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NTC ORLANDO
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TREATABILITY STUDY REPORT 2 FOR STUDY AREA 2 WITH TRANSMITTAL LETTER NTC ORLANDO FL

9/26/2001

TETRA TECH

TETRA TECH NUS, INC.
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0901-A136

September 26, 2001

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. 0151

Subject: Treatability Study Report No. 2
Study Area 2, Naval Training Center, Orlando

Dear Ms. Nwokike:

Enclosed is the second quarter Treatability Study report (hardcopy and CD) which describes the results from groundwater sampling conducted from July 11 through July 13, 2001. The results for this sampling event and previous data for the site are summarized in the attached tables and figures. The field monitoring forms are included in Appendix A.

The next groundwater sampling for the Treatability Study is due in October 2001 but is not yet funded. The third quarter groundwater sampling event will be conducted in October or as soon as possible once funding is secured. If you have any questions, please contact me at (865) 220-4730.

Sincerely,

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

SBM:ckf

Enclosures

c: Ms. Barbara Nwokike, Orlando (hardcopy and CD)
Mr. Rick Allen, Harding ESE (CD)
Mr. David Grabka, FDEP (CD)
Ms. Nancy Rodriguez, USEPA Region IV (CD)
Mr. Steve Tsangaris, CH2M Hill (CD)
Dr. Rick Arnseth, Tetra Tech NUS
Mr. Mike Campbell, Tetra Tech NUS
Ms. Teresa Grayson, Tetra Tech NUS
Mr. Mark Perry, Tetra Tech NUS (unbound)
Mr. Steve Ruffing, Tetra Tech NUS
Ms. Debbie Wroblewski, Tetra Tech NUS (cover letter only)
File/db

TREATABILITY STUDY
FOR
STUDY AREA 2

TEST REPORT NO. 2:
JULY 2001 SAMPLING RESULTS

Naval Training Center
Orlando, Florida

Southern Division
Naval Facilities Engineering Command
Contract Number N62467-94-D-0888
Contract Task Order 0151

SEPTEMBER 2001

TREATABILITY STUDY – INJECTION OF OXYGEN RELEASE COMPOUND® STUDY AREA 2, NAVAL TRAINING CENTER, ORLANDO

Report Title:	Test Report No. 2 – 2nd Quarter Sampling Results
Prepared by:	Ms. Teresa Grayson, Lead Engineer Dr. Rick Arnseth, Senior Hydrogeochemist
Period of Performance:	July 2001 – September 2001
Contract:	No. N62467-94-D-0888 Contract Task Order No. 0151
SOUTHDIV RPM:	Ms. Barbara Nwokike
TtNUS TO Manager:	Mr. Steven B. McCoy, P.E.
Submittal Date:	September 26, 2001

1. INTRODUCTION

A pilot-scale treatability study has been initiated at Study Area 2 (SA 2) at the former Naval Training Center (NTC), Orlando, Florida. The objective of the study is to determine the effectiveness of Oxygen Release Compound (ORC®) in reducing the groundwater contaminant concentrations in the source area. This report presents the results of the second quarterly groundwater monitoring event.

2. STUDY SUMMARY

Harding Lawson Associates (HLA) completed a site screening investigation in 1998 at the Navy's Herndon Annex property designated as SA 2 (HLA, 1999). Figure 1 shows the location of SA 2 in relation to other areas of NTC and other major features in Orlando. The results of screening activities showed no benzene contamination in groundwater samples collected at depths up to 40 feet below ground surface (bgs). However, a groundwater plume contaminated with benzene exists in the southeastern corner of Herndon Annex at depths ranging from 40 to 62 feet bgs.

Tetra Tech NUS, Inc. (TtNUS) performs quarterly sampling at SA 2 and the adjacent neighborhood, Azalea Park, to evaluate trends in the groundwater quality. Observed benzene concentrations have remained essentially unchanged with the exception of minor seasonal variations. Two previously used wells located immediately west of the source area were destroyed in the first quarter of 2001 during construction activities including one well (OLD-02-10C) that was planned for use in the treatability study. Five of the permanent wells screened in the zone of concern are included in the study.

In March 2000, TtNUS evaluated natural attenuation data to determine if subsurface conditions were conducive to natural biodegradation. The evaluation concluded that increased dissolved oxygen is needed to create aerobic conditions required for biodegradation of benzene. The lack of dissolved oxygen is attributed to the depth of the benzene plume.

TtNUS recommended ORC® injection to supply additional dissolved oxygen to the groundwater. This strategy relies on the release of dissolved oxygen to increase the microbial activity, thereby increasing contaminant destruction through aerobic respiration. The injection was performed beginning in December 2001 and completed in February 2001 as a treatability study, with ORC® injected into the portion of the aquifer with the highest benzene concentrations at a depth of 35 to 55 feet bgs. Figure 2 shows the approximate boundary of the treated zone.

First quarter groundwater sampling results indicated higher benzene concentrations occurred in microwells closest to the ORC® injection points (Figure 3) with many of the lower concentrations, within a microwell group, observed in the more downgradient microwells (TtNUS, 2001). The magnitude of the benzene concentrations, with concentrations often higher than those detected from recent measurements in monitoring wells, also suggested that the ORC® treatment has stimulated biological activity within the aquifer.

3. GROUNDWATER SAMPLING

The treatability study will include four quarters of groundwater samples collected from 5 selected monitoring wells and 15 microwells. Groundwater quality trends will be evaluated for VOCs and natural attenuation parameters. A final treatability study report will be prepared after the first year of sampling and any conclusions from the study will be discussed. Section 4 presents the results of the second quarterly sampling event of the ORC® treatability study at SA 2.

TtNUS conducted second quarter groundwater sampling at SA 2 in July 2001. The fieldwork was performed in accordance with the *Work Plan for the Treatability Study at Study Area 2* (TtNUS, 2000), and the POP (ABB-ES, 1997). Treatability study groundwater sampling was coordinated with routine quarterly sampling at other sites at NTC Orlando for cost effectiveness.

Groundwater sampling at SA 2 began on July 11, 2001. Five monitoring wells (OLD-02-08C, OLD-02-13C, OLD-02-19C, OLD-02-20B, and OLD-02-21C) and 15 microwells were purged and sampled with a peristaltic pump using the low-flow method described in the Project Operations Plan (POP). Purging of the wells consisted of removing groundwater at a rate of approximately 100 mL/min until field parameters, which include temperature, pH, conductivity, turbidity, dissolved oxygen, and oxidation reduction potential, had stabilized. In the existing wells, water levels were continuously monitored to limit drawdown to less than

0.3 foot. Measurement of drawdown in the microwells during purging was not possible due to the diameter of the microwells. Groundwater sample log sheets are included in Appendix A.

The groundwater samples from SA 2 were analyzed for the parameters listed in the table below. Samples for volatile organic compound (VOC) analyses were collected using the tube evacuation method. Samples for dissolved iron and dissolved manganese were field filtered using a 0.45 micrometer filter. Due to a miscommunication with field personnel, groundwater samples were not field filtered for dissolved organic carbon initially. The samples not field filtered were analyzed for total organic carbon. The error was discovered during sampling, and four groundwater samples were field filtered for dissolved organic carbon as intended.

FIXED-BASE LABORATORY ANALYSES	
Parameter	**Analytical Method**
Target Compound List Volatile Organic Compounds	SW-846 5030B/8260B
Dissolved Iron and Dissolved Manganese	SW-846 6010B
Dissolved Organic Carbon	USEPA 415.1
Nitrate, Nitrite, and Sulfate	USEPA 300

All samples were placed in ice-chilled coolers and shipped overnight to Katahdin Analytical Services in Westbrook, Maine, for analysis.

TtNUS personnel placed small vapor strippers in the tubing used for collecting groundwater samples. Following approximately 25 minutes of stripper operation, personnel collected vapor samples and injected them into small, evacuated vials. VaporTech Services, Inc. in Valencia, Pennsylvania, analyzed the vapor samples for carbon dioxide, hydrogen, methane, ethane, ethene, and oxygen using modified Kerr Laboratory Standard Operating Procedure RSK-175.

TtNUS personnel used field kits manufactured by CHEMetrics, Inc. and The Hach Company to measure the parameters shown in the table below. Oxidation reduction potential was determined from the Horiba U-22 flow-through cell during sampling.

FIELD ANALYSES	
Parameter	**Field Test Kit**
Dissolved Oxygen	CHEMetrics K-7501/7512
Carbon Dioxide	CHEMetrics K-1910/1920/1925
Alkalinity	CHEMetrics K-9810/9815/9820
Ferrous Iron	Hach IR-18C
Hydrogen Sulfide	Hach HS-C
Oxidation Reduction Potential	Horiba U-22

4. RESULTS OF SECOND QUARTER GROUNDWATER SAMPLING

4.1 Water Level Survey Results

The water level survey at SA 2 was conducted on July 13, 2001, and the groundwater elevation data are presented in Table 1. Figures 4 and 5 show the potentiometric surface configuration of the shallow and deep portions of the aquifer, respectively. The water level survey was attempted on July 10, 2001, but was not completed due to a rainfall event. The partial set of water level data collected on July 10, 2001, indicated a downward vertical gradient in the treatability study area and in wells near Lake Barton.

The potentiometric data collected on July 13, 2001, following the rainfall event also show a downward vertical gradient across much of the area mapped in Figures 4 and 5. That vertical gradient diminishes as flow approaches Lake Barton. The head differential between the shallow and deep monitoring wells exceeds 2 feet at some locations. An exception to this condition occurs locally in the vicinity of wells OLD-02-04A, OLD-02-20B, and OLD-02-21C (next to the drainage canal) where the vertical gradient is upward, which is consistent with groundwater discharging into the canal.

4.2 Data Validation

Qualification of the fixed base laboratory analytical data was performed using the *USEPA Contract Laboratory Program: National Functional Guidelines for Inorganic Data Review* (USEPA, 1994) and the *USEPA Contract Laboratory Program: National Functional Guidelines for Organic Data Review* (USEPA, 1999). The data validation evaluated data completeness, holding time compliance, calibration compliance, laboratory blank contamination, and detection limits. Limited data validation was performed primarily to eliminate false positives and false negatives. Qualifiers resulting from the validation process are shown with the analyte concentrations in Tables 2, 3, and 4.

4.3 Analytical Results

Table 2 presents a summary of groundwater positive detections for SA 2 for the second quarter monitoring event. Historical groundwater analytical data are presented in Table 3 and a complete listing of the validated analytical data for July 2001 is included in Table 4. Shaded cells indicate analyte concentrations meeting or exceeding the Florida Groundwater Cleanup Target Levels (GCTLs) (FDEP, 1999). Analytical results from the 15 microwells will be used to help evaluate the impact of the ORC® treatment in reducing benzene concentrations in the aquifer. Results from the monitoring wells were used to establish baseline conditions and will be used for background comparisons and verification

of microwell values. The ORC® injections closest to the microwells were installed January 9-10, 2001. Based on the groundwater velocity of 0.11 feet per day determined in the *Base Realignment and Closure, Environmental Site Screening Report, Study Area 2* (HLA, 1999), groundwater flow in the aquifer from early January to early July should transport any impacts from the ORC® 20-21 feet downgradient, impacting the closest microwells.

Historical analytical benzene data for 2-inch groundwater monitoring wells are presented in Figure 6. Results from the July 2001 sampling round with the exception of OLD-02-19C are consistent with prior analytical results for these wells. Analytical results for well OLD-02-19C for October 19, 2000 and July 11, 2001 are suspect. Well identifications were worn and faded. Well OLD-02-20B may have been sampled in place of well OLD-02-19C. New temporary well tags have been placed to prevent future confusion. New permanent well tags for all site wells are scheduled for installation in October 2001. Benzene concentrations in the monitoring wells in the area of the treatability study range from 39 to 130 ppb during the last sampling round. The screened lengths for these permanent monitoring wells are consistent with those of the microwells (5 feet), but the center of the screened interval varies from 39 to 59 feet bgs. Based on data from prior site screening investigations, the screen interval from 45 to 50 feet bgs may have the highest dissolved concentrations.

Analytical data for benzene continue to indicate elevated concentrations from many of the microwells (Figure 7). Other exceedances were observed for trichloroethene and dissolved iron in the microwell samples (Table 2). However, these parameters will not be evaluated in this treatability study. Closer examination of the benzene results indicates that the highest concentrations tend to occur in the microwells of the northeastern cluster, consistent with its location in the core of the benzene plume. The benzene concentrations observed in this microwell cluster in July 2001 are also consistent with the concentration in the nearest monitoring well (OLD-02-13C). However, benzene concentrations in several microwells in the southern clusters exhibit slight decreases between May and July 2001.

Field analyses were performed for dissolved oxygen, dissolved carbon dioxide, ferrous iron, and hydrogen sulfide. In addition, oxidation reduction or redox potential was determined in the field. The results of the field analyses are summarized in Table 5. Field alkalinity measurements were attempted on the first few samples until it became apparent that, at ambient groundwater pH, alkalinity would be undetectable. Several of the field parameters were also analyzed in the laboratory (e.g., dissolved oxygen, dissolved carbon dioxide, and dissolved iron). In addition, several dissolved gases (e.g., methane) were analyzed exclusively in the laboratory. Data presented in Table 5 includes sampling results from the October 1999 baseline monitoring event.

Dissolved oxygen concentrations (Table 5) are still low (consistently below 1 mg/L) and will probably remain low while biological activity is stimulated. Dissolved carbon dioxide concentrations in the microwells exhibit concentrations ranging from 12.9 to 92.3 mg/L (Table 2). Carbon dioxide concentrations may increase as biological oxidation of contaminants continues. Dissolved methane concentrations remain elevated but most microwell samples exhibit a decrease in concentration from May 2001. Oxidation of the dissolved methane will compete with benzene for dissolved oxygen.

5. DATA EVALUATION

The goal of an ORC® application is to increase the oxidation state of groundwater and thereby stimulate more aerobic biological activity. Redox conditions in the ORC® treatment zone prior to the ORC® injection were characterized by elevated concentrations of dissolved methane, relatively low concentrations of dissolved sulfate, and elevated concentrations of dissolved iron. All of these geochemical indicators point to a highly reducing groundwater environment wherein petroleum-derived contaminants, such as benzene, will persist. Adding dissolved oxygen to this environment will reverse some of the reactions that produced methane, consumed sulfate, and mobilized the iron. If enough oxygen is added to overcome the highly reducing conditions, aerobic biological activity will be stimulated and biodegradation of organic contaminants, such as benzene, will accelerate.

Addition of oxygen to the aquifer, previously characterized by methanogenesis, should begin to reverse key redox reactions. The most reduced species, methane, should be oxidized first. Methane concentrations decreased in 12 of the 15 microwells between May and July 2001 (Table 5).

The next affected redox couple should be sulfate/sulfide. Any additional oxygen should oxidize sulfide to sulfate. Sulfate concentrations increased in 11 of the 15 microwells between May and July 2001 (Table 5). The next affected redox couple should be ferric iron/ferrous iron. Ferrous iron is the soluble form of iron common in reducing groundwater environments. Operationally, dissolved iron is iron that passes through a field filter and is synonymous with ferrous iron. As the oxidation state of the aquifer increases ferrous iron concentrations should decrease. Dissolved iron concentrations decreased in 6 of the 14 microwells (dissolved iron was not measured in microwell 23C in July 2001) between May and July 2001 (Table 5). The results of field analyses for ferrous iron are consistent with laboratory analyses for dissolved iron.

Thus, data from the April/May and July 2001 sampling rounds indicate that the ORC® application has raised the oxidation state within the treatment area groundwater. Evidence for the change include:

- A general decrease in the concentration of dissolved methane.
- A general increase in the concentration of dissolved sulfate.
- A general decrease in the dissolved ferrous iron concentration.

The magnitude of the benzene concentrations, with concentrations often higher than pre-study measurements from monitoring wells, also suggests that the ORC® treatment has stimulated biological activity in the aquifer. One of the first observed manifestations of increased biological activity is an initial spike in contaminant concentrations ascribed to increased production of biosurfactants that mobilize sorbed organics from aquifer surfaces. Following the initial flush of contaminants into the dissolved phase, stimulated biological activity may oxidize the dissolved organics. Preliminary indications of contaminant biodegradation may be evident in the slight decreases in benzene concentrations in 13 of the 20 wells (5 monitoring wells and 15 microwells) between May and July 2001.

The next quarterly groundwater monitoring event is due in October 2001 but is not yet funded and may be delayed. The third quarterly treatability study report will be prepared and submitted approximately 3 months following the completion of the third quarter sampling event.

6. REFERENCES

ABB-ES (ABB Environmental Services, Inc.), 1997. *Project Operations Plan for Site Investigations and Remedial Investigations.* Naval Training Center, Orlando, Florida, Unit Identification Code N65928, Navy CLEAN District 1, Contract No. N62467-89-D-0317, August.

FDEP (Florida Department of Environmental Protection), 1999. *Development of Soil Cleanup Target Levels (SCTLs) for Chapter 62-777, F.A.C.* CEH/TR-99-01, May 26.

HLA (Harding Lawson Associates), 1999. *Base Realignment and Closure, Environmental Site Screening Report, Study Area 2, Herndon Annex, Naval Training Center, Orlando, Florida.* Unit Identification Code N65928. Navy Clean District 1, Contract No. N62467-89-D-0317/107, July.

TtNUS (Tetra Tech NUS, Inc.), 2000. *Work Plan for the Treatability Study Report at Study Area 2.* Document No. 4711003, December 13.

TtNUS, 2001. *Treatability Study Report No. 1 Study Area 2.* Document No. 47061004, July 3.

USEPA (U.S. Environmental Protection Agency), 1994. *USEPA Contract Laboratory Program: National Functional Guidelines for Inorganic Data Review.* EPA/540/R-94/013, Office of Solid Waste and Emergency Response, Washington, D.C., February.

USEPA, 1999. *USEPA Contract Laboratory Program: National Functional Guidelines for Organic Data Review.* EPA/540/R-99/008, Office of Solid Waste and Emergency Response, Washington, D.C., October.

TABLES

No.	1	Water-Level Elevations Summary
	2	Positive Detections in Groundwater – July 2001
	3	Historical Detections In Groundwater
	4	Validated Groundwater Analytical Results – July 2001
	5	Natural Attenuation Parameter Results

TABLE 1

WATER-LEVEL ELEVATIONS SUMMARY
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well	Screen Interval (BGS)	Well Type	TOC Elevation (AMSL)	12/16/98		7/13/99		10/23/99		1/19/00		4/11/00		7/17/00	
				Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)
OLD-02-01A	7-17	2" well	104.70	11.15	93.55	10.93	93.77	10.38	94.32	11.14	93.56	11.59	93.11	11.57	93.13
OLD-02-02A	3-13	2" well	111.27	9.97	101.30	10.44	100.83	8.40	102.87	9.76	101.51	10.93	100.34	11.09	100.18
OLD-02-03A	3-13	2" well	117.45	DRY	DRY	DRY	DRY	8.27	109.18	12.47	104.98	12.55	104.90	12.45	105.00
OLD-02-04A	5-15	2" well	110.03	12.40	97.63	12.09	97.94	10.53	99.50	11.99	98.04	12.75	97.28	12.87	97.16
OLD-02-05A	3-13	2" well	112.89	10.67	102.22	10.38	102.51	8.13	104.76	10.24	102.65	11.55	101.34	11.90	100.99
OLD-02-06A	3-13	2" well	109.17	7.75	101.42	8.02	101.15	5.45	103.72	7.36	101.81	8.86	100.31	9.34	99.83
OLD-02-07C	57-62	2" well	111.52	13.42	98.10	13.79	97.73	13.00	98.52	13.59	97.93	14.47	97.05	14.56	96.96
OLD-02-08C	60-65	2" well	112.31	10.01	102.30	10.59	101.72	7.83	104.48	9.72	102.59	11.37	100.94	11.84	100.47
OLD-02-09A	5-15	2" well	112.34	9.80	102.54	10.40	101.94	7.48	104.86	9.41	102.93	11.02	101.32	11.71	100.63
OLD-02-10C	52-57	2" well	106.90	10.08	96.82	10.04	96.86	8.71	98.19	9.91	96.99	10.90	96.00	11.06	95.84
OLD-02-11A	5-15	2" well	107.14	7.45	99.69	7.65	99.49	5.23	101.91	7.09	100.05	8.40	98.74	9.01	98.13
OLD-02-12C	53-58	2" well	116.04	NM	NM	14.26	101.78	11.59	104.45	13.45	102.59	15.12	100.92	15.55	100.49
OLD-02-13C	44-49	2" well	104.72	8.97	95.75	8.75	95.97	7.53	97.19	8.80	95.92	9.59	95.13	9.66	95.06
OLD-02-14C	41-46	2" well	102.74	9.38	93.36	9.21	93.53	8.88	93.86	9.37	93.37	9.78	92.96	9.82	92.92
OLD-02-15A	10-15	2" well	100.05	5.85	94.20	5.06	94.99	3.58	96.47	5.50	94.55	6.42	93.63	6.25	93.80
OLD-02-16B	28-33	2" well	99.97	5.78	94.19	4.99	94.98	3.52	96.45	5.31	94.66	6.35	93.62	6.13	93.84
OLD-02-17C	45-50	2" well	99.82	8.60	91.22	4.87	94.95	3.59	96.23	5.15	94.67	5.83	93.99	6.05	93.77
OLD-02-18B	29-34	2" well	102.17	6.60	95.57	5.81	96.36	5.19	96.98	6.24	95.93	7.30	94.87	6.85	95.32
OLD-02-19C	49-54	2" well	102.32	6.77	95.55	6.40	95.92	5.26	97.06	6.53	95.79	6.65	95.67	7.34	94.98
OLD-02-20B	36-41	2" well	108.26	7.78	100.48	7.95	100.31	6.04	102.22	7.30	100.96	8.56	99.70	8.93	99.33
OLD-02-21C	56-61	2" well	108.56	7.00	101.56	7.38	101.18	5.97	102.59	6.54	102.02	8.02	100.54	8.41	100.15
OLD-02-23C	45-50	¾" m well	109.31	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
OLD-02-24C	45-50	¾" m well	109.52	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
OLD-02-25C	45-50	¾" m well	109.70	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
OLD-02-26C	45-50	¾" m well	109.42	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
OLD-02-27C	45-50	¾" m well	110.37	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
OLD-02-28C	45-50	¾" m well	108.23	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
OLD-02-29C	45-50	¾" m well	108.70	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
OLD-02-30C	45-50	¾" m well	108.99	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
OLD-02-31C	45-50	¾" m well	108.81	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
OLD-02-32C	45-50	¾" m well	108.96	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
OLD-02-33C	45-50	¾" m well	103.87	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
OLD-02-34C	45-61	¾" m well	103.73	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
OLD-02-35C	45-62	¾" m well	103.62	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
OLD-02-36C	45-63	¾" m well	103.55	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
OLD-02-37C	45-50	¾" m well	103.45	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI

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TABLE 1

WATER-LEVEL ELEVATIONS SUMMARY
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well	Screen Interval (BGS)	Well Type	TOC Elevation (AMSL)	10/18/00		1/24/01		4/30/01		7/13/01	
				Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)
OLD-02-01A	7-17	2" well	104.70	10.62	94.08	11.53	93.17	11.42	93.28	10.03	94.67
OLD-02-02A	3-13	2" well	111.27	10.52	100.75	DRY	DRY	DRY	DRY	10.28	100.99
OLD-02-03A	3-13	2" well	117.45	12.59	104.86	NM	NM	12.65	104.80	12.67	104.78
OLD-02-04A	5-15	2" well	110.03	12.82	97.21	13.27	96.76	10.04	99.99	12.24	97.79
OLD-02-05A	3-13	2" well	112.89	11.27	101.62	11.53	101.36	11.58	101.31	10.76	102.13
OLD-02-06A	3-13	2" well	109.17	8.23	100.94	9.80	99.37	9.39	99.78	7.87	101.30
OLD-02-07C	57-62	2" well	111.52	14.11	97.41	14.89	96.63	14.75	96.77	13.71	97.81
OLD-02-08C	60-65	2" well	112.31	10.79	101.52	12.31	100.00	11.95	100.36	10.42	101.89
OLD-02-09A	5-15	2" well	112.34	10.69	101.65	12.20	100.14	11.81	100.53	10.22	102.12
OLD-02-10C	52-57	2" well	106.90	10.63	96.27	11.33	95.57	destroyed	destroyed	destroyed	destroyed
OLD-02-11A	5-15	2" well	107.14	8.17	98.97	9.24	97.90	destroyed	destroyed	destroyed	destroyed
OLD-02-12C	53-58	2" well	116.04	14.52	101.52	15.59	100.45	15.68	100.36	14.15	101.89
OLD-02-13C	44-49	2" well	104.72	9.43	95.29	9.94	94.78	9.74	94.98	8.95	95.77
OLD-02-14C	41-46	2" well	102.74	9.38	93.36	9.69	93.05	9.61	93.13	9.20	93.54
OLD-02-15A	10-15	2" well	100.05	5.74	94.31	6.47	93.58	6.17	93.88	5.13	94.92
OLD-02-16B	28-33	2" well	99.97	5.67	94.30	6.40	93.57	6.21	93.76	5.08	94.89
OLD-02-17C	45-50	2" well	99.82	5.64	94.18	6.28	93.54	6.50	93.32	4.96	94.86
OLD-02-18B	29-34	2" well	102.17	7.10	95.07	7.28	94.89	7.35	94.82	6.03	96.14
OLD-02-19C	49-54	2" well	102.32	6.67	95.65	7.66	94.66	7.42	94.90	6.66	95.66
OLD-02-20B	36-41	2" well	108.26	8.27	99.99	9.37	98.89	9.00	99.26	8.00	100.26
OLD-02-21C	56-61	2" well	108.56	7.72	100.84	8.94	99.62	8.52	100.04	7.33	101.23
OLD-02-23C	45-50	¾" m well	109.31	NI	NI	NI	NI	10.45*	98.86	9.03	100.28
OLD-02-24C	45-50	¾" m well	109.52	NI	NI	NI	NI	10.51	99.01	9.25	100.27
OLD-02-25C	45-50	¾" m well	109.70	NI	NI	NI	NI	10.70	99.00	9.39	100.31
OLD-02-26C	45-50	¾" m well	109.42	NI	NI	NI	NI	10.42	99.00	9.13	100.29
OLD-02-27C	45-50	¾" m well	110.37	NI	NI	NI	NI	11.35	99.02	10.08	100.29
OLD-02-28C	45-50	¾" m well	108.23	NI	NI	NI	NI	10.24	97.99	12.54	95.69
OLD-02-29C	45-50	¾" m well	108.70	NI	NI	NI	NI	13.62	95.08	13.04	95.66
OLD-02-30C	45-50	¾" m well	108.99	NI	NI	NI	NI	14.45	94.54	13.29	95.70
OLD-02-31C	45-50	¾" m well	108.81	NI	NI	NI	NI	13.84	94.97	12.97	95.84
OLD-02-32C	45-50	¾" m well	108.96	NI	NI	NI	NI	NM	NM	12.98	95.98
OLD-02-33C	45-50	¾" m well	103.87	NI	NI	NI	NI	9.80	94.07	9.03	94.84
OLD-02-34C	45-61	¾" m well	103.73	NI	NI	NI	NI	9.65	94.08	8.86	94.87
OLD-02-35C	45-62	¾" m well	103.62	NI	NI	NI	NI	9.54	94.08	8.74	94.88
OLD-02-36C	45-63	¾" m well	103.55	NI	NI	NI	NI	9.52	94.03	8.69	94.86
OLD-02-37C	45-50	¾" m well	103.45	NI	NI	NI	NI	9.38	94.07	8.59	94.86

TABLE 1

WATER-LEVEL ELEVATIONS SUMMARY
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Footnotes:

* - measured May 1, 2001
All measurements are in units of feet.
AMSL - Above mean sea level
BGS - Below ground surface
BTOC - Below top of casing
NI - Not Installed
NM - Not measured
TOC - Top of casing

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TABLE 2

POSITIVE DETECTIONS IN GROUNDWATER - JULY 2001
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION		Screening Criteria[a]		OLD-02-08C	OLD-02-13C		OLD-02-19C	OLD-02-20B
SAMPLE ID	CAS	Florida	NTC	NTC02G08C18	NTC02G13C18	NTC02G13C18-D	NTC02G19C18	NTC02G20B18
SAMPLE DATE	NUMBER	GCTL[b]	BGSV[c]	7/11/01	7/12/01	7/12/01	7/11/01	7/10/01
Volatiles (μg/L)								
4-Methyl-2-Pentanone	108-10-1	560						
Acetone	67-64-1	700						
Benzene	71-43-2	1		0.5 J	130	140		39
Carbon Disulfide	75-15-0	700						
Chloroethane	75-00-3	12						
Chloroform	67-66-3	5.7						
cis-1,2-Dichloroethene	156-59-2	70		0.5 J	6	7		2
Ethylbenzene	100-41-4	30			3	3		0.8 J
Total Xylenes	1330-20-7	20						
Trichloroethene	79-01-6	3			2			4
Volatiles Gaseous (μg/L)								
Ethane	74-84-0	*		0.73	0.38	NA		0.26
Ethene	74-85-1	*				NA		0.01
Methane	72-82-8	*		349	930	NA	51.2	629.7
Inorganics (μg/L)								
Iron	7439-89-6	300	1227	1680	270	249	1900	1190
Manganese	7439-96-5	50	17	5.8	4	3.6	8.3	4.8
Miscellaneous (mg/L)								
Carbon Dioxide	124-38-9	*		73.9	76.6	NA	58.1	87.5
Dissolved Organic Carbon		*		NA	NA	NA	NA	NA
Hydrogen (nm/L)	1333-74-0	*		3.2	1.5	NA	1.3	0.8
Nitrate As Nitrogen	14797-55-8	*		0.06		NA		
Nitrogen	7727-37-9	*		9.7	7.6	NA	7.7	8.2
Oxygen	7782-44-7	*		0.32	0.22	NA		0.45
Sulfate	14808-79-8	250		40	7.2	6.2	8.1	50
Total Organic Carbon		*		4	7.6	9.1	3	5

