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QUARTERLY GROUNDWATER SAMPLING STUDY AREA 52 WITH TRANSMITTAL LETTER
NTC ORLANDO FL
6/14/2002
TETRA TECH

TETRA TECH NUS, INC.
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0602-E201

June 14, 2002

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

Reference: CLEAN Contract No. N62467-94-D-0888
Contract Task Order No. 0234

Subject: Quarterly Groundwater Sampling, March 2002 – OU 2, SA 2, and SA 52
Naval Training Center, Orlando, Florida

Dear Ms. Nwokike:

Enclosed are reports for the quarterly sampling conducted at OU 2, SA 2, and SA 52 in March 2002. The three reports are provided in hardcopy and CD formats.

If you have any questions, please contact me at (865) 220-4730.

Sincerely,

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

SBM:ckf

Enclosure

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

GROUNDWATER SAMPLING
at
STUDY AREA 52

Naval Training Center
Orlando, Florida

Southern Division
Naval Facilities Engineering Command

Contract Number N62467-94-D-0888

Contract Task Order 0234

June 2002

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GROUNDWATER SAMPLING AT STUDY AREA 52
NAVAL TRAINING CENTER, ORLANDO

Prepared for:	Ms. Barbara Nwokike, SOUTHDIV	
Prepared by:	Janice Johnson	
Period of Performance:	March 18-29, 2002	
Field Team:	Skip Barton, FTL Bobby Bobo Jason Bourgeois Gary Braganza Bryn Howze Janice Johnson	Kevin Margetts Chuck Messick Cher Morrison Nathan Reel Skip Vaillancourt
TtNUS Task Order Manager:	Mr. Steven B. McCoy, P.E.	
Contract:	No. N62467-94-D-0888 Contract Task Order No. 0234	
Date:	June 14, 2002	

1. INTRODUCTION

Quarterly groundwater sampling was conducted at Study Area (SA) 52 in March 2002. The fieldwork was performed in accordance with the *Work Plan for Groundwater Sampling* (Tetra Tech NUS, 2002), and the Project Operations Plan (POP) (ABB-ES, 1997).

2. FIELD ACTIVITIES

Tetra Tech NUS, Inc. mobilized to the field on March 18, 2002, to perform quarterly monitoring at SA 2, SA 52, Building 2273, Operable Unit (OU) 2, and OU 3. Work at SA 52 was performed on March 20 – 24, 2002, and included a water level survey and groundwater sampling.

2.1 Water Level Survey

Groundwater levels were measured in wells OLD-52-06, OLD-52-11, OLD-52-12, and OLD-52-13. Groundwater elevations for this field event and previous events are summarized in Table 1.

2.2 Sampling

Monitoring well OLD-52-13 was “overdeveloped” on March 21-23 with the removal of 5,000 gallons of groundwater to accelerate reduction of the dieldrin concentration in and around the well. The three wells

(OLD-52-11, OLD-52-12, OLD-52-13) at SA 52 were subsequently purged and sampled on March 24, 2002, using the low-flow method described in the POP. Purging of the wells consisted of removing groundwater with a peristaltic pump at a rate of 90-100 ml/min until field parameters (temperature, pH, conductivity, turbidity, dissolved oxygen, and ORP) had stabilized. Water levels in the wells were continuously monitored to ensure that drawdown was less than 0.3 feet. Groundwater sample log sheets are included in Appendix A.

All groundwater samples were collected using vacuum jug methods to ensure that the sample water did not contact non-Teflon-lined tubing surfaces. Groundwater samples from SA 52 were analyzed for pesticides using USEPA Method 8081A. All samples were placed on ice in coolers and shipped overnight to Katahdin Analytical Services in Westbrook, Maine, for analysis.

2.3 Sample Turbidity

The turbidity readings in wells OLD-52-11 and OLD-52-13 were 728 and 26 NTU, respectively, which did not meet the goal of less than 10 NTU. The turbidity readings for the last ten sampling events are shown below:

Sample Date	OLD-52-11	OLD-52-12	OLD-52-13
07/27/99	160 NTU	25 NTU	1.1 NTU
10/24/99	695 NTU	3.09 NTU	29.5 NTU
01/21/00	800 NTU	<1 NTU	50 NTU
04/12/00	616 NTU	8.63 NTU	11.2 NTU
07/16/00	230 NTU	0.35 NTU	75 NTU
10/25/00	240 NTU	0.65 NTU	77.5 NTU
01/28/01	603 NTU	3.42 NTU	43.2 NTU
04/29/01	200 NTU	3 NTU	29 NTU
07/16/01	290 NTU	1.98 NTU	36 NTU
03/24/02	728 NTU	0 NTU	26 NTU

As shown in the above data, turbidity has been excessively high in all samples collected from OLD-52-11 since July 1999.

