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CONTAMINATION ASSESSMENT REPORT FOR BUILDING 200 MAIN BASE NTC ORLANDO FL

6/1/1997

ABB ENVIRONMENTAL

CONTAMINATION ASSESSMENT REPORT

BUILDING 200
MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Unit Identification Code: N65928

Contract No.: N62467-89-D-0317/107

Prepared by:

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Prepared for:

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Naval Facilities Engineering Command
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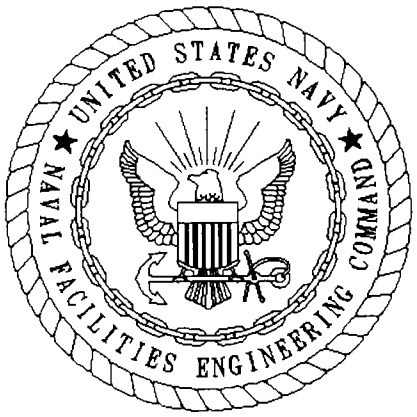
June 1997



CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

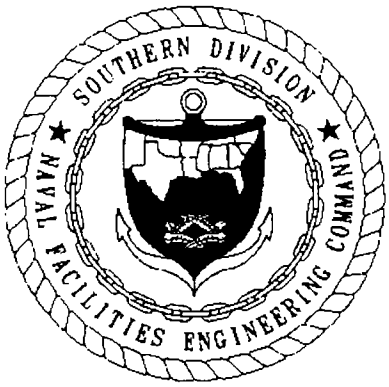
The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/107 are complete and accurate and comply with all requirements of this contract.

DATE: June 13, 1997

NAME AND TITLE OF CERTIFYING OFFICIAL: John Kaiser
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Manuel Alonso, P.G.
Project Technical Lead

(DFAR 252.227-7036)



FOREWORD

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

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

The UST program includes the following activities:

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

The Southern Division, Naval Facilities Engineering Command manages the UST program, and the Florida Department of Environmental Protection oversees the Navy UST program at the Naval Training Center (NTC), Orlando, Florida.

In addition to the UST program, NTC, Orlando in conjunction with the Department of the Navy has instituted several programs to address the requirements of Base Realignment and Closure (BRAC). BRAC Cleanup Teams composed of representatives from the Navy, as well as Federal and State regulatory agencies, have been formed

to address the multitude of issues surrounding base closure and to enhance environmental decision making at BRAC installations where property will be available for transfer to the community. This team approach is intended to foster partnering, accelerate the environmental cleanup process, and expedite timely, cost-effective, and environmentally responsible disposal and reuse decisions.

At NTC, Orlando, the BRAC process includes the evaluation of the environmental condition of the property to ensure the suitability of transfer, reuse, or lease.

Questions regarding the UST program at NTC, Orlando should be addressed to Mr. Nick Ugolini, Code 1843, at (803) 820-5596.

EXECUTIVE SUMMARY

ABB Environmental Services, Inc. (ABB-ES), has been authorized by Southern Division, Naval Facilities Engineering Command to prepare contamination assessment reports (CARs) for petroleum-impacted sites discovered during the Base Realignment and Closure Tank Management Plan implementation at the Naval Training Center, Orlando Main Base property in Orlando, Florida. This CAR has been prepared to evaluate soil and groundwater conditions at the former Firefighting Training School, Building 200.

This contamination assessment has been conducted following the guidelines contained in Section 62-770.600, Florida Administrative Code (FAC). A brief summary of the assessment results is provided below:

1. Three underground storage tanks (USTs) and two oil-water separators were formerly located in the area of Building 200. One 10,000-gallon heating oil UST and one 500-gallon gasoline UST were located immediately west of Building 200. Two 500-gallon oil-water separators and one 280-gallon waste oil UST were located approximately 120 feet south of Building 200. The USTs and oil-water separators were removed in January 1995, and a Tank Closure Assessment Report (TCAR) was completed by International Technology Corporation in March 1995. Evidence of petroleum impact to groundwater was detected at the 500-gallon gasoline UST and both oil-water separators during the TCAR.

2. In October 1996, a Preliminary Contamination Assessment Report (PCAR) was completed addressing the conditions in the area of the former 500-gallon gasoline UST. During the PCAR investigation, on July 18, 1996, acenaphthene, fluorene, phenanthrene, anthracene, and fluoranthene were detected at concentrations exceeding State of Florida target cleanup levels in monitoring well MW-1, located at the former 500-gallon gasoline UST area. In November 1996, an Oil-Water Separator Assessment Report (OWSAR) was completed addressing the conditions in the area of the former oil-water separators. During the OWSAR investigation, groundwater samples collected from monitoring well MW-2 at the eastern oil-water separator on July 17, 1996, show naphthalene, acenaphthalene, fluorene, phenanthrene, and pyrene at concentrations exceeding State of Florida target cleanup levels. In addition, groundwater samples collected from temporary well TW-1 at the western oil-water separator on September 3, 1996, show acenaphthene and fluorene at concentrations exceeding State of Florida target cleanup levels.

3. Contamination assessment activities were conducted by ABB-ES from July 11, 1996 to May 23, 1997. Hand auger borings were advanced throughout the study area to assess if excessively contaminated soil was present and to evaluate the extent of soil contamination.

4. One piezometer (PZ-1) and one temporary well were installed to a depth of approximately 9 feet below land surface (bls) to define the direction of shallow groundwater flow. Temporary well TW-1 was later replaced with monitoring well MW-5.

5. From July 11, 1996, to April 9, 1997, 1 deep and 10 shallow monitoring wells were installed to assess the horizontal and vertical extent of petroleum contamination in the shallow aquifer. The shallow wells (MW-1 through MW-10) were installed to depths ranging from 12 to 17 feet bls. Deep well DW-1 was installed to a depth of 32 feet bls.

6. Dissolved petroleum hydrocarbon contamination exceeding Chapter 62-770, FAC, target cleanup levels for total naphthalenes was detected in groundwater samples from monitoring wells MW-2 (152 micrograms per liter [$\mu g/\ell$]), MW-3 (288 $\mu g/\ell$), MW-6 (28 $\mu g/\ell$), and MW-8 (120 $\mu g/\ell$).

7. Groundwater flow direction was determined to be from north-northwest to south-southeast with a hydraulic gradient of 1.45×10^{-2} feet per foot. The average hydraulic conductivity was calculated to be 0.71 feet per day. The groundwater flow velocity was estimated to be 2.9×10^{-2} feet per day, and the transmissivity was estimated to be 371.8 gallons per day per foot.

8. Two active potable water wells (WW-12, 1.0 mile east; and WW-13, 1.5 miles southwest) are located in the site vicinity. Both wells are owned and operated by the Orlando Utility Commission.

9. ABB-ES recommends that a remedial action plan be prepared for the Building 200 site.

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
AST	aboveground storage tank
bls	below land surface
CAR	Contamination Assessment Report
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
ft/day	feet per day
ft/ft	feet per foot
gpd/ft	gallons per day per foot
gpd/ft^2	gallons per day per foot squared
HSA	hollow-stem auger
ID	inside diameter
mg/ℓ	milligrams per liter
$\mu g/\ell$	micrograms per liter
MOGAS	motor gasoline
NTC	Naval Training Center
OVA	organic vapor analyzer
PAH	polynuclear aromatic hydrocarbons
PVC	polyvinyl chloride
TOC	top of casing
TRPH	total recoverable petroleum hydocarbons
USEPA	U. S. Environmental Protection Agency
UST	underground storage tank
VOA	volatile organic aromatics
VOH	volatile organic halocarbons

1.0 SITE DESCRIPTION AND BACKGROUND INFORMATION

Building 200 (former Firefighting Training School) is located within the Recruit Training Center in the west-central part of the Naval Training Center (NTC), Main Base, in Orange County, Florida. The site lies within the southwest part of Section 17, Township 22 South and Range 30 East, as shown on the Orlando East, Florida, U.S. Geological Survey Quadrangle Map. Figure 1-1 shows the site location and a map of the surrounding area.

Building 200 is a one-story building constructed of brick and concrete block on a concrete foundation and has a flat roof. It is currently not occupied, but the structure has been used previously as the main training classroom for the firefighting training facility and as administrative offices. In addition, two burn buildings were located to the south of Building 200 prior to demolition at an unknown time. Aerial photographs indicate that, prior to building construction in 1970, the property was undeveloped. Photographs of the site showing existing physical features are included in Appendix A, Site Photographs.

The firefighting training facility included Building 200, two firefighter training buildings ("burn buildings"), Building 202, the Gas Mask Training building, a 50,000-gallon underground concrete water storage tank, a pump pit, and various utilities trenches. The firefighting training facility is surrounded by a 1-foot-thick by 10-feet-high brick wall. The firefighting training building, the 50,000-gallon underground water storage tank (UWST), pumps, utilities trenches, and petroleum storage systems were removed in 1995.

Three petroleum storage tank systems (one 10,000-gallon heating oil UST; one 500-gallon gasoline UST; and one 280-gallon waste oil UST associated with the oil-water separators) and two 500-gallon oil-water separators have been operated at the property. The locations of the petroleum storage tank systems and oil-water separators are shown on Figure 1-2, Site Plan. The oil-water separators were located near the two "burn buildings" to capture residual fluids (petroleum/water) from firefighting activities. Number 2 diesel fuel, motor gas (MOGAS), and heating oil were ignited within the "burn buildings," and students practiced extinguishing the fires. Fluids from the firefighting activities were collected by drains within the "burn buildings" and directed into the oil-water separators where water was separated from the oil and directed to a 50,000-gallon underground water storage tank and the waste oil was directed to the 280-gallon UST. Approximately three times a year the sludge from the separators was pumped out and transported for off-site treatment. Wastewater from the firefighting activities was directed into a UWST to the southeast and reused.

The three USTs and two oil-water separators were removed in January 1995 and a Tank Closure Assessment Report was completed by International Technology Corporation in March 1995. Following the tank removals, evidence of petroleum impact to groundwater was detected in groundwater samples collected from temporary wells installed near the former 500-gallon gasoline UST and the eastern oil-water separator. A 500-gallon aboveground storage tank (AST) with secondary containment was installed on the same location as the former 500-gallon gasoline UST. This AST has not been used. ABB Environmental Services, Inc. (ABB-ES), assessed the areas surrounding the petroleum storage systems and found evidence of petroleum impact to groundwater at the eastern and western oil-water separators and the former 500-gallon gasoline UST. A summary of these assessment activities and findings can be found in the Oil-Water Separator Assessment Report

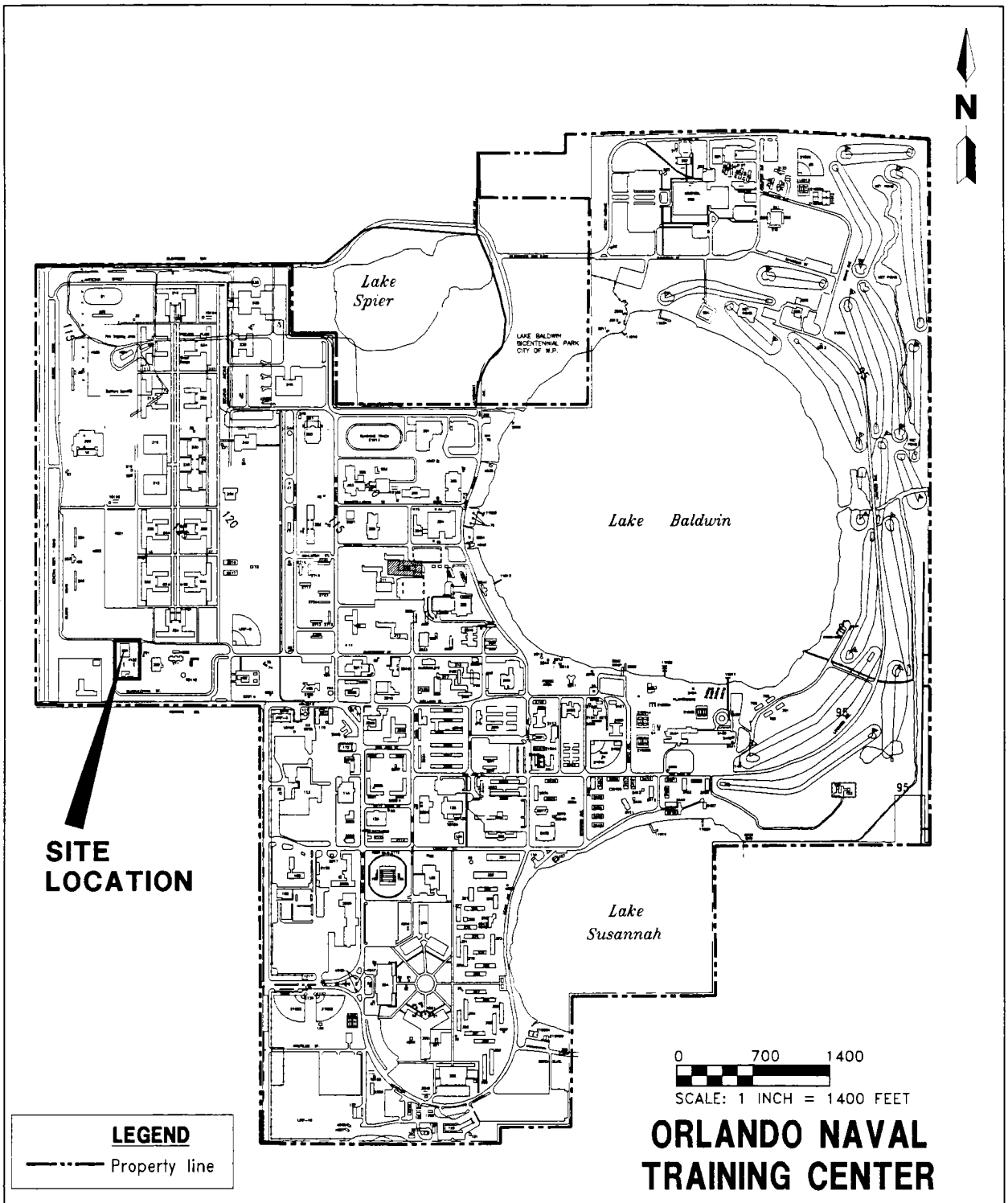

FIGURE 1-1
SITE VICINITY MAP

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CONTAMINATION ASSESSMENT REPORT
BUILDING 200
MAIN BASE
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ORLANDO, FLORIDA

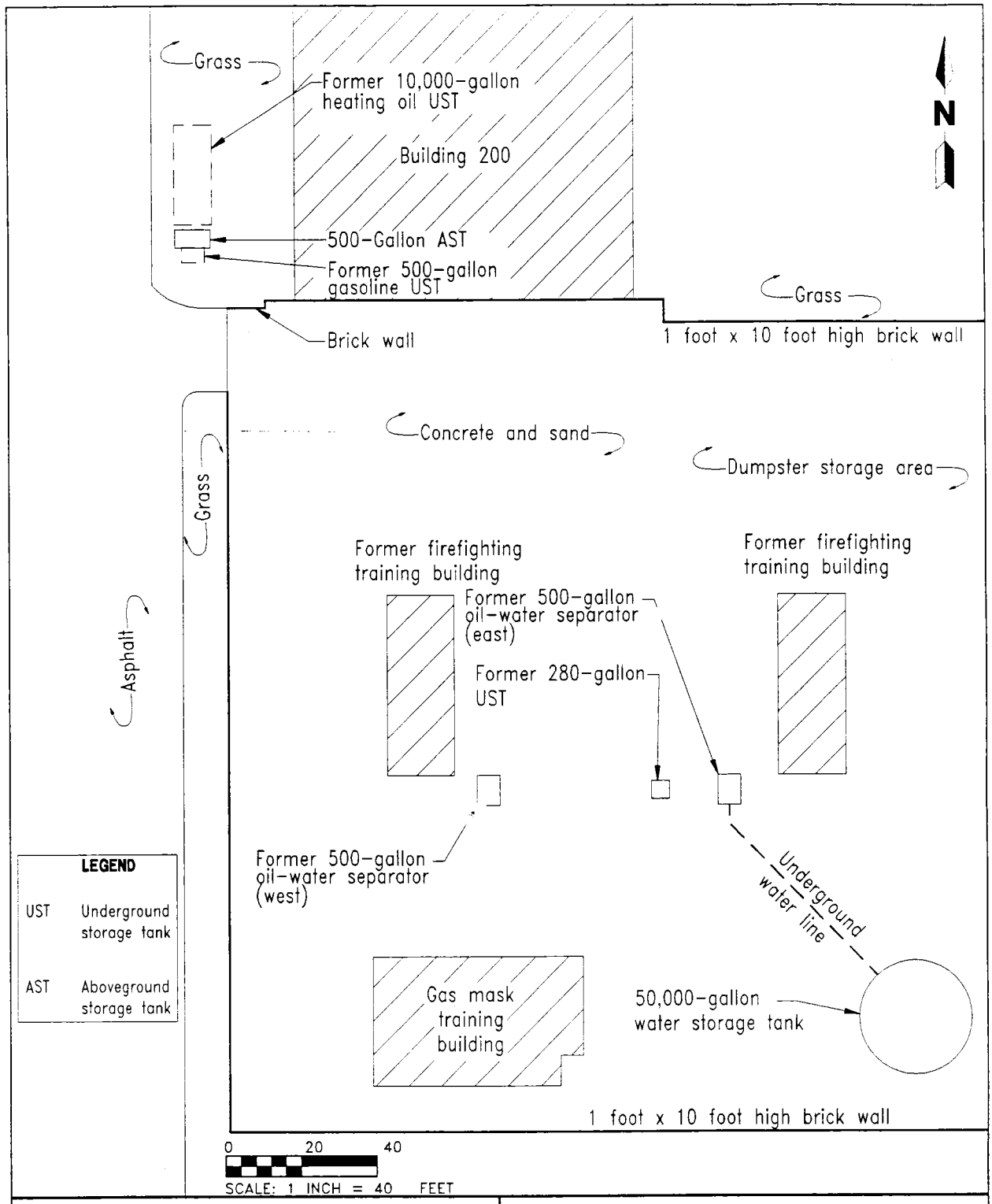

FIGURE 1-2
SITE PLAN

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CONTAMINATION ASSESSMENT REPORT
BUILDING 200
MAIN BASE
NAVAL TRAINING CENTER
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and Preliminary Contamination Assessment Report (CAR) prepared for Building 200 and included in this report as Appendix B.

This CAR summarizes the data gathered during the contamination assessment activities at Building 200 (the firefighting training area). General information such as regional physiography, geology, hydrogeology, investigative methodologies, and procedures are included in the NTC, Orlando Main Base CAR (ABB-ES, 1996).

2.0 CONTAMINATION ASSESSMENT METHODOLOGY

2.1 SOIL BORING PROGRAM. In order to determine if petroleum-contaminated soil exists onsite, 14 hand auger borings were advanced using a 3.25-inch inside diameter (ID) stainless steel bucket auger on September 4, 1996. Figure 2-1 shows the locations of the hand auger borings. The borings were completed into the water table, which was encountered between 4 to 6 feet below land surface (bls) during the soil assessment.

Thirty-seven soil samples were collected from the 14 hand auger borings (HA-1 through HA-14). The soil samples were collected at 1 to 3 feet, 3 to 5 feet, and, in most cases, 5 to 7 feet. Headspace organic vapor concentrations were measured for all soil samples by placing the soil sample in a 16-ounce glass jar and using a calibrated organic vapor analyzer (OVA), Foxboro 128 equipped with a flame ionization detector following procedures outlined in Chapter 62-770, Florida Administrative Code (FAC). Carbon filters are utilized to differentiate total hydrocarbon response from naturally occurring methane gas. Filtered and unfiltered readings are obtained from two separate jars. All sampling and analysis is performed in accordance with the ABB-ES FDEP-approved Comprehensive Quality Assurance Plan.

2.2 MONITORING WELL INSTALLATION PROGRAM. One deep monitoring well (DW-1) and 10 shallow monitoring wells (MW-1 through MW-10) were installed at the site on July 11, 1996, and January 23, March 3 through 5, and April 9, 1997. The shallow wells were installed using hollow-stem auger (HSA) techniques to depths ranging from 12 to 17 feet bls. The deep monitoring well was installed using mud-rotary techniques to a depth of 32 feet bls. Typical shallow and deep monitoring well construction details are provided as Figures 2-2 and 2-3, respectively. Each shallow well was constructed with 10 feet of 2-inch-diameter 0.010-inch slotted well screen coupled to 2 to 7 feet of 2-inch schedule 40 solid polyvinyl chloride (PVC). This assembly is placed in the borehole so that the screen interval is located at a depth that encompasses seasonal water table fluctuations. The deep monitoring well was constructed by first grouting in-place 20 feet of 6-inch PVC surface casing. Following the installation of the surface casing, the deep monitoring well was drilled to a depth of 32 feet bls using mud-rotary techniques. The deep well was completed with 5 feet of 2-inch-diameter 0.010-inch slotted well screen coupled to 27 feet of 2-inch schedule 40 solid PVC riser. The annular space between the screen and the borehole is filled with 20/30-grade silica sand to 2 feet above the screened interval. A 1-foot fine sand (30/65-grade) seal is placed on top of the filter pack. The remaining annular space is sealed to grade with neat cement grout mixture. A summary of the well construction details is presented in Table 2-1, and Appendix C, Well Construction Details, contains the well completion logs provided by the drilling subcontractor.

All monitoring wells are completed flush-mount with surface grade well vaults, and locking well caps are installed to conform with standards outlined in 40C-3, FAC. Each monitoring well is developed by overpumping until clear and free of sediment. Thorough field decontamination procedures are strictly enforced to prevent possible cross-contamination between field monitoring points. All drilling equipment, including drilling rods, bits, and HSAs, is thoroughly decontaminated between each well installation.

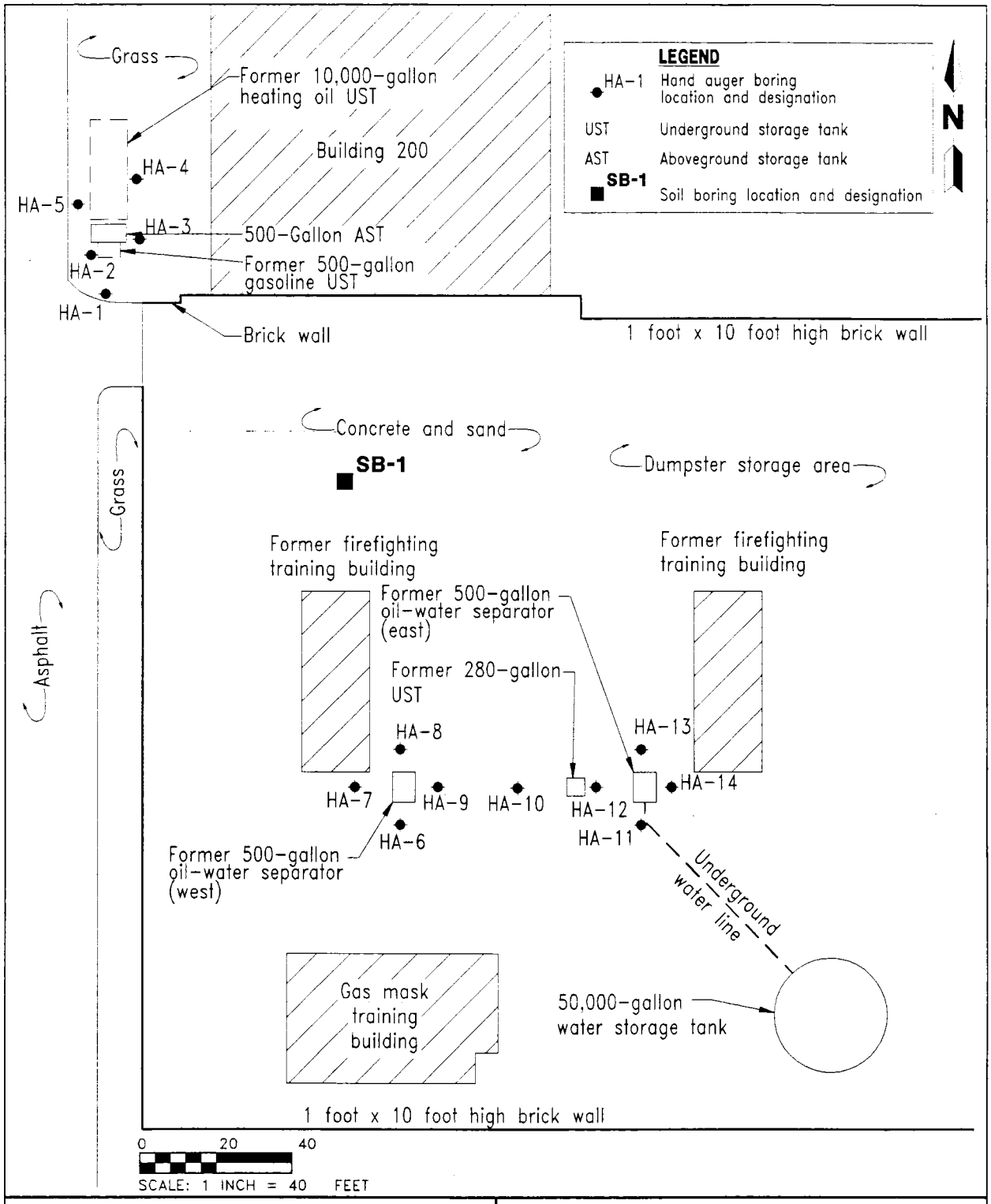

FIGURE 2-1
SOIL BORING LOCATION PLAN

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BUILDING 200
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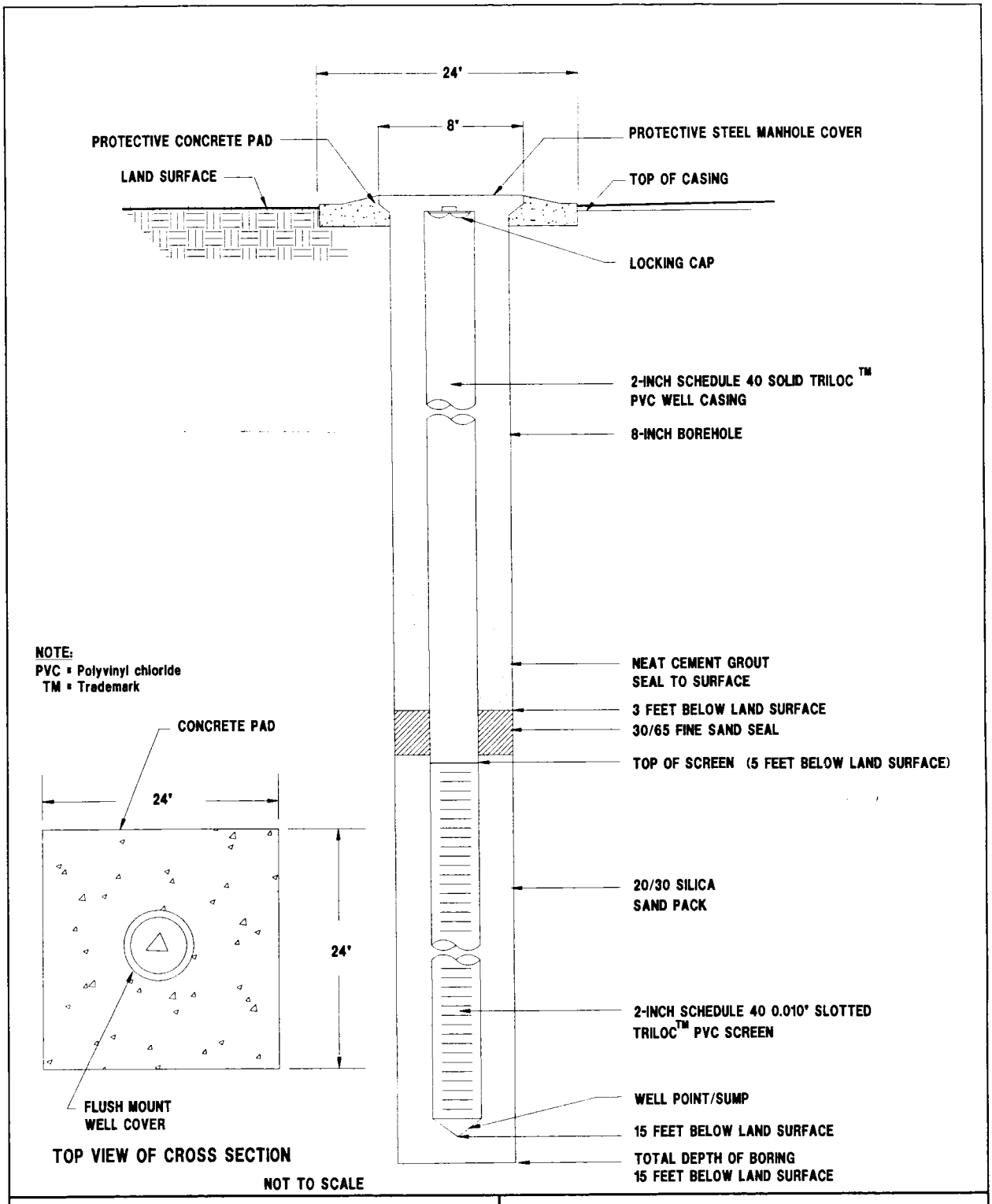

FIGURE 2-2
TYPICAL SHALLOW MONITORING WELL CONSTRUCTION DETAIL

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CONTAMINATION ASSESSMENT REPORT
BUILDING 200
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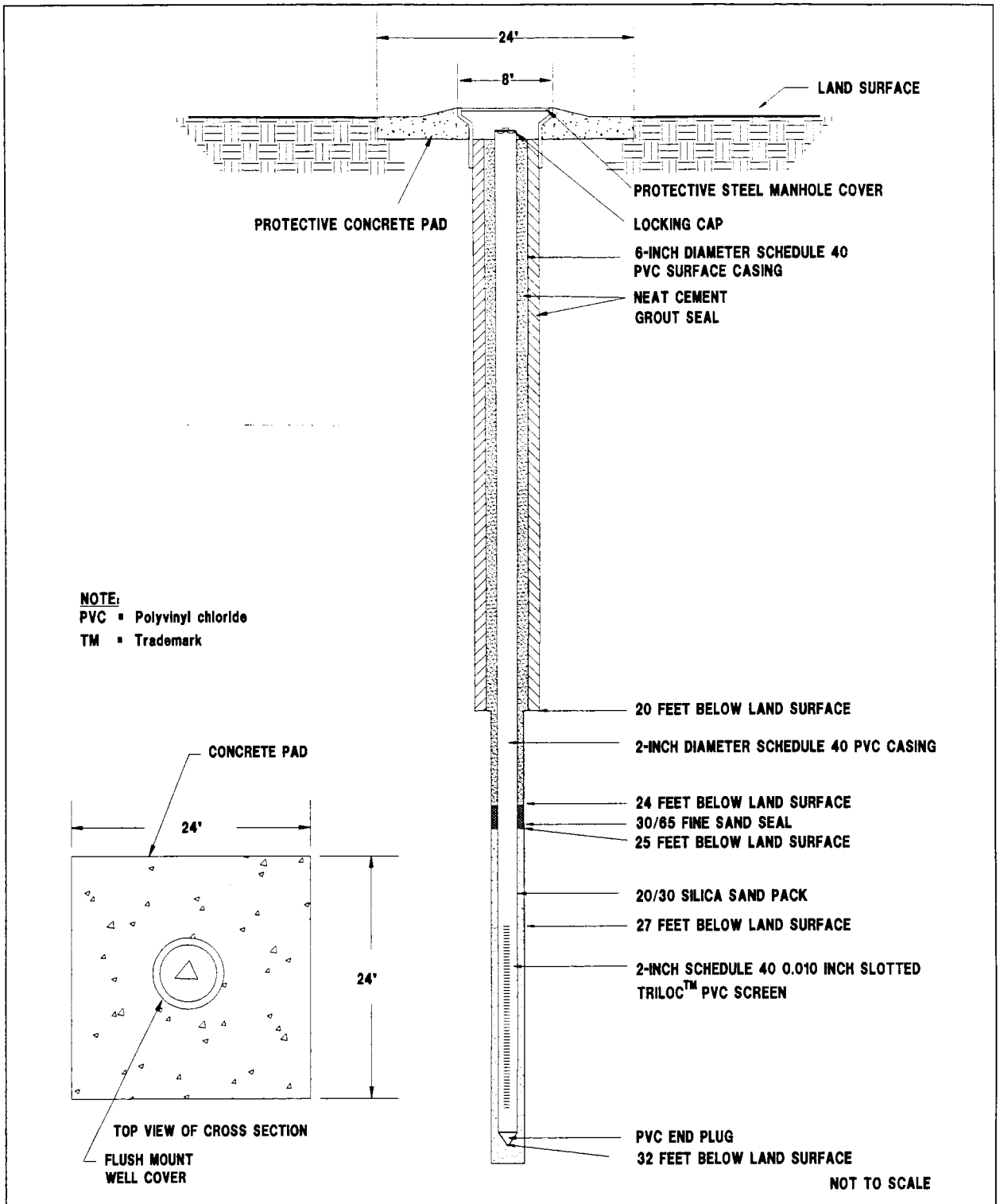

FIGURE 2-3
TYPICAL DEEP MONITORING WELL CONSTRUCTION DETAIL

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CONTAMINATION ASSESSMENT REPORT
BUILDING 200
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Table 2-1
Groundwater Monitoring Well Construction Data Summary

Contamination Assessment Report
Building 200, Main Base
Naval Training Center
Orlando, Florida

Well Number	Date Installed	Total Depth (feet bls)	Well Diameter (inches)	Screened Interval (feet bls)	Slot Size (inches)	Comments
MW-1	7/11/96	12	2	2 - 12	0.01	Installed by Groundwater Protection, Inc.
MW-2	7/11/96	12	2	2 - 12	0.01	Installed by Groundwater Protection, Inc.
MW-3	1/23/97	15	2	5 - 15	0.01	Installed by Groundwater Protection, Inc.
MW-4	1/23/97	15	2	5 - 15	0.01	Installed by Groundwater Protection, Inc.
MW-5	1/23/97	15	2	5 - 15	0.01	Installed by Groundwater Protection, Inc.
MW-6	1/23/97	14	2	4 - 14	0.01	Installed by Groundwater Protection, Inc.
MW-7	3/4/97	15	2	5 - 15	0.01	Installed by Groundwater Protection, Inc.
MW-8	3/4/97	15	2	5 - 15	0.01	Installed by Groundwater Protection, Inc.
MW-9	3/4/97	15	2	5 - 15	0.01	Installed by Groundwater Protection, Inc.
MW-10	4/24/97	17	2	7 - 17	0.01	Installed by Groundwater Protection, Inc.
DW-1	3/5/97	32	2	27 - 32	0.01	Installed by Groundwater Protection, Inc.

Note: bls = below land surface.

2.3 GROUNDWATER SAMPLING PROGRAM. Groundwater samples were collected from monitoring wells MW-1 and MW-2 on July 17 and 18, 1996; from temporary monitoring well TW-1 on September 3, 1996; from MW-2, MW-3, MW-4, MW-5, and MW-6 on February 3, 1997; from MW-7, MW-8, MW-9, and DW-1 on March 13, 1997; and from MW-10 on April 24, 1997. Samples collected during the July 17 and 18 and September 3, 1996, sampling events were packed on ice and transported to Quality Analytical Laboratories, Inc., for analysis. Samples collected during the February 3, March 13, and April 24, 1997, sampling events were packed on ice and transported to PC&B Laboratories, Inc., for analysis. Groundwater samples collected from MW-2 on July 17, 1996, and from TW-1 on September 3, 1996, were analyzed for the sampling requirements established in Chapter 62-770, FAC, for sites with petroleum discharges defined under the used oil analytical group, which includes the following U.S. Environmental Protection Agency (USEPA) Methods: 624, 625, 418.1, and metals (cadmium, chromium, arsenic, and lead). All remaining samples were analyzed for the sampling requirements established in Chapter 62-770, FAC, for sites with petroleum discharges defined under the kerosene analytical group, which includes the following USEPA Methods: 504 (ethylene dibromide), 601 (volatile organic halocarbons [VOH]), 602 (volatile organic aromatics [VOA]), 239.2 (total lead), 610 (polynuclear aromatic hydrocarbons [PAH]), and 418.1 (total recoverable petroleum hydrocarbons [TRPH]).

2.4 GROUNDWATER ELEVATION SURVEY. The elevation and slope of the water table was calculated using the field-surveyed top-of-well casing data for each monitoring well, and correlating the elevation data to a common datum. On March 19, April 24, and May 23, 1997, depth to groundwater was measured from the top of casing (TOC) to the nearest hundredth of a foot in each of the monitoring wells with an electronic water-level indicator. The groundwater depths were subtracted from the TOC elevation to obtain relative water table elevations. The wells were checked for the presence of free product by visual inspection of groundwater samples taken from each well and the use of an oil-water interface probe.

3.0 GEOLOGY AND HYDROGEOLOGY

3.1 SITE STRATIGRAPHY. For purposes of this investigation, site stratigraphy and aquifer evaluation were limited to the surficial aquifer beneath the site. The soil profile for the Building 200 site is based on visual examination of soil samples collected from soil borings, drill cuttings, and split-spoon stratigraphy samples obtained during the investigation. A typical stratigraphic soil profile consists of varying colors from white, orange, gray, dark brown, to black fine-grained sand down to a depth of 40 feet bls. From 22 to 40 feet, the fine-grained sand becomes harder to penetrate with the split-spoon sampler and appears to be cemented with iron oxide forming what appears to be an iron pan, or hard pan. From 40 to 42 feet bls, a hard to penetrate brown to olive green clayey fine-grained sand is present (Figure 3-1). The soil profile is based upon a lithology boring (SB-1), located approximately 80 feet north (upgradient of the former western oil-water separator (Figure 2-1). Lithologic logs for the soil boring and monitoring wells installed during this investigation are included as Appendix D, Lithologic Logs.

3.2 SITE HYDROGEOLOGY AND GROUNDWATER FLOW DIRECTION. Groundwater elevations across the site were calculated by measuring water levels on March 19, April 24, and May 23, 1997, in the site's monitoring wells and piezometer and by surveying the relative TOC elevations. The hydraulic gradient across the site was calculated by measuring the change in elevation head between monitoring wells MW-6 (upgradient well) and MW-10 (downgradient well) and dividing this head difference by the horizontal distance between these two wells. The scaled horizontal distance is 130 feet, and the change in elevation head between the wells, as measured on April 24, 1997, was 1.88 feet. The calculated hydraulic gradient is equal to 1.45×10^{-2} feet per foot (ft/ft). The site groundwater flow direction, based on the water table surface map, is from north-northwest to south-southeast. Table 3-1 is a summary of groundwater elevation data for the March 19, April 24, and May 23, 1997, measuring events. Figures 3-2, 3-3, and 3-4 are the water table contour maps for March 19, April 24, and May 23, 1997, respectively.

3.3 AQUIFER CHARACTERISTICS. Rising-head aquifer slug tests were performed on monitoring wells DW-1, MW-3, and MW-6 using a Hermit 1000C data logger and a 10 pounds per square inch pressure transducer. The slug tests were performed to estimate a representative hydraulic conductivity for the underlying aquifer. The field data were reduced via AQTESOLV (Geraghty & Miller, 1989), an analytical computer program, using the Bouwer and Rice (1976) method for unconfined aquifers. The results of the slug tests indicated hydraulic conductivity values of 0.33 feet per day (ft/day) for DW-1, 0.74 ft/day for MW-3, and 1.07 ft/day for MW-6. The average hydraulic conductivity value is estimated to be 0.71 ft/day. Copies of the computer-generated graphical representations are contained in Appendix E, Slug Test Data.

The difference in water table elevation between the shallow monitoring wells and the deep monitoring well can be attributed to the presence of the cemented sand. Soil boring SB-1 shows a cemented sand at approximately 22 to 40 feet bls.

TITLE: NTC Orlando, Building 200	LOG of WELL: NA		BORING NO. SB-1
CLIENT: SOUTHDIVNAVFACENGCOM			PROJECT NO: 8545-54
CONTRACTOR: N/A		DATE STARTED: 03-03-97	COMPLTD: 03-03-97
METHOD: H.S.A	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FEET	MONITOR INST.: OVA	TOT DPTH: 42.0FT.	DPTH TO ▽ 8.0 FT.
LOGGED BY: Scott Donelick	WELL DEVELOPMENT DATE: N/A		SITE: Building 200

DEPTH FEET	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1–4				<1	0' – 3' Sand, fine grained, orange to brown, no odor, dry		SP		
5–14				<1	3' – 15' Sand, fine grained, white to gray, no odor, wet at 8' below land surface				▽
15–16			80%	<1	15' – 17' Sand, fine grained, black to dark brown, no odor, wet			8,11,14,17	
20–22			50%	<1	20' – 22' Sand, fine grained, black to dark brown, no odor, wet, hard at 22' below land surface		SM	21, refusal	
25–26			20%	<1	25' – 27' Cemented sand, fine grained, black to dark brown, no odor, wet			10, refusal	
30–31			40%	<1	30' – 32' Cemented sand, fine grained, brown, no odor, wet			20, 48, refusal	
35–36			10%	<1	35' – 37' Cemented samd, fine grained, brown, no odor, wet			50, refusal	
40–41			10%	<1	40' – 42' Sand, fine grained, brown to olive green, no odor, wet, some clay		SP	50, refusal	
					End of boring @ 42 feet below land surface.				

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FIGURE 3-1
DEEP SOIL BORING LITHOLOGIC LOG

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CONTAMINATION ASSESSMENT REPORT
MAIN BASE
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ORLANDO, FLORIDA

Table 3-1
Groundwater Elevation Summary

Contamination Assessment Report
Building 200, Main Base
Naval Training Center
Orlando, Florida

Well Number	Date	Depth Product (ft btoc)	Depth to Water (ft btoc)	Product Thickness (feet)	Top of Casing* Elevation (feet)	Water Level* Elevation (feet)
MW-1	03/19/97	--	5.03	--	100.00	94.97
	04/24/97	--	4.60	--		95.40
	05/23/97	--	5.14	--		94.86
MW-2	03/19/97	--	8.40	--	98.85	90.45
	04/24/97	--	8.36	--		90.49
	05/23/97	--	8.12	--		90.73
MW-3	03/19/97	--	9.21	--	99.21	90.00
	04/24/97	--	9.10	--		90.11
	05/23/97	--	8.98	--		90.23
MW-4	03/19/97	--	9.30	--	99.55	90.25
	04/24/97	--	9.27	--		90.28
	05/23/97	--	9.04	--		90.51
MW-5	03/19/97	--	8.12	--	98.98	90.86
	04/24/97	--	8.16	--		90.82
	05/23/97	--	8.04	--		90.94
MW-6	03/19/97	--	8.40	--	99.20	90.80
	04/24/97	--	8.36	--		90.84
	05/23/97	--	8.08	--		91.12
MW-7	03/19/97	--	9.31	--	99.21	89.90
	04/24/97	--	9.32	--		89.89
	05/23/97	--	9.12	--		90.09
MW-8	03/19/97	--	10.11	--	99.60	89.49
	04/24/97	--	10.18	--		89.42
	05/23/97	--	9.94	--		89.66
MW-9	03/19/97	--	9.64	--	99.43	89.79
	04/24/97	--	9.65	--		89.78
	05/23/97	--	9.38	--		90.05
MW-10	03/19/97	--	NA	--	99.55	NA
	04/24/97	--	10.59	--		88.96
	05/23/97	--	10.33	--		89.22
DW-1	03/19/97	--	20.07	--	99.40	79.33
	04/24/97	--	20.57	--		78.83
	05/23/97	--	20.98	--		78.42
PZ-1	03/19/97	--	DRY	--	101.31	NA
	04/24/97	--	DRY	--		NA
	05/23/97	--	DRY	--		NA

Notes: * Referenced to arbitrary datum.
ft btoc = feet below top of casing.
NA = not available.
-- = not applicable.

