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TECHNICAL MEMORANDUM ON PHASE 1 AND 2 CONFIRMATORY SAMPLING DATA AT STUDY AREA 17 NTC ORLANDO FL

5/15/2000

CH2M HILL

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TECHNICAL MEMORANDUM

Phase I and II Confirmatory Sampling Data Report for Study Area 17, Naval Training Center, Orlando, Florida

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CONTRACT: Navy Contract # N62467-98-D-0995

CTO: CTO 0017, Naval Training Center (NTC) Orlando

DATE: May 15, 2000

CH2M HILL Constructors, Inc. (CCI) has been contracted by the Department of the Navy, Southern Division Naval Facilities Engineering Command (Southern Division, NAVFAC), to perform Phase I and II Confirmatory Site Characterization activities at Study Area (SA) 17. This work is being performed under the Remedial Action Contract No. N62467-98-D-0995, Contract Task Order (CTO) No. 0017 at Naval Training Center (NTC) Orlando in Orlando, Florida. The purpose of this Data Report is to summarize the procedures used and present the site data collected for the confirmation of site conditions at SA-17.

Background

SA 17 occupies approximately 25 acres in the central part of the McCoy Annex (Figure 1). The site includes Buildings 7178, 7190, 7189, and the adjacent area that formerly served as the Defense Property Disposal Office (DPDO) complex for the McCoy Annex. The southwestern corner of the site is undeveloped. A shallow canal that drains to the east extends along the entire southern boundary of the site (Figure 1).

In order to identify and evaluate areas where environmental media may have been adversely affected by past site activities, an initial site screening investigation was performed in 1995 by ABB Environmental Services, Inc. Findings from that investigation

indicated exceedances of screening criteria for polynuclear aromatic hydrocarbons (PAHs) in soil and chlorinated volatile organic compounds (VOCs) in groundwater. Subsequently, the Orlando Partnering Team (OPT) requested that Harding Lawson Associates (HLA) perform supplemental screening investigations to evaluate and characterize the VOC contamination at the site.

The results of the supplemental screening investigation indicated that the source of VOC-contaminated groundwater at the site is suspected to be related to operations at the former motor pool area. The highest total chlorinated VOC concentration detected during the investigation was 65,000 µg/L.

The OPT requested that CCI perform an Interim Remedial Action (IRA), consisting of confirming site conditions, development of an IRA approach, and implementation of an appropriate IRA. A two-phased approach by CCI was chosen. The objectives of the Phase I site characterization were to evaluate site hydrogeologic and geochemical conditions using existing monitoring wells and available data and to identify data gaps. The objectives of the Phase II site characterization were to complete the delineation (nature and extent) of the contamination and obtain additional information on site-specific geologic conditions, especially as they relate to the potential implementation of specific interim remedial actions.

A description of the Phase I and II confirmatory site characterization activities is presented below.

Phase I Confirmatory Site Characterization

Field activities during Phase I included sampling of select existing monitoring wells to provide current data to evaluate site hydrogeologic and geochemical conditions. CCI collected groundwater samples from the following monitoring wells:

- OLD-17-05A, OLD-17-11B, and OLD-17-12C (upgradient well cluster)
- OLD-17-26A, OLD-17-27B, and OLD-27-28C (well cluster within contaminant plume)
- OLD-17-23A, OLD-17-24B, and OLD-17-25C (well cluster within contaminant plume)
- OLD-17-19B, and OLD-17-20C (side gradient well cluster)
- OLD-17-03A, OLD-17-13B, and OLD-17-14C (downgradient well cluster)

The locations of these monitoring wells are shown on Figure 2. The monitoring wells were sampled in accordance with the Project Operations Plan (POP), August 1997. Groundwater samples were collected for laboratory analysis for volatile organic compounds (VOCs), total and dissolved iron, dissolved hydrogen, alkalinity, sulfate, sulfide, chloride, nitrate/nitrite, total organic carbon, biochemical oxygen demand, methane, ethane, and ethene. CCI also collected field measurements for temperature, pH, conductivity, dissolved oxygen, turbidity, and redox potential. Samples were collected using low flow techniques, with a flow through cell for the collection of field measurements. The groundwater samples from the existing monitoring wells were collected from February 23 – 29, 2000 and were hand delivered to Accutest Laboratories in Orlando, Florida. The groundwater data from this February 2000 sampling event is summarized on Table 1 and illustrated on Figure 3. The groundwater sampling forms are also included as an Attachment.

Phase II Confirmatory Site Characterization

The objectives of the Phase II site characterization were to complete the delineation (nature and extent) of the contamination and to obtain additional information on site-specific geologic conditions, especially as they relate to the potential implementation of specific interim remedial actions. In accordance with these objectives, CCI conducted Direct Push Technology (DPT) groundwater screening activities and installed, developed, and sampled new monitoring wells at the site. The following paragraphs describe the DPT sampling, monitoring well installation, and groundwater sampling activities.

Direct Push Sampling

Phase II field activities included the collection of screening groundwater samples using a direct push sampling technique to further define the horizontal and vertical extent of contamination at the site. The locations were placed in the two suspected source areas of the motor pool compound and downgradient at SA-17. The twenty DPT sampling locations, designated DPT1 – DPT20, are shown on the attached Figure 4. The DPT samples were collected from March 21 through April 7, 2000, and the sampling depth intervals ranged from 6 ft below land surface (bls) to 50 ft bls. The Field Sampling Report forms for this DPT sampling event are included as an Attachment.

Two DPT locations, DPT-1 and DPT-2, were installed near well cluster OLD-17-23A/24B/25C and previous direct push location 17Q004 within the existing contaminant plume to better define the vertical distribution of contaminant mass at these locations for use during the IRA alternative evaluation and design. Groundwater samples were collected at 2-foot intervals to a depth of approximately 24 feet bls. DPT-3 through DPT-6 were placed on 20 ft spacings from DPT-1 for further delineation, and samples were collected at 4 ft intervals. DPT-7 through DPT-10 were placed on 20 ft spacings from DPT-2 for further delineation, and samples were again collected at 4 ft intervals. DPT-11 through DPT-13 were chosen to delineate the shallow groundwater north of the 23A/24B/25C well cluster. DPT-14 and DPT-15 were located 100 ft and 200 ft, respectively, downgradient of 19B/20C well cluster. DPT-16 through DPT-20 were chosen to better define the vertical distribution of contaminant mass between the two suspected source areas.

The DPT rig was a GeoProbe-push/vibratory machine that utilized Teflon tubing, a peristaltic pump, and the Waterloo Profiling System for collecting the ground water screening samples. Deionized(DI) water was pumped through the system prior to each sampling depth interval to minimize the potential for drag down and to purge the system of previous ground water. When the appropriate sampling depth interval was reached the DI water was pumped out until Formation water was clearly running through the system. To ensure the proper procedure of this method, a YSI Water Quality Meter was used at every sampling depth interval. The YSI Meter measured the pH, conductivity, temperature, dissolved oxygen, ORP and turbidity until a minimum of 600 ml of natural ground water had purged through the system. Ground water samples were then collected in 40-ml vials preserved with hydrochloric acid. After the samples were collected and documented on the chain-of-custody(COC), they were placed on ice in a sample cooler. The ground water samples, appropriate QC samples and COC were transported to the project laboratory, Accutest Laboratories in Orlando, everyday. The ground water samples were analyzed for

VOCs by Method 8260B with 24hr turn around time. Due to the silt content in the ground water at the site, the samples had to be diluted in the laboratory, thus reporting a higher detection limit than normal. The DPT data can be found summarized on Figure 4. In addition, a cross section from North to South has been modified, Figure 5, to illustrate the Trichloroethylene (TCE) concentrations vertically in the geologic Formation.

In addition to the DPT sampling, soil cores were collected from 15 – 22 ft bls between DPT-1 and DPT-4 locations. The soil samples were placed in glass jars and sent to the three prospective IRA vendors for treatability testing.

Monitoring Well Installation and Sampling

Upon completion of the direct push sampling activities, four new monitoring wells were installed as part of the Phase II Confirmatory Site Characterization. One shallow (15 ft), two intermediate (20 and 29 ft), and one deeper well (55 ft) were installed downgradient to assess the horizontal and vertical extent of contamination at the site. The Boring Logs and Well Construction Detail forms for the newly installed monitoring wells are included as an Attachment. The locations and designations are shown on Figure 2. The new monitoring wells were installed, developed and sampled in accordance with the Project Operations Plan (POP), August 1997. Field measurements for temperature, pH, conductivity, dissolved oxygen, turbidity, and redox potential were collected. Samples were collected using low flow techniques, with a flow through cell for the collection of field measurements. The groundwater samples from the new monitoring wells were collected on April 4, 2000 and were analyzed for VOCs and iron. The groundwater samples were hand delivered to Accutest Laboratories in Orlando, Florida. The groundwater data from the April 2000 sampling event is summarized on Table 1 and shown on Figure 3. In addition, the Monitoring Well Purging Forms are included as an Attachment.

Groundwater Flow Evaluation

In order to determine the groundwater flow direction in the three zones (shallow, intermediate, and deep) of the surficial aquifer, water level elevation measurements were collected from the network of monitoring wells at the site on April 28, 2000. The water level elevation data collected on this date is presented in Table 2. This data was used to construct the shallow, intermediate and deep zone groundwater contour maps, as depicted on Figures 6, 7 and 8, respectively.

The groundwater in the shallow part of the surficial aquifer flows outward in a radial pattern, and correlates well with the shallow groundwater contour map presented in the BRAC Site Screening Report (SSR) for SA-17 (HLA 1999). The intermediate groundwater flow direction is to the south and southeast which again correlates well with the contour map presented in the SSR for SA-17. Moreover, the deeper zone of the surficial aquifer flows to the southeast and east which also compares correctly with the SSR for SA-17.

TABLES

NO.

1 Phase I and II Confirmatory Sampling Analytical Results (Unvalidated)

2 NTC Orlando SA17 Groundwater Elevation Measurements 4/28/2000

Table 1
Phase I and II Confirmatory Sampling Analytical Results (UNVALIDATED)
Study Area 17

StationID:		OLD-17-03A	OLD-17-05A	OLD-17-11B	OLD-17-12C	OLD-17-13B	OLD-17-14C
Client Sample ID:		017-OLD-17-03A-Q1-00	017-OLD-17-05A-Q1-00	017-OLD-17-11B-Q1-00	017-OLD-17-12C-Q1-00	017-OLD-17-13B-Q1-00	017-OLD-17-14C-Q1-00
Lab Sample ID:		F5963-1	F5933-2	F5925-2	F5925-1	F5963-2	F5963-3
Date Collected:		02/29/2000	02/24/2000	02/23/2000	02/23/2000	02/29/2000	02/29/2000
Parameter	**Units**						
Natural Attenuation Parameters							
Iron	ug/l	14300 =	7790 =	70700 =	6100 =	10900 =	5670 =
Iron, dissolved	ug/l	12600 =	4110 =	74400 =	4830 =	4740 =	5450 =
Turbidity	NTUs	84.6	>1000	>1000	817	84.2	7
Observations		Light grey color	Brown	Brown	Brown	Tan	Clear
Magnesium	ug/l			20200 =	2170 B		
Magnesium, dissolved	ug/l			21000 =			
Manganese	ug/l	22.9 =	24.8 =	121 =	17.7 =	23.2 =	38.2 =
Manganese, dissolved	ug/l			130 =			
Alkalinity, Total	mg/l	87.9 =	72.2 =	111 =	8.6 =	53.2 =	21.8 =
BOD, 5 Day	mg/l	2 U	3 U	9.1 =	3 U	2 U	5.6 =
Chloride	mg/l	3.6 =	8.3 =	7.2 =	5.8 =	2.9 =	33.7 =
Hydrogen Sulfide	mg/l	2.2 =	2 U	40 U	5.4 =	2.7 =	2 U
Nitrogen, Nitrate	mg/l	0.1 U	0.1 U	0.13 =	0.1 U	0.1 U	0.1 U
Nitrogen, Nitrate + Nitrite	mg/l	0.11 U				0.11 U	0.11 U
Nitrogen, Nitrite	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sulfate	mg/l	22.1 =	7.8 =	50 U	5 U	8.6 =	5 U
Dissolved Oxygen	mg/l	0.67	1.09	0.84	1.19	0.67	0.78
Dissolved Hydrogen	nM	0.92	0.96	0.58	4.24	11.8	1.71
ORP	mV	-61.8	-20.2	-68.1	-84.9	-57.7	-97.2
Total Organic Carbon	mg/l	11.4 =	21.2 =	427 =	50 U	11.7 =	21.1 =
VOCs							
1,1,2-Trichloroethane	ug/l						
1,1-Dichloroethane	ug/l						
1,1-Dichloroethylene	ug/l						
Acetone	ug/l						
Bromodichloromethane	ug/l						
Carbon disulfide	ug/l						
Chloroform	ug/l						
cis-1,2-Dichloroethylene	ug/l						
trans-1,2-Dichloroethylen	ug/l						
Trichloroethylene	ug/l						
Vinyl chloride	ug/l						
Methane	ug/l	83.8 =	157.1 =	1204 =	450.3 =	340.4 =	4828 =
Ethane	ng/l	5 U	5	38 =	5 U	5 U	5 U
Ethene	ng/l	5 U	5 U	17 =	16 =	11 U	69 =

Table 1
Phase I and II Confirmatory Sampling Analytical Results (UNVALIDATED)
Study Area 17

StationID:		OLD-17-19B	OLD-17-20C	OLD-17-23A	OLD-17-24B	OLD-17-25C	OLD-17-26A
Client Sample ID:		017-OLD-17-19B-Q1-00	017-OLD-17-20C-Q1-00	017-OLD-17-23A-Q1-00	017-OLD-17-24B-Q1-00	017-OLD-17-25C-Q1-00	017-OLD-17-26A-Q1-00
Lab Sample ID:		F5963-4	F5963-5	F5942-3	F5942-2	F5942-1	F5933-3
Date Collected:		02/29/2000	02/29/2000	02/25/2000	02/25/2000	02/25/2000	02/24/2000
Parameter	**Units**						
Natural Attenuation Parameters							
Iron	ug/l	9530 =	2360 =	2670 =	14300 =	10900 =	1000 =
Iron, dissolved	ug/l	6110 =	1690 =	3040 =	12600 =	405 =	414 =
Turbidity	NTUs	37.2	88	11.6	40	65	12.5
Observations		Clear	Clear	Clear	Clear	Clear	Clear
Magnesium	ug/l						
Magnesium, dissolved	ug/l						
Manganese	ug/l	55.3 =	20.7 =	3.4 B	137 =	84.5 =	9.4 B
Manganese, dissolved	ug/l						
Alkalinity, Total	mg/l	44.2 =	20.9 =	84.1 =	24.2 =	80.8 =	71.7 =
BOD, 5 Day	mg/l	2 U	2 U	3 U	3 U	3 U	3 U
Chloride	mg/l	3.2 =	22.5 =	13.1 =	30.3 =	23.1 =	6 =
Hydrogen Sulfide	mg/l	2 U	2 U	2 U	2 U	2.9 =	2 U
Nitrogen, Nitrate	mg/l	0.1 U	0.1 U	1.3 =	0.1 U	0.1 U	0.1 U
Nitrogen, Nitrate + Nitrite	mg/l	0.11 U	0.11 U				
Nitrogen, Nitrite	mg/l	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sulfate	mg/l	6.2 =	5 U	31.5 =	9 =	5 U	5 U
Dissolved Oxygen	mg/l	0.70	0.89	1.70	1.05	1.18	0.59
Dissolved Hydrogen	nM	3.49	1.59	1.06	2.3	1.27	1.06
ORP	mV	-20.5	-12.6	43.8	34.7	-13.2	-43.8
Total Organic Carbon	mg/l	8.7 =	17.8 =	6.3 =	6.7 =	14.7 =	2.5 =
VOCs							
1,1,2-Trichloroethane	ug/l				6.2 =		
1,1-Dichloroethane	ug/l		2.2 =				
1,1-Dichloroethylene	ug/l		1.4 J				
Acetone	ug/l						
Bromodichloromethane	ug/l						
Carbon disulfide	ug/l					7.7 J	
Chloroform	ug/l				0.87 J		
cis-1,2-Dichloroethylene	ug/l		43.8 =	169 =	108 E	1 J	
trans-1,2-Dichloroethylen	ug/l		0.95 J	2 =	2 =		
Trichloroethylene	ug/l			1190 =	28900 E		
Vinyl chloride	ug/l		252 =			0.8 J	3.5 =
Methane	ug/l	104.7 =	2524 =	104.7 =	17.46 =	759.3 =	188.5 =
Ethane	ng/l	17 =	5 U	5 U	16 =	5 U	1048 =
Ethene	ng/l	25 =	6810 =	22 =	260 =	102 =	1069 =

Table 1
Phase I and II Confirmatory Sampling Analytical Results (UNVALIDATED)
Study Area 17

StationID:		OLD-17-27B	OLD-17-28C	OLD-17-34A	OLD-17-35B	OLD-17-36B	OLD-17-37C
Client Sample ID:		017-OLD-17-27B-Q1-00	017-OLD-17-28C-Q1-00	017-OLD-17-34A-Q1-00	017-OLD-17-35B-Q1-00	017-OLD-17-36B-Q1-00	017-OLD-17-37C-Q1-00
Lab Sample ID:		F5933-4	F5933-5	F6201-1	F6201-2	F6201-3	F6201-4
Date Collected:		02/24/2000	02/24/2000	04/04/2000	04/04/2000	04/04/2000	04/04/2000
Parameter	**Units**						
Natural Attenuation Parameters							
Iron	ug/l	9740 =	2500 =	17300	32900	25900	7920
Iron, dissolved	ug/l	2580 =	1200 =				
Turbidity	NTUs	65.1	20.7	7.5	301	>1000	29.9
Observations		Clear	Clear	Clear	Light Brown	Brown	Clear
Magnesium	ug/l						
Magnesium, dissolved	ug/l						
Manganese	ug/l	28.5 =	16.5 =				
Manganese, dissolved	ug/l						
Alkalinity, Total	mg/l	67.9 =	35.6 =				
BOD, 5 Day	mg/l	3 U	3 U				
Chloride	mg/l	24.5 =	15.6 =				
Hydrogen Sulfide	mg/l	2 U	2 U				
Nitrogen, Nitrate	mg/l	0.1 U	0.1 U				
Nitrogen, Nitrate + Nitrite	mg/l						
Nitrogen, Nitrite	mg/l	0.01 U	0.01 U				
Sulfate	mg/l	50 U	5 U				
Dissolved Oxygen	mg/l	0.71	1.27	0.59	0.80	0.50	0.40
Dissolved Hydrogen	nM	0.71	3.07				
ORP	mV	-97.1	30.6	178	81	-95	-63
Total Organic Carbon	mg/l	6 =	9.9 =				
VOCs							
1,1,2-Trichloroethane	ug/l						
1,1-Dichloroethane	ug/l						
1,1-Dichloroethylene	ug/l	2.7 =					
Acetone	ug/l		9.9 J				43
Bromodichloromethane	ug/l						
Carbon disulfide	ug/l						2.4
Chloroform	ug/l			2.3	2.1		7.8
cis-1,2-Dichloroethylene	ug/l	140 =					
trans-1,2-Dichloroethylen	ug/l	9.4 =					
Trichloroethylene	ug/l	12.4 =					
Vinyl chloride	ug/l	160 =					
Methane	ug/l	141.4 =	539.3 =				
Ethane	ng/l	2042 =	5 U				
Ethene	ng/l	14951 =	151 =				

TABLE 2
NTC ORLANDO
SA17
GROUNDWATER ELEVATION MEASUREMENTS
4/28/2000

LOCATION	MEASURING POINT ELEVATION (ft msl)	TH TO WATER (ft	WATER ELEVATION (ft msl)
OLD-17-02A	90.1	5.31	84.79
OLD-17-03A	89.5	4.81	84.69
OLD-17-04A	89.1	1.91	87.19
OLD-17-05A	89.0	4.32	84.68
OLD-17-06A	89.8	ABANDONED	-
OLD-17-08A	89.7	ABANDONED	-
OLD-17-09A	89.0	ABANDONED	-
OLD-17-10C	89.2	NOT FOUND	-
OLD-17-11B	89.8	4.76	85.04
OLD-17-12C	89.7	5.01	84.69
OLD-17-13B	90.0	5.11	84.89
OLD-17-14C	89.9	6.15	83.75
OLD-17-15A	88.9	3.72	85.18
OLD-17-16B	88.7	3.82	84.88
OLD-17-17C	88.6	NOT FOUND	-
OLD-17-18A	91.1	5.75	85.35
OLD-17-19B	91.5	7.26	84.24
OLD-17-20C	91.5	7.78	83.72
OLD-17-21B	90.5	3.74	86.76
OLD-17-22C	90.5	6.29	84.21
OLD-17-23A	90.3	5.03	85.27
OLD-17-24B	90.4	5.46	84.94
OLD-17-25C	90.3	32.14	58.16
OLD-17-26A	90.0	4.51	85.49
OLD-17-27B	90.0	4.81	85.19
OLD-17-28C	90.0	32.42	57.58
OLD-17-29A		PIEZ. IN CANAL	-
OLD-17-30A		PIEZ. IN CANAL	-
OLD-17-31A		PIEZ. IN CANAL	-
OLD-17-32A		PIEZ. IN CANAL	-
OLD-17-33A		PIEZ. IN CANAL	-
OLD-17-34A	No survey data yet	6.55	-
OLD-17-35B	No survey data yet	6.32	-
OLD-17-36B	No survey data yet	5.93	-
OLD-17-37C	No survey data yet	6.57	-

NOTES: WELLS 06A, 08A, AND 09A WERE ABANDONED IN PLACE. WELLS 29A THROUGH 33A WERE PIEZOMETERS INSTALLED IN THE DRAINAGE CANAL ADJACENT TO THE SITE. WATER LEVELS NOT COLLECTED AT THESE PIEZOMETERS SINCE FIXED SURVEY POINT NO LONGER EXIST (PIEZOMETERS ARE ALL SEVERELY OFF-PLUMB)
WELLS 34A THROUGH 37C HAVE BEEN SURVEYED,BUT DATA HAS NOT BEEN RECEIVED AT THE TIME OF THIS PUBLICATION

FIGURES

NO.

