03.15-7/12/2000-02545

July 12, 2000

Commander
Atlantic Division
Naval Facilities Engineering Command
1510 Gilbert Street (Building N-26)
Norfolk, Virginia 23511-2699

Attn: Ms. Katherine Landman, P.E.
Code 18323

Re: Contract N62470-91-D-4814
Navy CLEAN Program
Contract Task Order (CTO) 0370
Groundwater Sampling on the Northern Side of Brinson Creek, Across from Site 36
Marine Corp Base
Camp Lejeune, North Carolina

Dear Ms. Landman:

Baker Environmental, Inc. (Baker) is pleased to provide a letter report regarding groundwater sampling of temporary wells across Brinson Creek from Site 36. Three temporary well clusters were installed for the purpose of determining if contamination related to Site 36 has migrated under Brinson Creek and for identifying groundwater flow patterns in the vicinity of Brinson Creek. This letter report describes the activities conducted in this investigation, the results of the investigation, and the supporting evidence.

The three well clusters were installed and sampled in locations shown on Figure 1 between June 12 and 14, 2000. The temporary wells were constructed, purged, sampled, and abandoned following USEPA Region IV SOPs for temporary wells. Table 1 provides a summary of well construction, and Attachment A contains field notes with test boring and well construction logs. Table 2 presents well purge information. Five groundwater samples, one equipment rinsate blank, and one trip blank were collected. It should be noted that an insufficient volume of groundwater was present in temporary well TW03 to collect a groundwater sample due to a very slow recharge rate. Groundwater samples were collected for volatile organic compound (VOC) analysis via EPA SW846 Method 8260B. Samples were submitted to Katahdin Analytical Services, Inc. (Katahdin) for a 24-hour analysis turn around time. It was decided at the April Partnering Meeting that only trichloroethene (TCE) be reported, given that TCE is the contaminant of concern at Site 36. The temporary well locations and elevations, as well as the former utility easement were surveyed by Lanier and Associates.

Groundwater contamination detected at Site 36 has not migrated under Brinson Creek. TCE, the primary contaminant detected at Site 36, was not detected in groundwater samples collected (Table 3).

It appears that Brinson Creek is preventing contaminants detected at Site 36 from migrating downgradient and off site. The creek is a horizontal groundwater flow hydraulic barrier as evidenced by groundwater flow patterns. Depth to groundwater measurements and elevations are show on Table 4. The groundwater elevation data was used to generation potentiometric surface maps and determine groundwater flow direction. Shallow groundwater flow (the surficial aquifer) in the study area is southwest, toward Brinson Creek (Figure 2). Intermediate groundwater flow (the upper portion of the Castle Hayne Aquifer) in the study area is south, also toward Brinson Creek (Figure 3). This is based on static water levels measured in the temporary wells, converted to elevations from the survey data, and plotted on maps. Groundwater flow patterns observed at Site 36 during the RI essentially mirror observations of this investigation. As shown in the Final RI Report for Operable Unit No. 6, (Site 36), August 22, 1996, shallow groundwater flow at Site 36 is northeast, toward Brinson Creek. Intermediate groundwater flow is east-northeast, also toward Brinson Creek with a component toward the New River. The RI investigation evidence also suggested that this pattern changed little with the seasons.

Baker appreciates the opportunity to serve LANTDIV in this matter. If you have any questions or comments, feel free to call me at (412) 269-6007, or Rich Bonelli at (412) 269-2033.

Sincerely,

BAKER ENVIRONMENTAL, INC.

Mark K. DeJohn, P.G.
Project Geologist

MKD/lp

cc: Mr. Thomas Burton (EMD)
Mr. Channing Blackwell, Code 18232 (LANTDIV)

TABLE 1

TEMPORARY WELL CONSTRUCTION SUMMARY
CTO-0370 - SITE 36 TEMPORARY WELL INVESTIGATION
MCB, CAMP LEJEUNE, NC

Well ID	Date Installed	Date Abandoned	Top of Casing Elevation (ft above MSL)	Ground Surface Elevation (ft above MSL)	Boring Depth (ft bgs)	Well Depth (ft bgs)	Screen Interval Depth (ft bgs)	Comments
36-TW01	12-Jun-00	16-Jun-00	5.71	5.46	15	15	10.0 - 15.0	1" diameter, schedule 40 PVC
36-TW01IW	12-Jun-00	16-Jun-00	5.94	5.37	37	34.5	29.5 - 34.5	1" diameter, schedule 40 PVC
36-TW02	13-Jun-00	16-Jun-00	6.93	5.82	14	14	9.0 - 14.0	1" diameter, schedule 40 PVC
36-TW02IW	13-Jun-00	16-Jun-00	6.48	5.96	37	35	30.0 - 35.0	1" diameter, schedule 40 PVC
36-TW03	13-Jun-00	16-Jun-00	15.48	14.03	13	13	8.0 - 13.0	1" diameter, schedule 40 PVC
36-TW03IW	13-Jun-00	16-Jun-00	15.40	14.26	43	42	37.0 - 42.0	1" diameter, schedule 40 PVC

