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LETTER REPORT ON ADDITIONAL SITE SCREENING RESULTS AND CONCLUSIONS AT
STUDY AREA 2 NTC ORLANDO FL
2/3/1997
ABB ENVIRONMENTAL



03.04.02.0005

00175

February 3, 1997

Southern Division
Naval Facilities Engineering Command
ATTN: Wayne Hansel, Code 187300
P.O. Box 190010
2155 Eagle Drive
North Charleston, SC 29418

Dear Mr. Hansel:

**SUBJECT: Additional Site Screening Results and Conclusions
Study Area (SA) 2, Herndon Annex
Naval Training Center (NTC), Orlando, Florida
Contract No. N62467-89-D-0317/107**

Because of the Orlando Partnering Team (OPT) decisions regarding some of the SAs that have undergone site screening, ABB Environmental Services, Inc. (ABB-ES) has been tasked to complete additional site screening activities to resolve certain issues and to fill data gaps. This information will assist the OPT in making technically sound and environmentally responsible decisions regarding the need for remediation and eventual transfer of various parcels at NTC, Orlando. This letter presents the results of the additional screening activities at SA 2 and ABB-ES's conclusions after evaluation of the new findings. After OPT review, the new findings will be incorporated into the SA 2 final environmental site screening report and issued for signature.

HISTORY OF SA 2 AND RESULTS OF INITIAL SITE SCREENING

Herndon Annex of NTC, Orlando is a 54-acre parcel, located approximately 1.5 miles south of the Main Base, adjacent to the Orlando Executive Airport (Figure 1, Attachment A). The property was originally part of Orlando Municipal Airport No. 1, which was used as a base by the U.S. Army Air Corps and U.S. Air Force from 1940 to 1968. The remains of several taxiways and circular concrete aprons are still present at the site. The aprons were used for aircraft parking and maintenance. The property is enclosed by a chainlink fence (Figure 2, Attachment A) and includes four buildings that housed research laboratories and office space for the Naval Training Systems Command (Buildings 606, 608, 610, 612), an auxiliary heating/cooling plant (Building 607), a uniform supply warehouse (Building 602), and a shooting range (Building 601). A sewage pump station (Building 605) and an abandoned septic tank and leach field (Facility 6001) are also on the property. The Orange County Sheriff's Department leases an

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area that includes one of the parking aprons. The Department currently occupies by a doublewide trailer and a partially covered service area for the Collision Avoidance Training School. Records and aerial photographs suggest that part of the property was used for landfilling purposes in the 1950s and early 1960s.

Herndon Annex was investigated along with a number of other Group I sites under the Base Realignment and Closure (BRAC) program. The original site screening investigation involved several phases, each designed to address the different potential sources of contamination, including the septic tank and leach field (Facility 6001), the former aircraft parking aprons, and the former landfilling area(s). Five shallow monitoring wells (OLD-02-01A, OLD-02-02A, OLD-02-03A, OLD-02-04A, and OLD-02-05A, Figure 2) were installed, one beside each parking apron. A single well (OLD-02-06A) was installed at the leach field. The laboratory analytical data from the soil and groundwater samples indicated that these areas were of no environmental concern.

In order to assess the potential impact resulting from the landfilling operation, two shallow monitoring wells (OLD-02-09A and OLD-02-11A) and three deep monitoring wells (OLD-02-07C, OLD-02-08C, and OLD-02-10C) were installed downgradient from the landfilled areas identified in aerial photographs. The laboratory analytical results of groundwater samples collected from these paired wells indicated that benzene was present at concentrations in excess of maximum contaminant levels (Florida maximum contaminant levels [MCLs]) near the bottom of the surficial aquifer at deep monitoring wells OLD-02-08C and OLD-02-10C. Accordingly, additional groundwater screening was performed using direct push technology (DPT). Groundwater samples were collected from several intervals from the water table to the base of the surficial aquifer at 12 borings (02P001 through 02P012, Figure 2) along the western and southern boundaries of the property, and in the southeastern corner. The samples were analyzed with a portable gas chromatograph (GC); the field GC results are summarized in Table 1, Attachment B. Benzene was detected at concentrations above Florida MCLs in samples collected from the deeper portions of the surficial aquifer at six locations (02P001, 02P002, 02P006, 02P008, 02P009, and 02P011). In addition, tetrachloroethene (PCE) was detected at concentrations above Florida MCLs in the deep surficial aquifer at screening locations 02P008 and 02P009. These results were confirmed with laboratory analyses performed on a percentage of the samples. The complete results of the screening investigation are provided in an ABB-ES report entitled, "Site Screening Report, Groups I and II," November 1995.

The source of the benzene detected in groundwater is likely related to a petroleum release. Because petroleum is lighter than water, dissolved-phase constituents would be expected in shallow groundwater near the source area. The presence of benzene in only the deepest portion of the surficial aquifer at Herndon Annex suggested an offsite source. Water-level measurements indicate that the groundwater flow direction of the surficial aquifer is northeastward toward Lake Barton (Figure 1). Therefore, an offsite source(s) would likely be some distance upgradient (south or southwest) of detections in samples collected from the deep surficial aquifer.

A groundwater screening study was conducted in July 1996 by the U.S. Army Corps of Engineers (USACOE) in that parcel of Executive Airport property, located between the southern Herndon property line and the East-West Expressway, in order to investigate groundwater quality upgradient of the Herndon Annex. Sample collection was limited to the area extending from the surface to a depth of approximately 40 feet below land surface (bls). Trace concentrations (less than 1 microgram per liter [$\mu\text{g}/\ell$]) of benzene, PCE and trichloroethene (TCE) were detected. None of the collected samples indicated the presence of any compound in excess of regulatory criteria. The study was inconclusive, however, since most of the previous benzene and PCE detections were from 50 to 60 feet bls.

ADDITIONAL SITE SCREENING ACTIVITIES

ABB-ES conducted supplemental site screening activities at SA 2 from October 21, 1996, to November 2, 1996. The objectives of the field effort were to collect additional groundwater samples and hydrogeologic data for further characterization of groundwater quality in the deeper portion of the surficial aquifer both on and offsite of the Herndon Annex property. Groundwater quality data were collected in the areas immediately upgradient of those areas of the Herndon Annex where volatile organic compounds (VOCs) were detected in groundwater from the deep part of the surficial aquifer during the previous screening investigations. Data were also collected along the eastern property line to evaluate groundwater quality along the downgradient edge of the property. Additional lithologic and groundwater flow data were collected and incorporated into the existing data base in order to refine the hydrogeological conceptual model of the SA.

To accomplish the objectives of the investigation, the following activities were performed:

- cone penetrometer testing (CPT)
- DPT groundwater sampling
- piezometer installation

A summary of additional investigation activities is provided in Table 2, Attachment B, and locations of the additional investigations are shown on Figure 3, Attachment A.

Two CPT soundings (02Q014 and 02Q030) were advanced to provide additional lithologic and hydrogeologic data beyond the extent of the previous screening investigation. CPT sounding 02Q030 was located in the northeast corner of the SA, and 02Q014 was on GOAA property, south of the Herndon Annex property line. Data acquired from these locations were incorporated into the site conceptual model and were used in selection of groundwater sampling intervals.

Groundwater samples were collected from 15 locations during the supplemental investigation. A DPT water sampling instrument was used to collect samples from discrete 1-foot sampling horizons. The groundwater samples were analyzed for VOCs by U.S. Environmental Protection Agency (USEPA) Method 524.2 at an offsite laboratory. Two of the sample locations, 02Q013 and 02Q014, were south of Herndon Annex in the area of the USACOE study. The samples were used to provide upgradient water quality data from the deeper intervals of the surficial aquifer not sampled by USACOE. Groundwater samples were collected from six locations on GOAA property west of the boundary of Herndon Annex. These locations (02Q015 through 02Q020) were selected to evaluate the potential for migration from offsite sources onto Herndon Annex. Additional samples (02Q022 through 02Q024, and 02Q027 through 02Q030) were collected from seven locations inside the eastern boundary of Herndon Annex to determine groundwater quality along the downgradient portion of the site.