TABLE 2

POSITIVE DETECTIONS IN GROUNDWATER - JULY 2001
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION		Screening Criteria[a]		OLD-02-21C	OLD-02-23C	OLD-02-24C	OLD-02-25C	OLD-02-26C
SAMPLE ID	CAS NUMBER	Florida GCTL[b]	NTC BGSV[c]	NTC02G21C18	NTC02G23C18	NTC02G24C18	NTC02G25C18	NTC02G26C18
SAMPLE DATE				7/10/01	7/11/01	7/11/01	7/12/01	7/11/01
Volatiles (μg/L)								
4-Methyl-2-Pentanone	108-10-1	560						
Acetone	67-64-1	700				2 J		2 J
Benzene	71-43-2	1		51	53	82	85	57
Carbon Disulfide	75-15-0	700						
Chloroethane	75-00-3	12						
Chloroform	67-66-3	5.7						
cis-1,2-Dichloroethene	156-59-2	70		4	3	2 J	6	3
Ethylbenzene	100-41-4	30		0.8 J	0.7 J		3	1
Total Xylenes	1330-20-7	20						
Trichloroethene	79-01-6	3		3	3	3	2	2
Volatiles Gaseous (μg/L)								
Ethane	74-84-0	*			0.28	0.26	0.35	0.18
Ethene	74-85-1	*			0.1	0.09	0.03	0.36
Methane	72-82-8	*		2.4	624.9	646.8	734.7	417.4
Inorganics (μg/L)								
Iron	7439-89-6	300	1227	592	4840	989	7890	8280
Manganese	7439-96-5	50	17	6.6	29.3	5.8	17.7	23.4
Miscellaneous (mg/L)								
Carbon Dioxide	124-38-9	*		36	79.8	92.3	78	67.7
Dissolved Organic Carbon		*		NA	NA	NA	NA	NA
Hydrogen (nm/L)	1333-74-0	*		0.8	0.9	0.8	2	10.6
Nitrate As Nitrogen	14797-55-8	*			0.07			0.06
Nitrogen	7727-37-9	*		6.3	7.7	8.3	8	6.2
Oxygen	7782-44-7	*		0.9	0.2	0.39	0.17	0.5
Sulfate	14808-79-8	250		30	20	40	11	30
Total Organic Carbon		*		5.9	12	5	17	5.8

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TABLE 2

POSITIVE DETECTIONS IN GROUNDWATER - JULY 2001
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-27C		OLD-02-28C	OLD-02-29C	OLD-02-30C
SAMPLE ID		Florida GCTL[b]	NTC BGSV[c]	NTC02G27C18	NTC02G27C18-D	NTC02G28C18	NTC02G29C18	NTC02G30C18
SAMPLE DATE				7/12/01	7/12/01	7/12/01	7/11/01	7/12/01
Volatiles (μg/L)								
4-Methyl-2-Pentanone	108-10-1	560					2 J	
Acetone	67-64-1	700				3 J	4 J	
Benzene	71-43-2	1		54	65	73	49	120
Carbon Disulfide	75-15-0	700				4	7	
Chloroethane	75-00-3	12						
Chloroform	67-66-3	5.7						
cis-1,2-Dichloroethene	156-59-2	70		4	4	6	3	8
Ethylbenzene	100-41-4	30		1	1	3	2	6
Total Xylenes	1330-20-7	20			1	2	0.9 J	13
Trichloroethene	79-01-6	3		[illegible]	2	1	0.7 J	2
Volatiles Gaseous (μg/L)								
Ethane	74-84-0	*		0.33	0.33	0.3	0.4	0.68
Ethene	74-85-1	*		0.08	0.08	0.17	0.12	0.09
Methane	72-82-8	*		790.8	698.1	500.4	624.9	1005.6
Inorganics (μg/L)								
Iron	7439-89-6	300	1227	2100	2270	714	404	460
Manganese	7439-96-5	50	17	15.9	17.5	12.3	16.8	5.1
Miscellaneous (mg/L)								
Carbon Dioxide	124-38-9	*		87.5	82.1	70.7	57.6	89.7
Dissolved Organic Carbon		*		NA	NA	NA	NA	NA
Hydrogen (nm/L)	1333-74-0	*		1.1	1.1	3.5	24	1.3
Nitrate As Nitrogen	14797-55-8	*					0.1	
Nitrogen	7727-37-9	*		10	8.4	6.6	8.7	8.8
Oxygen	7782-44-7	*		0.49	0.36		0.38	
Sulfate	14808-79-8	250		28	27	12	9.5	7.7
Total Organic Carbon		*		5.7	5.1	27	70	21

TABLE 2

POSITIVE DETECTIONS IN GROUNDWATER - JULY 2001
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION		Screening Criteria[a]		OLD-02-31C	OLD-02-32C	OLD-02-33C	OLD-02-34C	OLD-02-35C
SAMPLE ID	CAS NUMBER	Florida GCTL[b]	NTC BGSV[c]	NTC02G31C18	NTC02G32C18	NTC02G33C18	NTC02G34C18	NTC02G35C18
SAMPLE DATE				7/13/01	7/12/01	7/13/01	7/13/01	7/12/01
Volatiles (µg/L)								
4-Methyl-2-Pentanone	108-10-1	560			4			
Acetone	67-64-1	700						
Benzene	71-43-2	1		91	130	120	20	340
Carbon Disulfide	75-15-0	700		2				2
Chloroethane	75-00-3	12			2 J			
Chloroform	67-66-3	5.7			0.7 J			
cis-1,2-Dichloroethene	156-59-2	70		6	8	6	6	7
Ethylbenzene	100-41-4	30		7	8	4	3	5
Total Xylenes	1330-20-7	20		14	10			5
Trichloroethene	79-01-6	3		2		1	1	2
Volatiles Gaseous (µg/L)								
Ethane	74-84-0	*		0.04	0.65	0.54	0.79	0.59
Ethene	74-85-1	*		0.08	0.37	0.02	0.03	0.01
Methane	72-82-8	*		36.6	905.6	727.4	1008.1	746.9
Inorganics (µg/L)								
Iron	7439-89-6	300	1227	1140	416	272	268	334
Manganese	7439-96-5	50	17	17.6	5	3.6	3.8	5
Miscellaneous (mg/L)								
Carbon Dioxide	124-38-9	*		12.9	82	72.5	83.1	76.7
Dissolved Organic Carbon		*		13	NA	7.4	9.6	NA
Hydrogen (nm/L)	1333-74-0	*		12.5	1.2	0.7	0.8	0.9
Nitrate As Nitrogen	14797-55-8	*						
Nitrogen	7727-37-9	*		8.4	7.7	6.8	9	7
Oxygen	7782-44-7	*		0.85	0.2	0.19	0.27	0.16
Sulfate	14808-79-8	250		6.1	9.4	13	9.8	13
Total Organic Carbon		*		24	26	5.6	5.5	11

TABLE 2

POSITIVE DETECTIONS IN GROUNDWATER - JULY 2001
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-36C	OLD-02-37C
SAMPLE ID		Florida GCTL[b]	NTC BGSV[c]	NTC02G36C18	NTC02G37C18
SAMPLE DATE				7/13/01	7/12/01
Volatiles (µg/L)					
4-Methyl-2-Pentanone	108-10-1	560			
Acetone	67-64-1	700			
Benzene	71-43-2	1		[redacted]	[redacted]
Carbon Disulfide	75-15-0	700			1
Chloroethane	75-00-3	12			
Chloroform	67-66-3	5.7		0.6 J	
cis-1,2-Dichloroethene	156-59-2	70		7	7
Ethylbenzene	100-41-4	30		6	6
Total Xylenes	1330-20-7	20			7
Trichloroethene	79-01-6	3		2	2
Volatiles Gaseous (µg/L)					
Ethane	74-84-0	*		0.78	0.65
Ethene	74-85-1	*		0.01	0.03
Methane	72-82-8	*		986.1	837.2
Inorganics (µg/L)					
Iron	7439-89-6	300	1227	415	303
Manganese	7439-96-5	50	17	4.8	4.1
Miscellaneous (mg/L)					
Carbon Dioxide	124-38-9	*		83.4	76.6
Dissolved Organic Carbon		*		8.6	NA
Hydrogen (nm/L)	1333-74-0	*		1	0.8
Nitrate As Nitrogen	14797-55-8	*			
Nitrogen	7727-37-9	*		8.6	7.2
Oxygen	7782-44-7	*		0.24	0.21
Sulfate	14808-79-8	250		8	5.4
Total Organic Carbon		*		16	1

TABLE 2

POSITIVE DETECTIONS IN GROUNDWATER
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Footnotes:

[a] For an organic analyte, the screening criterion is the GCTL; for an inorganic analyte with an established GCTL and BGSV. Analytes with no GCTL are not considered to have exceedances.

[b] Groundwater Cleanup Target Level [Development of soil cleanup target Levels (SCTLs) for Chapter 62-777, F.A.C., May 26, 1999].

[c] Background Screening Value Level (Background Sampling Report for NTC, Orlando, Florida; ABB Environmental Services, August 1995) for inorganics only.

* Indicates the criteria or screening value not available.

All Units are in ug/L except MISC Parameters which are in mg/L.

Empty cells indicate non-detects.

"J" qualifier indicates an estimated value.

NA - Not analyzed.

Values in shaded cells meet or exceed the GCTL.

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TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-08C						OLD-02-13C	
SAMPLE ID		Florida GCTL[b]	NTC BGSV[c]	NTC02G08C13	NTC02G08C14	NTC02G08C15	NTC02G08C16	NTC02G08C17	NTC02G08C18	NTC02G13C13	NTC02G13C14
SAMPLE DATE				4/12/00	7/18/00	10/19/00	1/24/01	4/30/01	7/11/01	4/12/00	7/18/00
Volatiles (µg/L)											
1,2-Dichloroethane	107-06-3	3									
1,2,4-Trimethylbenzene[d]	95-63-6	10									
1,3,5-Trimethylbenzene[d]	108-67-8	10									
2-Butanone	78-93-3	4200									
2-Hexanone	591-78-6	280									
4-Isopropyltoluene[d]	99-87-6	*									
4-Methyl-2-Pentanone	108-10-1	560									
Acetone	67-64-1	700									
Benzene	71-43-2	1							0.5 J		
Bromodichloromethane	75-27-4	0.6									
Carbon Disulfide	75-15-0	700									
Chloroethane	75-00-3	12									
Chloroform	67-66-3	5.7									
Chloromethane	74-87-3	2.7									
cis-1,2-Dichloroethene	156-59-2	70		2.8	1	0.14 J	2		0.5 J	1	1.1 J
Ethylbenzene	100-41-4	30		0.37 J							0.34 J
Isopropylbenzene[d]	98-82-8	0.8									
m-Xylene & p-Xylene[d]		*									
Methylene Chloride	75-09-2	5									
o-Xylene(d)		*									
Tetrachloroethene	127-18-4	3									
Toluene	108-88-3	40									
Trichloroethene	79-01-6	3		0.45 J							
Xylenes, Total	1330-20-7	20									
Volatiles Gaseous (µg/L)				NA	NA	NA	NA			NA	NA
Ethane	74-84-0	*						0.29	0.73		
Ethene	74-85-1	*									
Methane	72-82-8	*						251.4	349		
Semivolatiles (µg/L)				NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	117-81-7	6									
o-Dichlorobenzene		*									
Phenanthrene	85-01-8	210									
Phenol	108-95-2	10									
Inorganics (µg/L)				NA	NA	NA	NA			NA	NA
Aluminium	7429-90-5	200	4067					NA	NA		
Antimony	7440-36-0	6	4.1					NA	NA		
Arsenic	7440-38-2	50	5					NA	NA		
Barium	7440-39-3	2000	31.4					NA	NA		
Beryllium	7440-41-7	4	*					NA	NA		
Calcium	7440-70-2	*	36830					NA	NA		

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-08C						OLD-02-13C	
SAMPLE ID		Florida GCTL[b]	NTC BGSV[c]	NTC02G08C13	NTC02G08C14	NTC02G08C15	NTC02G08C16	NTC02G08C17	NTC02G08C18	NTC02G13C13	NTC02G13C14
SAMPLE DATE				4/12/00	7/18/00	10/19/00	1/24/01	4/30/01	7/11/01	4/12/00	7/18/00
Inorganics (μg/L)				NA	NA	NA	NA			NA	NA
Chromium	7440-47-3	100	7.8					NA	NA		
Copper	7440-50-8	1000	5.4					NA	NA		
Iron	7439-89-6	300	1227					NA	NA		
Iron (Dissolved)	7439-89-6	300	1227					882	[illegible]		
Lead	7439-92-1	15	4					NA	NA		
Magnesium	7439-95-4	*	4560					NA	NA		
Manganese	7439-96-5	50	17					NA	NA		
Manganese (Dissolved)	7439-96-5	50	17					5.8	5.8		
Mercury	7439-97-6	2	0.12					NA	NA		
Potassium	7440-09-7	*	5400					NA	NA		
Selenium	7782-49-2	50	9.7					NA	NA		
Sodium	7440-23-5	160000	18222					NA	NA		
Vanadium	7440-62-2	49	20.6					NA	NA		
Zinc	7440-66-6	5000	4					NA	NA		
Misc. (mg/L)				NA	NA	NA	NA			NA	NA
Carbon Dioxide	124-38-9	*						65.3	73.9		
Dissolved Organic Carbon		*						NA	NA		
Hydrogen (nm/L)	1333-74-0	*						NA	3.2		
Nitrate	14797-55-8	10,000							0.06		
Nitrogen	7727-37-9	*						10.3	9.7		
Oxygen	7782-44-7	*						0.4	0.32		
Sulfate	14808-79-8	250,000						36 J	40		
Total Organic Carbon		*						21	4		

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-13C						OLD-02-19C	
SAMPLE ID		Florida GCTL[b]	NTC BGSV[c]	NTC02G13C14-D	NTC02G13C15	NTC02G13C16	NTC02G13C17	NTC02G13C18	NTC02G13C18-D	NTC02G19C13	NTC02G19C14
SAMPLE DATE				7/18/00	10/19/00	1/24/01	4/30/01	7/12/01	7/12/01	4/12/00	7/17/00
Volatiles (µg/L)											
1,2-Dichloroethane	107-06-3	3									
1,2,4-Trimethylbenzene[d]	95-63-6	10									
1,3,5-Trimethylbenzene[d]	108-67-8	10									
2-Butanone	78-93-3	4200									
2-Hexanone	591-78-6	280									
4-Isopropyltoluene[d]	99-87-6	*									
4-Methyl-2-Pentanone	108-10-1	560									
Acetone	67-64-1	700									
Benzene	71-43-2	1									
Bromodichloromethane	75-27-4	0.6									
Carbon Disulfide	75-15-0	700									
Chloroethane	75-00-3	12									
Chloroform	67-66-3	5.7									
Chloromethane	74-87-3	2.7									
cis-1,2-Dichloroethene	156-59-2	70		5.3 J	4.2	3	3	6		1.4	1.4
Ethylbenzene	100-41-4	30		1.8 J		0.6 J	0.8 J	3		0.45 J	0.4 J
Isopropylbenzene[d]	98-82-8	0.8									
m-Xylene & p-Xylene[d]		*									
Methylene Chloride	75-09-2	5									
o-Xylene(d)		*									
Tetrachloroethene	127-18-4	3									
Toluene	108-88-3	40									
Trichloroethene	79-01-6	3		0.99 J	0.94 J		0.6 J	2			
Xylenes, Total	1330-20-7	20				0.6 J	2			1.7	1.6
Volatiles Gaseous (µg/L)				NA	NA	NA			NA	NA	NA
Ethane	74-84-0	*					0.41	0.38			
Ethene	74-85-1	*					0.08				
Methane	72-82-8	*					637.1	930			
Semivolatiles (µg/L)				NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	117-81-7	6									
o-Dichlorobenzene		*									
Phenanthrene	85-01-8	210									
Phenol	108-95-2	10									
Inorganics (µg/L)				NA	NA	NA				NA	NA
Aluminium	7429-90-5	200	4067				NA	NA	NA		
Antimony	7440-36-0	6	4.1				NA	NA	NA		
Arsenic	7440-38-2	50	5				NA	NA	NA		
Barium	7440-39-3	2000	31.4				NA	NA	NA		
Beryllium	7440-41-7	4	*				NA	NA	NA		
Calcium	7440-70-2	*	36830				NA	NA	NA		

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-13C						OLD-02-19C	
SAMPLE ID		Florida GCTL[b]	NTC BGSV[c]	NTC02G13C14-D	NTC02G13C15	NTC02G13C16	NTC02G13C17	NTC02G13C18	NTC02G13C18-D	NTC02G19C13	NTC02G19C14
SAMPLE DATE				7/18/00	10/19/00	1/24/01	4/30/01	7/12/01	7/12/01	4/12/00	7/17/00
Inorganics (μg/L)				NA	NA	NA				NA	NA
Chromium	7440-47-3	100	7.8				NA	NA	NA		
Copper	7440-50-8	1000	5.4				NA	NA	NA		
Iron	7439-89-6	300	1227				NA	NA	NA		
Iron (Dissolved)	7439-89-6	300	1227				243	270	249		
Lead	7439-92-1	15	4				NA	NA	NA		
Magnesium	7439-95-4	*	4560				NA	NA	NA		
Manganese	7439-96-5	50	17				NA	NA	NA		
Manganese (Dissolved)	7439-96-5	50	17				2.8	4	3.6		
Mercury	7439-97-6	2	0.12				NA	NA	NA		
Potassium	7440-09-7	*	5400				NA	NA	NA		
Selenium	7782-49-2	50	9.7				NA	NA	NA		
Sodium	7440-23-5	160000	18222				NA	NA	NA		
Vanadium	7440-62-2	49	20.6				NA	NA	NA		
Zinc	7440-66-6	5000	4				NA	NA	NA		
Misc. (mg/L)				NA	NA	NA				NA	NA
Carbon Dioxide	124-38-9	*					69.4	76.6			
Dissolved Organic Carbon		*						NA	NA		
Hydrogen (nm/L)	1333-74-0	*					0.9	1.5			
Nitrate	14797-55-8	10,000									
Nitrogen	7727-37-9	*					7.3	7.6			
Oxygen	7782-44-7	*						0.22			
Sulfate	14808-79-8	250,000					3	7.2	6.2		
Total Organic Carbon		*					2	7.6	9.1		

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-19C				OLD-02-20B				
SAMPLE ID		Florida GCTL[b]	NTC BGSV[c]	NTC02G19C15	NTC02G19C16	NTC02G19C17	NTC02G19C18	NTC02G20B13	NTC02G20B14	NTC02G20B15	NTC02G20B16	NTC02G20B17
SAMPLE DATE				10/19/00	1/25/01	5/3/01	7/11/01	4/11/00	7/17/00	10/19/00	1/24/01	5/2/01
Volatiles (μg/L)												
1,2-Dichloroethane	107-06-3	3										
1,2,4-Trimethylbenzene[d]	95-63-6	10										
1,3,5-Trimethylbenzene[d]	108-67-8	10										
2-Butanone	78-93-3	4200										
2-Hexanone	591-78-6	280										
4-Isopropyltoluene[d]	99-87-6	*										
4-Methyl-2-Pentanone	108-10-1	560										
Acetone	67-64-1	700							2.6 J			
Benzene	71-43-2	1			[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	50	41
Bromodichloromethane	75-27-4	0.6										
Carbon Disulfide	75-15-0	700										0.4 J
Chloroethane	75-00-3	12										
Chloroform	67-66-3	5.7										
Chloromethane	74-87-3	2.7										
cis-1,2-Dichloroethene	156-59-2	70			2	1 J		2.5	2.1	2.7	3	2 J
Ethylbenzene	100-41-4	30			0.6 J			0.64 J	0.49 J	0.58 J	0.7 J	
Isopropylbenzene[d]	98-82-8	0.8										
m-Xylene & p-Xylene[d]		*										
Methylene Chloride	75-09-2	5										
o-Xylene(d)		*										
Tetrachloroethene	127-18-4	3										
Toluene	108-88-3	40										
Trichloroethene	79-01-6	3						1.7	1.7	1.4 J	2	2
Xylenes, Total	1330-20-7	20			2							
Volatiles Gaseous (μg/L)				NA	NA			NA	NA	NA	NA	
Ethane	74-84-0	*				0.17						0.29
Ethene	74-85-1	*										0.07
Methane	72-82-8	*				97.6	51.2					649.3
Semivolatiles (μg/L)				NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	117-81-7	6										
o-Dichlorobenzene		*										
Phenanthrene	85-01-8	210										
Phenol	108-95-2	10										
Inorganics (μg/L)				NA	NA			NA	NA	NA	NA	
Aluminium	7429-90-5	200	4067			NA	NA					NA
Antimony	7440-36-0	6	4.1			NA	NA					NA
Arsenic	7440-38-2	50	5			NA	NA					NA
Barium	7440-39-3	2000	31.4			NA	NA					NA
Beryllium	7440-41-7	4	*			NA	NA					NA
Calcium	7440-70-2	*	36830			NA	NA					NA

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-19C				OLD-02-20B				
SAMPLE ID		Florida GCTL[b]	NTC BGSV[c]	NTC02G19C15	NTC02G19C16	NTC02G19C17	NTC02G19C18	NTC02G20B13	NTC02G20B14	NTC02G20B15	NTC02G20B16	NTC02G20B17
SAMPLE DATE				10/19/00	1/25/01	5/3/01	7/11/01	4/11/00	7/17/00	10/19/00	1/24/01	5/2/01
Inorganics (μg/L)				NA	NA			NA	NA	NA	NA	
Chromium	7440-47-3	100	7.8			NA	NA					NA
Copper	7440-50-8	1000	5.4			NA	NA					NA
Iron	7439-89-6	300	1227			NA	NA					NA
Iron (Dissolved)	7439-89-6	300	1227			371	[redacted]					1050
Lead	7439-92-1	15	4			NA	NA					NA
Magnesium	7439-95-4	*	4560			NA	NA					NA
Manganese	7439-96-5	50	17			NA	NA					NA
Manganese (Dissolved)	7439-96-5	50	17			4	8.3					5.1
Mercury	7439-97-6	2	0.12			NA	NA					NA
Potassium	7440-09-7	*	5400			NA	NA					NA
Selenium	7782-49-2	50	9.7			NA	NA					NA
Sodium	7440-23-5	160000	18222			NA	NA					NA
Vanadium	7440-62-2	49	20.6			NA	NA					NA
Zinc	7440-66-6	5000	4			NA	NA					NA
Misc. (mg/L)				NA	NA			NA	NA	NA	NA	
Carbon Dioxide	124-38-9	*				47.8	58.1					95
Dissolved Organic Carbon		*				NA	NA					
Hydrogen (nm/L)	1333-74-0	*				1.5	1.3					1.1
Nitrate	14797-55-8	10,000										0.2
Nitrogen	7727-37-9	*				8.6	7.7					10.7
Oxygen	7782-44-7	*				0.63						0.58
Sulfate	14808-79-8	250,000					8.1					41 J
Total Organic Carbon		*				3	3					5.7

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-20B		OLD-02-21C					
SAMPLE ID		Florida GCTL[b]	NTC BGSV[c]	NTC02G20B17-D	NTC02G20B18	NTC02G21C13	NTC02G21C14	NTC02G21C15	NTC02G21C16	NTC02G21C17	NTC02G21C18
SAMPLE DATE				5/3/01	7/10/01	4/11/00	7/17/00	10/19/00	1/24/01	5/2/01	7/10/01
Volatiles (µg/L)											
1,2-Dichloroethane	107-06-3	3									
1,2,4-Trimethylbenzene[d]	95-63-6	10									
1,3,5-Trimethylbenzene[d]	108-67-8	10									
2-Butanone	78-93-3	4200									
2-Hexanone	591-78-6	280									
4-Isopropyltoluene[d]	99-87-6	*									
4-Methyl-2-Pentanone	108-10-1	560									
Acetone	67-64-1	700					2.1 J		4 J		
Benzene	71-43-2	1			[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Bromodichloromethane	75-27-4	0.6									
Carbon Disulfide	75-15-0	700									
Chloroethane	75-00-3	12									
Chloroform	67-66-3	5.7									
Chloromethane	74-87-3	2.7									
cis-1,2-Dichloroethene	156-59-2	70			2	5.4	4.4	4.4	7	4	4
Ethylbenzene	100-41-4	30			0.8 J	0.66 J	0.53 J		0.8 J		0.8 J
Isopropylbenzene[d]	98-82-8	0.8									
m-Xylene & p-Xylene[d]		*									
Methylene Chloride	75-09-2	5									
o-Xylene(d)		*									
Tetrachloroethene	127-18-4	3									
Toluene	108-88-3	40									
Trichloroethene	79-01-6	3			4	0.91 J	1.3 J	0.89 J		2	3
Xylenes, Total	1330-20-7	20									
Volatiles Gaseous (µg/L)						NA	NA	NA	NA		
Ethane	74-84-0	*		0.73	0.26					0.33	
Ethene	74-85-1	*		0.06	0.01					0.31	
Methane	72-82-8	*		888.5	629.7					497.9	2.4
Semivolatiles (µg/L)				NA		NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	117-81-7	6									
o-Dichlorobenzene		*									
Phenanthrene	85-01-8	210									
Phenol	108-95-2	10									
Inorganics (µg/L)				NA		NA	NA	NA	NA		
Aluminium	7429-90-5	200	4067		NA					NA	NA
Antimony	7440-36-0	6	4.1		NA					NA	NA
Arsenic	7440-38-2	50	5		NA					NA	NA
Barium	7440-39-3	2000	31.4		NA					NA	NA
Beryllium	7440-41-7	4	*		NA					NA	NA
Calcium	7440-70-2	*	36830		NA					NA	NA

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-20B		OLD-02-21C					
SAMPLE ID		Florida GCTL[b]	NTC BGSV[c]	NTC02G20B17-D	NTC02G20B18	NTC02G21C13	NTC02G21C14	NTC02G21C15	NTC02G21C16	NTC02G21C17	NTC02G21C18
SAMPLE DATE				5/3/01	7/10/01	4/11/00	7/17/00	10/19/00	1/24/01	5/2/01	7/10/01
Inorganics (μg/L)				NA		NA	NA	NA	NA		
Chromium	7440-47-3	100	7.8		NA					NA	NA
Copper	7440-50-8	1000	5.4		NA					NA	NA
Iron	7439-89-6	300	1227		NA					NA	NA
Iron (Dissolved)	7439-89-6	300	1227		1190					394	592
Lead	7439-92-1	15	4		NA					NA	NA
Magnesium	7439-95-4	*	4560		NA					NA	NA
Manganese	7439-96-5	50	17		NA					NA	NA
Manganese (Dissolved)	7439-96-5	50	17		4.8					6.1	6.6
Mercury	7439-97-6	2	0.12		NA					NA	NA
Potassium	7440-09-7	*	5400		NA					NA	NA
Selenium	7782-49-2	50	9.7		NA					NA	NA
Sodium	7440-23-5	160000	18222		NA					NA	NA
Vanadium	7440-62-2	49	20.6		NA					NA	NA
Zinc	7440-66-6	5000	4		NA					NA	NA
Misc. (mg/L)						NA	NA	NA	NA		
Carbon Dioxide	124-38-9	*		90.2	87.5					81.5	36
Dissolved Organic Carbon		*		NA	NA					NA	NA
Hydrogen (nm/L)	1333-74-0	*		1.4	0.8					1.2	0.8
Nitrate	14797-55-8	10,000								0.08	
Nitrogen	7727-37-9	*		8.6	8.2					10.2	6.3
Oxygen	7782-44-7	*		1.2	0.45					0.25	0.9
Sulfate	14808-79-8	250,000			50					69 J	30
Total Organic Carbon		*			5					6	5.9

