

FINAL

**FOCUSED REMEDIAL INVESTIGATION REPORT
OPERABLE UNIT NO. 15 (SITE 88)**

**MARINE CORPS BASE,
CAMP LEJEUNE, NORTH CAROLINA**

CONTRACT TASK ORDER 0356

APPENDICES

MAY 15, 1998

Prepared for:

**DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES
ENGINEERING COMMAND
*Norfolk, Virginia***

Under:

**LANTDIV CLEAN Program
Contract N62470-89-D-4814**

Prepared by:

**BAKER ENVIRONMENTAL, INC.
*Coraopolis, Pennsylvania***

APPENDICES

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APPENDIX A
TEST BORING AND WELL CONSTRUCTION RECORDS

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.: 88-MW01

COORDINATES: EAST: 2496759.0850

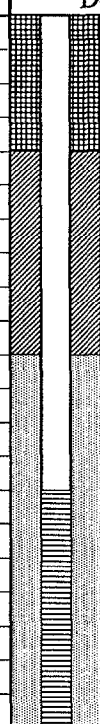
NORTH: 339272.764

ELEVATION: SURFACE: 26.50

TOP OF PVC CASING: 26.07

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	5/1/1997	0.0 - 22.0	M Sunny, 80	7.0	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks: Boring reamed w/ 6-1/4" HSA. Flush-mount completion.

SAMPLE TYPE							WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample							Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
							Sch 40 PVC Casing	2.0"	0	7
							Sch 40 PVC, 10-slot Screen	2.0"	7	22
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)	
1	A-N	--	--	--	--	(Asphalt & subbase)		2.0	24.50	
2	S-1	1.0 67%	9		0.5 0.5	FINE SAND, trace silt; dark brown; med dense; damp				
3	S-2	1.3 65%	10 7	--	0.8 0.8	some silt & clay; brown & gray; stiff; damp				
4			2							
5	S-3	2.0 100%	3 4	--	0.8 0.8	with silt & clay; brown & gray; med stiff; moist				
6			3							
7	S-4	1.6 80%	3 3	--	0.8 0.8	little silt, trace clay; gray; loose; wet				
8			4			Groundwater @ 7.0'				
9	S-5	1.4 70%	1 1	--	0.8 0.8	little silt & clay; gray; v loose; wet				
10			9							
			7			Match to Sheet 2				

DRILLING CO.: Parratt - Wolff

BAKER REP.: Mark DeJohn

DRILLER: Layne Pech

BORING NO.: 88-MW01

SHEET 1 OF 2

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356

BORING NO.: 88-MW01

SAMPLE TYPE							DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample							SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
11	S-6	2.0 100%	9	--	0.8 0.8	Continued from Sheet 1 trace silt; dark gray; med dense; wet			
12			7						4
13	S-7	2.0 100%	3	--	1.0 0.8	little silt; dark gray; med dense; wet			
14			7						5
15	S-8	2.0 100%	4	--	--				
16			3						5
17	S-9	2.0 100%	2	--	--			9.40	
18			WOH 24"						17.1
19	S-10	2.0 100%	1	--	--	SILT & CLAY; dark gray; v soft; wet		8.50	
20			1						18.0
21	S-11	2.0 100%	5	--	--	FINE SAND, little silt, trace clay; dark gray; v loose; wet		6.90	
22			1						19.6
23			1	--	--	SILT & CLAY; dark gray; v soft; wet			
24			1						21.2
25			5			SILT, trace clay; dark reddish-brown; v soft; damp		4.50	
26			5						22.0
27						BOH @ 22.0 ft.			
28									
29									
30									

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Mark DeJohn
 BORING NO.: 88-MW01 SHEET 2 OF 2

Baker


Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-MW02
 COORDINATES: EAST: 2496485.3910 NORTH: 339370.8530
 ELEVATION: SURFACE: 26.60 TOP OF PVC CASING: 25.11

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	5/2/1997	0.0 - 23.0	M Sunny, 70s	--	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks: Boring reamed w/ 6-1/4" HSA. Flush-mount completion.

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing	2.0"	0	8
						Sch 40 PVC, 10-slot Screen	2.0"	8	23
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
1	A-N	--	--	--	--	See the log for 88-MW02DW for lithologic details		23.10	
2	2.0								
3	T-1	1.9 95%	--	--	--		3.5		
4	4.0								
5									
6							6.0	20.60	
7	A-N	--	--	--	--				
8							8.0	18.60	
9									
10									

Match to Sheet 2

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Mark DeJohn
 BORING NO.: 88-MW02 SHEET 1 OF 2

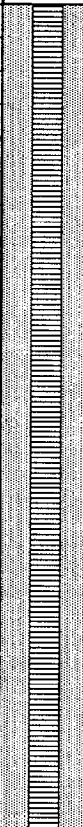
TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-MW02

SAMPLE TYPE						DEFINITIONS				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)				
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
11						Continued from Sheet 1				
12										
13										
14										
15	A-N	--	--	--	--					
16										
17										
18										
19										
20										
21										
22										
23	23.0							23.0	23.0	3.60
24								BOH @ 23.0 ft.		
25										
26										
27										
28										
29										
30										

DRILLING CO.: Parratt - Wolff

DRILLER: Layne Pech

BAKER REP.:

BORING NO.:

Mark DeJohn

88-MW02

SHEET 2 OF 2



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
CTO NO.: 62470-356 **BORING NO.:** 88-MW02IW
COORDINATES: EAST: 2496481.079 **NORTH:** 339372.266
ELEVATION: SURFACE: 26.58 **TOP OF PVC CASING:** 25.10

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	6-1/4"	--	5/3/1997	0.0 - 50.0	P Sunny, 60s	--	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks: Flush-mount completion.

SAMPLE TYPE						WELL INFORMATION				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type		Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing		2.0"	0	45
						Sch 40 PVC, 10-slot Screen		2.0"	45	50
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)	
1						See the log for 88-MW02DW for lithologic details Match to Sheet 2				
2										
3	A-N	--	--	--	--					
4										
5										
6										
7										
8										
9										
10										

DRILLING CO.: Parratt - Wolff **BAKER REP.:** Mark DeJohn
DRILLER: Layne Pech **BORING NO.:** 88-MW02IW SHEET 1 OF 3

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-MW02IW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11						Continued from Sheet 1		
12								
13								
14								
15								
16								
17								
18								
19								
20	A-N	--	--	--	--			
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
						Match to Sheet 3		

DRILLING CO.: Parratt - Wolff

DRILLER: Laync Pech

BAKER REP.:

BORING NO.:

Mark DeJohn

88-MW02IW

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-MW02IW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
31						Continued from Sheet 2		
32								
33								
34								
35								34.5 -7.92
36								
37								
38								
39	A-N	--	--	--	--			
40								40.0 -13.42
41								
42								
43								
44								
45								45.0 -18.42
46								
47								
48								
49								
50	50.0							50.0 -23.42
						BOH @ 50.0 ft.		

DRILLING CO.: Parratt - Wolff

DRILLER: Layne Pech

BAKER REP.:

BORING NO.:

Mark DeJohn

88-MW02IW

SHEET 3 OF 3



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
CTO NO.: 62470-356 **BORING NO.:** 88-MW02DW
COORDINATES: EAST: 2496476.34 **NORTH:** 339374.0070
ELEVATION: SURFACE: 26.57 **TOP OF PVC CASING:** 25.10

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/20/1997	0.0-100.0	Sunny & warm	10.0	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks: Boring reamed w/ 6-1/4" HSA. 7-3/8" mud rotary drilling beginning at 10'. Flush-mount completion.

SAMPLE TYPE						WELL INFORMATION				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type		Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing		2.0"	0	92
						Sch 40 PVC, 10-slot Screen		2.0"	92	97
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)	
1	S-1	1.4 70%	8	--	6	SILT, trace fine sand; black; med dense; damp loose loose some fine sand; black; loose; damp FINE SAND, little silt & roots; gray; v loose; moist Groundwater @ 10.0' LAB SAMPLE Match to Sheet 2		18.57		
2			11							
3	6									
4	4									
5	3									
6	4									
7	4									
8	2									
9	3									
10	1									

DRILLING CO.: Parratt - Wolff **BAKER REP.:** Ken Tua
DRILLER: Layne Pech **BORING NO.:** 88-MW02DW SHEET 1 OF 6



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-MW02DW

SAMPLE TYPE						DEFINITIONS			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
11	S-6	1.8 90%	WOH/12"	--	8	Continued from Sheet 1 v loose; wet LAB SAMPLE			
12			1						12.0
13	S-7	1.6 80%	1 WOH WOH	--	15	some silt; brown; v loose; wet			
14			1						14.0
15	S-8	1.0 50%	WOH/12"	--	11	gray			
16			1						16.0
17	S-9	1.3 65%	WOH/12"	--	8				
18			1						18.0
19	S-10	2.0 100%	1	--	6	SILT, trace clay; dark gray; soft; wet			
20			1						20.0
21			1						
22	S-11	1.4 70%	1	--	10				
23			1						22.0
24	S-12	2.0 100%	1	--	0	trace clay & wood			
25			1						25.0
26			1						
27	S-13	1.5 75%	2	--	0	CLAY, trace silt; black; soft; wet			
28			2						27.0
29	S-14	1.3 65%	2	--	0	SILT & FINE SAND; black; loose; wet			
30			5						
			7						30.0
			4			Match to Sheet 3			

DRILLING CO.: Parratt - Wolff BAKER REP.: Ken Tua
 DRILLER: Layne Pech BORING NO.: 88-MW02DW SHEET 2 OF 6

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-MW02DW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
31			7			Continued from Sheet 2 FINE SAND, little silt; black; med dense; wet		
32	S-15	1.4 70%	8	--	3			
33	R-N	--	--	--	--	gray		
34	S-16	1.2 60%	9	--	4			
35			6			trace silt; gray; loose; wet		
36	S-17	1.3 65%	6	--	0			
37			4			light gray; v loose; wet		
38	R-N	--	3	--	--			
39	S-18	1.4 70%	1			gray; loose; wet		
40			2	--	5			
41	S-19	0.5 25%	2			gray; loose; wet		
42			2	--	3			
43	R-N	--	4	--	--	light gray; v loose; wet		
44	S-20	1.1 55%	1/12"	--	5			
45			3			gray; loose; wet		
46	S-21	1.1 55%	4	--	5			
47			4			gray; loose; wet		
48	R-N	--	4	--	--			
49	S-22	1.1 55%	3			gray; loose; wet		
50			4	--	9			
			4			Match to Sheet 4		
			3					

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-MW02DW

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-MW02DW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
51	S-23	1.0 50%	3	--	3	Continued from Sheet 3		
52			5					
53	R-N	--	--	--	--			
54	S-24	1.2 60%	8	--	6	trace silt & shell frag; gray; med dense; wet		
55			10					
56	S-25	2.0 100%	12	--	5	little silt & shell frag; gray; v dense; wet		
57			28					
58	R-N	--	--	--	--			
59	S-26	.5/100%	62	--	0			
60			10					
61	S-27	1.4 70%	11	--	0	FIND SAND & SILT , trace shell & fossil frag; gray; dense; wet		
62			15					
63	R-N	--	--	--	--			
64	S-28	1.6 80%	9	--	0	SILT , trace fine sand; gray; v dense; wet		
65			24					
66	S-29	2.0 100%	12	--	0	some shell frag		
67			16					
68	R-N	--	24	--	--	FINE SAND & SILT ; dark brown; v dense; wet		
69			21					
70	S-30	1.6 80%	19	--	0	gray; v dense; wet		
70			34					
			35					
			30			Match to Sheet 5		
								70.0
								-43.43

DRILLING CO.: Parratt - Wolff

DRILLER: Layne Pech

BAKER REP.: Ken Tua

BORING NO.:

88-MW02DW

SHEET 4 OF 6

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356

BORING NO.: 88-MW02DW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
71		1.5	39		0	Continued from Sheet 4		
71.5	S-31	100%	50		--			
72						brown		
73	R-N	--	--	--	--			
74		1.8	17		0	brown		
75	S-32	90%	23	--	--			
76		1.5	36		0			
77	S-33	100%	39	--	--			
78								
79	R-N	--	--	--	--			
80		2.0	9		0			
81	S-34	100%	16	--	--			
82		1.8	26		0			82.0 -55.43
83	S-35	100%	39	--	--			
84						gray; dense; wet		
85	R-N	--	--	--	--			
86		1.0	36		0	v dense		
87	S-36	50%	40	--	--			
88								87.0 -60.43
89	R-N	--	--	--	--			
90		0.8	41		0	FOSSIL FRAG, some silt; gray; v dense; wet		
91	S-37	100%	50/3"	--	--			
						Match to Sheet 6		
	R-N	--	--	--	--			

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-MW02DW SHEET 5 OF 6

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-MW02DW

SAMPLE TYPE						DEFINITIONS			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
91	S-39	2.0 100%	35		2	Continued from Sheet 5 FINE SAND & SILT; gray; v dense; wet		92.0	-65.43
92			32						
93	S-40	1.8 90%	33	--	0				
94			38						
95	R-N	--	--	--	--				
96	S-41	1.5 100%	16	--	0				
97			14						
98	R-N	--	--	--	--				
99									
100									
101						BOH @ 100.0 ft.			
102									
103									
104									
105									
106									
107									
108									
109									
110									

DRILLING CO.: Parratt - Wolff

DRILLER: Layne Pech

BAKER REP.:

Ken Tua

BORING NO.:

88-MW02DW

SHEET 6 OF 6



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
CTO NO.: 62470-356 **BORING NO.:** 88-MW03
COORDINATES: EAST: 2469558.7990 **NORTH:** 339514.8580
ELEVATION: SURFACE: 25.88 **TOP OF PVC CASING:** 25.38

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	6-1/4"	--	5/1/1997	0.0 - 16.0	Sunny, 70s	8.0	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks: Flush-mount completion.

SAMPLE TYPE						WELL INFORMATION				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)	
						Sch 40 PVC Casing	2.0"	0	5	
						Sch 40 PVC, 10-slot Screen	2.0"	5	15	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
1						See the log for 88-MW03DW for lithologic details Match to Sheet 2				
2								2.0	23.88	
3	A-N	--	--	--	--					
4									4.0	21.88
5									5.0	20.88
6										
7										
8										
9										
10										

DRILLING CO.: Parratt - Wolff
DRILLER: Layne Pech

BAKER REP.: Mark DeJohn
BORING NO.: 88-MW03 **SHEET 1 OF 2**

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-MW03

SAMPLE TYPE						DEFINITIONS				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)				
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
11						Continued from Sheet 1				
12										
13										
14	A-N	--	--	--	--					
15								15.0	15.0	10.88
16	16.0							16.0	16.0	9.88
						BOH @ 16.0 ft.				
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
						Match to Sheet 3				

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Mark DeJohn
 BORING NO.: 88-MW03 SHEET 2 OF 2



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
CTO NO.: 62470-356 **BORING NO.:** 88-MW03IW
COORDINATES: EAST: 2469552.7970 **NORTH:** 339518.7420
ELEVATION: SURFACE: 25.89 **TOP OF PVC CASING:** 25.30

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	5/1/1997	0.0 - 50.5	Sunny, 70s	8.0	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks: Boring reamed w/ 6-1/4" HSA. Flush-mount completion.

SAMPLE TYPE	WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample	Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
	Sch 40 PVC Casing	2.0"	0	45
	Sch 40 PVC, 10-slot Screen	2.0"	45	50

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1						See the log for 88-MW03DW for lithologic details		
2								
3	A-N	--	--	--	--			
4								
5								
6								
7	S-1	1.6 80%	2-4 4-6	--	0.8 0.8	FINE SAND, little silt, trace clay; gray; loose; moist		
8								
9	S-2	1.6 80%	2-9 10-7	--	0.8 0.8		med dense; gray; wet Groundwater @ 8.0'	
10								

Match to Sheet 2

DRILLING CO.: Parratt - Wolff
DRILLER: Layne Pech

BAKER REP.: Mark DeJohn
BORING NO.: 88-MW03IW SHEET 1 OF 4

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-MW03IW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	T-1	0.0 0%	--	--	--	Continued from Sheet 1		
12								
13	A-N	--	--	--	--			
14								
15								
16								
17	T-2	0.0 0%	--	--	--			
18								
19	A-N							
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
						Match to Sheet 3		

DRILLING CO.: Parratt - Wolff

DRILLER: Layne Pech

BAKER REP.:

Mark DeJohn

BORING NO.:

88-MW03IW

SHEET 2 OF 4

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-MW03IW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
31						Continued from Sheet 2		
32								
33								
34								
35								35.0 -9.11
36								
37								
38								
39	A-N							
40								40.0 -14.11
41								
42								
43								
44								
45								45.0 -19.11
46								
47								
48								
49								
50						Match to Sheet 4		50.0 -24.11

DRILLING CO.: Parratt - Wolff

DRILLER: Layne Pech

BAKER REP.:

Mark DeJonn

BORING NO.:

88-MW03IW

SHEET 3 OF 4

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-MW03IW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
51						Continued from Sheet 3 BOH @ 51.5 ft.		
52								
53								
54								
55								
56								
57								
58								
59								
60								
61								
62								
63								
64								
65								
66								
67								
68								
69								
70								

DRILLING CO.: Parratt - Wolff

DRILLER: Layne Pech

BAKER REP.:

Mark DeJohn

BORING NO.:

88-MW03IW

SHEET 4 OF 4

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.: 88-MW03DW

COORDINATES: EAST: 2496546.4960

NORTH: 339521.1800

ELEVATION: SURFACE: 25.89

TOP OF PVC CASING: 25.60

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/30/1997	0.0-85.0	Sunny, 70s	8.5	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks: Boring reamed w/ 6-1/4" HSA. 7-3/8" mud rotary drilling beginning at 10'. Flush-mount completion.

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing	2.0"	0	80
						Sch 40 PVC, 10-slot Screen	2.0"	80	85
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	0.5	A-N	--	--	--	FINE SAND, some silt, little clay; loose; dark brown; damp			
		S-1	1.0 50%	5	--				
2	2.0			1		little silt, trace clay; very loose; dark brown; damp			
		S-2	1.2 60%	1	--				
3				2		light gray; loose; moist LAB SAMPLE			
	4.0			3	--				
4				4		med. dense			
	6.0			5	--				
5				6		gray w/ iron stains; wet Groundwater @ 8.5' LAB SAMPLE			
	8.0			7	--				
6				6		Match to Sheet 2'			
	10.0			6	--				
7				5					
8				1					
9				1					
10				1					

DRILLING CO.: Parratt - Wolff

BAKER REP.: Mark DeJohn

DRILLER: Layne Pech

BORING NO.:

88-MW03DW SHEET 1 OF 5



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-MW03DW

<u>SAMPLE TYPE</u>						<u>DEFINITIONS</u>		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11			1			Continued from Sheet 1 little silt & clay; dark gray; very loose; wet		
12	S-6	0.8 40%	2	--	--			
13			4			med dense		
14	S-7	1.5 75%	5	--	--			
15			6			little silt, trace clay; dark gray; loose; wet		
16	S-8	1.8 90%	2	--	--			
17			1					
18	S-9	1.4 70%	2	--	--	SILT , some clay, trace to little fine sand, trace wood; dark reddish-brown; very soft to soft; moist to wet		
19			1					
20	S-10	2.0 100%	WOH/18"	--	--	FINE SAND , some silt, trace to little clay; dark reddish-brown; loose; wet		
21			2					
22	S-11	2.0 100%	2	--	--			
23	R-N	--	--	--	--	some silt, little clay; gray; v. loose; wet - layered w/ above		
24	S-12	1.1 55%	3					
25			4			some silt, little clay; gray; loose; wet		
26	S-13	1.2 60%	4	--	--			
27			5					
28	R-N	--	--	--	--	little silt, trace clay; gray; med. dense; wet		
29	S-14	1.4 70%	5					
30			5			Match to Sheet 3		
			4					

DRILLING CO.: Parratt - Wolff BAKER REP.: Mark DeJohn
 DRILLER: Laync Pech BORING NO.: 88-MW03DW SHEET 2 OF 5

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356

BORING NO.: 88-MW03DW

SAMPLE TYPE							DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample							SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
31			4			Continued from Sheet 2 loose			
	S-15	1.2	4	--	--				
32	32.0	60%	4						
	R-N	--	--	--	--				
33	33.0								
	S-16	1.1	2						
34		55%	1/18"	--	--				
35	35.0								
36		0.3	WOH/	--	--				
	S-17	15%	24"						
37	37.0								
	R-N	--	--	--	--				
38	38.0								
	S-18	0.0	WOH/						
39		0%	24"						
40	40.0								
41		1.3	1	--	--	some silt, trace clay & shell fragments; gray; loose; wet			
	S-19	65%	2						
42	42.0		3						
	R-N	--	--	--	--				
43	43.0								
44		1.4	12	--	--	little silt, shell & fossil frag; gray; dense; wet			
	S-20	70%	16						
45	45.0		22						
			24			little silt, trace clay & shell & fossil frag; gray; very dense; wet			
46		1.3	12	--	--				
	S-21	65%	22						
47	47.0		31						
	R-N	--	--	--	--				
48	48.0					FINE TO MEDIUM SAND trace shell frag, silt, & clay; gray; v dense; wet Match to Sheet 4			
	S-22	1.3	20	--	--				
49		65%	26						
			28						
50	50.0		30						
			16						

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Mark DeJohn
 BORING NO.: 88-MW03DW SHEET 3 OF 5

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356

BORING NO.: 88-MW03DW

SAMPLE TYPE							DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample							SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
51	S-23	2.0	17	--	--	Continued from Sheet 3 FINE SAND, little silt; gray; dense; wet			
52			23						
52	52.0	100%	36						
53	R-N	--	--	--	--				
53	53.0								
54	S-24	1.3	13	--	--	very dense			
54			20						
55			28						
55	55.0	65%	40						
56	S-25	1.0	30	--	--	very dense			
56			32						
57	57.0	50%	40						
57	R-N	--	--	--	--				
58	58.0								
59	S-26	1.4	14	--	--	dense			
59			23						
60			20						
60	60.0	70%	20						
61	S-27	2.0	15	--	--	some shell & fossil frag; little silt; gray; v dense; wet			
61			26						
62	62.0	100%	34						
62	R-N	--	--	--	--				
63	63.0								
64	S-28	1.4	13	--	--	little silt; dark gray; dense; wet			
64			18						
65			25						
65	65.0	70%	36						
66	S-29	0.9	26	--	--				
66			31						
67	66.7	45%	44						
67			50/0.2'						
68	R-N	--	--	--	--				
68	68.0								
69	S-30	1.0	28	--	--				
69			44						
69	69.2	83%	50/0.2'						
70	S-31	0.9	38	--	--	little silt, trace shell frag; dark gray; v dense; wet Match to Sheet 5			
70			61						
70		90%							
								70.0	
								-44.11	

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Peck

BAKER REP.: Mark DeJohn
 BORING NO.: 88-MW03DW SHEET 4 OF 5

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.: 88-MW03DW

88-MW03DW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
71	71.0					Continued from Sheet 4		
72	R-N	--	--	--	--			
73	73.0							
74	S-32	1.4 70%	18 25 36	--	--			
75	75.0		36					75.0 -49.11
76	S-33	0.9 60%	36 57	--	--	little silt, trace shell frag; olive green; v dense; moist		
77	R-N	--	--	--	--			
78	78.0							
79	S-34	1.8 90%	10 13 18	--	--	little silt, trace shell frag; olive green; v dense; wet		
80	80.0		38					80.0 -54.11
81	S-35	1.4 93%	31 38 62	--	--	little shell & fossil frag and silt; olive green; very dense; moist to wet		
82	R-N	--	--	--	--			
83	83.0							
84	S-36	1.8 90%	18 20 31	--	--	little silt, trace shell frag; olive green; v dense; wet		
85	85.0		47				85.0	85.0 -59.11
86						BOH @ 85.0 ft.		
87								
88								
89								
90								

DRILLING CO.: Parratt - Wolff
DRILLER: Laynce Pech

BAKER REP.: Mark DeJohn
BORING NO.: 88-MW03DW

88-MW03DW SHEET 5 OF 5

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.: 88-MW04

COORDINATES: EAST: 2496500.3220


NORTH: 339080.8260

ELEVATION: SURFACE: 23.05

TOP OF PVC CASING: 24.54

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	6-1/4"	--	5/2/1997	0.0 - 25.0	Sunny, 70s	--	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks: Flush-mount completion.

SAMPLE TYPE						WELL INFORMATION				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)	
						Sch 40 PVC Casing	2.0"	0	10	
						Sch 40 PVC, 10-slot Screen	2.0"	10	25	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)	
1						See the log for 88-MW04DW for lithologic details				
2										
3	A-N	--	--	--	--					
4										
5									5.0	18.05
6										
7										
8									8.0	15.05
9										
10									10.0	13.05

Match to Sheet 2

DRILLING CO.: Parratt - Wolff

BAKER REP.: Mark DeJohn

DRILLER: Layne Pech

BORING NO.: 88-MW04

SHEET 1 OF 2



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-MW04

<u>SAMPLE TYPE</u>						<u>DEFINITIONS</u>			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
11						Continued from Sheet 1			
12									
13									
14									
15									
16									
17	A-N	--	--	--	--				
18									
19									
20									
21									
22									
23									
24									
25	25.0							25.0	25.0
26						BOH @ 25.0 ft.			
27									
28									
29									
30						Match to Sheet 3			

DRILLING CO.: Parratt - Wolff BAKER REP.: Mark DeJohn
 DRILLER: Layne Pech BORING NO.: 88-MW04 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-MW04IW
 COORDINATES: EAST: 2496494.8020 NORTH: 339080.6240
 ELEVATION: SURFACE: 24.95 TOP OF PVC CASING: 24.60

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time	
Split Spoon	Casing	Augers	Core Barrel							
Size (ID)	1-3/8"	--	2-1/4"	--	5/2/1997	0.0 - 50.0	M Sunny, 60s	--	--	
Length	2.0'	--	5.0'	--						
Type	Stainless	--	HSA	--						
Hammer Wt.	140 lbs.	--	--	--						
Fall	30"	--	--	--						
Stickup	--	--	--	--						
Remarks: Ream boring with 6-1/4" HSA. Flush-mount completion.										
SAMPLE TYPE					WELL INFORMATION					
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample					Type		Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)	
					Sch 40 PVC Casing		2.0"	0	45	
					Sch 40 PVC, 10-slot Screen		2.0"	45	50	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)	
1										
2										
3	A-N	--	--	--	--	See the log for 88-MW04DW for lithologic details				
4										
5										
6										
7										
8										
9										
10										
							Match to Sheet 2			

DRILLING CO.: Parratt - Wolff BAKER REP.: Mark DeJohn
 DRILLER: Layne Pech BORING NO.: 88-MW04IW SHEET 1 OF 3

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-MW04IW

SAMPLE TYPE						DEFINITIONS			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
11						Continued from Sheet 1			
12									
13									
14	A-N	--	--	--	--				
15									
16	16.0								
17	T-1	2.0 100%	--	--	--				
18	18.0								
19									
20									
21									
22									
23									
24	A-N	--	--	--	--				
25									
26									
27									
28									
29									
30									

Match to Sheet 3

DRILLING CO.: Parratt - Wolff

DRILLER: Layne Pech

BAKER REP.: Mark DeJohn

BORING NO.: 88-MW04IW SHEET 2 OF 3

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356

BORING NO.: 88-MW04IW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
31						Continued from Sheet 2		
32								
33								
34								34.0 -9.05
35								
36								
37								
38								
39	A-N	--	--	--	--			
40								
41								39.5 -14.55
42								
43								
44								
45								45.0 -20.05
46								
47								
48								
49								
50	50.0							50.0 -25.05
						BOH @ 50.0 ft.		

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Mark DeJohn
 BORING NO.: 88-MW04IW



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT:	Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune		
CTO NO.:	62470-356	BORING NO.:	88-MW04DW
COORDINATES: EAST:	2496489.5140	NORTH:	339090.6570
ELEVATION: SURFACE:	24.98	TOP OF PVC CASING:	24.60

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/18/1997	0.0-85.0	Sunny, 60s	12.0	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks: Boring reamed w/ 6-1/4" HSA. 7-3/8" mud rotary drilling beginning at 10'. Flush-mount completion.

SAMPLE TYPE						WELL INFORMATION				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type		Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing		2.0"	0	80
						Sch 40 PVC, 10-slot Screen		2.0"	80	85
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)	
1	S-1	2.0 100%	5	--	8	FINE SAND & SILT; gray; loose; damp black; v loose; damp FINE SAND, trace silt; light gray; loose; damp med dense; damp to moist Match to Sheet 2				
2			4							
3	S-2	2.0 100%	2	--	8					
4			1							
5	S-3	2.0 100%	4	--	15					
6			4							
7	S-4	2.0 100%	5	--	13					
8			5							
9	S-5	2.0 100%	4	--	10					
10			6							
			12							
			20							
			4							

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-MW04DW SHEET 1 OF 5

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356

BORING NO.: 88-MW04DW

SAMPLE TYPE							DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample							SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
11	S-6	2 100%	10	--	8	Continued from Sheet 1 LAB SAMPLE Groundwater @ 12.0'		10.98	
12			13						
13	S-7	1.0 50%	2	--	10	little silt; light gray; loose; wet LAB SAMPLE			
14			3						
15	S-8	1.8 90%	1	--	9	CLAY, little fine sand; gray; loose; wet			
16			2						
17	S-9	2.0 100%	3	--	10	CLAY & SILT, little fine sand; gray; loose; wet			
18			4						
19	S-10	1.4 70%	4	--	10	FINE SAND, little silt; gray; med dense; wet			
20			5						
21	S-11	1.3 65%	7	--	8	little silt, trace clay; gray; loose; wet			
22			6						
23	R-N	--	--	--	--				
24	S-12	1.3 65%	3	--	5	little silt; gray; loose; wet			
25			4						
26	S-13	1.1 55%	4	--	3	v loose			
27			5						
28	R-N	--	--	--	--				
29	S-14	1.3 65%	4	--	3	v loose			
30			3						
			1			Match to Sheet 3			

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-MW04DW SHEET 2 OF 5



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-MW04DW

<u>SAMPLE TYPE</u>						<u>DEFINITIONS</u>		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
31	S-15	1.5 75%	1	--	3	Continued from Sheet 2 trace silt; gray; v loose; wet		
32			1/12"					
33	R-N	--	--	--	--			
34	S-16	1.7 85%	1/12"	--	9			
35			1/12"					
36	S-17	1.5 75%	2	--	10	loose		
37			2					
38	R-N	--	--	--	--			
39	S-18	1.2 60%	3	--	2	med dense		
40			5					
41	S-19	1.5 75%	7	--	2			
42			7					
43	R-N	--	--	--	--			
44	S-20	1.2 60%	4	--	2			
45			5					
46	S-21	1.3 65%	5	--	3			
47			9					
48	R-N	--	--	--	--			
49	S-22	1.5 75%	3	--	4			
50			10					
			17					
			21					
			12			Match to Sheet 4		

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-MW04DW SHEET 3 OF 5

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356

BORING NO.: 88-MW04DW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
51	S-23	1.8 90%	14	--	4	Continued from Sheet 3 little silt; light brown; med dense; wet		
52			17					
53	R-N	--	--	--	--			
54	S-24	1.4 70%	12	--	7	trace silt; brown; v dense; wet		
55			24					
56	S-25	2.0 100%	26	--	10			
57			34					
58	R-N	--	--	--	--			
59	S-26	2.0 100%	13	--	0	FINE TO MEDIUM SAND, shell frag; gray; med dense; wet		
60			14					
61	S-27	2.0 100%	17	--	0			
62			20					
63	R-N	--	--	--	--			
64	S-28	1.3 65%	14	--	0	FINE SAND, little silt, trace shell frag; light brown; v dense; wet		
65			22					
66	S-29	1.4 70%	24	--	5	little silt; brown to gray; v dense; wet		
67			24					
68	R-N	--	--	--	--			
69	S-30	1.0 60%	14	--	--	some silt; gray; v dense; wet		
70			34					
			22			Match to Sheet 5		

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-MW04DW SHEET 4 OF 5



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-MW04DW

SAMPLE TYPE							DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample							SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
71	S-31	1.3	39	--	0	Continued from Sheet 4			
71.3		100%	50/4"						
72	R-N	--	--	--	--	some silt, trace shell frag; gray; v dense; wet		73.0	
73	S-32	1.3	27	--	0				
73.3		100%	50/3"						
74	R-N	--	--	--	--	SILT, little fine sand, trace shell frag; gray/green; dense; wet		76.0	
75									
76	S-33	2.0	14	--	0	FINE SAND & SILT, trace shell frag; gray/green; dense; wet		80.0	
77		100%	22						
77.0			27						
78	R-N	--	--	--	--	SILT, some fine sand, trace shell frag; gray/green; v dense; wet		85.0	
79	S-34	2.0	11	--	0				
80		100%	19						
81	S-35	1.3	46	--	0	BOH @ 85.0 ft.		85.0	
81.3		100%	50/3"						
82	R-N	--	--	--	--				
83	S-36	2.0	14	--	0				
84		100%	17						
84.0			34						
85	R-N	--	--	--	--				
85.0			42						
86									
87									
88									
89									
90									

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-MW04DW SHEET 5 OF 5

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-MW05
 COORDINATES: EAST: 2496406.6230 NORTH: 339632.1520
 ELEVATION: SURFACE: 24.58 TOP OF PVC CASING: 23.97

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	6-1/4"	--	5/3/1997	0.0 - 23.0	Showers, 70s	--	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks: Flush-mount completion.

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing	2.0"	0	8
						Sch 40 PVC, 10-slot Screen	2.0"	8	23
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
1									
2									
3								21.58	
4									
5	A-N	--	--	--	--	See the log for 88-MW05DW for lithologic details			
6								18.58	
7									
8								16.58	
9									
10						Match to Sheet 2			

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Mark DeJohn
 BORING NO.: 88-MW05 SHEET 1 OF 2



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-MW05

<u>SAMPLE TYPE</u>						<u>DEFINITIONS</u>			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
11						Continued from Sheet 1			
12									
13									
14									
15	A-N	--	--	--	--				
16									
17									
18									
19									
20									
21									
22									
23	23.0							23.0	23.0
24						BOH @ 23.0 ft.			
25									
26									
27									
28									
29									
30									

DRILLING CO.: Parratt - Wolff BAKER REP.: Mark DeJohn
 DRILLER: Layne Pech BORING NO.: 88-MW05 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-MW05IW
 COORDINATES: EAST: 2496404.715 NORTH: 339626.420
 ELEVATION: SURFACE: 24.74 TOP OF PVC CASING: 24.30

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	6-1/4"	--	5/3/1997	0.0 - 50.0	Showers, 70s	--	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					
Remarks: Flush-mount completion.									
SAMPLE TYPE S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample					WELL INFORMATION Type Diam. Top Depth (Ft.) Bottom Depth (Ft.) Sch 40 PVC Casing 2.0" 0 45 Sch 40 PVC, 10-slot Screen 2.0" 45 50				
1									
2									
3	A-N	--	--	--	--	See the log for 88-MW05DW for lithologic details			
4									
5									
6									
7									
8									
9									
10									
Match to Sheet 2									

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Mark DeJohn
 BORING NO.: 88-MW05IW SHEET 1 OF 3

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-MW05IW

SAMPLE TYPE						DEFINITIONS				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)				
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
11						Continued from Sheet 1				
12										
13										
14										
15										
16										
17										
18										
19										
20	A-N	--	--	--	--					
21										
22										
23										
24										
25										
26										
27										
28										
29										
30								Match to Sheet 3		

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Mark DeJohn
 BORING NO.: 88-MW05IW SHEET 2 OF 3



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-MW05IW

<u>SAMPLE TYPE</u>						<u>DEFINITIONS</u>		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
31						Continued from Sheet 2		
32								
33								
34								
35								35.0 -10.26
36								
37								
38								
39	A-N	--	--	--	--			
40								40.0 -15.26
41								
42								
43								
44								
45								45.0 -20.26
46								
47								
48								
49								
50	50.0							50.0 -25.26
BOH @ 50.0 ft.								

DRILLING CO.: Parratt - Wolff BAKER REP.: Mark DeJohn
 DRILLER: Layne Pech BORING NO.: 88-MW05IW SHEET 3 OF 3



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
CTO NO.: 62470-356 **BORING NO.:** 88-MW05DW
COORDINATES: EAST: 2496402.3910 **NORTH:** 339619.4390
ELEVATION: SURFACE: 24.68 **TOP OF PVC CASING:** 24.40

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/22/1997	0.0-87.0	Sunny, 70s	10.0	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks: Boring reamed w/ 6-1/4" HSA. 7-3/8" mud rotary drilling beginning at 18'. Flush-mount completion.