Piezometer clusters were installed at three locations to supplement water-level data collected for the shallow and deep surficial aquifer from existing monitoring wells. Each cluster consisted of a shallow and a deep piezometer. The CPT rig was used to push temporary casing to the desired depth. The

piezometers, all with prepacked bentonite seals, were inserted into the casing and the casing was then retracted. The annular space was grouted to ground surface after the casing was removed from the borehole. The top-of-casing elevation for each piezometer was determined.

RESULTS

Groundwater analytical results were compared to (1) Florida Department of Environmental Protection's (FDEP's) groundwater guidance concentrations (FDEPG); (2) USEPA MCLs; and (3) USEPA Region III risk-based concentrations (RBCs). The following organic compounds were detected at concentrations above regulatory criteria in groundwater samples collected during the supplemental investigation: benzene, ethylbenzene, xylene, 1,1,2,2-tetrachloroethane (TCA), trimethylbenzene, isopropylbenzene, PCE, and TCE. A listing of the positive detections in groundwater analytical results from the supplemental screening investigation is provided in Table 3, Attachment B.

The maximum concentrations detected above regulatory criteria for each sampling location are shown on Figure 4, Attachment A. The discussion below is focused on the data originating from the most recent sampling event.

Benzene was detected at or above the Florida MCL ($1 \mu\text{g}/\ell$) in 10 groundwater samples from 7 DPT locations: 02Q019, 02Q020, 02Q022, 02Q023, 02Q024, 02Q028, and 02Q029. Samples 02Q019 and 02Q020 were collected on GOAA property west of Herndon Annex. Both samples were from the 60 to 61 feet bls interval and had benzene concentrations of $1 \mu\text{g}/\ell$. The remaining samples where benzene was detected were collected on the eastern side of Herndon Annex. Sample depths ranged from 40 to 61 feet bls. Benzene concentrations ranged from 20 to $200 \mu\text{g}/\ell$.

The ethylbenzene concentration in sample 02Q02201 was $38 \mu\text{g}/\ell$, exceeding the secondary FDEPG of $30 \mu\text{g}/\ell$ (the primary standard for ethylbenzene is $700 \mu\text{g}/\ell$). This concentration is below other FDEP and USEPA criteria.

The total xylene concentration in sample 02Q02201 was $160 \mu\text{g}/\ell$, exceeding the secondary FDEPG of $20 \mu\text{g}/\ell$ (the primary standard for total xylenes is $10,000 \mu\text{g}/\ell$). This concentration is below other FDEP and USEPA criteria.

1,1,2,2-TCA was detected above the FDEPG ($0.2 \mu\text{g}/\ell$) and the USEPA RBC for tap water ($0.052 \mu\text{g}/\ell$) in four samples from four locations. One sample (02Q01403) was collected at a depth of 60 to 61 feet bls on GOAA property south of Herndon Annex and had a TCA concentration of $2 \mu\text{g}/\ell$. Three samples from the east side of Herndon Annex (02Q02201, 02Q02402 and 02Q02901) were collected from 40 to 62 feet bls and had TCA concentrations of from 1 to $2 \mu\text{g}/\ell$. This compound had not been previously detected at Herndon Annex.

Two isomers of trimethylbenzene (1,2,4- and 1,3,5-) were detected in sample 02Q01403, collected from 60 to 61 feet bls. The concentration of 1,2,4-trimethylbenzene was $18 \mu\text{g}/\ell$, exceeding the secondary FDEPG of $10 \mu\text{g}/\ell$ for total trimethylbenzenes. The concentration of 1,3,5-trimethylbenzene was $4 \mu\text{g}/\ell$, which is below the guidance concentration. Trimethylbenzene had not been detected during the previous investigation activities.

Isopropylbenzene was detected in three samples (02Q01402, 02Q02201, and 02Q02301) at concentrations above the secondary FDEPG (which is $0.8 \mu\text{g}/\ell$). Sample 02Q01402, collected from 50 to 51 feet bls on GOAA property south of the Herndon Annex, had an isopropylbenzene concentration of $2 \mu\text{g}/\ell$. No

other compounds exceeded guidance values from this sample. Two samples from the eastern part of Herndon Annex (02Q02201 and 02Q02301) had isopropylbenzene concentrations of 23 and 26 $\mu\text{g}/\ell$, respectively. Benzene concentrations in both these samples exceeded 100 $\mu\text{g}/\ell$. Isopropylbenzene had not been detected during previous investigation activities.

PCE was detected in sample 02Q01303 at a concentration of 5 $\mu\text{g}/\ell$, which is above the Florida MCL (3 $\mu\text{g}/\ell$). The sample was collected from 60 to 61 feet bls on GOAA property south of Herndon Annex. PCE was also detected at 2 $\mu\text{g}/\ell$ in samples from location 02Q014.

TCE concentrations exceeded Florida MCLs in four samples collected from three locations. One sample, 02Q01303, collected from 60 to 61 feet bls on GOAA property south of Herndon Annex had a TCE concentration of 4 $\mu\text{g}/\ell$, versus a Florida MCL of 3 $\mu\text{g}/\ell$. The PCE concentration in this sample was 5 $\mu\text{g}/\ell$, versus a Florida MCL of 3 $\mu\text{g}/\ell$. Two samples from the 02Q022 location, on the east side of Herndon Annex, collected from 50 to 51 and 60 to 61 feet bls, had TCE concentrations of 3 and 4 $\mu\text{g}/\ell$, respectively. Sample 02Q2301, from the 50 to 51 feet bls interval, had a TCE concentration of 4 $\mu\text{g}/\ell$. Hydrologic and lithologic information from the supplemental investigation has been combined with data from the previous investigations to refine our understanding of hydrogeologic conditions at the site. Water-level data collected on November 8, 1996, indicated that groundwater flow in both the shallow portion of the surficial aquifer at the site is generally to the northeast, towards Lake Barton (Figure 5, Attachment A). The groundwater flow direction in the deep surficial aquifer is similar but appears to be somewhat more variable. Flow is generally to the northeast in the northern two thirds of the site, but more northerly in the southern third (Figure 6, Attachment A). The horizontal groundwater gradient is approximately 0.01 foot per foot throughout the shallow aquifer at the site. The vertical gradient at five of the six well or piezometer clusters shows a downward potential (Table 4, Attachment B). Data collected at the piezometer cluster 02PZ03/02PZ04 indicate an upward potential.

The primary compounds with concentrations above Florida MCLs detected during the site screening investigations were benzene (maximum concentration of 200 parts per billion [ppb]) and PCE/TCE (10 $\mu\text{g}/\ell$ and 5 $\mu\text{g}/\ell$, respectively). Distribution of these detections as a function of depth are shown on Figures 7, 8, and 9, Attachment A. From a depth of 0 to 39 feet bls, detections exceeding the guidance values for the primary compounds occurred at only 2 of 20 sampling locations (Figure 7). Of the 20 samples collected from 40 to <50 feet bls, 5 had benzene concentrations and 1 had PCE concentrations exceeding Florida MCLs (Figure 8). All of these sampling locations were along the eastern edge of Herndon Annex. Including monitoring wells and DPT sampling, 27 groundwater samples were collected from at least 50 feet bls at the site (Figure 9). Thirteen of these samples had benzene concentrations exceeding Florida MCLs, two had PCE detections, and five had TCE detections above Florida MCLs.