1 Location of Study Area 17

2 Monitoring Well and DPT Location Plan

3 TCE, DCE, and Vinyl Chloride Detected Concentrations

4 Direct Push Sampling Results

5 Lithologic and Total Chlorinated Hydrocarbon Concentration Plume Cross Section B-B

6 Shallow Groundwater Contour Map, SA17

7 Intermediate Groundwater Contour Map, SA17

8 Deep Groundwater Contour Map, SA17

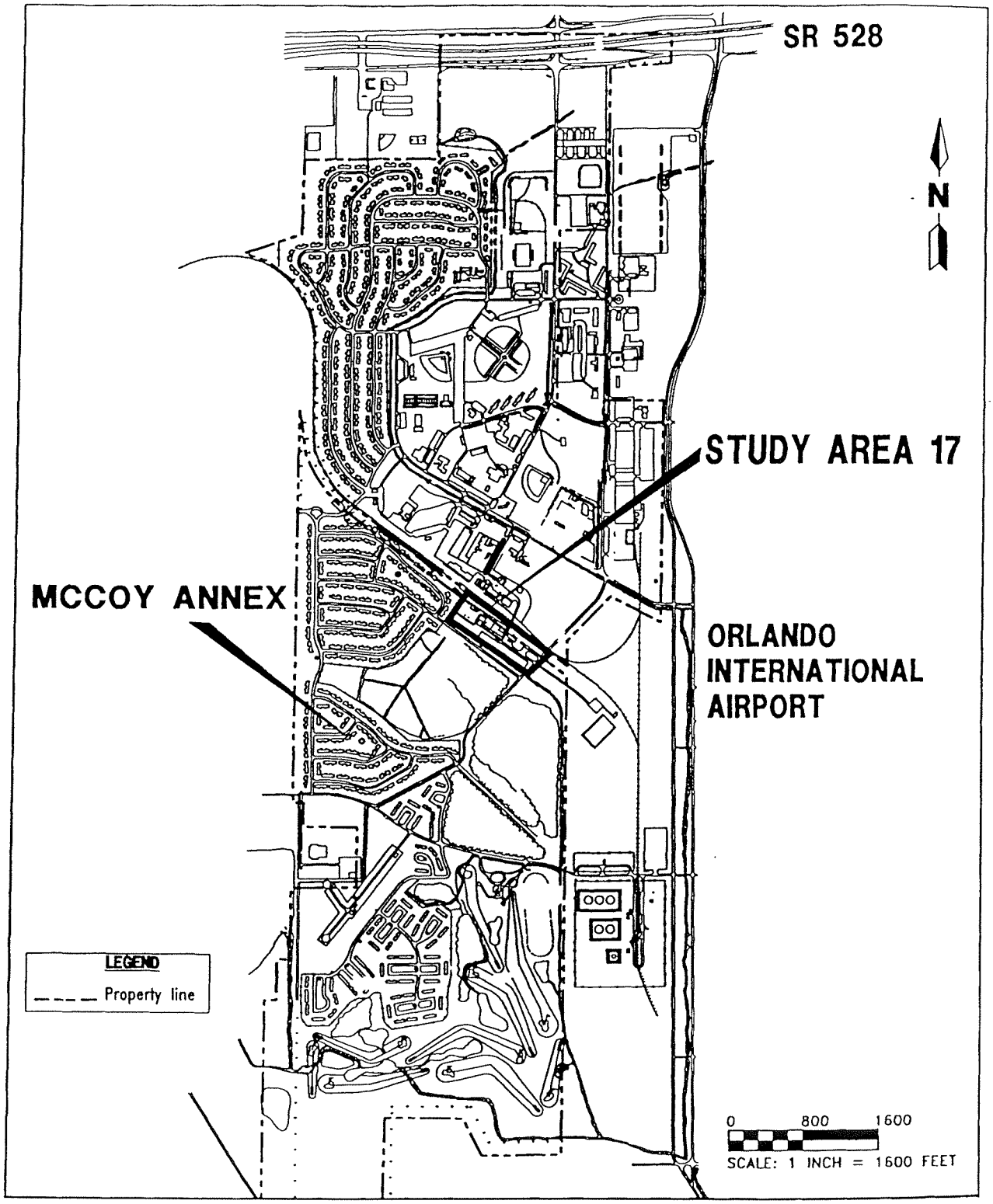


FIGURE 1
Location of Study Area 17
Naval Training Center,
Orlando, Florida

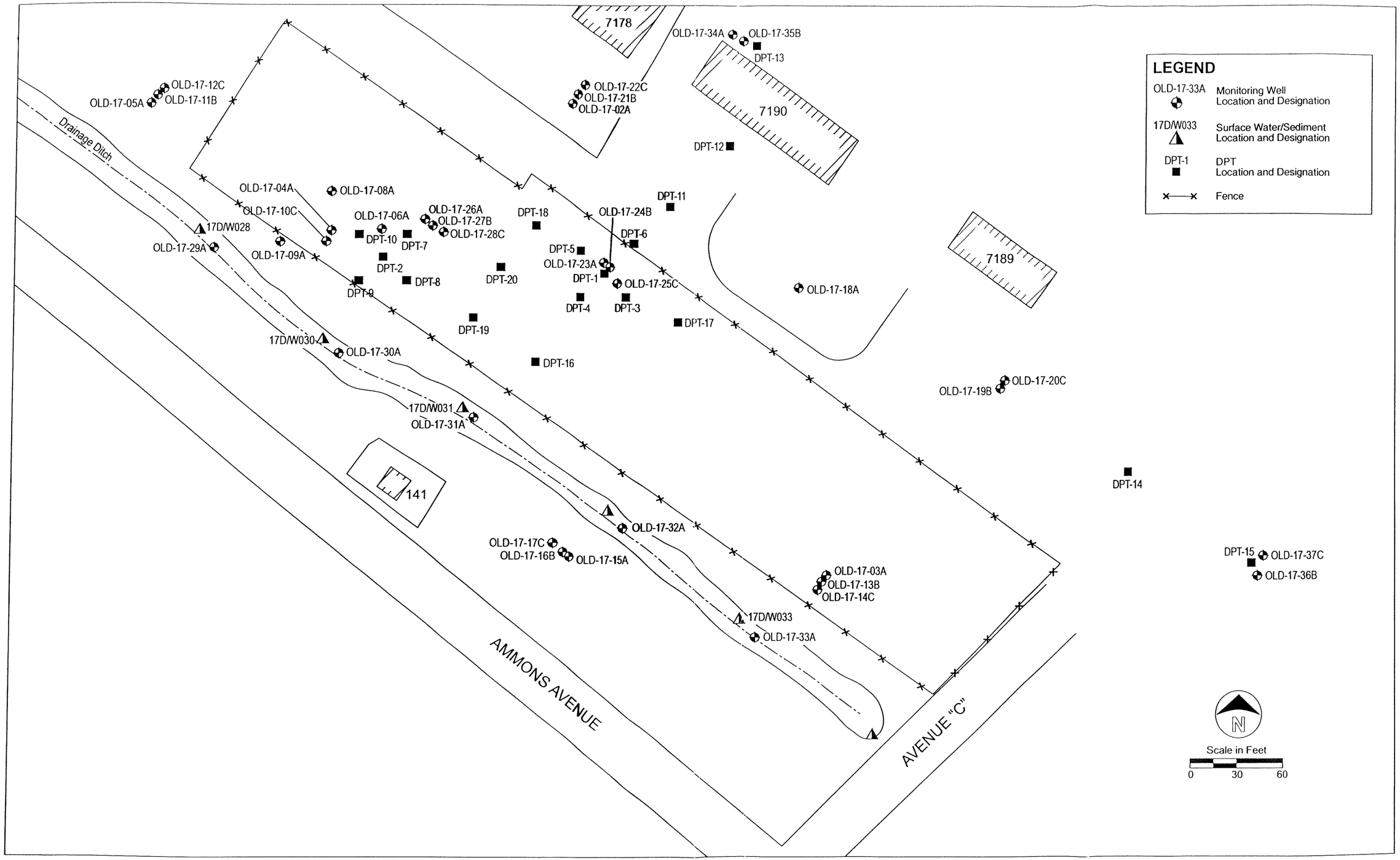


FIGURE 2
Monitoring Well and DPT Location Plan
Study Area 17, Naval Training Center, Orlando, Florida

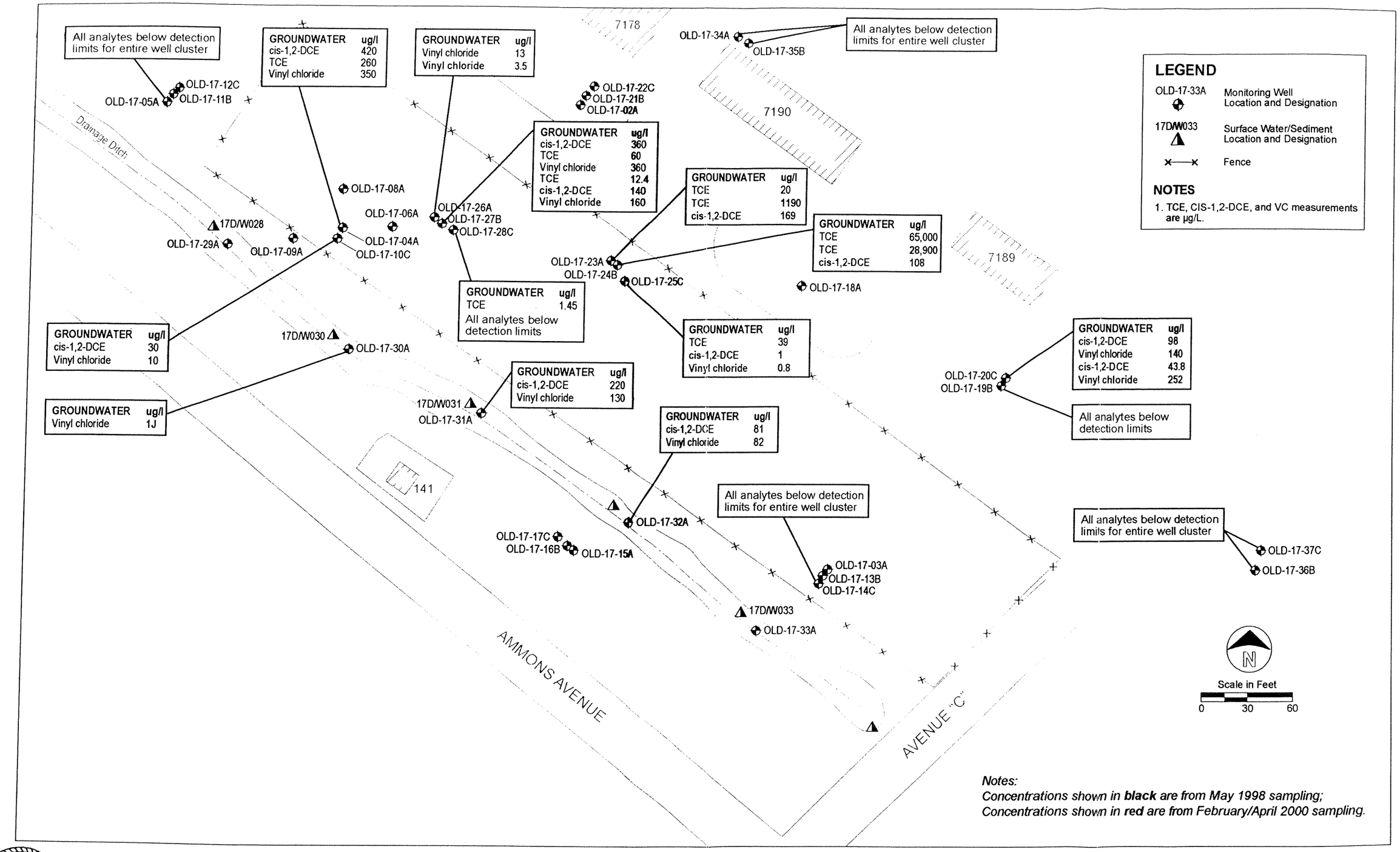
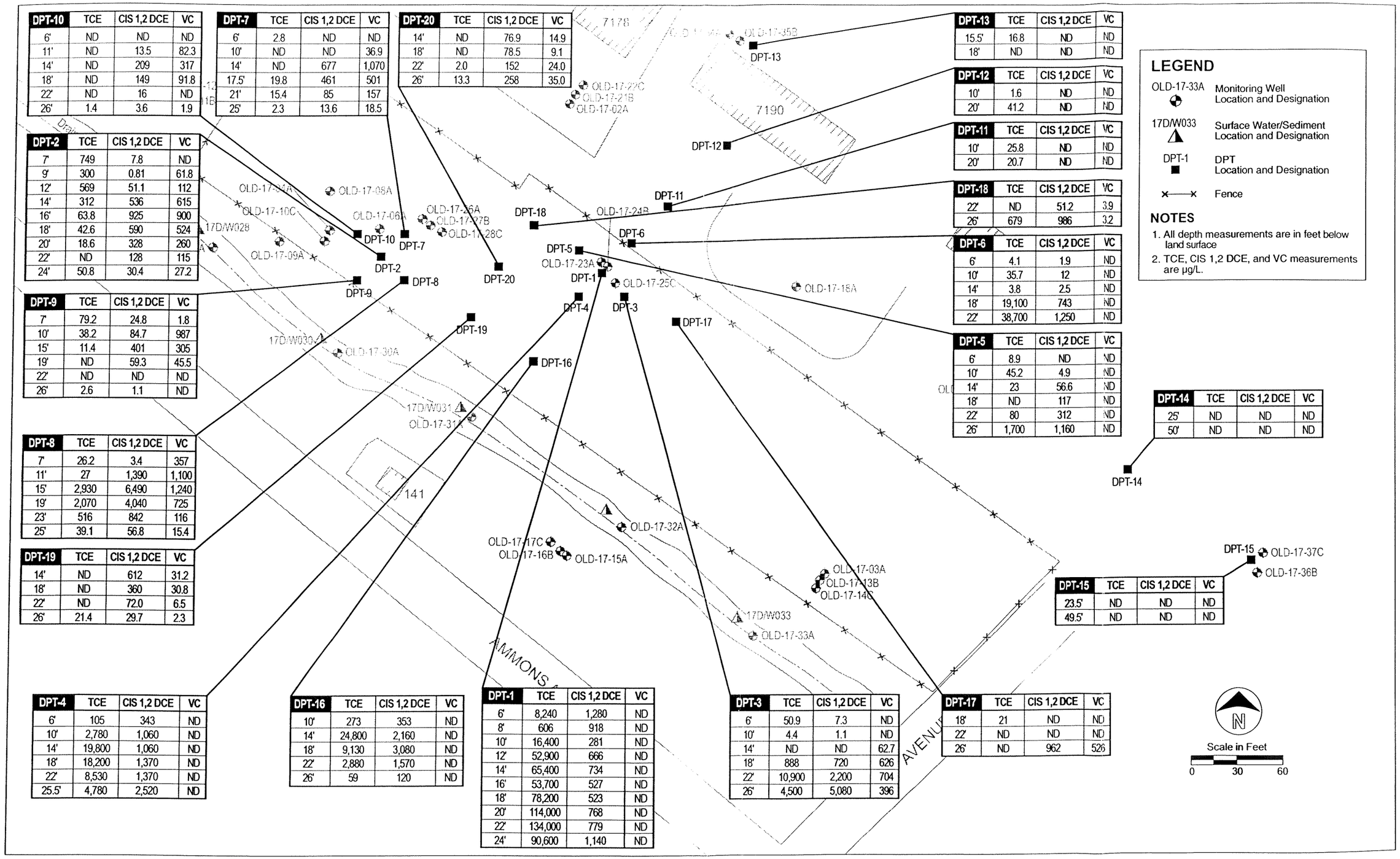


FIGURE 3
TCE, DCE, and Vinyl Chloride Detected Concentrations
Study Area 17, Naval Training Center, Orlando, Florida



DPT-10	TCE	CIS 1,2 DCE	VC
6'	ND	ND	ND
11'	ND	13.5	82.3
14'	ND	209	317
18'	ND	149	91.8
22'	ND	16	ND
26'	1.4	3.6	1.9

DPT-7	TCE	CIS 1,2 DCE	VC
6'	2.8	ND	ND
10'	ND	ND	36.9
14'	ND	677	1,070
17.5'	19.8	461	501
21'	15.4	85	157
25'	2.3	13.6	18.5

DPT-20	TCE	CIS 1,2 DCE	VC
14'	ND	76.9	14.9
18'	ND	78.5	9.1
22'	2.0	152	24.0
26'	13.3	258	35.0

DPT-13	TCE	CIS 1,2 DCE	VC
15.5'	16.8	ND	ND
18'	ND	ND	ND

DPT-12	TCE	CIS 1,2 DCE	VC
10'	1.6	ND	ND
20'	41.2	ND	ND

DPT-11	TCE	CIS 1,2 DCE	VC
10'	25.8	ND	ND
20'	20.7	ND	ND

DPT-18	TCE	CIS 1,2 DCE	VC
22'	ND	51.2	3.9
26'	679	986	3.2

DPT-6	TCE	CIS 1,2 DCE	VC
6'	4.1	1.9	ND
10'	35.7	12	ND
14'	3.8	2.5	ND
18'	19,100	743	ND
22'	38,700	1,250	ND

DPT-5	TCE	CIS 1,2 DCE	VC
6'	8.9	ND	ND
10'	45.2	4.9	ND
14'	23	56.6	ND
18'	ND	117	ND
22'	80	312	ND
26'	1,700	1,160	ND

DPT-14	TCE	CIS 1,2 DCE	VC
25'	ND	ND	ND
50'	ND	ND	ND

DPT-15	TCE	CIS 1,2 DCE	VC
23.5'	ND	ND	ND
49.5'	ND	ND	ND

DPT-2	TCE	CIS 1,2 DCE	VC
7'	749	7.8	ND
9'	300	0.81	61.8
12'	569	51.1	112
14'	312	536	615
16'	63.8	925	900
18'	42.6	590	524
20'	18.6	328	260
22'	ND	128	115
24'	50.8	30.4	27.2

