	Flags
Acenaphthene	15	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene	6	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	6	ug/L	2	
2-Methylnaphthalene	8	ug/L	3	
Naphthalene	110	ug/L	2	
Phenanthrene	3	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	80
2-Fluorobiphenyl	43-116	78
Terphenyl -d14	33-141	98

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

C-110

End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
Ethylene Dibromide by Method 504

Lab Report Number: 83960
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83960			
Sample Name / Location	Trumbo Point MW #8			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 1810			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	10 Nov 98 JM			
Date of Analysis	10 Nov 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Compound Name	1- 83960	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	110

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

C-111

Navy Public Works Center
Environmental Laboratory

Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 83960
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83960			
Sample Name / Location	Trumbo Point MW #8			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 1810			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	27 Oct 98 JJ			
Date of Analysis	6 Nov 98			
Sample Matrix	Groundwater			
Dilution		x	1	
Parameter	1- 83960	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	BDL	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	96
Nonatriacontane (C-39)	42-193 *	94

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98

C-112

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
Total Lead by Method 239.2

Lab Report Number: 83960
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83960			
Sample Name / Location	Trumbo Point MW #8			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 1810			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	29 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83960	units	Det. Limit	Flags
Lead	BDL	mg/L	0.010	

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

C-113

End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
601/602 Volatiles by Method 8260

Lab Report Number: 83961
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- **83961**
Sample Name / Location	Trumbo Point Equip. Blank
Collector's Name	JDR
Date & Time Collected	21 Oct 98 @ 1815
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	28 Oct 98 MC
Date of Analysis	28 Oct 98
Sample Matrix	Analyte-Free Water
Dilution	X 1

Compound Name	1- 83961	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	7	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	BDL	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/L	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	BDL	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	91
Toluene-d8	86-119	90
Bromofluorobenzene	85-116	91

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Q-114

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
610 PAH's by Method 8270

Lab Report Number: 83961
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83961			
Sample Name / Location	Trumbo Point Equip. Blank			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 1815			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	26 Oct 98 JJ			
Date of Analysis	2 Nov 98			
Sample Matrix	Analyte-Free Water			
Dilution	X 1			
Compound Name	1- 83961	units	Det. Limit	Flags
Acenaphthene	BDL	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene	BDL	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	BDL	ug/L	2	
2-Methylnaphthalene	BDL	ug/L	3	
Naphthalene	BDL	ug/L	2	
Phenanthrene	BDL	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	78
2-Fluorobiphenyl	43-116	81
Terphenyl -d14	33-141	99

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

C-115

End of Report

Navy Public Works Center

Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report

Ethylene Dibromide by Method 504

Lab Report Number: 83961
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83961			
Sample Name / Location	Trumbo Point Equip. Blank			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 1815			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	10 Nov 98 JM			
Date of Analysis	10 Nov 98			
Sample Matrix	Analyte-Free Water			
Dilution	X 1			
Compound Name	1- 83961	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	106

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

C-116

End of Report

Navy Public Works Center

Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report

Petroleum Range Organics by FLPRO

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 83961
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83961			
Sample Name / Location	Trumbo Point Equip. Blank			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 1815			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	27 Oct 98 JJ			
Date of Analysis	6 Nov 98			
Sample Matrix	Analyte-Free Water			
Dilution	x 1			
Parameter	1- 83961	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	BDL	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	86
Nonatriacontane (C-39)	42-193 *	93

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98

C-117

End of Report

Navy Public Works Center

Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report

Total Lead by Method 239.2

Lab Report Number: 83961
Sample Date: 21 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- **83961**			
Sample Name / Location	Trumbo Point Equip. Blank			
Collector's Name	JDR			
Date & Time Collected	21 Oct 98 @ 1815			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	29 Oct 98			
Sample Matrix	Analyte-Free Water			
Dilution	X 1			
Element Name	1- 83961	units	Det. Limit	Flags
Lead	BDL	mg/L	0.010	

COMMENTS :

BDL = Below Detection Limit. mg/L = millgram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

C-118

End of Report

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 440
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report
601/602 Volatiles by Method 8260

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 83962
Sample Date: 22 Oct 98
Received Date: 23 Oct 98
Sample Site: Trumbo Point-Key West
Job Order No.: 102 5050

LAB Sample ID#	1- 83962
Sample Name / Location	Trumbo Point Trip Blank
Collector's Name	JDR
Date & Time Collected	22 Oct 98 @ NS
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	23 Oct 98 MC
Date of Analysis	23 Oct 98
Sample Matrix	Analyte-Free Water
Dilution	1 X 1

Compound Name	1- 83962	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	6	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	BDL	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/L	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	BDL	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	100
Toluene-d8	86-119	101
Bromofluorobenzene	85-116	104

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

C. 149

Approved by : Jerry Dees, Laboratory Director

Date: 11/10/98
Report Generated

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS (UST Projects)

NPWC Environmental Laboratory
Bldg. 3887, Code 920
NAS Pensacola, Fl. 32508
Phone – (904) 452–4728/3642
DSN 922–4728/3642
FAX (904) 452–2799/2387

Requester: NPWC ENGINEERING CODE 400
Address: BLDG 458
NAS PENSACOLA, FL 32508
Phone #: 452-4315
Contact: GREG CAMPBELL
Job Order #: 102 5050

Report Required? Yes No QC Required? Yes No
Lab ID Number: 2076 TRUMBO
Sample Date: 21 OCT '98
Received Date:
Sample Site: TRUMBO PT. KEY WEST
Lab Due Date:

Sample ID #	Lab	#1- 83956	#2- 83957	#3-	#4-	Notes:
Sample Name	----------	MW	MW			
or Location	----------	#1	#10			
Sampled by	----------	JDR	JDR			
Composite	Begin					
Date/Time	Frequency	10-21-98	10-21-98			
Collected	End					
Grab Time	----------	23:55	23:00			
Sample Matrix	----------	GW	GW			

PARAMETER by Method Name	METHOD #	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Ethylene Dibromide (EDB)	EPA 504	X	2 AMB	X	2 AMB					3	120ml A VOA/4 oz.	None/4° C
Purg. Halocarbons/GC	EPA 601									4	40 ml VOA Vial x 2	HCl/4° C
Purg. Aromatics/GC	EPA 602									3	40 ml VOA Vial x 2	HCl/4° C
Purg. Halo. & Aro./GC	EPA 601/602	X	4 VOA	X	4 VOA					6	40 ml VOA Vial x 2	HCl/4° C
Polynuclear Aromatics/HPLC	EPA 610									7	1L Amber x 2	4° C
Purgeables/GCMS	EPA 624									8	40 ml VOA Vial x 2	HCl/4° C
Base/Neutrals & Acids/GCMS	EPA 625									15	1L Amber x 2	4° C
Gas Chromatography	EPA SW 8000									5	40mlx2/1Lx2/4 oz.	HCl/4° C/None
Halo. Vol. Org./GC	EPA SW 8010									4	40ml VOAx2/4 oz.	HCl/4° C/None
Non–Halo. Vol. Org./GC	EPA SW 8015(MOD)									4	40mlx2/1Lx2/4 oz.	HCl/4° C/None
Arom. Vol. Org./GC	EPA SW 8020									3	40ml VOAx2/4 oz.	HCl/4° C/None
Halo./Arom. Vol. Org./GC	EPA SW 8010/8020									6	40ml VOAx2/4 oz.	HCl/4° C/None
Polynuclear Aromatics/GC	EPA SW 8100									6	1Lx2/4 oz.	4° C/None
VOC/GCMS	EPA SW 8240A									8	40ml VOAx2/4 oz.	HCl/4° C/None
VOC/GCMS–Cap.	EPA SW 8260									8	40ml VOAx2/4 oz.	HCl/4° C/None
Semivol. Org./GCMS–Cap.	EPA SW 8270A									16	1Lx3/4 oz.	4° C/None
Polynuclear Aromatics (PAH's)	EPA SW 8310	X	2 AMB	X	2 AMB					9	1Lx3/4 oz.	4° C/None
PARAMETER by Group Name	**METHOD SOURCE**	**X**	**Bottle ID #'s**	**X**	**Bottle ID #'s**	**X**	**Bottle ID #'s**	**X**	**Bottle ID #'s**	**Billing Units**	**Containers Required**	**Preservative(s) Used**
Gasoline Analytical Group	EPA SW–846									47	Consult Lab	Consult Lab
Kerosene Analytical Group	EPA SW–846									39	Consult Lab	Consult Lab
Mixed Product Analytical Group	EPA SW–846									24	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	EPA 418.1									2	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	FL–PRO	X	2 AMB	X	2 AMB					7	Consult Lab	Consult Lab
RCRA Metals (5)	EPA Various									6	Consult Lab	Consult Lab
TCLP Metals (5) w/extraction	EPA SW–846									10	Consult Lab	Consult Lab
Lead (Pb) only	EPA 239.2	X	1 PE	X	1 PE					1	250ml/4 oz.	HNO_3/None
Other:												

Comments:

Relinquished by: John D. Rigg
Date/Time: 22 OCT '98 @ 15:00

Received by: Kathy Bennett
Date/Time: 10/23/98 0900

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CHAIN OF CUSTODY/REQUEST FOR ANALYSIS (UST Projects)

NPWC Environmental Laboratory
Bldg. 3887, Code 920
NAS Pensacola, Fl. 32508
Phone – (904) 452-4728/3642
DSN 922-4728/3642
FAX (904) 452-2799/2367

Report Required? Yes No QC Required? Yes No

Requester	NPWC ENGINEERING CODE 400		2076 TRUM.30
Address	BLDG 458	Lab ID Number	
	NAS PENSACOLA, FL 32508	Sample Date	21 OCT '98
Phone #	452-4315	Received Date	
Contact	GREG CAMPBELL	Sample Site	TRUM.30 PC. KEY WEST
Job Order #	102 5050	Lab Due Date	

Sample ID #	Lab	#1- 3395F	#2- 3395J	#3-	#4-	Notes
Sample Name	----------	MW	MW			
or Location	----------	#6	#7			
Sampled by	----------	JDR	JDR			
Composite	Begin					
Date/Time	Frequency	21 OCT-98	10-21-98			
Collected	End					
Grab Time	----------	10:30	11:30			
Sample Matrix	----------	GW	GW			

PARAMETER by Method Name	METHOD #	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Ethylene Dibromide (EDB)	EPA 504	X	2AMB	X	2AMB					3	120ml A VOA/4 oz	None/4° C
Purg Halocarbons/GC	EPA 601									4	40 ml VOA Vial x 2	HCl/4° C
Purg Aromatics/GC	EPA 602									3	40 ml VOA Vial x 2	HCl/4° C
Purg Halo & Aro /GC	EPA 601/602	X	4 VOA	X	4 VOA					6	40 ml VOA Vial x 2	HCl/4° C
Polynuclear Aromatics/HPLC	EPA 610									7	1L Amber x 2	4° C
Purgeables/GCMS	EPA 624									8	40 ml VOA Vial x 2	HCl/4° C
Base/Neutrals & Acids/GCMS	EPA 625									15	1L Amber x 2	4° C
Gas Chromatography	EPA SW 8000									5	40mlx2/1Lx2/4 oz.	HCl/4° C:None
Halo. Vol Org /GC	EPA SW 8010									4	40ml VOAx2/4 oz.	HCl/4° C:None
Non-Halo Vol Org /GC	EPA SW 8015(MOD)									4	40mlx2/1Lx2/4 oz.	HCl/4° C:None
Arom Vol Org /GC	EPA SW 8020									3	40ml VOAx2/4 oz.	HCl/4° C:None
Halo /Arom Vol Org /GC	EPA SW 8010/8020									6	40ml VOAx2/4 oz.	HCl/4° C:None
Polynuclear Aromatics/GC	EPA SW 8100									6	1Lx2/4 oz.	4° C:None
VOC/GCMS	EPA SW 8240A									8	40ml VOAx2/4 oz.	HCl/4° C:None
VOC/GCMS-Cap	EPA SW 8260									8	40ml VOAx2/4 oz.	HCl/4° C:None
Semivol. Org /GCMS-Cap.	EPA SW 8270A									16	1Lx3/4 oz.	4° C:None
Polynuclear Aromatics (PAH's)	EPA SW 8310	X	2AMB	X	2AMB					9	1Lx3/4 oz.	4° C:None

PARAMETER by Group Name	METHOD SOURCE	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Gasoline Analytical Group	EPA SW-846									47	Consult Lab	Consult Lab
Kerosene Analytical Group	EPA SW-846									39	Consult Lab	Consult Lab
Mixed Product Analytical Group	EPA SW-846									24	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	EPA 418.1									2	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	FL-PRO	X	2AMB	X	2AMB					7	Consult Lab	Consult Lab
RCRA Metals (8)	EPA Various									8	Consult Lab	Consult Lab
TCLP Metals (8) w/extraction	EPA SW-846									10	Consult Lab	Consult Lab
Lead (Pb) only	EPA 239.2	X	1 PE	X	1 PE					1	250ml/4 oz	HNO_3:None
Other:												

Comments:

Relinquished by: John D. Riege
Date/Time: 22 OCT '98 @ 15:00

Received by: Kathy Bivens
Date Time: 10/23/98 0900

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CHAIN OF CUSTODY/REQUEST FOR ANALYSIS (UST Projects)

NPWC Environmental Laboratory
Bldg. 3887, Code 920
NAS Pensacola, Fl. 32508
Phone – (904) 452–4728/3642
DSN 922–4728/3642
FAX (904) 452–2799/2387

Requester: NPWC ENGINEERING CODE 400
Address: BLDG 458
NAS PENSACOLA, FL 32508
Phone #: 452-4315
Contact: GREG CAMPBELL
Job Order #: 102.5050

Report Required? Yes No QC Required? Yes No
2076 TRUMBO
Lab ID Number:
Sample Date: 21 OCT '98
Received Date:
Sample Site: TRUMBO PT. KEY WEST
Lab Due Date:

Sample ID #	Lab	#1 83960	#2- 83961	#3- 83962	#4-	Notes
Sample Name	----------	MW	EQUIPMENT	TRIP BLANK		
or Location	----------	# 8	QC			
Sampled by	----------					
Composite	Begin					
Date/Time	Frequency	10-21-98	10-21-98	10/21/98		
Collected	End					
Grab Time	----------	18:10	18:15			
Sample Matrix	----------	GW	GLACIER	SPRINGS – MIAMI FLA		

