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TECHNICAL MEMORANDUM FOR GROUNDWATER INVESTIGATION AT STUDY AREA 36  
WITH TRANSMITTAL LETTER NTC ORLANDO FL

5/21/2002  
TETRA TECH



**TETRA TECH NUS, INC.**

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0502-A041

May 21, 2002

Commander, Southern Division  
Naval Facilities Engineering Command  
Attn: Ms. Barbara Nwokike, Code ES333  
P.O. Box 190010  
2155 Eagle Drive  
North Charleston, SC 29419-9010

Reference: CLEAN Contract No. N62467-94-D-0888  
Contract Task Order No. 0024

Subject: Groundwater Investigation at Study Area 36  
Former Naval Training Center, Orlando, Florida

Dear Ms. Nwokike:

Enclosed is a technical memorandum describing the results of the groundwater sampling at SA 36 in hardcopy and CD formats. The conclusions state that groundwater south of the groundwater restriction boundary shown in the tech memo meets the Florida criteria. Since soil at SA 36 meets the Florida criteria for residential use, it is recommended that the portion of SA 36 south of the groundwater restriction boundary be considered suitable for transfer. A second copy has been mailed to your attention at Southern Division's Orlando office. Please contact me at (865) 220-4730 if you have any comments or questions regarding the memorandum.

Sincerely,

Steven B. McCoy, P.E.  
Task Order Manager

SBM:ckf

Enclosure

c: Ms. Barbara Nwokike, Southern Division (Orlando Office) (hardcopy and CD)  
Mr. David Grabka, FDEP (hardcopy and CD)  
Mr. Gregory Fraley, USEPA Region 4 (hardcopy and CD)  
Mr. Steve Tsangaris, CH2M Hill (CD)  
Mr. Mark Salvetti, Harding ESE (CD)  
Mr. Michael Campbell, Tetra Tech NUS (hardcopy)  
Mr. J.E. Bentkowski, Gannett Fleming (hardcopy and CD)  
File/db

Subject: **Groundwater Investigation Summary  
Study Area 36, NTC Orlando**

Prepared For: Barbara Nwokike, SOUTHDIV

Prepared By: Ches Lyon, TtNUS

Copies: Steve McCoy, TtNUS  
Mike Campbell, TtNUS  
Allan Jenkins, TtNUS

Date: May 21, 2002

### **Purpose**

This Technical Memorandum presents the results of groundwater investigations conducted at Study Area (SA) 36 at Naval Training Center (NTC) Orlando. The discussion below will be included in a Site Investigation Report. Figure 1 is a site map showing major site features including the North and South Storage Areas and the locations of groundwater monitoring wells installed prior to 2002.

### **Hydrogeologic Setting**

A surficial aquifer consisting of approximately 65 feet of unconfined sand lies beneath the site. A cemented sand layer that lies 15-20 feet below ground surface (bgs) influences the distribution of groundwater contaminants at the site. Groundwater elevation measurements indicate that the groundwater flow direction is toward the northwest above the cemented sand layer and toward the southeast below the cemented sand layer.

The Orlando Partnering Team (OPT) adopted the following conventions for groundwater monitoring wells installed at the site:

- Wells at SA 36 are named OLD-36-XXY, where XX is the well number (assigned sequentially) and Y is a letter that indicates the aquifer zone of the well screen.
- Wells screened across the surface of the surficial aquifer are given the designation "A" (e.g., well OLD-36-06A). The upper portion of the surficial aquifer is referred to as Zone A.
- Zone B lies immediately above the cemented sand layer (e.g., well OLD-36-34B). The well screen interval in Zone B is typically 20 to 25 feet bgs.
- Zone C lies beneath the cemented sand layer (e.g., well OLD-36-30C). The well screen interval in Zone C is typically 30 to 35 feet bgs.
- Zone D lies at the base of the surficial aquifer, which is 60 to 70 feet bgs (e.g., well OLD-36-13D).

Monitoring well names are abbreviated in the text below. For example, well OLD-36-15A is referred to as MW-15A. Table 1 includes the well designation, installation date, screened interval, and location for each well installed before 2002.

### **Site Screening**

Harding Lawson Associates (HLA) conducted site screening investigations at SA 36 between July 1997 and October 1998. The investigations included a passive soil gas survey, soil sampling, monitoring well installation, direct-push technology (DPT) groundwater sampling, and groundwater monitoring well sampling.

**Soil Gas Survey.** During the initial site screening activities in 1997, HLA conducted a passive soil gas survey at SA 36. A grid with nodes spaced 50 feet apart was established and passive collectors were buried 2 feet bgs at the nodes of the grid. A total of 56 passive collectors were analyzed for volatile organic constituents (USEPA Method 8260). The concentration of tetrachloroethene (PCE) in a soil vapor sample from the North Storage Area suggested that additional sampling was warranted. Subsequent soil investigations in April 2000 demonstrated that no soil remedial actions were required at SA 36.<sup>1</sup>

**Groundwater Investigation.** HLA installed six shallow groundwater monitoring wells in October 1997 (MW-1A through MW-6A). Three wells were installed at the North Storage Area and three at the South Storage Area. One well at the North Storage Area was installed near the location where a passive soil gas sampler detected a significant PCE concentration. The remaining five wells were placed at locations where previous site activities might have resulted in spills of fuels, solvents, or other hazardous materials. Groundwater samples from the northernmost and southernmost wells (MW-1A and MW-4A) contained concentrations of antimony that slightly exceeded the Florida groundwater cleanup target level (GCTL) of 6 µg/L. These wells were nearly 400 feet apart, and no antimony exceedances were noted in the wells that lay between them. The aluminum concentration of 6,600 µg/L in MW-2A, about 40 feet east-northeast of Building 2122, exceeded the established background screening value (BGSV) of 4,067 µg/L. MW-6A, which was installed in the North Storage Area immediately beside the northeast corner of Building 2122, contained 19 µg/L of trichloroethene (TCE). The GCTL for PCE and TCE is 3 µg/L.

Examination of the field and analytical data indicated that the elevated concentrations of antimony and aluminum may have resulted from suspended solids in the samples. No pattern of inorganic contamination was apparent and subsequent site screening activities focused on defining the extent of groundwater contaminated with volatile organic compounds (VOCs) like PCE and TCE.

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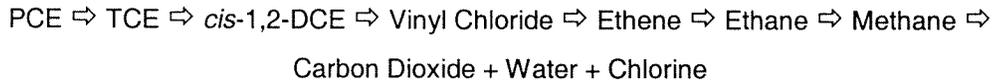
<sup>1</sup> TtNUS (Tetra Tech NUS), 2002. *Soil Investigation Summary, Study Area 36, NTC Orlando*. Oak Ridge, Tennessee, January.

HLA focused subsequent site screening activities on the North Storage Area beginning with DPT groundwater sampling in March and April 1998. A grid of 21 sampling locations was established in the North Storage Area, where previous sampling detected 19 µg/L of TCE in well MW-6A. Investigators planned to collect groundwater samples at depths of 6 to 10 feet bgs, 15 to 19 feet bgs, and 24 to 28 feet bgs at each location, but the cemented sand layer described above prevented deep sampling at most locations. The table below shows the typical sample depths, the number of samples collected at each depth, and the contaminants detected.

Sample Depth Range (feet bgs)	Samples Collected	Contaminants Detected	Number of Samples Exceeding GCTLs
6 to 10	19	TCE, PCE, <i>cis</i> -1,2-DCE, <i>trans</i> -1,2-DCE	2 (TCE)
10 to 19	19	TCE, PCE, <i>cis</i> -1,2-DCE	7 (TCE), 2 (PCE)
20 to 28	6	TCE	2 (TCE)

DCE = dichloroethene

The detection of DCE is significant because the anaerobic degradation of PCE and TCE usually proceeds as follows:



**Additional Groundwater Screening.** HLA installed five additional wells (MW-7A through MW-11C) in the North Storage Area in June 1998 to verify the DPT sampling results and facilitate long-term groundwater monitoring. TCE concentrations exceeded GCTLs in one previously existing well and four of the new wells. Figure 2 shows the exceedances observed in the June 1998 groundwater sampling event.

Wells MW-12C, MW-13D, and MW-14D were installed in October 1998 to improve understanding of groundwater flow patterns and obtain information on contaminant concentrations at greater depths. Figure 3 shows the exceedances observed when HLA sampled the site wells in December 1998. The results confirmed previous observations about the presence of TCE in groundwater Zones A, B, and C. The exceedances were concentrated at the north end of Building 2122 in the North Storage Area, but the lateral and vertical extents of contamination remained poorly defined. No exceedances were observed in Zone D.

HLA also evaluated natural attenuation parameters in 11 groundwater samples collected in December 1998 and ranked the results using a protocol developed by the Air Force Center for Environmental Excellence and published by USEPA Region IV.<sup>2</sup> The scoring suggested inadequate to

<sup>2</sup>USEPA (U.S. Environmental Protection Agency), 1997. *Draft EPA region IV Suggested Practices for Evaluation of a Site for Natural Attenuation (Biological Degradation) of Chlorinated Solvents*. Atlanta.

limited evidence for natural degradation processes (anaerobic dehalogenation). HLA recommended further evaluation of groundwater remedial options, including natural attenuation. HLA presented the details of the site screening process in an Environmental Site Screening Report.<sup>3</sup> Copies of the groundwater analytical data from the report are enclosed as Tables 2 and 3.

### **Site Investigation**

Tetra Tech NUS, Inc. (TtNUS) installed well MW-15A in the South Storage Area and sampled the new well and all existing wells in the North Storage Area in April 2000. All samples were analyzed for VOCs. The samples from wells MW-1A and MW-15A were also analyzed for antimony to confirm that the historical exceedances were due to elevated turbidity in the original samples.

In the South Storage Area the sample from MW-15A did not contain antimony at a detectable level. With the results of sampling well MW-15A, the groundwater investigation of the South Storage Area was concluded. Groundwater under this part of the site meets the GCTLs and no further action is required.

The results of the April 2000 sampling at the North Storage Area indicated that antimony was not detected in MW-1A and is, therefore, not of concern in this area. The April 2000 results also indicated that the extent of the groundwater VOC contamination was defined to the east and northeast in the A Zone, but not defined in the other directions. The limits of VOC contamination were also not defined in the B and C Zones.

TtNUS installed and sampled ten additional wells in the North Storage Area in August 2000 (MW-16A through MW-25C) to define the limits of the VOC contaminant plume. The wells were screened at various depths up to 50 feet bgs (see Table 1). Figures 4, 5, and 6 show the exceedances observed in Zones A, B, and C, respectively. Only the North Storage Area is shown on the Figures. Table 4 presents the analytical data from the April and August 2000 sampling events.

The results of the August 2000 sampling combined with the April 2000 data provided sufficient information to define the limits of the VOC plume in Zone A in both crossgradient directions (northeast and southwest), but not in the upgradient or downgradient directions. In the B Zone, the VOC plume was defined in the upgradient and in both crossgradient directions, but not in the downgradient direction. The plume limits in the C Zone were defined in one crossgradient direction (southwest), but the remainder of the plume limits were not defined.

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<sup>3</sup>HLA (Harding Lawson Associates), 1999. *Base Realignment and Closure Environmental Site Screening Report, Naval Training Center, Orlando, Florida*. Tallahassee, Florida, July.

Significant observations from the two sampling rounds were as follows:

- The limits of the TCE plume remained undefined as of August 2000.
- The presence of PCE, TCE, and *cis*-1,2-DCE in Zones A, B, and C suggested that anaerobic dehalogenation was occurring.
- No exceedances were noted in Zone D.

CCI installed five monitoring wells (MW-33A through MW-37C) in November 2000 (Table 1) to define the limits of the VOC plume. These wells were sampled and analyzed for VOCs in March 2001. The results are presented in Table 4 and indicate that the limits of the plume were defined for Zone C. In Zones A and B the plume limits were defined except in the downgradient (northwest) direction. Benzene was detected above its GCTL of 1  $\mu\text{g/L}$  in one C well (i.e., 24  $\mu\text{g/L}$  at MW-37C) during the March 2001 sampling round. Historically, benzene has not been detected in any other well at the site. Furthermore, well MW-37C is located approximately 50 feet to the northwest of SA 36 in an upgradient position with respect to flow in the deep portion of the aquifer and neither PCE/TCE nor their degradation products were detected in the well. Therefore, benzene is considered to be unrelated to activities conducted at Site SA 36.

The March 2001 results, combined with the April and August 2000 results, indicate that all groundwater south and east of the North Storage Area meets the cleanup criteria.

CCI installed two additional monitoring wells (OLD-36-01AR and OLD-36-10BR) in early 2002 (Figure 7). The purpose of these wells was to investigate the downgradient extent of the TCE plume in Zones A and B. These wells were sampled and analyzed for VOCs in April 2002. The results are provided in Table 4 and define the downgradient extent of the plume in Zones A and B.

### **Interim Remedial Action**

CH2M Hill Constructors, Inc. (CCI) is conducting a groundwater interim remedial action (IRA) in the North Storage Area. The IRA consists of injecting vegetable oil into contaminated groundwater to provide a carbon source for anaerobic organisms that can degrade chlorinated solvents. Additional details about the IRA may be found in a construction completion report and quarterly treatment reports prepared by CCI.<sup>4,5</sup>

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<sup>4</sup> CCI (CH2M Hill Constructors, Inc.), 2001. *Construction Documentation Report, Enhanced Biodegradation IRA at Study Area 39*, Naval Training Center, Orlando, Florida. Atlanta, March.

<sup>5</sup> CCI, 2002. *Treatment Efficiency Report, Round 3 Groundwater Sampling Event, Study Area 39, Main Base*, Naval Training Center, Orlando, Florida. Atlanta, January.

**IRA Monitoring.** CCI installed 12 new monitoring wells in November 2000 to enhance monitoring of the natural attenuation process near the vegetable oil injection points (wells MW-26A through MW-37C) (See Figure 1). Vegetable oil injections were conducted in January 2001 and November 2001. CCI conducted baseline sampling in December 2000 and quarterly sampling in March 2001, July 2001, and October 2001. Each sampling round included analyses for VOCs and selected natural attenuation parameters. Table 5 presents the analytical data that CCI obtained between December 2000 and October 2001. VOC exceedances are shown in Figures 4, 5, and 6. The IRA quarterly reports present detailed observations about the progress of the IRA.