DPT-9	TCE	CIS 1,2 DCE	VC
7'	79.2	24.8	1.8
10'	38.2	84.7	987
15'	11.4	401	305
19'	ND	59.3	45.5
22'	ND	ND	ND
26'	2.6	1.1	ND

DPT-8	TCE	CIS 1,2 DCE	VC
7'	26.2	3.4	357
11'	27	1,390	1,100
15'	2,930	6,490	1,240
19'	2,070	4,040	725
23'	516	842	116
25'	39.1	56.8	15.4

DPT-19	TCE	CIS 1,2 DCE	VC
14'	ND	612	31.2
18'	ND	360	30.8
22'	ND	72.0	6.5
26'	21.4	29.7	2.3

DPT-4	TCE	CIS 1,2 DCE	VC
6'	105	343	ND
10'	2,780	1,060	ND
14'	19,800	1,060	ND
18'	18,200	1,370	ND
22'	8,530	1,370	ND
25.5'	4,780	2,520	ND

DPT-16	TCE	CIS 1,2 DCE	VC
10'	273	353	ND
14'	24,800	2,160	ND
18'	9,130	3,080	ND
22'	2,880	1,570	ND
26'	59	120	ND

DPT-1	TCE	CIS 1,2 DCE	VC
6'	8,240	1,280	ND
8'	606	918	ND
10'	16,400	281	ND
12'	52,900	666	ND
14'	65,400	734	ND
16'	53,700	527	ND
18'	78,200	523	ND
20'	114,000	768	ND
22'	134,000	779	ND
24'	90,600	1,140	ND

DPT-3	TCE	CIS 1,2 DCE	VC
6'	50.9	7.3	ND
10'	4.4	1.1	ND
14'	ND	ND	62.7
18'	888	720	626
22'	10,900	2,200	704
26'	4,500	5,080	396

DPT-17	TCE	CIS 1,2 DCE	VC
18'	21	ND	ND
22'	ND	ND	ND
26'	ND	962	526

LEGEND

OLD-17-33A — Monitoring Well Location and Designation

17D/W033 — Surface Water/Sediment Location and Designation

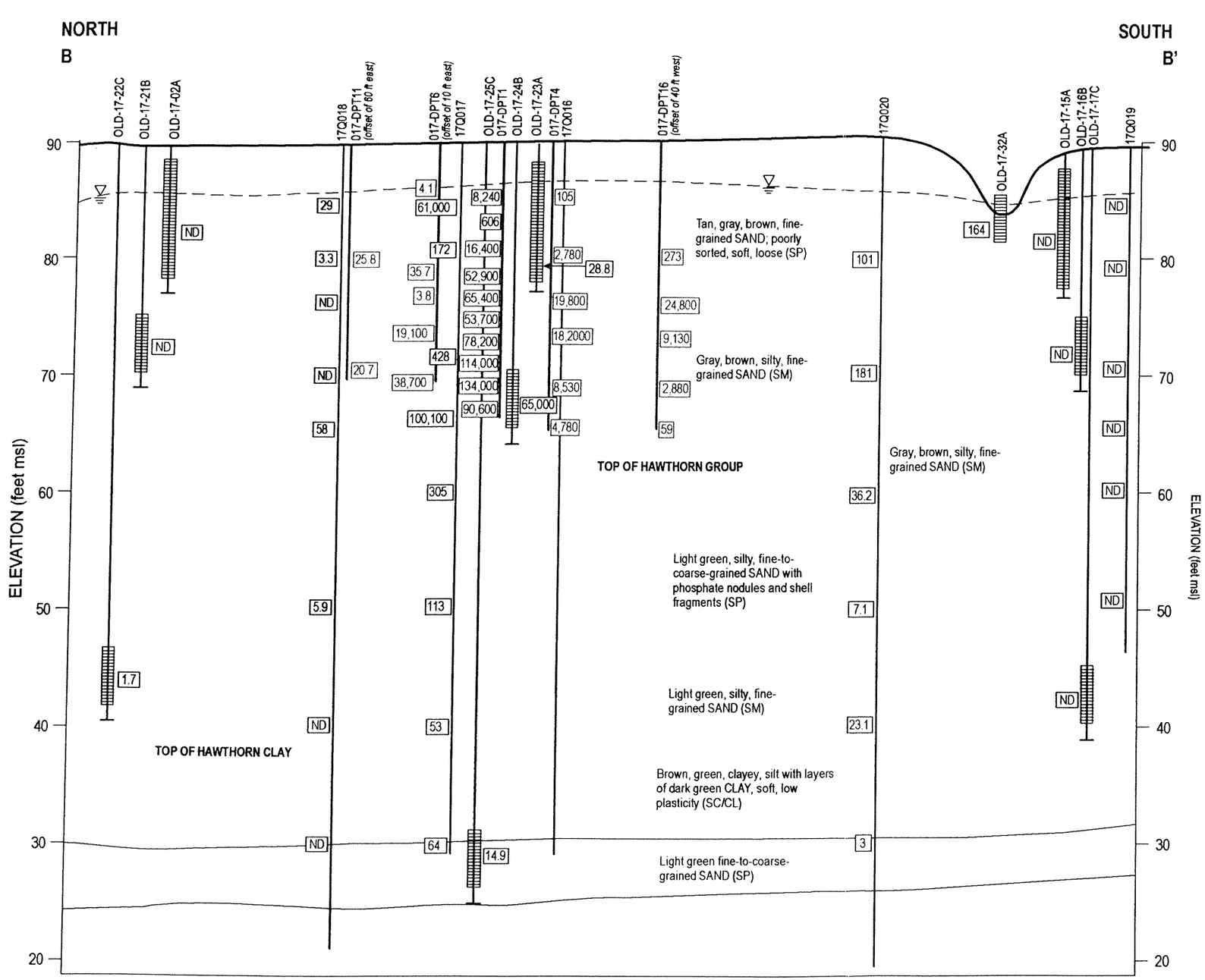
DPT-1 — DPT Location and Designation

Fence

NOTES

1. All depth measurements are in feet below land surface
2. TCE, CIS 1,2 DCE, and VC measurements are µg/L.

FIGURE 4
Direct Push Sampling Results
Study Area 17, Naval Training Center, Orlando, Florida



LEGEND

- [273] Trichloroethylene (µg/l) concentration from Phase II Confirmatory Sampling
- [101] Chlorinated hydrocarbon concentration (µg/l) from Screening Report
- [ND] Not detected
- (µg/l) Micrograms per liter
- BRAC Base realignment and closure
- DPT Direct-push technology
- msl Mean sea level
- Water table surface
- (SP) Unified Soil Classification System symbol

OLD-17-18A — Monitoring well, Screen, Total depth of boring

17Q022 — DPT well

(SM) Silty SANDS, SAND and silt mixture

(SC/CL) Clayey SANDS, SAND and CLAY mixtures/inorganic CLAYS of low to medium plasticity

0 5 10
Vertical Scale: 1 inch = 10 feet

0 25 50
Horizontal Scale: 1 inch = 50 feet

FIGURE 5
Lithologic and Total Chlorinated Hydrocarbon Concentration Plume
Cross Section B-B'
Studay Area 17, Naval Training Center, Orlando, Florida

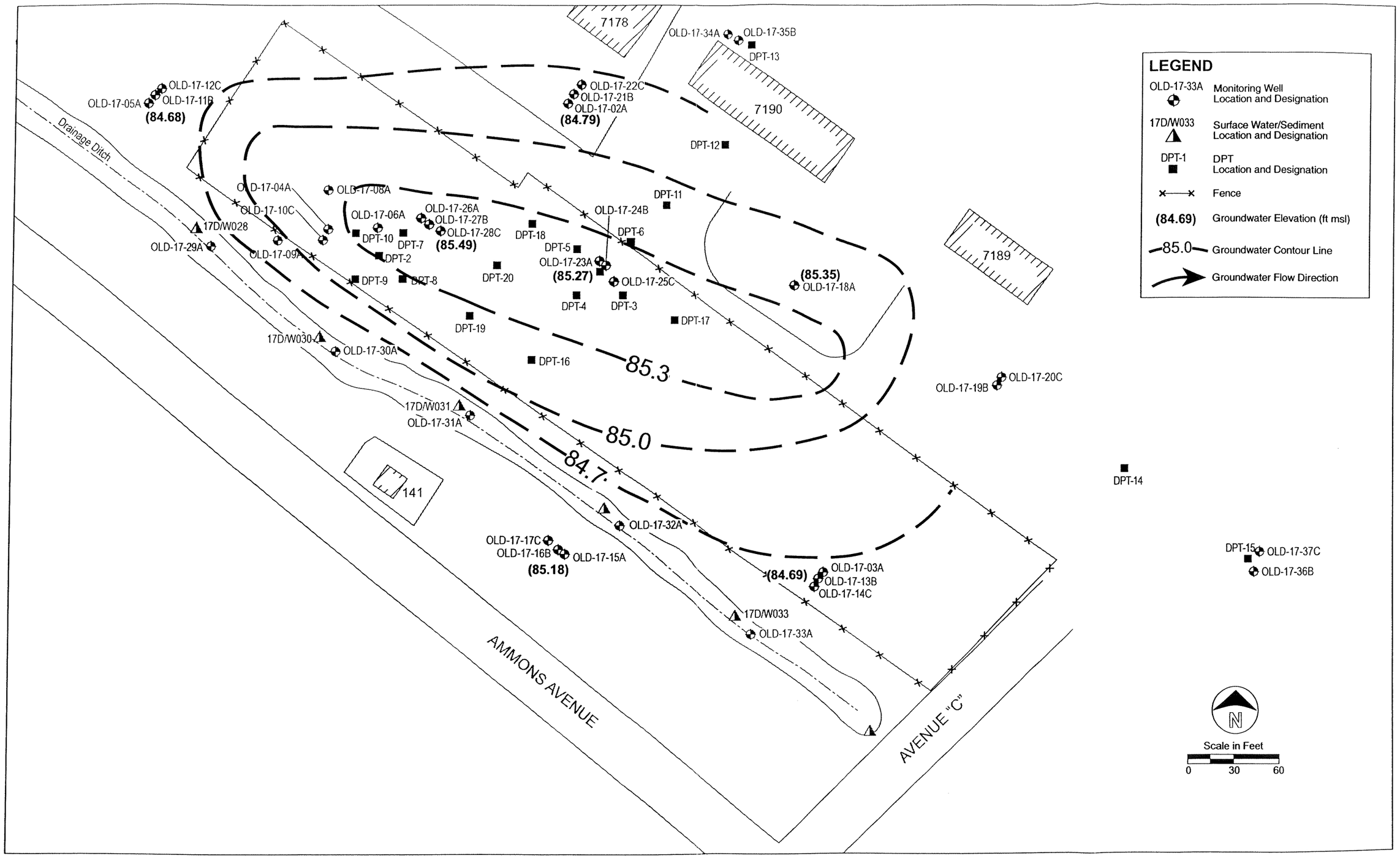


FIGURE 6
Shallow Groundwater Contour Map, SA17
April 28, 2000
Study Area 17, Naval Training Center, Orlando, Florida

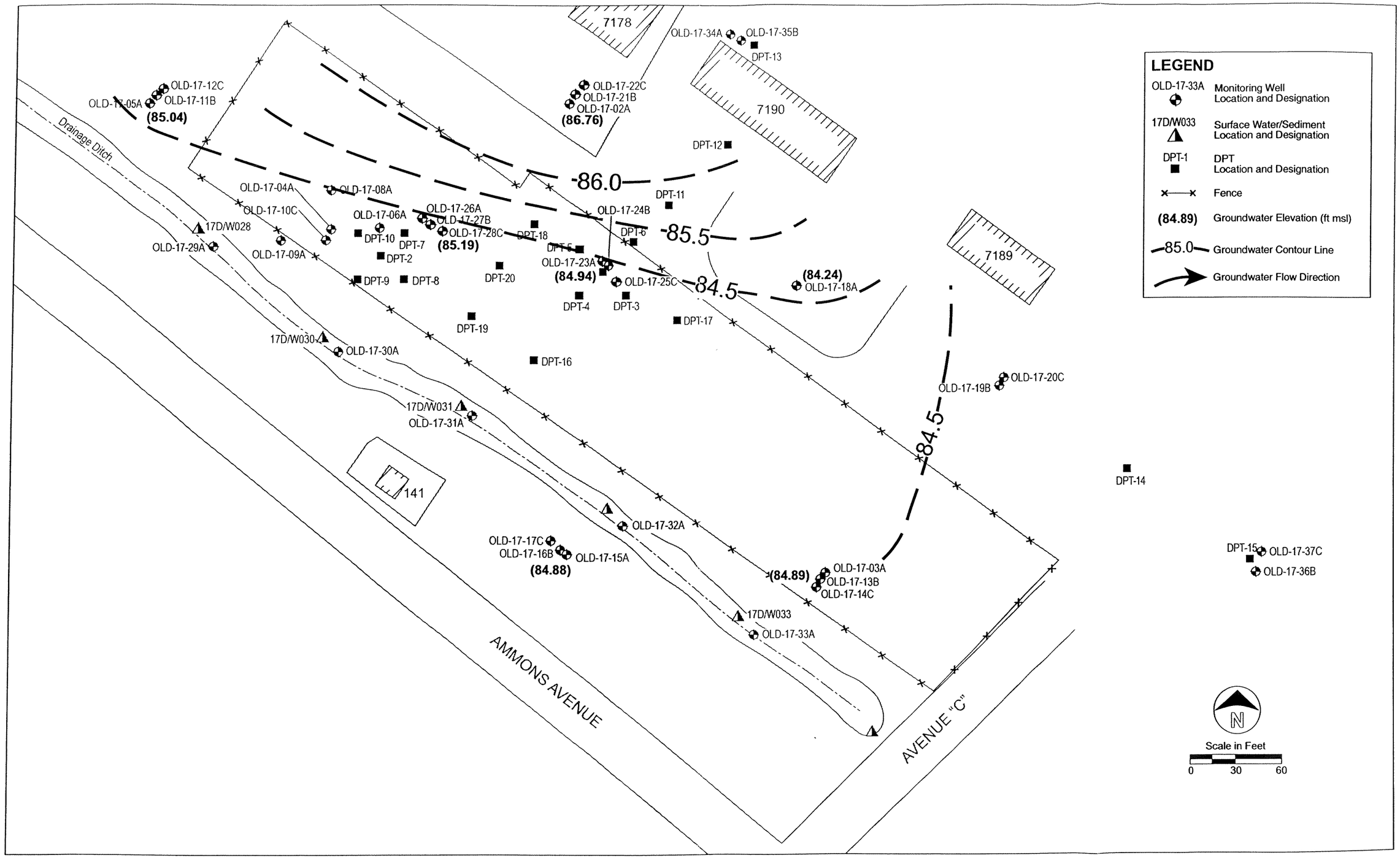


FIGURE 7
Intermediate Groundwater Contour Map, SA17
April 28, 2000
Study Area 17, Naval Training Center, Orlando, Florida

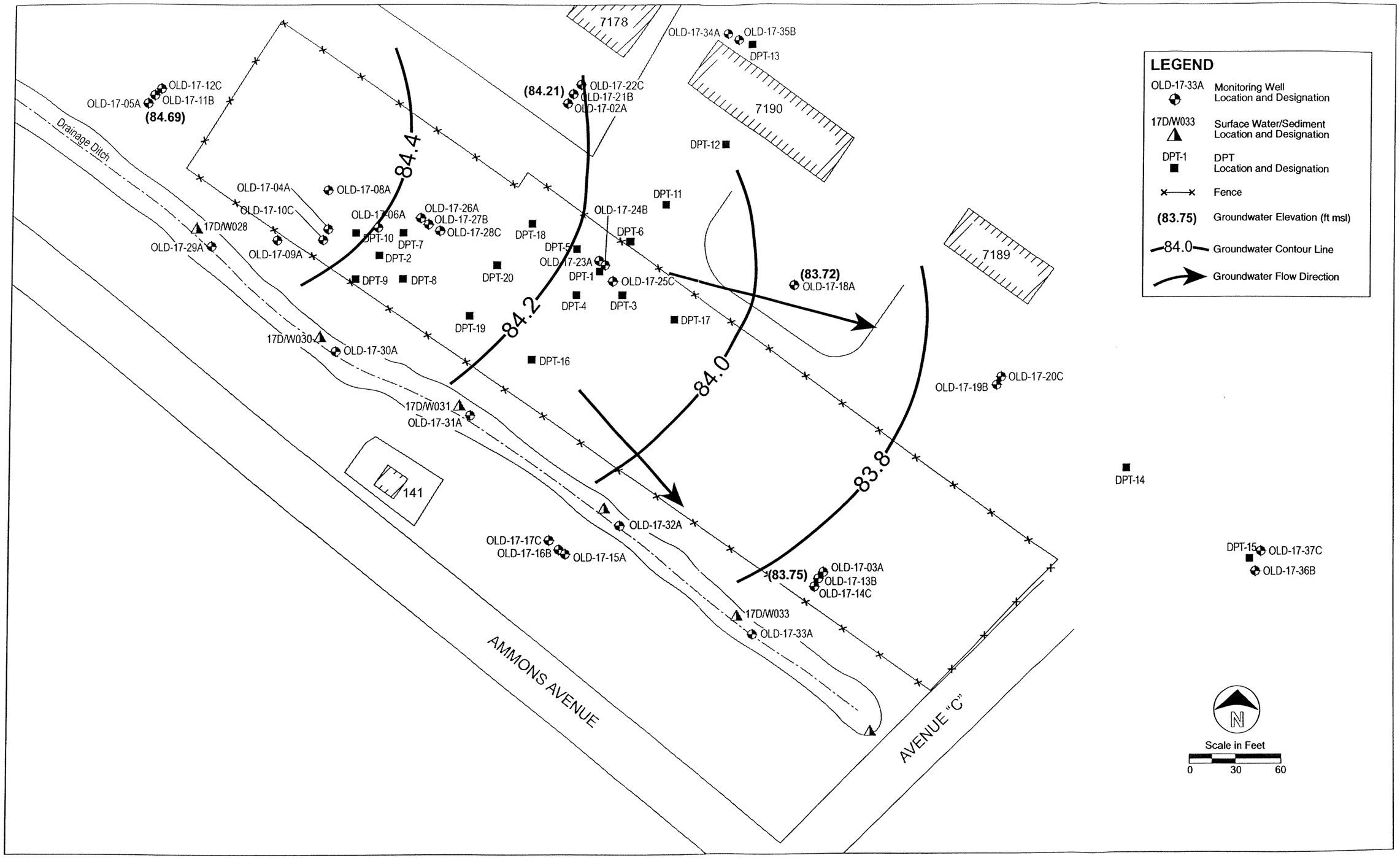


FIGURE 8
Deep Groundwater Contour Map, SA17
April 28, 2000
Study Area 17, Naval Training Center, Orlando, Florida

ATTACHMENT

No.