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-23C		OLD-02-24C		OLD-02-25C		OLD-02-26C	
SAMPLE ID		Florida GCTL[b]	NTC BGSV[c]	NTC02G23C17	NTC02G23C18	NTC02G24C17	NTC02G24C18	NTC02G25C17	NTC02G25C18	NTC02G26C17	NTC02G26C18
SAMPLE DATE				5/1/01	7/11/01	5/1/01	7/11/01	5/1/01	7/12/01	5/1/01	7/11/01
Volatiles (µg/L)											
1,2-Dichloroethane	107-06-3	3									
1,2,4-Trimethylbenzene[d]	95-63-6	10									
1,3,5-Trimethylbenzene[d]	108-67-8	10									
2-Butanone	78-93-3	4200									
2-Hexanone	591-78-6	280									
4-Isopropyltoluene[d]	99-87-6	*									
4-Methyl-2-Pentanone	108-10-1	560									
Acetone	67-64-1	700					2 J				2 J
Benzene	71-43-2	1		60	53	34	37	55	66	67	57
Bromodichloromethane	75-27-4	0.6									
Carbon Disulfide	75-15-0	700						0.8 J			
Chloroethane	75-00-3	12									
Chloroform	67-66-3	5.7									
Chloromethane	74-87-3	2.7									
cis-1,2-Dichloroethene	156-59-2	70		4	3	2	2 J	7	6	4	3
Ethylbenzene	100-41-4	30		2	0.7 J	0.7 J		4	3	2	1
Isopropylbenzene[d]	98-82-8	0.8									
m-Xylene & p-Xylene[d]		*									
Methylene Chloride	75-09-2	5									
o-Xylene(d)		*									
Tetrachloroethene	127-18-4	3		1						0.5 J	
Toluene	108-88-3	40									
Trichloroethene	79-01-6	3			3		3		2		2
Xylenes, Total	1330-20-7	20						2 J			
Volatiles Gaseous (µg/L)											
Ethane	74-84-0	*		0.36	0.28	0.31	0.26	0.28	0.35	0.38	0.18
Ethene	74-85-1	*		0.57	0.1	0.88	0.09	0.4	0.03	0.13	0.36
Methane	72-82-8	*		910.4	624.9	812.8	646.8	878.7	734.7	644.4	417.4
Semivolatiles (µg/L)				NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	117-81-7	6									
o-Dichlorobenzene		*									
Phenanthrene	85-01-8	210									
Phenol	108-95-2	10									
Inorganics (µg/L)											
Aluminium	7429-90-5	200	4067	NA		NA		NA		NA	
Antimony	7440-36-0	6	4.1	NA		NA		NA		NA	
Arsenic	7440-38-2	50	5	NA	NA	NA	NA	NA	NA	NA	NA
Barium	7440-39-3	2000	31.4	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	7440-41-7	4	*	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	7440-70-2	*	36830	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-23C		OLD-02-24C		OLD-02-25C		OLD-02-26C	
SAMPLE ID		Florida GCTL[b]	NTC BGSV[c]	NTC02G23C17	NTC02G23C18	NTC02G24C17	NTC02G24C18	NTC02G25C17	NTC02G25C18	NTC02G26C17	NTC02G26C18
SAMPLE DATE				5/1/01	7/11/01	5/1/01	7/11/01	5/1/01	7/12/01	5/1/01	7/11/01
Inorganics (µg/L)											
Chromium	7440-47-3	100	7.8	NA	NA	NA	NA	NA	NA	NA	NA
Copper	7440-50-8	1000	5.4	NA	NA	NA	NA	NA	NA	NA	NA
Iron	7439-89-6	300	1227	NA	NA	NA	NA	NA	NA	NA	NA
Iron (Dissolved)	7439-89-6	300	1227	7080	4640	1090	989	2540	1680	3980	3280
Lead	7439-92-1	15	4	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	7439-95-4	*	4560	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	7439-96-5	50	17	NA	NA	NA	NA	NA	NA	NA	NA
Manganese (Dissolved)	7439-96-5	50	17	59.6	29.3		5.8	23.4	17.7	32.5	23.4
Mercury	7439-97-6	2	0.12	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	7440-09-7	*	5400	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	7782-49-2	50	9.7	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	7440-23-5	160000	18222	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	7440-62-2	49	20.6	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	7440-66-6	5000	4	NA	NA	NA	NA	NA	NA	NA	NA
Misc. (mg/L)											
Carbon Dioxide	124-38-9	*		90.6	79.8	101.6	92.3	90.1	78	87.3	67.7
Dissolved Organic Carbon		*		NA	NA	NA	NA	NA	NA	NA	NA
Hydrogen (nm/L)	1333-74-0	*		1.6	0.9	1.5	0.8	1.9	2	1.3	10.6
Nitrate	14797-55-8	10,000			0.07						0.06
Nitrogen	7727-37-9	*		11.3	7.7	10.6	8.3	9.3	8	9.1	6.2
Oxygen	7782-44-7	*		0.35	0.2	0.54	0.39	0.27	0.17	0.31	0.5
Sulfate	14808-79-8	250,000		15	20	36	40	8.3	11	24	30
Total Organic Carbon		*		5.2	12	3	5	5.7	17	5.3	5.8

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-27C			OLD-02-28C		OLD-02-29C	
SAMPLE ID		Florida	NTC	NTC02G27C17	NTC02G27C18	NTC02G27C18-D	NTC02G28C17	NTC02G28C18	NTC02G29C17	NTC02G29C18
SAMPLE DATE		GCTL[b]	BGSV[c]	5/1/01	7/12/01	7/12/01	5/2/01	7/12/01	5/2/01	7/11/01
Volatiles (µg/L)										
1,2-Dichloroethane	107-06-3	3								
1,2,4-Trimethylbenzene[d]	95-63-6	10								
1,3,5-Trimethylbenzene[d]	108-67-8	10								
2-Butanone	78-93-3	4200								
2-Hexanone	591-78-6	280								
4-Isopropyltoluene[d]	99-87-6	*								
4-Methyl-2-Pentanone	108-10-1	560								2 J
Acetone	67-64-1	700						3 J		4 J
Benzene	71-43-2	1								
Bromodichloromethane	75-27-4	0.6								
Carbon Disulfide	75-15-0	700					5	4	5	7
Chloroethane	75-00-3	12								
Chloroform	67-66-3	5.7								
Chloromethane	74-87-3	2.7								
cis-1,2-Dichloroethene	156-59-2	70		4	4	4	8	6	9	3
Ethylbenzene	100-41-4	30		2	1	1	8	3	10	2
Isopropylbenzene[d]	98-82-8	0.8								
m-Xylene & p-Xylene[d]		*								
Methylene Chloride	75-09-2	5								
o-Xylene(d)		*								
Tetrachloroethene	127-18-4	3		0.4 J						
Toluene	108-88-3	40							0.4 J	
Trichloroethene	79-01-6	3			3	2		1	2	0.7 J
Xylenes, Total	1330-20-7	20				1	12	2		0.9 J
Volatiles Gaseous (µg/L)										
Ethane	74-84-0	*		0.34	0.33	0.33	0.42	0.3	0.94	0.4
Ethene	74-85-1	*		0.25	0.08	0.08	0.09	0.17	0.17	0.12
Methane	72-82-8	*		661.5	790.8	698.1	734.7	500.4	1410.8	624.9
Semivolatiles (µg/L)				NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	117-81-7	6								
o-Dichlorobenzene		*								
Phenanthrene	85-01-8	210								
Phenol	108-95-2	10								
Inorganics (µg/L)										
Aluminium	7429-90-5	200	4067	NA			NA		NA	
Antimony	7440-36-0	6	4.1	NA			NA		NA	
Arsenic	7440-38-2	50	5	NA	NA	NA	NA	NA	NA	NA
Barium	7440-39-3	2000	31.4	NA	NA	NA	NA	NA	NA	NA
Beryllium	7440-41-7	4	*	NA	NA	NA	NA	NA	NA	NA
Calcium	7440-70-2	*	36830	NA	NA	NA	NA	NA	NA	NA

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-27C			OLD-02-28C		OLD-02-29C	
SAMPLE ID		Florida GCTL[b]	NTC BGSV[c]	NTC02G27C17	NTC02G27C18	NTC02G27C18-D	NTC02G28C17	NTC02G28C18	NTC02G29C17	NTC02G29C18
SAMPLE DATE				5/1/01	7/12/01	7/12/01	5/2/01	7/12/01	5/2/01	7/11/01
Inorganics (µg/L)										
Chromium	7440-47-3	100	7.8	NA	NA	NA	NA	NA	NA	NA
Copper	7440-50-8	1000	5.4	NA	NA	NA	NA	NA	NA	NA
Iron	7439-89-6	300	1227	NA	NA	NA	NA	NA	NA	NA
Iron (Dissolved)	7439-89-6	300	1227	3140	2100	2270	979	714	761	404
Lead	7439-92-1	15	4	NA	NA	NA	NA	NA	NA	NA
Magnesium	7439-95-4	*	4560	NA	NA	NA	NA	NA	NA	NA
Manganese	7439-96-5	50	17	NA	NA	NA	NA	NA	NA	NA
Manganese (Dissolved)	7439-96-5	50	17	24.2	15.9	17.5	9.4	12.3	7.7	16.8
Mercury	7439-97-6	2	0.12	NA	NA	NA	NA	NA	NA	NA
Potassium	7440-09-7	*	5400	NA	NA	NA	NA	NA	NA	NA
Selenium	7782-49-2	50	9.7	NA	NA	NA	NA	NA	NA	NA
Sodium	7440-23-5	160000	18222	NA	NA	NA	NA	NA	NA	NA
Vanadium	7440-62-2	49	20.6	NA	NA	NA	NA	NA	NA	NA
Zinc	7440-66-6	5000	4	NA	NA	NA	NA	NA	NA	NA
Misc. (mg/L)										
Carbon Dioxide	124-38-9	*		86.8	87.5	82.1	91.2	70.7	100.2	57.6
Dissolved Organic Carbon		*		NA	NA	NA	NA	NA	NA	NA
Hydrogen (nm/L)	1333-74-0	*		1.5	1.1	1.1	1.4		1.9	24
Nitrate	14797-55-8	10,000								0.1
Nitrogen	7727-37-9	*		8.2	10	8.4	8.7	6.6	11.7	8.7
Oxygen	7782-44-7	*		0.41	0.49	0.36	0.47		0.16	0.38
Sulfate	14808-79-8	250,000		20	28	27	11	12	5	9.5
Total Organic Carbon		*		8.7	5.7	5.1	9.9	27	14	70

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-30C			OLD-02-31C		OLD-02-32C	
SAMPLE ID		Florida GCTL[b]	NTC BGSV[c]	NTC02G30C17	NTC02G30C17-D	NTC02G30C18	NTC02G31C17	NTC02G31C18	NTC02G32C17	NTC02G32C18
SAMPLE DATE				5/2/01	5/2/01	7/12/01	5/2/01	7/13/01	5/2/01	7/12/01
Volatiles (µg/L)										
1,2-Dichloroethane	107-06-3	3								
1,2,4-Trimethylbenzene[d]	95-63-6	10								
1,3,5-Trimethylbenzene[d]	108-67-8	10								
2-Butanone	78-93-3	4200								
2-Hexanone	591-78-6	280								
4-Isopropyltoluene[d]	99-87-6	*								
4-Methyl-2-Pentanone	108-10-1	560					3 J		2 J	4
Acetone	67-64-1	700								
Benzene	71-43-2	1		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Bromodichloromethane	75-27-4	0.6								
Carbon Disulfide	75-15-0	700					4	2	1	
Chloroethane	75-00-3	12								2 J
Chloroform	67-66-3	5.7								0.7 J
Chloromethane	74-87-3	2.7								
cis-1,2-Dichloroethene	156-59-2	70		8	8	8	9	6	9	8
Ethylbenzene	100-41-4	30		6	6	6	10	7	9	8
Isopropylbenzene[d]	98-82-8	0.8								
m-Xylene & p-Xylene[d]		*								
Methylene Chloride	75-09-2	5								
o-Xylene(d)		*								
Tetrachloroethene	127-18-4	3								
Toluene	108-88-3	40			0.4 J		0.5 J		0.5 J	
Trichloroethene	79-01-6	3				2		2	2	3
Xylenes, Total	1330-20-7	20		[redacted]	[redacted]	13	[redacted]	14	[redacted]	10
Volatiles Gaseous (µg/L)										
Ethane	74-84-0	*		0.21	0.54	0.68	0.71	0.04	0.84	0.65
Ethene	74-85-1	*		0.05	0.08	0.09	0.21	0.08	0.07	0.37
Methane	72-82-8	*		368.6	932.4	1005.6	991	36.6	1203.3	905.6
Semivolatiles (µg/L)				NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	117-81-7	6								
o-Dichlorobenzene		*								
Phenanthrene	85-01-8	210								
Phenol	108-95-2	10								
Inorganics (µg/L)										
Aluminium	7429-90-5	200	4067	NA	NA		NA		NA	
Antimony	7440-36-0	6	4.1	NA	NA		NA		NA	
Arsenic	7440-38-2	50	5	NA	NA	NA	NA	NA	NA	NA
Barium	7440-39-3	2000	31.4	NA	NA	NA	NA	NA	NA	NA
Beryllium	7440-41-7	4	*	NA	NA	NA	NA	NA	NA	NA
Calcium	7440-70-2	*	36830	NA	NA	NA	NA	NA	NA	NA

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-30C			OLD-02-31C		OLD-02-32C	
SAMPLE ID		Florida GCTL[b]	NTC BGSV[c]	NTC02G30C17	NTC02G30C17-D	NTC02G30C18	NTC02G31C17	NTC02G31C18	NTC02G32C17	NTC02G32C18
SAMPLE DATE				5/2/01	5/2/01	7/12/01	5/2/01	7/13/01	5/2/01	7/12/01
Inorganics (μg/L)										
Chromium	7440-47-3	100	7.8	NA	NA	NA	NA	NA	NA	NA
Copper	7440-50-8	1000	5.4	NA	NA	NA	NA	NA	NA	NA
Iron	7439-89-6	300	1227	NA	NA	NA	NA	NA	NA	NA
Iron (Dissolved)	7439-89-6	300	1227	500	521	460	1160	1140	300	416
Lead	7439-92-1	15	4	NA	NA	NA	NA	NA	NA	NA
Magnesium	7439-95-4	*	4560	NA	NA	NA	NA	NA	NA	NA
Manganese	7439-96-5	50	17	NA	NA	NA	NA	NA	NA	NA
Manganese (Dissolved)	7439-96-5	50	17	5.4	5.4	5.1	10.8	17.6	3.6	5
Mercury	7439-97-6	2	0.12	NA	NA	NA	NA	NA	NA	NA
Potassium	7440-09-7	*	5400	NA	NA	NA	NA	NA	NA	NA
Selenium	7782-49-2	50	9.7	NA	NA	NA	NA	NA	NA	NA
Sodium	7440-23-5	160000	18222	NA	NA	NA	NA	NA	NA	NA
Vanadium	7440-62-2	49	20.6	NA	NA	NA	NA	NA	NA	NA
Zinc	7440-66-6	5000	4	NA	NA	NA	NA	NA	NA	NA
Misc. (mg/L)										
Carbon Dioxide	124-38-9	*		66.3	99.7	89.7	90.7	12.9	97.4	82
Dissolved Organic Carbon		*		NA	NA	NA	NA	13	NA	NA
Hydrogen (nm/L)	1333-74-0	*		1.3	1.4	1.3	1.3	12.5	1.3	1.2
Nitrate	14797-55-8	10,000								
Nitrogen	7727-37-9	*		4.7	7.8	8.8	7.8	8.4	9	7.7
Oxygen	7782-44-7	*		0.76	0.28		0.54	0.85	0.31	0.2
Sulfate	14808-79-8	250,000		8.3	8.4	7.7	5.2	6.1	5.4	9.4
Total Organic Carbon		*		8.6	11	21	13	24	5	26

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-33C		OLD-02-34C		OLD-02-35C		OLD-02-36C	
SAMPLE ID		Florida GCTL[b]	NTC BGSV[c]	NTC02G33C17	NTC02G33C18	NTC02G34C17	NTC02G34C18	NTC02G35C17	NTC02G35C18	NTC02G36C17	NTC02G36C18
SAMPLE DATE				5/3/01	7/13/01	5/3/01	7/13/01	5/3/01	7/12/01	5/3/01	7/13/01
Volatiles (µg/L)											
1,2-Dichloroethane	107-06-3	3									
1,2,4-Trimethylbenzene[d]	95-63-6	10									
1,3,5-Trimethylbenzene[d]	108-67-8	10									
2-Butanone	78-93-3	4200									
2-Hexanone	591-78-6	280								5	
4-Isopropyltoluene[d]	99-87-6	*									
4-Methyl-2-Pentanone	108-10-1	560									
Acetone	67-64-1	700									
Benzene	71-43-2	1		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Bromodichloromethane	75-27-4	0.6									
Carbon Disulfide	75-15-0	700						2	2	2	
Chloroethane	75-00-3	12									
Chloroform	67-66-3	5.7									0.6 J
Chloromethane	74-87-3	2.7									
cis-1,2-Dichloroethene	156-59-2	70		6	6	7	6	7	7	8	7
Ethylbenzene	100-41-4	30		5	4	5	3	7	5	7	6
Isopropylbenzene[d]	98-82-8	0.8									
m-Xylene & p-Xylene[d]		*									
Methylene Chloride	75-09-2	5									
o-Xylene(d)		*									
Tetrachloroethene	127-18-4	3									
Toluene	108-88-3	40									
Trichloroethene	79-01-6	3		2	1	2	1	2	2	2	2
Xylenes, Total	1330-20-7	20							5		
Volatiles Gaseous (µg/L)											
Ethane	74-84-0	*		0.77	0.54	0.7	0.79	0.84	0.59	0.81	0.78
Ethene	74-85-1	*		0.04	0.02	0.08	0.03	0.06	0.01	0.07	0.01
Methane	72-82-8	*		1054.5	727.4	922.6	1008.1	1130.1	746.9	1042.2	986.1
Semivolatiles (µg/L)				NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	117-81-7	6									
o-Dichlorobenzene		*									
Phenanthrene	85-01-8	210									
Phenol	108-95-2	10									
Inorganics (µg/L)											
Aluminium	7429-90-5	200	4067	NA		NA		NA		NA	
Antimony	7440-36-0	6	4.1	NA		NA		NA		NA	
Arsenic	7440-38-2	50	5	NA	NA	NA	NA	NA	NA	NA	NA
Barium	7440-39-3	2000	31.4	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	7440-41-7	4	*	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	7440-70-2	*	36830	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-33C		OLD-02-34C		OLD-02-35C		OLD-02-36C	
SAMPLE ID		Florida GCTL[b]	NTC BGSV[c]	NTC02G33C17	NTC02G33C18	NTC02G34C17	NTC02G34C18	NTC02G35C17	NTC02G35C18	NTC02G36C17	NTC02G36C18
SAMPLE DATE				5/3/01	7/13/01	5/3/01	7/13/01	5/3/01	7/12/01	5/3/01	7/13/01
Inorganics (µg/L)											
Chromium	7440-47-3	100	7.8	NA	NA	NA	NA	NA	NA	NA	NA
Copper	7440-50-8	1000	5.4	NA	NA	NA	NA	NA	NA	NA	NA
Iron	7439-89-6	300	1227	NA	NA	NA	NA	NA	NA	NA	NA
Iron (Dissolved)	7439-89-6	300	1227	450	272	463	268	685	334	681	415
Lead	7439-92-1	15	4	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	7439-95-4	*	4560	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	7439-96-5	50	17	NA	NA	NA	NA	NA	NA	NA	NA
Manganese (Dissolved)	7439-96-5	50	17	5.8	3.6	5.5	3.8	7.3	5	7.6	4.8
Mercury	7439-97-6	2	0.12	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	7440-09-7	*	5400	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	7782-49-2	50	9.7	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	7440-23-5	160000	18222	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	7440-62-2	49	20.6	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	7440-66-6	5000	4	NA	NA	NA	NA	NA	NA	NA	NA
Misc. (mg/L)											
Carbon Dioxide	124-38-9	*		90.9	72.5	86.1	83.1	94.6	76.7	92.7	83.4
Dissolved Organic Carbon		*		NA	7.4	NA	9.6	NA	NA	NA	8.6
Hydrogen (nm/L)	1333-74-0	*		1.2	0.7	1.1	0.8	1.3	0.9	1	1
Nitrate	14797-55-8	10,000									
Nitrogen	7727-37-9	*		9.9	6.8	8.3	9	10.3	7	9.4	8.6
Oxygen	7782-44-7	*		0.24	0.19	0.3	0.27	0.44	0.16	0.39	0.24
Sulfate	14808-79-8	250,000		12	13	7.9	9.8	16	13	13	8
Total Organic Carbon		*		6	5.6	6	5.5	6	11	5	16

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-37C		
SAMPLE ID		Florida GCTL[b]	NTC BGSV[c]	NTC02G37C17	NTC02G37C17-D	NTC02G37C18
SAMPLE DATE				5/3/01	5/3/01	7/12/01
Volatiles (µg/L)						
1,2-Dichloroethane	107-06-3	3				
1,2,4-Trimethylbenzene[d]	95-63-6	10				
1,3,5-Trimethylbenzene[d]	108-67-8	10				
2-Butanone	78-93-3	4200				
2-Hexanone	591-78-6	280				
4-Isopropyltoluene[d]	99-87-6	*				
4-Methyl-2-Pentanone	108-10-1	560				
Acetone	67-64-1	700				
Benzene	71-43-2	1		150	150	150
Bromodichloromethane	75-27-4	0.6				
Carbon Disulfide	75-15-0	700		2	2	1
Chloroethane	75-00-3	12				
Chloroform	67-66-3	5.7				
Chloromethane	74-87-3	2.7				
cis-1,2-Dichloroethene	156-59-2	70		7	7	7
Ethylbenzene	100-41-4	30		7	6	6
Isopropylbenzene[d]	98-82-8	0.8				
m-Xylene & p-Xylene[d]		*				
Methylene Chloride	75-09-2	5				
o-Xylene(d)		*				
Tetrachloroethene	127-18-4	3				
Toluene	108-88-3	40				
Trichloroethene	79-01-6	3		2	2	2
Xylenes, Total	1330-20-7	20				7
Volatiles Gaseous (µg/L)	*				NA	
Ethane	74-84-0	*		0.82		0.65
Ethene	74-85-1	*		0.41		0.03
Methane	72-82-8	*		1061.8		837.2
Semivolatiles (µg/L)				NA	NA	NA
bis(2-Ethylhexyl)phthalate	117-81-7	6				
o-Dichlorobenzene		*				
Phenanthrene	85-01-8	210				
Phenol	108-95-2	10				
Inorganics (µg/L)						
Aluminium	7429-90-5	200	4067	NA	NA	
Antimony	7440-36-0	6	4.1	NA	NA	
Arsenic	7440-38-2	50	5	NA	NA	NA
Barium	7440-39-3	2000	31.4	NA	NA	NA
Beryllium	7440-41-7	4	*	NA	NA	NA
Calcium	7440-70-2	*	36830	NA	NA	NA

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	Screening Criteria[a]		OLD-02-37C		
SAMPLE ID		Florida GCTL[b]	NTC BGSV[c]	NTC02G37C17	NTC02G37C17-D	NTC02G37C18
SAMPLE DATE				5/3/01	5/3/01	7/12/01
Inorganics (µg/L)						
Chromium	7440-47-3	100	7.8	NA	NA	NA
Copper	7440-50-8	1000	5.4	NA	NA	NA
Iron	7439-89-6	300	1227	NA	NA	NA
Iron (Dissolved)	7439-89-6	300	1227	371	366	303
Lead	7439-92-1	15	4	NA	NA	NA
Magnesium	7439-95-4	*	4560	NA	NA	NA
Manganese	7439-96-5	50	17	NA	NA	NA
Manganese (Dissolved)	7439-96-5	50	17	4.6	4.3	4.1
Mercury	7439-97-6	2	0.12	NA	NA	NA
Potassium	7440-09-7	*	5400	NA	NA	NA
Selenium	7782-49-2	50	9.7	NA	NA	NA
Sodium	7440-23-5	160000	18222	NA	NA	NA
Vanadium	7440-62-2	49	20.6	NA	NA	NA
Zinc	7440-66-6	5000	4	NA	NA	NA
Misc. (mg/L)						
Carbon Dioxide	124-38-9	*		90.9		76.6
Dissolved Organic Carbon		*		NA	NA	NA
Hydrogen (nm/L)	1333-74-0	*		1.2		0.8
Nitrate	14797-55-8	10,000				
Nitrogen	7727-37-9	*		9		7.2
Oxygen	7782-44-7	*		0.45		0.21
Sulfate	14808-79-8	250,000		6	6.3	5.4
Total Organic Carbon		*		7	7	1

Footnotes:

[a] For an organic analyte, the screening criterion is the GCTL; for an inorganic analyte with an established GCTL and BGSV, the screening criterion is the greater of the GCTL or the BGSV. Analytes with no GCTL are not considered to have eceedances.

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

[c] Background Screening Value Level (Background Sampling Report for NTC, Orlando, Florida; ABB Environmental Services, August 1995) for inorganics only.

[d] Analyte not analyzed for in samples collected after 12/98.

* indicates the criterion or screening value not available.

"B" qualifier for inorganic analytes indicates a value between the detection limit and the reporting limit.

"D" qualifier indicates a diluted sample.

Empty cells indicate non-detects.

"J" qualifier indicates an estimated value.

NA – Not analyzed.

Only chemicals detected in at least one sample are shown.

Values in shaded cells meet or exceed the screening criteria.

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TABLE 4

VALIDATED GROUNDWATER ANALYTICAL RESULTS - JULY 2001
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria [a]		OLD-02-08C	OLD-02-13C		OLD-02-19C	OLD-02-20B	OLD-02-21C
SAMPLE ID		Florida GCTL [b]	NTC BGSV[c]	NTC02G08C18	NTC02G13C18	NTC02G13C18-D	NTC02G19C18	NTC02G20B18	NTC02G21C18
SAMPLE DATE				7/11/01	7/12/01	7/12/01	7/11/01	7/10/01	7/10/01
Volatiles (mg/L)									
1,1,1-Trichloroethane	71-55-6	200		1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	79-34-5	0.2		1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	79-00-5	5		1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	75-34-3	70		1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	75-35-4	7		1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	107-06-2	3		1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	78-87-5	5		1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone	78-93-3	4200		5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	591-78-6	280		4 U	4 U	4 U	4 U	4 U	4 U
4-Methyl-2-Pentanone	108-10-1	560		3 U	3 U	3 U	3 U	3 U	3 U
Acetone	67-64-1	700		5 U	5 U	5 U	5 U	5 U	5 U
Benzene	71-43-2	1		0.5 J	80	10	1 U	30	61
Bromodichloromethane	75-27-4	0.6		1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	75-25-2	4.4		1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	74-83-9	9.8		2 U	2 U	2 U	2 U	2 U	2 U
Carbon Disulfide	75-15-0	700		1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	56-23-5	3		1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	108-90-7	100		1 U	1 U	1 U	1 U	1 U	1 U
Chlorodibromomethane	124-48-1	0.4		1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	75-00-3	12		2 U	2 U	2 U	2 U	2 U	2 U
Chloroform	67-66-3	5.7		1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	74-87-3	2.7		2 U	2 U	2 U	2 U	2 U	2 U
cis-1,2-Dichloroethene	156-59-2	70		0.5 J	6	7	2 U	2	4
cis-1,3-Dichloropropene[1]	10061-01-5	0.2		1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	100-41-4	30		1 U	3	3	1 U	0.8 J	0.8 J
Methylene Chloride	75-09-2	5		1 U	1 U	1 U	1 U	1 U	1 U
Styrene	100-42-5	100		1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	127-18-4	3		1 U	1 U	1 U	1 U	1 U	1 U
Toluene	108-88-3	40		1 U	1 U	1 U	1 U	1 U	1 U
Total Xylenes	1330-20-7	20		1 U	1 U	1 U	1 U	1 U	1 U
Trans-1,2-Dichloroethene	156-60-5	100		2 U	2 U	2 U	2 U	2 U	2 U

TABLE 4

VALIDATED GROUNDWATER ANALYTICAL RESULTS - JULY 2001
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria [a]		OLD-02-08C	OLD-02-13C		OLD-02-19C	OLD-02-20B	OLD-02-21C
SAMPLE ID		Florida GCTL [b]	NTC BGSV[c]	NTC02G08C18	NTC02G13C18	NTC02G13C18-D	NTC02G19C18	NTC02G20B18	NTC02G21C18
SAMPLE DATE				7/11/01	7/12/01	7/12/01	7/11/01	7/10/01	7/10/01
Volatiles (mg/L) (Continued)									
Trans-1,3-Dichloropropene[1]	10061-02-6	0.2		1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	79-01-6	3		1 U	2	1 U	1 U	4	3
Vinyl Chloride	75-01-4	1		2 U	2 U	2 U	2 U	2 U	2 U
Volatiles Gaseous (μg/L)									
Ethane	74-84-0	*		0.73	0.38		0.01 U	0.26	0.01 U
Ethene	74-85-1	*		0.01 U	0.02 U		0.02 U	0.01	0.01 U
Methane	72-82-8	*		349	930		51.2	629.7	2.4
Inorganics (μg/L)									
Iron	7439-89-6	300	1227	1880	270	249	1900	1190	592
Manganese	7439-96-5	50	17	5.8	4	3.6	8.3	4.8	6.6
Miscellaneous (mg/L)									
Carbon Dioxide	124-38-9	*		73.9	76.6		58.1	87.5	36
Dissolved Organic Carbon		*							
Hydrogen	1333-74-0	*		3.2	1.5		1.3	0.8	0.8
Nitrate As Nitrogen	14797-55-8	*		0.06	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Nitrite As Nitrogen	14797-65-0	*		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Nitrogen	7727-37-9	*		9.7	7.6		7.7	8.2	6.3
Oxygen	7782-44-7	*		0.32	0.22		0.15 U	0.45	0.9
Sulfate	14808-79-8	250		40	7.2	6.2	8.1	50	30
Total Organic Carbon		*		4	7.6	9.1	3	5	5.9

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TABLE 4

VALIDATED GROUNDWATER ANALYTICAL RESULTS - JULY 2001
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria [a]		OLD-02-23C	OLD-02-24C	OLD-02-25C	OLD-02-26C	OLD-02-27C	
SAMPLE ID		Florida GCTL [b]	NTC BGSV[c]	NTC02G23C18	NTC02G24C18	NTC02G25C18	NTC02G26C18	NTC02G27C18	NTC02G27C18-D
SAMPLE DATE				7/11/01	7/11/01	7/12/01	7/11/01	7/12/01	7/12/01
Volatiles (mg/L)									
1,1,1-Trichloroethane	71-55-6	200		1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	79-34-5	0.2		1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	79-00-5	5		1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	75-34-3	70		1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	75-35-4	7		1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	107-06-2	3		1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	78-87-5	5		1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone	78-93-3	4200		5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	591-78-6	280		4 U	4 U	4 U	4 U	4 U	4 U
4-Methyl-2-Pentanone	108-10-1	560		3 U	3 U	3 U	3 U	3 U	3 U
Acetone	67-64-1	700		5 U	2 J	5 U	2 J	5 U	5 U
Benzene	71-43-2	1		53	67	85	5	54	55
Bromodichloromethane	75-27-4	0.6		1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	75-25-2	4.4		1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	74-83-9	9.8		2 U	2 U	2 U	2 U	2 U	2 U
Carbon Disulfide	75-15-0	700		1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	56-23-5	3		1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	108-90-7	100		1 U	1 U	1 U	1 U	1 U	1 U
Chlorodibromomethane	124-48-1	0.4		1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	75-00-3	12		2 U	2 U	2 U	2 U	2 U	2 U
Chloroform	67-66-3	5.7		1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	74-87-3	2.7		2 U	2 U	2 U	2 U	2 U	2 U
cis-1,2-Dichloroethene	156-59-2	70		3	2 J	6	3	4	4
cis-1,3-Dichloropropene[1]	10061-01-5	0.2		1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	100-41-4	30		0.7 J	1 U	3	1	1	1
Methylene Chloride	75-09-2	5		1 U	1 U	1 U	1 U	1 U	1 U
Styrene	100-42-5	100		1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	127-18-4	3		2 U	2 U	1 U	1 U	1 U	1 U
Toluene	108-88-3	40		1 U	1 U	1 U	1 U	1 U	1 U
Total Xylenes	1330-20-7	20		1 U	1 U	1 U	1 U	1 U	1
Trans-1,2-Dichloroethene	156-60-5	100		2 U	2 U	2 U	2 U	2 U	2 U