Methylene chloride was also detected above its GCTL of 5 µg/L in several wells. This compound is a common laboratory contaminant and these exceedances are considered artifacts of the analyses. However, the exceedances are shown on Figures 4, 5, and 6 for completeness. In addition, concentrations of some miscellaneous parameters analyzed to evaluate natural attenuation at the site were found at concentrations exceeding their screening criteria. These parameters include nitrate, nitrite, total dissolved solids, and iron. These exceedances are not shown in the figures and are not considered part of the contaminant plume.

All SA 36 monitoring wells were abandoned in January 2002 as part of site predevelopment. Sixteen new wells have been installed to continue the groundwater monitoring.

**Operating Properly and Successfully.** TtNUS evaluated the IRA progress through the first three quarterly sampling rounds and presented the conclusions to the OPT in a draft Operating Properly and Successfully Demonstration Report.<sup>6</sup> A remedy is said to be operating properly if it operates according to an approved design. It is said to be operating successfully if it can meet remedial action goals in a reasonable time. TtNUS concluded that the IRA being conducted meets those criteria.

### **Data Validation**

USEPA guidelines were used to perform validation of groundwater data collected at SA 36. Groundwater data collected during the site screening and the site investigation were fully validated, while a limited validation was performed on data collected as part of the IRA.

### **Conclusions and Recommendations**

The extent of groundwater contamination has been determined during the site investigation, and the IRA for cleaning up the groundwater is "Operating Properly and Successfully." Figure 7 shows the areal extent of contamination, which was prepared by overlaying Figures 4, 5, and 6 and combining the

contaminant plumes. The figure shows a 50-foot buffer and the groundwater use restriction area requested by the developer. The groundwater use restriction boundary intrudes upon the buffer zone by approximately 15 feet in the southeastern portion of the buffer, but is considered adequately protective of human health. All groundwater south and east of the North Storage Area meets residential cleanup criteria.

The following recommendations are made regarding remediation of groundwater at SA 36:

- Continue the IRA of enhancing biodegradation of the PCE/TCE plume with vegetable oil injections performed as required to continue reduction of contaminant concentrations.
- Continue monitoring for VOCs and natural attenuation parameters until contaminant concentrations decrease below the Florida GCTLs.

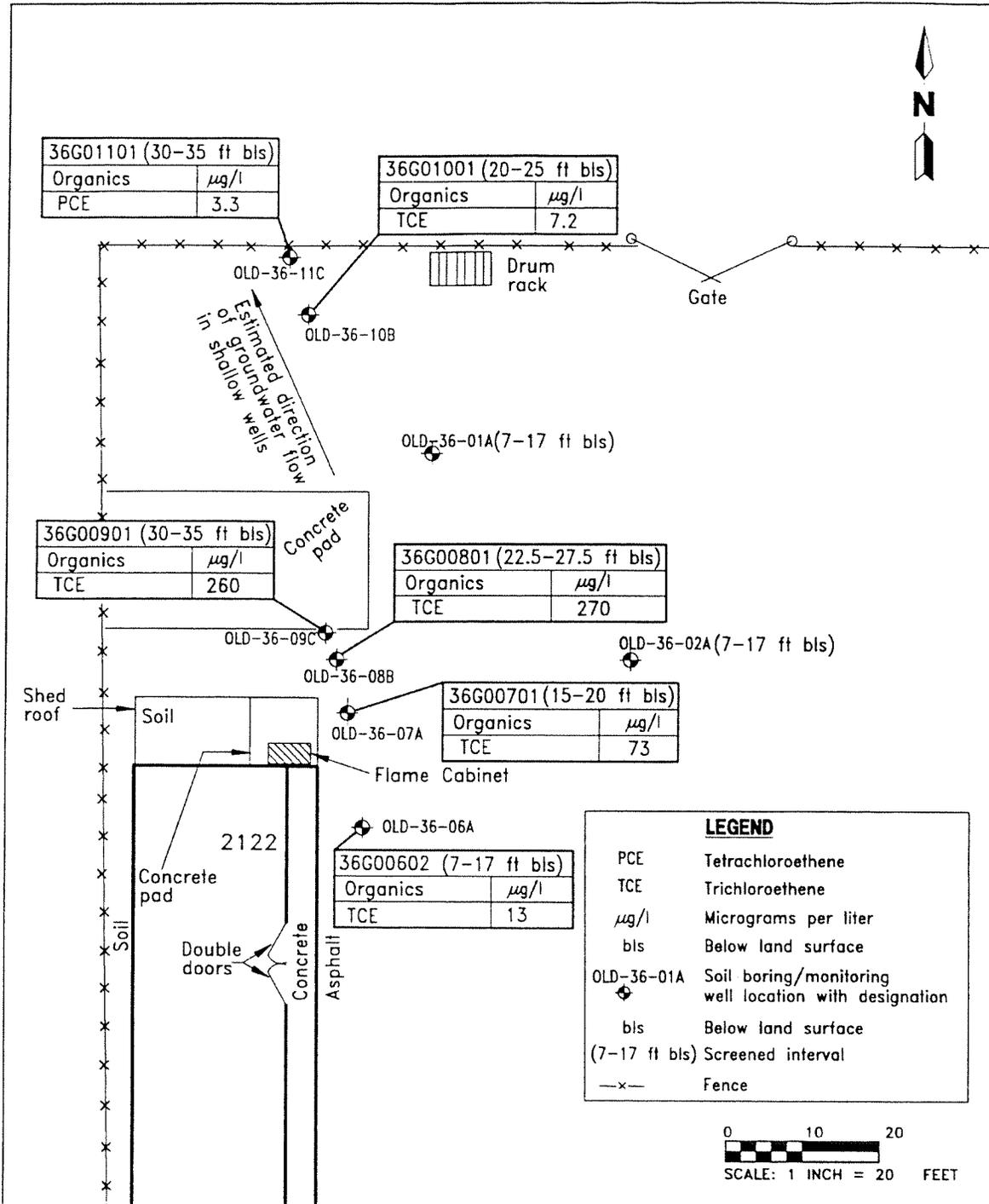
The groundwater contamination at SA 36 is limited to the plume area shown in Figure 7. South of the groundwater restriction boundary the groundwater quality meets the criteria for property transfer without groundwater use restrictions.

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<sup>6</sup> TINUS, 2002. *Draft Operating Properly and Successfully Report for SA 36*, Naval Training Center, Orlando, Florida. Oak Ridge, Tennessee, April.

# FIGURES



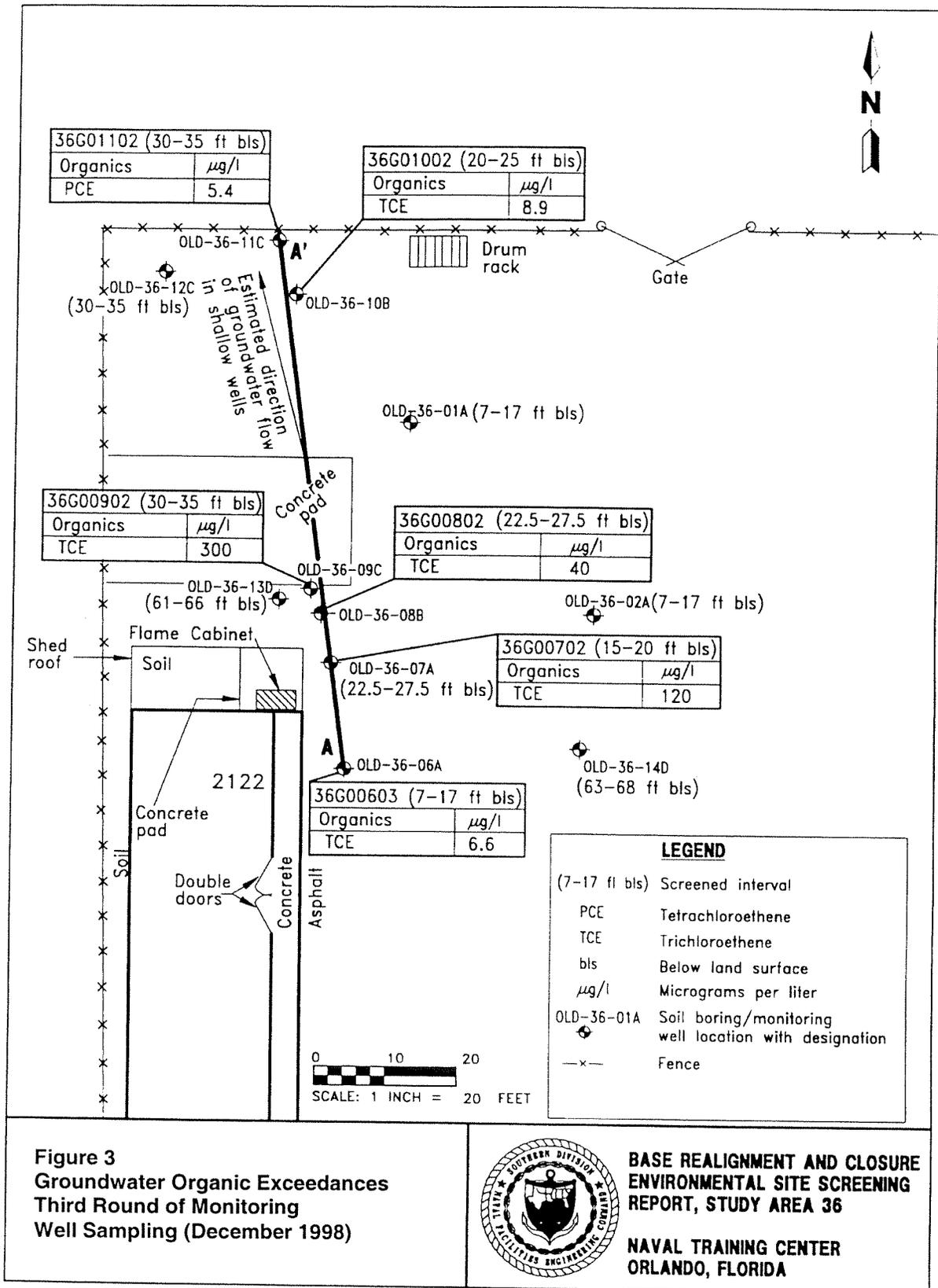


**Figure 2**  
**Groundwater Organic Exceedances**  
**Second Round of Monitoring**  
**Well Sampling (June 1998)**

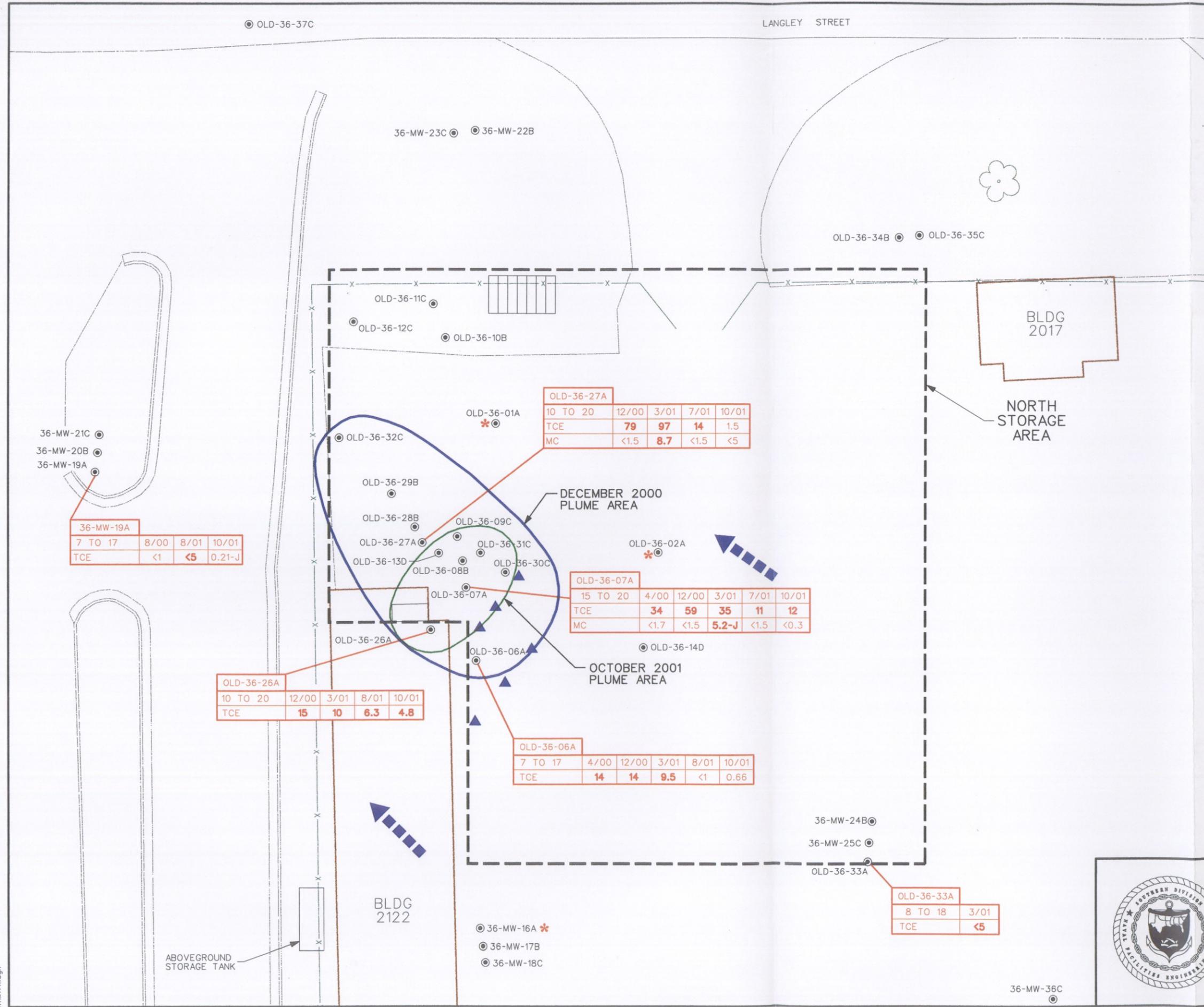


**BASE REALIGNMENT AND CLOSURE**  
**ENVIRONMENTAL SITE SCREENING**  
**REPORT, STUDY AREA 36**  
**NAVAL TRAINING CENTER**  
**ORLANDO, FLORIDA**

Source: HLA



Source: HLA



**LEGEND**

GROUNDWATER FLOW DIRECTION

MONITORING WELL

INJECTION POINT

WELL I.D.	OLD-36-01A	SAMPLE COLLECTION DATE	12/00	10/01
SCREENED INTERVAL TO NEAREST FOOT	20 TO 25			
ANALYTE	TCE	ANALYTE CONCENTRATION <sup>1,2</sup>	7.2	8.9

ESTIMATED VALUE J

METHYLENE CHLORIDE (SEE NOTE) MC

TRICHLOROETHENE (SEE NOTE) TCE

VOLATILE ORGANIC COMPOUND VOC

SAMPLED ONE OR MORE TIMES NO EXCEEDANCES DETECTED \*

1-CONCENTRATION IN MICROGRAMS PER LITER (µg/L)

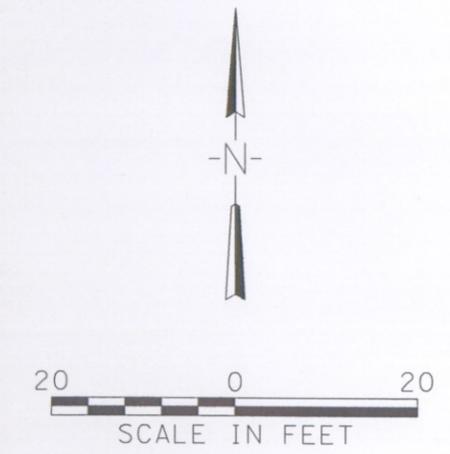
2-BOLD CONCENTRATION INDICATES EXCEEDANCE

**NOTE:**

GROUNDWATER CLEANUP TARGET LEVEL FOR MC IS 5 µg/L.

