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CONTAMINATION ASSESSMENT REPORT FOR BUILDING 7240 MCCOY ANNEX NTC
ORLANDO FL
3/1/1997
ABB ENVIRONMENTAL

CONTAMINATION ASSESSMENT REPORT

**BUILDING 7240
McCOY ANNEX**

**NAVAL TRAINING CENTER
ORLANDO, FLORIDA**

Unit Identification Code: N65928

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Prepared by:

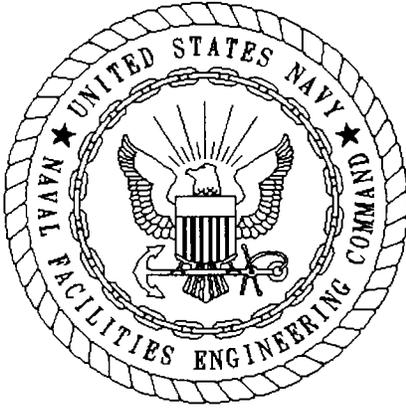
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Prepared for:

**Department of the Navy, Southern Division
Naval Facilities Engineering Command
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March 1997



CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

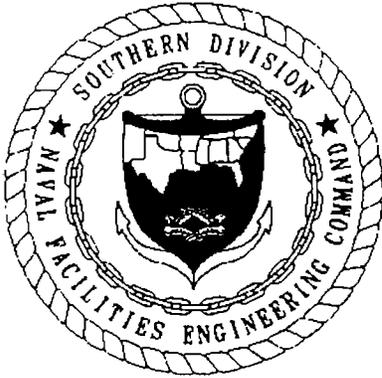
The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/107 are complete and accurate and comply with all requirements of this contract.

DATE: March 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) in 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 the 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 for petroleum-impacted sites discovered during the Base Realignment and Closure (Act) Tank Management Plan implementation at the Naval Training Center, Orlando, McCoy Annex property in Orlando, Florida. This Contamination Assessment Report (CAR) has been prepared to evaluate soil and groundwater conditions at the former McCoy Annex Bank, Building 7240.

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

1. One 560-gallon underground storage tank (UST) and one 300-gallon above-ground storage tank (AST) stored heating fuel at Building 7240. The AST was removed from the site prior to the implementation of the Tank Management Plan. Florida Petroleum Services, Inc., removed the UST on January 22, 1996. The AST showed no signs of contamination, but the UST showed signs of petroleum impact to groundwater.
2. Contamination assessment activities were conducted by ABB-ES from January 22, 1996, to February 10, 1997. On November 4, 1996, hand-augered soil borings were advanced throughout the study area to assess whether or not soil contamination was present. No petroleum-impacted soil was detected.
3. On September 24, 1996, three shallow monitoring wells (MW-1, MW-2, and MW-3) were installed to assess the horizontal extent of petroleum contamination in the shallow aquifer. The shallow monitoring wells were installed to a depth of 12 feet below land surface.
4. On October 3, 1996, groundwater samples collected from the monitoring wells indicated that no dissolved petroleum hydrocarbon contamination exceeding Chapter 62-770, Florida Administrative Code, target cleanup levels was present.
5. Groundwater flow direction was determined to be from northwest to southeast with a hydraulic gradient of 1.3×10^{-3} feet per foot. Due to the absence of petroleum impact to groundwater, no deep well was installed and no aquifer characterization was performed.
6. No active potable water wells are located within 0.25 mile of this site.
7. ABB-ES recommends a No Further Action proposal for this 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
HSA	hollow-stem auger
NTC	Naval Training Center
OVA	organic vapor analyzer
PAH	polynuclear aromatic hydrocarbons
TOC	top of casing
TRPH	total recoverable petroleum hydrocarbons
USEPA	U. S. Environmental Protection Agency
UST	underground storage tank
VOA	volatile organic aromatics

1.0 SITE DESCRIPTION AND BACKGROUND INFORMATION

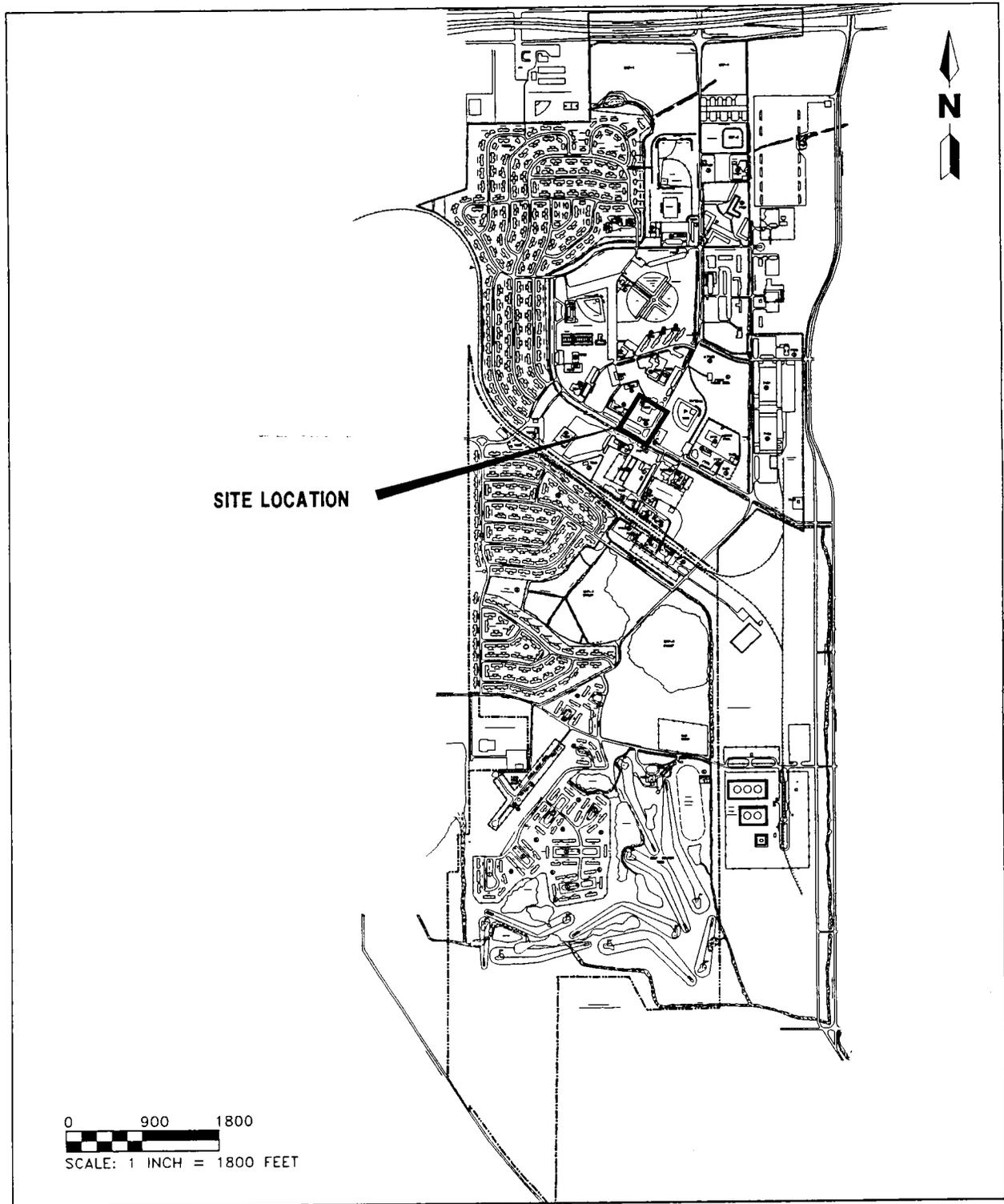
Building 7240 (former McCoy Annex bank) is located on Binnacle Way in the central part of the Naval Training Center (NTC), McCoy Annex, in Orange County, Florida. The site lies within the southwest part of Section 32, Township 23 South and Range 30 East, as shown on the Pine Castle, Florida, U.S. Geological Survey Quadrangle Map. Figure 1-1 shows the site location and a map of the surrounding area.