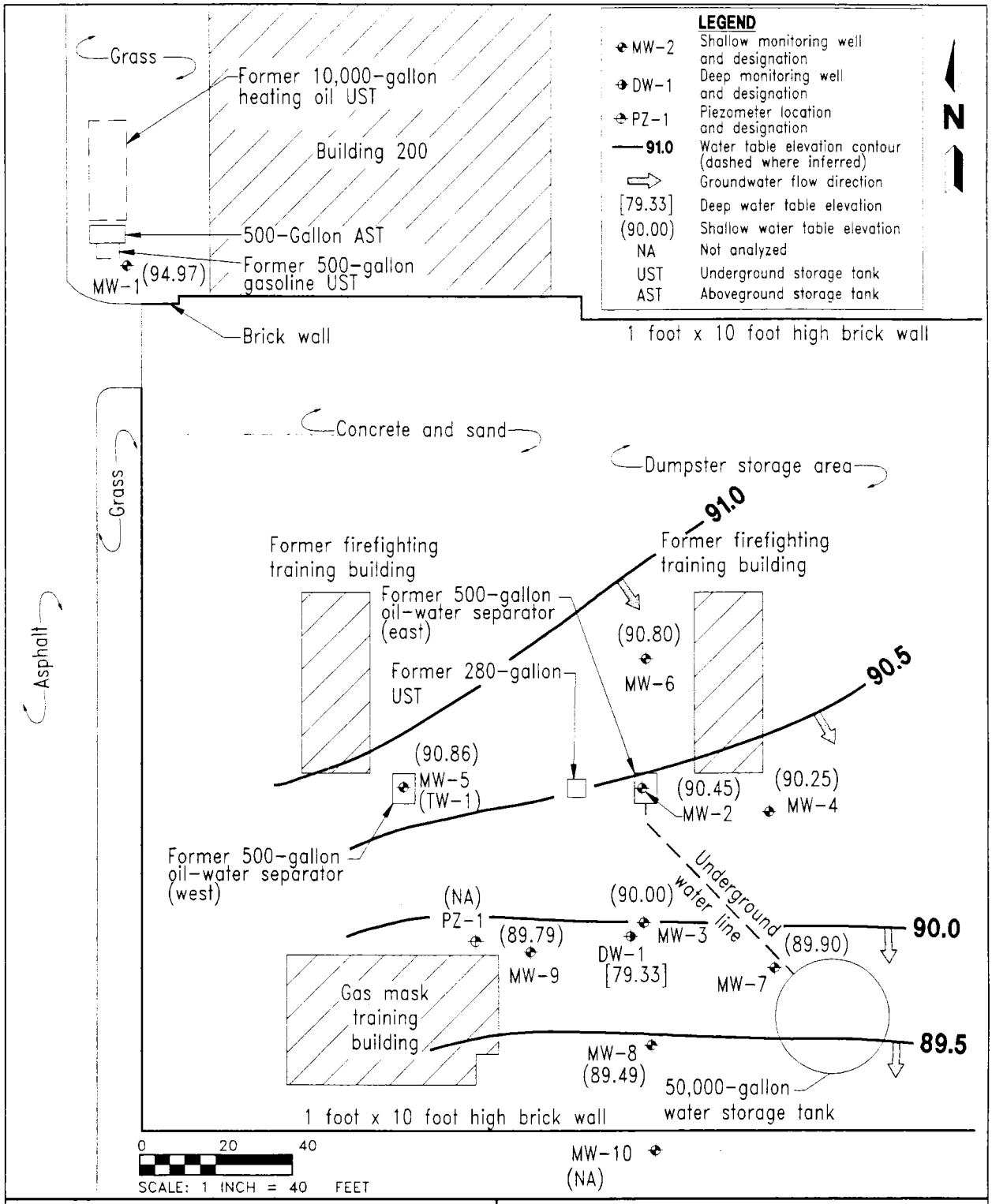

FIGURE 3-2
WATER TABLE ELEVATION CONTOUR MAP
MARCH 19, 1997

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CONTAMINATION ASSESSMENT REPORT
BUILDING 200
MAIN BASE
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

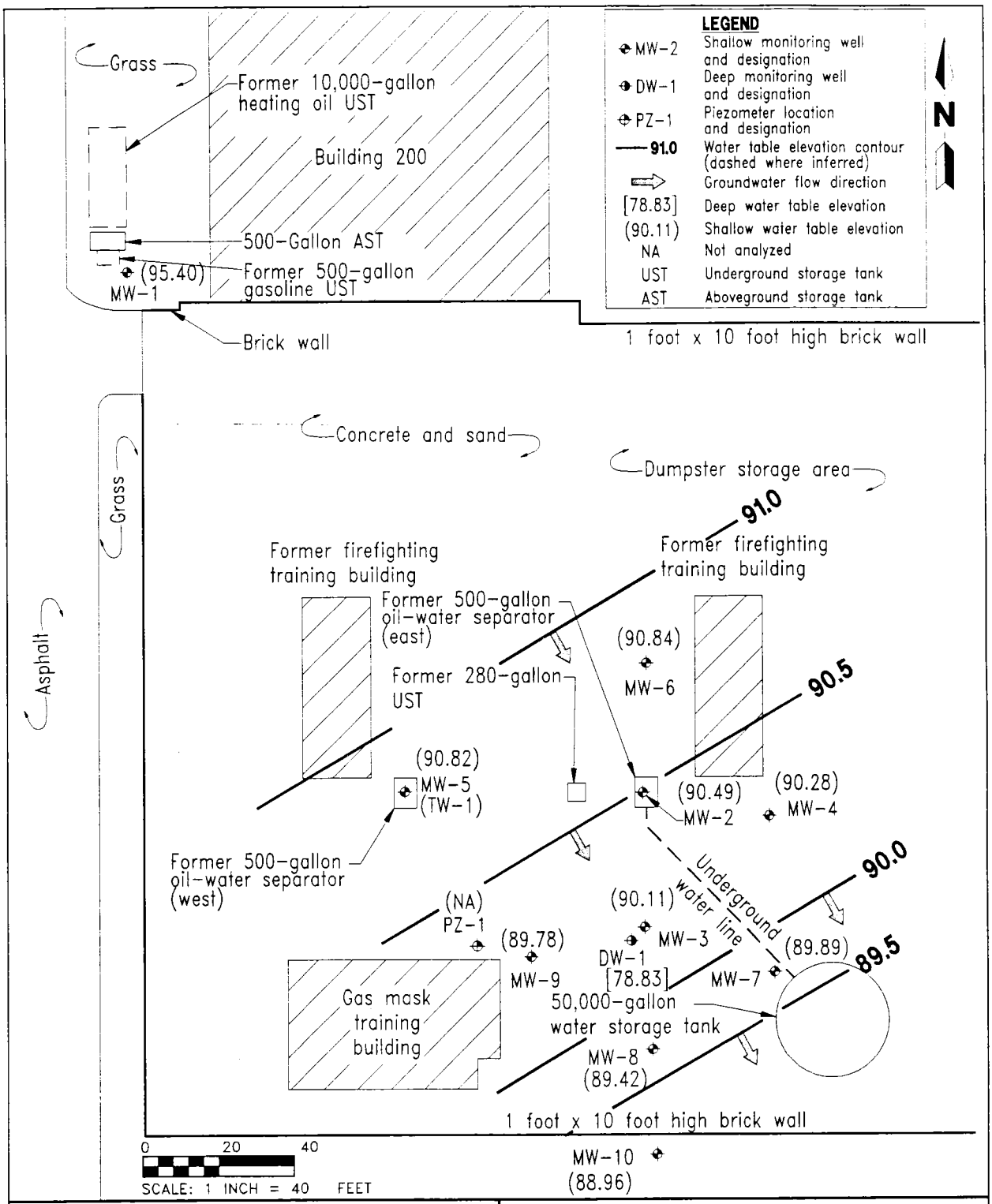

FIGURE 3-3
WATER TABLE
ELEVATION CONTOUR MAP
APRIL 24, 1997

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CONTAMINATION ASSESSMENT REPORT
BUILDING 200
MAIN BASE
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

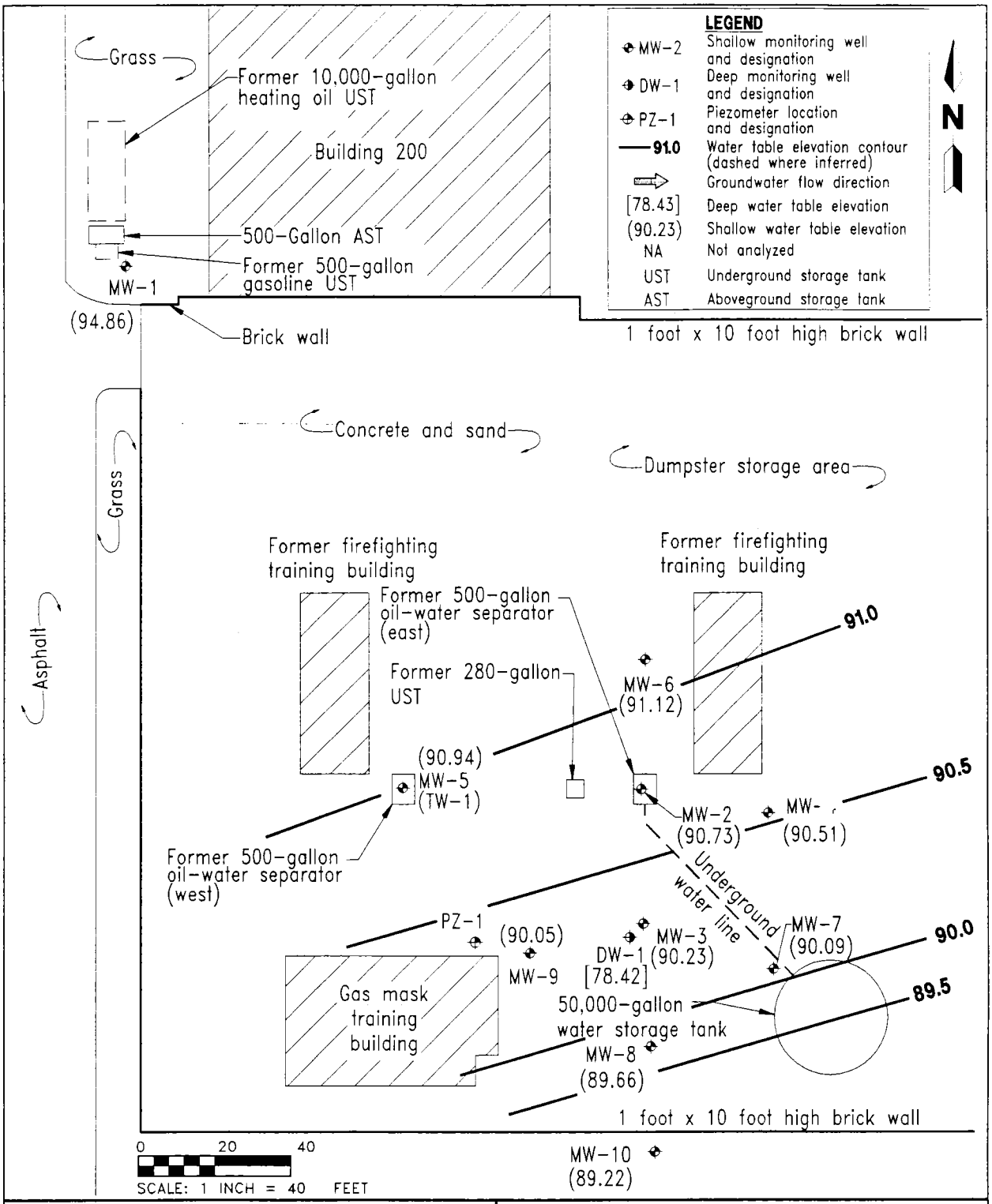

FIGURE 3-4
WATER TABLE
ELEVATION CONTOUR MAP
MAY 23, 1997

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CONTAMINATION ASSESSMENT REPORT
BUILDING 200
MAIN BASE
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Once the hydraulic conductivity, hydraulic gradient, and effective porosity of an aquifer are known, groundwater flow velocity can be determined from the relationship:

$$V = K \times i/n \quad (1)$$

where:

V = velocity of groundwater flow in feet per day (ft/day),
K = hydraulic conductivity in ft/day,
i = hydraulic gradient in feet per foot (ft/ft) (unitless), and
n = effective porosity in percent.

Because the predominant lithology underlying the site is fine-grained sand, an effective porosity of 35 percent or 0.35 was estimated for the underlying aquifer (Driscoll, 1986). The mean hydraulic conductivity calculated for the site is 0.71 ft/day and the hydraulic gradient is 1.45×10^{-2} ft/ft. By substituting these values into the above equation, a groundwater flow velocity of 2.9×10^{-2} ft/day is calculated for the site.

Transmissivity of the shallow aquifer underlying the site can be estimated from the relationship:

$$T = K \times H \quad (2)$$

where:

T = transmissivity in gallons per day per foot (gpd/ft),
K = hydraulic conductivity in gallons per day per foot squared (gpd/ft^2), and
H = saturated thickness of the aquifer in feet.

After converting hydraulic conductivity to units of gpd/ft^2, and using the average saturated thickness of the aquifer (70 feet), a transmissivity value of 371.8 gpd/ft is estimated for the site. Storativity and specific yield for the aquifer underlying the site are estimated at 0.2 and 10 to 30 percent, respectively (Driscoll, 1986).

3.4 **POTABLE WELL SURVEY**. A potable well survey for the surrounding area is included in the Main Base CAR. Two active potable wells are reported in the site vicinity: WW-12, 1.0 mile east; and WW-13, 1.5 miles southwest. Both active potable water wells are owned and operated by the Orlando Utility Commission. In addition, one potable well (WW-9), currently not in service, is located approximately 0.5 mile from the site. Several irrigation wells are located in the vicinity of the site, including WW-4, 1,000 feet southeast; WW-2, 1,300 feet north; WW-3, 2,100 feet northeast; and WW-5, 2,250 feet southeast. See Figure 5-1, potable and irrigation well locations, of the Main Base CAR.

3.5 **SURFACE WATER**. The surface water body nearest to the site is Lake Shannon, which is approximately 1,100 feet southwest of the site. In addition, several other lakes, including Lake Howard (1,500 feet northwest), Lake Cay Dee (1,500 feet southwest), and Lake Baldwin (2,250 feet northeast) are located in the site vicinity.

4.0 CONTAMINATION ASSESSMENT RESULTS

4.1 SOIL CONTAMINATION. Fourteen hand auger soil borings (HA-1 through HA-14) were advanced using a 3.25-inch ID stainless steel hand-operated bucket auger on September 4, 1996. Figure 2-1 shows the hand auger boring locations. Thirty-seven soil samples were collected at discrete intervals for OVA analysis. A summary of OVA results is presented in Table 4-1.

No petroleum-impacted soil was encountered above the shallow water table at the site. Several soil samples collected below the water table in the vicinity of the former oil-water separators had a petroleum odor.

4.2 FREE PRODUCT OCCURRENCE. No measurable amount of free product was detected during the contamination assessment activities, although a product sheen was noted on groundwater samples collected from monitoring wells MW-2 and MW-3.

4.3 GROUNDWATER CONTAMINATION. One deep monitoring well (DW-1) and 10 shallow monitoring wells (MW-1 through MW-10) were installed at the site on July 11, 1996, and January 23, March 3 through 5, and April 9, 1997 (Table 2-1). These wells were installed to assess the groundwater flow direction and the horizontal and vertical extent of petroleum impact to groundwater at the firefighting training facility. Locations of the monitoring wells are shown on Figure 4-1.

Groundwater samples were collected from monitoring wells MW-1 and MW-2 on July 17 and 18, 1996; from temporary monitoring well TW-1 on September 3, 1996; from MW-2, MW-3, MW-4, MW-5, and MW-6 on February 3, 1997; from MW-7, MW-8, MW-9, and DW-1 on March 13, 1997; and from MW-10 on April 24, 1997. Samples collected during the July 17 and 18 and September 3, 1996, sampling events were packed on ice and transported to Quality Analytical Laboratories, Inc. of Montgomery, Alabama, for analysis. Samples collected during the February 3, March 13, and April 24, 1997, sampling events were packed on ice and transported to PC&B Laboratories, Inc., of Oviedo, Florida, for analysis. Groundwater samples collected from MW-2 on July 17, 1996, and from TW-1 on September 3, 1996, were analyzed for the sampling requirements established in Chapter 62-770, FAC, for sites with petroleum discharges defined under the used oil analytical group, which includes the following USEPA Methods: 624, 625, 418.1, and metals (cadmium, chromium, arsenic, and lead). All remaining samples were analyzed for the sampling requirements established in Chapter 62-770, FAC, for sites with petroleum discharges defined under the kerosene analytical group, which includes the following USEPA Methods: 504 (ethylene dibromide), 601 (VOH), 602 (VOA), 239.2 (total lead), 610 (PAH), and 418.1 (TRPH).

Laboratory analytical results indicate that dissolved petroleum contamination above Chapter 62-770, FAC, target cleanup levels was detected in temporary well TW-1 (acenaphthene at 3 micrograms per liter [$\mu g/\ell$]; fluorene at 3 $\mu g/\ell$; and phenanthrene at 1 $\mu g/\ell$) and in monitoring wells MW-1 (acenaphthene at 14 $\mu g/\ell$; fluorene at 12 $\mu g/\ell$; phenanthrene at 28 $\mu g/\ell$; anthracene at 5$\mu g/\ell$; and fluoranthene at 3 $\mu g/\ell$) and MW-2 (naphthalene at 44 $\mu g/\ell$; total naphthalene at 152 $\mu g/\ell$; acenaphthene at 28 $\mu g/\ell$; fluorene at 53 $\mu g/\ell$; phenanthrene at 160 $\mu g/\ell$; and pyrene at 20 $\mu g/\ell$). In MW-3 naphthalene was detected at 48 $\mu g/\ell$ and total naphthalene at 288 $\mu g/\ell$; in MW-6 phenanthrene was detected at 6 $\mu g/\ell$, and in MW-8

Table 4-1
Summary Organic Vapor Analyses, September 1996

Contamination Assessment Report
Building 200, Main Base
Naval Training Center
Orlando, Florida

Soil Boring Designation	Sample Depth (feet bls)	Unfiltered (ppm)	Filtered (ppm)	Hydrocarbons (ppm)	Physical Observations
HA-1	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5*	48	12	36	No staining, no petroleum odor
HA-2	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	16	6	10	No staining, no petroleum odor
HA-3	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
HA-4	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
HA-5	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
HA-6	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
	5 - 7**	110	105	5	Petroleum odor
HA-7	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
	5 - 7	55	55	<1	Petroleum odor
HA-8	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
	5 - 7	40	25	15	Petroleum odor
HA-9	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	1	No staining, no petroleum odor
	5 - 7	100	100	<1	Petroleum odor
HA-10	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
	5 - 7	<1	<1	<1	No staining, no petroleum odor
HA-11	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
	5 - 7	>1000	>1000	>1	Strong petroleum odor
HA-12	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
	5 - 7	10	4	6	Petroleum odor

See notes at end of table.

Table 4-1 (Continued)
Summary Organic Vapor Analyses, September 1996

Contamination Assessment Report
Building 200, Main Base
Naval Training Center
Orlando, Florida

Soil Boring Designation	Sample Depth (feet bls)	Unfiltered (ppm)	Filtered (ppm)	Hydrocarbons (ppm)	Physical Observations
HA-13	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
	5 - 7	20	20	<1	Petroleum odor
HA-14	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
	5 - 7	110	40	70	Strong petroleum odor

Notes: *Water table present at approximately 4 feet bls.
**Water table present at approximately 6 feet bls.

bls = below land surface.
ppm = parts per million.
<1 = nondetectable limit for organic vapor analyzer.

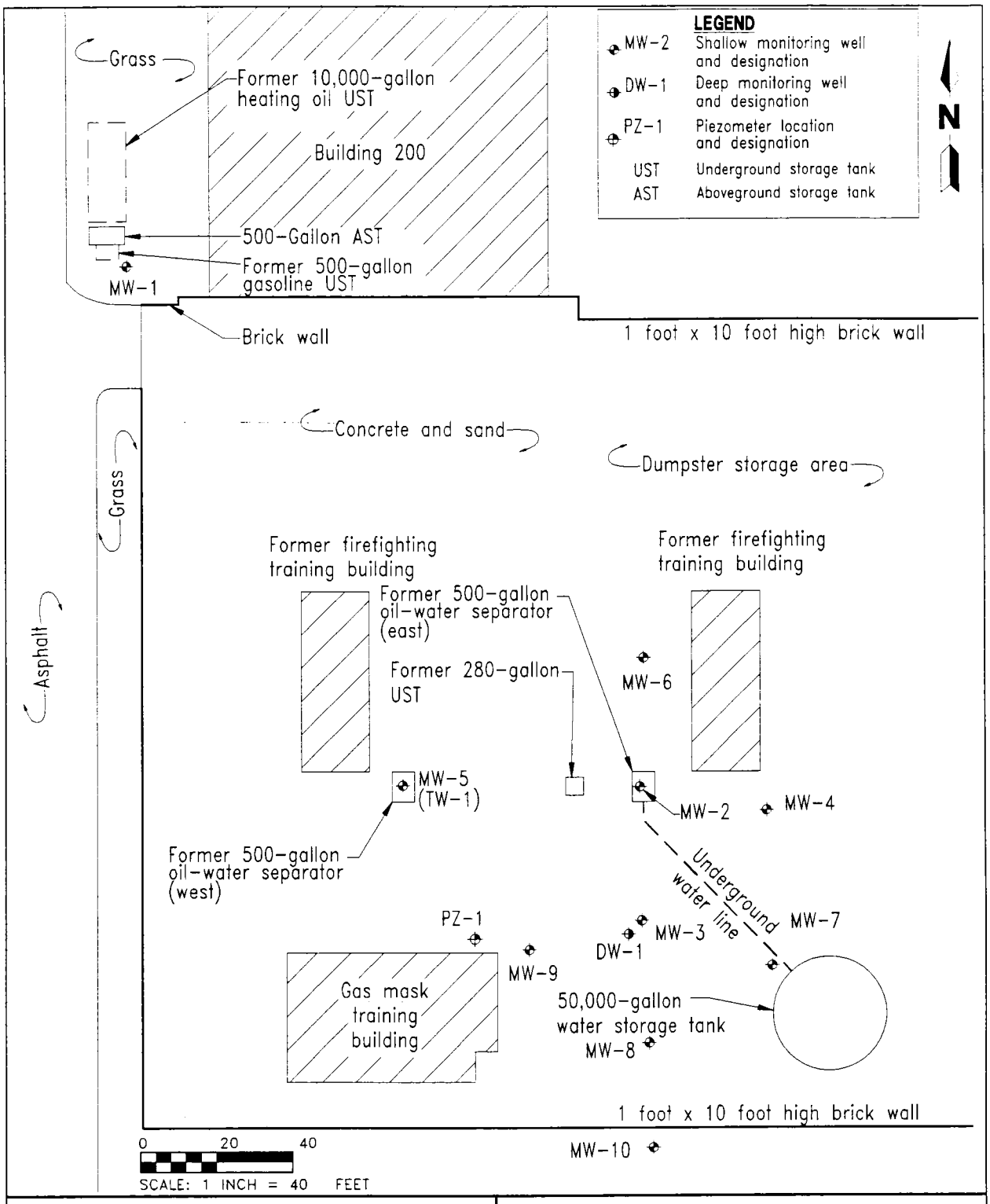

FIGURE 4-1
MONITORING WELL LOCATION PLAN

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CONTAMINATION ASSESSMENT REPORT
BUILDING 200
MAIN BASE
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

naphthalene was found at 24 µg/ℓ and total naphthalene at 120 µg/ℓ. Several other compounds were detected at levels above standard laboratory detection limits but below target cleanup levels, including ethylbenzene in MW-2 at 5 and 2.6 µg/ℓ and in MW-3 at 2.8 µg/ℓ; xylenes were detected in MW-2 at 13.5 µg/ℓ, in MW-3 at 20.2 µg/ℓ, in MW-5 at 7.9 µg/ℓ, and in MW-8 at 5 µg/ℓ; total lead was detected in MW-1 at 19.8 µg/ℓ, in MW-2 at 14.8 µg/ℓ, in MW-5 at 7 µg/ℓ, in MW-6 at 4 µg/ℓ, in MW-9 at 8 µg/ℓ, and in DW-1 at 6 µg/ℓ; TRPH was detected in TW-1 at 1.73 milligrams per liter [mg/ℓ], in MW-1 at 0.6 mg/ℓ, in MW-2 at 105 and 1.4 mg/ℓ, and in MW-5 at 1.2 mg/ℓ; naphthalene was detected in MW-1 at 3 µg/ℓ; and total naphthalene found in MW-1 at 5 µg/ℓ, in MW-2 at 44 µg/ℓ, in MW-6 at 28 µg/ℓ, and in MW-10 at 15 µg/ℓ. Concentrations of naphthalene and total naphthalene are depicted on Figure 4-2, and the laboratory analytical reports are included in Appendix F. The results are summarized in Table 4-2.

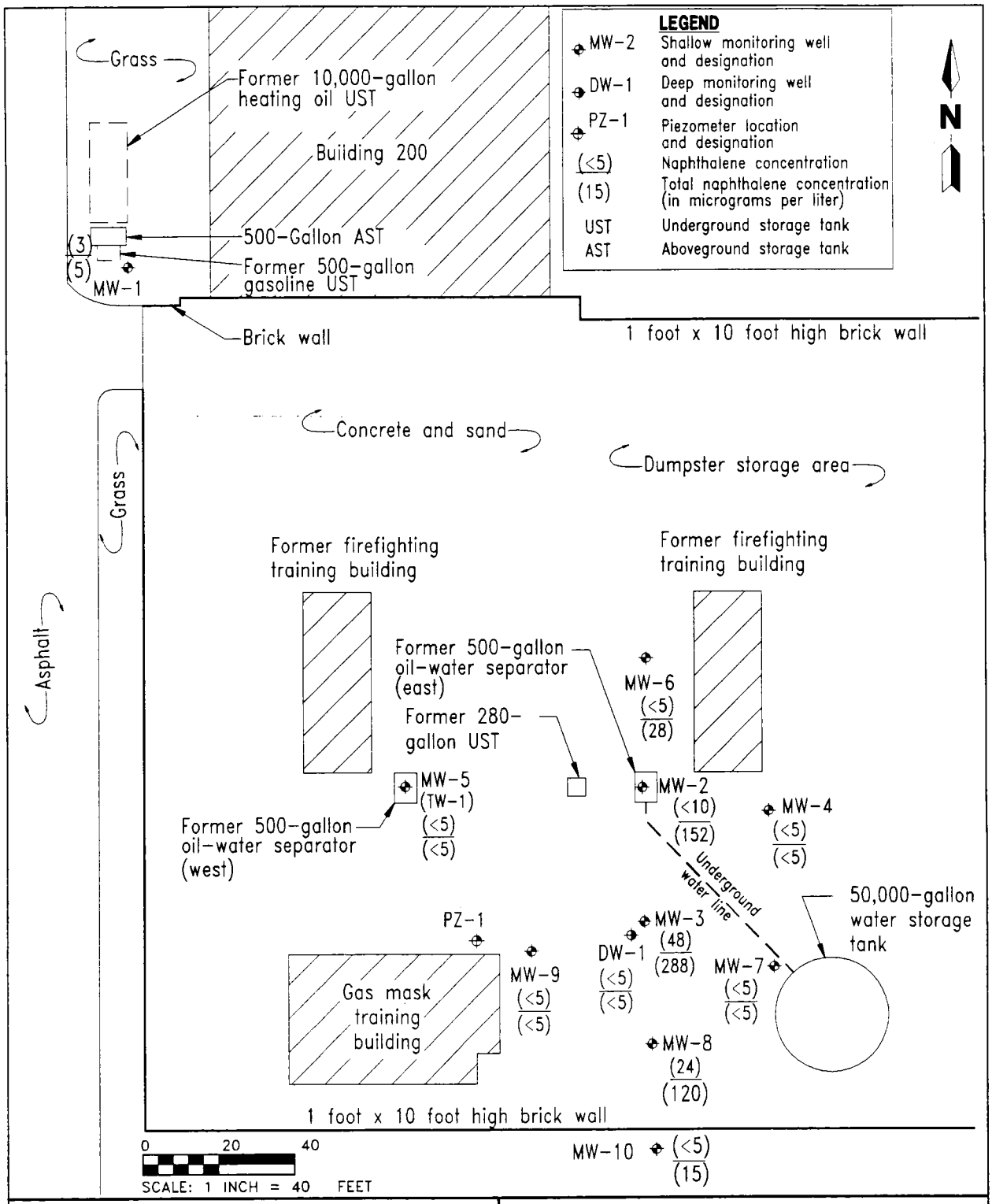

FIGURE 4-2
NAPHTHALENE AND TOTAL NAPHTHALENE CONCENTRATION MAP

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CONTAMINATION ASSESSMENT REPORT
BUILDING 200
MAIN BASE
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Table 4-2
Summary of Groundwater Analytical Results

Contamination Assessment Report
Building 200, Main Base
Naval Training Center
Orlando, Florida

Parameter	Chapter 62-770, FAC Target Cleanup Levels (ppb)	Monitoring Well/Sample Date						
		TW-1 9/3/96	MW-1 7/18/96	MW-2 7/17/96	MW-2 2/3/97	MW-3 2/3/97	MW-4 2/3/97	MW-5 2/3/97
Benzene	1	<10	<1	<5	<1	<1	<1	<1
Toluene	NA	<10	<1	<5	<1	<1	<1	<1
Ethylbenzene	NA	<10	<1	5	2.6	2.8	<1	<1
Xylenes	NA	NA	<1	NA	13.5	20.2	<1	7.9
Total VOAs	50	<30	<1	5	16.1	23	<1	7.9
MTBE	50	NA	<1	NA	<5	<5	<5	<5
EDB	0.02	NA	<0.02	NA	<0.02	<0.02	<0.02	<0.02
Total lead	50	<3	19.8	14.8	<3	<3	<3	7
TRPH (mg/ℓ)	5	1.73	0.6	105	1.4	<1	<1	1.2
Naphthalene	NA	<10	3	44	<10	48	<5	<5
Naphthalenes (total)	100	<10	5	44	152	288	<5	<5
Acenaphthene	<5[1]	3	14	28	<10	<20	<5	<5
Fluorene	<5[1]	3	12	53	<10	<20	<5	<5
Phenanthrene	<5[1]	1	28	160	<10	<20	<5	<5
Anthracene	<5[1]	<10	5	<200	<10	<20	<5	<5
Fluoranthene	<5[1]	<10	3	<200	<10	<20	<5	<5
Pyrene	<5[1]	<10	<2	20	<10	<20	<5	<5

See notes at end of table.

Table 4-2 (Continued)
Summary of Groundwater Analytical Results

Contamination Assessment Report
Building 200, Main Base
Naval Training Center
Orlando, Florida

Parameter	Chapter 62-770, FAC Target Cleanup Levels (ppb)	Monitoring Well/Sample Date					
		MW-6 2/3/97	MW-7 3/13/97	MW-8 3/13/97	MW-9 3/13/97	MW-10 4/24/97	DW-1 3/13/97
Benzene	1	<1	<1	<1	<1	<1	<1
Toluene	NA	<1	<1	<1	<1	<1	<1
Ethylbenzene	NA	<1	<1	<1	<1	<1	<1
Xylenes	NA	<1	<1	5	<1	<1	<1
Total VOAs	50	<1	<1	5	<1	<1	<1
MTBE	50	<5	<5	<5	<5	<5	<5
EDB	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total lead	50	4	<3	<3	8	<3	6
TRPH (mg/ℓ)	5	<1	<1	<1	<1	<1	<1
Naphthalene	NA	<5	<5	24	<5	<5	<5
Naphthalenes (total)	100	28	<5	120	<5	15	<5
Acenaphthene	<5[1]	<5	<5	<5	<5	<5	<5
Fluorene	<5[1]	<5	<5	<5	<5	<5	<5
Phenanthrene	<5[1]	6	<5	<5	<5	<5	<5
Anthracene	<5[1]	<5	<5	<5	<5	<5	<5
Fluoranthene	<5[1]	<5	<5	<5	<5	<5	<5
Pyrene	<5[1]	<5	<5	<5	<5	<5	<5

[1] The Florida Department of Environmental Protection target cleanup level is defined as the best achievable detection limit given conditions of the sample, 10 micrograms per liter (μg/ℓ) maximum.

Notes: All concentrations in μg/ℓ, unless otherwise noted.

FAC = Florida Administrative Code.
ppb = parts per billion.
< = less than.
NA = not available.
Total VOAs = sum of the concentrations of benzene, toluene, ethylbenzene, and xylenes.
VOAs = volatile organic aromatics.
MTBE = methyl tert-butyl ether.
EDB = ethylene dibromide.
TRPH = total recoverable petroleum hydrocarbons.
mg/ℓ = milligrams per liter.

5.0 SOURCE OF HYDROCARBONS

5.1 HYDROCARBON TYPE. The hydrocarbon types stored in the USTs at Building 200 include heating oil and gasoline. Documentation also indicates that Number 2 diesel fuel and MOGAS have been used to ignite fires for firefighting training purposes. The groundwater laboratory analytical data and the type of product previously stored and used onsite support this assessment.

5.2 SOURCE OF HYDROCARBON PLUME. The source of hydrocarbons in the groundwater are the former 500-gallon gasoline UST, the former oil-water separators and firefighting activities. Petroleum discharges could be attributed to overspills and overflows of the petroleum storage systems and/or mixing water used to put out fires with petroleum products used to ignite fires during firefighting training.

5.3 MECHANISM OF TRANSPORT. None of the drainage ditches or utility lines near the source of petroleum contamination appears to influence groundwater flow in the surficial aquifer of the study area. Petroleum contamination appears to be migrating with the natural groundwater flow beneath the site.

6.0 CONCLUSIONS AND RECOMMENDATIONS

ABB-ES concludes that dissolved petroleum hydrocarbon contamination in groundwater beneath the site exceeds State of Florida target cleanup levels. It appears that two main sources of hydrocarbon contamination are present at the site: the former 500-gallon gasoline UST and the former eastern oil-water separator. No excessively contaminated soil above the shallow groundwater table is present in the site vicinity.

Given the low levels of PAHs at the former 500-gallon gasoline UST area, ABB-ES recommends that monitoring well MW-1 be resampled during the remedial action plan to determine if corrective action is necessary. ABB-ES also recommends that a remedial action plan be prepared for Building 200, the firefighting training site, more specifically to address contamination related to the eastern oil-water separator.

7.0 PROFESSIONAL REVIEW CERTIFICATION

This document, *Contamination Assessment Report, Building 200, Main Base, Naval Training Center, Orlando, Florida,* has been prepared under the direction of a Professional Geologist registered in the State of Florida. The work and professional opinions rendered in this report were conducted or developed in accordance with commonly accepted procedures consistent with applicable standards of practice. This assessment is based on the geologic investigation and associated information detailed in the text and appended to this report or referenced in public literature. Recommendations are based upon interpretations of the applicable regulatory requirements, guidelines, and relevant issues discussed with regulatory personnel during the site investigation. If conditions that differ from those described are determined to exist, the undersigned geologist should be notified to evaluate the effects of any additional information on this assessment or the recommendations made in this report. This report meets the criteria set forth in Chapter 492 of the Florida Statutes with regard to good professional practices as applied to Chapter 62-770 of the FAC. This CAR was developed for the Building 200 site at the Main Base, NTC, Orlando, in Orlando, Florida, and should not be construed to apply to any other site.

Manuel Alonso
Professional Geologist
P.G. No. 0001256

6/13/97
Date

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APPENDIX A

SITE PHOTOGRAPHS

Photograph 1: View of former oil-water separator locations and gas mask training building, facing south.

Photograph 2: View of former eastern oil-water separator area with Building 200 in background, facing north.

Photograph 3: View of former oil-water separator locations, facing east.

Photograph 4: View of former oil-water separator locations, facing west.

APPENDIX B

OIL-WATER SEPARATOR ASSESSMENT REPORT AND PRELIMINARY CONTAMINATION ASSESSMENT REPORT

OIL-WATER SEPARATOR ASSESSMENT REPORT
BUILDING 200

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

UNIT IDENTIFICATION CODE: N65928
CONTRACT NO. N62467-89-D-0317/107

NOVEMBER 1996

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

OIL-WATER SEPARATOR ASSESSMENT REPORT
BUILDING 200

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Unit Identification Code: N65928

Contract No.: N62467-89-D-0317/107

Prepared by:

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

Prepared for:

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

Nick Ugolini, Code 1843, Engineer-in-Charge

May 1997

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/107 are complete and accurate and comply with all requirements of this contract.

DATE: May 22, 1997

NAME AND TITLE OF CERTIFYING OFFICIAL: John Kaiser
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Manuel Alonso, P.G.
Project Technical Lead

(DFAR 252.227-7036)

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Naval Training Center
Orlando, Florida

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Naval Training Center
Orlando, Florida

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
bls	below land surface
FAC	Florida Administrative Code
$\mu g/\ell$	micrograms per liter
NTC	Naval Training Center
OVA	organic vapor analyzer
ppm	parts per million
TCAR	Tank Closure Assessment Report

OIL-WATER SEPARATOR ASSESSMENT REPORT
BUILDING 200

1.0 INTRODUCTION

Building 200 (former Firefighting Training School) is located within the Recruit Training Center area in the west-central portion of the Naval Training Center (NTC), Main Base, in Orange County, Florida. Figure 1 shows the site location and a map of the surrounding area.

Two 500-gallon oil-water separators, located south of Building 200, had been operated at the site (see Figure 2). Photographs of the oil-water separator areas are provided in Attachment A. The exact date the separators were installed is not known. In March 1995, a Tank Closure Assessment Report (TCAR) was completed by International Technology Corporation addressing the removal of the two oil-water separators and three underground storage tanks from the site. A copy of the TCAR is enclosed in Attachment B. According to the TCAR, evidence of petroleum impact to groundwater was discovered at the eastern oil-water separator.

This report summarizes the data gathered during the contamination assessment of the oil-water separators serving the former Firefighting Training School.

2.0 OPERATION AND MAINTENANCE

Building 200 and the surrounding area were used by the U.S. Navy as a Firefighting Training School. Two firefigter training buildings were located immediately south of Building 200 and were used by students to practice fire extinguishing. The fires were started in the training buildings by igniting heating oil. Drains within the buildings directed water and other associated fluids into the two oil-water separators. Effluent from the separators was discharged to a 94,000-gallon water storage tank. The firefighter training buildings, oil-water separators and associated pipes, and water storage tank have been removed. According to the NTC, Orlando Environmental Coordinator, maintenance (pumping) of the oil-water separators was performed on an annual basis.

3.0 SOIL ASSESSMENT

On September 4, 1996, ABB Environmental Services, Inc. (ABB-ES), advanced 9 hand-auger borings, HA-6 through HA-14, and collected 27 soil samples for organic vapor analysis (OVA) to determine the presence of organic vapors in the soil. All hand-auger borings were performed using a decontaminated stainless-steel hand auger, which was extended to the groundwater, encountered at approximately 6 feet below land surface (bls). Discrete samples were collected from depths of 1 to 3 feet, 3 to 5 feet, and 5 to 7 feet bls and retained for OVA analysis. All soil samples were analyzed following guidelines in ABB-ES's Florida Department of Environmental Protection-approved Comprehensive Quality Assurance Plan. The nine soil borings were performed surrounding the former oil-water separators at Building 200. Locations of the borings are shown on Figure 2, Site Plan.

The OVA results indicate that soil samples collected near or below the water table (5 to 7 feet bls) reported total hydrocarbon values ranging from <1 to >1,000

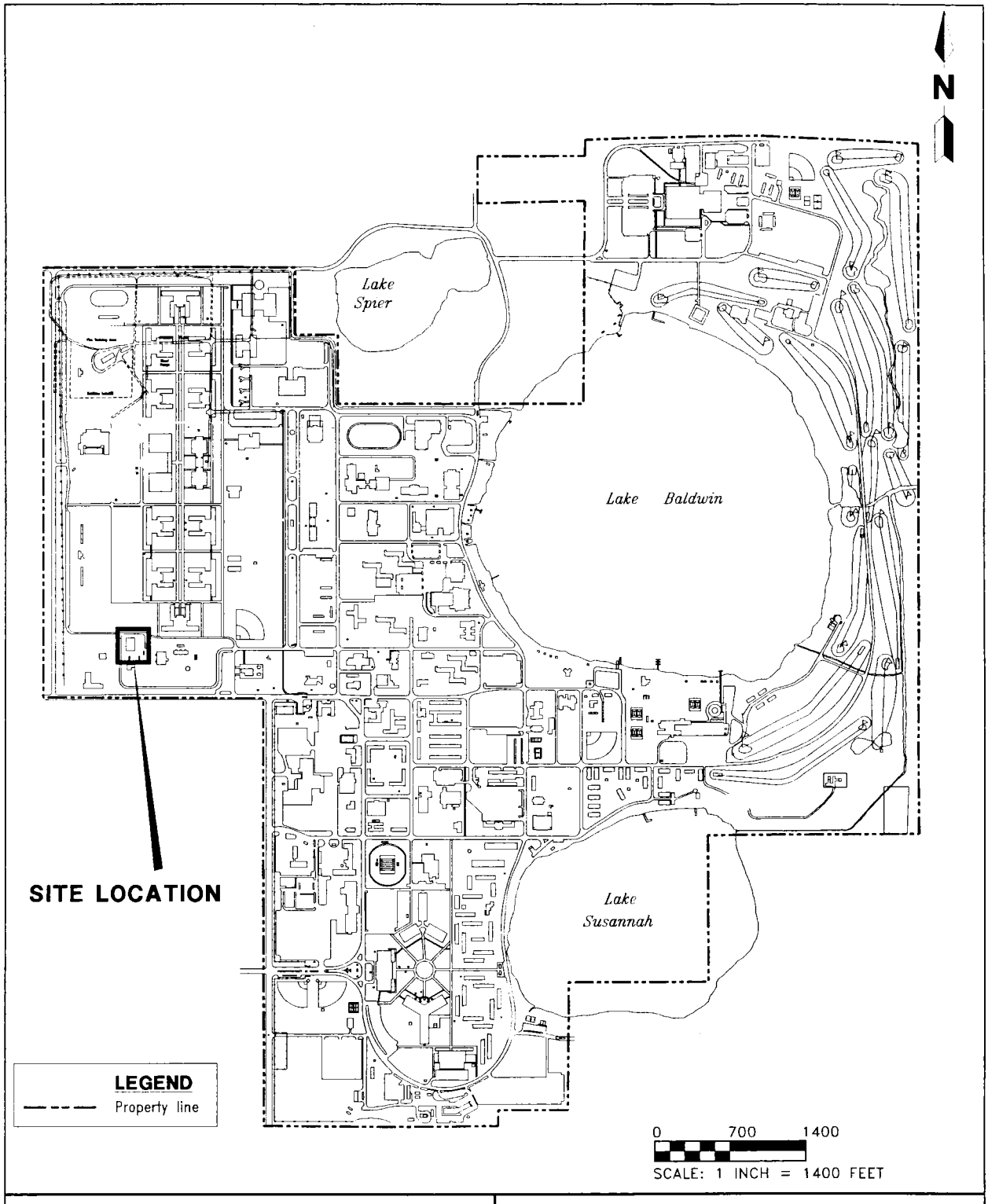


FIGURE 1
SITE VICINITY MAP

H:\OLD\OIL-WATR\NTC-LOC\NAB\09-30-96

OIL-WATER SEPARATOR ASSESSMENT REPORT BUILDING 200

NAVAL TRAINING CENTER ORLANDO, FLORIDA

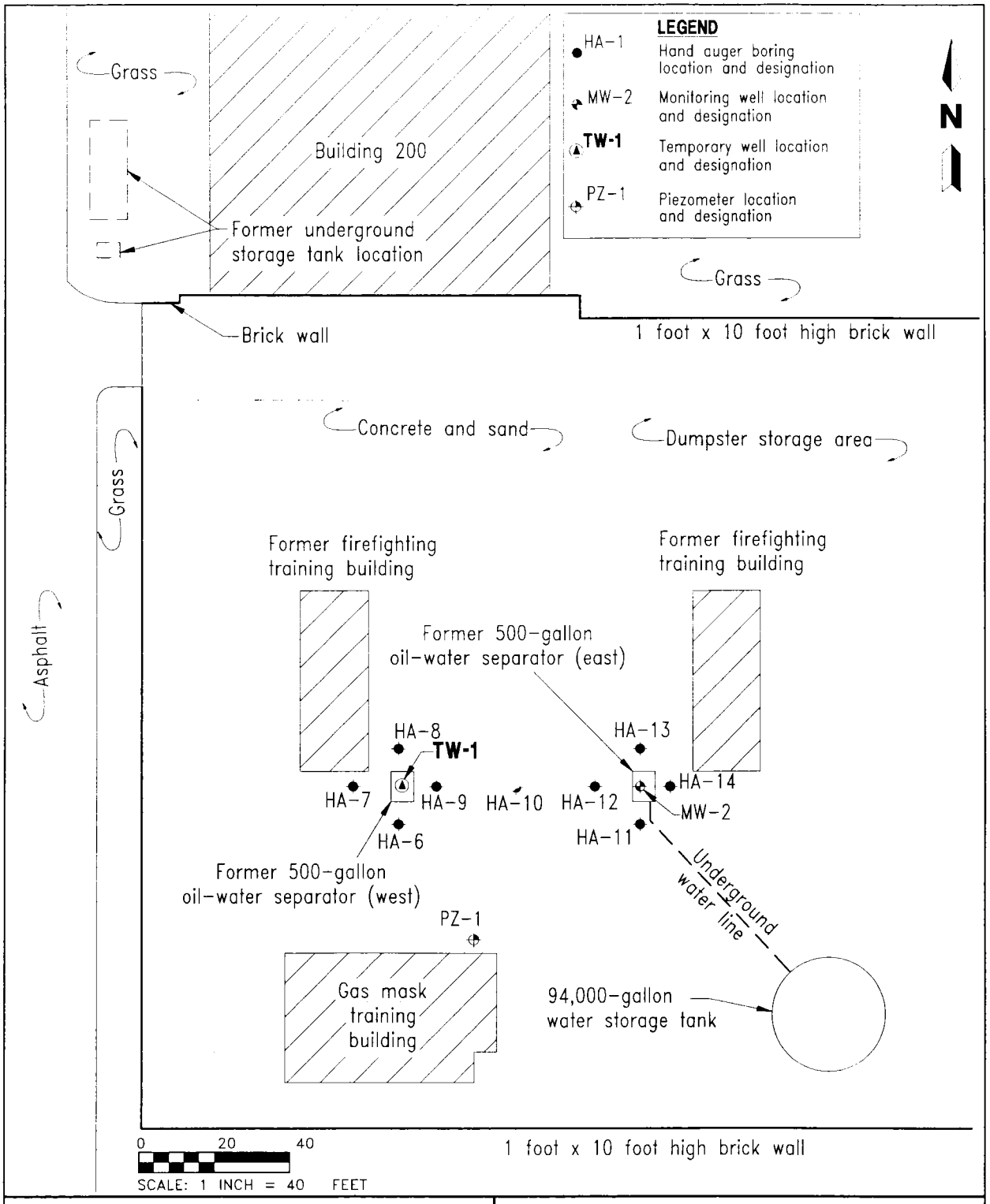


FIGURE 2
SITE PLAN

OIL-WATER SEPARATOR ASSESSMENT REPORT
BUILDING 200

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

H:\OLD\OIL-WATER\BLDG-220\VP-NAB\10-14-96
Bld-200.SAR
PMW.05.97

parts per million (ppm). A summary of the OVA results, including soil sample descriptions, is summarized in Table 1.