PARAMETER by Method Name	METHOD #	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Ethylene Dibromide (EDB)	EPA 504	X	2 AMB	X	2 AMB					3	120ml A VOA/4 oz.	None/4° C
Purg. Halocarbons/GC	EPA 601									4	40 ml VOA Vial x 2	HCL/4° C
Purg. Aromatics/GC	EPA 602									3	40 ml VOA Vial x 2	HCL/4° C
Purg. Halo. & Aro./GC	EPA 601/602	X	4 VOA	X	4 VOA		1 VOA			6	40 ml VOA Vial x 2	HCL/4° C
Polynuclear Aromatics/HPLC	EPA 610									7	1L Amber x 2	4° C
Purgeables/GCMS	EPA 624									6	40 ml VOA Vial x 2	HCL/4° C
Base/Neutrals & Acids/GCMS	EPA 625									15	1L Amber x 2	4° C
Gas Chromatography	EPA SW 8000									5	40mlx2/1Lx2/4 oz.	HCL/4° C None
Halo. Vol. Org./GC	EPA SW 8010									4	40ml VOAx2/4 oz.	HCL/4° C None
Non–Halo. Vol. Org./GC	EPA SW 8015(MOD)									4	40mlx2/1Lx2/4 oz.	HCL/4° C None
Arom. Vol. Org./GC	EPA SW 8020									3	40ml VOAx2/4 oz.	HCL/4° C None
Halo./Arom. Vol. Org./GC	EPA SW 8010/8020									6	40ml VOAx2/4 oz.	HCL/4° C None
Polynuclear Aromatics/GC	EPA SW 8100									6	1Lx2/4 oz.	4° C/None
VOC/GCMS	EPA SW 8240A									8	40ml VOAx2/4 oz.	HCL/4° C None
VOC/GCMS–Cap.	EPA SW 8260									8	40ml VOAx2/4 oz.	HCL/4° C None
Semivol. Org./GCMS–Cap.	EPA SW 8270A									16	1Lx3/4 oz.	4° C/None
Polynuclear Aromatics (PAH's)	EPA SW 8310	X	2 AMB	X	3 AMB					9	1Lx3/4 oz	4° C/None

PARAMETER by Group Name	METHOD SOURCE	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Gasoline Analytical Group	EPA SW–846									47	Consult Lab	Consult Lab
Kerosene Analytical Group	EPA SW–846									39	Consult Lab	Consult Lab
Mixed Product Analytical Group	EPA SW–846									24	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	EPA 418.1		1 Glass Bottle							2	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	FL–PRO	X	2 AMB	X	3 AMB					7	Consult Lab	Consult Lab
RCRA Metals (8)	EPA Various									6	Consult Lab	Consult Lab
TCLP Metals (8) w/extraction	EPA SW–846									10	Consult Lab	Consult Lab
Lead (Pb) only	EPA 239.2	X	1 PE	X	1 PE					1	250ml/4 oz	HNO3/None
Other:												

Comments:

Relinquished by: John D. Rage
Date/Time: 22 OCT '98 ~ 15:00

Received by: Kathy Bergle
Date/Time: 10/23/98 8:00

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Navy Public Works Center
Environmental Laboratory
Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report

601/602 Volatiles by Method 8260

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 90847
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

11-21

1155

LAB Sample ID#	1- 90847
Sample Name / Location	Boca Chica Site C-2076 MW #11
Collector's Name	F. R.
Date & Time Collected	26 Mar 99 @ 1140
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	7 Apr 99 MC
Date of Analysis	7 Apr 99
Sample Matrix	GW
Dilution	X 1

Compound Name	1- 90847	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	BDL	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/l	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	BDL	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	104
Toluene-d8	86-119	101
Bromofluorobenzene	85-116	101

COMMENTS : Sample analyzed outside the 7 day holding time.

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/21/99
Report Generated

End of Report

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Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
610 PAH's by Method 8270

Lab Report Number: 90847
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90847
Sample Name / Location	Boca Chica Site C-2076 MW #11
Collector's Name	F. R.
Date & Time Collected	26 Mar 99 @ 1140
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	1 Apr 99 JJ
Date of Analysis	8 Apr 99
Sample Matrix	GW
Dilution	X 1

Compound Name	1- 90847	units	Det. Limit	Flags
Acenaphthene 20	10	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene 280	4	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	BDL	ug/L	2	
2-Methylnaphthalene	BDL	ug/L	3	
Naphthalene	BDL	ug/L	2	
Phenanthrene	BDL	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	83
2-Fluorobiphenyl	43-116	102
Terphenyl -d14	33-141	105

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-124

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report

Ethylene Dibromide by Method 504

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90847
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90847			
Sample Name / Location	Boca Chica Site C-2076 MW #11			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1140			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	15 Apr 99 JM			
Date of Analysis	15 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90847	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	112

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-125

Navy Public Works Center
Environmental Laboratory

Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754, NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 90847
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90847			
Sample Name / Location	Boca Chica Site C-2076 MW #11			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1140			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	1 Apr 99 JJ			
Date of Analysis	7 Apr 99			
Sample Matrix	GW			
Dilution	x 1			
Parameter	1- 90847	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	BDL	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	90
Nonatriacontane (C-39)	42-193 *	90

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. **mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.**

Approved by : Jerry Dees, Laboratory Director **Date:** 4/20/99

 End of Report

C-126

Navy Public Works Center
Environmental Laboratory
Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report

601/602 Volatiles by Method 8260

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90849
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90849			
Sample Name / Location	Boca Chica Site C-2076 MW #12			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1130			
Sample Type (composite or grab)	Grab			
Analyst	M. Chambers			
Date of Extraction / Initials	7 Apr 99 MC			
Date of Analysis	7 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90849	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	BDL	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/l	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	BDL	ug/L	1	

1310

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	102
Toluene-d8	86-119	102
Bromofluorobenzene	85-116	103

COMMENTS : Sample analyzed outside the 7 day holding time.

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/21/99
Report Generated

End of Report

C-127

Navy Public Works Center
Environmental Laboratory
Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
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FAX (850) 452-2799/2387

Analytical Report

610 PAH's by Method 8270

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90849
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90849			
Sample Name / Location	Boca Chica Site C-2076 MW #12			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1130			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	1 Apr 99 JJ			
Date of Analysis	8 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90849	units	Det. Limit	Flags
Acenaphthene	BDL	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene	BDL	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	BDL	ug/L	2	
2-Methylnaphthalene	BDL	ug/L	3	
Naphthalene	BDL	ug/L	2	
Phenanthrene	BDL	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	101
2-Fluorobiphenyl	43-116	105
Terphenyl -d14	33-141	97

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/21/99
Report Generated

End of Report

C-128

Navy Public Works Center
Environmental Laboratory

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NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report
Ethylene Dibromide by Method 504

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90849
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90849			
Sample Name / Location	Boca Chica Site C-2076 MW #12			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1130			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	15 Apr 99 JM			
Date of Analysis	15 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90849	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	112

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-129

Navy Public Works Center
Environmental Laboratory

Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 90849
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90849			
Sample Name / Location	Boca Chica Site C-2076 MW #12			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1130			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	1 Apr 99 JJ			
Date of Analysis	7 Apr 99			
Sample Matrix	GW			
Dilution		x	1	
Parameter	1- 90849	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	BDL	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	84
Nonatriacontane (C-39)	42-193 *	67

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99

End of Report

C-130

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
601/602 Volatiles by Method 8260

Lab Report Number: 90848
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90848
Sample Name / Location	Boca Chica Site C-2076 MW #13
Collector's Name	F. R.
Date & Time Collected	26 Mar 99 @ 1145
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	7 Apr 99 MC
Date of Analysis	7 Apr 99
Sample Matrix	GW
Dilution	X 1

Compound Name	1- 90848	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	BDL	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	3	ug/l	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	BDL	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	102
Toluene-d8	86-119	103
Bromofluorobenzene	85-116	102

COMMENTS : Sample analyzed outside the 7 day holding time.

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/21/99
Report Generated

End of Report

C-131

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report
610 PAH's by Method 8270

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90848
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90848			
Sample Name / Location	Boca Chica Site C-2076 MW #13			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1145			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	1 Apr 99 JJ			
Date of Analysis	9 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90848	units	Det. Limit	Flags
Acenaphthene	BDL	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene	BDL	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	BDL	ug/L	2	
2-Methylnaphthalene	BDL	ug/L	3	
Naphthalene	BDL	ug/L	2	
Phenanthrene	BDL	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	85
2-Fluorobiphenyl	43-116	104
Terphenyl -d14	33-141	99

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-132

Navy Public Works Center
Environmental Laboratory
Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report

Ethylene Dibromide by Method 504

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90848
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90848			
Sample Name / Location	Boca Chica Site C-2076 MW #13			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1145			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	15 Apr 99 JM			
Date of Analysis	15 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90848	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	106

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-133

Navy Public Works Center
Environmental Laboratory

Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 90848
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90848			
Sample Name / Location	Boca Chica Site C-2076 MW #13			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1145			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	1 Apr 99 JJ			
Date of Analysis	6 Apr 99			
Sample Matrix	GW			
Dilution	x 1			
Parameter	1- 90848	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	BDL	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	89
Nonatriacontane (C-39)	42-193 *	96

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/21/99

End of Report

C-134

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report
601/602 Volatiles by Method 8260

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90850
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90850
Sample Name / Location	Boca Chica Site C-2076 MW #14
Collector's Name	F. R.
Date & Time Collected	26 Mar 99 @ 1120
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	7 Apr 99 MC
Date of Analysis	7 Apr 99
Sample Matrix	GW
Dilution	X 1

935

Compound Name	1- 90850	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	BDL	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/l	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	BDL	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	103
Toluene-d8	86-119	101
Bromofluorobenzene	85-116	103

COMMENTS : Sample analyzed outside the 7 day holding time.

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/21/99
Report Generated

End of Report

C-135

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
610 PAH's by Method 8270

Lab Report Number: 90850
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90850
Sample Name / Location	Boca Chica Site C-2076 MW #14
Collector's Name	F. R.
Date & Time Collected	26 Mar 99 @ 1120
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	1 Apr 99 JJ
Date of Analysis	10 Apr 99
Sample Matrix	GW
Dilution	X 1

Compound Name	1- 90850	units	Det. Limit	Flags
Acenaphthene	BDL	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene 280	3	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	BDL	ug/L	2	
2-Methylnaphthalene	BDL	ug/L	3	
Naphthalene	BDL	ug/L	2	
Phenanthrene	BDL	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	99
2-Fluorobiphenyl	43-116	104
Terphenyl -d14	33-141	102

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-136

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report
Ethylene Dibromide by Method 504

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90850
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90850			
Sample Name / Location	Boca Chica Site C-2076 MW #14			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1120			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	15 Apr 99 JM			
Date of Analysis	15 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90850	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	86

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Lees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-137

Navy Public Works Center
Environmental Laboratory

Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 90850
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90850			
Sample Name / Location	Boca Chica Site C-2076 MW #14			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1120			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	1 Apr 99 JJ			
Date of Analysis	6 Apr 99			
Sample Matrix	GW			
Dilution	x 1			
Parameter	1- 90850	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	1.7	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	90
Nonatriacontane (C-39)	42-193 *	87

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99

End of Report

C-138

Navy Public Works Center
Environmental Laboratory
Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report

601/602 Volatiles by Method 8260

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90852
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90852
Sample Name / Location	Boca Chica Site C-2076 MW #15
Collector's Name	F. R.
Date & Time Collected	26 Mar 99 @ 1130
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	7 Apr 99 MC
Date of Analysis	7 Apr 99
Sample Matrix	GW
Dilution	X 1

Compound Name	1- 90852	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	BDL	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) * 3 4	3	ug/l	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	BDL	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	101
Toluene-d8	86-119	101
Bromofluorobenzene	85-116	102

COMMENTS : Sample analyzed outside the 7 day holding time.

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/21/99
Report Generated

End of Report

C-139

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report
610 PAH's by Method 8270

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90852
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90852			
Sample Name / Location	Boca Chica Site C-2076 MW #15			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1130			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	1 Apr 99 JJ			
Date of Analysis	9 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90852	units	Det. Limit	Flags
Acenaphthene	BDL	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene	BDL	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	BDL	ug/L	2	
2-Methylnaphthalene	BDL	ug/L	3	
Naphthalene	BDL	ug/L	2	
Phenanthrene	BDL	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	101
2-Fluorobiphenyl	43-116	104
Terphenyl -d14	33-141	98

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-140

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
Ethylene Dibromide by Method 504

Lab Report Number: 90852
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90852			
Sample Name / Location	Boca Chica Site C-2076 MW #15			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1130			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	15 Apr 99 JM			
Date of Analysis	15 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90852	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	75

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

C-141

End of Report

Navy Public Works Center
Environmental Laboratory

Analytical Report

Petroleum Range Organics by FLPRO

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 90852
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90852			
Sample Name / Location	Boca Chica Site C-2076 MW #15			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1130			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	1 Apr 99 JJ			
Date of Analysis	7 Apr 99			
Sample Matrix	GW			
Dilution	x 1			
Parameter	1- 90852	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	0.9	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	86
Nonatriacontane (C-39)	42-193 *	81

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99

End of Report

C-142

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report
601/602 Volatiles by Method 8260

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90851
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90851			
Sample Name / Location	Boca Chica Site -2076 MW #16			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1125			
Sample Type (composite or grab)	Grab			
Analyst	M. Chambers			
Date of Extraction / Initials	7 Apr 99 MC			
Date of Analysis	7 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90851	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	BDL	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/l	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	BDL	ug/L	1	

1005

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	104
Toluene-d8	86-119	103
Bromofluorobenzene	85-116	101

COMMENTS : Sample analyzed outside the 7 day holding time.

BDL = Below Detection Limit. ug/L = microgram per Liter, ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/21/99
Report Generated

End of Report

C-143

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report
610 PAH's by Method 8270

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90851
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90851			
Sample Name / Location	Boca Chica Site -2076 MW #16			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1125			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	1 Apr 99 JJ			
Date of Analysis	10 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90851	units	Det. Limit	Flags
Acenaphthene	BDL	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene	BDL	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	BDL	ug/L	2	
2-Methylnaphthalene	BDL	ug/L	3	
Naphthalene	BDL	ug/L	2	
Phenanthrene 210	2	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	102
2-Fluorobiphenyl	43-116	103
Terphenyl -d14	33-141	99

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-144

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
Ethylene Dibromide by Method 504

Lab Report Number: 90851
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90851			
Sample Name / Location	Boca Chica Site -2076 MW #16			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1125			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	15 Apr 99 JM			
Date of Analysis	15 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90851	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	101

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-145

Navy Public Works Center
Environmental Laboratory

Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 90851
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90851			
Sample Name / Location	Boca Chica Site -2076 MW #16			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1125			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	1 Apr 99 JJ			
Date of Analysis	6 Apr 99			
Sample Matrix	GW			
Dilution		x	1	
Parameter	1- 90851	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	8.1	mg/L	0.25	

SPPM.