Building 7240 is a one-story building constructed of concrete block with a gabled roof with wooden shingles. It is currently not occupied, but the structure has been used previously as the McCoy Annex bank. Aerial photographs indicate that, prior to building construction in 1955, the property was undeveloped. Photographs of the site showing existing physical features are included in Appendix A, Site Photographs.

Two petroleum storage tank systems have been operated at the property. One system consisted of a 300-gallon aboveground storage tank (AST) and the other of a 560-gallon underground storage tank (UST). Both tanks contained heating fuel associated with the building's heating systems. The location of the petroleum storage tank systems are shown on Figure 1-2, Site Plan.

The 300-gallon AST was removed from the site prior to the implementation of the Tank Management Plan. No evidence of petroleum impact to soil or groundwater was found. The 560-gallon UST was removed by Florida Petroleum Services, Inc., on January 22, 1996. Evidence of petroleum impact to groundwater was found within the excavation during tank removal. One temporary monitoring well (TW-1) was installed within the UST area on February 14, 1996. During sampling on February 21, 1996, approximately 0.015-inch of free product was removed from TW-1 with a bailer.

This Contamination Assessment Report (CAR) summarizes the data gathered during the contamination assessment activities at Building 7240. General information such as regional physiography, geology, hydrogeology, investigative methodologies, and procedures are included in the NTC, Orlando Main Base CAR (March, 1996).



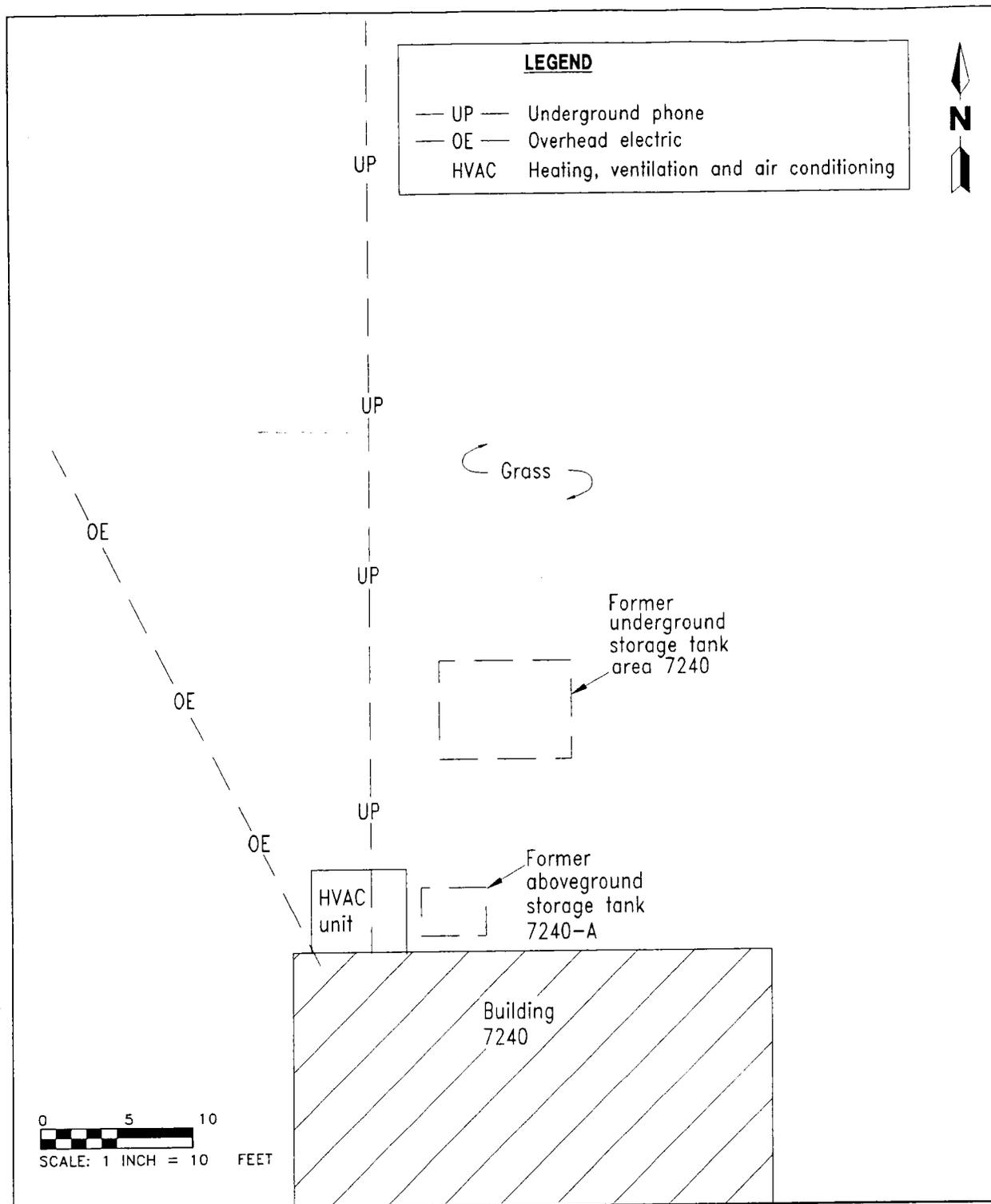
**FIGURE 1-1
SITE VICINITY MAP**



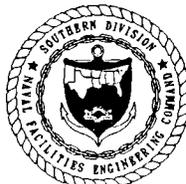
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**FIGURE 1-2
SITE PLAN**