4.0 GROUNDWATER ASSESSMENT

On July 11, 1996, one shallow monitoring well, MW-2, was installed into the water table to determine groundwater quality at the eastern oil-water separator, and on September 2, 1996, one temporary well, TW-1, was installed into the water table to determine groundwater quality at the western oil-water separator. On September 18, 1996, one piezometer, PZ-1, was installed into the water table to determine the direction of shallow groundwater flow. By using the piezometer, temporary well, and monitoring well, the direction of groundwater flow was determined to be from north to south. The location of the piezometer, temporary well, and monitoring well are shown on Figure 2, Site Plan.

Monitoring well MW-2 was sampled on July 17, 1996, and temporary well TW-1 was sampled on September 3, 1996. The groundwater samples were packed on ice and transported to Quality Analytical Laboratories, Inc., in Montgomery, Alabama, for analysis. The groundwater samples were analyzed for the used oil analytical group, which includes the following U.S. Environmental Protection Agency Methods: 624, 625, 610, and metals (arsenic, cadmium, chromium, and lead). The groundwater laboratory analytical reports and chain-of-custody records are included in Attachment C.

5.0 CONCLUSIONS

No hydrocarbon-impacted soil has been identified above the shallow water table; although, OVA levels ranging from <1 to >1,000 ppm were encountered at or below the water table near the eastern oil-water separator.

Laboratory analytical results for groundwater samples collected from monitoring well MW-2 indicate the presence of naphthalene (44 micrograms per liter [$\mu g/\ell$]) and acenaphthalene (28 $\mu g/\ell$) at concentrations that exceed Chapter 62-770, Florida Administrative Code (FAC), target cleanup levels. Other compounds present above laboratory standard detection limits in groundwater samples from MW-2 include ethylbenzene, 5 $\mu g/\ell$; fluorene, 53 $\mu g/\ell$; phenanthrene, 160 $\mu g/\ell$; pyrene, 20 $\mu g/\ell$; chromium, 17.7 $\mu g/\ell$; and lead, 14.8 $\mu g/\ell$. Laboratory analytical results for groundwater samples collected from temporary well TW-1 indicate that dissolved petroleum contamination above Chapter 62-770, FAC, target cleanup levels was not detected, but several compounds were present at levels above laboratory standard detection limits, including fluorene, 3 $\mu g/\ell$; phenanthrene, 1 $\mu g/\ell$; and total recoverable petroleum hydrocarbons, 1.73 milligrams per liter.

6.0 RECOMMENDATIONS

Based on the results of this investigation, ABB-ES recommends additional contamination assessment and the preparation of a contamination assessment report.

Table 1
Summary of Organic Vapor Analyses
September 4, 1996

Oil-Water Separator Assessment Report
Building 200
Naval Training Center
Orlando, Florida

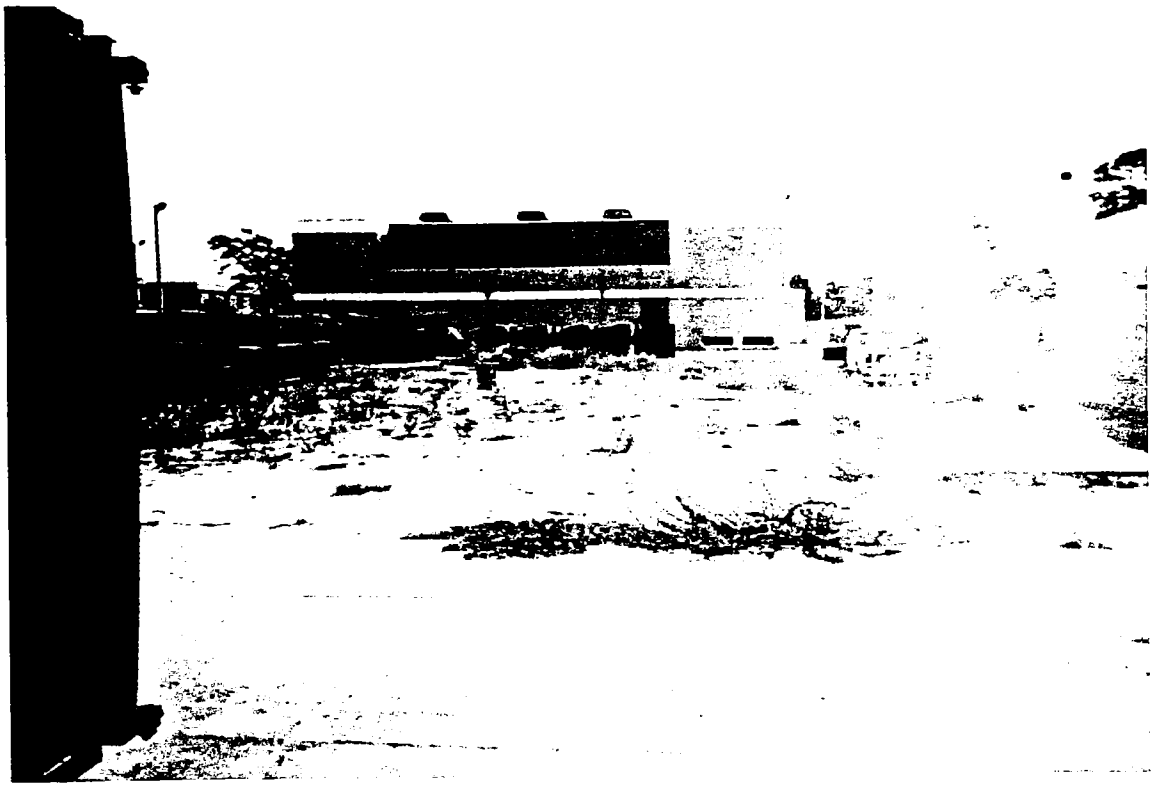
Soil Boring Designation	Sample Depth (feet bls)	Unfiltered (ppm)	Filtered (ppm)	Total Hydrocarbons (ppm)	Physical Observations
HA-6	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
	5 - 7*	110	105	5	Petroleum odor
HA-7	1 - 3	10	<1	10	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
	5 - 7	55	55	<1	Petroleum odor
HA-8	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
	5 - 7	40	25	15	Petroleum odor
HA-9	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
	5 - 7	100	100	<1	Petroleum odor
HA-10	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
	5 - 7	<1	<1	<1	No staining, no petroleum odor
HA-11	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
	5 - 7	>1000	>1000	>1	Strong petroleum odor
HA-12	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
	5 - 7	10	4	6	Petroleum odor
HA-13	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
	5 - 7	20	20	<1	Petroleum odor
HA-14	1 - 3	<1	<1	<1	No staining, no petroleum odor
	3 - 5	<1	<1	<1	No staining, no petroleum odor
	5 - 7	110	40	70	Strong petroleum odor

* Water table encountered at approximately 6 feet bls.

Notes: bls = below land surface.
ppm = parts per million.
<1 = nondetectable limit for organic vapor analyzer.
< = less than.
> = greater than.

ATTACHMENT A

PHOTOGRAPHS



Photograph 1: View of the Oil-Water Separator areas at Building 200, facing east.

Photograph 2: View of the Oil-Water Separator areas at Building 200, facing west.

Photograph 3: View of the Oil-Water Separator areas at Building 200, facing north.

Photograph 4: View of the Oil-Water Separator areas at Building 200, facing south.

ATTACHMENT B

TANK CLOSURE ASSESSMENT REPORT, MARCH 1995

Tank Closure Report

RTC Fire Fighting School
Naval Training Center
Orlando, Florida

Prepared for

Management & Business Associates

4275 Aurora Street
Suite F
Coral Gables, Florida 33146

Prepared by

IT Corporation

6958 Aloma Avenue
Winter Park, Florida 32792

March 1995

INTERNATIONAL
TECHNOLOGY
CORPORATION

TANK CLOSURE REPORT
RTC FIRE FIGHTING SCHOOL
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

FDEP FACILITIES
#488841262, #488521506

IT CORPORATION PROJECT NO. 761491

This report was prepared on behalf of Management & Business Associates for the US Navy by IT Corporation, Winter Park, Florida.

Prepared By:

R. Shane Cox, E.I.
Project Engineer II

Date: 3/15/95

Reviewed By:

Gregg H. Roberts, P.G.
Florida Registered Geologist N° 1472

Date: 3/15/95

Table of Contents

List of Appendices

Figures	Title	Page
1-1	Assessment Activities Map	2

1.0 INTRODUCTION & BACKGROUND

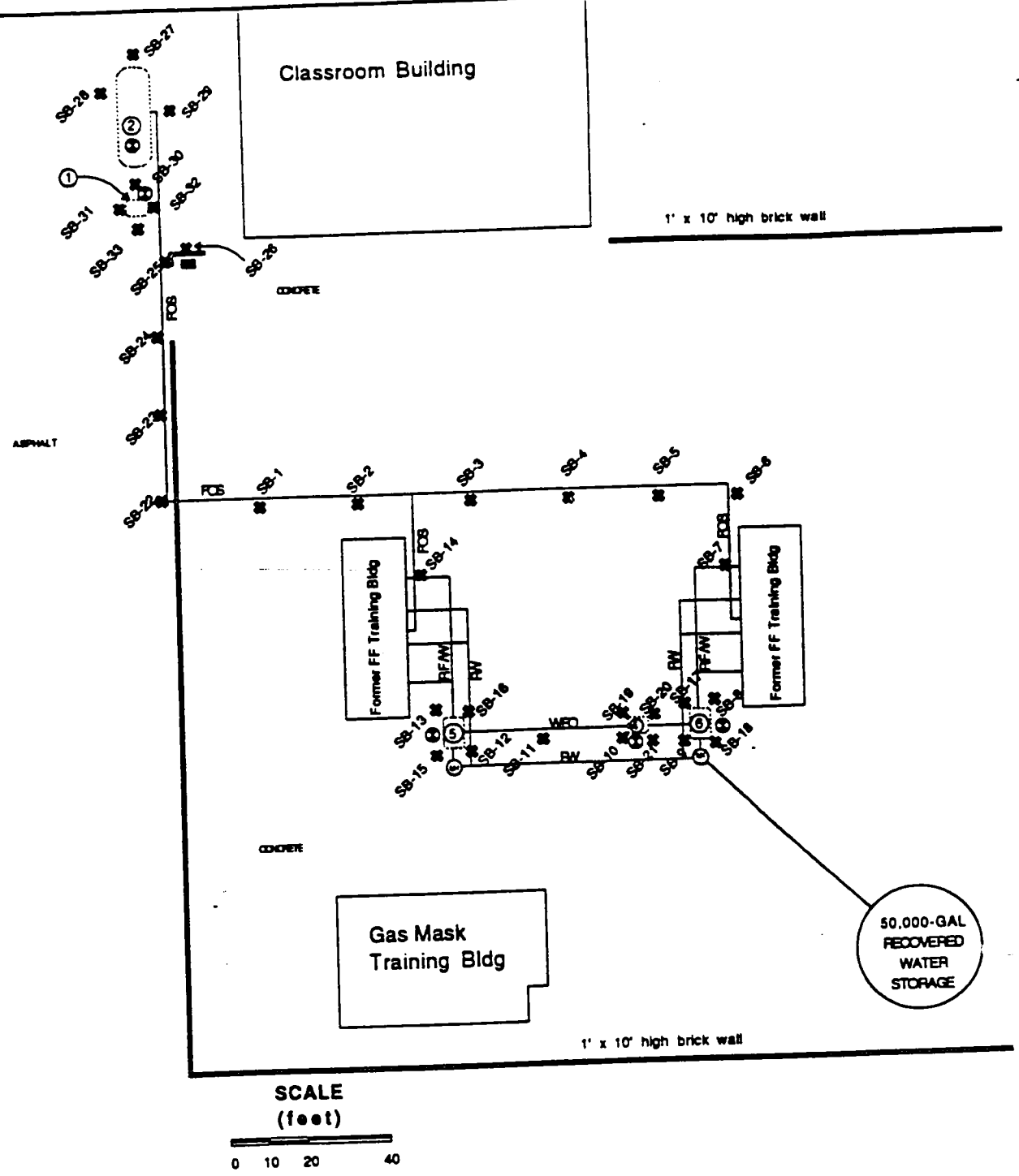
The following report is to document the removal and closure of five underground storage tanks formerly located at the Recruit Training Command Fire Fighting School at the Naval Training Center in Orlando, Florida. The tanks at the facility have been listed under two identification numbers, 488841262 and 488521506, by the Florida Department of Environmental Protection (FDEP). The removal and closure were performed in accordance with FDEP Pollutant Storage Tank Closure Assessment Requirements to comply with Chapters 17-761 and 17-762 of the Florida Administrative Code (FAC). The FDEP Closure Assessment Form has been completed and copies are included in Appendix A

1.1 Facility Layout and Description

The Fire Fighting School incorporated one 10,000-gallon underground storage tank (UST) for fuel oil, two 500-gallon oil/water separators, one 280-gallon UST for collection of waste fuel oil from the oil/water separators, and one 500-gallon UST for storage of vehicular fuel gasoline.

Fuel oil was pumped to either one of two fire fighting training buildings where it was ignited in burners to simulate an uncontrolled fire. Students used standard firefighting equipment to extinguish the fire. Waste fluids from the process (fuel oil mixed with the firefighting water) were discharged to the oil/water separator corresponding to the training building being used. Both oil/water separators then drained the fuel oil layer to the 280-gallon UST, which was located between the separators. The layout of the facility can be seen in the Assessment Activitie Map, which has been included with this report as Figure 1-1.

All transfer lines were placed approximately 2 feet below land surface, with the exception of the lines that drained the oil/water separators to the 280-gallon waste fuel oil tank. These lines were sloped towards the waste fuel oil tank at a depth of approximately 3-4 feet.



LEGEND

- UNDERGROUND STORAGE TANK
- SOIL BORING
- TEMPORARY MONITOR WELL
- FOS — FUEL OIL SUPPLY
- RW — RECOVERY WATER
- WFO — WASTE FUEL OIL
- MH — MANHOLE
- RF/W — RECOVERY FUEL/WATER MIXTURE
- FF — FIRE FIGHTING

TANKS

1. 500-GAL GASOLINE
2. 10,000-GAL FUEL OIL
4. 280-GAL WASTE FUEL OIL
5. 500-GAL O/W SEPARATOR (WEST)
6. 500-GAL O/W SEPARATOR (EAST)

Figure 1-1
Assessment Activities Map

FIRE FIGHTING SCHOOL
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

INTERNATIONAL TECHNOLOGY CORPORATION

2.0 TANK REMOVAL & ASSESSMENT ACTIVITIES

2.1 Tank and Line Removal

The oil/water separators and waste oil tank were removed on January 23, 1995, and the 10,000-gallon tank was removed on January 24, 1995. Each had been pumped out prior to removal. The 500-gallon gasoline tank was removed on January 27, 1995.

Fuel oil feed lines were removed during the week of January 9-13, 1995. Discharge lines from the oil/water separators were removed on January 25, 1995.

2.2 Soil Assessment Activities

To assess the soil quality around the lines, underground storage tanks (UST), and O/W separators, a series of soil borings were conducted on January 23, 24 and 27, 1995. A total of thirty-three soil borings were completed at various locations on-site. Borings 1 through 25 correspond to the lines, the O/W separators and the waste fuel oil UST. Borings 26 through 33 correspond to the 10,000-gallon fuel oil UST, the gasoline UST, and the site of the pump island for the gasoline tank. It should be noted that since the 10,000-gallon tank and the 500-gallon gasoline tank were in such close proximity (approximately 8 feet apart), one boring served both the south side of the 10,000-gallon tank and the north side of the 500-gallon tank. Additionally, one sample was collected off the bottom of each O/W separator upon removal to satisfy the requirement that a boring be placed underneath the tank. The fuel oil, waste fuel oil, and gasoline UST had been placed at a depth such that the bottom of the tank came into contact with the groundwater, therefore analysis of soil beneath these tanks was not appropriate.

Soil samples were obtained to determine, through organic vapor analysis, the extent of hydrocarbons adsorbed to vadose zone soils. The extent of the affected area was determined by collecting samples at the various locations and vertically at regular intervals from the surface to the groundwater or to a depth where no contaminated soil was encountered, as per FDEP tank closure regulations. The borings were installed by hand augering, with a stainless steel augering device with collection bucket, into the subsurface. The samples were analyzed for organic vapors with a portable Photoionization Detector (PID) according to the headspace method and procedures outlined in Chapter 17-770, FAC. Soil boring locations are shown on Figure 1-1. Headspace method analyses were performed by half-filling 16-ounce mason jars with the sample soil and

covering the jars with aluminum foil and lids. The samples were left to stand for approximately five minutes, out of direct sunlight, to allow vapors to volatilize into the headspace of each jar. Headspace vapors were analyzed using a Photovac MicroTIP, Model HL-200, PID. Readings were obtained upon inserting the PID probe through a hole punctured in the foil. The sample was analyzed and the peak reading was recorded. Table 2-1 shows results obtained. The PID instrument was calibrated in the field, prior to the sampling event, using a 100 parts per million (ppm) concentration isobutylene gas. Correlation plots relating the equivalent responses between the Photovac MicroTIP (PID) and the FID-OVA are included in Appendix B.

2.3 Temporary Well Installation

No compliance wells existed on site at the time of the tank removal. To evaluate groundwater in the vicinity for the possible presence of dissolved hydrocarbons, five temporary shallow monitoring wells were installed. Each well corresponded with an individual UST or O/W separator by being installed in the pit of the appropriate excavation. Well #2 (10,000-gallon UST), well #4 (280-gallon waste fuel oil), and wells #5 and #6 (westernmost and easternmost oil/water separators, respectively) were installed January 24, 1995. Well #1 (500-gallon gasoline UST) was installed January 27, 1995.

The wells were installed following tank removal with the assistance of the backhoe operator onsite for tank removal. Each pit asociated with the respective tank was further excavated until approximately 1-2 feet beneath the groundwater table, then the well was placed into the excavation and the excavation was backfilled to the surface. These shallow wells were constructed with 10 feet of two-inch diameter Schedule 40 PVC 0.010-inch slot screen to a depth of approximately 9 to 10 feet.

2.4 Groundwater Sampling and Analysis

Groundwater samples were collected from the five temporary monitoring wells following IT Corporation's Standard Operating Procedures (SOP) and Comprehensive Quality Assurance Plan (CQAP #870467G). Representative samples collected on January 27, 1995 were analyzed for volatile aromatic hydrocarbons by EPA Method 602 and polynuclear aromatic hydrocarbons by EPA Method 610.

To ensure the acquisition of samples representative of the local groundwater, each monitoring well was purged of three to five well volumes of standing water prior to sampling. The samples were collected with dedicated, disposable Teflon bailers and transferred to the appropriate laboratory-

supplied vials. The samples were packed in ice and picked up by personnel from VOC Analytical Laboratories, Inc., a Florida-certified laboratory, following a chain-of-custody protocol. The laboratory data, including the chain-of-custody forms, are included in Appendix C.

3.0 ASSESSMENT RESULTS

3.1 Soil Vapor Survey Results

Field screening of on-site soils was accomplished using the headspace method with PID analysis to quantify organic vapors. Results ranged from ND to 55 ppm (PID) during installation of the soil borings associated with the UST, O/W separators, and lines. The results are summarized in Table 3-1.

The PHOTOVAC MicroTip HL-200 PID was used to analyze soil headspace for this project. The limit defining 'excessively contaminated' soils stated in the FDEP document "Guidelines for Assessment and Remediation of Petroleum Contaminated Soils" (FDEP, 1989) is a 500 ppm (FID-OVA) headspace reading in the vicinity of the gasoline storage tank, and 50 (FID-OVA) ppm headspace reading in the vicinity of the other tanks, which were all used only for the fuel oil (kerosene) product. Correlation graphs relating MicroTIP PID responses to FID-OVA responses, included in Appendix B, show that the equivalent reading for the 500 ppm action limit in the gasoline area is approximately a 200 ppm reading on the MicroTIP PID, and the equivalent reading of the 50 ppm in the fuel oil area is approximately 110 ppm on a PID. The Vadose Plume Map included as Figure 3-1 shows that no soils can be classified as 'excessively contaminated' (>500 ppm-FID), pursuant to the above referenced FDEP document, as indicated by the headspace analysis performed around the tanks and lines.

3.2 Groundwater Sampling Results

The results from the sampling of the temporary monitor wells on January 27, 1995 indicated detection of BTEX constituents in the groundwater in the vicinity of the 500-gallon gasoline tank and the easternmost oil/water separator. Also, several of the constituents of the polynuclear aromatic hydrocarbons series were detected in relatively low concentrations in groundwater in the vicinity of the 10,000-gallon fuel oil UST and both oil/water separators. However, the laboratory analysis indicated that the concentrations of dissolved contaminants were above State target levels only in the groundwater around the gasoline tank and the easternmost oil/water separator. Specifically, concentrations of benzene (indicated to be 180 parts per billion [ppb]) and total BTEX (indicated to be 964 ppb) exceeded these target levels (1 ppb benzene, 50 ppb BTEX) in groundwater around the gasoline tank, and concentrations of total naphthalenes (indicated to be 176.5 ppb) exceeded the target level (100 ppb) in the groundwater next to the east oil/water separator.

Table 3-1

Total Volatile Organic Compound Results

(Soil Vapor Analysis)

RTC Fire Fighting School

Naval Training Center

Orlando, Florida

FDEP Facility #488841262, #488521506

(PID response with FID equivalent in parenthesis, both ppm)

		DEPTH			
Boring #	Location*	2-3'	4-5'	6-7'	Date Obtained
SB-1	FOS	-	6 (1.5)	-	1/23/95
SB-2	FOS	-	20 (5)	-	1/23/95
SB-3	FOS		6 (1.5)	-	1/23/95
SB-4	FOS	-	11 (2.8)	-	1/23/95
SB-5	FOS	-	23 (5.8)	-	1/23/95
SB-6	FOS	-	3 (0.8)	-	1/23/95
SB-7	FOS	-	4 (1)	-	1/23/95
SB-8	FOS/OWe	55 (15)	12 (3)	-	1/23/95
SB-9	FOS/OWe	2 (0.5)	2 (0.5)	-	1/23/95
SB-10	WFO	2 (0.5)	2 (0.5)	-	1/23/95
SB-11	WFO/RW	-	9 (2.3)	-	1/23/95
SB-12	FOS/OWw	1 (0.3)	25 (6.3)	-	1/23/95
SB-13	FOS/OWw	34 (8.5)	40 (10)	-	1/23/95
SB-14	FOS	-	7 (1.8)	-	1/23/95
SB-15	FOS/OWw	1 (0.3)	9 (2.3)	-	1/23/95
SB-16	FOS/OWw	23 (5.8)	50 (12.5)	-	1/23/95
SB-17	FOS/OWe	8 (2)	50 (12.5)	-	1/23/95
SB-18	FOS/OWe	1 (0.3)	1 (0.3)	-	1/23/95
SB-19	WFO	4 (1)	3 (0.8)	-	1/23/95
SB-20	WFO	2 (0.5)	3 (0.8)	-	1/23/95
SB-21	WFO	3 (0.8)	26 (6.5)	-	1/23/95
SB-22	FOS	-	ND (ND)	-	1/24/95
SB-23	FOS	-	ND (ND)	-	1/24/95
SB-24	FOS	-	ND (ND)	-	1/24/95
SB-25	FOS	-	ND (ND)	-	1/27/95
SB-26	Disp	ND (ND)	ND (ND)	-	1/27/95

*Boring done in vicinity of system feature according to following abbreviations:

FOS	Fuel Oil Supply Lines
OWe	Oil /Water Separator, easternmost
OWw	Oil /Water Separator,westernmost
Disp	Location of former gasoline dispenser
WFO	Waste Fuel Oil 280-gal tank
WFO/RW	Waste Fuel Oil line and recovered water line from O/W separators

Table 3-1
Total Volatile Organic Compound Results
(Soil Vapor Analysis)
RTC Fire Fighting School
Naval Training Center
Orlando, Florida
FDEP Facility #488841262, #488521506

Boring #	Location*	DEPTH 2-3'	4-5'	6-7'	Date Obtained
SS-T#51 bottom	OWw	-	-	17 (4.3)	1/23/95
SS-T#6 bottom	OWe	-	-	32 (8)	1/23/95
SB-27	FOUST	-	1.0 (0.3)	1.0 (0.3)	1/24/95
SB-28	FOUST	-	1.0 (0.3)	1.0 (0.3)	1/24/95
SB-29	FOUST	-	1.0 (0.3)	1.0 (0.3)	1/24/95
SB-30	FOUST/GUST	-	ND (ND)	13 (3.3)	1/24/95
SB-31	GUST-	-	0.5 (1.0)	ND (ND)	1/27/95
SB-32	GUST	-	1.0 (2.0)	ND (ND)	1/27/95
SB-33	GUST	-	ND (ND)	0.1 (0.2)	1/27/95

1 SS-T #5 and SB-T#6 are soil samples off bottom of oil/water separators

*Boring done in vicinity of system feature according to following abbreviations:

OWe	Oil /Water Separator, easternmost
OWw	Oil /Water Separator,westernmost
FOUST	10,000-gal fuel oil UST
GUST	500-gal gasoline UST

APPENDIX A

FDEP
CLOSURE ASSESSMENT FORM

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DER Form # 17-761 900(3)
Form Title Closure Assessment Form
Effective Date December 10 1990
DER Application No. _____
Page 1 of 2

Closure Assessment Form

Owners of storage tank systems that are replacing, removing or closing in place storage tanks shall use this form to demonstrate that a system closure assesment was performed in accordance with Rule 17-761 or 17-762, Florida Administrative Code. Eligible Early Detection (EDI) and Reimbursement Program sites do not have to perform a closure assessment.

Please Print or Type
Complete All Applicable Blanks

1. Date: 15 MARCH 1995
2. DER Facility ID Number: 488841262, 488521506 3. County: ORANGE
4. Facility Name: RECRUIT TRAINING COMMAND FIRE FIGHTING SCHOOL
5. Facility Owner: U.S. NAVY - NAVAL TRAINING CENTER ORLANDO
6. Facility Address: PERIMETER ROAD, RECRUIT TRAINING COMMAND, NTC, ORLANDO, FL
7. Mailing Address: COMMANDER (CODE 0.0), PUBLIC WORKS 1350 GRACE HOPPER AVE., ORLANDO, FLORIDA 32813 - 8405
8. Telephone Number: (407) 646 - 4663 9. Facility Operator: COMMANDER, PUBLIC WOR
10. Are the Storage Tank(s): **(Circle one or both)** A. Aboveground or (B. Underground)
11. Type of Product(s) Stored: _____
12. Were the Tank(s): **(Circle one)** A. Replaced (B. Removed) C. Closed in Place D. Upgraded (aboveground tank
13. Number of Tanks Closed: THREE 14. Age of Tanks: _____

Facility Assessment Information

Yes	No	Not Applicable	
	X		1. Is the facility participating in the Florida Petroleum Liability Insurance and Restoration Program (FPLIRP)
			2. Was a Discharge Reporting Form submitted to the Department? If yes, When: _____ Where: _____
X			3. Is the depth to ground water less than 20 feet?
	X		4. Are monitoring wells present around the storage system? If yes, specify type: ☐ Water monitoring ☐ Vapor monitoring
	X		5. Is there free product present in the monitoring wells or within the excavation?
	X		6. Were the petroleum hydrocarbon vapor levels in the soils greater than 500 parts per million for gasoline? Specify sample type: ☐ Vapor Monitoring wells ☐ Soil sample(s)
	X		7. Were the petroleum hydrocarbon vapor levels in the soils greater than 50 parts per million for diesel/kero Specify sample type: ☐ Vapor Monitoring wells ☐ Soil sample(s)
X			8. Were the analytical laboratory results of the ground water sample(s) greater than the allowable state target (See target levels on reverse side of this form and supply laboratory data sheets)
		X	9. If a used oil storage system, did a visual inspection detect any discolored soil indicating a release?
			10. Are any potable wells located within ¼ of a mile radius of the facility?
X			11. Is there a surface water body within ¼ mile radius of the site? If yes, indicate distance: 1000 ft +

DER Form # 17-761.900(6)
Form Title: Closure Assessment Form
Effective Date: December 10, 1990
DER Application No. _____ (Filled in by DER)

12. A detailed drawing or sketch of the facility that includes the storage system location, monitoring wells, buildings, storm drains, sample loc and dispenser locations must accompany this form.

13. If a facility has a pollutant storage tank system that has both gasoline and kerosene/diesel stored on site, both EPA Method 602 and EPA M 610 must be performed on the ground water samples obtained.

14. Amount of soils removed and receipt of proper disposal.

15. If yes is answered to any one of questions 5-9, a Discharge Reporting Form 17-761.900(1) indicating a suspected release shall be sut to the Department within one working day.

16. A copy of this form and any attachments must be submitted to the Department's district office in your area and to the locally administere gram office under contract with the Department within 60 days of completion of tank removal or filling a tank with an inert material.

_____ Date
Signature of Owner

R. Shane Cox 3/15/95
Signature of Person Performing Assessment — Date

Project Engineer II, I.T. Corporation
Title of Person Performing Assessment

State Ground Water Target Levels That Affect A Pollutant Storage Tank System Closure Assessment

State ground water target levels are as follows:

1. For gasoline (EPA Method 602):
   a. Benzene — 1 ug/l
   b. Total VOA — 50 ug/l
      - Benzene
      - Toluene
      - Total Xylenes
      - Ethylbenzene
   c. Methyl Test-Butyl Ether (MTBE) — 50 ug/l

2. For kerosene/diesel (EPA Method 610):
   a. Polynuclear Aromatic Hydrocarbons (PAHS) (Best achievable detection limit, 10 ug/l maximum)

APPENDIX B

CORRELATION PLOTS
PHOTOIONIZATION DETECTOR
VS.
OVA w/FLAME IONIZATION DETECTOR

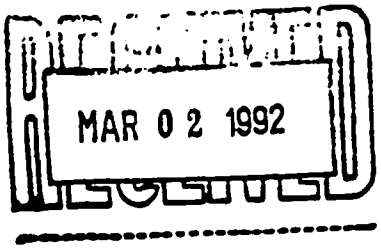
PHOTOVAC
incorporated

PHOTOVAC INTERNATIONAL INCORPORATED
25-B Jefryn Blvd West Deer Park, New York 11729
Telephone (516) 254-4199 Fax 516 254-4284

CORRELATION OF PID RESPONSE TO FID RESPONSE

(As specified in Chapter 17-770 of the Florida Administrative Code entitled "Petroleum Contamination Site Cleanup Criteria".)

PHOTOVAC
MicroTIP MP-100
MicroTIP HL-200
TIP I
TIP II



September 1991

Introduction

Florida Department of Environmental Regulation (FDER) for Total VOC measurement in petroleum contaminated soils indicates the use of a flame ionization detector (FID) calibrated with Methane. (As specified in Chapter 17-770 of the Florida Administrative Code entitled "Petroleum Contamination Site Cleanup Criteria".)

The Photovac photoionization detector (PID) calibrated with Isobutylene has been approved for use in this application. Instruments which can be used are MicroTIP Models MP-100/HL-200 and TIP I/II. In order to relate one detector type to the other, correlation curves of response of both PID and FID to Unleaded Gasoline, Kerosene, and Diesel have been generated.

Calibration (Zero and Span)

Calibration should be performed daily, or more frequently if sampling in areas of high concentrations or in conditions of varying temperature. Allow at least 5 minutes for the instrument to warm up. When calibrating either MicroTIP (MP-100/HL-200) or TIP (I/II) in the field, fill a gas sampling bag of at least 1.6 Liters in volume with 100 PPM Isobutylene. The Zero point of both instruments is set using Ultra Zero air or clean background air.

1) MicroTIP (MP-100/HL-200)

A) Zero

- Attach a gas sampling bag containing Ultra Zero air (clean background air is usually sufficient) to the instrument and press the CAL key, then ENTER. The display will read "Calibrating now, please wait".

B) Span

- When the display requests Span Gas concentration, press 1-0-0 and then ENTER. The ENTER key must be pressed within approximately 10 seconds, prompting the displayed message "Calibrating now, please wait", or MicroTIP will quit the CAL function prematurely, even though the calibration procedure is not complete. Attach the 100 PPM Isobutylene bag to the instrument, wait 5 seconds, then press ENTER. When the "Ready" message is displayed, MicroTIP is calibrated.

2) TIP (I/II)

A) Zero

- Set Span and Zero controls to a setting of 5.

- Introduce Ultra Zero Air contained in a gas sampling bag (or clean background air) to the instrument. Using the tuning wand (Photovac Part No. 600406-01) adjust the coarse zero screw to read 0.0 on the display (coarse zero screw is located on the probe end of the instrument, just below detector cap, opposite display).

B) Span

- Attach the gas sampling bag containing 100 PPM Isobutylene to the TIP and use the Span control to adjust the displayed value to 100.0.

- Disconnect the bag and allow the display to stabilize while measuring clean air once again. Use the fine Zero control (front of instrument) to readjust the displayed value to 0.0.

- The Span and Zero settings are iterative, so more than one adjustment of each may be necessary.

Use of the Correlation Curves

Table 1 shows equivalency values recommended by the FDER for each PID instrument and each fuel type at the threshold concentrations.

Although FDER requires correlative readings at 50 and 500 PPM, Figures 1-5 show correlation graphs which will enable the user to obtain, by extrapolation, correlative readings at intermediate concentrations for the two types of detector.

From Figure 1, readings equivalent to 50 PPM and 500 PPM FID for Unleaded Gasoline vapor may be taken to be 29 and 199, respectively (for MicroTIP). From Table 1, FDER has rounded off these values to 30 and 200.

From Figure 2, readings equivalent to 50 PPM and 500 PPM FID for Kerosene vapor may be taken to be 103 and 471 respectively (for TIP). From Table 1, FDER has rounded off the lower value to 100.

From Figure 3, readings equivalent to 50 PPM and 500 PPM FID for Kerosene vapor may be taken to be 111 and 544, respectively (for MicroTIP). From Table 1, FDER has rounded off the lower value to 110.

From Figure 4, readings equivalent to 50 PPM and 500 PPM FID for Diesel vapor may be taken to be 53 and 324, respectively (for TIP). From Table 1, FDER has rounded off the lower value to 55.

From Figure 5, readings equivalent to 50 PPM and 500 PPM FID for Diesel vapor may be taken to be 57 and 356, respectively (for MicroTIP). From Table 1, FDER has rounded off the lower value to 55.

TIP vs. FID response to Gasoline vapor was addressed in a previous study. Figure 6 shows the difference in response between Leaded and Unleaded Gasoline vapor for TIP. Readings equivalent to 50 and 500 PPM FID for Unleaded Gasoline vapor may be taken to be 29 and 227, respectively. Readings equivalent to 50 and 500 PPM FID for Leaded Gasoline vapor may be taken to be 33 and 257, respectively. From Table 1, FDER has rounded off the values for both types of gasoline to 35 and 250.

Each correlation curve is precise to within $\pm$ 20% over a concentration range 10-500 PPM.

NOTE:

The responses of the PID in both MicroTIP and TIP will depend upon cleanliness of the lamp window, as well as the age of the lamp. It is important, therefore, to ensure that the window of the lamp is cleaned regularly to remove any accumulated deposit from extensive moitoring applications. The cleaning should be performed using a cotton swab moistened with spectroscopic grade Methanol, and the Methanol allowed to dry from the window, before the lamp is replaced int the detector housing.

Table 1

PHOTOVAC MICROTIP AND TIP
PID-FID EQUIVALENCY CORRELATION VALUES *

Photovac MicroTIP

FUEL TYPE	50 PPM (FID)	500 PPM (FID)
UNLEADED GASOLINE	30	200
KEROSENE	110	**
DIESEL	55	**

Photovac TIP

FUEL TYPE	50 PPM (FID)	500 PPM (FID)
UNLEADED GASOLINE	35	250
LEADED GASOLINE	35	250
KEROSENE	100	**
DIESEL	55	**

* ALL READINGS ARE IN PPM AS ISOBUTYLENE

** IRRELEVANT - ANY READING OVER 50 PPM (FID) IS CONSIDERED EXCESSIVELY CONTAMINATED.

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400
Bob Martinez, Governor
Dale Twachtmann, Secretary
John Shearer, Assistant Secretary

November 30, 1989

Mark Collins, Ph.D
Photovac Incorporated
741 Park Avenue
Huntington, NY 11743

Re: Photovac TIP vs. FID-OVA Correlation Study

Dear Dr. Collins,

The last part of your study, correlation under high relative humidity conditions, has been reviewed and successfully completes the study. Please revise your technical bulletin on this subject as appropriate to clearly define the calibration and zeroing procedures required. Readings equivalent to 50 ppm and 500 ppm FID-OVA may be taken to be 35 ppm and 250 ppm respectively. These are conservative values and will ensure that excessive soil contamination is adequately delineated. Thank you for your efforts in this matter.

Sincerely,

John K. Gentry, P.E.
Division of Waste Management

PHOTOVAC
incorporated

PHOTOVAC INTERNATIONAL INCORPORATED
741 Park Avenue, Huntington, New York 11743
Telephone (516) 351-5809 · Fax (516) 549-8031

December 19, 1989

Mr. Dan Bingham
Bingham Environmental Technology
P.O. Box 878
New Port Richey, FL 34656

Re: Photovac TIP vs. FID-OVA Correlation Study

Dear Dan:

I am pleased to inform you that the above study has been reviewed by Florida Department of Environmental Regulation (FDER). In a letter dated November 30, 1989 from Mr. John Gentry of the Division of Waste Management at the FDER, he stated, "The last part of your study, correlation under high relative humidity conditions, has been reviewed and successfully completes the study".

The FDER recommends that "Readings equivalent to 50 ppm and 500 ppm FID-OVA may be taken to be 35 ppm and 250 ppm respectively. These are conservative values and will ensure that excessive soil contamination is adequately delineated". John Gentry is referring to correlations for Unleaded and Leaded gasoline vapors provided in Figure 1 and Figure 2 respectively (see attachments). Data used for these graphs were obtained using two (2) FID-OVA instruments and three (3) TIP instruments. The TIPs were zeroed using Ultra zero air and spanned with 100 PPM Isobutylene while each of the OVAs were spanned with 500 PPM Methane.

Later studies, in the last part of this project using Benzene vapor, indicated that when the TIPs are spanned against humid air, the response is enhanced. The recommendation is that the TIP or MicroTIP can be zeroed with humid air in a clean environment and calibrated with 100 PPM Isobutylene. Nevertheless, the FDER recommendations, as indicated in the above paragraph, should still apply.

Please call me if you require any further technical assistance.