1. Field Sampling Report Forms

2. Boring Logs and Well Construction Details

3. Monitoring Well Purging Forms

FIELD SAMPLING REPORT

LOCATION: Near wells 23A/24B/25C PROJECT: NTC/ORLANDO

SITE: SA17

SAMPLE INFORMATION

MATRIX: WG SAMPLE ID: 017-DPT'-01-00-03

SAMPLING METHOD Waterloo-HP DUP./REP. OF: —

BEGINNING DEPTH 6' MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 24'

GRAB ( ) COMPOSITE ( ) DATE: 3/22/00 TIME: —

CONTAINER SIZE/TYPE	CONTAINER #	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40ml	2	HCl		VOC8260	VOC 8260

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: Silty	
2nd	ODOR:	
	OTHER:	

pH logbook Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ OVERCAST/RAIN ____ WIND DRIECTION ____ AMBIENT TEMP ____

SHIPMENT VIA: FED-X ____ HAND DELIVER ✓ COURIER ____ OTHER ____

SHIPPED TO: ACCUTEST - ORLANDO

COMMENTS: Samples collected @ 6', 8', 10', 12', 14', 16', 18', 20', 22', 24'

SAMPLER: JJD OBSERVER: EC

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: Sw Quadrants 26A/27B/28C PROJECT: NTC - ORLANDO

SITE: SA17

SAMPLE INFORMATION

MATRIX WG SAMPLE ID: 017-DPT2-01-00-03

SAMPLING METHOD HP DUP./REP. OF: —

BEGINNING DEPTH 7' MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (✓)

END DEPTH 24'

GRAB ( ) COMPOSITE ( ) DATE: 3/22/00 TIME: _____

CONTAINER SIZE/TYPE	CONTAINER #	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40mL	2	HCl		8260	VOC 8260

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: silty	
2nd	ODOR:	
	OTHER:	

pH logbook Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ OVERCAST/RAIN ____ WIND DRIECTION ____ AMBIENT TEMP ____

SHIPMENT VIA: FED-X ____ HAND DELIVER ✓ COURIER ____ OTHER ____

SHIPPED TO: ACCUTEST - ORLANDO

COMMENTS: Samples collected @ 7', 9', 12', 14', 16', 18', 20', 22', 24'

SAMPLER: JJD OBSERVER: _____

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: NTC-orlando PROJECT: 152044.31.02.05.02

SITE: SA17

SAMPLE INFORMATION

MATRIX WG SAMPLE ID: 017-DPT3-GI-00-04

SAMPLING METHOD HP DUP./REP. OF: Dup2 @ 18'

BEGINNING DEPTH 6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 26

GRAB ( ) COMPOSITE ( ) DATE: 4-3-00 TIME: —

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40ml	2	HCl		8260	VOC 8260

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: Silty	
2nd	ODOR:	
	OTHER:	

pH Logbook Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION ____ AMBIENT TEMP ____

SHIPMENT VIA: FED-X ____ HAND DELIVER X COURIER ____ OTHER ____

SHIPPED TO: accutest

COMMENTS: collected samples @ 6; 10, 14, 18, 22, 26

SAMPLER: JDD OBSERVER: ____

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: Near wells 23/24/25 PROJECT: NTC - ORLANDO

SITE: SA17

SAMPLE INFORMATION

MATRIX WG SAMPLE ID: 017-DPT4-01-00-03

SAMPLING METHOD HP DUP./REP. OF: –

BEGINNING DEPTH 6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (✓)

END DEPTH 25.5

GRAB ( ) COMPOSITE ( ) DATE: 3/24/00 TIME: –

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40ml	2	HCl		8260	VOC 8260

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: Silty	
2nd	ODOR:	
	OTHER:	

pH logbook Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN ✓ WIND DRIECTION ____ AMBIENT TEMP ____

SHIPMENT VIA: FED-X ____ HAND DELIVER ✓ COURIER ____ OTHER ____

SHIPPED TO: ACCUTEST - ORLANDO

COMMENTS: Collected samples @ 6', 10', 14', 18', 22', 25.5'

SAMPLER: [illegible] OBSERVER: ____

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: Near wells 23/24/25 PROJECT: NTC-ORLANDO

SITE: SA17

SAMPLE INFORMATION

MATRIX WG

SAMPLE ID: 017-DPT5-Q1-00-03

SAMPLING METHOD HP

DUP./REP. OF: —

BEGINNING DEPTH 6

MATRIX SPIKE/MATRIX SPIKE DUPLICATE
YES ( ) NO (X)

END DEPTH 26'

GRAB ( ) COMPOSITE ( )

DATE: 3/24/00 TIME: —

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40ml	2	HCl		8260	VOC 8260

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: silty	
2nd	ODOR:	
	OTHER:	

pH logbook Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN ✓ WIND DIRECTION ____ AMBIENT TEMP ____

SHIPMENT VIA: FED-X ____ HAND DELIVER ✓ COURIER ____ OTHER ____

SHIPPED TO: ACCUTEST - ORL

COMMENTS: Collected samples @ 6', 10', 14', 18', 22', 26'

SAMPLER: GGD OBSERVER: ____

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: NTC - Orl PROJECT : 152044.31.02.05.02

SITE: SA17

SAMPLE INFORMATION

MATRIX WG SAMPLE ID: 017-DPT6-01-00-04

SAMPLING METHOD HP DUP./REP. OF : —

BEGINNING DEPTH 6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 26

GRAB ( ) COMPOSITE ( ) DATE: 4-4-00 TIME: —

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40ml	3	HCl		8260	VOC 8260

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: Silty	
2nd	ODOR:	
	OTHER:	

pH logbook Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ OVERCAST/RAIN ____ WIND DRIECTION ____ AMBIENT TEMP ____

SHIPMENT VIA: FED-X ____ HAND DELIVER ✓ COURIER ____ OTHER ____

SHIPPED TO: Accutest Orlando

COMMENTS: Collected samples at 6', 10, 14, 18, 22, 26

SAMPLER: JJD OBSERVER: ____

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: NTC-Orl PROJECT: 152044.31.02.05.02

SITE: SA17

SAMPLE INFORMATION

MATRIX WG SAMPLE ID: 017-DPT7-01-00-04

SAMPLING METHOD HP DUP./REP. OF: DUP5 @ 21'

BEGINNING DEPTH 6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 25'

GRAB ( ) COMPOSITE ( ) DATE: 4-5-00 TIME: —

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40ml	2	HCl		8260B	VOC

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: silty	
2nd	ODOR:	
	OTHER:	

pH logbook Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ OVERCAST/RAIN ____ WIND DRIECTION ____ AMBIENT TEMP ____

SHIPMENT VIA: FED-X ____ HAND DELIVER ✓ COURIER ____ OTHER ____

SHIPPED TO: Accutest

COMMENTS: Collected samples @ 6, 10, 14, 17.5, 21, 25'

SAMPLER: JD OBSERVER: ____

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: NTC-Orl PROJECT: 152044.31.02.05.02

SITE: SA 17

SAMPLE INFORMATION

MATRIX WG SAMPLE ID: 017-DPT8-01-00-04

SAMPLING METHOD HP DUP./REP. OF: —

BEGINNING DEPTH 7' MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 25'

GRAB ( ) COMPOSITE ( ) DATE: 4-4-00 TIME: —

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40ml	2	HCl		8260B	VOC

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: Silty	
2nd	ODOR:	
	OTHER:	

pH 10g/000K Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ OVERCAST/RAIN ____ WIND DIRECTION ____ AMBIENT TEMP ____

SHIPMENT VIA: FED-X ____ HAND DELIVER ✓ COURIER ____ OTHER ____

SHIPPED TO: Accutest

COMMENTS: collected samples @ 7, 11, 15, 19, 23, 25'

SAMPLER: JJD OBSERVER: ____

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: NTC-Orl PROJECT: 152044.31.02.05.02

SITE: SA17

SAMPLE INFORMATION

MATRIX WG SAMPLE ID: 017-DPT9-01-00-04

SAMPLING METHOD HP DUP./REP. OF: DUP3@10'

BEGINNING DEPTH 7' MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 26'

GRAB ( ) COMPOSITE ( ) DATE: 4-4-00 TIME: —

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40 ml	2	HCl		8260B	VOCs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: Silty	
2nd	ODOR:	
	OTHER:	

pH Logbook Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ OVERCAST/RAIN ____ WIND DIRECTION ____ AMBIENT TEMP ____

SHIPMENT VIA: FED-X ____ HAND DELIVER ✓ COURIER ____ OTHER ____

SHIPPED TO: Accutest

COMMENTS: collected samples @ 7, 10, 15, 19, 22, 26'

SAMPLER: JDD OBSERVER: ____

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: NTC-ORL PROJECT: 152044.31.02.05.02

SITE: SA17

SAMPLE INFORMATION

MATRIX WG SAMPLE ID: 017-DPT10-01-00-04

SAMPLING METHOD HP DUP./REP. OF: DUP 4 @ 18'

BEGINNING DEPTH 6' MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 26'

GRAB ( ) COMPOSITE ( ) DATE: 4-5-00 TIME: —

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40ml	2	HCl		8260B	VOCs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: Silty	
2nd	ODOR:	
	OTHER:	

pH logbook Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ OVERCAST/RAIN ____ WIND DRIECTION ____ AMBIENT TEMP ____

SHIPMENT VIA: FED-X ____ HAND DELIVER ✓ COURIER ____ OTHER ____

SHIPPED TO: Accutest

COMMENTS: Collected Samples @ 6, 11, 14, 18, 22, 26'

SAMPLER: [illegible] OBSERVER: ____

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: 55' NE of 23/24/25 PROJECT: NTC-ORL

SITE: SA17

SAMPLE INFORMATION

MATRIX WG

SAMPLE ID: 017-DPT11-01-00-03

SAMPLING METHOD HP

DUP./REP. OF: —

BEGINNING DEPTH 10'

MATRIX SPIKE/MATRIX SPIKE DUPLICATE
YES ( ) NO (X)

END DEPTH 20'

GRAB ( ) COMPOSITE ( )

DATE: 3/23/00 TIME: —

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40ml	2	HCl		8260	VOC 8260

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: Silty	
2nd	ODOR:	
	OTHER:	

pH logbook Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ OVERCAST/RAIN ____ WIND DIRECTION ____ AMBIENT TEMP ____

SHIPMENT VIA: FED-X ____ HAND DELIVER ✓ COURIER ____ OTHER ____

SHIPPED TO: ACCUTEST - ORL

COMMENTS: Collected samples at 10 + 20'

SAMPLER: [illegible] OBSERVER: ____

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: 100' NE of 23/24/25 PROJECT: NTC - ORL

SITE: SA17

SAMPLE INFORMATION

MATRIX WG

SAMPLE ID: 017 - DPT12 - 01 - 00 - 03

SAMPLING METHOD HP

DUP./REP. OF: DUP1 @ 10'

BEGINNING DEPTH 10'

MATRIX SPIKE/MATRIX SPIKE DUPLICATE
YES ( ) NO (✓)

END DEPTH 20'

GRAB ( ) COMPOSITE ( )

DATE: 3/23/00 TIME: —

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40ml	2	HCl		8260	VOC 8260

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: silty	
2nd	ODOR:	
	OTHER:	

pH logbook Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ OVERCAST/RAIN ____ WIND DIRECTION ____ AMBIENT TEMP ____

SHIPMENT VIA: FED-X ____ HAND DELIVER ✓ COURIER ____ OTHER ____

SHIPPED TO: ACCUTEST - ORL

COMMENTS: Collected samples @ 10 + 20' b/s

SAMPLER: [illegible] OBSERVER: ____

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: 150' NE of 23/24/25 PROJECT: NTC - ORL

SITE: SA17

SAMPLE INFORMATION

MATRIX WG

SAMPLE ID: 017-DPT13-01-00-03

SAMPLING METHOD HP

DUP./REP. OF: —

BEGINNING DEPTH 10'

MATRIX SPIKE/MATRIX SPIKE DUPLICATE
YES ( ) NO (X)

END DEPTH 20'

GRAB ( ) COMPOSITE ( )

DATE: 3/23/00 TIME: —

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40ml	2	HCl		8260	VOC 8260

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: silty	
2nd	ODOR:	
	OTHER:	

pH Outlook Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ OVERCAST/RAIN ____ WIND DIRECTION ____ AMBIENT TEMP ____

SHIPMENT VIA: FED-X ____ HAND DELIVER ✓ COURIER ____ OTHER ____

SHIPPED TO: ACCUTEST - ORL

COMMENTS: Samples collected @ 10 + 20'

SAMPLER: JDD OBSERVER: ____

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: 100' from 19/20 wells PROJECT: NTC - ORC

SITE: SA17

SAMPLE INFORMATION

MATRIX: WG

SAMPLE ID: 017-DPT14-GW-00-03

SAMPLING METHOD: HP

DUP./REP. OF: —

BEGINNING DEPTH: 25'

MATRIX SPIKE/MATRIX SPIKE DUPLICATE
YES ( ) NO (X)

END DEPTH: 50'

GRAB ( ) COMPOSITE ( )

DATE: 3/23/00 TIME: —

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40ml	2	HCl		8260	VOC 8260

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: Silty	
2nd	ODOR:	
	OTHER:	

pH logbook Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ OVERCAST/RAIN ____ WIND DIRECTION ____ AMBIENT TEMP ____

SHIPMENT VIA: FED-X ____ HAND DELIVER ✓ COURIER ____ OTHER ____

SHIPPED TO: ACCUTEST - ORC

COMMENTS: Samples collected @ 25 + 50' bls

SAMPLER: ELC OBSERVER: ____

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: NTC-Orl

PROJECT: 152044.31.02.05.02

SITE: SA17

SAMPLE INFORMATION

MATRIX: WG

SAMPLE ID: 017-DPT15-Q1-00-03

SAMPLING METHOD: HP

DUP./REP. OF: —

BEGINNING DEPTH: 23.5'

MATRIX SPIKE/MATRIX SPIKE DUPLICATE
YES ( ) NO (X)

END DEPTH: 49.5'

GRAB ( ) COMPOSITE ( )

DATE: 3/23/00 TIME: —

CONTAINER SIZE/TYPE	CONTAINER #	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40ml	2	HCl		8260B	VOCs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: silty	
2nd	ODOR:	
	OTHER:	

pH logbook Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ OVERCAST/RAIN ____ WIND DIRECTION ____ AMBIENT TEMP ____

SHIPMENT VIA: FED-X ____ HAND DELIVER ✓ COURIER ____ OTHER ____

SHIPPED TO: accutest

COMMENTS: collected samples @ 23.5 + 49.5'

SAMPLER: JPD OBSERVER: ____

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SD=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP/WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB/WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: NTC-OU1 PROJECT: 152044.31.02.05.02

SITE: SA17

SAMPLE INFORMATION

MATRIX WG SAMPLE ID: 017-DPT16-01-00-04

SAMPLING METHOD HP DUP./REP. OF: —

BEGINNING DEPTH 10' MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 26' YES ( ) NO (X)

GRAB ( ) COMPOSITE ( ) DATE: 4-6-00 TIME: —

CONTAINER SIZE/TYPE	CONTAINER #	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40ml	2	HCl		8260B	VOC

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: silty	
2nd	ODOR:	
	OTHER:	

pH logbook Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ OVERCAST/RAIN ____ WIND DIRECTION ____ AMBIENT TEMP ____

SHIPMENT VIA: FED-X ____ HAND DELIVER ✓ COURIER ____ OTHER ____

SHIPPED TO: Accutest

COMMENTS: collected samples @ 10, 14, 18, 22, 26'

SAMPLER: [illegible] OBSERVER: ____

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SD=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAP/WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: NTC - Orl PROJECT: 152044.31.02.05.02

SITE: SA17

SAMPLE INFORMATION

MATRIX WG SAMPLE ID: 017-DPT17-Q1-00-04

SAMPLING METHOD HP DUP./REP. OF: DUP6 @ 26'

BEGINNING DEPTH 18' MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 26'

GRAB ( ) COMPOSITE ( ) DATE: 4-6-00 TIME: —

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40ml	2	HCl		8260B	VOC

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: Silty	
2nd	ODOR:	
	OTHER:	

pH 10.5/200K Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ OVERCAST/RAIN ___ WIND DIRECTION ___ AMBIENT TEMP ___

SHIPMENT VIA: FED-X ___ HAND DELIVER ✓ COURIER ___ OTHER ___

SHIPPED TO: accutest

COMMENTS: collected samples @ 18', 22, 26'

SAMPLER: GJD OBSERVER: ___

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SD=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP/WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB/WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: NTC-Orl PROJECT: 152044.31.02.05.02

SITE: SA17

SAMPLE INFORMATION

MATRIX WG SAMPLE ID: 017-DPT18-G1-00-04

SAMPLING METHOD HP DUP./REP. OF: —

BEGINNING DEPTH 22' MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 26' YES ( ) NO (X)

GRAB ( ) COMPOSITE ( ) DATE: 4-6-00 TIME: —

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40ml	2	HCl		8260B	VOC

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: silty	
2nd	ODOR:	
	OTHER:	

pH 10s/low Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ OVERCAST/RAIN ___ WIND DIRECTION ___ AMBIENT TEMP ___

SHIPMENT VIA: FED-X ___ HAND DELIVER ✓ COURIER ___ OTHER ___

SHIPPED TO: Accutest

COMMENTS: Collected samples @ 22 + 26'

SAMPLER: [illegible] OBSERVER: ___

MATRIX TYPE CODES

DC-DRILL CUTTINGS
WG-GROUND WATER
LH-HAZARDOUS LIQUID WASTE
SH-HAZARDOUS SOLID WASTE
SD-SEDIMENT
SL-SLUDGE
SO-SOIL
GS-SOIL GAS
WS-SURFACE WATER
SW-SWAP\WIPE

SAMPLING METHOD CODES

B-BAILER
BR-BRASS RING
CS-COMPOSITE SAMPLE
C-CONTINUOUS FLIGHT AUGER
DT-DRIVEN TUBE
W-SWAB\WIPE
G-GRAB
HA-HAND AUGER
H-HOLLOW STEM AUGER
HP-HYDRO PUNCH
SS-SPLIT SPOON
SP-SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: NTC-Orl PROJECT: 152044.31.02.05.02

SITE: SA17

SAMPLE INFORMATION

MATRIX WG SAMPLE ID: 017-DPT19-01-00-04

SAMPLING METHOD HP DUP./REP. OF: —

BEGINNING DEPTH 14' MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 26' YES ( ) NO (X)

GRAB ( ) COMPOSITE ( ) DATE: 4-7-00 TIME: —

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40ml	2	HCl		8260B	VOC

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: Silty	
2nd	ODOR:	
	OTHER:	

pH logbook Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ OVERCAST/RAIN ____ WIND DIRECTION ____ AMBIENT TEMP ____

SHIPMENT VIA: FED-X ____ HAND DELIVER ✓ COURIER ____ OTHER ____

SHIPPED TO: accutest

COMMENTS: collected samples @ 14, 18, 22 + 26'

SAMPLER: [illegible] OBSERVER: ____

MATRIX TYPE CODES

DC-DRILL CUTTINGS
WG-GROUND WATER
LH-HAZARDOUS LIQUID WASTE
SH-HAZARDOUS SOLID WASTE
SD-SEDIMENT
SL-SLUDGE
SO-SOIL
GS-SOIL GAS
WS-SURFACE WATER
SW-SWAP\WIPE

SAMPLING METHOD CODES

B-BAILER
BR-BRASS RING
CS-COMPOSITE SAMPLE
C-CONTINUOUS FLIGHT AUGER
DT-DRIVEN TUBE
W-SWAB/WIPE
G-GRAB
HA-HAND AUGER
H-HOLLOW STEM AUGER
HP-HYDRO PUNCH
SS-SPLIT SPOON
SP-SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: NTC-orl PROJECT: 152044.31.02.05.02

SITE: SA17

SAMPLE INFORMATION

MATRIX WG

SAMPLE ID: 017-DPT20-01-00-04

SAMPLING METHOD HP

DUP./REP. OF: DUP 7 @ 18'

BEGINNING DEPTH 14'

MATRIX SPIKE/MATRIX SPIKE DUPLICATE
YES ( ) NO (X)

END DEPTH 26'

GRAB ( ) COMPOSITE ( )

DATE: 4-7-00 TIME: —

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40ml	2	HCl		8260B	VOC

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR: silty	
2nd	ODOR:	
	OTHER:	

pH Leaf pak Temperature " Dissolved oxygen " Specific Conductivity "