2.4 Problems Encountered

Other than the turbidity problem mentioned in the previous section, no problems were encountered.

3. RESULTS

3.1 Water Level Survey

Groundwater elevation data measured at SA 52 on March 20, 2001, are presented in Table 1 and Figure 1. Current water level data are consistent with the general northeasterly groundwater flow direction presented in the SA 52 Environmental Site Screening Report (HLA, 1999) and the previous quarterly sampling reports (Tetra Tech NUS, 2001a, 2001b, 2001c, and 2001d).

3.2 Data Validation

A limited data validation was performed using 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. Qualifiers resulting from the validation process are shown with the analyte concentrations in Tables 2, 3, and 4.

3.3 Analytical Results

Table 2 presents a summary of the analyte detections for SA 52 in the March 2002 monitoring event. The historical groundwater data are presented in Table 3. A complete listing of the validated analytical data for March 2002 is included as Table 4. Shaded cells indicate concentrations equal to or greater than Florida Groundwater Cleanup Target Levels (GCTLs). The distribution of pesticides detected above the GCTLs is shown on Figure 2.

No pesticides have ever been detected above GCTLs in OLD-52-11. The March 2002 analytical laboratory results from monitoring well OLD-52-12 did not indicate the presence of any pesticides. Pesticides have not been detected in this well since July 1999. The groundwater sample from monitoring well OLD-52-13 contained 3 pesticides of the 21 pesticide compounds analyzed, but dieldrin was the only chemical that exceeded its GCTL. The dieldrin concentrations of 1.8 µg/L and 2.2 µg/L in the duplicate sample from OLD-52-13 were above the Florida GCTL of 0.005 µg/L. The concentration has increased significantly from the sample collected in July 2001, when the concentration of dieldrin was 0.013-J.

4. 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.

HLA (Harding Lawson Associates), 1999. *Base Realignment and Closure, Environmental Site Screening Report, Interim Remedial Action, Study Area 52.* Naval Training Center, Orlando, Florida, Unit Identification Code N65928, Navy CLEAN District 1, Contract No. N62467-89-D-0317/107, March.

Tetra Tech NUS, Inc., 2001a. Groundwater Sampling at Study Area 52. Document No. 470101008, January 25, 2001.

Tetra Tech NUS, Inc., 2001b. Groundwater Sampling at Study Area 52. Document No. 470401001, May 11, 2001.

Tetra Tech NUS, Inc., 2001c. Groundwater Sampling at Study Area 52. Document No. 470501007, August 31, 2001.

Tetra Tech NUS, Inc., 2001d. Groundwater Sampling at Study Area 52. Document No. 470901002, October 26, 2001.

Tetra Tech NUS, Inc., 2002. *Work Plan for Groundwater Sampling, Rev. 4*. Document No. 4707995, March 15, 2002.

USEPA, 1999. 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 Detections in Groundwater – March 2002

3 Historical Detections in Groundwater

4 Validated Groundwater Analytical Results – March 2002

TABLE 1

WATER-LEVEL ELEVATIONS SUMMARY
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well	Well Type	Screen Interval (BGS)	TOC Elevation (AMSL)	7/27/99		10/24/99		1/21/00		4/12/00		7/16/00	
				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)
OLD-52-06	0.5" well	6 - 10	94.22	NM	NM	NM	NM	6.39	87.83	7.50	86.72	6.47	87.75
OLD-52-11	2" well	4 - 14	93.14	NM	NM	4.07	89.07	5.70	87.44	6.70	86.44	5.50	87.64
OLD-52-12	2" well	3 - 13	91.73	2.89	88.84	2.92	88.81	4.42	87.31	5.40	86.33	4.10	87.63
OLD-52-13	2" well	3 - 13	91.36	3.35	88.01	2.37	88.99	3.95	87.41	4.95	86.41	3.77	87.59

