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LETTER REPORT ON WORK PLAN FOR ADDITIONAL SITE SCREENING AT STUDY AREA 2 NTC ORLANDO FL

6/17/1997

ABB ENVIRONMENTAL

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June 17, 1997

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Commanding Officer
Southern Division
Naval Facilities Engineering Command
ATTN: Wayne Hansel, Code 187300
P.O. Box 190010
2155 Eagle Drive
North Charleston, SC 29419-0068

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

Dear Mr. Hansel:

Due to findings from previous site screening events at Study Area (SA) 2, Herndon Annex, ABB Environmental Services, Inc. (ABB-ES) has been asked to conduct additional site screening to further define benzene occurrences in groundwater. This document is intended to serve as the workplan for these field activities.

SUMMARY OF FINDINGS TO DATE.

The details of previous ABB-ES site screening activities are contained in three documents. The first is the (Draft) Site Screening Report for Groups I and II, submitted in November 1995. The second is the letter to Mr. Hansel dated February 3, 1997 reporting the results of site screening activities conducted subsequent to submittal of the Groups I and II report. The third is the letter to Mr. Hansel dated May 13, 1997 concerning options for transfer and recommendations for SA 2 that also detailed surface water analytical results from Lake Barton.

During the Group I and II site screening, data from the deeper portion of the surficial aquifer revealed benzene and tetrachloroethene (PCE) concentrations in excess of Florida maximum contaminant levels (MCLs). It was concluded that the source of the benzene and PCE in groundwater is likely a release from an offsite source, possibly a former firefighter training area (FTA) located southwest of Herndon Annex.

In July, 1996 the U.S. Army Corps of Engineers (COE) conducted a study near the southeast property line of Herndon Annex on Executive Airport property. Results indicated that there is no significant groundwater contamination, but since none of the samples were collected deeper than 40 feet below land surface (bls), and nearly all benzene and PCE detections in ABB-ES site screening data were deeper than 40 feet bls, the study is inconclusive in identifying the presence of groundwater contamination at the site.

Additional site screening studies were conducted by ABB-ES in late October 1996. Based on this new investigation, ABB-ES concluded that an offsite source remains the most probable explanation for the observed occurrences of benzene and PCE in the deeper portions of the surficial aquifer. An exposure assessment was also conducted in October, and it concluded that there is currently no human contact with groundwater at the Annex, nor is there a complete exposure pathway available for humans. However, the exposure assessment did not consider future reuse scenarios, no did it consider offsite residences east of the Annex, surface water quality in Lake Barton, or ecological receptors.

On April 11, 1997, ABB-ES collected three surface water samples in Lake Barton, approximately 100 feet from the northeast corner of Herndon Annex, to be analyzed for low-level Volatile Organic Compounds (VOCs) by EPA method 524.2. Although the results have not been subjected to independent data validation, the only laboratory reported concentrations were PCE and trichloroethene (TCE) in one of the samples and PCE alone in another. There were no concentrations of benzene detected in any of the three samples. The PCE and TCE concentrations were below the State of Florida surface water standards, assuming Lake Barton is a Class III lake used for recreation.

TECHNICAL APPROACH.

All work to be conducted in this field event will be in accordance with the USEPA Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM, May 1996) and the Project Operations Plan (POP) for Site Investigations and Remedial Investigations (ABB-ES, July 1994). This Approach also includes comments and recommendations from the OPT meeting held on May 21, 1997.

Direct Push Technology (DPT) Investigation. The first phase of fieldwork will be a DPT Investigation conducted between the eastern boundary of the Herndon Annex property and the drainage ditch that flows from south to north into Lake Barton. Six locations (Figure 1) are proposed, with cone penetrometer test (CPT) soundings and groundwater samples to be collected at 30, 40, 50 and 60 feet below land surface (bls). These samples will be analyzed for low-level Volatile Organic Compounds (VOCs) by EPA method 524.2. The locations were selected due to their proximity to two sample locations (02Q02201/02/03 and 02Q02901), where benzene was detected at concentrations of up to 200 micrograms per liter. The proposed sample locations are downgradient of these sample locations and would serve to determine if benzene concentrations in excess of regulatory criteria also exist east of the Herndon Annex property line.

Groundwater Monitoring Well Installation and Sampling. As a separate phase of the investigation, three groundwater monitoring wells will be installed near the locations of previous benzene occurrences in CPT samples for confirmation (Figure 2).