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2.0 CONTAMINATION ASSESSMENT METHODOLOGY

2.1 SOIL BORING PROGRAM. In order to determine if petroleum-contaminated soil exists onsite, seven soil borings were advanced using a 3.5-inch inside diameter stainless-steel bucket auger on November 4, 1996. Figure 2-1 shows the locations of the soil borings. The borings were completed into the water table, which was encountered at approximately 3 feet below land surface (bls).

A total of 15 soil samples was collected from the 7 soil borings. The soil samples were collected at 0 to 2 feet, 2 to 4 feet, and 4 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 were utilized to differentiate total hydrocarbon response from naturally occurring methane gas. Filtered and unfiltered readings were obtained from a single jar. All sampling and analysis were performed in accordance with ABB Environmental Services, Inc. (ABB-ES) Florida Department of Environmental Protection-approved Comprehensive Quality Assurance Plan.

2.2 MONITORING WELL INSTALLATION PROGRAM. Three shallow monitoring wells (MW-1, MW-2, and MW-3) were installed at the site on September 24, 1996. The wells were installed using hollow-stem auger (HSA) techniques to a depth of approximately 12 feet bls. A typical shallow monitoring well construction detail is provided as Figure 2-2. Each 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. 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 with 20/30-grade silica sand to 0.5 foot 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 D, Well Construction Details, contains the well completion logs provided by the drilling subcontractor.

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

2.3 GROUNDWATER SAMPLING PROGRAM. Groundwater samples were collected from temporary monitoring well TW-1 on February 21, 1996, and monitoring wells MW-1, MW-2, and MW-3 on October 3, 1996. The samples collected from TW-1 on February 21, 1996, were transported to Quality Analytical Laboratories, Inc., for analysis. The samples collected on October 3, 1996, were transported to PC&B Laboratories, Inc., for analyses. The groundwater samples collected from temporary well TW-1 were analyzed for U.S. Environmental Protection Agency

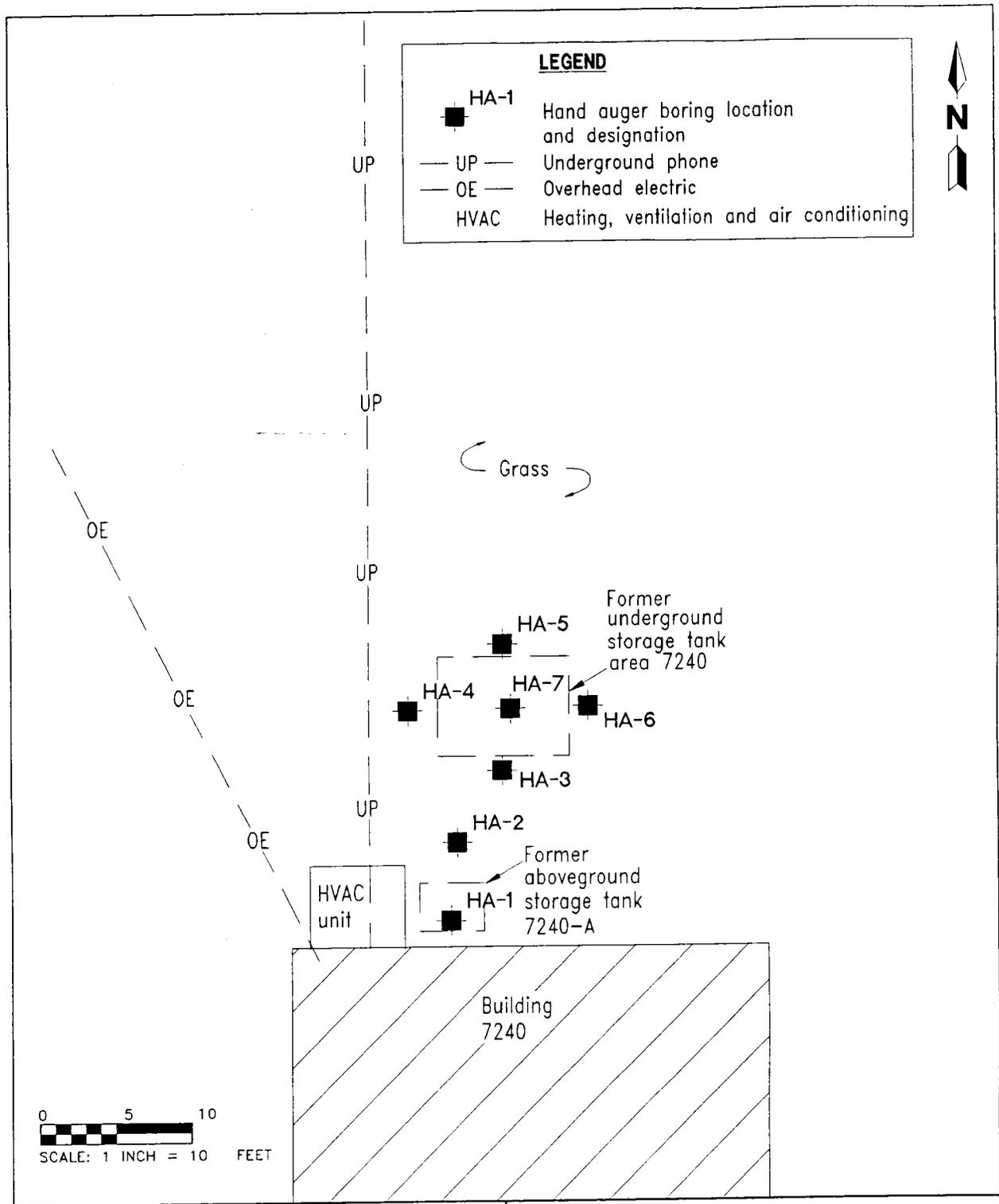
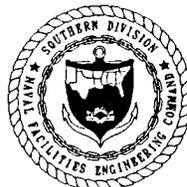