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	89
Nonatriacontane (C-39)	42-193 *	81

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99

End of Report

C-146

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report
601/602 Volatiles by Method 8260

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90846
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90846
Sample Name / Location	Boca Chica Site C-2076 MW #17
Collector's Name	F. R.
Date & Time Collected	26 Mar 99 @ 1135
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	7 Apr 99 MC
Date of Analysis	7 Apr 99
Sample Matrix	GW
Dilution	X 1

1105

Compound Name	1- 90846	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene 30	2	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/l	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total) 20	2	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	104
Toluene-d8	86-119	100
Bromofluorobenzene	85-116	101

COMMENTS : Sample analyzed outside the 7 day holding time.

BDL = Below Detection Limit. ug/L = microgram per Liter ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/21/99
Report Generated

End of Report

C-147

Navy Public Works Center
Environmental Laboratory

Analytical Report

610 PAH's by Method 8270

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 90846
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90846
Sample Name / Location	Boca Chica Site C-2076 MW #17
Collector's Name	F. R.
Date & Time Collected	26 Mar 99 @ 1135
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	1 Apr 99 JJ
Date of Analysis	10 Apr 99
Sample Matrix	GW
Dilution	X 1

Compound Name	1- 90846	units	Det. Limit	Flags
Acenaphthene	BDL	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene	BDL	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	BDL	ug/L	2	
2-Methylnaphthalene	BDL	ug/L	3	
Naphthalene	BDL	ug/L	2	
Phenanthrene	BDL	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	93
2-Fluorobiphenyl	43-116	94
Terphenyl -d14	33-141	105

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Rees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-148

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report

Ethylene Dibromide by Method 504

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90846
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90846			
Sample Name / Location	Boca Chica Site C-2076 MW #17			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1135			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	15 Apr 99 JM			
Date of Analysis	15 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90846	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	111

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-149

Navy Public Works Center
Environmental Laboratory

Analytical Report

Petroleum Range Organics by FLPRO

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 90846
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90846			
Sample Name / Location	Boca Chica Site C-2076 MW #17			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1135			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	1 Apr 99 JJ			
Date of Analysis	6 Apr 99			
Sample Matrix	GW			
Dilution	x 1			
Parameter	1- 90846	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	BDL	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	62-142 *	88
Nonatriacontane (C-39)	42-193 *	86

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99

End of Report

C-150

Navy Public Works Center
Environmental Laboratory
Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report

601/602 Volatiles by Method 8260

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90845
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90845			
Sample Name / Location	Boca Chica Site C-2076 DMW #18			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1115			
Sample Type (composite or grab)	Grab			
Analyst	M. Chambers			
Date of Extraction / Initials	7 Apr 99 MC			
Date of Analysis	7 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90845	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	BDL	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/l	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	1	ug/L	1	

1505

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	107
Toluene-d8	86-119	101
Bromofluorobenzene	85-116	103

COMMENTS : Sample analyzed outside the 7 day holding time.

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/21/99
Report Generated

End of Report

C-151

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report

610 PAH's by Method 8270

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90845
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90845			
Sample Name / Location	Boca Chica Site C-2076 DMW #18			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1115			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	1 Apr 99 JJ			
Date of Analysis	8 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90845	units	Det. Limit	Flags
Acenaphthene 20	12	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene 2100	3	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene 280	5	ug/L	2	
Fluorene 280	9	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	4	ug/L	2	
2-Methylnaphthalene	9	ug/L	3	
Naphthalene 80	47	ug/L	2	
Phenanthrene 210	17	ug/L	2	
Pyrene 210	3	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	106
2-Fluorobiphenyl	43-116	106
Terphenyl -d14	33-141	99

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-152

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
Ethylene Dibromide by Method 504

Lab Report Number: 90845
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90845			
Sample Name / Location	Boca Chica Site C-2076 DMW #18			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1115			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	15 Apr 99 JM			
Date of Analysis	15 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90845	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	103

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-153

Navy Public Works Center
Environmental Laboratory

Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 90845
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90845			
Sample Name / Location	Boca Chica Site C-2076 DMW #18			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1115			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	1 Apr 99 JJ			
Date of Analysis	7 Apr 99			
Sample Matrix	GW			
Dilution	x 1			
Parameter	1- 90845	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	BDL	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	88
Nonatriacontane (C-39)	42-193 *	85

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99

End of Report

C-154

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
601/602 Volatiles by Method 8260

Lab Report Number: 90842
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90842
Sample Name / Location	Boca Chica Site C-2076 MW #19
Collector's Name	F. R.
Date & Time Collected	26 Mar 99 @ 1100
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	7 Apr 99 MC
Date of Analysis	7 Apr 99
Sample Matrix	GW
Dilution	X 1

1340

Compound Name	1- 90842	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	BDL	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/l	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	BDL	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	100
Toluene-d8	86-119	102
Bromofluorobenzene	85-116	102

COMMENTS : Sample analyzed outside the 7 day holding time.

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/21/99
Report Generated

End of Report

C-155

Navy Public Works Center
Environmental Laboratory

Analytical Report

610 PAH's by Method 8270

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 90842
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90842
Sample Name / Location	Boca Chica Site C-2076 MW #19
Collector's Name	F. R.
Date & Time Collected	26 Mar 99 @ 1100
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	1 Apr 99 JJ
Date of Analysis	8 Apr 99
Sample Matrix	GW
Dilution	X 1

Compound Name	1- 90842	units	Det. Limit	Flags
Acenaphthene	BDL	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene	BDL	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	BDL	ug/L	2	
2-Methylnaphthalene	BDL	ug/L	3	
Naphthalene	BDL	ug/L	2	
Phenanthrene	BDL	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	106
2-Fluorobiphenyl	43-116	106
Terphenyl -d14	33-141	101

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-156

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report
Ethylene Dibromide by Method 504

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90842
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90842			
Sample Name / Location	Boca Chica Site C-2076 MW #19			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1100			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	15 Apr 99 JM			
Date of Analysis	15 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90842	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	99

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-157

Navy Public Works Center
Environmental Laboratory

Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 90842
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90842			
Sample Name / Location	Boca Chica Site C-2076 MW #19			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1100			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	1 Apr 99 JJ			
Date of Analysis	7 Apr 99			
Sample Matrix	GW			
Dilution		x	1	
Parameter	1- 90842	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	BDL	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	90
Nonatriacontane (C-39)	42-193 *	84

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99

End of Report

C-158

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report
601/602 Volatiles by Method 8260

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90843
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90843
Sample Name / Location	Boca Chica Site C-2076 MW #20
Collector's Name	F. R.
Date & Time Collected	26 Mar 99 @ 1105
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	7 Apr 99 MC
Date of Analysis	7 Apr 99
Sample Matrix	GW
Dilution	X 1

1405

Compound Name	1- 90843	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	BDL	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/l	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	BDL	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	102
Toluene-d8	86-119	102
Bromofluorobenzene	85-116	102

COMMENTS : Sample analyzed outside the 7 day holding time.

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/21/99
Report Generated

End of Report

C-159

Navy Public Works Center
Environmental Laboratory
Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report

610 PAH's by Method 8270

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90843
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90843			
Sample Name / Location	Boca Chica Site C-2076 MW #20			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1105			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	1 Apr 99 JJ			
Date of Analysis	8 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90843	units	Det. Limit	Flags
Acenaphthene	BDL	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene	BDL	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	BDL	ug/L	2	
2-Methylnaphthalene	BDL	ug/L	3	
Naphthalene	BDL	ug/L	2	
Phenanthrene	BDL	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	92
2-Fluorobiphenyl	43-116	114
Terphenyl -d14	33-141	114

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-160

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report
Ethylene Dibromide by Method 504

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90843
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90843			
Sample Name / Location	Boca Chica Site C-2076 MW #20			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1105			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	15 Apr 99 JM			
Date of Analysis	15 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90843	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	103

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-161

Navy Public Works Center
Environmental Laboratory

Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 90843
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90843			
Sample Name / Location	Boca Chica Site C-2076 MW #20			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1105			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	1 Apr 99 JJ			
Date of Analysis	7 Apr 99			
Sample Matrix	GW			
Dilution	x 1			
Parameter	1- 90843	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	BDL	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	89
Nonatriacontane (C-39)	42-193 *	89

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/21/99

End of Report

C-162

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
601/602 Volatiles by Method 8260

Lab Report Number: 90844
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90844
Sample Name / Location	Boca Chica Site C-2076 MW #21
Collector's Name	F. R.
Date & Time Collected	26 Mar 99 @ 1110
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	7 Apr 99 MC
Date of Analysis	7 Apr 99
Sample Matrix	GW
Dilution	X 1

Compound Name	1- 90844	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	BDL	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/l	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	BDL	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	103
Toluene-d8	86-119	102
Bromofluorobenzene	85-116	102

COMMENTS : Sample analyzed outside the 7 day holding time.

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/21/99
Report Generated

End of Report

C-163

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
610 PAH's by Method 8270

Lab Report Number: 90844
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90844
Sample Name / Location	Boca Chica Site C-2076 MW #21
Collector's Name	F. R.
Date & Time Collected	26 Mar 99 @ 1110
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	1 Apr 99 JJ
Date of Analysis	8 Apr 99
Sample Matrix	GW
Dilution	X 1

Compound Name	1- 90844	units	Det. Limit	Flags
Acenaphthene	BDL	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene	BDL	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	BDL	ug/L	2	
2-Methylnaphthalene	BDL	ug/L	3	
Naphthalene	BDL	ug/L	2	
Phenanthrene	BDL	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	90
2-Fluorobiphenyl	43-116	108
Terphenyl -d14	33-141	103

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter, ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-164

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Analytical Report
Ethylene Dibromide by Method 504

Lab Report Number: 90844
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90844			
Sample Name / Location	Boca Chica Site C-2076 MW #21			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1110			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	15 Apr 99 JM			
Date of Analysis	15 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90844	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	95

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-165

Navy Public Works Center
Environmental Laboratory

Analytical Report
Petroleum Range Organics by FLPRO

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 90844
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90844			
Sample Name / Location	Boca Chica Site C-2076 MW #21			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1110			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	1 Apr 99 JJ			
Date of Analysis	7 Apr 99			
Sample Matrix	GW			
Dilution	x 1			
Parameter	1- 90844	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	BDL	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	89
Nonatriacontane (C-39)	42-193 *	85

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/21/99

End of Report

C-166

Navy Public Works Center
Environmental Laboratory

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report
601/602 Volatiles by Method 8260

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90853
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90853
Sample Name / Location	Equipment Blank
Collector's Name	F. R.
Date & Time Collected	26 Mar 99 @ 1140
Sample Type (composite or grab)	Grab
Analyst	M. Chambers
Date of Extraction / Initials	7 Apr 99 MC
Date of Analysis	7 Apr 99
Sample Matrix	GW
Dilution	X 1

Compound Name	1- 90853	units	Det. Limit	Flags
Benzene	BDL	ug/L	1	
Bromodichloromethane	BDL	ug/L	1	
Bromoform	BDL	ug/L	2	
Bromomethane	BDL	ug/L	3	
Carbon Tetrachloride	BDL	ug/L	1	
Chlorobenzene	BDL	ug/L	1	
Chloroethane	BDL	ug/L	1	
2-Chloroethylvinyl ether	BDL	ug/L	1	
Chloroform	BDL	ug/L	1	
Chloromethane	BDL	ug/L	1	
Dibromochloromethane	BDL	ug/L	1	
1,2-Dichlorobenzene	BDL	ug/L	1	
1,3-Dichlorobenzene	BDL	ug/L	1	
1,4-Dichlorobenzene	BDL	ug/L	1	
Dichlorodifluoromethane	BDL	ug/L	1	
1,1-Dichloroethane	BDL	ug/L	1	
1,2-Dichloroethane	BDL	ug/L	1	
1,1-Dichloroethene	BDL	ug/L	1	
trans-1,2-Dichloroethene	BDL	ug/L	1	
1,2-Dichloropropane	BDL	ug/L	1	
cis-1,3-Dichloropropene	BDL	ug/L	1	
trans-1,3-Dichloropropene	BDL	ug/L	1	
Ethylbenzene	BDL	ug/L	1	
Methylene Chloride	BDL	ug/L	1	
Methyl-tert-butyl ether (MTBE) *	BDL	ug/l	1	
1,1,2,2-Tetrachloroethane	BDL	ug/L	1	
Tetrachloroethene	BDL	ug/L	1	
Toluene	BDL	ug/L	1	
1,1,1-Trichloroethane	BDL	ug/L	1	
1,1,2-Trichloroethane	BDL	ug/L	1	
Trichloroethene	BDL	ug/L	1	
Trichlorofluoromethane	BDL	ug/L	1	
Vinyl Chloride	BDL	ug/L	1	
Xylenes (Total)	BDL	ug/L	1	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
1,2-Dichloroethane-d4	75-133	100
Toluene-d8	86-119	101
Bromofluorobenzene	85-116	101

COMMENTS : Sample analyzed outside the 7 day holding time.