OLD-02-12 has been positioned at the location of sample 02P00503, which had a benzene concentration of 85 ug/l at 60 to 61 feet bls. This well will be approximately 150 feet north of Building 601, and it will be screened from 55 to 60 feet bls. It will serve in further determining if the benzene is from an offsite source, along with correlating the analytical results of 02P00503.

The location of OLD-02-13 has been temporarily selected as it is downgradient of sample location 02Q02301 (benzene concentration of 180 ug/l at 50 to 51 feet bls). If the DPT groundwater investigation shows evidence of benzene at concentrations in excess of regulatory criteria offsite along the eastern property boundary, then OLD-02-13 will be installed in the vicinity of the highest benzene concentrations and screened at the depths where those concentrations occurred.

The location for OLD-02-14 has been temporarily selected downgradient of sample location 02Q02901, which had a benzene concentration of 40 ug/l at 47.5 to 48.5 feet bls. As with OLD-02-13, the final placement of OLD-02-14 will depend on the DPT groundwater investigation results, and it will be located in the proximity of the sample containing the highest benzene concentrations.

All existing monitoring wells at SA 2 are to be sampled for low-level VOCs (EPA Method 524.2) and the analytical parameters listed in Table 1-1. This would include existing wells OLD-02-01 thru -11, background monitoring well OLD-OR-05, and the new wells OLD-02-12 thru -14. The parameters listed in Table 1 will serve in determining if natural attenuation of contaminants is occurring at the site.

Drivepoint Installation in Drainage Ditch. Based on the results of the DPT groundwater investigation, drivepoint installation may be warranted in the drainage ditch that parallels the Herndon Annex eastern property line. If benzene is detected in the DPT groundwater samples, then the drivepoint installation would serve in determining if the groundwater upwelling into the ditch also contains benzene. Their locations, placement, and number will depend entirely upon the results of the DPT investigation. Five drivepoint locations are anticipated to be sufficient for this effort.

Local Irrigation/Potable Water Well Sampling. In the event that benzene is detected in DPT groundwater samples at concentrations exceeding Florida MCLs, a sampling event in the vicinity of Nancy Lee and San Jaunita Avenues may be required. Sampling of the irrigation and recorded potable water wells screened in the surficial aquifer in that area would serve in determining if benzene is migrating underneath the drainage ditch, and would provide the data to determine if there are human health risks associated with their use. Samples would be collected and analyzed for low-level VOCs (EPA Method 524.2). Depending on the results from these samples, additional DPT work in the residential area may be necessary.

SUMMARY

The sampling of groundwater for VOCs with the DPT rig at six locations to the east of the Herndon Annex property is proposed. Each location would be sampled at four depth intervals to define potential MCL exceedances of benzene. Results from this event will determine if benzene in excess of regulatory criteria exists offsite, and will assist in monitoring well placement. Three new monitoring wells are to be installed in the deep surficial aquifer to further evaluate the extent of benzene concentrations both on- and offsite. All existing monitoring wells will be resampled, along with the three proposed wells. Analyses will include VOCs parameters that will determine if natural attenuation is occurring. Depending on the results of the DPT groundwater investigation, drivepoints may be installed in the drainage ditch to the east of the Herndon Annex and sampled for VOCs to determine if benzene is upwelling into the ditch. Irrigation and potable water wells in the neighborhood to the east of the site

may also be sampled for VOCs, depending on the DPT results, in an effort to evaluate health risks to residents in that area.

It is the intent of ABB-ES to discuss this workplan 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 Kaiser