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TABLE 4

VALIDATED GROUNDWATER ANALYTICAL RESULTS - JULY 2001
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria [a]		OLD-02-23C	OLD-02-24C	OLD-02-25C	OLD-02-26C	OLD-02-27C	
SAMPLE ID		Florida GCTL [b]	NTC BGSV[c]	NTC02G23C18	NTC02G24C18	NTC02G25C18	NTC02G26C18	NTC02G27C18	NTC02G27C18-D
SAMPLE DATE				7/11/01	7/11/01	7/12/01	7/11/01	7/12/01	7/12/01
Volatiles (mg/L) (Continued)									
Trans-1,3-Dichloropropene[1]	10061-02-6	0.2		1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	79-01-6	3		3	3	2	2	3	2
Vinyl Chloride	75-01-4	1		2 U	2 U	2 U	2 U	2 U	2 U
Volatiles Gaseous (μg/L)									
Ethane	74-84-0	*		0.28	0.26	0.35	0.18	0.33	0.33
Ethene	74-85-1	*		0.1	0.09	0.03	0.36	0.08	0.08
Methane	72-82-8	*		624.9	646.8	734.7	417.4	790.8	698.1
Inorganics (μg/L)									
Iron	7439-89-6	300	1227	4640	989	1690	32800	2100	2270
Manganese	7439-96-5	50	17	29.3	5.8	17.7	23.4	15.9	17.5
Miscellaneous (mg/L)									
Carbon Dioxide	124-38-9	*		79.8	92.3	78	67.7	87.5	82.1
Dissolved Organic Carbon		*							
Hydrogen	1333-74-0	*		0.9	0.8	2	10.6	1.1	1.1
Nitrate As Nitrogen	14797-55-8	*		0.07	0.05 U	0.05 U	0.06	0.05 U	0.05 U
Nitrite As Nitrogen	14797-65-0	*		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Nitrogen	7727-37-9	*		7.7	8.3	8	6.2	10	8.4
Oxygen	7782-44-7	*		0.2	0.39	0.17	0.5	0.49	0.36
Sulfate	14808-79-8	250		20	40	11	30	28	27
Total Organic Carbon		*		12	5	17	5.8	5.7	5.1

TABLE 4

VALIDATED GROUNDWATER ANALYTICAL RESULTS - JULY 2001
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria [a]		OLD-02-28C	OLD-02-29C	OLD-02-30C	OLD-02-31C	OLD-02-32C	OLD-02-33C
SAMPLE ID		Florida	NTC	NTC02G28C18	NTC02G29C18	NTC02G30C18	NTC02G31C18	NTC02G32C18	NTC02G33C18
SAMPLE DATE		GCTL [b]	BGSV[c]	7/12/01	7/11/01	7/12/01	7/13/01	7/12/01	7/13/01
Volatiles (mg/L)									
1,1,1-Trichloroethane	71-55-6	200		1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	79-34-5	0.2		1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	79-00-5	5		1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	75-34-3	70		1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	75-35-4	7		1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	107-06-2	3		1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	78-87-5	5		1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone	78-93-3	4200		5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	591-78-6	280		4 U	4 U	4 U	4 U	4 U	4 U
4-Methyl-2-Pentanone	108-10-1	560		3 U	2 J	3 U	3 U	4	3 U
Acetone	67-64-1	700		3 J	4 J	5 U	5 U	5 U	5 U
Benzene	71-43-2	1		170	9	120	93	130	120
Bromodichloromethane	75-27-4	0.6		1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	75-25-2	4.4		1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	74-83-9	9.8		2 U	2 U	2 U	2 U	2 U	2 U
Carbon Disulfide	75-15-0	700		4	7	1 U	2	1 U	1 U
Carbon Tetrachloride	56-23-5	3		1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	108-90-7	100		1 U	1 U	1 U	1 U	1 U	1 U
Chlorodibromomethane	124-48-1	0.4		1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	75-00-3	12		2 U	2 U	2 U	2 U	2 J	2 U
Chloroform	67-66-3	5.7		1 U	1 U	1 U	1 U	0.7 J	1 U
Chloromethane	74-87-3	2.7		2 U	2 U	2 U	2 U	2 U	2 U
cis-1,2-Dichloroethene	156-59-2	70		6	3	8	6	8	6
cis-1,3-Dichloropropene[1]	10061-01-5	0.2		1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	100-41-4	30		3	2	6	7	8	4
Methylene Chloride	75-09-2	5		1 U	1 U	1 U	1 U	1 U	1 U
Styrene	100-42-5	100		1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	127-18-4	3		1 U	1 U	1 U	1 U	1 U	1 U
Toluene	108-88-3	40		1 U	1 U	1 U	1 U	1 U	1 U
Total Xylenes	1330-20-7	20		2	0.9 J	13	14	10	5 U
Trans-1,2-Dichloroethene	156-60-5	100		2 U	2 U	2 U	2 U	2 U	2 U

TABLE 4

VALIDATED GROUNDWATER ANALYTICAL RESULTS - JULY 2001
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria [a]		OLD-02-28C	OLD-02-29C	OLD-02-30C	OLD-02-31C	OLD-02-32C	OLD-02-33C
SAMPLE ID		Florida	NTC	NTC02G28C18	NTC02G29C18	NTC02G30C18	NTC02G31C18	NTC02G32C18	NTC02G33C18
SAMPLE DATE		GCTL [b]	BGSV[c]	7/12/01	7/11/01	7/12/01	7/13/01	7/12/01	7/13/01
Volatiles (mg/L) (Continued)									
Trans-1,3-Dichloropropene[1]	10061-02-6	0.2		1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	79-01-6	3		1	0.7 J	2	2	3	1
Vinyl Chloride	75-01-4	1		2 U	2 U	2 U	2 U	2 U	2 U
Volatiles Gaseous (μg/L)									
Ethane	74-84-0	*		0.3	0.4	0.68	0.04	0.65	0.54
Ethene	74-85-1	*		0.17	0.12	0.09	0.08	0.37	0.02
Methane	72-82-8	*		500.4	624.9	1005.6	36.6	905.6	727.4
Inorganics (μg/L)									
Iron	7439-89-6	300	1227	714	404	460	1140	416	272
Manganese	7439-96-5	50	17	12.3	16.8	5.1	17.6	5	3.6
Miscellaneous (mg/L)									
Carbon Dioxide	124-38-9	*		70.7	57.6	89.7	12.9	82	72.5
Dissolved Organic Carbon		*					13		7.4
Hydrogen	1333-74-0	*		3.5	24	1.3	12.5	1.2	0.7
Nitrate As Nitrogen	14797-55-8	*		0.05 U	0.1	0.05 U	0.05 U	0.05 U	0.05 U
Nitrite As Nitrogen	14797-65-0	*		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Nitrogen	7727-37-9	*		6.6	8.7	8.8	8.4	7.7	6.8
Oxygen	7782-44-7	*		0.15 U	0.38	0.15 U	0.85	0.2	0.19
Sulfate	14808-79-8	250		12	9.5	7.7	6.1	9.4	13
Total Organic Carbon		*		27	70	21	24	26	5.6

TABLE 4

VALIDATED GROUNDWATER ANALYTICAL RESULTS - JULY 2001
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria [a]		OLD-02-34C	OLD-02-35C	OLD-02-36C	OLD-02-37C
SAMPLE ID		Florida GCTL [b]	NTC BGSV[c]	NTC02G34C18	NTC02G35C18	NTC02G36C18	NTC02G37C18
SAMPLE DATE				7/13/01	7/12/01	7/13/01	7/12/01
Volatiles (mg/L)							
1,1,1-Trichloroethane	71-55-6	200		1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	79-34-5	0.2		1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	79-00-5	5		1 U	1 U	1 U	1 U
1,1-Dichloroethane	75-34-3	70		1 U	1 U	1 U	1 U
1,1-Dichloroethene	75-35-4	7		1 U	1 U	1 U	1 U
1,2-Dichloroethane	107-06-2	3		1 U	1 U	1 U	1 U
1,2-Dichloropropane	78-87-5	5		1 U	1 U	1 U	1 U
2-Butanone	78-93-3	4200		5 U	5 U	5 U	5 U
2-Hexanone	591-78-6	280		4 U	4 U	4 U	4 U
4-Methyl-2-Pentanone	108-10-1	560		3 U	3 U	3 U	3 U
Acetone	67-64-1	700		5 U	5 U	5 U	5 U
Benzene	71-43-2	1		120	140	150	160
Bromodichloromethane	75-27-4	0.6		1 U	1 U	1 U	1 U
Bromoform	75-25-2	4.4		1 U	1 U	1 U	1 U
Bromomethane	74-83-9	9.8		2 U	2 U	2 U	2 U
Carbon Disulfide	75-15-0	700		1 U	2	1 U	1
Carbon Tetrachloride	56-23-5	3		1 U	1 U	1 U	1 U
Chlorobenzene	108-90-7	100		1 U	1 U	1 U	1 U
Chlorodibromomethane	124-48-1	0.4		1 U	1 U	1 U	1 U
Chloroethane	75-00-3	12		2 U	2 U	2 U	2 U
Chloroform	67-66-3	5.7		1 U	1 U	0.6 J	1 U
Chloromethane	74-87-3	2.7		2 U	2 U	2 U	2 U
cis-1,2-Dichloroethene	156-59-2	70		6	7	7	7
cis-1,3-Dichloropropene[1]	10061-01-5	0.2		1 U	1 U	1 U	1 U
Ethylbenzene	100-41-4	30		3	5	6	6
Methylene Chloride	75-09-2	5		1 U	1 U	1 U	1 U
Styrene	100-42-5	100		1 U	1 U	1 U	1 U
Tetrachloroethene	127-18-4	3		1 U	1 U	1 U	1 U
Toluene	108-88-3	40		1 U	1 U	1 U	1 U
Total Xylenes	1330-20-7	20		5 U	5	5 U	7
Trans-1,2-Dichloroethene	156-60-5	100		2 U	2 U	2 U	2 U

TABLE 4

VALIDATED GROUNDWATER ANALYTICAL RESULTS - JULY 2001
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS Number	Screening Criteria [a]		OLD-02-34C	OLD-02-35C	OLD-02-36C	OLD-02-37C
SAMPLE ID		Florida GCTL [b]	NTC BGSV[c]	NTC02G34C18	NTC02G35C18	NTC02G36C18	NTC02G37C18
SAMPLE DATE				7/13/01	7/12/01	7/13/01	7/12/01
Volatiles (mg/L) (Continued)							
Trans-1,3-Dichloropropene[1]	10061-02-6	0.2		1 U	1 U	1 U	1 U
Trichloroethene	79-01-6	3		1	2	2	2
Vinyl Chloride	75-01-4	1		2 U	2 U	2 U	2 U
Volatiles Gaseous (µg/L)							
Ethane	74-84-0	*		0.79	0.59	0.78	0.65
Ethene	74-85-1	*		0.03	0.01	0.01	0.03
Methane	72-82-8	*		1008.1	746.9	986.1	837.2
Inorganics (µg/L)							
Iron	7439-89-6	300	1227	268	334	415	303
Manganese	7439-96-5	50	17	3.8	5	4.8	4.1
Miscellaneous (mg/L)							
Carbon Dioxide	124-38-9	*		83.1	76.7	83.4	76.6
Dissolved Organic Carbon		*		9.6		8.6	
Hydrogen	1333-74-0	*		0.8	0.9	1	0.8
Nitrate As Nitrogen	14797-55-8	*		0.05 U	0.05 U	0.05 U	0.05 U
Nitrite As Nitrogen	14797-65-0	*		0.05 U	0.05 U	0.05 U	0.05 U
Nitrogen	7727-37-9	*		9	7	8.6	7.2
Oxygen	7782-44-7	*		0.27	0.16	0.24	0.21
Sulfate	14808-79-8	250		9.8	13	8	5.4
Total Organic Carbon		*		5.5	11	16	1

Footnotes:

(1) GCTL for 1,3-dichloropropene (CAS No. 542-75-6) used.

(a) For an organic analyte, the screening criterion is the GCTL; for an inorganic analyte with an established GCTL and BGSV, the screening criterion is the greater of the GCTL or the BGSV. Analytes with no GCTL are not considered to have exceedances.

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

(c) Background Screening Value Level (Background Sampling Report for NTC, Orlando, Florida; ABB Environment Services, August 1995) for inorganics only.

* Indicates the GCTL is not available.

Empty cells indicate parameter not analyzed.

"J" qualifier indicates an estimated value.

"U" qualifier indicates a non-detect.

Values in shaded cells meet or exceed the GCTL.

TABLE 5

NATURAL ATTENUATION PARAMETER RESULTS
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	OLD-02-08C		OLD-02-10C	OLD-02-12C	OLD-02-13C				OLD-02-17C
SAMPLE ID		NTC02G08C17	NTC02G08C18	NTC02G10C11	NTC02G12C11	NTC02G13C11	NTC02G13C17	NTC02G13C18	NTC02G13C18-D	NTC02G17C11
SAMPLE DATE		4/30/01	7/11/01	10/26/99	10/26/99	10/25/99	5/1/01	7/12/01	7/12/01	10/27/99
Inorganics (μg/L)										
Iron (Dissolved)	7439-89-6	882	1680		673	320	243		249	1400
Manganese (Dissolved)	7439-96-5	5.8	5.8				2.8	4	3.6	
Non-Gaseous (mg/L)										
Chloride	16887-00-6	NA	NA	4.2	3.4	6.3	NA	NA	NA	45.6
Dissolved Organic Carbon		NA	NA	NA	3	NA	NA	NA	NA	NA
Nitrate	14797-55-8		0.06		0.08					
Nitrite	14797-65-0									
Orthophosphate		NA	NA	0.09 J	0.1 J	0.52 J	NA	NA	NA	1.2 J
Sulfate	14808-79-8	36 J	40	46.8	33.9	9.5	3	7.2	6.2	3.8
Total Alkalinity		NA	NA	120	13	5.8	NA	NA	NA	20
Total Kjeldahl Nitrogen		NA	NA	2	1	1 U	NA	NA	NA	NA
Total Organic Carbon		21	4	NA	NA	NA	2	7.6	9.1	
Volatiles Gaseous (μg/L)									NA	
Ethane	74-84-0	0.29	0.73	0.198	0.011	0.722	0.41	0.38		0.03
Ethene	74-85-1			0.902	0.033		0.08			0.018
Methane	72-82-8	251.4	349	306.39	2.9	1273.88	637.1	930		274.97
Dissolved Gases (mg/L)									NA	
Carbon Dioxide	124-38-9	65.3	73.9	9.8	67.9		69.4	76.6		73.8
Hydrogen (nm/L)	1333-74-0		3.2	41.7	1.5	0.9	0.9	1.5		0.9
Nitrogen	7727-37-9	10.3	9.7	15.8	16.1	14.6	7.3	7.6		15.6
Oxygen	7782-44-7	0.4	0.32	3.14	1.58	2.67		0.22		1.83
Field Parameters (mg/L)									NA	
Carbon Dioxide		42.0	110.0	0.00	56.8	101	49.0	48.0		55.2
Dissolved Oxygen		1.0	0.5	0.4	1.0		0.6	2.2		1.0
Dissolved Oxygen*		3.30	2.66				7.83	0.56		
Ferrous Iron		1.6	0.6	0.07	0.58	NA	0.6	0.4		1.17
Hydrogen Sulfide	7783-06-4	1.30	4.00	1	0.3	NA	1.25	3.00		1.0
Redox Potential (mV)		-8	9				-56	-152		
Sulfide		NA	NA	0.8	0.18	NA	NA	NA		0.51

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TABLE 5

NATURAL ATTENUATION PARAMETER RESULTS
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	OLD-02-19C			OLD-02-20B			OLD-02-21C	
SAMPLE ID		NTC02G19C11	NTC02G19C17	NTC02G19C18	NTC02G20B17	NTC02G20B17-D	NTC02G20B18	NTC02G21C17	NTC02G21C18
SAMPLE DATE		10/27/99	5/3/01	7/11/01	5/1/01	5/1/01	7/10/01	5/1/01	7/10/01
Inorganics (μg/L)									
Iron (Dissolved)	7439-89-6	1930	371	1900	1050		1190	394	592
Manganese (Dissolved)	7439-96-5		4	8.3	5.1		4.8	6.1	6.6
Non-Gaseous (mg/L)									
Chloride	16887-00-6	22.2	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon		NA	NA	NA	NA	NA	NA	NA	NA
Nitrate	14797-55-8				0.2			0.08	
Nitrite	14797-65-0								
Orthophosphate		0.14 J	NA	NA	NA	NA	NA	NA	NA
Sulfate	14808-79-8	5.6		8.1	41 J		50	69 J	30
Total Alkalinity		NA	NA	NA	NA	NA	NA	NA	NA
Total Kjeldahl Nitrogen		NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon			3	3	5.7	NA	5	6	5.9
Volatiles Gaseous (μg/L)									
Ethane	74-84-0	0.004	0.17		0.29	0.73	0.26	0.33	
Ethene	74-85-1	0.012			0.07	0.06	0.01	0.31	
Methane	72-82-8	47.24	97.6	51.2	649.3	888.5	629.7	497.9	2.4
Dissolved Gases (mg/L)						NA			
Carbon Dioxide	124-38-9	74.8	47.8	58.1	95		87.5	81.5	36
Hydrogen (nm/L)	1333-74-0	0.7	1.5	1.3	1.1		0.8	1.2	0.8
Nitrogen	7727-37-9	14.44	8.6	7.7	10.7		8.2	10.2	6.3
Oxygen	7782-44-7	4.68	0.63		0.58		0.45	0.25	0.9
Field Parameters (mg/L)									
Carbon Dioxide		59.6	47.20	40.0	58.00	90.20	99.0	23.6	104.0
Dissolved Oxygen		0.6	NA	0.2	0.6		0.4	1.0	0.7
Dissolved Oxygen*			1.72	2.52	0.99	1.4	2.03	2.37	3.89
Ferrous Iron		2.22	0.2	2.2	1.8		1.4	0.6	0.5
Hydrogen Sulfide	7783-06-4	2	0.25	5.00	2.20	8.60	5.00	1.00	5.00
Redox Potential (mV)			4.92	10	-52	1.2	-97	-40	-146
Sulfide		0.8	NA	NA	NA	NA	NA	NA	NA

TABLE 5

NATURAL ATTENUATION PARAMETER RESULTS
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	OLD-02-23C		OLD-02-24C		OLD-02-25C		OLD-02-26C	
SAMPLE ID		NTC02G23C17	NTC02G23C18	NTC02G24C17	NTC02G24C18	NTC02G25C17	NTC02G25C18	NTC02G26C17	NTC02G26C18
SAMPLE DATE		5/1/01	7/10/01	5/1/01	7/10/01	5/1/01	7/12/01	5/1/01	7/11/01
Inorganics (μg/L)									
Iron (Dissolved)	7439-89-6	7080	4640	1090	989	2540	1690	3980	3280
Manganese (Dissolved)	7439-96-5	53.8	29.3		5.8	23.4	17.7	32.5	23.4
Non-Gaseous (mg/L)									
Chloride	16887-00-6	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon		NA	NA	NA	NA	NA	NA	NA	NA
Nitrate	14797-55-8		0.07						0.06
Nitrite	14797-65-0								
Orthophosphate		NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	14808-79-8	15	20	36	40	8.3	11	24	30
Total Alkalinity		NA	NA	NA	NA	NA	NA	NA	NA
Total Kjeldahl Nitrogen		NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon		5.2	NA	3	5	5.7	17	5.3	5.8
Volatiles Gaseous (μg/L)									
Ethane	74-84-0	0.36	0.28	0.31	0.26	0.28	0.35	0.38	0.18
Ethene	74-85-1	0.57	0.1	0.88	0.09	0.4	0.03	0.13	0.36
Methane	72-82-8	910.4	624.9	812.8	646.8	878.7	734.7	644.4	417.4
Dissolved Gases (mg/L)									
Carbon Dioxide	124-38-9	90.6	79.8	101.6	92.3	90.1	78	87.3	67.7
Hydrogen (nm/L)	1333-74-0	1.6	0.9	1.5	0.8	1.9	2	1.3	10.6
Nitrogen	7727-37-9	11.3	7.7	10.6	8.3	9.3	8	9.1	6.2
Oxygen	7782-44-7	0.35	0.2	0.54	0.39	0.27	0.17	0.31	0.5
Field Parameters (mg/L)									
Carbon Dioxide		47.00	66.00	47.2	115.0	53.40	62.0	57.8	123.0
Dissolved Oxygen		1.0	0.7	0.8	0.2	0.8	3.0	0.4	0.2
Dissolved Oxygen*		2.10	0.08	0.66	3.15	0.55	0.14	2.12	3.01
Ferrous Iron		4.2		3.7	2.2	1.8	2.0	2.8	2.0
Hydrogen Sulfide	7783-06-4	1.78	1.00	1.50	5.00	1.50	1.50	1.45	5.00
Redox Potential (mV)		-104	-135	-64	-140	-39	-106	-99	-102
Sulfide		NA	NA	NA	NA	NA	NA	NA	NA

TABLE 5

NATURAL ATTENUATION PARAMETER RESULTS
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	OLD-02-27C			OLD-02-28C		OLD-02-29C		OLD-02-30C	
SAMPLE ID		NTC02G27C17	NTC02G27C18	NTC02G27C18-D	NTC02G28C17	NTC02G28C18	NTC02G29C17	NTC02G29C18	NTC02G30C17	NTC02G30C17-D
SAMPLE DATE		5/1/01	7/12/01	7/12/01	5/2/01	7/12/01	5/2/01	7/11/01	5/2/01	5/2/01
Inorganics (μg/L)										
Iron (Dissolved)	7439-89-6	3140	2100	2270	979	714	761	404	500	521
Manganese (Dissolved)	7439-96-5	24.2	15.9	17.5	9.4	12.3	7.7	16.8	5.4	5.4
Non-Gaseous (mg/L)										
Chloride	16887-00-6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon		NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate	14797-55-8							0.01		
Nitrite	14797-65-0									
Orthophosphate		NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	14808-79-8	20	28	27	11	12	5	9.5	8.3	
Total Alkalinity		NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Kjeldahl Nitrogen		NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon		8.7	5.7	5.1	9.9	27	14	70	8.6	NA
Volatiles Gaseous (μg/L)										NA
Ethane	74-84-0	0.34	0.33	0.33	0.42	0.3	0.94	0.4	0.21	
Ethene	74-85-1	0.25	0.08	0.08	0.09	0.17	0.17	0.12	0.05	
Methane	72-82-8	661.5	790.8	698.1	734.7	500.4	1410.8	624.9	368.6	
Dissolved Gases (mg/L)										NA
Carbon Dioxide	124-38-9	86.8	87.5	82.1	91.2	70.7	100.2	57.6	66.3	
Hydrogen (nm/L)	1333-74-0	1.5	1.1	1.1	1.4	3.5	1.9	24	1.3	
Nitrogen	7727-37-9	8.2	10	8.4	8.7	6.6	11.7	8.7	4.7	
Oxygen	7782-44-7	0.41	0.49	0.36	0.47	0.15 U	0.16	0.38	0.76	
Field Parameters (mg/L)				NA						NA
Carbon Dioxide		NA	40.0		10.20	62.0	44.4	56.0	40.6	
Dissolved Oxygen		0.6	2.0		0.4	0.3	0.6	1.9	1.0	
Dissolved Oxygen*		0.82	3.88		1.25	4.44	0.44	0.60	0.48	
Ferrous Iron		2.2	2.8		0.6	2.6	1.0	0.4	1.4	
Hydrogen Sulfide	7783-06-4	1.60	2.00		2.25	1.00	1.85	0.00	2.00	
Redox Potential (mV)		-141	-52		-116	-121	-154	-101	-74	
Sulfide		NA	NA		NA	NA	NA	NA	NA	

TABLE 5

NATURAL ATTENUATION PARAMETER RESULTS
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	OLD-02-30C	OLD-02-31C		OLD-02-32C		OLD-02-33C		OLD-02-34C	
SAMPLE ID		NTC02G30C18	NTC02G31C17	NTC02G31C18	NTC02G32C17	NTC02G32C18	NTC02G33C17	NTC02G33C18	NTC02G34C17	NTC02G34C18
SAMPLE DATE		7/12/01	5/2/01	7/13/01	5/2/01	7/13/01	5/3/01	7/13/01	5/3/01	7/13/01
Inorganics (μg/L)										
Iron (Dissolved)	7439-89-6	460	1160	1140	300	416	450	272	463	268
Manganese (Dissolved)	7439-96-5	5.1	10.8	17.6	3.6	5	5.8	3.6	5.5	3.8
Non-Gaseous (mg/L)										
Chloride	16887-00-6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon		NA	NA	13	NA	NA	NA	7.4	NA	9.6
Nitrate	14797-55-8									
Nitrite	14797-65-0									
Orthophosphate		NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	14808-79-8	7.7	5.2	6.1	5.4	9.4	12	13	7.9	9.8
Total Alkalinity		NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Kjeldahl Nitrogen		NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon		21	13	24	5	26	6	5.6	6	5.5
Volatiles Gaseous (μg/L)										
Ethane	74-84-0	0.68	0.71	0.04	0.84	0.65	0.77	0.54	0.7	0.79
Ethene	74-85-1	0.09	0.21	0.08	0.07	0.37	0.04	0.02	0.08	0.03
Methane	72-82-8	1005.6	991	36.6	1203.3	905.6	1054.5	727.4	922.6	1008.1
Dissolved Gases (mg/L)										
Carbon Dioxide	124-38-9	89.7	90.7	12.9	97.4	82	90.9	72.5	86.1	83.1
Hydrogen (nm/L)	1333-74-0	1.3	1.3	12.5	1.3	1.2	1.2	0.7	1.1	0.8
Nitrogen	7727-37-9	8.8	7.8	8.4	9	7.7	9.9	6.8	8.3	9
Oxygen	7782-44-7	0.15 U	0.54	0.85	0.31	0.2	0.24	0.19	0.3	0.27
Field Parameters (mg/L)										
Carbon Dioxide		81.6	56.0		36.6	86.0	38.8	56.0	62.0	62.0
Dissolved Oxygen		2.0	1.0	1.0	1.0	1.0	1.5	0.4	0.6	0.4
Dissolved Oxygen*		3.71	4.31	2.69	1.84	0.11	2.57	3.35	1.20	2.79
Ferrous Iron		1.0	1.0	1.6	0.0	1.0	0.8	0.6	0.6	0.6
Hydrogen Sulfide	7783-06-4	0.70	2.20	4.00	1.85	2.00	1.25	2.00	1.60	3.00
Redox Potential (mV)		-69	-44	-95	-110	-121	-127	-174	-138	159-
Sulfide		NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 5

NATURAL ATTENUATION PARAMETER RESULTS
STUDY AREA 2

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

WELL DESIGNATION	CAS NUMBER	OLD-02-35C		OLD-02-36C		OLD-02-37C		
SAMPLE ID		NTC02G35C17	NTC02G35C18	NTC02G36C17	NTC02G36C18	NTC02G37C17	NTC02G37C17-D	NTC02G37C18
SAMPLE DATE		5/3/01	7/12/01	5/3/01	7/13/01	5/3/01	5/3/01	7/12/01
Inorganics (μg/L)								
Iron (Dissolved)	7439-89-6	685	334	681	415	371	366	303
Manganese (Dissolved)	7439-96-5	7.3	5	7.6	4.8	4.6	4.3	4.1
Non-Gaseous (mg/L)								
Chloride	16887-00-6	NA	NA	NA	NA	NA	NA	NA
Dissolved Organic Carbon		NA	NA	NA	8.6	NA	NA	NA
Nitrate	14797-55-8							
Nitrite	14797-65-0							
Orthophosphate		NA	NA	NA	NA	NA	NA	NA
Sulfate	14808-79-8	16	13	13	8	6		5.4
Total Alkalinity		NA	NA	NA	NA	NA	NA	NA
Total Kjeldahl Nitrogen		NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon		6	11	5	16	7	NA	1
Volatiles Gaseous (μg/L)							NA	
Ethane	74-84-0	0.84	0.59	0.81	0.78	0.82		0.65
Ethene	74-85-1	0.06	0.01	0.07	0.01	0.41		0.03
Methane	72-82-8	1130.1	746.9	1042.2	986.1	1061.8		837.2
Dissolved Gases (mg/L)							NA	
Carbon Dioxide	124-38-9	94.6	76.7	92.7	83.4	90.9		76.6
Hydrogen (nm/L)	1333-74-0	1.3	0.9	1	1	1.2		0.8
Nitrogen	7727-37-9	10.3	7	9.4	8.6	9		7.2
Oxygen	7782-44-7	0.44	0.16	0.39	0.24	0.45		0.21
Field Parameters (mg/L)							NA	
Carbon Dioxide		55.0	48.0	55.0	88.00	63.60		36.00
Dissolved Oxygen		1.0	1.0	1.0	0.5	0.4		0.2
Dissolved Oxygen*		0.95	0.55	0.52	0.07	0.20		9.12
Ferrous Iron		0.6	1.0	0.6	0.8	0.8		0.6
Hydrogen Sulfide	7783-06-4	2.00	1.00	2.15	2.00	2.00		2.00
Redox Potential (mV)		-137	-110	-89	-133	-142		-167
Sulfide		NA	NA	NA	NA	NA		NA

Footnotes:

* Dissolved oxygen as measured by Horiba U-22 used during purging.