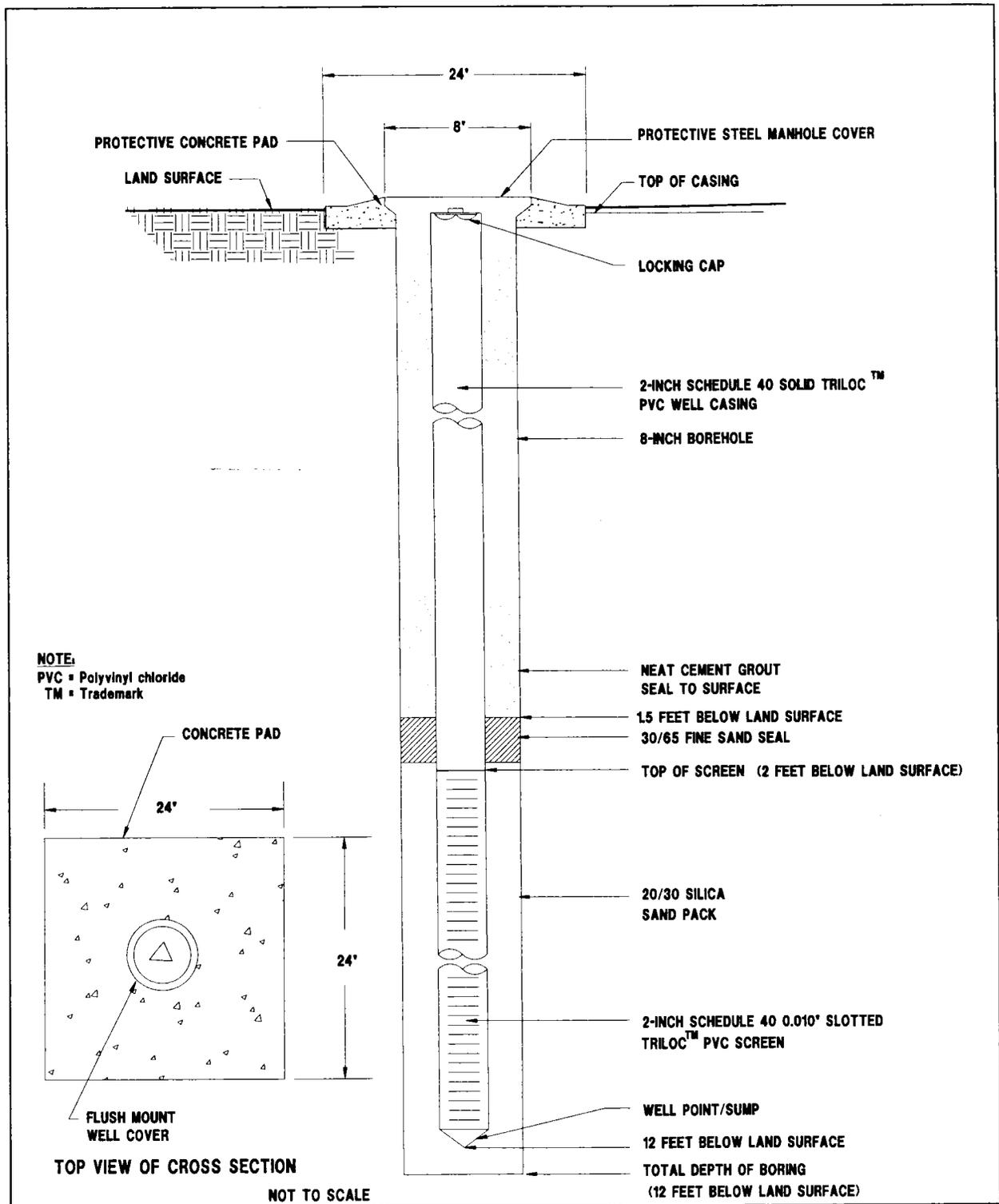
FIGURE 2-1
SOIL BORING LOCATION PLAN,
NOVEMBER 4, 1996



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**FIGURE 2-2
TYPICAL SHALLOW MONITORING WELL
CONSTRUCTION DETAIL**



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**Table 2-1
Groundwater Monitoring Well Construction
Data Summary**

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Well Number	Date Installed	Total Depth (feet bls)	Well Diameter (inches)	Screened Interval (feet bls)	Slot Size (inches)	Comments
MW-1	9/24/96	12	2	2-12	0.01	Installed by Groundwater Protection, Inc.
MW-2	9/24/96	12	2	2-12	0.01	Installed by Groundwater Protection, Inc.
MW-3	9/24/96	12	2	2-12	0.01	Installed by Groundwater Protection, Inc.

Note: bls = below land surface.

(USEPA) Methods 610 (polynuclear aromatic hydrocarbons [PAH]) and 602 (volatile organic aromatics [VOA]). Groundwater samples collected from monitoring wells MW-1, MW-2, and MW-3 were analyzed for the sampling requirements established in Chapter 62-770, FAC. Sites with petroleum discharges are defined under the kerosene analytical group, which includes the following USEPA Methods: 504 (ethylene dibromide), 601 (volatile halocarbons), 602 (VOA), 239.2 (total lead), 610 (PAH), and 418.1 (total recoverable petroleum hydrocarbons [TRPH]).

2.4 GROUNDWATER ELEVATION SURVEY. The elevation and slope of the water table were calculated using the field-surveyed top-of-well casing data for each monitoring well, temporary well, and piezometer and correlating the elevation data to a common arbitrary datum. On November 8, 1996, and January 6 and February 10, 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 7240 site is based on visual examination of soil samples collected from soil borings and drill cuttings obtained during the investigation. A typical stratigraphic soil profile consists of brown to gray, fine sand down to a depth of 12 bls. Lithologic logs for monitoring wells installed during this investigation are included as Appendix C, Lithologic Logs.