TABLE 1

WATER-LEVEL ELEVATIONS SUMMARY
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well	Well Type	Screen Interval (BGS)	TOC Elevation (AMSL)	10/25/00		1/28/01		4/29/01		7/16/01		3/20/02	
				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-52-06	0.5" well	6 - 10	94.22	NM	NM	NM	NM	6.77	87.45	3.33	90.89	6.78	87.44
OLD-52-11	2" well	4 - 14	93.14	5.90	-1.08	6.66	86.48	6.03	87.11	2.58	90.56	6.02	87.12
OLD-52-12	2" well	3 - 13	91.73	4.58	-1.41	5.35	86.38	4.70	87.03	1.48	90.25	4.74	86.99
OLD-52-13	2" well	3 - 13	91.36	4.14	-0.37	4.89	86.47	4.27	87.09	0.89	90.47	4.29	87.07

Notes:
*All measurements are in units of feet.
AMSL - Above mean sea level
BGS - Below ground surface
BTOC - Below top of casing
NM - Not measured
TOC - Top of casing

TABLE 2

DETECTIONS IN GROUNDWATER - MARCH 2002
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	CAS NUMBER	Florida GCTL[a]	OLD-52-11	OLD-52-12	OLD-13	
Sample ID			NTC52G01119	NTC52G01219	NTC52G01319	NTC52G01319-D
Sample Date			3/24/02	3/24/02	3/24/02	3/24/02
Pesticides (µg/L)						
alpha-Chlordane	5103-71-9	2			0.2	0.27
Dieldrin	60-57-1	0.005			1.8	2.2
Endrin Ketone	53494-70-5	*			0.17	0.21

Notes:

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

* Indicate that the GCTL is not available.

Empty cells indicate non-detects.

"J" qualifier indicates an estimated value.

Only chemicals detected in at least one sample are shown.

Values in shaded cells are equal to or exceed the GCTL.

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	CAS NUMBER	Florida GCTL[a]	OLD-52-11								
Sample ID			52G01101	52G01102	NTC52G01110	NTC52G1111	NTC52G01112	NTC52G01113	NTC52G01114	NTC52G01115	NTC52G01116
Sample Date			10/16/97	2/5/98	7/27/99	10/24/99	1/21/00	4/12/00	7/16/00	10/25/00	1/28/01
Pesticides (μg/L)											
4,4'-DDD	72-54-8	0.1									
4,4'-DDE	72-55-9	0.1									
Aldrin	309-00-2	0.005									
alpha-Chlordane[b]	5103-71-9	2									
Dieldrin	60-57-1	0.005									
Endosulfan I	959-98-8	42									
Endrin Aldehyde	7421-93-4	*			0.03J						
Endrin Ketone	53494-70-5	*									
gamma-Chlordane[b]	5103-74-2	2									
Heptachlor Epoxide	1024-57-3	0.2									

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	CAS NUMBER	Florida GCTL[a]	OLD-52-11			OLD-52-12				
Sample ID			NTC52G01117	NTC52G01118	NTC52G01119	52G01201	52G01202	NTC52G01210	NTC52G01210-D	NTC52G1211
Sample Date			4/29/01	7/16/01	3/24/02	10/16/97	2/5/98	7/27/99	7/27/99	10/24/99
Pesticides (µg/L)										
4,4'-DDD	72-54-8	0.1								
4,4'-DDE	72-55-9	0.1		0.012J						
Aldrin	309-00-2	0.005								
alpha-Chlordane[b]	5103-71-9	2								
Dieldrin	60-57-1	0.005						0.081	0.069	
Endosulfan I	959-98-8	42								
Endrin Aldehyde	7421-93-4	*							0.018J	
Endrin Ketone	53494-70-5	*								
gamma-Chlordane[b]	5103-74-2	2						0.011J	0.007J	
Heptachlor Epoxide	1024-57-3	0.2								

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	CAS NUMBER	Florida GCTL[a]	OLD-52-12								
Sample ID			NTC52G01212	NTC52G01213	NTC52G01213-D	NTC52G01214	NTC52G01215	NTC52G01216	NTC52G01217	NTC52G01218	NTC52G01219
Sample Date			1/21/00	4/12/00	4/12/00	7/16/00	10/25/00	1/28/01	4/29/01	7/16/01	3/24/02
Pesticides (µg/L)											
4,4'-DDD	72-54-8	0.1									
4,4'-DDE	72-55-9	0.1									
Aldrin	309-00-2	0.005									
alpha-Chlordane[b]	5103-71-9	2									
Dieldrin	60-57-1	0.005									
Endosulfan I	959-98-8	42									
Endrin Aldehyde	7421-93-4	*									
Endrin Ketone	53494-70-5	*									
gamma-Chlordane[b]	5103-74-2	2									
Heptachlor Epoxide	1024-57-3	0.2									

