N65928.AR.000974
NTC ORLANDO
5090.3a

QUARTERLY GROUNDWATER SAMPLING STUDY AREA 52 WITH TRANSMITTAL LETTER
NTC ORLANDO FL
11/30/1999
TETRA TECH

TETRA TECH NUS, INC.
800 Oak Ridge Turi
(423) 483-9900

08.04.52.0001
00262

99-A214

November 30, 1999

Commanding Officer
SOUTHNAVFACENGCOM
ATTN: Ms. Barbara Nwokike, Code 1873
P.O. Box 190010
2155 Eagle Drive
North Charleston, SC 29419-9010

Subject: Study Area 52 Quarterly Groundwater Sampling
McCoy Annex, NTC, Orlando

Dear Ms. Nwokike:

Enclosed are the results from the quarterly groundwater sampling conducted at SA 52 on July 27, 1999. The results for the July 1999, and previous sampling events, are summarized in the attached tables and figures. Copies of the field log sheets are included in Attachment A.

The July 1999 results show a decrease in the concentration of dieldrin in OLD-52-13 from 0.2 µg/L to < 0.05 µg/L. However, dieldrin was detected for the first time in downgradient well OLD-52-12 at 0.081 µg/L, 0.069 µg/L duplicate. This exceeds the FDEP Groundwater Cleanup Target Level of 0.005 µg/L. The next sampling at SA 52 was performed in late October 1999 and the results will be issued in January 2000. If you have any questions please contact me at (423) 220-4730.

Sincerely,

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

SBM:ckf

Enclosure

c: Mr. Allan Aikens, CH2M Hill
Mr. Rick Allen, Harding Lawson Associates
Mr. David Grabka, FDEP
Ms. Nancy Rodriguez, USEPA Region IV
Mr. Wayne Hansel, SOUTHNAVFACENGCOM
Mr. Michael Campbell, Tetra Tech NUS
Mr. Mark Perry, Tetra Tech NUS
File/db

GROUNDWATER SAMPLING AT STUDY AREA 52

Trip Dates: July 17, 18, & 27, 1999

Site Name: Study Area 52
McCoy Annex, Naval Training Center, Orlando, Florida

TO Manager: Mr. Steve McCoy

Field Team: Gary Braganza, Field Operations Leader
John Hofer
David Fortune
Paul Halverson

Prepared by: John Hofer/Teresa Grayson

1. PURPOSE

Quarterly groundwater sampling was conducted at Study Area (SA) 52 in July 1999. The fieldwork was performed in accordance with the *Work Plan for Groundwater Sampling* (Tetra Tech NUS, 1999), and the *Project Operations Plan* (POP) prepared by ABB-ES (1997).

2. ACTIVITIES

Tetra Tech NUS mobilized to the field on July 12, 1999, to perform quarterly monitoring at SA's 2, 3, 52, and Operable Unit (OU) 3. Work at SA 52 began on July 17, 1999, with a site reconnaissance, a water level survey, and groundwater sampling. Groundwater levels were measured at SA 52 on July 18 and 27 in wells OLD-52-12 and 13. Well OLD-52-11 is a microwell and the M-scope water level indicator used to measure water levels in microwells malfunctioned. Groundwater levels were later measured at SA 52 on October 24, 1999, in wells 11, 12, and 13. Groundwater elevations for this field event and previous events are summarized in Table 1.

Groundwater sampling was conducted on July 18 and 27, 1999. All wells were purged using the low-flow method described in the POP. The purpose of the low-flow purging is to reduce turbidity and the volume of purge water required to obtain representative samples. Purging of wells consisted of removing groundwater with a peristaltic pump at a rate of approximately 100 to 300 ml/min until field parameters, which included temperature, pH, conductivity, turbidity, dissolved oxygen, and oxidation-reduction potential, stabilized. Water levels in the 2-in wells were monitored every 3 to 5 minutes to ensure that drawdown was less than 0.3 ft. In well OLD-52-11 (a 0.5-inch microwell), the diameter of the well precluded measurement of the depth to water while the tubing was in the well. A pumping rate of 150 ml/min was as low as one of the pumps would go without stopping.