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing	2.0"	0	80
						Sch 40 PVC, 10-slot Screen	2.0"	80	85
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
1	S-1	2.0 100%	3	--	5	SILT & FINE SAND; black; loose; damp brown brown; loose; moist LAB SAMPLE Groundwater @ 10.0' Match to Sheet 2			
2			5						
3	S-2	1.3 65%	3	--	4				
4			5						
5	S-3	1.9 95%	5	--	5				
6			8						
7	S-4	0.0 0%	2	--	--				
8			5						
9	S-5	2.0 100%	2	--	6				
10			2						
			4						

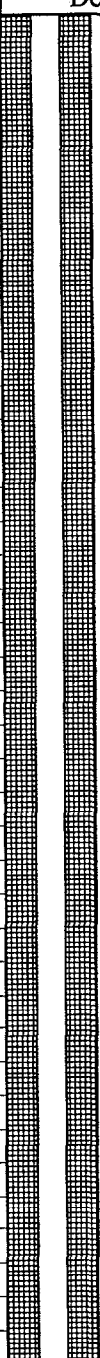
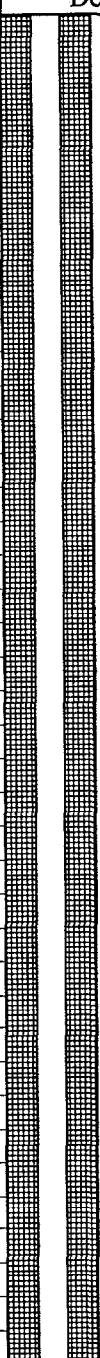
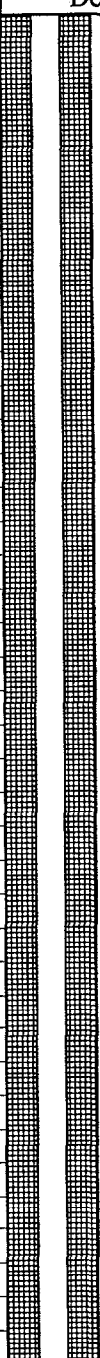
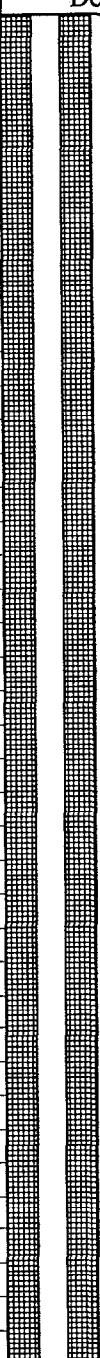
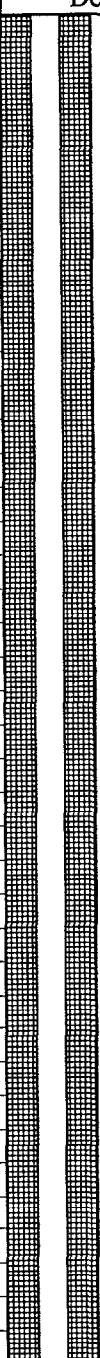
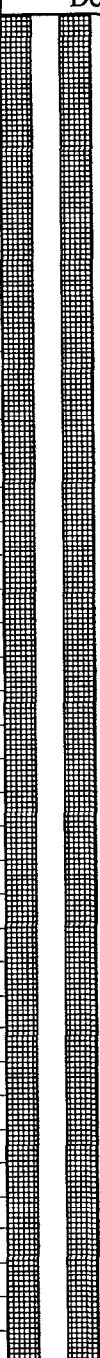
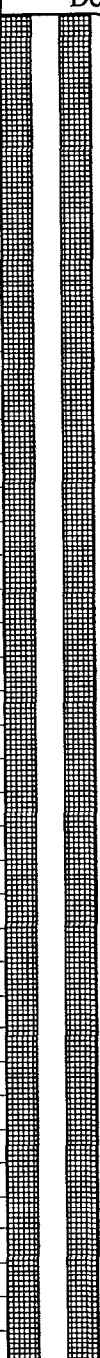
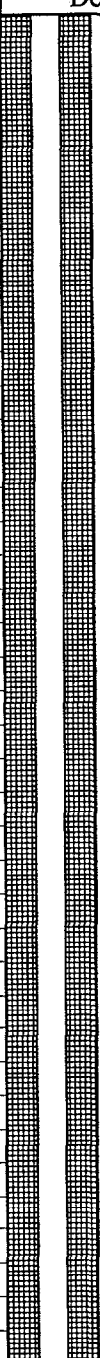
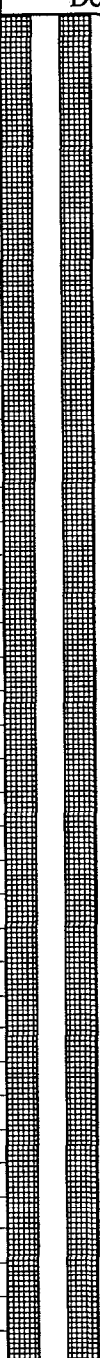
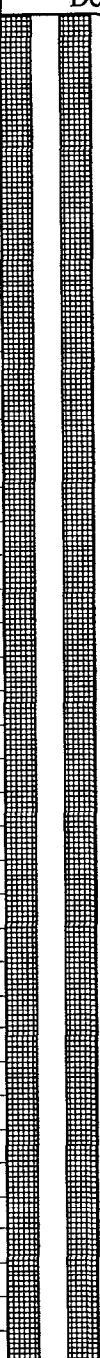
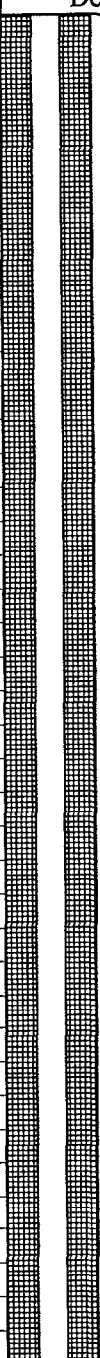
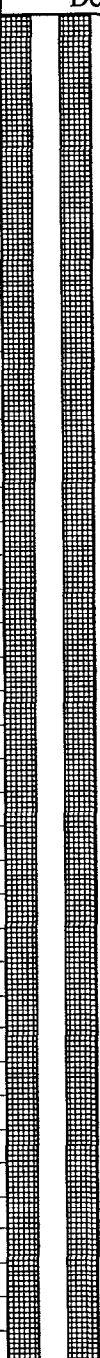
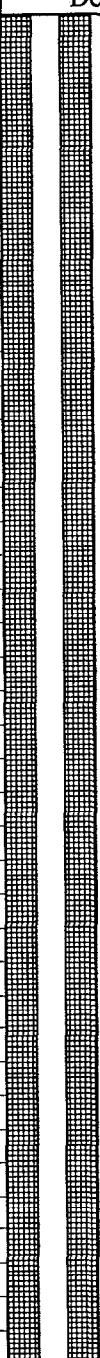
DRILLING CO.: Parratt - Wolff
DRILLER: Layne Pech

BAKER REP.: Ken Tua
BORING NO.: 88-MW05DW SHEET 1 OF 5

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356

BORING NO.: 88-MW05DW

SAMPLE TYPE							DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample							SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
11	S-6	2	2	--	5	Continued from Sheet 1 LAB SAMPLE		10.68	
12			5						7
13	S-7	2.0 100%	5	--	7	gray; med dense; wet		10.68	
14			11						12
15	S-8	1.7 85%	5	--	7	SILT, some fine sand; gray; med dense; wet		10.68	
16			6						5
17	S-9	2.0 100%	2	--	5	loose		10.68	
18			3						3
19	S-10	2.0 100%	1	--	0	trace clay; dark gray; v soft; wet		10.68	
20			1						2
21	S-11	2.0 100%	2	--	0	trace clay & wood; dark gray; soft; wet		10.68	
22			2						3
23	R-N	--	--	--	--			1.68	
24	S-12	2.0 100%	3	--	2	FINE SAND & SILT; dark gray; loose; wet		10.68	
25			2						3
26	S-13	1.6 80%	3	--	2	FINE SAND, some silt; gray/green; med dense; wet		10.68	
27			5						8
28	R-N	--	--	--	--			10.68	
29	S-14	1.0 50%	4	--	3	green		10.68	
30			6						8
			11			Match to Sheet 3			
			8						

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-MW05DW SHEET 2 OF 5

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-MW05DW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
31			6			Continued from Sheet 2 little silt; green; med dense; wet		
32	S-15	2.0 100%	8 11	--	3			
33	R-N	--	--	--	--			
34	S-16	2.0 100%	3 2 2	--	2	v loose		
35			1					
36	S-17	2.0 100%	WOH 24"	--	2			
37	R-N	--	--	--	--			
38								
39	S-18	2.0 100%	WOH 24"	--	3	gray; loose; wet		
40			1					
41	S-19	2.0 100%	2 4 8	--	3			
42	R-N	--	--	--	--			
43								
44	S-20	2.0 100%	7 8 12	--	3	little silt, trace fossil frag; light gray; med dense; wet		
45			20					
46	S-21	1.3 65%	15 15 28	--	2	with fossil frag, little silt, trace shell frag; gray; dense; wet		
47			41					
48	R-N	--	--	--	--			
49	S-22	1.3 65%	11 19 22	--	2	little silt, trace shell frag; green; dense; wet		
50			25					
			27			Match to Sheet 4		

DRILLING CO.: Parratt - Wolff

DRILLER: Layne Pech

BAKER REP.: Ken Tua

BORING NO.:

88-MW05DW

SHEET 3 OF 5



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-MW05DW

<u>SAMPLE TYPE</u>						<u>DEFINITIONS</u>		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
51			24			Continued from Sheet 3		
52	S-23	2.0	44	--	8			
52	52.0	100%	47			SILT, some fine sand, trace shell frag; gray; v dense; wet		
53	R-N	--	--	--	--			
53	53.0					FINE SAND & SILT, trace fossil frag; gray; dense; wet		
54	S-24	1.7	7	--	7			
55	55.0	85%	35			SILT, some fine sand,; gray; v dense; wet		
56	S-25	1.3	31	--	4			
57	57.0	65%	30			some fine sand, trace shell frag; gray; v dense; wet		
58	R-N	--	12	--	--			
59	58.0		22			little fine sand; gray; v dense; wet		
60	S-26	1.6	33	--	4			
61	60.0	80%	38			with find sand; gray; v dense; wet		
62	S-27	1.6	27	--	2			
63	62.0	80%	39			Match to Sheet 5		
64	R-N	--	42	--	--			
65	63.0		25					
66	S-28	1.4	34	--	2			
67	65.0	70%	42					
68	S-29	1.0	12	--	5			
69	67.0	50%	24					
70	R-N	--	24	--	--			
70	68.0		36					
71	S-30	1.8	17	--	7			
72	70.0	108%	24					70.0
73			34					
			42					-45.32
			22					

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-MW05DW SHEET 4 OF 5



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-MW05DW

<u>SAMPLE TYPE</u>						<u>DEFINITIONS</u>		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
71	S-31	1.8 90%	24	--	9	Continued from Sheet 4		
72			34					
73	R-N	--	--	--				
74	S-32	1.3 100%	--	--	7	little fine sand; gray; wet		75.0
75			--					
76	S-33	2.0 100%	--	--	7			
77			--					
78	R-N	--	--	--	--			
79	S-34	2.0 100%	--	--	7	SILT & FINE SAND, trace shell frag; gray; wet		80.0
80			--					
81	S-35	2.0 154%	--	--	10			
82			--					
83	S-36	2.0 100%	14	--	8			85.0
84			17					
85	R-N	--	34	--	--			
86			42					
87	R-N	--	--	--	--	87.0		-62.32
						BOH @ 87.0 ft.		
88								
89								
90								

DRILLING CO.: Parratt - Wolff BAKER REP.: Ken Tua
 DRILLER: Layne Pech BORING NO.: 88-MW05DW SHEET 5 OF 5



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
CTO NO.: 62470-356 **BORING NO.:** 88-MW06
COORDINATES: EAST: 2496296.938 **NORTH:** 339346.473
ELEVATION: SURFACE: 24.60 **TOP OF PVC CASING:** 23.13

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	6-1/4"	--	5/4/1997	0.0 - 23.0	M Sunny, 70s	--	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks: Flush-mount completion.

<u>SAMPLE TYPE</u>						<u>WELL INFORMATION</u>				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type		Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing		2.0"	0	8
						Sch 40 PVC, 10-slot Screen		2.0"	8	23
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
1										
2										
3								3.0 21.60		
4										
5	A-N	--	--	--	--	See the log for 88-MW06IW for lithologic details				
6								6.0 18.60		
7										
8								8.0 16.60		
9										
10						Match to Sheet 2				

DRILLING CO.: Parratt - Wolff **BAKER REP.:** Mark DeJohn
DRILLER: Layne Pech **BORING NO.:** 88-MW06 **SHEET 1 OF 2**

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-MW06

SAMPLE TYPE S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						DEFINITIONS SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
11						Continued from Sheet 1			
12									
13									
14									
15	A-N	--	--	--	--				
16									
17									
18									
19									
20									
21									
22									
23	23.0							23.0	23.0
24						BOH @ 23.0 ft.			
25									
26									
27									
28									
29									
30									

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Mark DeJohn
 BORING NO.: 88-MW06 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.: 88-MW06IW

COORDINATES: EAST: 2496302.4910

NORTH: 339350.7540

ELEVATION: SURFACE: 24.59

TOP OF PVC CASING: 23.00

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	5/4/1997	0.0 - 50.0	Sunny, 60s	10.0	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks: Boring reamed with 6-1/4" HSAs. Flush-mount completion.

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing	2.0"	0	45
						Sch 40 PVC, 10-slot Screen	2.0"	45	50
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
1	S-1	1.4 70%	2	--	0.4	FINE SAND, trace gravel & silt; dark brown; loose; damp			
2			3						
3	S-2	1.6 80%	2	--	0.2	little silt; dark brown; loose; damp			
4			2						
5	S-3	1.7 85%	3	--	0.2	little silt, trace clay; brown; loose; damp			
6			2						
7	S-4	2.0 100%	4	--	0.2	trace silt; gray; loose; damp			
8			4						
9	S-5	1.5 75%	2	--	0.2	LAB SAMPLE			
10			4						
						Groundwater @ 10.0'			
						Match to Sheet 2			

DRILLING CO.: Parratt - Wolff

BAKER REP.: Mark DeJohn

DRILLER: Layne Pech

BORING NO.:

88-MW06IW SHEET 1 OF 3

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356

BORING NO.: 88-MW06IW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	S-6	1.5 75%	6 6	--	0.2 0.2	Continued from Sheet 1 med dense; wet		
12			8			LAB SAMPLE		
13	S-7	1.3 65%	2 5	--	--	little silt & clay; gray w/ ; brown iron staining;		
14			6			med dense; wet		
15	S-8	2.0 100%	2 3	--	--			
16			3 4					
17	S-9	2.0 100%	2 2	--	--	As above w/ clayey layers		
18			3					
19	S-10	2.0 100%	4 7	--	--	little silt, trace clay; tan & brown layering; med		
20			7 2			dense; wet		
21	S-11	2.0 100%	3 2	--	--	tan; loose; wet		
22			2 6					
23	S-12	2.0 100%	6 5	--	--	little silt, trace to little clay; tan; wet		
24			5 6					
25	S-13	1.2 60%	2 3	--	--	little silt & clay; tan; loose; wet		
26			2 3					26.0
27	S-14	1.2 60%	2 5	--	--	trace silt; gray; med dense; wet		
28			6 5					
29	S-15	1.6 80%	3 6	--	--	thin silty clay zone @ 29'		
30			6 7					
			2			Match to Sheet 3		

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Mark DeJohn
 BORING NO.: 88-MW06IW

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356

BORING NO.: 88-MW06IW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
31	S-16	1.4 70%	2	--	--	Continued from Sheet 2 trace silt; gray; loose; wet		-7.91
32			3					
33	S-17	2.0 100%	5	--	--	med dense		
34			6					
35	S-18	1.8 90%	3	--	--	loose		
36			4					
37	S-19	2.0 100%	5	--	--			
38			5					
39	S-20	1.8 90%	WOH/12"	--	--	little silt; brown; v loose; wet		
40			1/12"					
41	S-21	1.4 70%	1	--	--	trace silt; gray & brown; v loose; wet		
42			2					
43	S-22	1.1 55%	1/12"	--	--	FINE to MEDIUM SAND, trace silt; brown w/ red iron stain bands; v loose; wet		
44			1					
45	S-23	1.2 60%	1	--	--	trace silt; gray; v loose; wet		-20.41
46			2					
47	S-24	1.2 60%	2	--	--	loose		
48			4					
49	S-25	0.6 30%	4	--	--	med dense		
50			8					
						BOH @ 50.0 ft.		-25.41

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Mark DeJohn
 BORING NO.: 88-MW06IW SHEET 3 OF 3



TEST BORING AND WELL CONSTRUCTION RECORD

Baker Environmental

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-MW07
 COORDINATES: EAST: 2496024.8930 NORTH: 339972.875
 ELEVATION: SURFACE: 23.63 TOP OF PVC CASING: 23.37

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	6-1/4"	--	5/6/1997	0.0 - 22.0	P Cloudy, 60s	--	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks: Flush-mount completion.

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing	2.0"	0	7
						Sch 40 PVC, 10-slot Screen	2.0"	7	22
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
1									
2								21.63	
3									
4									
5	A-N	--	--	--	--	See the log for 88-MW07IW for lithologic details		18.63	
6									
7								16.63	
8									
9									
10									

Match to Sheet 2

DRILLING CO.: Parratt - Wolff BAKER REP.: Mark DeJohn
 DRILLER: Layne Pech BORING NO.: 88-MW07 SHEET 1 OF 2

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-MW07

SAMPLE TYPE						DEFINITIONS			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
11						Continued from Sheet 1			
12									
13									
14									
15	A-N	--	--	--	--				
16									
17									
18									
19									
20									
21									
22						22.0	22.0	1.63	
23						BOH @ 22.0 ft.			
24									
25									
26									
27									
28									
29									
30									

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Mark DeJohn
 BORING NO.: 88-MW07 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.: 88-MW07IW

COORDINATES: EAST: 2496032.9230

NORTH: 339972.0830

ELEVATION: SURFACE: 23.67

TOP OF PVC CASING: 23.30

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	5/5/1997	0.0 - 50.0	Sunny, 70s	9.0	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks: Boring reamed with 6-1/4" HSAs. Flush-mount completion.

SAMPLE TYPE							WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample							Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
							Sch 40 PVC Casing	2.0"	0	45
							Sch 40 PVC, 10-slot Screen	2.0"	45	50
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
1	S-1	1.5 75%	4	--	0.4	FINE SAND, trace silt; dark brown; loose; damp trace silt & clay; brown; loose; damp little silt & clay; brown & gray-mottled; loose; moist trace silt; gray w/ brown iron stains; loose; wet Groundwater @ 9.0' Match to Sheet 2				
2			6							
3	S-2	1.4 70%	4	--	0.4					
4			5							
5	S-3	1.4 70%	4	--	0.4					
6			4							
7	S-4	1.7 85%	3	--	0.4					
8			3							
9	S-5	2.0 100%	2	--	--					
10			2							
			3							
			1							

DRILLING CO.: Parratt - Wolff

BAKER REP.: Mark DeJohn

DRILLER: Layne Pech

BORING NO.: 88-MW07IW

SHEET 1 OF 3

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-MW071W

SAMPLE TYPE						DEFINITIONS				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)				
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
11	S-6	1.6 80%	1	--	0.2 0.2	Continued from Sheet 1 little silt & clay; brown; v loose; wet				
12			12.0						2	
13			S-7						2.0 100%	3
14	14.0	4								
15	S-8	1.2 60%	4	--	--	brown & gray layering GEOTECH LAB SAMPLE				
16			16.0						5	
17			S-9						1.7 85%	4
18	18.0	9								
19	S-10	1.7 85%	3	--	--	trace silt & clay; brown w/ gray layers; loose; wet				
20			20.0						6	
21			S-11						1.2 60%	3
22	22.0	6								
23	S-12	1.2 60%	3	--	--	CLAY, some silt, trace fine sand; dark brown; med stiff; wet				
24			24.0						2	
25			S-13						1.2 60%	2
26	26.0	1								
27	S-14	1.0 50%	1	--	--	trace silt; gray; soft; moist very plastic				
28			28.0						2	
29			S-15						2.0 100%	1
30	30.0	1								
			1			CLAY; trace to some silt; Match to Sheet 3				

DRILLING CO.: Parratt - Wolff

DRILLER: Layne Pech

BAKER REP.: Mark DeJohn

BORING NO.:

88-MW071W

SHEET 2 OF 3



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-MW07IW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
31	S-16	2.0 100%	1	--	--	Continued from Sheet 2 dark gray; soft; moist		-8.33
32			2					
32.0			3					
33	S-17	2.0 100%	3	--	--	PEAT, some clay; brown; med stiff; moist		-10.33
34			3					
34.0			2					
35	S-18	2.0 100%	2	--	--	CLAY, some silt & fine sand; dark gray; stiff; wet		-11.33
36			4					
36.0			2					
37	S-19	1.4 70%	2	--	--			-13.93
38			5					
38.0			6			FINE SAND, some silt & clay; gray; stiff; wet		
39	S-20	1.0 50%	4	--	--			-16.33
40			5					
40.0			4			little silt & clay; gray; loose; wet		
41	S-21	1.0 50%	--	--	--	trace silt; gray; wet GEOTECH LAB SAMPLE		
42			--					
42.0			--					
43	S-22	0.4 20%	WOH	--	--	v loose		
44			24"					
44.0								
45	S-23	1.4 70%	3	--	--	loose		-21.33
46			2					
46.0			4					
47	S-24	1.2 60%	5	--	--	greenish-gray; med dense		
48			6					
48.0			7					
49	S-25	1.6 80%	3	--	--	greenish-gray; loose		
50			3					
50.0			4					
			7					
						BOH @ 50.0 ft.		

DRILLING CO.: Parratt - Wolff BAKER REP.: Mark DeJohn
 DRILLER: Layne Pech BORING NO.: 88-MW07IW SHEET 3 OF 3



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
CTO NO.: 62470-356 **BORING NO.:** 88-MW08
COORDINATES: EAST: 284619.1020 **NORTH:** 3839160.2429
ELEVATION: SURFACE: 23.21 **TOP OF PVC CASING:** 22.98

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	6-1/4"	--	5/7/1997	0.0 - 20.0	Sunny, 70s	--	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks: Flush-mount completion.

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing	2.0"	0	5
						Sch 40 PVC, 10-slot Screen	2.0"	5	20
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
1									
2								21.21	
3									
4								19.21	
5	A-N	--	--	--	--	See the log for 88-MW08IW for lithologic details		18.21	
6									
7									
8									
9									
10									

Match to Sheet 2

DRILLING CO.: Parratt - Wolff
DRILLER: Layne Pech

BAKER REP.: Mark DeJohn
BORING NO.: 88-MW08 SHEET 1 OF 2

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.: 88-MW08

88-MW08

<p>SAMPLE TYPE S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample</p>						<p>DEFINITIONS SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)</p>			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
11						Continued from Sheet 1			
12									
13									
14									
15	A-N	--	--	--	--				
16									
17									
18									
19									
20	20.0							20.0	20.0
21						BOH @ 20.0 ft.			
22									
23									
24									
25									
26									
27									
28									
29									
30									

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Mark DeJohn
 BORING NO.: 88-MW08

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.: 88-MW08IW

COORDINATES: EAST: 284619.5524

NORTH: 3839158.0646

ELEVATION: SURFACE: 23.05

TOP OF PVC CASING: 22.90

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	5/7/1997	0.0 - 50.0	Sunny, 60s	7.0	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks: Boring reamed with 6-1/4" HSAs. Flush-mount completion.

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing	2.0"	0	45
						Sch 40 PVC, 10-slot Screen	2.0"	45	50
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
1	S-1	1.6 80%	3	--	--	FINE SAND , little silt; dark brown; loose; damp light brown little silt, trace clay; light brown; loose; damp little silt, trace clay; tan & gray; loose; moist to wet Groundwater @ 7.0' little silt & clay; gray w/ iron stains; loose; wet Match to Sheet 2			
2			4						
3	S-2	2.0 100%	2						
4			3						
5	S-3	1.8 90%	3						
6			2						
7	S-4	1.7 85%	3						
8			4						
9	S-5	1.3 65%	1						
10			2						
			4						

DRILLING CO.: Parratt - Wolff

BAKER REP.: Mark DeJohn

DRILLER: Layne Pech

BORING NO.:

88-MW08IW

SHEET 1 OF 3

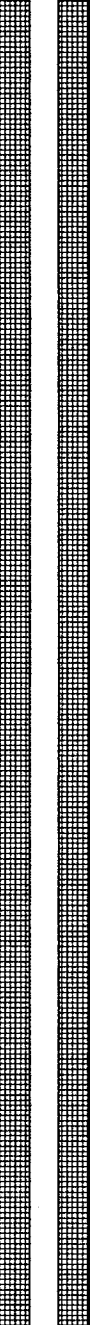
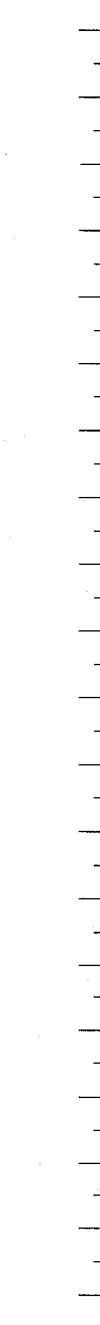
TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-MW08IW

SAMPLE TYPE						DEFINITIONS															
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)															
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)													
11	S-6	1 50%	2	--	--	Continued from Sheet 1 little silt, trace clay w/ clayey zones; orange & gray; moist to wet															
12			12.0						2												
13			13						3												
14	A-N	--	--	--	--																
15			15.0							--											
16			16							8											
17	S-7	1.1 55%	6	--	--					trace silt; gray w/ iron stains; med dense; wet GEOTECH LAB SAMPLE											
18			18										6								
19			19										5								
20	A-N	--	--	--	--																
21			21											3							
22			22.0											5							
23	S-8	1.1 55%	10	--	--									trace silt & clay; gray to dark gray; med dense; wet							
24			24														8				
25			25.0														--				
26	A-N	--	--	--	--																
27			27															3			
28			28															3			
29	S-9	0.9 45%	4	--	--													little silt, trace clay; gray; loose; wet			
30			30																		4
																					5
		--	--	--	--																
			3															Match to Sheet 3			

DRILLING CO.: Parratt - Wolff

DRILLER: Layne Pech

BAKER REP.:

BORING NO.:

Mark DeJohn

88-MW08IW

SHEET 2 OF 3



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-MW08IW

<u>SAMPLE TYPE</u>						<u>DEFINITIONS</u>		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
31	S-10	1.0	3	--	--	Continued from Sheet 2		
32		50%	2					
33	A-N	--	--	--	--			
34								34.0 -10.95
35								
36	S-11	0.8	2	--	--	trace silt & clay; gray; loose; wet		
37		40%	3					
38			4					
39	A-N	--	--	--	--			
40			8					39.5 -16.45
41	S-12	1.1	<u>WOH</u>	--	--	trace silt; green; v loose; wet		
42		55%	24"					
43	A-N	--	--	--	--			
44								
45								45.0 -21.95
46	S-13	1.0	<u>WOH</u>	--	--	FINE to MEDIUM SAND, trace silt; green; v loose; wet		
47		50%	24"					
48	S-14	0.7	<u>WOH</u>	--	--			
49		35%	24"					
50	A-N	--	--	--	--			50.0 -26.95
						BOH @ 50.0 ft.		

DRILLING CO.: Parratt - Wolff BAKER REP.: Mark DeJohn
 DRILLER: Layne Pech BORING NO.: 88-MW08IW SHEET 3 OF 3

Baker**Baker Environmental****TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.: 88-MW09

COORDINATES: EAST: 2496128.3970

NORTH: 339088.6490

ELEVATION: SURFACE: 22.13

TOP OF PVC CASING: 21.83

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	6-1/4"	--	5/5/1997	0.0 - 21.0	Sunny, 70s	--	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks: Flush-mount completion.

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing	2.0"	0	6
						Sch 40 PVC, 10-slot Screen	2.0"	6	21
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
1									
2								20.13	
3									
4								18.13	
5	A-N	--	--	--	--	See the log for 88-MW09IW for lithologic details			
6								16.13	
7									
8									
9									
10									

Match to Sheet 2

DRILLING CO.: Parratt - Wolff

BAKER REP.: Mark DeJohn

DRILLER: Layne Pech

BORING NO.: 88-MW09

SHEET 1 OF 2

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-MW09

SAMPLE TYPE						DEFINITIONS				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)				
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
11						Continued from Sheet 1				
12										
13										
14										
15	A-N	--	--	--	--					
16										
17										
18										
19										
20										
21	21.0							21.0	21.0	1.13
22								BOH @ 21.0 ft.		
23										
24										
25										
26										
27										
28										
29										
30										

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Mark DeJohn
 BORING NO.: 88-MW09 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356


BORING NO.: 88-MW09IW

COORDINATES: EAST: 2496132.5050

NORTH: 339080.7470

ELEVATION: SURFACE: 22.00

TOP OF PVC CASING: 21.83

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	5/5/1997	0.0 - 50.0	Sunny, 60s	8.0	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					
Remarks: Boring reamed with 6-1/4" HSAs. Flush-mount completion.									
SAMPLE TYPE S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample					WELL INFORMATION				
					Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)	
					Sch 40 PVC Casing	2.0"	0	45	
					Sch 40 PVC, 10-slot Screen	2.0"	45	50	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	S-1	1.3 65%	2	--	0.2 0.2	FINE SAND, trace to little silt; dark brown; loose; damp			
2			3						
3	S-2	1.5 75%	2	--	0.2 0.2	trace silt; gray; loose; damp			
4			2						
5	S-3	1.8 90%	2	--	1.5 0.8	FINE SAND, little silt; tan; med dense; moist			16.90
6			3						
7	S-4	1.5 75%	4	--	1.2 0.8	SILT, little clay; gray; med stiff; damp			16.00
8			5						
9	S-5	1.5 75%	4	--	3.0 0.8	FINE SAND, little silt; tan; med dense; moist			
10			5						
			2			iron stains; loose; wet Groundwater @ 8.0'			
						Match to Sheet 2			

DRILLING CO.: Parratt - Wolff

BAKER REP.: Mark DeJohn

DRILLER: Layne Pech

BORING NO.: 88-MW09IW

SHEET 1 OF 3

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-MW09IW

SAMPLE TYPE						DEFINITIONS				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)				
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
11	S-6	2.0 100%	3 4	--	--	Continued from Sheet 1				
12			7							
13	S-7	2.0 100%	6 5	--	--					
14			3							
15	S-8	1.8 90%	2 4	--	--	little silt & clay; gray; loose; wet				
16			5							
17	S-9	2.0 100%	1 3	--	--					
18			2							
19	S-10	1.8 90%	2 1	--	--				some silt & clay; dark gray; soft; wet	
20			1							
21	S-11	1.0 50%	1 2	--	--					
22			3							
23	S-12	1.3 65%	3 2	--	--				gray	
24			3 4							
25	S-13	0.9 45%	WOH 24"	--	--	little silt; dark green; v loose; wet				
26										
27	S-14	1.3 65%	WOH 18"	--	--					
28			2							
29	S-15	0.5 25%	WOH 24"	--	--	trace silt; green; v loose; wet				
30										
						Match to Sheet 3				

DRILLING CO.: Parratt - Wolff

DRILLER: Layne Pech

BAKER REP.:

BORING NO.:

Mark DeJohn

88-MW09IW

SHEET 2 OF 3

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-MW09IW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
31	S-16	0.8 40%	WOH 24"	--	--	Continued from Sheet 2 olive green		
32								
33	S-17	1.2 60%	WOH 24"	--	--			34.0 -12.00
34								
35	S-18	1.8 90%	WOR 24"	--	--			
36								
37	S-19	1.4 70%	WOH 18"	--	--			
38								
39	S-20	1.1 55%	4 3	--	--	loose		
40								
41	S-21	0.3 15%	4 2 1	--	--	greenish-gray; v loose; wet		
42								
43	S-22	1.7 85%	4 3 1	--	--	loose		
44								
45	S-23	1.7 85%	12 8 8	--	--	med dense		45.00 -23.00
46								
47	S-24	1.8 90%	4 4 6 8	--	--	trace M/C sand, & silt; greenish-gray, loose; wet		
48								
49	S-25	1.2 60%	1 2 1	--	--	trace silt; greenish-gray; v loose; wet		
50								
						BOH @ 50.0 ft.		50.00 -28.00

DRILLING CO.: Parratt - Wolff

DRILLER: Layne Pech

BAKER REP.:

BORING NO.:

Mark DeJohn

88-MW09IW

SHEET 3 OF 3



TEST BORING AND WELL CONSTRUCTION RECORD

Baker Environmental

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune	
CTO NO.: 62470-356	BORING NO.: 88-TW20
COORDINATES: EAST: 2496175.2370	NORTH: 339142.9250
ELEVATION: SURFACE: 23.03	TOP OF PVC CASING: 24.73

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/14/1997	0.0 - 25.0	P Sunny, 60s	--	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks:

SAMPLE TYPE						WELL INFORMATION				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type		Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing		1.0"	0	10
						Sch 40 PVC, 10-slot Screen		1.0"	10	25
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)	
1										
2										
3										
4										
5	A-N	--	--	--	--	See the log for 88-TW20IW for lithologic details				
6										
7										
8										
9										
10							Match to Sheet 2		10.0	13.03

DRILLING CO.: Parratt - Wolff	BAKER REP.: Ken Tua
DRILLER: Layne Pech	BORING NO.: 88-TW20 SHEET 1 OF 2

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-TW20

SAMPLE TYPE						DEFINITIONS				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)				
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
11						Continued from Sheet 1				
12										
13										
14										
15										
16										
17										
18	A-N	--	--	--	--					
19										
20										
21										
22										
23										
24										
25								25.0	25.0	-1.97
								BOH @ 25.0 ft.		
26										
27										
28										
29										
30										

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-TW20 SHEET 2 OF 2

Baker**Baker Environmental****TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-TW20IW

COORDINATES: EAST: 2496172.8100

NORTH:

339147.5000

ELEVATION: SURFACE: 23.04

TOP OF PVC CASING:

24.34

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/14/1997	0.0 - 50.0	P Sunny, 60s	9.0	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks:

SAMPLE TYPE						WELL INFORMATION				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type		Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing		1.0"	0	45
						Sch 40 PVC, 10-slot Screen		1.0"	45	50
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)	
1	S-1	1.6 80%	4	--	0	SILT, trace fine sand; black; med dense; damp			21.04	
2			7							6
3	S-2	1.4 70%	4	--	0	FINE SAND, trace silt; brown; loose; damp			19.04	
4			2							2
5	S-3	1.7 85%	11	--	5	SILT, trace fine sand & clay; tan; loose; damp			17.04	
6			4							4
7	S-4	1.8 90%	5	--	3	FINE SAND, trace silt; light brown; loose; moist				
8			4							5
9	S-5	1.1 55%	4	--	5	light gray; med dense; wet Groundwater @ 9.0'				
10			6							6
			6			Match to Sheet 2				

DRILLING CO.: Parratt - Wolff

BAKER REP.: Ken Tua

DRILLER: Layne Pech

BORING NO.:

88-TW20IW

SHEET 1 OF 3

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-TW20IW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	S-6	1.3	9	--	2	Continued from Sheet 1		
12		65%	8					
			4					
13	S-7	2.0	2	--	2			
14		100%	3					
			2					
15	S-8	1.8	2	--	3	CLAY, trace fine sand; gray; med stiff, wet		9.04
16		90%	4					
17	S-9	1.8	6	--	2	FINE SAND, little silt; gray; loose; wet		8.04
18		90%	4					
19	S-10	1.2	4	--	1			3.04
20		60%	2					
			4					
21	S-11	1.4	1	--	2	SILT, some fine sand, trace clay; gray; v loose; wet		1.04
22		70%	2					
23	S-12	1.9	3	--	1	FINE SAND, some silt; gray; loose; wet		
24		95%	2					
			3					
25	S-13	1.4	WOH	--	6	trace silt; gray; v loose; wet		
26		70%	1					
27	S-14	1.6	1	--	6			
28		80%	2					
			1					
29	S-15	1.4	WOH	--	9			
30		70%	1					
			1					
						Match to Sheet 3		

DRILLING CO.: Parratt - Wolff

DRILLER: Layne Pech

BAKER REP.:

BORING NO.:

Ken Tua

88-TW20IW

SHEET 2 OF 3

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356

BORING NO.: 88-TW20IW

SAMPLE TYPE							DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample							SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
31	S-16	0.4 20%	1	--	2	Continued from Sheet 2			
32			1/12"						
33	S-17	1.7 85%	1	--	9				
34			1						
35	S-18	2.0 100%	1	--	9				
36			1						
37	S-19	2.0 100%	1/12"	--	8	trace silt; green; v loose; wet			
38			1/12"						
39	S-20	1.6 80%	1	--	7				
40			2						
41	S-21	1.0 50%	1	--	9	MEDIUM SAND, trace silt; green; v loose; wet			
42			1						
43	S-22	1.3 65%	1/12"	--	8				
44			1/12"						
45	S-23	1.1 55%	2	--	9	FINE SAND, trace silt; green; v loose; wet		45.0	
46			1						
47	S-24	2.0 100%	2	--	12				
48			6						
49	S-25	2.0 100%	3	--	10				
50			3						
						BOH @ 50.0 ft.		50.0	
								-26.96	

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-TW20IW

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-TW21
 COORDINATES: EAST: 2496130.0260 NORTH: 339334.1900
 ELEVATION: SURFACE: 23.82 TOP OF PVC CASING: 25.56

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/15/1997	0.0 - 25.0	Sunny, 60s	--	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks:						WELL INFORMATION			
SAMPLE TYPE						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Sch 40 PVC Casing	1.0"	0	10
						Sch 40 PVC, 10-slot Screen	1.0"	10	25
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1									
2									
3									
4									
5	A-N	--	--	--	--	See the log for 88-TW211W for lithologic details			
6									
7									
8									
9									
10						Match to Sheet 2		10.0	13.82

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-TW21 SHEET 1 OF 2

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-TW21

SAMPLE TYPE						DEFINITIONS				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)				
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
11						Continued from Sheet 1				
12										
13										
14										
15										
16										
17										
18	A-N	--	--	--	--					
19										
20										
21										
22										
23										
24										
25	25.0							25.0	25.0	-1.18
26								BOH @ 25.0 ft.		
27										
28										
29										
30										

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-TW21 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.: 88-TW21IW

COORDINATES: EAST: 2496131.1610

NORTH: 339330.0270

ELEVATION: SURFACE: 23.85

TOP OF PVC CASING: 25.23

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/15/1997	0.0 - 50.0	Sunny, 60s	12.0	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing	1.0"	0	45
						Sch 40 PVC, 10-slot Screen	1.0"	45	50
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	S-1	1.7 85%	3	--	1	FINE SAND, trace silt; black; loose; damp			
2			4						
3	S-2	1.2 60%	2	--	7	FINE SAND & SILT; black; v loose; damp			19.85
4			1						
5	S-3	1.4 70%	3	--	8	CLAY, little fine sand ; brown; loose; damp			17.85
6			2						
7	S-4	1.7 85%	6	--	6	FINE SAND, trace silt; light gray; loose; moist			
8			7						
9	S-5	1.5 75%	6	--	14				
10			5						
			9						
			7			Match to Sheet 2			

DRILLING CO.: Parratt - Wolff

BAKER REP.: Ken Tua

DRILLER: Layne Pech

BORING NO.: 88-TW21IW

SHEET 1 OF 3

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-TW21IW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	S-6	2	8	--	9	Continued from Sheet 1 med dense		
12		100%	8					
			11					
13	S-7	2.0	10	--	12	wet Groundwater @ 12.0'		
14		100%	12					
			13					
			14					
15	S-8	2.0	15	--	6	light gray & brown; dense; wet		
16		100%	18					
			15					
			12					
17	S-9	2.0	6	--	8	brown; med dense; wet		
18		100%	9					
			10					
			11					
19	S-10	2.0	1	--	13	little silt; brown; loose; wet		
20		100%	2					
			5					
			5					3.85
21	S-11	1.4	1	--	8	SILT, some fine sand, trace clay; brown; v loose; wet		
22		70%	1					
			1					
			2					
23	S-12	2.0	3	--	5	SILT & FINE SAND, trace clay; brown; loose wet		
24		100%	4					
			4					
25	S-13	1.7	2	--	8	FINE SAND, some silt; gray; loose; wet		
26		85%	3					
			6					
			6					
27	S-14	2.0	1	--	10			
28		100%	2					
			2					
			3					
29	S-15	1.3	WOH	--	4	little silt; gray; loose; wet.		
30		65%	2					
			3					
			4					
			1					
						Match to Sheet 3		

DRILLING CO.: Parratt - Wolff

DRILLER: Layne Pech

BAKER REP.: Ken Tua

BORING NO.:

88-TW21IW

88-TW21IW

SHEET 2 OF 3

TEST BORING AND WELL CONSTRUCTION RECORD
PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:
88-TW21IW

SAMPLE TYPE						DEFINITIONS			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
31	S-16	2 100%	1	--	9	Continued from Sheet 2 trace silt; gray; v loose; wet			
32			2						
32			3						
33	S-17	2.0 100%	4	--	12	loose			
34			4						
34			6						
35	S-18	1.6 80%	1	--	11				
36			2						
36			3						
37	S-19	2.0 100%	1	--	7	v loose			
38			1						
38			3						
39	S-20	1.1 55%	1/12"	--	14	trace silt; brown; v loose; wet			
40			1/12"						
41			1/12"						
42	S-21	1.0 50%	1/12"	--	9				
42			1/12"						
43			1						
43	S-22	1.6 80%	1	--	10				
44			2						
44			2						
45	S-23	1.0 50%	1	--	14			45.0	
46			1						
46			3						
47	S-24	2.0 100%	1	--	17				
48			1						
48			3						
49	S-25	2.0 100%	WOH 12"	--	17				
50			1						
50			1						
						BOH @ 50.0 ft.		50.0	-26.15

DRILLING CO.: Parratt - Wolff
DRILLER: Layne Pech

BAKER REP.: Ken Tua
BORING NO.: 88-TW21IW

SHEET 3 OF 3

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.: 88-TW22

COORDINATES: EAST: 2496139.8330

NORTH: 339606.0350

ELEVATION: SURFACE: 23.36

TOP OF PVC CASING: 24.46

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/15/1997	0.0 - 25.0	Sunny, 70s	--	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing	1.0"	0	10
						Sch 40 PVC, 10-slot Screen	1.0"	10	25
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1									
2									
3									
4									
5	A-N	--	--	--	--	See the log for 88-TW22IW for lithologic details			
6									
7									
8									
9									
10						Match to Sheet 2			10.0 13.36

DRILLING CO.: Parratt - Wolff

BAKER REP.: Ken Tua

DRILLER: Layne Pech

BORING NO.: 88-TW22

SHEET 1 OF 2



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-TW22

<u>SAMPLE TYPE</u>						<u>DEFINITIONS</u>				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)				
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
11						Continued from Sheet 1				
12										
13										
14										
15										
16										
17										
18	A-N	--	--	--	--					
19										
20										
21										
22										
23										
24										
25	25.0							25.0	25.0	-1.64
26								BOH @ 25.0 ft.		
27										
28										
29										
30										

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-TW22 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-TW22IW
 COORDINATES: EAST: 2496140.4680 NORTH: 339601.6390
 ELEVATION: SURFACE: 23.34 TOP OF PVC CASING: 25.76

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/15/1997	0.0 - 50.0	Sunny, 70s	9.5	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing	1.0"	0	45
						Sch 40 PVC, 10-slot Screen	1.0"	45	50
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	S-1	1.7 85%	2	--	1	FINE SAND, trace silt; black; loose; damp gray med dense; moist to wet Groundwater @ 9.5'			
2			2.0						
3	S-2	1.6 80%	1	--	1				
4			4.0						
5	S-3	1.7 85%	6	--	0				
6			6.0						
7	S-4	1.7 85%	3	--	0				
8			8.0						
9	S-5	2.0 100%	4	--	6				
10			10.0						
						Match to Sheet 2			

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-TW22IW SHEET 1 OF 3

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-TW22IW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	S-6	1.7 85%	7 9	--	10	Continued from Sheet 1 wet		
12			9					
13	S-7	2.0 100%	9 12 15	--	10			
14			21					
15	S-8	1.5 75%	4 4 6	--	6	brown		
16			8					
17	S-9	1.8 90%	4 5 5	--	8			
18			8					
19	S-10	1.3 65%	5 5 6	--	7			
20			8					
21	S-11	1.2 60%	3 4 5	--	17	loose		
22			5					
23	S-12	2.0 100%	3 6 4	--	10	gray; med dense		
24			3					
25	S-13	2.0 100%	2 3 3	--	12	loose		
26			6					
27	S-14	2.0 100%	3 3 3	--	10			
28			4					
29	S-15	2.0 100%	1 1 1	--	9	brown; v loose		
30			1					
						Match to Sheet 3		

DRILLING CO.: Parratt - Wolff

DRILLER: Layne Pech

BAKER REP.:

BORING NO.:

Ken Tua

88-TW22IW

SHEET 2 OF 3



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-TW221W

SAMPLE TYPE							DEFINITIONS			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample							SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
31	S-16	1.3 65%	1 1	--	10	Continued from Sheet 2				
32			2							
33	S-17	2.0 100%	2 2	--	7					
34			2							
35	S-18	2.0 100%	WOH 12" 1	--	4					
36			1							
37	S-19	2.0 100%	WOH 12" 1	--	3					
38			1							
39	S-20	1.3 65%	WOH 12" 1	--	7					
40			1							
41	S-21	1.4 70%	WOH 12" 1	--	10					
42			1							
43	S-22	2.0 100%	1 2 3	--	20					
44			2							
45	S-23	2.0 100%	5 5	--	8	FINE to MEDIUM SAND, trace silt; brown; med dense; wet		45.0		
46			6							
47	S-24	2.0 100%	5 6	--	17	FINE SAND, trace silt; brown; med dense; wet				
48			6							
49	S-25	2.0 100%	8 15 15	--	8	dense				
50			15							
						BOH @ 50.0 ft.		50.0	-26.66	



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
CTO NO.: 62470-356 **BORING NO.:** 88-TW23
COORDINATES: EAST: 2496357.8900 **NORTH:** 339790.5120
ELEVATION: SURFACE: 23.97 **TOP OF PVC CASING:** 25.21

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/16/1997	0.0 - 25.0	Sunny, 60s	--	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks:

SAMPLE TYPE						WELL INFORMATION				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type		Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing		1.0"	0	10
						Sch 40 PVC, 10-slot Screen		1.0"	10	25
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)	
1										
2										
3										
4										
5	A-N	--	--	--	--	See the log for 88-TW23IW for lithologic details Match to Sheet 2.				
6										
7										
8										
9										
10								10.0	13.97	

DRILLING CO.: Parratt - Wolff **BAKER REP.:** Ken Tua
DRILLER: Layne Pech **BORING NO.:** 88-TW23 **SHEET 1 OF 2**



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-TW23

SAMPLE TYPE						DEFINITIONS				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)				
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
11						Continued from Sheet 1				
12										
13										
14										
15										
16										
17										
18	A-N	--	--	--	--					
19										
20										
21										
22										
23										
24										
25	25.0							25.0	25.0	-1.03
26								BOH @ 25.0 ft.		
27										
28										
29										
30										

DRILLING CO.: Parratt - Wolff BAKER REP.: Ken Tua
 DRILLER: Layne Pech BORING NO.: 88-TW23 SHEET 2 OF 2



Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-TW23IW
 COORDINATES: EAST: 2496362.1170 NORTH: 339789.2590
 ELEVATION: SURFACE: 23.99 TOP OF PVC CASING: 24.86

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/16/1997	0.0 - 50.0	Sunny, 60s	10.0	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

SAMPLE TYPE							WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample							Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
							Sch 40 PVC Casing	1.0"	0	45
							Sch 40 PVC, 10-slot Screen	1.0"	45	50
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)	
1	S-1	1.7	4	--	1	SILT & FINE SAND, black; loose; damp			21.99	
2		85%	2							2.0
3	S-2	2.0	4	--	12	CLAY, some fine sand, trace brick; black; stiff; damp			19.99	
4		100%	5							4.0
5	S-3	2.0	8	--	6	FINE SAND, trace silt; light gray; med dense; damp				
6		100%	3							
7	S-4	1.8	5	--	6					
8		90%	8							
9	S-5	2.0	5	--	9	moist				
10		100%	4			Groundwater @ 10.0'				
			2			Match to Sheet 2.				