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	CAS NUMBER	Florida GCTL[a]	OLD-52-13								
Sample ID			52G01301	52G01302	NTC52G01310	NTC52G1311	NTC52G01312	NTC52G01313	NTC52G01314	NTC52G01314-D	NTC52G01315
Sample Date			10/16/97	2/5/98	7/27/99	10/24/99	1/21/00	4/12/00	7/16/00	7/16/00	10/25/00
Pesticides (µg/L)											
4,4'-DDD	72-54-8	0.1					0.28 J				
4,4'-DDE	72-55-9	0.1									
Aldrin	309-00-2	0.005					0.021 J				
alpha-Chlordane[b]	5103-71-9	2					0.044 J				
Dieldrin	60-57-1	0.005	5.6 P	0.2		0.027 J	0.19	0.43 J	0.072 J	0.068 J	0.14
Endosulfan I	959-98-8	42					0.032 J				
Endrin Aldehyde	7421-93-4	*									
Endrin Ketone	53494-70-5	*									
gamma-Chlordane[b]	5103-74-2	2									
Heptachlor Epoxide	1024-57-3	0.2					0.044 J				

TABLE 3

HISTORICAL DETECTIONS IN GROUNDWATER
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	CAS NUMBER	Florida GCTL[a]	OLD-52-13					
Sample ID			NTC52G01316	NTC52G01316-D	NTC52G01317	NTC52G01318	NTC52G01319	NTC52G01319-D
Sample Date			1/28/01	1/28/01	4/29/01	7/16/01	3/24/02	3/24/02
Pesticides (µg/L)								
4,4'-DDD	72-54-8	0.1						
4,4'-DDE	72-55-9	0.1						
Aldrin	309-00-2	0.005	0.066	0.067				
alpha-Chlordane[b]	5103-71-9	2	0.092	0.092 J			0.2	0.27
Dieldrin	60-57-1	0.005	0.24	0.28	0.88	0.013J	1.8	2.2
Endosulfan I	959-98-8	42						
Endrin Aldehyde	7421-93-4	*						
Endrin Ketone	53494-70-5	*	0.052 J		0.08 J		0.17	0.21
gamma-Chlordane[b]	5103-74-2	2						
Heptachlor Epoxide	1024-57-3	0.2						

Notes:

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

[b] GCTL substitution: Chlordane for alpha- and gamma-Chlordane.

* Indicates that the GCTL is not available.

Empty cells indicate non-detects.

"J" qualifier indicates an estimated value.

Only chemicals detected in at least one sample are shown.

Values in shaded cells are equal to or exceed the GCTL.

TABLE 4

VALIDATED GROUNDWATER ANALYTICAL RESULTS - MARCH 2002
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	CAS NUMBER	Florida GCTL[a]	OLD-52-11	OLD-52-12	OLD-52-13	
Sample ID			NTC52G01119	NTC52G01219	NTC52G01319	NTC52G01319-D
Sample Date			3/24/2002	3/24/2002	3/24/2002	3/24/2002
Pesticides (µg/L)						
4,4'-DDD	72-54-8	0.1	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	72-55-9	0.1	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	50-29-3	0.1	0.1 U	0.1 U	0.1 U	0.1 U
Aldrin	309-00-2	0.005	0.05 U	0.05 U	0.05 U	0.05 U
alpha-BHC	319-84-6	0.006	0.05 U	0.05 U	0.05 U	0.052 U
alpha-Chlordane[b]	5103-71-9	2	0.05 U	0.05 U	0.2	0.27
Beta-BHC	319-85-7	0.02	0.05 U	0.05 U	0.05 U	0.072 U
Delta-BHC	319-86-8	2.1	0.05 U	0.05 U	0.05 U	0.052 U
Dieldrin	60-57-1	0.005	0.1 U	0.1 U	1.8	2.2
Endosulfan I	959-98-8	42	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan II[b]	33213-65-9	42	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan Sulfate	1031-07-8	*	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	72-20-8	2	0.1 U	0.1 U	0.1 U	0.1 U
Endrin Aldehyde	7421-93-4	*	0.1 U	0.1 U	0.1 U	0.1 U
Endrin Ketone	53494-70-5	*	0.1 U	0.1 U	0.17	0.21
gamma-BHC (Lindane)	58-89-9	2	0.05 U	0.05 U	0.05 U	0.052 U
gamma-Chlordane[b]	5103-74-2	0	0.05 U	0.05 U	0.05 U	0.052 U
Heptachlor	76-44-8	0.4	0.05 U	0.05 U	0.05 U	0.052 U
Heptachlor Epoxide	1024-57-3	0.2	0.05 U	0.05 U	0.05 U	0.05 U
Methoxychlor	72-43-5	40	0.5 U	0.5 U	0.5 U	0.52 U
Toxaphene	8001-35-2	3	1 U	1 U	1 U	1 U

Notes:

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

[b]GCTL substitutions: Chlordane for alpha-Chlordane and gamma-Chlordane; and Endosulfan I for Endosulfan II.