3.2 SITE HYDROGEOLOGY AND GROUNDWATER FLOW DIRECTION. Groundwater elevations across the site were calculated by measuring water levels on November 8, 1996, and January 6 and February 10, 1997, in the site monitoring wells, temporary well, and piezometers 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-2 (upgradient well) and MW-3 (downgradient well) and dividing this head difference by the horizontal distance between these two wells. The scaled horizontal distance is 45 feet, and the change in elevation head between the wells, as measured on November 8, 1996, was 0.05 foot. The calculated hydraulic gradient is equal to 1.11×10^{-3} feet per foot. The site groundwater flow direction, based on the water table surface map, is from northwest to southeast. Table 3-1 is a summary of groundwater elevation data for the November 8, 1996, and January 6 and February 10, 1997, sampling events. Figures 3-1, 3-2, and 3-3 are the water table contour maps for November 8, 1996, and January 6 and February 10, 1997, respectively.

3.3 AQUIFER CHARACTERISTICS. Due to lack of groundwater contamination, no slug tests were performed at this site.

3.4 POTABLE WELL SURVEY. A potable well survey for the surrounding area is included in the McCoy Annex CAR (ABB-ES, 1996). No active potable wells are reported in the site vicinity. Five potable wells, currently not in service, are located in the site vicinity, including WW-5, 250 feet northeast; WW-3, 0.3-mile north-northeast; WW-4, 0.4-mile northeast; WW-2, 0.5-mile north-northeast; and WW-1, 0.6-mile north. Several irrigation wells are located within a 1-mile radius of the site, including WW-7, 0.8-mile south; WW-6, 0.9-mile northeast; WW-12, 1.0-mile southwest; and WW-14, 1.0-mile southwest. See Figure 5-1, potable and irrigation well locations, of the McCoy Annex CAR (ABB-ES, 1996).

3.5 SURFACE WATER. There are no surface water bodies in the site vicinity. The nearest standing water is located in the drainage ditch running along the south side of Binnacle Way, approximately 200 feet south of the site.

**Table 3-1
Groundwater Elevation Summary**

Contamination Assessment Report
Building 7240, McCoy Annex
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Well Number	Date	Depth to Product (ft btoc)	Depth to Water (ft btoc)	Product Thickness (feet)	Top of Casing* Elevation (feet)	Water-Level* Elevation (feet)
MW-1	11/08/96	--	4.84	--	100.00	95.16
	01/06/97	--	5.69	--		94.31
	02/10/97	--	5.98	--		94.02
MW-2	11/08/96	--	4.50	--	99.68	95.18
	01/06/97	--	5.35	--		94.33
	02/10/97	--	5.64	--		94.04
MW-3	11/08/96	--	5.46	--	100.59	95.13
	01/06/97	--	6.32	--		94.27
	02/10/97	--	6.62	--		93.97
TW-1	11/08/96	--	8.36	--	103.52	95.16
	01/06/97	--	9.21	--		94.31
	02/10/97	--	Dry	--		Dry
PZ-1	11/08/96	--	9.07	--	104.24	95.17
	01/06/97	--	Dry	--		Dry
	02/10/97	--	Dry	--		Dry
PZ-2	11/08/96	--	8.44	--	103.58	95.14
	01/06/97	--	9.31	--		94.27
	02/10/97	--	Dry	--		Dry