DRILLING CO.: Parratt - Wolff BAKER REP.: Ken Tua
 DRILLER: Layne Pech BORING NO.: 88-TW23IW SHEET 1 OF 3

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-TW23IW

SAMPLE TYPE							DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample							SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
11	S-6	1.5 75%	4 5 6	--	8	Continued from Sheet 1 brown & orange; loose; wet			
12			8						
13	S-7	2.0 100%	8 5	--	7	gray & brown; med dense			
14			2						
15	S-8	2.0 100%	3 5 9	--	6	15.0		8.99	
16			11			16.0			
17	S-9	2.0 100%	5 8 8	--	7	FINE SAND, trace silt; gray; med dense; wet			
18			2						
19	S-10	2.0 100%	2 3 4	--	4	FINE SAND & SILT; gray; loose; wet			
20									
21	S-11	1.2 60%	WOH 12" 1 1	--	2	FINE SAND, little silt; gray; v loose; wet			
22									
23	S-12	1.8 90%	WOH 12" 1 1	--	2				
24									
25	S-13	2.0 100%	1 1 2 1	--	2	FINE SAND & SILT; gray; v loose; wet			
26									
27	S-14	1.7 85%	4 4 6 12	--	0	FINE SAND, trace silt; gray; loose; wet			
28									
29	S-15	2.0 100%	8 11 15 21	--	0	med dense			
30									
Match to Sheet 3									

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-TW23IW

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-TW231W

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
31	S-16	2.0 100%	6 9 8	--	4	Continued from Sheet 2		
32								
33	S-17	2.0 100%	1 24"	--	0	v loose		
34								
35	S-18	2.0 100%	8 3 2	--	0	loose		
36								
37	S-19	2.0 100%	1 1 1	--	4	little silt; gray; v loose; wet		
38								
39	S-20	2.0 100%	1 1 1	--	4			
40								
41	S-21	2.0 100%	WOH 12" 1 1	--	4			
42								
43	S-22	2.0 100%	2 1 WOH 12"	--	2	brown		
44								
45	S-23	2.0 100%	1 2 3	--	2	trace silt; gray; loose; wet		45.0
46								
47	S-24	2.0 100%	3 8 12 20	--	3	brown; med dense		
48								
49	S-25	2.0 100%	10 10 14 20	--	3	gray		
50								
50.0						BOH @ 50.0 ft.	50.0	50.0
								-21.01
								-26.01

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-TW231W

Baker**Baker Environmental****TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-TW24
 COORDINATES: EAST: 2496037.6610 NORTH: 339877.5650
 ELEVATION: SURFACE: 24.32 TOP OF PVC CASING: 25.82

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/16/1997	0.0 - 25.0	Sunny, 70s	--	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing	1.0"	0	10
						Sch 40 PVC, 10-slot Screen	1.0"	10	25

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1								
2								
3								
4								
5	A-N	--	--	--	--	See the log for 88-TW24IW for lithologic details		
6								
7								
8								
9								
10								10.0

Match to Sheet 2

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-TW24 SHEET 1 OF 2



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-TW24

<u>SAMPLE TYPE</u>						<u>DEFINITIONS</u>				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)				
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
11						Continued from Sheet 1				
12										
13										
14										
15										
16										
17										
18	A-N	--	--	--	--					
19										
20										
21										
22										
23										
24										
25	25.0							25.0	25.0	-0.68
26								BOH @ 25.0 ft.		
27										
28										
29										
30										

DRILLING CO.: Parratt - Wolff BAKER REP.: Ken Tua
 DRILLER: Layne Pech BORING NO.: 88-TW24 SHEET 2 OF 2



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
CTO NO.: 62470-356 **BORING NO.:** 88-TW24IW
COORDINATES: EAST: 2496034.1550 **NORTH:** 339877.5260
ELEVATION: SURFACE: 24.17 **TOP OF PVC CASING:** 25.82

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/16/1997	0.0 - 50.0	Sunny, 70s	10.0	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks:

SAMPLE TYPE						WELL INFORMATION				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type		Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing		1.0"	0	45
						Sch 40 PVC, 10-slot Screen		1.0"	45	50
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)	
1	S-1	1.7 85%	6	--	0	SILT, trace fine sand; black; loose; damp				
2			5							
2			4							
3	S-2	1.6 80%	2	--	0	moist				
3			2							
4			1							
5	S-3	1.5 75%	4	--	12	moist				
5			4							
6			4							
6	S-4	2.0 100%	4	--	6	FINE SAND, trace silt; brown; loose; moist				
7			5							
8			5							
8	S-5	2.0 100%	3	--	1	SILT, some fine sand, trace clay; gray; loose; moist				
9			3							
10			3							
10			2			Groundwater @ 10.0'			18.17	
						Match to Sheet 2			16.17	

DRILLING CO.: Parratt - Wolff
DRILLER: Layne Pech

BAKER REP.: Ken Tua
BORING NO.: 88-TW24IW SHEET 1 OF 3

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-TW24IW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	S-6	2.0 100%	2 3	--	3	Continued from Sheet 1		12.17
12			4					
13	S-7	2.0 100%	14 13	--	3	FINE SAND, little silt; gray; med dense; wet		4.17
14			20					
15	S-8	2.0 100%	14 18 20	--	3	trace silt; gray; dense; wet		
16			24					
17	S-9	2.0 100%	14 20 19	--	3			
18			24					
19	S-10	2.0 100%	8 4 4	--	0	loose		
20			8					
21	S-11	1.0 50%	2 3 6	--	0	SILT, some fine sand; black; loose; wet		
22			9					
23	S-12	2.0 100%	8 2 2	--	2	little fine sand; black; loose; wet		
24			1					
25	S-13	1.6 80%	1 1 1	--	5	trace fine sand; black; v loose; wet		
26			1					
27	S-14	2.0 100%	3 3 3	--	0	little clay; black; med stiff; wet		
28			1					
29	S-15	1.0 50%	1 1 1	--	0	soft		
30			1					
						Match to Sheet 3		

DRILLING CO.: Parratt - Wolff
DRILLER: Layne Pech

BAKER REP.: Ken Tua
BORING NO.: 88-TW24IW

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-TW24IW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
31	S-16	1.3 65%	2	--	0	Continued from Sheet 2		
32			1					
33	S-17	1.5 75%	2	--	0	med stiff		
34			3					
35	S-18	2.0 100%	2	--	5	trace clay; black; med stiff; wet		
36			4					
37	S-19	2.0 100%	4	--	5			
38			3					
39	S-20	2.0 100%	4	--	3	FINE SAND & SILT; black; v loose; wet		
40			1					
41	S-21	2.0 100%	2	--	3	loose		
42			3					
43	S-22	1.8 90%	4	--	0	v loose		
44			3					
45	S-23	2.0 100%	1	--	0	FINE SAND, some silt; black; v loose; wet		45.0
46			1					
47	S-24	2.0 100%	2	--	0	trace silt; black; loose; wet		
48			3					
49	S-25	2.0 100%	5	--	0	med dense		
50			8					
			10					
			10					
						BOH @ 50.0 ft.		

DRILLING CO.: Parratt - Wolff
DRILLER: Layne Pech

BAKER REP.: Ken Tua
BORING NO.: 88-TW24IW

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.: 88-TW25

COORDINATES: EAST: 2496370.0380

NORTH: 340089.8010

ELEVATION: SURFACE: 24.68

TOP OF PVC CASING: 26.51

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/17/1997	0.0 - 25.0	Sunny, 70s	--	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks:**SAMPLE TYPE**

S = Split Spoon A = Auger
 T = Shelby Tube W = Wash
 R = Mud Rotary C = Core
 D = Denison P = Piston
 N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Sch 40 PVC Casing	1.0"	0	10
Sch 40 PVC, 10-slot Screen	1.0"	10	25

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1								
2								
3								
4								
5	A-N	--	--	--	--	See the log for 88-TW251W for lithologic details		
6								
7								
8								
9								
10								10.0
						Match to Sheet 2		

DRILLING CO.: Parratt - Wolff

BAKER REP.: Ken Tua

DRILLER: Layne Pech

BORING NO.: 88-TW25

SHEET 1 OF 2



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-TW25

<u>SAMPLE TYPE</u>						<u>DEFINITIONS</u>				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)				
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
11						Continued from Sheet 1				
12										
13										
14										
15										
16										
17										
18	A-N	--	--	--	--					
19										
20										
21										
22										
23										
24										
25	25.0							25.0	25.0	-0.32
26								BOH @ 25.0 ft.		
27										
28										
29										
30										

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-TW25 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.: 88-TW25IW

COORDINATES: EAST: 2496369.4370

NORTH: 340085.2520

ELEVATION: SURFACE: 24.66

TOP OF PVC CASING: 25.80

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/17/1997	0.0 - 50.0	Sunny, 70s	14.0	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks:**SAMPLE TYPE**

S = Split Spoon A = Auger

T = Shelby Tube W = Wash

R = Mud Rotary C = Core

D = Denison P = Piston

N = No Sample

WELL INFORMATION

Type

Diam.

Top Depth (Ft.)

Bottom Depth (Ft.)

Sch 40 PVC Casing

1.0"

0

45

Sch 40 PVC, 10-slot Screen

1.0"

45

50

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1	S-1	1.5 75%	4	--	0	SILT, trace clay; black; v stiff, damp		
2			8					
2			7					
3	S-2	2.0 100%	4	--	0	m stiff		
3			3					
4			3					
4			2					
5	S-3	2.0 100%	3	--	0	some fine sand; light brown; loose; damp		
5			3					
6			4					
6			4				6.0	18.66
7	S-4	2.0 100%	4	--	0	FINE SAND, some silt; light brown; loose; damp		
7			4					
8			4					
8			5					
9	S-5	2.0 100%	4	--	1	trace silt; brown & white; loose; damp		
9			4					
10			5					
10			6					
			4			Match to Sheet 2		

DRILLING CO.: Parratt - Wolff

BAKER REP.: Ken Tua

DRILLER: Layne Pech

BORING NO.:

88-TW25IW

SHEET 1 OF 3



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-TW25IW

SAMPLE TYPE							DEFINITIONS			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample							SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
11	S-6	2.0 100%	5	--	0	Continued from Sheet 1 brown; med dense; moist				
12			5							
13			7							
13	S-7	2.0 100%	9	--	1	little silt; brown; med dense; moist to wet				
14			9							
15			11							
15	S-8	2.0 100%	7	--	1	wet Groundwater @ 14.0'				
16			9							
17			6							
17	S-9	2.0 100%	2	--	1	gray				
18			2							
19			3							
19	S-10	2.0 100%	1	--	1	some silt; gray/brown; v loose; wet				
20			1							
21			1							
21	S-11	0.0 0%	1	--	--					
22			1							
23			2							
23	S-12	2.0 100%	5	--	0	FINE SAND & SILT; gray; med dense; wet				
24			5							
25			6							
25	S-13	2.0 100%	1	--	0	v loose				
26			1							
27			3							
27	S-14	2.0 100%	3	--	0					
28			4							
29			7							
28	S-15	2.0 100%	10	--	0	some silt; gray; med dense; wet				
29			4							
30			4							
30			6							
			1			Match to Sheet 3				

DRILLING CO.: Parratt - Wolff BAKER REP.: Ken Tua
 DRILLER: Layne Pech BORING NO.: 88-TW25IW SHEET 2 OF 3

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356

BORING NO.: 88-TW25IW

SAMPLE TYPE							DEFINITIONS			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample							SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
31	S-16	2.0	2	--	0	Continued from Sheet 2 trace silt; gray; loose; wet				
32		100%	2							
			4							
33	S-17	1.3	1/12"	--	0	v loose				
34		65%	1/12"							
35	S-18	0.5	1/12"	--	0					
36		25%	1/12"							
37	S-19	0.6	WOH	--	0					
38		30%	24"							
39	S-20	1.4	1	--	3	little silt; gray; v loose; wet				
40		70%	1							
			1							
41	S-21	0.4	1/12"	--	2	trace silt; brown; v loose; wet				
42		20%	1/12"							
43	S-22	1.0	WOR	--	2					
44		50%	24"							
45	S-23	0.8	2	--	6	some silt; brown; med dense; wet		45.0		
46		40%	6							
			11							
47	S-24	2.0	7	--	2	little silt; brown; dense; wet				
48		100%	12							
			22							
49	S-25	2.0	--	--	2					
50		100%	--							
			--							
						50.0		50.0		
BOH @ 50.0 ft.									-25.34	

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-TW25IW SHEET 3 OF 3

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.: 88-TW26

COORDINATES: EAST: 2496673.9350

NORTH: 339761.6710

ELEVATION: SURFACE: 25.79

TOP OF PVC CASING: 27.40

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/17/1997	0.0 - 25.0	Sunny, 70s	--	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks:**SAMPLE TYPE**

S = Split Spoon A = Auger
 T = Shelby Tube W = Wash
 R = Mud Rotary C = Core
 D = Denison P = Piston
 N = No Sample

WELL INFORMATION

Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
Sch 40 PVC Casing	1.0"	0	10
Sch 40 PVC, 10-slot Screen	1.0"	10	25

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
1								
2								
3								
4								
5	A-N	--	--	--	--	See the log for 88-TW261W for lithologic details		
6								
7								
8								
9								
10							Match to Sheet 2	10.0

DRILLING CO.: Parratt - Wolff

BAKER REP.: Ken Tua

DRILLER: Layne Pech

BORING NO.: 88-TW26

SHEET 1 OF 2

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.: 88-TW26

88-TW26

SAMPLE TYPE						DEFINITIONS			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
11						Continued from Sheet 1			
12									
13									
14									
15									
16									
17									
18	A-N	--	--	--	--				
19									
20									
21									
22									
23									
24									
25	25.0					25.0	25.0	0.79	
26						BOH @ 25.0 ft.			
27									
28									
29									
30									

DRILLING CO.: Parratt - Wolff

DRILLER: Layne Pech

BAKER REP.: Ken Tua

BORING NO.: 88-TW26

Ken Tua

88-TW26

SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.: 88-TW26IW

COORDINATES: EAST: 2496676.2020

NORTH: 339759.4590

ELEVATION: SURFACE: 25.78

TOP OF PVC CASING: 27.82

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time			
Split Spoon	Casing	Augers	Core Barrel									
Size (ID)	1-3/8"	--	2-1/4"	--	4/17/1997	0.0 - 50.0	Sunny, 70s	10.0	--			
Length	2.0'	--	5.0'	--								
Type	Stainless	--	HSA	--								
Hammer Wt.	140 lbs.	--	--	--								
Fall	30"	--	--	--								
Stickup	--	--	--	--								
Remarks:												
SAMPLE TYPE					WELL INFORMATION							
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample					Type		Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)			
					Sch 40 PVC Casing		1.0"	0	45			
					Sch 40 PVC, 10-slot Screen		1.0"	45	50			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)			
1	0.5	A-N	--	--	--	Asphalt						
		S-1	1 67%	7 8	--	0				SILT, little fine sand; brown; med dense; damp		
2	2.0	S-2	2.0 100%	4	--	0						
				4								
3	4.0	S-3	1.5 75%	4	--	10						
				7								
4	6.0	S-4	2.0 100%	9	--	0						
				7								
5	8.0	S-5	2.0 100%	4	--	3						
				8								
6	10.0	S-5	2.0 100%	9	--	3						
				7								
7	10.0	S-5	2.0 100%	12"	--	3						
				2								
8	10.0	S-5	2.0 100%	1	--	3						
				2								
9	10.0	S-5	2.0 100%	1	--	3						
				2								
10	10.0	S-5	2.0 100%	1	--	3						
				2								
			WOH									
						Groundwater @ 10.0'	10.0		15.78			
						Match to Sheet 2						

DRILLING CO.: Parratt - Wolff

BAKER REP.: Ken Tua

DRILLER: Layne Pech

BORING NO.: 88-TW26IW SHEET 1 OF 3



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-TW26IW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	S-6	2.0 100%	/12" 2	--	0	Continued from Sheet 1 SILT & CLAY ; trace fine sand; gray; soft; wet		
12			2					
13	S-7	1.2 60%	WOH 1	--	6	SILT , trace fine sand & clay; gray; soft; wet		11.78
14			1					
15	S-8	2.0 100%	4 8	--	0	CLAY , some fine sand; gray; v stiff; wet		9.78
16			8					
17	S-9	2.0 100%	2 3	--	5	FINE SAND , little silt; brown & gray; loose; wet		
18			4					
19	S-10	2.0 100%	7 6	--	5	with silt; orange; med dense; wet		
20			6					
21	S-11	1.7 85%	WOH 1	--	8	green & yellow; loose; wet		
22			3					
23	S-12	1.8 90%	5 10	--	5	some silt; blue-green; med dense; wet		
24			17					
25	S-13	1.6 80%	18 19	--	0	little silt part. cemented; blue-green; dense; moist		
26			13					
27	S-14	2.0 100%	13 15	--	0			
28			17					
29	S-15	2.0 100%	6 12	--	0	with silt; light gray to white; med dense; moist		
30			11					
			14			Match to Sheet 3		

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-TW26IW SHEET 2 OF 3

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-TW26IW

SAMPLE TYPE						DEFINITIONS			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
31	S-16	1.7	9	--	0	Continued from Sheet 2 some silt-part. cemented; gray w/ white bands; med dense; moist			
32	32.0	85%	9		22				
33	S-17	2.0	12	--	0	as above w/ trace shell frag; dense; moist			
34	34.0	100%	16		19				
			20						
35	S-18	0.5	5	--	0	v dense			
		25%	10						
36	36.0		22		20				
			28						
37	S-19	2.0	28	--		dense			
		100%	28						
38	38.0		36						
			12						
39	S-20	2.0	24	--	0	FINE to MEDIUM SAND, trace silt & fossil frag; gray; med dense; wet			
		100%	25						
40	40.0		36						
			4						
41	S-21	2.0	4	--	2	with silt, trace fossil frag; gray; med dense; wet			
		100%	12						
42	42.0		16						
			4						
43	S-22	2.0	12	--	2	v dense			
		100%	14						
44	44.0		25						
			10						
45	S-23	2.0	25	--	2	with silt, little fossil frag; gray; wet		45.0	
		100%	27						
46	46.0		22						
			--						
47	S-24	2.0	--	--	2				
		100%	--						
48	48.0		--						
			--						
49	S-25	2.0	--	--	2				
		100%	--						
50	50.0		--						
						50.0		50.0	
						BOH @ 50.0 ft.			-24.22

DRILLING CO.: Parratt - Wolff

DRILLER: Layne Pech

BAKER REP.: Ken Tua

BORING NO.:

88-TW26IW

SHEET 3 OF 3

Baker**Baker Environmental****TEST BORING AND WELL CONSTRUCTION RECORD**

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-TW27
 COORDINATES: EAST: 2495960.6560 NORTH: 339580.763
 ELEVATION: SURFACE: 22.60 TOP OF PVC CASING: 23.96

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/29/1997	0.0 - 25.0	Drizzle, 60s	--	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing	2.0"	0	10
						Sch 40 PVC, 10-slot Screen	2.0"	10	25
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1									
2									
3									
4									
5	A-N	--	--	--	--	See the log for 88-TW27IW for lithologic details			
6									
7									
8									
9									
10									
						Match to Sheet 2		10.0	12.60

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-TW27 SHEET 1 OF 2

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-TW27

SAMPLE TYPE						DEFINITIONS				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)				
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)		
11						Continued from Sheet 1				
12										
13										
14										
15										
16										
17										
18	A-N	--	--	--	--					
19										
20										
21										
22										
23										
24										
25	25.0							25.0	25.0	-2.40
26								BOH @ 25.0 ft.		
27										
28										
29										
30										

DRILLING CO.: Parratt - Wolff
DRILLER: Layne Pech

BAKER REP.: Ken Tua
BORING NO.: 88-TW27

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-TW271W
 COORDINATES: EAST: 2495959.4540 NORTH: 339575.5000
 ELEVATION: SURFACE: 22.68 TOP OF PVC CASING: 24.26

Rig:	CME-55				Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Size (ID)	1-3/8"	--	2-1/4"	--	4/29/1997	0.0 - 50.0	Drizzle, 60s	10.0	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks:

SAMPLE TYPE						WELL INFORMATION							
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)				
						Sch 40 PVC Casing	2.0"	0	45				
						Sch 40 PVC, 10-slot Screen	2.0"	45	50				
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)				
1	S-1	1.3 65%	2	--	0	FINE SAND & SILT; black; loose; damp							
2			4										
3	S-2	1.4 70%	4	--	0								
4			4										
5	S-3	1.8 90%	2	--	0								
6			3										
7	S-4	2.0 100%	4	--	0					light gray to light brown			
8			4										
9	S-5	2.0 100%	4	--	0					light brown; loose; moist			
10			5										
			6			Groundwater @ 10.0'							
			3			Match to Sheet 2							

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-TW271W SHEET 1 OF 3

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-TW27IW

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)
11	S-6	2.0 100%	6	--	0	Continued from Sheet 1 wet		
12			8					
12			10					
13	A-N	--	--	--	--			
14								
15								
16								
17								
18								
19								
20								
20	S-7	2.0 100%	3	--		FINE SAND & SILT; brown; med dense; wet		
21			6					
22			7					
22	17							
23	A-N	--	--	--	--			
24								
25								
26								
27								
28								
29								
30								
30	Match to Sheet 3							

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-TW27IW SHEET 2 OF 3



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-TW271W

<u>SAMPLE TYPE</u>						<u>DEFINITIONS</u>			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)			
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft., %)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
31	S-8	1.0 50%	W.O.H. 24"	--	0	Continued from Sheet 2 FINE SAND & SILT; yellow/green; v loose; wet			
32									32.0
33	A-N	--	--	--	--				
34									
35									
36									
37									
38									
39									
40									
40	S-9	1.0 50%	2 5 5	--	0	FINE SAND , some silt; brown; loose; wet			
41									41.0
42									42.0
43	A-N	--	--	--	--				
44									
45									
46									
47									
48									
48	S-10	1.0 50%	1 1 1 2	--	0	FINE to MEDIUM SAND , some silt; brown; v loose; wet			
49									49.0
50									50.0
50									50.0
						BOH @ 50.0 ft.			

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-TW271W SHEET 3 OF 3



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
CTO NO.: 62470-356 **BORING NO.:** 88-TW28
COORDINATES: EAST: 2495979.6630 **NORTH:** 339758.4390
ELEVATION: SURFACE: 24.35 **TOP OF PVC CASING:** 25.35

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/29/1997	0.0 - 25.0	Cloudy, 60s	--	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks:

SAMPLE TYPE						WELL INFORMATION				
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type		Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing		2.0"	0	10
						Sch 40 PVC, 10-slot Screen		2.0"	10	25
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)	
1										
2										
3										
4										
5	A-N	--	--	--	--	See the log for 88-TW28IW for lithologic details Match to Sheet 2				
6										
7										
8										
9										
10								10.0	14.35	

DRILLING CO.: Parratt - Wolff
DRILLER: Layne Pech

BAKER REP.: Ken Tua
BORING NO.: 88-TW28 SHEET 1 OF 2



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-TW28

<u>SAMPLE TYPE</u>						<u>DEFINITIONS</u>						
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)						
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)			
11						Continued from Sheet 1						
12												
13												
14												
15												
16												
17												
18	A-N	--	--	--	--							
19												
20												
21												
22												
23												
24												
25	25.0								25.0	25.0	25.0	-0.65
26									BOH @ 25.0 ft.			
27												
28												
29												
30												

DRILLING CO.: Parratt - Wolff BAKER REP.: Ken Tua
 DRILLER: Layne Pech BORING NO.: 88-TW28 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.: 88-TW28IW

COORDINATES: EAST: 2495978.5990

NORTH: 339762.8440

ELEVATION: SURFACE: 24.63

TOP OF PVC CASING: 27.05

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	4/29/1997	0.0 - 50.0	Cloudy, 60s	11.0	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks:

SAMPLE TYPE						WELL INFORMATION			
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample						Type	Diam.	Top Depth (Ft.)	Bottom Depth (Ft.)
						Sch 40 PVC Casing	2.0"	0	45
						Sch 40 PVC, 10-slot Screen	2.0"	45	50
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail		Elevation (Ft. MSL)
1	S-1	1.7 85%	--	--	0	FINE SAND & SILT; tan; damp brown brown; moist Match to Sheet 2			
2			--						
3	S-2	1.8 90%	--	--	0				
4			--						
5	S-3	2.0 100%	--	--	0				
6			--						
7	S-4	2.0 100%	--	--	0				
8			--						
9	S-5	2.0 100%	--	--	0				
10			--						

DRILLING CO.: Parratt - Wolff

BAKER REP.: Ken Tua

DRILLER: Layne Pech

BORING NO.: 88-TW28IW

SHEET 1 OF 3



TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-TW281W

<u>SAMPLE TYPE</u>							<u>DEFINITIONS</u>					
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample							SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)					
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)				
11	S-6	2.0 100%	--	--	0	Continued from Sheet 1 FINE SAND , some silt; brown; moist Groundwater @ 11.0' wet						
12			12.0	--					--			
13	S-7	2.0 100%	--	--	0							
14			14.0	--							--	
15	A-N	--	--	--	--							
16			--	--								
17			--	--								
18			--	--								
19			--	--								
20			20.0	--								
21	S-8	2.0 100%	--	--	--	FINE SAND , some silt; brown/orange; wet						
22			22.0	--				--				
23	A-N	--	--	--	--							
24			--	--								
25			--	--								
26			--	--								
27			--	--								
28			--	--								
29			--	--								
30			30.0	--						--		
Match to Sheet 3												

DRILLING CO.: Parratt - Wolff BAKER REP.: Ken Tua
 DRILLER: Layne Pech BORING NO.: 88-TW281W SHEET 2 OF 3

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356

BORING NO.: 88-TW28IW

<p>SAMPLE TYPE S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Mud Rotary C = Core D = Denison P = Piston N = No Sample</p>							<p>DEFINITIONS SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)</p>		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (Ft. MSL)	
31	S-9	2.0 100%	--	--	0	Continued from Sheet 2 FINE SAND & SILT; light brown; wet			
32	32.0		--						
33	A-N	--	--	--	--				
34									
35									
36									
37									
38									
39									
40									
40	40.0		--	--	0	FINE SAND & SILT; light brown; wet			
41	S-9	2.0 100%	--	--	0				
42	42.0		--						
43	A-N	--	--	--	--				
44									
45									
46									
47									
48									
48	48.0		--	--	0	FINE to MEDIUM SAND & SILT; light gray; wet		45.0 -20.37	
49	S-10	1.0 50%	--	--	0				
50	50.0		--						
BOH @ 50.0 ft.							50.0	50.0	-25.37

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Ken Tua
 BORING NO.: 88-TW28IW SHEET 3 OF 3



TEST BORING RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-SB01
 COORDINATES: EAST: _____ NORTH: _____
 ELEVATION: SURFACE: _____ TOP OF PVC CASING: _____

Rig: Hand Auger					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	--	--	--	--	4/19/97	0.0 - 3.4	Sunny, 50s	--	--
Length	--	--	--	--					
Type	--	--	--	--					
Hammer Wt.	--	--	--	--					
Fall	--	--	--	--					
Stickup	--	--	--	--					

Remarks:

<u>SAMPLE TYPE</u>	<u>DEFINITIONS</u>
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample	SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Elevation (Ft. MSL)
0.3						Concrete floor	
1							
2	A-N	--	--	--	--		
3							
3.4							3.4
4						BOH @ 3.4 ft.	
5							
6							
7							
8							
9							
10							

DRILLING CO.: Parratt - Wolff BAKER REP.: Ken Tua
 DRILLER: Layne Pech BORING NO.: 88-SB01 SHEET 1 OF 1

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-SB02

COORDINATES: EAST: _____

NORTH: _____

ELEVATION: SURFACE: _____

TOP OF PVC CASING: _____

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	5/7/97	0.0 - 22.0	Sunny, 60s	9.5	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks:**SAMPLE TYPE**

S = Split Spoon A = Auger
 T = Shelby Tube W = Wash
 R = Air Rotary C = Core
 D = Denison P = Piston
 N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
 PID = Photo Ionization Detector measurement
 Lab Class = USCS (ASTM D2487)

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1			8			FINE SAND, trace gravel & silt; dk brown; med dense; damp	
0.5							
2	S-1	1.0 50%	7 8	--	0.6 0.6	trace wood, silt & clay; brown; loose; damp	
3			3				
4	S-2	1.0 50%	4 4	--	0.6 0.6		
4.0			6				
5	S-3	1.8 90%	2 5 8	--	300 0.6	little silt; brown; med dense; damp	
6			4			trace silt; brown & gray; med dense; moist	
7	S-4	1.6 80%	6 9	--	40 0.6		
8			4				
9	S-5	1.5 75%	4 5 4	--	0.6 0.6	little silt, trace clay; brown & gray; loose; moist to wet Groundwater @ 9.5'	
10			9			Match to Sheet 2	
			4				

DRILLING CO.: Parratt - Wolff

BAKER REP.:

Mark DeJohn

DRILLER: Layne Pech

BORING NO.:

88-SB02

SHEET 1 OF 2



TEST BORING RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-SB02

SAMPLE TYPE						DEFINITIONS									
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)									
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Elevation (Ft. MSL)								
11	S-6	2.0 100%	10	--	--	Continued from Sheet 1 little silt, trace clay; brown; med dense; wet									
12			10												
13	S-7	1.6 80%	7	--	--			little silt; brown; loose; wet							
14			4												
15	S-8	1.1 55%	4	--	--					little silt; dark gray; med dense; wet					
16			5												
17	S-9	1.1 55%	4	--	--							little silt & clay; dark gray; stiff; wet			
18			9												
19	S-10	0.5 25%	7	--	--									some silt & clay; dark gray; soft; wet	
20			1												
21	S-11	0.8 40%	1	--	--	CLAY, some silt, trace fine sand; dark reddish-brown; v soft; wet									
22			12"												
23			1					BOH @ 22.0 ft.							
24															
25															
26															
27															
28															
29															
30															

DRILLING CO.: Parratt - Wolff BAKER REP.: Mark DeJohn
 DRILLER: Layne Pech BORING NO.: 88-SB02 SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.: 88-SB03

COORDINATES: EAST: _____

NORTH: _____

ELEVATION: SURFACE: _____

TOP OF PVC CASING: _____

Rig: Hand Auger					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	--	--	--	--	4/19/97	0.0 - 3.4	Sunny, 50s	--	--
Length	--	--	--	--					
Type	--	--	--	--					
Hammer Wt.	--	--	--	--					
Fall	--	--	--	--					
Stickup	--	--	--	--					

Remarks:**SAMPLE TYPE**

S = Split Spoon A = Auger
 T = Shelby Tube W = Wash
 R = Air Rotary C = Core
 D = Denison P = Piston
 N = No Sample

DEFINITIONS

SPT = Standard Penetration Test (ASTM D1586)
 PID = Photo Ionization Detector measurement
 Lab Class = USCS (ASTM D2487)

Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Elevation (Ft. MSL)
1						Concrete floor	
2	A-N	--	--	--	--	FINE SAND, some silt; tan, becoming black with depth	
3							
4						BOH @ 3.4 ft.	3.4
5							
6							
7							
8							
9							
10							

DRILLING CO.: Parratt - Wolff

BAKER REP.: Ken Tua

DRILLER: Layne Pech

BORING NO.: 88-SB03

SHEET 1 OF 1



TEST BORING RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-SB04
 COORDINATES: EAST: _____ NORTH: _____
 ELEVATION: SURFACE: _____ TOP OF PVC CASING: _____

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	5/6/97	0.0 - 22.0	M Sunny, 70s	9.0	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks:

SAMPLE TYPE					DEFINITIONS			Elevation (Ft. MSL)
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description		
1	S-1	1.8 90%	2	--	0.6 0.6	FINE SAND, trace silt & clay; dark brown; loose; damp		
2			4					
3	S-2	1.9 95%	2	--	0.6 0.6			
4			3					2
5	S-3	1.5 75%	1	--	0.6 0.6			little silt & clay; lt & dk brown; v soft; moist
6			12"					
7	S-4	1.8 90%	1	--	0.8 0.6			trace silt; brown; loose; moist
8			3					
9	S-5	2.0 100%	3	--	--			trace silt; brown & gray mottles; loose; wet Groundwater @ 9.0'
10			4					
			4			Match to Sheet 2		

DRILLING CO.: Parratt - Wolff BAKER REP.: Mark DeJohn
 DRILLER: Layne Pech BORING NO.: 88-SB04 SHEET 1 OF 2

TEST BORING RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-SB04

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
11	S-6	1.6 80%	6	--	--	Continued from Sheet 1 trace silt; gray; med dense; wet little silt, trace clay; dark gray; loose; wet CLAY, little silt, trace wood & fine sand; dk grayish-brown; wet		
12			6					
13	S-7	2.0 100%	2	--	--			
14			2					
15	T-1	0.0 0%	--	--	--			
16			--					
17	S-8	2.0 100%	3	--	--			
18			3					
19	S-9	1.8 90%	--	--	--			18.0
20			--					
21	T-2	2.0 100%	--	--	--			
22			--					
23						BOH @ 22.0 ft.		
24								
25								
26								
27								
28								
29								
30							22.0	

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Mark DeJohn
 BORING NO.: 88-SB04 SHEET 2 OF 2



TEST BORING RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune
 CTO NO.: 62470-356 BORING NO.: 88-SB05
 COORDINATES: EAST: _____ NORTH: _____
 ELEVATION: SURFACE: _____ TOP OF PVC CASING: _____

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Split Spoon	Casing	Augers	Core Barrel						
Size (ID)	1-3/8"	--	2-1/4"	--	5/7/97	0.0 - 22.0	M Sunny, 70s	11.0	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					

Remarks:

SAMPLE TYPE						DEFINITIONS		
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)		
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Elevation (Ft. MSL)	
1	S-1	1.4 70%	3	--	0.2 0.2	FINE SAND, little silt, trace gravel & clay; dark brown; med dense; damp		
2			8					
2	2.0	7						
3	S-2	1.4 70%	4	--	0.2 0.2			
3			4					
4	4.0	3						
4	4							
5	S-3	2.0 100%	3	--	0.2 0.2			
5			2					
6	6.0	3						
6	3							
7	S-4	1.8 90%	6	--	0.2 0.2			
7			9					
8	8.0	9						
8	7							
9	S-5	2.0 100%	7	--	0.4 0.4			
9			12					
10	10.0	12						
10	11							
			2			Match to Sheet 2		

DRILLING CO.: Parratt - Wolff BAKER REP.: Mark DeJohn
 DRILLER: Layne Pech BORING NO.: 88-SB05 SHEET 1 OF 2

TEST BORING RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.: 88-SB05

88-SB05

SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	S-6	2.0 100%	5	--	--	Continued from Sheet 1 some silt & clay; brown; med stiff; wet Groundwater @ 11.0'	
12			3				
			4				
13	S-7	1.7 85%	8	--	--	trace silt w/ thin clayey layers; brown; med dense; wet	
			7				
14			7				
			3				
15	S-8	1.4 70%	4	--	--	trace silt w/ clayey zone @ 15.6'; gray; loose; wet	
			3				
16			6				
			6				
17	S-9	1.8 90%	7	--	--	trace silt; gray; med dense; wet	
			12				
18			14				
			2				
19	S-10	1.4 70%	3	--	--	little silt; gray; loose; wet	
			3				
20			3				
			2				
21	S-11	1.3 65%	2	--	--	as above w/ thin clayey layer @ 21.5'	
			5				
22			7				22.0
						BOH @ 22.0 ft.	
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: Parratt - Wolff

DRILLER: Laayne Pech

BAKER REP.: Mark DeJohn

BORING NO.: 88-SB05

Mark DeJohn

88-SB05

SHEET 2 OF 2

Baker

Baker Environmental

TEST BORING RECORDPROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp LejeuneCTO NO.: 62470-356BORING NO.: 88-SB06

COORDINATES: EAST: _____

NORTH: _____

ELEVATION: SURFACE: _____

TOP OF PVC CASING: _____

Rig: CME-55					Date	Progress (Ft.)	Weather	Depth to Water (Ft.)	Time
Size (ID)	Split Spoon	Casing	Augers	Core Barrel					
	1-3/8"	--	2-1/4"	--	5/7/97	0.0 - 22.0	M Sunny, 70s	8.5	--
Length	2.0'	--	5.0'	--					
Type	Stainless	--	HSA	--					
Hammer Wt.	140 lbs.	--	--	--					
Fall	30"	--	--	--					
Stickup	--	--	--	--					
Remarks:									
SAMPLE TYPE S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample					DEFINITIONS SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)				
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Elevation (Ft. MSL)		
1	S-1	1.4 70%	1 1 12"	--	0.4 0.4	FINE SAND, trace gravel & silt; dk brown; v loose; damp little silt, trace clay; brown; v loose; wet trace silt; brown & gray; loose; moist to wet Groundwater @ 8.5'			
2			1						
3	S-2	1.3 65%	WOH 1 2	--	0.2 0.2				
4			2						
5	S-3	1.5 75%	1 2	--	0.6 0.2				
6			3						
7	S-4	1.8 90%	5 5	--	0.4 0.4				
8			5						
9	S-5	2.0 100%	4 5	--	--				
10			8 13						
			2			Match to Sheet 2			

DRILLING CO.: Parratt - WolffBAKER REP.: Mark DeJohnDRILLER: Layne PechBORING NO.: 88-SB06

SHEET 1 OF 2

TEST BORING RECORD

PROJECT: Phase II Investigation at Sites 88, 89, and 93 - MCB Camp Lejeune

CTO NO.: 62470-356

BORING NO.:

88-SB06

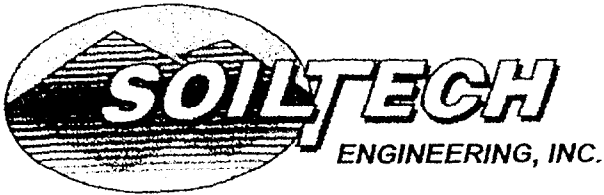
SAMPLE TYPE						DEFINITIONS	
S = Split Spoon A = Auger T = Shelby Tube W = Wash R = Air Rotary C = Core D = Denison P = Piston N = No Sample						SPT = Standard Penetration Test (ASTM D1586) PID = Photo Ionization Detector measurement Lab Class = USCS (ASTM D2487)	
Depth (Ft.)	Sample Type & No.	Sample Rec. (Ft.,%)	SPT	Lab Class.	PID (ppm)	Visual Description	Elevation (Ft. MSL)
11	S-6	2.0 100%	4	--	--	Continued from Sheet 1 trace silt gray; loose; wet	
12			6				
13			8				
13	S-7	1.9 95%	4	--	--		
14			5				
14	S-8	1.3 65%	12	--	--	little silt; dark gray; med dense; wet	
15			3				
16			6				
16	S-9	1.4 70%	9	--	--	trace silt; gray; dense; wet	
17			8				
18			12				
18	S-10	0.6 30%	23	--	--	little silt; gray; wet	
19			32				
20			--				
20	S-11	0.4 20%	--	--	--	CLAY, some silt & fine sand; dark brown; moist	20.0
21			--				
22			--				
22	BOH @ 22.0 ft.						22.0
23							
24							
25							
26							
27							
28							
29							
30							

DRILLING CO.: Parratt - Wolff
 DRILLER: Layne Pech

BAKER REP.: Mark DeJohn
 BORING NO.: 88-SB06

SHEET 2 OF 2

APPENDIX B
GEOTECHNICAL ENGINEERING AND
HYDROGEOLOGIC PARAMETERS



July 3, 1997

2592 HOPE MILLS ROAD
FAYETTEVILLE, N. C. 28306
910-426-2323

Baker Environmental
420 Rouser Road
Coraopolis, Pennsylvania 15108

Attention: Mr. Jeffrey P. Tepsic

Reference: Permeability Testing
Camp Lejeune Project
Jacksonville, North Carolina
Job No. 2053-97

Dear Mr. Tepsic:

Soil Tech Engineering, Inc. has recently completed laboratory tests on undisturbed soil samples recently obtained from various locations at Camp Lejeune in Jacksonville, North Carolina. Each sample was delivered to our laboratory for testing. Each sample was tested for bulk density, grain size and permeability as requested.

Each sample was tested for its physical properties in accordance with the following test procedures.

1. ASTM D-422, "Particle Size Analysis of Soils"
2. Coefficient of Permeability - Falling Head Method
"Engineering Properties of Soils and Their
Measurements" by Joseph E. Bowles.

Baker Environmental
July 3, 1997
Page Two

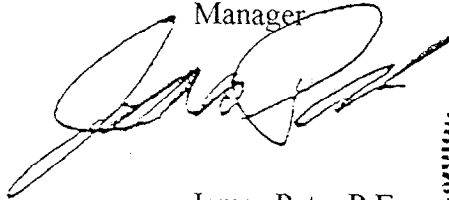
Please find the results of our laboratory tests attached. Please contact us if you have questions.

Very truly yours,

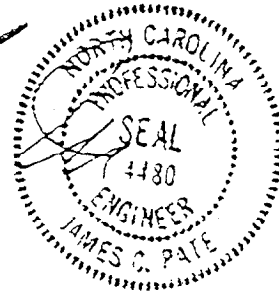
SOIL TECH ENGINEERING

Pauls A. Downing Jr.

Parks A. Downing, Jr.
Manager



James Pate, P.E.