* Indicates that the GCTL is not available.

"J" qualifier indicates an estimated value.

"U" qualifier indicates analyte not detected.

Values in shaded cells are equal to or exceed the GCTL.

FIGURES

No.

1 Groundwater Elevation Map, March 20, 2002

2 Groundwater Exceedances, March 2002

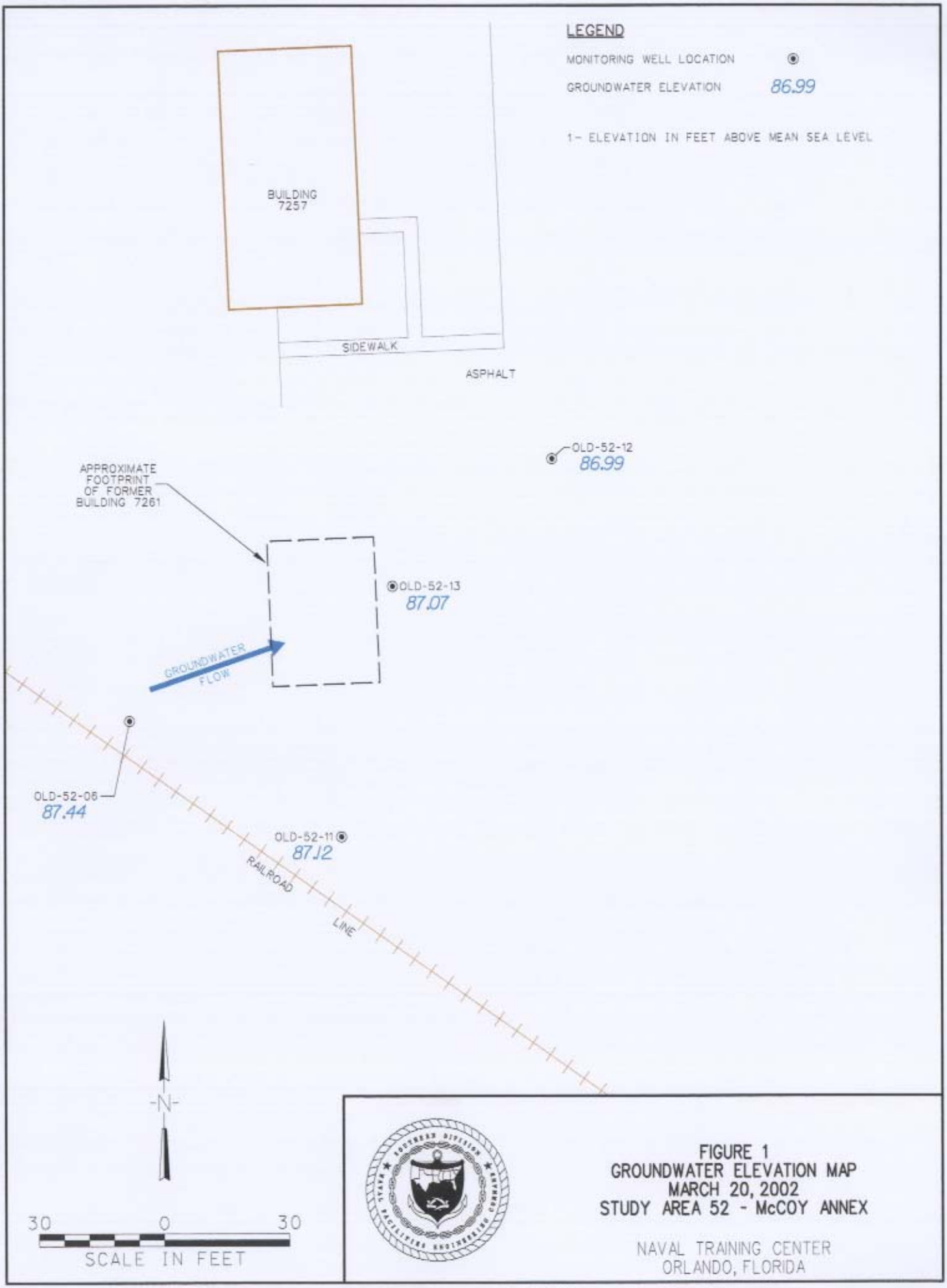
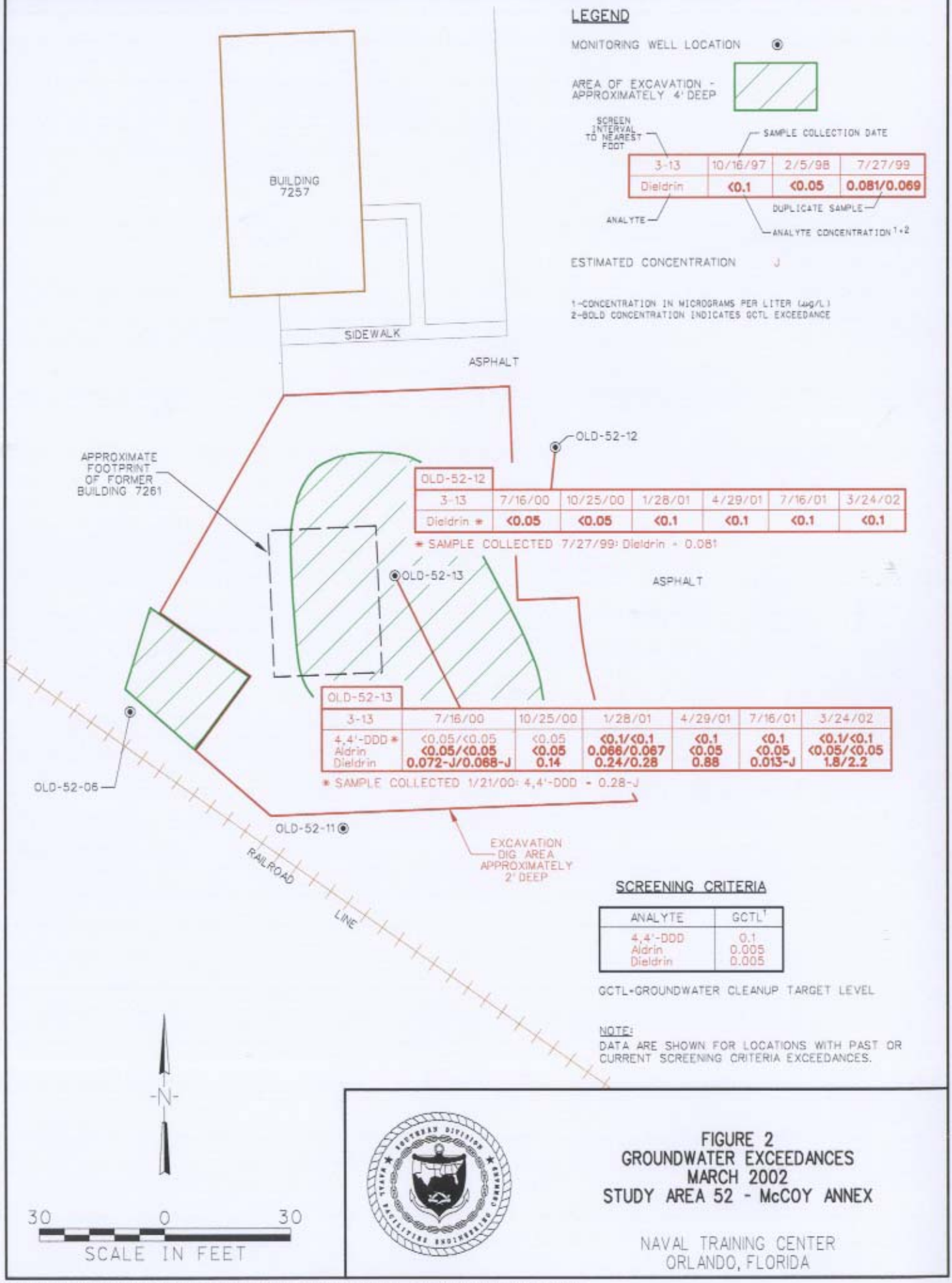


FIGURE 1
GROUNDWATER ELEVATION MAP
MARCH 20, 2002
STUDY AREA 52 - McCOY ANNEX

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n8_5x11v.dgn

CAD FILE NO./DATE: k:\dgn\navy\orlando\sites\sa52\sa52-005.dgn/6-12-02 QUARTERLY MONITORING REPORT