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/21/99
Report Generated

End of Report

C-167

Navy Public Works Center
Environmental Laboratory

Analytical Report

610 PAH's by Method 8270

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 90853
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90853
Sample Name / Location	Equipment Blank
Collector's Name	F. R.
Date & Time Collected	26 Mar 99 @ 1140
Sample Type (composite or grab)	Grab
Analyst	J. Moore
Date of Extraction / Initials	1 Apr 99 JJ
Date of Analysis	9 Apr 99
Sample Matrix	GW
Dilution	X 1

Compound Name	1- 90853	units	Det. Limit	Flags
Acenaphthene	BDL	ug/L	2	
Acenaphthylene	BDL	ug/L	2	
Anthracene	BDL	ug/L	2	
Benzo(a)anthracene	BDL	ug/L	2	
Benzo(a)pyrene	BDL	ug/L	2	
Benzo(b)fluoranthene	BDL	ug/L	2	
Benzo(g,h,i)perylene	BDL	ug/L	2	
Benzo(k)fluoranthene	BDL	ug/L	3	
Chrysene	BDL	ug/L	2	
Dibenz(a,h)anthracene	BDL	ug/L	2	
Fluoranthene	BDL	ug/L	2	
Fluorene	BDL	ug/L	2	
Indeno(1,2,3-cd)pyrene	BDL	ug/L	2	
1-Methylnaphthalene *	BDL	ug/L	2	
2-Methylnaphthalene	BDL	ug/L	3	
Naphthalene	BDL	ug/L	2	
Phenanthrene	BDL	ug/L	2	
Pyrene	BDL	ug/L	2	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Nitrobenzene- d5	35-114	76
2-Fluorobiphenyl	43-116	97
Terphenyl -d14	33-141	92

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram. * = FL HRS certification pending.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-168

Navy Public Works Center
Environmental Laboratory
Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Analytical Report

Ethylene Dibromide by Method 504

Client:	NAS Environmental
Address:	400 Dallas Ave., Bldg. 1754 NAS Pensacola, FL 32508
Phone #:	452-4611
Contact:	Greg Campbell

Lab Report Number:	90853
Sample Date:	26 Mar 99
Received Date:	29 Mar 99
Sample Site:	NAS Key West
Job Order No.:	102 5053

LAB Sample ID#	1- 90853			
Sample Name / Location	Equipment Blank			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1140			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of Extraction / Initials	15 Apr 99 JM			
Date of Analysis	15 Apr 99			
Sample Matrix	GW			
Dilution	X 1			
Compound Name	1- 90853	units	Det. Limit	Flags
Ethylene Dibromide	BDL	ug/L	0.02	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
Tetra-Chloro-m-Xylene	54-140	87

COMMENTS :

BDL = Below Detection Limit. ug/L = microgram per Liter. ug/Kg = microgram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99
Report Generated

End of Report

C-169

Navy Public Works Center
Environmental Laboratory

Analytical Report

Petroleum Range Organics by FLPRO

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: 400 Dallas Ave., Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-4611
Contact: Greg Campbell

Lab Report Number: 90853
Sample Date: 26 Mar 99
Received Date: 29 Mar 99
Sample Site: NAS Key West
Job Order No.: 102 5053

LAB Sample ID#	1- 90853			
Sample Name / Location	Equipment Blank			
Collector's Name	F. R.			
Date & Time Collected	26 Mar 99 @ 1140			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / initials	1 Apr 99 JJ			
Date of Analysis	7 Apr 99			
Sample Matrix	GW			
Dilution	x 1			
Parameter	1- 90853	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	BDL	mg/L	0.25	

SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	86
Nonatriacontane (C-39)	42-193 *	79

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : Jerry Dees, Laboratory Director

Date: 4/20/99

End of Report

C-170

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"PRELIMINARY RESULTS ONLY - MULTIPLE"

Accession: 904176
Client: NAS, CO, PWC
Project Number: 9096-5928
Project Name: NAS PENSACOLA
Project Location: KEY WEST, FL
Test: Group of Single Metals
QcLevel: I

Parameter:	Unit:	Result.	R.L:	Batch:	Q:
Client ID: 90826 KWA929 MW#48			Lab ID:001		
LEAD (200.7)	MG/L	0.044	0.005	PXW088	
Comments:					
Client ID: 90829A KWA929 MW#51			Lab ID:002		
LEAD (200.7)	MG/L	ND	0.005	PXW088	
Comments:					
Client ID: 90828 KWA929 MW#49			Lab ID:003		
LEAD (200.7)	MG/L	ND	0.005	PXW088	
Comments:					
Client ID: 90829B KWA929 MW#51			Lab ID:004		
LEAD (200.7)	MG/L	0.007	0.005	PXW088	
Comments:					
Client ID: 90830 KWA929 MW#15			Lab ID:005		
LEAD (200.7)	MG/L	0.017	0.005	PXW088	
Comments:					
Client ID: 90831 KWA929 MW#16			Lab ID:006		
LEAD (200.7)	MG/L	ND	0.005	PXW088	
Comments:					
Client ID: 90832 KWA929 MW#17			Lab ID:007		
LEAD (200.7)	MG/L	ND	0.005	PXW088	
Comments:					
Client ID: 90833 KWA929 MW#47			Lab ID:008		
LEAD (200.7)	MG/L	0.006	0.005	PXW088	
Comments:					

"PRELIMINARY RESULTS ONLY - MULTIPLE"

Accession: 904175
Client: NAS, CO, PWC
Project Number: 9095-6928
Project Name: NAS PENSACOLA
Project Location: KEY WEST, FL
Test: Group of Single Metals
QcLevel: I

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 90834 KWA929 MW#11			Lab ID:009		
LEAD (200.7)	MG/L	ND	0.005	PXW088	
Comments:					
Client ID: 90835 KWA929 MW#12			Lab ID:010		
LEAD (200.7)	MG/L	0.008	0.005	PXW088	
Comments:					
Client ID: 90836 KWA929 MW#13			Lab ID:011		
LEAD (200.7)	MG/L	ND	0.005	PXW088	
Comments:					
Client ID: 90837 KWA929 MW#14			Lab ID:012		
LEAD (200.7)	MG/L	ND	0.005	PXW088	
Comments:					
Client ID: 90838 KWA929 MW#18			Lab ID:013		
LEAD (200.7)	MG/L	0.005	0.005	PXW088	
Comments:					
Client ID: 90839 KWA929 MW#19			Lab ID:014		
LEAD (200.7)	MG/L	0.007	0.005	PXW088	
Comments:					
Client ID: 90840 KWA929 MW#52			Lab ID:015		
LEAD (200.7)	MG/L	0.007	0.005	PXW088	
Comments:					
Client ID: 90841 KWA317 MW#11			Lab ID:016		
LEAD (200.7)	MG/L	ND	0.005	PXW088	
Comments:					

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"PRELIMINARY RESULTS ONLY - MULTIPLE"

Accession: 904176
Client: NAS, CO, PWC
Project Number: 9096-6928
Project Name: NAS PENSACOLA
Project Location: KEY WEST, FL
Test: Group of Single Metals
QC Level: I

Parameter:	Unit:	Result:	R.L.:	Batch:	Q:
Client ID: 90842 KWC2076 MW#19			Lab ID:017		
LEAD (200.7)	MG/L	ND	0.005	PXW088	
Comments:					
Client ID: 90843 KWC2076 MW#20			Lab ID:018		
LEAD (200.7)	MG/L	ND	0.005	PXW088	
Comments:					
Client ID: 90844 KWC2076 MW#21			Lab ID:019		
LEAD (200.7)	MG/L	0.005	0.005	PXW088	
Comments:					
Client ID: 90845 KWC2076 DMW#18			Lab ID:020		
LEAD (200.7)	MG/L	ND	0.005	PXW088	
Comments:					
Client ID: 90846 KWC2076 MW#17			Lab ID:021		
LEAD (200.7)	MG/L	ND	0.005	PXW087	
Comments:					
Client ID: 90847 KWC2076 MW#11			Lab ID:022		
LEAD (200.7)	MG/L	ND	0.005	PXW087	
Comments:					
Client ID: 90848 KWC2076 MW#13			Lab ID:023		
LEAD (200.7)	MG/L	ND	0.005	PXW087	
Comments:					
Client ID: 90849 KWC2076 MW#12			Lab ID:024		
LEAD (200.7)	MG/L	0.085	0.005	PXW087	
Comments:					

"PRELIMINARY RESULTS ONLY - MULTIPLE"

Accession: 904176
Client: NAS, CO, PWC
Project Number: 9096-6928
Project Name: NAS PENSACOLA
Project Location: KEY WEST, FL
Test: Group of Single Metals
QcLevel: I

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 90850 KWC2076 MW#14			Lab ID:025		
LEAD (200.7)	MG/L	ND	0.005	PXW087	
Comments:					
Client ID: 90851 KWC2076 MW#16			Lab ID:026		
LEAD (200.7)	MG/L	0.005	0.005	PXW087	
Comments:					
Client ID: 90852 KWC2076 MW#15			Lab ID:027		
LEAD (200.7)	MG/L	ND	0.005	PXW087	
Comments:					
Client ID: 90853 KWC2076 EQ BLANK			Lab ID:028		
LEAD (200.7)	MG/L	ND	0.005	PXW087	
Comments:					
Client ID: 90854 KWC2076 EQ BLANK			Lab ID:029		
LEAD (200.7)	MG/L	ND	0.005	PXW087	
Comments:					

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CHAIN OF CUSTODY/REQUEST FOR ANALYSIS (UST Projects)

NPWC Environmental Laboratory
Bldg. 3887, Code 920
NAS Pensacola, Fl. 32508
Phone -- (904) 452-4728/3642
DSN 922-4728/3642
FAX (904) 452-2799/2387

Requester: NAS. TANK FARM
Address:
Phone #: 452 4611
Contact: Greg Campbell
Job Order #:

Report Required? Yes No QC Required? Yes No
Lab ID Number:
Sample Date: 3-26-99
Received Date:
Sample Site: Key West
Lab Due Date:

Sample ID #	Lab	#1-9-0842	#2-9-0843	#3-9-0844	#4-9-0845
Sample Name	----------	Boca Chica C-2076			
or Location	----------	MW #19	MW #20	MW #21	MW #18
Sampled by	----------				
Composite	Begin	BOQ	BOQ	BOQ	BOQ
Date/Time	Frequency				
Collected	End	1340	1405	1425	1505
Grab Time	----------	~~11:20~~	~~11:05~~	~~11:10~~	~~11:15~~
Sample Matrix	----------	GW	GW	GW	GW

Notes: NAS Boca Chica C-2076, MW 19, MW 20, MW 21, 18

PARAMETER by Method Name	METHOD #	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Ethylene Dibromide (EDB)	EPA 504	X	2 BTLS	X	2 BTLS	X	2 BTLS	X	2 BTLS	3	120ml A VOA/4 oz.	None/4° C
Purg. Halocarbons/GC	EPA 601									4	40 ml VOA Vial x 2	HCl/4° C
Purg. Aromatics/GC	EPA 602									3	40 ml VOA Vial x 2	HCl/4° C
Purg. Halo. & Aro./GC	EPA 601/602	X	4 Vials	X	4 Vials	X	4 Vials	X	4 Vials	6	40 ml VOA Vial x 2	HCl/4° C
Polynuclear Aromatics/HPLC	EPA 610									7	1L Amber x 2	4° C
Purgeables/GCMS	EPA 624									8	40 ml VOA Vial x 2	HCl/4° C
Base/Neutral & Acids/GCMS	EPA 625									15	1L Amber x 2	4° C
Gas Chromatography	EPA SW 8000									5	40mlx2/1Lx2/4 oz.	HCl/4° C/None
Halo. Vol. Org./GC	EPA SW 8010									4	40ml VOAx2/4 oz.	HCl/4° C/None
Non-Halo. Vol. Org./GC	EPA SW 8015(MOD)									4	40mlx2/1Lx2/4 oz.	HCl/4° C/None
Arom. Vol. Org./GC	EPA SW 8020									3	40ml VOAx2/4 oz.	HCl/4° C/None
Halo./Arom. Vol. Org./GC	EPA SW 8010/8020									6	40ml VOAx2/4 oz.	HCl/4° C/None
Polynuclear Aromatics/GC	EPA SW 8100									6	1Lx2/4 oz.	4° C/None
VOC/GCMS	EPA SW 8240A									8	40ml VOAx2/4 oz.	HCl/4° C/None
VOC/GCMS-Cap.	EPA SW 8260									8	40ml VOAx2/4 oz.	HCl/4° C/None
Semivol. Org./GCMS-Cap.	EPA SW 8270A									16	1Lx3/4 oz.	4° C/None
Polynuclear Aromatics (PAH's)	EPA SW 8310	X	2 BTLS	X	2 BTLS	X	2 BTLS	X	2 BTLS	9	1Lx3/4 oz.	4° C/None

PARAMETER by Group Name	METHOD SOURCE	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Gasoline Analytical Group	EPA SW-846									47	Consult Lab	Consult Lab
Kerosene Analytical Group	EPA SW-846									39	Consult Lab	Consult Lab
Mixed Product Analytical Group	EPA SW-846									24	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	EPA 418.1									2	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	FL-PRO	X	2 BTLS	X	2 BTLS	X	2 BTLS	X	2 BTLS	7	Consult Lab	Consult Lab
RCRA Metals (8)	EPA Various									6	Consult Lab	Consult Lab
TCLP Metals (8) w/extraction	EPA SW-846									10	Consult Lab	Consult Lab
Lead (Pb) only	EPA 239.2	X	1 BTL	X	1 BTL	X	1 BTL	X	1 BTL	1	250ml/4 oz.	HNO_3/None
Other:												

Comments:

Relinquished by: Stanford Lowe
Date/Time: 3-26-99

Received by: Jason T. Jones
Date/Time: 3/29/99 0940

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C-175

1056

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS (UST Projects)

NPWC Environmental Laboratory
Bldg. 3887, Code 920
NAS Pensacola, Fl. 32508
Phone – (904) 452–4728/3642
DSN 922–4728/3642
FAX (904) 452–2799/2387

Requester: NAS Tank Farm
Address:
Phone #: 452 4611
Contact: Craig Campbell
Job Order #:

Report Required? Yes No QC Required? Yes No
Lab ID Number:
Sample Date: 3-26-99
Received Date:
Sample Site: Key West
Lab Due Date:

Sample ID #	Lab	#1-9-0846	#2-9-0847	#3-9-0848	#4-9-0849
Sample Name	----------	Boca Chica C-2076	Boca Chica	Boca Chica	Boca Chica
or Location	----------	MW #17	MW #11	MW #13	MW #12
Sampled by	----------				
Composite	Begin	BOQ	BOQ	BOQ	BOQ
Date/Time	Frequency				
Collected	End	1105	1155	1245	1310
Grab Time	----------	~~11:35~~	~~11:40~~	~~11:45~~	~~11:50~~
Sample Matrix	----------	GW	GW	GW	GW

Notes: NAS Boca Chica C-2076 MW 17, 11, 13, & 12

PARAMETER by Method Name	METHOD #	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Ethylene Dibromide (EDB)	EPA 504	X	2 BTL	X	2 BTL	X	2 BTL	X	2 BTL	3	120ml A VOA/4 oz.	None/4° C
Purg. Halocarbons/GC	EPA 601									4	40 ml VOA Vial x 2	HCl/4° C
Purg. Aromatics/GC	EPA 602									3	40 ml VOA Vial x 2	HCl/4° C
Purg. Halo. & Aro./GC	EPA 601/602	X	4 Vials	X	4 Vials	X	4 Vials	X	4 Vials	6	40 ml VOA Vial x 2	HCl/4° C
Polynuclear Aromatics/HPLC	EPA 610									7	1L Amber x 2	4° C
Purgeables/GCMS	EPA 624									8	40 ml VOA Vial x 2	HCl/4° C
Base/Neutrals & Acids/GCMS	EPA 625									15	1L Amber x 2	4° C
Gas Chromatography	EPA SW 8000									5	40mb2/1Lx2/4 oz.	HCl/4° C/None
Halo. Vol. Org./GC	EPA SW 8010									4	40ml VOAx2/4 oz.	HCl/4° C/None
Non–Halo. Vol. Org./GC	EPA SW 8015(MOD)									4	40mb2/1Lx2/4 oz.	HCl/4° C/None
Arom. Vol. Org./GC	EPA SW 8020									3	40ml VOAx2/4 oz.	HCl/4° C/None
Halo./Arom. Vol. Org./GC	EPA SW 8010/8020									6	40ml VOAx2/4 oz.	HCl/4° C/None
Polynuclear Aromatics/GC	EPA SW 8100									6	1Lx2/4 oz.	4° C/None
VOC/GCMS	EPA SW 8240A									8	40ml VOAx2/4 oz.	HCl/4° C/None
VOC/GCMS–Cap.	EPA SW 8260									8	40ml VOAx2/4 oz.	HCl/4° C/None
Semivol. Org./GCMS–Cap.	EPA SW 8270A									16	1Lx3/4 oz.	4° C/None
Polynuclear Aromatics (PAH's)	EPA SW 8310	X	2 BTLS	X	2 BTLS	X	2 BTLS	X	2 BTLS	9	1Lx3/4 oz.	4° C/None