PADjr:JP/tlc

2053a7-3

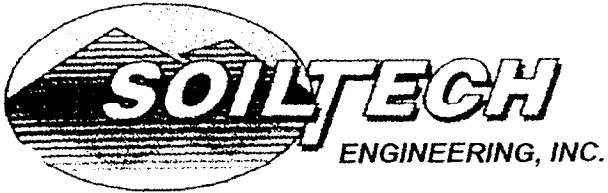
Attachments

**Permeability Testing
Camp Lejeune Project
Jacksonville, North Carolina
Job No. 2053-97**

Sample Designation	89 MW04 DW	93 MW01 IW	MW04IW 09	88 B04
Depth	2-4' (Rec 2.0')	12-14'	16-18' (Rec. 2.0')	20-22'
Unit Weight Determination				
Sample Weight, gr.	675.52	490.30	639.6	637.4
Sample Height, inches	3.225	3.325	3.28	3.25
Wet Unit Weight, pcf	122.9	89.2	113.8	114.7
Existing Moisture	25.6	69.9	29.3	33.6
Dry Unit Weight, pcf (Bulk Density)	97.9	52.5	88.0	85.85
Permeability Data				
<u>Prior to Saturation</u>				
Sample Unit Weight, pcf	118.1	87.8	111.8	115.9
Moisture Content (prior), %	25.6	69.9	29.3	33.6
<u>After Saturation</u>				
Sample Unit Weight (wet), pcf	118.6	87.2	111.3	112.8
Moisture Content (after), %	29.7	73.3	38.7	3.12
Permeability, cm/sec.	1.3x10 ⁻⁷	1.3x10 ⁻⁸	4.5x10 ⁻⁸	6.3x10 ⁻⁸

**Grain Size Analysis
Camp Lejeune Project
Jacksonville, North Carolina
Job No. 2053-97**

Location:	89 MW04 DW	93 MW01-IW	MW04IW-09	88B04
Depth:	2-4' (Rec. 2.0')	12-14'	16-18' (Rec. 2.0')	20-22'
<u>Sieve Size</u>		<u>Percent Passing, By Weight</u>		
#10	100.0	99.9	100.0	99.7
#40	99.3	97.0	99.9	98.3
#80	90.4	71.0	80.7	78.8
#200	62.5	64.4	67.8	68.7
Percent Moisture:	25.6	69.9	38.7	33.6
Soil Description:	Gray/Orange Fine Sandy CLAY	Gray Clayey SILT	Gray/Orange CLAY	Gray CLAY



June 3, 1997

2592 HOPE MILLS ROAD
FAYETTEVILLE, N. C. 28306
910-426-2323

Baker Environmental
420 Rouser Road
Coraopolis, Pennsylvania 15108

Attention: Mr. Jeffrey P. Tepsic

Reference: Permeability Testing
Camp Lejeune Project
Jacksonville, North Carolina
Job No. 2053-97

Dear Mr. Tepsic:

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Baker Environmental
June 3, 1997
Page Two

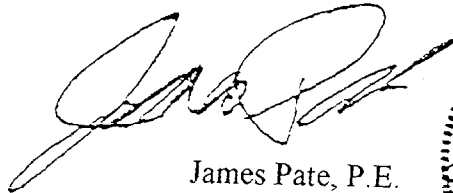
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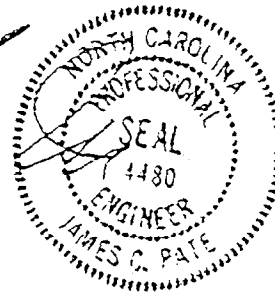
SOIL TECH ENGINEERING

Parks A. Downing Jr.

Parks A. Downing, Jr.
Manager



James Pate, P.E.



PADjr:JP/tlc

2053a6-3

Attachments

**Permeability Testing
Camp Lejeune Project
Jacksonville, North Carolina
Job No. 2053-97**

Sample Designation	89 MW04 DW	89 MW04 DW	88 MW 02-02
Depth	10-12' (Rec 2.0')	42-44' (Rec 2.0')	2-4' (Rec. 2.0')
Unit Weight Determination			
Sample Weight	697.37 gr.	735.6 gr.	523.1 gr.
Sample Height	3.375 inches	3.325 inches	3.25 inches
Wet Unit Weight, pcf	121.3 pcf	129.9 pcf	92.3 pcf
Existing Moisture, %	28.5%	23.2%	26.3%
Dry Unit Weight, pcf (Bulk Density)	94.4 pcf	105.4 pcf	73.1 pcf
Permeability Data			
<u>Prior to Saturation</u>			
Sample Unit Weight (wet), pcf	118.5 pcf	131.4 pcf	94.1 pcf
Moisture Content (prior), %	28.5%	23.2%	26.3%
<u>After Saturation</u>			
Sample Unit Weight (wet), pcf	118.7 pcf	132.2 pcf	101.1 pcf
Moisture Content (after), %	29.5%	21.4%	45.4%
Permeability, cm/sec.	1.06x10 ⁻⁵	1.07x10 ⁻⁵	6.2x10 ⁻⁴

**Grain Size Analysis
Camp Lejeune Project
Jacksonville, North Carolina
Job No. 2053-97**

Location:	89 MW04 DW	89 MW04 DW	88 MW02-02
Depth:	10-12' (Rec. 2.0')	42-44' (Rec. 2.0')	2-4' (Rec. 2.0')

<u>Sieve Size</u>	<u>Percent Passing, By Weight</u>		
#10	99.7	97.4	99.3
#40	97.8	88.5	97.2
#80	82.5	17.2	33.9
#200	28.0	15.9	30.0
Percent Moisture:	28.5	23.2	26.3
Soil Description:	Dark Gray Silty SAND	Gray Fine to Medium Clayey SAND with Shells	Dark Brown Silty SAND

APPENDIX C
SAMPLE DOCUMENTATION

SAMPLE TRACKING SHEETS

Sample Tracking and Chain-of-Custody Documentation - Site 88
Soil Sampling, CTO-356
MCB Camp Lejuene, North Carolina

MATRIX	SAMPLE ID	DATE SHIPPED	Analysis Requested										Analysis Received										DATE RECEIVED FROM LAB	TURNAROUND TIME	RFW #	DATE RECEIVED FROM VALIDATOR	TURNAROUND TIME	SDG #						
			TCL Volatiles	TCL Semivolatiles	TCL Pest/PCBs	PCBs	TAL Metals	TOC	Bulk Density	Grain Size	TCLP Org. & Inorg.	RCRA Haz. Charac. (1)	TCL Volatiles	TCL Semivolatiles	TCL Pest/PCBs	PCBs	TAL Metals	TOC	Bulk Density	Grain Size	TCLP Org. & Inorg.	RCRA Haz. Charac. (1)												
	COC# 356-008																																	
HOLD	IR88-RBSB13	5/7/97																																
DECON DI	IR88-FB02	5/7/97	X	X	X		X							X	X	X		X										6/5/97	28	9705G588	6/16/97	11	9705G588	
LAB DI	IR88-FB03	5/7/97	X	X	X		X							X	X	X		X										6/5/97	28	9705G588	6/16/97	11	9705G588	
	IR88-SB02-04	5/7/97	X											X														6/5/97	28	9705G588	6/16/97	11	9705G588	
DUP	IR88-SB02-04D	5/7/97	X											X														6/5/97	28	9705G588	6/16/97	11	9705G588	
	IR88-SB02-05	5/7/97	X											X														6/5/97	28	9705G588	6/16/97	11	9705G588	
	IR88MW08-08	5/7/97							X	X	X							X	X	X								6/5/97	28	9705G588	6/16/97	11	9705G588	
	IR88-MW08-22	5/7/97							X	X	X							X	X	X								6/5/97	28	9705G588	6/16/97	11	9705G588	
	IR88-SB04-04	5/7/97	X											X														6/5/97	28	9705G588	6/16/97	11	9705G588	
	IR88-SB04-05	5/7/97	X											X														6/5/97	28	9705G588	6/16/97	11	9705G588	
MS/MSD	IR88-SB05-05	5/7/97	X											X														6/5/97	28	9705G588	6/16/97	11	9705G588	
	IR88-SB05-06	5/7/97	X											X														6/5/97	28	9705G588	6/16/97	11	9705G588	
	IR88-SB06-04	5/7/97	X											X														6/5/97	28	9705G588	6/16/97	11	9705G588	
	IR88-SB06-05	5/7/97	X											X														6/5/97	28	9705G588	6/16/97	11	9705G588	
	TB08	5/7/97	X											X														6/5/97	28	9705G588	6/16/97	11	9705G588	
	COC# 356-011																																	
7-day turn	IR88-ROB1 (IDW)	5/15/97				X				X	X				X				X	X								6/13/97	28	9705G720				
7-day turn	IR88-ROB2 (IDW)	5/15/97				X				X	X				X				X	X								6/13/97	28	9705G720				
7-day turn	IR88-ROB3 (IDW)	5/15/97				X				X	X				X				X	X								6/13/97	28	9705G720				
TOTALS			34	5	5	3	5	5	2	2	3	3	34	5	5	3	5	5	2	2	3	3												

(1) R (az. Charac. = ignitability, corrosivity, reactive cyanide and sulfide)

Sample Tracking and Chain-of-Custody Documentation - Site 88
 Groundwater Sampling, CTO-356
 MCB, Camp Lejeune, North Carolina

MATRIX	SAMPLE ID	DATE SHIPPED	Analysis Requested						Analysis Received						DATE RECEIVED FROM LAB	TURNAROUND TIME	RFW #	DATE RECEIVED FROM VALIDATOR	TURNAROUND TIME	SDG #		
			TCL Volatiles	TCL Organics (IDW)	TAL Metals (IDW)	TSS/TDS	Natural Attenuation Parameters (1)	BOD/COD	Methane	TCL Volatiles	TCL Organics (IDW)	TAL Metals (IDW)	TSS/TDS	Natural Attenuation Parameters (1)							BOD/COD	Methane
MS/MSD	COC# 356-010																					
	IR88-MW05-01	5/14/97	X			X	X	X	X	X		X	X	X	*X	6/13/97	29	9705G709	6/24/97	11	9705G709	
	IR88-MW05IW-01	5/14/97	X			X	X	X	X	X		X	X	X	X	6/13/97	29	9705G709	6/24/97	11	9705G709	
	IR88-MW05DW-01	5/14/97	X			X	X	X	X	X		X	X	X	X	6/13/97	29	9705G709	6/24/97	11	9705G709	
	IR88-MW04-01	5/14/97	X							X						6/13/97	29	9705G709	6/24/97	11	9705G709	
	IR88-MW04IW-01	5/14/97	X							X						6/13/97	29	9705G709	6/24/97	11	9705G709	
	IR88-MW04DW-01	5/14/97	X							X						6/13/97	29	9705G709	6/24/97	11	9705G709	
	COC# 356-011																					
	IR88-MW03-01	5/15/97	X					X	X	X	X			X	X	X	6/13/97	28	9705G709	6/24/97	11	9705G709
	IR88-MW03IW-01	5/15/97	X					X	X	X	X			X	X	X	6/13/97	28	9705G709	6/24/97	11	9705G709
	IR88-MW03DW-01	5/15/97	X					X	X	X	X			X	X	X	6/13/97	28	9705G709	6/24/97	11	9705G709
	IR88-MW02DW-01	5/15/97	X								X					6/13/97	28	9705G709	6/24/97	11	9705G709	
	IR88-MW02-01	5/15/97	X								X					6/13/97	28	9705G709	6/24/97	11	9705G709	
	IR88-MW02IW-01	5/15/97	X								X					6/13/97	28	9705G709	6/24/97	11	9705G709	
	IR88-MW02IW-01D	5/15/97	X								X					6/13/97	28	9705G709	6/24/97	11	9705G709	
	TB11	5/15/97	X								X					6/13/97	28	9705G709	6/24/97	11	9705G709	
	COC# 356-012																					
IR88-RBGW17	5/16/97	X								X					6/13/97	27	9705G729	6/24/97	11	9705G729		
IR88-RBGW18	5/16/97	X								X					6/13/97	27	9705G729	6/24/97	11	9705G729		
IR88-MW01-01	5/16/97	X				X	X	X	X	X		X	X	X	6/13/97	27	9705G729	6/24/97	11	9705G729		
IR88-MW06-01	5/16/97	X				X	X	X	X	X		X	X	X	6/13/97	27	9705G729	6/24/97	11	9705G729		
IR88-MW06IW-01	5/16/97	X				X	X	X	X	X		X	X	X	6/13/97	27	9705G729	6/24/97	11	9705G729		
IR88-MW06IW-01D	5/16/97	X								X					6/13/97	27	9705G729	6/24/97	11	9705G729		
IR88-MW09-01	5/16/97	X								X					6/13/97	27	9705G729	6/24/97	11	9705G729		
IR88-MW09-01D	5/16/97	X								X					6/13/97	27	9705G729	6/24/97	11	9705G729		

Natural Atten. Param. = nitrate, nitrite, sulfate, chloride, Fe+2, sulfide

Sample Tracking and Chain-of-Custody Documentation - Site 88
 Groundwater Sampling, CTO-356
 MCB, Camp Lejeune, North Carolina

MATRIX	SAMPLE ID	DATE SHIPPED	Analysis Requested							Analysis Received							DATE RECEIVED FROM LAB	TURNAROUND TIME	RFW #	DATE RECEIVED FROM VALIDATOR	TURNAROUND TIME	SDG #	
			TCL Volatiles	TCL Organics (IDW)	TAL Metals (IDW)	TSS/IDS	Natural Attenuation Parameters (1)	BOD/COD	Methane	TCL Volatiles	TCL Organics (IDW)	TAL Metals (IDW)	TSS/IDS	Natural Attenuation Parameters (1)	BOD/COD	Methane							
MS/MSD	IR88-MW09IW-01	5/16/97	X							X							6/13/97	27	9705G729	6/24/97	11	9705G729	
	IR88-MW08-01	5/16/97	X							X							6/13/97	27	9705G729	6/24/97	11	9705G729	
	IR88-MW08IW-01	5/16/97	X			X	X	X	X	X		X	X	X	X		6/13/97	27	9705G729	6/24/97	11	9705G729	
	TB12	5/16/97	X							X							6/13/97	27	9705G729	6/24/97	11	9705G729	
	COC# 356-013																						
	IR88-MW07-01	5/19/97	X							X							6/19/97	30	9705G765	6/25/97	6	9705G765	
	IR88-MW07IW-01	5/19/97	X							X							6/19/97	30	9705G765	6/25/97	6	9705G765	
	IR88-TNK-01	5/19/97	X	X	X	X				X	X	X	X				6/19/97	30	9705G765				
TOTALS			29	1	1	8	10	10	10	29	1	1	8	10	10	10							

ON-SITE ANALYTICAL DATA: PHASE I

MICROSEEPS

961048

VER. 8

----- BAKER ENVIRONMENTAL -----
 ----- PROJECT: CAMP LEJEBUNE -----
 ----- PROJECT LOCATION: SITE 88 -----
 ----- SOIL CONCENTRATIONS IN (ng/g) -----

PHASE I

SAMPLE NAME	VINYL	trans-	cis-	CHLORO	1,1,1-	CARBON	TCE	PCB	FILE	DATE	TIME	DATE	TIME
	CHLORIDE	1,2-DCB	1,2-DCB	FORM	TCA	TETRA							
	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	(ng/g)	NAME	COLLECTED	COLLECTED	ANALYZED	ANALYZED
88-TW04IW-03	<100	<1	<1	<.1	<.1	<.1	0.2	14.8	M11 8	08/16/96	713	08/16/96	1701
88-TW04IW (20-22')-10	<100	<1	<1	<.1	<.1	<.1	0.1	1.5	M11 9	08/16/96	----	08/16/96	1752
88-TW05-04	<100	<1	<1	<.1	<.1	<.1	0.1	1.2	M11 10	08/16/96	1243	08/16/96	1842
88-TW06-03	<100	<1	<1	<.1	<.1	<.1	<.1	0.4	M11 11	08/16/96	1349	08/16/96	1932
88-TW07-03	<100	<1	<1	<.1	<.1	<.1	<.1	0.1	M11 14	08/16/96	1516	08/16/96	2203
88-TW08-03	<100	<1	<1	<.1	<.1	<.1	0.8	237.6	M11 15	08/16/96	1620	08/16/96	2254
88-TW09-04	<100	<1	<1	<.1	<.1	<.1	3.3	22.6	M11 18	08/16/96	1718	08/17/96	124
88-TW09-06	<100	<1	<1	<.1	<.1	<.1	0.5	3.1	M11 19	08/16/96	1720	08/17/96	215
88-TW10-02	<100	<1	<1	<.1	<.1	<.1	<.1	<.1	M11 22	08/17/96	752	08/17/96	1026
88-TW11-02	<100	<1	<1	<.1	<.1	<.1	<.1	<.1	M11 25	08/17/96	907	08/17/96	1312
88-TW12-05	<100	<1	<1	<.1	<.1	<.1	<.1	<.1	M11 26	08/17/96	1025	08/17/96	1402
88-TW13-03	<100	<1	<1	<.1	<.1	<.1	<.1	1.5	M11 31	08/17/96	1214	08/17/96	1813
88-TW13-05	<100	<1	<1	<.1	<.1	<.1	<.1	0.9	M11 32	08/17/96	1227	08/17/96	1954
88-TW14-03	<100	<1	<1	0.1	<.1	<.1	<.1	0.3	M11 35	08/17/96	1355	08/17/96	2135
88-TW15-04	<100	<1	21	0.1	<.1	<.1	8.5	11.6	M11 36	08/17/96	1516	08/17/96	2225
88-TW16-04	<100	<1	<1	<.1	<.1	<.1	<.1	0.2	M11 59	08/18/96	1505	08/18/96	2026
8-TW17-04	<100	<1	<1	<.1	<.1	<.1	<.1	0.2	M11 58	08/18/96	1625	08/18/96	1936
88-TW18-03	<100	<1	<1	<.1	<.1	<.1	<.1	<.1	M11 79	08/19/96	1502	08/20/96	415
88-TW19-03	<100	<1	<1	<.1	<.1	<.1	<.1	<.1	M11 86	08/20/96	807	08/20/96	1330

MICROSEBPS

961048

VER. 8

----- BAKER ENVIRONMENTAL -----

----- PROJECT: CAMP LEJEUNE -----

----- PROJECT LOCATION: SITE 88 -----

----- H2O CONCENTRATIONS IN (ug/l) -----

PHASE I

SAMPLE NAME	VINYL	trans-	cis-	CHLORO	1,1,1-	CARBON	TCE	PCB	FILE	DATE	TIME	DATE	TIME
	CHLORIDE	1,2-DCE	1,2-DCE	FORM	TCA	TETRA							
	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	CHLORIDE	(ug/l)	(ug/l)	NAME	COLLECTED	COLLECTED	ANALYZED	ANALYZED
88-TW01-01	<50	<1	4	0.1	<.1	<.1	17.7	157.2	M10 378	08/01/96	1400	08/01/96	1607
88-TW02-01	<50	9	445	0.1	<.1	<.1	81.5	649.1	M10 379	08/01/96	1325	08/01/96	1657
88-TW03-01	<50	6	1184	1.4	0.2	<.1	838.1	14090.0	M10 380	08/01/96	1115	08/01/96	1747
88-TW04-01	<50	1	63	5.0	0.2	<.1	229.9	32839.4	M10 381	08/01/96	1035	08/01/96	1838
88-TW04IW-01	<50	<1	21	6.7	<.1	<.1	5.5	21.0	M11 13	08/16/96	1710	08/16/96	2113
88-TW05-01	<50	<1	3	11.9	<.1	<.1	20.8	1381.7	M11 12	08/16/96	1500	08/16/96	2023
88-TW05IW-01	<50	1	89	5.4	<.1	<.1	71.2	1142.7	M11 54	08/18/96	1332	08/18/96	1615
88-TW06-01	<50	<1	<1	1.8	<.1	<.1	<.1	<.1	M11 23	08/17/96	936	08/17/96	1131
88-TW07-01	<50	<1	<1	0.5	<.1	<.1	<.1	0.2	M11 24	08/17/96	1035	08/17/96	1221
88-TW08-01	<50	2	271	0.7	0.5	<.1	341.2	53703.8	M11 27	08/17/96	1250	08/17/96	1452
88-TW08IW-01	<50	11	883	8.3	<.1	<.1	822.7	1314.4	M11 55	08/18/96	1530	08/18/96	1705
88-TW09-01	<50	<1	14	0.5	<.1	<.1	70.8	969.2	M11 28	08/17/96	1325	08/17/96	1543
88-TW10-01	<50	<1	<1	<.1	<.1	<.1	0.2	0.1	M11 40	08/17/96	1415	08/18/96	146
88-TW11-01	<50	<1	<1	<.1	<.1	<.1	0.2	1.3	M11 30	08/17/96	1500	08/17/96	1723
88-TW12-01	<50	<1	<1	<.1	<.1	<.1	<.1	1.5	M11 37	08/17/96	1605	08/17/96	2315
88-TW13-01	<50	<1	<1	<.1	<.1	<.1	0.6	44.3	M11 38	08/17/96	1700	08/18/96	5
88-TW14-01	<50	<1	<1	<.1	<.1	<.1	<.1	0.1	M11 51	08/18/96	810	08/18/96	1101
88-TW15-01	<50	38	3725	<.1	<.1	<.1	3030.9	4931.8	M11 52	08/18/96	845	08/18/96	1151
88-TW16-01	<50	<1	<1	<.1	<.1	<.1	<.1	0.2	M11 57	08/18/96	1645	08/18/96	1845
88-TW17-01	<50	<1	<1	<.1	<.1	<.1	<.1	0.2	M11 85	08/20/96	850	08/20/96	1240
88-TW18-01	<50	<1	<1	<.1	<.1	<.1	<.1	<.1	M11 87	08/20/96	1010	08/20/96	1420
88-TW19-01	<50	<1	<1	<.1	<.1	<.1	<.1	<.1	M11 89	08/20/96	1640	08/20/96	1721
88-TW19IW-01	<50	<1	<1	3.1	<.1	<.1	<.1	<.1	M11 90	08/20/96	1515	08/20/96	1811

MICROSEEPS, INC.

***** ONSITE ANALYSIS *****

PAGE 1 OF 11

LABORATORY LOCATION: CAMP LEJEUNE
AIR STATION

PROJECT: 961048

ANALYSIS: Chloro's + BEGA

PATH: C:\CP\M10*.X

BASE FILE NAME: M10A/AB

ANALYSIS DATE	SAMPLE ID	CYCLE #	HSS #	PID MET/CAL	ECD MET/CAL	FID MET/CAL	COMMENTS
7-29-96	H2O BLANK	326	1	NA	BE2AB BE2	BE2A BE2A	
	WSTD L5 R5	327	2				
	" " R5	328	3				
	" " R4	329	4				
	" " R4	330	5				
	" " R3	331	6				
	" " R3	332	7				
	" " R3	333	8				
	" " R3	334	9				
	" " R2	335	10				
	" " R2	336	11				
	CIS-1,2-DCE R4	337	12				
	" " R4	338	13				
	VC - 1000 1000	339	14				
	VC - 99-61000	340	15				
	H2O BLANK	341	16				
	93-MW05-O1A	342	17				
	WSTD L5 R5	343	18				
	" R5	344	19				
	" R4	345	20				
	" R4	346	21				
	" R3	347	22				
	" R3	348	23				
7-30-96	H2O BLANK	349	1				
	WSTD L5 R3	350	2				

MICROSEEPS, INC.

CAMP LEJEUNE

***** ONSITE ANALYSIS *****

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LABORATORY LOCATION: CAMP LEJEUNE
JAN 17 1996
AIR STATION

PROJECT: 961048

ANALYSIS: Chloro - BTEX

PATH: C:\CP\M10A.X

BASE FILE NAME: M10A/AB

ANALYSIS DATE	SAMPLE ID	CYCLE #	HSS #	PID MET/CAL	ECD MET/CAL	FID MET/CAL	COMMENTS
7-30-96	WSTD L5 R2	351	3	NA	BEA1B/BE2	BEA1/BE2	
	93-TW01	352	4				910
	- TW01 IW	353	5				1065
	- MW05-01A (R2)	354	6				Report
	89-MW02-01A	355	7				1145
	H2O BLANK	356	8				
	H2O BLANK	357	9				
	93-TW02-01	358	10				1355
	- TW02 IW-01	359	11				1475
7-31-96	H2O BLANK	360	12				
	WSTD L5 R4	361	2				
	CL5-1,2-DCR6	362	3				
	WSTD BLANK 93-TW03-01	363	1.4				915
	93-TW03 IW-01	364	2				940
	89-MW03-01	365	3				1100
	- MW01-01	366	4				1125
	35-MW44B-04	367	5		B2ASB	B2A3	4.8g - 1225 Site 35
	MW42B	368	6		36A20/BE2	362A/BE2	1430
	WSTD L5 R3	369	7				
	WSTD BLANK 89-TW04-01	370	8				1710
	89-TW04 IW-01	371	9				1705
8-1-96	H2O BLANK	372	1				
	WSTD L5 R4	373	2				
	93-TW05-01	374	3				840
	- TW05 IW-01	375	4				845

MICROSEEPS, INC.

***** ONSITE ANALYSIS *****

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LABORATORY LOCATION: CAMP LEJEUNE
AIR BRATION

PROJECT: 961048

ANALYSIS: chloros + BTEX

PATH: C:\CP\M10

BASE FILE NAME: M10 A/AB

ANALYSIS DATE	SAMPLE ID	CYCLE #	HSS #	PID MET/CAL	ECD MET/CAL	FID MET/CAL	COMMENTS
8-1-96	H ₂ O BLANK	376	5	NA	BE2AB BE2	BE2A BE2	
	89-EC-SW06-01	377	1				1300
	88-TW01-01	378	1				1400
	-TW02-01	379	2				1325
	-TW03-01	380	3				1115
	-TW04-01	381	4				1035
	89-EC-SW07-01 H ₂ O	382	5				1500
	89-EC-SW08-01	383	6				1455 1500
	-SW08-01	384	7				1455
	93-TW06-01	385	8				1720
	TW06IW-01	386	9				1745
8-2-96	H ₂ O BLANK	387	1				
	WSTD L5 R4	388	2				
	35-TW31B-05	389	7				1030 4.9
	420 BLANK	390	2				
8-3-96	H ₂ O BLANK	391	1				
	WSTD L5 R4	392	2				
	35-TW31A	393	3				
	35-TW31B	394	4				
	93-TW07-01	395	5				855
	-TW07IW-01	396	6				930
	WSTD L5 R4 J=8/3	397	7				
	89-TW08-01	397	7				1040
	-TW08IW-01	398	8				1055
	WSTD L5 R4	399	9				

MICROSEEPS, INC.

***** ONSITE ANALYSIS *****

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LABORATORY LOCATION: CAMP LEJEUNE
JACKSONVILLE, NC.
AIR STATION

PROJECT: 961048

ANALYSIS: Chloro's & BTEX

PATH: C:\CP\M10

BASE FILE NAME: M10A/AB

ANALYSIS DATE	SAMPLE ID	CYCLE #	HSS #	PID MET/CAL	ECD MET/CAL	FID MET/CAL	COMMENTS
8-3-96	35-TW30B-04	400	10	NA	B2ASB/ B2ASB	B2AS/ B2AC	5.6 813
	89-TW09-01	401	11		B2ASB/ B2AS	B2AS/ B2AS	1500
	-TW09IW-01	402	12				1550
	-TW31A R	403	13				-
	WSTD 624 R2	404	14				
	WSTD 624 R1	405	15				
8-4-96	H2O BLANK	406	1				
	WSTD 45 R4	407	2				
	WSTD C1512 R4	408	3				
	89-TW10-01	409	4				935
	-TW10IW-01	410	5				955
	89-TW11-01	411	1				1215
	-WBLNK-01	412	2				1042
	-TW11IW-01	413	3				1240
	H2O BLANK	414	1				
	WSTD 624 R2	415	2				
	R2	416	3				
	R1	417	4				
	R1	418	5				
	H2O BLANK	419	6				
	89-TW12-01	420	7				1655
	-TW12IW-01	421	8				1740
	35-TW30B	422	9				-
	-TW31A	423	10				1310
	-TW31A	424	11				1527

MICROSEEPS, INC.

***** ONSITE ANALYSIS *****

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LABORATORY LOCATION: CAMP Lejeune
AIR STATION

PROJECT: 961048

ANALYSIS: Chloro's + BTEX

PATH: C: \CP \M10

BASE FILE NAME: M10A/AB

ANALYSIS DATE	SAMPLE ID	CYCLE #	HSS #	PID MET/CAL	ECD MET/CAL	FID MET/CAL	COMMENTS
8-4-96	35-TW31B	425	12	NA	BE 2A / BE 2	BE 2A / BE 2	1322
	-MW44A	426	13				1146
	-MW44B	427	14				
8-5-96	H2O BLANK	428	1				
	WSTD CS R4	429	2				
	WSTD CIS-1,2-PCE R4	430	3				
	89-TW13-01	431	4				1330
	-TW13IW-01	432	5				1350
	H2O BLANK	433	1				
	93-TW14-01	434	2				1600
	TW14IW-01	435	3				1625
8-6-96	H2O BLANK	436	1				
	WSTD CS R4	437	2				
	WSTD CIS-1,2-PCE R4	438	3				
	93-TW01-02	439	4				0750
	-TW02IW-02	440	5				0825
	-TW07-02	441	6				0910
	-TW08-02	442	7				0940
	H2O BLANK	443	8				
	89-TW15-01	444	9				1400
	-TW15IW-01	445	10				1440
	-TW16-01	446	11				1530
	-TW16IW-01	447	12				1550
	93-TW07IW-02 H2O	448	13				1800 Jan 8/6/96
8-7-96	93-TW07IW-02	449	14				1800

MICROSEEPS, INC.

***** ONSITE ANALYSIS *****

PAGE 6 OF 11LABORATORY LOCATION: CAMP Lejeune
AIRSTATIONPROJECT: 961048ANALYSIS: Chloris + BTEXPATH: C:\CP\M10BASE FILE NAME: M10 A/AB

ANALYSIS DATE	SAMPLE ID	CYCLE #	HSS #	PID MET/CAL	ECD MET/CAL	FID MET/CAL	COMMENTS
8-7-96	H2O BLANK	450	1	NA	BE 2AB/BE2	BGA/BGA2	
	WSTD L5 R4	451	2				
	89-TW09-02	452	3				820
	-TW09IW-02	453	4				845
	H2O BLANK	454	5				
	89-TW17IW-01	455	6				1075
8-12-96	H2O BLANK	456	1				
	WSTD L6 R4	457	2				
	" " R4	458	3				
	" " R2	459	4				
	" " R2	460	5				
	CIS L2-DCE R4	461	6				
8-13-96	WSTD L5 R4	462	1				
	H2O BLANK	463	2				
	WSTD L5 R2	464	3				
	H2O BLANK	465	4				
	125M01IW-01	466	5				1055
	89-TW18IW-01	467	6				1300
	H2O BLANK	468	1				
	89-TW18I-01	469	2				1440
	-TW19IW-01	470	3				1645
	-TW19-01	471	4				1800
8-14-96	H2O BLANK	472	1				
	WSTD L5 R4	473	2				
	89-TW20IW-01	474	3				8930

MICROSEEPS, INC.

***** ONSITE ANALYSIS *****

PAGE 7 OF 11LABORATORY LOCATION: Camp Lejeune
AIR STATIONPROJECT: 961048ANALYSIS: Chloro's & BTEXPATH: C:\CP\M10BASE FILE NAME: M10 A/AB

ANALYSIS DATE	SAMPLE ID	CYCLE #	HSS #	PID MET/CAL	ECD MET/CAL	FID MET/CAL	COMMENTS
8-14-96	99-TW20-01	475	4	NA	BE2A8 BE2	BE2A/ BEA2	1120
	1-20 BLANK	476	1				
	1251-MW01-01	477	2				1720
	TEST SOIL	478	3		B2ASB	B2AS	6.9g
8-15-96	H2O BLANK	479	1		BE2A8/ BE2	BE2A/BEA2	
	WSTD LS R4	480	2				
	89-EC-SW01-01	481	3				800
	-EC-SW02-01	482	4				745
	-TW21IW-01	483	5				755
	-TW21-01	484	6				1045
	-EC-SW03-01	485	7				740
	-EC-SW04-01	486	8				720
	-EC-SW05-01	487	9				715
	-EC-SW09-01	488	10				1350
	-EC-SW10-01	489	11				1330
	-EC-SW11-01	490	12				1315
	H2O BLANK	491	13		B2ASB	B2AS	1
	WSTD LS R4	492	14				1
	89-EC-SD09 (0-6')	493	15				0-6' 6.0g
	-EC-SD09 (6-12')	494	16				4.6g
	-EC-SD10 (0-6')	495	17				4.5g
	-EC-SD10 (6-12')	496	18				5.5g
	-EC-SD11 (0-6')	497	19				5.5
	-EC-SD11 (6-12')	498	20				5.4

MICROSEEPS, INC.

***** ONSITE ANALYSIS *****

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LABORATORY LOCATION: Camp Lejeune
Lot #203

PROJECT: 961048

ANALYSIS: CHoro's

PATH: C: \CP\ M11

BASE FILE NAME: M11 A/AB

ANALYSIS DATE	SAMPLE ID	CYCLE #	HSS #	PID MET/CAL	ECD MET/CAL	FID MET/CAL	COMMENTS
8-16-96	H2O BLANK	1	1	NA	M11 ^{PC} AWB	M11 ^{EB} AW	
	WSTD LS R4	2	2				
	R2	3	3				
	WSTD CIS 1,2-DCE R4	4	4				
	H2O BLANK	5	5				
	89-TW22-01	6	6				1020
	-TW22IW-01	7	7				0945
	88-TW04IW-03	8	8		M11 ^{PC} ASB	M11 ^{PC} AS	0913 5.1
	-TW04IW (20-22')	9	9				- 4.8
	-TW05-04	10	10				1243 5.0
	-TW06-03	11	11				1349 5.6
	-TW05-01	12	12		M11 ^{PC} AWB	M11 ^{PC} AW	1500 -
	-TW04IW-01	13	13				1710 -
	88-TW07-03	14	14		M11 ^{PC} ASB	M11 ^{PC} AS	1516 6.1
	-TW08-03	15	15				1620 5.0
	WSTD LS R4	16	16				5.1 ^{PC} 916
	H2O BLANK	17	17				5.1 ^{PC} 916
	88-TW09-04	18	18				1718 5.1
	-TW09-06	19	19				1728 5.1
88-17-96	H2O BLANK	20	1		M11 ^{PC} BEAWB	M11 ^{PC} BEAW	
	WSTD LS R4	21	2				
	88-TW10-02	22	3		M11 ^{PC} BEASB	M11 ^{PC} BEAS	752 5.1
	-TW06-01	23	1		M11 ^{PC} BEAWB	M11 ^{PC} BEAW	936
	-TW11-02-01	24	2		M11 ^{PC} BEASB	M11 ^{PC} BEAS	909 1035 5.0
	-TW11-02	25	3				907 5.0

MICROSEEPS, INC.

***** ONSITE ANALYSIS *****

PAGE 9 OF 11LABORATORY LOCATION: CAMP LejeunePROJECT: 961048ANALYSIS: Chloro / 601-602
cmd.PATH: C:\CPI m11
LOT 203BASE FILE NAME: M11 A/AB

ANALYSIS DATE	SAMPLE ID	CYCLE #	HSS #	PID MET/CAL	ECD MET/CAL	FID MET/CAL	COMMENTS
8-17-96	88-TW12-05	26	4	NA	BEASB	BEAS	1625 4.8
	-TW08-01	27	5		BEAWB	BEAW	1250
	-TW09-01	28	6				1325
	-TW10-01	29	7				1415
	-TW11-01	30	8				1500
	-TW13-03	31	9		BEASB	BEAS	1214 5.2
	-TW13-05	32	10				1227 6.2
	H2O BLANK	33	11		BEASB	BEAS	
	WSTD L5 R4	34	12				
	88-TW14-03	35	13				1355 5.3
	-TW15-04	36	14				1576 5.2
	-TW12-01	37	15		BEAWB	BEAW	1605
	-TW13-01	38	16				1700
	H2O BLANK	39	17				-
	88-TW10-01 R	40	18				1415
	WSTD 624K R4	41	19		AVWB	AVW	
	R4	42	20				
	R3	43	21				
	R3	44	22				
	R2	45	23				
	R2	46	24				
	R1	47	25				
	R1	48	26				
8-18-96	H2O BLANK	49	1		BEAWB	BEAW	
	WSTD 65 R4	50	2				

MICROSEEPS, INC.

***** ONSITE ANALYSIS *****

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LABORATORY LOCATION: Camp LEJEUNE
LOT 203

PROJECT: 461048

ANALYSIS: Chloro / 601-602 compd.

PATH: C:\CPI\m11

BASE FILE NAME: M11 A/AB

ANALYSIS DATE	SAMPLE ID	CYCLE #	HSS #	PID MET/CAL	ECD MET/CAL	FID MET/CAL	COMMENTS
8-18-96	88-TW14-01	51	3	NA	BEAWB	BEAW	810
	TW15-01	52	4				845
	H2O BLANK	53	1				
	88-TW08IW-01	54	2				1332
	-TW08IW-01	55	3				1730
	-TW16-04	56	4		BEASB	BEAS	1505 5.2g
	-TW16-01	57	5		BEAWB	BEAW	1645
	-TW17-04	58	6		BEASB	BEAS	1625 5.8g
	-TW16-04 R	59	7				1505 5.2g
8-19-96	H2O BLANK	60	1		AVWB	AVW	
	LOSTD L5 R4	61	2				
	" 624K R2	62	3				
	" " R1	63	4				
	" 05-12-DC5	64	5				
	" VC-1000	65	6				
	TT-MW01-01	66	7				940
	-MW02-01	67	8				1133
	-MW03-01	68	9				1255
	TT-MW09-01 DUP01-01	69	10				1355
	-MW04-01	70	11				1450
	-MW05-01	71	12				1740
	-MW06-01	72	13				1640
	-FB01-01	73	14				1320
	-ER01-01	74	15				1700
	-MW07-01	75	16				

ON-SITE ANALYTICAL DATA: PHASE II

---- BAKER ENVIRONMENTAL ----
 ---- PROJECT: SITE 88 ----
 ---- SOIL CONCENTRATIONS IN (ng/g) ----
 PHASE II

COMPOUND	IR88-TW20IW-04	IR88-TW20IW-05	IR88-TW21IW-06	IR88-TW21IW-07	IR88-TW22IW-05	IR88-TW22IW-06	IR88-TW23IW-05	IR88-TW23IW-06	IR88-TW24IW-05
VINYL CHLORIDE	<100	<100	<100	<100	<100	<100	<100	<100	<100
FLUOROTRICHLOROMETHANE	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-DICHLOROETHENE	<10	<10	<10	<10	<10	<10	<10	<10	<10
METHYLENE CHLORIDE	<10	<10	<10	<10	<10	<10	<10	<10	<10
t-1,2-DICHLOROETHENE	<10	<10	<10	<10	<10	<10	<10	<10	<10
c-1,2-DICHLOROETHENE	<10	<10	<10	<10	<10	32	<10	<10	<10
1,1-DICHLOROETHANE	<10	<10	<10	<10	<10	<10	<10	<10	<10
CHLOROFORM	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-TRICHLOROETHANE	<1	<1	<1	<1	<1	<1	<1	<1	<1
CARBON TETRACHLORIDE	<1	<1	<1	<1	<1	<1	<1	<1	<1
BENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-DICHLOROETHANE	<10	<10	<10	<10	<10	<10	<10	<10	<10
TRICHLOROETHENE	<1	<1	<1	<1	<1	13	<1	<1	<1
TOLUENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-TRICHLOROETHANE	<10	<10	<10	<10	<10	<10	<10	<10	<10
TETRACHLOROETHENE	<1	<1	<1	<1	10	399	<1	<1	<1
CHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
ETHYL BENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
m&p-XYLENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
o-XYLENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-TETRACHLOROETHANE	<100	<100	<100	<100	<100	<100	<100	<100	<100
1,3-DICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-DICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,4-DICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
DATE COLLECTED	04/14/97	04/14/97	04/15/97	04/15/97	04/15/97	04/15/97	04/16/97	04/16/97	04/16/97
DATE ANALYZED	04/22/97	04/22/97	04/22/97	04/22/97	04/22/97	04/25/97	04/25/97	04/25/97	04/25/97
SAMPLE DEPTH (ft)	6-8	8-10	10-12	12-14	8-10	10-12	8-10	10-12	8-10
FILE NAME	M12 296	M12 297	M12 298	M12 299	M12 300	M12 383	M12 384	M12 385	M12 386

MICROBEPs

971025

---- BAKER ENVIRONMENTAL ----

PAGE 2 of 2

---- PROJECT: SITE 88 ----

---- SOIL CONCENTRATIONS IN (ng/g) ----

COMPOUND	IR88-TW24IW-06	IR88-TW25IW-07	IR88-TW25IW-08	IR88-TW26IW-05	IR88-TW26IW-06	IR88-TW27IW-05	IR88-TW27IW-06	IR88-TW28IW-06	IR88-TW28IW-07
VINYL CHLORIDE	<100	<100	<100	<100	<100	<100	<100	<100	<100
FLUOROTRICHLOROMETHANE	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-DICHLOROETHENE	<10	<10	<10	<10	<10	<10	<10	<10	<10
METHYLENE CHLORIDE	<10	<10	<10	<10	<10	<10	<10	<10	<10
t-1,2-DICHLOROETHENE	<10	<10	<10	<10	<10	<10	<10	<10	<10
c-1,2-DICHLOROETHENE	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,1-DICHLOROETHANE	<10	<10	<10	<10	<10	<10	<10	<10	<10
CHLOROFORM	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-TRICHLOROETHANE	<1	<1	<1	<1	<1	<1	<1	<1	<1
CARBON TETRACHLORIDE	<1	<1	<1	<1	<1	<1	<1	<1	<1
BENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-DICHLOROETHANE	<10	<10	<10	<10	<10	<10	<10	<10	<10
TRICHLOROETHENE	<1	<1	<1	<1	<1	<1	<1	<1	<1
TOLUENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-TRICHLOROETHANE	<10	<10	<10	<10	<10	<10	<10	<10	<10
TETRACHLOROETHENE	<1	<1	<1	<1	<1	<1	<1	<1	<1
CHLOROBBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
ETHYL BENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
m&p-XYLENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
o-XYLENE	<5	8	5	<5	60	22	<5	<5	10
1,1,2,2-TETRACHLOROETHANE	<100	<100	<100	<100	<100	<100	<100	<100	<100
1,3-DICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-DICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,4-DICHLOROBENZENE	<5	<5	<5	<5	<5	<5	<5	<5	<5
DATE COLLECTED	04/16/97	04/17/97	04/17/97	04/17/97	04/17/97	04/29/97	04/29/97	04/29/97	04/29/97
DATE ANALYZED	04/25/97	04/25/97	04/25/97	04/25/97	04/25/97	04/29/97	04/29/97	04/29/97	04/29/97
SAMPLE DEPTH (ft)	10-12	12-14	14-16	8-10	10-12	8-10	10-12	10-12	12-14
FILE NAME	M12 387	M12 388	M12 389	M12 390	M12 391	M12 448	M12 449	M12 454	M12 455

MICROSEEPS

971025

COMPOUND	MDL
VINYL CHLORIDE	100
FLUOROTRICHLOROMETHANE	1
1,1-DICHLOROETHENE	10
METHYLENE CHLORIDE	10
t-1,2-DICHLOROETHENE	10
c-1,2-DICHLOROETHENE	10
1,1-DICHLOROETHANE	10
CHLOROFORM	1
1,1,1-TRICHLOROETHANE	1
CARBON TETRACHLORIDE	1
BENZENE	5
1,2-DICHLOROETHANE	10
TRICHLOROETHENE	1
TOLUENE	5
1,1,2-TRICHLOROETHANE	10
TETRACHLOROETHENE	1
CHLOROBENZENE	5
ETHYL BENZENE	5
m&p-XYLENE	5
o-XYLENE	5
1,1,2,2-TETRACHLOROETHANE	100
1,3-DICHLOROBENZENE	5
1,2-DICHLOROBENZENE	5
1,4-DICHLOROBENZENE	5