GROUNDWATER CLEANUP TARGET LEVEL FOR TCE IS 3 µg/L.

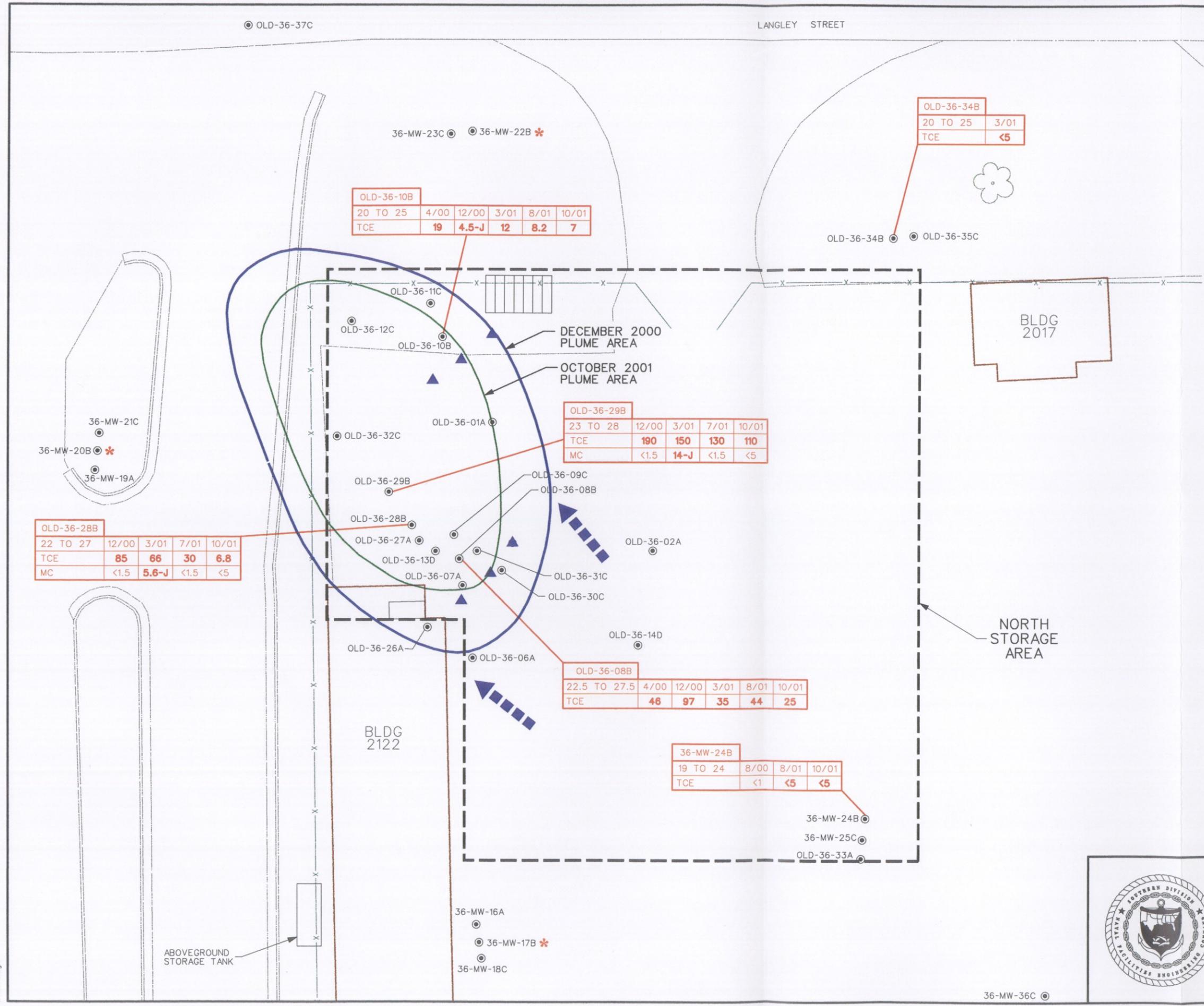
ALL SITE STRUCTURES HAVE BEEN REMOVED AND ALL WELLS HAVE BEEN ABANDONED.



**FIGURE 4**  
**VOC EXCEEDANCES AND**  
**PLUME AREA IN ZONE A**  
**APRIL 2000 TO OCTOBER 2001**  
**STUDY AREA 36 - NORTH STORAGE YARD**

NAVAL TRAINING CENTER  
 ORLANDO, FLORIDA

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**LEGEND**

GROUNDWATER FLOW DIRECTION

MONITORING WELL

INJECTION POINT

WELL I.D.

ANALYTE CONCENTRATION<sup>1,2</sup>

SCREENED INTERVAL TO NEAREST FOOT

ESTIMATED VALUE J

METHYLENE CHLORIDE (SEE NOTE) MC

TETRACHLOROETHENE (SEE NOTE) PCE

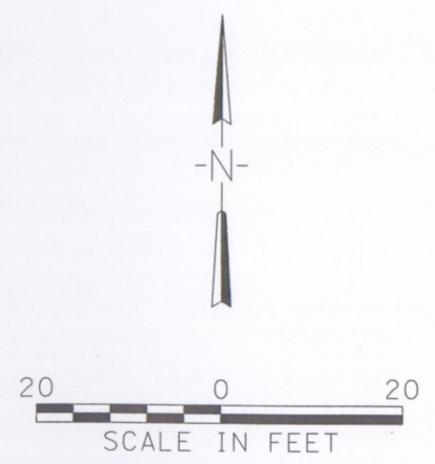
TRICHLOROETHENE (SEE NOTE) TCE

VOLATILE ORGANIC COMPOUND VOC

SAMPLED ONE OR MORE TIMES \*  
NO EXCEEDANCES DETECTED

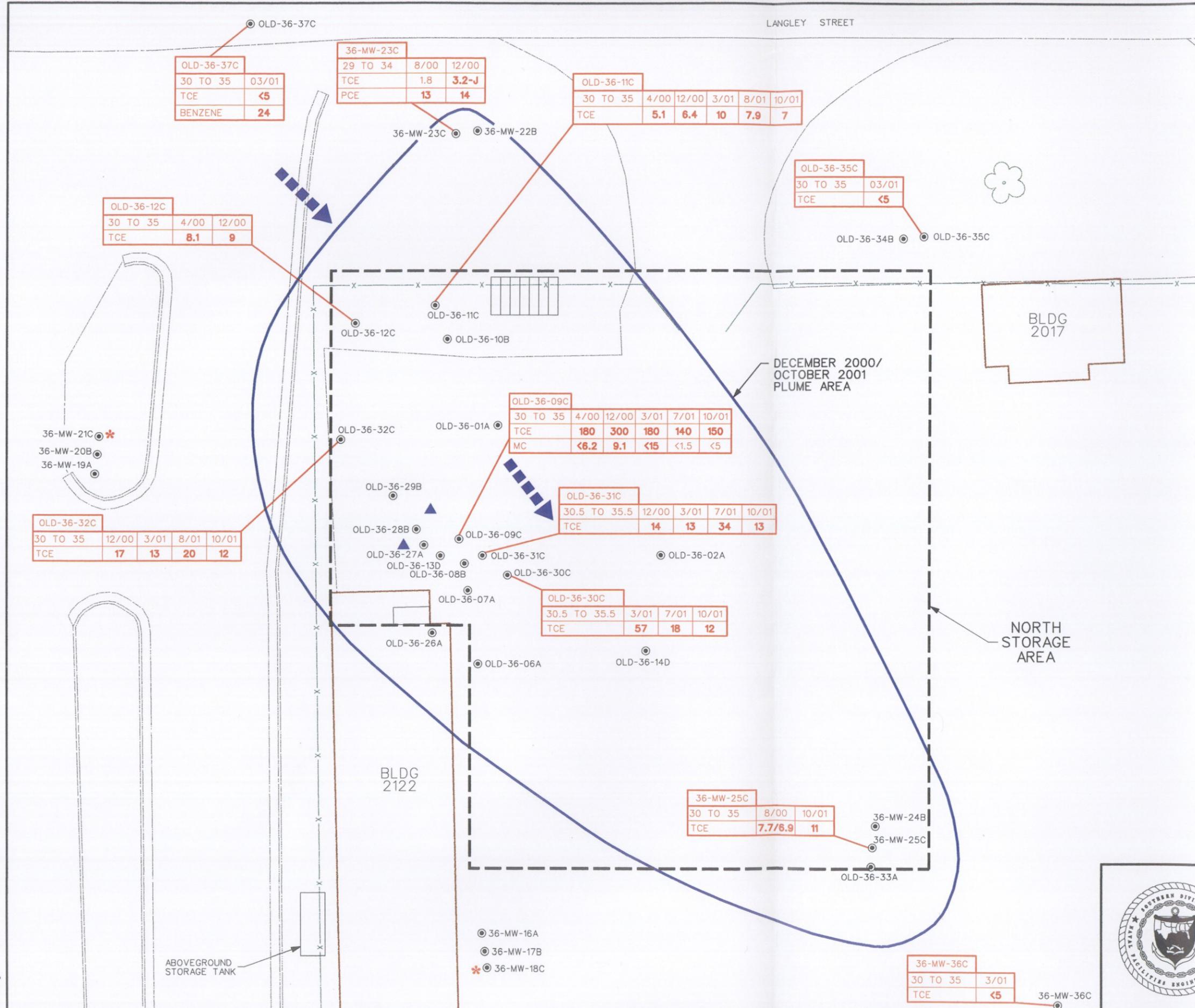
1-CONCENTRATION IN MICROGRAMS PER LITER (µg/L)  
2-BOLD CONCENTRATION INDICATES EXCEEDANCE

**NOTE:**  
GROUNDWATER CLEANUP TARGET LEVEL FOR MC IS 5 µg/L.  
GROUNDWATER CLEANUP TARGET LEVEL FOR TCE/PCE IS 3 µg/L.  
ALL SITE STRUCTURES HAVE BEEN REMOVED AND ALL WELLS HAVE BEEN ABANDONED.

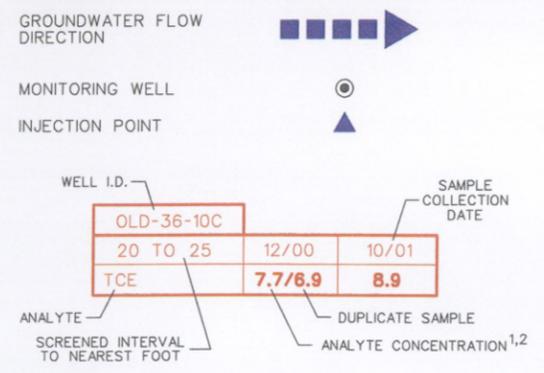


**FIGURE 5**  
VOC EXCEEDANCES AND  
PLUME AREA IN ZONE B  
APRIL 2000 TO OCTOBER 2001  
STUDY AREA 36 - NORTH STORAGE YARD

NAVAL TRAINING CENTER  
ORLANDO, FLORIDA

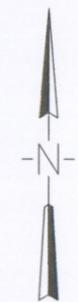


**LEGEND**



- ESTIMATED VALUE J
- METHYLENE CHLORIDE (SEE NOTE) MC
- TETRACHLOROETHENE (SEE NOTE) PCE
- TRICHLOROETHENE (SEE NOTE) TCE
- VOLATILE ORGANIC COMPOUND VOC
- SAMPLED ONE OR MORE TIMES \*  
NO EXCEEDANCES DETECTED
- 1-CONCENTRATION IN MICROGRAMS PER LITER (µg/L)  
2-BOLD CONCENTRATION INDICATES EXCEEDANCE