PARAMETER by Group Name	METHOD SOURCE	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Gasoline Analytical Group	EPA SW–846									47	Consult Lab	Consult Lab
Kerosene Analytical Group	EPA SW–846									39	Consult Lab	Consult Lab
Mixed Product Analytical Group	EPA SW–846									24	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	EPA 418.1									2	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	FL–PRO	X	2 BTLS	X	2 BTLS	X	2 BTLS	X	2 BTLS	7	Consult Lab	Consult Lab
RCRA Metals (8)	EPA Various									6	Consult Lab	Consult Lab
TCLP Metals (8) w/extraction	EPA SW–846									10	Consult Lab	Consult Lab
Lead (Pb) only	EPA 239.2	X	1 BTL	X	1 BTL	X	1 BTL	X	1 BTL	1	250ml/4 oz.	HNO3/None
Other:												

Comments:

Relinquished by
Date/Time

Received by Barron T. Lang
Date/Time 3/29/99 0940

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C-176

1 of 7

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS (UST Projects)

NPWC Environmental Laboratory
Bldg. 3887, Code 920
NAS Pensacola, Fl. 32508
Phone – (904) 452–4728/3642
DSN 922–4728/3642
FAX (904) 452–2799/2387

Requester: NAS Tank Farm
Address:
Phone #: 452 4611
Contact: Craig Campbell
Job Order #:

Report Required? Yes No QC Required? Yes No
Lab ID Number:
Sample Date: 3-26-99
Received Date:
Sample Site: Key West
Lab Due Date:

Sample ID #	Lab	#1- 9-0850	#2- 9-0851	#3- 9-0852	#4- 9-0853
Sample Name	----------	BTEX Check C-2076	→	→	Equip Blk
or Location	----------	MW #14	MW #16	MW #15	
Sampled by	----------				
Composite	Begin	BOQ	BOQ	BOQ	
Date/Time	Frequency				
Collected	End	0935	1005	1035	1315
Grab Time	----------	~~4:20~~	~~4:25~~	~~4:30~~	~~4:40~~
Sample Matrix	----------	GW	GW	GW	GW

Notes: NAS BTEX Check C-2076, MW #14, 16 & 15

PARAMETER by Method Name	METHOD #	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Ethylene Dibromide (EDB)	EPA 504	X	2 BTLS	X	2 BTLS	X	2 BTLS	X	2 BTLS	3	120ml A VOA/4 oz.	None/4° C
Purg. Halocarbons/GC	EPA 601									4	40 ml VOA Vial x 2	HCl/4° C
Purg. Aromatics/GC	EPA 602									3	40 ml VOA Vial x 2	HCl/4° C
Purg. Halo. & Aro./GC	EPA 601/602	X	4 Vial	X	4 Vial	X	4 Vials	X	4 Vials	6	40 ml VOA Vial x 2	HCl/4° C
Polynuclear Aromatics/HPLC	EPA 610									7	1L Amber x 2	4° C
Purgeables/GCMS	EPA 624									8	40 ml VOA Vial x 2	HCl/4° C
Base/Neutr. & Acids/GCMS	EPA 625									15	1L Amber x 2	4° C
Gas Chromatography	EPA SW 8000									5	40mlx2/1Lx2/4 oz.	HCl/4° C/None
Halo. Vol. Org./GC	EPA SW 8010									4	40ml VOAx2/4 oz.	HCl/4° C/None
Non–Halo. Vol. Org./GC	EPA SW 8015(MOD)									4	40mlx2/1Lx2/4 oz.	HCl/4° C/None
Arom. Vol. Org./GC	EPA SW 8020									3	40ml VOAx2/4 oz.	HCl/4° C/None
Halo./Arom. Vol. Org./GC	EPA SW 8010/8020									6	40ml VOAx2/4 oz.	HCl/4° C/None
Polynuclear Aromatics/GC	EPA SW 8100									6	1Lx2/4 oz.	4° C/None
VOC/GCMS	EPA SW 8240A									8	40ml VOAx2/4 oz.	HCl/4° C/None
VOC/GCMS–Cap.	EPA SW 8260									8	40ml VOAx2/4 oz.	HCl/4° C/None
Semivol. Org./GCMS–Cap.	EPA SW 8270A									16	1Lx3/4 oz.	4° C/None
Polynuclear Aromatics (PAH's)	EPA SW 8310	X	2 BTLS	X	2 BTLS	X	2 BTLS	X	2 BTLS	9	1Lx3/4 oz.	4° C/None

PARAMETER by Group Name	METHOD SOURCE	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Gasoline Analytical Group	EPA SW–846									47	Consult Lab	Consult Lab
Kerosene Analytical Group	EPA SW–846									39	Consult Lab	Consult Lab
Mixed Product Analytical Group	EPA SW–846									24	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	EPA 418.1									2	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	FL–PRO	X	2 BTLS	X	2 BTLS	X	2 BTLS	X	2 BTLS	7	Consult Lab	Consult Lab
RCRA Metals (8)	EPA Various									6	Consult Lab	Consult Lab
TCLP Metals (8) w/extraction	EPA SW–846									10	Consult Lab	Consult Lab
Lead (Pb) only	EPA 239.2	X	1 BTL	X	1 BTL	X	1 BTL	X	1 BTL	1	250ml/4 oz.	HNO_3/None
Other:												

Comments:

Relinquished by:
Date/Time:

Received by: Jason J. Jerry
Date/Time: 3/29/99 0940

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CHAIN OF CUSTODY/REQUEST FOR ANALYSIS (UST Projects)

NPWC Environmental Laboratory
Bldg. 3887, Code 920
NAS Pensacola, Fl. 32508
Phone – (904) 452–4728/3642
DSN 922–4728/3642
FAX (904) 452–2799/2387

Requester: NAS. Tank Farm
Address:
Phone #: 452-4611
Contact: Greg Campbell
Job Order #:

Report Required? Yes No QC Required? Yes No
Lab ID Number:
Sample Date: 3-25-99
Received Date:
Sample Site: Key West
Lab Due Date:

Sample ID #	Lab	#1- 9-0854	#2- 9-0855	#3-	#4-
Sample Name or Location	----------	E. Blk	Trip Blank		
Sampled by	----------				
Composite Date/Time Collected	Begin				
	Frequency				
	End				
Grab Time	----------				
Sample Matrix	----------	Gw			

Notes: NAS Boca Chica Tank Farm A-929

PARAMETER by Method Name	METHOD #	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Ethylene Dibromide (EDB)	EPA 504	X	2 BTLS							3	120ml A VOA/4 oz.	None/4° C
Purg. Halocarbons/GC	EPA 601									4	40 ml VOA Vial x 2	HCl/4° C
Purg. Aromatics/GC	EPA 602									3	40 ml VOA Vial x 2	HCl/4° C
Purg. Halo. & Aro./GC	EPA 601/602	X	4 Vial	X	8 Vials					6	40 ml VOA Vial x 2	HCl/4° C
Polynuclear Aromatics/HPLC	EPA 610									7	1L Amber x 2	4° C
Purgeables/GCMS	EPA 624									8	40 ml VOA Vial x 2	HCl/4° C
Base/Neutrals & Acids/GCMS	EPA 625									15	1L Amber x 2	4° C
Gas Chromatography	EPA SW 8000									5	40mlx2/1Lx2/4 oz.	HCl/4° C/None
Halo. Vol. Org./GC	EPA SW 8010									4	40ml VOAx2/4 oz.	HCl/4° C/None
Non–Halo. Vol. Org./GC	EPA SW 8015(MOD)									4	40mlx2/1Lx2/4 oz.	HCl/4° C/None
Arom. Vol. Org./GC	EPA SW 8020									3	40ml VOAx2/4 oz.	HCl/4° C/None
Halo./Arom. Vol. Org./GC	EPA SW 8010/8020									6	40ml VOAx2/4 oz.	HCl/4° C/None
Polynuclear Aromatics/GC	EPA SW 8100									6	1Lx2/4 oz.	4° C/None
VOC/GCMS	EPA SW 8240A									8	40ml VOAx2/4 oz.	HCl/4° C/None
VOC/GCMS–Cap.	EPA SW 8260									6	40ml VOAx2/4 oz.	HCl/4° C/None
Semivol. Org./GCMS–Cap.	EPA SW 8270A									16	1Lx3/4 oz.	4° C/None
Polynuclear Aromatics (PAH's)	EPA SW 8310	X	2 BTLS							9	1Lx3/4 oz.	4° C/None

PARAMETER by Group Name	METHOD SOURCE	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used
Gasoline Analytical Group	EPA SW–846									47	Consult Lab	Consult Lab
Kerosene Analytical Group	EPA SW–846									39	Consult Lab	Consult Lab
Mixed Product Analytical Group	EPA SW–846									24	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	EPA 418.1									2	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	FL–PRO	X	2 BTLS							7	Consult Lab	Consult Lab
RCRA Metals (8)	EPA Various									6	Consult Lab	Consult Lab
TCLP Metals (8) w/extraction	EPA SW–846									10	Consult Lab	Consult Lab
Lead (Pb) only	EPA 239.2	X	1 BTL							1	250ml/4 oz.	HNO_3/None
Other:												

Comments:

Relinquished by:
Date/Time:

Received by: Jason T. [illegible]
Date/Time: 3/29/99 0940

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APPENDIX D

(1) Discharge Reporting Form
(2) Source Removal Report
(3) Non-Hazardous Waste Manifest
(4) Certificate of Materials Recycling

Form Title Discharge Reporting Form
Effective Date _____
DEP Application No. _____ (Filled in by DEP)

FLORIDA

PLEASE PRINT OR TYPE

Instructions are on the reverse side. Please complete all applicable blanks

-ility ID Number (if registered): _____ 2. Date of form completion: March 3, 1998

3 neral information
.cility name: US Navy - Trumbo Point BOQ
Facility Owner or Operator: US Navy - Commanding Officer
Telephone number: (305) 293-2881 County: Monroe
Mailing address: Public Works Department, Code 1883JS, PO Box 9007; Key West, FL 3304 9001
Location of discharge (facility street address): The corner of Chevalier Ave., and Ely Street
Latitude and Longitude of discharge (If known.) _____

4. Date of receipt of test results or discovery of confirmed discharge: 2-27-98 month/day/year

5. Estimated number of gallons discharged: Unknown estimate less than 5 gallons.

6. Discharge affected: [ ] Air [ ] Soil [X] Ground water [ ] Water well(s) [ ] Shoreline [ ] Surface water (water body name) _____

7. Method of discovery (check all that apply)

[ ] Liquid detector (automatic or manual)	[ ] Internal inspection	[ ] Closure
[ ] Vapor detector (automatic or manual)	[ ] Inventory control	[ ] Groundwater analytical samples
[ ] Tightness test	[ ] Monitoring wells	[ ] Soil analytical tests or samples
[ ] Pressure test	[ ] Automatic tank gauging	[X] Visual observation
[ ] Statistical Inventory Reconciliation	[ ] Manual tank gauging	[ ] Other _____

8. Type of regulated substance discharged: (check one)

[ ] Unknown	[ ] Used\waste oil	[ ] New/lube oil
[ ] Gasoline	[ ] Aviation gas	[ ] Diesel
[ ] Heating oil	[ ] Jet fuel	[ ] Mineral acid

[ ] Hazardous substance - includes CERCLA substances, pesticides, ammonia, chlorine, and derivatives
rite in name or Chemical Abstract Service (CAS) number) _____
her Petroleum base

9. harge originated from a: (check all that apply)

[ ] Dispensing system	[ ] Pipe	[ ] Barge	[ ] Pipeline	[ ] Vehicle
[ ] Tank	[ ] Fitting	[ ] Tanker ship	[ ] Railroad tankcar	[ ] Airplane
[X] Unknown	[ ] Valve failure	[ ] Other Vessel	[ ] Tank truck	[ ] Drum

[ ] Other _____

10. Cause of the discharge: (check all that apply)

[ ] Loose connection	[ ] Puncture	[ ] Spill	[ ] Collision	[ ] Corrosion
[ ] Fire/explosion	[ ] Overfill	[ ] Human error	[ ] Vehicle Accident	[ ] Installation failure

[X] Other unknown

1. Actions taken in response to the discharge: The free product was identified and removed by the Station pumper trucks. Absorbent pads are used daily to clean up spill until the source of the contamination is identified.

2. Comments: This was not caused by a known spill.

3. Agencies notified (as applicable):

[ ] State Warning Point *(904) 488-1320*	[ ] National Response Center *1-800-424-8802*	[X] Fire Department	[X] County Tanks Program	[X] DEP (district/person)

4. To the best of my knowledge and belief all information submitted on this form is true, accurate, and complete.

JIM SIMMEN
Name of Owner, Operator or Authorized Representative

March 3 1998
Signature of Owner, Operator or Authorized Representative.

D-1

5090
Code 423S
Ser

Florida Dept. of Environmental Protection
Bureau of Emergency Response
2796 Overseas Highway, Suite 218
Marathon, Florida 33050-4276

Re: SOURCE REMOVAL REPORT, BOQ TRUMBO POINT

Dear Sir:

Enclosure (1) is forwarded for your use as required by FAC 62-770.300. Product was discovered during a routine inspection of a valve pit at the site. The site was excavated to remove the contamination. Complete remediation was not possible due to the proximity of the building structure and an active propane gas supply.

The Navy has initiated another project to relocate the gas supply and further remove contamination. The Navy has also initiated a Site Assessment Report (SAR). The completion of the initial remedial measures will take place prior to initiation of the SAR.

Our point of contact for this matter is Mr. Jim Simmen (305) 293-2881.