DATE COLLECTED

DATE ANALYZED

SAMPLE DEPTH (ft)

FILE NAME

30-Apr-97

MICROSEEPS

971025

---- BAKER ENVIRONMENTAL ----

PAGE 1 of 3

---- PROJECT: SITE 88 ----

---- WATER CONCENTRATIONS IN (ug/l) ----

PHASE II

COMPOUND	IR88-TW20-01	IR88-TW20IW-01	IR88-TW21-01	IR88-TW21IW-01	IR88-TW22-01	IR88-TW22IW-01	IR88-TW23-01	IR88-TW23IW-01	IR88-TW24-01
VINYL CHLORIDE	<50	<50	<50	<50	<50	<50	<50	<50	<50
FLUOROTRICHLOROMETHANE	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
1,1-DICHLOROETHENE	<.1	<.1	<.1	<.1	<.1	0.3	<.1	<.1	<.1
METHYLENE CHLORIDE	<1	<1	<1	<1	<1	<1	<1	<1	<1
t-1,2-DICHLOROETHENE	<1	<1	<1	<1	2	2	<1	<1	<1
c-1,2-DICHLOROETHENE	<1	<1	<1	<1	126	81	<1	<1	<1
1,1-DICHLOROETHANE	<1	<1	<1	<1	<1	<1	<1	<1	<1
CHLOROFORM	<.1	<.1	<.1	<.1	<.1	5.6	<.1	1.4	<.1
1,1,1-TRICHLOROETHANE	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
CARBON TETRACHLORIDE	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
BENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2-DICHLOROETHANE	<1	<1	<1	<1	<1	<1	<1	<1	<1
TRICHLOROETHENE	<.1	<.1	<.1	<.1	124.9	133.7	<.1	<.1	<.1
TOLUENE	<2	<2	<2	<2	<2	7	<2	<2	<2
1,1,2-TRICHLOROETHANE	<1	<1	<1	<1	<1	<1	<1	<1	<1
TETRACHLOROETHENE	<.1	<.1	<.1	<.1	54881.7	26592.0	<.1	15.8	<.1
CHLOROBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
ETHYL BENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
m&p-XYLENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
o-XYLENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,1,2,2-TETRACHLOROETHANE	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,3-DICHLOROBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2-DICHLOROBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,4-DICHLOROBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
DATE COLLECTED	04/21/97	04/21/97	04/21/97	04/21/97	04/21/97	04/21/97	04/21/97	04/21/97	04/21/97
DATE ANALYZED	04/23/97	04/23/97	04/23/97	04/23/97	04/23/97	04/23/97	04/22/97	04/22/97	04/22/97
FILE NAME	M12 312	M12 313	M12 314	M12 315	M12 316	M12 317	M12 286	M12 291	M12 293

COMPOUND	IR88-TW24IW-01	IR88-TW24IW-01	IR88-TW25-01	IR88-TW25IW-01	IR88-TW26-01	IR88-TW26IW-01	IR88-TW27-01	IR88-TW27IW-01	IR88-TW28-01
VINYL CHLORIDE	<50	<50	<50	<50	<50	<50	<50	<50	<50
FLUOROTRICHLOROMETHANE	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
1,1-DICHLOROETHENE	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
METHYLENE CHLORIDE	<1	<1	<1	<1	<1	<1	<1	<1	<1
t-1,2-DICHLOROETHENE	<1	<1	<1	<1	<1	<1	<1	<1	<1
c-1,2-DICHLOROETHENE	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-DICHLOROETHANE	<1	<1	<1	<1	<1	<1	<1	<1	<1
CHLOROFORM	<.1	<.1	<.1	<.1	<.1	<.1	<.1	12.2 X	3.1 X
1,1,1-TRICHLOROETHANE	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	0.3 X
CARBON TETRACHLORIDE	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
BENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2-DICHLOROETHANE	<1	<1	<1	<1	<1	<1	<1	<1	<1
TRICHLOROETHENE	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	0.7
TOLUENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,1,2-TRICHLOROETHANE	<1	<1	<1	<1	<1	<1	<1	<1	<1
TETRACHLOROETHENE	<.1	<.1	<.1	0.3	<.1	<.1	<.1	0.4	<.1
CHLOROBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
ETHYL BENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
m&p-XYLENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
o-XYLENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,1,2,2-TETRACHLOROETHANE	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,3-DICHLOROBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,2-DICHLOROBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
1,4-DICHLOROBENZENE	<2	<2	<2	<2	<2	<2	<2	<2	<2
DATE COLLECTED	04/20/97	04/21/97	04/21/97	04/21/97	04/21/97	04/21/97	04/30/97	04/30/97	04/30/97
DATE ANALYZED	04/22/97	04/22/97	04/22/97	04/22/97	04/22/97	04/22/97	04/30/97	04/30/97	04/30/97
FILE NAME	M12 283	M12 287	M12 292	M12 288	M12 285	M12 284	M12 470	M12 471	M12 474

MICROSEEPS

971025

---- BAKER ENVIRONMENTAL ----

PAGE 3 of 3

---- PROJECT: SITE 88 ----

---- WATER CONCENTRATIONS IN (ug/l) ----

COMPOUND	IR88-TW28IW-01	MDL's
VINYL CHLORIDE	<50	50
FLUOROTRICHLOROMETHANE	<.1	0.1
1,1-DICHLOROETHENE	1.9	0.1
METHYLENE CHLORIDE	<1	1
t-1,2-DICHLOROETHENE	<1	1
c-1,2-DICHLOROETHENE	1	1
1,1-DICHLOROETHANE	<1	1
CHLOROFORM	13.8	0.1
1,1,1-TRICHLOROETHANE	<.1	0.1
CARBON TETRACHLORIDE	<.1	0.1
BENZENE	<2	2
1,2-DICHLOROETHANE	<1	1
TRICHLOROETHENE	4.1	0.1
TOLUENE	<2	2
1,1,2-TRICHLOROETHANE	<1	1
TETRACHLOROETHENE	0.3	0.1
CHLOROBENZENE	<2	2
ETHYL BENZENE	<2	2
m&p-XYLENE	<2	2
o-XYLENE	<2	2
1,1,2,2-TETRACHLOROETHANE	<10	10
1,3-DICHLOROBENZENE	<2	2
1,2-DICHLOROBENZENE	<2	2
1,4-DICHLOROBENZENE	<2	2

DATE COLLECTED	04/30/97
DATE ANALYZED	04/30/97
FILE NAME	M12 475

CHAIN-OF-CUSTODY: PHASE I

WESTON Analytics Use Only

35 - 007

Custody Transfer Record/Lab Work Request

Client <u>BAKER ENVIRONMENTAL, INC.</u>		Refrigerator #																		
Est. Final Proj. Sampling Date <u>8/30/96</u>		#/Type Container		Liquid																
Work Order #				Solid																
Project Contact/Phone # <u>M. Bartman / 412-269-2053</u>		Volume		Liquid																
AD Project Manager <u>D. Woltman</u>				Solid																
QC Del <u>TAT</u>		Preservatives																		
Date Rec'd		Date Due		ANALYSES REQUESTED				ORGANIC				INORG		No. of bottles						
Account #				VOA	BNA	Pest/PCB	Herb	Metal	CN											

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only															
			MS	MSD																			
		<u>88-TW19IW-01A</u>			<u>W</u>	<u>8/27</u>	<u>1335</u>	<u>X</u>															<u>2</u>
		<u>88-TW19-01A</u>			<u>W</u>	<u>8/27</u>	<u>1410</u>	<u>X</u>															<u>2</u>
		<u>88-TW09-01A</u>			<u>W</u>	<u>8/27</u>	<u>1455</u>	<u>X</u>															<u>2</u>
		<u>88-TW05IW-01A</u>			<u>W</u>	<u>8/28</u>	<u>1230</u>	<u>X</u>															<u>2</u>
		<u>88-TW05-01A</u>			<u>W</u>	<u>8/28</u>	<u>1720</u>	<u>X</u>															<u>2</u>
		<u>88-TW08IW-01A</u>			<u>W</u>	<u>8/28</u>	<u>1030</u>	<u>X</u>															<u>2</u>
		<u>88-TW08-01A</u>			<u>W</u>	<u>8/28</u>	<u>0915</u>	<u>X</u>															<u>2</u>
		<u>88-TB04</u>			<u>W</u>	<u>8/29</u>	<u>0800</u>	<u>X</u>															<u>2</u>

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
FED-EX Airbill # 1369799115

- DATE/REVISIONS:
- _____
 - _____
 - _____
 - _____
 - _____
 - _____

WESTON Analytics Use Only

Samples were:	COC Tape was:
1) Shipped _____ or Hand Delivered _____ Airbill # _____	1) Present on Outer Package Y or N
2) Ambient or Chilled	2) Unbroken on Outer Package Y or N
3) Received in Good Condition Y or N	3) Present on Sample Y or N
4) Labels Indicate Properly Preserved Y or N	4) Unbroken on Sample Y or N
5) Received Within Holding Times Y or N	COC Record Present Upon Sample Rec't Y or N

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
<u>J.P.T.</u>	<u>FED-EX</u>	<u>8/29/96</u>	<u>1600</u>				

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

CHAIN-OF-CUSTODY: PHASE II

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

Client: Baker Environmental Inc	Refrigerator #																		
Est. Final Proj. Sampling Date: 6/17/97	#/Type Container	Liquid																	
Work Order #: 62470-356	Volume	Liquid																	
Project Contact/Phone #	Preservatives	Solid																	
AD Project Manager	ANALYSES REQUESTED	ORGANIC						INORG											
QC: Del: TAT:		VOA	BNA	Pest/PCB	Herb			Metal	CN										
Date Rec'd	Date Due																		
Account #	WESTON Analytics Use Only																		

MATRIX CODES S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids LTA - EPA TOP W - Waste X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only												
			MS	MSD																
	89-MW04-03				S	4/15/97	18:20	X	X	X										
	89-MW04-05				S	4/15/97	18:29	X	X	X										
	89-MW04DW-03				S	4/17/97	07:56	X	X											
	89-MW04DW-05				S	4/17/97	09:16	X	X											
	88-MW04DW-06				S	4/18/97	09:10	X												
	88-MW04DN-07				S	4/19/97	09:15	X												
	89-MW05IN-03				S	4/18/97	09:24	X	X	X										
	89-MW05IN-06				S	4/18/97	09:49	X	X											
	TB-01				N	4/18/97	14:05	X												
	89-R30				N	4/19/97	17:30	X	X	X										

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS				DATE/REVISIONS:				WESTON Analytics Use Only			
Special Instructions:				1.	_____			Samples were: 1) Shipped ___ or Hand Delivered ___ Airbill # _____ 2) Ambient or Chilled 3) Received in Good Condition Y or N 4) Labels Indicate Property Preserved Y or N 5) Received Within Holding Times Y or N	COC Tape was: 1) Present on Outer Package Y or N 2) Unbroken on Outer Package Y or N 3) Present on Sample Y or N 4) Unbroken on Sample Y or N COC Record Present Upon Sample Rec't Y or N		
				2.	_____						
				3.	_____						
				4.	_____						
				5.	_____						
				6.	_____						
Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Discrepancies Between Samples Labels and COC Record? Y or N NOTES:			
APT	Feb EX	4/18/97	1800								

COOLER 1 of 1



WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

Client BAKER ENVIRONMENTAL, INC.	Refrigerator #																			
Est. Final Proj. Sampling Date 6/16/97	#/Type Container	Liquid																		
Work Order # CTO 350		Solid																		
Project Contact/Phone # M.D. BARTMAN	Volume	Liquid																		
AD Project Manager BOSCO RAMIREZ		Solid																		
QC BOA Del BOA TAT BOA	Preservatives																			
Date Rec'd _____ Date Due _____	ANALYSES REQUESTED →	ORGANIC					TOC	INORG												
Account # _____		VOA	BNA	Pest/PCB	Herb			Metal	CN											

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only																													
			MS	MSD				VOA	BNA	Pest/PCB	Herb	TOC	Metal	CN																							
			IR88-MW03DW-02	S				4.30.97	0835	✓																											
IR88-MW03DW-04	S	4.30.97	0850	✓				✓																													
IR93-MW01-02	S	4.30.97	1210	✓	✓	✓																															
IR93-MW01-04	S	4.30.97	1229	✓	✓																																
IR93-MW03-02	S	4.30.97	0741	✓	✓																																
IR93-MW03-02D	S	4.30.97	0741	✓	✓																																
IR93-MW03-04	S	4.30.97	0759	✓	✓																																
IR93-MW03LW-02	S	4.29.97	1100	✓	✓																																
IR93-MW03LW-04	S	4.29.97	1112	✓	✓																																
IR93-MW01LW-02	S	4.30.97	1502	✓	✓																																

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Air bill # 3558272815

DATE/REVISIONS:

- _____
- _____
- _____
- _____
- _____
- _____

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or
Hand Delivered ___
Airbill # _____

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

4) Labels Indicate Properly Preserved Y or N

5) Received Within Holding Times Y or N

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
APT	Fed-EX	4/30/97	1800				

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

356-004

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

Client <u>Baker Environmental, Inc</u>		Refrigerator # _____																		
Est. Final Proj. Sampling Date _____		#/Type Container		Liquid																
Work Order # _____		Volume		Solid																
Project Contact/Phone # _____		Preservatives		Liquid																
AD Project Manager _____				Solid																
QC _____ Del _____ TAT _____		ANALYSES REQUESTED \rightarrow		ORGANIC				INORG												
Date Rec'd _____ Date Due _____				VOA	BNA	Pest/PCB	Herb					Metal	CN							
Account # _____																				

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only												
			MS	MSD				VOA	BNA	Pest/PCB	Herb	Metal	CN							
	IR93-MW01EW-04				S	4.30.97	1518	✓			✓									
	IR93-MW01EW-04D				S	4.30.97	1518	✓			✓									
	IR93-RBSB09				W	4.30.97	1300	✓												
	IR88-RBSB07				W	4.30.97	1000	✓												
	IR89-RBSB08				W	4.30.97	1230	✓												
				JPT	W															
	TB04				W	4.14.97	1455	✓												

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS				DATE/REVISIONS:				WESTON Analytics Use Only			
Special Instructions: IR93-RBSB09 stainless steel spoon IR88-RBSB07 stainless steel spoon IR89-RBSB08 split spoon				1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____				Samples were: 1) Shipped ___ or Hand Delivered ___ Airbill # _____ 2) Ambient or Chilled 3) Received in Good Condition Y or N 4) Labels Indicate Properly Preserved Y or N 5) Received Within Holding Times Y or N COC Tape was: 1) Present on Outer Package Y or N 2) Unbroken on Outer Package Y or N 3) Present on Sample Y or N 4) Unbroken on Sample Y or N COC Record Present Upon Sample Rec't Y or N			
Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Discrepancies Between Samples Labels and COC Record? Y or N NOTES:			
JPT	Fed-EX	4/30/97	1800								

WESTON Analytics Use Only

356-004

Custody Transfer Record/Lab Work Request

Client <u>Baker Environmental, Inc.</u>		Refrigerator #																		
Est. Final Proj. Sampling Date <u>6/16/97</u>		#/Type Container		Liquid																
Work Order # <u>CTO 356</u>		Volume		Solid																
Project Contact/Phone # <u>M.D. Bartman 412-269-2058</u>		Preservatives		Liquid																
AD Project Manager <u>Rosco Ramirez</u>		ANALYSES REQUESTED →		Solid																
QC <u>BoA</u> Del <u>BoA</u> TAT <u>BoA</u>		ORGANIC																		
Date Rec'd _____ Date Due _____		INORG																		
Account # _____		Metal																		
		CN																		

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only														
			MS	MSD				VOA	BNA	Pest/PCB	Herb											
			IR89-RBSB08					W	4.30.97	1230	✓	✓										
IR93-RBSB09		W	4.30.97	1300	✓	✓																

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS Special Instructions: <u>IR89-RBSB08 split spoon</u> <u>IR93-RBSB09 stainless steel spoon</u> <u>Airbill # 3558272815</u>	DATE/REVISIONS: 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____	WESTON Analytics Use Only Samples were: 1) Shipped ___ or Hand Delivered ___ Airbill # _____ 2) Ambient or Chilled 3) Received in Good Condition Y or N 4) Labels Indicate Properly Preserved Y or N 5) Received Within Holding Times Y or N COC Tape was: 1) Present on Outer Package Y or N 2) Unbroken on Outer Package Y or N 3) Present on Sample Y or N 4) Unbroken on Sample Y or N COC Record Present Upon Sample Rec't Y or N
--	--	--

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Discrepancies Between Samples Labels and COC Record? Y or N NOTES:
<u>PT</u>	<u>Fed-EX</u>	<u>4.30.97</u>	<u>1800</u>					

356-006 Custody Transfer Record/Lab Work Request

Client: <u>Baker Environmental, Inc.</u>				Refrigerator #																	
Est. Final Proj. Sampling Date: <u>6-16-97</u>				#/Type Container				Liquid:													
Work Order # <u>CTO-356</u>				Volume				Solid:													
Project Contact/Phone # <u>MD B. Jones 412-269-7653</u>				Preservatives				Liquid:													
AD Project Manager <u>Basco Ramirez</u>				ANALYSES REQUESTED →				Solid:													
QC <u>BOA</u> Del <u>BOA TAT See NOTE 1</u>				ORGANIC																	
Date Rec'd _____ Date Due _____				VOA																	
Account # _____				BNA																	
				Pest/PCB																	
				Herb																	
				Metal																	
				CN																	

MATRIX CODES: S: Soil SE: Sediment SO: Solid SL: Sludge W: Water O: Oil A: Air DS: Drum DL: Drum L: EP/CLP Leachate WI: Wipe X: Other F: Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only												
			MS	MSD				1	2	3	4	5	6	7	8	9	10	11	12	
			1997																	
	IR88-RBSB10				W	5/4	1130	X	X	X										
	IR88-MW06TW-06				S	5/4	1006	X												
	IR88-MW06TW-06D				S	5/4	1006	X												
	IR88-MW06TW-07				S	5/4	1010	X												
	IR88-RRSR11				W	5/4	1400	X												
	*IR89-MW06TW-01				W	5/5	1640	X												
	*IR89-MW06TW-01				W	5/5	1635	X												
	IR89-MW07TW-04		X	X	S	5/3	1616	X	X										X	
	IR89-MW07TW-06				S	5/3	1645	X	X										X	
	IR89-MW07DW-04				S	5/4	1624	X	X										X	

<p>FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS</p> <p>Special Instructions:</p> <p>IR88-RBSB10 split spoon</p> <p>IR88-RBSB11 stainless steel spoon</p> <p>* Quick TAT Karen Wood 412-269-6000</p>	<p>DATE/REVISIONS:</p> <p>1. _____</p> <p>2. _____</p> <p>3. _____</p> <p>4. _____</p> <p>5. _____</p> <p>6. _____</p>
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WESTON Analytics Use Only	
<p>Samples were:</p> <p>1) Shipped <input type="checkbox"/> or Hand Delivered <input type="checkbox"/></p> <p>Airbill # _____</p> <p>2) Ambient or Chilled</p> <p>3) Received in Good Condition Y or N</p> <p>4) Labels Indicate Properly Preserved Y or N</p> <p>5) Received Within Holding Times Y or N</p>	<p>COC Tape was:</p> <p>1) Present on Outer Package Y or N</p> <p>2) Unbroken on Outer Package Y or N</p> <p>3) Present on Sample Y or N</p> <p>4) Unbroken on Sample Y or N</p> <p>COC Record Present Upon Sample Rec't Y or N</p>

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
APT	Fed-EX	5/5/97	1800				

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

WESTON Analytics Use Only

356-006

Custody Transfer Record/Lab Work Request

Client: <u>Baker Environmental</u>	Refrigerator #																			
Est. Final Proj. Sampling Date	#/Type Container	Liquid																		
Work Order #	Solid																			
Project Contact/Phone #	Volume	Liquid																		
AD Project Manager	Solid																			
QC Del TAT	Preservatives																			
Date Rec'd _____ Date Due _____	ANALYSES REQUESTED \rightarrow	ORGANIC				INORG		GRAIN SIZE	BULK DENSITY											
Account # _____		VOA	BNA	Pest/PCB	Herb	Metal	CN													

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/CLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only																	
			MS	MSD																					
								1997																	
		TR89-MN07DW-06			S	5/14	1635	X	X										X						
		TR89-MN06SDW-01			S	5/12	1527													X	X				
		TR06			N	4/14	1455	X																	

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

DATE/REVISIONS:

- _____
- _____
- _____
- _____
- _____
- _____

WESTON Analytics Use Only

Samples were:
 1) Shipped or Hand Delivered
 Airbill # _____
 2) Ambient or Chilled
 3) Received in Good Condition Y or N
 4) Labels Indicate Properly Preserved Y or N
 5) Received Within Holding Times Y or N

COC Tape was:
 1) Present on Outer Package Y or N
 2) Unbroken on Outer Package Y or N
 3) Present on Sample Y or N
 4) Unbroken on Sample Y or N
 COC Record Present Upon Sample Rec't Y or N

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
AOT	FED-EX	5/14/97	1800				

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

Custody Transfer Record/Lab Work Request



Client: <u>Baker Environmental Inc.</u>				Refrigerator #			
Est. Final Proj. Sampling Date: <u>6-16-97</u>				#/Type Container		Liquid	
Work Order #: <u>CTO 356</u>				Volume		Solid	
Project Contact/Phone #: <u>M.P. Bartman 412-269-2053</u>				Preservatives		Liquid	
AD Project Manager: <u>Bosco Ramirez</u>				ANALYSES REQUESTED		Solid	
QC: <u>BoA</u> Del: <u>BoA</u> TAT: <u>BoA</u>				ORGANIC		INORG	
Date Rec'd _____ Date Due _____				VOA		Metal	
Account # _____				BNA		CN	
				Pest/PCB		Herb	

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only														
					1997																
		*IR89-MW07IW-01		W	5/6	1340	X														
		*IR89-MW07DW-01		W	5/6	1420	X														
		IR93-RBSB11		W	5/6	1130	X	X	X					X							
		IR88-RBSB12		W	5/6	1630	X														
		IR93-MW04IW-02		S	5/6	0746	X	X						X							
		IR93-MW04IW-04		S	5/6	0802	X	X						X							
		IR89-MW06DW-07		S	5/2	1527														X	
		TIS07		W	4/4	1455	X														
		IR88-MW07IW-09		S	5/5	1727														X	
		IR88-MW07IW-22		S	5/5	1824														X	

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS				DATE/REVISIONS:				WESTON Analytics Use Only			
Special Instructions: * Quick T.A.T. Karrn Wood 412-269-6014 IR88-RBSB12 stainless steel spoon IR93-RBSB11 split spoon Airbill # 3558272874				1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____				Samples were: 1) Shipped ___ or Hand Delivered ___ Airbill # _____ 2) Ambient or Chilled 3) Received in Good Condition Y or N 4) Labels Indicate Properly Preserved Y or N 5) Received Within Holding Times Y or N			
COC Tape was: 1) Present on Outer Package Y or N 2) Unbroken on Outer Package Y or N 3) Present on Sample Y or N 4) Unbroken on Sample Y or N COC Record Present Upon Sample Rec't Y or N				Discrepancies Between Samples Labels and COC Record? Y or N NOTES:							
Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time				
JPT	Fed-EX	5/4/97	1800								

3-008

Custody Transfer Record/Lab Work Request

Client: Baker Environmental, Inc.		Refrigerator #													
Est. Final Proj Sampling Date: 6-16-97		#/Type Container	Liquid												
Work Order #: CTO 356			Solid												
Project Contact/Phone #: M.D. Bartman 412-269-2053		Volume	Liquid												
AD Project Manager: Basco Ramirez			Solid												
QC: B0A Del: B0A TAT: B0A		Preservatives													
Date Rec'd _____ Date Due _____		ANALYSES REQUESTED →	ORGANIC				INORG		Total Organic Carbon	Grain Size	Bulk Density				
Account # _____			VOA	BNA	Pes/PCB	Herb	Metal	CN							

MATRIX CODES S: Soil SE: Sediment SO: Solid SL: Sludge W: Water O: Oil A: Air DS: Drum Solids DL: Drum Liquids L: EP/TCLP Leachate WI: Wipe X: Other F: Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only															
			MS	MSD																			
	IR88-RBSB13			W	5/7	1000	X																
	IR88-FB02			W	5/7	1015	X	X	X				X										DE H ₂ O FOR DCOA
	IR88-FB03			W	5/7	1030	X	X	X				X										Lab Grade DE H ₂ O
	IR88-SB02-04			S	5/7	0803	X																
	IR88-SB02-04D			S	5/7	0803	X																
	IR88-SB02-05			S	5/7	0803	X																
	IR88-MW08-08			S	5/7	0931								X	X	X							
	IR88-MW08-22			S	5/7	1022								X	X	X							
	IR93-MW04-02			S	5/6	1720	X	X					X										
	IR93-MW04-02D			S	5/6	1720	X	X					X										

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
 IR88-RBSB13 stainless steel spoon
 "HOLD"
 Airbill #
 3558272782

DATE/REVISIONS:

- _____
- _____
- _____
- _____
- _____
- _____

WESTON Analytics Use Only

Samples were: 1) Shipped ___ or Hand Delivered ___ Airbill # _____ 2) Ambient or Chilled 3) Received in Good Condition Y or N 4) Labels Indicate Properly Preserved Y or N 5) Received Within Holding Times Y or N	COC Tape was: 1) Present on Outer Package Y or N 2) Unbroken on Outer Package Y or N 3) Present on Sample Y or N 4) Unbroken on Sample Y or N COC Record Present Upon Sample Rec't Y or N
--	--

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
J.P.T.	Fed-EX	5/7/97	1800				

Discrepancies Between Samples Labels and COC Record? Y or N
 NOTES:

WESTON Analytics Use Only

356-008
Custody Transfer Record/Lab Work Request

Client: <u>Baker Environmental Inc</u>	Refrigerator #												
Est. Final Proj. Sampling Date: <u>6-16-97</u>	#/Type Container	Liquid											
Work Order #: <u>CTO 356</u>		Solid											
Project Contact/Phone #: <u>M.D. Bartman 412-269-2053</u>	Volume	Liquid											
AD Project Manager: <u>Bosco Ramirez</u>		Solid											
QC: <u>BoA</u> Del: <u>BoA</u> TAT: <u>BoA</u>	Preservatives												
Date Rec'd _____ Date Due _____	ANALYSES REQUESTED →	ORGANIC						INORG					
Account # _____		VOA	BNA	Pest/PCB	Herb			Metal	CN				

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only															
			MS	MSD																			
		IR93-MW04-04			S	5/6	1732	X	X														
		IR88-SB04-04			S	5/6	1419	X															
		IR88-SB04-05			S	5/6	1425	X															
		IR88-SB05-05	X	X	S	5/6	1729	X															
		IR88-SB05-06			S	5/6	1731	X															
		IR88-SB06-04			S	5/6	1606	X															
		IR88-SB06-05			S	5/6	1611	X															
		TB08			W	4/21	1430	X															

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS	DATE/REVISIONS:	WESTON Analytics Use Only
Special Instructions:	1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____	Samples were: 1) Shipped ___ or Hand Delivered ___ Airbill # _____ 2) Ambient or Chilled 3) Received in Good Condition Y or N 4) Labels Indicate Properly Preserved Y or N 5) Received Within Holding Times Y or N COC Tape was: 1) Present on Outer Package Y or N 2) Unbroken on Outer Package Y or N 3) Present on Sample Y or N 4) Unbroken on Sample Y or N COC Record Present Upon Sample Rec't Y or N

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Discrepancies Between Samples Labels and COC Record? Y or N NOTES:
<u>A.P.T.</u>	<u>Fed-Ex</u>	<u>5/7/96</u>	<u>1800</u>					

Custody Transfer Record/Lab Work Request

236-010

Client: <u>Baker Environmental, Inc.</u>	Refrigerator #																							
Est. Final Proj. Sampling Date: <u>6-16-97</u>	#/Type Container	Liquid																						
Work Order # <u>62470-356</u>		Solid																						
Project Contact/Phone # <u>MD. Bartmon 412-269-2053</u>	Volume	Liquid																						
AD Project Manager <u>Boaco Ramirez</u>		Solid																						
QC: <u>BOA</u> Del: <u>BOA</u> TAT: <u>BOA</u>	Preservatives																							
Date Rec'd _____ Date Due _____	ANALYSES REQUESTED ➔	<table border="1" style="width:100%; text-align: center;"> <tr> <td colspan="5">ORGANIC</td> <td colspan="5">INORG</td> </tr> <tr> <td>VOA</td> <td>BNA</td> <td>Pest/PCB</td> <td>Herb</td> <td></td> <td>Metal</td> <td>CN</td> <td>Nat. Parameters</td> <td>Sulfide</td> <td>COD</td> <td>Metals</td> <td>No. of Bottles</td> </tr> </table>	ORGANIC					INORG					VOA	BNA	Pest/PCB	Herb		Metal	CN	Nat. Parameters	Sulfide	COD	Metals	No. of Bottles
ORGANIC					INORG																			
VOA	BNA	Pest/PCB	Herb		Metal	CN	Nat. Parameters	Sulfide	COD	Metals	No. of Bottles													
Account # _____	WESTON Analytics Use Only																							

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only													
			MS	MSD																	
	IR88	MW05-01			W	5/13	1600	X								X	X	X	X		8
	IR88	MW05FW-01			W	5/13	1700	X								X	X	X	X		8
	IR88	MW05DW-01			W	5/13	1850	X								X	X	X	X		8
	IR88	MW04-01			W	5/14	0940	X													2
	IR88	MW04FW-01			W	5/14	1045	X													2
	IR88	MW04DW-01			W	5/14	1110	X													2
	IR89	MW08DW-04			S	5/13	1412	X	X						X						3
	IR89	MW08DW-06			S	5/13	1420	X	X						X						3
	IR89	MW08DW-20			S	5/13	0907							X							1
	TB10				W	5/14	1155	X													2

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Nat. Allen. Parameters include: Nitrate, Nitrite, Sulfate, ~~Sulfide~~ Chloride Fe⁺², BOD, TSS/TDS

DATE/REVISIONS:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

WESTON Analytics Use Only

Samples were: 1) Shipped ___ or Hand Delivered ___ Airbill # _____ 2) Ambient or Chilled 3) Received in Good Condition Y or N 4) Labels Indicate Property Preserved Y or N 5) Received Within Holding Times Y or N	COC Tape was: 1) Present on Outer Package Y or N 2) Unbroken on Outer Package Y or N 3) Present on Sample Y or N 4) Unbroken on Sample Y or N COC Record Present Upon Sample Rec't Y or N
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Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
<u>A.P.T.</u>	<u>Fed. Ex</u>	<u>5/14/97</u>	<u>1700</u>				

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

356-~~010~~ 011 Custody Transfer Record/Lab Work Request

Client: <u>Baker Environmental, Inc.</u>		Refrigerator # _____																																											
Est. Final Proj. Sampling Date: <u>6-16-97</u>		#/Type Container	<table border="1" style="font-size: 8px;"> <tr><td>Liquid</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Solid</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	Liquid																					Solid																				
Liquid																																													
Solid																																													
Work Order #: <u>62470-356</u>		Volume	<table border="1" style="font-size: 8px;"> <tr><td>Liquid</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Solid</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	Liquid																					Solid																				
Liquid																																													
Solid																																													
Project Contact/Phone #: <u>M.B. Barman 412-269-2053</u>		Preservatives																																											
AD Project Manager: <u>Bosco Rumeiz</u>		ANALYSES REQUESTED →	<table border="1" style="font-size: 8px;"> <tr><th colspan="4">ORGANIC</th><th colspan="2">INORG</th><td rowspan="2">TCLP</td><td rowspan="2">Reactivity</td><td rowspan="2">Metals</td><td rowspan="2">CN</td><td rowspan="2">Other</td><td rowspan="2">Can</td><td rowspan="2">Notes</td></tr> <tr><td>VOA</td><td>BNA</td><td>Pest/PCB</td><td>Herb</td><td>Metal</td><td>CN</td></tr> </table>	ORGANIC				INORG		TCLP	Reactivity	Metals	CN	Other	Can	Notes	VOA	BNA	Pest/PCB	Herb	Metal	CN																							
ORGANIC				INORG		TCLP	Reactivity	Metals	CN								Other	Can	Notes																										
VOA	BNA	Pest/PCB	Herb	Metal	CN																																								
QC: <u>BOA</u> Del: <u>BOA</u> TAT: <u>BOA</u>		WESTON Analytics Use Only																																											
Date Rec'd _____ Date Due _____																																													
Account # _____																																													

MATRIX CODES: S: Soil SE: Sediment SO: Solid SL: Sludge W: Water O: Oil A: Air DS: Drum Solids DL: Drum Liquids L: EP/TCLP Leachate WI: Wipe X: Other F: Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only																		
			MS	MSD																						
		IR88-ROB1			SL	5/15	1100	X	X	X		X	X		X											
		IR88-ROB2			S	5/15	1130	X	X	X		X	X		X											
		IR88-ROB3			S	5/15	1200	X	X	X		X	X		X											
		IR89-MW03IW-02			S	5/15	0822	X	X	X					X											
		IR89-MW03IW-02ID			S	5/15	0822	X	X	X					X											
		IR89-MW03IW-05	X	X	S	5/15	0846	X	X	X					X											
		IR88-MW03-01			W	5/14	1145	X											X	X	X	X				
		IR88-MW03IW-01			W	5/14	1615	X											X	X	X	X				
		IR88-MW03DW-01			W	5/14	1645	X											X	X	X	X				
		IR88-MW02DW-01			W	5/15	1140	X																		

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
TCLP includes BA, SVOA, Pest, Herb, metals

Not. Atten. Parameters include: Nitrate, Nitrite, Sulfate, Chloride, Fe²⁺, BOD, TSS/TDS

* VOAs only
Airbill # 3558272745

DATE/REVISIONS:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

WESTON Analytics Use Only

Samples were: 1) Shipped ___ or Hand Delivered ___ Airbill # _____ 2) Ambient or Chilled 3) Received in Good Condition Y or N 4) Labels Indicate Properly Preserved Y or N 5) Received Within Holding Times Y or N	COC Tape was: 1) Present on Outer Package Y or N 2) Unbroken on Outer Package Y or N 3) Present on Sample Y or N 4) Unbroken on Sample Y or N COC Record Present Upon Sample Rec't Y or N
--	--

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
<u>APT</u>	<u>Fed-EX</u>	<u>5/15/97</u>	<u>1730</u>				

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

556-011 Custody Transfer Record/Lab Work Request

Client: <u>Baker Environmental Inc</u>	Refrigerator #											
Est. Final Proj. Sampling Date: <u>6-16-97</u>	#/Type Container	Liquid										
Work Order # <u>62470-356</u>		Solid										
Project Contact/Phone # <u>M.D. Bortman 412-269-2053</u>	Volume	Liquid										
AD Project Manager <u>BOSCO Ramon</u>		Solid										
QC: <u>BOA</u> Del: <u>BOA TAT BOA</u>	Preservatives											
Date Rec'd _____ Date Due _____	ANALYSES REQUESTED →	ORGANIC					INORG					
Account # _____		VOA	BNA	Pest/PCB	Herb		Metal	CN				

MATRIX CODES S: Soil SE: Sediment SO: Solid SL: Sludge W: Water O: Oil A: Air DS: Drum S: Solids DL: Drum L: Liquids L: EP/TCLP Leachate W: Wipe X: Other F: Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only													
			MS	MSD																	
		<u>IR88-MWOZ-OI</u>			<u>W</u>	<u>5/15</u>	<u>1025</u>	X													
		<u>IR89-RBSB15</u>			<u>W</u>	<u>5/15</u>	<u>1500</u>	X	X	X											
		<u>IR88-MWOZ-IW-OLD</u>			<u>W</u>	<u>5/15</u>	<u>1240</u>	X													
		<u>IR88-MWOZ-IW-OI</u>			<u>W</u>	<u>5/15</u>	<u>1240</u>	X													
		<u>TB//</u>			<u>W</u>	<u>4/14</u>	<u>1455</u>	X													

<p>FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS</p> <p>Special Instructions: <u>IR89-RBSB15 split spoon</u> <u>"HOLD"</u></p>	<p>DATE/REVISIONS:</p> <p>1. _____</p> <p>2. _____</p> <p>3. _____</p> <p>4. _____</p> <p>5. _____</p> <p>6. _____</p>	<p style="text-align: center;">WESTON Analytics Use Only</p> <table style="width: 100%;"> <tr> <td style="width: 50%;"> <p>Samples were:</p> <p>1) Shipped ___ or Hand Delivered ___ Airbill # _____</p> <p>2) Ambient or Chilled</p> <p>3) Received in Good Condition Y or N</p> <p>4) Labels Indicate Properly Preserved Y or N</p> <p>5) Received Within Holding Times Y or N</p> </td> <td style="width: 50%;"> <p>COC Tape was:</p> <p>1) Present on Outer Package Y or N</p> <p>2) Unbroken on Outer Package Y or N</p> <p>3) Present on Sample Y or N</p> <p>4) Unbroken on Sample Y or N</p> <p>COC Record Present Upon Sample Rec't Y or N</p> </td> </tr> </table>	<p>Samples were:</p> <p>1) Shipped ___ or Hand Delivered ___ Airbill # _____</p> <p>2) Ambient or Chilled</p> <p>3) Received in Good Condition Y or N</p> <p>4) Labels Indicate Properly Preserved Y or N</p> <p>5) Received Within Holding Times Y or N</p>	<p>COC Tape was:</p> <p>1) Present on Outer Package Y or N</p> <p>2) Unbroken on Outer Package Y or N</p> <p>3) Present on Sample Y or N</p> <p>4) Unbroken on Sample Y or N</p> <p>COC Record Present Upon Sample Rec't Y or N</p>														
<p>Samples were:</p> <p>1) Shipped ___ or Hand Delivered ___ Airbill # _____</p> <p>2) Ambient or Chilled</p> <p>3) Received in Good Condition Y or N</p> <p>4) Labels Indicate Properly Preserved Y or N</p> <p>5) Received Within Holding Times Y or N</p>	<p>COC Tape was:</p> <p>1) Present on Outer Package Y or N</p> <p>2) Unbroken on Outer Package Y or N</p> <p>3) Present on Sample Y or N</p> <p>4) Unbroken on Sample Y or N</p> <p>COC Record Present Upon Sample Rec't Y or N</p>																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Relinquished by</th> <th>Received by</th> <th>Date</th> <th>Time</th> <th>Relinquished by</th> <th>Received by</th> <th>Date</th> <th>Time</th> </tr> <tr> <td><u>JPT</u></td> <td><u>Fed-EX</u></td> <td><u>5/15/97</u></td> <td><u>1730</u></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	<u>JPT</u>	<u>Fed-EX</u>	<u>5/15/97</u>	<u>1730</u>					<p>Discrepancies Between Samples Labels and COC Record? Y or N</p> <p>NOTES:</p>	
Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time											
<u>JPT</u>	<u>Fed-EX</u>	<u>5/15/97</u>	<u>1730</u>															

9705G 729

Custody Transfer Record/Lab Work Request

356-012



Client: <u>Baker Environmental, Inc.</u>		Refrigerator #	
Est. Final Proj. Sampling Date: <u>6-16-97</u>		#/Type Container	Liquid
Work Order # <u>62470-356</u>			Solid
Project Contact/Phone # <u>M.D. Bartman 412-269-2053</u>		Volume	Liquid
AD Project Manager: <u>Bosco Rameriz</u>			Solid
QC: <u>BOA</u> Del: <u>BOA</u> TAT: <u>BOA</u>		Preservatives	
Date Rec'd	Date Due	ANALYSES REQUESTED →	
Account #		ORGANIC	
		VOA	BNA
		Pest/PCB	Herb
		INORG	
		Metal	CN
			Notes: <u>Aspirin</u>
			<u>Paracetamol</u>
			<u>Sulfide</u>
			<u>CO2</u>
			<u>Methane</u>

MATRIX CODES: S- Soil SE- Sediment SO- Solid SL- Sludge W- Water O- Oil A- Air DS- Drum Solids DL- Drum Liquids L- EP/TCLP Leachate W- Waste X- Other F- Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only															
			MS	MSD																			
	001	IR93-MW02DW-02			S	5/16	1008	X	X	X													
	002	IR93-MW02DW-04	X	X	S	5/16	1022	X	X														
	003	IR93-RB5B16			W	5/16	1200	X	X	X													
	004	IR88-RBGW17			W	5/16	1230	X															
	005	IR88-RBGW18			W	5/16	1300	X															
	006	IR89-MW03DN-02			S	5/15	1455	X	X														
	007	IR89-MW03DW-05			S	5/15	1508	X	X														
	008	IR88-MW01-01			W	5/15	1805	X										X	X	X	X		
	009	IR88-MW06-01			W	5/15	1535	X										X	X	X	X		
	010	IR88-MW06TW-01			W	5/15	1645	X										X	X	X	X		

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Airbill # 3558272771

IR93-RB5B16 split 3 rxn

IR88-RBGW17 silicon tubing

IR88-RBGW18 silicon & PE tubing

DATE/REVISIONS:

1. _____

2. _____

3. _____

4. 5.9c 5.2c coolers

5. _____

6. _____

WESTON Analytics Use Only

Samples were:
1) Shipped Y or Hand Delivered N
Airbill # Y or N

2) Ambient or Chilled Y

3) Received in Good Condition Y or N

4) Labels Indicate Properly Preserved Y or N

5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

NOTES: See SDR
CO2 date & initials

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
<u>APT</u>	<u>Fed-EX</u>	<u>5/16/97</u>	<u>1730</u>				
	<u>R Home</u>	<u>5.17.97</u>	<u>13:30</u>				

WESTON Analytics Use Only

356-012



Custody Transfer Record/Lab Work Request

Page of

Client: <u>Baker Environmental Inc</u>		Refrigerator #																		
Est. Final Proj. Sampling Date: <u>6-16-97</u>		#/Type Container	Liquid																	
Work Order # <u>62476-356</u>		Volume	Solid																	
Project Contact/Phone # <u>MD Bartman 412-269-2053</u>		Preservatives	Liquid																	
AD Project Manager <u>Bosco Ramirez</u>			Solid																	
QC: <u>BoA</u> Del: <u>BoA</u> TAT: <u>BoA</u>		ANALYSES REQUESTED																		
Date Rec'd	Date Due		ORGANIC					INORG												
Account #			VOA	BNA	Pest/PCB	Herb														