Notes:
ft = Feet
MSL = Mean Sea Level
bgs = below ground surface

TABLE 2

WELL PURGE RECORDS
CTO-0370 - SITE 36 TEMPORARY WELL INVESTIGATION
MCB, CAMP LEJEUNE, NC

Well ID	36-TW01		Gallons	Cond. [1]	pH [2]	Temp. [3]	Turb. [4]
Date Sampled	13-Jun-00	Time	Purged	(µS)	(SU)	(°C)	(NTU)
Total Depth (ft.)	15.25	1818	0	100	5.73	20.0	133
Water Level (ft.)	4.02	1822	0.25	81	5.50	19.6	95
Well Volume (Gal.)	0.45	1824	0.30	75	5.45	19.3	45
		1828	0.50	68	5.40	19.2	15
		1832	0.75	63	5.36	19.1	10
		1836	1.00	61	5.36	19.1	6.4
		1840	1.25	59	5.33	19.1	5.5
		1844	1.50	57	5.33	18.9	5.1
		1848	1.75	56	5.33	18.9	4.8
Well ID	36-TW01IW		Gallons	Cond.	pH	Temp.	Turb.
Date Sampled	13-Jun-00	Time	Purged	(µS)	(SU)	(°C)	(NTU)
Total Depth (ft.)	34.07	1732	0	502	6.70	20.7	>200
Water Level (ft.)	4.96	1735	0.3	452	7.01	20.2	>200
Well Volume (Gal.)	1.16	1740	0.6	429	7.16	20.5	98
		1745	1.0	429	7.22	20.6	39
		1750	1.3	424	7.25	20.4	26
		1755	1.6	422	7.29	20.4	24
		1800	2.0	417	7.28	20.3	25
		1805	2.3	417	7.28	20.1	33
Well ID	36-TW02		Gallons	Cond.	pH	Temp.	Turb.
Date Sampled	14-Jun-00	Time	Purged	(µS)	(SU)	(°C)	(NTU)
Total Depth (ft.)	15.11	0810	0	68	4.69	20.9	>200
Water Level (ft.)	5.87	0815	0.25	49	4.36	19.6	144
Well Volume (Gal.)	0.37	0820	0.50	45	4.34	19.7	>200
		0825	0.75	44	4.35	20.3	>200
		0830	1.00	45	4.38	19.7	>200
		0835	1.25	43	4.39	19.7	>200

Notes:

[1] Specific Conductivity (in micro siemems)

[2] pH (in standard units)

[3] Temperature (in degrees centigrade)

[4] Turbidity (in units)

TABLE 2

WELL PURGE RECORDS
CTO-0370 - SITE 36 TEMPORARY WELL INVESTIGATION
MCB, CAMP LEJEUNE, NC

Well ID	36-TW02IW		Gallons	Cond.	pH	Temp.	Turb.
Date Sampled	14-Jun-00	Time	Purged	(µS)	(SU)	(°C)	(NTU)
Total Depth (ft.)	35.52	0850	0	509	6.61	20.1	>200
Water Level (ft.)	4.5	0855	0.25	459	6.93	19.3	>200
Well Volume (Gal.)	1.24	0900	0.50	455	6.98	19.6	>200
		0905	0.75	450	7.00	19.9	>200
		0910	1.00	461	6.99	19.9	>200
		0915	1.25	470	6.96	19.8	>200
		0920	1.50	460	6.98	19.9	178
		0925	1.75	462	6.96	20.1	100
		0930	2.00	457	6.99	19.9	76
		0935	2.25	467	6.95	19.9	112
		0940	2.50	459	6.95	19.7	139
Well ID	36-TW03IW		Gallons	Cond.	pH	Temp.	Turb.
Date Sampled	14-Jun-00	Time	Purged	(µS)	(SU)	(°C)	(NTU)
Total Depth (ft.)	43.14	1045	0	369	6.71	32.5	>200
Water Level (ft.)	13.53	1050	0.25	385	7.03	24.7	>200
Well Volume (Gal.)	1.18	1055	0.50	370	7.22	24.2	127
		1100	0.75	364	7.26	23.5	41
		1105	1.00	357	7.33	22.9	23
		1110	1.25	358	7.33	23.2	26
		1115	1.50	351	7.35	23	15
		1120	1.75	344	7.34	25.4	27

Notes:

(1) Specific Conductivity (in micro siemems)

(2) pH (in standard units)

(3) Temperature (in degrees centigrade)

(4) Turbidity (in units)

TABLE 3

ANALYTICAL DATA SUMMARY
CTO-0370 - SITE 36 TEMPORARY WELL INVESTIGATION

Sample ID	Date Collected	TCE Concentration (µg/L)
36-TW01-00B	13-Jun-00	5 U
36-TW01IW-00B	13-Jun-00	5 U
36-TW02-00B	14-Jun-00	5 U
36-TW02IW-00B	14-Jun-00	5 U
36-TW03IW-00B	14-Jun-00	5 U
36-ER01-00B	14-Jun-00	5 U
36-TB01-00B	(1)	5 U

Notes:
(1) - Sample prepared by laboratory
U = Not detected above method detection limit