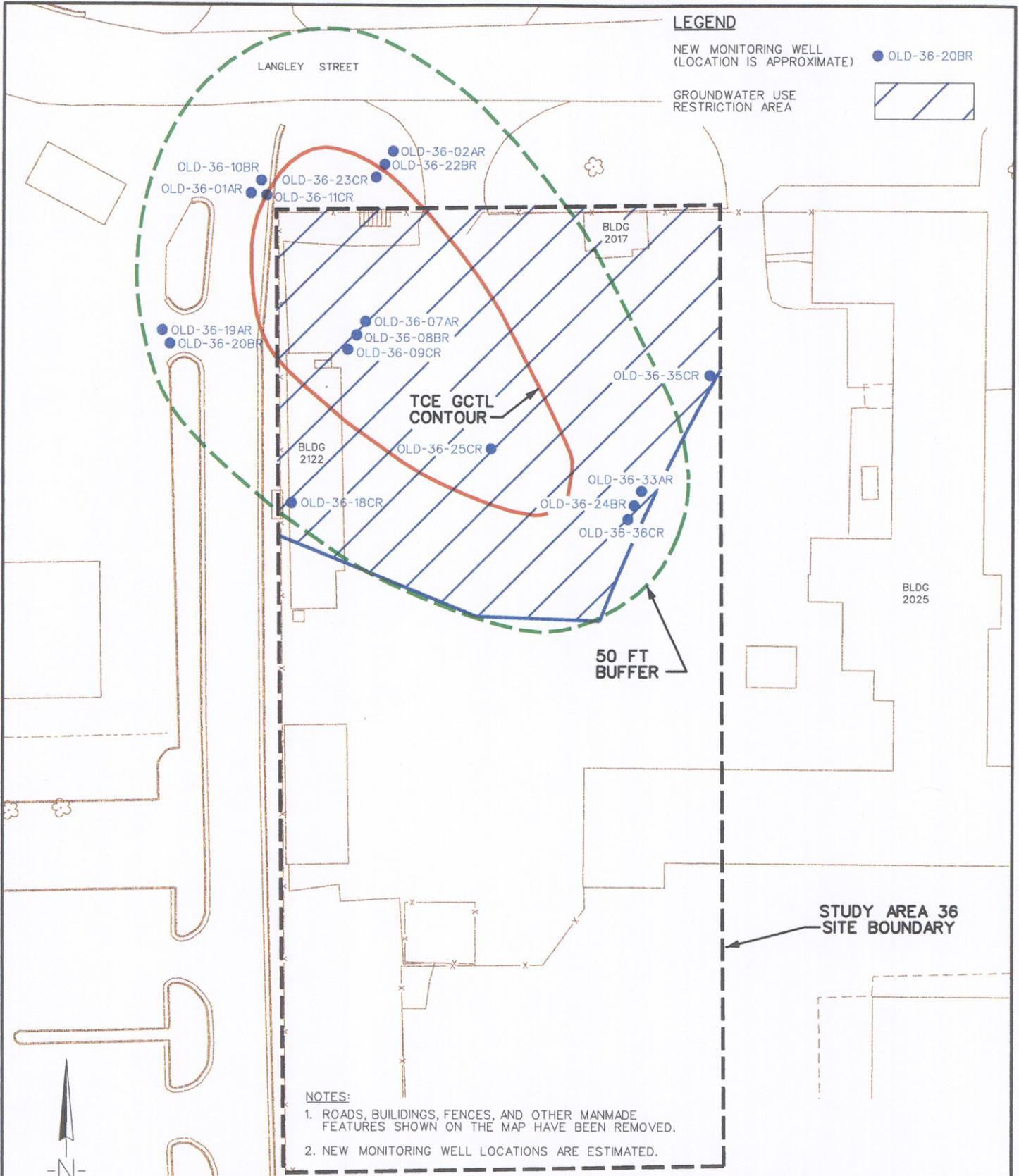
NOTES:  
 GROUNDWATER CLEANUP TARGET LEVEL FOR BENZENE IS 1 µg/L.  
 GROUNDWATER CLEANUP TARGET LEVEL FOR MCE IS 5 µg/L.  
 GROUNDWATER CLEANUP TARGET LEVEL FOR PCE/TCE IS 3 µg/L..  
 ALL SITE STRUCTURES HAVE BEEN REMOVED AND ALL WELLS HAVE BEEN ABANDONED.



**FIGURE 6**  
**VOC EXCEEDANCES AND**  
**PLUME AREA IN ZONE C**  
**APRIL 2000 TO OCTOBER 2001**  
**STUDY AREA 36 - NORTH STORAGE YARD**

NAVAL TRAINING CENTER  
 ORLANDO, FLORIDA

n1x17h.dgn



**FIGURE 7**  
TCE PLUME WITH 50 FT BUFFER  
STUDY AREA 36 - MAIN BASE

NAVAL TRAINING CENTER  
ORLANDO, FLORIDA

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# TABLES

**TABLE 1**  
**MONITORING WELL DATA**  
**STUDY AREA 36**  
**NTC, ORLANDO**

Well Designation	Date Installed	Installed by	Type*	Screened Interval (feet BGS)	Location**		TOC Elevation (feet AMSL)
					Easting	Northing	
OLD-36-01A	8-Oct-97	HLA	2" well	7 - 17	549,523.96	1,537,920.52	114.86
OLD-36-02A	8-Oct-97	HLA	2" well	7 - 17	549,557.01	1,537,894.04	115.13
OLD-36-03A	8-Oct-97	HLA	2" well	6 - 16	549,569.97	1,537,603.18	116.02
OLD-36-04A	8-Oct-97	HLA	2" well	6 - 16	549,512.75	1,537,539.23	116.35
OLD-36-05A	8-Oct-97	HLA	2" well	6 - 16	549,527.94	1,537,640.60	116.06
OLD-36-06A	8-Oct-97	HLA	2" well	7 - 17	549,519.96	1,537,871.85	115.03
OLD-36-07A	17-Jun-98	HLA	2" well	15 - 20	549,517.90	1,537,886.80	114.85
OLD-36-08B	17-Jun-98	HLA	2" well	22.5 - 27.5	549,517.20	1,537,892.30	114.74
OLD-36-09C	17-Jun-98	HLA	2" well	30 - 35	549,516.10	1,537,897.30	114.78
OLD-36-10B	17-Jun-98	HLA	2" well	20 - 25	549,513.60	1,537,938.10	114.94
OLD-36-11C	18-Jun-98	HLA	2" well	30 - 35	549,511.10	1,537,945.00	114.78
OLD-36-12C	27-Oct-98	HLA	2" well	30 - 35	549,494.90	1,537,941.40	114.52
OLD-36-13D	28-Oct-98	HLA	2" well	62 - 67	549,512.30	1,537,893.90	114.74
OLD-36-14D	28-Oct-98	HLA	2" well	63 - 68	549,554.00	1,537,874.50	115.13
OLD-36-15A	11-Apr-00	TtNUS	2" well	5 - 15	549,510.97	1,537,525.14	119.44
OLD-36-16A	14-Aug-00	TtNUS	2" well	7 - 17	549,520.79	1,537,817.00	115.12
OLD-36-17B	14-Aug-00	TtNUS	2" well	19 - 24	549,521.35	1,537,813.36	115.22
OLD-36-18C	14-Aug-00	TtNUS	2" well	29.5 - 34.5	549,521.82	1,537,810.10	115.27
OLD-36-19A	14-Aug-00	TtNUS	2" well	6.9 - 16.9	549,442.41	1,537,910.66	117.71
OLD-36-20B	15-Aug-00	TtNUS	2" well	19.1 - 24.1	549,442.94	1,537,914.62	117.77
OLD-36-21C	15-Aug-00	TtNUS	2" well	28 - 33	549,443.26	1,537,918.28	117.80
OLD-36-22B	15-Aug-00	TtNUS	2" well	19.6 - 24.6	549,519.59	1,537,980.29	118.99
OLD-36-23C	15-Aug-00	TtNUS	2" well	29 - 34	549,515.19	1,537,979.72	118.00
OLD-36-24B	14-Aug-00	TtNUS	2" well	19 - 24	549,600.88	1,537,838.87	115.78
OLD-36-25C	16-Aug-00	TtNUS	2" well	30 - 35	549,600.26	1,537,834.51	115.70
OLD-36-26A	8-Nov-00	CCI	2" well	10.7 - 20.7	549,510.67	1,537,878.13	117.89
OLD-36-27A	8-Nov-00	CCI	2" well	10.7 - 20.7	549,508.93	1,537,896.05	118.02
OLD-36-28B	10-Nov-00	CCI	2" well	22.3 - 27.3	549,507.42	1,537,899.26	117.97
OLD-36-29B	10-Nov-00	CCI	2" well	22.7 - 27.7	549,502.66	1,537,906.11	117.63
OLD-36-30C	9-Nov-00	CCI	2" well	30.5 - 35.5	549,525.96	1,537,889.96	117.94
OLD-36-31C	14-Nov-00	CCI	2" well	30.5 - 35.5	549,520.86	1,537,893.95	117.81
OLD-36-32C	14-Nov-00	CCI	2" well	30.2 - 35.2	549,492.02	1,537,917.64	117.99
OLD-36-33A	14-Nov-00	CCI	2" well	8 - 18	549,600.01	1,537,830.60	118.49
OLD-36-34B	14-Nov-00	CCI	2" well	20.4 - 25.4	549,606.22	1,537,958.50	118.43
OLD-36-35C	14-Nov-00	CCI	2" well	30.2 - 35.2	549,610.39	1,537,958.94	118.25
OLD-36-36C	15-Nov-00	CCI	2" well	29.9 - 34.9	549,637.94	1,537,802.71	118.82
OLD-36-37C	9-Nov-00	CCI	2" well	30 - 35	549,473.52	1,538,001.90	117.01

\* All wells were constructed of 2-inch Schedule 40 polyvinyl chloride.

\*\* Florida State Plane Coordinates, Florida East Zone

BGS = Below ground surface

TOC = Top of casing

AMSL = Above mean sea level

**TABLE 2**  
**SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER ANALYTICAL RESULTS, INITIAL SCREENING**

**STUDY AREA 36**  
**NTC, ORLANDO**

PAGE 1 OF 4

Sample ID	Background Screening	FDEPGCTL	FEDMCL	RBC for Tap Water	36G00101	36H00101	36G00101D	36H00101D	36G00201
Sampling Date					17-Nov-97	17-Nov-97	17-Nov-97	17-Nov-97	17-Nov-97
<b>Volatile Organics, ug/L</b>									
cis-1,2-Dichloroethene		70 p/st	70	61 n	5		4		
Tetrachloroethene		3 p/c	5	1.1 c	0.4 J		0.4 J		
Trichloroethene		3 p/c	5	1.6 c	1		0.8 J		
<b>Pesticides/PCBs, ug/L</b>									
beta-BHC		0.02 c	ND	0.037 c					0.0072 J
gamma-BHC (Lindane)		0.2 p	0.2	0.052 c			0.004 J		
<b>Inorganics, ug/L</b>									
Aluminum	4,067	200 s	ND	37,000 n	1530	665	1480	715	6660
Antimony	4.1	6 p/st	6	15 n		6.4 J	5.2 J	3.8 J	3.8 J
Barium	31.4	2,000 p/st	2,000	2,600 n					25.7 J
Calcium	36,830	ND	ND	1,000,000	8560	8000	8130	8190	44000
Chromium	7.8	100 p	100	ND	3.3 J		3.6 J		11.6
Cobalt	ND	420	ND	2,200 n			1.1 J		2.4 J
Copper	5.4	1,000 s/st	1,300	1,500 n	2.6 J				7.3 J
Iron	1,227	300 s	ND	11,000 n	211	149	211	160	909
Lead	4	15 p/st	15	15					6.1
Magnesium	4,560	ND	ND	118,807	2310 J	2200 J	2230 J	2220 J	2110 J
Mercury	ND	2 p	2	11 n					0.21
Nickel	ND	100 p/st	100	730 n	2.6 J				3 J
Potassium	5,400	ND	ND	297,016	1800 J	1760 J	1790 J	1850 J	1340 J
Sodium	18,222	160,000 p	ND	396,022	5930 J	6410 J	5920 J	6630 J	4600 J
Vanadium	20.6	49 mc/st	ND	260 n	3.3 J	2.3 J	2.7 J	2.2 J	11.1 J
Zinc	4	5,000 s/st	ND	11,000 n	12.5 J				13.7 J
<b>General Chemistry, mg/L</b>									
Suspended Solids	ND	ND	ND	ND	6		6		13

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TABLE 2  
SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER ANALYTICAL RESULTS, INITIAL SCREENING

STUDY AREA 36  
NTC, ORLANDO

PAGE 2 OF 4

Sample ID	Background Screening	FDEPGCTL	FEDMCL	RBC for Tap Water	36H00201	36G00301	36H00301	36G00401	36H00401
Sampling Date					17-Nov-97	18-Nov-97	18-Nov-97	18-Nov-97	18-Nov-97
<b>Volatile Organics, ug/L</b>									
cis-1,2-Dichloroethene		70 p/st	70	61 n					
Tetrachloroethene		3 p/c	5	1.1 c					
Trichloroethene		3 p/c	5	1.6 c					
<b>Pesticides/PCBs, ug/L</b>									
beta-BHC		0.02 c	ND	0.037 c					
gamma-BHC (Lindane)		0.2 p	0.2	0.052 c					
<b>Inorganics, ug/L</b>									
Aluminum	4,067	200 s	ND	37,000 n	5020	71.1 J	38.3 J	375	457
Antimony	4.1	6 p/st	6	15 n	3.6 J	6 J	4.3 J	18.9 J	5.2 J
Barium	31.4	2,000 p/st	2,000	2,600 n					
Calcium	36,830	ND	ND	1,000,000	41600	43300	41900	18400	16900
Chromium	7.8	100 p	100	ND	8.4 J				
Cobalt	ND	420	ND	2,200 n	1.3 J				
Copper	5.4	1,000 s/st	1,300	1,500 n	5.6 J				
Iron	1,227	300 s	ND	11,000 n	723				
Lead	4	15 p/st	15	15	4.6				
Magnesium	4,560	ND	ND	118,807	2060 J	781 J	764 J	382 J	338 J
Mercury	ND	2 p	2	11 n					
Nickel	ND	100 p/st	100	730 n					
Potassium	5,400	ND	ND	297,016	1320 J	424 J	413 J	644 J	588 J
Sodium	18,222	160,000 p	ND	396,022	4640 J	1510 J	1480 J	1280 J	1080 J
Vanadium	20.6	49 mc/st	ND	260 n	7.5 J	5.7 J	5.4 J	5.7 J	6 J
Zinc	4	5,000 s/st	ND	11,000 n				20.5	
<b>General Chemistry, mg/L</b>									
Suspended Solids	ND	ND	ND	ND					

**TABLE 2**  
**SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER ANALYTICAL RESULTS, INITIAL SCREENING**

**STUDY AREA 36**  
**NTC, ORLANDO**

PAGE 3 OF 4

Sample ID	Background Screening	FDEPGCTL	FEDMCL	RBC for Tap Water	36G00501	36H00501	36G00601	36H00601
Sampling Date					18-Nov-97	18-Nov-97	17-Nov-97	17-Nov-97
<b>Volatile Organics, ug/L</b>								
cis-1,2-Dichloroethene		70 p/st	70	61 n				
Tetrachloroethene		3 p/c	5	1.1 c				
Trichloroethene		3 p/c	5	1.6 c			ND	
<b>Pesticides/PCBs, ug/L</b>								
beta-BHC		0.02 c	ND	0.037 c				
gamma-BHC (Lindane)		0.2 p	0.2	0.052 c	0.0036 J			
<b>Inorganics, ug/L</b>								
Aluminum	4,067	200 s	ND	37,000 n	1390	192 J	813	274
Antimony	4.1	6 p/st	6	15 n			4.3 J	5.7 J
Barium	31.4	2,000 p/st	2,000	2,600 n				
Calcium	36,830	ND	ND	1,000,000	12300	11300	12800	12300
Chromium	7.8	100 p	100	ND	3.2 J			
Cobalt	ND	420	ND	2,200 n	1 J			
Copper	5.4	1,000 s/st	1,300	1,500 n	3.2 J			2.5 J
Iron	1,227	300 s	ND	11,000 n	131	44.4 J	402	343
Lead	4	15 p/st	15	15				
Magnesium	4,560	ND	ND	118,807	706 J	647 J	2780 J	2760 J
Mercury	ND	2 p	2	11 n	0.11 J			
Nickel	ND	100 p/st	100	730 n				
Potassium	5,400	ND	ND	297,016	610 J	563 J	2570 J	2430 J
Sodium	18,222	160,000 p	ND	396,022	2640 J	2190 J	6470 J	6160 J
Vanadium	20.6	49 mc/st	ND	260 n	4.5 J		2.9 J	
Zinc	4	5,000 s/st	ND	11,000 n				
<b>General Chemistry, mg/L</b>								
Suspended Solids	ND	ND	ND	ND	11			

TABLE 2  
SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER ANALYTICAL RESULTS, INITIAL SCREENING

STUDY AREA 36  
NTC, ORLANDO

PAGE 4 of 4

**NOTES:**

Groundwater background screening value is twice the average of detected concentrations for inorganic analytes.