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

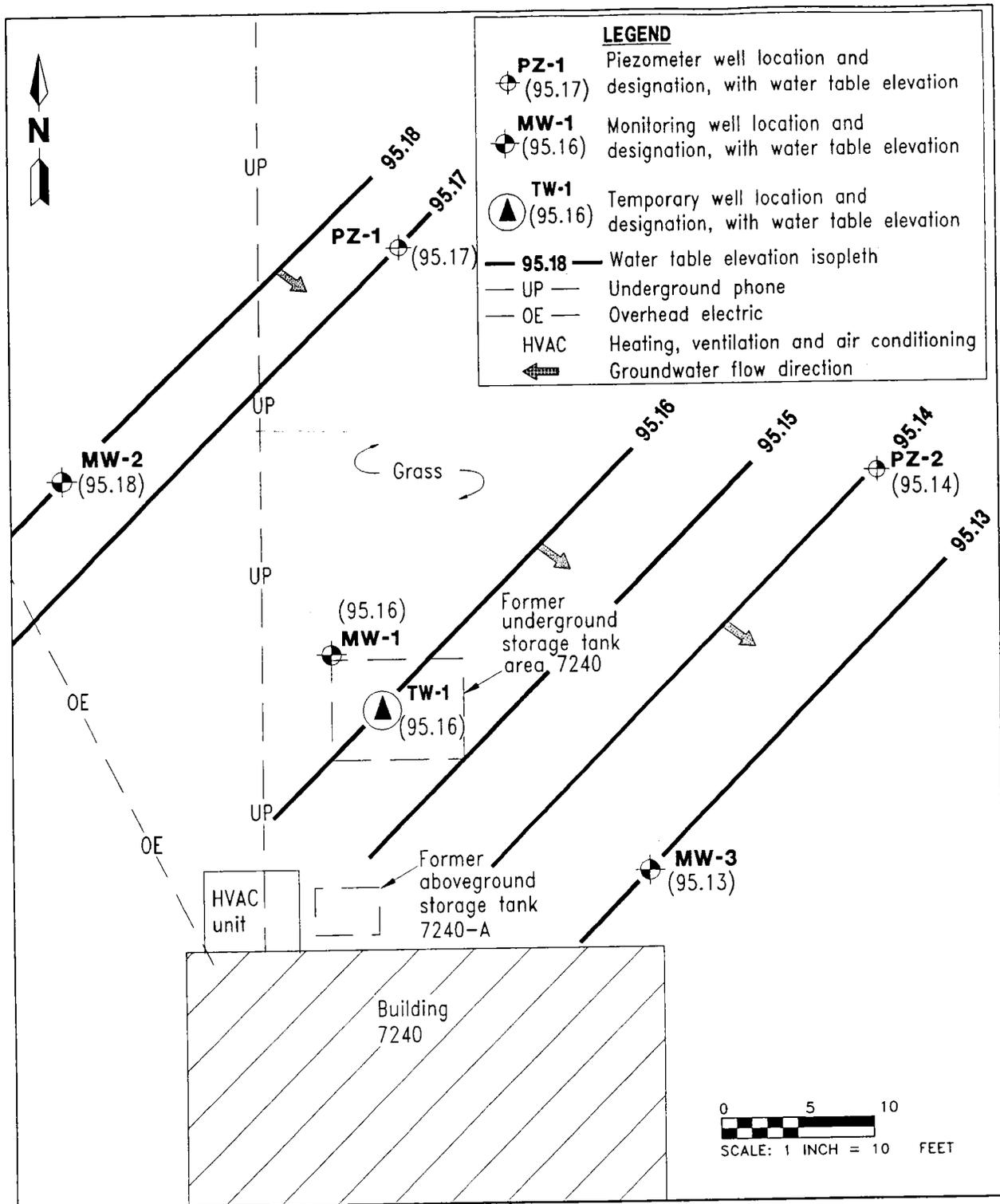


FIGURE 3-1
WATER TABLE ELEVATION
CONTOUR MAP, NOVEMBER 8, 1996



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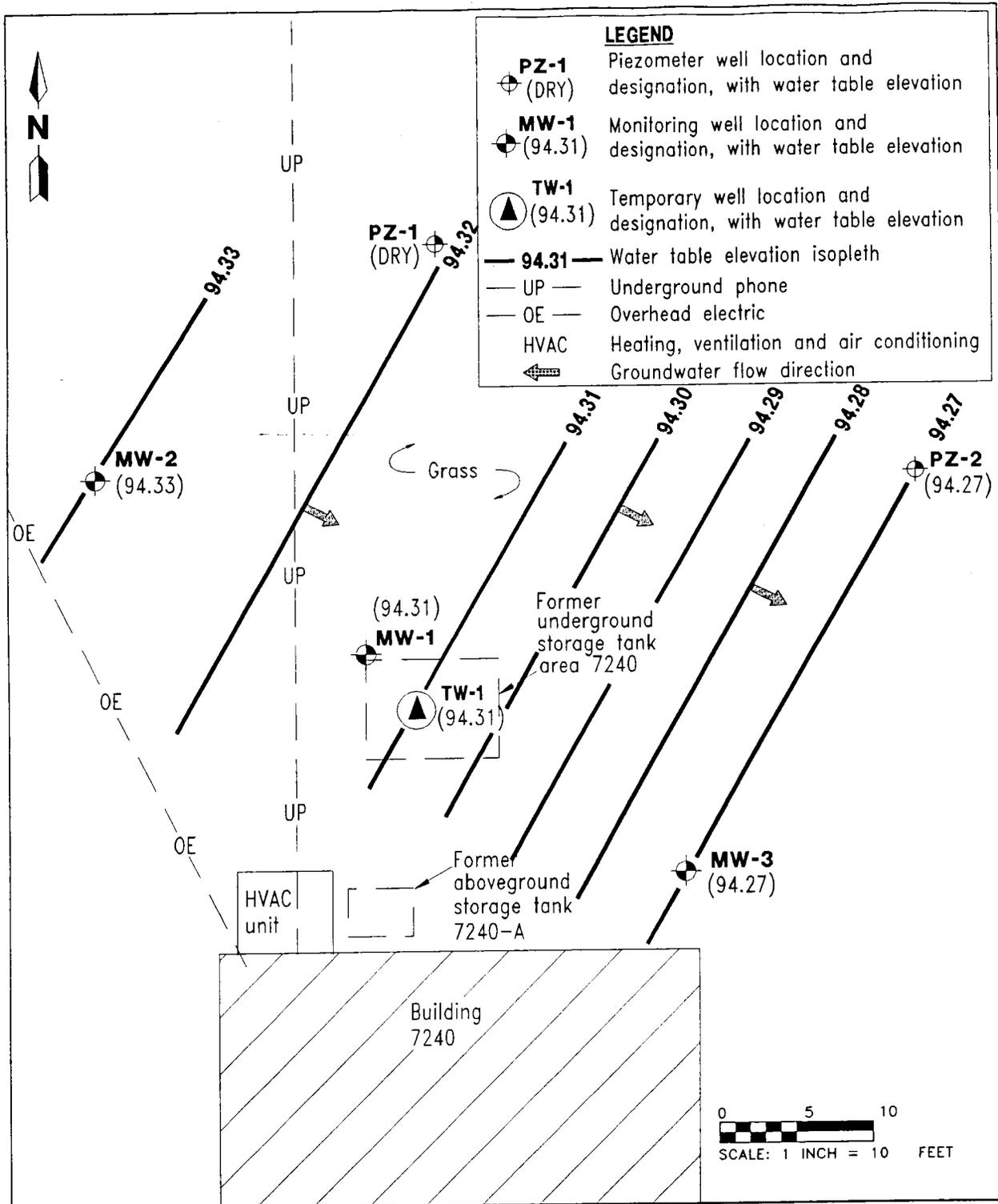