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ OVERCAST/RAIN ____ WIND DIRECTION ____ AMBIENT TEMP ____

SHIPMENT VIA: FED-X ____ HAND DELIVER ✓ COURIER ____ OTHER ____

SHIPPED TO: accutest

COMMENTS: collected samples @ 14, 18, 22 + 26'

SAMPLER: [illegible] OBSERVER: ____

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SD=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP/WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB/WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

BORING LOG

Borehole ID: OLD-17-34A
Sheet 1 of 1

			Location: OLD-17-34A	
Project Name: NTC-ORLANDO	Project Number: 152044.31.02.85.02	LTCCODE (IRPIMS): MNW	Site ID: SA17	LPRCODE (IRPIMS): I
Drilling Company: Precision	Driller: Mike Millican	Ground Elevation: NSYet	Total Drilled Depth: 17'6/s	
Drilling Equipment: HSA	Drilling Method: HSA	Borehole Diameter: 10"	Date/Time Drilling Started: 3-27-00	Date/Time Total Depth Reached: 3-27-00
Type of Sampling Device: 2" Split Spoons			Water Level (bgs): First / Final	
Sample Hammer: Type / Driving Wt. / Drop			Hydrogeologist: J. OTTOSON	Checked by/Date
Location Description (include sketch in field logbook)				

Depth ft	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content	Remarks (Include all sample types & depth, odor, organic vapor measurements, etc.)
0			6 R A B	Mottled Very Pale Brown (10YR 8/2) and Brownish Yellow (10YR 6/6), loose, moist, fine sand, little med. sand, trace silt (10%), subangular, no odor, no discoloration	SM		MOIST	OH (overhole) = 0.0 ppm HS (headspace) = 0.0 Temp = 80°F
4								
9.5			5 8 7	Light Brownish Gray (10YR 6/2), loose, wet, fine silty sand (≈ 30% silt), little med sand, subangular, no odor, no discoloration	SM		WET	OH = 0.2 ppm HS = 0.0 ppm Temp = 80°
11.5			6					
14.5			6 6 6	Grayish Brown (10YR 5/2), med dense, saturated, fine to med silty sand (≈ 30% silt), little coarse sand, subangular, no odor, no discoloration	SM		SATURATED	OH = 0.3 ppm HS = 2.4 ppm Temp = 79°
16.5			4					

WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: Jennifer Otoson

DRILLING CONTRACTOR: Precision Drilling

DRILLING TECHNIQUE: HSA

AUGER SIZE AND TYPE: 4 1/4" HSA

BOREHOLE IDENTIFICATION: —

BOREHOLE DIAMETER: 8 1/4"

WELL IDENTIFICATION: OLD-17-34A

WELL CONSTRUCTION START DATE: 3-27-00

WELL CONSTRUCTION COMPLETE DATE: 3-27-00

SCREEN MATERIAL: PVC

SCREEN DIAMETER: 2"

STRATUM-SCREENED INTERVAL (FT): 5-15'

CASING MATERIAL: PVC

CASING DIAMETER: 2"

TYPE OF FILTER PACK: 20/30 sand

GRADIATION: 20/30

AMOUNT OF FILTER PACK USED: 7 bags

TYPE OF BENTONITE: Pellets

AMOUNT BENTONITE USED: 2'

TYPE OF CEMENT: Portland Type 1

AMOUNT CEMENT USED: 94 lbs

GROUT MATERIALS USED: 2'

DIMENSIONS OF SECURITY BOX: 8X8"

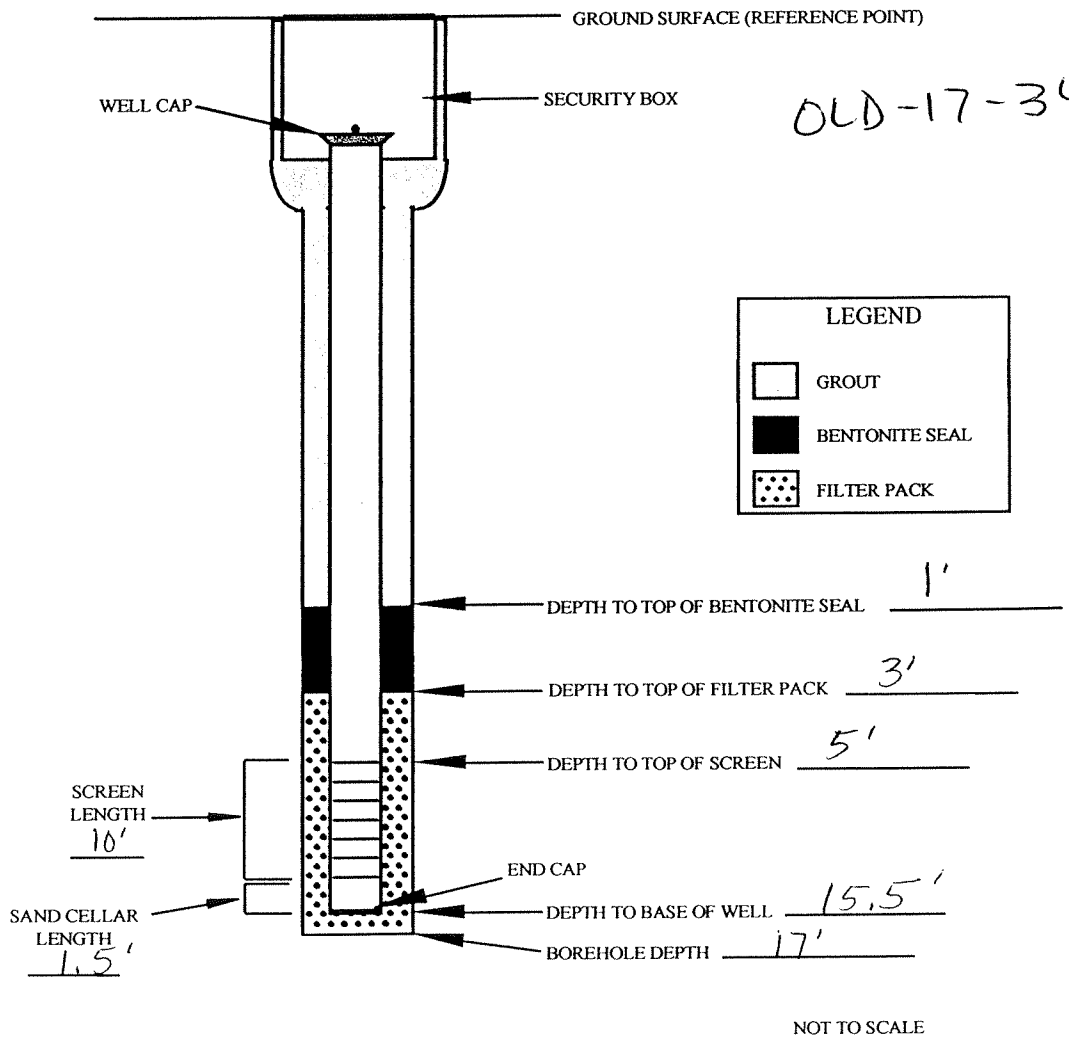
TYPE OF WELL CAP: LEP

TYPE OF END CAP: Female point

COMMENTS:

SPECIAL CONDITIONS
(describe and draw)

OLD-17-34A



INSTALLED BY: JJD

INSTALLATION OBSERVED BY:

DISCREPANCIES:

BORING LOG

Borehole ID: OLD-17-35B
Sheet 1 of 1

			Location: OLD-17-35B	
Project Name: NTC-ORLANDO	Project Number: 152044.31.02.05.02	LTCCODE (IRPIMS): MNW	Site ID: SA17	LPRCODE (IRPIMS): I
Drilling Company: PRECISION	Driller: Mike Millican	Ground Elevation: NS yet	Total Drilled Depth: 22' bls	
Drilling Equipment: HSA / Drilling Method: HSA / Borehole Diameter: 10"		Date/Time Drilling Started: 3-27-00	Date/Time Total Depth Reached: 3-27-00	
Type of Sampling Device: 2" Split Spoons		Water Level (bgs): First	Final	
Sample Hammer: Type / Driving Wt. / Drop		Hydrogeologist: J. OTTOSON	Checked by/Date	
Location Description (include sketch in field logbook)				

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content	Remarks (Include all sample types & depth, odor, organic vapor measurements, etc.)
0			GRAB	Mottled Very Pale Brown (10YR 8/2) and Brownish Yellow (10YR 6/6), loose, moist, fine sand, little med sand, trace silt (10%), subangular, no odor, no discoloration	SM		MOIST	OH = 0.0 ppm HS = 0.0 ppm Temp = 80°
4								
9.5			5 11 8 8	Light Brownish Gray (10YR 6/2), wet, med dense, fine silty sand (≈30% silt), little med sand, subangular, no odor, no discoloration	SM		WET	OH = 0.2 ppm HS = 0.0 ppm Temp = 79°
11.5								
14.5			6 5 4 5	Grayish Brown (10YR 5/2), saturated, med dense, fine to med silty sand, little coarse sand, subangular, no odor, no discoloration	SM		SATURATED	OH = 0.2 ppm HS = 0.0 ppm Temp = 79°
16.5								
19.5			4 5 5 3	same as 14.5-16.5' above	SM		SAT.	OH = 0.3 ppm HS = 13.1 ppm Temp = 79°
21.5								

WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: Jennifer Ottoson
DRILLING CONTRACTOR: Precision Drilling
DRILLING TECHNIQUE: HSA
AUGER SIZE AND TYPE: 4¼" HSA

BOREHOLE IDENTIFICATION: –
BOREHOLE DIAMETER: 8¼"
WELL IDENTIFICATION: OLD-17-35B

WELL CONSTRUCTION START DATE: 3-27-00
WELL CONSTRUCTION COMPLETE DATE: 3-27-00

SCREEN MATERIAL: PVC
SCREEN DIAMETER: 2"
STRATUM-SCREENED INTERVAL (FT): 15'-20'

CASING MATERIAL: PVC
CASING DIAMETER: 2"

TYPE OF FILTER PACK: Sand
GRADIATION: 20/30
AMOUNT OF FILTER PACK USED: 7 bags

TYPE OF BENTONITE: pellets
AMOUNT BENTONITE USED: 2'

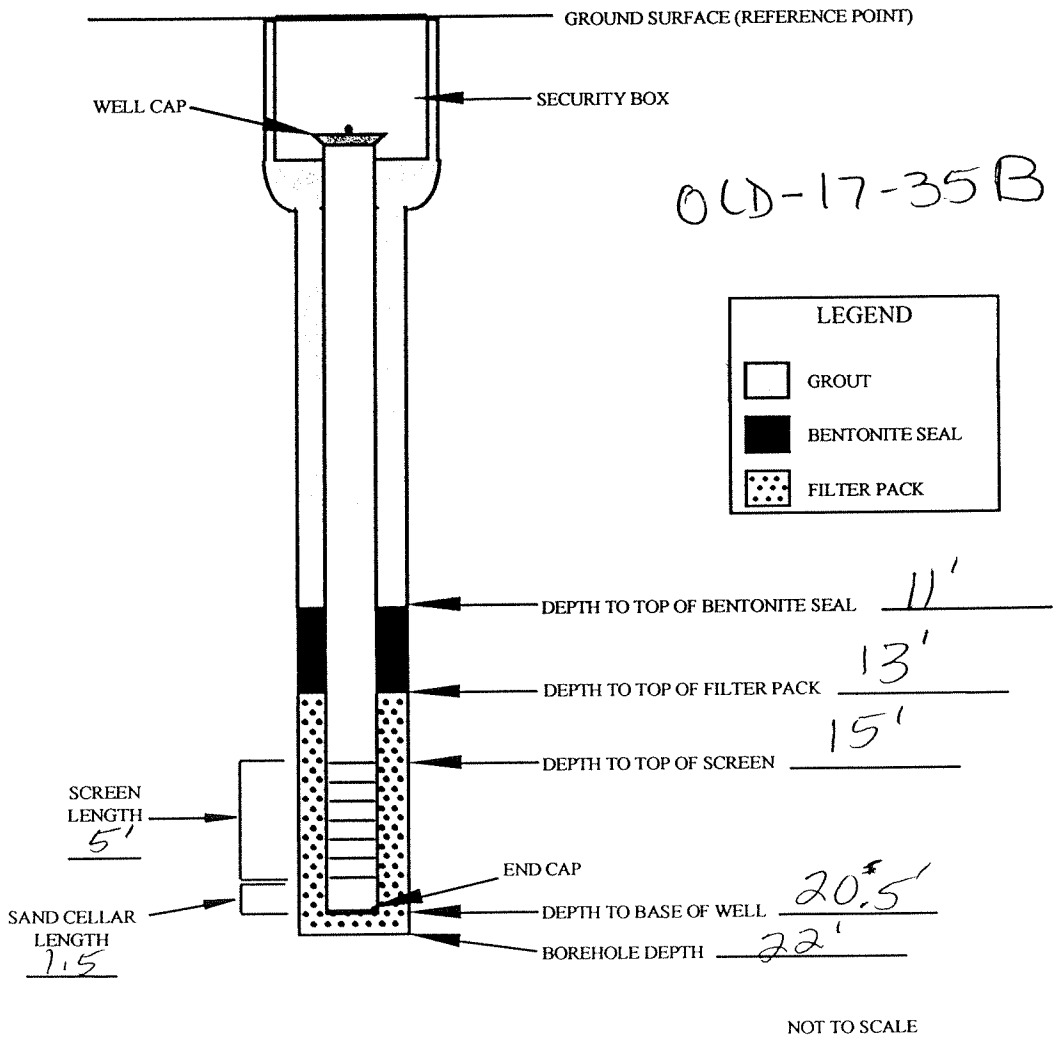
TYPE OF CEMENT: Portland Type I
AMOUNT CEMENT USED: 94 lbs
GROUT MATERIALS USED: 11'

DIMENSIONS OF SECURITY BOX: 8x8"

TYPE OF WELL CAP: LEP
TYPE OF END CAP: Female pt

COMMENTS:

SPECIAL CONDITIONS
(describe and draw)



NOT TO SCALE

INSTALLED BY: JJW
INSTALLATION OBSERVED BY:

DISCREPANCIES:

BORING LOG

Borehole ID: OLD-17-36B
Sheet 1 of 2

			Location: OLD-17-36B	
Project Name: NTC-Orlando	Project Number: 152044.31.	LTCCODE (IRPIMS): MNW	Site ID: SA17	LPRCODE (IRPIMS): I
Drilling Company: PRECISION	Driller: MIKE MILLICAN	Ground Elevation: NSY	Total Drilled Depth: 30.5' bls	
Drilling Equipment: HSA / Drilling Method: HSA / Borehole Diameter: 10"		Date/Time Drilling Started: 3/28/00	Date/Time Total Depth Reached: 3/28/00	
Type of Sampling Device: 2" SS		Water Level (bgs) First / Final		
Sample Hammer Type / Driving Wt. / Drop		Hydrogeologist: J. OTTOSON	Checked by/Date	
Location Description (include sketch in field logbook)				

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content	Remarks (Include all sample types & depth, odor, organic vapor measurements, etc.)
0			G R A B	Light Brownish Gray (10YR 6/2), moist, loose, fine sand, trace med sand, trace silt (≈ <10%), subang, no odor, no disc.	SM		MOIST	OH = 0.1 ppm HS = 0.0 ppm Temp = 80°
4								
10			4 8 12 10	Grayish Brown (10YR 5/2), wet to saturated, med dense, fine silty sand (≈25% silt), trace med sand, subangular, no odor, no disc.	SM		WET	OH = 0.0 ppm HS = 0.5 ppm Temp = 79°
12								
15			3 7 8 5	15-17' description same as 10-12'	SM		SAT.	OH = 0.0 ppm HS = 4.1 ppm Temp = 79°
17								
20			4 3 3 2	Light Brownish Gray (10YR 6/2), sat, med dense, very fine to fine silty sand (≈30% silt), subangular, no odor, no disc.	SM		SAT.	OH = 0.0 ppm HS = 0.9 ppm Temp = 79°
22								

BORING LOG

Borehole ID: OLD-17-36B
Sheet 2 of 2

			Location: OLD-17-36B	
Project Name: NTC-Orlando	Project Number: 152044.31	LTCCODE (IRPIMS): MNW	Site ID: SA17	LPRCODE (IRPIMS): I
Drilling Company: Precision	Driller: Millican	Ground Elevation: NSY	Total Drilled Depth: 30.5' bls	
Drilling Equipment: HSA / Drilling Method: HSA	Borehole Diameter: 10"	Date/Time Drilling Started: 3/28/00	Date/Time Total Depth Reached: 3/28/00	
Type of Sampling Device: 2" SS		Water Level (bgs) First / Final		
Sample Hammer Type / Driving Wt. / Drop		Hydrogeologist: J. OTTOSON	Checked by/Date	
Location Description (include sketch in field logbook)				

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content	Remarks (Include all sample types & depth, odor, organic vapor measurements, etc.)
25			2	Dark Gray (10YR4/1), Sat, med dense, v dry fine to fine silty sand, trace med. sand, subang, no odor, no discoloration.	SM		SAT.	OH = 0.1 ppm HS = 2.3 ppm Temp = 79°
			2					
			2					
27			2					

WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: Jennifer Ottosen
DRILLING CONTRACTOR: Precision Drilling

DRILLING TECHNIQUE: HSA
AUGER SIZE AND TYPE: 4 1/4" HSA

BOREHOLE IDENTIFICATION: —
BOREHOLE DIAMETER: 8 1/4"
WELL IDENTIFICATION: OLD-17-36B

WELL CONSTRUCTION START DATE: 3-28-00
WELL CONSTRUCTION COMPLETE DATE: 3-28-00

SCREEN MATERIAL: PVC
SCREEN DIAMETER: 2"
STRATUM-SCREENED INTERVAL (FT): 24-29'

CASING MATERIAL: PVC
CASING DIAMETER: 2"

TYPE OF FILTER PACK: Sand
GRADIATION: 20/30
AMOUNT OF FILTER PACK USED: 7 bags

TYPE OF BENTONITE: pellets
AMOUNT BENTONITE USED: 2'