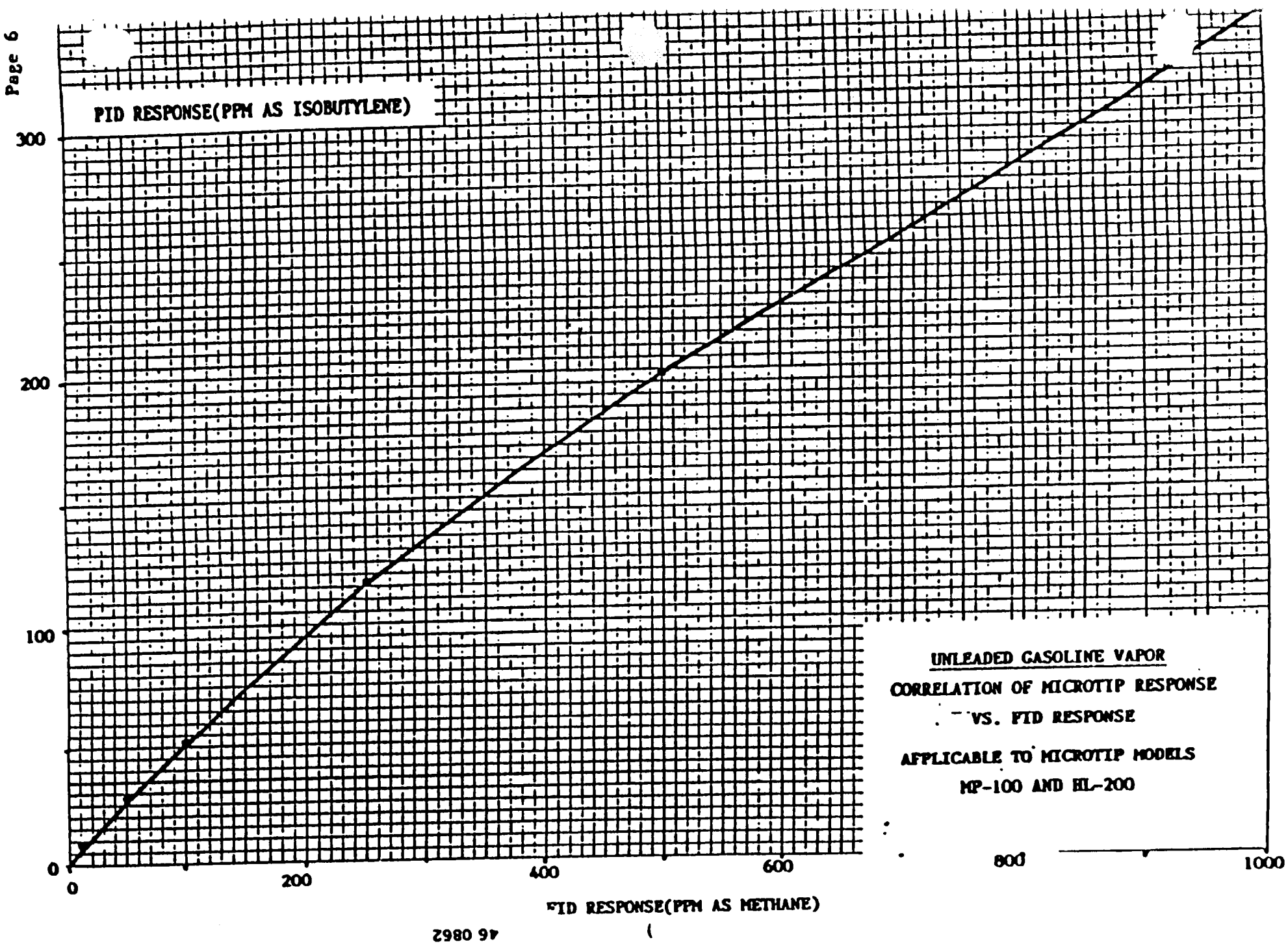
Sincerely,

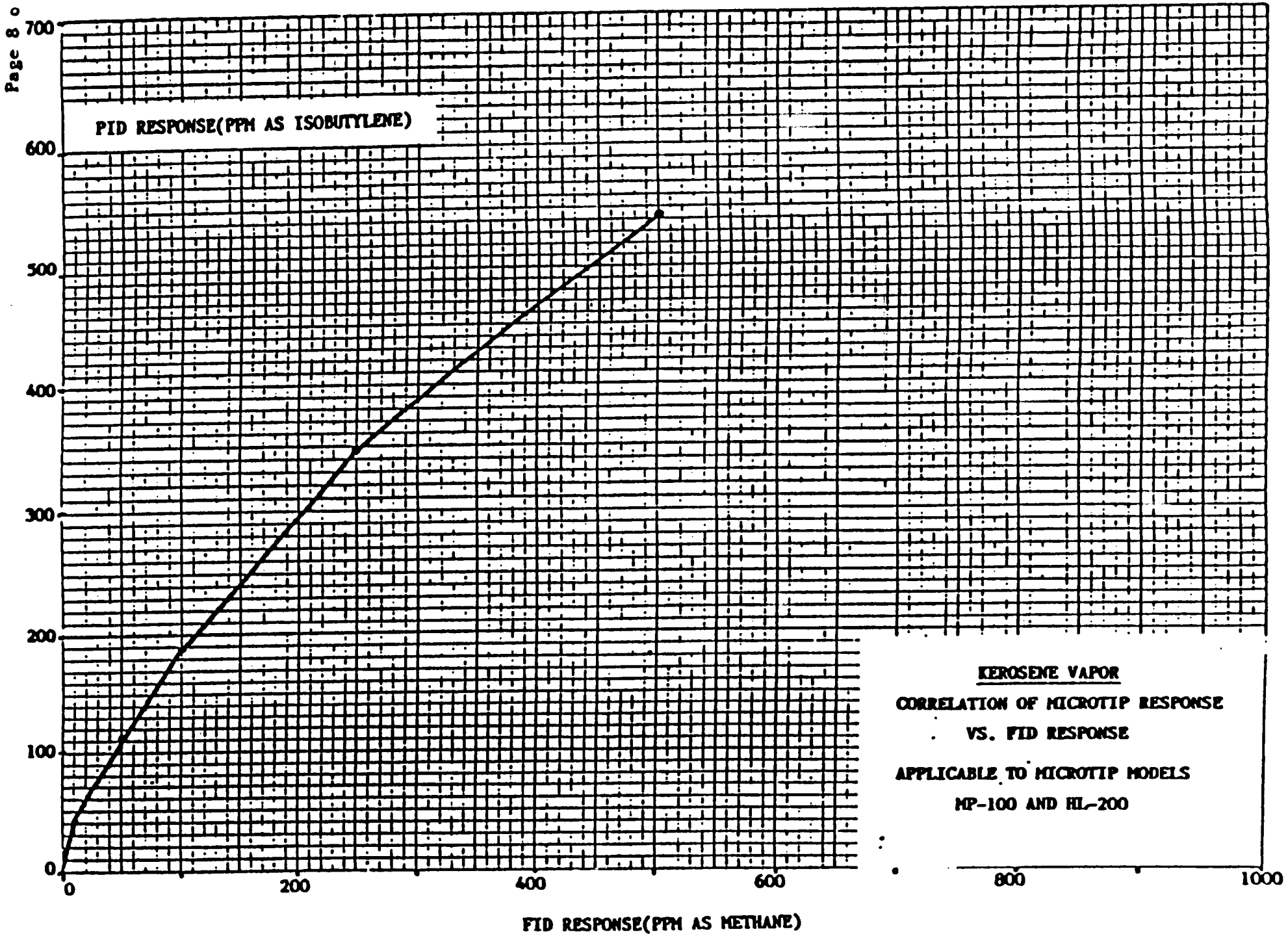
Mark Collins
Manager
Technical Services/Applications Department

MC:ds

Attachment

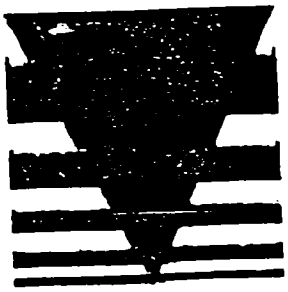
cc: Ronald L. Stingley


PID RESPONSE(PPM AS ISOBUTYLENE)
300
200
100
0
0
200
400
600
800
1000
FID RESPONSE(PPM AS METHANE)
UNLEADED GASOLINE VAPOR
CORRELATION OF MICROTIP RESPONSE
VS. FID RESPONSE
APPLICABLE TO MICROTIP MODELS
MP-100 AND HL-200


PID RESPONSE(PPM AS ISOBUTYLENE)
700
600
500
400
300
200
100
0
0
200
400
600
800
1000
FID RESPONSE(PPM AS METHANE)
KEROSENE VAPOR
CORRELATION OF MICROTIP RESPONSE
VS. FID RESPONSE
APPLICABLE TO MICROTIP MODELS
MP-100 AND HL-200

APPENDIX C

LABORATORY ANALYSIS RESULTS AND CHAIN-OF-CUSTODY RECORDS



Our Quality Control Is Your Quality Assurance

ient #: 753
.dress: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 1
Date: 02/01/95
Log #: 18305-01

Attn: Shane Cox

mple Description: Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: Tank #1
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

rameter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analyst
A 602 Compounds		ug/l	5030/8021		01/28/95	01/28/95	I
nzene	180	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
lorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
luene	390	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
hyl benzene	85.0	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
tal xylenes	309	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
BE	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
2-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
3-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,4-Dichlorobenzene	964	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
otal BTEX	1	ug/l	5030/8021	.	01/28/95	01/28/95	FY
ilution Factor	.	ug/l	3510/8270		01/30/95	01/31/95	EG
AH Compounds In Water	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
aphthalene	3.45	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
-Methylnaphthalene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
-Methylnaphthalene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
cenaphthylene	3.38	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
cenaphthene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
luorene	BDL	ug/l	3510/8270	3.50	01/30/95	01/31/95	EG
henanthrene	6.78	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
nthracene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
luoranthene	BDL	ug/l	3510/8270	2.00	01/30/95	01/31/95	EG
yrene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	
enzo(a)anthracene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
hrysene							

ient #: 753
idress: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 1
Date: 02/01/95
Log #: 18305-02

Attn: Shane Cox

mple Description Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: Tank #2
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

eter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analyst
A 602 Compounds	.	ug/l	5030/8021		01/28/95	01/28/95	FY
nzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
lorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
luene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
hyl benzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
tal xylenes	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
BE	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
2-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
3-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
4-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
tal BTEX	1	ug/l	5030/8021	.	01/28/95	01/28/95	FY
lution Factor	.	ug/l	3510/8270		01/30/95	01/31/95	EG
H Compounds In Water	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
phthalene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
-Methylnaphthalene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
-Methylnaphthalene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
enaphthylene	4.38	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
enaphthene	5.26	ug/l	3510/8270	3.50	01/30/95	01/31/95	EG
luorene	4.23	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
enanthrene	12.2	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
thracene	5.65	ug/l	3510/8270	2.00	01/30/95	01/31/95	EG
anthene	3.64	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
e	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
enzo(a)anthracene	BDL	ug/l	3510/8270				
rysene							

Client #: 753
Address: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 2
Date: 02/01/95
Log #: 18305-02

Attn: Shane Cox

Sample Description: Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: Tank #2
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

Parameter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analy
Benzo(b)fluoranthene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
Benzo(k)fluoranthene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
Benzo(a)pyrene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
Dibenzo(a,h)anthracene	BDL	ug/l	3510/8270	7.00	01/30/95	01/31/95	EG
Indeno(1,2,3-cd)pyrene	BDL	ug/l	3510/8270	8.00	01/30/95	01/31/95	EG
Benzo(ghi)perylene	BDL	ug/l	3510/8270	4.00	01/30/95	01/31/95	EG
Dilution Factor	1	ug/l	3510/8270	.	01/30/95	01/31/95	EG

BDL = Below Detection Limits
* These compounds are Screened Only, with an estimated detection limit.
All Analyses were performed using EPA, ASTM, USGS, or Standard Methods

QAP # 900376G
HRS # E86240, 86356
SUB HRS# 86122, 86109, E86048
ADEM ID# 40720, 40850
SC CERT #96031
NC Cert #444
Tennessee Lab #02985
Connecticut Lab Approval # PH-0122

Respectfully Submitted,

Edward Dabrea
Laboratory Director

18305-02

ient #: 753
idress: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 1
Date: 02/01/95
Log #: 18305-03

Attn: Shane Cox

mple Description Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: Tank #4
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

rameter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analyst
A 602 Compounds	.	ug/l	5030/8021		01/28/95	01/28/95	FY
nzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
lorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
luene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
hyl benzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
tal xylenes	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
BE	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
2-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
3-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
4-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
tal BTEX	1	ug/l	5030/8021	.	01/28/95	01/28/95	FY
lution Factor	.	ug/l	3510/8270		01/30/95	01/31/95	EG
H Compounds In Water	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
phthalene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
Methylnaphthalene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
-Methylnaphthalene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
enaphthylene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
enaphthene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
uorene	BDL	ug/l	3510/8270	3.50	01/30/95	01/31/95	EG
enanthrene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
acene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
nthene	BDL	ug/l	3510/8270	2.00	01/30/95	01/31/95	EG
rene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
nzo(a)anthracene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
rysene							

ent #: 753
dress: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 2
Date: 02/01/95
Log #: 18305-03

Attn: Shane Cox

ple Description Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: Tank #4
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

Parameter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analyst
zo(b)fluoranthene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
zo(k)fluoranthene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
zo(a)pyrene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
enzo(a,h)anthracene	BDL	ug/l	3510/8270	7.00	01/30/95	01/31/95	EG
eno(1,2,3-cd)pyrene	BDL	ug/l	3510/8270	8.00	01/30/95	01/31/95	EG
zo(ghi)perylene	BDL	ug/l	3510/8270	4.00	01/30/95	01/31/95	EG
lution Factor	1			.			

L = Below Detection Limits
These compounds are Screened Only, with an estimated detection limit.
l Analyses were performed using EPA, ASTM, USGS, or Standard Methods

Respectfully Submitted,

Edward Dabrea
Laboratory Director

18305-03

P # 900376G
S # E86240, 86356
B HRS# 86122, 86109, E86048
EM ID# 40720, 40850
CERT #96031
Cert #444
nnessee Lab #02985
nnecticut Lab Approval # PH-0122

ient #: 753
ddress: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 1
Date: 02/01/95
Log #: 18305-04

Attn: Shane Cox

ample Description Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: Tank #5
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

meter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analyst
A 602 Compounds	.	ug/l	5030/8021		01/28/95	01/28/95	FY
nzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
lorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
luene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
hyl benzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
tal xylenes	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
BE	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
2-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
3-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,4-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
tal BTEX	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
ilution Factor	1	ug/l	5030/8021	.	01/28/95	01/28/95	FY
H Compounds In Water	.	ug/l	3510/8270		01/30/95	01/31/95	EG
phthalene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
-Methylnaphthalene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
-Methylnaphthalene	3.08	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
cenaphthylene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
cenaphthene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
luorene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
henanthrene	BDL	ug/l	3510/8270	3.50	01/30/95	01/31/95	EG
thracene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
ranthene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
ne	BDL	ug/l	3510/8270	2.00	01/30/95	01/31/95	EG
enzo(a)anthracene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
hrysene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG

ent #: 753
dress: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 2
Date: 02/01/95
Log #: 18305-04

Attn: Shane Cox

ple Description Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: Tank #5
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

ameter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analyst
zo(b)fluoranthene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
zo(k)fluoranthene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
zo(a)pyrene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
enzo(a,h)anthracene	BDL	ug/l	3510/8270	7.00	01/30/95	01/31/95	EG
eno(1,2,3-cd)pyrene	BDL	ug/l	3510/8270	8.00	01/30/95	01/31/95	EG
zo(ghi)perylene	BDL	ug/l	3510/8270	4.00	01/30/95	01/31/95	EG
ution Factor	1			.			

= Below Detection Limits
hese compounds are Screened Only, with an estimated detection limit.
. Analyses were performed using EPA, ASTM, USGS, or Standard Methods

Respectfully Submitted,

Edward Dabrea
Laboratory Director

18305-04

900376G
E86240, 86356
HRS# 86122, 86109, E86048
M ID# 40720, 40850
CERT #96031
Cert #444
nessee Lab #02985
necticut Lab Approval # PH-0122

ient #: 753
ddress: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 1
Date: 02/01/95
Log #: 18305-05

Attn: Shane Cox

mple Description Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: Tank #6
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

ter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analyst
	.	ug/l	5030/8021		01/28/95	01/28/95	FY
A 602 Compounds	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
nzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
lorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
luene	2.0	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
hyl benzene	15.6	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
tal xylenes	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
BE	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,2-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,3-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,4-Dichlorobenzene	17.6	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
tal BTEX	1	ug/l	5030/8021	.	01/28/95	01/28/95	FY
ilution Factor	.	ug/l	3510/8270		01/30/95	01/31/95	EG
AH Compounds In Water	31.6	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
aphthalene	78.7	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
-Methylnaphthalene	66.2	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
-Methylnaphthalene	6.39	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
cenaphthylene	7.40	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
cenaphthene	13.4	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
luorene	BDL	ug/l	3510/8270	3.50	01/30/95	01/31/95	EG
henanthrene	19.7	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
nthracene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
uoranthene	2.94	ug/l	3510/8270	2.00	01/30/95	01/31/95	EG
e	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
Benzo(a)anthracene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
hrysene							

lient #: 753
ddress: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 2
Date: 02/01/95
Log #: 18305-05

Attn: Shane Cox

ample Description Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: Tank #6
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

arameter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analyst
enzo(b)fluoranthene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
enzo(k)fluoranthene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
enzo(a)pyrene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
ibenzo(a,h)anthracene	BDL	ug/l	3510/8270	7.00	01/30/95	01/31/95	EG
ndeno(1,2,3-cd)pyrene	BDL	ug/l	3510/8270	8.00	01/30/95	01/31/95	EG
enzo(ghi)perylene	BDL	ug/l	3510/8270	4.00	01/30/95	01/31/95	EG
ilution Factor	1			.			

BDL = Below Detection Limits
* These compounds are Screened Only, with an estimated detection limit.
All Analyses were performed using EPA, ASTM, USGS, or Standard Methods

Respectfully Submitted,

Edward Dabrea
Laboratory Director

QAP # 900376G
HRS # E86240, 86356
SUB HRS# 86122, 86109, E86048
ADEM ID# 40720, 40850
SC CERT #96031
NC Cert #444
Tennessee Lab #02985
Connecticut Lab Approval # PH-0122

18305-05

Client #: 753
Address: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 1
Date: 02/01/95
Log #: 18305-06

Attn: Shane Cox

Sample Description: Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: QA-1
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

Parameter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analys
EPA 602 Compounds	.	ug/l	5030/8021		01/28/95	01/28/95	FY
Benzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
Chlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
Toluene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
Ethyl benzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
Total xylenes	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
MTBE	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
1,2-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
1,3-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
1,4-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
Total BTEX	1	ug/l	5030/8021	.	01/28/95	01/28/95	FY
Dilution Factor	.	ug/l	3510/8270		01/30/95	01/31/95	EG
PAH Compounds In Water	6.59	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
Naphthalene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
2-Methylnaphthalene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
1-Methylnaphthalene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
Acenaphthylene	4.29	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
Acenaphthene	5.31	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
Fluorene	3.87	ug/l	3510/8270	3.50	01/30/95	01/31/95	EG
Phenanthrene	9.83	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
Anthracene	4.58	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
Fluoranthene	2.75	ug/l	3510/8270	2.00	01/30/95	01/31/95	EG
[illegible]ene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
[illegible]zo(a)anthracene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
Chrysene							

nt #: 753
ess: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 2
Date: 02/01/95
Log #: 18305-06

Attn: Shane Cox

le Description Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: QA-1
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

meter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analyst
)(b)fluoranthene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
)(k)fluoranthene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
)(a)pyrene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
nzo(a,h)anthracene	BDL	ug/l	3510/8270	7.00	01/30/95	01/31/95	EG
no(1,2,3-cd)pyrene	BDL	ug/l	3510/8270	8.00	01/30/95	01/31/95	EG
)(ghi)perylene	BDL	ug/l	3510/8270	4.00	01/30/95	01/31/95	EG
tion Factor	1	ug/l	3510/8270	.	01/30/95	01/31/95	EG

= Below Detection Limits
ese compounds are Screened Only, with an estimated detection limit.
Analyses were performed using EPA, ASTM, USGS, or Standard Methods

Respectfully Submitted,

Edward Dabrea

Edward Dabrea
Laboratory Director

18305-06

900376G
E86240, 86356
HRS# 86122, 86109, E86048
(ID# 40 20, 40850
CERT #96031
lert #444
nessee Lab #02985
necticut Lab Approval # PH-0122

VOC ANALYT CODE LABORATORIES, INC.
877 N.W. 61 Street, Suite 202 • Ft. Lauderdale, FL 33309
(305) 938-8823 • FAX (305) 938-9558

LAB USE ONLY

Client Management/Business ~~I.T. Corp~~ Associates

Project Location Orlando Naval Training Center

Project Name or Number Fire Fighter Training

ITEM NUMBER	SAMPLE LABEL	DATE	TIME	Sample Description (CHECK ONE) GROUND WATER	WASTE WATER	SOIL	OTHER (SPECIFY)	NUMBER OF CONTAINERS	PRES. TYPE	Laboratory Analysis: EPA 602	EPA 610	COMMENTS
1	Tank #1	1/27/95	1420	✓				4	HCl	✓	✓	
2	Tank #2		1330	✓				4		✓	✓	
3	Tank #4		1135	✓				4		✓	✓	
4	Tank #5		1120	✓				4		✓	✓	
5	Tank #6		1155	✓				4		✓	✓	
6	QA-1	↓	1335									
7												
8												
9												
0												

QC REPORT? ✓ Yes ____ No

SAMPLER/SIGNATURE: Denise Crum

REPORT TO: Shane Cox, I.T. Corp.

FAX #: 407 679 8280

REMARKS:

Item Number	Transfers Relinquished by:	Date	Time	Accepted by:	Date	Time
1-5	Kristin Richardson	1-27-95	0800			
	Denise Crum	1/27/95	16:20		1/27/1	4:1

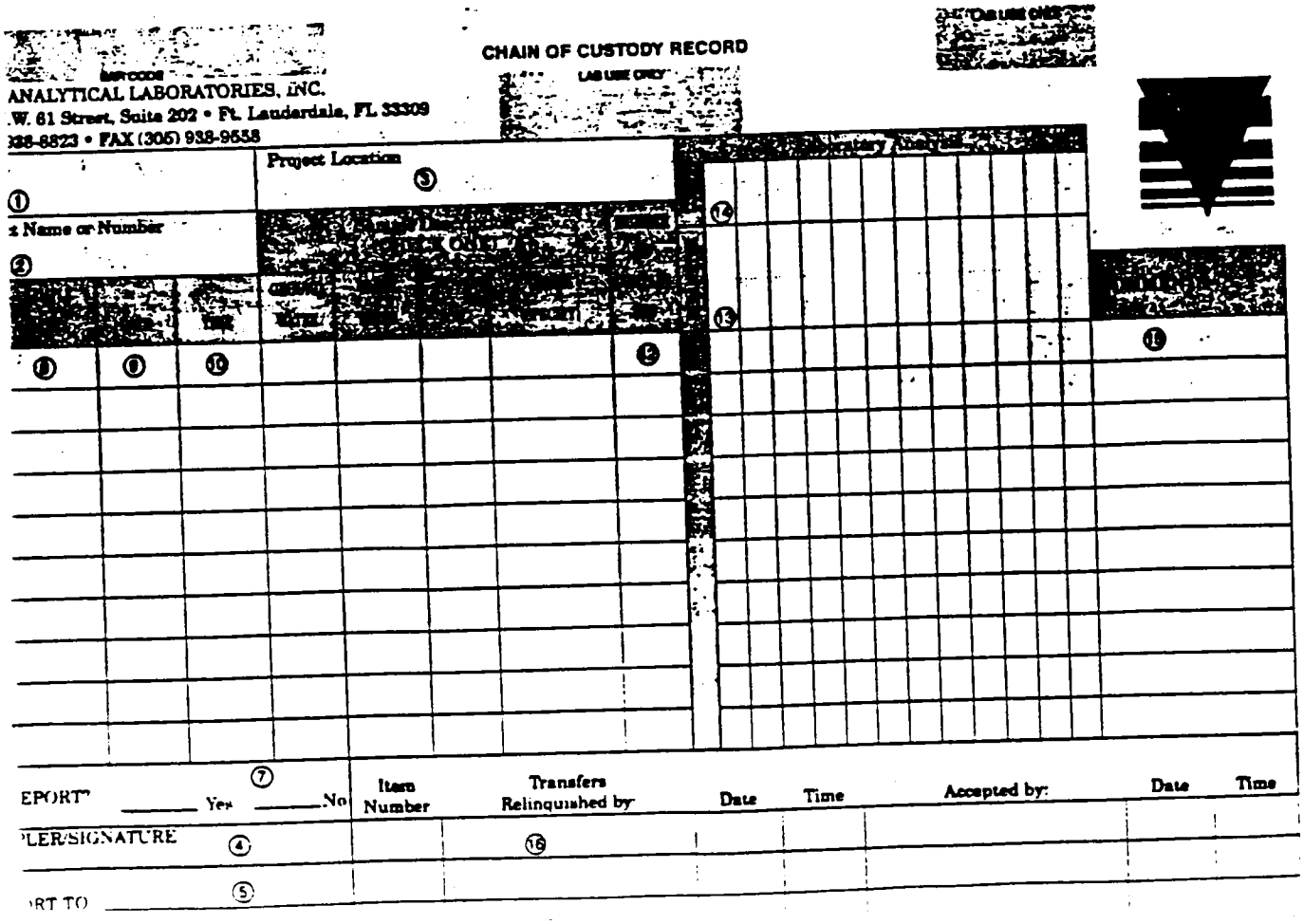
VOC Analytical Laboratories, Inc.
877 N.W. 61 Street, Suite 202
Ft. Lauderdale, FL 33309
Phone: (305) 938-8823
Fax: -(305) 938-9558

INSTRUCTIONS FOR COMPLETING CHAIN OF CUSTODY FORM

(Please use care in completing this form. An incomplete COC could jeopardize your quoted TAT.)

Print name of client.
ndicate name or number of project.
nsert project location (i.e. street, county).
Sampler: Print name & sign.
Indicate name & FAX # of project manager.
Insert any remarks.
Indicate if QC report is required.
List sample labels here (i.e. MW, SB, etc.).

⑨ Indicate date the sample was taken.
⑩ Indicate time the sample was taken.
⑪ Indicate matrix of sample.
⑫ Indicate number of containers for each sample.
⑬ List parameter to be analyzed.
⑭ List preservative used in sample container.
⑮ Comment on any sample on corresponding line.
⑯ EACH person releasing samples must sign and date the COC here.



ATTACHMENT C

GROUNDWATER LABORATORY ANALYTICAL REPORTS
AND
CHAIN-OF-CUSTODY RECORDS

QAL

QUALITY ANALYTICAL LABORATORIES, INC.

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

Project #: 8519-51

Purchase Order #:

Project Name: NTC Orlando

Company Name: ABB-ES

Project Manager or Contact & Phone #: John Kaiser 407-895-8845

Report Copy to: Manuel Alonso

Requested Completion Date: 9-18-96

Site ID: NTC Orlando

Sample Disposal: Dispose ☒ Return ☐

☐ LGN
One Innovation Drive, Suite C
Alachua, FL 32615-9586
(904) 462-3050 FAX (904) 462-1670

☐ LRD
5090 Caterpillar Road
Redding, CA 96003-1412
(916) 244-5227 FAX (916) 244-4109

☒ LMG
2567 Fairlane Drive
Montgomery, AL 36116-1622
(205) 271-2440 FAX (205) 271-3428

☐ LKW
Canviro Analytical Laboratories, Inc
50 Bathurst, Unit 12
Waterloo, Ontario, Canada N2V 2C5
(519) 747-2575 FAX (519) 747-3806

THIS AREA FOR LAB USE ONLY

Lab # MB708 | Page | of

Client Service | Price Source: A P Q S

Acct Code: ABB UST | Test Group: 527

Project Code | Ack. Gen.

LIMS Ver 19 | Login ✓ | Mult.

COC Review BS

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	CLIENT SAMPLE ID (9 CHARACTERS)	QC ID (3 CHAR)	# OF CONTAINERS	EPA 237.2 (Pb)	Metals (As, Cd, Cr, Pb)	EPA 624	EPA 625	EPA 504 (EDB)	EPA 601	EPA 601	EPA 610	EPA 418.1 (TRPH)	SAMPLE REMARKS	LAB 1 ID	LAB 2 ID
9-3-96	0905		X	X		7174MW13		1	1									7174 MW-13	01	
	0917					7174MW22		1	1									7174 MW-22	02	
	0934					7174MW23		1	1									7174 MW-23	03	
	1053					021GT201		9	1				2	3	3			109 TW-2	04	
	1134					064GT101		7		1	3	2					1	200 TW-1	05	
	1317					013GM102		6	1					3		2		218 MW-1	06	
	1342					013GM302		6	1					3		2		218 MW-3	07	
						TRIP BLANK		3			3			3	3			TRIP BLANK	08	

Sampled By & Title (Please sign and print name): Scott Dunelick (SCOTT DUNELICK) — Date/Time: 9-3-96 1400

Received By (Please sign and print name): David Shue — Date/Time: 9/4/96 1000

Received By (Please sign and print name) — Date/Time

Received By (Please sign and print name) — Date/Time

Relinquished By (Please sign and print name): Scott Dunelick (SCOTT DUNELICK) — Date/Time: 9-3-96 1400

Relinquished By (Please sign and print name) — Date/Time

Relinquished By (Please sign and print name) — Date/Time

Shipped Via: UPS (Fed-Ex) Other _____ — **Shipping #:** 0960938550

HAZWRAP/NESSA: Y (N)

EDATA: Y (N)

QC LEVEL (1) 2 3 OTHER _____

pH | Ice: Y

Custody Seal | Temp: 4°C

Batch Remarks:

0000054

QAL

QUALITY ANALYTICAL LABORATORIES, INC.

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

Project # 8519-51

Purchase Order #

Project Name: NTC ORLANDO - OWS

Company Name: ABB - ENVIRONMENTAL SERVICES

Project Manager or Contact & Phone #: J. Kaiser 407-895-8845

Report Copy to: MANUEL ALONSO

Requested Completion Date: 8-1-96

Site ID: NTC Orlando

Sample Disposal: Dispose [X] Return [ ]

☐ LGN
One Innovation Drive, Suite C
Alachua, FL 32615 9586
(904) 462 3050 FAX (904) 462 1670

☐ LRD
5090 Caterpillar Road
Redding, CA 96003 1412
(916) 244 5227 FAX (916) 244 4109

☒ LMG
2567 Fairlane Drive
Montgomery, AL 36116 1622
(205) 271 2440 FAX (205) 271 3428

☐ LKW
Canviro Analytical Laboratories, Inc
50 Bathurst, Unit 12
Waterloo, Ontario, Canada N2V 2C5
(519) 747 2575 FAX (519) 747 3806

THIS AREA FOR LAB USE ONLY

Lab # MB404 | Page | of

Client Service | Price Source A P Q S

Acct Code | Test Group

Project Code | Ack. Gen.

LIMS Ver | Login | Mult.

COC Review DS

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	CLIENT SAMPLE ID (9 CHARACTERS)	QC ID (3 CHAR)	# OF CONTAINERS	EPA 624	EPA 625	EPA 418.1 (TPH)	EPA 239.2 Arsenic, Cadmium, Chromium, Lead		EPA 602				SAMPLE REMARKS	LAB 1 ID	LAB 2 ID
7-17-96	1031		X	X		044GT201		7	3	2	1	1						7184 TW-2	01	
7-17-96	1134		X	X		062GT101		7	3	2	1	1						1053 TW-1	02	
7-17-96	956		X	X		063GT101		7	3	2	1	1						7175 TW-1	03	
7-17-96	1227		X	X		064GM201		7	3	2	1	1						200 MW-2	04	
—	—			X		TRIP BLANK		3						3				Trip Blank	05	

Sampled By & Title (Please sign and print name): Scott Donelick (FOL) — Date/Time: 7/17/96 1300

Received By (Please sign and print name): Bob Scar — Date/Time: 7/18/96 10:00

Received By (Please sign and print name): — Date/Time:

Received (Please sign and print name): — Date/Time:

Batch Re:

Relinquished By (Please sign and print name): Scott Donelick (SCOTT DONELICK) — Date/Time: 7/17/96 1700

Relinquished By (Please sign and print name): — Date/Time:

Relinquished By (Please sign and print name): — Date/Time:

Shipped Via: UPS Fed-Ex Other — Shipping # 941879231 6

HAZWRAP NESSA Y (N)

EDATA Y (N)

QC LEVEL (1) 2 3 OTHER

pH | Ice

Custody Seal | Temp

000044

----- BUILDING NUMBER 200 -- HITS TABLE --------
NTC ORLANDO FLORIDA MAIN BASE

	Lab Sample Number:	MB708005				MB404004			
	Site	200				200			
	Locator	064GT101/200 TW-1				064GM201/200 MW-2			
	Collect Date:	03-SEP-96				17-JUL-96			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
TOTAL PETROLEUM HYDROCARBON									
Total petroleum hydrocarbon		1.73		mg/l	.05	105		mg/l	2.74
EPA624									
Ethylbenzene		-	U	ug/l	10	5		ug/l	5
EPA625									
Naphthalene		-	U	ug/l	10	44	J	ug/l	200
Acenaphthene		3	J	ug/l	10	28	J	ug/l	200
Fluorene		3	J	ug/l	10	53	J	ug/l	200
Phenanthrene		1	J	ug/l	10	160	J	ug/l	200
Pyrene		-	U	ug/l	10	20	J	ug/l	200
Metals									
Chromium		-	U	ug/l	10	17.7		ug/l	10
Lead		-	U	ug/l	3	14.8		ug/l	3

Request Number 8181, 8182

----- BUILDING NUMBER 200 ----
NTC ORLANDO FLORIDA MAIN BASE

Lab Sample Number:	MB708005				MB404004			
Site	200				200			
Locator	064GT101/200 TW-1				064GM201/200 MW-2			
Collect Date:	03-SEP-96				17-JUL-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Naphthalene	10	U	ug/l	10	44	J	ug/l	200
Hexachlorobutadiene	10	U	ug/l	10	200	U	ug/l	200
4-Chloro-3-methyl phenol	-				-			
Hexachlorocyclopentadiene	10	U	ug/l	10	200	U	ug/l	200
2,4,6-Trichlorophenol	10	U	ug/l	10	200	U	ug/l	200
2-Chloronaphthalene	10	U	ug/l	10	200	U	ug/l	200
Dimethylphthalate	10	U	ug/l	10	200	U	ug/l	200
2,6-Dinitrotoluene	10	U	ug/l	10	200	U	ug/l	200
Acenaphthylene	10	U	ug/l	10	200	U	ug/l	200
Acenaphthene	3	J	ug/l	10	28	J	ug/l	200
2,4-Dinitrophenol	51	U	ug/l	51	1000	U	ug/l	1000
4-Nitrophenol	51	U	ug/l	51	1000	U	ug/l	1000
2,4-Dinitrotoluene	10	U	ug/l	10	200	U	ug/l	200
Diethylphthalate	10	U	ug/l	10	200	U	ug/l	200
4-Chlorophenyl phenyl ether	10	U	ug/l	10	200	U	ug/l	200
Fluorene	3	J	ug/l	10	53	J	ug/l	200
4,6-Dinitro-2-methylphenol	51	U	ug/l	51	1000	U	ug/l	1000
N-Nitrosodiphenylamine	10	U	ug/l	10	200	U	ug/l	200
1,2-Diphenylhydrazine	10	U	ug/l	10	200	U	ug/l	200
4-Bromophenyl-phenylether	10	U	ug/l	10	200	U	ug/l	200
Hexachlorobenzene	10	U	ug/l	10	200	U	ug/l	200
Pentachlorophenol	51	U	ug/l	51	1000	U	ug/l	1000
Phenanthrene	1	J	ug/l	10	160	J	ug/l	200
Anthracene	10	U	ug/l	10	200	U	ug/l	200
Di-n-butylphthalate	10	U	ug/l	10	200	U	ug/l	200
Fluoranthene	10	U	ug/l	10	200	U	ug/l	200
Benzidine	51	U	ug/l	51	1000	U	ug/l	1000
Pyrene	10	U	ug/l	10	20	J	ug/l	200
Butylbenzylphthalate	10	U	ug/l	10	200	U	ug/l	200
3,3-Dichlorobenzidine	10	U	ug/l	10	200	U	ug/l	200
Benzo (a) anthracene	10	U	ug/l	10	200	U	ug/l	200
Chrysene	10	U	ug/l	10	200	U	ug/l	200
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	200	U	ug/l	200
Di-n-octylphthalate	10	U	ug/l	10	200	U	ug/l	200
Benzo (b) fluoranthene	10	U	ug/l	10	200	U	ug/l	200
Benzo (k) Fluoranthene	10	U	ug/l	10	200	U	ug/l	200
Benzo (a) pyrene	10	U	ug/l	10	200	U	ug/l	200
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	200	U	ug/l	200
Dibenzo (a,h) anthracene	10	U	ug/l	10	200	U	ug/l	200
Benzo (g,h,i) perylene	10	U	ug/l	10	200	U	ug/l	200
Metals								
Arsenic	5	U	ug/l	5	5	U	ug/l	5
Cadmium	5	U	ug/l	5	5	U	ug/l	5
Chromium	10	U	ug/l	10	17.7		ug/l	10
Lead	3	U	ug/l	3	14.8		ug/l	3

Request Number 8181, 8182

PRELIMINARY CONTAMINATION ASSESSMENT REPORT
BUILDING 200
MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

UNIT IDENTIFICATION CODE: N65928
CONTRACT NO. N62467-89-D-0317/107

OCTOBER 1996

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

PRELIMINARY CONTAMINATION ASSESSMENT REPORT

BUILDING 200
MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Unit Identification Code: N65928

Contract No.: N62467-89-D-0317/107

Prepared by:

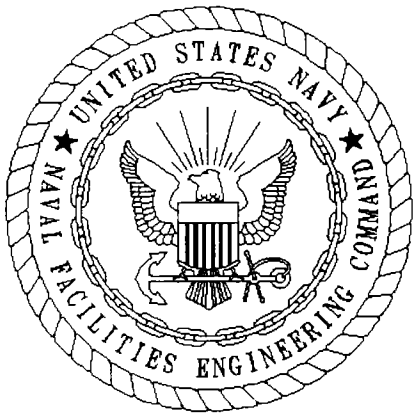
ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301

Prepared for:

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

Nick Ugolini, Code 1843, Engineer-in-Charge

May 1997



CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/107 are complete and accurate and comply with all requirements of this contract.

DATE: May 22, 1997

NAME AND TITLE OF CERTIFYING OFFICIAL: John Kaiser
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Manuel Alonso, P.G.
Project Technical Lead

(DFAR 252.227-7036)

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Naval Training Center
Orlando, Florida

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Naval Training Center
Orlando, Florida

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
bls	below land surface
FAC	Florida Administrative Code
$\mu g/\ell$	micrograms per liter
PAH	polynuclear aromatic hydrocarbons
OVA	organic vapor analyzer
TCAR	Tank Closure Assessment Report
UST	underground storage tank

1.0 INTRODUCTION

Building 200 (former Firefighting Training School) is located within the Recruit Training Center area in the west-central portion of the Naval Training Center, Main Base, in Orange County, Florida. Figure 1 shows the site location and a map of the surrounding area.

In March 1995, a Tank Closure Assessment Report (TCAR) was completed by International Technology Corporation addressing the removal of three underground storage tanks (USTs) and two oil-water separators from the site. A copy of the TCAR in enclosed in Appendix A. According to the TCAR, evidence of petroleum impact to groundwater was discovered at a former 500-gallon gasoline UST location and a former 500-gallon oil-water separator location. A 10,000-gallon UST containing heating fuel was located immediately north of the gasoline UST and was removed at the same time. Assessment activities conducted in the area of the former oil-water separators will be presented in an Oil-Water Separator Assessment Report for Building 200. This report summarizes ABB Environmental Services, Inc.'s (ABB-ES's), findings while conducting a contamination assessment in the area of the former 500-gallon gasoline UST and the former 10,000-gallon heating fuel UST.

2.0 SOIL ASSESSMENT

In order to determine if petroleum-impacted soil exists at the site, 5 hand auger borings were advanced using a 3.25-inch inside diameter stainless steel hand-bucket auger on September 4, 1996. Figure 2 shows the locations of the hand auger borings. The borings were completed into the water table, which was encountered at approximately 4 feet bls.

A total of 10 soil samples were collected from the five hand auger borings. The soil samples were collected at 1 to 3 feet and 3 to 5 feet bls. Headspace organic vapor concentrations were measured for all soil samples by placing the soil sample in a 16-ounce glass jar and using a calibrated organic vapor analyzer (OVA), Foxboro 128 equipped with a flame ionization detector following procedures outlined in Section 62-770, Florida Administrative Code (FAC). Carbon filters are utilized to differentiate total hydrocarbon response from naturally occurring methane gas. Filtered and unfiltered readings are obtained from a single jar. All sampling and analysis is performed in accordance with ABB-ES's Florida Department of Environmental Protection-approved Comprehensive Quality Assurance Plan. A summary of the OVA screening results is presented in Table 1.

3.0 GROUNDWATER ASSESSMENT

One shallow monitoring well (MW-1) was installed at the site on July 11, 1996, at the location where the temporary monitoring well was installed for the TCAR. The location of the monitoring well is shown on Figure 2, Site Plan. The well was installed using 6.25-inch hollow stem augers to a depth of approximately 12 feet below land surface (bls). The well was constructed with 10 feet of 2-inch-diameter 0.010-inch slotted well screen coupled to 2 feet of 2-inch schedule 40 solid polyvinyl chloride casing. This assembly is placed in the borehole so that the screen interval is located at a depth that encompasses seasonal water table fluctuations. The annular space between the screen and the borehole is filled

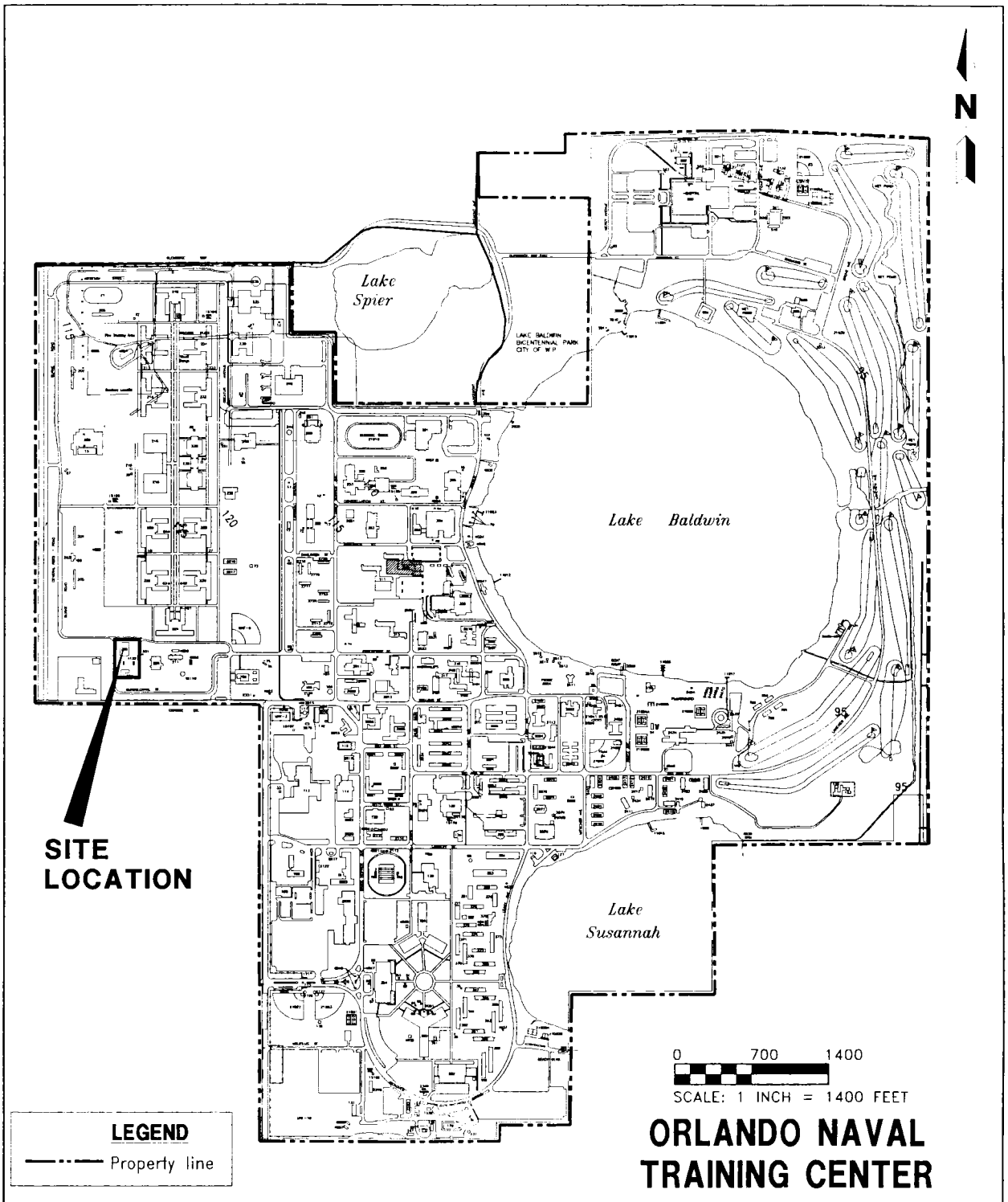

FIGURE 1
SITE VICINITY MAP

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PRELIMINARY CONTAMINATION ASSESSMENT REPORT BUILDING 200

NAVAL TRAINING CENTER ORLANDO, FLORIDA

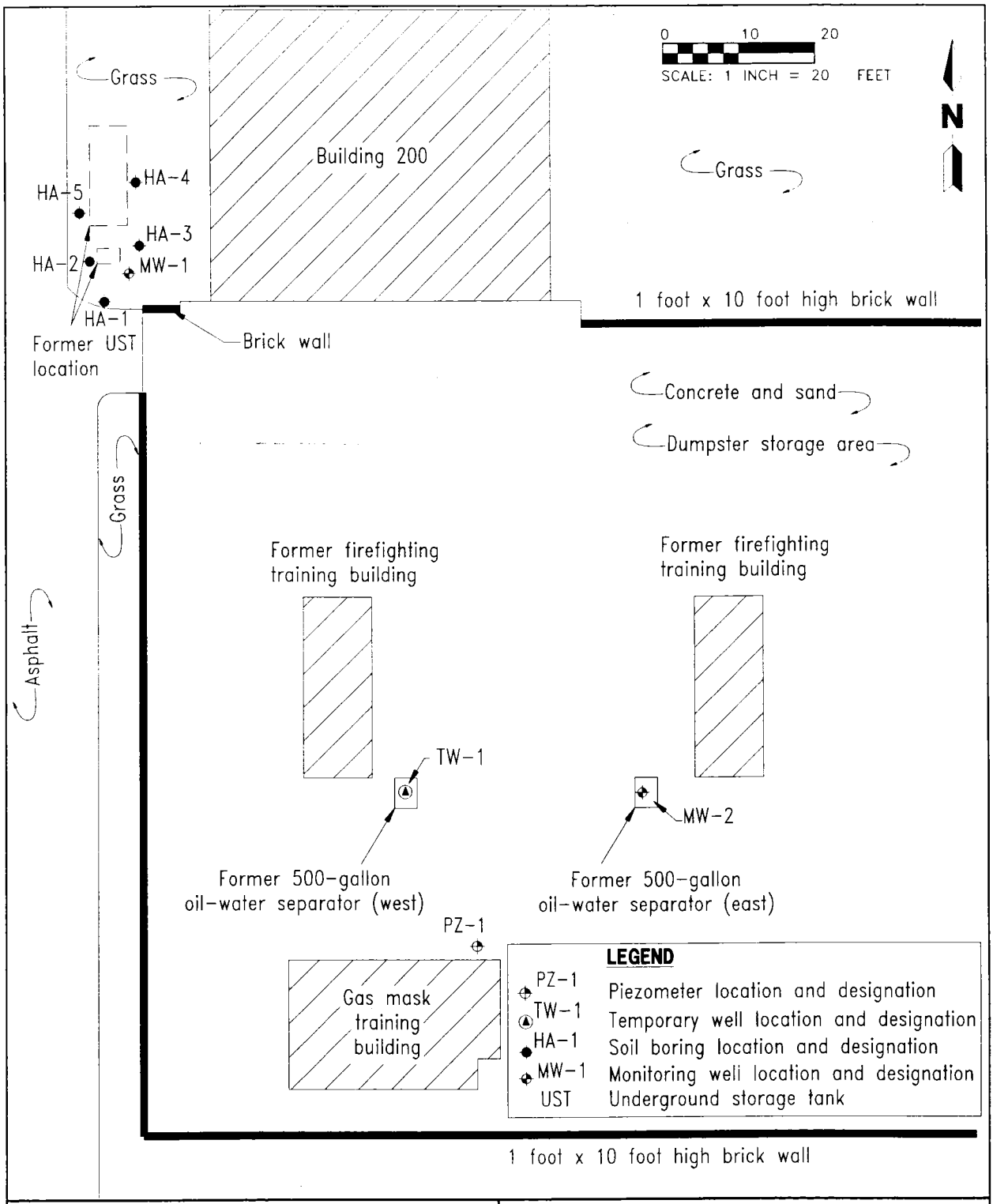

FIGURE 2
SITE PLAN

H:\OLD\OIL-WATER\BLDG-220\VP-NAB\09-30-96

PRELIMINARY CONTAMINATION ASSESSMENT REPORT
BUILDING 200

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

with 20/30-grade silica sand to 1 foot above the screened interval. A 0.5-foot fine sand (30/65-grade) seal is placed on top of the filter pack. The remaining annular space is sealed to grade with neat cement grout mixture. The well completion log provided by the drilling subcontractor is presented in Appendix B.