"J" qualifier indicates an estimated value.

NA – Not Analyzed

nm/L – nanomoles per liter

"U" qualifier indicates that the analyte was not detected.

FIGURES

No. 1 Site Location Map

2 Site Plan

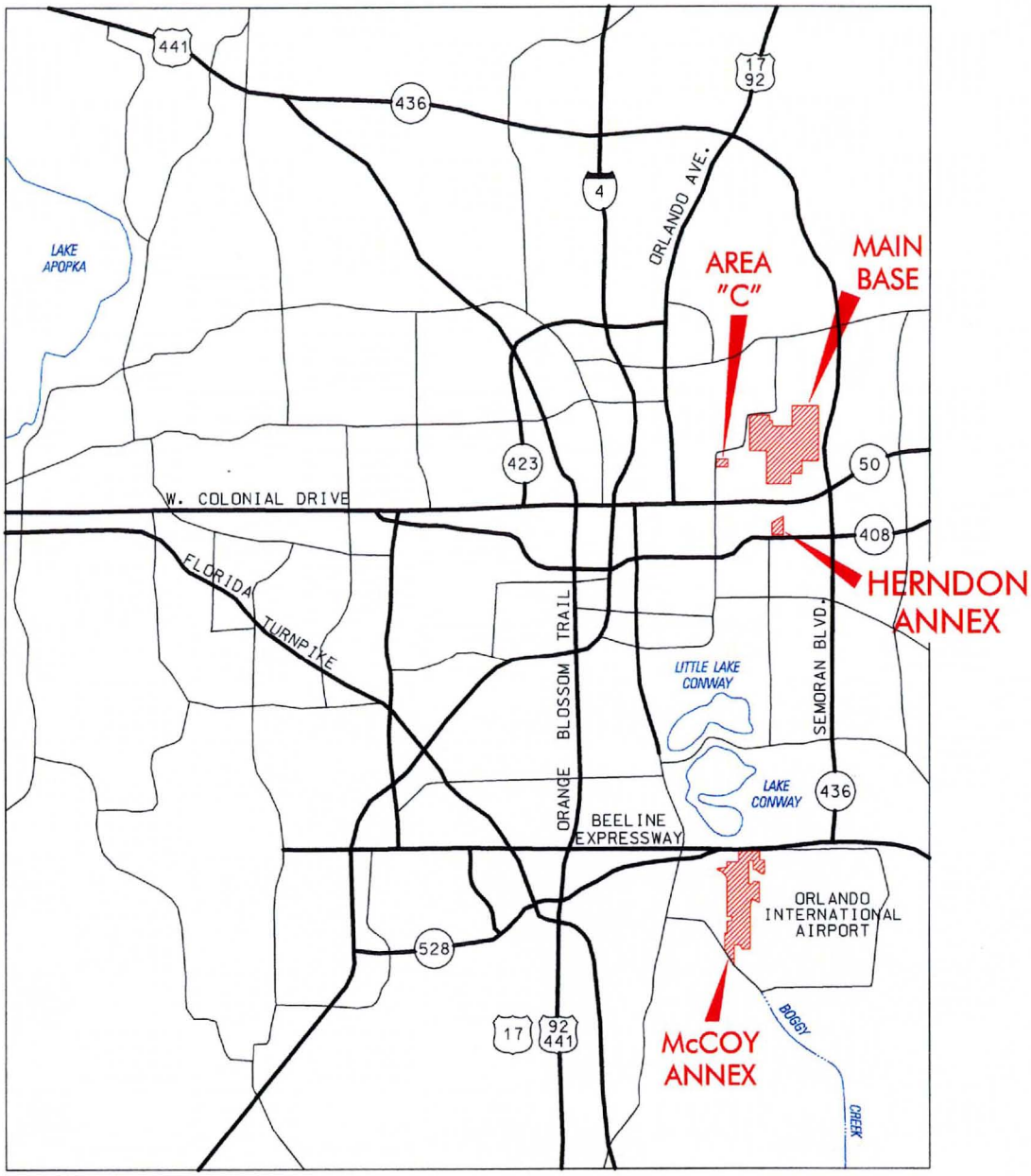
3 ORC® Injection Point and Microwell Locations

4 Groundwater Elevation Map Shallow Aquifer Zone – July 13, 2001

5 Groundwater Potentiometric Surface Map Deep Aquifer Zone – July 13, 2001

6 Groundwater Exceedances for Benzene in Monitoring Wells

7 Groundwater Exceedances for Benzene in Microwells



4 0 4

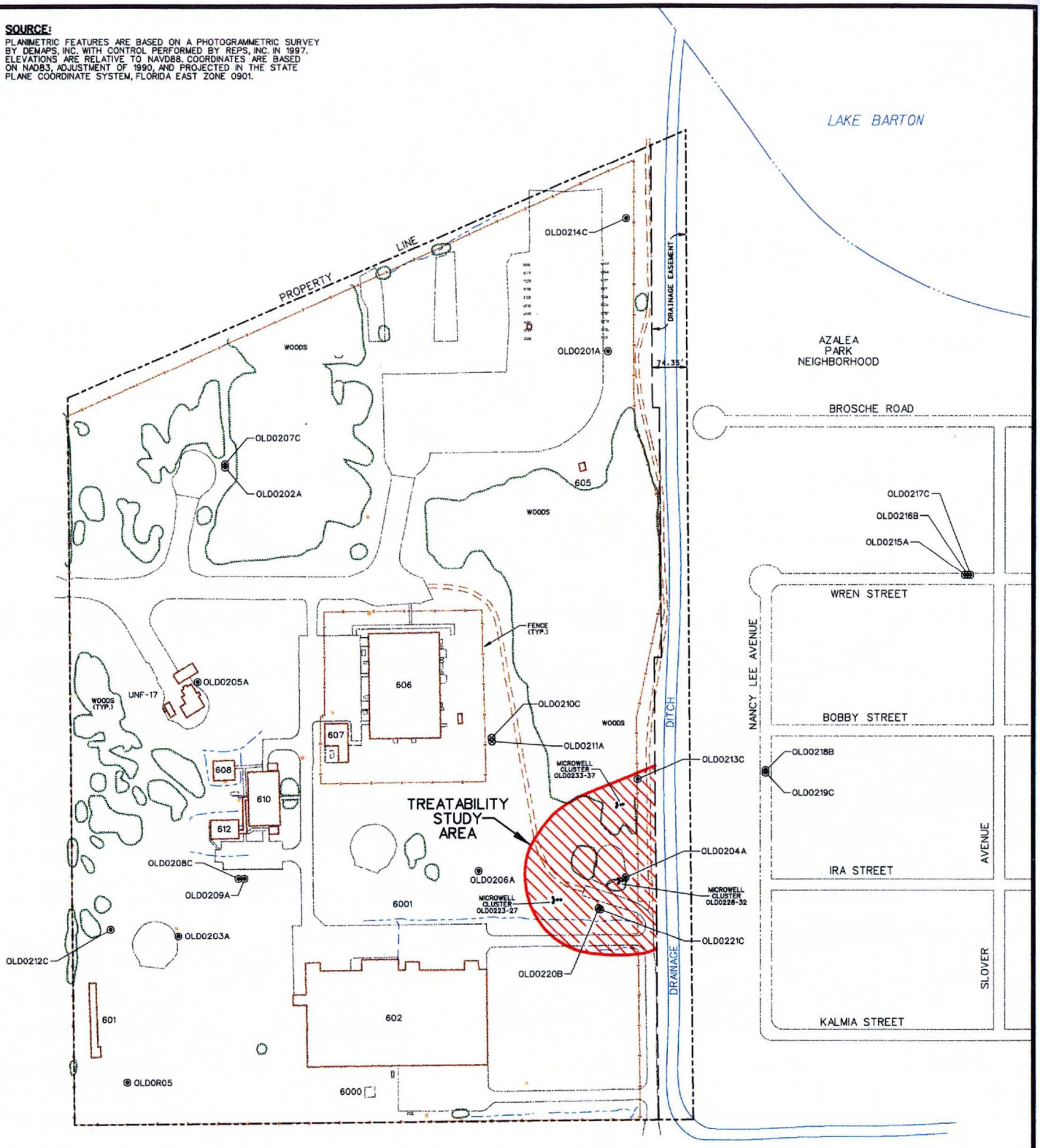
SCALE IN MILES

FIGURE 1
SITE LOCATION MAP
STUDY AREA 2 - HERNDON ANNEX

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n8-5x1lv.dgn

SOURCE:
PLANIMETRIC FEATURES ARE BASED ON A PHOTOGRAMMETRIC SURVEY BY DEMAPS, INC. WITH CONTROL PERFORMED BY REPS, INC. IN 1997. ELEVATIONS ARE RELATIVE TO NAVD88. COORDINATES ARE BASED ON NAD83, ADJUSTMENT OF 1990, AND PROJECTED IN THE STATE PLANE COORDINATE SYSTEM, FLORIDA EAST ZONE 0901.



LEGEND

MONITORING WELL ⊙
DESTROYED WELL ⊗
MICROWELL •

N

150 0 150
SCALE IN FEET

FIGURE 2
SITE PLAN
STUDY AREA 2 - HERNDON ANNEX

NAVAL TRAINING CENTER

CAD FILE NO./DATE: k:\dgn\navy\orlando\3928a\3928a002.dgn/9-14-01 ORC TREATABILITY STUDY

SOURCE:
ROADS, BUILIDINGS, ETC. ARE FROM A SURVEY BY DEMAPS, INC. AND REPS, INC. IN 1997.

OLD0210C
OLD0211A
FENCE (TYP.)
WOODS (TYP.)
OLD0213C
UNPAVED ROAD
DRAINAGE EASEMENT
DITCH
OLD0219C
OLD0218B
NANCY LEE AVENUE
IRA STREET
PROPERTY LINE
DRAINAGE
TREE (TYP.)
TREATABILITY STUDY AREA
OLD0237C
OLD0234C
OLD0233C
OLD0236C
OLD0235C
OLD0229C
OLD0232C
OLD0204A
OLD0228C
OLS0230C
OLD0231C
OLD0227C
OLD0223C
OLD0225C
OLD0226C
OLD0224C
OLD0220B
OLD0221C
OLD0206A
DITCH (TYP.)
PAVED ROAD
-N-
50 0 50
SCALE IN FEET

LEGEND

- ORC® INJECTION POINT
- MONITORING WELL
- DESTROYED WELL
- MICROWELL

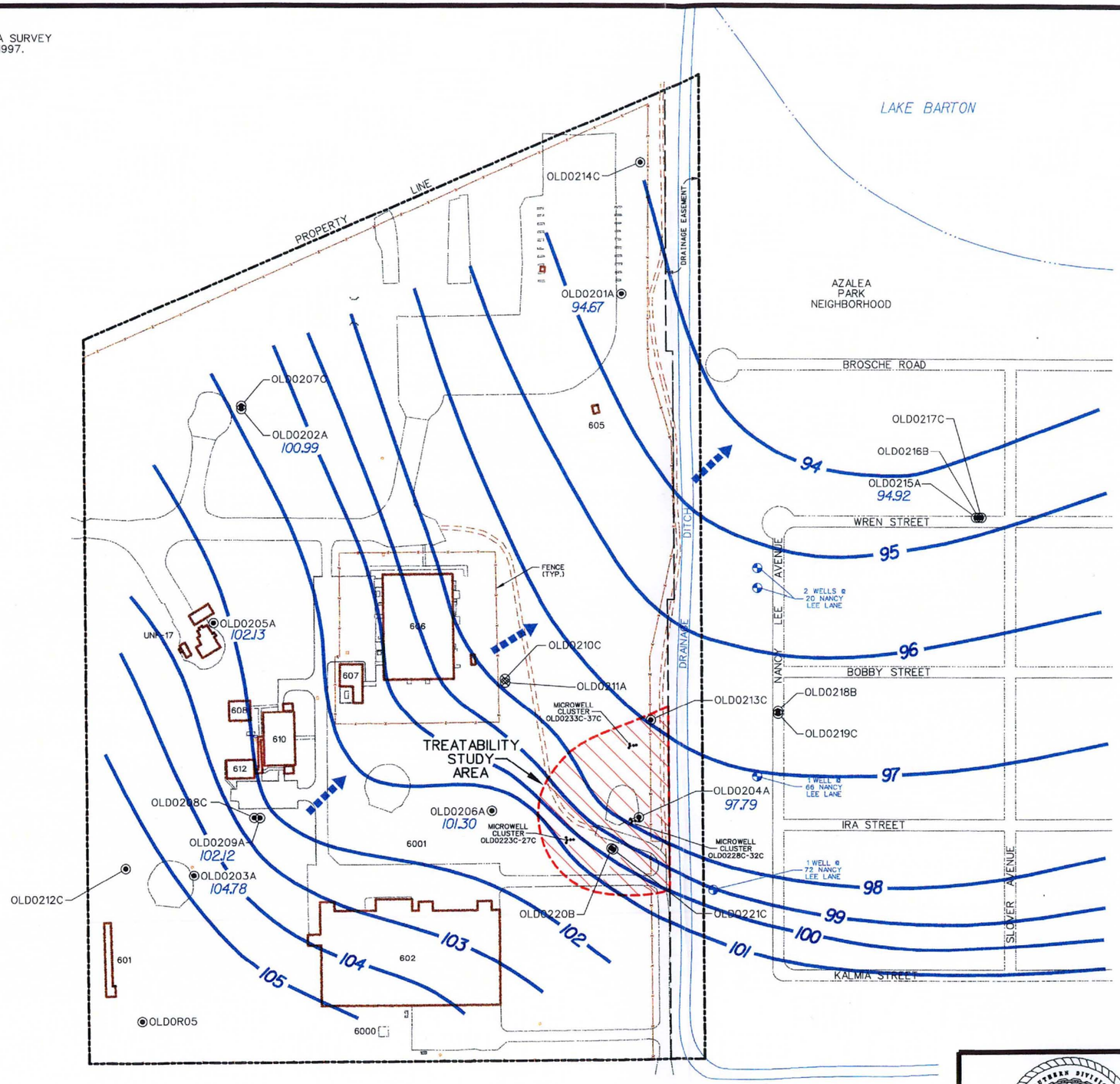
FIGURE 3
ORC® INJECTION POINT AND MICROWELL LOCATIONS
STUDY AREA 2 - HERNDON ANNEX

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n11x17b.dgn

CAD FILE NO./DATE: k:\dgn\navy\orlando\30280\3928\005.dgn/9 14-01 ORC TREATABILITY STUDY

SOURCE:
ROADS, BUILIDINGS, ETC. ARE FROM A SURVEY BY DEMAPS, INC. AND REPS, INC. IN 1997.



LEGEND

MONITORING WELL	⊙
DESTROYED WELL	⊗
PRIVATE WATER WELL	
GROUNDWATER ELEVATION [1]	97.79
POTENTIOMETRIC SURFACE ISOCON [1] (DASHED WHERE APPROX.)	
GROUNDWATER FLOW DIRECTION (APPROX.)	

1 - ELEVATION IN FEET ABOVE MEAN SEA LEVEL

-N-

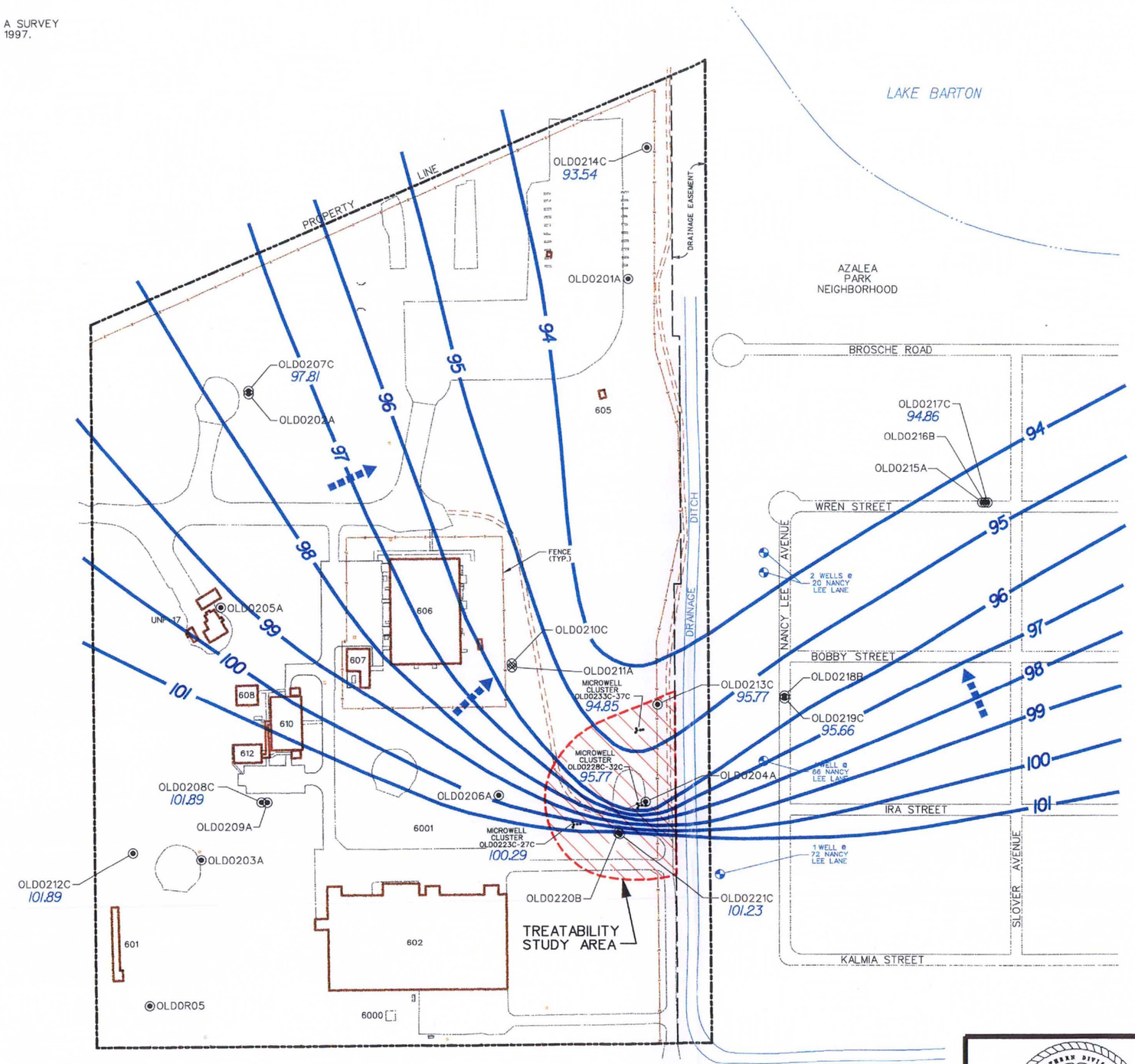
250 0 250
SCALE IN FEET

FIGURE 4
GROUNDWATER ELEVATION MAP
SHALLOW AQUIFER ZONE
JULY 13, 2001
STUDY AREA 2 - HERNDON ANNEX

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n11x17b.dgn

SOURCE:
ROADS, BUILIDINGS, ETC. ARE FROM A SURVEY BY DEMAPS, INC. AND REPS, INC. IN 1997.



LEGEND

MONITORING WELL	⊙
DESTROYED WELL	⊗
PRIVATE WATER WELL	
GROUNDWATER ELEVATION [1]	95.66
POTENTIOMETRIC SURFACE ISOCON [1] (DASHED WHERE APPROX.)	
GROUNDWATER FLOW DIRECTION (APPROX.)	

1 - ELEVATION IN FEET ABOVE MEAN SEA LEVEL

NOTES:

1) ELEVATION DATUM FOR OLD0213C IS CONSIDERED SUSPECT.
2) MICROWELL CLUSTER ELEVATIONS REPRESENT THE AVERAGE ELEVATION OF THE COMBINED TOTAL FROM EACH MICROWELL WITHIN THE CLUSTER.

-N-

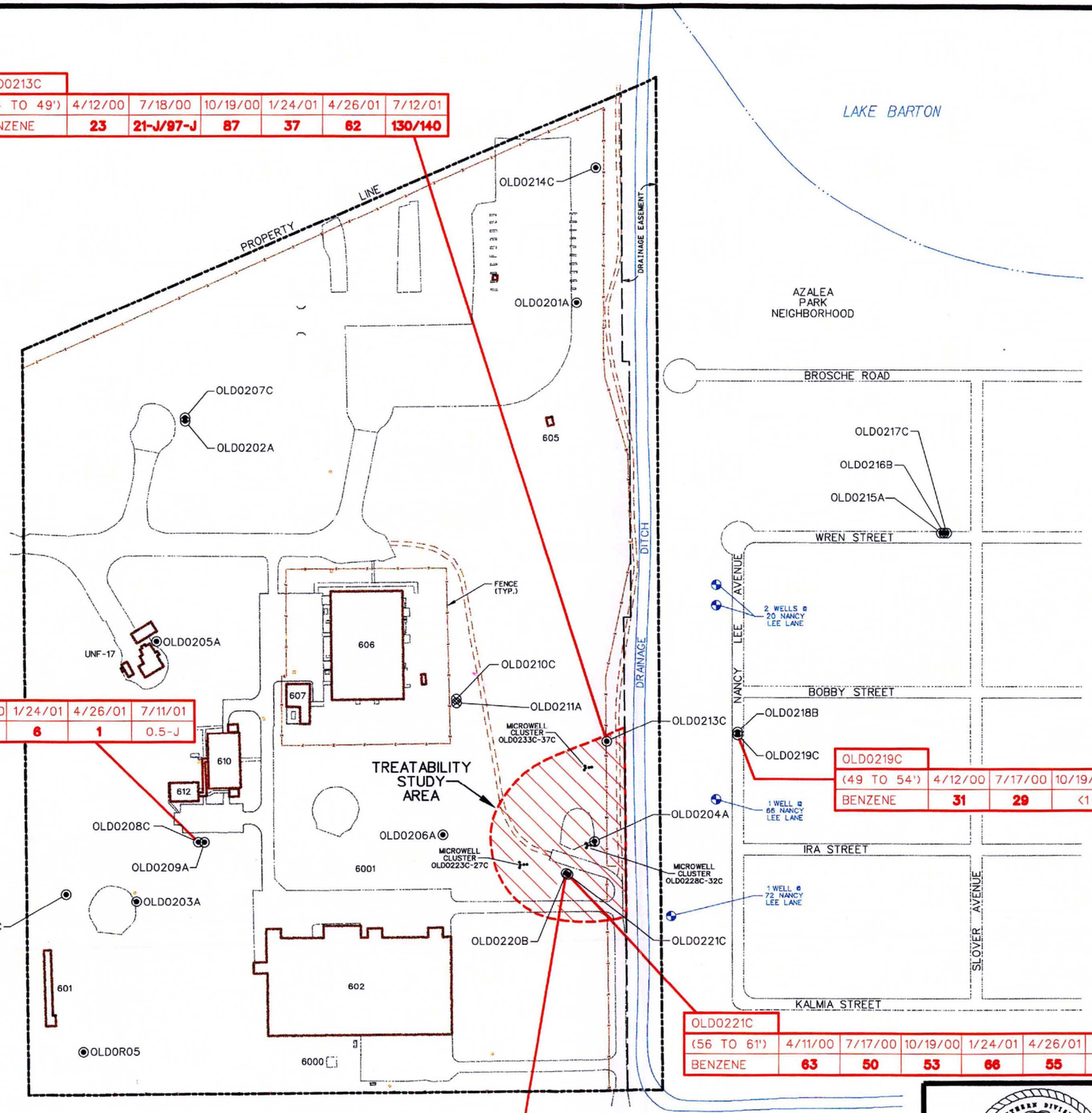
250 0 250
SCALE IN FEET

FIGURE 5
GROUNDWATER POTENTIOMETRIC SURFACE MAP
DEEP AQUIFER ZONE
JULY 13, 2001
STUDY AREA 2 - HERNDON ANNEX

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n1x17b.dgn

SOURCE:
ROADS, BUILIDINGS, ETC. ARE FROM A SURVEY BY DEMAPS, INC. AND REPS, INC. IN 1997.



OLD0213C						
(44 TO 49')	4/12/00	7/18/00	10/19/00	1/24/01	4/26/01	7/12/01
BENZENE	**23**	**21-J/97-J**	**87**	**37**	**62**	**130/140**

OLD0208C						
(60 TO 65')	4/12/00	7/18/00	10/19/00	1/24/01	4/26/01	7/11/01
BENZENE	**49**	**20**	**2.1**	**6**	**1**	0.5-J

OLD0219C						
(49 TO 54')	4/12/00	7/17/00	10/19/00	1/25/01	4/26/01	7/11/01
BENZENE	**31**	**29**	<1	**39**	**31**	<1

OLD0221C						
(56 TO 61')	4/11/00	7/17/00	10/19/00	1/24/01	4/26/01	7/10/01
BENZENE	**63**	**50**	**53**	**66**	**55**	**51**

OLD0220B						
(36 TO 41')	4/11/00	7/17/00	10/19/00	1/24/01	4/26/01	7/10/01
BENZENE	**40**	**32**	**42**	**50**	**41**	**39**

LEGEND

MONITORING WELL ⊙

DESTROYED WELL ⊗

PRIVATE WATER WELL

WELL ID — SCREEN INTERVAL TO NEAREST FOOT — SAMPLE COLLECTION DATE — ANALYTE — ANALYTE CONCENTRATION[1,2] — DUPLICATE SAMPLE

OLD0219C	
(49 TO 54')	5/3/01
BENZENE	**31/28**

ESTIMATED VALUE J

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

SCREENING CRITERION

ANALYTE	GCTL[1]
BENZENE	1

GCTL=GROUNDWATER CLEANUP TARGET LEVEL

FIGURE 6
GROUNDWATER EXCEEDANCES FOR BENZENE IN MONITORING WELLS
STUDY AREA 2 - HERNDON ANNEX

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n11x17b.dgn

SOURCE:
ROADS, BUILIDINGS, ETC. ARE FROM A SURVEY BY DEMAPS, INC. AND REPS, INC. IN 1997.

OLD0210C
OLD0211A
FENCE (TYP.)
UNPAVED ROAD
WOODS (TYP.)
DRAINAGE EASEMENT
TREE (TYP.)
OLD0213C
OLD0206A
OLD0204A
OLD0220B
OLD0221C
UNPAVED ROAD
DITCH
DRAINAGE
DITCH (TYP.)
PAVED ROAD

OLD0234C		
(45 TO 50')	5/3/01	7/13/01
BENZENE	140	120

OLD0237C		
(45 TO 50')	5/3/01	7/12/01
BENZENE	150/150	150

OLD0233C		
(45 TO 50')	5/3/01	7/13/01
BENZENE	140	120

OLD0236C		
(45 TO 50')	5/3/01	7/13/01
BENZENE	160	150

OLD0235C		
(45 TO 50')	5/3/01	7/12/01
BENZENE	150	140

OLD0229C		
(45 TO 50')	5/2/01	7/11/01
BENZENE	130	49

OLD0232C		
(45 TO 50')	5/2/01	7/12/01
BENZENE	130	130

OLD0223C		
(45 TO 50')	5/1/01	7/11/01
BENZENE	60	53

OLD0228C		
(45 TO 50')	5/2/01	7/12/01
BENZENE	92	73

OLD0227C		
(45 TO 50')	5/1/01	7/12/01
BENZENE	62	54/55

OLD0230C		
(45 TO 50')	5/2/01	7/12/01
BENZENE	120/110	120

OLD0225C		
(45 TO 50')	5/1/01	7/12/01
BENZENE	95	85

OLD0231C		
(45 TO 50')	5/2/01	7/13/01
BENZENE	130	91

OLD0226C		
(45 TO 50')	5/1/01	7/11/01
BENZENE	57	57

OLD0224C		
(45 TO 50')	5/1/01	7/11/01
BENZENE	34	37

LEGEND

MONITORING WELL
DESTROYED WELL
MICROWELL

WELL ID — OLD0230C
SCREEN INTERVAL TO NEAREST FOOT — (45 TO 50')
SAMPLE COLLECTION DATE — 5/2/01
ANALYTE — BENZENE
ANALYTE CONCENTRATION[1,2] — 120/110
DUPLICATE SAMPLE

ESTIMATED VALUE J

1-GROUNDWATER CONCENTRATIONS IN MICROGRAMS PER LITER (ug/L)
2-BOLD CONCENTRATION INDICATES EXCEEDANCE

SCREENING CRITERIA

ANALYTE	GCTL[1]
BENZENE	1

GCTL=GROUNDWATER CLEANUP TARGET LEVEL

-N-

30 0 30
SCALE IN FEET

602

FIGURE 7
GROUNDWATER EXCEEDANCES FOR BENZENE IN MICROWELLS
JULY 2001
STUDY AREA 2 - HERNDON ANNEX

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

CAD FILE NO./DATE: k:\dgn\navy\orlando\sites\sa2\sa2-007.dgn/9-25-01 ORC TREATABILITY STUDY

APPENDIX A

GROUNDWATER SAMPLE LOG SHEETS

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: NTC Orlando
Project No.: 7457/3928
Location: SA 2
Personnel: RW, DM, JB, JA, SB
Weather Conditions: hot, humid, part cldy
Measuring Device: WLI
Tidally Influenced: Yes ___ No ✓
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	~~Groundwater Elevation (feet)*~~ PID BG	~~Comments~~ PID WELL
01	7/13				10.03		1.1	1.3
02	↓				10.28		4.5	4.6
03					12.67			
04					12.24		6.5	35.8
05					10.76		2.5	3.4
06					7.87		Ø.9	1.8
07					13.71		4.7	5.7
08					10.42		4.6	5.6
09					10.22		4.3	4.8
12					14.15		5.2	6.5
13					8.95		5.0	7.3
14					9.20		2.6	2.8
15					5.13		1.7	2.2
16					5.08		1.3	3.1
17					4.96		1.0	2.9
18					6.03		0.5	2.9
19					6.66		1.4	5.8
20					8.00		6.9	11.0
21					7.33		7.7	8.3
~~22~~ SB					~~9.03~~ SB			
23					9.03			Ø
24					9.25			Ø
25					9.39			Ø
26					9.13			Ø
27	↓				10.08			Ø

* All measurements to the nearest 0.01 foot

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: NTC Orlando
Project No.: 7457/3928
Location: SA2
Personnel:
Weather Conditions:
Measuring Device:
Tidally Influenced: Yes ___ No ___
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	~~Groundwater Elevation (feet)*~~ PID BG	~~Comments~~ PID WELL
28	7/13				12.54		9.5	33.6
29	↓				13.04		8.5	9.2
30					13.29		10.7	15.1
31					12.97		6.3	7.2
32					12.98		9.8	25.8
33					9.03		60.5	63.0
34					8.86		59.8	63.6
35					8.74		57.3	62.5
36					8.69		58.7	61.5
37					8.59		56.6	61.8

NOTE: Unable to locate wells 10 & 11, presume them to be destroyed by construction work at site.