The use of the low-flow purging method was effective in reducing the turbidity of the groundwater samples. Although turbidity in two of the three samples (OLD-52-11 and NTC-52-12) was greater than 10 NTU, the samples were collected after the turbidity readings had been stable for one hour. Groundwater sample log sheets are included in Attachment A.

The groundwater samples from SA 52 were analyzed for pesticides using SW 846 Method 8181. All samples were placed in ice-cooled coolers and shipped with requested overnight service to Quanterra Environmental Services in North Canton, OH for analysis. The positive detections are summarized in Table 2, and the historical groundwater detections are presented in Table 3. A complete listing of the validated analytical data for the July 1999 sampling event is included as Table 4.

3. PROBLEMS ENCOUNTERED

The backfill from the soil removal was not packed and graded. This condition resulted in a pick-up truck getting stuck in the sand on July 18. The truck was pulled out with another company-owned truck. Thunderstorms shut down operations at 3:00 PM on July 17 and delayed operations for approximately one hour on July 18.

A miscommunication occurred with the analytical laboratory regarding sample volume requirements for samples collected on July 18, 1999. As a result, the wells at SA 52 were resampled on July 27, 1999.

4. RESULTS

Water Level Survey - Water levels were measured in wells OLD-52-12 and OLD-52-13 on both July 18 and July 27, 1999 (Table 1). Equipment problems prevented collection of water level data in microwell OLD-52-11 on both of these dates. Because the direction of groundwater flow can not be properly determined using only two data points, the water level data from the subsequent round of sampling (October 24, 1999) were used to produce the water level elevation map presented in Figure 1. The water level data are consistent with the northeasterly groundwater flow direction presented in the SA 52 Environmental Site Screening Report (HLA, 1999).

Data Validation - All sample analyses were subjected to data validation in accordance with the guidance document *Navy Installation Restoration Chemical Data Quality Assurance Guide* (February 1996). Qualification of the data was performed using the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (February 1994). The data validation evaluated data completeness, holding time compliance, calibration compliance, laboratory blank contamination, surrogate spike recovery, matrix spike recovery, blank spike recovery, internal standard response, sample quantitation, and detection limits. Qualifiers resulting from the validation process are shown with the analyte concentrations in Tables 2, 3, and 4.

Analytical Results - Table 2 presents a summary of the positive detections in this round of sampling. Shaded cells indicate concentrations above Florida Groundwater Cleanup Target Levels (GCTLs). The distribution of contaminants detected above the GCTLs is shown on Figure 2. The July 1999 results show a decrease in the concentration of dieldrin in OLD-52-13 from 0.2 µg/L to < 0.05 µg/L. It should be noted that the detection limit of 0.05 µg/L for dieldrin in OLD-52-13 exceeds the GCTL of 0.005 µg/L. However, dieldrin was detected for the first time in downgradient well OLD-52-12 at 0.081 µg/L, 0.069 µg/L duplicate.

5. 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.

NFESC (Naval Facilities Engineering Service Center), 1996. *Navy Installation Restoration Laboratory Quality Assurance Guide (Interim Guidance Document),* February.

Tetra Tech NUS, Inc., 1999. *Work Plan for Groundwater Sampling*. Document No. R4707995, July.

USEPA, 1994a. *Contract Laboratory Program Nation Functional Guidelines for Organic Data Review.* EPA/540/R-94/012, Office of Solid Waste and Emergency Response, Washington, D.C., February.