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only														
			MS	MSD				VOA	BNA	Pest/PCB	Herb	Metal	CN	TSS	TDS							

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS				DATE/REVISIONS:				WESTON Analytics Use Only			
Special Instructions: <u>Airbill # 3558272760</u>				1. _____				Samples were: _____			
				2. _____				COC Tape was: _____			
				3. _____				1) Shipped <u> </u> or _____			
				4. _____				Hand Delivered <u> </u> _____			
				5. _____				Airbill # _____			
				6. _____				2) Ambient or Chilled _____			
								3) Received In Good Condition Y or N _____			
								4) Labels Indicate Properly Preserved Y or N _____			
								4) Unbroken on Sample Y or N _____			
								5) Received Within Holding Times Y or N _____			
								COC Record Present Upon Sample Rec't Y or N _____			

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Discrepancies Between Samples Labels and COC Record? Y or N	NOTES:
<u>A.P.T.</u>	<u>Fcd-EX</u>	<u>5/19/97</u>	<u>1800</u>						

APPENDIX D
WELL DEVELOPMENT RECORDS

FIELD WELL DEVELOPMENT RECORD

PROJECT: CAMP LEJEUNE SITES 88, 89 + 93
 CTO NO.: 62470-356 WELL NO.: 88-MW02 IW
 DATE: 5-7-97
 GEOLOGIST/ENGINEER: KENNETH A. TUA

TIME START	0735
TIME FINISH	0945
INITIAL WATER LEVEL (FT)	15.61
TOTAL WELL DEPTH (TD)	49.0
WELL DIAMETER (INCHES)	2.0
CALCULATED WELL VOLUME	5.44
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	
PUMP TYPE	WATERRA
TOTAL TIME (A)	130 MIN
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	
HNU/OVA READING	

DEVELOPMENT DATA							
TIME	CUMULATIVE VOLUME (gallons)	pH	Dissolved O ₂ (mL/L)	SPEC. COND. (µmhos/cm)	TEMP (°C)	TURBIDITY (N.T.U)	COLOR
0735	0	10.71	3.10	547.00	20.5	200+	
0745	10	7.49	1.20	254.38	20	200+	
0755	20	7.18	1.10	254.64	22	200+	
0805	30	6.83	1.25	265.25	22	200+	
0815	40	6.76	1.10	265.25	22	200+	
0825	50	6.80	1.75	259.94	22	192	
0835	60	6.72	1.30	233.42	22	108	
0845	70	6.73	1.30	265.25	22	80	
0855	80	6.70	1.15	270.75	21	63	
0905	90	6.64	1.30	259.92	21	60	
0915	100	6.73	1.75	276.50	20	68	
0925	110	6.67	1.00	270.75	21	39	
0935	120	6.63	1.80	270.75	21	67	
0945	130	6.63	1.78	259.92	21	66	

Baker

Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORDPROJECT: CAMP LEJEUNE Sites 88, 89 + 93CTO NO.: 62470-356 WELL NO.: 88-MW05IWDATE: 5-5-97GEOLOGIST/ENGINEER: KENNETH A. TUA

TIME START
1250
TIME FINISH
1530
INITIAL WATER LEVEL (FT)
13.98
TOTAL WELL DEPTH (TD)
49.86
WELL DIAMETER (INCHES)
2.0
CALCULATED WELL VOLUME
5.84 GAL.
BOREHOLE DIAMETER (INCHES)
BOREHOLE VOLUME
AMOUNT OF WATER ADDED DURING DRILLING
DEVELOPMENT METHOD
PUMP TYPE
WATERRA
TOTAL TIME (A)
160 MIN.
AVERAGE FLOW (GPM)(B)
TOTAL ESTIMATED WITHDRAWAL AxB=
HNU/OVA READING

DEVELOPMENT DATA							
TIME	CUMULATIVE VOLUME (gallons)	pH	Dissolved O ₂ (mL/L)	SPEC. COND. (µmhos/cm)	TEMP (°C)	TURBIDITY (N.T.U)	COLOR
1250	0	8.25	0.50	686.70	26	200+	GRAY
1300	10	7.95	1.00	330.00	25	200+	
1310	20	7.79	1.00	370.00	25	200+	
1320	30	7.57	1.10	397.41	24	200+	
1330	40	7.48	1.40	390.00	23	200+	
1340	50	7.38	1.15	412.69	24	182	
1350	60	7.37	0.90	417.79	24	177	
1400	70	7.42	1.10	405.00	25	152	
1410	80	7.35	1.15	410.00	25	129	
1420	90	7.33	1.15	400.00	25	120	
1430	100	7.30	1.20	400.00	25	111	
1440	110	7.38	1.00	410.00	25	102	
1450	120	7.41	1.00	407.60	24	88	
1500	130	7.33	1.00	405.00	25	81	
1510	140	7.33	1.25	390.00	25	76	
1520	150	7.27	0.75	400.00	25	65	CLOUDY
1530	160	7.34	1.10	400.00	25	68	GRAY

FIELD WELL DEVELOPMENT RECORD

PROJECT: CAMP LEJEUNE Site 88, 89 + 93

CTO NO.: 62470-356 WELL NO.: 88-MW06JW

DATE: 5-13-97

GEOLOGIST/ENGINEER: KENNETH A. TUA

TIME START	<u>1140</u>
TIME FINISH	<u>1400</u>
INITIAL WATER LEVEL (FT)	<u>13.54</u>
TOTAL WELL DEPTH (TD)	<u>44.90</u>
WELL DIAMETER (INCHES)	<u>2.0</u>
CALCULATED WELL VOLUME	<u>5.11 GAL.</u>
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	
PUMP TYPE	<u>WATERRA</u>
TOTAL TIME (A)	<u>140 MIN</u>
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	
INU/OVA READING	

DEVELOPMENT DATA							
TIME	CUMULATIVE VOLUME (gallons)	pH	Dissolved O ₂ (mLL)	SPEC. COND. (µmhos/cm)	TEMP (°C)	TURBIDITY (N.T.U)	COLOR
<u>1140</u>	<u>10</u>	<u>5.37</u>	<u>1.10</u>	<u>134.82</u>	<u>27</u>	<u>200+</u>	<u>Brown Heavy SD.</u>
<u>1150</u>	<u>20</u>	<u>5.25</u>	<u>1.35</u>	<u>142.66</u>	<u>27</u>	<u>200+</u>	
<u>1200</u>	<u>30</u>	<u>5.17</u>	<u>1.50</u>	<u>132.47</u>	<u>24</u>	<u>200+</u>	
<u>1210</u>	<u>40</u>	<u>5.10</u>	<u>1.30</u>	<u>127.37</u>	<u>24</u>	<u>200+</u>	
<u>1220</u>	<u>50</u>	<u>5.03</u>	<u>1.50</u>	<u>120.00</u>	<u>25</u>	<u>200+</u>	
<u>1230</u>	<u>60</u>	<u>4.99</u>	<u>1.50</u>	<u>120.00</u>	<u>25</u>	<u>178</u>	
<u>1240</u>	<u>70</u>	<u>5.00</u>	<u>1.45</u>	<u>122.28</u>	<u>24</u>	<u>158</u>	
<u>1250</u>	<u>80</u>	<u>4.78</u>	<u>1.30</u>	<u>122.28</u>	<u>24</u>	<u>137</u>	
<u>1300</u>	<u>90</u>	<u>4.86</u>	<u>1.30</u>	<u>122.28</u>	<u>24</u>	<u>124</u>	
<u>1310</u>	<u>100</u>	<u>4.88</u>	<u>1.75</u>	<u>122.28</u>	<u>24</u>	<u>114</u>	
<u>1320</u>	<u>110</u>	<u>4.76</u>	<u>1.60</u>	<u>112.09</u>	<u>24</u>	<u>150</u>	
<u>1330</u>	<u>120</u>	<u>4.83</u>	<u>1.60</u>	<u>122.28</u>	<u>24</u>	<u>135</u>	
<u>1340</u>	<u>130</u>	<u>4.71</u>	<u>1.50</u>	<u>101.90</u>	<u>24</u>	<u>125</u>	
<u>1350</u>	<u>140</u>	<u>4.68</u>	<u>1.50</u>	<u>101.90</u>	<u>24</u>	<u>115</u>	
<u>1400</u>	<u>150</u>	<u>4.81</u>	<u>1.40</u>	<u>115.00</u>	<u>25</u>	<u>117</u>	<u>Brown Very Cloudy</u>



FIELD WELL DEVELOPMENT RECORD

PROJECT: CAMP LEJUNE SITES 88, 89 + 93

CTO NO.: 62470-356 WELL NO.: 88-MW07

DATE: 5-15-97

GEOLOGIST/ENGINEER: KENNETH A. TUA

TIME START <i>1002</i>
TIME FINISH <i>1240</i>
INITIAL WATER LEVEL (FT) <i>7.74</i>
TOTAL WELL DEPTH (TD) <i>22.0</i>
WELL DIAMETER (INCHES) <i>2.0</i>
CALCULATED WELL VOLUME <i>2.32 GAL</i>
BOREHOLE DIAMETER (INCHES)
BOREHOLE VOLUME
AMOUNT OF WATER ADDED DURING DRILLING
DEVELOPMENT METHOD
PUMP TYPE <i>WATERAA</i>
TOTAL TIME (A) <i>158 MIN</i>
AVERAGE FLOW (GPM)(B)
TOTAL ESTIMATED WITHDRAWAL AxB=
HNU/OVA READING

DEVELOPMENT DATA							
TIME	CUMULATIVE VOLUME (gallons)	pH	Dissolved O ₂ (mL/L)	SPEC. COND. (µmhos/cm)	TEMP (°C)	TURBIDITY (N.T.U)	COLOR
<i>1002</i>	<i>0</i>	<i>5.22</i>	<i>1.90</i>	<i>99.54</i>	<i>20</i>	<i>200+</i>	<i>Brown</i>
<i>1010</i>	<i>10</i>	<i>5.03</i>	<i>2.10</i>	<i>101.61</i>	<i>19</i>	<i>200+</i>	
<i>1020</i>	<i>20</i>	<i>4.99</i>	<i>0.75</i>	<i>88.48</i>	<i>20</i>	<i>193</i>	
<i>1030</i>	<i>30</i>	<i>4.96</i>	<i>2.00</i>	<i>84.67</i>	<i>19</i>	<i>200+</i>	
<i>1040</i>	<i>40</i>	<i>4.99</i>	<i>1.70</i>	<i>84.67</i>	<i>19</i>	<i>193</i>	
<i>1050</i>	<i>50</i>	<i>4.95</i>	<i>1.70</i>	<i>84.67</i>	<i>19</i>	<i>157</i>	
<i>1100</i>	<i>60</i>	<i>4.99</i>	<i>1.90</i>	<i>82.95</i>	<i>20</i>	<i>123</i>	
<i>1110</i>	<i>70</i>	<i>4.88</i>	<i>2.00</i>	<i>77.42</i>	<i>20</i>	<i>134</i>	
<i>1120</i>	<i>80</i>	<i>4.86</i>	<i>2.00</i>	<i>79.94</i>	<i>18.5</i>	<i>130</i>	
<i>1130</i>	<i>90</i>	<i>4.91</i>	<i>2.10</i>	<i>79.03</i>	<i>19</i>	<i>114</i>	
<i>1140</i>	<i>100</i>	<i>4.86</i>	<i>2.10</i>	<i>79.03</i>	<i>19</i>	<i>101</i>	
<i>1150</i>	<i>110</i>	<i>4.88</i>	<i>1.90</i>	<i>79.03</i>	<i>19</i>	<i>89</i>	
<i>1200</i>	<i>120</i>	<i>4.84</i>	<i>1.70</i>	<i>79.03</i>	<i>19</i>	<i>86</i>	
<i>1210</i>	<i>130</i>	<i>4.84</i>	<i>2.40</i>	<i>79.03</i>	<i>19</i>	<i>85</i>	
<i>1220</i>	<i>140</i>	<i>4.84</i>	<i>2.55</i>	<i>79.03</i>	<i>18.5</i>	<i>76</i>	<i>Cloudy Brown</i>
<i>1230</i>	<i>150</i>	<i>4.78</i>	<i>2.40</i>	<i>79.03</i>	<i>19</i>	<i>83</i>	
<i>1240</i>	<i>160</i>	<i>4.88</i>	<i>2.50</i>	<i>73.38</i>	<i>19</i>	<i>73</i>	

FIELD WELL DEVELOPMENT RECORD

PROJECT: CAMP LEJEUNE Sites 88, 89 + 93

CTO NO.: 62470-356 WELL NO.: 88-MW07IW

DATE: 5-15-97

GEOLOGIST/ENGINEER: KENNETH A. TUA

TIME START	0750
TIME FINISH	0930
INITIAL WATER LEVEL (FT)	13.6
TOTAL WELL DEPTH (TD)	49.98
WELL DIAMETER (INCHES)	2.0
CALCULATED WELL VOLUME	5.92 GAL.
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	
PUMP TYPE	WATERRA
TOTAL TIME (A)	100 MIN
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	
HNU/OVA READING	

DEVELOPMENT DATA							
TIME	CUMULATIVE VOLUME (gallons)	pH	Dissolved O ₂ (mL/L)	SPEC. COND. (µmhos/cm)	TEMP (°C)	TURBIDITY (N.T.U)	COLOR
0750	0	11.96	2.50	5530	20	200+	GRAY
0800	10	7.90	2.25	338.70	19	200+	
0810	20	6.37	2.10	225.80	19	200+	
0820	30	6.02	2.20	174.99	19	200+	
0830	40	6.00	2.15	152.41	19	140	
0840	50	5.87	2.50	135.48	19	103	
0850	60	5.75	1.35	135.48	19	74	
0900	70	5.73	1.40	135.48	19	57	
0910	80	5.70	1.80	135.48	19	43	
0920	90	5.64	1.50	129.83	19	42	
0930	100	5.58	1.60	124.19	19	38	CLEAR

FIELD WELL DEVELOPMENT RECORD

PROJECT: CAMP LEJEUNE SITES 88, 89 + 93

CTO NO.: 62470-356 WELL NO.: 88-MW08

DATE: 5-14-97

GEOLOGIST/ENGINEER: KENNETH A. TUA

TIME START	1052
TIME FINISH	1430
INITIAL WATER LEVEL (FT)	7.32
TOTAL WELL DEPTH (TD)	20.0
WELL DIAMETER (INCHES)	2.0
CALCULATED WELL VOLUME	2.06 GAL
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	
PUMP TYPE	WATER A
TOTAL TIME (A)	148 MIN
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	
HNU/OVA READING	

DEVELOPMENT DATA							
TIME	CUMULATIVE VOLUME (gallons)	pH	Dissolved O ₂ (mL/L)	SPEC. COND. (µmhos/cm)	TEMP (°C)	TURBIDITY (N.T.U)	COLOR
1052	0	4.41	1.75	92.32	18	200+	Dark Brown
1100	10	4.52	1.75	97.07	18.5	200+	
1110	20	4.61	2.15	92.32	18	200+	
1120	30	4.50	2.0	98.09	18	200+	
1130	40	4.53	1.85	98.09	18	200+	
1140	50	4.62	2.00	103.86	18	200+	
1150	60	4.63	2.00	103.86	18	200+	
1300	70	4.61	2.15	97.47	21	200+	
1310	80	4.52	2.30	99.54	20	200+	
1320	90	4.59	2.15	99.54	20	192	
1330	100	4.53	2.05	99.54	20	157	
1340	110	4.61	2.10	99.54	20	132	
1350	120	4.58	1.95	99.54	20	112	
1400	130	4.68	2.40	99.54	20	96	
1410	140	4.56	1.80	99.54	20	82	
1420	150	4.58	2.25	99.54	20	63	
1430	160	4.68	2.15	99.54	20	54	CLEAR

FIELD WELL DEVELOPMENT RECORD

PROJECT: CAMP LEJEUNE SITES 88, 89 + 93

CTO NO.: 62470-356 WELL NO.: 88-MW09

DATE: 5-14-97

GEOLOGIST/ENGINEER: KENNETH A. TUA

TIME START	0742
TIME FINISH	1010
INITIAL WATER LEVEL (FT)	8.17
TOTAL WELL DEPTH (TD)	21.0
WELL DIAMETER (INCHES)	2.0
CALCULATED WELL VOLUME	2.09 GAL.
BOREHOLE DIAMETER (INCHES)	
BOREHOLE VOLUME	
AMOUNT OF WATER ADDED DURING DRILLING	
DEVELOPMENT METHOD	
PUMP TYPE	WATERRA
TOTAL TIME (A)	148 MIN
AVERAGE FLOW (GPM)(B)	
TOTAL ESTIMATED WITHDRAWAL AxB=	
HNU/OVA READING	

DEVELOPMENT DATA							
TIME	CUMULATIVE VOLUME (gallons)	pH	Dissolved O ₂ (mL/L)	SPEC. COND. (µmhos/cm)	TEMP (°C)	TURBIDITY (N.T.U)	COLOR
0742	0	4.56	4.60	47.20	17	200+	GRAY
0750	8	4.47	4.15	41.30	17	200+	
0800	16	4.53	4.75	35.40	17	200+	
0810	24	4.48	4.80	35.40	17	200+	
0820	32	4.42	3.50	41.30	17	200+	
0830	40	4.44	3.50	41.30	17	194	
0840	48	4.45	3.60	41.30	17	161	
0850	56	4.47	3.50	41.30	17	149	
0900	64	4.48	3.40	40.39	18	135	
0910	72	4.47	3.60	41.30	17	128	
0920	80	4.51	3.60	41.30	17	123	
0930	88	4.54	3.65	41.30	17	113	
0940	96	4.46	3.45	41.30	17	110	
0950	104	4.53	3.35	35.40	17	88	
1000	112	4.50	3.25	41.30	17	85	CLOUDY
1010	120	4.54	3.25	41.30	17	72	GRAY

FIELD WELL DEVELOPMENT RECORD

PROJECT: CAMP LEJEUNE SITES 88, 89 + 93

CTO NO.: 62470-356 WELL NO.: 88-MW09IW

DATE: 5-13-97

GEOLOGIST/ENGINEER: KENNETH A. TUA

TIME START <u>1530</u>
TIME FINISH <u>1740</u>
INITIAL WATER LEVEL (FT) <u>12.01</u>
TOTAL WELL DEPTH (TD) <u>49.40</u>
WELL DIAMETER (INCHES) <u>2.0</u>
CALCULATED WELL VOLUME <u>6.09</u>
BOREHOLE DIAMETER (INCHES)
BOREHOLE VOLUME
AMOUNT OF WATER ADDED DURING DRILLING
DEVELOPMENT METHOD
PUMP TYPE <u>WATERRA</u>
TOTAL TIME (A) <u>130 MIN</u>
AVERAGE FLOW (GPM)(B)
TOTAL ESTIMATED WITHDRAWAL AxB=
HNU/OVA READING

DEVELOPMENT DATA							
TIME	CUMULATIVE VOLUME (gallons)	pH	Dissolved O ₂ (mL/L)	SPEC. COND. (µmhos/cm)	TEMP (°C)	TURBIDITY (N.T.U)	COLOR
1530	0	5.18	0.25	75.81	21	200+	GRAY GREEN
1535	10	5.04	0.75	77.42	20	200+	
1545	20	5.09	0.75	66.36	20	200+	
1555	30	5.07	0.90	66.36	20	200+	
1605	40	4.99	1.00	71.89	20	200+	
1615	50	4.95	1.00	71.89	20	200+	
1625	60	5.04	1.10	66.36	20	200+	
1640	70	5.11	0.90	66.36	20	200+	
1650	80	4.98	1.25	66.36	20	200+	
1700	90	4.87	1.25	71.89	20	129	
1710	100	4.86	0.85	71.89	20	112	
1720	110	4.84	0.50	77.42	20	108	
1730	120	4.81	0.65	77.42	20	107	
1740	130	4.82	0.70	82.95	20	107	CLOUDY GREEN

APPENDIX E
NATURAL ATTENUATION AND ENGINEERING PARAMETERS

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Monday June 30th, 1997

RE: IR88-MW05-01
Project # 00000-000-000-0000
Lab ID: 9706G009-012
Sample Date: 05/31/97
Date Received: 06/03/97

Attn: Ms. Karen Wood

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
Total Dissolved Solid	50	mg/L	10
Total Suspended Solid	24	mg/L	4



To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Monday June 30th, 1997

Attn: Ms. Karen Wood

RE: IR88-MW05DW-01
Project # 00000-000-000-0000
Lab ID: 9706G009-013
Sample Date: 05/31/97
Date Received: 06/03/97

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
Total Dissolved Solid	300	mg/L	10
Total Suspended Solid	6	mg/L	4



To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Attn: Ms. Karen Wood

Date: Monday June 30th, 1997

RE: IR88-MW05IW-01
Project # 00000-000-000-0000
Lab ID: 9706G009-014
Sample Date: 05/31/97
Date Received: 06/03/97

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
Total Dissolved Solid	250	mg/L	10
Total Suspended Solid	4	u mg/L	4



Recra LabNet - Chicago
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 Baker-Lejeune #356

LOT # :9704G396

CLIENT ID /ANALYSIS	SAMPLE #	MTX	PREP #	COLLECTN DATE	REC	EXT/PREP	ANALYSIS
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IR88-MW03DW-04

TOTAL ORGANIC CARBON	004	S	97GMC146	04/30/97	05/01/97	05/28/97	05/28/97
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LAB QC:

TOTAL ORGANIC CARBON	LCS BS	W	97GMC146	N/A	N/A	05/28/97	05/28/97
TOTAL ORGANIC CARBON	LCS BSD	W	97GMC146	N/A	N/A	05/28/97	05/28/97
TOTAL ORGANIC CARBON	MB1	W	97GMC146	N/A	N/A	05/28/97	05/28/97

WESTON Analytics Use Only
97046396

Custody Transfer Record/Lab Work Request



Client Baker-Lejeune #356
 Work Order 4-29-97 Date Rec'd 5/26/97
 Date Due 5-22-97
 RFW Contact Bosco Ramirez #657/97
 Client Contact/Phone Matt Bartman

Refrigerator#	5	8	8	8	8	5
#/Type Container	1/8	2/6	1/6	1/6	1/6	2/6
Volume	2oz	4-oz	4-oz	4-oz	8-oz	4Bnl
Preservative						001
ANALYSES REQUESTED	TOC %TSS %SOL	EDD	TOC %TSS %SOL	BNA %SOL	PARB %SOL	HSL Metals %SOL %SOL

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Samples Were:
 1 Shipped or Hand-Delivered **Fed X**

NOTES:

2 Ambient or Chilled **(N)**

NOTES:

3 Received Broken/Leaking (Improperly Sealed) **(N)**

Y **(N)**

NOTES:

4 Properly Preserved **(Y)** **(N)**

NOTES:

5 Received Within Holding Times **(Y)** **(N)**

NOTES:

5/1/97

WA Use Only Lab ID	Client ID/Description	Matrix	Date Collected						
001	88-MW05DW-05	S	4-22-97	A	✓				
002	88-MW05DW-06	S	↓	A					
003	IR88-mw03 dw-02	S	4/30/97	A					
004	IR88-mw03dw-04			A		B-C			
005	IR93-mw01-02			A		B	C	D	
006	MW01-04			A		B	C		
007	MW03-02			A		B	C		
008	MW03-02D			A		B	C		
009	MW03-04			X		B	C		
010	MW03IW-02		4/29/97	A		B	C		
011	MW03IW-04 MS/MSD*			A-C		D-F	G-I		
012	MW01IW-02		4/30/97	A		B	C		
013	MW01IW-04			A		B	C		
014	MW01IW-04D			X		B	C		
015	IR88-EBB BOT	W						AB	

Matrix: W - Water DS - Drum Solids X - Other
 S - Soil O - Oil DL - Drum Liquids
 SE - Sediment A - Air F - Fish
 SO - Solid WI - Wipe L - EP/TCLP Leachate

Special Instructions: * Acc'd 3x vol. for MS/MSD

QC - NFESC Del - NFESC D Internal coc

COC Tape Was:

1 Present on Outer Package **(N)**

2 Unbroken on Outer Package **(N)**

3 Present on Sample **(N)**

4 Unbroken on Sample **(N)**

NOTES: Y N

Item/Reason	Relinquished by	Received by	Date	Time	Item/Reason	Relinquished by	Received by	Date	Time
1-2		Shawn [Signature]	4/29/97	1502					
3-18		[Signature]	5/1/97	1600					

COC Record Was:

1 Present Upon Receipt of Samples **(Y)** **(N)**

Discrepancies Between Sample Labels and COC Record? **(Y)** **(N)**

NOTES: See SDR



Custody Transfer Record/Lab Work Request ²⁰⁸²

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97046396

Client Robert Lejeune #356
 Work Order 5/26/97
 Date Rec'd. 4/29/97 Date Due 5/22/97
 RFW Contact Boxco Ramsey PB 5/1/97
 Client Contact/Phone Matthew Bantman

Refrigerator#	5	8	8	8					
#/Type Container	2/G	1/G	1/G	1/P					
Volume	40ml	80ml	80ml	1-P					
Preservative	001			HMB					
ANALYSES REQUESTED	VOP 624H	BWA 625H	P/RB 608H	HSL Metals					

WA Use Only Lab ID	Client ID/Description	Matrix	Date Collected						
016	TB 04	W	4/29/97	X-B					
017	IR 99 - RBSB08	↓	4/30/97	A-B	C	D	E		
018	IR 93 - RBSB09	↓	↓	A-B	C	D	E		

Matrix: W - Water DS - Drum Solids X - Other
 S - Soil O - Oil DL - Drum Liquids
 SE - Sediment A - Air F - Fish
 SO - Solid WI - Wipe L - EP/TCLP Leachate

Special Instructions: FC16 T62041497
QC = NFESC Del: MFESC D Internal coc

Item/Reason	Relinquished by	Received by	Date	Time	Item/Reason	Relinquished by	Received by	Date	Time
3-18		<u>M. Schuch</u>	5/1/97	1600					

WESTON Analytics Use Only

Samples Were:
 1 Shipped or Hand-Delivered
 NOTES: FR

2 Ambient or Chilled
 NOTES:

3 Received Broken/Leaking (Improperly Sealed)
 Y N
 NOTES:

4 Properly Preserved.
 Y N
 NOTES: 5/1/97 Ken

5 Received Within Holding Times
 Y N
 NOTES:

COC Tape Was:
 1 Present on Outer Package N
 2 Unbroken on Outer Package N
 3 Present on Sample Y N
 4 Unbroken on Sample Y N
 NOTES:

COC Record Was:
 1 Present Upon Receipt of Samples N
 Discrepancies Between Sample Labels and COC Record? N
 NOTES: see page

Weston Environmental Metrics, Inc.
Internal Sample Custody Transfer Record

RFW Lot#: 97046396

Client: Baker-Lejeune # 356

Sample No.	Analysis	Relinquished by:	Received by:	Date	Time	Comments
1-2	GCMS VOA	L. Heene	[Signature]	4-24-97	16:30	
3-18	GC/MS VOA	L. Heene	J. DSM	5-1-97	17:00	
17,18	ORCA (0608/0608)	L. Heene	J. Bergen	5/2/97	12:05	
17,18	ORCA (0608/0608)	J. Bergen	L. Heene	5/2/97	14:15	
5-14, 17, 18 ^{CH} 5:34	Metals	L. Heene	T. [Signature]	5/5/97	09:50	
5-14	Metals	T. [Signature]	L. Heene	5/5/97	11:40	
1-14	% Sol	[Signature]	C. Johnson	5/10/97	15:25	
1-14	% Sol	C. Johnson	[Signature]	5/10/97	16:35	
5-14	[Signature]	[Signature]	K. [Signature]	5/6/97	17:00	
5-14	org	N. Walsh	[Signature]	5/12/97	13:05	
17,18	Metals	L. Heene	[Signature]	5-12-97	16:00	
5-14	metals	L. Heene	Paul [Signature]	5/12/97	16:45	
17,18	metals	[Signature]	Paul [Signature]	5-12-97	21:25	
5-14	metals	Paul [Signature]	L. Heene	5/13/97	16:32	
10	TOC	L. Heene	Thorasab	5/23/97	11:55	
10	TOC	Thorasab	L. Heene	5/28/97	16:30	

C-0-C
OK.1

WESTON Analytics Use Only

97046396

Custody Transfer Record/Lab Work Request



Date Rec'd		Date Due		ANALYSES REQUESTED		ORGANIC				INORG		
Account #						VOA	BNA	Pest/PCB	Herb	Metal	CN	
WESTON Analytics Use Only												
Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only					
		MS	MSD									
001												

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

- 28 DAY STANDARD TURN
 - CTO 344
 - AIRBILL
 - PAGE M SMITH PRIOR TO MAY 1
 910-347-8230

DATE/REVISIONS:

- _____
- _____
- 3.0°C 3.6°C 2.3°C 3.4°C
- 4.5°C 3.6°C
- _____
- _____

WESTON Analytics Use Only

- Samples were: Shipped Hand Delivered
- Airbill # _____
- 2) Ambient or Chilled
- 3) Received in Good Condition Y or N
- 4) Labels Indicate Property Preserved Y or N
- 5) Received Within Holding Times Y or N
- COC Tape was: Outer Package Y or N
- 2) Unbroken on Outer Package Y or N
- 3) Present on Sample Y or N
- 4) Unbroken on Sample Y or N
- COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: See SDR

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
MDS		7/28	1800				

WESTON Analytics Use Only
 97046316

Custody Transfer Record/Lab Work Request

Client BAKER ENVIRONMENTAL INC		Refrigerator #																		
Est. Final Proj. Sampling Date 6/16/97		#/Type Container		Liquid																
Work Order # CTO 350		Volume		Solid																
Project Contact/Phone # M.D. BARTMAN		Preservatives		Liquid																
AD Project Manager BASCO RAMIREZ				Solid																
QC BOA Del BOA TAT BOA																				
Date Rec'd _____ Date Due _____		ANALYSES REQUESTED →																		
Account # _____				VOA	BNA	Pest/PCB	Herb	TOC												

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only																	
			MS	MSD				VOA	BNA	Pest/PCB	Herb	TOC	Metal	CN											
	003	IR88-MW03DW-02			S	4-30-97	0835	✓																	
	004	IR88-MW03DW-04			S	4-30-97	0850	✓																	
	005	IR93-MW01-02			S	4-30-97	1210	✓	✓	✓															
	006	IR93-MW01-04			S	4-30-97	1229	✓	✓																
	007	IR93-MW03-02			S	4-30-97	0741	✓	✓																
	008	IR93-MW03-02D			S	4-30-97	0741	✓	✓																
	009	IR93-MW03-04			S	4-30-97	0759	✓	✓																
	010	IR93-MW03IW-02			S	4-29-97	1100	✓	✓																
	011	IR93-MW03IW-04			S	4-29-97	1112	✓	✓																
	012	IR93-MW03IW-02			S	4-30-97	1502	✓	✓																

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS				DATE/REVISIONS:				WESTON Analytics Use Only																	
Special Instructions: Air bill # 3558272815				1. _____ 2. _____ 3. _____ 4. _____ 5,2°C 5. _____ 6. _____				Samples were: 1) Shipped <input checked="" type="checkbox"/> or Hand Delivered _____ Airbill # _____ 2) Ambient <input checked="" type="checkbox"/> or Chilled _____ 3) Received in Good Condition <input checked="" type="checkbox"/> or N 4) Labels Indicate Properly Preserved <input checked="" type="checkbox"/> or N 5) Received Within Holding Times <input checked="" type="checkbox"/> or N COC Tape was: 1) Present on Outer Package <input checked="" type="checkbox"/> or N 2) Unbroken on Outer Package <input checked="" type="checkbox"/> or N 3) Present on Sample Y or N 4) Unbroken on Sample Y or N COC Record Present Upon Sample Rec't Y or N																	
Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Discrepancies Between Samples Labels and COC Record? <input checked="" type="checkbox"/> or N NOTES: <i>see IDK</i>																	
APT	Fed-Ex	4/30/97	1800																						
	<i>W. Schuff</i>	5/1/97	1515																						

WESTON Analytics Use Only
97046396

Custody Transfer Record/Lab Work Request

Client Baker Environmental, Inc **Refrigerator #** _____
Est. Final Proj. Sampling Date _____ **#/Type Container**

Liquid	
Solid	

Work Order # _____ **Volume**

Liquid	
Solid	

Project Contact/Phone # _____ **Preservatives** _____
AD Project Manager _____
QC _____ **Del.** _____ **TAT** _____
ANALYSES REQUESTED

ORGANIC				INORG	
VOA	BNA	Pest/PCB	Herb	Metal	CN

Date Rec'd _____ **Date Due** _____
Account # _____

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquid L - EP/TCLP Leach WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only								
			MS	MSD				1	2	3	4	5	6			
	013	IR93-MW01IW-04			S	4.30.97	1518	X	✓							✓
	014	IR93-MW01IW-04D			S	4.30.97	1518	✓	✓							✓
	015	IR93-RBSB09			W	4.30.97	1300	✓	✓							
	015	IR88-RBSB07			W	4.30.97	1000	✓								
	017	IR89-RBSB08			W	4.30.97	1230	✓								
	016	TB04	JPT	W	W	4.14.97	1455	✓								

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
 IR93-RBSB09 stainless steel spoon
 IR88-RBSB07 stainless steel spoon
 IR89-RBSB08 split spoon

DATE/REVISIONS:
 1. T.B. prep data 4/14/97
 2. _____
 3. _____
 4. _____
 5. _____
 6. _____

WESTON Analytics Use Only

Samples were:
 1) Shipped or Hand Delivered _____
 2) Ambient or Chilled
 3) Received in Good Condition Y or N
 4) Labels Indicate Properly Preserved Y or N
 5) Received Within Holding Time Y or N

COC Tape was:
 3) Present on Outer Package Y or N
 2) Unbroken on Outer Package Y or N
 3) Present on Sample Y or N
 4) Unbroken on Sample Y or N
 COC Record Present Upon Sample Rec'l Y or N

NOTES:
 IR 100 ID 5/1/97 Y or N

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
JPT	Fed-Ex	4/30/97	1800				
	K. Kelly	5/1/97	1515				

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Friday May 30th, 1997

RE: IR88-MW03DW-04
Project # 00000-000-000-0000
Lab ID: 9704G396-004
Sample Date: 04/30/97
Date Received: 05/01/97

Attn: Ms. Karen Wood

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
Total Organic Carbon	0.21	u %	0.21

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Friday May 30th, 1997

Project # 00000-000-000-0000
Lab Batch: 9704G396

Attn: Ms. Karen Wood

Inorganic Method Blank Data Report

Sample	Lab ID	Parameter	Result	Units	Reporting Limit
Blank 1	97GMC146-MB1	Total Organic Carbon	0.050	%	0.050

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Friday May 30th, 1997

Project # 00000-000-000-0000
Lab Batch: 9704G396

Attn: Ms. Karen Wood

Inorganic Laboratory Control Standards Report

Lab ID	Parameter	Spiked Amount	Units	Spike #1 % Recov.	Spike #2 % Recov.	RPD
97GMC146-LCS	TOC	47.0	%	95.5	95.0	0.60

Recra Labnet - Chicago
Wet Chemistry Case Narrative

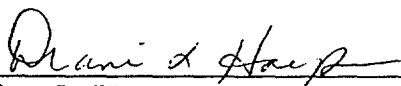
Client: Baker-Lejeune #356
RFW #: 9704G396

W.O. # NA
Date Rec'd: 05/01/97

1. This narrative covers the analysis of the sample in sample delivery group 9705G396 in accordance with protocols based on the following methods:

TOC - Walkley-Black Method

2. There is no established hold time for this parameter. Please see the laboratory chronicle section of this report for dates of preparation and analysis.
3. The method blank was below the reporting limit.
4. The LCSs, crystalline KHP which is 47% carbon, were within acceptance limits at 95.5% and 95.0% recovery.
5. Matrix QC was done on an alternate sample. Since the % solid analysis of the sample on which the matrix QC was done was not yet available, the data for that sample is not all calculated and appears in the raw data incomplete.



Diane L. Harper
Wet Chemistry Section Manager

5/30/97
Date

Table 1 Geotechnical Tests Performed, Reference Methods and Test Numbers		
Test Parameter	Method ¹	Test Numbers
Grain Size by Sieve and Hydrometer	D 421/422	2
Bulk Density (undisturbed)	D 2937	2

FO

TR 21 - MINOR - 09
TR 22 - MAJOR - 02

¹ All analytical methods derived from the Annual Book of ASTM Standards, Section 4. Volume 4.08, Soil and Rock; building Stones; Geotextiles. American Society of Testing Materials, Philadelphia, PA, 1993 unless noted otherwise.