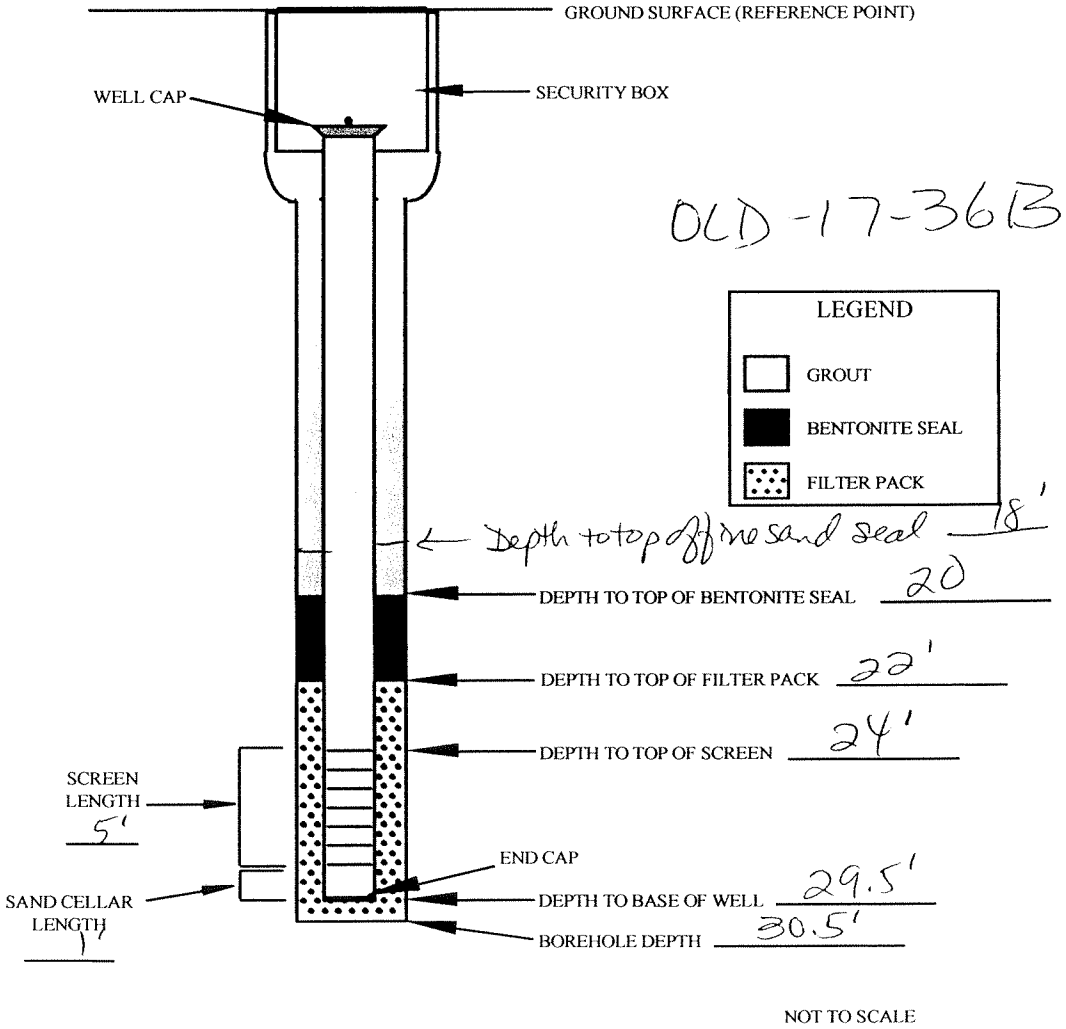
TYPE OF CEMENT: Portland type 1
AMOUNT CEMENT USED: 94 lbs
GROUT MATERIALS USED: 18'

DIMENSIONS OF SECURITY BOX: 8x8"

TYPE OF WELL CAP: LEP
TYPE OF END CAP: female pt

COMMENTS:

SPECIAL CONDITIONS
(describe and draw)



NOT TO SCALE

INSTALLED BY: [illegible]
INSTALLATION OBSERVED BY:

DISCREPANCIES:

BORING LOG

Borehole ID: OLD-17-37C
Sheet 1 of 4

			Location: OLD-17-37C	
Project Name: NTC-ORLANDO	Project Number: 152044.31.02.0502	LTCCODE (IRPIMS): MNW	Site ID: SA17	LPRCODE (IRPIMS): I
Drilling Company: PRECISION	Driller: MIKE MILLICAN	Ground Elevation: NS yet	Total Drilled Depth: 57'	
Drilling Equipment: HSA / Drilling Method: HSA / Borehole Diameter: 10"		Date/Time Drilling Started: 3/28/00	Date/Time Total Depth Reached: 3/28/00	
Type of Sampling Device: 2" SPLIT SPOONS		Water Level (bgs): First	Final	
Sample Hammer: Type / Driving Wt. / Drop		Hydrogeologist: J. OTTOSON	Checked by/Date	
Location Description (include sketch in field logbook)				

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content	Remarks (Include all sample types & depth, odor, organic vapor measurements, etc.)
0			GRAB	Light Brownish Gray (10YR6/2), moist, loose, fine sand, trace med sand, little silt (≈20%), no odor, no discoloration, subangular	SM		MOIST	OH = 0.0 ppm HS = 0.0 ppm Temp = 80°
4								
10			6 8 10	Grayish Brown (10YR5/2), wet to saturated, med dense, fine silty sand (≈25% silt), trace med sand, subangular, no odor, no disc.	SM		WET	OH = 0.1 ppm HS = 0.8 ppm Temp = 79°
12			11					
15			4 7 7	15-17' same description as 10-12' above	SM		SAT.	OH = 0.1 ppm HS = 2.3 ppm Temp = 79°
17			9					
20			5 4 5	Grayish Brown (10YR5/2), saturated, med dense, very fine to fine silty sand (≈30% silt), subangular, no odor, no disc.	SM		SATURATED	OH = 0.2 ppm HS = 1.5 ppm Temp = 78°
22			4					

BORING LOG

Borehole ID: OLD-17-37C
Sheet 2 of 4

			Location: OLD-17-37C	
Project Name: NTC-ORLANDO	Project Number: 152044.31.02.0502	LTCCODE (IRPIMS): MNW	Site ID: SA17	LPRCODE (IRPIMS): I
Drilling Company: Precision	Driller: Mike Millican	Ground Elevation: NSY	Total Drilled Depth: 57'	
Drilling Equipment: HSA / Drilling Method: HSA / Borehole Diameter: 10"		Date/Time Drilling Started: 3/28/00	Date/Time Total Depth Reached: 3/28/00	
Type of Sampling Device: 2" SS		Water Level (bgs): First	Final	
Sample Hammer: Type / Driving Wt. / Drop		Hydrogeologist: J. OTTOSON	Checked by/Date	
Location Description (include sketch in field logbook)				

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content	Remarks (Include all sample types & depth, odor, organic vapor measurements, etc.)
25			2	Dark Gray (10YR 4/1), saturated, med	SM		S	OH = 0.0 ppm
			3	dense, very fine to fine silty sand,			A	HS = 3.7 ppm
			2	trace med sand, subangular,			T.	Temp = 78°
27			2	no odor, no disc.				
30			WOR	Light Brownish Gray (10YR 6/2),	SM		S	OH = 0.2 ppm
			2	sat, med dense, very fine to			A	HS = 6.8 ppm
			1	fine silty sand, subangular,			T.	Temp = 78°
32			2	no odor, no disc.				
35			WOR	Light Brownish Gray (10YR 6/2),	SM		S	OH = 0.2 ppm
			2	sat, med dense, fine silty			A	HS = 43.6 ppm
			1	sand, little very fine sand,			T.	Temp = 78° (CH_4?)
37			1	trace med sand, subangular, no odor, no disc.				
40			2	40-42' same description as	SM		S	OH = 0.2 ppm
			2	35-37' above.			A	HS = 372 ppm (CH_4?)
42			2				T.	Temp = 78°
			1					

BORING LOG

Borehole ID: OLD-17-37C
Sheet 3 of 4

			Location: OLD-17-37C	
Project Name: NTC-ORLANDO	Project Number: 152044.31.	LTCCODE (IRPIMS): MNW	Site ID: SA17	LPRCODE (IRPIMS): I
Drilling Company: Precision	Driller: Mike Millican	Ground Elevation: NSY	Total Drilled Depth: 57'	
Drilling Equipment: HSA / Drilling Method: HSA / Borehole Diameter: 10"		Date/Time Drilling Started: 3/28/00	Date/Time Total Depth Reached: 3/28/00	
Type of Sampling Device: 2" SS		Water Level (bgs): First / Final		
Sample Hammer: Type / Driving Wt. / Drop		Hydrogeologist: J. OTTOSON	Checked by/Date	
Location Description (include sketch in field logbook)				

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content	Remarks (Include all sample types & depth, odor, organic vapor measurements, etc.)
45			3 5 10	45-47' description same as 35-37'	SM		SAT.	OH=0.1 ppm HS=814 ppm (CH4?) Temp=78°
47			10 7 12 11 28	47-49' Light Brownish Gray (10YR6/2), sat, med dense, fine silty sand (≈30% silt), little very fine sand, little med sand, subangular, no odor, no disc.	SM		SAT	OH=0.1 ppm HS=925 ppm Temp=78°
49			WOR 1 1	49-51' Gray (10YR4/1), sat, med dense, fine silty sand, little med sand, trace fine sand, subangular, no odor, no disc.	SM		SAT.	OH=0.2 ppm HS=695 ppm Temp=78°
51			WOR WOR	51-53' Olive Gray (5Y5/2), sat, med dense, fine silty sand, trace med sand, trace very fine sand, subangular, no odor, no disc.	SM		SAT	OH=0.0 ppm HS=261 ppm Temp=78°
53			1 1 1 1	53-55' Mottled Dark Gray (1 for Gley 4/-) and Dark Greenish Gray (1 for Gley 4/1), sat, med dense, very fine silty sand (≈50% silt), with silt lenses intermixed throughout, no odor, no disc.	SM		SAT.	OH=0.0 ppm HS=162 ppm Temp=77°
55								

BORING LOG

Borehole ID: OLD-17-37C
Sheet 4 of 4

			Location: OLD-17-37C	
Project Name: NTC-Orlando	Project Number: 152044.31.	LTCCODE (IRPIMS): MNW	Site ID: SA17	LPRCODE (IRPIMS): I
Drilling Company: Precision	Driller: Millican	Ground Elevation: NSY	Total Drilled Depth: 57' bls	
Drilling Equipment: HSA / Drilling Method: HSA / Borehole Diameter: 10"		Date/Time Drilling Started: 3/28/00	Date/Time Total Depth Reached: 3/28/00	
Type of Sampling Device: 2" SS		Water Level (bgs) First	Final	
Sample Hammer Type / Driving Wt. / Drop		Hydrogeologist: J. OTTOSON	Checked by/Date	
Location Description (include sketch in field logbook)				

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Lithology	Water Content	Remarks (Include all sample types & depth, odor, organic vapor measurements, etc.)
55			wet	55-57' description same as 53-55' with clayey silty lenses intermixed throughout, less dense + softer.	SC CL		SAT.	OH = 0.0 ppm HS = 217 ppm Temp = 77°
57			wet					

WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

FIELD REPRESENTATIVE: Jennifer OTTOSON

DRILLING CONTRACTOR: Precision Drilling

DRILLING TECHNIQUE: HSA

AUGER SIZE AND TYPE: 4 1/4 HSA

BOREHOLE IDENTIFICATION: —

BOREHOLE DIAMETER: 8 1/4"

WELL IDENTIFICATION: OLD-17-37C

WELL CONSTRUCTION START DATE: 3-28-00

WELL CONSTRUCTION COMPLETE DATE: 3-28-00

SCREEN MATERIAL: PVC

SCREEN DIAMETER: ~~2"~~ 2"

STRATUM-SCREENED INTERVAL (FT): 45-55'

CASING MATERIAL: PVC

CASING DIAMETER: 2"

TYPE OF FILTER PACK: Sand

GRADIATION: 20/30

AMOUNT OF FILTER PACK USED: 7 bags

TYPE OF BENTONITE: pellets

AMOUNT BENTONITE USED: 2'

TYPE OF CEMENT: Portland Type I

AMOUNT CEMENT USED: 94 lbs

GROUT MATERIALS USED: 39'

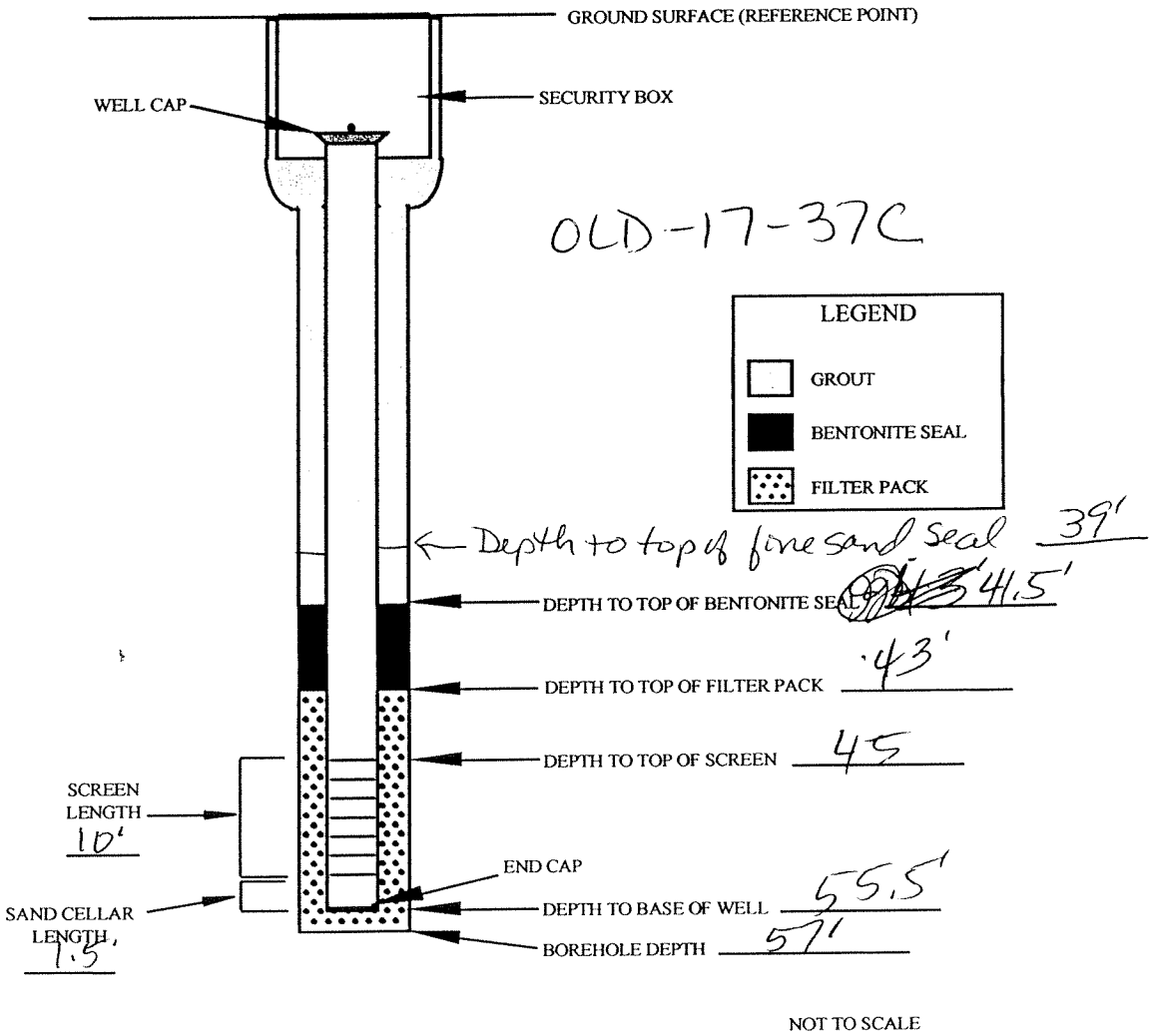
DIMENSIONS OF SECURITY BOX: 8x8"

TYPE OF WELL CAP: LEP

TYPE OF END CAP: female pt

COMMENTS:

SPECIAL CONDITIONS
(describe and draw)



INSTALLED BY: GPD

INSTALLATION OBSERVED BY:

DISCREPANCIES:

MONITOR WELL PURGING FORM

PROJECT : NTC-OU1-SA17

DATE: 4-4-00

LOCATION: OLD-17-34A

~~EXPLOSIMETER~~ FID BOREHOLE READING 7.5 ppm

WELL ID: OLD-17-34A

PURGE VOLUME
(3 WELLBORE VOLUMES): 6 (gal)

WELL DEPTH: 14.95'

Time	Depth to Water (ft)	Flow Meter Reading	Volume Purged (gal)	Temp. (°C)	pH	Electrical Conductivity ~~(mmho)~~ mS/cm	Turbidity N.T.U	Comments DO(mg/L)	ORP(mV)
0914	6.50'	–	1.5	25.0	6.02	0.11	8.3	0.67	204
0930	6.52'	–	3.0	24.3	5.40	0.11	7.1	0.56	178
0945	6.52	–	4.5	24.2	5.39	0.11	7.3	0.58	180
0950	6.51'	–	6.0	24.1	5.41	0.10	7.5	0.59	178

Note: Condition of the well: good

pH - Calibrate at start and before last reading.

Sampler FJF

Observer

MONITOR WELL PURGING FORM

PROJECT : NTC-OU1

LOCATION: SA17

WELL ID: OLD-17-35B

WELL DEPTH: 22.00'

DATE: 4-4-00

~~EXPLOSIMETER~~ FID BOREHOLE READING 0.3 ppm

PURGE VOLUME
(3 WELLBORE VOLUMES): 8 (gal)

Time	Depth to Water (ft)	Flow Meter Reading	Volume Purged (gal)	Temp. (°C)	pH.	Electrical Conductivity ~~(mmho)~~ mS/cm	Turbidity N.T.U	Comments DO(mg/L)	ORP(mV)
1040	6.30'	—	2.5	24.0	6.39	0.22	389	0.84	65
1105	6.31'	—	6	24.1	6.33	0.20	298	0.79	83
1140	6.31'	—	8	24.0	6.33	0.20	301	0.80	81

Note: Condition of the well: good

pH - Calibrate at start and before last reading.

Sampler FJF Observer

MONITOR WELL PURGING FORM

PROJECT : NTC-Orl

DATE: 4-4-00

LOCATION: SA17

~~EXPLOSIMETER~~ FID BOREHOLE READING 31.7ppm

WELL ID: OLD-17-36B

PURGE VOLUME
(3 WELLBORE VOLUMES): 11 (gal)

WELL DEPTH: 28.70'

Time	Depth to Water (ft)	Flow Meter Reading	Volume Purged (gal)	Temp. (°C)	pH	Electrical Conductivity (~~mmho~~ mS/cm)	Turbidity N.T.U	Comments DO (mg/L)	ORP (mV)
1350	5.99	—	4	23.9	5.83	0.10	>1000	0.61	-78
1420	6.00	—	8	24.1	5.56	0.08	71000	0.53	-92
1445	5.99	—	11	24.1	5.49	0.08	71000	0.50	-95

Note: Condition of the well: good

pH - Calibrate at start and before last reading.

Sampler FJF

Observer

MONITOR WELL PURGING FORM

PROJECT : NTC-OU1

DATE: 4-4-00

LOCATION: SA17

~~EXPLOSIMETER~~ FID BOREHOLE READING 18.7ppm

WELL ID: OLD-17-37C

PURGE VOLUME
(3 WELLBORE VOLUMES): 24 (gal)

WELL DEPTH: 55.69'

Time	Depth to Water (ft)	Flow Meter Reading	Volume Purged (gal)	Temp. (°C)	pH	Electrical Conductivity (~~mmho~~) mS/cm	Turbidity N.T.U	Comments DO(mg/L)	ORP (mV)
1510	6.69'	—	8	23.9	5.98	0.20	53	0.63	-34
1550	6.70'	—	16	24.6	5.61	0.16	42.4	0.46	-60
1630	6.69'	—	24	24.6	5.59	0.15	29.9	0.40	-63

Note: Condition of the well: good

pH - Calibrate at start and before last reading.