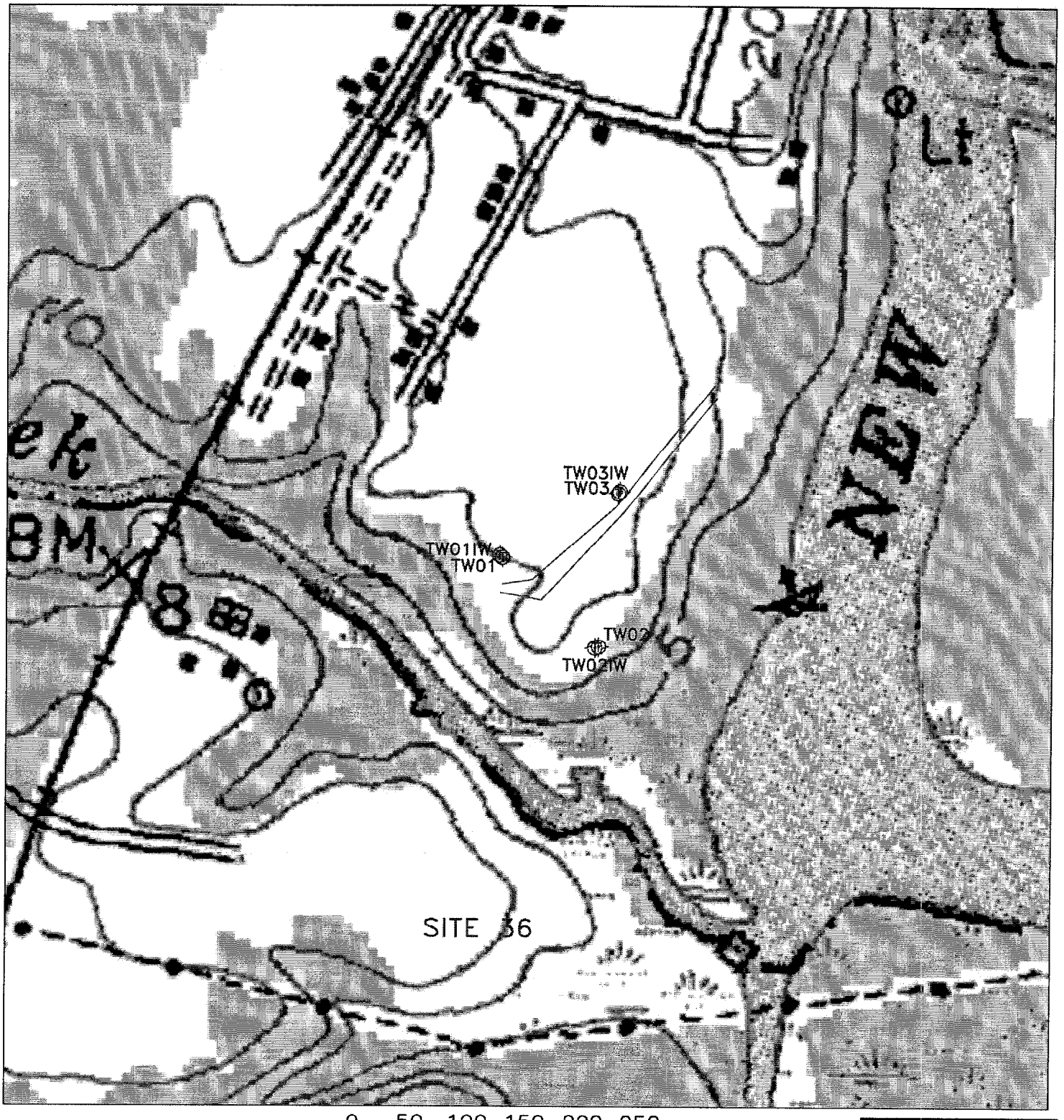
TABLE 4

GROUNDWATER ELEVATION SUMMARY
CTO-0370 - SITE 36 TEMPORARY WELL INVESTIGATION
MCB, CAMP LEJEUNE, NORTH CAROLINA

Well ID	Depth to Water (ft below Ref.)	Elevation of Reference Point (ft above MSL)	Groundwater Elevation (ft above MSL)
36-TW01	4.58	5.71	1.13
36-TW01IW	4.66	5.94	1.28
36-TW02	5.75	6.93	1.18
36-TW02IW	5.12	6.48	1.36
36-TW03	13.90	15.48	1.58
36-TW03IW	13.53	15.40	1.87

Notes:
ft below Ref. = feet below reference point
ft above MSL = feet above mean sea level