FIGURE 3-2
WATER TABLE ELEVATION
CONTOUR MAP, JANUARY 6, 1997



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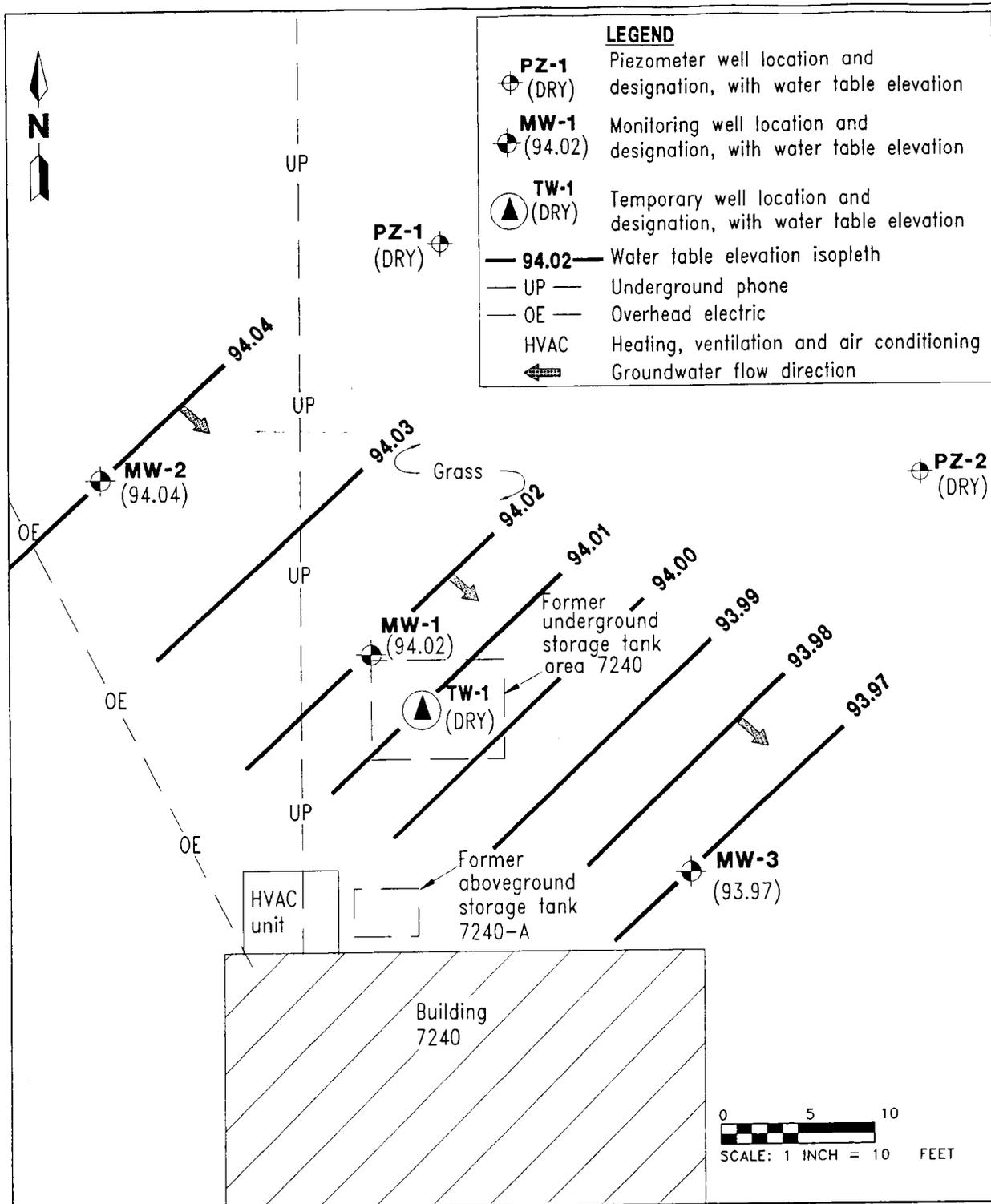
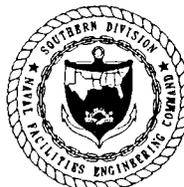


FIGURE 3-3
WATER TABLE ELEVATION
CONTOUR MAP, FEBRUARY 10, 1997



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4.0 CONTAMINATION ASSESSMENT RESULTS

4.1 SOIL CONTAMINATION. Seven soil borings (HA-1 through HA-11) were advanced using a 3.5-inch inside diameter, stainless-steel bucket auger on November 4, 1996. Figure 2-1 shows the soil boring locations. Fifteen 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 during the contamination assessment activities.

4.2 FREE-PRODUCT OCCURRENCE. During sampling of TW-1 on February 21, 1996, approximately 0.015-inch of free product was bailed out of the well. No free product was detected during the remaining contamination assessment activities.

4.3 GROUNDWATER CONTAMINATION. As part of the tank closure activities, one temporary monitoring well (TW-1) was installed within the former UST area on February 14, 1996, and sampled on February 21, 1996. In addition, three shallow monitoring wells (MW-1, MW-2, and MW-3) were installed at the site on September 24, 1996, and sampled on October 3, 1996. These monitoring wells were installed to assess the groundwater flow direction and the horizontal extent of hydrocarbon contamination. Locations of the monitoring wells are shown on Figure 4-1.

Groundwater samples were collected from temporary well TW-1 on February 21, 1996, and analyzed for USEPA Method 610 (PAH) and 602 (VOA). Laboratory analytical results indicate that the 610 parameters tested are below the laboratory's best achievable detection limits using a chemical dilution factor of 50.

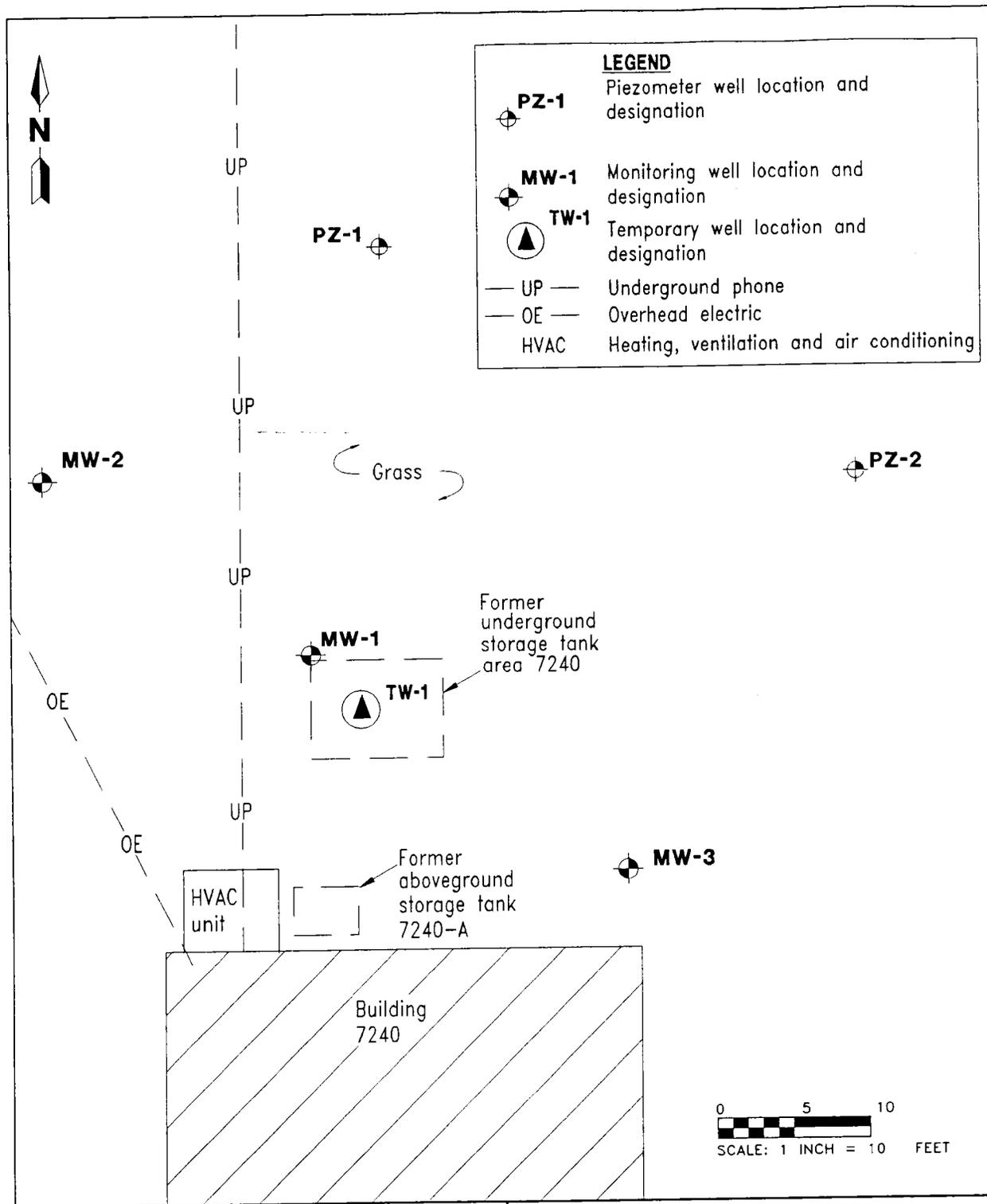
Groundwater samples were collected from monitoring wells MW-1, MW-2, and MW-3 on October 3, 1996. Groundwater samples were analyzed for the kerosene analytical group, which includes the following USEPA Methods: 504 (ethylene dibromide), 601 (volatile halocarbons), 602 (VOA), 239.2 (total lead), 610 (PAH) and 418.1 (TRPH). Laboratory analytical results indicate that dissolved petroleum contamination above Chapter 62-770, FAC, target cleanup levels was not detected in any of the monitoring wells during the sampling event. The laboratory analytical reports are included in Appendix E, and the results are summarized in Table 4-2.