WESTON Analytics Use Only

97056588

Custody Transfer Record/Lab Work Request



Client Baker Lejeune #356
 Work Order 06629-009-039-0001-00
 Date Rec'd. 5/18/97 Date Due 5/30/97
 RFW Contact Dora Ramirez
 Client Contact/Phone Matthew Bartman

Refrigerator#	5	8	8	5	→	5/0	8	8	8
#/Type Container	2LG	2LG	1P	1LG	→	2LG	2LG	1LG	1LG
Volume	40L	20L	1-L	2-3	→	4-3	4-3	4-3	8-3
Preservative	KI		11mB3						
ANALYSES REQUESTED	VOA 624H	625H 608H	HSL Metab			Fe ISSub	TOC 9ab1		HSL Metab 625H 9ab1

WA Use Only Lab ID	Client ID/Description	Matrix	Date Collected						
001	IR88-FB02	W	5/17/97	A-B	C-D	E			
002	FB03	L		A-B	C-D	E			
003	SB02-04	S					A	A	
004	-04D								
005	-05								
006	MW08-08								C-D A-B
007	-22								C-D AB
008	IR93-MW04-02		5/6/97				A		B C
009	02D						A		B C
010	04						A		B C
011	IR88-SB04-04						A	A	
012	05								
013	SB05-05 MS/MSD**						A-B	A-B	
014	-06						A	A	
015	SB06-04						L		

Matrix: W - Water DS - Drum Solids X - Other
 S - Soil O - Oil DL - Drum Liquids
 SE - Sediment A - Air F - Fish
 SO - Solid WI - Wipe L - EP/TCLP Leachate

Special Instructions: * Gram Size/Bulk Density → * rec'd 2x vol. for MS/MSD

QX - NFESC Del: NFESC D Internal COC

Item/Reason	Relinquished by	Received by	Date	Time	Item/Reason	Relinquished by	Received by	Date	Time
67 ISSub %	Matthew Bartman	Matthew Bartman	5/18/97	1450					
		Matthew Bartman	5/18/97	1700					

WESTON Analytics Use Only

Samples Were:
 1 Shipped or Hand-Delivered
 NOTES:

2 Ambient or Chilled
 NOTES:

3 Received Broken/Leaking (Improperly Sealed)
 Y N
 NOTES:

4 Properly Preserved
 Y N
 NOTES:

5 Received Within Holding Times
 Y N
 NOTES:

COC Tape Was:
 1 Present on Outer Package N
 2 Unbroken on Outer Package N
 3 Present on Sample N
 4 Unbroken on Sample N
 NOTES: Y N

COC Record Was:
 1 Present Upon Receipt of Sample N
 Discrepancies Between Sample Labels and COC Record? N
 NOTES:



Custody Transfer Record/Lab Work Request

2 of 2

WESTON Analytics Use Only

97056588

Client Baker Lejeune #356
 Work Order 010629-009-039-0001-00
 Date Rec'd. 5/8/97 Date Due 5/20/97
 RFW Contact Rosco Ramirez
 Client Contact/Phone Matthew Rasmussen

Refrigerator#	5	→	5	5						
#/Type Container	1/G	→	2/G	2/G						
Volume	2.4	→	1.2	1.2						
Preservative			DCI	DCI						
ANALYSES REQUESTED			624H	7201	624H	(624H)	HOLD			

WA Use Only Lab ID	Client ID/Description	Matrix	Date Collected							
016	IR88-5B06-05	S	5/6/97	A	A					
017	TB08	W				AB				
018	IR88-RBSB3	↓	↓			AB				

WESTON Analytics Use Only

Samples Were:
 Shipped by Hand-Delivered
 NOTES: FR

2 Ambient or Chilled
 NOTES: (C)

3 Received Broken/Leaking (Improperly Sealed)
 Y (N)
 NOTES:

4 Properly Preserved
 Y (N)
 NOTES:

5 Received Within Holding Times
 Y (N)
 NOTES:

COC Tape Was:
 1 Present on Outer Package Y (N)
 2 Unbroken on Outer Package Y (N)
 3 Present on Sample Y (N)
 4 Unbroken on Sample Y (N)
 NOTES:

COC Record Was:
 1 Present Upon Receipt of Samples Y (N)

Discrepancies Between Sample Labels and COC Record? Y (N)
 NOTES:

Matrix: W - Water DS - Drum Solids X - Other Special Instructions:
 S - Soil O - Oil DL - Drum Liquids
 SE - Sediment A - Air F - Fish
 SO - Solid WI - Wipe L - EP/CLP Leachate RC = NFESC Del = NFESC D Internal COC

Item/Reason	Relinquished by	Received by	Date	Time	Item/Reason	Relinquished by	Received by	Date	Time
		<u>W. Schif</u>	<u>5/8/97</u>	<u>1450</u>					

WESTON®

OFF-LOAD / SUBCONTRACT FORM (side 1 of 2)

Client Name: Baker-Lejeune #356

Today's Date: 5/8/97

Lab Project Manager: Bosco Ramirez

Total No. Samples in Shipment: 3

Date Rec'd/Expected: 5/6/97/5/8/97
(circle one)

W.O. #: 04679-009-039-0001-00

RFW #	DATE OF COLLECTION	QUANT.	MATRIX	PARAMETER	DUE DATE	UNIT COST	OC REQUIRED	DELIVERABLES	DETECT. LIMITS	ANALYTE LIST	HOLD TIME SAMPLE/EXT.	METHOD REF.
97056494	5/2/97	1	Soil	Grain Size	5/30/97	\$100	NFESC	NFESC D				
97056588	5/7/97	2	soil	Bulk Density		\$20						

Other special requirements/certifications: Send report to Sheryl Johnson

Hazard/Safety: Yes/No/Unknown - Radiation High Hazard High PCBs/Dioxins Other no
(please circle and indicate)

ROY F. WESTON, INC. ENVIRONMENTAL TECHNOLOGY LABORATORY

5

NATURAL MOISTURE CONTENT AND BULK DENSITY					
PROJECT	Baker - Lejuene#356	PROJECT ANALYST	JRA	OVEN MODEL	VWR
JOB NUMBER	9705G588	QA/QC ANALYST	WB	OVEN TEMPERATURE, C	105
W. O. NUMBER	06629-009-039-0001-00	DATE RECEIVED	05/09/97	DATE COMPLETED	05/14/97

SAMPLE DATA							
ETL Sample Number	006	002					
Project Sample I. D.	IR88-MW08-08	IR88-MW08-22					

MOISTURE CONTENT							
Total Solids, %	80.8	85.7					
Moisture Content, % wet	19.2	14.3					
Moisture Content, % dry	23.7	16.7					

BULK DENSITY							
Sample Type and/or Compactive Effort	as-received	as-received					
Bulk Density, g/cc	2.06	2.44					
Wet Unit Weight, pcf	128.5	152.1					
Dry Unit Weight, pcf	103.8	130.3					

ROY F. WESTON, INC. ENVIRONMENTAL TECHNOLOGY LABORATORY

GEOTECHNICAL TESTING DATA AND RESULTS

PROJECT	Baker - Lejuene#356	PROJECT SAMPLE I.D.	IR88-MW08-08	PROJECT ANALYST	JRA
JOB NUMBER	9705G588	ETL SAMPLE NUMBER	006	QA/QC ANALYST	WB
W. O. NUMBER	06629-009-039-0001-00	DATE RECEIVED	05/09/97	DATE COMPLETED	05/15/97

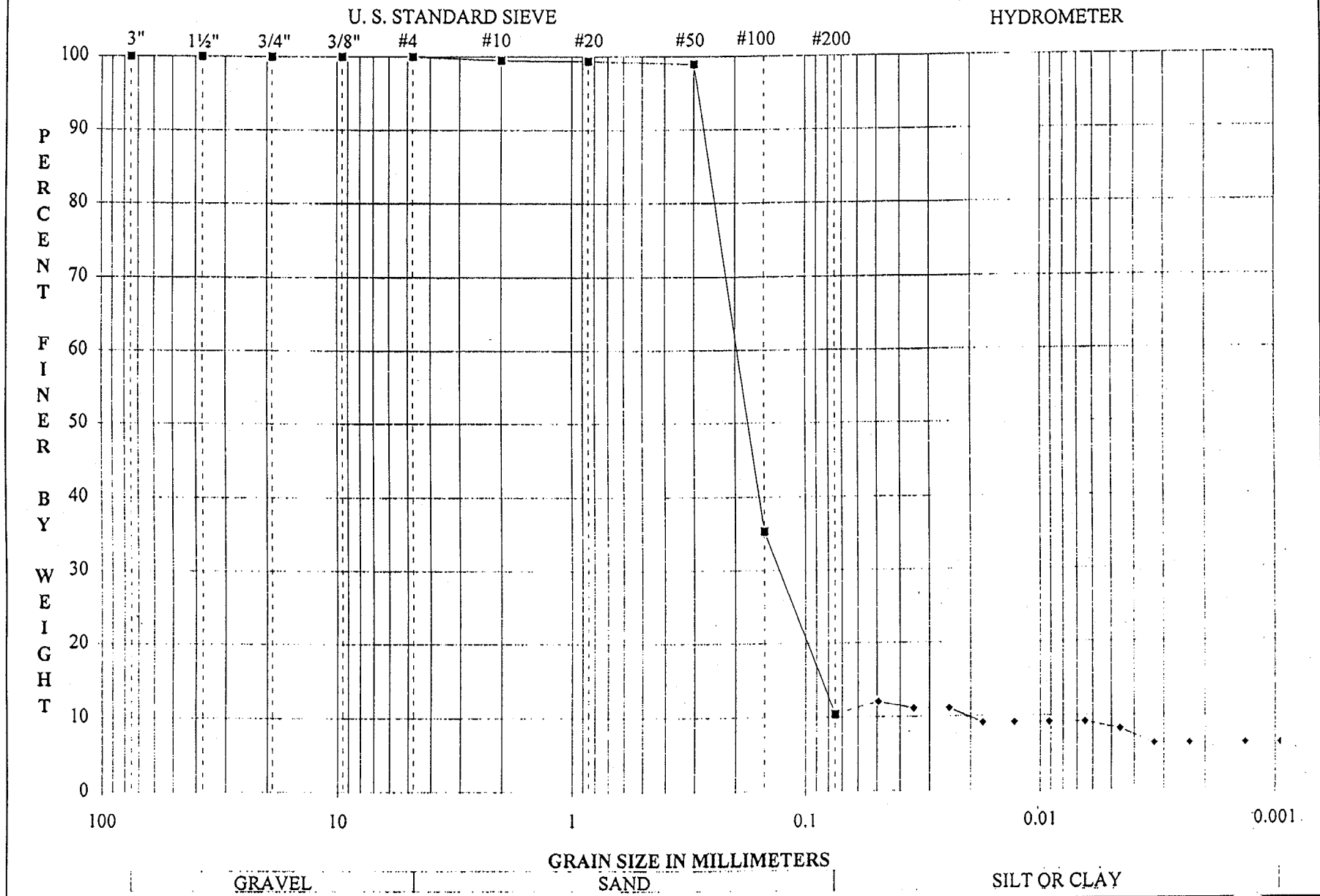
PARTICLE SIZE DISTRIBUTION		
U. S. Standard Sieve Size	Diameter mm	% Finer
3"	75.00	100.0
1½"	37.50	100.0
¾"	19.00	100.0
⅜"	9.500	100.0
#4	4.750	100.0
#10	2.000	99.5
#20	0.850	99.4
#50	0.300	99.0
#100	0.150	35.3
#200	0.075	10.4
HYDROMETER	0.0494	12.1
	0.0351	11.1
	0.0248	11.1
	0.0178	9.2
	0.0130	9.2
	0.0092	9.2
	0.0065	9.2
	0.0046	8.2
	0.0033	6.2
	0.0023	6.2
	0.0013	6.2
0.0010	6.2	

EFFECTIVE SIZES	
% Finer	Diameter mm
60	0.208
30	0.134
10	NA
Uniformity Coefficient	Gradation Coefficient
NA	NA

SAMPLE DESCRIPTION
very pale brown silty or clayey SAND with 10% silt or clay
Unified Soil Classification System (USCS) Group Symbol
SP/SM or SP/SC

NOTES
NA=NOT APPLICABLE

PARTICLE-SIZE DISTRIBUTION CURVE
PROJECT SAMPLE IR88-MW08-08, ETL SAMPLE 9705G588-006



ROY F. WESTON, INC. ENVIRONMENTAL TECHNOLOGY LABORATORY

GEOTECHNICAL TESTING DATA AND RESULTS

PROJECT	Baker - Lejuene#356	PROJECT SAMPLE I.D.	IR88-MW08-22	PROJECT ANALYST	JRA
JOB NUMBER	9705G588	ETL SAMPLE NUMBER	007	QA/QC ANALYST	WB
W. O. NUMBER	06629-009-039-0001-00	DATE RECEIVED	05/09/97	DATE COMPLETED	05/15/97

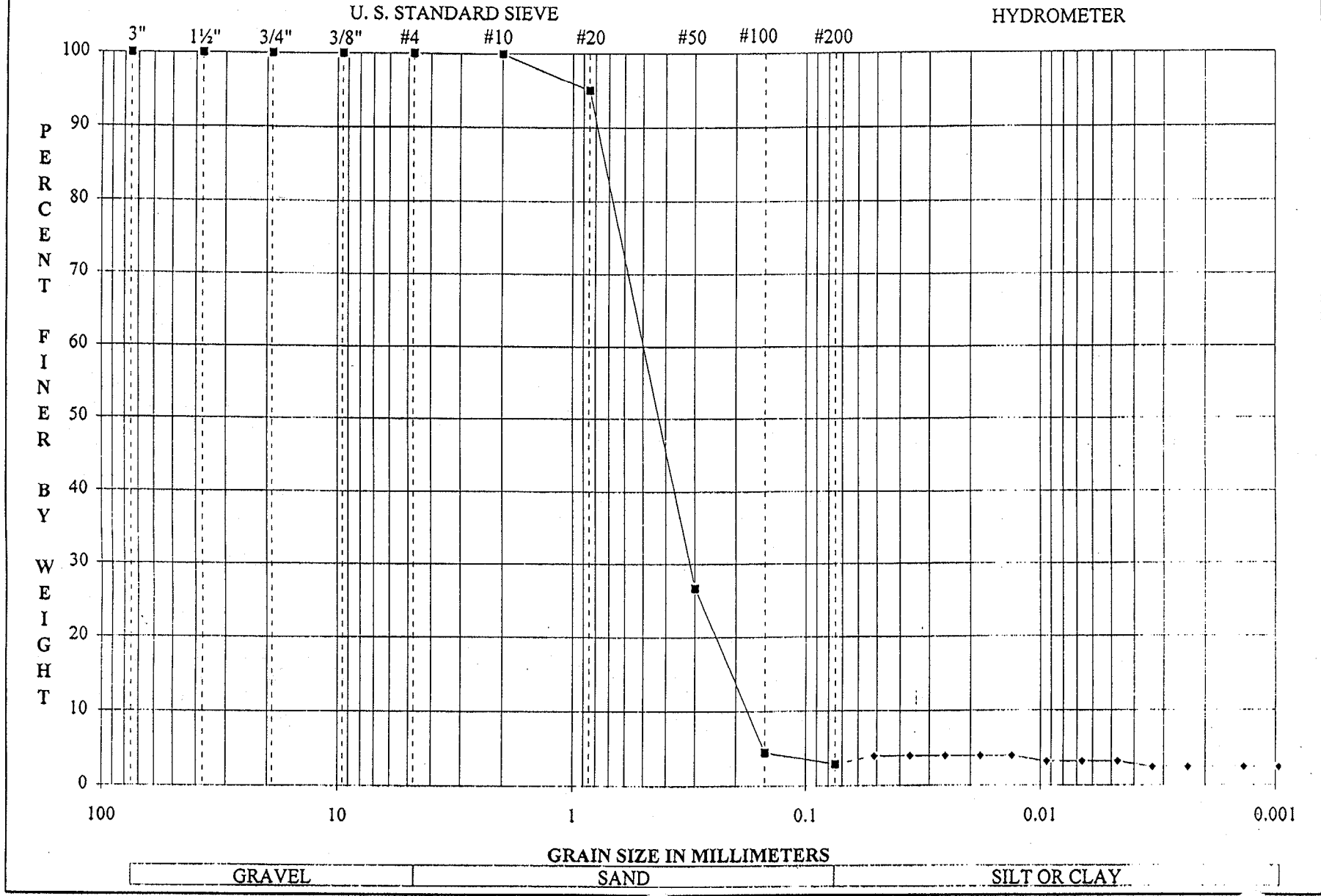
PARTICLE SIZE DISTRIBUTION		
U. S. Standard Sieve Size	Diameter mm	% Finer
3"	75.00	100.0
1½"	37.50	100.0
¾"	19.00	100.0
⅜"	9.500	100.0
#4	4.750	100.0
#10	2.000	99.9
#20	0.850	95.0
#50	0.300	26.8
#100	0.150	4.5
#200	0.075	2.9
HYDROMETER	0.0514	4.0
	0.0363	4.0
	0.0257	4.0
	0.0182	4.0
	0.0133	4.0
	0.0094	3.2
	0.0067	3.2
	0.0047	3.2
	0.0034	2.5
	0.0024	2.5
	0.0014	2.5
	0.0010	2.5

EFFECTIVE SIZES	
% Finer	Diameter mm
60	0.568
30	0.326
10	0.187
Uniformity Coefficient	Gradation Coefficient
3.0	1.0

SAMPLE DESCRIPTION	
light gray poorly graded SAND with 3% silt or clay	
Unified Soil Classification System (USCS)	
Group Symbol	SP

NOTES

PARTICLE-SIZE DISTRIBUTION CURVE
PROJECT SAMPLE IR88-MW08-22, ETL SAMPLE 9705G588-007



Recra LabNet - Chicago
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 Baker-Lejeune #356

LOT # :9705G729

CLIENT ID /ANALYSIS	SAMPLE #	MTX	PREP #	COLLECTN	DATE REC	EXT/PREP	ANALYSIS
IR88-MW01-01							
BOD 5 DAY	008	W	97GBD131	05/15/97	05/17/97	05/17/97	05/17/97
CHLORIDE BY IC	008	W	97GIC131	05/15/97	05/17/97	06/07/97	06/07/97
NITRITE BY IC	008	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
NITRATE BY IC	008	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
CHEMICAL OXYGEN DEMA	008	W	97GCD064	05/15/97	05/17/97	06/04/97	06/04/97
SULFATE BY IC	008	W	97GIC131	05/15/97	05/17/97	06/07/97	06/07/97
FERROUS IRON	008	W	97GMC134	05/15/97	05/17/97	05/17/97	05/17/97
SULFIDE	008	W	97GSF035	05/15/97	05/17/97	05/19/97	05/19/97
TOTAL DISSOLVED SOLI	008	W	97GSD113	05/15/97	05/17/97	05/20/97	05/21/97
TOTAL SUSPENDED SOLI	008	W	97GSS094	05/15/97	05/17/97	05/21/97	05/21/97
IR88-MW06-01							
BOD 5 DAY	009	W	97GBD131	05/15/97	05/17/97	05/17/97	05/17/97
CHLORIDE BY IC	009	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
CHLORIDE BY IC	009 REP	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
CHLORIDE BY IC	009 MS	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
CHLORIDE BY IC	009 MSD	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
NITRITE BY IC	009	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
NITRITE BY IC	009 REP	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
NITRITE BY IC	009 MS	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
NITRITE BY IC	009 MSD	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
NITRATE BY IC	009	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
NITRATE BY IC	009 REP	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
NITRATE BY IC	009 MS	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
NITRATE BY IC	009 MSD	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
CHEMICAL OXYGEN DEMA	009	W	97GCD064	05/15/97	05/17/97	06/04/97	06/04/97
CHEMICAL OXYGEN DEMA	009 REP	W	97GCD064	05/15/97	05/17/97	06/04/97	06/04/97
CHEMICAL OXYGEN DEMA	009 MS	W	97GCD064	05/15/97	05/17/97	06/04/97	06/04/97
CHEMICAL OXYGEN DEMA	009 MSD	W	97GCD064	05/15/97	05/17/97	06/04/97	06/04/97
SULFATE BY IC	009	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
SULFATE BY IC	009 REP	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
SULFATE BY IC	009 MS	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
SULFATE BY IC	009 MSD	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
FERROUS IRON	009	W	97GMC134	05/15/97	05/17/97	05/17/97	05/17/97
SULFIDE	009	W	97GSF035	05/15/97	05/17/97	05/19/97	05/19/97

Recra LabNet - Chicago
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 Baker-Lejeune #356

LOT # :9705G729

CLIENT ID /ANALYSIS	SAMPLE #	MTX	PREP #	COLLECTN	DATE REC	EXT/PREP	ANALYSIS
TOTAL DISSOLVED SOLI	009	W	97GSD113	05/15/97	05/17/97	05/20/97	05/21/97
TOTAL SUSPENDED SOLI	009	W	97GSS094	05/15/97	05/17/97	05/21/97	05/21/97
IR88-MW06IW-01							
BOD 5 DAY	010	W	97GBD131	05/15/97	05/17/97	05/17/97	05/17/97
CHLORIDE BY IC	010	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
NITRITE BY IC	010	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
NITRATE BY IC	010	W	97GIC108	05/15/97	05/17/97	05/17/97	05/17/97
CHEMICAL OXYGEN DEMA	010	W	97GCD064	05/15/97	05/17/97	06/04/97	06/04/97
SULFATE BY IC	010	W	97GIC131	05/15/97	05/17/97	06/07/97	06/07/97
FERROUS IRON	010	W	97GMC134	05/15/97	05/17/97	05/17/97	05/17/97
SULFIDE	010	W	97GSF035	05/15/97	05/17/97	05/19/97	05/19/97
TOTAL DISSOLVED SOLI	010	W	97GSD113	05/15/97	05/17/97	05/20/97	05/21/97
TOTAL SUSPENDED SOLI	010	W	97GSS094	05/15/97	05/17/97	05/21/97	05/21/97
IR88-MW08IW-01							
BOD 5 DAY	017	W	97GBD131	05/16/97	05/17/97	05/17/97	05/17/97
CHLORIDE BY IC	017	W	97GIC108	05/16/97	05/17/97	05/17/97	05/17/97
NITRITE BY IC	017	W	97GIC108	05/16/97	05/17/97	05/17/97	05/17/97
NITRATE BY IC	017	W	97GIC108	05/16/97	05/17/97	05/17/97	05/17/97
CHEMICAL OXYGEN DEMA	017	W	97GCD064	05/16/97	05/17/97	06/04/97	06/04/97
SULFATE BY IC	017	W	97GIC131	05/16/97	05/17/97	06/07/97	06/07/97
FERROUS IRON	017	W	97GMC134	05/16/97	05/17/97	05/17/97	05/17/97
SULFIDE	017	W	97GSF035	05/16/97	05/17/97	05/19/97	05/19/97
TOTAL DISSOLVED SOLI	017	W	97GSD113	05/16/97	05/17/97	05/20/97	05/21/97
TOTAL DISSOLVED SOLI	017	W	97GSD113	05/16/97	05/17/97	05/20/97	05/21/97
TOTAL DISSOLVED SOLI	017	W	97GSD113	05/16/97	05/17/97	05/20/97	05/21/97
TOTAL SUSPENDED SOLI	017	W	97GSS094	05/16/97	05/17/97	05/21/97	05/21/97

LAB QC:

BOD 5 DAY	LCS BS	W	97GBD131	N/A	N/A	05/17/97	05/17/97
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NY CERTIFICATION # 11006

Recra LabNet - Chicago
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 Baker-Lejeune #356

LOT # :9705G729

CLIENT ID /ANALYSIS	SAMPLE #	MTX	PREP #	COLLECTN	DATE REC	EXT/PREP	ANALYSIS
BOD 5 DAY	LCS BSD	W	97GBD131	N/A	N/A	05/17/97	05/17/97
BOD 5 DAY	MB1	W	97GBD131	N/A	N/A	05/17/97	05/17/97
BROMIDE BY IC	LCS BS	W	97GIC131	N/A	N/A	06/07/97	06/07/97
BROMIDE BY IC	LCS BSD	W	97GIC131	N/A	N/A	06/07/97	06/07/97
CHLORIDE BY IC	LCS BS	W	97GIC131	N/A	N/A	06/07/97	06/07/97
CHLORIDE BY IC	LCS BSD	W	97GIC131	N/A	N/A	06/07/97	06/07/97
FLUORIDE BY IC	LCS BS	W	97GIC131	N/A	N/A	06/07/97	06/07/97
FLUORIDE BY IC	LCS BSD	W	97GIC131	N/A	N/A	06/07/97	06/07/97
NITRITE BY IC	LCS BS	W	97GIC131	N/A	N/A	06/07/97	06/07/97
NITRITE BY IC	LCS BSD	W	97GIC131	N/A	N/A	06/07/97	06/07/97
NITRATE BY IC	LCS BS	W	97GIC131	N/A	N/A	06/07/97	06/07/97
NITRATE BY IC	LCS BSD	W	97GIC131	N/A	N/A	06/07/97	06/07/97
PHOSPHATE BY IC	LCS BS	W	97GIC131	N/A	N/A	06/07/97	06/07/97
PHOSPHATE BY IC	LCS BSD	W	97GIC131	N/A	N/A	06/07/97	06/07/97
SULFATE BY IC	LCS BS	W	97GIC131	N/A	N/A	06/07/97	06/07/97
SULFATE BY IC	LCS BSD	W	97GIC131	N/A	N/A	06/07/97	06/07/97
BROMIDE BY IC	MB1	W	97GIC131	N/A	N/A	06/07/97	06/07/97
CHLORIDE BY IC	MB1	W	97GIC131	N/A	N/A	06/07/97	06/07/97
FLUORIDE BY IC	MB1	W	97GIC131	N/A	N/A	06/07/97	06/07/97
NITRITE BY IC	MB1	W	97GIC131	N/A	N/A	06/07/97	06/07/97
NITRATE BY IC	MB1	W	97GIC131	N/A	N/A	06/07/97	06/07/97
PHOSPHATE BY IC	MB1	W	97GIC131	N/A	N/A	06/07/97	06/07/97
SULFATE BY IC	MB1	W	97GIC131	N/A	N/A	06/07/97	06/07/97
CHLORIDE BY IC	LCS BS	W	97GIC108	N/A	N/A	05/17/97	05/17/97
CHLORIDE BY IC	LCS BSD	W	97GIC108	N/A	N/A	05/17/97	05/17/97
NITRITE BY IC	LCS BS	W	97GIC108	N/A	N/A	05/17/97	05/17/97
NITRITE BY IC	LCS BSD	W	97GIC108	N/A	N/A	05/17/97	05/17/97
NITRATE BY IC	LCS BS	W	97GIC108	N/A	N/A	05/17/97	05/17/97
NITRATE BY IC	LCS BSD	W	97GIC108	N/A	N/A	05/17/97	05/17/97
SULFATE BY IC	LCS BS	W	97GIC108	N/A	N/A	05/17/97	05/17/97
SULFATE BY IC	LCS BSD	W	97GIC108	N/A	N/A	05/17/97	05/17/97
CHLORIDE BY IC	MB1	W	97GIC108	N/A	N/A	05/17/97	05/17/97
NITRITE BY IC	MB1	W	97GIC108	N/A	N/A	05/17/97	05/17/97
NITRATE BY IC	MB1	W	97GIC108	N/A	N/A	05/17/97	05/17/97
SULFATE BY IC	MB1	W	97GIC108	N/A	N/A	05/17/97	05/17/97
CHEMICAL OXYGEN DEMAND	LCS BS	W	97GCD064	N/A	N/A	06/04/97	06/04/97
CHEMICAL OXYGEN DEMAND	LCS BSD	W	97GCD064	N/A	N/A	06/04/97	06/04/97
CHEMICAL OXYGEN DEMAND	MB1	W	97GCD064	N/A	N/A	06/04/97	06/04/97
SULFIDE	LCS BS	W	97GSF035	N/A	N/A	05/19/97	05/19/97
SULFIDE	LCS BSD	W	97GSF035	N/A	N/A	05/19/97	05/19/97

Recra LabNet - Chicago
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 Baker-Lejeune #356

LOT # :9705G729

CLIENT ID /ANALYSIS	SAMPLE #	MTX	PREP #	COLLECTN DATE	REC	EXT/PREP	ANALYSIS
SULFIDE	MB1	W	97GSF035	N/A	N/A	05/19/97	05/19/97
TOTAL DISSOLVED SOLI	LCS BS	W	97GSD113	N/A	N/A	05/20/97	05/21/97
TOTAL DISSOLVED SOLI	LCS BSD	W	97GSD113	N/A	N/A	05/20/97	05/21/97
TOTAL DISSOLVED SOLI	MB1	W	97GSD113	N/A	N/A	05/20/97	05/21/97
TOTAL SUSPENDED SOLI	LCS BS	W	97GSS094	N/A	N/A	05/21/97	05/21/97
TOTAL SUSPENDED SOLI	LCS BSD	W	97GSS094	N/A	N/A	05/21/97	05/21/97
TOTAL SUSPENDED SOLI	MB1	W	97GSS094	N/A	N/A	05/21/97	05/21/97

Recra LabNet - Chicago
Wet Chemistry Case Narrative

Client: Baker Lejeune #356
RFW lot #: 9705G729

Date Rec'd: 05/17/97

1. This narrative covers the analysis of samples in the above RFW lot number by the following methods.

BOD - EPA Method 405.1

COD - Hach 8000

Common Anions by IC Method 9056:

Chloride

Nitrate-Nitrogen

Nitrite-Nitrogen

Sulfate

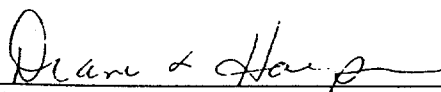
Ferrous Iron - Standard Methods 3500 FeD

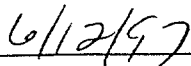
Sulfide - EPA Method 376.1

Total Dissolved Solids (TDS)- EPA Method 160.1

Total Suspended Solids (TSS)- EPA Method 160.2

2. All established hold times were met. The ferrous iron analysis was done as expediently as possible on the date of receipt.
3. Initial and continuing calibration criteria were met for analysis requiring calibration, except for the first nitrate CCV on the IC run, which was low at 89.0% recovery. The work was not repeated, since holding times would have been expired.
4. All method blanks were below the detection limits.
5. The LCSs analyzed with these samples were all within the statistical acceptance limits. Please see the LCS summary pages of this report for details.
6. The initial nitrate and nitrite spike recoveries were both high at 120.3% and 134.7%, but both were within acceptance limits when repeated. Both COD spikes resulted in high recovery at 209% and 213%. Alternate samples were chosen for matrix QC for sulfide and TSS. All other matrix QC was within limits, including the BOD and ferrous iron data which appear only on the data book pages. The BOD spike recovery was 90.0% and the ferrous iron spike recovery was 100%. Both duplicates for each test were less than the reporting limit.


Diane L. Harper
Wet Chemistry Section Manager


Date

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Thursday June 12th, 1997

RE: IR88-MW01-01
Project # 00000-000-000-0000
Lab ID: 9705G729-008
Sample Date: 05/15/97
Date Received: 05/17/97

Attn: Ms. Karen Wood

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
BOD 5 Day	2	u mg/L	2
Chloride BY IC	22.6	mg/L	0.20
Nitrite-N by IC	0.10	u mg/L	0.10
Nitrate-N by IC	0.10	u mg/L	0.10
COD	10	mg/L	5
Sulfate by IC	110	mg/L	0.20
Ferrous Iron	5.0	mg/L	0.50
Sulfide	1.0	u mg/L	1.0
Total Dissolved Solid	200	mg/L	10
Total Suspended Solid	5	mg/L	4

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Thursday June 12th, 1997

RE: IR88-MW06-01
Project # 00000-000-000-0000
Lab ID: 9705G729-009
Sample Date: 05/15/97
Date Received: 05/17/97

Attn: Ms. Karen Wood

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
BOD 5 Day	2	u mg/L	2
Chloride BY IC	9.8	mg/L	0.40
Nitrite-N by IC	0.10	u mg/L	0.10
Nitrate-N by IC	1.7	mg/L	0.10
COD	5	u mg/L	5
Sulfate by IC	7.9	mg/L	0.20
Ferrous Iron	0.050	u mg/L	0.050
Sulfide	1.0	u mg/L	1.0
Total Dissolved Solid	110	mg/L	10
Total Suspended Solid	4	u mg/L	4

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Thursday June 12th, 1997

Attn: Ms. Karen Wood

RE: IR88-MW06IW-01
Project # 00000-000-000-0000
Lab ID: 9705G729-010
Sample Date: 05/15/97
Date Received: 05/17/97

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
BOD 5 Day	2	u mg/L	2
Chloride BY IC	6.9	mg/L	0.40
Nitrite-N by IC	0.10	u mg/L	0.10
Nitrate-N by IC	2.3	mg/L	0.10
COD	5	u mg/L	5
Sulfate by IC	26.7	mg/L	0.20
Ferrous Iron	0.050	u mg/L	0.050
Sulfide	1.0	u mg/L	1.0
Total Dissolved Solid	86	mg/L	10
Total Suspended Solid	25	mg/L	4

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Thursday June 12th, 1997

Attn: Ms. Karen Wood

RE: IR88-MW08IW-01
Project # 00000-000-000-0000
Lab ID: 9705G729-017
Sample Date: 05/16/97
Date Received: 05/17/97

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
BOD 5 Day	2	u mg/L	2
Chloride BY IC	11.3	mg/L	0.40
Nitrite-N by IC	0.10	u mg/L	0.10
Nitrate-N by IC	0.16	mg/L	0.10
COD	5	u mg/L	5
Sulfate by IC	28.6	mg/L	1.0
Ferrous Iron	1.6	mg/L	0.050
Sulfide	1.0	u mg/L	1.0
Total Dissolved Solid	110	mg/L	10
Total Suspended Solid	21	mg/L	4

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Thursday June 12th, 1997

Project # 00000-000-000-0000
Lab Batch: 9705G729

Attn: Ms. Karen Wood

Inorganic Method Blank Data Report

Sample	Lab ID	Parameter	Result	Units	Reporting Limit
Blank 1	97GBD131-MB1	BOD 5 Day	2	u mg/L	2
Blank 1	97GIC131-MB1	Chloride BY IC	0.20	u mg/L	0.20
		Nitrite-N by IC	0.10	u mg/L	0.10
		Nitrate-N by IC	0.10	u mg/L	0.10
		Sulfate by IC	0.20	u mg/L	0.20
Blank 1	97GIC108-MB1	Chloride BY IC	0.20	u mg/L	0.20
		Nitrite-N by IC	0.10	u mg/L	0.10
		Nitrate-N by IC	0.10	u mg/L	0.10
		Sulfate by IC	0.20	u mg/L	0.20
Blank 1	97GCD064-MB1	COD	5	u mg/L	5
Blank 1	97GSF035-MB1	Sulfide	1.0	u mg/L	1.0
Blank 1	97GSD113-MB1	Total Dissolved Solid	10	u mg/L	10
Blank 1	97GSS094-MB1	Total Suspended Solid	4	u mg/L	4

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Thursday June 12th, 1997

Project # 00000-000-000-0000
Lab Batch: 9705G729

Attn: Ms. Karen Wood

Inorganic Precision Data Report

Sample	Site ID	Parameter	Initial Result		Replicate	RPD
-009REP	IR88-MW06-01	Chloride BY IC	9.8		9.1	7.8
		Nitrite by IC	0.10	u	0.10	u NC
		Nitrate by IC	1.7		1.7	2.5
		COD	5	u	5	NC
		Sulfate by IC	7.9		7.8	0.80
-017REP	IR88-MW08IW-01	Tot Diss Sol	110		110	7.3

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Thursday June 12th, 1997

Project # 00000-000-000-0000
Lab Batch: 9705G729

Attn: Ms. Karen Wood

Inorganic Accuracy Data Report

Sample	Site ID	Parameter	Spiked Sample	Initial Result	Spiked Amount	% Recov
-009	IR88-MW06-01	Chloride BY IC	33.7	9.8	25.0	95.5
		Chloride BY IC MSD	35.3	9.8	25.0	102
		Nitrite by IC	2.4	0.10	u 2.0	120
		Nitrite by IC MSD	2.1	0.10	u 2.0	104
		Nitrate by IC	4.4	1.7	2.0	135
		Nitrate by IC MSD	3.8	1.7	2.0	107
		COD	52	5	u 25	209
		COD MSD	53	5	u 25	213
		Sulfate by IC	31.8	7.9	25.0	95.
		Sulfate by IC MSD	32.2	7.9	25.0	97.
-017	IR88-MW08IW-01	Tot Diss Sol	360	110	250	99.

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Thursday June 12th, 1997

Project # 00000-000-000-0000
Lab Batch: 9705G729

Attn: Ms. Karen Wood

Inorganic Duplicate Spike Report

Sample	Site ID	Parameter	Spike #1 % Recov	Spike #2 % Recov	RPD
-009	IR88-MW06-01	Chloride BY IC	95.5	102	6.7
		Nitrite by IC	120	104	15.0
		Nitrate by IC	135	109	20.8
		COD	209	213	1.9
		Sulfate by IC	95.7	97.1	1.4

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Thursday June 12th, 1997

Project # 00000-000-000-0000
Lab Batch: 9705G729

Attn: Ms. Karen Wood

Inorganic Laboratory Control Standards Report

Lab ID	Parameter	Spiked Amount	Units	Spike #1 % Recov.	Spike #2 % Recov.	RPD
97GBD131-LCS	BOD 5 Day	200	mg/L	95.1	98.1	3.1
97GIC131-LCS	Chloride BY IC	5.0	mg/L	92.9	93.2	0.40
	Nitrite by IC	2.0	mg/L	93.3	93.4	0.20
	Nitrate by IC	2.0	mg/L	91.6	91.8	0.30
	Sulfate by IC	5.0	mg/L	93.8	93.9	0.10
97GIC108-LCS	Chloride BY IC	5.0	mg/L	92.8	95.9	3.2
	Nitrite by IC	2.0	mg/L	93.8	96.6	2.9
	Nitrate by IC	2.0	mg/L	90.4	91.4	1.2
	Sulfate by IC	5.0	mg/L	92.0	93.3	1.4
97GCD064-LCS	COD	25	mg/L	101	99.5	1.9
97GSF035-LCS	Sulfide	4.0	mg/L	85.0	95.2	11.2
97GSD113-LCS	Tot Diss Sol	250	mg/L	100	100	0.00
97GSS094-LCS	Tot Susp Solids	200	mg/L	91.0	95.8	5.1

Recra LabNet - Chicago
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 Baker-Lejeune #356

LOT # :9705G494

CLIENT ID /ANALYSIS	SAMPLE #	MTX	PREP #	COLLECTN DATE	REC	EXT/PREP	ANALYSIS
IR89-MW06DW-07							
TOTAL ORGANIC CARBON	022	S	97GMC146	05/02/97	05/07/97	05/28/97	05/28/97
IR88-MW07IW-09							
TOTAL ORGANIC CARBON	024	S	97GMC146	05/05/97	05/07/97	05/28/97	05/28/97
IR88-MW07IW-22							
TOTAL ORGANIC CARBON	025	S	97GMC146	05/05/97	05/07/97	05/28/97	05/28/97

LAB QC:

TOTAL ORGANIC CARBON	LCS BS	W	97GMC146	N/A	N/A	05/28/97	05/28/97
TOTAL ORGANIC CARBON	LCS BSD	W	97GMC146	N/A	N/A	05/28/97	05/28/97
TOTAL ORGANIC CARBON	MB1	W	97GMC146	N/A	N/A	05/28/97	05/28/97

NY CERTIFICATION # 11006



Custody Transfer Record/Lab Work Request

WESTON Analytics Use Only
97056-494

Client Baker - Lejeune #356
Work Order 5/30/97
Date Rec'd. 5/3/97 Date Due 5/28/97
RFW Contact Benoit Ramuz RS/5/97
Client Contact/Phone Matt Eastman

Refrigerator#	5	8	8	5		5	8	8	5
#/Type Container	1/6	1/6	1/6	2/6		2/6	2/6	1/P	1/6
Volume	2-oz	4-oz	8-oz	10ml		10ml	80-oz	1-P	2-oz
Preservative				DCI		DCI		WMS	
ANALYSES REQUESTED	VOA 624H	BVA 625H	HSL Metals 9201	624H	CHRT REDD	VOA 624H	625H 628H	HSL Metals	624H 9201

WESTON Analytics Use Only

Samples Were:
1 Shipped or Hand-Delivered **FR**
NOTES:

2 Ambient or Chilled
NOTES:

3 Received Broken/Leaking (Improperly Sealed) **(N)**
Y **(N)**
NOTES:

4 Properly Preserved **(Y)** **(N)**
NOTES:
5/6/97 LL

5 Received Within Holding Times **(Y)** **(N)**
NOTES:

WA Use Only Lab ID	Client ID/Description	Matrix	Date Collected						
001	IR89-mw06DW-01	S	5/2/97	A	B	C			✓
002	↓ -02								
003	4w06JW-01								
004	↓ -01D								
005	mw06JW-02								
006	TB05	W					A-B		
007	IR89-RBSB10	W	5/4/97					A-B C-D E	
008	IR88-mw06JW-06	S						A-B C-D E	A
009	↓ 06D								A
010	↓ 07								A
011	IR88-RBSB11	W						A-B	
012	IR89-mw07JW-04 ^{NO PAD}	S	5/3/97	A	B	C			
013	↓ 06		5/3/97	A	B	C			
014	mw07DW-04		5/4/97	A	B	C			
015	mw07DW-06			A	B	C			

ccf 5/6/97

Matrix: W - Water DS - Drum Solids X - Other
S - Soil O - Oil DL - Drum Liquids
SE - Sediment A - Air F - Fish
SO - Solid WI - Wipe L - EP/TCLP Leachate

Special Instructions: **QC - NFESC DO - NFESC D Internal 100**

COC Tape Was:

1 Present on Outer Package **(Y)** **(N)**
2 Unbroken on Outer Package **(Y)** **(N)**
3 Present on Sample **(Y)** **(N)**
4 Unbroken on Sample **(Y)** **(N)**
NOTES:

Item/Reason	Relinquished by	Received by	Date	Time	Item/Reason	Relinquished by	Received by	Date	Time
		<i>[Signature]</i>	5/3/97	1120					
loaded in 16		<i>[Signature]</i>	5/3/97	0150					
7-97	FR	<i>[Signature]</i>	5/6/97	1725					
18-25	FR	<i>[Signature]</i>	5/7/97	1615					

COC Record Was:

1 Present Upon Receipt of Samples **(Y)** **(N)**

Discrepancies Between Sample Labels and COC Record? **(Y)** **(N)**
NOTES:

* composite *[unclear]* these jars before analysis 5/7/97.