The low number of positive detections of VOCs in both DPT and monitoring well groundwater samples in the interval above 40 feet bls would seem to limit the likelihood of a surface release on Herndon Annex (two potential sources on the site, an aboveground storage tank (AST) at Building 602 and an underground storage tank (UST) at Building 607 were both removed; the AST was approved for clean closure, while the UST required a limited soil removal, which has been completed, and the contamination assessment report is being reviewed by the FDEP [ABB-ES, 1995B; and ABB-ES, 1996]). However, detections of the primary compounds from 40 to <50 feet bls are limited to samples collected on the eastern side of Herndon Annex. This indicates that a contaminant plume from an offsite source has already moved through the site. The upward vertical gradient at the area of the 02PZ03/02PZ04 cluster may also serve to bring contaminants upward from lower depths in this area. The primary compounds are most widely distributed from deeper than 50 feet bls to the top of the Hawthorn Group at the site. Data from upgradient locations indicate groundwater with low concentrations of PCE/TCE may be migrating onto the southeast corner of Herndon Annex from offsite. Small concentrations of benzene

were also detected along the western margin of the site. The higher concentrations of benzene detected onsite may indicate that the trailing edge of an offsite plume has migrated onto Herndon Annex.

Exposure Pathway Assessment. An exposure assessment was performed at Herndon Annex as part of the supplemental screening program. This assessment included the identification of all relevant exposure pathways through which specific populations may be exposed, under current and future land use, to contaminants at the site. An exposure pathway consists of four necessary elements: (1) a source or mechanism of chemical release, (2) a transport or retention medium, (3) a point of human contact, and (4) a route of exposure at the point of contact. An exposure pathway must have all of these elements to be considered a complete pathway. The groundwater contaminant plume that appears to be moving offsite at Herndon Annex is the source of concern and groundwater is the transport medium. There is currently no human contact with groundwater or a route of exposure due to the reasons detailed below.

1. Potable water is supplied to Herndon Annex and the surrounding vicinity by an Orlando municipality. There are no known private wells. The municipal wells used as a source of potable water are screened in the separate and confined deep Floridan aquifer and are not located within 1 mile of Herndon Annex.
2. The contamination detected at Herndon Annex is at a depth (greater than 40 feet bls) that precludes or minimizes the potential for volatilization of contaminants into surrounding basements and/or buildings.
3. There are no current or reasonable future groundwater discharges to surface water. The vertical gradient indicates a downward potential at Herndon Annex, which makes discharge to local surface water bodies unlikely.

Therefore, there are no complete current groundwater exposure pathways at the Herndon Annex of NTC, Orlando.

Future potential pathways must also be considered in an exposure assessment. There are no residential receptors at Herndon Annex, but there are residences to the east and south of the site. Therefore, it is possible that Herndon Annex may in the future be developed into a housing area. It is likely, however, that the proposed commercial and industrial uses of the site will continue due to the proximity of the site to the airport. If residential development does occur in the future, the development would reasonably be serviced by the current Orlando public water utility. A deed restriction, if deemed necessary, could ensure that the groundwater at Herndon Annex not be used for any potable or nonpotable purpose in the future, thus eliminating the potential for completion of future exposure pathways.

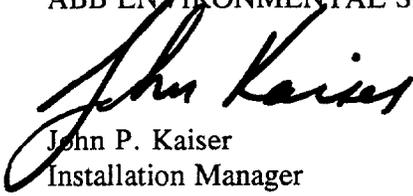
CONCLUSIONS

Current data cannot positively confirm that the benzene contamination at Herndon Annex is due exclusively to an offsite source. However, the absence of benzene detections at depths above 40 feet bls is an indication that an onsite release has not occurred. The high concentrations of benzene and some other solvents along the eastern margin of Herndon Annex suggest that the leading edge of a plume has moved under Herndon Annex and is migrating northeasterly parallel to the local groundwater flow. Historical evidence suggests a potential benzene and/or chlorinated solvent source coming from the former firefighting training area southwest of the Herndon Annex.

It is our intent to discuss any comments or corrections at the next scheduled OPT meeting. If you have questions or comments regarding this matter, feel free to call me at (407) 895-8845.

Very Truly Yours,

ABB ENVIRONMENTAL SERVICES, INC.



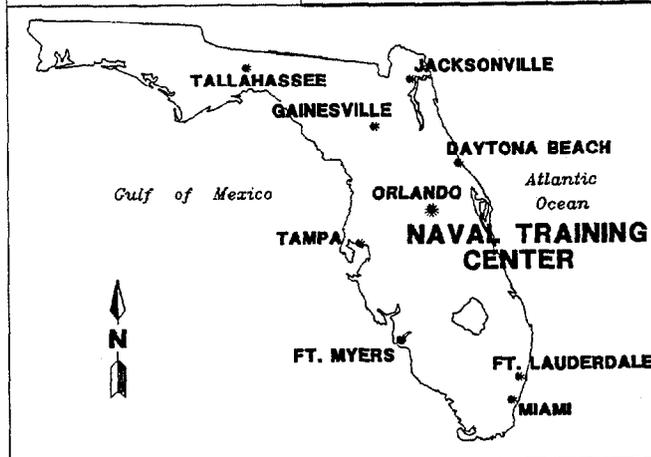
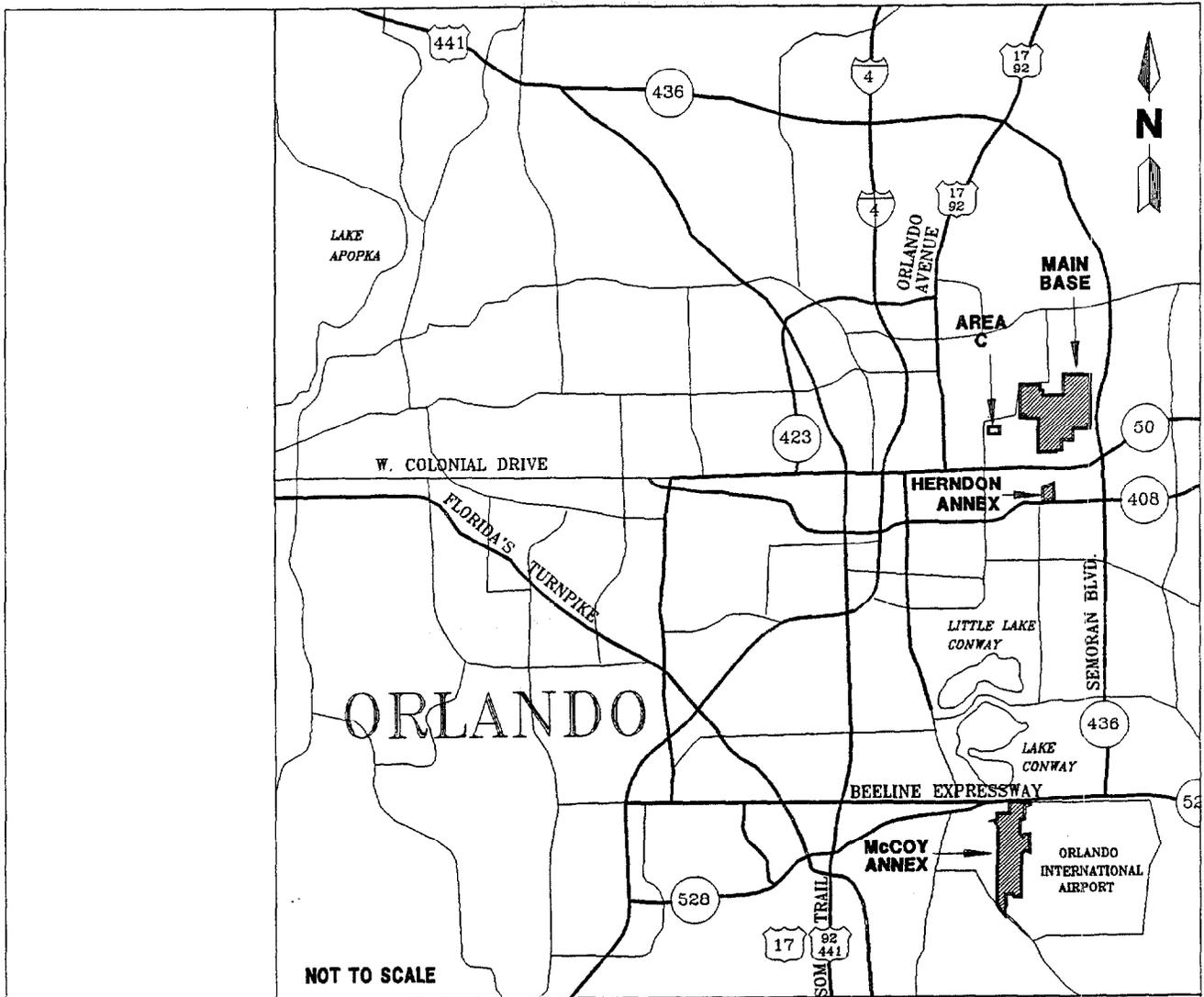
John P. Kaiser
Installation Manager