370600FG



Baker

LEGEND

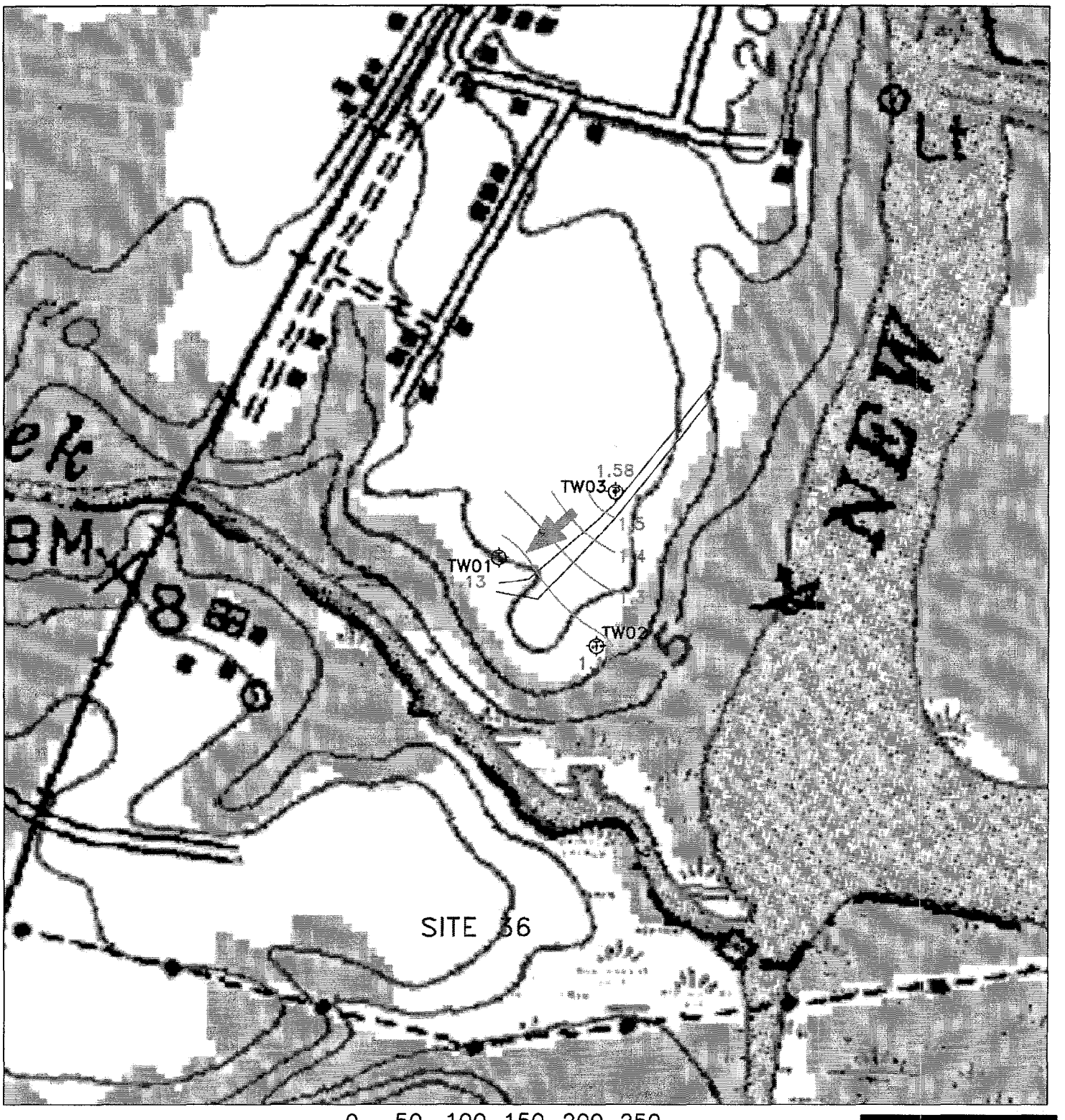
- TEMPORARY MONITORING WELL LOCATION

- FORMER UTILITY EASEMENT

SOURCE: U.S.G.S. QUADRANGLE, JACKSONVILLE SOUTH, N.C.

FIGURE 1
TEMPORARY WELL
LOCATION MAP
SITE 36
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