TABLES

TABLE 1

WATER LEVEL SUMMARY - JULY 1999
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Number	Well Type	Screen Interval (BGS)	TOC Elevation (AMSL)	7/18/99		7/27/98		10/24/99	
				Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)
OLD-52-11	½ " μ well	4 - 14	93.14	NM	NM	NM	NM	4.07	89.07
OLD-52-12	2" well	3 - 13	91.73	2.59	89.14	2.89	88.84	2.92	88.81
OLD-52-13	2" well	3 - 13	91.36	3.11	88.25	3.35	88.01	2.37	88.99

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
SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER - JULY 1999
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]	OLD-52-11	OLD-52-12		OLD-52-13
Sample ID	Florida GCTL[b]	NTC52G01110	NTC52G01210	NTC52G01210-D	NTC52G01310
Lab ID		A9G280200003	A9G280200002	A9G280200004	A9G280200001
Sample Date		7/27/99	7/27/99	7/27/99	7/27/99
Pesticides (µg/L)					
Dieldrin	0.005		0.081	0.069	
Endrin Aldehyde	*	0.03 J		0.018 J	
gamma-Chlordane[c]	2		0.011 J	0.007 J	

Notes:

* indicates that there is no GCTL.

"J" - qualifier indicates an estimated value.

Values in shaded cells exceed the screening criteria.

Empty cells indicate non-detects.

(a) For an organic analyte the screening criterion is the GCTL.

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

(c) Screening criteria substitution - Chlordane for gamma-Chlordane.

BLE 3

HISTORICAL GROUNDWATER DETECTIONS
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]		OLD-52-01		OLD-52-02		OLD-52-11		
Sample ID	Florida	NTC	52G00101	52H00101	52G00201	52H00201	52G01101	52G01102	NTC52G01110
Lab ID	GCTL[b]	BGSV[c]	MA801003	MA801004	MA801005	MA801006	S775908*1	A8B060161001	A9G280200003
Sample Date			4/23/96	4/23/96	4/23/96	4/23/96	10/16/97	2/5/98	7/27/99
Volatiles (µg/L)				NA		NA	NA	NA	NA
Chloromethane	2.7		0.5 J						
Semi-Volatiles (µg/L)				NA		NA	NA	NA	NA
Pesticides (µg/L)				NA		NA			
Dieldrin	0.005		0.11		2.3 D				
Endrin Aldehyde	*								0.03 J
gamma-Chlordane[d]	2								
Inorganics (µg/L)							NA	NA	NA
Aluminum	200	4067		3920 J	4750 J	8630 J			
Arsenic	50	5				1.4 J			
Cadmium	5	5.6		2.7 J					
Calcium	*	36830	20900	21200	19200	18800			
Chromium	100	7.8		6.7 B	7.1 B	13.7			
Copper	1000	5.4			3.1 B				
Iron	300	1227	79.4 J	251 J	202 J	304 J			
Magnesium	*	4560	627 B	675 B	483 B	469 B			
Manganese	50	17	5.8 B						
Mercury	2	0.12		0.12 J	0.09 J	0.25 J			
Selenium	50	9.7			2.9 B	5.7			
Sodium	160000	18222	2140 J	1970 J	1140 J	1040 J			
Vanadium	49	20.6	4 B	6.1 B	4.5 B	8.2 B			
General Chemistry (mg/L)				NA		NA	NA	NA	NA
Total Suspended Solids	*				57				

TABLE 3

HISTORICAL GROUNDWATER DETECTIONS
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	OLD-52-12				OLD-52-13		
Sample ID	52G01201	52G01202	NTC52G01210	NTC52G01210-D	52G01301	52G01302	NTC52G01310
Lab ID	S775908*2	A8B060161002	A9G280200002	A9G280200004	S775908*3	A8B060161003	A9G280200001
Sample Date	10/16/97	2/5/98	7/27/99	7/27/99	10/16/97	2/5/98	7/27/99
Volatiles (µg/L)	NA	NA	NA	NA	NA	NA	NA
Chloromethane							
Semi-Volatiles (µg/L)	NA	NA	NA	NA	NA	NA	NA
Pesticides (µg/L)							
Dieldrin			0.081	0.069	5.6 P	0.2	
Endrin Aldehyde				0.018 J			
gamma-Chlordane[d]			0.011 J	0.007 J			
Inorganics (µg/L)	NA	NA	NA	NA	NA	NA	NA
Aluminum							
Arsenic							
Cadmium							
Calcium							
Chromium							
Copper							
Iron							
Magnesium							
Manganese							
Mercury							
Selenium							
Sodium							
Vanadium							
General Chemistry (mg/L)	NA	NA	NA	NA	NA	NA	NA
Total Suspended Solids							