Sincerely,

D. COLON
Environmental Officer
By direction of the
Commanding Officer

Enclosure:
(1) Source Removal Report

BER Incident# _____

Source Removal Report

The Florida Dept. of Environmental Protection, Bureau of Emergency Response (BER), has created this form which may be used as a cleanup report for any type of discharge, including the cleanup of petroleum discharges under F.A.C. 62-770. BER requests that this form be used, as this form will allow quicker review and closure of the case. For petroleum discharges, the information contained herein must be provided to DEP within 60 days of soil/debris disposal, as required by FAC 62-770.300. Send the report and attachments to:

FDEP Bureau of Emergency Response, 2796 Overseas Highway, Suite 218, Marathon, FL 33050-4276, telephone 305/289-2310, fax 305/289-2337

Date of:		Material(s) Discharged:	Amount:
Incident:	02 / 27 / 98	Petroleum	Unknown gallons
Cleanup Initiated:	05 / 12 / 98		gallons
Cleanup Completed:	05 / 16 / 98		gallons

Location of Incident: Building C-2076, BOQ NAS Key West Trumbo Point Annex **Latitude:**

Nearest Town: Key West **County:** Monroe **Longitude:**

Cause of Discharge:
- ☐ tank leak
- ☐ tank overfill
- ☐ valve leak
- ☐ vehicle crash
- ☐ drum leak
- ☐ pipe leak
- ☐ unknown

Environment Affected:
- ☐ soil
- ☐ groundwater
- ☐ air
- ☐ storm drain
- ☐ ditch
- ☐ surface water:
- ☐ impervious surface
- ☐ wells nearby

Responsible Party/Spiller:
Name: Commanding Officer, Naval Air Station
Address: Post Office Box 9007 (Code 1883JS)
City: Key West State: FL Zip: 33040-9001
Contact: Mr Jim Simmen Phone: (305) 293-2881

Cleanup Contractor:
US Navy, PWC, Pensacola
Contact: Paul Semmes
Phone: (850) 452-4315

Method(s) of Cleanup:
- ☐ soil excavation
- ☐ booms
- ☐ absorbants
- ☐
- ☐ vacuum truck
- ☐ skimmer
- ☐ neutralization

Free Product Recovered: 10 gallons
Free product disposal:
- ☐ incineration
- ☐ fuel blending
- ☐ wastewater treatment
- ☐

Amount of Soil Removed: 55 ☐ cubic yds. ☐ tons ☐ lbs ☐ drums

Disposal method of soil:
- ☐ soil thermal treatment facility
- ☐ hazardous waste
- ☐ landfill
- ☐

Disposal method of any other debris:
- ☐ soil thermal treatment facility
- ☐ haz. waste
- ☐ landfill
- ☐

Dimensions of soil excavation: 9' x 18'
Depth to groundwater: 4 feet. How determined?: Excavation of Soil

Method/instrument to Screen Soil:
- ☐ OVA/FID (Org. Vapor Analyzer)
- ☐ PID (Photolonization Detector)
- ☐

Summary of Instrument Readings: (OVA: net result w/out methane)

highest reading observed:	3028	ppm
highest reading after excavation:	34	ppm
lowest reading after excavation:	0	ppm

Comments: Product was discovered during a routine inspection of a valve pit at the site.

Attach a copy of: scaled site drawing/map; table of instrument readings/depths; disposal manifests; lab reports of soil and waste analyses (with QA info); certificate of disposal (when available).

Certification: I certify that the above information and attachments are true and complete, to the best of my knowledge. I understand that submission of false information, or failure to comply with DEP's regulations, is a civil and criminal violation and may be grounds for enforcement action.

Print name: Paul R Semmes, PE Affiliation: Environmental Engineer (PWC)

Signature: Date: 10/14/98

STATE OF FLORIDA REGISTERED ENGINEER No. 64137

D-3

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 82521

2. Page 1 of

3. Generator's Name and Mailing Address: ~~N.A.S., [illegible] 18~~ Commanding Officer, NAS Key West
P.O. BOX ~~9018~~, KEY WEST, FL 33040-~~9018~~ 9001

4. Generator's Phone (~~954~~ 305) ~~581-4455~~ (~~Judd Gilbert, P.M.I.~~) 293-2583

5. Transporter 1 Company Name: SOIL TECH

6. US EPA ID Number

A. Transporter's Phone: (954) 581-4455 (Judd Gilbert ~~P.M.I.~~)

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address:
SOUTH FLA. THERMAL SERVICES, INC.
1 FOXMOOR LANE
MOORE HAVEN, FL 33471

10. US EPA ID Number

C. Facility's Phone: (954)581-4455 (Judd Gilbert, P.M.I.)

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. RCRA NON-HAZARDOUS, NON-REGULATED PETROLEUM IMPACTED SOIL	001	DT	23	T
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

SITE NAME:
THERMO POINT
BACHELOR'S OFFICERS QUARTERS
N.A.S. COMPLEX
KEY WEST, FL
N62467-~~98-M~~-2761

PLEASE MAIL MANIFEST TO:
P.M.I.
2191 SW 115 TERRACE
DAVIE, FL 33325

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name: Richard E. Smith | Signature | Month 8 Day 26 Year 98

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: ALFREDO CONDE | Signature | Month 8 Day 29 Year 98

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month | Day | Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name | Signature | Month 8 Day 27 Year 8

GENERATOR — TRANSPORTER — FACILITY

ORIGINAL – RETURN TO GENERATOR

D-4

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 82920

2. Page 1 of

3. Generator's Name and Mailing Address
~~N.A.S. BLDG. A-718~~ Commanding Officer, NAS Key West
P.O. BOX ~~9018~~, KEY WEST, FL 33040-9018

4. Generator's Phone (~~954~~ 305) ~~581-4455 (Judd Gilbert, P.M.I.)~~ 293-2582

5. Transporter 1 Company Name
SOIL TECH

6. US EPA ID Number

A. Transporter's Phone
(954) 581-4455 (Judd Gilbert P.M.I.)

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address
SOUTH FLA. THERMAL SERVICES, INC.
1 FOXMOOR LANE
MOORE HAVEN, FL 33471

10. US EPA ID Number

C. Facility's Phone
(954)581-4455
(Judd Gilbert, P.M.I.)

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. RCRA NON-HAZARDOUS, NON-REGULATED PETROLEUM IMPACTED SOIL	0 0 1	DT	23	T
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

SITE NAME:
THIMBO POINT
BACHELOR'S OFFICERS QUARTERS
N.A.S. COMPLEX
KEY WEST, FL
N62467-98-M-2761

PLEASE MAIL MANIFEST TO:
P.M.I.
2191 SW 115 TERRACE
DAVIE, FL 33325

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name	Signature	Month	Day	Year
Joseph Fornwalt Agent For	Joseph Fornwalt	8	26	98

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
X Eduardo Vega		8	26	98

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
		8	27	98

GENERATOR — TRANSPORTER — FACILITY

ORIGINAL – RETURN TO GENERATOR

D-5

SOUTH FLORIDA THERMAL SERVICES
ONE FOXMOORE LANE
POST OFFICE BOX 309
MOORE HAVEN FLORIDA 33471

TRANSACTION 1025594
SITE/SCALE: 01 / 02
OPERATOR: CHUCK H
TICKET NO. 19526

CUSTOMER : PMI PETROLEUM MANAGEMENT INC.
HAULER : PMI PETROLEUM MANAGEMENT INC.
VEHICLE : 245 ADDED BY SYSTEM
CONTAINER :

MATERIAL : CS CONTAMINATED SOIL
RATE/TON : $ .00 RATE/EVENT: $ .00

ORIGIN : B15 NAVY BOQ
DESTINATION: SFT SOUTH FLORIDA THERMA

TAX %/NO. : 99.00 CODE :
IN 8/27/98 7:31.40 GROSS TONS: 21.39
OUT 8/27/98 7:40.14 TARE TONS : 16.50
CHECK #: NET TONS : 4.99

COMPLETE - THANK YOU AMOUNT DUE: .00
TAX DUE : .00
SOIL TECH MANIFEST 9252: X (CLEANUP LOAD)
TOTAL DUE : .00
DEPOSIT PAID: (.00)
AMOUNT TENDERED: .00 REFUND : .00

DRIVER SIGNATURE

SOUTH FLORIDA THERMAL SERVICES
ONE FOXMOORE LANE
POST OFFICE BOX 309
MOORE HAVEN FLORIDA 33471

TRANSACTION 1025603
SITE/SCALE: 01 / 02
OPERATOR: CHUCK H
TICKET NO. 19535

CUSTOMER : PMI PETROLEUM MANAGEMENT INC.
HAULER : PMI PETROLEUM MANAGEMENT INC.
VEHICLE : 130 ADDED BY SYSTEM
CONTAINER :

MATERIAL : CS CONTAMINATED SOIL
RATE/TON : $ .00 RATE/EVENT: $ .00

ORIGIN : BIS NAVY BOQ
DESTINATION: SFT SOUTH FLORIDA THERMA

TAX X/NO. : 99.00 CODE :
IN 8/27/98 8:55.44 GROSS TONS: 34.07
OUT 8/27/98 9:03.40 TARE TONS : 16.13
CHECK #: NET TONS : 17.94

COMPLETE - THANK YOU AMOUNT DUE: .00
TAX DUE : .00

SOILTECH MANIFEST 82520 X

TOTAL DUE : .00
DEPOSIT PAID:(.00)
AMOUNT TENDERED: .00 REFUND : .00

DRIVER SIGNATURE _____

CERTIFICATE OF MATERIALS RECYCLING

WHEREAS, South Florida Thermal Services Inc., is a corporation organized under the laws of the State of Florida with its principal place of business in Moore Haven, Florida and

WHEREAS, South Florida Thermal Services Inc., operates a facility which uses, reuses and recycles waste materials under the authority of the Florida Department of Environmental Regulation;

Now, therefore, South Florida Thermal Services Inc., does hereby issue this certificate to:

PAI
2191 SW Terrace
Davie, FL. 33325

Project: U.S. Navy
BOQ
Key West, FL.

To evidence the total use, reuse and recycling of 22.83 tons of soil contaminated with petroleum products. Service performed by Thermal Treatment.

Said use, reuse and recycling has been completed in a manner consistent with acceptable engineering standards and in compliance with applicable rules and regulations set forth by State and Federal Authorities on or about the date stated:

SOUTH FLORIDA THERMAL SERVICES INC.

Oct. 12, 98
DATE

Charles A Holly
vice PRESIDENT

D-8

TOTAL P.04

APPENDIX E

AQUIFER SLUG TEST RESULTS AND CALCULATIONS
SITE A-317 ON AUG 17, 1991

AQUIFER SLUG TEST CALCULATIONS

Average Pore Water Velocity Calculations

Estimates of average pore water velocity were obtained using the following formula:

$$v = (KI_{av})/n$$

where

v = average pore water velocity (ft/day),
K = hydraulic conductivity (ft/day),
I_{av} = average hydraulic gradient across site = ~~8.5~~ 3.2 X 10^{-3} ft/ft, and
n = estimated porosity.

Using an estimated porosity of 22 percent (Davis and DeWiest, 1966), the average hydraulic gradient across the site (I_{av},) and the hydraulic conductivity from well KYWA317-5 (K = 3.8 ft/day), the calculated average pore water velocity is:

$$v = (3.8 \text{ ft/day})(3.2\text{x}10^{-3})/0.22$$

$$v = 5.5\text{x}10^{-2} \text{ ft/day.}$$

Transmissivity

Transmissivity, T, for the surficial aquifer, was estimated by using the following formula:

$$T = K*b$$

where

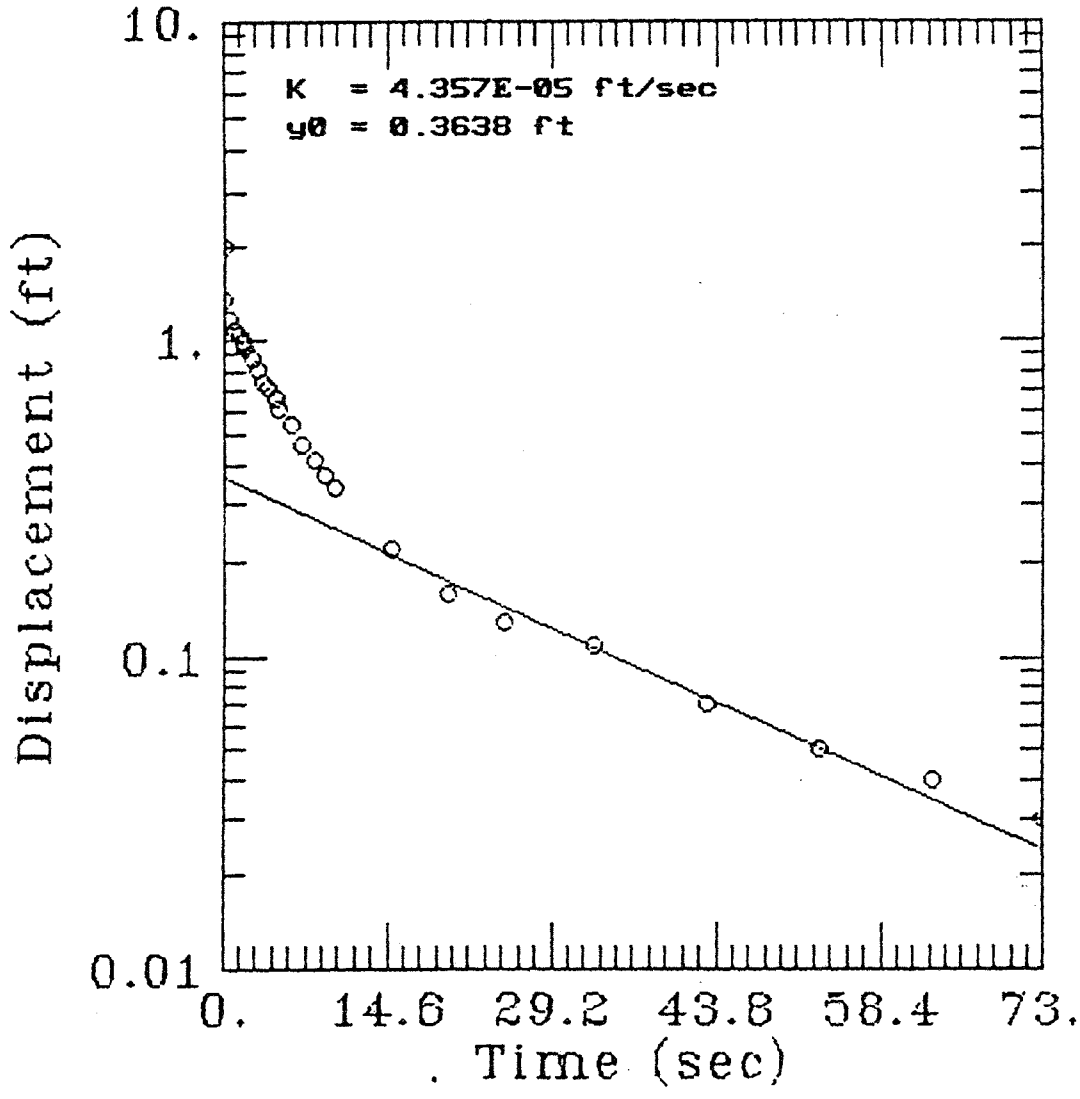
T = transmissivity (ft^2/day),
K = hydraulic conductivity (ft/day), and
b = aquifer test interval or thickness (ft).