John P. Kaiser
Installation Manager

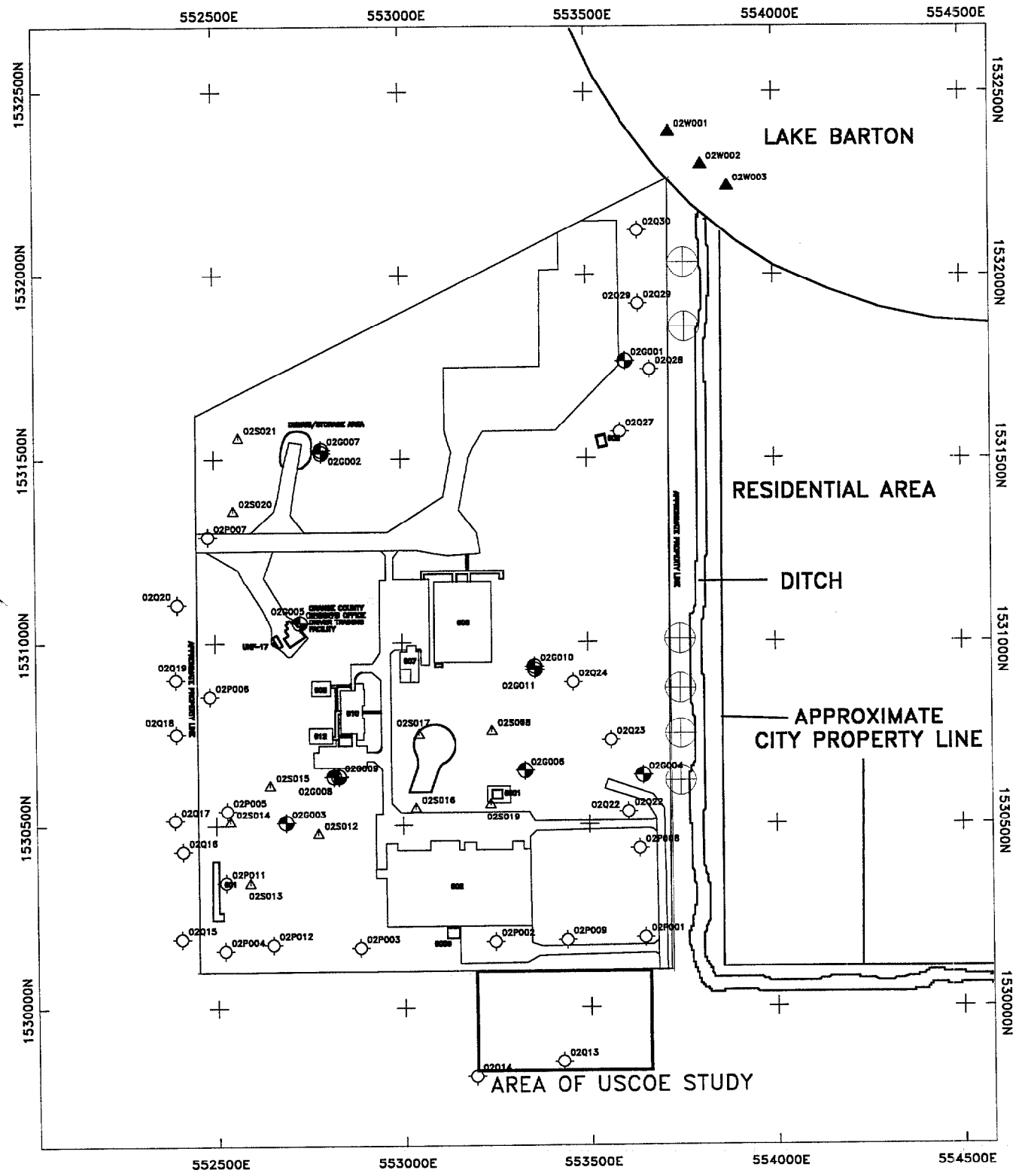
cc: Nancy Rodriguez, USEPA Region IV
Barbara Nwokike, Southern Division
Bob Cohose, BEI
Steve McCoy, Brown & Root
Rick Allen, ABB-ES
John Mitchell, FDEP
Lt. G. Whipple, NTC Public Works Officer

Table 1. List of Natural Attenuation Parameters and Procedures.

Analytical Parameters	Method
Alkalinity	Hach alkalinity test kit Model AL AP MG-L
Chloride	Mercuric nitrate titration A4500
Dissolved Oxygen	Modified Winkler procedure (Hach kit)*
Dissolved Iron (II)	Colorimetric Hach Method 8146
Iron (III)	Colorimetric Hach kit
Hydrogen gas	Bubble strip method (Chapelle)
Methane, ethane, ethene	Kampbell et al.** or modified SW3810
Nitrate	Ion chromatography Method E300; anion method
Nitrite	Colorimetric Hach kit
Oxidation-reduction potential	A2580B
pH, temperature, conductivity	Field probes with direct meter reading
Sulfate	Ion chromatography; Method E300 or Hach Method 8051
Sulfide	Colorimetric Hach kit
Total Organic Carbon	SW9060
Volatile Organic Compounds	SW8260A

NOTES:

SW = Test Methods for Evaluating Solid Waste.
E = Methods for Chemical Analysis of Water and Wastes.
Hach = Hach Company catalog.
A = Standard Methods for the Examination of Water and Wastewater
*For dissolved oxygen, this method is preferred over the Region 4 recommended D.O. meter probe.
**Kampbell, D.H., J.T. Wilson, and S.A. Vandegrift, 1989. Dissolved oxygen and methane in water by a GC headspace equilibrium technique. Int. J. Environ. Anal Chem. 36:249-257.