FDEPGCTL = Florida Department of Environmental Protection, Groundwater Cleanup Target Levels, Chapter 62-785 FAC, April 30, 1998.

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

RBC = Risk-Based Concentration Table. USEPA Region III, March 1997, R.L. Smith.

For essential nutrients (calcium, magnesium, potassium, and sodium) screening values were derived based on recommended daily allowances.

s = secondary groundwater standard.

st = systemic toxicant.

mc = based on minimum criteria

p = primary standard.

o = organoleptic.

n = noncarcinogenic effects.

c = carcinogen (GCTLs) or carcinogenic effects (RBCs).

NA = Not analyzed.

ND = Not determined

USEPA = U.S. Environmental Protection Agency.

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

B = Reported concentration is between the instrument detection limit (IDL) and the contract required detection limit (CRDL).

The "B" qualifier typically changes to "J" (estimated concentration) upon data validation.

H = Filtered sample (0.45 micron in-line filter).

J = Reported concentration is an estimated quantity.

ug/l = micrograms per liter.

mg/l = milligrams per liter.

Bold/shaded numbers indicate exceedance of groundwater guidance and background.

Blank space indicates analyte/compound was not detected at the reporting limit.

Source: HLA, 1999

TABLE 3  
SUMMARY OF DETECTIONS IN GROUNDWATER, SUPPLEMENTAL SCREENING  
STUDY AREA 36  
NTC, ORLANDO  
PAGE 1 OF 4

Sample ID	FDEPGCTL	FEDMCL	RBC for Tap Water	36G00102	36G00202	36G00602	36G00701	36G00701 D	36G00801	36G00901	36G01001	36G01101
Sampling Date				7/1/98	6/30/98	6/30/98	6/30/98	6/30/98	6/30/98	7/1/98	7/1/98	7/1/98
<b>Volatile Organics, ug/L</b>												
1,2,4-Trimethylbenzene	10 o	10	12 n									0.42 J
1,2-Dichlorobenzene	600 p/st	600	64 n									1.6
1,3,5-Trimethylbenzene	10 o	10	12 n									0.13 J
Benzene	1 p/c	1	0.36 c								0.1 J	
cis-1,2-Dichloroethene	70 p/st	70	61 n	3.4							7.8	1.3
sec-Butylbenzene	ND	ND	61 n									0.12 J
Tetrachloroethene	3 p/c	5	1.1 c	0.32 J		0.33 J					0.3 J	3.3
Trichloroethene	3 p/c	5	1.6 c	0.65	0.22 J	13	73	57	270	260	7.2	0.82

**TABLE 3**  
**SUMMARY OF DETECTIONS IN GROUNDWATER, SUPPLEMENTAL SCREENING**

**STUDY AREA 36**  
**NTC, ORLANDO**

**PAGE 2 OF 4**

Sample ID	FDEPGCTL	FEDMCL	RBC for Tap Water	36G00103	36G00203	36G00603	36G00702	36G00802	36G00902	36G01002	36G01102	36G01
Sampling Date				12/3/98	12/4/98	12/3/98	12/3/98	12/3/98	12/3/98	12/4/98	12/4/98	12/4/
<b>Volatile Organics, ug/L</b>												
1,2,4-Trimethylbenzene	10 o	10	12 n								0.93 J	
Benzene	1 p/c	1	0.36 c							0.47 J		
Chloroform	5.7 c	6	0.15 c									
cis-1,2-Dichloroethene	70 p/st	70	61 n	3.2					43	9.4	2.8	1.8
Methylene chloride	5 p/c	5	4.1 c	1.6 J	1.6 J	2 J	1.5 J	1.7 J	2.2 J	1.8 J	1.6 J	1.4
o-Dichlorobenzene	600 p/c	600	64 c								0.91 J	
Tetrachloroethene	3 p/c	5	1.1 c								5.4	
Trichloroethene	3 p/c	5	1.6 c	1 J		8.6	120	40	300	8.9	0.96 J	2.7
<b>Light Gases/Volatiles, ug/L</b>												
Methane	ND	ND	ND	11	31	1.5	4.2	150 D	27	21	5.6	22
Ethane	ND	ND	ND						1.5			
Ethene	ND	ND	ND						1.8			
<b>General Chemistry, mg/L</b>												
Total Organic Carbon	ND	ND	ND	7	4	5	3	4	15	18	10	6

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**TABLE 3**  
**SUMMARY OF DETECTIONS IN GROUNDWATER, SUPPLEMENTAL SCREENING**

**STUDY AREA 36**  
**NTC, ORLANDO**

**PAGE 3 OF 4**

Sample ID	FDEPGCTL	FEDMCL	RBC for Tap Water	01	36G01201	36G01301	36G01401
Sampling Date				8	12/4/98	12/3/98	12/4/98
<b>Volatile Organics, ug/L</b>							
1,2,4-Trimethylbenzene	10 o	10	12 n				
Benzene	1 p/c	1	0.36 c				
Chloroform	5.7 c	6	0.15 c			1.5 J	2.1 J
cis-1,2-Dichloroethene	70 p/st	70	61 n	J	1.9 J		
Methylene chloride	5 p/c	5	4.1 c	J	1.8 J	1.8 J	1.6 J
o-Dichlorobenzene	600 p/c	600	64 c				
Tetrachloroethene	3 p/c	5	1.1 c				
Trichloroethene	3 p/c	5	1.6 c	J	2.9 J		
<b>Light Gases/Volatiles, ug/L</b>							
Methane	ND	ND	ND		21	77 D	61
Ethane	ND	ND	ND			0.83	
Ethene	ND	ND	ND			0.94	
<b>General Chemistry, mg/L</b>							
Total Organic Carbon	ND	ND	ND		6	3	17

TABLE 3  
SUMMARY OF DETECTIONS IN GROUNDWATER, SUPPLEMENTAL SCREENING  
STUDY AREA 36  
NTC, ORLANDO  
PAGE 4 OF 4

**NOTES:**

Groundwater background screening value is twice the average of detected concentrations for inorganic analytes.

FDEPGCTL = Florida Department of Environmental Protection, Groundwater Cleanup Target Levels, Chapter 62-785 FAC, April 30, 1998.

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

RBC = Risk-Based Concentration Table, USEPA Region III, March 1997, R.L. Smith.

For essential nutrients (calcium, magnesium, potassium, and sodium) screening values were derived based on recommended daily allowances.

s = secondary groundwater standard.

st = systemic toxicant.

mc = based on minimum criteria

p = primary standard

o = organoleptic

n = noncarcinogenic effects.

c = carcinogen (GCTLs) or carcinogenic effects (RBCs).

NA = Not analyzed.

ND = Not determined.

USEPA = U.S. Environmental Protection Agency

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

B = Reported concentration is between the instrument detection limit (IDL) and the contract required detection limit (CRDL).

The "B" qualifier typically changes to "J" (estimated concentration) upon data validation.

H = Filtered sample (0.45 micron in-line filter).

J = Reported concentration is an estimated quantity

ug/l = micrograms per liter

mg/l = milligrams per liter

Bold/shaded numbers indicate exceedance of groundwater guidance and background.

Blank space indicates analyte/compound was not detected at the reporting limit.

Source: HLA, 1999

TABLE 4

## SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, SITE INVESTIGATION

STUDY AREA 36  
NTC ORLANDO

PAGE 1 of 6

WELL DESIGNATION	SCREENING	OLD-36-01A	OLD-36-02A	OLD-36-06A	OLD-36-07A	OLD-36-08B	OLD-36-09C
SAMPLE	CRITERIA	NTC36G01A10	NTC36G02A10	NTC36G06A10	NTC36G07A10	NTC36G08B10	NTC36G0910
SAMPLE DATE	Florida GCTL	4/17/00	4/16/00	4/16/00	4/16/00	4/16/00	4/16/00
<b>Volatiles (µg/L)</b>							
1,2-Dichloroethane	3						
1,3,5-Trimethylbenzene	10						
Acetone	700						170 J
Benzene	1						
Carbon Disulfide	700						1.8 J
Chloroform	5.7						
Chloromethane	2.7						
cis-1,2-Dichloroethene	70	2			0.3 J		47
Ethylbenzene	30						
Methylene Chloride	5						
Tetrachloroethene	3	0.3 J		0.25 J			
Toluene	40						
trans-1,2-Dichloroethene	100	0.16 J					0.46 J
Trichloroethene	3	0.79 J		14	34	46	180
Xylenes, Total	20						

TABLE 4

## SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, SITE INVESTIGATION

STUDY AREA 36  
NTC ORLANDO

PAGE 2 of 6

WELL DESIGNATION	SCREENING	OLD-36-10B	OLD-36-11C	OLD-36-12C	OLD-36-13D		OLD-36-14D
SAMPLE	CRITERIA	NTC36G10B10	NTC36G11C10	NTC36G12C10	NTC36G013D10	NTC36G013D10-D	NTC36G14D10
SAMPLE DATE	Florida GCTL	4/17/00	4/17/00	4/17/00	4/16/00	4/16/00	4/16/00
<b>Volatiles (µg/L)</b>							
1,2-Dichloroethane	3						
1,3,5-Trimethylbenzene	10						
Acetone	700		3.9 J			3 J	
Benzene	1	0.26 J	0.17 J	0.34 J			
Carbon Disulfide	700						
Chloroform	5.7						0.14 J
Chloromethane	2.7						
cis-1,2-Dichloroethene	70	8.9	6.6	3.2			
Ethylbenzene	30						
Methylene Chloride	5						
Tetrachloroethene	3	1.5	2.3				
Toluene	40						
trans-1,2-Dichloroethene	100	0.2 J	0.15 J				
Trichloroethene	3	<b>19</b>	<b>5.1</b>	<b>8.1</b>			
Xylenes, Total	20						

TABLE 4

## SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, SITE INVESTIGATION

STUDY AREA 36  
NTC ORLANDO

PAGE 3 of 6

WELL DESIGNATION	SCREENING	OLD-36-15A	OLD-36-16A	OLD-36-17B	OLD-36-18C	OLD-36-19A	OLD-36-20B
SAMPLE	CRITERIA	NTC36G15A10	NTC36G16A11	NTC36G17B11	NTC36G18C11	NTC36G19A11	NTC36G20B11
SAMPLE DATE	Florida GCTL	4/18/00	8/24/00	8/24/00	8/24/00	8/24/00	8/24/00
<b>Volatiles (<math>\mu\text{g/L}</math>)</b>							
1,2-Dichloroethane	3	0.14 J					
1,3,5-Trimethylbenzene	10						
Acetone	700	2.6 J			12 J		
Benzene	1						
Carbon Disulfide	700		0.3 J	0.13 J			0.11 J
Chloroform	5.7		0.32 J	0.6 J	0.52 J		0.087 J
Chloromethane	2.7						
cis-1,2-Dichloroethene	70						
Ethylbenzene	30			0.058 J	0.19 J		
Methylene Chloride	5			0.19 J			
Tetrachloroethene	3						
Toluene	40			0.15 J	0.28 J		
trans-1,2-Dichloroethene	100						
Trichloroethene	3						0.061 J
Xylenes, Total	20			0.37 J	1.1		

TABLE 4

## SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, SITE INVESTIGATION

STUDY AREA 36  
NTC ORLANDO

PAGE 4 of 6

WELL DESIGNATION	SCREENING	OLD-36-21C	OLD-36-22B	OLD-36-23C	OLD-36-24B	OLD-36-25C	
SAMPLE	CRITERIA	NTC36G21C11	NTC36G22B11	NTC36G23C11	NTC36G24B11	NTC36G25C11	NTC36G25C11-D
SAMPLE DATE	Florida GCTL	8/24/00	8/24/00	8/24/00	8/24/00	8/24/00	8/24/00
<b>Volatiles (µg/L)</b>							
1,2-Dichloroethane	3						
1,3,5-Trimethylbenzene	10						
Acetone	700			14 J			
Benzene	1			0.29 J			
Carbon Disulfide	700	0.67 J			0.13 J	1.5	1.7
Chloroform	5.7	1.2		0.67 J	0.34 J	1.6	2
Chloromethane	2.7						
cis-1,2-Dichloroethene	70		1.9	0.74 J			
Ethylbenzene	30			0.086 J			
Methylene Chloride	5	0.16 J		0.39 J			
Tetrachloroethene	3			<b>13</b>			
Toluene	40	0.11 J		0.28 J			
trans-1,2-Dichloroethene	100						
Trichloroethene	3	0.84 J	0.15 J	1.8		<b>7.7</b>	<b>6.9</b>
Xylenes, Total	20			1.5			

TABLE 4

## SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, SITE INVESTIGATION

STUDY AREA 36  
NTC ORLANDO

PAGE 5 of 6

WELL DESIGNATION	SCREENING	OLD-36-33A	OLD-36-34B	OLD-36-35C	OLD-36-36C
SAMPLE	CRITERIA	017-OLD-36-33A-Q1-01	017-OLD-36-34B-Q1-01	017-OLD-36-35C-Q1-01	017-OLD-36-36C-Q1-01
SAMPLE DATE	Florida GCTL	3/16/01	3/16/01	3/16/01	3/16/01
<b>Volatiles (<math>\mu\text{g/L}</math>)</b>					
1,2-Dichloroethane	3				
1,3,5-Trimethylbenzene	10				
Acetone	700				
Benzene	1				
Carbon Disulfide	700				
Chloroform	5.7				
Chloromethane	2.7				
cis-1,2-Dichloroethene	70				
Ethylbenzene	30				
Methylene Chloride	5	0.65 J	0.52 J	0.53 J	
Tetrachloroethene	3				
Toluene	40				
trans-1,2-Dichloroethene	100				
Trichloroethene	3				
Xylenes, Total	20				

TABLE 4

## SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, SITE INVESTIGATION

STUDY AREA 36  
NTC ORLANDO

PAGE 6 of 6

WELL DESIGNATION	SCREENING	OLD-36-37C	OLD-36-01AR	OLD-36-10BR
SAMPLE	CRITERIA	017-OLD-36-37C-Q1-01	173601ARQ202	173610BRQ202
SAMPLE DATE	Florida GCTL	3/16/01	4/26/02	4/26/02
<b>Volatiles (<math>\mu\text{g/L}</math>)</b>				
1,2-Dichloroethane	3			
1,3,5-Trimethylbenzene	10	0.65 J		
Acetone	700			
Benzene	1	24		
Carbon Disulfide	700			
Chloroform	5.7			
Chloromethane	2.7			
cis-1,2-Dichloroethene	70		2.2	1.2
Ethylbenzene	30			
Methylene Chloride	5			
Tetrachloroethene	3			
Toluene	40			
trans-1,2-Dichloroethene	100			
Trichloroethene	3		1.2	0.44 J
Xylenes, Total	20			

Notes:

GCTL = Groundwater Cleanup Target Level [Development of Soil Cleanup Target Levels (SCTLs) for Chapter 62-777, F.A.C., May 26, 1999].