For monitoring well KYWA317-5, using a K value of 3.8 ft/day and a b value of 9.52 ft, the calculated transmissivity is as follows:

$$T = 3.8 \text{ ft/day x } 9.52 \text{ ft}$$

$$T = 36 \text{ ft}^2\text{/day.}$$

NAS KEY WEST KYW-A317-5



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

E2

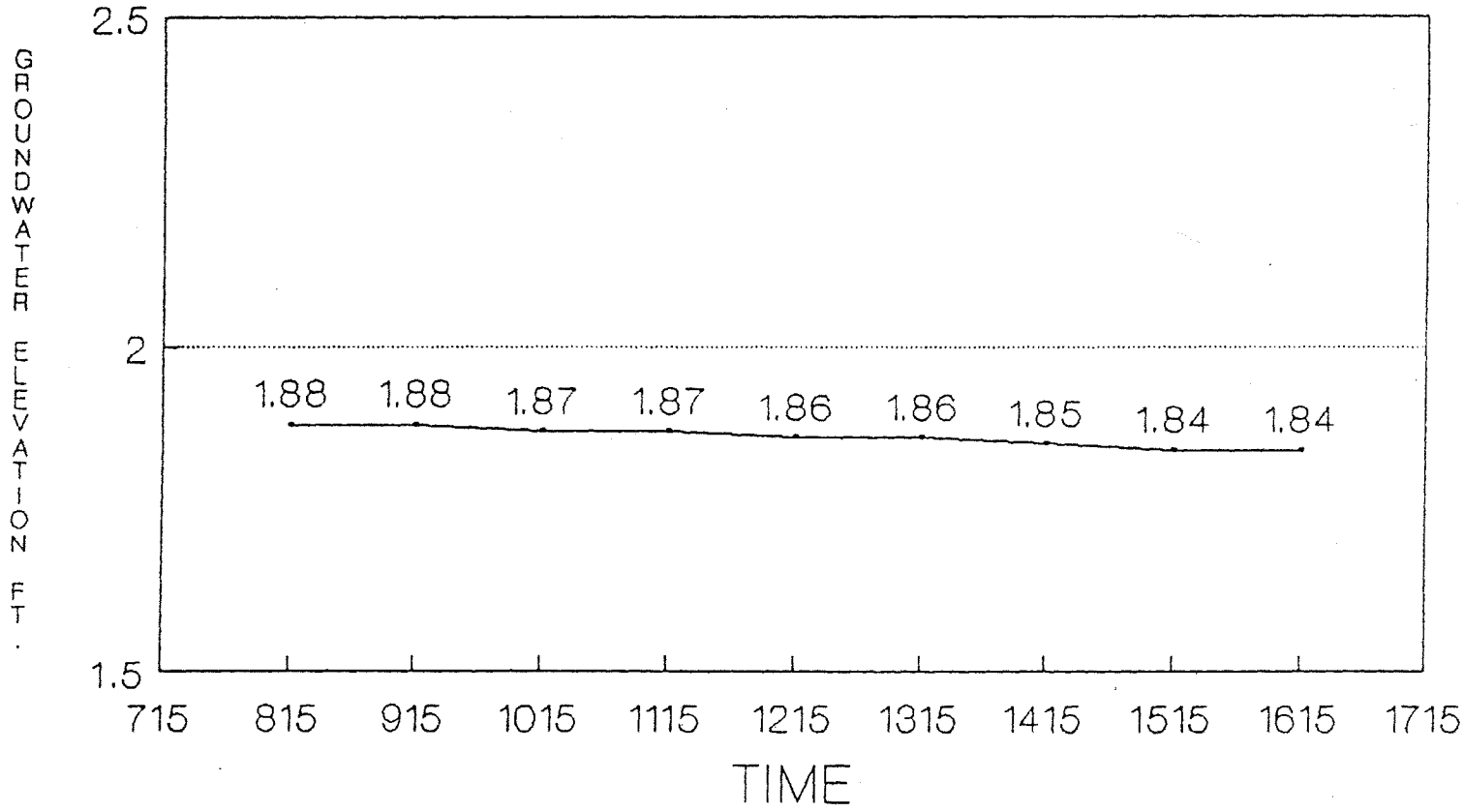
APPENDIX F

GROUNDWATER ELEVATION GRAPHS FROM TIDAL INFLUENCE STUDY
SITE A-317, ON AUGUST 17, 1991 (8 HOUR PERIOD)

TIDAL INFLUENCE STUDY, BUILDING A-317

PUBLIC WKS DEPT MTR POOL, AUG. 17, 1991

KYW-A317-1



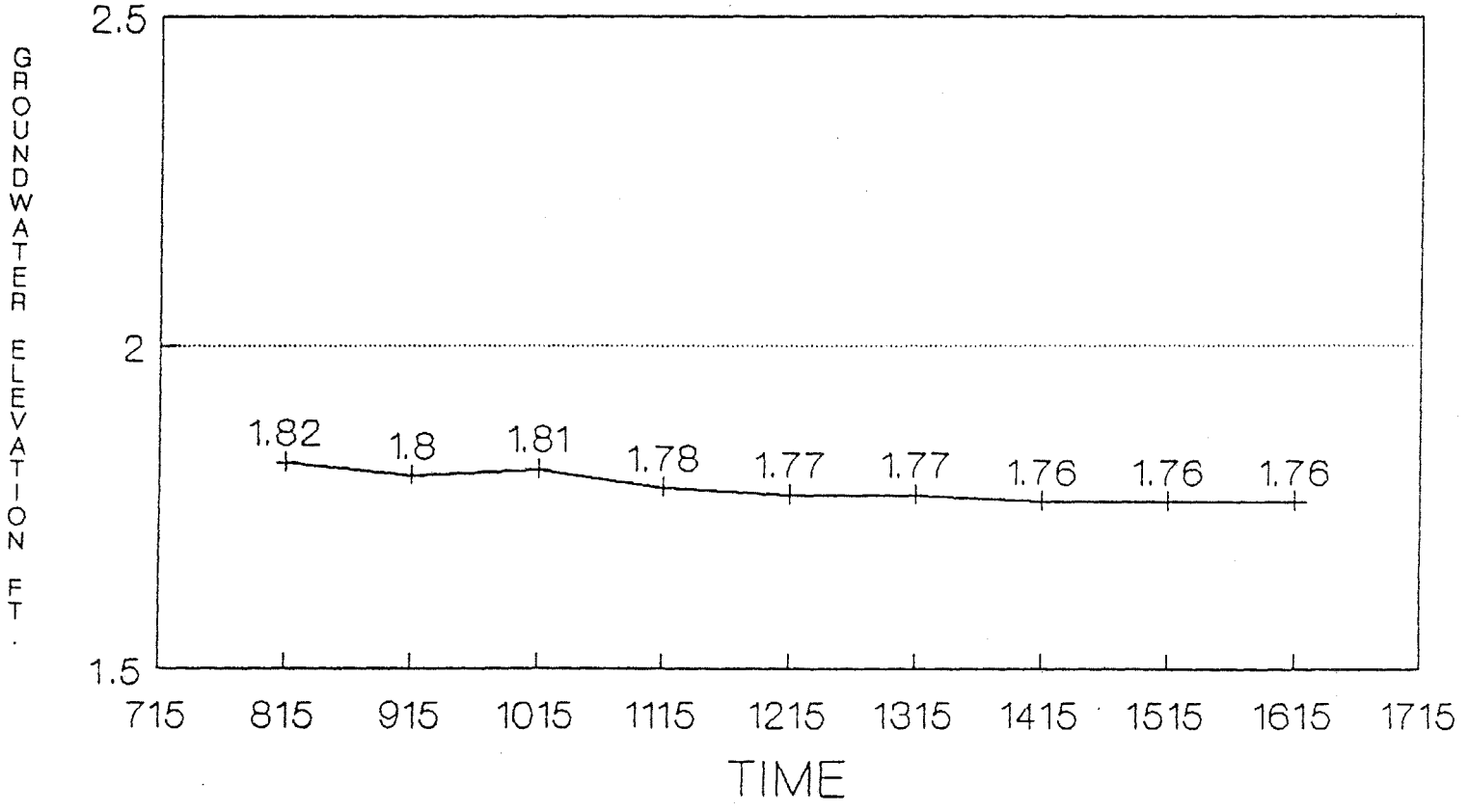
HIGH TIDES: 0420 & 1811 HOURS
LOW TIDES: 1149 & 2223 HOURS
PUBLIC WORKS DEPT MOTOR POOL

F-1

TIDAL INFLUENCE STUDY, BUILDING A-317

PUBLIC WKS DEPT MTR POOL, AUG. 17, 1991

KYW-A317-2



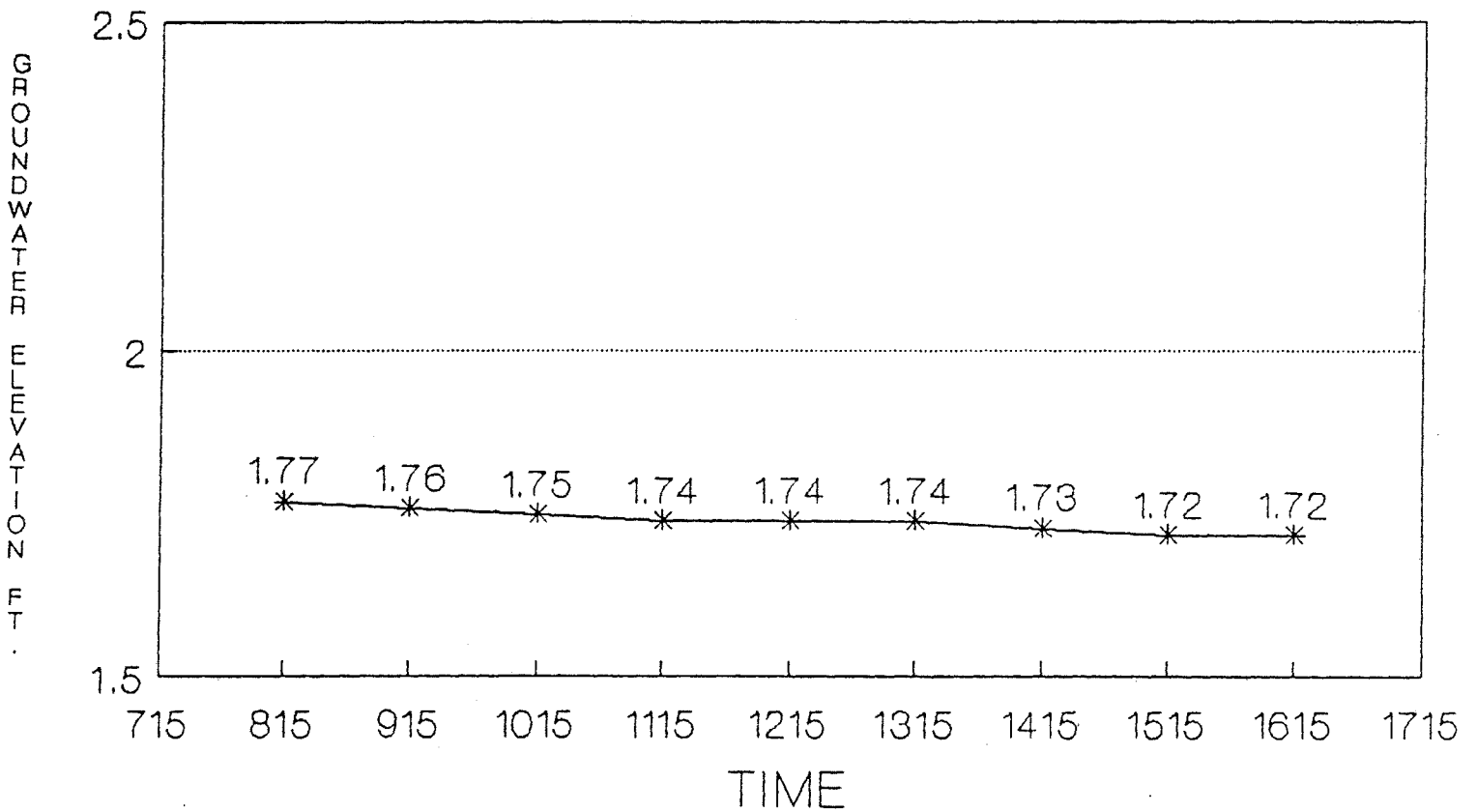
HIGH TIDES: 0420 & 1811 HOURS
LOW TIDES: 1149 & 2223 HOURS
PUBLIC WORKS DEPT MOTOR POOL