cc: Nancy Rodriguez, USEPA Region IV
John Mitchell, FDEP
Barbara Nwokike, Southern Division
Nick Ugolini, Southern Division
Lt. G. Whipple, NTC Public Works Officer
Mac McNeil, BEI

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ATTACHMENT A

FIGURES

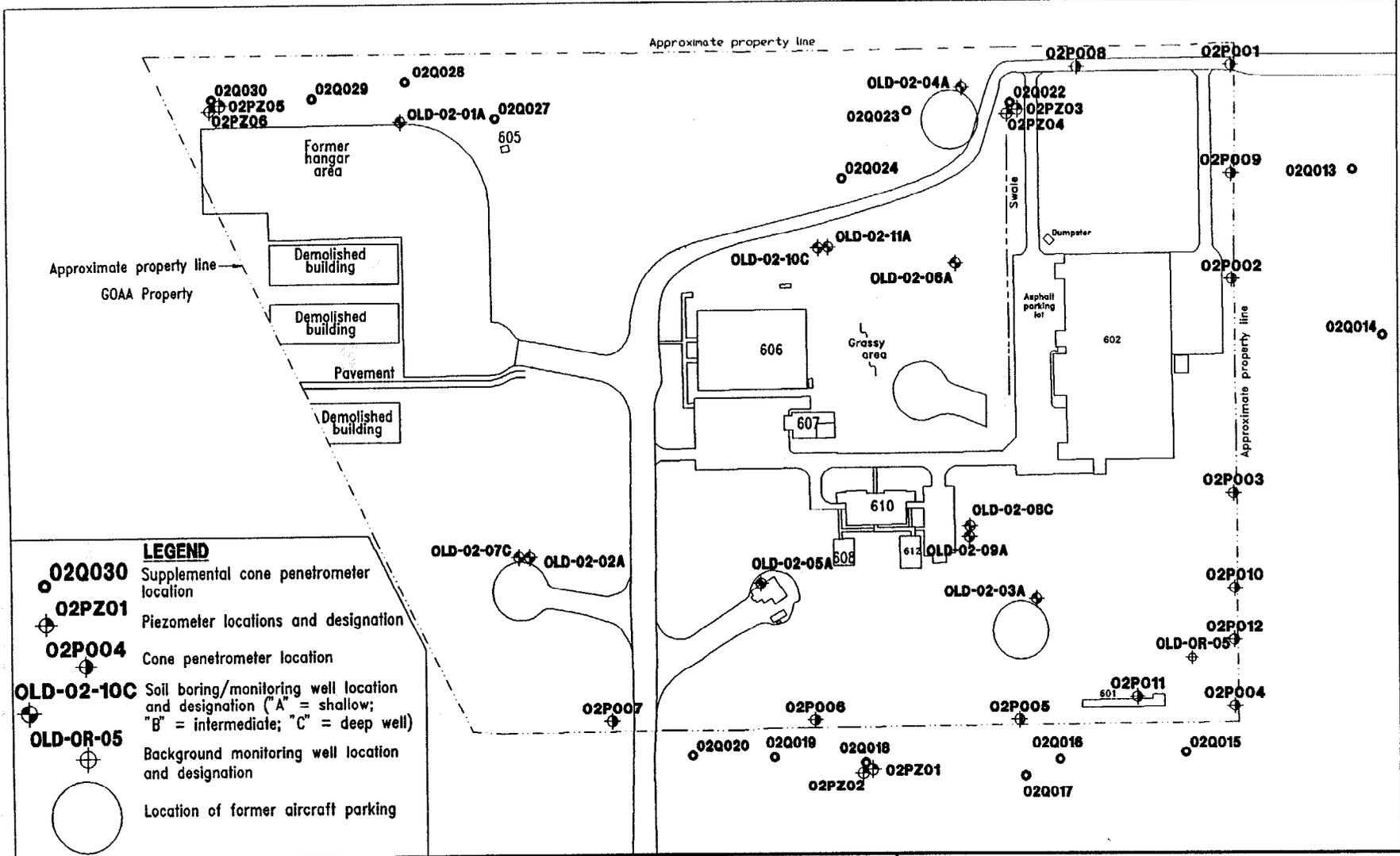


**FIGURE 1
SITE LOCATION MAP**

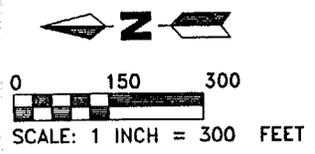


**ADDITIONAL SITE SCREENING
LETTER REPORT**

**NAVAL TRAINING CENTER
ORLANDO, FLORIDA**



- LEGEND**
- 02Q030 Supplemental cone penetrometer location
 - ⊕ 02PZ01 Piezometer locations and designation
 - ⊕ 02P004 Cone penetrometer location
 - ⊕ OLD-02-10C Soil boring/monitoring well location and designation ("A" = shallow; "B" = intermediate; "C" = deep well)
 - ⊕ OLD-OR-05 Background monitoring well location and designation
 - Location of former aircraft parking