TABLE 3

POSITIVE DETECTIONS IN GROUNDWATER – JULY 1999
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Notes:

* indicates that there is no GCTL.
"B" qualifier indicates that reported value is greater than the instrument detection limit but less than the Contract Required Detection Limit (inorganic analytes only).
"D" qualifier indicates the reported value is from a dilution.
"J" qualifier indicates an estimated value.
"P" qualifier indicates a greater than 25% difference in concentration between columns.
NA Not analyzed.
Values in shaded cells exceed the screening criteria.
Empty cells indicate non-detects.
(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.
(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 (Background Sampling Report for NTC, Orlando, Florida; ABB Environmental Services, August 1995) for inorganics only.
(d) Screening criteria substitution – Chlordane for gamma-Chlordane.

TABLE 4
VALIDATED GROUNDWATER RESULTS - JULY 1999
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Screening Criteria[a]	CAS Numbers	OLD-52-11	OLD-52-12		OLD-52-13
Sample ID	Florida GCTL[b]		NTC52G01110	NTC52G01210	NTC52G01210-D	NTC52G01310
Lab ID			A9G280200003	A9G280200002	A9G280200004	A9G280200001
Sample Date			7/27/99	7/27/99	7/27/99	7/27/99
Pesticides (µg/L)						
4,4'-DDD	0.1	72-54-8	0.05 U	0.05 U	0.05 U	0.05 U
4,4'-DDE	0.1	72-55-9	0.05 U	0.05 U	0.05 U	0.05 U
4,4'-DDT	0.1	50-29-3	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.005	309-00-2	0.05 U	0.05 U	0.05 U	0.05 UJ
alpha-BHC	0.2	319-84-6	0.05 U	0.05 U	0.05 U	0.05 UJ
alpha-Chlordane[c]	2	5103-71-9	0.05 U	0.017 R	0.05 U	0.05 U
Beta-BHC	0.02	319-85-7	0.05 U	0.05 U	0.05 U	0.012 R
Delta-BHC	2.1	319-86-8	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.005	60-57-1	0.05 U	0.081	0.060	0.05 U
Endosulfan I	42	115-29-7	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan II[c]	42	33213-65-9	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan Sulfate	*	1031-07-8	0.05 U	0.05 U	0.05 U	0.05 U
Endrin	2	72-20-8	0.05 U	0.05 U	0.05 U	0.05 U
Endrin Aldehyde	*	7421-93-4	0.03 J	0.05 U	0.018 J	0.05 U
Endrin Ketone	*	53494-70-5	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.2	58-89-9	0.05 U	0.05 U	0.05 U	0.05 UJ
gamma-Chlordane[c]	2	12789-03-6	0.05 U	0.011 J	0.007 J	0.05 U
Heptachlor	0.4	76-44-8	0.05 U	0.05 U	0.05 U	0.05 UJ
Heptachlor Epoxide	0.2	1024-57-3	0.05 U	0.05 U	0.05 U	0.05 U
Methoxychlor	40	72-43-5	0.1 U	0.1 U	0.1 U	0.1 UJ
Toxaphene	3	8001-35-2	2 U	2 U	2 U	2 U

Notes:

* indicates that the GCTL is not available
"J" qualifier indicates an estimated value.
"R" qualifier indicates result rejected.
"U" qualifier indicates analyte not detected.
Values in shaded cells exceed screening criteria.
[a] For an organic analyte, the screening criterion is the GCTL.
[b] Groundwater Cleanup Target Level [Development of Soil Cleanup Target Levels (SCTLs) for Chapter 62-777, F.A.C., May 26, 1999].
[c] Screening criteria substitutions – Chlordane for alpha-Chlordane and gamma-Chlordane, and Endosulfan for Endosulfan II

FIGURES

No.