Empty cells indicate non-detects.

"J" qualifier indicates an estimated value.

Only chemicals detected in at least one sample are shown.

Values in shaded cells are equal to or exceed the screening criterion.

TABLE 5

## SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, INTERIM REMEDIAL ACTION

STUDY AREA 36  
NTC ORLANDO

Page 1 of 17

	STATION ID	OLD-36-06A	OLD-36-06A	OLD-36-06A	OLD-36-06A
	CLIENT SAMPLE ID	017-OLD-36-06A-Q4-00	017-OLD-36-06A-Q1-01	017-OLD-36-06A-Q3-01	17-OLD-36-06A-Q4-01
	SAMPLE DATE	12/04/00	03/14/01	08/01/01	10/25/01
<b>Miscellaneous Parameters</b>	<b>Units</b>	<b>Screening Criteria<sup>a</sup></b>			
Acetic acid	mg/l	NA			
Butyric acid	mg/l	NA			
Propionic acid	mg/l	NA			1.6
Ethane	ng/l	NA	17	430	330
Ethene	ng/l	NA	13	360	77
Methane	ug/l	NA	1.7	69	2000
Methane	ug/ml	NA			
Alkalinity	mg/l	NA	1.5	6	10
Bromide	mg/l	NA			71
Chloride	mg/l	250	4.2	8.4	1.9
Hydrogen, dissolved	nM	NA			2
Iron	ug/l	1,227		440	
Iron, dissolved	ug/l	1,227			32 J
Sodium	mg/l	160	4.1		
Sulfide	mg/l	NA			
Nitrate Nitrogen	mg/l	10		0.09	2.98
Nitrate-Nitrite Nitrogen	mg/l	10	0.33		0.5
Petroleum Range Organics (PRO)	mg/l	NA		0.42 JB	
Total Dissolved Solids	mg/l	500	110	150	190 J
Total Organic Carbon	mg/l	NA	10.7	12	14
<b>Volatile Organics</b>					
1,1-Dichloroethene	ug/l	7			
1,2,4-Trimethylbenzene	ug/l	10			
1,2-Dichlorobenzene	ug/l	60			
1,3,5-Trimethylbenzene	ug/l	10			
Benzene	ug/l	1			
Chloroform	ug/l	5.7			
Chloromethane	ug/l	2.7			
cis-1,2-Dichloroethene	ug/l	70			0.18 J
Methylene chloride	ug/l	5		0.64 J	
p-Isopropyltoluene	ug/l	NA			
Tetrachloroethylene	ug/l	3			
trans-1,2-Dichloroethene	ug/l	100			
Toluene	ug/l	1000			1.2 J
Total Xylenes	ug/l	10,000			
Trichloroethylene	ug/l	3	14	9.5	0.66
Vinyl chloride	ug/l	1			

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TABLE 5

## SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, INTERIM REMEDIAL ACTION

STUDY AREA 36  
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		STATION ID	OLD-36-07A	OLD-36-07A	OLD-36-07A	OLD-36-07A
		CLIENT SAMPLE ID	017-OLD-36-07A-Q4-00	017-OLD-36-07A-Q1-01	017-OLD-36-07A-Q3-01	17-OLD-36-07A-Q4-01
		SAMPLE DATE	12/01/00	03/14/01	07/31/01	10/25/01
Miscellaneous Parameters	Units	Screening Criteria <sup>a</sup>				
Acetic acid	mg/l	NA				
Butyric acid	mg/l	NA				
Propionic acid	mg/l	NA			4.7	24
Ethane	ng/l	NA		24	110	3100
Ethene	ng/l	NA		21	77	2500
Methane	ug/l	NA		4.7	1700	10000
Methane	ug/ml	NA				
Alkalinity	mg/l	NA	16	16	13	74
Bromide	mg/l	NA				
Chloride	mg/l	250	6.2	7.7	3.2	120
Hydrogen, dissolved	nM	NA				18
Iron	ug/l	1,227		450		
Iron, dissolved	ug/l	1,227			60 J	720
Sodium	mg/l	160	5.4			
Sulfide	mg/l	NA				
Nitrate Nitrogen	mg/l	10	0.2	0.09	0.5	0.21
Nitrate-Nitrite Nitrogen	mg/l	10				0.21
Petroleum Range Organics (PRO)	mg/l	NA	0.44 JB	0.4 JB		6.5
Total Dissolved Solids	mg/l	500	110	170	120 J	510
Total Organic Carbon	mg/l	NA	12.5	11	10	78
Volatile Organics						
1,1-Dichloroethene	ug/l	7				
1,2,4-Trimethylbenzene	ug/l	10				
1,2-Dichlorobenzene	ug/l	60				
1,3,5-Trimethylbenzene	ug/l	10				
Benzene	ug/l	1				0.78
Chloroform	ug/l	5.7				
Chloromethane	ug/l	2.7				
cis-1,2-Dichloroethene	ug/l	70			0.78 J	37
Methylene chloride	ug/l	5		5.2 J		
p-Isopropyltoluene	ug/l	NA				
Tetrachloroethylene	ug/l	3				
trans-1,2-Dichloroethene	ug/l	100				0.52
Toluene	ug/l	1000			1.1 J	
Total Xylenes	ug/l	10,000				
Trichloroethylene	ug/l	3	59	35	11	12
Vinyl chloride	ug/l	1				

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TABLE 5

## SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, INTERIM REMEDIAL ACTION

STUDY AREA 36  
NTC ORLANDO

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		STATION ID	OLD-36-08B	OLD-36-08B	OLD-36-08B	OLD-36-08B
		CLIENT SAMPLE ID	017-OLD-36-08B-Q4-00	017-OLD-36-08B-Q1-01	017-OLD-36-08B-Q3-01	17-OLD-36-08B-Q4-01
		SAMPLE DATE	12/04/00	03/15/01	08/01/01	10/25/01
Miscellaneous Parameters	Units	Screening Criteria <sup>a</sup>				
Acetic acid	mg/l	NA			24	
Butyric acid	mg/l	NA			1.9	
Propionic acid	mg/l	NA			74	47
Ethane	ng/l	NA		18	900	820
Ethene	ng/l	NA		110	5600	3200
Methane	ug/l	NA		80	8900	9300
Methane	ug/ml	NA	0.09			
Alkalinity	mg/l	NA	24	22	83	67
Bromide	mg/l	NA				
Chloride	mg/l	250	7	6.1	7	23
Hydrogen, dissolved	nM	NA				13
Iron	ug/l	1,227		400		
Iron, dissolved	ug/l	1,227			450	400
Sodium	mg/l	160	7.8			
Sulfide	mg/l	NA			2.9	2.9
Nitrate Nitrogen	mg/l	10				0.18
Nitrate-Nitrite Nitrogen	mg/l	10				0.18
Petroleum Range Organics (PRO)	mg/l	NA		0.66 JB	8.1	4.4
Total Dissolved Solids	mg/l	500	100	270	110 J	210
Total Organic Carbon	mg/l	NA	3.55	3	94	83
Volatile Organics						
1,1-Dichloroethene	ug/l	7				
1,2,4-Trimethylbenzene	ug/l	10				
1,2-Dichlorobenzene	ug/l	60				
1,3,5-Trimethylbenzene	ug/l	10				
Benzene	ug/l	1				
Chloroform	ug/l	5.7				
Chloromethane	ug/l	2.7			0.6 J	
cis-1,2-Dichloroethene	ug/l	70			17	26
Methylene chloride	ug/l	5				
p-Isopropyltoluene	ug/l	NA	0.8 J		0.88 J	0.35
Tetrachloroethylene	ug/l	3				
trans-1,2-Dichloroethene	ug/l	100				0.32
Toluene	ug/l	1000			1 J	
Total Xylenes	ug/l	10,000				
Trichloroethylene	ug/l	3	97	35	44	25
Vinyl chloride	ug/l	1				

TABLE 5  
SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, INTERIM REMEDIAL ACTION

STUDY AREA 36  
NTC ORLANDO

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		STATION ID	OLD-36-09C	OLD-36-09C	OLD-36-09C	OLD-36-09C
		CLIENT SAMPLE ID	017-OLD-36-09C-Q4-00	017-OLD-36-09C-Q1-01	017-OLD-36-09C-Q3-01	17-OLD-36-09C-Q4-01
		SAMPLE DATE	12/05/00	03/15/01	07/31/01	10/24/01
Miscellaneous Parameters	Units	Screening Criteria <sup>a</sup>				
Acetic acid	mg/l	NA			4.3	
Butyric acid	mg/l	NA				
Propionic acid	mg/l	NA			8.7	17
Ethane	ng/l	NA		210	160	75
Ethene	ng/l	NA		670	430	500
Methane	ug/l	NA		51	1700	4000
Methane	ug/ml	NA	0.036			
Alkalinity	mg/l	NA	280	330	180	210
Bromide	mg/l	NA				
Chloride	mg/l	250	8.9	9.5	8.3	17
Hydrogen, dissolved	nM	NA				150
Iron	ug/l	1,227		180		
Iron, dissolved	ug/l	1,227			11 J	27 J
Sodium	mg/l	160	11			
Sulfide	mg/l	NA		2.7	3.4	4.2
Nitrate Nitrogen	mg/l	10				0.23
Nitrate-Nitrite Nitrogen	mg/l	10				0.23
Petroleum Range Organics (PRO)	mg/l	NA	0.35 JB	2 JB		
Total Dissolved Solids	mg/l	500	390	120	290 J	300
Total Organic Carbon	mg/l	NA	19.8	14	29	35
Volatile Organics						
1,1-Dichloroethene	ug/l	7	0.5 J			0.29 J
1,2,4-Trimethylbenzene	ug/l	10				
1,2-Dichlorobenzene	ug/l	60				
1,3,5-Trimethylbenzene	ug/l	10				
Benzene	ug/l	1				
Chloroform	ug/l	5.7				
Chloromethane	ug/l	2.7				
cis-1,2-Dichloroethene	ug/l	70	24	20 J	27	57
Methylene chloride	ug/l	5	9.1			
p-Isopropyltoluene	ug/l	NA				
Tetrachloroethylene	ug/l	3				
trans-1,2-Dichloroethene	ug/l	100				0.96
Toluene	ug/l	1000			1.2 J	
Total Xylenes	ug/l	10,000				
Trichloroethylene	ug/l	3	300	180	140	150
Vinyl chloride	ug/l	1				0.18 J

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## SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, INTERIM REMEDIAL ACTION

STUDY AREA 36  
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	STATION ID	OLD-36-10B	OLD-36-10B	OLD-36-10B	OLD-36-10B
	CLIENT SAMPLE ID	017-OLD-36-10B-Q4-00	017-OLD-36-10B-Q1-01	017-OLD-36-10B-Q3-01	17-OLD-36-10B-Q4-01
	SAMPLE DATE	12/04/00	03/15/01	08/01/01	10/22/01
<b>Miscellaneous Parameters</b>	<b>Units</b>	<b>Screening Criteria<sup>a</sup></b>			
Acetic acid	mg/l	NA			
Butyric acid	mg/l	NA			
Propionic acid	mg/l	NA			
Ethane	ng/l	NA		35	120
Ethene	ng/l	NA		63	940
Methane	ug/l	NA		9.9	620
Methane	ug/ml	NA			
Alkalinity	mg/l	NA	25	32	29
Bromide	mg/l	NA			
Chloride	mg/l	250	6.4	3.3	30
Hydrogen, dissolved	nM	NA			6.8
Iron	ug/l	1,227		210	
Iron, dissolved	ug/l	1,227			81 J
Sodium	mg/l	160	6.6		
Sulfide	mg/l	NA			0.97 J
Nitrate Nitrogen	mg/l	10			
Nitrate-Nitrite Nitrogen	mg/l	10			
Petroleum Range Organics (PRO)	mg/l	NA		1.3 JB	
Total Dissolved Solids	mg/l	500	130	210	98 J
Total Organic Carbon	mg/l	NA	15.7	17	13
<b>Volatile Organics</b>					
1,1-Dichloroethene	ug/l	7			
1,2,4-Trimethylbenzene	ug/l	10			0.24 J
1,2-Dichlorobenzene	ug/l	60			
1,3,5-Trimethylbenzene	ug/l	10			
Benzene	ug/l	1			0.35
Chloroform	ug/l	5.7			
Chloromethane	ug/l	2.7			0.52 J
cis-1,2-Dichloroethene	ug/l	70	2.3 J	11	8.5
Methylene chloride	ug/l	5			
p-Isopropyltoluene	ug/l	NA			
Tetrachloroethylene	ug/l	3	1.7 J	1.6 J	
trans-1,2-Dichloroethene	ug/l	100			0.28 J
Toluene	ug/l	1000			1 J
Total Xylenes	ug/l	10,000			
Trichloroethylene	ug/l	3	4.5 J	12	8.2
Vinyl chloride	ug/l	1			7