LEGEND
MONITORING WELL LOCATION
AREA OF EXCAVATION - APPROXIMATELY 4' DEEP
SCREEN INTERVAL TO NEAREST FOOT
SAMPLE COLLECTION DATE
3-13 | 10/16/97 | 2/5/98 | 7/27/99
Dieldrin | <0.1 | <0.05 | 0.081/0.069
ANALYTE
DUPLICATE SAMPLE
ANALYTE CONCENTRATION 1+2
ESTIMATED CONCENTRATION J
1-CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
2-BOLD CONCENTRATION INDICATES GCTL EXCEEDANCE
BUILDING 7257
SIDEWALK
ASPHALT
APPROXIMATE FOOTPRINT OF FORMER BUILDING 7261
OLD-52-12
OLD-52-12
3-13 | 7/16/00 | 10/25/00 | 1/28/01 | 4/29/01 | 7/16/01 | 3/24/02
Dieldrin * | <0.05 | <0.05 | <0.1 | <0.1 | <0.1 | <0.1
* SAMPLE COLLECTED 7/27/99: Dieldrin - 0.081
OLD-52-13
ASPHALT
OLD-52-13
3-13 | 7/16/00 | 10/25/00 | 1/28/01 | 4/29/01 | 7/16/01 | 3/24/02
4,4'-DDD * | <0.05/<0.05 | <0.05 | <0.1/<0.1 | <0.1 | <0.1 | <0.1/<0.1
Aldrin | <0.05/<0.05 | <0.05 | 0.066/0.067 | <0.05 | <0.05 | <0.05/<0.05
Dieldrin | 0.072-J/0.068-J | 0.14 | 0.24/0.28 | 0.88 | 0.013-J | 1.8/2.2
* SAMPLE COLLECTED 1/21/00: 4,4'-DDD - 0.28-J
OLD-52-06
OLD-52-11
EXCAVATION DIG AREA APPROXIMATELY 2' DEEP
RAILROAD LINE
SCREENING CRITERIA
ANALYTE | GCTL[1]
4,4'-DDD | 0.1
Aldrin | 0.005
Dieldrin | 0.005
GCTL-GROUNDWATER CLEANUP TARGET LEVEL
NOTE:
DATA ARE SHOWN FOR LOCATIONS WITH PAST OR CURRENT SCREENING CRITERIA EXCEEDANCES.
-N-
30 0 30
SCALE IN FEET
FIGURE 2
GROUNDWATER EXCEEDANCES
MARCH 2002
STUDY AREA 52 - McCOY ANNEX
NAVAL TRAINING CENTER
ORLANDO, FLORIDA
ndl_5x11v.dgn
CAD FILE NO./DATE: k:\dgn\navy\orlando\sites\sa52\sa52-006.dgn /6-12-02
QUARTERLY MONITORING REPORT

APPENDIX A

GROUNDWATER SAMPLE LOG SHEETS

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 3-24-02

Project Site Name: NTC Orlando - SA52
Project No. 4206

Sample Location: SA52 OLD-52-11

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

Flow-Thru Cell: Horiba
Make\Model: U-22
Serial Nos.: 928 2057

Sample ID No.: NTC52G01119
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	initial	5.36	0.06	23.7	818	0.58	-35	6.19	105 mL/min
1	0.041 / 0.155	1235	5.36	0.06	23.6	>1000	0.61	-33	6.25	100 mL/min
2	0.163 / 0.617	1245	5.33	0.07	23.9	755	0.69	-15	6.52	90 mL/min
4	0.653 / 2.47	1255	5.33	0.07	24.1	696	0.55	-10	6.89	
6	1.469 / 5.56	1305	5.31	0.07	24.7	604	0.86	-9	7.54	
8	2.611 / 9.88	1315	5.32	0.06	23.9	574	0.72	-19	7.83	
10	4.08 / 15.44	1325	5.32	0.06	24.1	728	0.68	-22	8.08	
	[1 gal. = 3.785 L]	1330								
		1335								

pump stalls below 90 mL/min

PID Reading (ppm): Ø

Well Casing Diameter: 2"
Total Well Depth: 14'
Static Water Level: 6.19'
Tube Intake Depth: 9'

Start Purge (hr): 1233
End Purge (hr): 1325
Total Purge Time (min): 52
Total Vol. Purged: ~~52~~ SB
655 mL
= 1.7 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 3-24-02									
Time 1334	turbid brown	5.32	0.06	24.1	728	0.68	-22	8.08	90

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	2 ~~1~~	1-liter	amber glass	2
Herbicides	8151	None	1	1-liter	amber glass	
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	
TRPH	FL PRO	H_2SO_4	1	1-liter	amber glass	