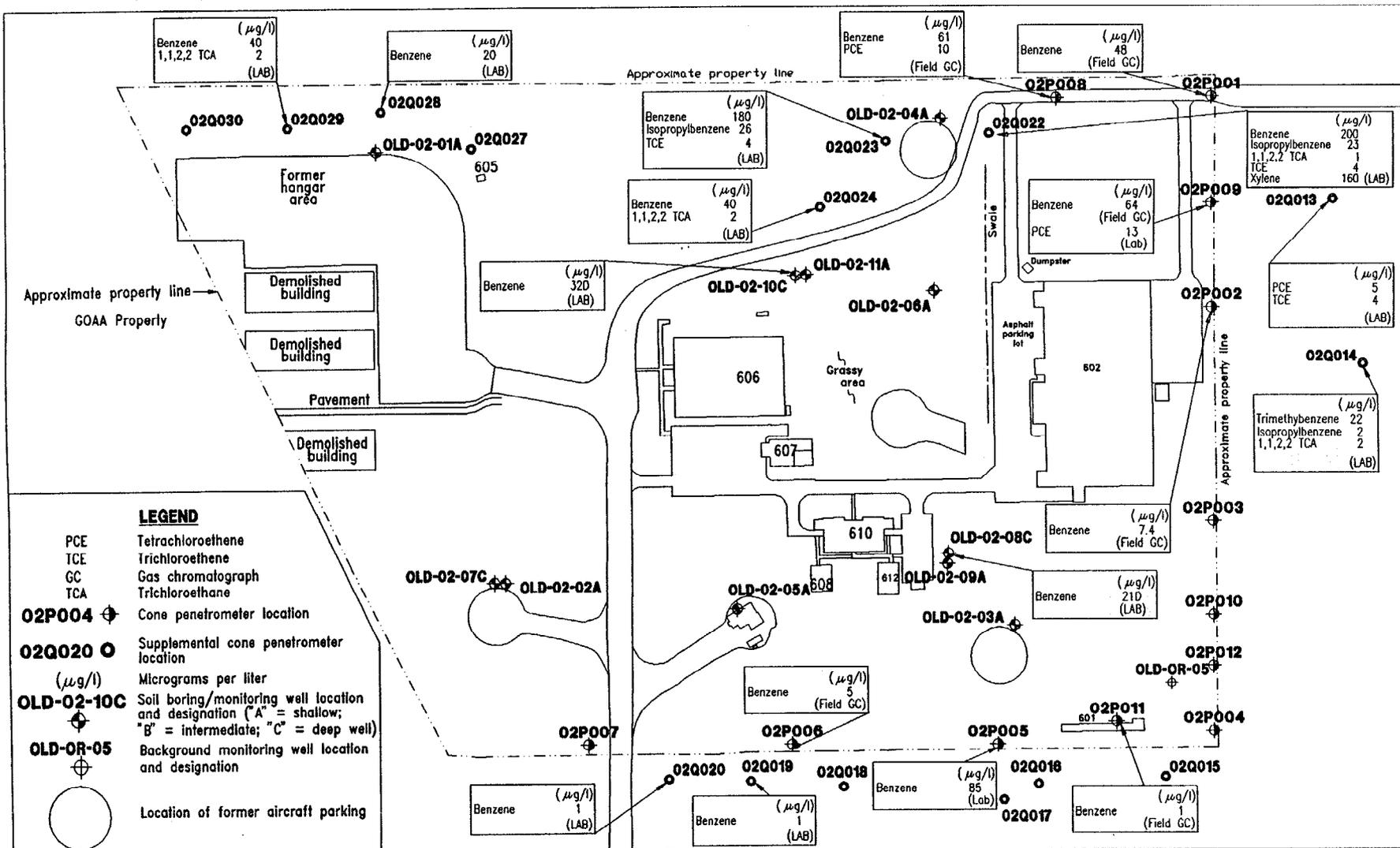


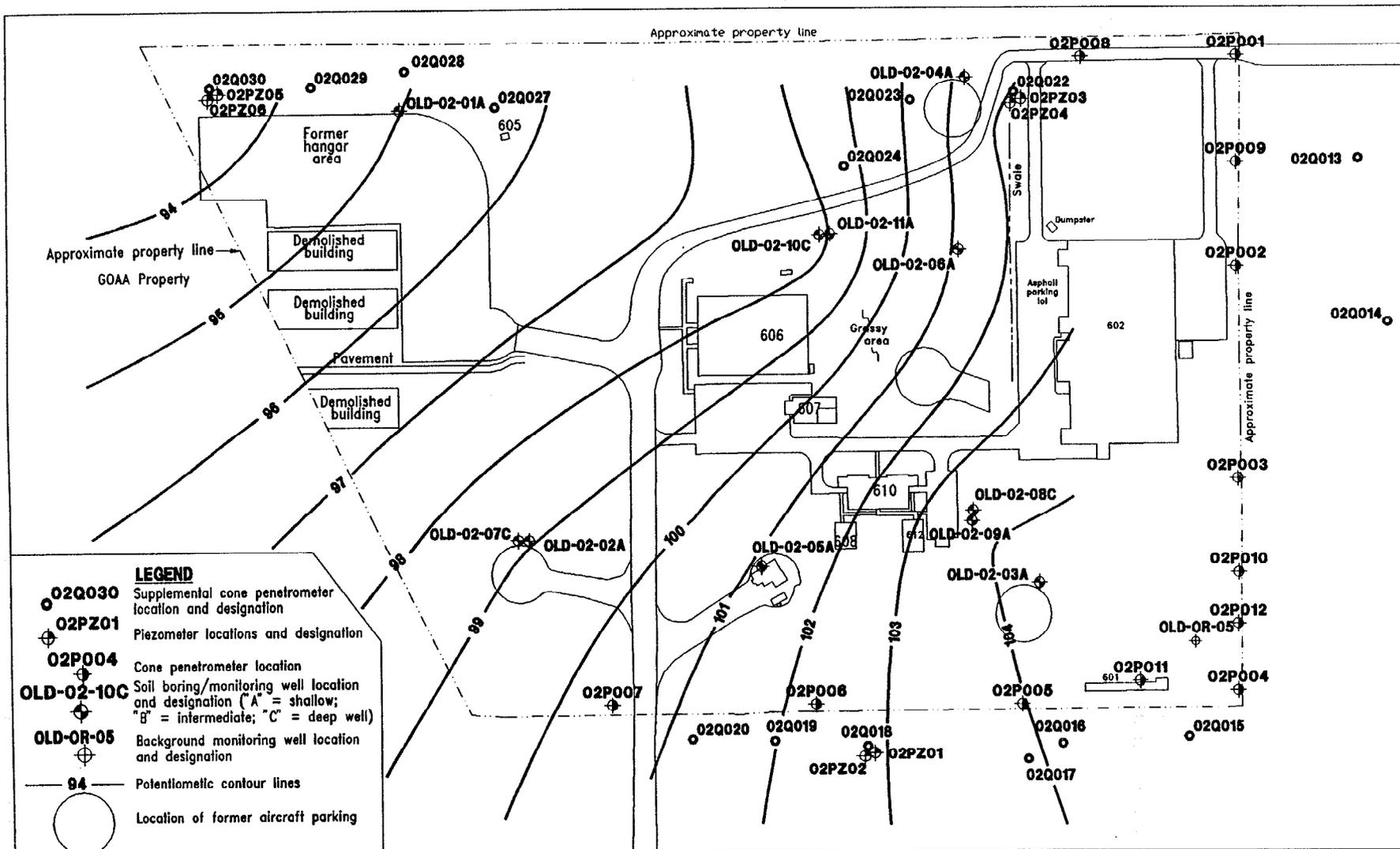
**FIGURE 3
SUPPLEMENTAL SAMPLING LOCATIONS
STUDY AREA 2,
HERNDON ANNEX**



**ADDITIONAL SITE SCREENING
LETTER REPORT**

**NAVAL TRAINING CENTER
ORLANDO, FLORIDA**





LEGEND

- 02Q030 Supplemental cone penetrometer location and designation
- ⊕ 02PZ01 Piezometer locations and designation
- ⊕ 02P004 Cone penetrometer location
- ⊕ OLD-02-10C Soil boring/monitoring well location and designation ("A" = shallow; "B" = intermediate; "C" = deep well)
- ⊕ OLD-OR-05 Background monitoring well location and designation
- 94 — Potentiometric contour lines
- Location of former aircraft parking