Sampler FJF Observer

Well Sampling Field Sheet

CH2M HILL
WELL SAMPLING FIELD SHEET

PROJECT# 152044.31

WELL NUMBER: 017-OLD-17-03A	SITE: SA17 Naval Training Center Orlando, FL
FIELD CREW: FJ Ferreira/EL Cabale	(leave blank if on previous page)

		CASING DIA.		GAL/FT OF CASING	
DEPTH TO WATER (FT):	4.49				
WELL DEPTH (FT):	12.34	**2 IN.**		**0.1632**	
WATER COLUMN (FT):	7.85	**4 IN.**		**0.6528**	
GAL/FT OF CASING	0.1632	**6 IN.**		**1.4688**	
CASING VOLUME (GAL)	1.28	**8 IN.**		**2.611**	
NO. OF VOLUMES min.(3)	3	**10 IN.**		**4.0797**	
PURGE VOLUME (GAL)	~3.85	**12 IN.**		**5.8748**	

METHOD OF PURGING (circle one)

PUMP: PERISTALTIC		**OTHER:**	**BAILER** : TEFLON, SS ,OTHER:	
TIME ON:	830		BAILER VOL.. (gal)	.25 / .33
FLOW RATE (gpm):	~1/8		REQUIRED PULLS:	
PUMP TIME (min):	30		VOL. PURGED (gals):	
VOL. PURGED (gals):	~3.85		OTHER:	

FIELD PARAMETERS	**FIELD MEASUREMENTS**					WITHIN10% Y / N
	1st	2nd	3rd	4th	5th	6th
TIME	840AM	850AM	900AM			
VOL. (gal)	~1.30	~2.60	~3.85			
pH (s.units)	6.14	6.16	6.16			
TEMP.(C)	20.84	20.9	20..96			
COND.(umhos/cm)	253	245	235			
DO (mg/l)	1.21	0.87	0.67			
ORP (mv)	-42.5	-55.4	-61.8			
TURB (NTU's)	225	94.5	84.6			

SAMPLE PARAMETERS (**GRAB** OR **COMPOSITE**) : Grab Sample

FILTERED METALS COLLECTED: Y / N **1.0um**,0.45um, OTHER:

OBSERVATIONS

COLOR: CLEAR , AMBER , TAN , BROWN , GREY , MILKY WHITE , OTHER: **Very lght Grey**

ODOR: NONE , **LOW** , MEDIUM , HIGH , VERY STRONG , H2S , FUEL LIKE , CHEMICAL ?, UNKNOWN

TURBIDITY: NONE , **LOW** , MEDIUM , HIGH , VERY TURBID. HEAVY SILTS

COMMENTS: Vapor sample for Dissolved Hydrogen analysis collected at this location

OTHER: PLEASE USE BACK OF SHT.FOR SKETCHING MAPS ,WELL LOCATION NOTES ECT. **SEE BACK OF SHT Y / N.**

Q.C. SAMPLE TYPE: DUPLICATE , EQUIPMENT BLANK , OTHER :

Q.C. PARAMETERS:

SAMPLE DATE/ TIME: 02/29/2000 / @ 0900

SIGNED/SAMPLER: _____

CH2M HILL
WELL SAMPLING FIELD SHEET

PROJECT# 152044.31

WELL NUMBER: 017-OLD-17-05A	SITE: SA17 Naval Training Center Orlando, FL
FIELD CREW: FJ Ferreira/EL Cabale	(leave blank if on previous page)

		CASING DIA.		GAL/FT OF CASING	
DEPTH TO WATER (FT):	4.06				
WELL DEPTH (FT):	12.8	2 IN.		0.1632	
WATER COLUMN (FT):	8.74	4 IN.		0.6528	
GAL/FT OF CASING	0.1632	6 IN.		1.4688	
CASING VOLUME (GAL)	1.426368	8 IN.		2.611	
NO. OF VOLUMES min.(3)	3	10 IN.		4.0797	
PURGE VOLUME (GAL)	4.279104	12 IN.		5.8748	

METHOD OF PURGING (circle one)

PUMP: PERISTALTIC		OTHER:	BAILER : TEFLON, SS ,OTHER:	
TIME ON:	825AM		BAILER VOL.. (gal)	.25 / .33
FLOW RATE (gpm):	0.125		REQUIRED PULLS:	
PUMP TIME (min):	35		VOL. PURGED (gals):	
VOL. PURGED (gals):	4.375		OTHER:	

FIELD PARAMETERS	FIELD MEASUREMENTS					WITHIN10% Y / N
	1st	2nd	3rd	4th	5th	6th
TIME	837AM	848AM	900AM			
VOL. (gal)	~1.40	~2.85	~4.25			
pH (s.units)	5.97	6.01	6.1			
TEMP.(C)	19.52	19.64	19.88			
COND.(umhos/cm)	190	195	198			
DO (mg/l)	1.37	1.26	1.09			
ORP (mv)	-7.6	-16.8	-20.2			
TURB (NTU's)	>1000	>1000	>1000			

SAMPLE PARAMETERS (**GRAB** OR **COMPOSITE**) : Grab Sample

FILTERED METALS COLLECTED: Y / N 1.0um,0.45um, OTHER:

OBSERVATIONS

COLOR: CLEAR , AMBER , TAN , BROWN , GREY , MILKY WHITE , OTHER: Mod Brown

ODOR: NONE , **LOW** , MEDIUM , HIGH , VERY STRONG , H2S , FUEL LIKE , CHEMICAL ?, UNKNOWN

TURBIDITY: NONE , LOW , MEDIUM , HIGH , **VERY TURBID**. HEAVY SILTS

COMMENTS: Vapor sample for Dissolved Hydrogen analysis collected at this location

OTHER: PLEASE USE BACK OF SHT.FOR SKETCHING MAPS ,WELL LOCATION NOTES ECT. **SEE BACK OF SHT Y / N.**

Q.C. SAMPLE TYPE: **DUPLICATE** , EQUIPMENT BLANK , OTHER : **OLD-17-DUP1 collected**

Q.C. PARAMETERS:

SAMPLE DATE/ TIME: 02/24/2000 / @ 0900

SIGNED/SAMPLER:

CH2M HILL
WELL SAMPLING FIELD SHEET

PROJECT# 152044.31

WELL NUMBER: 017-OLD-17-11B	SITE: SA17 Naval Training Center Orlando, FL
FIELD CREW: FJ Ferreira/EL Cabale	(leave blank if on previous page)

		CASING DIA.		GAL/FT OF CASING	
DEPTH TO WATER (FT):	4.49				
WELL DEPTH (FT):	19.94	**2 IN.**		**0.1632**	
WATER COLUMN (FT):	15.45	**4 IN.**		**0.6528**	
GAL/FT OF CASING	0.1632	**6 IN.**		**1.4688**	
CASING VOLUME (GAL)	2.52144	**8 IN.**		**2.611**	
NO. OF VOLUMES min.(3)	3	**10 IN.**		**4.0797**	
PURGE VOLUME (GAL)	7.56432	**12 IN.**		**5.8748**	

METHOD OF PURGING (circle one)

PUMP: PERISTALTIC		**OTHER:**	**BAILER** : TEFLON, SS ,OTHER:	
TIME ON:	1300		BAILER VOL.. (gal)	.25 / .33
FLOW RATE (gpm):	0.125		REQUIRED PULLS:	
PUMP TIME (min):	60		VOL. PURGED (gals):	
VOL. PURGED (gals):	7.5		OTHER:	

FIELD PARAMETERS	**FIELD MEASUREMENTS**					WITHIN10% Y / N
	1st	2nd	3rd	4th	5th	6th
TIME	1320	1340	1400			
VOL. (gal)	2.5	5	7..5			
pH (s.units)	5.9	5.98	6.01			
TEMP.(C)	21.49	21.73	21.85			
COND.(umhos/cm)	317	310	304			
DO (mg/l)	1.66	0.95	0.84			
ORP (mv)	-55.75	-60.3	-68.1			
TURB (NTU's)	>1000	>1000	>1000			

SAMPLE PARAMETERS (**GRAB** OR **COMPOSITE**) : Grab Sample

FILTERED METALS COLLECTED: Y / N **1.0um**,0.45um, OTHER:

OBSERVATIONS

COLOR: CLEAR , AMBER , TAN , **BROWN** , GREY , MILKY WHITE , OTHER:

ODOR: NONE , **LOW** , MEDIUM , HIGH , VERY STRONG , H2S , FUEL LIKE , CHEMICAL ?, UNKNOWN

TURBIDITY: NONE , LOW , MEDIUM , HIGH , **VERY TURBID**. HEAVY SILTS

COMMENTS: Vapor sample for Dissolved Hydrogen analysis collected at this location

OTHER: PLEASE USE BACK OF SHT.FOR SKETCHING MAPS ,WELL LOCATION NOTES ECT. **SEE BACK OF SHT Y / N.**

Q.C. SAMPLE TYPE: DUPLICATE , EQUIPMENT BLANK , OTHER :

Q.C. PARAMETERS:

SAMPLE DATE/ TIME: 02/23/2000 / @ 1400

SIGNED/SAMPLER: _____

CH2M HILL
WELL SAMPLING FIELD SHEET

PROJECT# 152044.31

WELL NUMBER: 017-OLD-17-12C	SITE: SA17 Naval Training Center Orlando, FL
FIELD CREW: FJ Ferreira/EL Cabale	(leave blank if on previous page)

		CASING DIA.		GAL/FT OF CASING	
DEPTH TO WATER (FT):	4.63				
WELL DEPTH (FT):	49.75	2 IN.		0.1632	
WATER COLUMN (FT):	45.12	4 IN.		0.6528	
GAL/FT OF CASING	0.1632	6 IN.		1.4688	
CASING VOLUME (GAL)	7.363584	8 IN.		2.611	
NO. OF VOLUMES min.(3)	3	10 IN.		4.0797	
PURGE VOLUME (GAL)	22.090752	12 IN.		5.8748	

METHOD OF PURGING (circle one)

PUMP: PERISTALTIC		OTHER:	BAILER : TEFLON, SS ,OTHER:	
TIME ON:	955AM		BAILER VOL.. (gal)	.25 / .33
FLOW RATE (gpm):	0.2		REQUIRED PULLS:	
PUMP TIME (min):	110		VOL. PURGED (gals):	
VOL. PURGED (gals):	22		OTHER:	

FIELD PARAMETERS	FIELD MEASUREMENTS					WITHIN10% Y / N
	1st	2nd	3rd	4th	5th	6th
TIME	1032	1110	1145			
VOL. (gal)	7.35	14.7	22			
pH (s.units)	5.95	5.9	5.92			
TEMP.(C)	21.49	21.73	21.85			
COND.(umhos/cm)	165	153	152			
DO (mg/l)	1.83	1.26	1.19			
ORP (mv)	-19.2	-79.8	-84.9			
TURB (NTU's)	>1000	>1000	817			

SAMPLE PARAMETERS (**GRAB** OR **COMPOSITE**) : Grab Sample

FILTERED METALS COLLECTED: Y / N **1.0um**,0.45um, OTHER:

OBSERVATIONS

COLOR: CLEAR , AMBER , TAN , **BROWN** , GREY , MILKY WHITE , OTHER:

ODOR: NONE , **LOW** , MEDIUM , HIGH , VERY STRONG , H2S , FUEL LIKE , CHEMICAL ?, UNKNOWN

TURBIDITY: NONE , LOW , MEDIUM , HIGH , **VERY TURBID**. HEAVY SILTS

COMMENTS: Vapor sample for Dissolved Hydrogen analysis collected at this location

OTHER: PLEASE USE BACK OF SHT.FOR SKETCHING MAPS ,WELL LOCATION NOTES ECT. **SEE BACK OF SHT Y / N.**

Q.C. SAMPLE TYPE: DUPLICATE , EQUIPMENT BLANK , OTHER :

Q.C. PARAMETERS:

SAMPLE DATE/ TIME: 02/23/2000 / @ 1145

SIGNED/SAMPLER: _____

CH2M HILL
WELL SAMPLING FIELD SHEET

PROJECT# 152044.31

WELL NUMBER: 017-OLD-17-13B	SITE: SA17 Naval Training Center Orlando, FL
FIELD CREW: FJ Ferreira/EL Cabale	(leave blank if on previous page)

		CASING DIA.		GAL/FT OF CASING	
DEPTH TO WATER (FT):	4.7				
WELL DEPTH (FT):	19.79	2 IN.		0.1632	
WATER COLUMN (FT):	15.09	4 IN.		0.6528	
GAL/FT OF CASING	0.1632	6 IN.		1.4688	
CASING VOLUME (GAL)	2.462688	8 IN.		2.611	
NO. OF VOLUMES min.(3)	3	10 IN.		4.0797	
PURGE VOLUME (GAL)	7.388064	12 IN.		5.8748	

METHOD OF PURGING (circle one)

PUMP: PERISTALTIC		**OTHER:**	**BAILER** : TEFLON, SS ,OTHER:	
TIME ON:	0923AM		BAILER VOL.. (gal)	.25 / .33
FLOW RATE (gpm):	0.2		REQUIRED PULLS:	
PUMP TIME (min):	37		VOL. PURGED (gals):	
VOL. PURGED (gals):	7.4		OTHER:	

FIELD PARAMETERS	**FIELD MEASUREMENTS**					WITHIN10% Y / N
	1st	2nd	3rd	4th	5th	6th
TIME	0935AM	0947AM	1000			
VOL. (gal)	2.5	5	7.5			
pH (s.units)	6.16	6.09	6.07			
TEMP.(C)	21.83	21.86	21.89			
COND.(umhos/cm)	168	167	170			
DO (mg/l)	1.46	0.86	0.67			
ORP (mv)	-56.7	-59	-57.7			
TURB (NTU's)	335	102	84.2			

SAMPLE PARAMETERS (**GRAB** OR **COMPOSITE**) : Grab Sample

FILTERED METALS COLLECTED: Y / N 1.0um,0.45um, OTHER:

OBSERVATIONS

COLOR: CLEAR , AMBER , **TAN** , BROWN , GREY , MILKY WHITE , OTHER:

ODOR: NONE , **LOW** , MEDIUM , HIGH , VERY STRONG , H2S , FUEL LIKE , CHEMICAL ?, UNKNOWN

TURBIDITY: NONE , LOW , **MEDIUM** , HIGH , VERY TURBID. HEAVY SILTS

COMMENTS: Vapor sample for Dissolved Hydrogen analysis collected at this location

OTHER: PLEASE USE BACK OF SHT.FOR SKETCHING MAPS ,WELL LOCATION NOTES ECT. **SEE BACK OF SHT Y / N.**

Q.C. SAMPLE TYPE: DUPLICATE , EQUIPMENT BLANK , OTHER :

Q.C. PARAMETERS:

SAMPLE DATE/ TIME: 02/29/2000 / @ 1000

SIGNED/SAMPLER: _____

CH2M HILL
WELL SAMPLING FIELD SHEET

PROJECT# 152044.31

WELL NUMBER: 017-OLD-17-14C	SITE: SA17 Naval Training Center Orlando, FL
FIELD CREW: FJ Ferreira/EL Cabale	(leave blank if on previous page)

		CASING DIA.		GAL/FT OF CASING	
DEPTH TO WATER (FT):	5.34				
WELL DEPTH (FT):	42.92	2 IN.		0.1632	
WATER COLUMN (FT):	37.58	4 IN.		0.6528	
GAL/FT OF CASING	0.1632	6 IN.		1.4688	
CASING VOLUME (GAL)	6.133056	8 IN.		2.611	
NO. OF VOLUMES min.(3)	3	10 IN.		4.0797	
PURGE VOLUME (GAL)	18.399168	12 IN.		5.8748	

METHOD OF PURGING (circle one)

PUMP: PERISTALTIC		OTHER:	BAILER : TEFLON, SS ,OTHER:	
TIME ON:	0930AM		BAILER VOL.. (gal)	.25 / .33
FLOW RATE (gpm):	0.2		REQUIRED PULLS:	
PUMP TIME (min):	90		VOL. PURGED (gals):	
VOL. PURGED (gals):	18		OTHER:	

FIELD PARAMETERS	FIELD MEASUREMENTS					WITHIN10% Y / N
	1st	2nd	3rd	4th	5th	6th
TIME	1000	1030	1100			
VOL. (gal)	6	12	18			
pH (s.units)	5.31	5.24	5.21			
TEMP.(C)	23.64	23.48	23.46			
COND.(umhos/cm)	155	148	150			
DO (mg/l)	1.34	0.86	0.78			
ORP (mv)	-56.3	-94.7	-97.2			
TURB (NTU's)	105	45	7			

SAMPLE PARAMETERS (**GRAB** OR **COMPOSITE**) : Grab Sample

FILTERED METALS COLLECTED: Y / N 1.0um,0.45um, OTHER:

OBSERVATIONS

COLOR: **CLEAR** , AMBER , TAN , BROWN , GREY , MILKY WHITE , OTHER:

ODOR: **NONE** , LOW , MEDIUM , HIGH , VERY STRONG , H2S , FUEL LIKE , CHEMICAL ?, UNKNOWN

TURBIDITY: **NONE** , LOW , MEDIUM , HIGH , VERY TURBID. HEAVY SILTS

COMMENTS: Vapor sample for Dissolved Hydrogen analysis collected at this location

OTHER: PLEASE USE BACK OF SHT.FOR SKETCHING MAPS ,WELL LOCATION NOTES ECT. **SEE BACK OF SHT Y / N.**

Q.C. SAMPLE TYPE: DUPLICATE , EQUIPMENT BLANK , OTHER :

Q.C. PARAMETERS:

SAMPLE DATE/ TIME: 02/29/2000 / @ 1100

SIGNED/SAMPLER: _____

CH2M HILL
WELL SAMPLING FIELD SHEET

PROJECT# 152044.31

WELL NUMBER: 017-OLD-17-19B	SITE: SA17 Naval Training Center Orlando, FL
FIELD CREW: FJ Ferreira/EL Cabale	(leave blank if on previous page)

		CASING DIA.		GAL/FT OF CASING	
DEPTH TO WATER (FT):	7.72				
WELL DEPTH (FT):	22	2 IN.		0.1632	
WATER COLUMN (FT):	14.28	4 IN.		0.6528	
GAL/FT OF CASING	0.1632	6 IN.		1.4688	
CASING VOLUME (GAL)	2.330496	8 IN.		2.611	
NO. OF VOLUMES min.(3)	3	10 IN.		4.0797	
PURGE VOLUME (GAL)	6.991488	12 IN.		5.8748	

METHOD OF PURGING (circle one)

PUMP: PERISTALTIC		OTHER:	BAILER : TEFLON, SS ,OTHER:	
TIME ON:	1325		BAILER VOL.. (gal)	.25 / .33
FLOW RATE (gpm):	0.2		REQUIRED PULLS:	
PUMP TIME (min):	35		VOL. PURGED (gals):	
VOL. PURGED (gals):	7		OTHER:	

FIELD PARAMETERS	FIELD MEASUREMENTS					WITHIN10% Y / N
	1st	2nd	3rd	4th	5th	6th
TIME	1337	1348	1400			
VOL. (gal)	2.35	4.7	7			
pH (s.units)	5.69	5.59	5.63			
TEMP.(C)	25.39	25.63	25.67			
COND.(umhos/cm)	147	147	147			
DO (mg/l)	0.93	0.73	0.7			
ORP (mv)	-23.3	-21.4	-20.5			
TURB (NTU's)	47.5	45	37.2			

SAMPLE PARAMETERS (**GRAB** OR **COMPOSITE**) : Grab Sample

FILTERED METALS COLLECTED: Y / N **1.0um**,0.45um, OTHER:

OBSERVATIONS

COLOR: **CLEAR** , AMBER , TAN , BROWN , GREY , MILKY WHITE , OTHER:

ODOR: **NONE** , LOW , MEDIUM , HIGH , VERY STRONG , H2S , FUEL LIKE , CHEMICAL ?, UNKNOWN

TURBIDITY: **NONE** , LOW , MEDIUM , HIGH , VERY TURBID. HEAVY SILTS

COMMENTS: Vapor sample for Dissolved Hydrogen analysis collected at this location

OTHER: PLEASE USE BACK OF SHT.FOR SKETCHING MAPS ,WELL LOCATION NOTES ECT. **SEE BACK OF SHT Y / N.**

Q.C. SAMPLE TYPE: **DUPLICATE** , EQUIPMENT BLANK , OTHER : OLD-17-DUP2 Collected

Q.C. PARAMETERS:

SAMPLE DATE/ TIME: 02/29/2000 / @ 1400

SIGNED/SAMPLER: _____

CH2M HILL
WELL SAMPLING FIELD SHEET

PROJECT# 152044.31

WELL NUMBER: 017-OLD-17-20C	SITE: SA17 Naval Training Center Orlando, FL
FIELD CREW: FJ Ferreira/EL Cabale	(leave blank if on previous page)

		CASING DIA.		GAL/FT OF CASING	
DEPTH TO WATER (FT):	7.16				
WELL DEPTH (FT):	44.93	**2 IN.**		**0.1632**	
WATER COLUMN (FT):	37.77	**4 IN.**		**0.6528**	
GAL/FT OF CASING	0.1632	**6 IN.**		**1.4688**	
CASING VOLUME (GAL)	6.164064	**8 IN.**		**2.611**	
NO. OF VOLUMES min.(3)	3	**10 IN.**		**4.0797**	
PURGE VOLUME (GAL)	18.492192	**12 IN.**		**5.8748**	