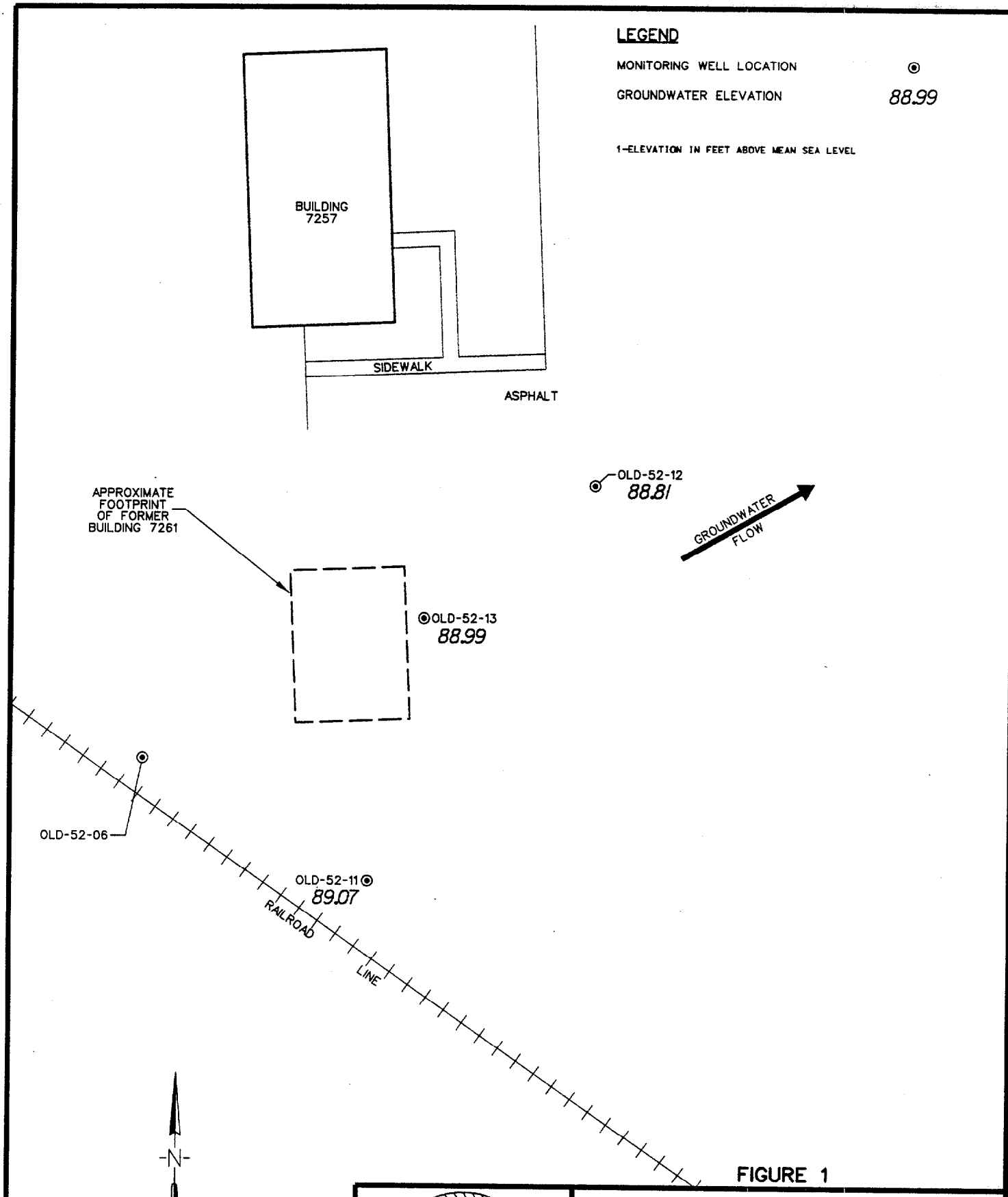

FIGURE 1

GROUNDWATER ELEVATION MAP OCTOBER 24, 1999 QUARTERLY GROUNDWATER SAMPLING REPORT STUDY AREA 52 - McCOY ANNEX

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n8-5x11v.dgn

CAD FILE NO./DATE: 74570023.dgn/11-24-99

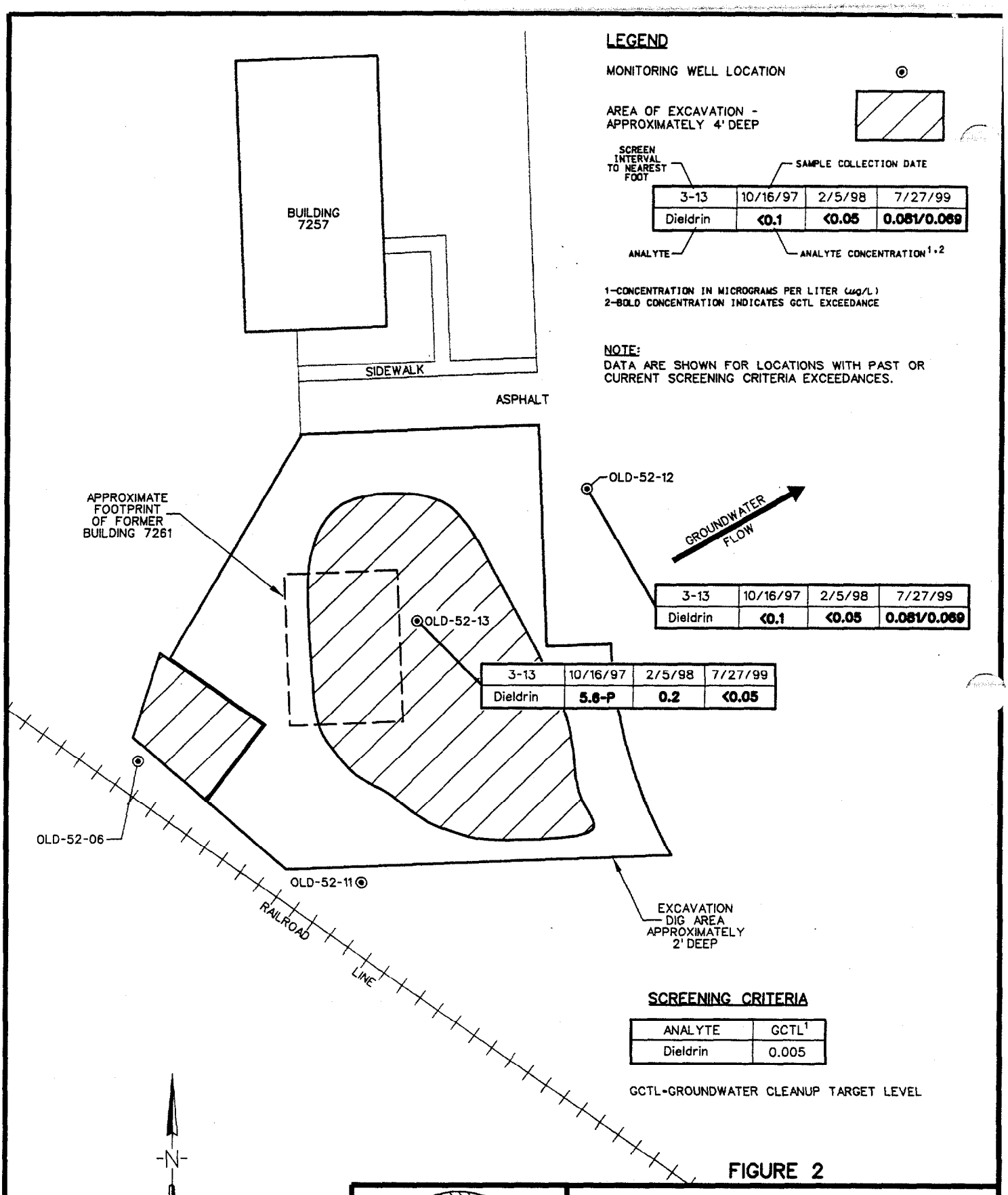

FIGURE 2

GROUNDWATER EXCEEDANCES JULY 1999 QUARTERLY GROUNDWATER SAMPLING REPORT STUDY AREA 52 - McCOY ANNEX

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n8-5x11v.dgn

CAD FILE NO./DATE: 74570022.dgn/11-30-99

ATTACHMENT A

GROUNDWATER SAMPLE LOG SHEETS
July 1999

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NTC Orlando/Study Area 52
Project No.: 7457

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

Sample ID No.: NTC52GW1110
Sample Location: OLD-52-11
Sampled By: JH, PH, DF MBG 11/22/99
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

PURGE DATA

Date: 7/18/99 MBG 11/22/99	Volume	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	DTW	Flow
Method:	Initial								
Monitor Reading (ppm):	1								
Well Casing Diameter:	2								
Well Casing Material:	3								
Total Well Depth (TD):									
Static Water Level (WL):									
One Casing Volume(gal/L):									
Start Purge (hrs): 1455									