0 150 300
 SCALE: 1 INCH = 300 FEET

FIGURE 6
DEEP SURFICIAL AQUIFER
POTENTIOMETRIC CONTOURS
STUDY AREA 2,
HERNDON ANNEX



ADDITIONAL SITE SCREENING
LETTER REPORT
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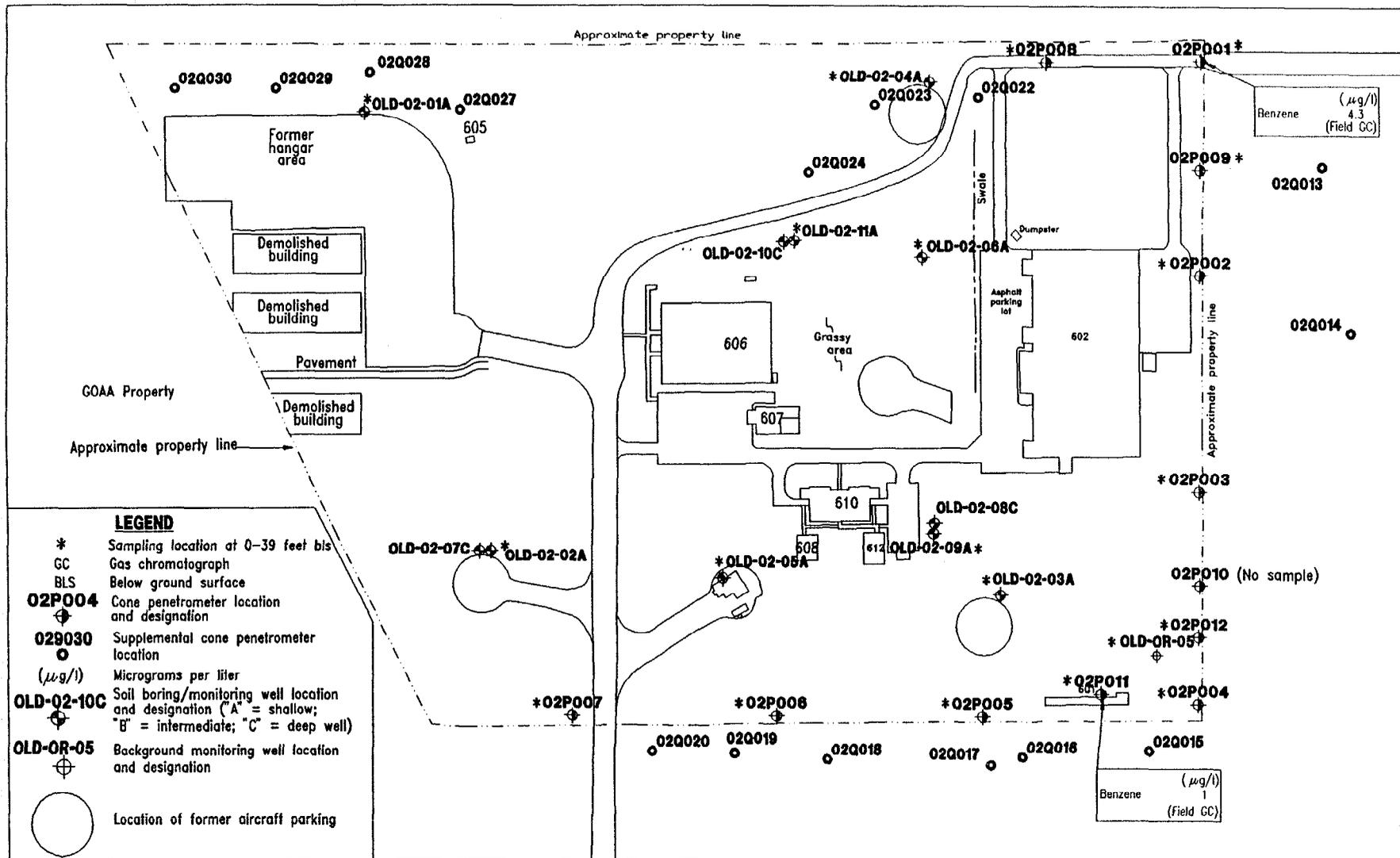


FIGURE 7
VOLATILE ORGANIC COMPOUNDS EXCEEDING
REGULATORY CRITERIA
CONE PENETROMETER AND MONITORING WELL
SAMPLES 0-39 FEET BLS
STUDY AREA 2, HERNDON ANNEX



ADDITIONAL SITE SCREENING
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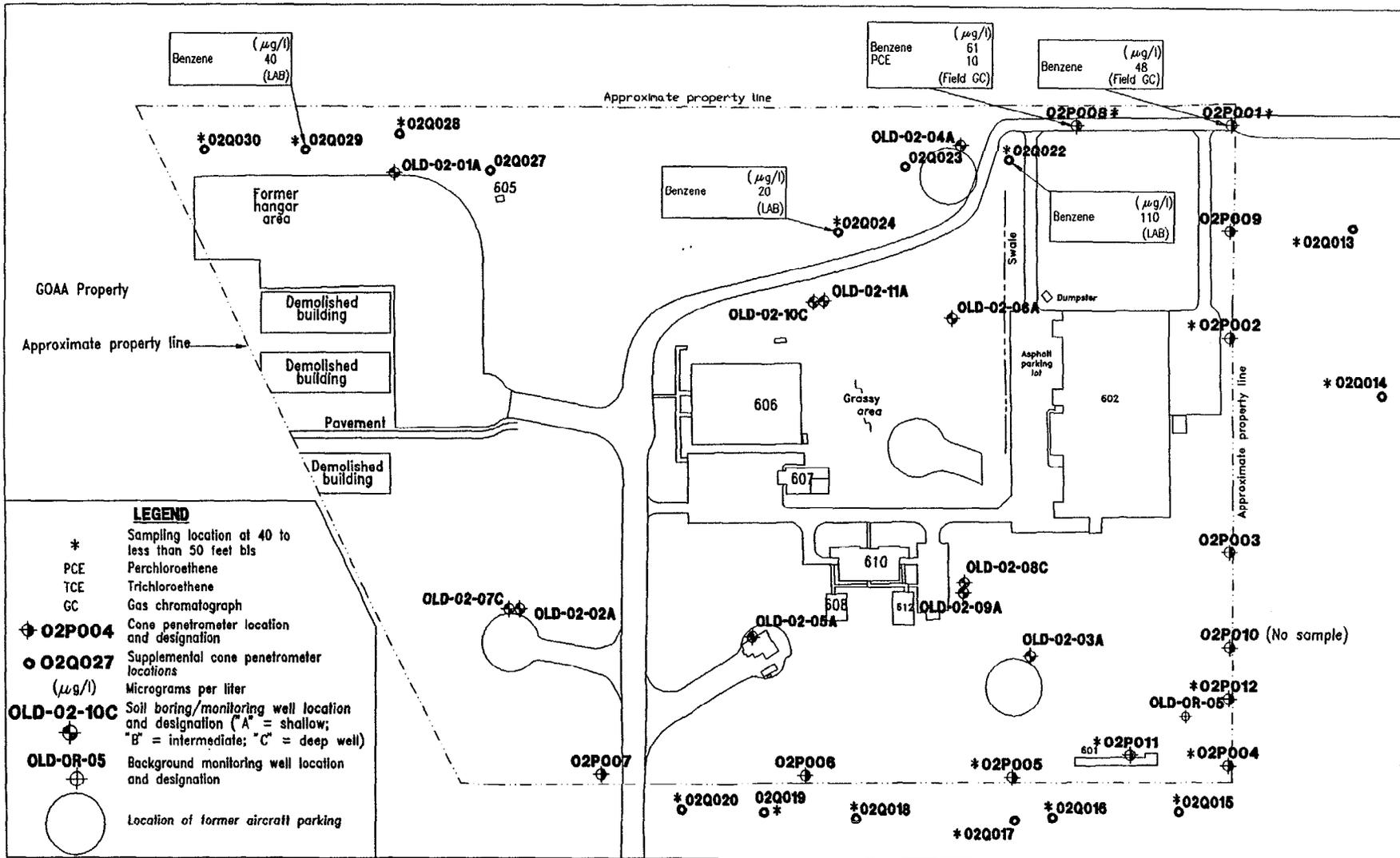
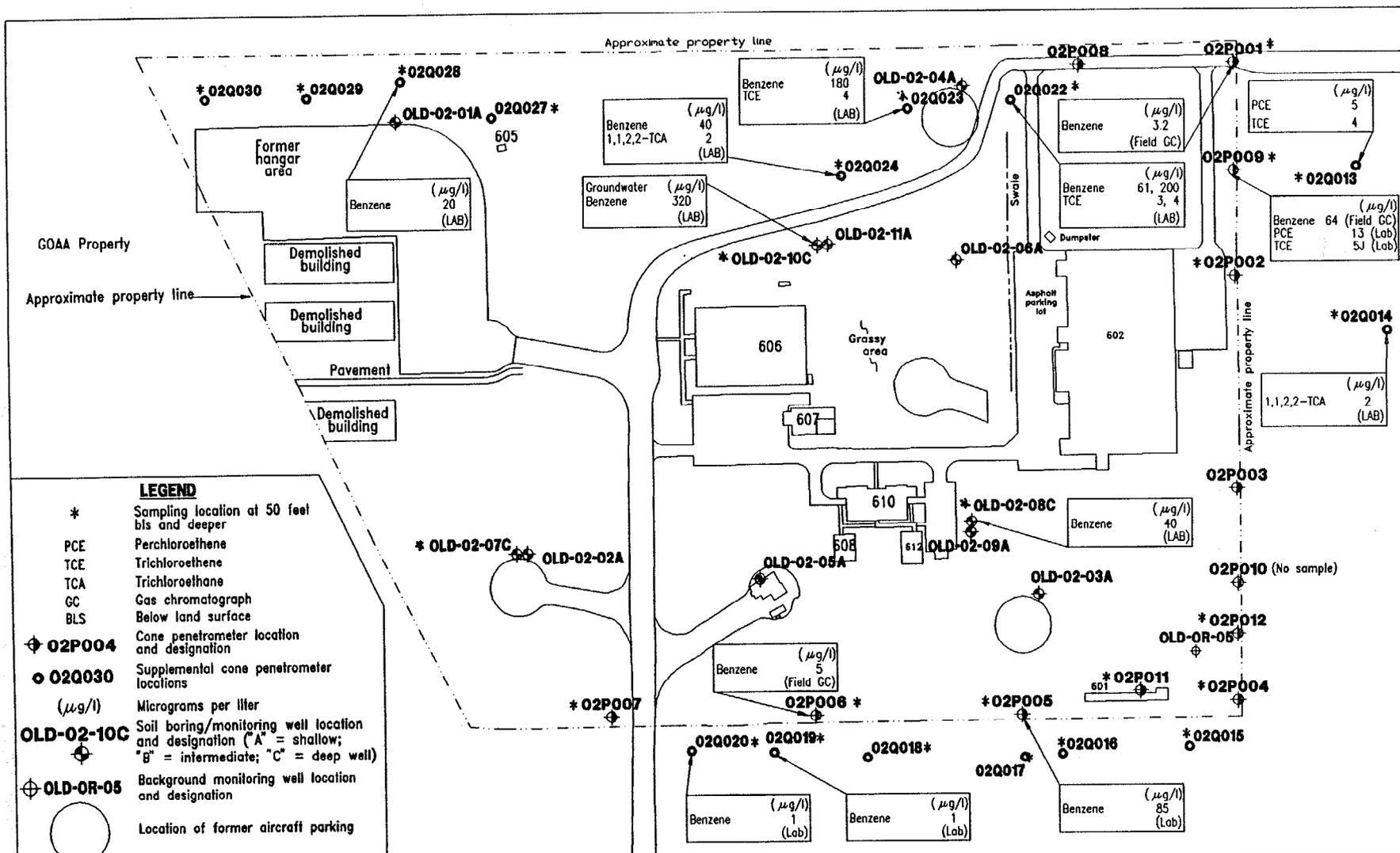