Groundwater samples were collected from monitoring well MW-1 on July 18, 1996. The samples were packed on ice and transported to Quality Analytical Laboratories, Inc., in Montgomery, Alabama, for analysis. Due to the presence of the heating fuel UST next to the gasoline UST, the groundwater samples were analyzed for the kerosene analytical group, which includes the following U.S. Environmental Protection Agency Methods: 504 (ethylene dibromide), 601 (volatile halocarbons), 602 (volatile organic aromatics), 610 (polynuclear aromatic hydrocarbons), 239.2 (lead), and 418.1 (total recoverable petroleum hydrocarbons).

4.0 CONCLUSIONS

No petroleum-impacted soil was encountered during this assessment. Groundwater samples were collected from monitoring well MW-1 on July 18, 1996. Laboratory analytical results indicate that dissolved petroleum contamination above Chapter 62-770, FAC, target cleanup levels was not detected in the monitoring well; however, several polynuclear aromatic hydrocarbons compounds (PAHs), including total naphthalene, 5 micrograms per liter ($\mu g/\ell$); acenaphthene, 14 $\mu g/\ell$; fluorene, 12 $\mu g/\ell$; phenanthrene, 28 $\mu g/\ell$; anthracene, 5 $\mu g/\ell$; and fluoranthene, 3 $\mu g/\ell$, were present at levels above the laboratory standard detection limit. The presence of the PAHs could be attributed to the close proximity of the 10,000-gallon heating fuel UST. The laboratory analytical reports are included in Appendix C.

5.0 RECOMMENDATIONS

Based upon the soil and groundwater assessment results, ABB-ES recommends no further assessment for this site.

Table 1
Summary of Organic Vapor Analyses, September 4, 1996

Preliminary Contamination Assessment Report
Building 200, Main Base
Naval Training Center
Orlando, Florida

Soil Boring Designation	Sample Depth (feet bls)	Unfiltered (ppm)	Filtered (ppm)	Total Hydrocarbons (ppm)	Physical Observations
HA-1	1 - 3	< 1	< 1	< 1	No staining, no petroleum odor.
	[1]3 - 5	48	36	12	No staining, no petroleum odor.
HA-2	1 - 3	< 1	< 1	< 1	No staining, no petroleum odor.
	3 - 5	16	10	6	No staining, no petroleum odor.
HA-3	1 - 3	< 1	< 1	< 1	No staining, no petroleum odor.
	3 - 5	< 1	< 1	< 1	No staining, no petroleum odor.
HA-4	1 - 3	< 1	< 1	< 1	No staining, no petroleum odor.
	3 - 5	< 1	< 1	< 1	No staining, no petroleum odor.
HA-5	1 - 3	< 1	< 1	< 1	No staining, no petroleum odor.
	3 - 5	< 1	< 1	< 1	No staining, no petroleum odor.

[1] Water table encountered at approximately 4 feet below land surface.

Notes: bls = below land surface.
ppm = parts per million.
< 1 = nondetectable limit for organic vapor analyzer.

APPENDIX A

TANK CLOSURE ASSESSMENT REPORT, MARCH 1995

Tank Closure Report

RTC Fire Fighting School
Naval Training Center
Orlando, Florida

Prepared for

Management & Business Associates

4275 Aurora Street
Suite F
Coral Gables, Florida 33146

Prepared by

IT Corporation

6958 Aloma Avenue
Winter Park, Florida 32792

March 1995

INTERNATIONAL
TECHNOLOGY
CORPORATION

TANK CLOSURE REPORT
RTC FIRE FIGHTING SCHOOL
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

FDEP FACILITIES
#488841262, #488521506

IT CORPORATION PROJECT NO. 761491

This report was prepared on behalf of Management & Business Associates for the US Navy by IT Corporation, Winter Park, Florida.

Prepared By:

R. Shane Cox, E.I.
Project Engineer II

Date: 3/15/95

Reviewed By:

Gregg H. Roberts, P.G.
Florida Registered Geologist N° 1472

Date: 3/15/95

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Figures	Title	Page
1-1	Assessment Activities Map	2

1.0 INTRODUCTION & BACKGROUND

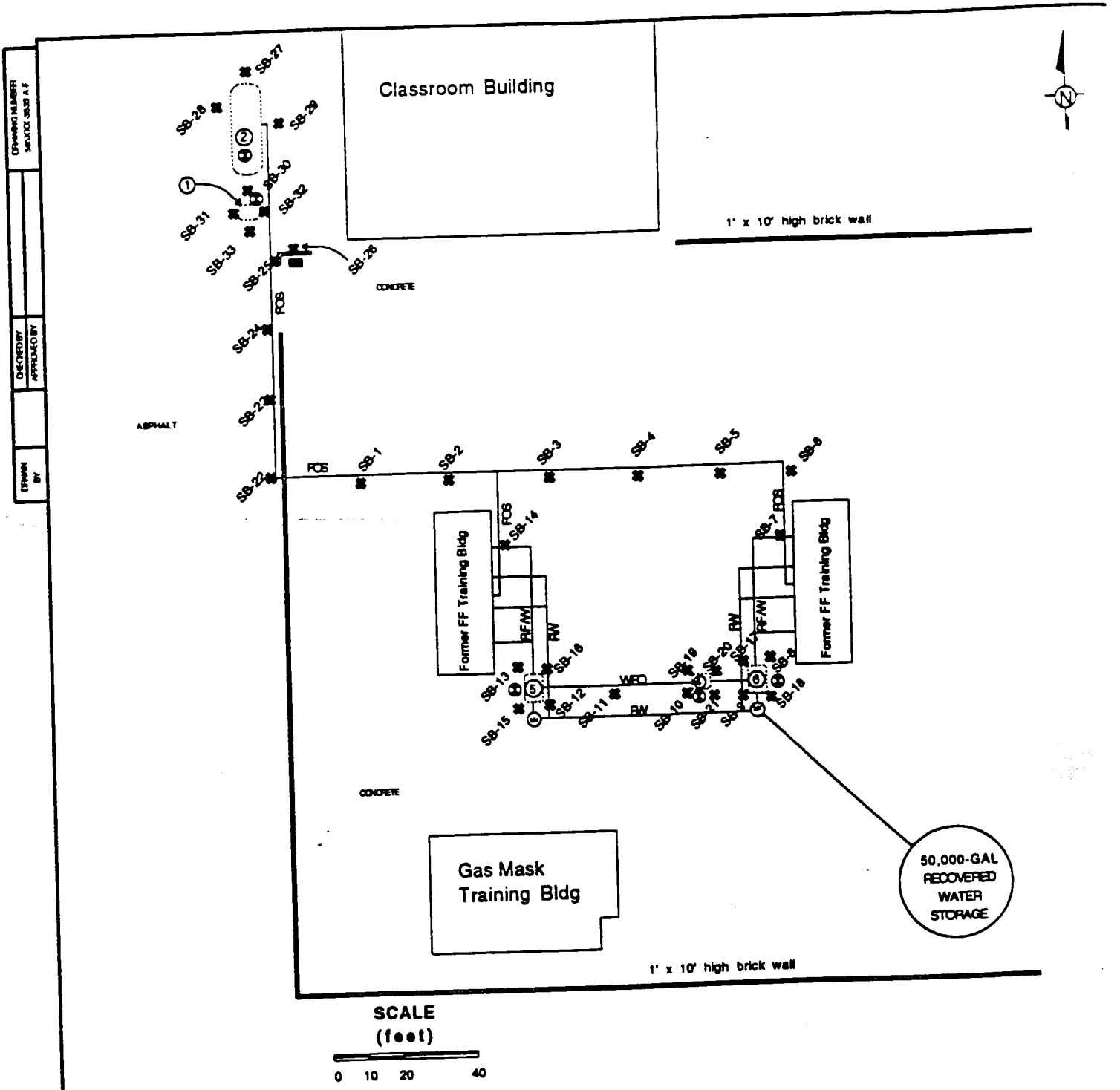
The following report is to document the removal and closure of five underground storage tanks formerly located at the Recruit Training Command Fire Fighting School at the Naval Training Center in Orlando, Florida. The tanks at the facility have been listed under two identification numbers, 488841262 and 488521506, by the Florida Department of Environmental Protection (FDEP). The removal and closure were performed in accordance with FDEP Pollutant Storage Tank Closure Assessment Requirements to comply with Chapters 17-761 and 17-762 of the Florida Administrative Code (FAC). The FDEP Closure Assessment Form has been completed and copies are included in Appendix A

1.1 Facility Layout and Description

The Fire Fighting School incorporated one 10,000-gallon underground storage tank (UST) for fuel oil, two 500-gallon oil/water separators, one 280-gallon UST for collection of waste fuel oil from the oil/water separators, and one 500-gallon UST for storage of vehicular fuel gasoline.

Fuel oil was pumped to either one of two fire fighting training buildings where it was ignited in burners to simulate an uncontrolled fire. Students used standard firefighting equipment to extinguish the fire. Waste fluids from the process (fuel oil mixed with the firefighting water) were discharged to the oil/water separator corresponding to the training building being used. Both oil/water separators then drained the fuel oil layer to the 280-gallon UST, which was located between the separators. The layout of the facility can be seen in the Assessment Activities Map, which has been included with this report as Figure 1-1.

All transfer lines were placed approximately 2 feet below land surface, with the exception of the lines that drained the oil/water separators to the 280-gallon waste fuel oil tank. These lines were sloped towards the waste fuel oil tank at a depth of approximately 3-4 feet.



LEGEND

	UNDERGROUND STORAGE TANK
✱	SOIL BORING
⊛	TEMPORARY MONITOR WELL
FOS	FUEL OIL SUPPLY
RW	RECOVERY WATER
WFO	WASTE FUEL OIL
MH	MANHOLE
RF/W	RECOVERY FUEL/WATER MIXTURE
FF	FIRE FIGHTING

TANKS

(1)	500-GAL GASOLINE
(2)	10,000-GAL FUEL OIL
(4)	280-GAL WASTE FUEL OIL
(5)	500-GAL O/W SEPARATOR (WEST)
(6)	500-GAL O/W SEPARATOR (EAST)

Figure 1-1
Assessment Activities Map

FIRE FIGHTING SCHOOL
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

INTERNATIONAL TECHNOLOGY CORPORATION

2.0 TANK REMOVAL & ASSESSMENT ACTIVITIES

2.1 Tank and Line Removal

The oil/water separators and waste oil tank were removed on January 23, 1995, and the 10,000-gallon tank was removed on January 24, 1995. Each had been pumped out prior to removal. The 500-gallon gasoline tank was removed on January 27, 1995.

Fuel oil feed lines were removed during the week of January 9-13, 1995. Discharge lines from the oil/water separators were removed on January 25, 1995.

2.2 Soil Assessment Activities

To assess the soil quality around the lines, underground storage tanks (UST), and O/W separators, a series of soil borings were conducted on January 23, 24 and 27, 1995. A total of thirty-three soil borings were completed at various locations on-site. Borings 1 through 25 correspond to the lines, the O/W separators and the waste fuel oil UST. Borings 26 through 33 correspond to the 10,000-gallon fuel oil UST, the gasoline UST, and the site of the pump island for the gasoline tank. It should be noted that since the 10,000-gallon tank and the 500-gallon gasoline tank were in such close proximity (approximately 8 feet apart), one boring served both the south side of the 10,000-gallon tank and the north side of the 500-gallon tank. Additionally, one sample was collected off the bottom of each O/W separator upon removal to satisfy the requirement that a boring be placed underneath the tank. The fuel oil, waste fuel oil, and gasoline UST had been placed at a depth such that the bottom of the tank came into contact with the groundwater, therefore analysis of soil beneath these tanks was not appropriate.

Soil samples were obtained to determine, through organic vapor analysis, the extent of hydrocarbons adsorbed to vadose zone soils. The extent of the affected area was determined by collecting samples at the various locations and vertically at regular intervals from the surface to the groundwater or to a depth where no contaminated soil was encountered, as per FDEP tank closure regulations. The borings were installed by hand augering, with a stainless steel augering device with collection bucket, into the subsurface. The samples were analyzed for organic vapors with a portable Photoionization Detector (PID) according to the headspace method and procedures outlined in Chapter 17-770, FAC. Soil boring locations are shown on Figure 1-1. Headspace method analyses were performed by half-filling 16-ounce mason jars with the sample soil and

covering the jars with aluminum foil and lids. The samples were left to stand for approximately five minutes, out of direct sunlight, to allow vapors to volatilize into the headspace of each jar. Headspace vapors were analyzed using a Photovac MicroTIP, Model HL-200, PID. Readings were obtained upon inserting the PID probe through a hole punctured in the foil. The sample was analyzed and the peak reading was recorded. Table 2-1 shows results obtained. The PID instrument was calibrated in the field, prior to the sampling event, using a 100 parts per million (ppm) concentration isobutylene gas. Correlation plots relating the equivalent responses between the Photovac MicroTIP (PID) and the FID-OVA are included in Appendix B.

2.3 Temporary Well Installation

No compliance wells existed on site at the time of the tank removal. To evaluate groundwater in the vicinity for the possible presence of dissolved hydrocarbons, five temporary shallow monitoring wells were installed. Each well corresponded with an individual UST or O/W separator by being installed in the pit of the appropriate excavation. Well #2 (10,000-gallon UST), well #4 (280-gallon waste fuel oil), and wells #5 and #6 (westernmost and easternmost oil/water separators, respectively) were installed January 24, 1995. Well #1 (500-gallon gasoline UST) was installed January 27, 1995.

The wells were installed following tank removal with the assistance of the backhoe operator onsite for tank removal. Each pit asociated with the respective tank was further excavated until approximately 1-2 feet beneath the groundwater table, then the well was placed into the excavation and the excavation was backfilled to the surface. These shallow wells were constructed with 10 feet of two-inch diameter Schedule 40 PVC 0.010-inch slot screen to a depth of approximately 9 to 10 feet.

2.4 Groundwater Sampling and Analysis

Groundwater samples were collected from the five temporary monitoring wells following IT Corporation's Standard Operating Procedures (SOP) and Comprehensive Quality Assurance Plan (CQAP #870467G). Representative samples collected on January 27, 1995 were analyzed for volatile aromatic hydrocarbons by EPA Method 602 and polynuclear aromatic hydrocarbons by EPA Method 610.

To ensure the acquisition of samples representative of the local groundwater, each monitoring well was purged of three to five well volumes of standing water prior to sampling. The samples were collected with dedicated, disposable Teflon bailers and transferred to the appropriate laboratory-

supplied vials. The samples were packed in ice and picked up by personnel from VOC Analytical Laboratories, Inc., a Florida-certified laboratory, following a chain-of-custody protocol. The laboratory data, including the chain-of-custody forms, are included in Appendix C.

5.0 RECOMMENDATIONS

The findings of this tank closure, in particular the analytical results of the groundwater samples, indicate that concentrations of constituents detected by EPA Analytical Methods 602 and 610 are present in the groundwater. Furthermore, the concentrations indicated by laboratory analysis are in excess of the target levels outlined in Chapter 17-770 of the FAC. IT Corporation recommends that further contamination assessment be performed at the facility.

6.0 REFERENCES

Florida Department of Environmental Protection, *Groundwater Concentration Guidelines* Booklet, Tallahassee, (1993)

APPENDIX A

FDEP
CLOSURE ASSESSMENT FORM

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DER Form # 17-761.900(8)
Form Title: Closure Assessment Form
Effective Date: December 10, 1990
DER Application No. _____
Filled in by DER

Closure Assessment Form

Owners of storage tank systems that are replacing, removing or closing in place storage tanks shall use this form to demonstrate that a sit system closure assesment was performed in accordance with Rule 17-761 or 17-762, Florida Administrative Code. Eligible Early Detection i tive (EDI) and Reimbursement Program sites do not have to perform a closure assessment.

Please Print or Type
Complete All Applicable Blanks

1. Date: 15 MARCH 1995
2. DER Facility ID Number: 488841262, 488521506 3. County: ORANGE
4. Facility Name: RECRUIT TRAINING COMMAND FIRE FIGHTING SCHOOL
5. Facility Owner: U.S. NAVY - NAVAL TRAINING CENTER ORLANDO
6. Facility Address: PERIMETER ROAD, RECRUIT TRAINING COMMAND, NTC, ORLANDO, FLOR
7. Mailing Address: COMMANDER (CODE 0.10), PUBLIC WORKS 1350 GRACE HOPPER AVE, ORLANDO, FLORIDA 32813 - 5405
8. Telephone Number: (407) 646 - 4663 9. Facility Operator: COMMANDER, PUBLIC WORKS
10. Are the Storage Tank(s): **(Circle one or both)** A. Aboveground or (B. Underground)
11. Type of Product(s) Stored: _____
12. Were the Tank(s): **(Circle one)** A. Replaced (B. Removed) C. Closed in Place D. Upgraded (aboveground tanks c
13. Number of Tanks Closed: THREE 14. Age of Tanks: _____

Facility Assessment Information

Yes	No	Not Applicable	
	X		1. Is the facility participating in the Florida Petroleum Liability Insurance and Restoration Program (FPLIRP)?
			2. Was a Discharge Reporting Form submitted to the Department? If yes, When: _____ Where: _____
X			3. Is the depth to ground water less than 20 feet?
	X		4. Are monitoring wells present around the storage system? If yes, specify type: ☐ Water monitoring ☐ Vapor monitoring
	X		5. Is there free product present in the monitoring wells or within the excavation?
	X		6. Were the petroleum hydrocarbon vapor levels in the soils greater than 500 parts per million for gasoline? Specify sample type: ☐ Vapor Monitoring wells ☐ Soil sample(s)
	X		7. Were the petroleum hydrocarbon vapor levels in the soils greater than 50 parts per million for diesel/kerose Specify sample type: ☐ Vapor Monitoring wells ☐ Soil sample(s)
X			9. Were the analytical laboratory results of the ground water sample(s) greater than the allowable state target lev (See target levels on reverse side of this form and supply laboratory data sheets)
		X	9. If a used oil storage system, did a visual inspection detect any discolored soil indicating a release?
			10. Are any potable wells located within ¼ of a mile radius of the facility?
X			11. Is there a surface water body within ¼ mile radius of the site? If yes, indicate distance: 1000 ft SW

APPENDIX B

CORRELATION PLOTS
PHOTOIONIZATION DETECTOR
VS.
OVA w/FLAME IONIZATION DETECTOR

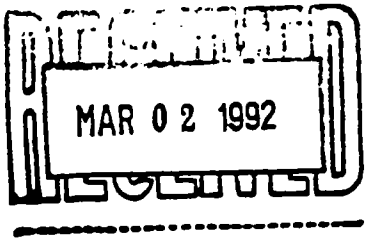
PHOTOVAC
incorporated

PHOTOVAC INTERNATIONAL INCORPORATED
25-B Jeffryn Blvd West Deer Park New York 11729
Telephone (516) 254-4199 Fax 516 254-4253

CORRELATION OF PID RESPONSE TO FID RESPONSE

(As specified in Chapter 17-770 of the Florida Administrative Code entitled "Petroleum Contamination Site Cleanup Criteria".)

PHOTOVAC
MicroTIP MP-100
MicroTIP HL-200
TIP I
TIP II



September 1991

Introduction

Florida Department of Environmental Regulation (FDER) for Total VOC measurement in petroleum contaminated soils indicates the use of a flame ionization detector (FID) calibrated with Methane. (As specified in Chapter 17-770 of the Florida Administrative Code entitled "Petroleum Contamination Site Cleanup Criteria".)

The Photovac photoionization detector (PID) calibrated with Isobutylene has been approved for use in this application. Instruments which can be used are MicroTIP Models MP-100/HL-200 and TIP I/II. In order to relate one detector type to the other, correlation curves of response of both PID and FID to Unleaded Gasoline, Kerosene, and Diesel have been generated.

Calibration (Zero and Span)

Calibration should be performed daily, or more frequently if sampling in areas of high concentrations or in conditions of varying temperature. Allow at least 5 minutes for the instrument to warm up. When calibrating either MicroTIP (MP-100/HL-200) or TIP (I/II) in the field, fill a gas sampling bag of at least 1.6 Liters in volume with 100 PPM Isobutylene. The Zero point of both instruments is set using Ultra Zero air or clean background air.

1) MicroTIP (MP-100/HL-200)

A) Zero

- Attach a gas sampling bag containing Ultra Zero air (clean background air is usually sufficient) to the instrument and press the CAL key, then ENTER. The display will read "Calibrating now, please wait".

B) Span

- When the display requests Span Gas concentration, press 1-0-0 and then ENTER. The ENTER key must be pressed within approximately 10 seconds, prompting the displayed message "Calibrating now, please wait", or MicroTIP will quit the CAL function prematurely, even though the calibration procedure is not complete. Attach the 100 PPM Isobutylene bag to the instrument, wait 5 seconds, then press ENTER. When the "Ready" message is displayed, MicroTIP is calibrated.

2) TIP (I/II)

A) Zero

- Set Span and Zero controls to a setting of 5.

- Introduce Ultra Zero Air contained in a gas sampling bag (or clean background air) to the instrument. Using the tuning wand (Photovac Part No. 600406-01) adjust the coarse zero screw to read 0.0 on the display (coarse zero screw is located on the probe end of the instrument, just below detector cap, opposite display).

B) Span

- Attach the gas sampling bag containing 100 PPM Isobutylene to the TIP and use the Span control to adjust the displayed value to 100.0.

- Disconnect the bag and allow the display to stabilize while measuring clean air once again. Use the fine Zero control (front of instrument) to readjust the displayed value to 0.0.

- The Span and Zero settings are iterative, so more than one adjustment of each may be necessary.

Use of the Correlation Curves

Table 1 shows equivalency values recommended by the FD R for each PID instrument and each fuel type at the threshold concentrations.

Although FDER requires correlative readings at 50 and 500 PPM, Figures 1-5 show correlation graphs which will enable the user to obtain, by extrapolation, correlative readings at intermediate concentrations for the two types of detector.

From Figure 1, readings equivalent to 50 PPM and 500 PPM FID for Unleaded Gasoline vapor may be taken to be 29 and 199, respectively (for MicroTIP). From Table 1, FDER has rounded off these values to 30 and 200.

From Figure 2, readings equivalent to 50 PPM and 500 PPM FID for Kerosene vapor may be taken to be 103 and 471 respectively (for TIP). From Table 1, FDER has rounded off the lower value to 100.

From Figure 3, readings equivalent to 50 PPM and 500 PPM FID for Kerosene vapor may be taken to be 111 and 544, respectively (for MicroTIP). From Table 1, FDER has rounded off the lower value to 110.

From Figure 4, readings equivalent to 50 PPM and 500 PPM FID for Diesel vapor may be taken to be 53 and 324, respectively (for TIP). From Table 1, FDER has rounded off the lower value to 55.

From Figure 5, readings equivalent to 50 PPM and 500 PPM FID for Diesel vapor may be taken to be 57 and 356, respectively (for MicroTIP). From Table 1, FDER has rounded off the lower value to 55.

TIP vs. FID response to Gasoline vapor was addressed in a previous study. Figure 6 shows the difference in response between Leaded and Unleaded Gasoline vapor for TIP. Readings equivalent to 50 and 500 PPM FID for Unleaded Gasoline vapor may be taken to be 29 and 227, respectively. Readings equivalent to 50 and 500 PPM FID for Leaded Gasoline vapor may be taken to be 33 and 257, respectively. From Table 1, FDER has rounded off the values for both types of gasoline to 35 and 250.

Each correlation curve is precise to within $\pm$ 20% over a concentration range 10-500 PPM.

NOTE:

The responses of the PID in both MicroTIP and TIP will depend upon cleanliness of the lamp window, as well as the age of the lamp. It is important, therefore, to ensure that the window of the lamp is cleaned regularly to remove any accumulated deposit from extensive moitoring applications. The cleaning should be performed using a cotton swab moistened with spectroscopic grade Methanol, and the Methanol allowed to dry from the window, before the lamp is replaced into the detector housing.

Table 1

PHOTOVAC MICROTIP AND TIP
PID-FID EQUIVALENCY CORRELATION VALUES *

Photovac MicroTIP

FUEL TYPE	50 PPM (FID)	500 PPM (FID)
UNLEADED GASOLINE	30	200
KEROSENE	110	**
DIESEL	55	**

Photovac TIP

FUEL TYPE	50 PPM (FID)	500 PPM (FID)
UNLEADED GASOLINE	35	250
LEADED GASOLINE	35	250
KEROSENE	100	**
DIESEL	55	**

* ALL READINGS ARE IN PPM AS ISOBUTYLENE

** IRRELEVANT - ANY READING OVER 50 PPM (FID) IS CONSIDERED EXCESSIVELY CONTAMINATED.

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400
Bob Martinez, Governor
Dale Twachtmann, Secretary
John Shearer, Assistant Secretary

November 30, 1989

Mark Collins, Ph.D
Photovac Incorporated
741 Park Avenue
Huntington, NY 11743

Re: Photovac TIP vs. FID-OVA Correlation Study

Dear Dr. Collins,

The last part of your study, correlation under high relative humidity conditions, has been reviewed and successfully completes the study. Please revise your technical bulletin on this subject as appropriate to clearly define the calibration and zeroing procedures required. Readings equivalent to 50 ppm and 500 ppm FID-OVA may be taken to be 35 ppm and 250 ppm respectively. These are conservative values and will ensure that excessive soil contamination is adequately delineated. Thank you for your efforts in this matter.

Sincerely,

John K. Gentry

John K. Gentry, P.E.
Division of Waste Management

PHOTOVAC
incorporated

PHOTOVAC INTERNATIONAL INCORPORATED
741 Park Avenue, Huntington, New York 11743
Telephone (516) 351-5809 · Fax (516) 549-8031

December 19, 1989

Mr. Dan Bingham
Bingham Environmental Technology
P.O. Box 878
New Port Richey, FL 34656

Re: Photovac TIP vs. FID-OVA Correlation Study

Dear Dan:

I am pleased to inform you that the above study has been reviewed by Florida Department of Environmental Regulation (FDER). In a letter dated November 30, 1989 from Mr. John Gentry of the Division of Waste Management at the FI R, he stated, "The last part of your study, correlation under high relative humidity conditions, has been reviewed and successfully completes the study".

The FDER recommends that "Readings equivalent to 50 ppm and 500 ppm FID-OVA may be taken to be 35 ppm and 250 ppm respectively. These are conservative values and will ensure that excessive soil contamination is adequately delineated". John Gentry is referring to correlations for Unleaded and Leaded gasoline vapors provided in Figure 1 and Figure 2 respectively (see attachments). Data used for these graphs were obtained using two (2) FID-OVA instruments and three (3) TIP instruments. The TIPs were zeroed using Ultra zero air and spanned with 100 PPM Isobutylene while each of the OVAs were spanned with 500 PPM Methane.

Later studies, in the last part of this project using Benzene vapor, indicated that when the TIPs are spanned against humid air, the response is enhanced. The recommendation is that the TIP or MicroTIP can be zeroed with humid air in a clean environment and calibrated with 100 PPM Isobutylene. Nevertheless, the FDER recommendations, as indicated in the above paragraph, should still apply.

Please call me if you require any further technical assistance.

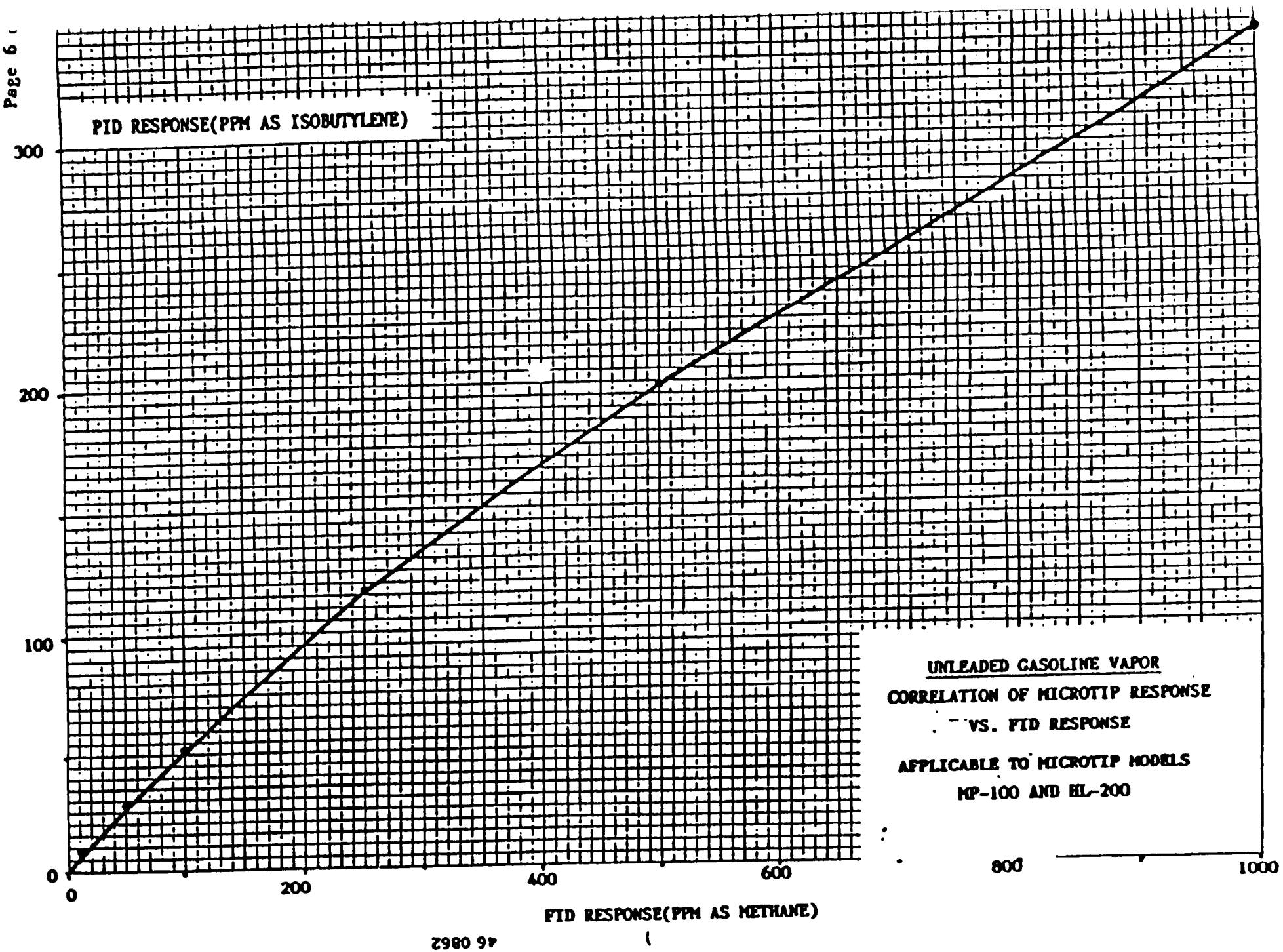
Sincerely,

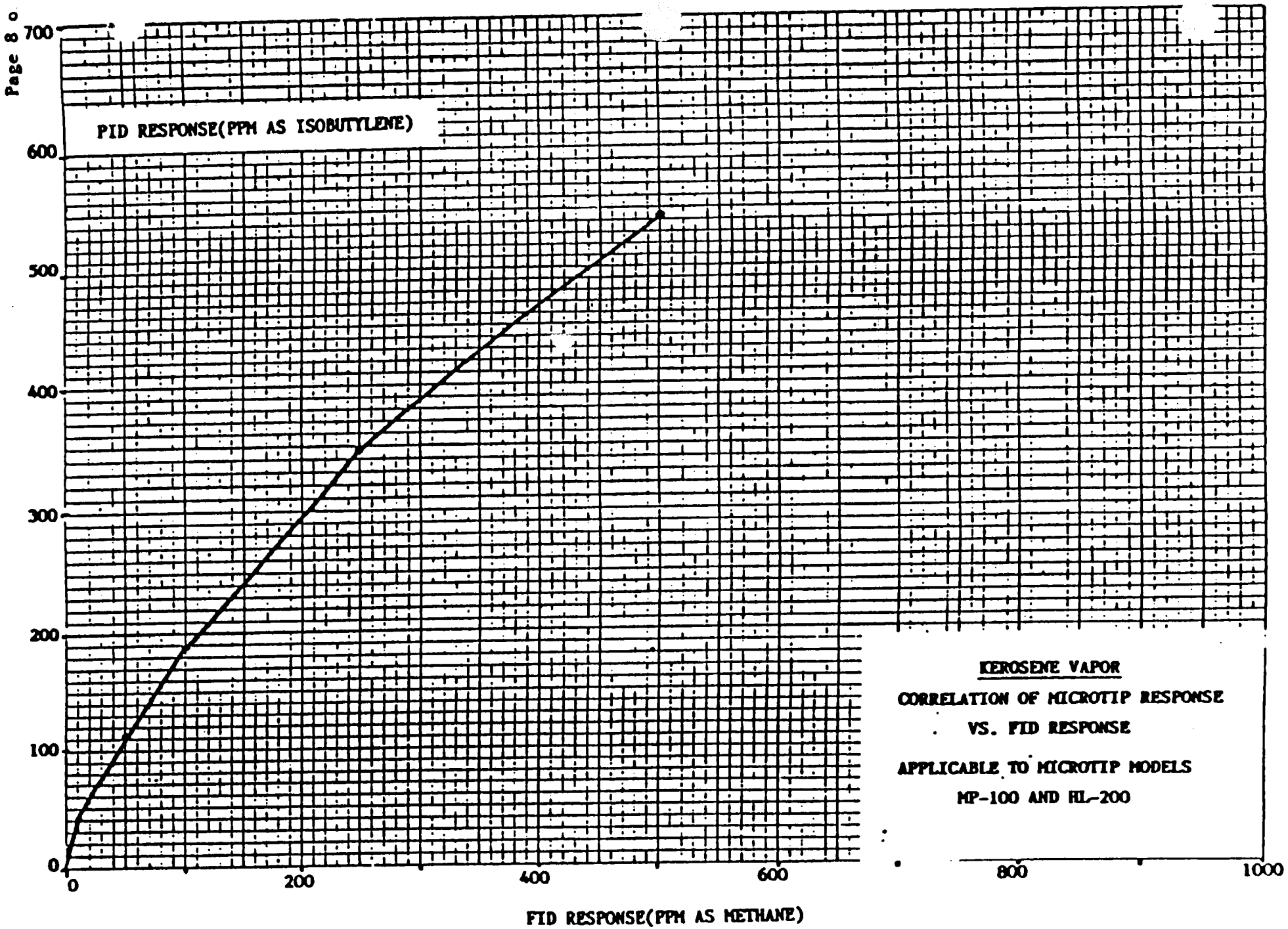
Mark Collins
Manager
Technical Services/Applications Department

MC:ds

Attachment

cc: Ronald L. Stingley


PID RESPONSE(PPM AS ISOBUTYLENE)
300
200
100
0
0
200
400
600
800
1000
FID RESPONSE(PPM AS METHANE)
UNLEADED GASOLINE VAPOR
CORRELATION OF MICROTIP RESPONSE
VS. FID RESPONSE
APPLICABLE TO MICROTIP MODELS
MP-100 AND HL-200


PID RESPONSE(PPM AS ISOBUTYLENE)
700
600
500
400
300
200
100
0
0
200
400
600
800
1000
FID RESPONSE(PPM AS METHANE)
KEROSENE VAPOR
CORRELATION OF MICROTIP RESPONSE
VS. FID RESPONSE
APPLICABLE TO MICROTIP MODELS
MP-100 AND HL-200

APPENDIX C

LABORATORY ANALYSIS RESULTS AND CHAIN-OF-CUSTODY RECORDS

Our Quality Control Is Your Quality Assurance

ient #: 753
idress: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 1
Date: 02/01/95
Log #: 18305-01

Attn: Shane Cox

mple Description Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: Tank #1
Date Sampled: 01/27/95
Data Received: 01/28/95
Collected By: CLIENT

arameter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analyst
		ug/l	5030/8021		01/28/95	01/28/95	FY
A 602 Compounds		ug/l	5030/8021		01/28/95	01/28/95	FY
nzene	180	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
lorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
luene	390	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
hyl benzene	85.0	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
tal xylenes	309	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
BE	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,2-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,3-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,4-Dichlorobenzene	964	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
otal BTEX	1	ug/l	5030/8021	.	01/28/95	01/28/95	FY
ilution Factor	.	ug/l	3510/8270		01/30/95	01/31/95	EG
AH Compounds In Water	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
aphthalene	3.45	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
-Methylnaphthalene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
-Methylnaphthalene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
cenaphthylene	3.38	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
cenaphthene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
luorene	BDL	ug/l	3510/8270	3.50	01/30/95	01/31/95	EG
henanthrene	6.78	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
nthracene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
luoranthene	BDL	ug/l	3510/8270	2.00	01/30/95	01/31/95	EG
yrene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	
Benzo(a)anthracene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	
Chrysene							

ient #: 753
dress: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 2
Date: 02/01/95
Log #: 18305-01

Attn: Shane Cox

mple Description Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: Tank #1
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

rameter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analyst
nzo(b)fluoranthene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
zo(k)fluoranthene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
zo(a)pyrene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
benzo(a,h)anthracene	BDL	ug/l	3510/8270	7.00	01/30/95	01/31/95	EG
eno(1,2,3-cd)pyrene	BDL	ug/l	3510/8270	8.00	01/30/95	01/31/95	EG
zo(ghi)perylene	BDL	ug/l	3510/8270	4.00	01/30/95	01/31/95	EG
lution factor	1	ug/l	3510/8270	.	01/30/95	01/31/95	EG

L = Below Detection Limits
These compounds are Screened Only, with an estimated detection limit.
l nalyses were performed using EPA, ASTM, USGS, or Standard Methods

AP # 900376G
S # E86240, 86356
B HRS# 86122, 86109, E86048
DEM ID# 40720, 40850
CERT #96031
Cert #444
ennessee Lab #02985
nnecticut Lab Approval # PH-0122

Respectfully Submitted,

Edward Dubrea

Edward Dubrea
Laboratory Director

18305-01

lient #: 753
ddress: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 1
Date: 02/01/95
Log #: 18305-02

Attn: Shane Cox

ample Description Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: Tank #2
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

arameter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analyst
'A 602 Compounds	.	ug/l	5030/8021		01/28/95	01/28/95	F.
nzeno	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
lorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
oluene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
:hyl benzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
otal xylenes	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
:BE	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,2-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,3-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,4-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
otal BTEX	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
ilution Factor	1	ug/l	5030/8021	.	01/28/95	01/28/95	FY
AH Compounds In Water	.	ug/l	3510/8270		01/30/95	01/31/95	EG
aphthalene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
-Methylnaphthalene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
-Methylnaphthalene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
cenaphthylene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
cenaphthene	4.38	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
luorene	5.26	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
henanthrene	4.23	ug/l	3510/8270	3.50	01/30/95	01/31/95	EG
nthracene	12.2	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
luoranthene	5.65	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
yrene	3.64	ug/l	3510/8270	2.00	01/30/95	01/31/95	[illegible]
enzo(a)anthracene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	[illegible]
hrysene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG

Client #: 753
Address: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 2
Date: 02/01/95
Log #: 18305-02

Attn: Shane Cox

Sample Description: Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: Tank #2
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

Parameter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analys
Benzo(b)fluoranthene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
Benzo(k)fluoranthene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
Benzo(a)pyrene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
Dibenzo(a,h)anthracene	BDL	ug/l	3510/8270	7.00	01/30/95	01/31/95	EG
Indeno(1,2,3-cd)pyrene	BDL	ug/l	3510/8270	8.00	01/30/95	01/31/95	EG
Benzo(ghi)perylene	BDL	ug/l	3510/8270	4.00	01/30/95	01/31/95	EG
Dilution Factor	1	ug/l	3510/8270	.	01/30/95	01/31/95	EG

BDL = Below Detection Limits
* These compounds are Screened Only, with an estimated detection limit.
# Analyses were performed using EPA, ASTM, USGS, or Standard Methods

QAP # 900376G
HRS # E86240, 86356
SUB HRS# 86122, 86109, E86048
ADEM ID# 40720, 40850
SC CERT #96031
NC Cert #444
Tennessee Lab #02985
Connecticut Lab Approval # PH-0122

Respectfully Submitted,

Edward Dabrea
Laboratory Director

18305-02

lient #: 753
.ddress: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 1
Date: 02/01/95
Log #: 18305-03

Attn: Shane Cox

ample Description Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: Tank #4
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

arameter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Anal
PA 602 Compounds	.	ug/l	5030/8021		01/28/95	01/28/95	FY
enzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
ilorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
oluene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
thyl benzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
otal xylenes	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
TBE	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,2-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,3-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,4-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
otal BTEX	BDL	ug/l	5030/8021	.	01/28/95	01/28/95	FY
ilution Factor	1	ug/l	3510/8270		01/30/95	01/31/95	EG
AH Compounds In Water	.	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
aphthalene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
-Methylnaphthalene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
-Methylnaphthalene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
cenaphthylene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
cenaphthene	BDL	ug/l	3510/8270	3.50	01/30/95	01/31/95	EG
luorene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
henanthrene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
nthracene	BDL	ug/l	3510/8270	2.00	01/30/95	01/31/95	E
luoranthene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
yrene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
enzo(a)anthracene	BDL						
hrysene							

ient #: 753
d s: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 2
Date: 02/01/95
Log #: 18305-03

Attn: Shane Cox

mple Description: Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: Tank #4
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

rameter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analyst
-zo(b)fluoranthene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
zo(k)fluoranthene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
nzo(a)pyrene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
benzo(a,h)anthracene	BDL	ug/l	3510/8270	7.00	01/30/95	01/31/95	EG
leno(1,2,3-cd)pyrene	BDL	ug/l	3510/8270	8.00	01/30/95	01/31/95	EG
nzo(ghi)perylene	BDL	ug/l	3510/8270	4.00	01/30/95	01/31/95	EG
lution Factor	1	ug/l	3510/8270	.	01/30/95	01/31/95	EG

DL = Below Detection Limits
T se compounds are Screened Only, with an estimated detection limit.
1 nalyses were performed using EPA, ASTM, USGS, or Standard Methods

P # 900376G
S # E86240, 86356
UB HRS# 8612., 86109, E86048
EM ID# 40720, 40850
CERT #96031
C Cert #444
nnessee Lab #02985
nnecticut Lab Approval # PH-0122

Respectfully Submitted,

Edward Dabrea
Edward Dabrea
Laboratory Director

18305-03

lient #: 753
ddress: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Attn: Shane Cox

Page: 1
Date: 02/01/95
Log #: 18305-04

ample Description: Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: Tank #5
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

arameter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Anal--t
PA 602 Compounds	.	ug/l	5030/8021		01/28/95	01/28/95	F.
enzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
hlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
oluene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
thyl benzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
otal xylenes	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
TBE	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,2-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,3-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,4-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
otal BTEX	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
ilution Factor	1	ug/l	5030/8021	.	01/28/95	01/28/95	FY
AH Compounds In Water	.	ug/l	3510/8270		01/30/95	01/31/95	EG
aphthalene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
-Methylnaphthalene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
-Methylnaphthalene	3.08	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
cenaphthylene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
cenaphthene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
luorene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
henanthrene	BDL	ug/l	3510/8270	3.50	01/30/95	01/31/95	EG
nthracene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
luoranthene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	
yrene	BDL	ug/l	3510/8270	2.00	01/30/95	01/31/95	
enzo(a)anthracene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	
hryeene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG

ent #: 753
ress: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 2
Date: 02/01/95
Log #: 18305-04

Attn: Shane Cox

ple Description Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: Tank #5
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

ımeter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analyst
:o(b)fluoranthene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
ɔ(k)fluoranthene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
ɔ(a)pyrene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
enzo(a,h)anthracene	BDL	ug/l	3510/8270	7.00	01/30/95	01/31/95	EG
ıo(1,2,3-cd)pyrene	BDL	ug/l	3510/8270	8.00	01/30/95	01/31/95	EG
ɔ(ghi)perylene	BDL	ug/l	3510/8270	4.00	01/30/95	01/31/95	EG
ıtion Factor	1	ug/l	3510/8270	.	01/30/95	01/31/95	EG

= Below Detection Limits
hese compounds are Screened Only, with an estimated detection limit.
lyses were performed using EPA, ASTM, USGS, or Standard Methods

900376G
E86240, 86356
HRS# 86122, 86109, E86048
M ID# 40720, 40850
ERT #96031
Cert #444
nessee Lab #02985
ıecticut Lab Approval # PH-0122

Respectfully Submitted,

Edward Dabrea

Edward Dabrea
Laboratory Director

18305-04

lient #: 753
ddress: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 1
Date: 02/01/95
Log #: 18305-05

Attn: Shane Cox

ample Description Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: Tank #6
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

Parameter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analyst
PA 602 Compounds		ug/l	5030/8021		01/28/95	01/28/95	FY
enzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
hlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
oluene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
thyl benzene	2.0	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
otal xylenes	15.6	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
TBE	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,2-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,3-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
,4-Dichlorobenzene	17.6	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
otal BTEX	1	ug/l	5030/8021	.	01/28/95	01/28/95	FY
ilution Factor	.	ug/l	3510/8270		01/30/95	01/31/95	EG
AH Compounds In Water	31.6	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
aphthalene	78.7	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
2-Methylnaphthalene	66.2	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
1-Methylnaphthalene	6.39	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
cenaphthylene	7.40	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
Acenaphthene	13.4	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
Fluorene	BDL	ug/l	3510/8270	3.50	01/30/95	01/31/95	EG
Phenanthrene	19.7	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
Anthracene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
Fluoranthene	2.94	ug/l	3510/8270	2.00	01/30/95	01/31/95	EG
Pyrene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	
Benzo(a)anthracene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	
Chrysene							

i #: 753
id.ess: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Date: 02/01/95
Log #: 18305-05

Attn: Shane Cox

imple Description Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: Tank #6
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

arameter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analyst
enzo(b)fluoranthene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
enzo(k)fluoranthene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
enzo(a)pyrene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
ibenzo(a,h)anthracene	BDL	ug/l	3510/8270	7.00	01/30/95	01/31/95	EG
ndeno(1,2,3-cd)pyrene	BDL	ug/l	3510/8270	8.00	01/30/95	01/31/95	EG
enzo(ghi)perylene	BDL	ug/l	3510/8270	4.00	01/30/95	01/31/95	EG
ilution Factor	1			.			