End Purge (hrs):									
Total Purge Time (min):									
Total Vol. Purged (gal/L):									
1539	1.5 gals	5.46	334	27.79		12.4	22.2	NA	100
1544		5.47	333	27.77		12.0	21.0	NA	100
1545		5.48	333	27.74		11.7	20.9	NA	100
1553		5.49	334	27.87		11.6	16.8	NA	100
1558		5.49	332	27.84	200	10.9	16.8	NA	
1602		5.50	327	27.83	210	10.9	15.2	NA	
1603					190				
1607		5.53	322	27.91	190	10.7	14.0	NA	100
1609		5.52	312	27.91	160	11.7	23.3	NA	100
1623		5.49	312	27.96	160	10.1	20.5	NA	100
1627		5.54	309	28.02		10.7	16.5	NA	100

SAMPLING DATA

Date: / Time:	Color	pH	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP	DTW ft BTOC	Flow ml/min
Method:									

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
VOCs (Method 8260)	HCl	40 ml glass	

OBSERVATIONS / NOTES

Circle if Applicable:
MS/MSD Duplicate ID No.:

Signature(s):

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NTC Orlando/Study Area 52
Project No.: 7457

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

Sample ID No.: NTC52G01210
Sample Location: OLD-52-12
Sampled By: JH, PH, DF mod 11/30/99
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

PURGE DATA

Date: 7/18/99	Volume	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	DTW	Flow	