**Table 4-1
Summary of Organic Vapor Analyses,
November 4, 1996**

Contamination Assessment Report
Building 7240, McCoy Annex
Naval Training Center
Orlando, Florida

Soil Boring Designation	Sample Depth (feet bls)	Unfiltered (ppm)	Filtered (ppm)	Total Hydrocarbons (ppm)	Physical Observations
HA-1	0 - 2	<1	<1	<1	No petroleum odor
	2 - 4*	<1	<1	<1	No petroleum odor
	4 - 5	<1	<1	<1	No petroleum odor
HA-2	0 - 2	<1	<1	<1	No petroleum odor
	2 - 4	<1	<1	<1	No petroleum odor
HA-3	0 - 2	<1	<1	<1	No petroleum odor
	2 - 4	<1	<1	<1	No petroleum odor
HA-4	0 - 2	<1	<1	<1	No petroleum odor
	2 - 4	<1	<1	<1	No petroleum odor
HA-5	0 - 2	<1	<1	<1	No petroleum odor
	2 - 4	2	<1	2	No petroleum odor
HA-6	0 - 2	<1	<1	<1	No petroleum odor
	2 - 4	<1	<1	<1	No petroleum odor
HA-7	0 - 2	<1	<1	<1	No petroleum odor
	2 - 4	<1	<1	<1	No petroleum odor

Notes: bls = below land surface.
ppm = parts per million.
<1 = nondetectable limit for organic vapor analyzer.
* = Water table encountered at approximately 3 feet below land surface.



**FIGURE 4-1
MONITORING WELL LOCATION PLAN**



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Table 4-2
Summary of Groundwater Laboratory Analytical Results

Contamination Assessment Report
 Building 7240, McCoy Annex
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Parameter	Chapter 62-770 Target Cleanup Levels	Monitoring Well/Sample Date			
		TW-1 2/21/96	MW-1 10/3/96	MW-2 10/3/96	MW-3 10/3/96
Benzene	1	<1	<1	<1	<1
Toluene	NA	<1	<1	<1	<1
Ethylbenzene	NA	<1	<1	<1	<1
Xylenes (total)	NA	<1	<2	<2	<2
Total VOAs	50	<4	<5	<5	<5
MTBE	50	<1	<5	<5	<5
EDB	0.02	NA	<0.02	<0.02	<0.02
Total Lead	50	NA	<3	<3	<3
TRPH	5 (mg/ℓ)	NA	<1	<1	<1

Notes: All results in micrograms per liter, unless otherwise noted.

< = less than.

NA = not applicable.

Total VOAs = volatile organic compounds; sum of the concentrations of benzene, toluene, ethylbenzene, and xylenes.

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 type stored in the UST and AST at Building 7240 is heating fuel. The laboratory analytical data and the type of product previously stored onsite support this assessment.

5.2 SOURCE OF HYDROCARBON PLUME. The suspected source of the small amounts of hydrocarbons in the groundwater is the former UST. Petroleum discharges could be attributed to overfill and/or over spills while filling the UST.

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. The lack of petroleum contamination in groundwater does not give any insight into the possible mechanisms of transport.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of this investigation, ABB-ES recommends a No Further Action proposal for this site.

7.0 PROFESSIONAL REVIEW CERTIFICATION

This document, *Contamination Assessment Report, Building 7240, McCoy Annex, 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, FAC. This CAR Addendum was developed for the Building 7240 site at the McCoy Annex, NTC, Orlando, in Orlando, Florida, and should not be construed to apply to any other site.



Manuel Alonso
Professional Geologist
P.G. No. 0001256

3/25/97

Date

REFERENCE

ABB Environmental Services, Inc., 1996, Contamination Assessment Report, McCoy Annex, Naval Training Center, Orlando, Florida: prepared for Southern Division, Naval Facilities Engineering Command, February.

APPENDIX A
SITE PHOTOGRAPHS



Photograph 1: View of Building 7240 facing south, UST area in foreground.



Photograph 2: View of Building 7240 and UST area facing south.



Photograph 3: View of former UST area facing west, monitoring well MW-3 in foreground.



Photograph 4: View of former UST area at Building 7240 facing west.

APPENDIX B

TANK CLOSURE ASSESSMENT REPORT