370604FG



Baker

LEGEND

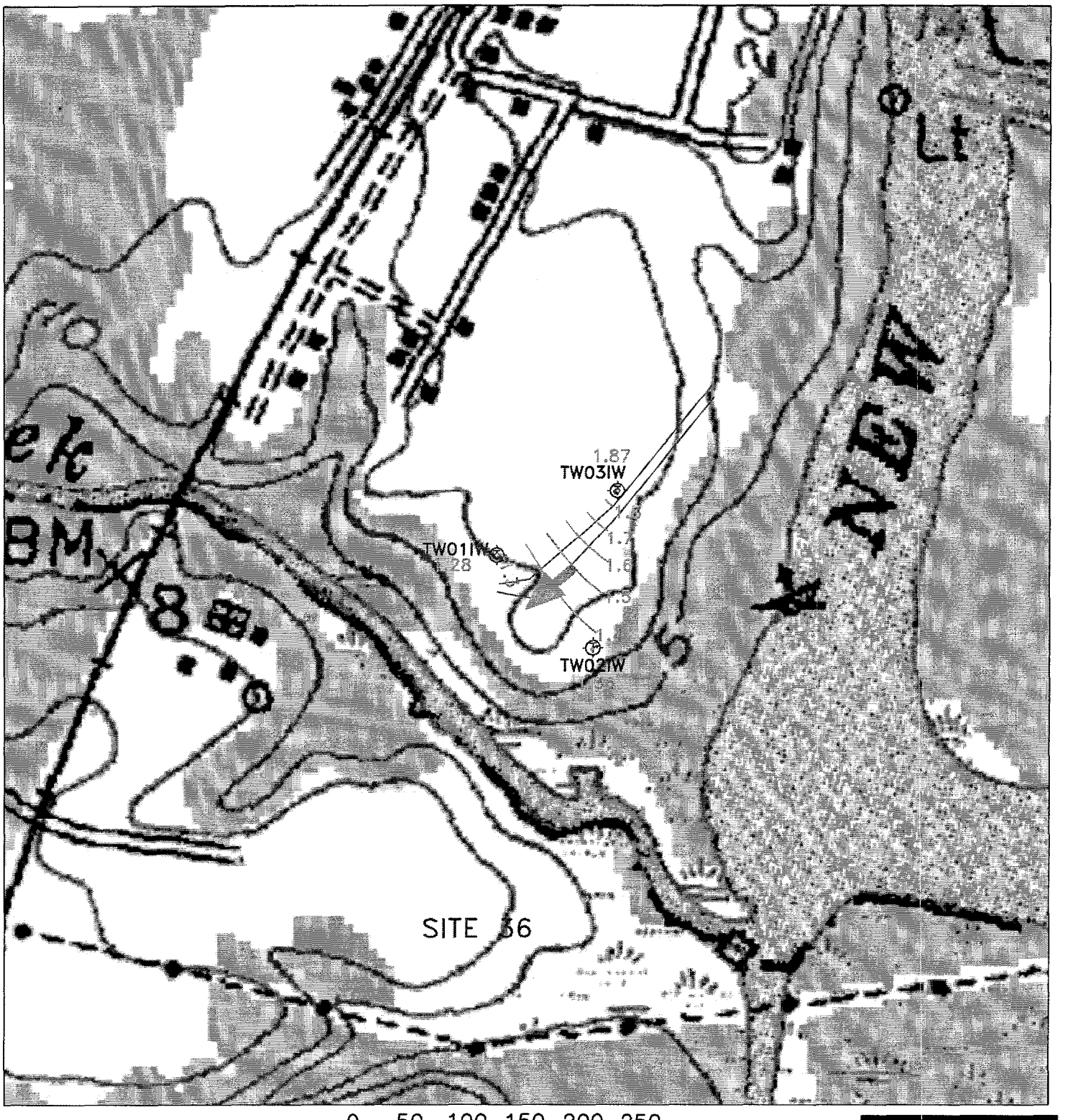
- TEMPORARY MONITORING WELL LOCATION
- 1.4 — POTENTIOMETRIC CONTOUR LINE (FEET ABOVE MEAN SEA LEVEL)
- GROUNDWATER FLOW DIRECTION
- FORMER UTILITY EASEMENT

SOURCE: U.S.G.S. QUADRANGLE, JACKSONVILLE SOUTH, N.C.

FIGURE 2
SHALLOW GROUNDWATER POTENTIOMETRIC SURFACE MAP
SITE 36

MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

370605FG



Baker

LEGEND

- TEMPORARY MONITORING WELL LOCATION
- 1.8 — POTENTIOMETRIC CONTOUR LINE (FEET ABOVE MEAN SEA LEVEL)
- GROUNDWATER FLOW DIRECTION
- FORMER UTILITY EASEMENT

SOURCE: U.S.G.S. QUADRANGLE, JACKSONVILLE SOUTH, N.C.

FIGURE 3
INTERMEDIATE GROUNDWATER POTENTIOMETRIC SURFACE MAP
SITE 36
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

ATTACHMENT A

CTO-370

June 12, 2000. Mobilize for Temp Well Installation at Site 36

Weather Conditions:

1300 PM - M. Sunny, breezy; Hot (87°)

~~1300~~ MKD Arrive in Jax. Go to hotel; check in.

1411 Arrive at Triangle Motel. Meet Driller

1420 EMD Personnel arrive (Thomas Burton; Lowden)

1422 Jax. utility clearance on site.

1431 Relocate to drill site (across Brinson ck from Site 36

1453 Drill crew to set up decon pad; prep. to drill. No utilities in field according to Jax. crew

1504 P-W setup at TW01 cluster

1510 EMD depart site.

1524 Begin boring for 36TW01IW

1743 Completed boring to 35' bgs - encountered semi-confining layer at 35'. Prep. to set well.

1751 Well (Temp) 36-TW01IW installed to 34.5 feet bgs. Begin pulling

MKD 6/12

CTO-370

(cont.) augers

1807 Augers pulled. Cleanup time.

1810 Begin boring for 36-TW01. No log will be kept for this boring. Will auger to 15' bgs

1823 Set well 36-TW01. Begin pulling augers.

1840 Complete well installation. Secure site

1855 Drill crew; I depart site - done for the day.

6/12 MKD

CTO-370

36-TWO|IVV

TIME	ID	DEPTH (FT)	RECOVERY (FT.)	BLOW COUNTS	DESCRIPTION
1526	S-1	0-2	1.1	3-3-2-3	F. SAND, trace silt; brown; loose; damp
1527	S-2	2-4	1.5	3-3-3-3	As above; brown - lt brown w/ depth; wet @ 3.3' (WATER)
1537	S-3	4-6	1.8	4-4-5-5	CLAY, some silt, little clay; mottled gray; orange; m. stiff; damp — 4.0
1539	S-4	6-8	1.7	5-6-8-8	F SAND, little silt; brown; m. dense; wet — 7.3
1548	S-5	8-10	1.6	3-4-4-5	some silt; gray w/ brown laminae; m. dense; wet
	A-N	MKD 10-15			
1558	~~S-6~~	~~15-17~~	–	– –	
1559	S-6	15-17	1.1	3-4-3-3	As above; loose (no laminae)
1609	A-N	17-20	–	– –	
1611	S-7	20-22	2.0	WOR-3-3-3	As above, w/ ~~little~~ trace clay; return of laminae @ 21'; MKD loose; still wet
1617	A-N	22-25	–	– –	
1619	S-8	25-27	0.5	3-1-1-6	As above (no laminae); v. loose
1630	A-N	27-30			27'
1638	~~S-9~~	~~30-32~~	MKD	66-30-35-33	clean out boring w/ potable water (good recovery)
1652	S-9	30-32	1.5	↓	F/C calcareous SAND, some cemented shell frag, little silt; tan; v. dense; wet

MKD 5/12

6/12 MKD

36-TW01IW (cont.)