FIGURE 8
VOLATILE ORGANIC COMPOUNDS EXCEEDING
REGULATORY CRITERIA
CONE PENETROMETER AND MONITORING WELL
SAMPLES 40 TO LESS THAN 50 FEET BLS
STUDY AREA 2, HERNDON ANNEX

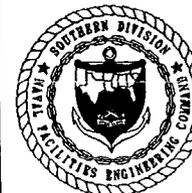


ADDITIONAL SITE SCREENING
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**FIGURE 9
VOLATILE ORGANIC COMPOUNDS EXCEEDING
REGULATORY CRITERIA
CONE PENETROMETER AND MONITORING WELL
SAMPLES 50 FEET BLS AND DEEPER
STUDY AREA 2, HERNDON ANNEX**



**ADDITIONAL SITE SCREENING
LETTER REPORT**

**NAVAL TRAINING CENTER
ORLANDO, FLORIDA**

ATTACHMENT B

TABLES

Table 1
Field GC Groundwater Results
Original Site Screening Report, Study Area 2

Additional Site Screening Results and Conclusions
Study Area 2, Herndon Annex
Naval Training Center
Orlando, Florida

Identifier	Depth (ft bis)	Benzene	Toluene	Ethylbenzene	Xylene (total)	TCE	PCE	1,1-DCA
FDEPG		1	1,000	700	10,000	3	3	700
FEDMCL		5	1,000	700	10,000	5	5	--
RBC		0.36 c	750 n	1,300 n	12,000 n	1.6 c	1.1 c	810 n
02P00101	34	4.3	--	--	--	--	--	--
02P00102	45	4.0	--	2.6	0.5	--	--	--
02P00103	56	3.2	--	--	--	--	2.7	--
02P00201	17	--	--	--	--	--	--	--
02P00202	41	--	--	--	--	--	--	--
02P00203	59	7.4	--	--	--	--	0.1	--
02P00301	18	--	--	--	--	--	--	--
02P00401	19	--	0.5	0.2	0.4	--	0.8	--
02P00402	41	--	--	--	--	--	--	--
02P00403	64	--	--	--	2.1	--	--	--
02P00501	15	--	--	--	1	--	--	--
02P00502	41	--	--	--	--	--	--	--
02P00503	61	--	0.2	2.8	0.1	--	--	--
02P00601	17	--	--	--	--	--	--	--
02P00602	27	--	--	--	--	--	--	--
02P00603	57	5	0.1	--	--	--	--	--
02P00701	24	--	--	--	--	--	--	--
02P00702	57	0.5	0.1	0.1	0.2	--	--	--
02P00801	33	--	--	0.8	0.4	--	--	--
02P00802	49	6.1	--	3.6	3.0	--	1.0	--
02P00901	29	--	--	--	--	--	--	--
02P00902	39	--	--	--	--	--	--	--
02P00903	58	6.4	1.4	0.2	--	--	1.0	1.0

See notes at end of table.

Table 1 (Continued)
Field GC Groundwater Results
Original Site Screening Report, Study Area 2

Additional Site Screening Results and Conclusions
Study Area 2, Herndon Annex
Naval Training Center
Orlando, Florida

Identifier	Depth (ft bls)	Benzene	Toluene	Ethylbenzene	Xylene (total)	TCE	PCE	1,1-DCA
FDEPG		1	1,000	700	10,000	3	3	700
FEDMCL		5	1,000	700	10,000	5	5	--
RBC		0.36 c	750 n	1,300 n	12,000 n	1.6 c	1.1 c	810 n
02P010	--	No Sample - Shallow CPT Refusal						
02P01101	23	1	--	--	--	--	0.4	--
02P01102	44	--	--	--	--	--	--	--
02P01103	61	--	--	--	--	--	--	--
02P01201	26	--	--	--	--	--	--	--
02P01202	43	--	--	--	--	--	--	--
02P01203	54	--	--	--	--	--	--	--

Bold/shaded entries indicate exceedance of regulatory guidance criteria.

Notes: Source: ABB-ES report entitled "Site Screening Report, Groups I and II", November 1995.

GC = gas chromatograph.

ft bls = feet below land surface.

n = noncarcinogenic effects.

c = carcinogenic effects.

TCE = trichloroethene

PCE = tetrachloroethene

DCA = dichloroethane.

-- = Analyte/compound was not detected at reporting limit.

FDEPG = Florida Department of Environmental Protection, Groundwater Guidance Concentrations, June 1994. Values indicated are primary standards.

FEDMCL = Federal Maximum Contaminant Levels, Primary Drinking Water Regulations and Health Advisories, October 1996.

RBC = Risk-Based Concentration Tables, U.S. Environmental Protection Agency Region III, May 1996, R.L. Smith.