* All measurements to the nearest 0.01 foot

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 7/11/01

Project Site Name:
Project No.: _____

Sample Location: OLD-02-08C

[ ] Domestic Well Data

Flow-Thru Cell Make/Model: Horiba U-22

Sample ID No. NTC02G08C18

[X] Monitoring Well Data

Serial Nos.: 9012039

Sampled By: [signature]

[ ] Other Well Type: _____

C-O-C No.: _____

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	0830	4.73	0.188	25.6	11	4.31	41	10.42	100
1	0.041 / 0.155	0835	4.79	0.190	25.7	0	3.75	37	10.43	100
2	0.163 / 0.617	0840	4.81	0.183	25.7	0	3.36	33	10.42	100
4	0.653 / 2.47	0845	4.82	0.174	25.8	0	3.15	31	10.42	90
6	1.469 / 5.56	0850	4.84	0.173	26.0	0	2.97	25	10.42	90
8	2.611 / 9.88	0855	4.84	0.163	25.9	0	2.79	22	10.42	90
10	4.08 / 15.44	0900	4.84	0.157	26.1	0	2.78	18	10.42	90
	[1 gal. = 3.785 L]	0905	4.85	0.156	26.1	0	2.72	16	10.42	90
		0910	4.85	0.155	26.5	0	2.67	13	10.42	90
PID Reading (ppm): ~~5.6~~ 10		0915	4.85	0.155	26.2	0	2.69	11	10.42	90
Dual = 5.6		0920	4.85	0.156	26.3	0	2.66	9	10.42	90
BG = 4.6										
Well Casing Diameter: 2"										
Total Well Depth: 66.3										
Static Water Level: 10.38										
Tube Intake Depth: 63.8										
Start Purge (hr): 0830										
End Purge (hr): 0920										
Total Purge Time (min): 50										
Total Vol. Purged: 4.6										

SB 7/13

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7/11/01									
Time: 0920	CLR	4.85	0.153	26.3	0	2.66	9	10.42	90

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	3
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
~~X-ra Organic~~ Cations/Anions	~~8XXX~~	None	500 ml	1 or 2	~~1-liter~~ amber glass ~~4~~ HDPE	1
~~TAL~~ Metals Diss. Fe + Mn	6000/7000	HNO_3	250 ml	1	~~1-liter~~ HDPE	1
~~TRPH~~ TOC	~~FL-PRO~~	H_2SO_4	125 ml	1	~~1-liter~~ amber glass	1

SB 7/13

ADDITIONAL INFORMATION

Comments:

Method:
[✓] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[✓] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[✓] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: —

Duplicate ID No.: —

Signature(s): [signature]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02908 18

Project No.: - 3928

Sample Location: OLD 02 MW 08

Sampled By: JA

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): JA

SAMPLING DATA:

Date: 7 11 01	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	Sal.	pH
Time:	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method:								

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1 mg/L) Analysis Time: 1045

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier		Concentration
_____	x 0.01	=	mg/L
_____	x 0.02	=	mg/L

CHEMetrics: 0.5 mg/L

Notes:

Alkalinity:

Analysis Time: 1100

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____ mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier		Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	=	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	=	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	=	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	=	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	=	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	=	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L (K9810)

Notes: tried all ranges

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____ mg/L) Analysis Time: _____

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☒	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count			Concentration
_____	x 0.1	=	mg/L
_____	x 0.2	=	mg/L
110	x 1.0	=	110 mg/L
_____	x 2.0	=	mg/L

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02G0818

Project No.: 3628

Sample Location: OLD 02 MW08

Sampled By: JA

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____

Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ IR-18C Color Wheel Other: _____ Analysis Time: 1110

Program/Module: 500nm 33

Concentration: 0.6 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 1105

Concentration: 4.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

tried other kit and got ~5.0

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☒

Title block is initialized by person who performed the QA/QC Ckecklist: ☒

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 7-12-01

Project Site Name: NTC Orlando
Project No.: 7457/3928

Sample Location: OLD-02-13C (S42)

[ ] Domestic Well Data

[X] Monitoring Well Data

[ ] Other Well Type:

Flow-Thru Cell Make/Model: Horiba U-22

Serial Nos.: T005 2009

Sample ID No.: NTC02G13C18

Sampled By: S. Barton

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	0900	5.04	.066	25.1	155	4.38	-80	8.92	100
1	0.041 / 0.155	0910	4.46	.063	25.0	58.2	1.20	-75	8.92	90
2	0.163 / 0.617	0920	4.37	.063	25.0	27.6	0.90	-83	8.92	90
4	0.653 / 2.47	0925	4.42	.062	25.0	21.8	0.83	-89	8.92	90
6	1.469 / 5.56	0930	4.51	.062	25.1	17.3	0.74	-95	8.92	90
8	2.611 / 9.88	0940	5.06	.061	25.4	16.9	0.75	-114	8.92	90
10	4.08 / 15.44	0945	5.06			14.3				
	[1 gal. = 3.785 L]	0950	5.14	.061	25.7	14.3	0.67	-140	8.92	90
		0955								
PID Reading (ppm):		1000	5.14	.061	25.5	12.4	0.59	-148	8.92	90
		1010	5.13	.061	25.4	12.6	0.58	-150	8.92	90
		1020	5.12	.061	25.4	11.0	0.57	-151	8.92	90
Well Casing Diameter: 2-in		1025	5.12	.061	25.7	10.38	0.56	-151	8.92	90
Total Well Depth: 49.34		1030	5.13	.061	25.7	10.08	0.56	-152	8.92	90
Static Water Level: 8.91										
Tube Intake Depth: 46.5										
Start Purge (hr): 0855										
End Purge (hr): 1030										
Total Purge Time (min): 95										
Total Vol. Purged: 2.25 gal										

SB 7/12

4.86

CLEAR

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7-12-01									
Time: 1040	Cloudy	5.13	.041	25.7	10.08	0.56	-152	—	90

SB 7/12

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	6
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	~~1-liter~~	amber glass	
~~Extra Organic~~ CATIONS/ANIONS	8XXX	None	500ml	~~1 or 2~~	~~1-liter~~ ~~amber glass~~ HDPE	2
~~TAL~~ Metals CLS. Fe + Mn	6000/7000	HNO_3	250ml	1	~~1-liter~~ HDPE	2
~~TRPH~~ ~~DRO~~ TOC	~~FL PRO~~	H_2SO_4	125ml	1	~~1-liter~~ amber glass	2

SB 7/12

CATIONS/ANIONS

COD 407-332-6812

ADDITIONAL INFORMATION

Comments: This is a resample, not all parameters were collected on 7-11-01.

Method:
[✓] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[✓] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[✓] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:

Duplicate ID No.: ~~NTC02DUP218~~ SB 7/12

Signature(s): Shep Barton

NTC-02-~~DUP218~~-D2-18

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 7-11-01

Project Site Name: NTC Orlando, FL CTO 24
Project No.: N7475-BE 005F375

Sample Location: Old-02-13C

[ ] Domestic Well Data

[X] Monitoring Well Data

[ ] Other Well Type:

Flow-Thru Cell Make/Model: Horiba/U22

Serial Nos.:

Sample ID No.: NTC02G13C1B

Sampled By: SMW

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min	
0.5	0.01 / 0.038	1815	4.94	.055	26.2	64.7	86	-84	8.87	100	500
1	0.041 / 0.155	1820	4.93	.056	26.2	73.1	81	-85	8.87	100	1000
2	0.163 / 0.617	1825	4.91	.056	25.9	78.4	82	-87	8.87	100	1500
4	0.653 / 2.47	1830	4.91	.056	25.6	72.2	0.58	-91	8.87	100	2000
6	1.469 / 5.56	1835	4.92	.056	25.6	72.6	0.53	-94	8.87	100	2500
8	2.611 / 9.88	1840	4.93	.055	26.1	67.3	0.48	-98	8.87	100	3000
10	4.08 / 15.44	1845	4.93	.056	26.3	64.0	0.56	-100	8.87	100	3500
	[1 gal. = 3.785 L]	1850	4.94	.056	26.4	63.8	0.52	-102	8.87	100	4000
		1855	4.94	.056	26.2	61.8	0.43	-106	8.87	80	4400
PID Reading (ppm): NM		1200	4.94	.056	26.0	58.7	0.33	-107	8.87	80	4800
		1205	4.96	.055	26.6	54.5	0.30	-111	8.87	80	5200
		1210	4.94	.055	26.4	52.5	0.34	-112	8.87	80	5600
Well Casing Diameter: 2"		1215	4.92	.055	25.7	51.8	0.27	-111	8.87	80	6000
Total Well Depth: 49.34		1220	4.92	.055	25.7	50.0	0.24	-113	8.87	80	6400
Static Water Level: 9.85		1225	4.92	.055	25.8	48.6	0.28	-113	8.87	80	6800
Tube Intake Depth: 46.00		1230	4.94	.055	26.1	44.2	0.23	-115	8.87	80	7200
		1235	4.95	.055	26.3	40.3	0.21	-116	8.87	80	7600
Start Purge (hr): 1815		1240	4.97	0.055	26.6	39.3	0.23	-119	8.87	80	8000
End Purge (hr): 1245		1245	4.97	0.055	26.5	36.3	0.22	-121	8.87	80	8400
Total Purge Time (min): 90											
Total Vol. Purged: 2.25 gals											

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7-11-01									
Time: 1250	milky	4.97	0.055	26.5	36.3	0.22	-121	8.87	80

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	3
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
~~Ext Organic~~ Cat/Anions	~~8XXX~~	None	500ml	1 or 2	~~1-liter~~ ~~amber glass~~ HDPE	1
~~TAL~~ (Metals) Diss. Fe+Mn	6000/7000	HNO_3	250ml	1	~~1-liter~~ HDPE	1
~~TRPH~~ TOC	~~FL-PRO~~	H_2SO_4	125ml	1	~~1-liter~~ amber glass	1

SB 7/13

ADDITIONAL INFORMATION

Comments:

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[X] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[X] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: —

Duplicate ID No.: —

Signature(s): [signature]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Project No.: - 3928

Sampled By:

Field Analyst: J. Alexander

Field Form Checked as per QA/QC Checklist (initials):

Sample ID No.: NTC02913C18

Sample Location: DLD 02 13C

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

Date: / Time:	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	Sal. (%)	pH (SU)
Method:								

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: _____mg/L) Analysis Time: _____

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier		Concentration
_____	x 0.01	=	mg/L
_____	x 0.02	=	mg/L

CHEMetrics: ~~1.9~~ mg/L 2.2

Notes:

Alkalinity:

Analysis Time: _____

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier		Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	=	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	=	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	=	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	=	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	=	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	=	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L K 9810, 9820

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____mg/L) Analysis Time: _____

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☒	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count			Concentration
_____	x 0.1	=	mg/L
240	x 0.2	=	48 mg/L
_____	x 1.0	=	mg/L
_____	x 2.0	=	mg/L

CHEMetrics: _____mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02913C18

Project No.: 3928

Sample Location: OLD02 13C

Sampled By:

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: ~~DR-700~~ DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____ Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ IR-18C Color Wheel Other: _____ Analysis Time: _____

Program/Module: 500nm 33

Concentration: 0.4 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: ~~HS-C~~ Other: _____ Analysis Time: _____

Concentration: 3.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

between the 2.0 and 5.0 color on chart.

HSWR → 1.50 x 5 = 7.5

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☒

Title block is initialized by person who performed the QA/QC Ckecklist: ☒

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 7/11/01

Page 1 of ___

Project Site Name: NTC Orlando (SB 7/13)
Project No.: 7457/3928

Sample Location: OCD-02-19C

[ ] Domestic Well Data

Flow-Thru Cell Make/Model: Horiba U-22

Sample ID No.: NTC02G19C18

[X] Monitoring Well Data

Serial Nos.: 9012039

Sampled By: [signature]

[ ] Other Well Type: ___

C-O-C No.: ___

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1110	4.85	0.116	27.7	57	3.45	19	6.25	100
1	0.041 / 0.155	1115	4.79	0.116	27.6	45	2.94	21	6.25	100
2	0.163 / 0.617	1120	4.77	0.116	27.8	28	2.79	19	6.26	100
4	0.653 / 2.47	1125	4.75	0.114	27.6	15	2.60	15	6.26	100
6	1.469 / 5.56	1130	4.73	0.114	27.3	11	2.56	13	6.26	100
8	2.611 / 9.88	1135	4.71	0.113	27.6	8	2.57	13	6.26	100
10	4.08 / 15.44	1140	4.71	0.113	27.6	6	2.53	12	6.26	100
	[1 gal. = 3.785 L]	1145	4.70	0.113	27.5	6	2.51	10	6.26	100
		1150	4.70	0.113	27.7	5	2.52	10	6.26	100

PID Reading (ppm): ~~5.8~~ 4.4

SB 7/13

Read. = 5.8
BG = 1.4

Well Casing Diameter: 2"

Total Well Depth: 33.63

Static Water Level: 6.00

Tube Intake Depth: 31.00

Start Purge (hr): 1110

End Purge (hr): 1150 ~~40 min~~

Total Purge Time (min): 40

Total Vol. Purged: 4.1L

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7/11/01									
Time: 1150	Clear	4.70	0.113	27.7	5	2.52	10	6.26	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	3
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
~~X-ra Organic~~ Cat/Anions	~~8XXX~~	None	500 ml	1 or 2	~~1-liter~~ ~~amber glass~~ HDPE	1
~~TAL~~ Metals Diss. Fe+Mn	6000/7000	HNO_3	250 ml	1	1-liter HDPE	1
~~TRPH~~ TOC	~~FL-PRO~~	H_2SO_4	125 ml	1	~~1-liter~~ amber glass	1

SB 7/13

ADDITIONAL INFORMATION

Comments:

Method:
[✓] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[✓] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[✓] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: ___

Duplicate ID No.: ___

Signature(s): [signature]

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC029 19C 18

Project No.: 3928

Sample Location: OL002 19C

Sampled By: J

Duplicate: ☐

Field Analyst: J. Alex

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials):

SAMPLING DATA:

Date: 7 11 01	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	Sal.	pH
Time:	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method:								

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1 mg/L) Analysis Time: _____

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier	Concentration
_____	x 0.01	= mg/L
_____	x 0.02	= mg/L

CHEMetrics: 0.2 mg/L

Notes:

Alkalinity:

Analysis Time: _____

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier	Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	= mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	= mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	= mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	= mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	= mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	= mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L K9810, K9825

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____mg/L) Analysis Time: _____

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
_____	x 0.1	= mg/L
200	x 0.2	= 40 mg/L
64	x 1.0	= 64 mg/L
_____	x 2.0	= mg/L

CHEMetrics: _____mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02G 19C18

Project No.: 3928

Sample Location: OLD02 19C

Sampled By:

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: ~~DR-700~~ DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____

Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ IR-18C Color Wheel Other: _____ Analysis Time: _____

Program/Module: 500nm 33

Concentration: 2.2 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: ~~HS-C~~ Other: _____ Analysis Time: _____

Concentration: 5.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☒

Title block is initialized by person who performed the QA/QC Ckecklist: ☒

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 7 10 01

Project Site Name:
Project No.: 3928 / 7457

Sample Location: SAD2-208

[ ] Domestic Well Data

Flow-Thru Cell Make\Model: Horiba U22

Sample ID No.: NTC0220818

[X] Monitoring Well Data

Serial Nos.: 9012032

Sampled By: J. Alexander

[ ] Other Well Type:

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. per ft. of Water	Liters	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01	0.038	1446	4.45	0.155	27.2	42.9	6.24	-40	—	100
1	0.041	0.155	1449	4.58	0.150	27.0	0.9/2.36	4.47	-63	8.61	100
2	0.163	0.617	1453	4.51	0.145	26.6	3.9	4.31	-74	8.69	100
4	0.653	2.47	1501	4.59	0.142	26.7	7.8	3.49	-79	8.74	100
6	1.469	5.56	1507	4.52	0.140	26.7	1.09	2.99	-85	8.75	100
8	2.611	9.88	1512	4.47	0.139	26.6	1.08	2.30	-86	8.76	100
10	4.08	15.44	1519	4.50	0.139	26.5	1.01	2.17	-90	—	100
	[1 gal. = 3.785 L]		1525	4.48	0.138	26.4	1.35	2.09	-93	—	100
			1533	4.48	0.138	26.4	1.86	2.03	-97	8.72	100

PID Reading (ppm): 3.1
one = Background
SB 7/13 Read. = 11.0 BG = 6.9
Well Casing Diameter: 2"
Total Well Depth: 41.32
Static Water Level: 8.07
Tube Intake Depth: 38.00

Start Purge (hr): 1440
End Purge (hr): 1535
Total Purge Time (min): 55
Total Vol. Purged: 5.5 l

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7 10 01									
Time: 1535	Clear	4.48	0.138	28.4	1.86	2.03	-97	8.72	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	3
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
~~Extra Organic~~ Cat/Anions	~~8XXX~~	None	500 ml	1 or 2	~~1-liter~~ ~~amber glass~~ HDPE	1
~~TAL~~ (Metals) Diss. Fe+MN	6000/7000	HNO_3	250 ml	1	~~1-liter~~ HDPE	1
~~TRPH~~ TOC	FL PRO	H_2SO_4	125 ml	1	~~1-liter~~ amber glass	1

SB 7/13

ADDITIONAL INFORMATION

Comments: DO = 0.4 mg/l CO_2 = 99 mg/L
HS = 5.0 Fe = 1.4 mg/L

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:

Duplicate ID No.:

Signature(s):

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: UTC02G20B18

Project No.: 3928

Sample Location: MW 20B

Sampled By: J. Alexander

Duplicate: ☐

Field Analyst: JA

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLING DATA:

Date: 7 10 01	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	Sal.	pH
Time: 1535	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method: peristaltic	clear	-97	.138	26.4	1.86	2.03	0.00	4.48

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1 mg/L) Analysis Time: 1540

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier		Concentration
_____	x 0.01	=	mg/L
_____	x 0.02	=	mg/L

CHEMetrics: 0.4 mg/L

Notes:

Alkalinity:

Analysis Time: 1542

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier		Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	=	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	=	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	=	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	=	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	=	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	=	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____mg/L) Analysis Time: 1545

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☒	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count			Concentration
_____	x 0.1	=	mg/L
_____	x 0.2	=	mg/L
99	x 1.0	= 99	mg/L
_____	x 2.0	=	mg/L

CHEMetrics: _____mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: KJTC029 20B18

Project No.: 3928

Sample Location: MW 20B

Sampled By: JAlexander

Duplicate: ☐

Field Analyst: JA

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: ~~DR-700~~ DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm ~~41~~

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____

Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ ~~IR-18C Color Wheel~~ Other: _____ Analysis Time: _____

Program/Module: 500nm 33

Concentration: 1.4 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: _____

Concentration: 5.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes: not exceed, right around 5.0

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☒

Title block is initialized by person who performed the QA/QC Ckecklist: ☒

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 7/10/01

Project Site Name: NTC Orlando
Project No.: 2457/5928 SB 7/13

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell Make\Model: Horiba U-22
Serial Nos.:

Sample Location: OLD-02-21C
Sample ID No.: NTC02621C18
Sampled By: JB
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1450	4.71	.213	26.3	2.5	3.89	11	7.39	100
1	0.041 / 0.155	1500	4.89	.173	25.8	0.60	2.66	-81	"	"
2	0.163 / 0.617	1510	4.97	.164	25.8	2.50	2.76	-116	"	"
4	0.653 / 2.47	1520	4.98	.134	25.7	2.31	2.79	-122	"	"
6	1.469 / 5.56	1530	4.98	.135	25.7	1.64	2.38	-129	7.40	"
8	2.611 / 9.88	1535	4.98	.132	25.7	3.43	2.55	-135	"	"
10	4.08 / 15.44	1540	4.97	.130	25.8	3.91	2.76	-138	"	"
	[1 gal. = 3.785 L]	1545	4.98	.131	25.9	2.11	3.48	-133	"	"
		1550	4.97	.132	26.0	2.03	3.93	-137	"	"
PID Reading (ppm): 5.6		1555	4.97	.133	26.0	1.61	4.01	-139		
Reach = 8.3		1600	4.98	.131	26.0	2.15	4.04	-141	7.41	"
BG = 2.7		1605	4.97	.133	26.0	2.10	3.96	-145	"	"
Well Casing Diameter: 2"		1610	4.97	.131	25.9	2.09	3.89	-146	"	"
Total Well Depth: 60.28		~~1615~~								
Static Water Level: 7.18		~~1620~~								
Tube Intake Depth:		~~16~~								
Start Purge (hr): 1445										
End Purge (hr): 1610										
Total Purge Time (min): 90										
Total Vol. Purged: 9.0L										

SB 7/13

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7/10/01									
Time: 1615	Clear	4.97	.131	25.9	2.09	3.89	-146	7.41	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	3
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
~~X-tra Organic~~ Cat/Anions	~~8XXX~~	None	500ml	1 or 2	~~1-liter~~ ~~amber glass~~ HDPE	1
~~TAL~~ (Metals) Dis. Fe+Mn	6000/7000	HNO_3	250ml	1	~~1-liter~~ HDPE	1
~~TRPH~~ TOC	~~FL PRO~~	H_2SO_4	125 ml	1	~~1-liter~~ amber glass	1

SB 7/13

ADDITIONAL INFORMATION

Comments:
DO = 7.7 CO_2 = 104
Fe = 0.5 HS = 5.0

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[ ] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:

Duplicate ID No.:

Signature(s):

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02921C18

Project No.: 3928

Sample Location: MW21C

Sampled By: J. Bourgeois

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLING DATA:

Date: 7 10 01	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	Sal.	pH
Time: 1615	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method: Peristaltic	clear	4.97	.131	25.9	2.09	3.89	0.00	4.97

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1 mg/L) Analysis Time: 1620

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier	Concentration
_____	x 0.01	= mg/L
_____	x 0.02	= mg/L

CHEMetrics: 0.7 mg/L

Notes:

Alkalinity:

Analysis Time: 1622

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____ mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier	Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	= mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	= mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	= mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	= mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	= mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	= mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____ mg/L) Analysis Time: 1625

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☒	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
_____	x 0.1	= mg/L
_____	x 0.2	= mg/L
104	x 1.0	= 104 mg/L
_____	x 2.0	= mg/L

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02G21C18

Project No.: 3928

Sample Location: MW21C

Sampled By: J. Bourgeois

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): JA

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: ~~DR-700~~ DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____ Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ IR-18C Color Wheel Other: _____ Analysis Time: 1627

Program/Module: 500nm 33

Concentration: 0.5 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 1635

Concentration: 5.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☒

Title block is initialized by person who performed the QA/QC Ckecklist: ☒

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 7-11-01

Project Site Name: Nta Orlando, FL. CTO 151
Project No.: N7475-BE005F375

Sample Location: Old-02-23

[ ] Domestic Well Data

Flow-Thru Cell Make/Model: Horiba / 422

Sample ID No.: NTC02G23C18

[X] Monitoring Well Data

Sampled By: [illegible]

Serial Nos.:

[ ] Other Well Type:

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min	
0.5	0.01 / 0.038	1455	5.14	.112	27.5	959	1.04	-109	9.14	100	500
1	0.041 / 0.155	1500	5.10	.113	27.6	848	0.77	-113	9.14	100	1000
2	0.163 / 0.617	1505	5.11	.113	27.5	728	0.69	-116	9.14	100	1500
4	0.653 / 2.47	1510	5.13	.111	27.6	533	0.48	-120	9.14	100	2000
6	1.469 / 5.56	1515	5.13	.109	27.5	456	0.41	-122	9.14	100	2500
8	2.611 / 9.88	1520	5.13	.107	27.7	371	0.39	-125	9.14	100	3000
10	4.08 / 15.44	1525	5.14	.105	27.7	301	0.35	-127	9.14	100	3500
	[1 gal. = 3.785 L]	1530	5.14	.102	27.9	244	0.31	-129	9.14	100	4000
		1535	5.13	.101	28.1	217	0.32	-129	9.14	100	4500
PID Reading (ppm): Ø		1540	5.15	.101	28.1	208	0.39	-128	9.14	100	5000
		1545	5.11	0.098	27.7	195	0.32	-129	9.14	100	5500
		1550	5.11	0.098	27.7	190	0.31	-129	9.14	100	6000
Well Casing Diameter: 1"		1555	5.11	0.098	28.1	168	0.29	-130	9.14	100	6500
Total Well Depth: 45.97		1600	5.09	0.097	26.9	142	0.28	-131	9.14	100	7000
Static Water Level: 9.0		1605	5.07	0.095	26.7	134	0.16	-131	9.14	100	7500
Tube Intake Depth: 43.0		1610	5.06	0.094	26.7	110	0.11	-131	9.14	100	8000
		1615	5.06	0.094	26.6	95.2	0.09	-133	9.14	100	8500
Start Purge (hr): 1455		1620	5.06	0.092	26.5	80.8	0.07	-133	9.14	100	9000
End Purge (hr): 1635		1625	5.06	0.092	26.6	72.0	0.07	-134	9.14	100	9500
Total Purge Time (min): ~~130~~ 90		1630	5.06	0.092	26.6	67.3	0.08	-135	9.14	100	9000
Total Vol. Purged: 2.64		1635	5.06	0.091	26.7	61.7	0.08	-135	9.14	100	10500
											9.5 SB 7/

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7-11-01									
Time: 1635	milky	5.06	0.091	26.7	61.7	0.08	-135	9.14	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	3
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
~~Xtra Organic~~ Cat/Anions	~~8100C~~	None	500ml	1 or 2	1-liter ~~amber glass~~ HDPE	1
~~TAL~~ Metals Diss. Fe+Mn	6000/7000	HNO_3	250 ml	1	~~1-liter~~ HDPE	1
~~TRPH~~ TOC	~~FL-PRO~~	H_2SO_4	125 ml	1	~~1-liter~~ amber glass	1

SB 7/13

ADDITIONAL INFORMATION

Comments:
4.21

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[X] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[X] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: —

Duplicate ID No.: —

Signature(s): [illegible]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02G23C18

Project No.: 3928

Sample Location: 23C

Sampled By: R. Willoughby

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLING DATA:

Date: 7 11 01	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	Sal.	pH
Time:	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method:								

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1 mg/L) Analysis Time: ~~1620~~ 1648

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier	Concentration
_____	x 0.01	= mg/L
_____	x 0.02	= mg/L

CHEMetrics: 0.7 mg/L

Notes:

Alkalinity:

Analysis Time: ~~1625~~

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____mg/L) Filtered: ☐ 1650

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier	Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	= mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	= mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	= mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	= mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	= mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	= mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____mg/L) Analysis Time: ~~1630~~ 1700

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☑	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
_____	x 0.1	= mg/L
330	x 0.2	= 66 mg/L
_____	x 1.0	= mg/L
_____	x 2.0	= mg/L

CHEMetrics: _____mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **SA2 TREATABILITY STUDY**

Sample ID No.: NTC02G23C V8

Project No.: 3928

Sample Location: 23C

Sampled By: R. Wilbanks

Duplicate: ☐

Field Analyst:

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: ~~DR-700~~ DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____

Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ IR-18C Color Wheel Other: _____ Analysis Time: _____

Program/Module: 500nm 33

Concentration: _____ mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 1706

Concentration: 1.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☐

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☒

Title block is initialized by person who performed the QA/QC Ckecklist: ☒

SB 7/12

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 7-11-01

Project Site Name: NTC Orlando
Project No.: 7457/3928 SB 7/12

Sample Location: OLD-02-24

[ ] Domestic Well Data

Flow-Thru Cell Make\Model: Horiba U-22

Sample ID No.: NTC02624C18

[X] Monitoring Well Data

Serial Nos.: 924014

Sampled By: JB

[ ] Other Well Type:

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	0815	4.86	.275	25.4	20.5	3.39	-64	N/A	100
1	0.041 / 0.155	0825	4.71	.185	25.2	6.74	1.96	-99	"	"
2	0.163 / 0.617	0835	4.66	.154	25.2	3.75	1.96	-116	"	"
4	0.653 / 2.47	0845	4.67	.148	25.3	3.86	1.61	-127	"	"
6	1.469 / 5.56	0855	4.67	.142	25.3	1.66	2.05	-132	"	"
8	2.611 / 9.88	~~0905~~								
10	4.08 / 15.44	0900	4.67	.144	25.4	1.15	2.23	-135	"	"
	[1 gal. = 3.785 L]	0905	4.68	.141	25.4	1.16	2.64	-134	"	"
		0910	4.68	.142	25.4	1.18	2.98	-137	"	"
PID Reading (ppm): 0.0		0915	4.68	.141	25.3	1.14	3.13	-141	"	"
		0920	4.68	.141	25.4	1.15	3.15	-140	"	"

Well Casing Diameter: .75"
Total Well Depth: 50.00"
Static Water Level: 9.20"
Tube Intake Depth: 48.5"

Start Purge (hr): 0810
End Purge (hr): 0920
Total Purge Time (min): 70
Total Vol. Purged: 7.0L