Method: Peristaltic	~~Initial~~ 150	5.43	77	28.72	65	56.8	43.4	2.63	~200	10:
Monitor Reading (ppm): 0	~~2500~~	5.29	78	28.53	55	56.6	44.9	2.63	~200	10:
Well Casing Diameter: 2	~~3600~~	5.26	79	28.55	45	54.9	43.8	2.63	~200	10:
Well Casing Material: PVC	~~4400~~	5.37	80	28.71	37	53.9	30.1	2.63	~200	10:
Total Well Depth (TD): 13.35	5000	5.53	81	28.82	33	51.9	29.4	2.61	~150	10:
Static Water Level (WL): 3.59	5600	5.53	80	28.69	30	51.4	28.4	2.61	~150	10:
One Casing Volume(gal/L):	6500	5.47	80	28.72	27	50.4	29.1	2.60	~150	10:
Start Purge (hrs):	7250	5.51	80	28.77	26	52.2	26.8	2.62	~150	10:
End Purge (hrs):	7650	5.51	80	28.74	25	52.0	26.0	2.62	~150	11:
Total Purge Time (min):	8000	5.51	80	28.67	25	53.8	24.8	2.62	~150	11:
Total Vol. Purged (gal/L):	8800	5.46	79	28.62	23	53.2	25.5	2.62	~150	11:
	9500	5.54	80	28.67	25	54.3	20.3	2.63	~150	11:
	10250	5.50	81	28.79	28	53.1	20.9	2.63	~150	11:
	10850	5.46	81	28.80	30	52.4	21.9	2.63	~200	11:
	11400	5.53	81	28.86	27	52.3	19.6	2.62	~200	
	11900	5.51	81	28.90	25	51.7	19.9	2.62	~200	11:
	13200	5.47	80	28.65	~~25~~ 24	51.6	21.5	2.64	~300	11:
	14000	5.43	80	28.62	25	51.5	22.7	2.64	~300	11:
	15000	5.42	80	28.44	23	52.6	25.3	2.64	~300	11:
	15400	5.36	80	28.42	25	51.6	26.5	2.64	~300	11:

SAMPLING DATA

Date: / Time:	Color	pH	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP	DTW ft BTOC	Flow ml/min
Method:									

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
~~VOCs (Method 8260)~~	~~HCl~~	~~40 ml glass~~	
Pesticides	None	1 Liter Amber	

OBSERVATIONS / NOTES

Circle if Applicable:
MS/MSD
Duplicate ID No.:

Signature(s):

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NTC Orlando/Study Area 52
Project No.: 7457

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

Sample ID No.: NTC52601310
Sample Location: OLD-52-13
Sampled By: JH, PH, JF
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

PURGE DATA

Date: 7/17/99 7/18/99	Volume	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	DTW	Flow
Method: Low Flow/Low Stress	~~Initial~~ 2000	6.07	359	28.92	19	14.3	-32.2	3.30	175
Monitor Reading (ppm):	1 1400	6.12	349	29.16	11	12.9	-27.2	3.30	175
Well Casing Diameter:	2 2000	6.16	341	29.25	6.9	12.0	-70.6	3.30	175
Well Casing Material:	3 2250	6.19	338	29.29	4.9	11.5	-75.8	3.30	175
Total Well Depth (TD):	2900	6.22	332	29.29	3.7	10.9	-84.9	3.30	200
Static Water Level (WL):	~~3700~~	6.23	324	~~29.27~~	3.4	10.6	-90.0	3.30	200
One Casing Volume(gal/L):	4300	6.21	315	28.80	2.6	10.2	-93.2		
Start Purge (hrs): 1349	5750	6.34	320	29.06	2.9	26.5	-91.6	3.22	205
End Purge (hrs):		STOPPED DUE TO LIGHTNING							
Total Purge Time (min):									
Total Vol. Purged (gal/L):									
7/18/99									
Purge Started @ 0902	1000	6.26	574	29.03	2.7	9.9	-62.7	3.15	195
	1350	6.30	567	29.19	2.2	9.3	-74.4	3.15	195
	2000	6.32	558	29.29	1.5	8.8	-78.4	3.15	205
	2850	6.34	548	29.37	1.3	9.3	-76.7	3.16	205
	3650	6.36	536	29.41	1.5	8.3	-73.9	3.17	205
	4450	6.36	529	29.44	1.3	8.3	-87.6	3.17	205
	5500	6.35	526	29.42	1.2	8.4	-91.9	3.17	205
	6000	6.34	525	29.42	1.4	8.3	-93.2	3.17	205
	6750	6.33	524	29.43	1.1	8.2	-94.4	3.17	205

SAMPLING DATA

Date: / Time:	Color	pH	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP	DTW ft BTOC	Flow ml/min
Method:									

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
~~VOCs (Method 8260)~~	~~HCl~~	~~40 ml glass~~	
Pesticides	None	1 Liter Amber	

OBSERVATIONS / NOTES

Circle if Applicable:
MS/MSD
Duplicate ID No.:

Signature(s):