Table 2
Summary of Field Activities
Supplemental Screening Report, Study Area 2

Additional Site Screening Results and Conclusions
 Study Area 2, Herndon Annex
 Naval Training Center
 Orlando, Florida

Activity	Identifier	Depth of Investigation (feet bls)	Sampling Interval (feet bls)
Cone Penetrometer (CPT) Sounding	02Q014	66.5	
	02Q030	80	
Groundwater Screening	02Q013	61	40-41;50-51;60-61
	02Q014	61	40-41,50-51,60-61
	02Q015	61	40-41,50-51,60-61
	02Q016	61	40-41,50-51,60-61
	02Q017	61	40-41,50-51,60-61
	02Q018	51	40-41,50-51
	02Q019	61	40-41,50-51,60-61
	02Q020	61	40-41,50-51,60-61
	02Q022	61	40-41,50-51,60-61
	02Q023	51	50-51
	02Q024	56	45-46,55-56
	02Q027	51	50-51
	02Q028	61	45-46,60-61
	02Q029	62	47.5-48.5, 61-62
02Q030	61	40-41,53-54,60-61	
Piezometer Installation			Screened Interval
	02PZ01		8.5-18.5
	02PZ02		55-60
	02PZ03		20-30
	02PZ04		55-60
	02PZ05		10-20
	02PZ06		55-60

Note: bls = below land surface.

Table 3
Groundwater Analytical Results
Supplemental Site Screening Report, Study Area 2

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Identifier	Depth (ft bls)	Benzene	Trimethylbenzene	Toluene	Ethylbenzene	Isopropylbenzene	Total Xylenes	Naphthalene	TCE	PCE	1,2-DCE	1,1,2,2-TCA
FDEPG		1	10 ¹	1,000	1,000	0.8 ²	10,000	6.8 ²	3	3	70	0.2 ²
FEDMCL		5	ND	100	700	ND	10,000	ND	5	5	70	ND
RBC		0.36 c	300 n	750 n	1,300 n	1,500 n	12,000 n	1,500 n	1.6 c	1.1 c	61 n	0.052 c
02Q01301	40-41	--	--	--	--	--	--	--	--	--	--	--
02Q01302	50-51	--	--	--	--	--	--	--	--	--	--	--
02Q01303	60-61	--	--	--	--	--	--	--	4	5	--	--
02Q01401	40-41	--	--	--	--	--	--	--	--	--	--	--
02Q01402	50-51	--	5	--	--	2	--	--	--	2	--	2
02Q01403	60-61	--	22	--	--	--	--	3	--	2	--	--
02Q01501	40-41	--	--	--	--	--	--	--	--	--	--	--
02Q01502	50-51	--	--	--	--	--	--	--	--	--	--	--
02Q01503	60-61	--	--	--	--	--	--	--	--	--	--	--
02Q01601	40-41	--	--	--	--	--	--	--	--	--	--	--
02Q01602	50-51	--	--	--	--	--	--	--	--	--	--	--
02Q01603	60-61	--	--	--	--	--	--	--	--	--	--	--
02Q01701	40-41	--	--	--	--	--	--	--	--	--	--	--
02Q01702	50-51	--	--	--	--	--	--	--	--	--	--	--
02Q01703	60-61	--	--	--	--	--	--	--	--	--	--	--
02Q01801	40-41	--	--	--	--	--	--	--	--	--	--	--
02Q01802	50-51	--	--	--	--	--	--	--	--	--	--	--
02Q01901	40-41	--	--	--	--	--	--	--	--	--	--	--
02Q01902	50-51	--	--	--	--	--	--	--	--	--	--	--
02Q01903	60-61	1	--	--	--	--	--	--	--	--	--	--
02Q02001	40-41	--	--	--	--	--	--	--	--	--	--	--
02Q02002	50-51	--	--	--	--	--	--	--	--	--	--	--

See notes at end of table.

Table 3 (Continued)
Groundwater Analytical Results
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Identifier	Depth (ft bls)	Benzene	Trimethyl-benzenes	Toluene	Ethyl-benzene	Isopropyl-benzene	Total Xylenes	Naphthalene	TCE	PCE	1,2-DCE	1,1,2,2-TCA
FDEPG		1	10 ¹	1,000	1,000	0.8 ²	10,000	6.8 ²	3	3	70	0.2 ³
FEDMCL		5	ND	100	700	ND	10,000	ND	5	5	70	ND
RBC		0.36 c	300 n	750 n	1300 n	1500 n	12000 n	1500 n	1.6 c	1.1 c	61 n	0.052 c
02Q02003	60-61	1	--	--	--	--	--	--	--	--	--	--
02Q02201	40-41	110	9	2	38	23	160	--	2	--	23	1
02Q02202	50-51	61	5	--	1	--	--	--	3	--	4	--
02Q02203	60-61	200	--	1	--	--	--	--	4	--	14	--
02Q02301	50-51	180	2	--	26	26	--	--	4	--	16	--
02Q02401	45-46	20	--	--	--	--	--	--	--	--	1	--
02Q02402	55-56	40	--	--	3	--	9	--	--	--	1	2
02Q02701	50-51	--	--	--	--	--	--	--	--	--	--	--
02Q02801	45-46	--	--	--	--	--	--	--	--	--	--	--
02Q02802	60-61	20	--	--	--	--	--	--	--	--	1	--
02Q02901	47.5-48.5	40	--	--	3	--	9	--	--	--	1	2
02Q02902	61-62	--	--	--	--	--	--	--	--	--	--	--
02Q03001	40-41	--	--	--	--	--	--	--	--	--	--	--
02Q03002	53-54	--	--	--	--	--	--	--	--	--	--	--
02Q03003	60-61	--	--	--	--	--	--	--	--	--	--	--

See notes at end of table.

Table 3 (Continued)
Groundwater Analytical Results
Supplemental Site Screening Report, Study Area 2

Additional Site Screening Results and Conclusions
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¹ Florida Groundwater Guidance Concentration for total trimethylbenzenes as an organoleptic.

² Florida Groundwater Guidance Concentration for compound as an organoleptic.

³ Florida Groundwater Guidance Concentration for 1,1,2,2-TCA as a carcinogen.

Notes: All analytical results expressed in micrograms per liter.

= Bold/shaded entries indicate exceedance of regulatory guidance criteria.

ft bls = feet below land surface.

TCE = trichloroethene.

PCE = tetrachloroethene

1,2-DCE = cis-1,2-dichloroethylene.

1,1,2,2-TCA = 1,1,2,2-trichloroethane.

-- = analyte/compound was not detected at reporting limit.

FDEPG = Florida Department of Environmental Protection, Groundwater Guidance Concentrations, June 1994. Values indicated are primary standards, except for compounds footnoted above.

FEDMCL = Federal Maximum Contaminant Levels, Primary Drinking Water Regulations and Health Advisories, October 1996.

RBC = Risk-Based Concentration Tables, U.S. Environmental Protection Agency Region III, May 1996, R.L. Smith.

ND = Not determined.

n = noncarcinogenic effects.

c = carcinogenic effects.

**Table 4
Water-Level Elevation Data**

Additional Site Screening Results and Conclusions
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Location	Screened Interval (feet bls)	Top-of-Casing Elevation (feet above msl)	Depth to Water (feet)	Water Elevation (feet above msl)
02-PZ-01	8.5-18.5	117.20	10.50	106.70
02-PZ-02	55-60	120.22	17.38	102.84
02-PZ-03	20-30	111.75	11.73	100.02
02-PZ-04	55-60	112.20	9.95	102.25
02-PZ-05	10-20	105.64	12.14	93.50
02-PZ-06	55-60	105.42	12.34	93.08
OLD-02-02	3-13	111.27	8.64	102.63
OLD-02-07	58-63	111.52	12.60	98.92
OLD-02-09	5-15	112.34	8.00	104.34
OLD-02-08	60-65	112.31	8.41	103.90
OLD-02-11	5-15	107.14	6.20	100.94
OLD-02-10	52-57	106.90	9.41	97.48

Notes: Water-level measurements collected on November 11, 1996.
bls = below land surface.
msl = mean sea level.