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date:									
Time: 0925	Clear	4.68	.141	25.4	1.15	3.15	-140	N/A	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	✓
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
~~Ion Organic~~ Cat/Anions	~~8XXX~~	None	500ml	(1) 2	~~1-liter~~ ~~amber glass~~ HDPE	✓
~~TAL~~ Metals Diss. Fe+Mn	6000/7000	HNO_3	250ml	1	~~1-liter~~ HDPE	✓
~~TRPH~~ DOC	~~FL-PRO~~	H_2SO_4	125ml	1	~~1-liter~~ amber glass	✓

SB 7/12

ADDITIONAL INFORMATION

Comments: DO = 0.2 CO_2 = 115
Alk = ND HS = ~~2.0~~ 5.0
Fe = 2.2

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[X] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:

Duplicate ID No.:

Signature(s):

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02G24 18

Project No.: - 3928

Sample Location: MW 24

Sampled By: J. Bourgeois

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLING DATA:

Date: 7 11 01	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	Sal.	pH
Time: 0925	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method: peristaltic	clear	-140	.141	25.4	1.15	3.15	0.00	4.68

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1 mg/L) Analysis Time: 925

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier		Concentration
_____	x 0.01	=	mg/L
_____	x 0.02	=	mg/L

CHEMetrics: 0.2 mg/L

Notes:

Alkalinity:

Analysis Time: 930

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____ mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier		Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	=	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	=	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	=	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	=	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	=	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	=	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____ mg/L) Analysis Time: 0952

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☒	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count			Concentration
_____	x 0.1	=	mg/L
_____	x 0.2	=	mg/L
115	x 1.0	=	115 mg/L
_____	x 2.0	=	mg/L

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02924 18

Project No.: 3928

Sample Location: MW24

Sampled By: J. Bourgeois

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): ☒

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: ~~DR-700~~ DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____

Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ IR-18C Color Wheel Other: _____ Analysis Time: _____

Program/Module: 500nm 33

Concentration: 2.2 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: _____

Concentration: 5.0 mg/L Exceeded 5.0 mg/L range on color chart: ☒

Notes: used other kit: showed 5.0 also

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☒

Title block is initialized by person who performed the QA/QC Ckecklist: ☒

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 7-12-01

Project Site Name: NTC Orlando
Project No.: N3928

Sample Location: Old 02-25

[ ] Domestic Well Data

[X] Monitoring Well Data

[ ] Other Well Type:

Flow-Thru Cell
Make\Model: Horiba / U22
Serial Nos.:

Sample ID No.: NTC02G25C18
Sampled By: SMW
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	0840	5.20	0.070	25.5	ER-3	1.12	-73	—	100
1	0.041 / 0.155	0845	5.12	.067	25.8	ER-3	0.71	-76	—	100
2	0.163 / 0.617	0850	Dump	water	from	flow	Thru	Bottle	—	—
4	0.653 / 2.47	0855	5.05	0.061	25.8	744	0.91	-83	—	100
6	1.469 / 5.56	0900	5.09	.063	26.2	692	0.60	-87	—	100
8	2.611 / 9.88	0905	5.08	.063	26.3	541	.53	-94	—	100
10	4.08 / 15.44	0910	5.10	.064	26.1	432	.37	-95	—	100
	[1 gal. = 3.785 L]	0915	Dump	water	from	Flow	Thru	Bottle	—	—
		0920	—	—	—	—	—	—	—	—
PID Reading (ppm): Ø		0925	5.04	0.061	26.2	231	0.83	-94	—	100
		0930	5.03	0.061	26.4	189	0.57	-98	—	100
SB 7/9 0.75"		0935	5.03	0.061	26.6	169	0.43	-99	—	100
Well Casing Diameter: 0.5"		0940	5.03	0.060	26.7	140	0.39	-98	—	100
Total Well Depth: 48.94		0945	5.03	0.060	26.9	152	0.40	-102	—	100
Static Water Level: 9.36		0950	5.04	0.060	26.9	162	0.42	-103	—	100
Tube Intake Depth: 45.94		0955	5.04	0.061	26.9	149	0.47	-103	—	100
		1000	5.00	0.060	26.5	141	0.32	-103	—	100
Start Purge (hr): 0840		1005	5.00	0.060	26.7	124	0.24	-106	—	100
End Purge (hr): 1030		1010	5.02	0.060	27.0	112	0.23	-108	—	100
Total Purge Time (min): 110		1015	5.01	0.059	26.7	104.0	0.22	-108	—	100
Total Vol. Purged: 2.64 gal		1020	5.01	0.058	26.7	90.3	0.20	-108	—	100
		1025	4.99	0.058	26.8	78.9	0.15	-106	—	100
		1030	4.99	0.058	26.9	71.3	0.14	-106	—	100

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7-12-01									
Time: 1035	milky	4.99	0.058	26.9	71.3	0.14	-106	—	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	3
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
~~X-tra Organic~~ Cat/Anions	~~8000~~	None	500ml	1 or 2	~~1-liter~~ ~~amber glass~~ HDPE	1
~~TAL~~ (Metals) Diss. Fe+Mn	6000/7000	HNO_3	250ml	1	~~1-liter~~ HDPE	1
~~TRPH~~ TOC	~~FL-PRO~~	H_2SO_4	125ml	1	~~1-liter~~ amber glass	1

ADDITIONAL INFORMATION

Comments:
0840 — 0850 water very muddy
0935 - 0955 Pumps stop at 100 mL

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[X] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[X] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:

Duplicate ID No.:

Signature(s):

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: UTL02G25C18

Project No.: 3928

Sample Location: OLD 02 25C

Sampled By: R. Willoughby

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLING DATA:

Date: 7/20/	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	Sal.	pH
Time:	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method:								

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 1-12 mg/L) Analysis Time: _____

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier		Concentration
_____	x 0.01	=	mg/L
_____	x 0.02	=	mg/L

CHEMetrics: 3 mg/L

Notes:

Alkalinity:

Analysis Time: _____

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____ mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier		Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	=	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	=	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	=	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	=	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	=	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	=	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____ mg/L) Analysis Time: _____

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☒	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count			Concentration
_____	x 0.1	=	mg/L
310	x 0.2	=	62 mg/L
_____	x 1.0	=	mg/L
_____	x 2.0	=	mg/L

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02~~28~~ 25 C 18

Project No.: 3928

Sample Location: OLD 02 ~~28~~ 25

Sampled By: ~~JA~~ R.W

Duplicate: ☐

Field Analyst: JA

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____

Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ IR-18C Color Wheel Other: _____ Analysis Time: _____

Program/Module: 500nm 33

Concentration: 2.0 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: _____

Concentration: 1.5 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

in between the 1.0 and the 2.0 on chart

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☒

Title block is initialized by person who performed the QA/QC Ckecklist: ☒

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 7 11 01

Project Site Name: NTC Orlando
Project No.: 3928

Sample Location: SA 02 MW26

[ ] Domestic Well Data

Flow-Thru Cell Make\Model: Horiba U22

Sample ID No.: NTC02G2618 C

[X] Monitoring Well Data

Sampled By: J. Alexander

Serial Nos.:

[ ] Other Well Type:

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	0817	5.36	.155	25.8	112	5.56	-80	—	100
1	0.041 / 0.155	0833	5.03	.124	25.8	50.8	3.30	-94	—	100
2	0.163 / 0.617	0853	5.05	.111	26.6	18.3	3.25	-98	—	100
4	0.653 / 2.47	0903	5.04	.102	26.1	15.4	2.89	-98	—	100
6	1.469 / 5.56	0908	5.07	.100	26.1	9.85	3.03	-101	—	100
8	2.611 / 9.88	0912	5.03	.099	26.1	8.15	3.11	-107	—	100
10	4.08 / 15.44	0916	5.05	.097	26.6	7.20	3.07	-102		
	[1 gal. = 3.785 L]									

PID Reading (ppm): Ø

Well Casing Diameter: ~~.5"~~ 0.75"

Total Well Depth: 50'

Static Water Level: 9.00'

Tube Intake Depth: 47'

Start Purge (hr): 0807

End Purge (hr): 0920

Total Purge Time (min): 73

Total Vol. Purged: 7.3 l

SD 7/13

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7 11 01									
Time: 0920	clear	5.05	.097	26.6	8.20	3.01	-102	—	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	3
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
~~X-tra Organic~~ Cat/Anions	~~8XXX~~	None	500ml	1 or 2	~~1-liter~~ ~~amber glass~~ HDPE	1
~~TAL~~ (Metals) Diss. Fe+Mn	6000/7000	HNO_3	250ml	1	~~1-liter~~ HDPE	1
~~TRPH~~ TOC	~~FL-PRO~~	H_2SO_4	125ml	1	~~1-liter~~ amber glass	1

SD 7/13

ADDITIONAL INFORMATION

Comments: DO = 0.2 CO_2 = 123
ALK=ND HS = 5.0 Fe = 2.0

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[X] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[X] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:

Duplicate ID No.:

Signature(s):

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02G2618

Project No.: 3928

Sample Location: MW26

Sampled By: J. Alexander

Duplicate: ☐

Field Analyst: JA

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials):

SAMPLING DATA:

	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	Sal. (%)	pH (SU)
Date: 7 11 01								
Time: 0920								
Method:	clear	-102	.097	26.6	8.20	3.07	0.00	5.05

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1 mg/L) Analysis Time: 0930

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier		Concentration
_____	x 0.01	=	mg/L
_____	x 0.02	=	mg/L

CHEMetrics: 0.2 mg/L

Notes:

Alkalinity:

Analysis Time: 0935

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier		Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	=	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	=	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	=	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	=	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	=	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	=	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L titrettes 9510

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____mg/L) Analysis Time: 0940

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☐	20-100 mg/L	100 ml	0.3636 N	0.2
☒	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count			Concentration
_____	x 0.1	=	mg/L
_____	x 0.2	=	mg/L
123	x 1.0	=	123 mg/L
_____	x 2.0	=	mg/L

CHEMetrics: _____mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02G2618

Project No.: 3928

Sample Location: MW 2C

Sampled By: J. Alexander

Duplicate: ☐

Field Analyst: JA

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____ Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ (R-18C Color Wheel) Other: _____ Analysis Time: 0950

Program/Module: 500nm 33

Concentration: 2.0 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 0942

Concentration: 5.0 mg/L Exceeded 5.0 mg/L range on color chart: ☒

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☒

Title block is initialized by person who performed the QA/QC Ckecklist: ☒

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 7/12/01

Project Site Name: NTC Orlando
Project No.: 3928

Sample Location: OLD-02-27

[ ] Domestic Well Data

[X] Monitoring Well Data

[ ] Other Well Type:

Flow-Thru Cell Make/Model: Horiba U-22

Serial Nos.: 9012039

Sample ID No.: NTC02G27C18

Sampled By: R.D Munson

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. per ft. of Water	Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01	0.038	0850	4.91	0.137	26.2	134	4.22	-11	10.30	95
1	0.041	0.155	0855	4.84	0.138	26.3	103	3.45	-11	10.30	95
2	0.163	0.617	0900	4.75	0.135	26.4	83	3.39	-11	10.30	95
4	0.653	2.47	0905	4.72	0.133	26.4	59	3.16	-15	10.30	95
6	1.469	5.56	0910	4.73	0.130	26.5	46	3.17	-17	10.30	95
8	2.611	9.88	0915	4.74	0.127	26.3	34	3.14	-21	10.31	95
10	4.08	15.44	0920	4.76	0.125	26.3	27	3.10	-25	10.31	95
	[1 gal. = 3.785 L]		0925	4.76	0.123	26.4	23	3.08	-27	10.31	95
			0930	4.79	0.120	26.4	19	3.01	-30	10.31	95
PID Reading (ppm): 0.0			0935	4.78	0.119	26.9	17	2.99	-33	10.31	95
			0940	4.80	0.118	26.9	18	3.07	-34	10.30	95
			0945	4.80	0.117	27.0	12	3.11	-37	10.30	95
Well Casing Diameter:			0950	4.82	0.114	27.2	32	3.15	-40	10.30	95
Total Well Depth: 50.10			0955	4.80	0.112	27.2	24	3.18	-41	10.30	95
Static Water Level: 10.11			1000	4.81	0.111	27.2	21	3.22	-43	10.30	95
Tube Intake Depth: 48.00			1005	4.84	0.110	27.1	19	3.38	-46	10.30	95
			1010	4.84	0.109	27.2	17	3.55	-47	10.30	95
Start Purge (hr): 0850			1015	4.85	0.107	27.2	16	3.76	-50	10.30	95
End Purge (hr): 1020			1020	4.86	0.106	27.2	14	3.88	-52	10.30	95
Total Purge Time (min): 90											
Total Vol. Purged: 11.4 L											

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7/12/01									
Time: 1020	CLEAR	4.86	0.106	27.2	14	3.88	-52	10.30	95

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	3
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
~~X-tra Organic~~ Cat/Anions	~~8XXX~~	None	1 or 2	~~1-liter~~	~~amber glass~~ HDPE	1
~~TAL~~ Metals Diss. Fe+Mn	6000/7000	HNO_3	250 ml 1	~~1-liter~~	HDPE	1
~~TRPH~~ TOC	~~EL PRO~~	H_2SO_4	125 ml 1	~~1-liter~~	amber glass	1

ADDITIONAL INFORMATION

Comments:

Method:
- [X] Peristaltic Pump
- [ ] Centrifugal Pump
- [ ] Bladder Pump
- [X] Tube Evacuation
- [ ] Vacuum Jug Assembly
- [ ] Bailer

Tubing Type:
- [ ] Polyethylene
- [X] Teflon
- [ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: —

Duplicate ID No.: NTG02-D1-48

Signature(s): R.D Munson

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Page __ of __

Project Site Name:	SA2 TREATABILITY STUDY	Sample ID No.:	NT02G27C01
Project No.:	3928	Sample Location:	MW27C
Sampled By:	D. Munson	Duplicate:	☐
Field Analyst:	T. Alexander	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

Date: 7 12 01	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	Sal.	pH
Time:	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method:								

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 1-12 mg/L) Analysis Time: 1027

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier		Concentration
_____	x 0.01	=	mg/L
_____	x 0.02	=	mg/L

CHEMetrics: 2 mg/L

Notes:

Alkalinity:

Analysis Time: 1035

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier		Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	=	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	=	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	=	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	=	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	=	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	=	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L KG815, KG810, KG820

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____mg/L) Analysis Time: 1032

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☒	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count			Concentration
_____	x 0.1	=	mg/L
200	x 0.2	=	40 mg/L
_____	x 1.0	=	mg/L
_____	x 2.0	=	mg/L

CHEMetrics: _____mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Page __ of __

Project Site Name:	SA2 TREATABILITY STUDY	Sample ID No.:	NTC02527C01
Project No.:	8928	Sample Location:	MW27C
Sampled By:	JA D. Munson	Duplicate:	☐
Field Analyst:	JA	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLE COLLECTION/ANALYSIS INFORMATION:

~~Manganese (Mn^{2+})~~:

Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____ Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ IR-18C Color Wheel Other: _____ Analysis Time: 1123

Program/Module: 500nm 33

Concentration: 2.8 mg/L Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 1028

Concentration: 2.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☒

Title block is initialized by person who performed the QA/QC Ckecklist: ☒

Media Tech NUS
Groundwater Purging and Sampling Log

7-12-01

Project Site Name: NTC Orlando
Project No.: 3928/~~7547~~ SB 7/13

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell Make/Model: Horiba U22
Serial Nos.:

Sample Location: OLD-02-28
Sample ID No.: NTC0228C18
Sampled By: JA
C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	0805	6.34	.060	26.5	6.2	7.36	102	12.98	100
1	0.041 / 0.155	0815	6.30	.042	26.1	500	4.98	44	"	"
2	0.163 / 0.617	0825	5.67	.039	26.0	999	5.09	-33	"	"
4	0.653 / 2.47	0835	5.48	.040	26.0	999	6.26	-75	"	"
6	1.469 / 5.56	0845	5.33	.041	26.0	800	5.55	-94	"	"
8	2.611 / 9.88	0850	5.29	.041	25.9	700	3.73	-99	"	"
10	4.08 / 15.44	0855	5.29	.041	26.0	650	5.18	-103	"	"
	[1 gal. = 3.785 L]	0900	5.29	.042	26.0	600	5.07	-106	"	"
		0920	5.14	.042	26.0	500	4.61	-113	"	"
PID Reading (ppm): 24.1		0926	5.14	.042	26.0	500	4.46	-114	—	"
Read = 33.6		0945	5.14	.042	26.0	450	4.53	-120	—	100
BG = 9.5		0957	5.13	.046	26.4	450	4.44	-121	-	100
Well Casing Diameter: 2" PVC										
Total Well Depth: 50'										
Static Water Level:										
Tube Intake Depth: 47'										
Start Purge (hr): 0800										
End Purge (hr): 1000										
Total Purge Time (min): 120										
Total Vol. Purged: 12 L										

SB 7/13

Decided to allow purge to continue

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7 12 01									
Time: 1000		5.13	.046	26.4	450	4.44	-121	—	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	3
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
~~Xtra Organic~~ Cat/Anions	~~8XXX~~	None	500ml	2	~~1-liter~~ ~~amber glass~~ HDPE	1
~~TAL~~ Metals Diss. Fe+Mn	6000/7000	HNO_3	250ml	1	~~1-liter~~ HDPE	1
~~TRPH~~ TOC	~~FL PRO~~	H_2SO_4	125 ml	1	~~1-liter~~ amber glass	1

ADDITIONAL INFORMATION

Comments: DO = 0.3 CO_2 = 310 x .2 Alk ND
Fe = 2.6 HS = 1.0
Alk = ND Fe = 2.0
25 - DO = 3.0 CO_2 230 x .2 HS = 1.5

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[X] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[X] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:
Duplicate ID No.:
Signature(s):

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTL02928C18

Project No.: 3928

Sample Location: OLD 02 28

Sampled By: J. Alexander

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLING DATA:

Date: 7 1201	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	Sal.	pH
Time: 1000	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method: peristaltic	clear	-121	.046	26.4	450	4.44	0.00	5.13

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: _____mg/L) Analysis Time: 1008

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier		Concentration
_____	x 0.01	=	mg/L
_____	x 0.02	=	mg/L

CHEMetrics: 0.3 mg/L

Notes:

Alkalinity:

Analysis Time: 1012

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier		Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	=	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	=	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	=	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	=	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	=	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	=	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____mg/L) Analysis Time: 1017

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☒	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count			Concentration
_____	x 0.1	=	mg/L
310	x 0.2	=	62 mg/L
_____	x 1.0	=	mg/L
_____	x 2.0	=	mg/L

CHEMetrics: _____mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **SA2 TREATABILITY STUDY**

Sample ID No.: NTC02G28C18

Project No.: 3928

Sample Location: OLD 02 28

Sampled By: J. Alexander

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: ~~DR-700~~ DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____

Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ ~~IR-18C~~ Color Wheel Other: _____ Analysis Time: 1026

Program/Module: 500nm 33

Concentration: 2.6 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 1052

Concentration: 1.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☒

Title block is initialized by person who performed the QA/QC Ckecklist: ☒

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 7-11-01

Project Site Name: NTC Orlando
Project No.: 7457/283928

Sample Location: SA2 - MW29

[ ] Domestic Well Data

Flow-Thru Cell Make/Model: Horiba U-22

Sample ID No.: NTC026-2918

[X] Monitoring Well Data

Serial Nos.: T005 2009

Sampled By: Skip Barton

[ ] Other Well Type:

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1250	6.96	.147	28.3	260	4.15	140	12.98	90
1	0.041 / 0.155	1255	6.43	.098	27.4	757	1.78	137	13.01	90
2	0.163 / 0.617	1300	5.82	.085	28.1	883	1.81	143	13.01	90
4	0.653 / 2.47	1305	5.68	.080	27.8	858	2.17	143	13.01	90
6	1.469 / 5.56	1315	5.46	.075	27.6	805	0.92	102	13.0	90
8	2.611 / 9.88	1325	5.35	0.073	27.5	768	0.73	-4	13.0	90
10	4.08 / 15.44	1330	5.24	.072	27.5	695	0.76	-46	13.0	90
	[1 gal. = 3.785 L]	1340	5.22	.072	27.8	663	0.71	-52	13.2	90
		1345	5.28	.072	27.7	662	0.56	-75	13.2	90
PID Reading (ppm): 0.7		1355	5.27	.072	27.7	707	0.65	-79	13.1	90
Redd. = 9.2		1405	5.25	.072	27.5	660	0.58	-90	13.1	90
BG = 8.5		1410	5.25	.073	28.0	636	0.66	-93	13.1	90
Well Casing Diameter: 3/4"		1415	5.26	.078	27.9	629	0.64	-98	13.1	90
Total Well Depth: ≈ 50'		1420	5.26	.076	28.1	596	0.60	-101	13.1	90
Static Water Level: 12.65										
Tube Intake Depth: 47'										
Start Purge (hr): 1240										
End Purge (hr): 1420										
Total Purge Time (min): 100										
Total Vol. Purged: 23 gallons										

SB 7/13

SB 7/13

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7-11-01									
Time: 1425	gry/brn	5.26	.076	28.1	596	0.60	-101	13.1	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	3
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
~~Extra Organics~~ Cat/Anions	~~8XXX~~	None	500ml	1 or 2	~~1-liter~~ ~~amber glass~~ HDPE	1
~~TAL Metals~~ Fe+Mn (Diss)	6000/7000	HNO_3	250ml	1	~~1-liter~~ HDPE	1
~~TRPH~~ TOC	~~FL-PRO~~	H_2SO_4	125ml	1	~~1-liter~~ amber glass	1

SB 7/13

ADDITIONAL INFORMATION

Comments:

DO = 1.9 mg/L

Collected Cations/Anions; TOC ~~DOC~~ also

SB 7/13

Method:
[✓] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[✓] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[✓] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: —

Duplicate ID No.: —

Signature(s): Skip Barton

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC029 29C18

Project No.: - 3928

Sample Location: OLD 02 29C

Sampled By:

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLING DATA:

Date: / Time:	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	Sal. (%)	pH (SU)
Method:								

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 1-12 mg/L) Analysis Time: _____

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier		Concentration
_____	x 0.01	=	mg/L
_____	x 0.02	=	mg/L

CHEMetrics: 1.9 mg/L

Notes:

Alkalinity:

Analysis Time: _____

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____ mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier		Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	=	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	=	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	=	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	=	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	=	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	=	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L K 9810, 9820

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____ mg/L) Analysis Time: _____

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☒	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count			Concentration
_____	x 0.1	=	mg/L
280	x 0.2	=	56 mg/L
_____	x 1.0	=	mg/L
_____	x 2.0	=	mg/L

CHEMetrics: _____ mg/L

Notes: turbid sample; may influence ability to determine

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02S29C18

Project No.: 3928

Sample Location: 29C

Sampled By:

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLE COLLECTION/ANALYSIS INFORMATION:

~~Manganese (Mn^{2+})~~:

Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____ Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ ~~IR-18C Color Wheel~~ Other: _____ Analysis Time: _____

Program/Module: 500nm 33

Concentration: 0.4 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: _____

Concentration: 0.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

turbid sample ; may influence

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☒

Title block is initialized by person who performed the QA/QC Ckecklist: ☒

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 7/12/01

Project Site Name: NTC Orlando
Project No.: 3928

Sample Location: OLD-02-30

[ ] Domestic Well Data

[X] Monitoring Well Data

[ ] Other Well Type:

Flow-Thru Cell, Make\Model: Horiba -U22

Serial Nos.: 9012039

Sample ID No.:

Sampled By: RDMunson

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1230	5.06	0.068	28.5	638	582	-58	13.38	95
1	0.041 / 0.155	1235	4.93	0.069	28.0	491	4.06	-56	13.37	95
2	0.163 / 0.617	1240	4.95	0.069	28.5	428	3.35	-58	13.39	100
4	0.653 / 2.47	1245	4.87	0.068	28.6	342	3.17	-59	13.48	95
6	1.469 / 5.56	1250	4.85	0.067	28.1	273	303	-61	13.43	95
8	2.611 / 9.88	1255	4.87	0.068	28.0	237	2.98	-62	13.45	95
10	4.08 / 15.44	1300	4.80	0.066	27.9	182	2.93	-64	13.45	95
	[1 gal. = 3.785 L]	1305	4.84	0.066	27.2	166	2.92	-64	13.45	95
		1310	4.78	0.066	27.4	142	2.86	-61	13.46	100
PID Reading (ppm): ~~15.1~~		1315	4.77	0.066	27.4	125	2.85	-62	13.47	100
SB 7/13 4.4		1320	4.78	0.065	27.1	102	2.87	-65	13.47	95
15.1 - 10.7 (BG) = 4.4		1325	4.76	0.065	27.1	91	2.90	-64	13.47	95
Well Casing Diameter:		1330	4.76	0.065	27.1	79	2.96	-66	13.48	95
Total Well Depth: 49.91		1335	4.76	0.065	27.0	69	3.08	-67	13.48	95
Static Water Level: 13.34		1340	4.74	0.065	26.9	62	3.20	-67	13.48	95
Tube Intake Depth: 47.91		1345	4.73	0.064	27.0	56	3.32	-67	13.48	95
		1350	4.71	0.064	27.0	51	3.46	-66	13.48	95
Start Purge (hr): 1230		1355	4.75	0.064	27.0	48	3.60	-71	13.48	95
End Purge (hr): 1400		1400	4.68	0.064	27.0	44	3.71	-69	13.48	95
Total Purge Time (min): 90										
Total Vol. Purged: 9.1L										

1:31

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7/12/01									
Time: 1400	Clear	4.68	0.064	27.0	44	3.71	-69	13.48	95

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	3
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
~~X-tra Organic~~ Cat/Anions	~~8XXX~~	None	500ml	1 or 2	~~1-liter~~ ~~amber glass~~ HDPE	1
~~TAL~~ Metals Diss. Fe+MN	6000/7000	HNO_3	250ml	1	~~1-liter~~ HDPE	1
~~TRPH~~ TOC	~~FL-PRO~~	H_2SO_4	125ml	1	~~1-liter~~ amber glass	1

ADDITIONAL INFORMATION

Comments:

Method:
- [X] Peristaltic Pump
- [ ] Centrifugal Pump
- [ ] Bladder Pump
- [X] Tube Evacuation
- [ ] Vacuum Jug Assembly
- [ ] Bailer

Tubing Type:
- [ ] Polyethylene
- [X] Teflon
- [ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:

Duplicate ID No.:

Signature(s): RDMunson

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: UFC02G30C18

Project No.: 3928

Sample Location: 30C

Sampled By: D. Munson

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLING DATA:

Date: / Time:	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	Sal. (%)	pH (SU)
Method:								

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 1-12 mg/L) Analysis Time: 1410

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier		Concentration
_____	x 0.01	=	mg/L
_____	x 0.02	=	mg/L

CHEMetrics: 2 mg/L

Notes:

Alkalinity:

Analysis Time: 1412

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____ mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier		Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	=	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	=	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	=	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	=	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	=	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	=	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____ mg/L) Analysis Time: 1416

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☒	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count			Concentration
_____	x 0.1	=	mg/L
408	x 0.2	=	81.6 mg/L
_____	x 1.0	=	mg/L
_____	x 2.0	=	mg/L

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02G30C18

Project No.: 3928

Sample Location: 30C

Sampled By:

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): NA

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____

Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ IR-18C Color Wheel Other: _____ Analysis Time: _____

Program/Module: 500nm 33

Concentration: 1.0 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: _____

Concentration: 0.7 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☒

Title block is initialized by person who performed the QA/QC Ckecklist: ☒

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date: 7/13/01

Project Site Name: NTC Orlando
Project No.: 3928 SB 7/14

Sample Location: OCD-02-31

[ ] Domestic Well Data

Flow-Thru Cell Make/Model: Horiba U-22

Sample ID No.: NTC02G31C18

[X] Monitoring Well Data

Serial Nos.: 9012039

Sampled By: RDMunson

[ ] Other Well Type:

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	0745	5.56	0.115	25.4	644	3.41	62	13.22	95
1	0.041 / 0.155	0750	5.70	0.113	25.7	1013	3.26	28		95
2	0.163 / 0.617	0755	5.66	0.104	25.8	1044	2.87	-1		95
4	0.653 / 2.47	0800	5.61	0.099	25.9	1003	2.62	-21		95
6	1.469 / 5.56	0805	5.54	0.093	26.0	862	3.65	-55		95
8	2.611 / 9.88	0810	5.50	0.090	26.1	786	2.71	-69		95
10	4.08 / 15.44	0815	5.46	0.088	26.2	718	2.40	-77		95
	[1 gal. = 3.785 L]	0820	5.44	0.085	26.2	663	2.35	-82		95
		0825	5.43	0.083	26.2	621	2.29	-83		95
PID Reading (ppm): 7.2		0830	5.43	0.080	26.4	563	2.59	-84		95
		0835	5.41	0.081	26.3	5.39	2.57	-88		100
		0840	5.39	0.078	26.4	513	2.54	-90		100
Well Casing Diameter:		0845	5.39	0.079	26.4	491	2.39	-92		100
Total Well Depth: 49.4		0850	5.38	0.079	26.5	465	2.47	-92		100
Static Water Level: 13.22		0855	5.37	0.078	26.5	453	2.46	-93		100
Tube Intake Depth: 47.0'		0900	5.36	0.077	26.5	435	2.48	-93		100
		0905	5.36	0.076	26.5	418	2.47	-94		100
Start Purge (hr): 0745		0910	5.34	0.076	26.6	403	2.52	-95		100
End Purge (hr): 0915		0915	5.34	0.078	26.8	390	2.69	-95		100
Total Purge Time (min): 90										
Total Vol. Purged: 9.25L										

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7/13/01									
Time: 0915	TAN	5.34	0.078	26.8	390	2.69	-95	—	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements				Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials		3
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass		
Pesticides	8081A	None	1	1-liter	amber glass		
Herbicides	8151	None	1	1-liter	amber glass		
~~Xtra Organic~~ Cat/Anions	~~8XXX~~	None	500ml	(1) 2	~~1-liter~~	~~amber glass~~ HDPE	1
~~TAL~~ Metals Diss. Fe+Mn	6000/7000	HNO_3	250ml	1	~~1-liter~~	HDPE	1
~~TRPH~~ TOC/DOC	~~PLPRO~~	H_2SO_4	125ml	1	~~1-liter~~	amber glass	2