**TABLE 5**  
**SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, INTERIM REMEDIAL ACTION**

**STUDY AREA 36**  
**NTC ORLANDO**

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	STATION ID	OLD-36-11C	OLD-36-11C	OLD-36-11C	OLD-36-11C
	CLIENT SAMPLE ID	017-OLD-36-11C-Q4-00	017-OLD-36-11C-Q1-01	017-OLD-36-11C-Q3-01	17-OLD-36-11C-Q4-01
	SAMPLE DATE	12/06/00	03/15/01	08/01/01	10/22/01
<b>Miscellaneous Parameters</b>	<b>Units</b>	<b>Screening Criteria<sup>a</sup></b>			
Acetic acid	mg/l	NA			
Butyric acid	mg/l	NA			
Propionic acid	mg/l	NA			
Ethane	ng/l	NA	18	28	48
Ethene	ng/l	NA	57	45	110
Methane	ug/l	NA	4.8	18	44
Methane	ug/ml	NA			
Alkalinity	mg/l	NA	14	16	12
Bromide	mg/l	NA			7.8
Chloride	mg/l	250	6.3	5.7	4.3
Hydrogen, dissolved	nM	NA			8.6
Iron	ug/l	1,227		220	1.3
Iron, dissolved	ug/l	1,227			95 J
Sodium	mg/l	160	4.7		77 J
Sulfide	mg/l	NA			
Nitrate Nitrogen	mg/l	10			0.1
Nitrate-Nitrite Nitrogen	mg/l	10			0.1
Petroleum Range Organics (PRO)	mg/l	NA	0.34 J	0.75 JB	
Total Dissolved Solids	mg/l	500	85	51	57 J
Total Organic Carbon	mg/l	NA	8.77	11	10
					9.7
<b>Volatile Organics</b>					
1,1-Dichloroethene	ug/l	7			
1,2,4-Trimethylbenzene	ug/l	10			0.23 J
1,2-Dichlorobenzene	ug/l	60	0.7 J		0.68
1,3,5-Trimethylbenzene	ug/l	10			
Benzene	ug/l	1			
Chloroform	ug/l	5.7			
Chloromethane	ug/l	2.7			0.61 J
cis-1,2-Dichloroethene	ug/l	70	3.5 J	5.3 J	5 J
Methylene chloride	ug/l	5	0.82 J		3.3
p-Isopropyltoluene	ug/l	NA			
Tetrachloroethylene	ug/l	3	1.3 J	2.5 J	1.9 J
trans-1,2-Dichloroethene	ug/l	100			1.6
Toluene	ug/l	1000			1.3 J
Total Xylenes	ug/l	10,000			
Trichloroethylene	ug/l	3	6.4	10	7.9
Vinyl chloride	ug/l	1			7

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TABLE 5

## SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, INTERIM REMEDIAL ACTION

STUDY AREA 36  
NTC ORLANDO

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		STATION ID	OLD-36-12C	OLD-36-19A	OLD-36-19A	OLD-36-23C
		CLIENT SAMPLE ID	017-OLD-36-12C-Q4-00	017-OLD-36-19A-Q3-01	17-OLD-36-19A-Q4-01	017-OLD-36-23C-Q4-00
		SAMPLE DATE	12/05/00	08/02/01	10/26/01	12/06/00
Miscellaneous Parameters	Units	Screening Criteria <sup>a</sup>				
Acetic acid	mg/l	NA				
Butyric acid	mg/l	NA				
Propionic acid	mg/l	NA			2.6	
Ethane	ng/l	NA		150		
Ethene	ng/l	NA		5600		
Methane	ug/l	NA		7.8	0.093	
Methane	ug/ml	NA				0.037
Alkalinity	mg/l	NA	17	14	29	25
Bromide	mg/l	NA				
Chloride	mg/l	250	5.7	11.4	8.9	3.7
Hydrogen, dissolved	nM	NA			0.6	
Iron	ug/l	1,227				
Iron, dissolved	ug/l	1,227				
Sodium	mg/l	160	8.8			8.8
Sulfide	mg/l	NA				
Nitrate Nitrogen	mg/l	10		78.7	15	
Nitrate-Nitrite Nitrogen	mg/l	10			15	
Petroleum Range Organics (PRO)	mg/l	NA	0.4 JB	0.27 J		0.28 J
Total Dissolved Solids	mg/l	500	300	700 J	230	600
Total Organic Carbon	mg/l	NA	22.7	3	4.1	15
Volatile Organics						
1,1-Dichloroethene	ug/l	7				
1,2,4-Trimethylbenzene	ug/l	10				
1,2-Dichlorobenzene	ug/l	60				
1,3,5-Trimethylbenzene	ug/l	10				
Benzene	ug/l	1	0.54 J			
Chloroform	ug/l	5.7				
Chloromethane	ug/l	2.7		0.85 J		
cis-1,2-Dichloroethene	ug/l	70	3.2 J			0.81 J
Methylene chloride	ug/l	5	0.85 J			
p-Isopropyltoluene	ug/l	NA				
Tetrachloroethylene	ug/l	3			0.17 J	14
trans-1,2-Dichloroethene	ug/l	100				
Toluene	ug/l	1000		1.2 J		
Total Xylenes	ug/l	10,000				1.8 J
Trichloroethylene	ug/l	3	9		0.21 J	3.2 J
Vinyl chloride	ug/l	1				

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**TABLE 5**  
**SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, INTERIM REMEDIAL ACTION**

**STUDY AREA 36**  
**NTC ORLANDO**

		STATION ID	OLD-36-24B	OLD-36-24B	OLD-36-25C
		CLIENT SAMPLE ID	017-OLD-36-24B-Q3-01	17-OLD-36-24B-Q4-01	17-OLD-36-25C-Q4-01
		SAMPLE DATE	08/02/01	10/26/01	10/29/01
<b>Miscellaneous Parameters</b>	<b>Units</b>	<b>Screening Criteria<sup>a</sup></b>			
Acetic acid	mg/l	NA			
Butyric acid	mg/l	NA			
Propionic acid	mg/l	NA			
Ethane	ng/l	NA	360	7.2	
Ethene	ng/l	NA	410	37	100
Methane	ug/l	NA	49	0.32	27
Methane	ug/ml	NA			
Alkalinity	mg/l	NA	8.6		
Bromide	mg/l	NA			
Chloride	mg/l	250	3.6	7.1	5.7
Hydrogen, dissolved	nM	NA		0.75	0.86
Iron	ug/l	1,227			
Iron, dissolved	ug/l	1,227	100	760	670
Sodium	mg/l	160			
Sulfide	mg/l	NA	1.2		
Nitrate Nitrogen	mg/l	10		0.87	0.08
Nitrate-Nitrite Nitrogen	mg/l	10		0.87	0.08
Petroleum Range Organics (PRO)	mg/l	NA	0.24 J		
Total Dissolved Solids	mg/l	500	37 J	160	64
Total Organic Carbon	mg/l	NA	11	4	3.5
<b>Volatile Organics</b>					
1,1-Dichloroethene	ug/l	7			
1,2,4-Trimethylbenzene	ug/l	10			
1,2-Dichlorobenzene	ug/l	60			
1,3,5-Trimethylbenzene	ug/l	10			
Benzene	ug/l	1			
Chloroform	ug/l	5.7			
Chloromethane	ug/l	2.7			
cis-1,2-Dichloroethene	ug/l	70			
Methylene chloride	ug/l	5			
p-Isopropyltoluene	ug/l	NA			
Tetrachloroethylene	ug/l	3			
trans-1,2-Dichloroethene	ug/l	100			
Toluene	ug/l	1000	0.86 J		
Total Xylenes	ug/l	10,000			
Trichloroethylene	ug/l	3			11
Vinyl chloride	ug/l	1			

TABLE 5

## SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, INTERIM REMEDIAL ACTION

STUDY AREA 36  
NTC ORLANDO

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	STATION ID	OLD-36-26A	OLD-36-26A	OLD-36-26A	OLD-36-26A
	CLIENT SAMPLE ID	017-OLD-36-26A-Q4-00	017-OLD-36-26A-Q1-01	017-OLD-36-26A-Q3-01	17-OLD-36-26A-Q4-01
	SAMPLE DATE	12/01/00	03/14/01	08/01/01	10/23/01
<b>Miscellaneous Parameters</b>	<b>Units</b>	<b>Screening Criteria<sup>a</sup></b>			
Acetic acid	mg/l	NA		16	
Butyric acid	mg/l	NA		4.6	
Propionic acid	mg/l	NA		24	7.8
Ethane	ng/l	NA	64	5200	1000
Ethene	ng/l	NA	120	23000	890
Methane	ug/l	NA	8.5	2700	7700
Methane	ug/ml	NA			
Alkalinity	mg/l	NA	26	18	16
Bromide	mg/l	NA	0.5		3
Chloride	mg/l	250	6.5	9.9	4.1
Hydrogen, dissolved	nM	NA			9.8
Iron	ug/l	1,227		540	10
Iron, dissolved	ug/l	1,227			470
Sodium	mg/l	160	8.5		280
Sulfide	mg/l	NA		1.8	1.3
Nitrate Nitrogen	mg/l	10	1.2	0.02	2.6
Nitrate-Nitrite Nitrogen	mg/l	10			0.16
Petroleum Range Organics (PRO)	mg/l	NA	0.57 JB	2.7 B	0.16
Total Dissolved Solids	mg/l	500	260	61	94 J
Total Organic Carbon	mg/l	NA	46.6	25	76
					19
<b>Volatile Organics</b>					
1,1-Dichloroethene	ug/l	7			
1,2,4-Trimethylbenzene	ug/l	10			
1,2-Dichlorobenzene	ug/l	60			
1,3,5-Trimethylbenzene	ug/l	10			
Benzene	ug/l	1			
Chloroform	ug/l	5.7			
Chloromethane	ug/l	2.7		0.65 J	
cis-1,2-Dichloroethene	ug/l	70			0.86
Methylene chloride	ug/l	5		0.53 J	
p-Isopropyltoluene	ug/l	NA			
Tetrachloroethylene	ug/l	3			
trans-1,2-Dichloroethene	ug/l	100			
Toluene	ug/l	1000			0.66 J
Total Xylenes	ug/l	10,000			
Trichloroethylene	ug/l	3	15	10	6.3
Vinyl chloride	ug/l	1			4.8

TABLE 5

## SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, INTERIM REMEDIAL ACTION

STUDY AREA 36  
NTC ORLANDO

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	STATION ID		OLD-36-27A	OLD-36-27A	OLD-36-27A	OLD-36-27A
	CLIENT SAMPLE ID		017-OLD-36-27A-Q4-00	017-OLD-36-27A-Q1-01	017-OLD-36-27A-Q3-01	17-OLD-36-27A-Q4-01
	SAMPLE DATE		12/01/00	03/13/01	07/31/01	10/24/01
<b>Miscellaneous Parameters</b>	<b>Units</b>	<b>Screening Criteria<sup>a</sup></b>				
Acetic acid	mg/l	NA			3.4	
Butyric acid	mg/l	NA				
Propionic acid	mg/l	NA			8.4	3.8
Ethane	ng/l	NA		14	32	53
Ethene	ng/l	NA		57	95	130
Methane	ug/l	NA		1.7	650	2200
Methane	ug/ml	NA				
Alkalinity	mg/l	NA	160	62	140	350
Bromide	mg/l	NA				
Chloride	mg/l	250	6.7	7.7	13	8.9
Hydrogen, dissolved	nM	NA				2.2
Iron	ug/l	1,227		360		
Iron, dissolved	ug/l	1,227			490	77 J
Sodium	mg/l	160	7.3			
Sulfide	mg/l	NA			3.2	2.2
Nitrate Nitrogen	mg/l	10			1.26	2.8
Nitrate-Nitrite Nitrogen	mg/l	10				2.8
Petroleum Range Organics (PRO)	mg/l	NA	0.49 JB	0.31 JB		
Total Dissolved Solids	mg/l	500	230	91	310 J	230
Total Organic Carbon	mg/l	NA	8.36	3	31	18
<b>Volatile Organics</b>						
1,1-Dichloroethene	ug/l	7				
1,2,4-Trimethylbenzene	ug/l	10				
1,2-Dichlorobenzene	ug/l	60				
1,3,5-Trimethylbenzene	ug/l	10				
Benzene	ug/l	1				
Chloroform	ug/l	5.7				
Chloromethane	ug/l	2.7				
cis-1,2-Dichloroethene	ug/l	70	1.1 J		23	7.1
Methylene chloride	ug/l	5		8.7		
p-Isopropyltoluene	ug/l	NA				
Tetrachloroethylene	ug/l	3			0.55 J	0.4
trans-1,2-Dichloroethene	ug/l	100				
Toluene	ug/l	1000			1 J	
Total Xylenes	ug/l	10,000				
Trichloroethylene	ug/l	3	79	97	14	1.5
Vinyl chloride	ug/l	1				

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TABLE 5

## SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, INTERIM REMEDIAL ACTION

STUDY AREA 36  
NTC ORLANDO

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	STATION ID	OLD-36-28B	OLD-36-28B	OLD-36-28B	OLD-36-28B
	CLIENT SAMPLE ID	017-OLD-36-28B-Q4-00	017-OLD-36-28B-Q1-01	017-OLD-36-28B-Q3-01	17-OLD-36-28B-Q4-01
	SAMPLE DATE	12/01/00	03/14/01	07/30/01	10/24/01
<b>Miscellaneous Parameters</b>	<b>Units</b>	<b>Screening Criteria<sup>a</sup></b>			
Acetic acid	mg/l	NA		3.6	
Butyric acid	mg/l	NA			
Propionic acid	mg/l	NA		8.2	12
Ethane	ng/l	NA	50	110	36
Ethene	ng/l	NA	110	210	230
Methane	ug/l	NA	3.6	1500	4300
Methane	ug/ml	NA	0.012		
Alkalinity	mg/l	NA	300	37	49
Bromide	mg/l	NA			57
Chloride	mg/l	250	8.7	7	8.5
Hydrogen, dissolved	nM	NA			14
Iron	ug/l	1,227		1400	
Iron, dissolved	ug/l	1,227			410
Sodium	mg/l	160	55		330
Sulfide	mg/l	NA		2.6	3.3
Nitrate Nitrogen	mg/l	10		0.01	0.19
Nitrate-Nitrite Nitrogen	mg/l	10			0.19
Petroleum Range Organics (PRO)	mg/l	NA	0.4 JB	0.35 JB	
Total Dissolved Solids	mg/l	500	920	270	180 J
Total Organic Carbon	mg/l	NA	90.5	6	21
<b>Volatile Organics</b>					
1,1-Dichloroethene	ug/l	7			
1,2,4-Trimethylbenzene	ug/l	10			
1,2-Dichlorobenzene	ug/l	60			
1,3,5-Trimethylbenzene	ug/l	10			
Benzene	ug/l	1			
Chloroform	ug/l	5.7	1.4 J		
Chloromethane	ug/l	2.7			
cis-1,2-Dichloroethene	ug/l	70	0.54 J		24
Methylene chloride	ug/l	5		5.6 J	33
p-Isopropyltoluene	ug/l	NA			
Tetrachloroethylene	ug/l	3			
trans-1,2-Dichloroethene	ug/l	100			0.53
Toluene	ug/l	1000		2 J	
Total Xylenes	ug/l	10,000			
Trichloroethylene	ug/l	3	85	66	30
Vinyl chloride	ug/l	1			6.8