METHOD OF PURGING (circle one)

PUMP: PERISTALTIC		**OTHER:**	**BAILER** : TEFLON, SS ,OTHER:	
TIME ON:	1330		BAILER VOL.. (gal)	.25 / .33
FLOW RATE (gpm):	0.2		REQUIRED PULLS:	
PUMP TIME (min):	90		VOL. PURGED (gals):	
VOL. PURGED (gals):	18		OTHER:	

FIELD PARAMETERS	**FIELD MEASUREMENTS**					WITHIN10% Y / N
	1st	2nd	3rd	4th	5th	6th
TIME	1400	1430	1500			
VOL. (gal)	6	12	18			
pH (s.units)	5.41	5.41	5.42			
TEMP.(C)	25.48	25.46	25.46			
COND.(umhos/cm)	120	126	122			
DO (mg/l)	0.81	0.86	0.89			
ORP (mv)	-5.3	-14.4	-12.6			
TURB (NTU's)	47.1	95.8	88			

SAMPLE PARAMETERS (**GRAB** OR **COMPOSITE**) : Grab Sample

FILTERED METALS COLLECTED: Y / N **1.0um**,0.45um, OTHER:

OBSERVATIONS

COLOR: **CLEAR** , AMBER , TAN , BROWN , GREY , MILKY WHITE , OTHER:

ODOR: **NONE** , LOW , MEDIUM , HIGH , VERY STRONG , H2S , FUEL LIKE , CHEMICAL ?, UNKNOWN

TURBIDITY: NONE , **LOW** , MEDIUM , HIGH , VERY TURBID. HEAVY SILTS

COMMENTS: Vapor sample for Dissolved Hydrogen analysis collected at this location

OTHER: PLEASE USE BACK OF SHT.FOR SKETCHING MAPS ,WELL LOCATION NOTES ECT. **SEE BACK OF SHT Y / N.**

Q.C. SAMPLE TYPE: DUPLICATE , EQUIPMENT BLANK , OTHER :

Q.C. PARAMETERS:

SAMPLE DATE/ TIME: 02/29/2000 / @ 1500

SIGNED/SAMPLER: _____

CH2M HILL
WELL SAMPLING FIELD SHEET

PROJECT# 152044.31

WELL NUMBER: 017-OLD-17-23A	SITE: SA17 Naval Training Center Orlando, FL
FIELD CREW: FJ Ferreira/EL Cabale	(leave blank if on previous page)

		CASING DIA.		GAL/FT OF CASING	
DEPTH TO WATER (FT):	4.59				
WELL DEPTH (FT):	11.57	2 IN.		0.1632	
WATER COLUMN (FT):	6.98	4 IN.		0.6528	
GAL/FT OF CASING	0.1632	6 IN.		1.4688	
CASING VOLUME (GAL)	1.139136	8 IN.		2.611	
NO. OF VOLUMES min.(3)	3	10 IN.		4.0797	
PURGE VOLUME (GAL)	3.417408	12 IN.		5.8748	

METHOD OF PURGING (circle one)

PUMP: PERISTALTIC		OTHER:	BAILER : TEFLON, SS ,OTHER:	
TIME ON:	1242		BAILER VOL.. (gal)	.25 / .33
FLOW RATE (gpm):	0.2		REQUIRED PULLS:	
PUMP TIME (min):	18		VOL. PURGED (gals):	
VOL. PURGED (gals):	3.6		OTHER:	

FIELD PARAMETERS	FIELD MEASUREMENTS					WITHIN10% Y / N
	1st	2nd	3rd	4th	5th	6th
TIME	1248	1254	1300			
VOL. (gal)	1.2	2.4	3.6			
pH (s.units)	6.64	6.35	6.31			
TEMP.(C)	21.25	21.89	21.92			
COND.(umhos/cm)	274	286	282			
DO (mg/l)	1.7	1.19	1.07			
ORP (mv)	44.5	35.4	43.8			
TURB (NTU's)	45	22.1	11.6			

SAMPLE PARAMETERS (**GRAB** OR **COMPOSITE**) : Grab Sample

FILTERED METALS COLLECTED: Y / N **1.0um**,0.45um, OTHER:

OBSERVATIONS

COLOR: **CLEAR** , AMBER , TAN , BROWN , GREY , MILKY WHITE , OTHER:

ODOR: **NONE** , LOW , MEDIUM , HIGH , VERY STRONG , H2S , FUEL LIKE , CHEMICAL ?, UNKNOWN

TURBIDITY: **NONE** , LOW , MEDIUM , HIGH , VERY TURBID. HEAVY SILTS

COMMENTS: **Vapor sample for Dissolved Hydrogen analysis collected at this location**

OTHER: PLEASE USE BACK OF SHT.FOR SKETCHING MAPS ,WELL LOCATION NOTES ECT. **SEE BACK OF SHT Y / N.**

Q.C. SAMPLE TYPE: DUPLICATE , EQUIPMENT BLANK , **OTHER** : OLD-17-23AMS/MSD Collected

Q.C. PARAMETERS:

SAMPLE DATE/ TIME: 02/25/2000 / @ 1300

SIGNED/SAMPLER: _____

CH2M HILL
WELL SAMPLING FIELD SHEET

PROJECT# 152044.31

WELL NUMBER: 017-OLD-17-24B	SITE: SA17 Naval Training Center Orlando, FL
FIELD CREW: FJ Ferreira/EL Cabale	(leave blank if on previous page)

		CASING DIA.		GAL/FT OF CASING	
DEPTH TO WATER (FT):	5.93				
WELL DEPTH (FT):	24.65	2 IN.		0.1632	
WATER COLUMN (FT):	18.72	4 IN.		0.6528	
GAL/FT OF CASING	0.1632	6 IN.		1.4688	
CASING VOLUME (GAL)	3.055104	8 IN.		2.611	
NO. OF VOLUMES min.(3)	3	10 IN.		4.0797	
PURGE VOLUME (GAL)	9.165312	12 IN.		5.8748	

METHOD OF PURGING (circle one)

PUMP: PERISTALTIC		OTHER:	BAILER : TEFLON, SS ,OTHER:	
TIME ON:	0915AM		BAILER VOL.. (gal)	.25 / .33
FLOW RATE (gpm):	0.2		REQUIRED PULLS:	
PUMP TIME (min):	45		VOL. PURGED (gals):	
VOL. PURGED (gals):	9		OTHER:	

FIELD PARAMETERS	FIELD MEASUREMENTS					WITHIN10% Y / N
	1st	2nd	3rd	4th	5th	6th
TIME	0930AM	0945AM	1000			
VOL. (gal)	3	6	9			
pH (s.units)	5.96	6.01	5.98			
TEMP.(C)	22.41	22.53	22.71			
COND.(umhos/cm)	166	142	146			
DO (mg/l)	1.17	1.09	1.05			
ORP (mv)	39.9	33.1	34.7			
TURB (NTU's)	105	65	40			

SAMPLE PARAMETERS (**GRAB** OR **COMPOSITE**) : Grab Sample

FILTERED METALS COLLECTED: Y / N **1.0um**,0.45um, OTHER:

OBSERVATIONS

COLOR: **CLEAR** , AMBER , TAN , BROWN , GREY , MILKY WHITE , OTHER:

ODOR: **NONE** , LOW , MEDIUM , HIGH , VERY STRONG , H2S , FUEL LIKE , CHEMICAL ?, UNKNOWN

TURBIDITY: NONE , **LOW** , MEDIUM , HIGH , VERY TURBID. HEAVY SILTS

COMMENTS: Vapor sample for Dissolved Hydrogen analysis collected at this location

OTHER: PLEASE USE BACK OF SHT.FOR SKETCHING MAPS ,WELL LOCATION NOTES ECT. **SEE BACK OF SHT Y / N.**

Q.C. SAMPLE TYPE: DUPLICATE , EQUIPMENT BLANK , OTHER :

Q.C. PARAMETERS:

SAMPLE DATE/ TIME: 02/25/2000 / @ 1000

SIGNED/SAMPLER:

CH2M HILL
WELL SAMPLING FIELD SHEET

PROJECT# 152044.31

WELL NUMBER: 017-OLD-17-25C	SITE: SA17 Naval Training Center Orlando, FL
FIELD CREW: FJ Ferreira/EL Cabale	(leave blank if on previous page)

		CASING DIA.		GAL/FT OF CASING	
DEPTH TO WATER (FT):	32.01				
WELL DEPTH (FT):	62.7	2 IN.		0.1632	
WATER COLUMN (FT):	30.69	4 IN.		0.6528	
GAL/FT OF CASING	0.1632	6 IN.		1.4688	
CASING VOLUME (GAL)	5.008608	8 IN.		2.611	
NO. OF VOLUMES min.(3)	3	10 IN.		4.0797	
PURGE VOLUME (GAL)	15.025824	12 IN.		5.8748	

METHOD OF PURGING (circle one)

PUMP: PERISTALTIC		**OTHER:**	**BAILER** : TEFLON, SS ,OTHER:	
TIME ON:	0815AM		BAILER VOL.. (gal)	.25 / .33
FLOW RATE (gpm):	0.2		REQUIRED PULLS:	
PUMP TIME (min):	75		VOL. PURGED (gals):	
VOL. PURGED (gals):	15		OTHER:	

FIELD PARAMETERS	**FIELD MEASUREMENTS**					WITHIN10% Y / N
	1st	2nd	3rd	4th	5th	6th
TIME	0840AM	0905AM	0930AM			
VOL. (gal)	5	10	15			
pH (s.units)	6.63	6.45	6.4			
TEMP.(C)	22.92	21.88	21.89			
COND.(umhos/cm)	297	292	294			
DO (mg/l)	1.36	1.23	1.18			
ORP (mv)	-21.3	-14.5	-13.2			
TURB (NTU's)	110	87	65			

SAMPLE PARAMETERS (**GRAB** OR **COMPOSITE**) : Grab Sample

FILTERED METALS COLLECTED: Y / N **1.0um**,0.45um, OTHER:

OBSERVATIONS

COLOR: **CLEAR** , AMBER , TAN , BROWN , GREY , MILKY WHITE , OTHER:

ODOR: **NONE** , LOW , MEDIUM , HIGH , VERY STRONG , H2S , FUEL LIKE , CHEMICAL ?, UNKNOWN

TURBIDITY: NONE , **LOW** , MEDIUM , HIGH , VERY TURBID. HEAVY SILTS

COMMENTS: Vapor sample for Dissolved Hydrogen analysis collected at this location

OTHER: PLEASE USE BACK OF SHT.FOR SKETCHING MAPS ,WELL LOCATION NOTES ECT. **SEE BACK OF SHT Y / N.**

Q.C. SAMPLE TYPE: DUPLICATE , EQUIPMENT BLANK , OTHER :

Q.C. PARAMETERS:

SAMPLE DATE/ TIME: 02/25/2000 / @ 0930AM

SIGNED/SAMPLER: _____

PAGE_____OF_____

CH2M HILL
WELL SAMPLING FIELD SHEET

PROJECT# 152044.31

WELL NUMBER: 017-OLD-17-26A	SITE: SA17 Naval Training Center Orlando, FL
FIELD CREW: FJ Ferreira/EL Cabale	(leave blank if on previous page)

		CASING DIA.		GAL/FT OF CASING	
DEPTH TO WATER (FT):	4.21				
WELL DEPTH (FT):	11.58	2 IN.		0.1632	
WATER COLUMN (FT):	7.37	4 IN.		0.6528	
GAL/FT OF CASING	0.1632	6 IN.		1.4688	
CASING VOLUME (GAL)	1.202784	8 IN.		2.611	
NO. OF VOLUMES min.(3)	3	10 IN.		4.0797	
PURGE VOLUME (GAL)	3.608352	12 IN.		5.8748	

METHOD OF PURGING (circle one)

PUMP: PERISTALTIC		**OTHER:**	**BAILER** : TEFLON, SS ,OTHER:	
TIME ON:	1030		BAILER VOL.. (gal)	.25 / .33
FLOW RATE (gpm):	0.125		REQUIRED PULLS:	
PUMP TIME (min):	30		VOL. PURGED (gals):	
VOL. PURGED (gals):	3.75		OTHER:	

FIELD PARAMETERS	**FIELD MEASUREMENTS**					WITHIN10% Y / N
	1st	2nd	3rd	4th	5th	6th
TIME	1040	1050	1100			
VOL. (gal)	1.25	2.5	3.75			
pH (s.units)	6.33	6.36	6.39			
TEMP.(C)	20.61	20.54	20.5			
COND.(umhos/cm)	175	175	177			
DO (mg/l)	0.91	0.73	0.59			
ORP (mv)	-23.4	-41.5	-43.8			
TURB (NTU's)	34	15	12.5			

SAMPLE PARAMETERS (**GRAB** OR **COMPOSITE**) : Grab Sample

FILTERED METALS COLLECTED: Y / N **1.0um**,0.45um, OTHER:

OBSERVATIONS

COLOR: **CLEAR** , AMBER , TAN , BROWN , GREY , MILKY WHITE , OTHER:

ODOR: **NONE** , LOW , MEDIUM , HIGH , VERY STRONG , H2S , FUEL LIKE , CHEMICAL ?, UNKNOWN

TURBIDITY: **NONE** , LOW , MEDIUM , HIGH , VERY TURBID. HEAVY SILTS

COMMENTS: Vapor sample for Dissolved Hydrogen analysis collected at this location

OTHER: PLEASE USE BACK OF SHT.FOR SKETCHING MAPS ,WELL LOCATION NOTES ECT. **SEE BACK OF SHT Y / N.**

Q.C. SAMPLE TYPE: DUPLICATE , EQUIPMENT BLANK , OTHER :

Q.C. PARAMETERS:

SAMPLE DATE/ TIME: 02/24/2000 / @ 1100

SIGNED/SAMPLER: _____

PAGE_____OF_____

CH2M HILL
WELL SAMPLING FIELD SHEET

PROJECT# 152044.31

WELL NUMBER: 017-OLD-17-27B	SITE: SA17 Naval Training Center Orlando, FL
FIELD CREW: FJ Ferreira/EL Cabale	(leave blank if on previous page)

		CASING DIA.		GAL/FT OF CASING	
DEPTH TO WATER (FT):	4.67				
WELL DEPTH (FT):	19.75	**2 IN.**		**0.1632**	
WATER COLUMN (FT):	15.08	**4 IN.**		**0.6528**	
GAL/FT OF CASING	0.1632	**6 IN.**		**1.4688**	
CASING VOLUME (GAL)	2.461056	**8 IN.**		**2.611**	
NO. OF VOLUMES min.(3)	3	**10 IN.**		**4.0797**	
PURGE VOLUME (GAL)	7.383168	**12 IN.**		**5.8748**	

METHOD OF PURGING (circle one)

PUMP: PERISTALTIC		**OTHER:**	**BAILER** : TEFLON, SS ,OTHER:	
TIME ON:	1120		BAILER VOL.. (gal)	.25 / .33
FLOW RATE (gpm):	0.2		REQUIRED PULLS:	
PUMP TIME (min):	40		VOL. PURGED (gals):	
VOL. PURGED (gals):	8		OTHER:	

FIELD PARAMETERS	**FIELD MEASUREMENTS**					WITHIN10% Y / N
	1st	2nd	3rd	4th	5th	6th
TIME	1133	1146	1200			
VOL. (gal)	2.5	5	7.5			
pH (s.units)	6.45	6.5	6.54			
TEMP.(C)	22.62	22.42	22.35			
COND.(umhos/cm)	250	249	251			
DO (mg/l)	1.01	0.76	0.71			
ORP (mv)	-56.7	-95.3	-97.1			
TURB (NTU's)	82.2	56.6	65.1			

SAMPLE PARAMETERS (**GRAB** OR **COMPOSITE**) : Grab Sample

FILTERED METALS COLLECTED: Y / N **1.0um**,0.45um, OTHER:

OBSERVATIONS

COLOR: **CLEAR** , AMBER , TAN , BROWN , GREY , MILKY WHITE , OTHER:

ODOR: **NONE** , LOW , MEDIUM , HIGH , VERY STRONG , H2S , FUEL LIKE , CHEMICAL ?, UNKNOWN

TURBIDITY: NONE , **LOW** , MEDIUM , HIGH , VERY TURBID. HEAVY SILTS

COMMENTS: Vapor sample for Dissolved Hydrogen analysis collected at this location

OTHER: PLEASE USE BACK OF SHT.FOR SKETCHING MAPS ,WELL LOCATION NOTES ECT. **SEE BACK OF SHT Y / N.**

Q.C. SAMPLE TYPE: DUPLICATE , EQUIPMENT BLANK , OTHER :

Q.C. PARAMETERS:

SAMPLE DATE/ TIME: 02/24/2000 / @ 1200

SIGNED/SAMPLER: _____

CH2M HILL
WELL SAMPLING FIELD SHEET

PROJECT# 152044.31

WELL NUMBER: 017-OLD-17-28C	SITE: SA17 Naval Training Center Orlando, FL
FIELD CREW: FJ Ferreira/EL Cabale	(leave blank if on previous page)

		CASING DIA.		GAL/FT OF CASING	
DEPTH TO WATER (FT):	30.02				
WELL DEPTH (FT):	62.05	**2 IN.**		**0.1632**	
WATER COLUMN (FT):	32.03	**4 IN.**		**0.6528**	
GAL/FT OF CASING	0.1632	**6 IN.**		**1.4688**	
CASING VOLUME (GAL)	5.227296	**8 IN.**		**2.611**	
NO. OF VOLUMES min.(3)	3	**10 IN.**		**4.0797**	
PURGE VOLUME (GAL)	15.681888	**12 IN.**		**5.8748**	

METHOD OF PURGING (circle one)

PUMP: PERISTALTIC		**OTHER:**	**BAILER** : TEFLON, SS ,OTHER:	
TIME ON:	1240		BAILER VOL.. (gal)	.25 / .33
FLOW RATE (gpm):	0.2		REQUIRED PULLS:	
PUMP TIME (min):	80		VOL. PURGED (gals):	
VOL. PURGED (gals):	16		OTHER:	

FIELD PARAMETERS	**FIELD MEASUREMENTS**					WITHIN10% Y / N
	1st	2nd	3rd	4th	5th	6th
TIME	1307	1334	1400			
VOL. (gal)	5.25	10.5	15.75			
pH (s.units)	5.74	5.95	5.98			
TEMP.(C)	25.06	24.45	24.35			
COND.(umhos/cm)	128	122	124			
DO (mg/l)	1.29	1.21	1.17			
ORP (mv)	-12.2	28.7	30.6			
TURB (NTU's)	55	35.4	20.7			

SAMPLE PARAMETERS (**GRAB** OR **COMPOSITE**) : Grab Sample

FILTERED METALS COLLECTED: Y / N **1.0um**,0.45um, OTHER:

OBSERVATIONS

COLOR: **CLEAR** , AMBER , TAN , BROWN , GREY , MILKY WHITE , OTHER:

ODOR: **NONE** , LOW , MEDIUM , HIGH , VERY STRONG , H2S , FUEL LIKE , CHEMICAL ?, UNKNOWN

TURBIDITY: **NONE** , LOW , MEDIUM , HIGH , VERY TURBID. HEAVY SILTS

COMMENTS: Vapor sample for Dissolved Hydrogen analysis collected at this location

OTHER: PLEASE USE BACK OF SHT.FOR SKETCHING MAPS ,WELL LOCATION NOTES ECT. **SEE BACK OF SHT Y / N.**

Q.C. SAMPLE TYPE: DUPLICATE , EQUIPMENT BLANK , OTHER :

Q.C. PARAMETERS:

SAMPLE DATE/ TIME: 02/24/2000 / @ 1400

SIGNED/SAMPLER: _____