BD[illegible] = Below Detection Limits
[illegible]ese compounds are Screened Only, with an estimated detection limit.
All Analyses were performed using EPA, ASTM, USGS, or Standard Methods

Respectfully Submitted,

Edward Dabrea
Laboratory Director

QAP # 900376G
HRS # E86240, 86356
SUB HRS# 86122, 86109, E86048
ADEM ID# 40720, 40850
SC CERT #96031
NC Cert #444
Tennessee Lab #02985
Connecticut Lab Approval # PH-0122

18305-05

Client #: 753
Address: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 1
Date: 02/01/95
Log #: 18305-06

Attn: Shane Cox

Sample Description: Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: QA-1
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

Parameter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analyst
EPA 602 Compounds	.	ug/l	5030/8021		01/28/95	01/28/95	
Benzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	
Chlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
Toluene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
Ethyl benzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
Total xylenes	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
MTBE	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
1,2-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
1,3-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
1,4-Dichlorobenzene	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
Total BTEX	BDL	ug/l	5030/8021	1.0	01/28/95	01/28/95	FY
Dilution Factor	1	ug/l	5030/8021	.	01/28/95	01/28/95	FY
PAH Compounds In Water	.	ug/l	3510/8270		01/30/95	01/31/95	EG
Naphthalene	6.59	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
2-Methylnaphthalene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
1-Methylnaphthalene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
Acenaphthylene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
Acenaphthene	4.29	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
Fluorene	5.31	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
Phenanthrene	3.87	ug/l	3510/8270	3.50	01/30/95	01/31/95	EG
Anthracene	9.83	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
Fluoranthene	4.58	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
Pyrene	2.75	ug/l	3510/8270	2.00	01/30/95	01/31/95	EG
Benzo(a)anthracene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	[illegible]
Chrysene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	[illegible]

ent #: 753
ress: Management & Business Assoc.
4275 Aurora Street, Suite F
Coral Gables, FL 33146

Page: 2
Date: 02/01/95
Log #: 18305-06

Attn: Shane Cox

lo Description: Management & Business Assoc.
Firefighter Training
Orlando Naval Training Center
Groundwater Analysis

Label: QA-1
Date Sampled: 01/27/95
Date Received: 01/28/95
Collected By: CLIENT

ameter	Results	Units	Method	Detection Limit	Extr. Date	Analysis Date	Analyst
)(b)fluoranthene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
o(k)fluoranthene	BDL	ug/l	3510/8270	2.50	01/30/95	01/31/95	EG
)(a)pyrene	BDL	ug/l	3510/8270	3.00	01/30/95	01/31/95	EG
ızo(a,h)anthracene	BDL	ug/l	3510/8270	7.00	01/30/95	01/31/95	EG
no(1,2,3-cd)pyrene	BDL	ug/l	3510/8270	8.00	01/30/95	01/31/95	EG
›(ghi)perylene	BDL	ug/l	3510/8270	4.00	01/30/95	01/31/95	EG
.ion Factor	1	ug/l	3510/8270	.	01/30/95	01/31/95	EG

= Below Detection Limits
ese compounds are Screened Only, with an estimated detection limit.
Analyses were performed using EPA, ASTM, USGS, or Standard Methods

[illegible]00376G
E86240, 86356
HRS# 86122, 86109, E86048
.. ID# 40720, 40850
CERT #96031
ert #444
ıessee Lab #02985
necticut Lab Approval # PH-0122

Respectfully Submitted,

Edward Dabrea
Laboratory Director

18305-06

BAR CODE

LAB USE ONLY

VOC ANALYTICAL LABORATORIES, INC.

877 N.W. 61 Street, Suite 202 • Ft. Lauderdale, FL 33309

(305) 938-8823 • FAX (305) 938-9558

Client Management Business ~~I.T. Corp~~ Associates

Project Location Orlando Naval Training Center

Project Name or Number Fire Fighter Training

Sample Description (CHECK ONE)

Laboratory Analysis

ITEM NUMBER	SAMPLE LABEL	DATE	TIME	GROUND WATER	WASTE WATER	SOIL	OTHER (SPECIFY)	NUMBER OF CONTAINERS	FILTERED YES/NO	EPA 602 HL1	EPA 610 —	COMMENTS
1	Tank #1	1/27/95	1420	✓				4		✓	✓	
2	Tank #2		1330	✓				4		✓	✓	
3	Tank #4		1135	✓				4		✓	✓	
4	Tank #5		1120	✓				4		✓	✓	
5	Tank #6		1155	✓				4		✓	✓	
6	QA-1	↓	1335									
7												
8												
9												
10												

QC REPORT? ✓ Yes ____ No

SAMPLER SIGNATURE: Denise Crum

REPORT TO: Shane Cox, I.T. Corp.

FAX #: 407 679 8280

REMARKS:

Item Number	Transfers Relinquished by:	Date	Time	Accepted by:	Date	Time
1-5	Justin Richardson	1-27-95	0800			
1	Denise Crum	1/27/95	16:20		1/27/	:

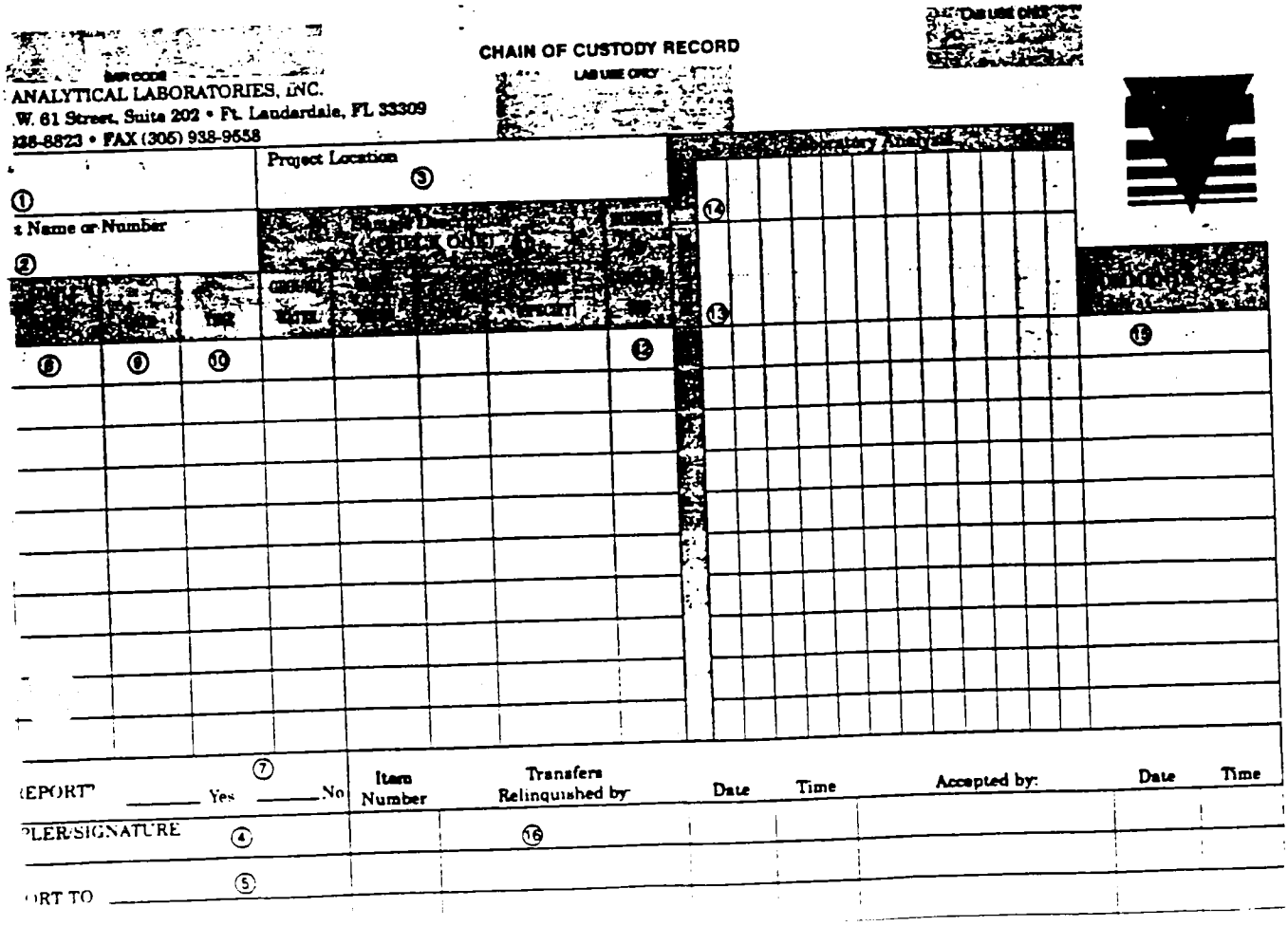
VOC Analytical Laboratories, Inc.
877 N.W. 61 Street, Suite 202
Ft. Lauderdale, FL 33309
Phone: (305) 938-8823
Fax: -(305) 938-9558

INSTRUCTIONS FOR COMPLETING CHAIN OF CUSTODY FORM

(Please use care in completing this form. An incomplete COC could jeopardize your quoted TAT.)

Print name of client.
ndicate name or number of project.
nsert project location (i.e. street, county).
Sampler: Print name & sign.
Indicate name & FAX # of project manager.
nsert any remarks.
Indicate if QC report is required.
List sample labels here (i.e. MW, SB, etc.).

⑨ Indicate date the sample was taken.
⑩ Indicate time the sample was taken.
⑪ Indicate matrix of sample.
⑫ Indicate number of containers for each sample.
⑬ List parameter to be analyzed.
⑭ List preservative used in sample container.
⑮ Comment on any sample on corresponding line.
⑯ EACH person releasing samples must sign and date the COC here.



APPENDIX B

WELL COMPLETION REPORT

WELL COMPLETION LOG

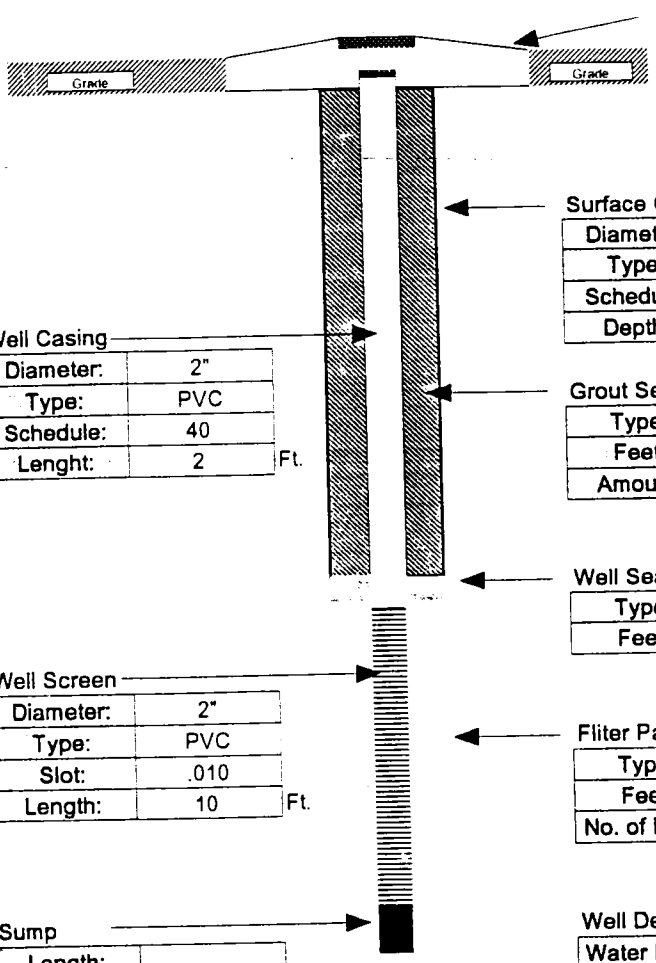
Water Mgmt. Dist.: St. Johns
Permit Number:

Work Order: 6042
Type of Well: Monitor
Well Number: Idg. 200 MW1
Method Used: 6¼ HSA
Borehole Dia. 10"

Site Information:
Name: NTC
Address: Main Base
C,S,Z: Orlando, Florida
S/T/R:

Client / Consultant Information
Consultant: ABB Environmental Services
Field Rep: Scott Donelick

Well Diameter	Well Type	Well Depth	Screen Length	Casing Length	Bags Grout	Sand Bags/Weight	Filter Type	Well Seal
2"	PVC	12	10	2	0.5	9/50lb	20/30	Fine Sand
40 ← Schedule		Slot Size: →	.010		1	← Feet →	10.5	0.5



Surface Completion
Flush Bolt Down

Surface Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Intermediate Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Well Casing

Diameter:	2"
Type:	PVC
Schedule:	40
Lenght:	2 Ft.

Grout Seal

Type:	II Portland
Feet:	1
Amount:	0.5 Bags

Well Seal

Type:	Fine Sand
Feet:	0.5

Well Screen

Diameter:	2"
Type:	PVC
Slot:	.010
Length:	10 Ft.

Fliter Pack

Type:	20/30
Feet:	10.5
No. of Bags:	9/50lb

Sump

Length:	

Well Development

Water Level:	4'		
Method:	Centrifugal		
Start: →	Cloudy	Finish: →	Clear
Time:	45 Minutes		
GPM:	2		

Contractor Information

Contractor #:	2633
Completion:	07/11/96
Driller:	Todd Flick
Lead Hand:	Robert Detweiler
3rd Man:	Brian Burgess
Drill Rig:	CME-55

Company: Groundwater Protection, Inc.
Address: 4315 S.W. 34th Street
C,S,Z: Orlando, Florida 32811
Phone/FAX: (407) 426-7885 / (407) 426-7586

APPENDIX C

GROUNDWATER LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY RECORDS

----- BUILDING NUMBER 200 ----
NTC ORLANDO FLORIDA MAIN BASE

Lab Sample Number:	MB420001				MB420002				MB420008			
Site	200				200				200			
Locator	000RB101/RB-1				064GM101/200 MW-1				TRIPBLANK/TRIPBLANK			
Collect Date:	18-JUL-96				18-JUL-96				18-JUL-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
EDB												
Ethylene dibromide	.02	U	ug/l	.02	.02	U	ug/l	.02	-			
EPA 601/602												
Chloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromomethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Dichlorodifluoromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Vinyl chloride	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chloroethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Methylene chloride	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Trichlorofluoromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
trans-1,2-Dichloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chloroform	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,1-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Carbon tetrachloride	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromodichloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloropropane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
cis-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Trichloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Dibromochloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
trans-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromoform	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2,2-Tetrachloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Tetrachloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chlorobenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,3-Dichlorobenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichlorobenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,4-Dichlorobenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Methyl tert-butyl ether	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Benzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Toluene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chlorobenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Ethylbenzene	-				-				-			
Xylenes (total)	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
o-Xylene	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
m,p-Xylene												
LEAD												
Lead	3	U	ug/l	3	19.8		ug/l	3	-			
PNA COMPDS												
Naphthalene	2	U	ug/l	2	3		ug/l	2	-			
2-Methylnaphthalene	2	U	ug/l	2	2		ug/l	2	-			
1-Methylnaphthalene	2	U	ug/l	2	2	U	ug/l	2	-			
Acenaphthylene	2	U	ug/l	2	2	U	ug/l	2	-			
Acenaphthene	2	U	ug/l	2	14		ug/l	2	-			
Fluorene					12		ug/l					

----- BUILDING NUMBER 200 ----
NTC ORLANDO FLORIDA MAIN BASE

	Lab Sample Number:	MB420001				MB420002				MB420008			
	Site	200				200				200			
	Locator	000RB101/RB-1				064GM101/200 MW-1				TRIPBLANK/TRIPBLANK			
	Collect Date:	18-JUL-96				18-JUL-96				18-JUL-96			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Phenanthrene		2	U	ug/l	2	28		ug/l	2	-			
Anthracene		2	U	ug/l	2	5		ug/l	2	-			
Fluoranthene		2	U	ug/l	2	3		ug/l	2	-			
Pyrene		2	U	ug/l	2	2	U	ug/l	2	-			
Benzo (a) anthracene		2	U	ug/l	2	2	U	ug/l	2	-			
Chrysene		2	U	ug/l	2	2	U	ug/l	2	-			
Benzo (b) fluoranthene		2	U	ug/l	2	2	U	ug/l	2	-			
Benzo (k) fluoranthene		2	U	ug/l	2	2	U	ug/l	2	-			
Benzo (a) pyrene		2	U	ug/l	2	2	U	ug/l	2	-			
Indeno (1,2,3-cd) pyrene		2	U	ug/l	2	2	U	ug/l	2	-			
Dibenzo (a,h) anthracene		2	U	ug/l	2	2	U	ug/l	2	-			
Benzo (g,h,i) perylene													
TOTAL PETROLEUM HYDROCARBON													
Total petroleum hydrocarbon		.05	U	mg/l	.05	.6		mg/l	.05	-			

----- BUILDING NUMBER 200 ---- HITS TABLE --------
NTC ORLANDO FLORIDA MAIN BASE

Lab Sample Number:	MB420001				MB420002				MB420008			
Site	200				200				200			
Locator	000RB101/RB-1				064GM101/200 MW-1				TRIPBLANK/TRIPBLANK			
Collect Date:	18-JUL-96				18-JUL-96				18-JUL-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
LEAD												
Lead	-	U	ug/l	3	19.8		ug/l	3	-			
PNA COMPDS												
Naphthalene	-	U	ug/l	2	3		ug/l	2	-			
2-Methylnaphthalene	-	U	ug/l	2	2		ug/l	2	-			
Acenaphthene	-	U	ug/l	2	14		ug/l	2	-			
Fluorene	-	U	ug/l	2	12		ug/l	2	-			
Phenanthrene	-	U	ug/l	2	28		ug/l	2	-			
Anthracene	-	U	ug/l	2	5		ug/l	2	-			
Fluoranthene	-	U	ug/l	2	3		ug/l	2	-			
TOTAL PETROLEUM HYDROCARBON												
Total petroleum hydrocarbon	-	U	mg/l	.05	.6		mg/l	.05	-			

QAL QUALITY ANALYTICAL LABORATORIES, INC.

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

Project # 8519-51 | Purchase Order #

Project Name: NTC ORLANDO

Company Name: ABB Environmental Services

Project Manager or Contact & Phone #: J. Kaiser 407-895-8845 | Report Copy to: Manuel Alonso

Requested Completion Date: 8-3-96 | Site ID: NTC Orlando | Sample Disposal: Dispose [X] Return [ ]

☐ LGN — Innovation Drive, Suite C, Alachua, FL 32615-9586, (904) 462-3050 FAX (904) 462-1670

☒ LMG — 2567 Fairlane Drive, Montgomery, AL 36116-1622, (205) 271-2440 FAX (205) 271-3428

☐ LRD — 5090 Caterpillar Road, Redding, CA 96003-1412, (916) 244-5227 FAX (916) 244-4109

☐ LKW — Canviro Analytical Laboratories, Inc, 50 Bathurst, Unit 12, Waterloo, Ontario, Canada N2V 2C5, (519) 747-2575 FAX (519) 747-3806

THIS AREA FOR LAB USE ONLY

Lab # MB420 | Page | of

Client Service | Price Source: A P Q S

Acct Code: ABB | Test Group

Project Code: ABB UST | Ack. Gen.: 527

LIMS Ver | Login | Mult.

COC Review: BS

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	CLIENT SAMPLE ID (9 CHARACTERS)	QC ID (3 CHAR)	# OF CONTAINERS	EPA 602 + MTBE	EPA 601	EPA 600	EPA 239.2 (Pb)	EPA 418.1 (TPH)	504 (EDB)	SAMPLE REMARKS	LAB 1 ID	LAB 2 ID
7-18	1040		X	X		000RB101		12	3	3	2	1	1	2	RB-1	01	
	1117					064GM101		12	3	3	2	1	1	2	200 MW-1	02	
	1152					021GM101		9	3	3		1		2	109 MW-1	03	
	1212					021GM201		9	3	3		1		2	109 MW-2	04	
	1240					042GM201		12	3	3	2	1	1	2	2040 MW-2	05	
	1301					042GM301		12	3	3	2	1	1	2	2040 MW-3	06	
	1348					042GM101		12	3	3	2	1	1	2	2040 MW-1	07	
—	—			X	X	TRIP BLANK		3	3	3					TRIP BLANK	08	

Sampled By & Title: (Please sign and print name) — Date/Time: 7-18-96 1900

Received By: (Please sign and print name) — Date/Time: 7/19/96 0830

Received By: (Please sign and print name) — Date/Time:

Received: (Please sign and print name) — Date/Time:

Batch Remarks:

Relinquished By: (Please sign and print name) SCOTT DONELICK — Date/Time: 7-18-96 1700

Relinquished By: (Please sign and print name) — Date/Time:

Relinquished By: (Please sign and print name) — Date/Time:

Shipped Via: UPS Fed-Ex Other — Shipping #: 969938631

HAZWRAP/NESSA: Y (N)

EDATA: Y (N)

QC LEVEL (1) 2 3 OTHER

pH | Ice

Custody Seal | Temp

000003

APPENDIX C

WELL CONSTRUCTION DETAILS

WELL COMPLETION LOG

Water Mgmt. Dist.: St. Johns
Permit Number: -

Work Order: 6042
Type of Well: Monitoring
Well Number: 200 MW-1
Method Used: 6.25 HSA
Borehole Dia. 10"

Site Information:
Name: NTC
Address: Main Base
C,S,Z: Orlando, Florida
S/T/R: -

Client / Consultant Information
Consultant: ABB Environmental Services, Inc.
Field Rep: Scott Donelick

Well Diameter	Well Type	Well Depth	Screen Length	Casing Length	Bags Grout	Sand Bags/Weight	Filter Type	Well Seal
2"	PVC	12	10	2	1	6X50lb.	20/30	FIne Sand
40 ←	Schedule	Slot Size: →	.010		1	← Feet →	11	0.5

Surface Completion
8" Flush

Surface Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Intermediate Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Well Casing

Diameter:	2"
Type:	PVC
Schedule:	40
Length	2 Ft.

Grout Seal

Type:	II Portland
Feet:	1
Amount:	1 Bags

Well Seal

Type:	FIne Sand
Feet:	0.5

Well Screen

Diameter:	2"
Type:	PVC
Slot:	.010
Length:	10 Ft.

Fliter Pack

Type:	20/30
Feet:	11
No. of Bags:	6X50lb.

Sump

Length:	0'

Well Development

Water Level:	4'		
Method:	Centrifugal		
Start: →	Cloudy	Finish: →	Clear
Time:	30 min.		
GPM:	1.5		

Contractor Information

Contractor #:	6042
Completion:	07/11/96
Driller:	Scott Robinson
Lead Hand:	Todd Flick
3rd Man:	Brian Burgess
Drill Rig:	Diedrich D-120A

Company:	Groundwater Protection, Inc.
Address:	4315 S.W. 34th Street
C,S,Z:	Orlando, Florida 32811
Phone/FAX:	(407) 426-7885 / (407) 426-7586

WELL COMPLETION LOG

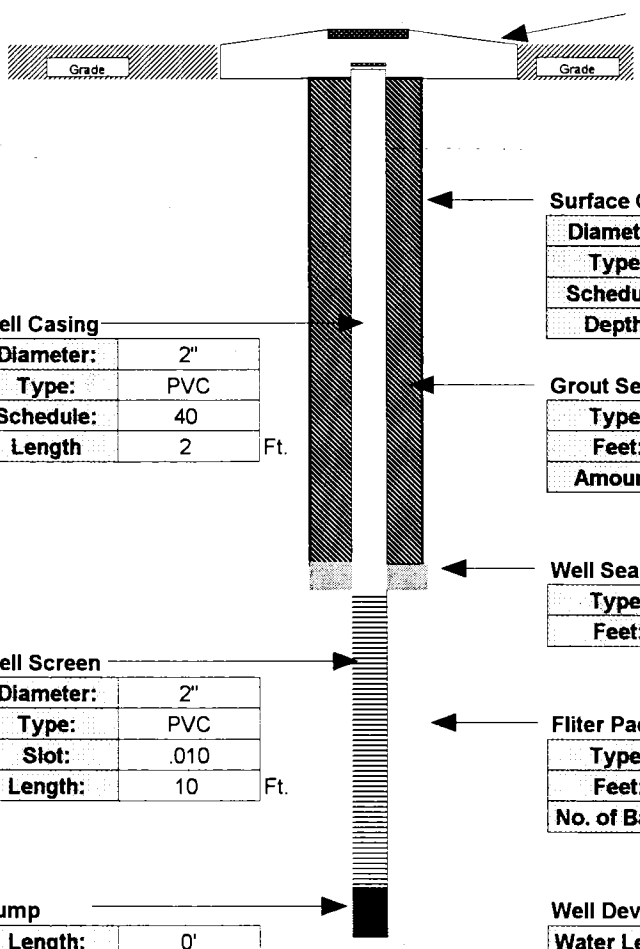
Water Mgmt. Dist.: St. Johns
Permit Number:

Work Order: 6042
Type of Well: Monitoring
Well Number: 200 MW-2
Method Used: 6.25 HSA
Borehole Dia. 10"

Site Information:
Name: NTC
Address: Main Base
C,S,Z: Orlando, Florida
S/T/R:

Client / Consultant Information
Consultant: ABB Environmental Services, Inc.
Field Rep: Scott Donelick

Well Diameter	Well Type	Well Depth	Screen Length	Casing Length	Bags Grout	Sand Bags/Weight	Filter Type	Well Seal
2"	PVC	12	10	2	1	6X50lb.	20/30	Fine Sand
40 ←	Schedule	Slot Size: →	.010		1	← Feet →	11	0.5



Surface Completion
8" Flush

Surface Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Intermediate Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Well Casing

Diameter:	2"
Type:	PVC
Schedule:	40
Length	2 Ft.

Grout Seal

Type:	II Portland
Feet:	1
Amount:	1 Bags

Well Seal

Type:	Fine Sand
Feet:	0.5

Well Screen

Diameter:	2"
Type:	PVC
Slot:	.010
Length:	10 Ft.

Fliter Pack

Type:	20/30
Feet:	11
No. of Bags:	6X50lb.

Sump

Length:	0'

Well Development

Water Level:	4'		
Method:	Centrifugal		
Start: →	Cloudy	Finish: →	Clear
Time:	30 min.		
GPM:	1.5		

Contractor Information

Contractor #:	6042
Completion:	07/11/96
Driller:	Scott Robinson
Lead Hand:	Todd Flick
3rd Man:	Brian Burgess
Drill Rig:	Diedrich D-120A

Company:	Groundwater Protection, Inc.
Address:	4315 S.W. 34th Street
C,S,Z:	Orlando, Florida 32811
Phone/FAX:	(407) 426-7885 / (407) 426-7586

WELL COMPLETION LOG

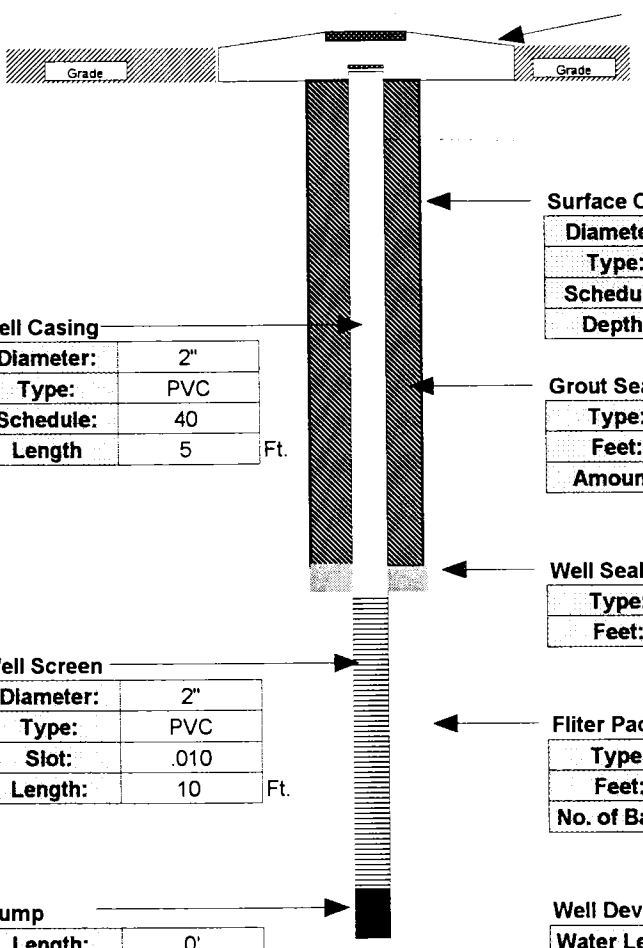
Water Mgmt. Dist.: St. Johns
Permit Number: -

Work Order: 6146
Type of Well: Monitoring
Well Number: 200 MW-3
Method Used: 6.25 HSA
Borehole Dia. 10"

Site Information:
Name: NTC
Address: Main Base
C,S,Z: Orlando, Florida
S/T/R: -

Client / Consultant Information
Consultant: ABB Environmental Services, Inc.
Field Rep: Scott Donelick

Well Diameter	Well Type	Well Depth	Screen Length	Casing Length	Bags Grout	Sand Bags/Weight	Filter Type	Well Seal
2"	PVC	15	10	5	2	10X50lb.	20/30	FIne Sand
40 ← Schedule		Slot Size: →	.010		3	← Feet →	11	1



Surface Completion
8" Flush

Surface Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Intermediate Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Well Casing

Diameter:	2"
Type:	PVC
Schedule:	40
Length	5 Ft.

Grout Seal

Type:	II Portland
Feet:	3
Amount:	2 Bags

Well Seal

Type:	FIne Sand
Feet:	1

Well Screen

Diameter:	2"
Type:	PVC
Slot:	.010
Length:	10 Ft.

Fliter Pack

Type:	20/30
Feet:	11
No. of Bags:	10X50lb.

Sump

Length:	0'

Well Development

Water Level:	4'		
Method:	Centrifugal		
Start: →	Cloudy	Finish: →	Clear
Time:	30 min.		
GPM:	1.5		

Contractor Information

Contractor #:	6146
Completion:	01/23/97
Driller:	Jim Hinst
Lead Hand:	Brian Burgess
3rd Man:	Scott Hodges
Drill Rig:	BK-81

Company: Groundwater Protection, Inc.
Address: 4315 S.W. 34th Street
C,S,Z: Orlando, Florida 32811
Phone/FAX: (407) 426-7885 / (407) 426-7586

WELL COMPLETION LOG

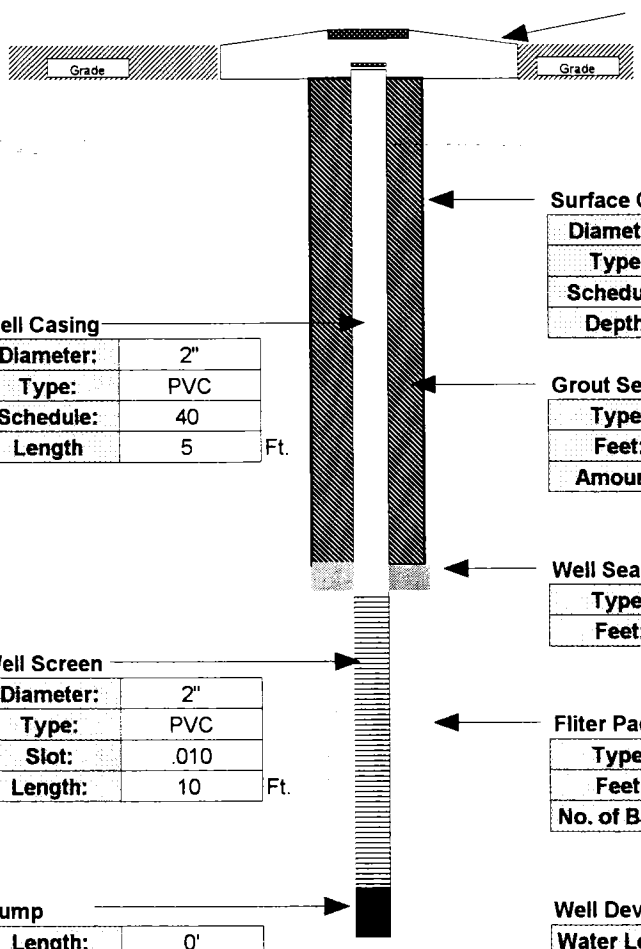
Water Mgmt. Dist.: St. Johns
Permit Number:

Work Order: 6146
Type of Well: Monitoring
Well Number: 200 MW-4
Method Used: 6.25 HSA
Borehole Dia. 10"

Site Information:
Name: NTC
Address: Main Base
C,S,Z: Orlando, Florida
S/T/R:

Client / Consultant Information
Consultant: ABB Environmental Services, Inc.
Field Rep: Scott Donelick

Well Diameter	Well Type	Well Depth	Screen Length	Casing Length	Bags Grout	Sand Bags/Weight	Filter Type	Well Seal
2"	PVC	15	10	5	2	10X50lb.	20/30	FIne Sand
40 ←	Schedule	Slot Size: →	.010		3	← Feet →	11	1



Surface Completion
8" Flush

Surface Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Intermediate Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Well Casing

Diameter:	2"
Type:	PVC
Schedule:	40
Length	5 Ft.

Grout Seal

Type:	II Portland
Feet:	3
Amount:	2 Bags

Well Seal

Type:	FIne Sand
Feet:	1

Well Screen

Diameter:	2"
Type:	PVC
Slot:	.010
Length:	10 Ft.

Fliter Pack

Type:	20/30
Feet:	11
No. of Bags:	10X50lb.

Sump

Length:	0'

Well Development

Water Level:	4'		
Method:	Centrifugal		
Start: →	Cloudy	Finish: →	Clear
Time:	30 min.		
GPM:	1.5		

Contractor Information

Contractor #:	6146
Completion:	01/23/97
Driller:	Jim Hinst
Lead Hand:	Brian Burgess
3rd Man:	Scott Hodges
Drill Rig:	BK-81

Company: Groundwater Protection, Inc.
Address: 4315 S.W. 34th Street
C,S,Z: Orlando, Florida 32811
Phone/FAX: (407) 426-7885 / (407) 426-7586

WELL COMPLETION LOG

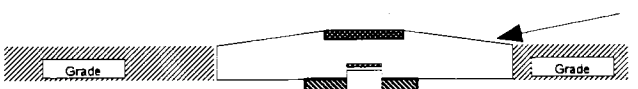
Water Mgmt. Dist.: St. Johns
Permit Number: -

Work Order: 6146
Type of Well: Monitoring
Well Number: 200 MW-5
Method Used: 6.25 HSA
Borehole Dia. 10"

Site Information:
Name: NTC
Address: Main Base
C,S,Z: Orlando, Florida
S/T/R: -

Client / Consultant Information
Consultant: ABB Environmental Services, Inc.
Field Rep: Scott Donelick

Well Diameter	Well Type	Well Depth	Screen Length	Casing Length	Bags Grout	Sand Bags/Weight	Filter Type	Well Seal
2"	PVC	15	10	5	2	10X50lb.	20/30	Fine Sand
40 ←	Schedule	Slot Size: →	.010		3	← Feet →	11	1



Surface Completion
8" Flush

Surface Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Intermediate Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Well Casing

Diameter:	2"
Type:	PVC
Schedule:	40
Length	5 Ft.

Grout Seal

Type:	II Portland
Feet:	3
Amount:	2 Bags

Well Seal

Type:	Fine Sand
Feet:	1

Well Screen

Diameter:	2"
Type:	PVC
Slot:	.010
Length:	10 Ft.

Fliter Pack

Type:	20/30
Feet:	11
No. of Bags:	10X50lb.

Sump

Length:	0'

Well Development

Water Level:	4'		
Method:	Centrifugal		
Start: →	Cloudy	Finish: →	Clear
Time:	30 min.		
GPM:	1.5		

Contractor Information

Contractor #:	6146
Completion:	01/23/97
Driller:	Jim Hinst
Lead Hand:	Brian Burgess
3rd Man:	Scott Hodges
Drill Rig:	BK-81

Company:	**Groundwater Protection, Inc.**
Address:	**4315 S.W. 34th Street**
C,S,Z:	**Orlando, Florida 32811**
Phone/FAX:	**(407) 426-7885 / (407) 426-7586**

WELL COMPLETION LOG

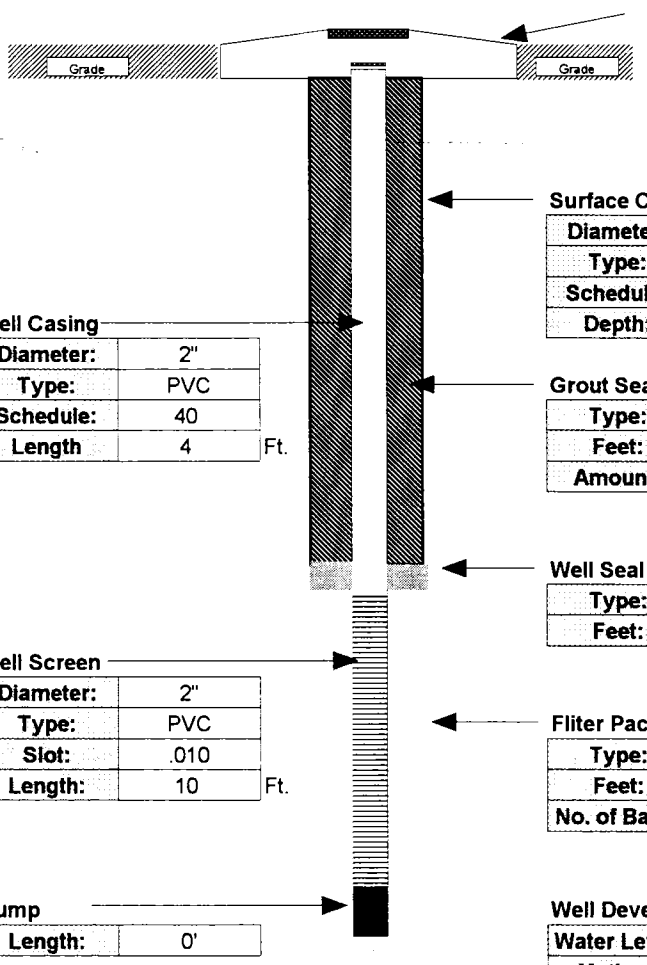
Water Mgmt. Dist.: St. Johns
Permit Number: -

Work Order: 6146
Type of Well: Monitoring
Well Number: 200 MW-6
Method Used: 6.25 HSA
Borehole Dia. 10"

Site Information:
Name: NTC
Address: Main Base
C,S,Z: Orlando, Florida
S/T/R: -

Client / Consultant Information
Consultant: ABB Environmental Services, Inc.
Field Rep: Scott Donelick

Well Diameter	Well Type	Well Depth	Screen Length	Casing Length	Bags Grout	Sand Bags/Weight	Filter Type	Well Seal
2"	PVC	14	10	4	1	10X50lb.	20/30	FIne Sand
40 ←	Schedule	Slot Size: →	.010		2	← Feet →	11	1



Surface Completion
8" Flush

Surface Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Intermediate Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Well Casing

Diameter:	2"
Type:	PVC
Schedule:	40
Length	4 Ft.

Grout Seal

Type:	II Portland
Feet:	2
Amount:	1 Bags

Well Seal

Type:	FIne Sand
Feet:	1

Well Screen

Diameter:	2"
Type:	PVC
Slot:	.010
Length:	10 Ft.