SB 7/14

ADDITIONAL INFORMATION

Comments:
TOC - unfiltered
DOC - filtered 125ml H_2SO_4

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[X] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: —

Duplicate ID No.: —

Signature(s): RDMunson

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02631C18

Project No.: 3928

Sample Location: 31C

Sampled By: D. Munson

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLING DATA:

Date: 0915	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	Sal.	pH
Time: 1301	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method:								

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1 1-12 mg/L) Analysis Time: 1032

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier		Concentration
_____	x 0.01	=	mg/L
_____	x 0.02	=	mg/L

CHEMetrics: 1 mg/L

Notes:

Alkalinity:

Analysis Time: 1040

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier		Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	=	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	=	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	=	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	=	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	=	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	=	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L

Notes: tried all 3 ranges

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____mg/L) Analysis Time: 1035

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☒	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count			Concentration
_____	x 0.1	=	mg/L
315	x 0.2	=	mg/L
_____	x 1.0	=	mg/L
_____	x 2.0	=	mg/L

CHEMetrics: _____mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02G31C18

Project No.: 3928

Sample Location: 31C

Sampled By: D Munson

Duplicate: ☐

Field Analyst: J Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLE COLLECTION/ANALYSIS INFORMATION

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____ Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ IR-18C Color Wheel Other: _____ Analysis Time: 1047

Program/Module: 500nm 33

Concentration: 1.6 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 1052

Concentration: 4.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING/DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☐

Title block is initialized by person who performed the QA/QC Ckecklist: ☒

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 7-12-01

Project Site Name: NTC Orlando, FL CTO 151
Project No.: N3928

Sample Location: OLD-02-32

[ ] Domestic Well Data

Flow-Thru Cell Make\Model: Horiba U22

Sample ID No.: NTC02G32C1B

[X] Monitoring Well Data

Sampled By: SAW

Serial Nos.:

[ ] Other Well Type:

C-O-C No.:

PURGING DATA

Casing Size (In.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1255	4.97	0.060	30.2	999+	2.62	-89	—	100
1	0.041 / 0.155	1300	5.00	0.058	29.2	700	0.67	-101	—	100
2	0.163 / 0.617	1305	4.97	0.056	28.6	485	0.46	-102	—	100
4	0.653 / 2.47	1310	5.00	0.057	29.2	398	0.34	-106	—	100
6	1.469 / 5.56	1315	—	—	—	—	—	—	—	100
8	2.611 / 9.88	1320	5.01	0.056	28.1	270	0.28	-113		100
10	4.08 / 15.44	1325	5.02	0.056	27.8	230	0.23	-115	—	100
	[1 gal. = 3.785 L]	1330	5.02	0.058	27.9	200	0.21	-116	—	100
		1335	5.03	0.056	27.8	190	0.24	-118	—	100
PID Reading (ppm):		1340	5.02	0.055	27.9	170	0.19	-119	—	100
		1345	5.02	0.055	27.8	160	0.18	-119	—	100
		1350	5.02	0.055	27.8	149	0.17	-119	—	100
Well Casing Diameter: 5.75		1355	5.02	0.055	27.5	141	0.16	-119	—	100
Total Well Depth: 49.91		1400	5.02	0.055	27.4	137	0.14	-119	—	100
Static Water Level: 13.25		1405	5.02	0.054	27.5	138	0.13	-119	—	100
Tube Intake Depth: 46.91		1410	5.02	0.054	27.5	135	0.11	-120	—	100
		1415	5.01	0.054	27.6	170	0.12	-121	—	100
Start Purge (hr): 1235		1420	5.02	0.054	27.5	179	0.11	-121	—	100
End Purge (hr): 1425		1425	5.02	0.054	27.5	160	0.11	-121	—	100
Total Purge Time (min): 90										
Total Vol. Purged: 2.51 gals										

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7-12-01									
Time: 1430	Cloudy	5.02	0.054	27.5	160	0.11	-121	—	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements				Collected
TCL VOCs	8260B	HCl	1	3	40 ml	glass vials	3
SVOCs/PAHs	8270C/8310	None		2	1-liter	amber glass	
Pesticides	8081A	None		1	1-liter	amber glass	
Herbicides	8151	None		1	1-liter	amber glass	
~~X-tra Organic~~ Cat/Anions	~~8XXX~~	None	500ml	1 or 2	~~1-liter~~	~~amber glass~~ HDPE	1
~~TAL~~ (Metals) Diss. Fe/Mn	6000/7000	HNO_3	250ml	1	~~1-liter~~	HDPE	1
~~TRPH~~ TOC	~~FL PRO~~	H_2SO_4	125ml	1	~~1-liter~~	amber glass	1

ADDITIONAL INFORMATION

Comments:

Method:
- [X] Peristaltic Pump
- [ ] Centrifugal Pump
- [ ] Bladder Pump
- [X] Tube Evacuation
- [ ] Vacuum Jug Assembly
- [ ] Bailer

Tubing Type:
- [ ] Polyethylene
- [X] Teflon
- [ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:	Duplicate ID No.:	Signature(s):
—	—	[signature]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02G32C

Project No.: - 3928

Sample Location: OLD 02 32C

Sampled By:

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials):

SAMPLING DATA:

Date:	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	Sal.	pH
Time:	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method:								

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1 1-12 mg/L) Analysis Time: _____

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier	Concentration
_____	x 0.01	= mg/L
_____	x 0.02	= mg/L

CHEMetrics: 1.0 mg/L

Notes:

Alkalinity:

Analysis Time: _____

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier	Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	= mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	= mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	= mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	= mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	= mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	= mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L

Notes: tried all 3 ranges

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____mg/L) Analysis Time: _____

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☒	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
_____	x 0.1	= mg/L
430	x 0.2	= 86 mg/L
_____	x 1.0	= mg/L
_____	x 2.0	= mg/L

CHEMetrics: _____mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02G32C18

Project No.: 3928

Sample Location: OLD 02 32C

Sampled By:

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): DA

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____

Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ IR-18C Color Wheel Other: _____ Analysis Time: _____

Program/Module: 500nm 33

Concentration: 1.0 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: _____

Concentration: 2.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☒

Title block is initialized by person who performed the QA/QC Ckecklist: ☒

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 7/13/01

Project Site Name: NTC Orlando (SB 7/14)
Project No.: 3928

Sample Location: OLD-02-33

[ ] Domestic Well Data

Flow-Thru Cell Make\Model: Horiba U-22

Sample ID No.: NTC02G55C18

[X] Monitoring Well Data

Serial Nos.: 924014

Sampled By: JB

[ ] Other Well Type:

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. per ft. of Water	Liters	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01	0.038	0750	5.07	.176	24.0	127	3.79	-64	9.04	100
1	0.041	0.155	0800	5.27	.106	23.9	457	2.53	-127	"	"
2	0.163	0.617	0810	5.27	.099	23.9	130	2.22	-150	"	"
4	0.653	2.47	0820	5.26	.094	23.8	59.4	2.33	-156	"	"
6	1.469	5.56	0830	5.27	.095	23.9	41.2	2.11	-165	"	"
8	2.611	9.88	0840	5.27	.095	23.9	28.5	2.03	-170	"	"
10	4.08	15.44	0845	5.27	.092	23.9	22.8	3.13	-168	"	"
	[1 gal. = 3.785 L]		0850	5.27	.093	23.9	19.3	4.57	-166	9.03	"
			0855	5.27	.094	23.9	16.8	2.76	-173	"	"
PID Reading (ppm):			0900	5.27	.095	23.9	15.3	2.71	-172	"	"
			0905	5.26	.095	23.9	15.9	2.51	-170	"	"
			0910	5.26	.094	24.0	15.3	3.29	-173	"	"
Well Casing Diameter: .75"			0915	5.27	.094	24.0	15.4	3.35	-174	"	"
Total Well Depth: 50.00											
Static Water Level: 8.95											
Tube Intake Depth: ~~50.00~~ 48.50											
Start Purge (hr): 0745											
End Purge (hr): 0915											
Total Purge Time (min): 90											
Total Vol. Purged: 9.0L											

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7/13/01									
Time: 0920	Clear	5.27	.094	24.0	15.4	3.35	-174	9.03	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	✓
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
~~X tra Organic~~ Cat/Anions	~~8XXX~~	None	500ml	1 or 2	~~1-liter~~ ~~amber glass~~ HDPE	✓
~~TAL~~ Metals Diss Fe+MN	6000/7000	HNO_3	250 ml	1	~~1-liter~~ HDPE	✓
~~TRPH~~ TOC/DOC	~~FL-PRO~~	H_2SO_4	125 ml	2	~~1-liter~~ amber glass	✓

SB 7/14

ADDITIONAL INFORMATION

Comments:

Method:
- [X] Peristaltic Pump
- [ ] Centrifugal Pump
- [ ] Bladder Pump
- [X] Tube Evacuation
- [ ] Vacuum Jug Assembly
- [ ] Bailer

Tubing Type:
- [ ] Polyethylene
- [X] Teflon
- [ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:

Duplicate ID No.:

Signature(s):

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02G33C18

Project No.: - 3928

Sample Location: 33C

Sampled By: ~~JA~~ R. Loughby

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials):

SAMPLING DATA:

Date: 7 13 01	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	Sal.	pH
Time:	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method:								

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 6-1 mg/L) Analysis Time: _____

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier		Concentration
_____	x 0.01	=	mg/L
_____	x 0.02	=	mg/L

CHEMetrics: 0.4 mg/L

Notes:

Alkalinity:

Analysis Time: _____

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier		Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	=	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	=	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	=	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	=	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	=	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	=	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L

Notes: tried all three ranges

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____mg/L) Analysis Time: _____

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☒	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count			Concentration
_____	x 0.1	=	mg/L
280	x 0.2	= 56	mg/L
_____	x 1.0	=	mg/L
_____	x 2.0	=	mg/L

CHEMetrics: _____mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NEC02G33C18

Project No.: 3928

Sample Location: OU02 33C

Sampled By: J

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): DA

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____ Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ IR-18C Color Wheel Other: _____ Analysis Time: _____

Program/Module: 500nm 33

Concentration: 0.6 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: _____

Concentration: 2.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☒

Title block is initialized by person who performed the QA/QC Ckecklist: ☒

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 7/13/01

Project Site Name: 7457 SB 7/13
Project No.: 3928/~~7547~~

Sample Location: NTC02934C18

[ ] Domestic Well Data

[X] Monitoring Well Data

[ ] Other Well Type:

Flow-Thru Cell Make/Model: Horiba U22

Serial Nos.: 9012032

Sample ID No.: OLD MW34C

Sampled By: JA

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	0757	5.29	.091	24.3	150	6.12	-115	—	100
1	0.041 / 0.155	0802	5.20	.086	24.3	75	6.18	-127	—	100
2	0.163 / 0.617	0805	5.25	.085	24.2	60	6.63	-131	—	100
4	0.653 / 2.47	0822	5.22	.083	24.2	33	5.57	-138	—	100
6	1.469 / 5.56	0830	5.20	.084	24.2	24	5.01	-143	—	100
8	2.611 / 9.88	0836	5.13	.078	24.2	19	4.43	-143	—	100
10	4.08 / 15.44	0845	5.13	.082	24.2	18	3.87	-146	—	100
	[1 gal. = 3.785 L]	0856	5.14	.081	24.2	19	3.69	-148	—	100
		0900	5.13	.079	24.2	19	4.17	-148	—	100
PID Reading (ppm):		0910	5.12	.078	24.3	11	3.51	-151	—	100
see Gw water		0915	5.15	.080	24.3	14	2.84	-154	—	100
level sheet		0920	5.15	.079	24.3	16	2.79	-159	—	100
Well Casing Diameter: .75"										
Total Well Depth: ~50'										
Static Water Level: 8.85										
Tube Intake Depth: 47'										
Start Purge (hr): 0750										
End Purge (hr): 0920										
Total Purge Time (min): 90										
Total Vol. Purged: 9 l										

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7 13 01									
Time: 0920	clear	5.15	.079	24.3	16	2.79	-159	—	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	3
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
~~X Ins Organic~~ Cat/Anions	8XXX	None	500ml	1 or 2	~~1-liter~~ ~~amber glass~~ HDPE	1
~~TAL~~ Metals Dis. Fe+Mn	6000/7000	HNO_3	250ml	1	~~1-liter~~ HDPE	1
~~TRPH~~ TOC	~~FL-PRO~~	H_2SO_4	125ml	1	~~1-liter~~ amber glass	1
DOC		H_2SO_4 ~~ADDITIONAL INFORMATION~~	125mL		amb glass	1

SB 7/13

Comments:
Collected DOC & TOC samples

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[X] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[X] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:

Duplicate ID No.:

Signature(s):

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02G34C18

Project No.: 3628

Sample Location: 34C

Sampled By: J Alexander

Duplicate: ☐

Field Analyst: J Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLING DATA:

Date: 7 13 01	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	Sal.	pH
Time:	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method:								

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1 mg/L) Analysis Time: 0920

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier		Concentration
_____	x 0.01	=	mg/L
_____	x 0.02	=	mg/L

CHEMetrics: 0.4 mg/L

Notes:

Alkalinity:

Analysis Time: 0925

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____ mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier		Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	=	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	=	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	=	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	=	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	=	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	=	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L

Notes: tried all 3 ranges

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____ mg/L) Analysis Time: 0923

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☒	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count			Concentration
_____	x 0.1	=	mg/L
410	x 0.2	= 82	mg/L
_____	x 1.0	=	mg/L
_____	x 2.0	=	mg/L

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NFC02G34C18

Project No.: 3928

Sample Location: OLD02 34C

Sampled By: J. Alexander

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): ☐

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____ Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ IR-18C Color Wheel Other: _____ Analysis Time: 0925

Program/Module: 500nm 33

Concentration: 0.6 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: 0930

Concentration: 3.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☒

Title block is initialized by person who performed the QA/QC Ckecklist: ☒

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 7-12-01

Project Site Name: NTC Orlando
Project No.: ~~74571~~ 3928 SB 7/12

[ ] Domestic Well Data

[X] Monitoring Well Data

[ ] Other Well Type:

Flow-Thru Cell, Make/Model: Horiba U-22

Serial Nos.: T0052009

Sample Location: SA2 OLD-02-35C

Sample ID No.: OLD02G-35C-18

Sampled By: S. Barton

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1355	4.69	.091	26.3	>1000	1.13	-56	8.83	90
1	0.041 / 0.155	1405	4.39	.088	25.8	>1000	0.96	-65	8.83	90
2	0.163 / 0.617	1415	4.50	.079	25.4	>1000	0.94	-86	8.83	90
4	0.653 / 2.47	1425	4.36	.078	25.3	664	0.75	-85	8.84	90
6	1.469 / 5.56	1435	4.37	.079	25.4	507	1.18	-84	8.84	90
8	2.611 / 9.88	1445	4.37	.079	25.7	347	0.65	-90	8.84	90
10	4.08 / 15.44	1455	4.48	.081	25.3	234	0.59	-104	"	"
	[1 gal. = 3.785 L]	1505	4.42	.079	25.5	157	0.57	-102	"	"
		1515	4.45	.080	25.3	136	0.59	-106	"	"
PID Reading (ppm): 5.2		1520	4.43	.079	25.2	114	0.59	-109	"	"
		1525	4.44	.078	25.1	96.6	0.55	-110	"	"

Well Casing Diameter: 3/4"

49.09 → Total Well Depth: 49.09'

Static Water Level: 8.82'

Tube Intake Depth: 47'

Start Purge (hr): 1350 ~~1255~~

End Purge (hr): 1525 SB 7/12

Total Purge Time (min): 95

Total Vol. Purged: 2.25 gal

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7-12-01									
Time: 1530	Cloudy yellow	4.44	.078	25.1	96.6	0.55	-110	-	90

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	3
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
~~X-tra Organic~~ Cat/Anions	8XXX	None	500 ml	1 or 2	~~1-liter~~ amber glass	1
~~TAL~~ Metals dis. Fe+Mn	6000/7000	HNO_3	~~500 ml~~	1	~~1-liter~~ HDPE 250 ml	1
~~TRPH~~ TOC	FL PRO	H_2SO_4	125 ml	1	~~1-liter~~ amber glass	1

ADDITIONAL INFORMATION

Comments:

Method:
[✓] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[✓] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[✓] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:

Duplicate ID No.:

Signature(s): Shep Barton

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name:	SA2 TREATABILITY STUDY	Sample ID No.:	UTC02G35C18
Project No.:	3928	Sample Location:	35C
Sampled By:	~~JA~~ R. Willoughby	Duplicate:	☐
Field Analyst:	JA	Blank:	☐
Field Form Checked as per QA/QC Checklist (initials):			

SAMPLING DATA:

Date: / Time:	Color (Visual)	ORP (Eh) (+/- mv)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (Meter, mg/l)	Sal. (%)	pH (SU)
Method:								

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1 / 1-12 mg/L) Analysis Time: _____

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier		Concentration
_____	x 0.01	=	mg/L
_____	x 0.02	=	mg/L

CHEMetrics: 1.0 mg/L

Notes:

Alkalinity:

Analysis Time: _____

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier		Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	=	mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	=	mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	=	mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	=	mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	=	mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	=	mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L K 9815, 10, 20

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____mg/L) Analysis Time: _____

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☒	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count			Concentration
_____	x 0.1	=	mg/L
240	x 0.2	= 48	mg/L
_____	x 1.0	=	mg/L
_____	x 2.0	=	mg/L

CHEMetrics: _____mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: **SA2 TREATABILITY STUDY**

Sample ID No.:

Project No.:

Sample Location: 350

Sampled By:

Duplicate: ☐

Field Analyst:

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials):

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm 41

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____

Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ IR-18C Color Wheel Other: _____ Analysis Time: _____

Program/Module: 500nm 33

Concentration: 1.0 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: _____

Concentration: 1.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☒

Title block is initialized by person who performed the QA/QC Ckecklist: ☒

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 7-13-01

Project Site Name: NTC ORLANDO, FL. CTO 151
Project No.: 3928
Sample Location: OLD-02-36C
Sample ID No.: NTC02G36C18
Sampled By: GW
C-O-C No.:

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell Make/Model: Horiba / 422
Serial Nos.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	0800	5.01	0.068	24.1	ER2	1.24	-80	—	100
1	0.041 / 0.155	0810	5.03	0.063	24.3	ER2	0.42	-97	—	100
2	0.163 / 0.617	0820	5.05	0.062	24.3	ER2	0.25	-108	—	100
4	0.653 / 2.47	0830	5.06	0.061	24.4	723	0.22	-117	—	100
6	1.469 / 5.56	0850	5.06	0.060	24.6	348	0.24	-126	—	100
8	2.611 / 9.88	0900	5.06	0.060	24.6	291	0.17	-129	—	100
10	4.08 / 15.44	0910	5.08	0.060	24.7	239	0.16	-132	—	100
	[1 gal. = 3.785 L]	0915	5.08	0.060	24.8	212	0.14	-133	—	100
		0920	5.08	0.060	24.9	200	0.14	-133	—	100
PID Reading (ppm):		0925	5.08	0.060	24.9	183	0.07	-131	—	100
		0930	5.09	0.061	25.0	173	0.07	-133	—	100

Well Casing Diameter: .5
Total Well Depth: 49.30
Static Water Level: 8.66
Tube Intake Depth: 46.30

Start Purge (hr): 0800
End Purge (hr): 0930
Total Purge Time (min): 90
Total Vol. Purged: 2.64 gal.

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7-13-01									
Time: 0940	Cloudy	5.09	0.061	25.0	173	0.07	-133	—	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	3
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
~~X-tra Organic~~ Cat/Anions	~~8XXX~~	None	500ml	1 or 2	1-liter ~~amber glass~~ HDPE	1
~~TAL~~ Metals Diss Fe+Mn	6000/7000	HNO_3	250 ml	1	~~1-liter~~ HDPE	1
~~TRPH~~ TOC/DOC	~~FLPRO~~	H_2SO_4	125ml	1	~~1-liter~~ amber glass	2

SB 7/24

ADDITIONAL INFORMATION

Comments:
ER2 NTU above 999
0830 Horbia failure, loose Battery

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[X] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[X] Teflon
[ ] Teflon-lined Polyethylene

QA/QC SAMPLES

MS/MSD: —
Duplicate ID No.: —

Signature(s): [signature]

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Project No.: 3928

Sampled By:

Field Analyst: J. Alexander

Field Form Checked as per QA/QC Checklist (initials):

Sample ID No.: NTC02G36C18

Sample Location: OU 02 36C

Duplicate: ☐

Blank: ☐

SAMPLING DATA:

Date: 7 13 01	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	Sal.	pH
Time: 0940	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method:								

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1 mg/L) Analysis Time: 0940

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier	Concentration
	x 0.01	= mg/L
	x 0.02	= mg/L

CHEMetrics: 0.5 mg/L

Notes:

Alkalinity:

Analysis Time: 0947

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier	Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	= mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	= mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	= mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	= mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	= mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	= mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L

Notes: tried all ranges, no blue or green color

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____mg/L) Analysis Time: 0942

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☒	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
	x 0.1	= mg/L
440	x 0.2	= 88 mg/L
	x 1.0	= mg/L
	x 2.0	= mg/L

CHEMetrics: _____mg/L

Notes:

Standard Additions: ☐ Titrant Molarity:_____ Digits Required: 1st.:_____ 2nd.:_____ 3rd.:_____

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Page __ of __

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02936C18

Project No.: 3928

Sample Location: OLD 02 36C

Sampled By:

Duplicate: ☐

Field Analyst: J. Alexander

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

~~Equipment: DR-700 DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____~~

~~Program/Module: 525nm 41~~

~~Concentration: _____ mg/L Filtered: ☐~~

~~Digestion: ☐~~

~~Standard Solution: ☐ Results: _____ Reagent Blank Correction: ☐~~

~~Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____~~

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ ~~IR-18C Color Wheel~~ Other: _____ Analysis Time: _____

Program/Module: 500nm 33

Concentration: 0.8 mg/L Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: HS-C Other: _____ Analysis Time: _____

Concentration: 2.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☒

Title block is initialized by person who performed the QA/QC Ckecklist: ☒

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 7/12/01

Project Site Name: NTC Orlando
Project No.: 3928 (SD 7/13)

[ ] Domestic Well Data

[X] Monitoring Well Data

[ ] Other Well Type:

Flow-Thru Cell Make\Model: Horiba U-22

Serial Nos.:

Sample Location: OLD-02-37

Sample ID No.: NTC02637C18

Sampled By: J.B.

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. per ft. of Water	Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01	0.038	0915	5.55	.097	24.5	6.44	4.21	-114	8.95	100
1	0.041	0.155	0925	5.31	.082	24.3	44.1	3.44	-135	"	"
2	0.163	0.617	0935	5.22	.082	24.4	30.5	3.11	-141	"	"
4	0.653	2.47	0945	5.19	.081	24.4	18.1	2.30	-153	"	"
6	1.469	5.56	0955	5.16	.080	24.4	16.6	2.20	-157	"	"
8	2.611	9.88	1000	5.15	.081	24.4	13.0	2.65	-156	8.96	"
10	4.08	15.44	1005	5.19	.080	24.3	7.92	3.84	-156	"	"
	[1 gal. = 3.785 L]		1010	5.14	.077	24.3	8.80	2.94	-160	"	"
			1015	5.15	.079	24.3	7.51	2.81	-159	"	"
PID Reading (ppm): 5.2			1020	5.13	.080	24.2	5.77	4.45	-159	"	"
Read. = 61.8			1025	5.13	.078	24.2	8.93	4.63	-167	"	"
BG = 56.6			1030	5.13	.079	24.2	7.16	4.55	-171	8.97	"
Well Casing Diameter: .75"			1035	5.15	.075	24.2	8.22	8.80	-167	"	"
Total Well Depth: 50.00'			1040	5.15	.075	24.2	9.07	9.12	-167	"	"
Static Water Level: 8.65											
Tube Intake Depth: 48.5'											
Start Purge (hr): 0910											
End Purge (hr): 1040											
Total Purge Time (min): 90											
Total Vol. Purged: 9.0L											

SD 7/13

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 7/12/01									
Time: 1045	clear	5.15	.075	24.2	9.07	9.12	-167	8.97	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	✓
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
Herbicides	8151	None	1	1-liter	amber glass	
~~Volatile Organic~~ Cat/Anions	~~8000~~	None	500ml	1 or 2	~~1-liter~~ ~~amber glass~~ HDPE	✓
~~TAL~~ (Metals) Diss. Fe+Mn	6000/7000	HNO_3	250ml	1	~~1-liter~~ HDPE	✓
~~TRPH~~ TOC	~~FL-PRO~~	H_2SO_4	125 ml	1	~~1-liter~~ amber glass	✓

ADDITIONAL INFORMATION

Comments:

Method:
- [X] Peristaltic Pump
- [ ] Centrifugal Pump
- [ ] Bladder Pump
- [X] Tube Evacuation
- [ ] Vacuum Jug Assembly
- [ ] Bailer

Tubing Type:
- [ ] Polyethylene
- [X] Teflon
- [ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:

Duplicate ID No.:

Signature(s):

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: UTC02537C18

Project No.: 3928

Sample Location: OU 02 37c

Sampled By: JA

Duplicate: ☐

Field Analyst: JA

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLING DATA:

Date: 7 12 01	Color	ORP (Eh)	S.C.	Temp.	Turbidity	DO	Sal.	pH
Time:	(Visual)	(+/- mv)	(mS/cm)	(°C)	(NTU)	(Meter, mg/l)	(%)	(SU)
Method:								

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Dissolved Oxygen:

Equipment: HACH Digital Titrator OX-DT CHEMetrics (Range: 0-1 mg/L) Analysis Time: 1106

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	1-5 mg/L	200 ml	0.200 N	0.01
☐	2-10 mg/L	100 ml	0.200 N	0.02

Titration Count	Multiplier	Concentration
_____	x 0.01	= mg/L
_____	x 0.02	= mg/L

CHEMetrics: 0.2 mg/L

Notes:

Alkalinity:

Analysis Time: 1112

Equipment: HACH Digital Titrator AL-DT CHEMetrics (Range: _____ mg/L) Filtered: ☐

Range Used:	Range	Sample Vol.	Cartridge	Multiplier	Titration Count	Multiplier	Concentration
☐	10-40 mg/L	100 ml	0.1600 N	0.1	_____ & _____	x 0.1	= mg/L
☐	40-160 mg/L	25 ml	0.1600 N	0.4	_____ & _____	x 0.4	= mg/L
☐	100-400 mg/L	100 ml	1.600 N	1.0	_____ & _____	x 1.0	= mg/L
☐	200-800 mg/L	50 ml	1.600 N	2.0	_____ & _____	x 2.0	= mg/L
☐	500-2000 mg/L	20 ml	1.600 N	5.0	_____ & _____	x 5.0	= mg/L
☐	1000-4000 mg/L	10 ml	1.600 N	10.0	_____ & _____	x 10.0	= mg/L

Parameter:	Hydroxide	Carbonate	Bicarbonate
Relationship:			

CHEMetrics: ND mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

Carbon Dioxide:

Equipment: HACH Digital Titrator CA-DT CHEMetrics (Range: _____ mg/L) Analysis Time: 1109

Range Used:	Range	Sample Vol.	Cartridge	Multiplier
☐	10-50 mg/L	200 ml	0.3636 N	0.1
☒	20-100 mg/L	100 ml	0.3636 N	0.2
☐	100-400 mg/L	200 ml	3.636 N	1.0
☐	200-1000 mg/L	100 ml	3.636 N	2.0

Titration Count		Concentration
_____	x 0.1	= mg/L
180	x 0.2	= 36 mg/L
_____	x 1.0	= mg/L
_____	x 2.0	= mg/L

CHEMetrics: _____ mg/L

Notes:

Standard Additions: ☐ Titrant Molarity: _____ Digits Required: 1st.: _____ 2nd.: _____ 3rd.: _____

Tetra Tech NUS, Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Project Site Name: SA2 TREATABILITY STUDY

Sample ID No.: NTC02637C18

Project No.: 3928

Sample Location: OLD 02 37C

Sampled By: JA

Duplicate: ☐

Field Analyst:

Blank: ☐

Field Form Checked as per QA/QC Checklist (initials): [illegible]

SAMPLE COLLECTION/ANALYSIS INFORMATION:

Manganese (Mn^{2+}):

Equipment: ~~DR-700~~ DR-8 __ HACH MN-5 Other: _____ Analysis Time: _____

Program/Module: 525nm ~~41~~

Concentration: _____ mg/L

Filtered: ☐

Digestion: ☐

Standard Solution: ☐ Results: _____

Reagent Blank Correction: ☐

Standard Additions: ☐ Digits Required: 0.1ml:_____ 0.2ml:_____ 0.3ml:_____

Notes:

Ferrous Iron (Fe^{2+}):

Equipment: DR-700 DR-8 __ ~~IR-18C Color Wheel~~ Other: _____ Analysis Time: 1125

Program/Module: 500nm 33

Concentration: 0.6 mg/L

Filtered: ☐

Notes:

Hydrogen Sulfide (H_2S):

Equipment: ~~HS-C~~ Other: _____ Analysis Time: _____

Concentration: 2.0 mg/L Exceeded 5.0 mg/L range on color chart: ☐

Notes:

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Mulitplication is correct for each *Multiplier* table: ☒

Final calulated concentration is within the appropriate *Range Used* block: ☒

Alkalinity *Relationship* is determined appropriatly as per manufacturer instructions: ☒

QA/QC sample (e.g., Std. Additions, etc.) frequency is appropriate as per the project planning documents: ☒

Nitrite Interference treatment used for Nitrate test if Nitrite was detected: ☐

Title block is initialized by person who performed the QA/QC Ckecklist: ☒