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TABLE 5

## SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, INTERIM REMEDIAL ACTION

STUDY AREA 36  
NTC ORLANDO

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		STATION ID	OLD-36-29B	OLD-36-29B	OLD-36-29B	OLD-36-29B
		CLIENT SAMPLE ID	017-OLD-36-29B-Q4-00	017-OLD-36-29B-Q1-01	017-OLD-36-29B-Q3-01	17-OLD-36-29B-Q4-01
		SAMPLE DATE	12/04/00	03/13/01	07/30/01	10/22/01
Miscellaneous Parameters	Units	Screening Criteria <sup>a</sup>				
Acetic acid	mg/l	NA				
Butyric acid	mg/l	NA				
Propionic acid	mg/l	NA				
Ethane	ng/l	NA		70	86	67
Ethene	ng/l	NA		70	120	730
Methane	ug/l	NA		5	130	1000
Methane	ug/ml	NA				
Alkalinity	mg/l	NA	27	11	12	8.5
Bromide	mg/l	NA				
Chloride	mg/l	250	14	9.6	7.1	30
Hydrogen, dissolved	nM	NA				3.4
Iron	ug/l	1,227		1500		
Iron, dissolved	ug/l	1,227			450	600
Sodium	mg/l	160	12			
Sulfide	mg/l	NA			0.63 J	
Nitrate Nitrogen	mg/l	10				
Nitrate-Nitrite Nitrogen	mg/l	10				
Petroleum Range Organics (PRO)	mg/l	NA		0.34 JB		
Total Dissolved Solids	mg/l	500	180	68	10 J	140
Total Organic Carbon	mg/l	NA	5.18	12	6	9
Volatile Organics						
1,1-Dichloroethene	ug/l	7				0.18 J
1,2,4-Trimethylbenzene	ug/l	10				
1,2-Dichlorobenzene	ug/l	60				
1,3,5-Trimethylbenzene	ug/l	10				
Benzene	ug/l	1				0.19 J
Chloroform	ug/l	5.7				
Chloromethane	ug/l	2.7				
cis-1,2-Dichloroethene	ug/l	70	1.9 J		0.87 J	1.2
Methylene chloride	ug/l	5		14 J		
p-Isopropyltoluene	ug/l	NA				
Tetrachloroethylene	ug/l	3				
trans-1,2-Dichloroethene	ug/l	100				
Toluene	ug/l	1000			1.6 J	
Total Xylenes	ug/l	10,000				
Trichloroethylene	ug/l	3	190	150	130	110
Vinyl chloride	ug/l	1				

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TABLE 5

## SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, INTERIM REMEDIAL ACTION

STUDY AREA 36  
NTC ORLANDO

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		STATION ID	OLD-36-30C	OLD-36-30C	OLD-36-30C
		CLIENT SAMPLE ID	017-OLD-36-30C-Q1-01	017-OLD-36-30C-Q3-01	17-OLD-36-30C-Q4-01
		SAMPLE DATE	03/14/01	07/31/01	10/23/01
Miscellaneous Parameters	Units	Screening Criteria <sup>a</sup>			
Acetic acid	mg/l	NA			
Butyric acid	mg/l	NA			
Propionic acid	mg/l	NA		3.8	9.9
Ethane	ng/l	NA	37	92	180
Ethene	ng/l	NA	78	300	1000
Methane	ug/l	NA	5.1	90	1300
Methane	ug/ml	NA			
Alkalinity	mg/l	NA	25	20	9
Bromide	mg/l	NA			
Chloride	mg/l	250	8	7.4	11
Hydrogen, dissolved	nM	NA			14
Iron	ug/l	1,227	560		
Iron, dissolved	ug/l	1,227		350	500
Sodium	mg/l	160			
Sulfide	mg/l	NA		3.1	1.6
Nitrate Nitrogen	mg/l	10	0.02		0.16
Nitrate-Nitrite Nitrogen	mg/l	10			0.16
Petroleum Range Organics (PRO)	mg/l	NA	0.38 JB		
Total Dissolved Solids	mg/l	500	110	92 J	52
Total Organic Carbon	mg/l	NA	1	8	12
Volatile Organics					
1,1-Dichloroethene	ug/l	7			
1,2,4-Trimethylbenzene	ug/l	10			
1,2-Dichlorobenzene	ug/l	60			
1,3,5-Trimethylbenzene	ug/l	10			
Benzene	ug/l	1			
Chloroform	ug/l	5.7			
Chloromethane	ug/l	2.7			
cis-1,2-Dichloroethene	ug/l	70	1.3 J	14	27
Methylene chloride	ug/l	5	0.6 J		
p-Isopropyltoluene	ug/l	NA			
Tetrachloroethylene	ug/l	3			
trans-1,2-Dichloroethene	ug/l	100			0.37
Toluene	ug/l	1000		1.1 J	
Total Xylenes	ug/l	10,000			
Trichloroethylene	ug/l	3	57	18	12
Vinyl chloride	ug/l	1			

TABLE 5

## SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, INTERIM REMEDIAL ACTION

STUDY AREA 36  
NTC ORLANDO

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		STATION ID	OLD-36-31C	OLD-36-31C	OLD-36-31C	OLD-36-31C
		CLIENT SAMPLE ID	017-OLD-36-31C-Q4-00	017-OLD-36-31C-Q1-01	017-OLD-36-31C-Q3-01	17-OLD-36-31C-Q4-01
		SAMPLE DATE	12/05/00	03/14/01	07/31/01	10/23/01
Miscellaneous Parameters	Units	Screening Criteria <sup>a</sup>				
Acetic acid	mg/l	NA			15	
Butyric acid	mg/l	NA			4.6	
Propionic acid	mg/l	NA			31	2.8
Ethane	ng/l	NA		84	44	58
Ethene	ng/l	NA		270	260	410
Methane	ug/l	NA		400	2300	1400
Methane	ug/ml	NA				
Alkalinity	mg/l	NA	18	26	1	
Bromide	mg/l	NA				
Chloride	mg/l	250	8.9	6.9	5.4	9.9
Hydrogen, dissolved	nM	NA				8.7
Iron	ug/l	1,227		1100		
Iron, dissolved	ug/l	1,227			570	250
Sodium	mg/l	160	9.2			
Sulfide	mg/l	NA		1.4	2.8	2.7
Nitrate Nitrogen	mg/l	10				0.15
Nitrate-Nitrite Nitrogen	mg/l	10				0.15
Petroleum Range Organics (PRO)	mg/l	NA	0.4	5.9	3.2	
Total Dissolved Solids	mg/l	500	130	140	120 J	30
Total Organic Carbon	mg/l	NA	6.41	49	31	7.1
Volatile Organics						
1,1-Dichloroethene	ug/l	7				
1,2,4-Trimethylbenzene	ug/l	10				
1,2-Dichlorobenzene	ug/l	60				
1,3,5-Trimethylbenzene	ug/l	10				
Benzene	ug/l	1				
Chloroform	ug/l	5.7	0.97 J			
Chloromethane	ug/l	2.7			0.59 J	
cis-1,2-Dichloroethene	ug/l	70			17	2.8
Methylene chloride	ug/l	5	1.8	0.57 J		
p-Isopropyltoluene	ug/l	NA				
Tetrachloroethylene	ug/l	3				
trans-1,2-Dichloroethene	ug/l	100				
Toluene	ug/l	1000			2.5 J	
Total Xylenes	ug/l	10,000				
Trichloroethylene	ug/l	3	14	13	34	13
Vinyl chloride	ug/l	1				

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TABLE 5

## SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, INTERIM REMEDIAL ACTION

STUDY AREA 36  
NTC ORLANDO

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	STATION ID	OLD-36-32C	OLD-36-32C	OLD-36-32C	OLD-36-32C
	CLIENT SAMPLE ID	017-OLD-36-32C-Q4-00	017-OLD-36-32C-Q1-01	017-OLD-36-32C-Q3-01	17-OLD-36-32C-Q4-01
	SAMPLE DATE	12/06/00	03/13/01	08/01/01	10/22/01
<b>Miscellaneous Parameters</b>	<b>Units</b>	<b>Screening Criteria<sup>a</sup></b>			
Acetic acid	mg/l	NA			
Butyric acid	mg/l	NA			
Propionic acid	mg/l	NA			
Ethane	ng/l	NA		19	39
Ethene	ng/l	NA		31	42
Methane	ug/l	NA		1.8	5.7
Methane	ug/ml	NA			7.5
Alkalinity	mg/l	NA	83	26	11
Bromide	mg/l	NA			
Chloride	mg/l	250	7.9	7.8	6
Hydrogen, dissolved	nM	NA			
Iron	ug/l	1,227		330	
Iron, dissolved	ug/l	1,227			210
Sodium	mg/l	160	16		
Sulfide	mg/l	NA			
Nitrate Nitrogen	mg/l	10			0.11
Nitrate-Nitrite Nitrogen	mg/l	10			0.11
Petroleum Range Organics (PRO)	mg/l	NA		0.26 JB	
Total Dissolved Solids	mg/l	500	620	200	59 J
Total Organic Carbon	mg/l	NA	18.5	7	6
<b>Volatile Organics</b>					
1,1-Dichloroethene	ug/l	7			
1,2,4-Trimethylbenzene	ug/l	10			
1,2-Dichlorobenzene	ug/l	60			
1,3,5-Trimethylbenzene	ug/l	10			
Benzene	ug/l	1			
Chloroform	ug/l	5.7			
Chloromethane	ug/l	2.7			0.68 J
cis-1,2-Dichloroethene	ug/l	70			0.25 J
Methylene chloride	ug/l	5	0.85 J		
p-Isopropyltoluene	ug/l	NA			
Tetrachloroethylene	ug/l	3			0.22 J
trans-1,2-Dichloroethene	ug/l	100			
Toluene	ug/l	1000			0.69 J
Total Xylenes	ug/l	10,000			
Trichloroethylene	ug/l	3	17	13	20
Vinyl chloride	ug/l	1			

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TABLE 5

## SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER, INTERIM REMEDIAL ACTION

STUDY AREA 36  
NTC ORLANDO

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	STATION ID	OLD-36-33A	OLD-36-34B	OLD-36-35C	OLD-36-36C	OLD-36-37C
	CLIENT SAMPLE ID	017-OLD-36-33A-Q1-01	017-OLD-36-34B-Q1-01	017-OLD-36-35C-Q1-01	017-OLD-36-36C-21-01	017-OLD-36-37C-Q1-01
	SAMPLE DATE	03/16/01	03/16/01	03/16/01	03/16/01	03/16/01
<b>Miscellaneous Parameters</b>						
	<b>Units</b>	<b>Screening Criteria <sup>a</sup></b>				
Acetic acid	mg/l	NA				
Butyric acid	mg/l	NA				
Propionic acid	mg/l	NA				
Ethane	ng/l	NA				
Ethene	ng/l	NA				
Methane	ug/l	NA				
Methane	ug/ml	NA				
Alkalinity	mg/l	NA				
Bromide	mg/l	NA				
Chloride	mg/l	250				
Hydrogen, dissolved	nM	NA				
Iron	ug/l	1,227				
Iron, dissolved	ug/l	1,227				
Sodium	mg/l	160				
Sulfide	mg/l	NA				
Nitrate Nitrogen	mg/l	10				
Nitrate-Nitrite Nitrogen	mg/l	10				
Petroleum Range Organics (PRO)	mg/l	NA				
Total Dissolved Solids	mg/l	500				
Total Organic Carbon	mg/l	NA				
<b>Volatile Organics</b>						
1,1-Dichloroethene	ug/l	7				
1,2,4-Trimethylbenzene	ug/l	10				
1,2-Dichlorobenzene	ug/l	60				
1,3,5-Trimethylbenzene	ug/l	10				0.65 J
Benzene	ug/l	1				24
Chloroform	ug/l	5.7				
Chloromethane	ug/l	2.7				
cis-1,2-Dichloroethene	ug/l	70				
Methylene chloride	ug/l	5	0.65 J	0.52 J	0.53 J	
p-Isopropyltoluene	ug/l	NA				
Tetrachloroethylene	ug/l	3				
trans-1,2-Dichloroethene	ug/l	100				
Toluene	ug/l	1000				
Total Xylenes	ug/l	10,000				
Trichloroethylene	ug/l	3				
Vinyl chloride	ug/l	1				

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**TABLE 5****ANALYTES DETECTED IN GROUNDWATER****STUDY AREA 36  
NTC ORLANDO****Page 17 of 17**

## NOTES

Source: CCI, 2002. Treatment Efficiency Report, Round 3 Groundwater Sampling Event, Study Area 39, Main Base, Naval Training Center, Orlando, Florida. Atlanta, January.

<sup>a</sup> The screening criterion is the GCTL for an organic analyte. The screening criterion for an inorganic analyte with an established GCTL and background screening value is the greater of the GCTL or background screening value.

"B" qualifier indicates parameter detected in blank

Empty cells indicate non-detects.

GCTL = Groundwater Cleanup Target Level [Development of Soil Cleanup Target Levels (SCTLs) for Chapter 62-777, F.A.C., May 26, 1999].

"J" qualifier indicates an estimated value.

NA indicates no screening criterion available.

Values in shaded cells equal or exceed the screening criterion.