ADDITIONAL INFORMATION

Comments:
- well extremely turbid,
- recalibrate Horiba @ 1240
- sampled when turbidity increased

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): Shaf Barton

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 3-24-02

Project Site Name NTC Orlando - SA52
Project No. 4206

Sample Location: SA52 OLD-52-12

[ ] Domestic Well Data

[X] Monitoring Well Data

[ ] Other Well Type: _____

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

Serial Nos. 928 2057

Sample ID No.: NTC52G01219

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	initial	6.17	20 *	24.1	2.45	6.45	-49	4.99	↑
1	0.041 / 0.155	0900	6.32	18 *	24.2	4.46	6.23	-56	5.01	100 ml/min
2	0.163 / 0.617	0905	6.35	17 *	24.3	6.09	5.59	-59	"	
4	0.653 / 2.47	0910	6.36	17 *	24.3	4.60	5.24	-61	"	
6	1.469 / 5.56	0915	6.38	17 *	24.5	4.47	4.90	-63	"	
8	2.611 / 9.88	0920	6.40	17 *	24.4	4.18	4.43	-69	5.02	
10	4.08 / 15.44	0925	6.40	17 *	24.5	3.73	4.30	-71	"	
	[1 gal. = 3.785 L]	0930	6.44	17 *	24.4	3.05	4.07	-79	"	
		0935	6.45	17 *	24.5	1.65	3.78	-81	"	
PID Reading (ppm) Ø		0940	6.46	0.17	24.6	Ø	3.49	-84	"	
		0945	6.46	0.17	24.6	Ø	3.38	-85	"	
		0950	6.46	0.17	24.5	Ø	3.29	-88	"	↓
Well Casing Diameter 2"		0955								
Total Well Depth 13'		1000								
Static Water Level 4.99										
Tube Intake Depth 8'										
Start Purge (hr) 0850										
End Purge (hr) 0950										
Total Purge Time (min) 60										
Total Vol. Purged 6000 ML										
= 1.6 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 3-24-02									
Time 0955	clear	6.46	0.17	24.5	Ø	3.29	-88	5.02	100 ml/min

ANALYSES INFORMATION

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

SB

ADDITIONAL INFORMATION

Comments:
* from 0900 to 0935 cond. units = mS/m, switched to mS/cm @ 0940

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): Steve Barton

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 3-24-02

Project Site Name NTC Orlando - SA52
Project No. 4206

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

Flow-Thru Cell Make\Model: Horiba U-22
Serial Nos.: 928 2057

Sample Location: SA52 OLD-~~13~~ 52-03
Sample ID No.: NTC52G-013 19
Sampled By: S. Barton
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	initial	5.98	0.08	24.4	131	0.90	93	4.54	100 ml/min
1	0.041	0.155	1045	5.78	0.08	24.3	71	0.55	105	4.53	
2	0.163	0.617	1050	5.75	0.08	24.5	68	0.49	113	4.52	
4	0.653	2.47	1055	5.78	0.08	24.3	74	0.43	97	"	
6	1.469	5.56	1100	5.76	0.08	24.4	72	0.41	89	"	
8	2.611	9.88	1110	5.83	0.08	24.4	66	0.53	35	4.49	
10	4.08	15.44	1120	5.83	0.08	24.4	46.7	0.52	29	"	
	[1 gal. = 3.785 L]		1130	5.83	0.08	24.3	37.7	0.64	25	"	
			1140	5.81	0.08	24.5	30.1	0.63	27	"	
PID Reading (ppm): Ø			1145	5.83	0.08	24.3	26.0	0.65	26	"	

Well Casing Diameter: 2"
Total Well Depth: 13'
Static Water Level: 4.54'
Tube Intake Depth: ~~13'~~ (SB) 8' ~~High~~
Start Purge (hr): 1038
End Purge (hr): 1145
Total Purge Time (min): ~~107~~ (SB) 67 min
Total Vol. Purged: ~~10700~~ (SB) 6700 ml = 1.8 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: 3-24-02									
Time: 1150	Cloudy								

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	2 ✓	1-liter	amber glass	(SB) 2 ✓
Herbicides	8151	None	1	1-liter	amber glass	
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	
TRPH	FL PRO	H_2SO_4	1	1-liter	amber glass	

ADDITIONAL INFORMATION

Comments:
STOPPED OVER PUMPING @ 1030

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.: NTC52 D 10019

Signature(s): Shep Barton