Fliter Pack

Type:	20/30
Feet:	11
No. of Bags:	10X50lb.

Sump

Length:	0'

Well Development

Water Level:	4'		
Method:	Centrifugal		
Start: →	Cloudy	Finish: →	Clear
Time:	30 min.		
GPM:	1.5		

Contractor Information

Contractor #:	6146
Completion:	01/23/97
Driller:	Jim Hinst
Lead Hand:	Brian Burgess
3rd Man:	Scott Hodges
Drill Rig:	BK-81

Company: Groundwater Protection, Inc.
Address: 4315 S.W. 34th Street
C,S,Z: Orlando, Florida 32811
Phone/FAX: (407) 426-7885 / (407) 426-7586

WELL COMPLETION LOG

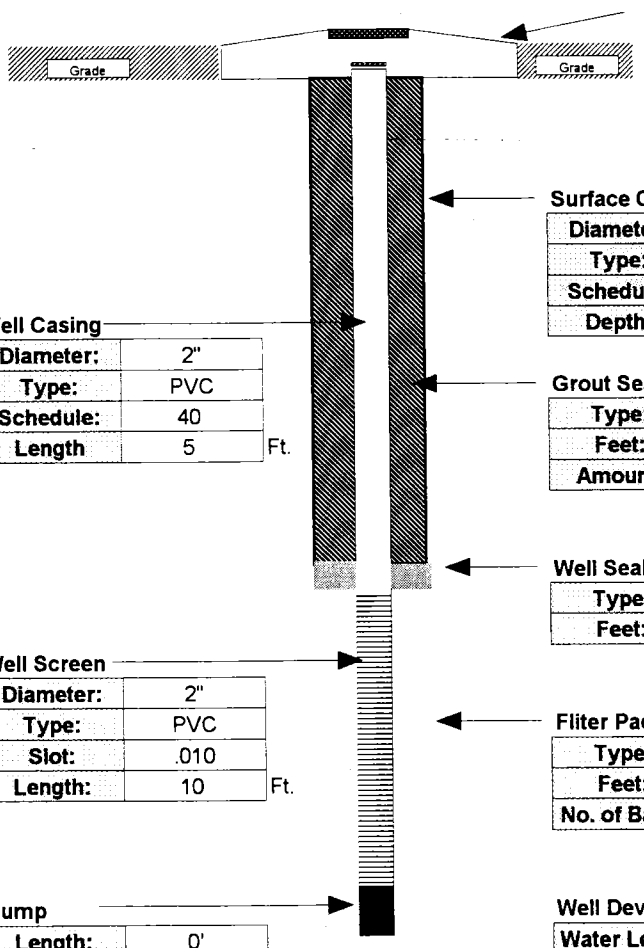
Water Mgmt. Dist.: St. Johns
Permit Number:

,Vork Order: 6162
Type of Well: Monitoring
Well Number: 200 MW-7
Method Used: 4.25 HSA
Borehole Dia. 8"

Site Information:
Name: NTC
Address: Main Base
C,S,Z: Orlando, Florida
S/T/R:

Client / Consultant Information
Consultant: ABB Environmental Services, Inc.
Field Rep: Scott Donelick

Well Diameter	Well Type	Well Depth	Screen Length	Casing Length	Bags Grout	Sand Bags/Weight	Filter Type	Well Seal
2"	PVC	15	10	5	2	6X50lb.	20/30	Fine Sand
40 ←	Schedule	Slot Size: →	.010		3	← Feet →	11	1



Surface Completion
8" Flush

Surface Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Intermediate Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Well Casing

Diameter:	2"
Type:	PVC
Schedule:	40
Length	5 Ft.

Grout Seal

Type:	II Portland
Feet:	3
Amount:	2 Bags

Well Seal

Type:	Fine Sand
Feet:	1

Well Screen

Diameter:	2"
Type:	PVC
Slot:	.010
Length:	10 Ft.

Fliter Pack

Type:	20/30
Feet:	11
No. of Bags:	6X50lb.

Sump

Length:	0'

Well Development

Water Level:	4'		
Method:	Centrifugal		
Start: →	Cloudy	Finish: →	Clear
Time:	30 min.		
GPM:	2		

Contractor Information

Contractor #:	6162
Completion:	03/04/97
Driller:	Charles Bucher
Lead Hand:	Jeff Ziegler
3rd Man:	Ray Honaker
Drill Rig:	Diedrich D-120

Company: Groundwater Protection, Inc.
Address: 4315 S.W. 34th Street
C,S,Z: Orlando, Florida 32811
Phone/FAX: (407) 426-7885 / (407) 426-7586

WELL COMPLETION LOG

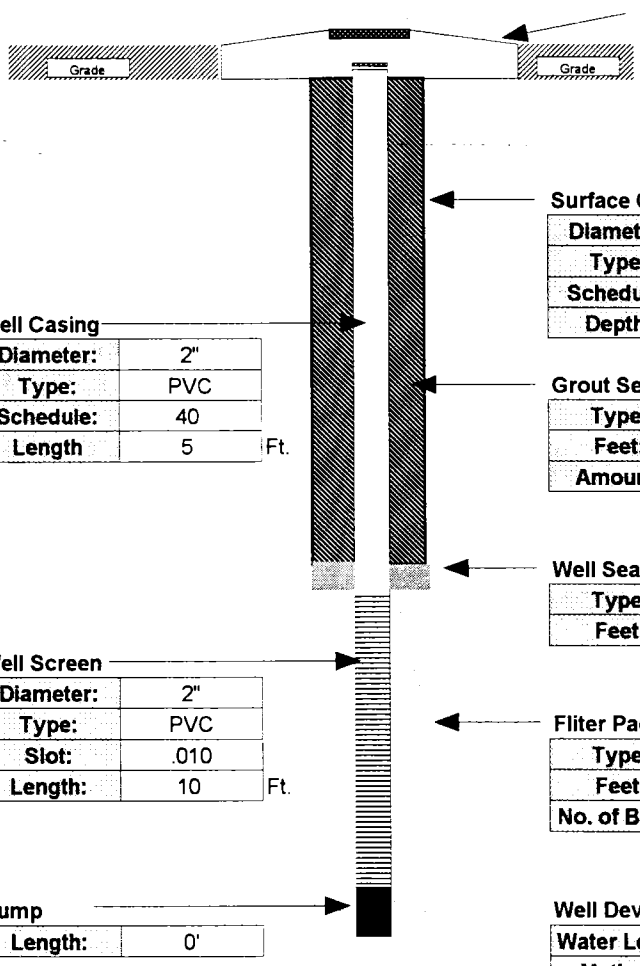
Water Mgmt. Dist.: St. Johns
Permit Number:

Work Order: 6162
Type of Well: Monitoring
Well Number: 200 MW-8
Method Used: 4.25 HSA
Borehole Dia. 8"

Site Information:
Name: NTC
Address: Main Base
C,S,Z: Orlando, Florida
S/T/R:

Client / Consultant Information
Consultant: ABB Environmental Services, Inc.
Field Rep: Scott Donelick

Well Diameter	Well Type	Well Depth	Screen Length	Casing Length	Bags Grout	Sand Bags/Weight	Filter Type	Well Seal
2"	PVC	15	10	5	2	6X50lb.	20/30	FIne Sand
40 ←	Schedule	Slot Size: →	.010		3	← Feet →	11	1



Surface Completion
8" Flush

Surface Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Intermediate Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Well Casing

Diameter:	2"
Type:	PVC
Schedule:	40
Length	5 Ft.

Grout Seal

Type:	II Portland
Feet:	3
Amount:	2 Bags

Well Seal

Type:	FIne Sand
Feet:	1

Well Screen

Diameter:	2"
Type:	PVC
Slot:	.010
Length:	10 Ft.

Fliter Pack

Type:	20/30
Feet:	11
No. of Bags:	6X50lb.

Sump

Length:	0'

Well Development

Water Level:	4'		
Method:	Centrifugal		
Start: →	Cloudy	Finish: →	Clear
Time:	30 min.		
GPM:	2		

Contractor Information

Contractor #:	6162
Completion:	03/04/97
Driller:	Charles Bucher
Lead Hand:	Jeff Ziegler
3rd Man:	Ray Honaker
Drill Rig:	Diedrich D-120

Company: Groundwater Protection, Inc.
Address: 4315 S.W. 34th Street
C,S,Z: Orlando, Florida 32811
Phone/FAX: (407) 426-7885 / (407) 426-7586

WELL COMPLETION LOG

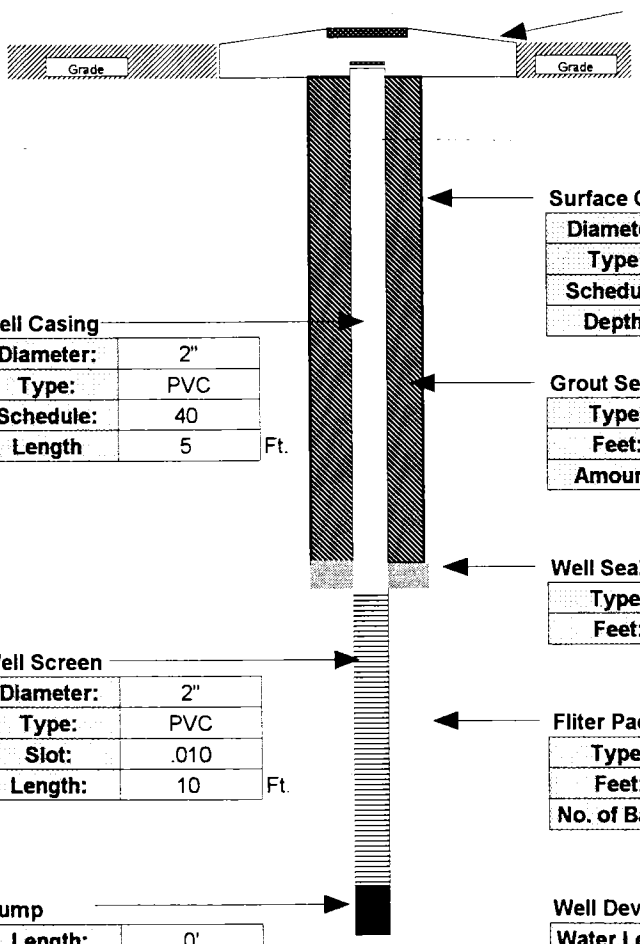
Water Mgmt. Dist.: St. Johns
Permit Number:

Work Order: 6162
Type of Well: Monitoring
Well Number: 200 MW-9
Method Used: 4.25 HSA
Borehole Dia. 8"

Site Information:
Name: NTC
Address: Main Base
C,S,Z: Orlando, Florida
S/T/R:

Client / Consultant Information
Consultant: ABB Environmental Services, Inc.
Field Rep: Scott Donelick

Well Diameter	Well Type	Well Depth	Screen Length	Casing Length	Bags Grout	Sand Bags/Weight	Filter Type	Well Seal
2"	PVC	15	10	5	2	6X50lb.	20/30	Fine Sand
40 ←	Schedule	Slot Size: →	.010		3	← Feet →	11	1



Surface Completion
8" Flush

Surface Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Intermediate Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Well Casing

Diameter:	2"
Type:	PVC
Schedule:	40
Length	5 Ft.

Grout Seal

Type:	II Portland
Feet:	3
Amount:	2 Bags

Well Seal

Type:	Fine Sand
Feet:	1

Well Screen

Diameter:	2"
Type:	PVC
Slot:	.010
Length:	10 Ft.

Fliter Pack

Type:	20/30
Feet:	11
No. of Bags:	6X50lb.

Sump

Length:	0'

Well Development

Water Level:	4'		
Method:	Centrifugal		
Start: →	Cloudy	Finish: →	Clear
Time:	30 min.		
GPM:	2		

Contractor Information

Contractor #:	6162
Completion:	03/04/97
Driller:	Charles Bucher
Lead Hand:	Jeff Ziegler
3rd Man:	Ray Honaker
Drill Rig:	Diedrich D-120

Company:	Groundwater Protection, Inc.
Address:	4315 S.W. 34th Street
C,S,Z:	Orlando, Florida 32811
Phone/FAX:	(407) 426-7885 / (407) 426-7586

WELL COMPLETION LOG

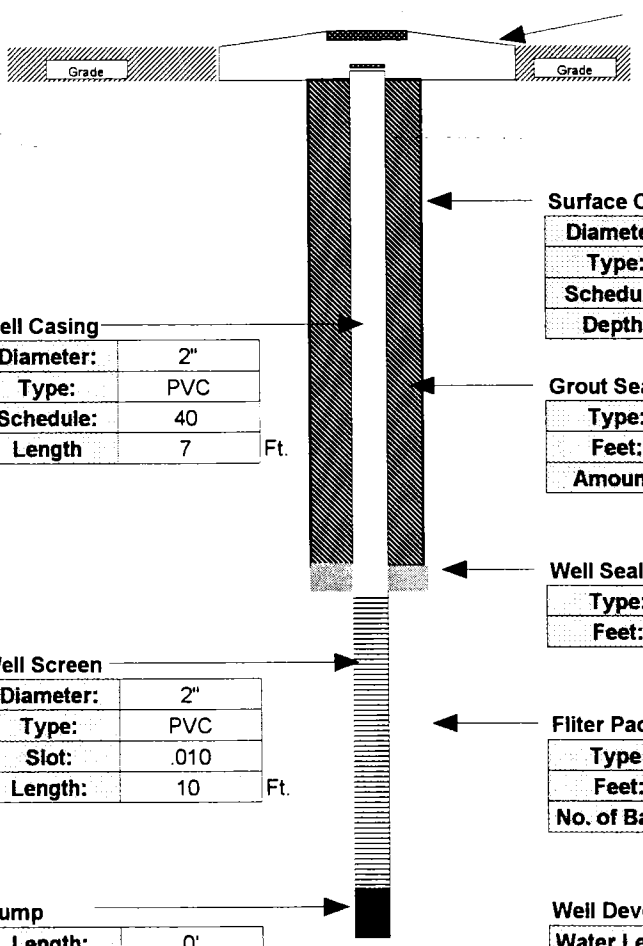
Water Mgmt. Dist.: St. Johns
Permit Number:

Work Order: 6178
Type of Well: Monitoring
Well Number: 200 MW-10
Method Used: 4.25 HSA
Borehole Dia. 8"

Site Information:
Name: NTC
Address: Main Base
C,S,Z: Orlando, Florida
S/T/R:

Client / Consultant Information
Consultant: ABB Environmental Services, Inc.
Field Rep: Scott Donelick

Well Diameter	Well Type	Well Depth	Screen Length	Casing Length	Bags Grout	Sand Bags/Weight	Filter Type	Well Seal
2"	PVC	17	10	7	2	6X50lb.	20/30	FIne Sand
40 ←	Schedule	Slot Size: →	.010		5	← Feet →	11	1



Surface Completion
8" Flush

Surface Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Intermediate Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Well Casing

Diameter:	2"
Type:	PVC
Schedule:	40
Length	7 Ft.

Grout Seal

Type:	II Portland
Feet:	5
Amount:	2 Bags

Well Seal

Type:	FIne Sand
Feet:	1

Well Screen

Diameter:	2"
Type:	PVC
Slot:	.010
Length:	10 Ft.

Fliter Pack

Type:	20/30
Feet:	11
No. of Bags:	6X50lb.

Sump

Length:	0'

Well Development

Water Level:	9'		
Method:	Centrifugal		
Start: →	Cloudy	Finish: →	Clear
Time:	30 min.		
GPM:	2		

Contractor Information

Contractor #:	6178
Completion:	04/09/97
Driller:	Charles Bucher
Lead Hand:	Odis Johnson
3rd Man:	Robert Detweiler
Drill Rig:	Diedrich D-120A

Company:	Groundwater Protection, Inc.
Address:	4315 S.W. 34th Street
C,S,Z:	Orlando, Florida 32811
Phone/FAX:	(407) 426-7885 / (407) 426-7586

WELL COMPLETION LOG

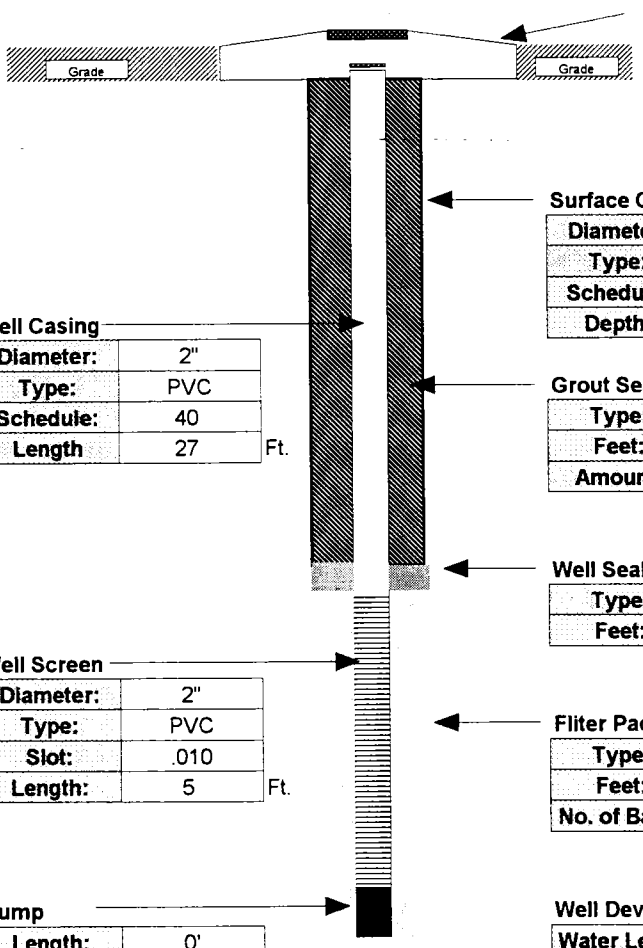
Water Mgmt. Dist.: St. Johns
Permit Number: -

Work Order: 6162
Type of Well: Monitoring
Well Number: 200 DW-1
Method Used: Mud Rotary
Borehole Dia. 10"

Site Information:
Name: NTC
Address: Main Base
C,S,Z: Orlando, Florida
S/T/R: -

Client / Consultant Information
Consultant: ABB Environmental Services, Inc.
Field Rep: Scott Donelick

Well Diameter	Well Type	Well Depth	Screen Length	Casing Length	Bags Grout	Sand Bags/Weight	Filter Type	Well Seal
2"	PVC	32	5	27	11	12X50lb.	20/30	Fine Sand
40 ←	Schedule	Slot Size: →	.010		23	← Feet →	7	2



Surface Completion
8" Flush

Surface Casing

Diameter:	6"
Type:	PVC
Schedule:	40
Depth:	20

Intermediate Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Well Casing

Diameter:	2"
Type:	PVC
Schedule:	40
Length	27 Ft.

Grout Seal

Type:	II Portland
Feet:	23
Amount:	11 Bags

Well Seal

Type:	Fine Sand
Feet:	2

Well Screen

Diameter:	2"
Type:	PVC
Slot:	.010
Length:	5 Ft.

Filter Pack

Type:	20/30
Feet:	7
No. of Bags:	12X50lb.

Sump

Length:	0'

Well Development

Water Level:	19'		
Method:	Centrifugal		
Start: →	Cloudy	Finish: →	Clear
Time:	60 min.		
GPM:	1.5		

Contractor Information

Contractor #:	6162
Completion:	03/05/97
Driller:	Charles Bucher
Lead Hand:	Jeff Ziegler
3rd Man:	Ray Honaker
Drill Rig:	Diedrich D-120A

Company: Groundwater Protection, Inc.
Address: 4315 S.W. 34th Street
C,S,Z: Orlando, Florida 32811
Phone/FAX: (407) 426-7885 / (407) 426-7586

APPENDIX D

LITHOLOGIC LOGS

TITLE: NTC, ORLANDO, BUILDING 200	LOG of WELL: MW-1		BORING NO. NA
CLIENT: U.S. NAVY, SOUTHNAVFACENGCOM			PROJECT NO: 8545-54
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 7-11-96	COMPLTD: 7-11-96
HOD: 6.25-INCH ID HSA	CASE SIZE: 2-INCH	SCREEN INT.: 2-12 FEET	PROTECTION LEVEL: D
TOC ELEV.: NM FEET.	MONITOR INST.: OVA	TOT DPTH: 12 FEET.	DPTH TO ▽ 4 FEET.
LOGGED BY: S. DONELICK	WELL DEVELOPMENT DATE: 7-11-96		SITE: BUILDING 200

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	0-4' SAND, fine grained, brown, no odor.		SP		
				5	4'-12' SAND, fine grained, brown, no odor, wet at 4' BLS.				

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NTC. ORLANDO, BUILDING 200	LOG of WELL: MW-2		BORING NO. NA
CLIENT: U.S. NAVY, SOUTHNAVFACENGCOM			PROJECT NO: 8545-54
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 7-11-96	COMPLTD: 7-11-96
METHOD: 6.25-INCH ID HSA	CASE SIZE: 2-INCH	SCREEN INT.: 2-12 FEET	PROTECTION LEVEL: D
TOC ELEV.: NM FEET.	MONITOR INST.: OVA	TOT DPTH: 12 FEET.	DPTH TO ▽ 4 FEET.
LOGGED BY: S. DONELICK	WELL DEVELOPMENT DATE: 7-11-96		SITE: BUILDING 200

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	0-4' SAND, fine grained, brown, no odor, moist.		SP		
				6	4'-6' SAND, fine grained, brown to light gray, no odor, wet at 4 feet below land surface.				
				60	6'-12' SAND, fine grained, brown to light gray. moderate petroleum odor.				

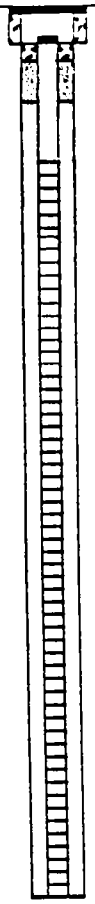


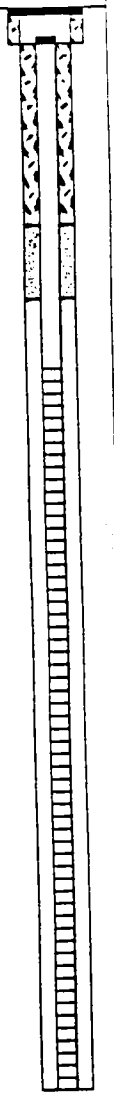
ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NTC, ORLANDO, BUILDING 200	LOG of WELL: MW-3		BORING NO. NA
CLIENT: U.S. NAVY, SOUTHNAVFACENGCOM			PROJECT NO: 8545-54
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 1-23-97	COMPLTD: 1-23-97
METHOD: 6.25-INCH ID HSA	CASE SIZE: 2-INCH	SCREEN INT.: 5-15 FEET	PROTECTION LEVEL: D
TOC ELEV.: NM FEET.	MONITOR INST.: OVA	TOT DPTH: 15 FEET.	DPTH TO ▽ 7 FEET.
LOGGED BY: S. DONELICK	WELL DEVELOPMENT DATE: 1-23-97		SITE: BUILDING 200

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	0-5' SAND, fine grained, white to gray, no odor, dry.		SP		
5				<1	5'-8' SAND, fine grained, medium to dark brown, no odor, wet at 7 feet below land surface.				
				<1	8'-15' SAND, fine grained, dark brown to black, moderate petroleum odor.				
10									
15									
20									

TITLE: NTC. ORLANDO, BUILDING 200	LOG of WELL: MW-4		BORING NO. NA
CLIENT: U.S. NAVY, SOUTHNAVFACENGCOM			PROJECT NO: 8545-54
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 1-23-97	COMPLTD: 1-23-97
METHOD: 6.25-INCH ID HSA	CASE SIZE: 2-INCH	SCREEN INT.: 5-15 FEET	PROTECTION LEVEL: D
TOC ELEV.: NM FEET.	MONITOR INST.: OVA	TOT DPTH: 15 FEET.	DPTH TO ▽ 8 FEET.
LOGGED BY: S. DONELICK	WELL DEVELOPMENT DATE: 1-23-97		SITE: BUILDING 200

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	0-4' SAND, fine grained, white to gray, no odor, dry		SP		
				<1	4'-8' SAND, fine grained, brown, no odor, dry to moist.				
				2	8'-15' SAND, fine grained, gray to medium brown, no odor. Saturated at 8'.				



TITLE: NTC. ORLANDO, BUILDING 200	LOG of WELL: MW-5		BORING NO. NA
CLIENT: U.S. NAVY, SOUTHNAVFACENGCOM			PROJECT NO: 8545-54
ITRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 1-23-97	COMPLTD: 1-23-97
METHOD: 6.25-INCH ID HSA	CASE SIZE: 2-INCH	SCREEN INT.: 5-15 FEET	PROTECTION LEVEL: D
TOC ELEV.: NM FEET.	MONITOR INST.: OVA	TOT DPTH: 15 FEET.	DPTH TO ▽ 8 FEET.
LOGGED BY: S. DONELICK	WELL DEVELOPMENT DATE: 1-23-97		SITE: BUILDING 200

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	0-5' SAND, fine grained, light brown to gray, no odor, moist.		SP		
5				<1	5'-8' SAND, fine grained, light to medium brown, slight petro. odor, moist.				
				5	8'-15' SAND, fine grained, dark brown, moderate petroleum odor, saturated at 8' BLS.				
10									
15									
20									

TITLE: NTC. ORLANDO, BUILDING 200	LOG of WELL: MW-6		BORING NO. NA
CLIENT: U.S. NAVY. SOUTHNAVFACENGCOM			PROJECT NO: 8545-54
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 1-23-97	COMPLTD: 1-23-97
METHOD: 6.25-INCH ID HSA	CASE SIZE: 2-INCH	SCREEN INT.: 4-14 FEET	PROTECTION LEVEL: D
TOC ELEV.: NM FEET.	MONITOR INST.: OVA	TOT DPTH: 14 FEET.	DPTH TO ▽ 8 FEET.
LOGGED BY: S. DONELICK	WELL DEVELOPMENT DATE: 1-23-97		SITE: BUILDING 200

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	0-4' SAND, fine grained, white to gray, no odor, moist.		SP		
				<1	4'-8' SAND, fine grained, dark brown, no odor, dry.				
				20	8'-14' SAND, fine grained, black, to dark brown, slight petroleum odor, saturated at 8' BLS.				

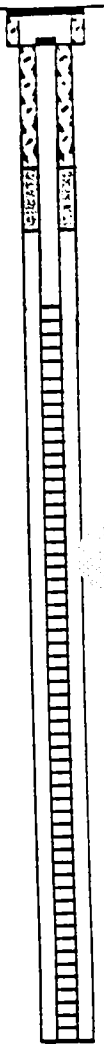


ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NTC, ORLANDO, BUILDING 200	LOG of WELL: MW-8		BORING NO. NA
CLIENT: U.S. NAVY, SOUTHNAVFACENGCOM			PROJECT NO: 8545-54
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 3-4-97	COMPLTD: 3-4-97
METHOD: 4.25-INCH ID HSA	CASE SIZE: 2-INCH	SCREEN INT.: 5-15 FEET	PROTECTION LEVEL: D
TOC ELEV.: NM FEET.	MONITOR INST.: OVA	TOT DPTH: 15 FEET.	DPTH TO ▽ 8 FEET.
LOGGED BY: S. DONELICK	WELL DEVELOPMENT DATE: 3-4-97		SITE: BUILDING 200

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	0-3' SAND, orange to brown, fine to medium grained, no odor, dry.		SP		
				<1	3'-6' SAND, fine grained, gray to white, no odor, moist				
5				<1	6'-15' SAND, fine grained, black to dark brown, no odor, saturated at 8' BLS.				
10									
15									
20									

TITLE: NTC. ORLANDO, BUILDING 200	LOG of WELL: MW-7	BORING NO. NA
CLIENT: U.S. NAVY, SOUTHNAVFACENGCOM		PROJECT NO: 8545-54
CONTRACTOR: GROUNDWATER PROTECTION, INC.	DATE STARTED: 3-4-97	COMPLTD: 3-4-97
METHOD: 4.25-INCH ID HSA	CASE SIZE: 2-INCH	SCREEN INT.: 5-15 FEET
TOC ELEV.: NM FEET.	MONITOR INST.: OVA	TOT DPTH: 15 FEET.
LOGGED BY: S. DONELICK	WELL DEVELOPMENT DATE: 3-4-97	SITE: BUILDING 200

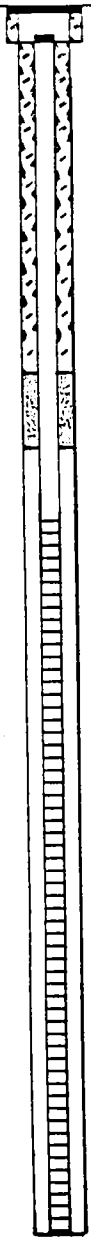
DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	0-3' SAND, orange to brown, fine to medium grained, no odor, dry.		SP		
				<1	3'-6' SAND, fine grained, gray to white, no odor, moist				
5				<1	6'-15' SAND, fine grained, black to dark brown, no odor, saturated at 8' BLS.				
10									
15									
20									

TITLE: NTC. ORLANDO, BUILDING 200	LOG of WELL: MW-9		BORING NO. NA
CLIENT: U.S. NAVY, SOUTHNAVFACENGCOM			PROJECT NO: 8545-54
RACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 3-4-97	COMPLTD: 3-4-97
METHOD: 4.25-INCH ID HSA	CASE SIZE: 2-INCH	SCREEN INT.: 5-15 FEET	PROTECTION LEVEL: D
TOC ELEV.: NM FEET.	MONITOR INST.: OVA	TOT DPTH: 15 FEET.	DPTH TO ▽ 8 FEET.
LOGGED BY: S. DONELICK	WELL DEVELOPMENT DATE: 3-4-97		SITE: BUILDING 200

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	0-3' SAND, orange to brown, fine to medium grained, no odor, dry.		SP		
				<1	3'-6' SAND, fine grained, gray to white, no odor, moist				
5				<1	6'-15' SAND, fine grained, black to dark brown, no odor, saturated at 8' BLS.				
10									
15									
20									

TITLE: NTC, ORLANDO, BUILDING 200		LOG of WELL: MW-10	BORING NO. NA
CLIENT: U.S. NAVY, SOUTHNAVFACENGCOM			PROJECT NO: 8545-54
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 4-9-97	COMPLTD: 4-9-97
METHOD: 4.25-INCH ID HSA	CASE SIZE: 2-INCH	SCREEN INT.: 7-17	PROTECTION LEVEL: D
TOC ELEV.: NM FEET.	MONITOR INST.: OVA	TOT DPTH: 17 FEET.	DPTH TO ▽ 10 FEET.
LOGGED BY: S. DONELICK	WELL DEVELOPMENT DATE: 4-9-97		SITE: BUILDING 200

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	0-5' SAND, fine grained, white to brown to gray, no odor, dry		SP		
				<1	5'-9' SAND, fine grained, brown to gray, no odor, dry.				
				<1	9'-17' SAND, brown to black, fine grained, no odor, saturated at 10 feet below land surface.				



TITLE: NTC, ORLANDO, BUILDING 200	LOG of WELL: DW-1	BORING NO. NA
CLIENT: U.S. NAVY, SOUTHNAVFACENGCOM		PROJECT NO: 8545-54
NTRACTOR: GROUNDWATER PROTECTION, INC.	DATE STARTED: 3-4-97	COMPLTD: 3-5-97
METHOD: MUD ROTARY	CASE SIZE: 6-INCH & 2-INCH	SCREEN INT.: 27-32 FEET
TOC ELEV.: NA FEET.	MONITOR INST.: OVA	TOT DPTH: 32 FEET.
LOGGED BY: S. DONELICK	WELL DEVELOPMENT DATE: 3-5-97	SITE: BUILDING 200

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					- See Lithology for soil boring SB-1 (Figure 3-1)		SP		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NTC Orlando, Building 200	LOG of WELL: N/A	BORING NO. SB-1
CLIENT: SOUTHDIVNAVFACENGCOM		PROJECT NO: 8545-54
CONTRACTOR: N/A	DATE STARTED: 3/3/97	COMPLTD: 3/3/97
METHOD: H.S.A.	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FEET FT.	MONITOR INST.: OVA	TOT DPTH: 42.0FT.	DPTH TO ▽ 8.0 FT.
LOGGED BY: Scott Donelick	WELL DEVELOPMENT DATE: N/A	SITE: BUILDING 200

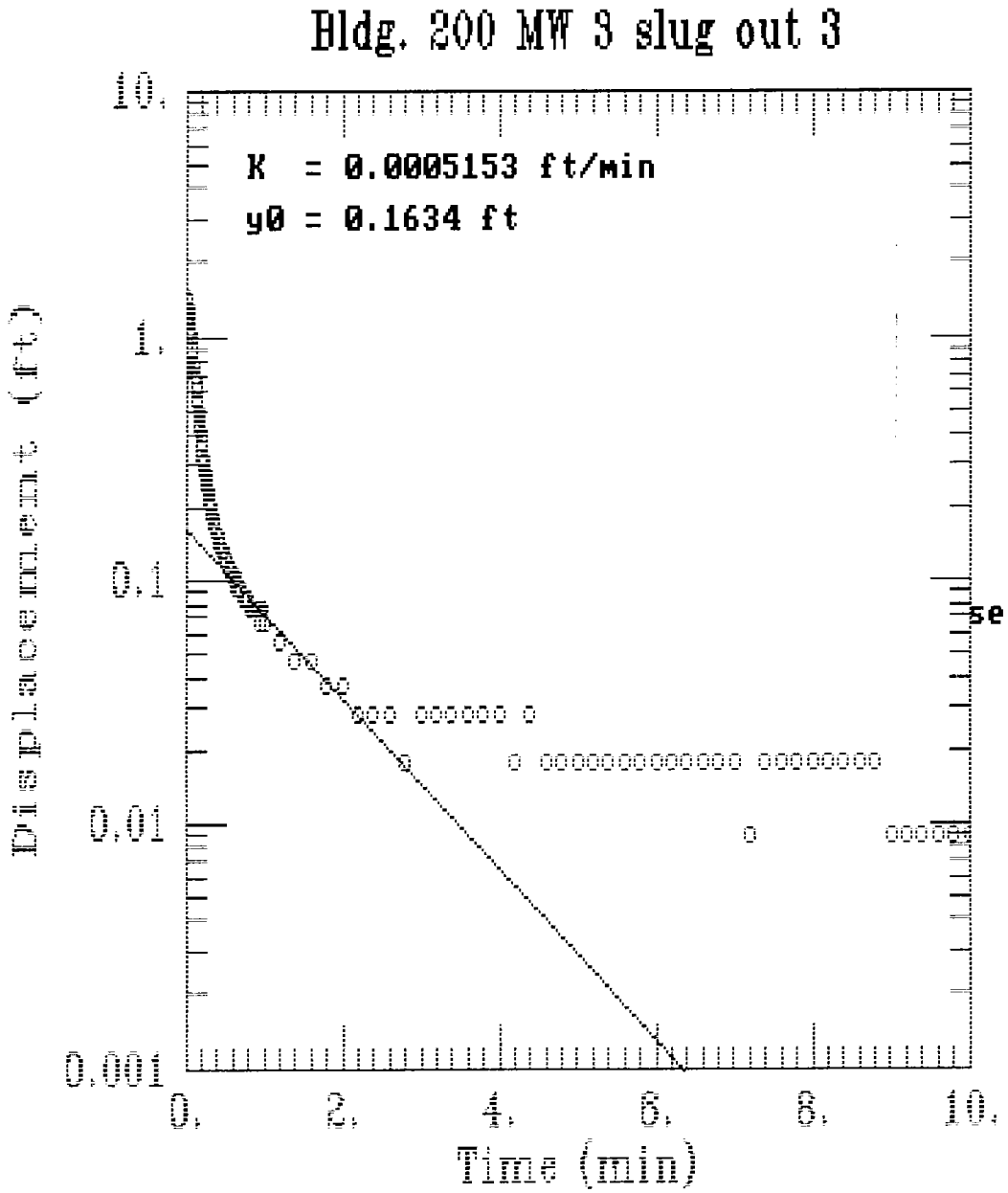
DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1				<1	0-3' Sand, fine grained, orange to brown, no odor, dry.		SP		
5				<1	3'-15' Sand, fine grained, white to gray, no odor, wet at 8' below land surface.				▽
15			80%	<1	15'-17' Sand, fine grained, black to dark brown, no odor, wet.			8,11,14,17	
20			50%	<1	20'-22' Sand, fine grained, black to dark brown, no odor, wet, hard at 22' below land surface.			21,refusal	
25			20%	<1	25'-27' Cemented sand, fine grained, black to dark brown, no odor, wet.		SM	10, refusal	
30			40%	<1	30'-32' Cemented sand, fine grained, brown, no odor, wet.			20,48, refusal	
35			10%	<1	35'-37' Cemented sand, fine grained, brown, no odor, wet.			50,refusal	
40			10%	<1	40'-42' Sand, fine grained, brown to olive green, no odor, wet, some clay.		SP	50,refusal	
42					END OF BORING @ 42 FEET BELOW LAND SURFACE				

ABB ENVIRONMENTAL SERVICES, INC.

APPENDIX E

SLUG TEST DATA

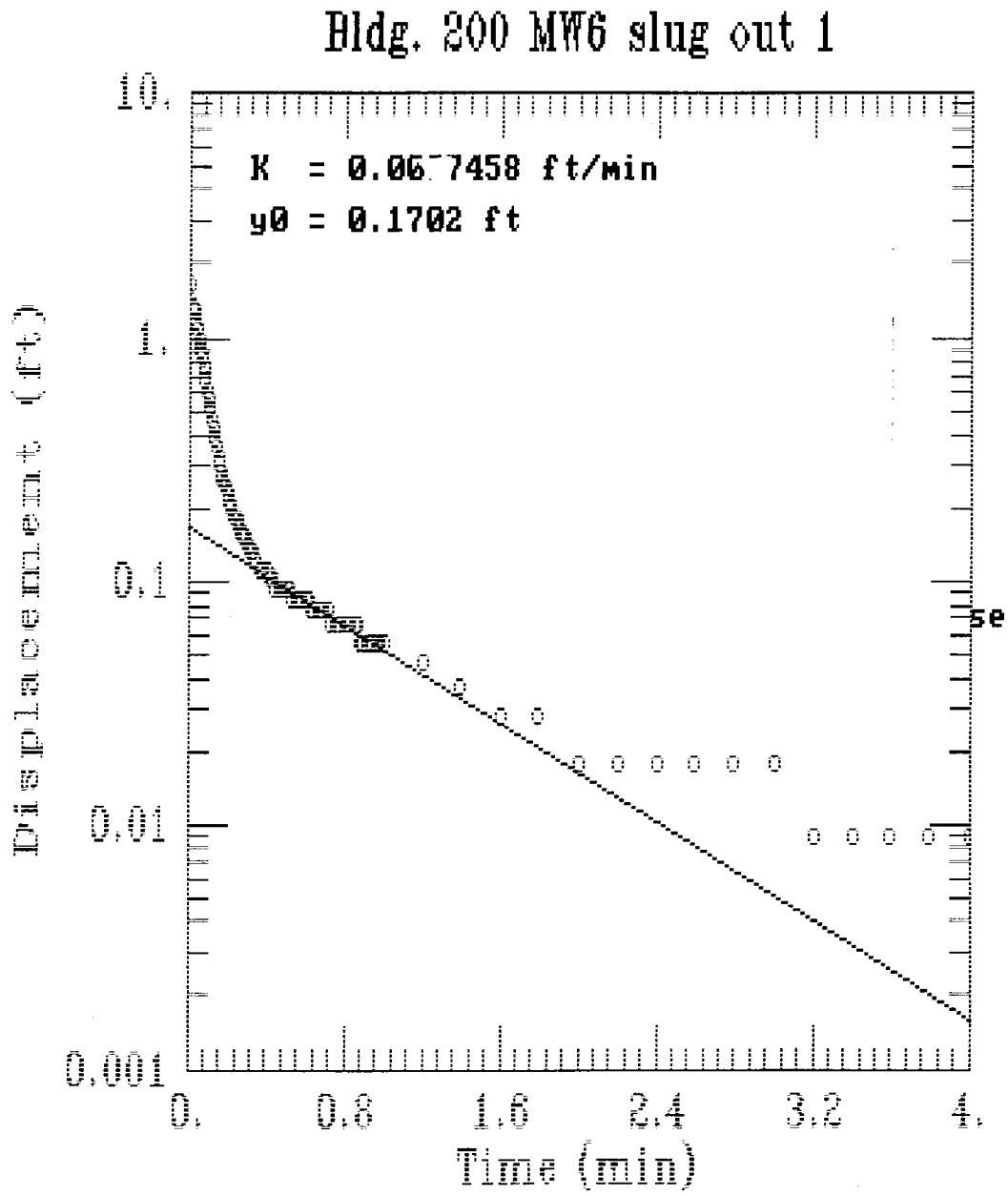
dat


Bldg. 200 MW 3 slug out 3
K = 0.0005153 ft/min
y0 = 0.1634 ft
Displacement (ft)
10.
1.
0.1
0.01
0.001
0.
2.
4.
6.
8.
10.
Time (min)

se

ul.

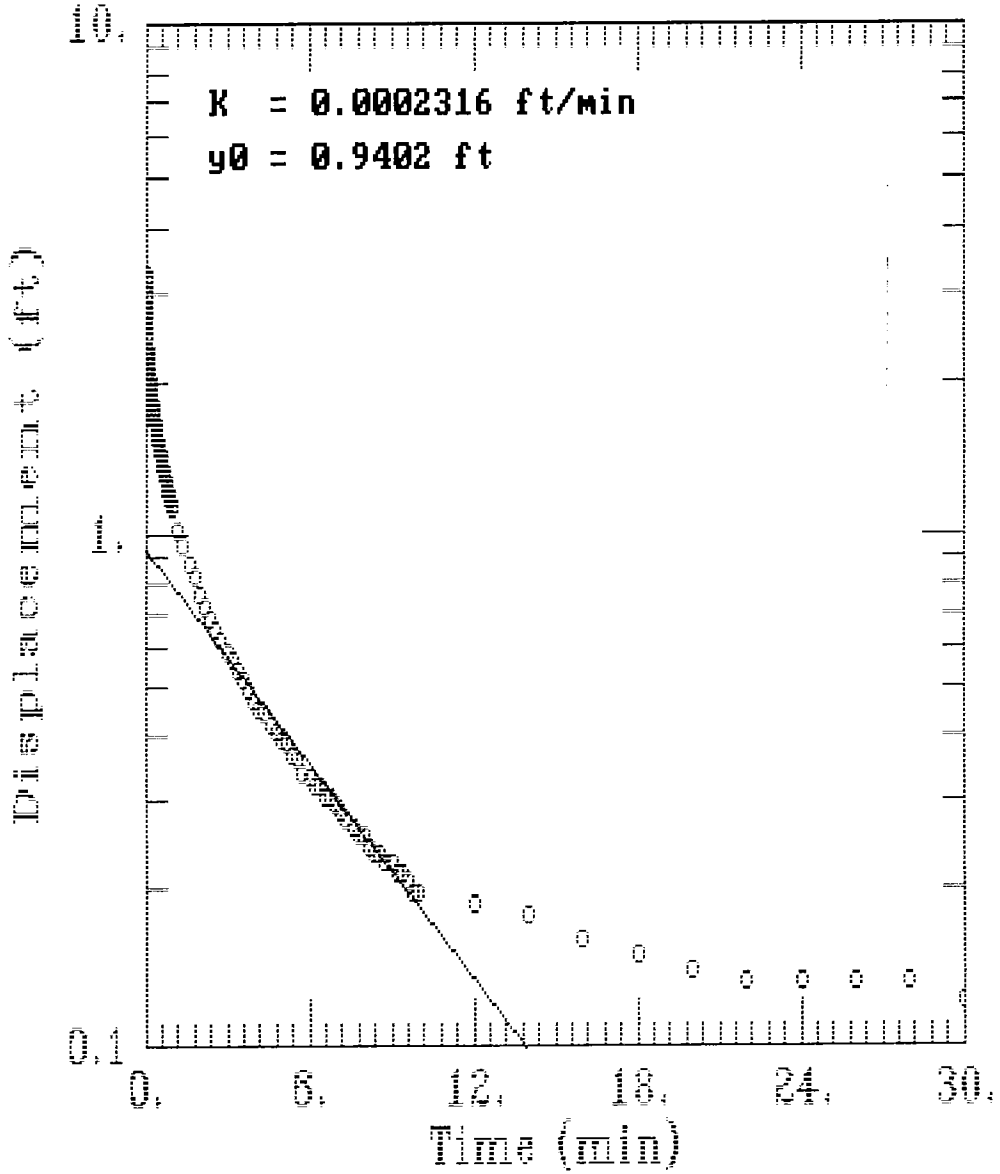
dat


Bldg. 200 MW6 slug out 1
K = 0.067458 ft/min
y0 = 0.1702 ft
10.
1.
0.1
0.01
0.001
Displacement (ft)
0.
0.8
1.6
2.4
3.2
4.
Time (min)

se)

ul.