TIME	ID	DEPTH (FT)	RECOVERY (FT)	BLOW COUNTS		
1723	A-N	32-35	–	–		–
1738	S-10	35-37	1.9	3	5	6 · 7

BOHE 35'

Well Completion:

36-TW01IW

1" ϕ PVC (~~sch~~ sch 40) 5', 0.01" slots Screen

- 30 - ~~35~~ 34.5 feet bgs

1" ϕ PVC Riser (sch 40)

+0.5 - 30 ft bgs

36-TW01

1" ϕ sch 40 PVC screen (0.01" slot)

- 10 to 15 feet bgs

1" ϕ sch 40 PVC Riser

- 10 to 0 feet bgs

MKD 6/12

RIG: Diedrich D-

DESCRIPTION

35'

F SAND & SILT, trace clay; gray; m. st. ff; damp

Mark K. Dill 6/12/00

6/12 MKD

Tuesday June 13, 2000. Today's Tasks incl:
Temp Well installation
Weather Conditions
AM: Sunny, calm, humid, & low 70's
PM: P. Sunny, breezy, humid, & high 80's

0635 Arrive at Lot 203 Trailer to get equip & supplies
0649 Relocate to Dr. Hunter site
0711 Arrive at site. P-W on site. Prep. to decon. augers.
0758 Relocate to Temp Well cluster TW02
0809 Begin boring for 36-TW02IW.
0955 Complete "IW" boring - semi-confining layer encountered at ~35' bgs. Begin Temp Well installation.
1010 Well installed, begin pulling augers.
1040 Begin augering for 36-TW02. Will auger to 15' & set well.
1051 Begin installation of 36-TW02
1105 Installed TW02 to 14' bgs. some problem w/ well coming out with augers, but resolved.
1116 Must relocate to main side for water. (EMD request)
1149 Arrive at water filling station

MKD 6/13

1213 Drill crew & I take lunch break.
1252 I relocate to hotel to pickup sample bottles.
1325 Relocate to drill site.
1349 Arrive on site - driller ready to go. Setup at TW03 cluster.
1359 Begin boring for TW03IW
1530 Tom Morris & Thomas Burton on site for visit
1551 EMD folks off-site.
1625 RPB called - some addt'l sampling at site 86 required. He will fax a plan to me.
1703 semi-confining layer was encountered at ~42' bgs. Prep. to install the temp well (36-TW03IW) there. Temp. well installed. Begin pulling augers. I will begin groundwater sample collection.
1715 Meter calibration
pH to 7.00 & 4.01 - good
Cond 1,000 µS = 957 µS / Temp 35.3 = 35.0
Turb 5.0 NTU = 5.0 NTU
(Notes cont. on p. 15)

6/13 MKD

CTO-370

36-TW02IW

TIME	ID	DEPTH (FT)	RECOVERY (FT)	BLOW COUNTS
0808	S-1	0-2	1.0	3-4-4-4
0809	S-2	2-4	1.8	3-2-2-2
0819	S-3	4-6	1.7	3-4-5-4
0820	S-4	6-8	2.0	4-5-5-5
0829	S-5	8-10	2.0	3-3-8-4
0831	S-6	10-12	1.7	3-4-5-6
0840	A-N	12-15	-	- -
0843	S-7	15-17	1.0	WOR-3-4-3
0852	A-N	17-20	-	- -
0859	S-8	20-22		WOR/24"
0905	A-N	22-25	-	- -
0911	S-9	25-27	0.9	13-9-15-8

MKD 6/13

CTO-370

DESCRIPTION

F SAND, trace silt; brown; loose; damp — 3.0'

F SAND, some silt; clay; orangish-brown; soft; moist — 6.6'

CLAY, trace silt; gray; orange-brown, mottled; m. stiff; damp — 7.0

F SAND, little silt; clay, changing to little silt @ 7.4; brown changing to gray @ 7.4'; wet WATER @ 7.4'

F SAND, little silt; gray; loose; wet

As above w/ trace orange laminae

trace silt; gray w/ ~~some~~ trace orange staining; v. loose; wet — 25'

F/C SAND, little F gravel, trace silt; clay; tan; m. dense; wet - calcareous & partially cemented

6/13 MKD

36-TW02IW (Cont.)