PROPOSED DPT LOCATIONS

Scale 1:4800

250 0 250 500

(feet)

SOUTHERN DIVISION

PROPOSED DPT LOCATIONS AND EXISTING SAMPLE LOCATIONS HERNDON ANNEX

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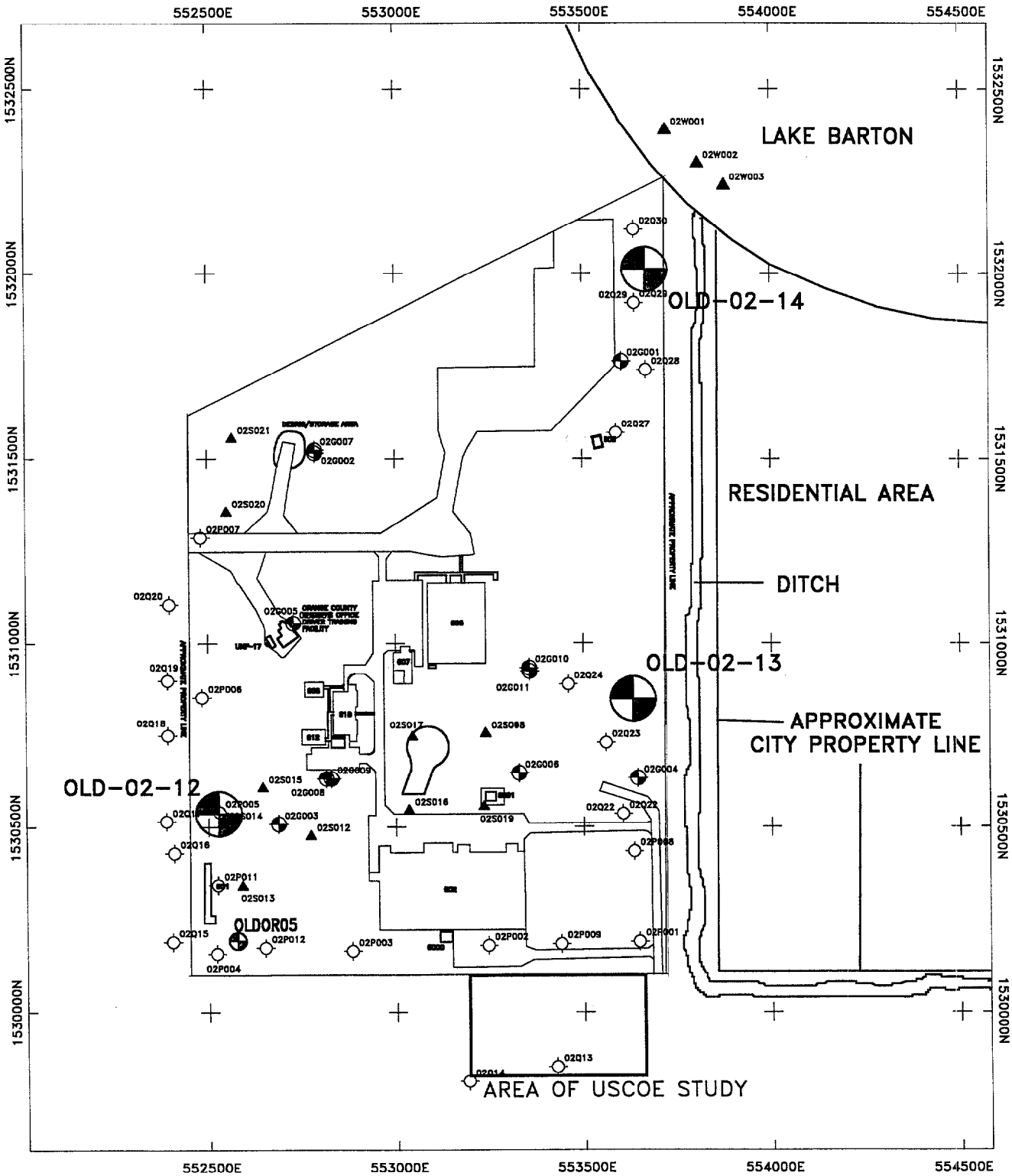
FIGURE 1



PROPOSED NEW WELL LOCATIONS

Scale 1:4800

250 0 250 500

(feet)

SOUTHERN DIVISION
PROPOSED NEW WELL LOCATIONS AND EXISTING SAMPLE LOCATIONS HERNDON ANNEX
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FIGURE 2