Bldg 200 DW1 slug out 3



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

APPENDIX F

GROUNDWATER LABORATORY ANALYTICAL REPORTS

BUILDING NUMBER 200
NTC ORLANDO FLORIDA MAIN BASE

Lab Sample Number:	MB708005				MB404004			
Site	200				200			
Locator	064GT101/200 TW-1				064GM201/200 MW-2			
Collect Date:	03-SEP-96				17-JUL-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Metals								
Arsenic	5	U	ug/l	5	5	U	ug/l	5
Cadmium	5	U	ug/l	5	5	U	ug/l	5
Chromium	10	U	ug/l	10	17.7		ug/l	10
Lead	3	U	ug/l	3	14.8		ug/l	3
TOTAL PETROLEUM HYDROCARBON								
Total petroleum hydrocarbon	1.73		mg/l	.05	105		mg/l	2.74
EPA624								
Chloromethane	10	U	ug/l	10	10	U	ug/l	10
Bromomethane	10	U	ug/l	10	10	U	ug/l	10
Vinyl chloride	10	U	ug/l	10	10	U	ug/l	10
Methylene chloride	10	U	ug/l	10	5	U	ug/l	5
1,1-Dichloroethene	10	U	ug/l	10	5	U	ug/l	5
1,1-Dichloroethane	10	U	ug/l	10	5	U	ug/l	5
Chloroform	10	U	ug/l	10	5	U	ug/l	5
1,2-Dichloroethane	10	U	ug/l	10	5	U	ug/l	5
1,1,1-Trichloroethane	10	U	ug/l	10	5	U	ug/l	5
Carbon tetrachloride	10	U	ug/l	10	5	U	ug/l	5
Bromodichloromethane	10	U	ug/l	10	5	U	ug/l	5
1,2-Dichloropropane	10	U	ug/l	10	5	U	ug/l	5
cis-1,3-Dichloropropene	10	U	ug/l	10	5	U	ug/l	5
Trichloroethene	10	U	ug/l	10	5	U	ug/l	5
Dibromochloromethane	10	U	ug/l	10	5	U	ug/l	5
1,1,2-Trichloroethane	10	U	ug/l	10	5	U	ug/l	5
Benzene	10	U	ug/l	10	5	U	ug/l	5
1,2-Dichloroethene (total)	10	U	ug/l	10	5	U	ug/l	5
trans-1,3-Dichloropropene	10	U	ug/l	10	5	U	ug/l	5
2-Chloroethylvinyl ether	10	U	ug/l	10	10	U	ug/l	10
Bromoform	10	U	ug/l	10	5	U	ug/l	5
Tetrachloroethene	10	U	ug/l	10	5	U	ug/l	5
1,1,2,2-Tetrachloroethane	10	U	ug/l	10	5	U	ug/l	5
Toluene	10	U	ug/l	10	5	U	ug/l	5
Chlorobenzene	10	U	ug/l	10	5	U	ug/l	5
Ethylbenzene	10	U	ug/l	10	5		ug/l	5
Acrolein	100	U	ug/l	100	100	U	ug/l	100
Acrylonitrile	100	U	ug/l	100	100	U	ug/l	100
EPA625								
N-Nitrosodimethylamine	10	U	ug/l	10	200	U	ug/l	200
Phenol	10	U	ug/l	10	200	U	ug/l	200
bis(2-Chloroethyl) ether	10	U	ug/l	10	200	U	ug/l	200
2-Chlorophenol	10	U	ug/l	10	200	U	ug/l	200
1,3-Dichlorobenzene	10	U	ug/l	10	200	U	ug/l	200
1,4-Dichlorobenzene	10	U	ug/l	10	200	U	ug/l	200
1,2-Dichlorobenzene	10	U	ug/l	10	200	U	ug/l	200
2,2-oxybis(1-Chloropropane)	10	U	ug/l	10	200	U	ug/l	200
N-Nitroso-di-n-propylamine	10	U	ug/l	10	200	U	ug/l	200
Hexachloroethane	10	U	ug/l	10	200	U	ug/l	200
Nitrobenzene	10	U	ug/l	10	200	U	ug/l	200

BUILDING NUMBER 200
NTC ORLANDO FLORIDA MAIN BASE

Lab Sample Number:	MB708005				MB404004			
Site	200				200			
Locator	064GT101/200 TW-1				064GM201/200 MW-2			
Collect Date:	03-SEP-96				17-JUL-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Isophorone	10	U	ug/l	10	200	U	ug/l	200
2,4-Dimethylphenol	10	U	ug/l	10	200	U	ug/l	200
2-Nitrophenol	10	U	ug/l	10	200	U	ug/l	200
bis(2-Chloroethoxy) methane	10	U	ug/l	10	200	U	ug/l	200
2,4-Dichlorophenol	10	U	ug/l	10	200	U	ug/l	200
1,2,4-Trichlorobenzene	10	U	ug/l	10	200	U	ug/l	200
Naphthalene	10	U	ug/l	10	44	J	ug/l	200
Hexachlorobutadiene	10	U	ug/l	10	200	U	ug/l	200
4-Chloro-3-methylphenol	10	U	ug/l	10	200	U	ug/l	200
Hexachlorocyclopentadiene	10	U	ug/l	10	200	U	ug/l	200
2,4,6-Trichlorophenol	10	U	ug/l	10	200	U	ug/l	200
2-Chloronaphthalene	10	U	ug/l	10	200	U	ug/l	200
Dimethylphthalate	10	U	ug/l	10	200	U	ug/l	200
2,6-Dinitrotoluene	10	U	ug/l	10	200	U	ug/l	200
Acenaphthylene	10	U	ug/l	10	200	U	ug/l	200
Acenaphthene	3	J	ug/l	10	28	J	ug/l	200
2,4-Dinitrophenol	51	U	ug/l	51	1000	U	ug/l	1000
4-Nitrophenol	51	U	ug/l	51	1000	U	ug/l	1000
2,4-Dinitrotoluene	10	U	ug/l	10	200	U	ug/l	200
Diethylphthalate	10	U	ug/l	10	200	U	ug/l	200
4-Chlorophenyl-phenylether	10	U	ug/l	10	200	U	ug/l	200
Fluorene	3	J	ug/l	10	53	J	ug/l	200
4,6-Dinitro-2-methylphenol	51	U	ug/l	51	1000	U	ug/l	1000
N-Nitrosodiphenylamine	10	U	ug/l	10	200	U	ug/l	200
1,2-Diphenylhydrazine	10	U	ug/l	10	200	U	ug/l	200
4-Bromophenyl-phenylether	10	U	ug/l	10	200	U	ug/l	200
Hexachlorobenzene	10	U	ug/l	10	200	U	ug/l	200
Pentachlorophenol	51	U	ug/l	51	1000	U	ug/l	1000
Phenanthrene	1	J	ug/l	10	160	J	ug/l	200
Anthracene	10	U	ug/l	10	200	U	ug/l	200
Di-n-butylphthalate	10	U	ug/l	10	200	U	ug/l	200
Fluoranthene	10	U	ug/l	10	200	U	ug/l	200
Benzidine	51	U	ug/l	51	1000	U	ug/l	1000
Pyrene	10	U	ug/l	10	20	J	ug/l	200
Butylbenzylphthalate	10	U	ug/l	10	200	U	ug/l	200
3,3-Dichlorobenzidine	10	U	ug/l	10	200	U	ug/l	200
Benzo (a) anthracene	10	U	ug/l	10	200	U	ug/l	200
Chrysene	10	U	ug/l	10	200	U	ug/l	200
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	200	U	ug/l	200
Di-n-octylphthalate	10	U	ug/l	10	200	U	ug/l	200
Benzo (b) fluoranthene	10	U	ug/l	10	200	U	ug/l	200
Benzo (k) Fluoranthene	10	U	ug/l	10	200	U	ug/l	200
Benzo (a) pyrene	10	U	ug/l	10	200	U	ug/l	200
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	200	U	ug/l	200
Dibenzo (a,h) anthracene	10	U	ug/l	10	200	U	ug/l	200
Benzo (g,h,i) perylene	10	U	ug/l	10	200	U	ug/l	200

BUILDING NUMBER 200 ------- HITS TABLE ----------
NTC ORLANDO FLORIDA MAIN BASE

	Lab Sample Number:	MB420002			97020007-1			97020007-2			97020007-3		
	Site	200			200			200			200		
	Locator	064GM101/200 MW-1			064GM202/200 MW-2			064GM301/200MW-3			064GM401/200MW-4		
	Collect Date:	18-JUL-96			03-FEB-97			03-FEB-97			03-FEB-97		
		VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
EPA 601/602													
Ethylbenzene		- U	ug/l	1	2.6	ug/l	1	2.8	ug/l	1	- U	ug/l	1
o-Xylene		- U	ug/l	1	7.7	ug/l	1	6.3	ug/l	1	- U	ug/l	1
m,p-Xylene		- U	ug/l	2	5.8	ug/l	1	13.9	ug/l	1	- U	ug/l	1
LEAD													
Lead		19.8	ug/l	3	- U	ug/l	3	- U	ug/l	3	- U	ug/l	3
PNA COMPDS													
Naphthalene		3	ug/l	2	- U	ug/l	10	48	ug/l	5	- U	ug/l	5
2-Methylnaphthalene		2	ug/l	2	90	ug/l	5	128	ug/l	5	- U	ug/l	5
1-Methylnaphthalene		- U	ug/l	2	62	ug/l	5	108	ug/l	5	- U	ug/l	5
Acenaphthene		14	ug/l	2	- U	ug/l	10	- U	ug/l	20	- U	ug/l	5
Fluorene		12	ug/l	2	- U	ug/l	10	- U	ug/l	20	- U	ug/l	5
Phenanthrene		28	ug/l	2	- U	ug/l	10	- U	ug/l	20	- U	ug/l	5
Anthracene		5	ug/l	2	- U	ug/l	10	- U	ug/l	20	- U	ug/l	5
Fluoranthene		3	ug/l	2	- U	ug/l	10	- U	ug/l	20	- U	ug/l	5
TOTAL PETROLEUM HYDROCARBON													
Total petroleum hydrocarbon		.6	mg/l	.05	1.4	mg/l	1	- U	mg/l	1	- U	mg/l	1

BUILDING NUMBER 200 ------- HITS TABLE -----------
NTC ORLANDO FLORIDA MAIN BASE

	Lab Sample Number:	97020007-4				97020007-5				MA676008				97030088-1			
	Site	200				200				218				200			
	Locator	064GM501/200MW-5				064GM601/200MW-6				013GD101/218 DW-1				064GM701/200 MW-7			
	Collect Date:	03-FEB-97				03-FEB-97				09-APR-96				13-MAR-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
EPA 601/602																	
Ethylbenzene		-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
o-Xylene		2.5		ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
m,p-Xylene		5.4		ug/l	1	-	U	ug/l	1	-	U	ug/l	2	-	U	ug/l	1
LEAD																	
Lead		7		ug/l	3	4		ug/l	3	6.6		ug/l	3	-	U	ug/l	3
PNA COMPDS																	
Naphthalene		-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	2	-	U	ug/l	5
2-Methylnaphthalene		-	U	ug/l	5	15		ug/l	5	-	U	ug/l	2	-	U	ug/l	5
1-Methylnaphthalene		-	U	ug/l	5	13		ug/l	5	-	U	ug/l	2	-	U	ug/l	5
Acenaphthene		-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	2	-	U	ug/l	5
Fluorene		-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	2	-	U	ug/l	5
Phenanthrene		-	U	ug/l	5	6		ug/l	5	-	U	ug/l	2	-	U	ug/l	5
Anthracene		-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	2	-	U	ug/l	5
Fluoranthene		-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	2	-	U	ug/l	5
TOTAL PETROLEUM HYDROCARBON																	
Total petroleum hydrocarbon		1.2		mg/l	1	-	U	mg/l	1	-	U	mg/l	.05	-	U	mg/l	1

BUILDING NUMBER 200 ------- HITS TABLE ----------
NTC ORLANDO FLORIDA MAIN BASE

	Lab Sample Number:	97030088-2				97030088-3				97040168-2				97030088-4			
	Site	200				200				200				200			
	Locator	064GM801/200 MW-8				064GM901/200 MW-9				064G1001/200 MW-10				064GD101/200 DW-1			
	Collect Date:	13-MAR-97				13-MAR-97				24-APR-97				13-MAR-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
EPA 601/602																	
Ethylbenzene		-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
o-Xylene		2		ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
m,p-Xylene		3		ug/l	1	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
LEAD																	
Lead		-	U	ug/l	3	8		ug/l	3	-	U	ug/l	3	6		ug/l	3
PNA COMPDS																	
Naphthalene		24		ug/l	5	-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5
2-Methylnaphthalene		48		ug/l	5	-	U	ug/l	5	7		ug/l	5	-	U	ug/l	5
1-Methylnaphthalene		48		ug/l	5	-	U	ug/l	5	8		ug/l	5	-	U	ug/l	5
Acenaphthene		-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5
Fluorene		-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5
Phenanthrene		-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5
Anthracene		-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5
Fluoranthene		-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5
TOTAL PETROLEUM HYDROCARBON																	
Total petroleum hydrocarbon		-	U	mg/l	1	-	U	mg/l	1	-	U	mg/l	1	-	U	mg/l	1

BUILDING NUMBER 200 ------- HITS TABLE ----------
NTC ORLANDO FLORIDA MAIN BASE

Lab Sample Number:	97020007-6				97030088-5				97040168-1			
Site	200				200				200			
Locator	064RB101/200RB-1				064RB201/200 RB-2				064RB103/200 RB-3			
Collect Date:	03-FEB-97				13-MAR-97				24-APR-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
EPA 601/602												
Ethylbenzene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
o-Xylene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
m,p-Xylene	-	U	ug/l	1	-	U	ug/l	1	-	U	ug/l	1
LEAD												
Lead	-	U	ug/l	3	-	U	ug/l	3	-	U	ug/l	3
PNA COMPDS												
Naphthalene	-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5
2-Methylnaphthalene	-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5
1-Methylnaphthalene	-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5
Acenaphthene	-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5
Fluorene	-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5
Phenanthrene	-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5
Anthracene	-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5
Fluoranthene	-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5
TOTAL PETROLEUM HYDROCARBON												
Total petroleum hydrocarbon	-	U	mg/l	1	-	U	mg/l	1	-	U	mg/l	1

BUILDING NUMBER 200
NTC ORLANDO FLORIDA MAIN BASE

	Lab Sample Number:	MB420002			97020007-1			97020007-2			97020007-3		
	Site	200			200			200			200		
	Locator	064GM101/200 MW-1			064GM202/200 MW-2			064GM301/200MW-3			064GM401/200MW-4		
	Collect Date:	18-JUL-96			03-FEB-97			03-FEB-97			03-FEB-97		
		VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
EDB													
Ethylene dibromide		.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
EPA 601/602													
Chloromethane		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Bromomethane		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Dichlorodifluoromethane		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Vinyl chloride		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Chloroethane		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Methylene chloride		5 U	ug/l	5	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Trichlorofluoromethane		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1-Dichloroethene		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1-Dichloroethane		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
trans-1,2-Dichloroethene		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Chloroform		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloroethane		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1,1-Trichloroethane		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Carbon tetrachloride		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Bromodichloromethane		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichloropropane		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
cis-1,3-Dichloropropene		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Trichloroethene		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Dibromochloromethane		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1,2-Trichloroethane		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
trans-1,3-Dichloropropene		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Bromoform		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,1,2,2-Tetrachloroethane		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Tetrachloroethene		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Chlorobenzene		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,3-Dichlorobenzene		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,2-Dichlorobenzene		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
1,4-Dichlorobenzene		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Methyl tert-butyl ether		1 U	ug/l	1	5 U	ug/l	5	5 U	ug/l	5	5 U	ug/l	5
Benzene		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Toluene		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Chlorobenzene		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Ethylbenzene		1 U	ug/l	1	2.6	ug/l	1	2.8	ug/l	1	1 U	ug/l	1
Xylenes (total)		-			-			-			-		
o-Xylene		1 U	ug/l	1	7.7	ug/l	1	6.3	ug/l	1	1 U	ug/l	1
m,p-Xylene		2 U	ug/l	2	5.8	ug/l	1	13.9	ug/l	1	1 U	ug/l	1
LEAD													
Lead		19.8	ug/l	3	3 U	ug/l	3	3 U	ug/l	3	3 U	ug/l	3
PNA COMPDS													
Naphthalene		3	ug/l	2	10 U	ug/l	10	48	ug/l	5	5 U	ug/l	5
2-Methylnaphthalene		2	ug/l	2	90	ug/l	5	128	ug/l	5	5 U	ug/l	5
1-Methylnaphthalene		2 U	ug/l	2	62	ug/l	5	108	ug/l	5	5 U	ug/l	5
Acenaphthylene		2 U	ug/l	2	10 U	ug/l	10	20 U	ug/l	20	5 U	ug/l	5
Acenaphthene		14	ug/l	2	10 U	ug/l	10	20 U	ug/l	20	5 U	ug/l	5
Fluorene		12	ug/l	2	10 U	ug/l	10	20 U	ug/l	20	5 U	ug/l	5

BUILDING NUMBER 200
NTC ORLANDO FLORIDA MAIN BASE

	Lab Sample Number:	MB420002				97020007-1				97020007-2				97020007-3			
	Site	200				200				200				200			
	Locator	064GM101/200 MW-1				064GM202/200 MW-2				064GM301/200MW-3				064GM401/200MW-4			
	Collect Date:	18-JUL-96				03-FEB-97				03-FEB-97				03-FEB-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Phenanthrene		28		ug/l	2	10	U	ug/l	10	20	U	ug/l	20	5	U	ug/l	5
Anthracene		5		ug/l	2	10	U	ug/l	10	20	U	ug/l	20	5	U	ug/l	5
Fluoranthene		3		ug/l	2	10	U	ug/l	10	20	U	ug/l	20	5	U	ug/l	5
Pyrene		2	U	ug/l	2	10	U	ug/l	10	20	U	ug/l	20	5	U	ug/l	5
Benzo (a) anthracene		2	U	ug/l	2	10	U	ug/l	10	20	U	ug/l	20	5	U	ug/l	5
Chrysene		2	U	ug/l	2	10	U	ug/l	10	20	U	ug/l	20	5	U	ug/l	5
Benzo (b) fluoranthene		2	U	ug/l	2	10	U	ug/l	10	20	U	ug/l	20	5	U	ug/l	5
Benzo (k) fluoranthene		2	U	ug/l	2	10	U	ug/l	10	20	U	ug/l	20	5	U	ug/l	5
Benzo (a) pyrene		2	U	ug/l	2	10	U	ug/l	10	20	U	ug/l	20	5	U	ug/l	5
Indeno (1,2,3-cd) pyrene		2	U	ug/l	2	10	U	ug/l	10	20	U	ug/l	20	5	U	ug/l	5
Dibenzo (a,h) anthracene		2	U	ug/l	2	10	U	ug/l	10	20	U	ug/l	20	5	U	ug/l	5
Benzo (g,h,i) perylene		2	U	ug/l	2	10	U	ug/l	10	20	U	ug/l	20	5	U	ug/l	5
TOTAL PETROLEUM HYDROCARBON																	
Total petroleum hydrocarbon		.6		mg/l	.05	1.4		mg/l	1	1	U	mg/l	1	1	U	mg/l	1

BUILDING NUMBER 200
NTC ORLANDO FLORIDA MAIN BASE

	Lab Sample Number:	97020007-4				97020007-5				97030088-1				97030088-2			
	Site	200				200				200				200			
	Locator	064GM501/200MW-5				064GM601/200MW-6				064GM701/200 MW-7				064GM801/200 MW-8			
	Collect Date:	03-FEB-97				03-FEB-97				13-MAR-97				13-MAR-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
EDB																	
Ethylene dibromide		.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
EPA 601/602																	
Chloromethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromomethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Dichlorodifluoromethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Vinyl chloride		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Methylene chloride		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Trichlorofluoromethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
trans-1,2-Dichloroethene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chloroform		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,1-Trichloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Carbon tetrachloride		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromodichloromethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloropropane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
cis-1,3-Dichloropropene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Trichloroethene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Dibromochloromethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2-Trichloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
trans-1,3-Dichloropropene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromoform		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2,2-Tetrachloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Tetrachloroethene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chlorobenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,3-Dichlorobenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichlorobenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,4-Dichlorobenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Methyl tert-butyl ether		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Toluene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chlorobenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Ethylbenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Xylenes (total)		-				-				-				-			
o-Xylene		2.5		ug/l	1	1	U	ug/l	1	1	U	ug/l	1	2		ug/l	1
m,p-Xylene		5.4		ug/l	1	1	U	ug/l	1	1	U	ug/l	1	3		ug/l	1

BUILDING NUMBER 200
NTC ORLANDO FLORIDA MAIN BASE

	Lab Sample Number:	97020007-4				97020007-5				97030088-1				97030088-2			
	Site	200				200				200				200			
	Locator	064GM501/200MW-5				064GM601/200MW-6				064GM701/200 MW-7				064GM801/200 MW-8			
	Collect Date:	03-FEB-97				03-FEB-97				13-MAR-97				13-MAR-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
LEAD																	
Lead		7		ug/l	3	4		ug/l	3	3	U	ug/l	3	3	U	ug/l	3
PNA COMPDS																	
Naphthalene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	24		ug/l	5
2-Methylnaphthalene		5	U	ug/l	5	15		ug/l	5	5	U	ug/l	5	48		ug/l	5
1-Methylnaphthalene		5	U	ug/l	5	13		ug/l	5	5	U	ug/l	5	48		ug/l	5
Acenaphthylene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Acenaphthene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Fluorene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Phenanthrene		5	U	ug/l	5	6		ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Anthracene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Fluoranthene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Pyrene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzo (a) anthracene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Chrysene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzo (b) fluoranthene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzo (k) fluoranthene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzo (a) pyrene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Indeno (1,2,3-cd) pyrene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Dibenzo (a,h) anthracene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzo (g,h,i) perylene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
TOTAL PETROLEUM HYDROCARBON																	
Total petroleum hydrocarbon		1.2		mg/l	1	1	U	mg/l	1	1	U	mg/l	1	1	U	mg/l	1

BUILDING NUMBER 200
NTC ORLANDO FLORIDA MAIN BASE

Lab Sample Number:	97030088-3				97040168-2				97030088-4				97020007-6			
Site	200				200				200				200			
Locator	064GM901/200 MW-9				064G1001/200 MW-10				064GD101/200 DW-1				064RB101/200RB-1			
Collect Date:	13-MAR-97				24-APR-97				13-MAR-97				03-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
EDB																
Ethylene dibromide	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
EPA 601/602																
Chloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromomethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Dichlorodifluoromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Vinyl chloride	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Methylene chloride	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Trichlorofluoromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
trans-1,2-Dichloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chloroform	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,1-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Carbon tetrachloride	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromodichloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloropropane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
cis-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Trichloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Dibromochloromethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
trans-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromoform	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2,2-Tetrachloroethane	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Tetrachloroethene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chlorobenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,3-Dichlorobenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichlorobenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,4-Dichlorobenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Methyl tert-butyl ether	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Toluene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chlorobenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Ethylbenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Xylenes (total)	-				-				-				-			
o-Xylene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
m,p-Xylene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

BUILDING NUMBER 200
NTC ORLANDO FLORIDA MAIN BASE

Lab Sample Number:	97030088-3				97040168-2				97030088-4				97020007-6			
Site	200				200				200				200			
Locator	064GM901/200 MW-9				064G1001/200 MW-10				064GD101/200 DW-1				064RB101/200RB-1			
Collect Date:	13-MAR-97				24-APR-97				13-MAR-97				03-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
LEAD																
Lead	8		ug/l	3	3	U	ug/l	3	6		ug/l	3	3	U	ug/l	3
PNA COMPDS																
Naphthalene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
2-Methylnaphthalene	5	U	ug/l	5	7		ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1-Methylnaphthalene	5	U	ug/l	5	8		ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Acenaphthylene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Acenaphthene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Fluorene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Phenanthrene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Anthracene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Fluoranthene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Pyrene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzo (a) anthracene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Chrysene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzo (b) fluoranthene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzo (k) fluoranthene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzo (a) pyrene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Indeno (1,2,3-cd) pyrene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Dibenzo (a,h) anthracene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzo (g,h,i) perylene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
TOTAL PETROLEUM HYDROCARBON																
Total petroleum hydrocarbon	1	U	mg/l	1	1	U	mg/l	1	1	U	mg/l	1	1	U	mg/l	1

BUILDING NUMBER 200
NTC ORLANDO FLORIDA MAIN BASE

Lab Sample Number:	97030088-5				97040168-1			
Site	200				200			
Locator	064RB201/200 RB-2				064RB103/200 RB-3			
Collect Date:	13-MAR-97				24-APR-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
EDB								
Ethylene dibromide	.02	U	ug/l	.02	.02	U	ug/l	.02
EPA 601/602								
Chloromethane	1	U	ug/l	1	1	U	ug/l	1
Bromomethane	1	U	ug/l	1	1	U	ug/l	1
Dichlorodifluoromethane	1	U	ug/l	1	1	U	ug/l	1
Vinyl chloride	1	U	ug/l	1	1	U	ug/l	1
Chloroethane	1	U	ug/l	1	1	U	ug/l	1
Methylene chloride	1	U	ug/l	1	1	U	ug/l	1
Trichlorofluoromethane	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethene	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1
trans-1,2-Dichloroethene	1	U	ug/l	1	1	U	ug/l	1
Chloroform	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloroethane	1	U	ug/l	1	1	U	ug/l	1
1,1,1-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1
Carbon tetrachloride	1	U	ug/l	1	1	U	ug/l	1
Bromodichloromethane	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloropropane	1	U	ug/l	1	1	U	ug/l	1
cis-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1
Trichloroethene	1	U	ug/l	1	1	U	ug/l	1
Dibromochloromethane	1	U	ug/l	1	1	U	ug/l	1
1,1,2-Trichloroethane	1	U	ug/l	1	1	U	ug/l	1
trans-1,3-Dichloropropene	1	U	ug/l	1	1	U	ug/l	1
Bromoform	1	U	ug/l	1	1	U	ug/l	1
1,1,2,2-Tetrachloroethane	1	U	ug/l	1	1	U	ug/l	1
Tetrachloroethene	1	U	ug/l	1	1	U	ug/l	1
Chlorobenzene	1	U	ug/l	1	1	U	ug/l	1
1,3-Dichlorobenzene	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichlorobenzene	1	U	ug/l	1	1	U	ug/l	1
1,4-Dichlorobenzene	1	U	ug/l	1	1	U	ug/l	1
Methyl tert-butyl ether	5	U	ug/l	5	5	U	ug/l	5
Benzene	1	U	ug/l	1	1	U	ug/l	1
Toluene	1	U	ug/l	1	1	U	ug/l	1
Chlorobenzene	1	U	ug/l	1	1	U	ug/l	1
Ethylbenzene	1	U	ug/l	1	1	U	ug/l	1
Xylenes (total)	-				-			
o-Xylene	1	U	ug/l	1	1	U	ug/l	1
m,p-Xylene	1	U	ug/l	1	1	U	ug/l	1

BUILDING NUMBER 200
NTC ORLANDO FLORIDA MAIN BASE

Lab Sample Number:	97030088-5				97040168-1			
Site	200				200			
Locator	064RB201/200 RB-2				064RB103/200 RB-3			
Collect Date:	13-MAR-97				24-APR-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
LEAD								
Lead	3	U	ug/l	3	3	U	ug/l	3
PNA COMPDS								
Naphthalene	5	U	ug/l	5	5	U	ug/l	5
2-Methylnaphthalene	5	U	ug/l	5	5	U	ug/l	5
1-Methylnaphthalene	5	U	ug/l	5	5	U	ug/l	5
Acenaphthylene	5	U	ug/l	5	5	U	ug/l	5
Acenaphthene	5	U	ug/l	5	5	U	ug/l	5
Fluorene	5	U	ug/l	5	5	U	ug/l	5
Phenanthrene	5	U	ug/l	5	5	U	ug/l	5
Anthracene	5	U	ug/l	5	5	U	ug/l	5
Fluoranthene	5	U	ug/l	5	5	U	ug/l	5
Pyrene	5	U	ug/l	5	5	U	ug/l	5
Benzo (a) anthracene	5	U	ug/l	5	5	U	ug/l	5
Chrysene	5	U	ug/l	5	5	U	ug/l	5
Benzo (b) fluoranthene	5	U	ug/l	5	5	U	ug/l	5
Benzo (k) fluoranthene	5	U	ug/l	5	5	U	ug/l	5
Benzo (a) pyrene	5	U	ug/l	5	5	U	ug/l	5
Indeno (1,2,3-cd) pyrene	5	U	ug/l	5	5	U	ug/l	5
Dibenzo (a,h) anthracene	5	U	ug/l	5	5	U	ug/l	5
Benzo (g,h,i) perylene	5	U	ug/l	5	5	U	ug/l	5
TOTAL PETROLEUM HYDROCARBON								
Total petroleum hydrocarbon	1	U	mg/l	1	1	U	mg/l	1

SITE 200

QAL QUALITY ANALYTICAL LABORATORIES, INC.

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

Project # 8519-51	**Purchase Order #**
Project Name NTC ORLANDO	
Company Name ABB Environmental Services	
Project Manager or Contact & Phone # J. Karsen 407-895-8845	**Report Copy to:** Manuel Alonso
Requested Completion Date: 8-3-96	**Site ID** NTC Orlando
Sample Disposal: Dispose ☒ Return ☐	

☐ **LGN** One Innovation Drive, Suite C, Alachua, FL 32615-9586, (904) 462-3050 FAX (904) 462-1670

☐ **LRD** 5090 Caterpillar Road, Redding, CA 96003-1412, (916) 244-5227 FAX (916) 244-4109

☒ **LMG** 2567 Fairlane Drive, Montgomery, AL 36116-1622, (205) 271-2440 FAX (205) 271-3428

☐ **LKW** Canviro Analytical Laboratories, Inc., 50 Bathurst, Unit 12, Waterloo, Ontario, Canada N2V 2C5, (519) 747-2575 FAX (519) 747-3806

THIS AREA FOR LAB USE ONLY

Lab # MA420	**Page**	**of**
Client Service	**Price Source** A P Q S	
Acct Code	**Test Group**	
Project Code	**Ack. Gen.**	
LIMS Ver	**Login**	**Mult.**
COC Review		

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	CLIENT SAMPLE ID (9 CHARACTERS)	QC ID (3 CHAR)	# OF CONTAINERS	ANALYSES REQUESTED: EPA 602 + MTBE	EPA 601	EPA 610	EPA 239.2 (Pb)	EPA 418.1 (TPH)	SOM (EDB)	SAMPLE REMARKS	LAB 1 ID	LAB 2 ID
7/18/96	1040		X	X		000RB101		12	3	3	2	1	1	2	RB-1		
	1117					064GM101		12	3	3	2	1	1	2	200 MW-1		
	1152					021GM101		9	3	3		1		2	109 MW-1		
	1212					021GM201		9	3	3		1		2	109 MW-2		
	1240					042GM201		12	3	3	2	1	1	2	2040 MW-2		
	1301					042GM301		12	3	3	2	1	1	2	2040 MW-3		
	1348					042GM101		12	3	3	2	1	1	2	2040 MW-1		
—	—		X	X		TRIP BLANK		3	3	3					TRIP BLANK		

Sampled By & Title (Please sign and print name) Kevin Newton (ROC)	**Date/Time** 7-18-96 1400	**Relinquished By** (Please sign and print name) Scott Donuck (SCOTT DONUCK)	**Date/Time** 7-18-96 1700
Received By (Please sign and print name)	**Date/Time**	**Relinquished By** (Please sign and print name)	**Date/Time**
Received By (Please sign and print name)	**Date/Time**	**Relinquished By** (Please sign and print name)	**Date/Time**
Received By (Please sign and print name)	**Date/Time**	**Shipped Via** UPS (Fed-Ex) Other _____	**Shipping #** 7699[illegible]1

HAZWRAP/NESSA: Y (N)

EDATA: Y (N)

QC LEVEL (1) 2 3 OTHER _____

pH _____ Ice _____

Custody Seal _____ Temp _____

Batch Remarks:

Instructions and Agreement Provisions on Reverse Side

DISTRIBUTION: Original - LAB, Yellow - LAB, Pink - Client

SITE 200

QAL QUALITY ANALYTICAL LABORATORIES, INC.

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

Project # 8519-51 | Purchase Order #

Project Name: NTC Orlando

Company Name: ABB-ES

Project Manager or Contact & Phone #: John Kaiser 407-895-8845 | Report Copy to: Manuel Alonso

Requested Completion Date: 9-18-96 | Site ID: NTC Orlando | Sample Disposal: Dispose [X] Return [ ]

☐ LGN — One Innovation Drive, Suite C, Alachua, FL 32615-9586, (904) 462-3050 FAX (904) 462-1670

☐ LRD — 5090 Caterpillar Road, Redding, CA 96003-1412, (916) 244-5227 FAX (916) 244-4109

☐ LMG — 2567 Fairlane Drive, Montgomery, AL 36116-1622, (205) 271-2440 FAX (205) 271-3428

☐ LKW — Canviro Analytical Laboratories, Inc., 50 Bathurst, Unit 12, Waterloo, Ontario, Canada N2V 2C5, (519) 747-2575 FAX (519) 747-3806

THIS AREA FOR LAB USE ONLY

Lab # MB708 | Page | of

Client Service | Price Source: A P Q S

Acct Code: ABB UST | Test Group: 527

Project Code | Ack. Gen.

LIMS Ver 19 | Login | Mult.

COC Review BS

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	CLIENT SAMPLE ID (9 CHARACTERS)	QC ID (3 CHAR)	# OF CONTAINERS	EPA 237.2 (Pb)	Metals (As, Cd, Cr, Pb)	EPA 624	EPA 625	EPA 504 (EDB)	EPA 602	EPA 601	EPA 610	EPA 418.1 (TRPH)	SAMPLE REMARKS	LAB 1 ID	LAB 2 ID
9-3-96	0905		X	X		7174MW13		1	1									7174 MW-13	01	
	0917					7174MW22		1	1									7174 MW-22	02	
	0934					7174MW23		1	1									7174 MW-23	03	
	1053					021GT201		9	1				2	3	3			109 TW-2	04	
	1134					064GT101		7		1	3	2					1	200 TW-1	05	
	1317					013GM102		6	1					3		2		218 MW-1	06	
	1342					013GM302		6	1					3		2		218 MW-3	07	
						TRIPBLANK		3						3	3			TRIP BLANK	08	

Sampled By & Title (Please sign and print name): Scott Donelick (SCOTT DONELICK) | Date/Time 1400 9-3-96

Relinquished By (Please sign and print name): Scott Donelick (SCOTT DONELICK) | Date/Time 1400 9-3-96

Received By (Please sign and print name): Lynn Shue | Date/Time 9/4/96 1000

Relinquished By (Please sign and print name) | Date/Time

Received By (Please sign and print name) | Date/Time

Relinquished By (Please sign and print name) | Date/Time

Received By (Please sign and print name) | Date/Time

Shipped Via: UPS (Fed-Ex) Other _____ | Shipping # 0969938550

HAZWRAP/NESSA: Y (N)

EDATA: Y (N)

QC LEVEL (1) 2 3 OTHER _____

pH | Ice Y

Custody Seal | Temp 4°C

Batch Re

0000054

SITE 200

QAL QUALITY ANALYTICAL LABORATORIES, INC.

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

Project # 8519-51 | **Purchase Order #**

Project Name NTC ORLANDO - OWS

Company Name ABB-ENVIRONMENTAL SERVICES

Project Manager or Contact & Phone # J. Kaiser 407-895-8845 | **Report Copy to:** MANUEL ALONSO

Requested Completion Date: 8-1-96 | **Site ID** NTC Orlando | **Sample Disposal:** Dispose [X] Return [ ]

☐ LGN
One Innovation Drive, Suite C
Alachua, FL 32615-9586
(904) 462-3050 FAX (904) 462-1670

☐ LRD
5090 Caterpillar Road
Redding, CA 96003-1412
(916) 244 5227 FAX (916) 244-4109

☒ LMG
2567 Fairlane Drive
Montgomery, AL 36116-1622
(205) 271-2440 FAX (205) 271-3428

☐ LKW
Canviro Analytical Laboratories, Inc
50 Bathurst, Unit 12
Waterloo, Ontario, Canada N2V 2C5
(519) 747-2575 FAX (519) 747-3806

THIS AREA FOR LAB USE ONLY

Lab # MB404 | Page | of

Client Service | Price Source A P Q S

Acct Code | Test Group

Project Code | Ack. Gen.

LIMS Ver | Login MM | Mult.

COC Review DS

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	CLIENT SAMPLE ID (9 CHARACTERS)	QC ID (3 CHAR)	# OF CONTAINERS	EPA 624	EPA 625	EPA 418.1 (TPH)	EPA 239.2 Arsenic, Cadmium, Chromium, Lead		EPA 602				SAMPLE REMARKS	LAB 1 ID	LAB 2 ID
7-17-96	1031		X	X		044GT201		7	3	2	1	1						7184 TW-2	01	
7-17-96	1134		X	X		062GT101		7	3	2	1	1						1053 TW-1	02	
7-17-96	956		X	X		063GT101		7	3	2	1	1						7175 TW-1	03	
7-17-96	1227		X	X		064GM201		7	3	2	1	1						200 MW-2	04	
—	—			X		TRIP BLANK		3						3				Trip Blank	05	

Sampled By & Title (Please sign and print name) Scott Donelick (FOL) | Date/Time 7/17/96 1300

Relinquished By (Please sign and print name) Scott Donelick (SCOTT DONELICK) | Date/Time 7/17/96 1700

Received By (Please sign and print name) Bobby Scar | Date/Time 7/18/96 10:00

Relinquished By (Please sign and print name) | Date/Time

Received By (Please sign and print name) | Date/Time

Relinquished By (Please sign and print name) | Date/Time

Received By (Please sign and print name) | Date/Time

Shipped Via UPS (Fed-Ex) Other _____ | Shipping # 941879231 6

HAZWRAP NESSA: Y (N)

EDATA: Y (N)

QC LEVEL (1) 2 3 OTHER

pH | Ice

Custody Seal | Temp

Batch Remarks:

00044

DISTRIBUTION: ... LAB Yellow ... LAB Pink ... Client

SITE 200

Nº 5911

PC&B Laboratories, Inc.

210 Park Road, Oviedo, Fl 32765
407-359-7194 (FAX) 407-359-7197

Chain of Custody

Work Order: 9702007

Date: 2/3/97 Page 1 of 1

COMPANY ABB-ES
ADDRESS 1080 WOODCOCK ROAD, SUITE 100
ORLANDO, FL 32803
SAMPLED BY SCOTT DONELICK
SIGN Scott Donelick PHONE NO: 895-8845

#	SAMPLE ID.	DATE	TIME	MATRIX	EPA 601/602	EPA 504 (EDB)	EPA 610	EPA 418.1	EPA 239.2 (Pb)	EPA 624	EPA 625	METALS (As, Cd, Cr)	NUMBER OF CONTAINERS
1	064GM202/200 MW-2	2/3/97	0952	H_2O	2	2	1	1	1				7
2	064GM301/200MW-3		1004		2	2	1	1	1				7
3	064GM401/200 MW-4		1100		2	2	1	1	1				7
4	064GM501/200 MW-5		1042		2	2	1	1	1				7
5	064GM601/200 MW-6		1117		2	2	1	1	1				7
6	064RB101/200 RB-1		0840		2	2	1	1	1				7
7	044GM102/7184 MW-1		1232					1		2	1	1	5
8	TRIP				1								1
9													
10													
11													
12													
13													

ANALYSIS REQUEST

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1: [signature]	1/27/97	1: [signature]	1/27/97
2: [signature]	2/3/97	2: [signature]	2/5/97 1430
3:		3:	

SPECIAL INSTRUCTIONS/COMMENTS:

PROJECT INFORMATION

PROJECT NAME: NTC ORLANDO
PROJECT #: 8545-58
SITE ADDRESS: NTC ORLANDO
PROJECT MANAGER: JOHN KAISER
INVOICE TO: (IF DIFFERENT FROM ABOVE) ATTN: LORENA KANDT

SAMPLE RECEIPT

Total No. of Containers
Chain of Custody Seals
Rec'd Good Condition/Cold
PO#:
SHIPPED VIA:

SITE 200

№ 5999

PC&B Laboratories, Inc.

210 Park Road, Oviedo, Fl 32765
407-359-7194 (FAX) 407-359-7197

Chain of Custody

Work Order: 9703088

Date: 3/13/97 Page 1 of 1

COMPANY ABB-ES
ADDRESS 1080 Woodcock Rd., Suite 100
Orlando, FL 32803
SAMPLED BY Scott Donelick
SIGN Scott Donelick PHONE NO: 895-8845

#	SAMPLE ID.	DATE/TIME		MATRIX	EPA 601/602	EPA 504 (EDB)	EPA 610	EPA 239.2 (Total Pb)	EPA 418.1 (TRPH)	NUMBER OF CONTAINERS
1	0646M701/200MW-7	3-13-97	1204	H2O	2	2	1	1	1	7
2	0646M801/200MW-8		1252		2	2	1	1	1	7
3	0646M901/200MW-9		1306		2	2	1	1	1	7
4	0646D101/200DW-1		1247		2	2	1	1	1	7
5	064RB201/200RB3-2	↓	1109	↓	2	2	1	1	1	7
6										
7										
8										
9										
10										
11										
12										
13										

ANALYSIS REQUEST

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1: Scott Donelick	3/13/97 1700	1: DBennett	3/13/97 15:20
2:		2:	
3:		3:	

SPECIAL INSTRUCTIONS/COMMENTS:

PROJECT INFORMATION

PROJECT NAME: NTC Orlando
PROJECT #: 8545-58
SITE ADDRESS: Building 200
PROJECT MANAGER: John Kaiser

SAMPLE RECEIPT

Total No. of Containers
Chain of Custody Seals
Rec'd Good Condition/Cold
PO#:
SHIPPED VIA: PU

INVOICE TO: (IF DIFFERENT FROM ABOVE) ATTN: LORENA KANDT

SITE 200

№ 6206

PC&B Laboratories, Inc.

210 Park Road, Oviedo, Fl 32765
407-359-7194 (FAX) 407-359-7197

Chain of Custody

Work Order: 9904168

Date: ~~4~~ 4-24-97 Page 1 of 1

COMPANY ABB-EVS
ADDRESS 1080 Woodcock Rd Suite 100
Orlando, FL 32803
SAMPLED BY Scott Onelich
SIGN Scott Onelich PHONE NO: 895-8845

#	SAMPLE ID.	DATE/TIME	MATRIX	EPA 601/602	EPA 504 EDB	EPA 610	EPA 418.1	EPA 239.2 (Pb)	NUMBER OF CONTAINERS
1	064RB103/200 RB-3	4-24-97/0811	H_2O	2	2	1	1	1	7
2	06461001/200 MW-10	↓ / 1115	H_2O	2	2	1	1	1	7
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									

ANALYSIS REQUEST

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1: Scott Onelich	4/25/97 1400	1: [signature]	4/25/97 1520
2:		2:	
3:		3:	

SPECIAL INSTRUCTIONS/COMMENTS:

PROJECT INFORMATION
PROJECT NAME: NTC ORLANDO
PROJECT #: 8595-58
SITE ADDRESS: Building 200
PROJECT MANAGER: John Kaiser

SAMPLE RECEIPT
Total No. of Containers
Chain of Custody Seals
Rec'd Good Condition/Cold
PO#:
SHIPPED VIA

INVOICE TO: (IF DIFFERENT FROM ABOVE) ATTN: Lorena Kandt