TIME	ID	DEPTH (FT)	RECOVERY (FT)	BLOW COUNTS	
0920	A-N	27-30	-	-	-
0932	S-10	30-32	1.8	36-30	-25-24
0940	A-N	32-35	-	-	-
0954	S-11	35-37	1.5	8-8	8-8

BOH @ 35'

Well Construction -

	Top	Bot
36-TW02IW		
Sch 40 1"ϕ PVC Riser:	~0	30
10-slot, 1"ϕ PVC Screen:	30	35
36-TW02		
Sch 40, 1"ϕ PVC Riser:	+1	0
10-slot, 1"ϕ PVC Screen:	9	14

DESCRIPTION	
Adding water to cleanout boring (good recovery)	
f/c SAND, trace silt, st & shell frag, partially cemented; calcareous; lt orange-brown & gray; dense; wet	35'
SILT & F SAND, trace clay; dk olive drab; m. stiff; moist	

1723 WL = 4.96 @ TW01IW Well Vol. = 1.2 gal.
1730 Begin purging
1811 WL @ TW01 = 4.02 Well Vol. = 0.4 gal.
1817 Begin purging TW01
1852 Collected samples from cluster TW01. Cleanup Time.
1905 Depart site - done for the day. Note Drill crew left site ~ 1740

36-TW03IW

TIME	ID	DEPTH (FT)	RECOVERY (FT)	BLOW COUNTS
1359	S-1	0-2	2.0	3-3-3-4
1400	S-2	2-4	1.5	3-4-5-6
1410	S-3	4-6	2.0	4-5-5-4
1412	S-4	6-8	2.0	7-7-8-7
1422	S-5	8-10	1.0	4-6-3-4
1428	A-N	10-15	–	– –
S-6	1431	15-17	2.0	2-1-1-2
	A-N	17-20	–	– –
1440	S-7	20-22	2.0	2-2-4-5
1447	A-N	22-25	–	– –
1451	S-8	25-27	1.2	3-7-4-6

MKD 6/13

DESCRIPTION	
F SAND, trace silt, lt. brown/tan;	
SILT, little clay; brown; m. stiff; damp	3.4'
As above brown little gray; orange mottles; st. ff m. dense; damp	5.8
F SAND, some silt, trace clay; brown/tan; m. dense; moist	7.1
F SAND, trace silt; gray; m dense; damp	7.6
F SAND, little silt; dk brown; m. dense; moist	
As above wet @ 9.5' (WATER)	
CLAY, trace silt (some silt @ 15.9-16.1'); choc. brown; soft; wet	15'
SILT, trace f sand; clay; dk brown; m. stiff; damp	
CLAY, little silt; dk brown; m. stiff; moist; trace wood frag. & sand stringers	25'

6/13 MKD

36-TW03IW (cont.)

TIME	ID	DEPTH (FT)	RECOVERY (FT)	BLOW COUNTS
1458	A-N	27-30	–	– –
1501	S-9	30-32	1.9	7-9-30-20
1508	A-N	32-35	–	– –
1522	S-10	35-37	1.3	34-24-36-21
1605	S-11	37-39	1.3	20-35-30-44
1626	S-12	39-41	1.1	11-21-20-20
1635	S-13	41-43	1.8	23-17-17-24

Well Construction

	Top	Bot
36-TW03IW		
Sch 40, 1"φ PVC Riser:	+1	37
Sch 40, 10-slot PVC Screen:	37	42

MRD 6/13

DESCRIPTION

M/C SAND, trace silt; f sand; ~~brow~~; f gravel; brown; m. dense; wet — 27

F/M SAND, little silt, calcareous, partially cemented; tan; m. dense; wet — 29.9

F/C SAND, trace silt; gray; dense; wet
(Boring clean-out w/ water - good recovery)

As above w/ part. cemented shell frag.; sand; v. dense; wet

M/C SAND (As shell frag), little f sand; tan; dense; wet

SILT, little clay, trace shell frag; olive drab; v. stiff; damp — 42.3

6/13 MRD

36-TW01IW

TIME	GALLONS REMOVED	COND	TEMP.	pH	TURB	COMMENTS
1732	0	502	20.7	6.70	>200	Brown in color, v. turbid, no odor
1735	0.3	452	20.2	7.01	>200	As above
1740	0.6	429	20.5	7.16	98	Slightly turbid
1745	1.0	429	20.6	7.22	39	As above
1750	1.3	424	20.4	7.25	26	Nearly clear
1755	1.6	422	20.4	7.29	24	As above
1800	2.0	417	20.3	7.28	25	As above
1805	2.3	417	20.1	7.28	33	
1810	Collect sample for VOA 3x 40mL					

36-TW01

1818	0	100	20.0	5.73	133	Gray in color, turbid, no odor
1822	0.25	81	19.6	5.50	95	As above
1824	~~0.5~~ 0.3	75	19.3	5.45	45	As above
1828	0.5	68	19.2	5.40	15	Nearly clear
1832	0.75	63	19.1	5.36	10	Clear
1836	1.0	61	19.1	5.36	6.4	Clear
1840	1.25	59	19.1	5.33	5.5	Clear
1844	1.5	57	18.9	5.33	5.1	Clear
1848	1.75	56	18.9	5.33	4.8	Clear
1850	Collect sample for VOA 3x 40mL					

MKD 6/13

Mark K. D. 6/13/00

6/13 MKD

Wed. June 14, 2000. Complete Temp Well Install / Groundwater sampling

Weather Conditions -
AM: Early fog, M. sunny, sl breezy ; high 70's
PM: M. Sunny, breezy, ; low 90°s