F-2

TIDAL INFLUENCE STUDY, BUILDING A-317

PUBLIC WKS DEPT MTR POOL, AUG. 17, 1991

KYW-A317-3



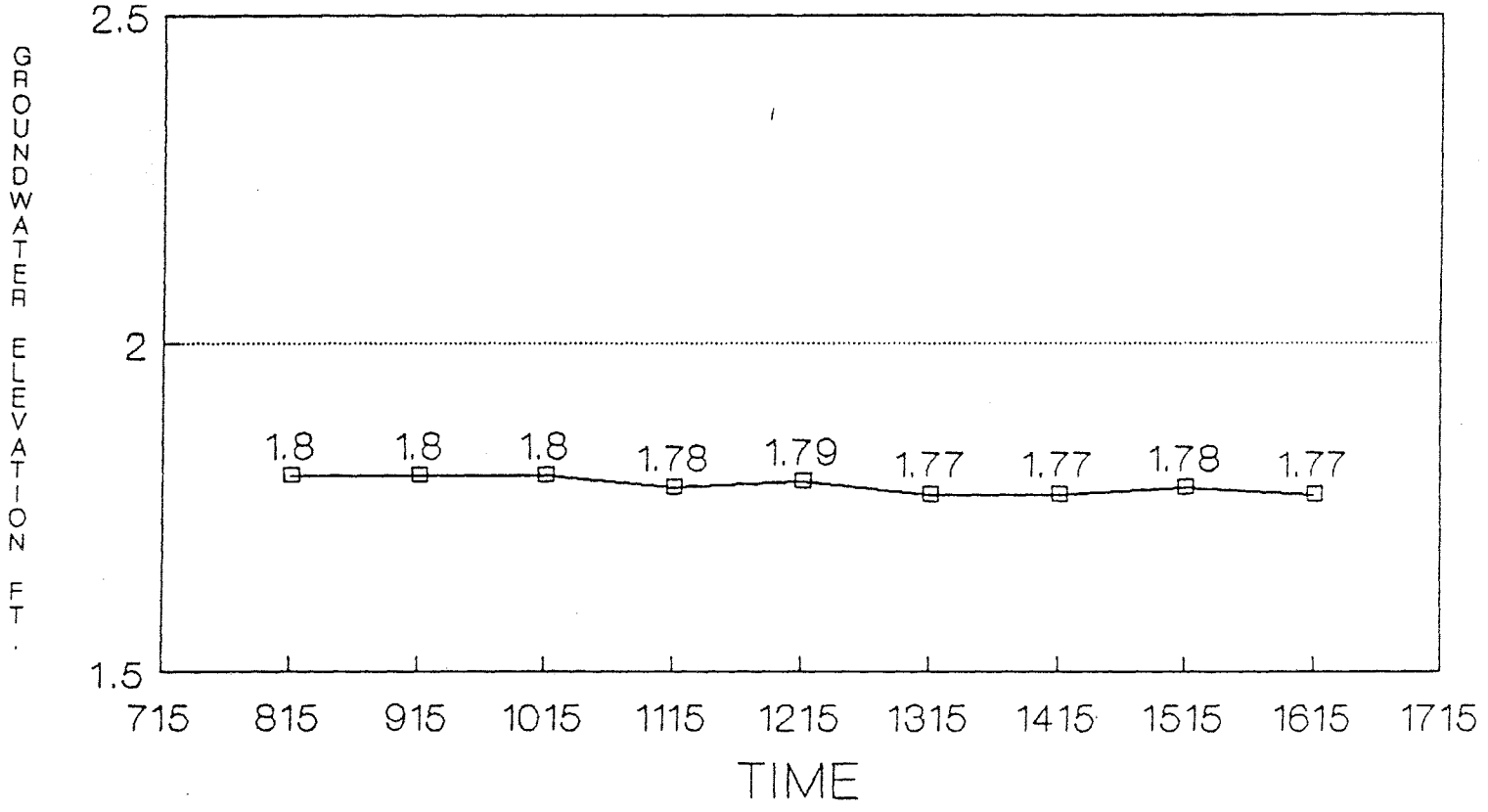
HIGH TIDES: 0420 & 1811 HOURS
LOW TIDES: 1149 & 2223 HOURS
PUBLIC WORKS DEPT MOTOR POOL

F-3

TIDAL INFLUENCE STUDY, BUILDING A-317

PUBLIC WKS DEPT MTR POOL, AUG. 17, 1991

KYW-A317-4



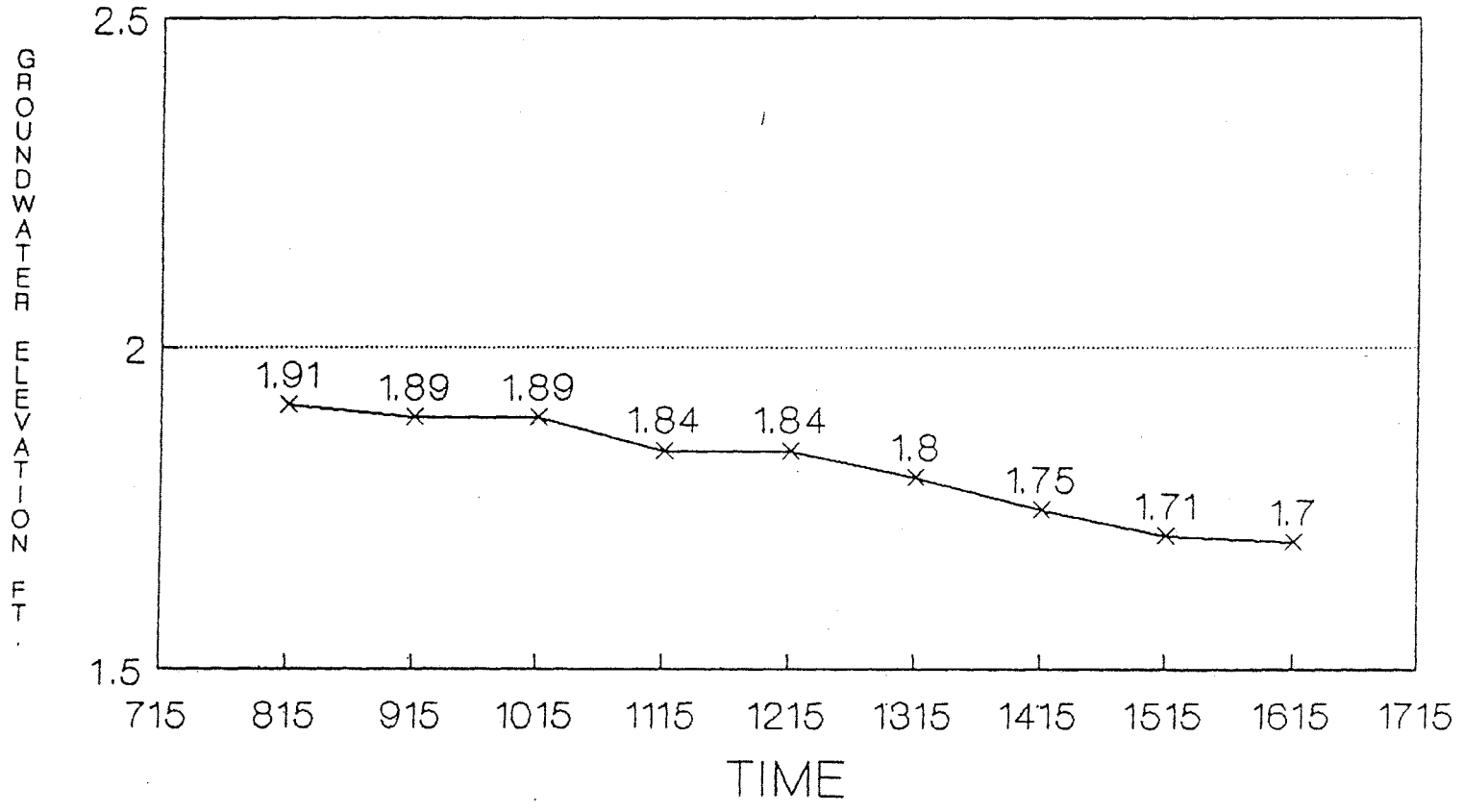
HIGH TIDES: 0420 & 1811 HOURS
LOW TIDES: 1149 & 2223 HOURS
PUBLIC WORKS DEPT MOTOR POOL

F-4

TIDAL INFLUENCE STUDY, BUILDING A-317

PUBLIC WKS DEPT MTR POOL, AUG. 17, 1991

KYW-A317-5



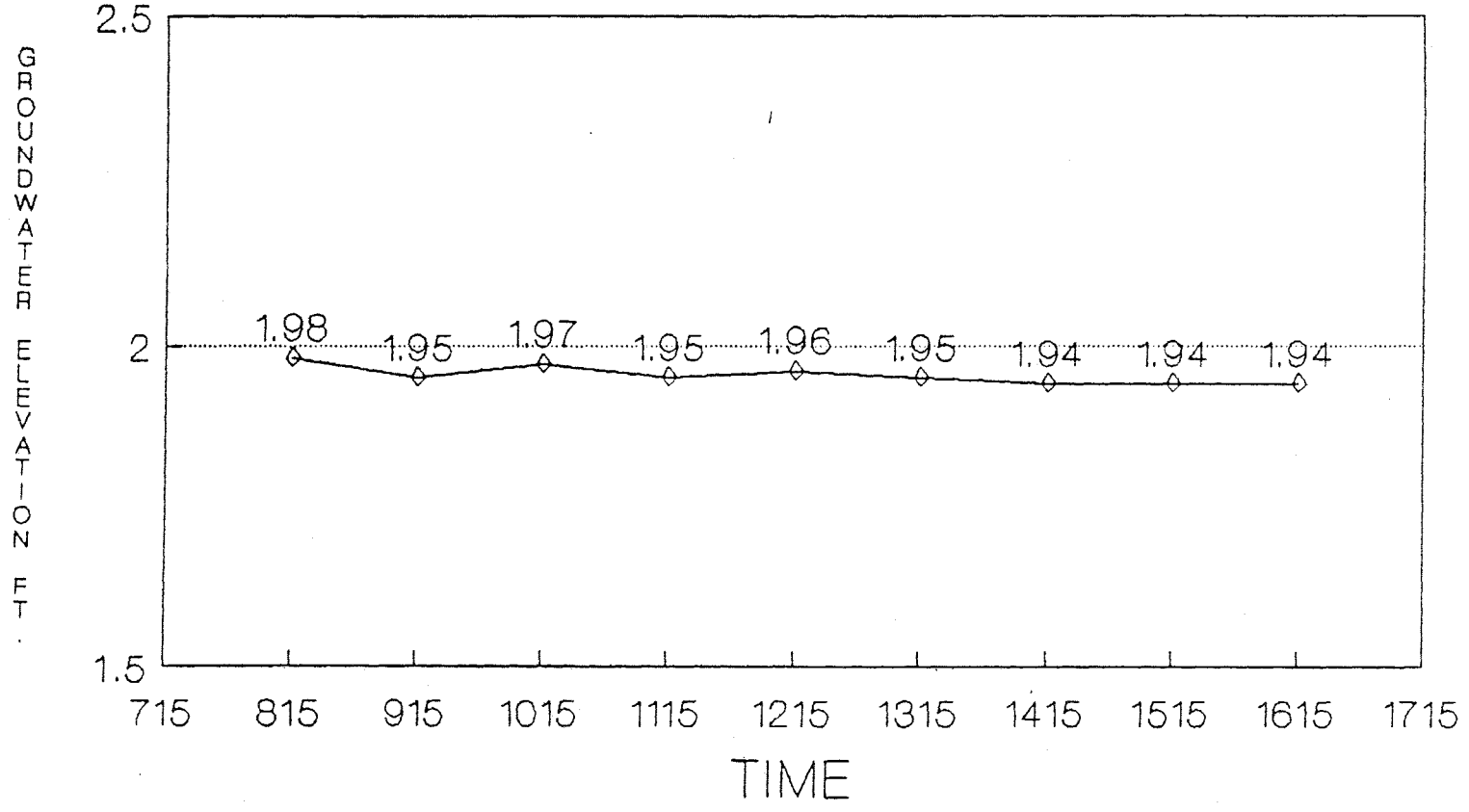
HIGH TIDES: 0420 & 1811 HOURS
LOW TIDES: 1149 & 2223 HOURS
PUBLIC WORKS DEPT MOTOR POOL

F-5

TIDAL INFLUENCE STUDY, BUILDING A-317

PUBLIC WKS DEPT MTR POOL, AUG. 17, 1991

KYW-A317-6



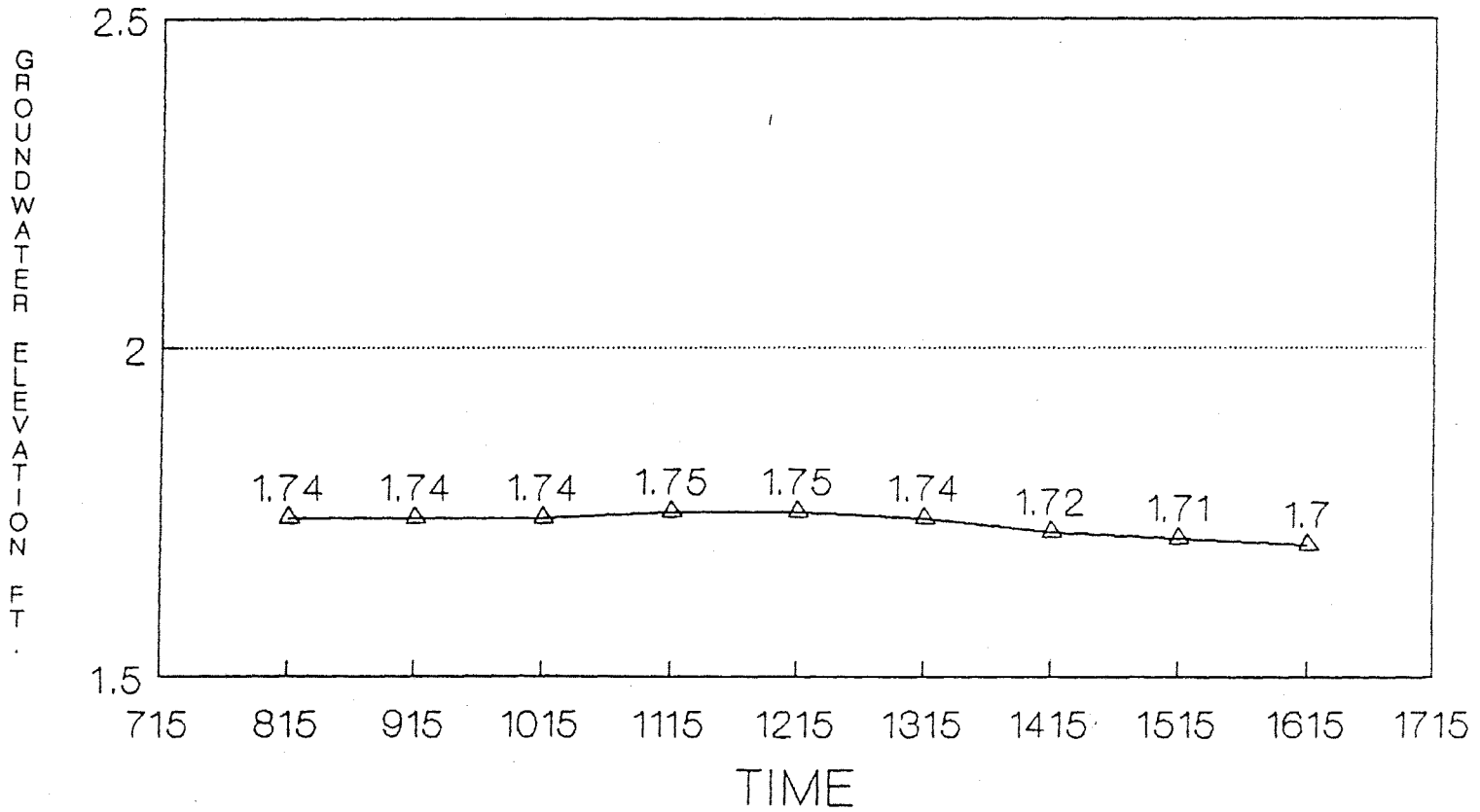
HIGH TIDES: 0420 & 1811 HOURS
LOW TIDES: 1149 & 2223 HOURS
PUBLIC WORKS DEPT MOTOR POOL

F-6

TIDAL INFLUENCE STUDY, BUILDING A-317

PUBLIC WKS DEPT MTR POOL, AUG. 17, 1991

KYW-A317-7



HIGH TIDES: 0420 & 1811 HOURS
LOW TIDES: 1149 & 2223 HOURS
PUBLIC WORKS DEPT MOTOR POOL