0635 Arrive at Lot 203 for add'l supplies
0650 Relocate to Site 36 (Hunter property)
0719 Arrive at site. Drill crew already on site.
0732 Meter calibration:
pH - 7 - 7.00 / 4.01 -
Cond - 1,000 - 997 @ 23.7°C / 24°C
Turb - 5 NTU - 5 NTU
0744 Drill crew to install TW03 to 13' bgs while I collect groundwater samples.
0751 WL @ TW02 = 5.87. Well Vol ≈ 0.4 gal
0810 Begin purging TW02
0818 WL @ TW02IW = 5.40. Well Vol ≈
0833 Thomas Burton on site
0916 Tubidity meter calibrating low, but reading high. Thomas left site around 0900.
0956 Relocate to cluster TW03
1004 WL @ TW03IW = 13.53 Well Vol. = 1.1 gal

MKD

1118 36-TW03 is dry
1140 Collect rinsate blank from PE & silicon tubing (1R36-RB01-00B)
1201 Lunch break
1225 Return to site. Driller crew not yet back. They left ~ 0830 to run for supplies for Site 86 work.
1231 About 0.1' water in 36-TW03 - v. slow recharge.
1307 Relocate to to Bldg 427 at the Air Station. I will sample to existing monitoring wells there namely USTAS428-GW01 & GW02
1410 Error in bucket calibration. Corrected during USTAS428-GW01 Purge.
1427 Relocate to USTAS428-GW01.
1506 Complete sampling of groundwater cleanup time.
1515 Relocate to Site 36
1538 WL @ TW02 = 14.98' (TD - 15.00)
Relocate to hotel to pack samples
1711 Relocate to FedEx Pickup at Jax. Mall

Notes continued on p. 26.

36-TW02

TIME	GAL. PURGED	COND.	TEMP	pH	TURB	COMMENTS
0810	0	68	20.9	4.69	>200	Brown in color, v. turbid, no odor
0815	0.25	49	19.6	4.36	144	As above
0820	0.5	45	19.7	4.34	>200	As above
0825	0.75	44	20.3	4.35	>200	As above
0830	1.0	45	19.7	4.38	>200	As above
0835	1.25	43	19.7	4.39	>200	As above
0845	Collect VOA sample			3 x 40mL		

36-TW02IW

TIME	GAL PURGED	COND.	TEMP	pH	TURB	COMMENTS
0850	0	509	20.1	6.61	>200	Brown in color; v. turbid; no odor
0855	0.25	459	19.3	6.93	>200	As above
0900	0.25	455	19.6	6.98	>200	As above
0905	0.75	450	19.9	7.00	>200	As above
0910	1.0	461	19.9	6.99	>200	Becoming less turbid
0915	1.25	470	19.8	6.96	>200	Less turbid still turb meter not working
0920	1.5	460	19.9	6.98	178	Sl. turbid
0925	1.75	462	20.1	6.96	100	As above
0930	2.0	457	19.9	6.99	76	As above
0935	2.25	467	19.9	6.95	112	As above
0940	2.5	459	19.7	6.95	139	As above
0945	Collect VOA sample & Dup @ 6 x 40 mL					

MKD 6/14

6/14 MKD

36TW03IW

TIME	GAL PURGED	COND.	TEMP.	pH	TURB	COMMENTS
1045	0	369	32.5	6.71	>200	Dark brown, opaque (v. turbid); no odor
1050	0.25	385	24.7	7.03	>200	Not opaque any longer
1055	0.50	370	24.2	7.22	127	Slightly turbid
1100	0.75	364	23.5	7.26	41	Nearly clear
1105	1.0	357	22.9	7.33	23	Clear
1110	1.25	358	23.2	7.33	26	Clear
1115	1.5	351	23.0	7.35	15	Clear
1120	1.75	344	25.4	7.34	27	Clear
1125	Collect VOA sample 3 x 40mL					

1749 Relocate to Lot 203 after Fed Ex pickup

1805 Arrive at Lot 203 for supplies for tomorrow's work at Site 86.

1819 Depart Lot 203. Done for the day.

MKD 6/14

6/14 MKD

Friday June 16, 2000. Today's Tasks incl.:
Get lab results & possible demob.
Weather Conditions
AM: M. Sunny, sl. breezy, & high 70's
PM: P. Sunny, breezy, & near 90°

0725 Arrive at Lot 203

0758 Return to hotel to get analytical results

0849 Katahdin Labs called. Data says non-detect for TCE. Data will be faxed to hotel shortly.

0919 Relocate to Site 36. Driller & I to abandon wells.

WELL	STICKUP		WL (6/16)	WL (6/13-14)
TW01	0.25		4.58	4.02
TW01IW	0.57		4.66	4.96
TW02	1.11		5.75	5.87
TW02IW	0.52	as	5.12	5.40
TW03	1.45'	W.L. =	13.90'	
TW03IW	1.14'		—	13.53

1038 Complete measurement & well abandonment
Do paper work for sub.

1045 Relocate to Lot 203.

1106 Arrive at Lot 203 to unload equip & supplies

MKD 6/16

1119 Relocate to hotel for demob.

1153 Ship remaining equip back to Pgh & prep. to travel there myself.
Project completed.

6/16 MKD