WESTON Analytics Use Only
 97057, 494

Custody Transfer Record/Lab Work Request



Client Baker Lejeune 356
 Work Order _____
 Date Rec'd. 5/3/97 Date Due 5/28/97
 RFW Contact James Ramsey
 Client Contact/Phone Matt Santman

Refrigerator#	5/0	5	8	8	5	8	8	8
#/Type Container	2/6	2/6	2/6	1/P	1/6	1/6	1/6	1/6
Volume	8.3	40.1	80.0	1.0	8.3	4.2	8.3	8.3
Preservative		QC1		HA03				
ANALYSES REQUESTED	ISUB	W2	625H	H&L Metals	624H	625H	H&L Metals ICP	OCT

WESTON Analytics Use Only

Samples Were:
 1 Shipped or Hand-Delivered For
 NOTES: For

2 Ambient or Chilled
 NOTES: Chilled

3 Received Broken/Leaking (Improperly Sealed)
 Y N
 NOTES: N

4 Properly Preserved
 Y N
 NOTES: N

5 Received Within Holding Times
 Y N
 NOTES: N

COC Tape Was:
 1 Present on Outer Package Y N
 2 Unbroken on Outer Package Y N
 3 Present on Sample Y N
 4 Unbroken on Sample Y N
 NOTES: Y N

COC Record Was:
 1 Present Upon Receipt of Samples Y N

Discrepancies Between Sample Labels and COC Record?
 Y N
 NOTES: 5/2/97 see 502

WA Use Only Lab ID	Client ID/Description	Matrix	Date Collected	*						
<u>016</u>	<u>IR89-MW06DW-07</u>	<u>S</u>	<u>5/2/97</u>	<u>A-B</u>						
<u>017</u>	<u>TB06</u>	<u>W</u>	<u>↓</u>	<u>A-B</u>						
<u>018</u>	<u>IR93-RBSB11</u>	<u>W</u>	<u>5/6/97</u>	<u>A-B</u>	<u>C-D</u>	<u>E</u>				
<u>019</u>	<u>IR88-RBSB12</u>	<u>↓</u>	<u>↓</u>	<u>A-B</u>						
<u>020</u>	<u>IR93-MW04JW-02</u>	<u>S</u>	<u>↓</u>				<u>A</u>	<u>B</u>	<u>C</u>	
<u>021</u>	<u>↓ ↓ 04</u>	<u>↓</u>	<u>↓</u>				<u>A</u>	<u>B</u>	<u>C</u>	
<u>022</u>	<u>IR89-MW06DW-07</u>	<u>↓</u>	<u>5/2/97</u>							<u>A</u>
<u>023</u>	<u>TB07</u>	<u>W</u>	<u>5/2/97</u>	<u>A-B</u>						
<u>024</u>	<u>IR88-MW07JW-09</u>	<u>S</u>	<u>5/5/97</u>							<u>A-B</u>
<u>025</u>	<u>↓ ↓ 22</u>	<u>↓</u>	<u>↓</u>							<u>A-B</u>

Matrix: W - Water DS - Drum Solids X - Other
 S - Soil O - Oil DL - Drum Liquids
 SE - Sediment A - Air F - Fish
 SO - Solid WI - Wipe L - EP/CLP Leachate

Special Instructions: * Grain Size / Bulk Density
QC = NFESC DL = NFESC

Item/Reason	Relinquished by	Received by	Date	Time	Item/Reason	Relinquished by	Received by	Date	Time
<u>7-17</u>	<u>FX</u>	<u>[Signature]</u>	<u>5/6/97</u>	<u>1225</u>					
<u>1825</u>	<u>FR</u>	<u>[Signature]</u>	<u>5/7/97</u>	<u>1615</u>					
<u>16 SUB</u>	<u>A. Bahand</u>	<u>FX → ETL</u>	<u>5/8/97</u>	<u>1250</u>					

Weston Environmental Metrics, Inc.
Internal Sample Custody Transfer Record

RFW Lot#: 97056494

Client: Saker Lejeune #356

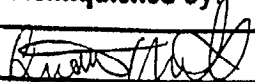
Sample No.	Analysis	Relinquished by:	Received by:	Date	Time	Comments
1-6	GC/MS VOA	L. Heene	J. King	5-5-97	13:05	
1-5	% Sol	M. Schuch	E. Thompson	5-6-97	15:30	
1-5	% Sol	E. Thompson	M. Schuch	5-6-97	16:35	
7-15, 17	GC/MS VOA	L. Heene	L. Heene	5-6-97	19:05	
1-5 ⁸⁻¹⁰ 10-15 ¹¹⁻¹⁵	% Sol	L. Heene	E. Thompson	5-7-97	11:00	
18-21, 23	GC/MS VOA	M. Schuch	L. Heene	5/7/97	16:20	
8-10 ¹¹⁻¹⁵	% Sol	E. Thompson	L. Heene	5/7/97	16:30	
7, 18	ORG	L. Heene	J. Berger	5/8/97	9:36	
7, 18	ORG	C. Will	L. Heene	5/8/97	14:00	
8-15 ¹⁰⁻¹⁵ 15-21	% Sol	L. Heene	E. Thompson	5/8/97	15:10	
80-22, 24-25	% Sol	L. Heene	E. Thompson	5/8/97	15:40	
12-15, ^{20-22, 24, 25}	% Sol	E. Thompson	L. Heene	5/8/97	15:50	
7, 18	Org. over	M. Schuch	R. Piskule	5/9/97	9:30	
7, 18	Org	R. Piskule	L. Heene	5/9/97	12:50	
1-5, 15, 12, 20, 21	Org	L. Heene	M. Newkirk	5/9/97	18:10	
1-5, 15, 12, 20, 21	Org	N. Walsh	L. Heene	5/12/97	13:15	
7, 18	Metals	L. Heene	L. Heene	5-12-97	16:00	
1-5, 12-15, 20, 21	Metals	L. Heene	L. Heene	5-12-97	16:00	
1-5, 7, 12-15, 18, 20, 21	Metals	L. Heene	Gene Zimm	5-12-97	21:25	
8-25	% Sol	M. Schuch	E. Thompson	5-19-97	16:15	
8-25	% Sol	E. Thompson	M. Schuch	5-19-97	16:35	
8-10 ¹⁰⁻¹⁵ 15-21 ^{22, 24, 25}	% Sol	L. Heene	L. Heene	5-20-97	14:20	

bm
5-20-97

Weston Environmental Metrics, Inc.
Internal Sample Custody Transfer Record

RFW Lot#: 97056494

Client: Robert Legerne #356

Sample No.	Analysis	Relinquished by:	Received by:	Date	Time	Comments
20, 21, 22, 24, 25	70. Sol		R. Heine	5-20-97	16:00	
22, 24, 25	TOC	R. Heine	Thornax	5/23/97	11:55	
22, 24, 25	TOC	Thornax	R. Heine	5/28/97	16:30	

5/18/97

WESTON Analytics Use Only

97056/6/97

356-005

Custody Transfer Record/Lab Work Request

Client <u>Baker Environmental, Inc.</u>	Refrigerator #	
Est. Final Proj. Sampling Date <u>6/16/97</u>	#/Type Container	Liquid
Work Order # <u>CTD 356</u>		Solid
Project Contact/Phone # <u>MD Bartman 412-269-2053</u>	Volume	Liquid
AD Project Manager <u>BSCA Ramirez</u>		Solid
QC <u>B.A. del B.A. TAT B.A.</u>	Preservatives	
Date Rec'd _____ Date Due _____	ANALYSES REQUESTED →	ORGANIC
Account # _____		INORG
	VOA	BNA
	Pest/PCB	Herb
	Metal	CN

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum DL - Drum L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only							
			MS	MSD											
	001	IR89-MW06DW-01			S	5/2	1508	X	X					X	
	002	IR89-MW06DW-02			S	5/2	1515	X	X					X	
	003	IR89-MW06IW-01			S	5/2	0755	X	X					X	
	004	IR89-MW06IW-01D			S	5/2	0755	X	X					X	
	005	IR89-MW06IW-02			S	5/2	0805	X	X					X	
	006	TB05			W	4/14	1455	X							

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS	DATE/REVISIONS:	WESTON Analytics Use Only
Special Instructions: <u>Airbill # 3568272863</u>	1. <u>T.B. projects 4/14/97</u>	Samples were: 1) Shipped <input checked="" type="checkbox"/> or Hand Delivered _____ Airbill # _____
	2. _____	2) Ambient or Chilled _____
	3. _____	3) Received in Good Condition <input checked="" type="checkbox"/> or <input type="checkbox"/>
	4. <u>(7.0c 7.4c 6.7c) cooler</u>	4) Labels Indicate Properly Preserved <input checked="" type="checkbox"/> or <input type="checkbox"/>
	5. _____	5) Received Within Holding Times <input checked="" type="checkbox"/> or <input type="checkbox"/>
	6. _____	COC Tape was: 1) Present on Outer Package <input checked="" type="checkbox"/> or <input type="checkbox"/> 2) Unbroken on Outer Package <input checked="" type="checkbox"/> or <input type="checkbox"/> 3) Present on Sample <input checked="" type="checkbox"/> or <input type="checkbox"/> 4) Unbroken on Sample <input checked="" type="checkbox"/> or <input type="checkbox"/> COC Record Present Upon Sample Rec'd <input checked="" type="checkbox"/> or <input type="checkbox"/>

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
<u>APT</u>	<u>Fed-Ex</u>	<u>5/2/97</u>	<u>1800</u>				
	<u>K. Schulz</u>	<u>5/27</u>	<u>0810</u>				

Discrepancies Between Samples Labels and COC Record? Y or N
 NOTES:
COC 47043

Custody Transfer Record/Lab Work Request

97056494

Client: Baker Environmental
Est. Final Proj. Sampling Date: 6-16-97
Work Order #: CTO-356
Project Contact/Phone: M.P. Bachman 4249-2053
AD Project Manager: Basha Ramer
OC: B.A. **DA:** B.A. **TAT:** B.A.
Refrigerator #: _____
#/Type Container: Liquid _____ Solid _____
Volume: Liquid _____ Solid _____
Preservatives: _____
ANALYSES REQUESTED: **ORGANIC** **INORG**
 VOA BNA Pest/PCB Herb Metal CN
Date Rec'd: _____ **Date Due:** _____
Account #: _____

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum DL - Drum L - Liquide EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only													
			MS	MSD				1	2	3	4	5	6	7	8	9	10	11	12		
		IR89-NW07IW-01			W	5/6	1340	X													
		IR89-NW07DW-01			W	5/6	1420	X													
	018	IR93-RBSB11			W	5/6	1130	X	X	X					X						
	019	IR88-RBSB12			W	5/6	1630	X													
	020	IR93-NW04IW-02			S	5/6	0746	X	X						X						
	021	IR93-NW04IW-04			S	5/6	0802	X	X						X						
	022	IR89-NW06DW-07			S	5/2	1527													X	
	023	FB07			W	4/4	1455	X													
	024	IR88-NW07IW-09			S	5/5	1727													X	
	025	IR88-NW07IW-22			S	5/5	1824													X	

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
 * Quick T.A.T. Karen Wood 42-269-6014
 IR88-RBSB12 stainless steel spoon
 IR93-RBSB11 split spoon
 Airbill # 3558272874

DATE/REVISIONS:

1. T.B. prep date 4/14/97
 2. _____
 3. _____
 4. _____
 5. _____
 6. _____

WESTON Analytics Use Only

Samples were: FR
 1) Shipped or Hand Delivered _____
 Airbill # _____
 2) Ambient or Chilled
 3) Received in Good Condition Y or N
 4) Labels Indicate Properly Preserved Y or N
 5) Received Within Holding Times Y or N

COC Tape was:
 1) Present on Outer Package Y or N
 2) Unbroken on Outer Package Y or N
 3) Present on Sample Y or N
 4) Unbroken on Sample Y or N
 COC Record Present Upon Sample Rec't Y or N

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
APT	Fed-EX	5/6/97	1800				
	M. K. Huff	5/7/97	1505				

Discrepancies Between Samples Labels and COC Record? N
 NOTES:

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Friday May 30th, 1997

Attn: Ms. Karen Wood

RE: IR89-MW06DW-07
Project # 00000-000-000-0000
Lab ID: 9705G494-022
Sample Date: 05/02/97
Date Received: 05/07/97

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
Total Organic Carbon	0.31	%	0.28

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Friday May 30th, 1997

RE: IR88-MW07IW-09
Project # 00000-000-000-0000
Lab ID: 9705G494-024
Sample Date: 05/05/97
Date Received: 05/07/97

Attn: Ms. Karen Wood

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
Total Organic Carbon	0.19	u %	0.19

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Friday May 30th, 1997

Attn: Ms. Karen Wood

RE: IR88-MW07IW-22
Project # 00000-000-000-0000
Lab ID: 9705G494-025
Sample Date: 05/05/97
Date Received: 05/07/97

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
Total Organic Carbon	0.18	u %	0.18

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Friday May 30th, 1997

Project # 00000-000-000-0000
Lab Batch: 9705G494

Attn: Ms. Karen Wood

Inorganic Method Blank Data Report

Sample	Lab ID	Parameter	Result	Units	Reporting Limit
Blank 1	97GMC146-MB1	Total Organic Carbon	0.050	%	0.050

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Friday May 30th, 1997

Project # 00000-000-000-0000
Lab Batch: 9705G494

Attn: Ms. Karen Wood

Inorganic Laboratory Control Standards Report

Lab ID	Parameter	Spiked Amount	Units	Spike #1 % Recov.	Spike #2 % Recov.	RPD
97GMC146-LCS	TOC	47.0	%	95.5	95.0	0.60

Recra Labnet - Chicago
Wet Chemistry Case Narrative

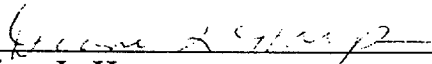
Client: Baker-Lejeune #356
RFW #: 9705G494

W.O. # NA
Date Rec'd: 05/07/97

1. This narrative covers the analysis of the samples in sample delivery group 9705G494 in accordance with protocols based on the following methods:

TOC - Walkley-Black Method

2. There is no established hold time for this parameter. Please see the laboratory chronicle section of this report for dates of preparation and analysis.
3. The method blank was below the reporting limit.
4. The LCSs, crystalline KHP which is 47% carbon, were within acceptance limits at 95.5% and 95.0% recovery.
5. Matrix QC was done on an alternate sample. Since the % solid analysis of the sample on which the matrix QC was done was not yet available, the data for that sample is not all calculated and appears in the raw data incomplete.



Diane L. Harper
Wet Chemistry Section Manager



Date

SOUTHWEST RESEARCH INSTITUTE

6220 CULEBRA ROAD • POST OFFICE DRAWER 28510 • SAN ANTONIO, TEXAS, USA 78228-0510 • (210) 684-5111 • TELEX 244846

Chemistry and Chemical Engineering Division
Department of Environmental Engineering

June 9, 1997

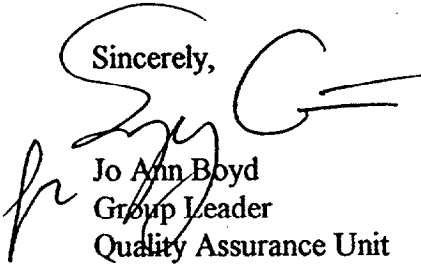
Ms. Sherri Scott
Recra Environmental
2417 Bond Street
University Park, IL 60466-3182

Subject:	Blanket Order No.:	14-07219B96
	Weston RFW Batch No.:	9705G729
	Weston Release Number:	MR32601
	SwRI Project Number:	01-8680-063
	SDG:	89763 (9705G729-008)
	Work Order No.:	11437
	Samples Received:	May 20, 1997

Dear Ms. Scott,

Enclosed is the analytical data for the above referenced case. If you should have any questions, please do not hesitate to call me at 210/522-2169.

Sincerely,


Jo Ann Boyd
Group Leader
Quality Assurance Unit
Division 01

TECHNICAL APPROVAL:


Chee-Kai Tan, Ph.D.
Group Leader

Encl



SAN ANTONIO, TEXAS

HOUSTON, TEXAS • DETROIT, MICHIGAN • WASHINGTON, DC

SOUTHWEST RESEARCH INSTITUTE
CLIENT: RECRA ENVIRONMENTAL
SDG: 89763 (9705G729-008)
VTSR: MAY 20, 1997

NARRATIVE

Client: Recra Environmental SDG: 89763

SwRI Work Order: 11437

SwRI Project No.: 01-8680-063

June 9, 1997

Page 1

**SwRI Case Narrative
Recra Environmental SDG: 89763**

1. Four (4) water samples for GC/MS Headspace analysis for Methane only:

SwRI ID	Customer ID	SwRI ID	Customer ID
89763	9705G729-008	89765	9705G729-010
89764	9705G729-009	89766	9705G729-017

2. Samples were received at SwRI on May 20, 1997 for a turnaround time of twenty-one (21) days from Validated Time of Sample Receipt (VTSR).

3. QC sample:

Performed on per 20 samples.

GC/MS HEADSPACE ANALYSIS

1. Water samples were analyzed by Method 3810M headspace for methane at 90°C with packed column technique for achieving detection limit of 1.0 ppm.
2. Samples were analyzed within fourteen days of the CED.
3. Concentration of detected compounds were quantitated by external quantitation method as per protocol.
4. The initial calibration standard was analyzed with a three point standard at 227 ppm, 45.4 ppm, and 2.27 ppm. A continuing calibration fortified with 45.4 ppm was analyzed at the end of a sequence to ensure that the sensitivity of the instrument was maintained. QC criteria of < 25 % RSD and < 20 % D were met by the initial and continuing calibrations.
5. The method blank, VBLK01, was found clean of target compounds above the detection limit.
6. QC sample (MS/MSD) analyzed per bid one per twenty samples, no QC on this shipment.

Client: Recra Environmental SDG: 89763

SwRI Work Order: 11437

SwRI Project No.: 01-8680-063

June 9, 1997

Page 2

7. Sample Calculation:

Standard F:052173 at 0.5 mL injection

Integration of methane = 259419 at 45.4 ppmv or RRF = area/conc. = 259419/45.4
= 5714 ppmv

Sample 9705G729-008 at 0.5mL injection

Intergration of methane = 268834

Methane = (268834/5714)ppmv x (0.5mL/0.5mL) = 47.05ppmv (uL/L)

To convert to water concentration, ug/L, Ideal Gas Law was used:

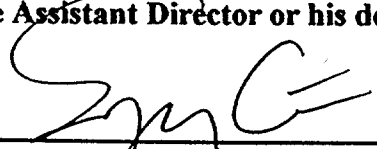
$PV=nRT$ where $P=1\text{atm}$, $R=0.08206(\text{L-amt/mole-K})$, $T=25^\circ\text{K} = 298^\circ\text{K}$, $MW=16 \text{ g/mole}$

$n=PV/RT$ or mass,g = $(PV/RT) \times MW$

Thus ug = $(1 \text{ atm} \times 47.05 \text{ uL}/0.08206 \times 298) \times 16 = 30.4 \text{ ug}$

The concentration reported = 30.4 ug/L

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Assistant Director or his designee, as verified by the following signature."



Jo Ann Boyd,
Group Leader
Quality Assurance Unit,
Division 01

6-9-97

Date

SOUTHWEST RESEARCH INSTITUTE
CLIENT: RECRA ENVIRONMENTAL
SDG: 89763 (9705G729-008)
VTSR: MAY 20, 1997

CHAIN-OF-CUSTODY



Custody Transfer Record/Lab Work Request

WESTON Analytics Use Only
97056729

Client Weston / EMI
Work Order _____
Date Rec'd. 5/17/97 Date Due 6/10/97
RFW Contact Bosco Ramirez
Client Contact/Phone _____

Refrigerator#	<u>S/O</u>										
#/Type Container	<u>3/6</u>										
Volume	<u>40ml</u>										
Preservative											
ANALYSES REQUESTED	<u>Methane</u>										

WA Use Only Lab ID	Client ID/Description	Matrix	Date Collected								
<u>008</u>	<u>IR88 - MW01-01 ✓</u>	<u>W</u>	<u>5/15/97</u>	<u>X</u>					<u>INTACT</u>		
<u>009</u>	<u>MW06-01 ✓</u>	<u>I</u>	<u>I</u>	<u>I</u>							
<u>010</u>	<u>MW06IW-01 ✓</u>	<u>I</u>	<u>I</u>	<u>I</u>							
<u>017</u>	<u>MW08IW-01 ✓</u>	<u>I</u>	<u>5/16/97</u>	<u>I</u>					<u>↓</u>		

WESTON Analytics Use Only

Samples Were:
 Shipped or Hand-Delivered
 Delivered
 NOTES: FX

2 Ambient or Chilled
 NOTES:

3 Received Broken/Leaking (Improperly Sealed)
 Y N
 NOTES:

4 Properly Preserved
 Y N
 NOTES:

5 Received Within Holding Times
 Y N
 NOTES:

COC Tape Was:

1 Present on Outer Package Y N
 2 Unbroken on Outer Package Y N
 3 Present on Sample Y N
 4 Unbroken on Sample Y N
 NOTES: Y N

COC Record Was:

1 Present Upon Receipt of Samples Y N

Discrepancies Between Sample Labels and COC Record? Y
 NOTES:

Matrix: W - Water DS - Drum Solids X - Other
 S - Soil O - Oil DL - Drum Liquids
 SE - Sediment A - Air F - Fish
 SO - Solid WI - Wipe L - EP/TCLP Leachate

Special Instructions:
* SEE ATTACHED

Samples rec. preserved with ice. temp in 5.7°C with 1/2. Int.

Item/Reason	Relinquished by	Received by	Date	Time	Item/Reason	Relinquished by	Received by	Date	Time
<u>sub</u>	<u>R. Schmidt</u>	<u>FX → Daisy</u>	<u>5/19/97</u>	<u>1300</u>			<u>Jos. M. ...</u>	<u>5/20/97</u>	<u>09.03</u>

SOUTHWEST RESEARCH INSTITUTE
CLIENT: RECRA ENVIRONMENTAL
SDG: 89763 (9705G729-008)
VTSR: MAY 20, 1997

INJECTION LOGS

48 TITLE Methane in Headspace
(3810M)

PROJECT NO. 01- 000004
BOOK NO. FID LOG BOOK #3

Work continued from Page

Client: WESTON (W.O. 11432, 11437) Method: Methane (Headspace)
Analysis Date: 05/21/97 4th 5/28/97 Column: Hayesep-D(Supelco)
Project Number: 01-8680-062 5/28/97 GC ramp: 100 C Isothermal

*****01-6421-383*****

Run	Sample Name	Filename	Amt. Inj.	DF	Area
1	227 ppm Std	F:052172	0.5ml		
2	45.4 ppm Std	F:052173	0.5ml		
3	2.27 ppm Std	F:052175	0.5ml		
4	Vblk01	F:052176	1.5ml		
5	9705G709-001(89726)	F:052177	1.5ml		
6	9705G709-002(89727)	F:052178	1.5ml		
7	9705G709-003(89728)	F:052179	1.5ml		
8	9705G709-014(89729)	F:0521710	1.5ml		
9	9705G709-015(89730)	F:0521711	1.5ml		
10	9705G709-016(89731)	F:0521712	1.5ml		
11	9705G729-008(89763)	F:0521713	1.5ml		
12	9705G729-008DL	F:0521714	0.5ml	3	
13	9705G729-009(89764)	F:0521715	1.5ml		
14	9705G729-010(89765)	F:0521716	1.5ml		
15	45.4 ppm std	F:0521717	0.5ml		
16	9705G729-017(89766)	F:0521718	1.5ml		
17	9705G709-014MSD	F:0521720	1.5ml		45.4ppm MS
18	9705G709-014MS	F:0521721	1.5ml		45.4ppm MS
19	45.4 ppm Std	F:0521722	0.5ml		

Reviewed by: *CKR*
Date: 05/21/97

Standard: Scotty Specialty Gas Mix 216 at 1% (10000ppm), Lot 527205

SCIENTIFIC BI...
SIGNATURE *J. Clathier* DATE 5/21/97
DISCLOSED TO AND UNDERSTOOD BY DATE WITNESS DATE

CLIENT: RECRA ENVIRONMENTAL
SDG: 89763 (9705G729-008)

VOLATILES ANALYSIS
METHOD 3810 (MODIFIED)

CLIENT: RECRA ENVIRONMENTAL
SDG: 89763 (9705G729-008)

QC SUMMARY
METHOD 3810 (MODIFIED)

4A
SOUTHWEST RESEARCH INSTITUTE
VOLATILE METHOD BLANK SUMMARY

010001



VBLK 01

Lab Name: Southwest Research Institute
 Lab Code: SwRI Case: WESTON
 Lab File ID: F:052176
 Date Analyzed: 05/21/97
 Instrument ID: FID:F

Contract: 01-8680-063
 SDG: 89763: 9705G729-008
 Lab Sample ID: VBLK 01
 Time Analyzed: 13:16

SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1. 9705G729-008	89763	F:0521713	14:05
2. 9705G729-008 DL	89763 DL	F:0521714	14:22
3. 9705G729-009	89764	F:0521715	14:41
4. 9705G729-010	89765	F:0521716	14:47
5. 9705G729-017	89766	F:0521717	15:17
6.			
7.			
8.			
9.			
10.			

chv 6/4/97

Comments:

CLIENT: RECRA ENVIRONMENTAL
SDG: 89763 (9705G729-008)

SAMPLE DATA
METHOD 3810 (MODIFIED)

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET
HEADSPACE ANALYSIS BY METHOD 3810(MODIFIED)

010002

SAMPLE ID

9705G729-008DL

Lab Name:	SwRI	Client:	WESTON	Project:	01-8680-063
Lab Code:	SwRI	Lab System ID:	89763	SDG:	89763
Matrix:	Water	Date Received:	05/20/97	Lab File ID:	F:0521714
Level:	Medium	Conc/Dil Factor:	3.00	Date Analyzed:	05/21/97
Headspace vol:	22ml	GC Column:	HAYE-SEP D	Detection Limit:	0.65
Injection vol:	0.50ml			Concentration:	ug/L

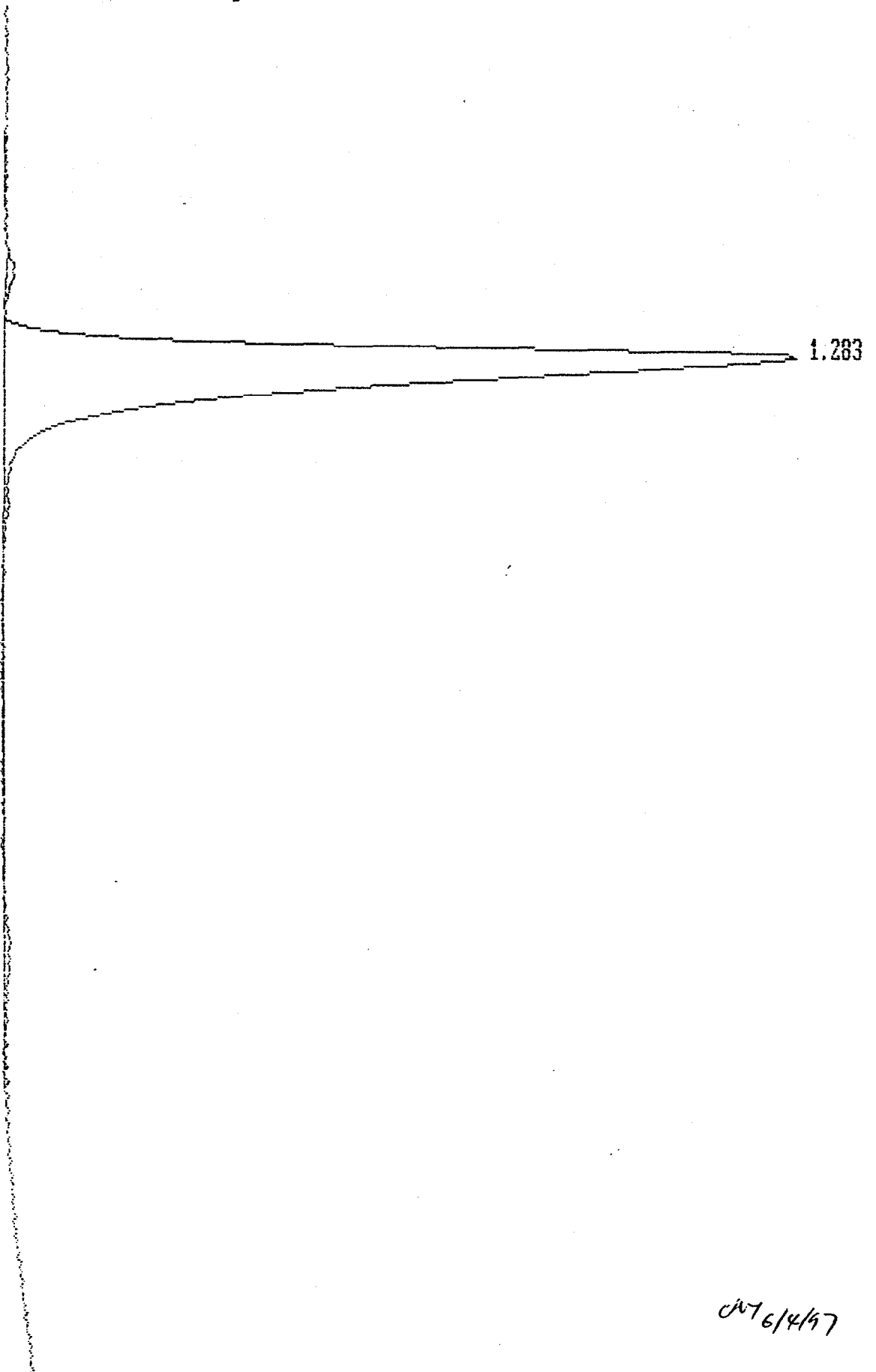
Cas No.	Compound	ug/L
74-82-8	Methane	30.4

DATA QUALIFIERS

- U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action (this is not necessarily the instrument detection limit). The footnote should be read U compound was analyzed for but not detected. The number is the minimum attainable limit for the sample.
- E Concentration exceeds calibration range

9705G729-0087L, 0.5 Processed: 05-21-1997 14:22:50, segment 1, cycle 14
RAW DATA SAVED IN FILE F:0521714.PTS
Version 4.0, Nelson Analytical Chromatography Software, 05-21-1997 14:23:10
Start time: 0.00 Stop time: 5.00 Offset: 0
Low Value: 17855 High Value: 46044 Scale factor: 1

010003



05/24/97

DATA FILE F:0521714.HDR TAKEN 05-21-1997 14:23:09
 Version 4.0, Nelson Analytical Chromatography Software, 05-21-1997 14:32:20
 NEW TIMED EVENTS FROM M:HAYESEP

***** AREA PERCENT REPORT *****

 * Sample Name: 970⁵16¹²0720¹⁹⁹⁷G729-008DL,0.5 Operator Initials: JC
 * Date: 05-21-1997 14:23:09 Method:M:HAYESEP DATA FILE: F:0521714.PTS
 * Interface: 0 Cycle#: 14 Channel#: 0 Vial#: N.A.
 * Starting Peak Width: 10 Threshold: 1 Area Threshold: 10

 * Instrument Type: HP5890 INSTR-F Column Type: HAYESEP D(SUPELCO)
 * Solvent Description: helium
 * Operating Conditions: 100D C ISOTHERMAL
 * Detector 0: FID Detector 1:
 * Misc. Information: WESTON 01-8680-063

 Starting Delay: 0.00 Run Time: 0.00

Pk No.	Ret Time	Peak Area	Area %	B L	Peak Ht.	Normalized %	Area/Height	Conc ppm	ug/L	
3	1.28	CH4	268834	100.0000	1	28070	100.000	9.6	47.05	30.4
Total Area:		268834	Area Reject:		5000	One sample per		1.000	sec.	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET
HEADSPACE ANALYSIS BY METHOD 3810(MODIFIED)

010005

SAMPLE ID

9705G729-009

Lab Name: SwRI
Lab Code: SwRI
Matrix: Water
Level: Medium
Headspace vol: 22ml
Injection vol: 1.50ml
Client: WESTON
Lab System ID: 89764
Date Received: 05/20/97
Conc/Dil Factor: 1.00
GC Column: HAYE-SEP D
Project: 01-8680-063
SDG: 89763
Lab File ID: F:0521715
Date Analyzed: 05/21/97
Detection Limit: 0.65
Concentration: ug/L

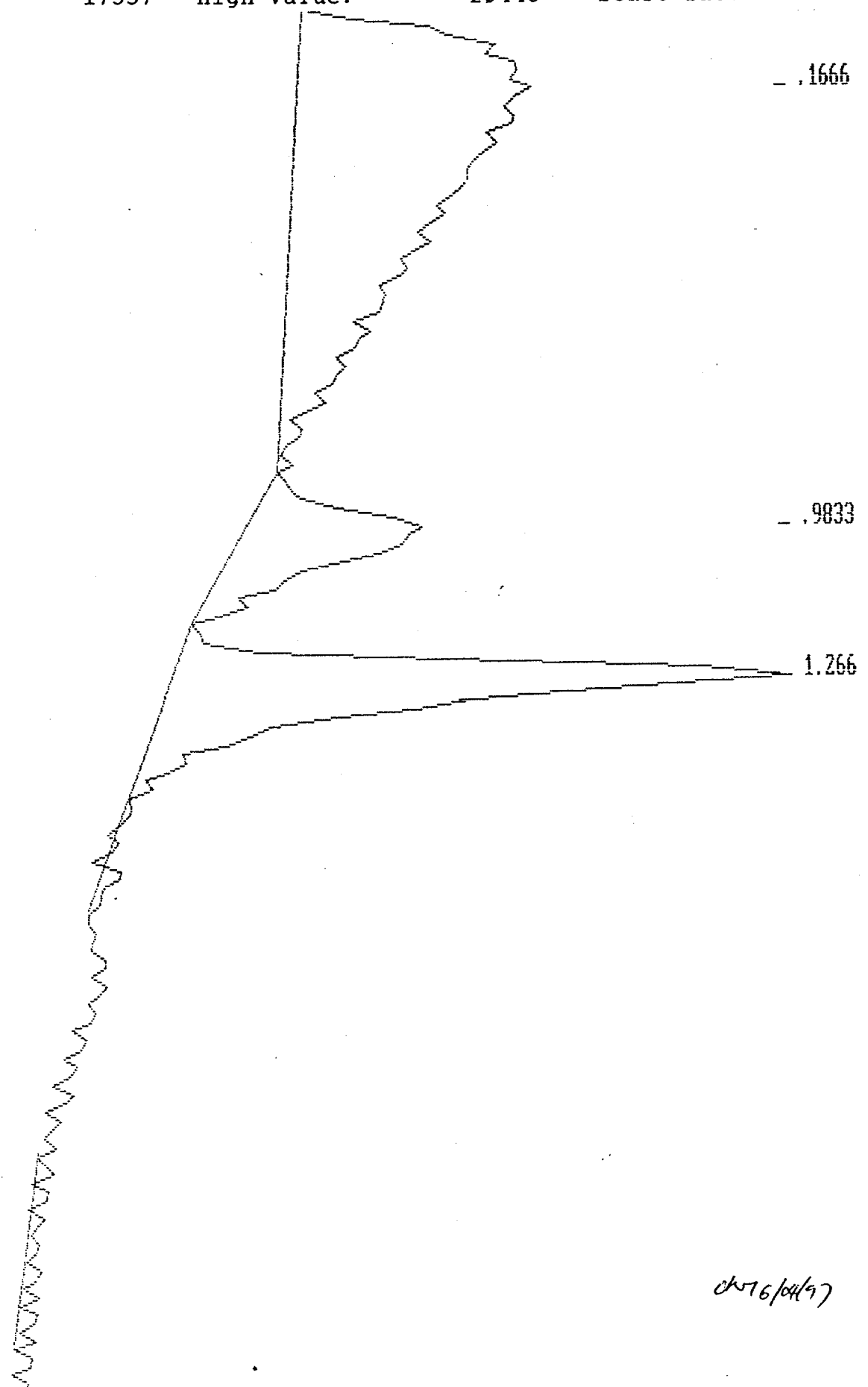
Cas No.	Compound	ug/L
74-82-8	Methane	0.65U

DATA QUALIFIERS

- U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action (this is not necessarily the instrument detection limit). The footnote should be read U compound was analyzed for but not detected. The number is the minimum attainable limit for the sample.
- E Concentration exceeds calibration range

9705G729-009,1.5ML Processed: 05-21-1997 14:41:37, segment 1, cycle 15
RAW DATA SAVED IN FILE F:0521715.PTS
Version 4.0, Nelson Analytical Chromatography Software, 05-21-1997 14:41:58
Start time: 0.00 Stop time: 2.60 Offset: 0
Low Value: 17537 High Value: 20448 Scale factor: 1

010006



chr16/04/97

DATA FILE F:\0521715.HDR TAKEN 05-21-1997 14:41:56

Version 4.0, Nelson Analytical Chromatography Software, 05-21-1997 14:43:01
 NEW TIMED EVENTS FROM M:HAYESEP

***** AREA PERCENT REPORT *****

 * Sample Name: 9705G729-009,1.5ML Operator Initials: JC
 * Date: 05-21-1997 14:41:56 Method:M:HAYESEP DATA FILE: F:\0521715.PTS
 * Interface: 0 Cycle#: 15 Channel#: 0 Vial#: N.A.
 * Starting Peak Width: 10 Threshold: 1 Area Threshold: 10

 * Instrument Type: HP5890 INSTR-F Column Type: HAYESEP D(SUPELCO)
 * Solvent Description: helium
 * Operating Conditions: 100D C ISOTHERMAL
 * Detector 0: FID Detector 1:
 * Misc. Information: WESTON 01-8680-063

 Starting Delay: 0.00 Run Time: 0.00

Pk No.	Ret Time	Peak Area	Area %	B L	Peak Ht.	Normalized %	Area/Height	Conc ppm	ug/l
1	0.17	22976	56.8833	1	866	100.000	26.5		
2	0.98	5171	12.8022	1	649	22.506	8.0		
3	1.27 CH4	12245	30.3145	1	2295	53.293	5.3	0.7	< DI

Total Area: 40392 Area Reject: 5000 One sample per 1.000 sec

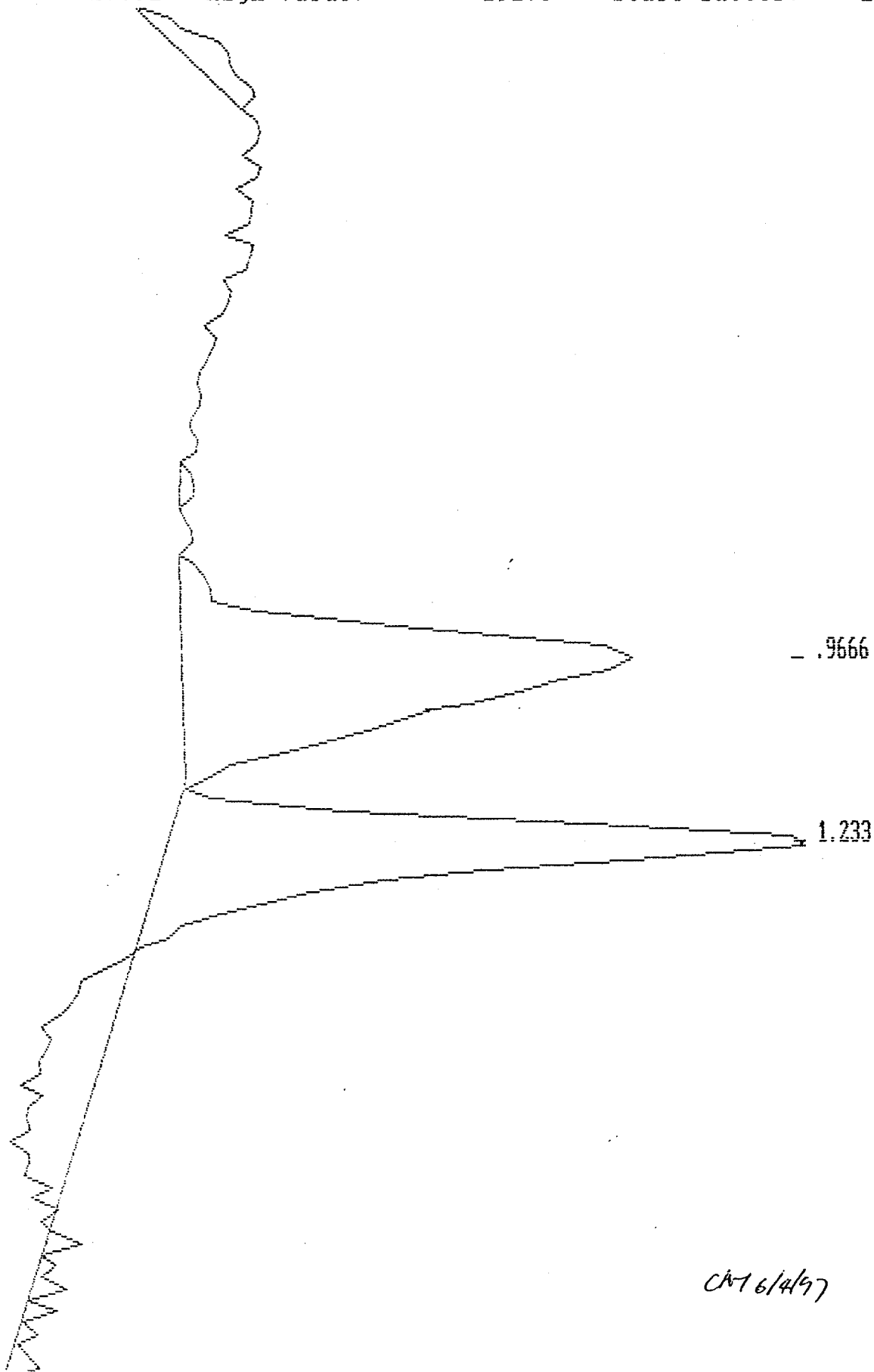
010009

9705G729-010,1.5ML Processed: 05-21-1997 14:47:22, segment 1, cycle 16

RAW DATA SAVED IN FILE F:0521716.PTS

Version 4.0, Nelson Analytical Chromatography Software, 05-21-1997 14:47:43

Start time: 0.00 Stop time: 2.07 Offset: 0
Low Value: 17391 High Value: 20179 Scale factor: 1



CM 6/4/97

DATA FILE F:0521716.HDR TAKEN 05-21-1997 14:47:42

Version 4.0, Nelson Analytical Chromatography Software, 05-21-1997 14:49:23
NEW TIMED EVENTS FROM M:HAYESEP

START TIME= 1.150 START HEIGHT= 18016

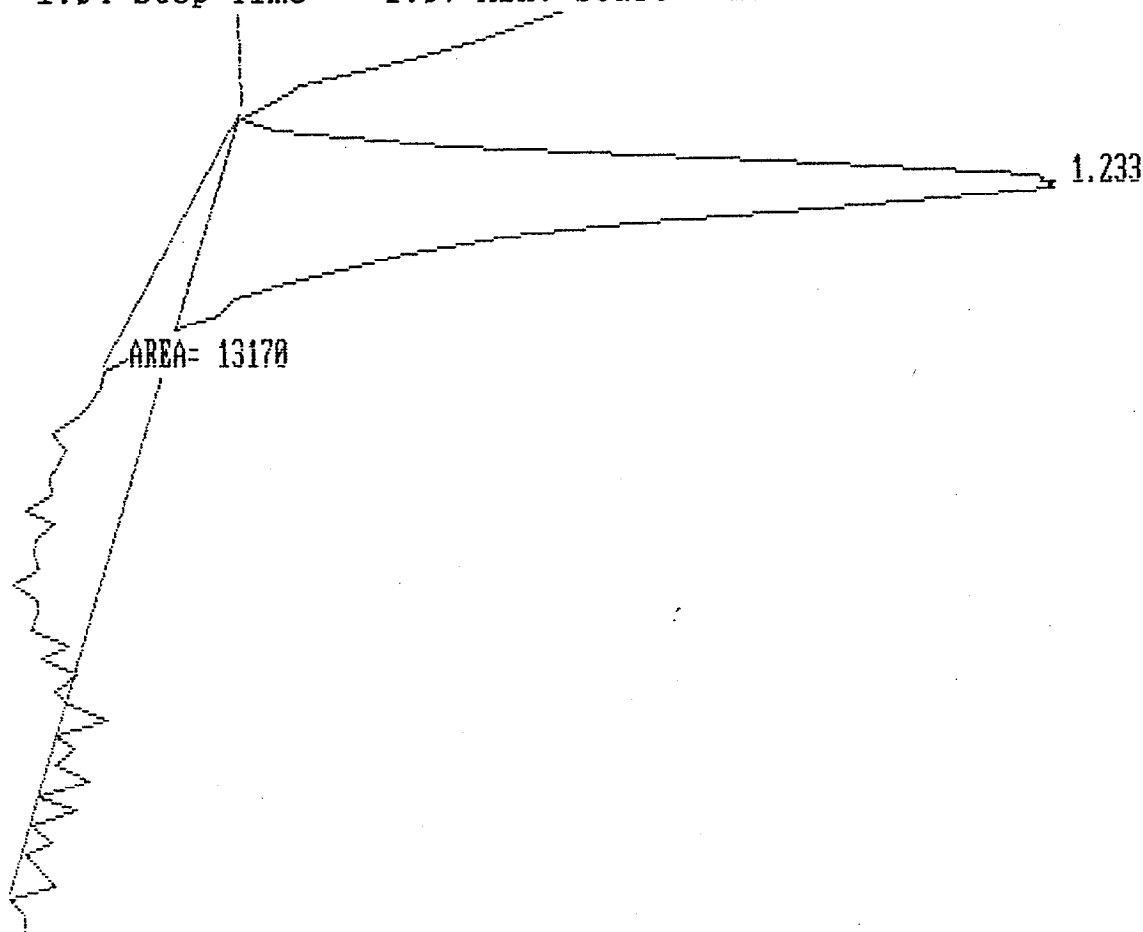
STOP TIME= 1.433 STOP HEIGHT= 17650

AREA = 13170

Plot of data file: F:0521716.PTS Date: 05-21-1997 Time: 14:50:07

Sample Name: 9705G729-010,1.5ML

Start Time= 1.04 Stop Time= 2.07 Min. Scale= 17391 Max. Scale= 20179



OLD AREA FOR PEAK# 4 = 8347.5 NEW AREA= 13170

OLD HEIGHT FOR PEAK # 4 = 2223.098 NEW HEIGHT= 2212.295

REPRINT AREA REPORTS FOR NEW TABLES.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET
HEADSPACE ANALYSIS BY METHOD 3810(MODIFIED)

010012

SAMPLE ID

9705G729-017

Lab Name: SwRI
Lab Code: SwRI
Matrix: Water
Level: Medium
Headspace vol: 22ml
Injection vol: 1.50ml
Client: WESTON
Lab System ID: 89766
Date Received: 05/20/97
Conc/Dil Factor: 1.00
GC Column: HAYE-SEP D
Project: 01-8680-063
SDG: 89763
Lab File ID: F:0521718
Date Analyzed: 05/21/97
Detection Limit: 0.65
Concentration: ug/L

Cas No.	Compound	ug/L
74-82-8	Methane	0.65 U

DATA QUALIFIERS

- U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action (this is not necessarily the instrument detection limit). The footnote should be read U compound was analyzed for but not detected. The number is the minimum attainable limit for the sample.
- E Concentration exceeds calibration range

***** AREA PERCENT REPORT *****

 * Sample Name: 9705G729-010,1.5ML Operator Initials: JC
 * Date: 05-21-1997 14:47:42 Method:M:HAYESEP DATA FILE: F:0521716.PTS
 * Interface: 0 Cycle#: 16 Channel#: 0 Vial#: N.A.
 * Starting Peak Width: 10 Threshold: 1 Area Threshold: 10

 * Instrument Type: HP5890 INSTR-F Column Type: HAYESEP D(SUPELCO)
 * Solvent Description: helium
 * Operating Conditions: 100D C ISOTHERMAL
 * Detector 0: FID Detector 1:
 * Misc. Information: WESTON 01-8680-063

 Starting Delay: 0.00 Run Time: 2.07

Pk No.	Ret Time	Peak Area	Area %	B L	Peak Ht.	Normalized %	Area/Height	Conc ppm	ug/l
3	0.97	12895	49.4725	1	1579	97.912	8.2		
4	1.23 CH4	13170	50.5275	1	2212	100.000	6.0	0.77	< DL
Total Area:		26065	Area Reject:		5000	One sample per		1.000	sec.

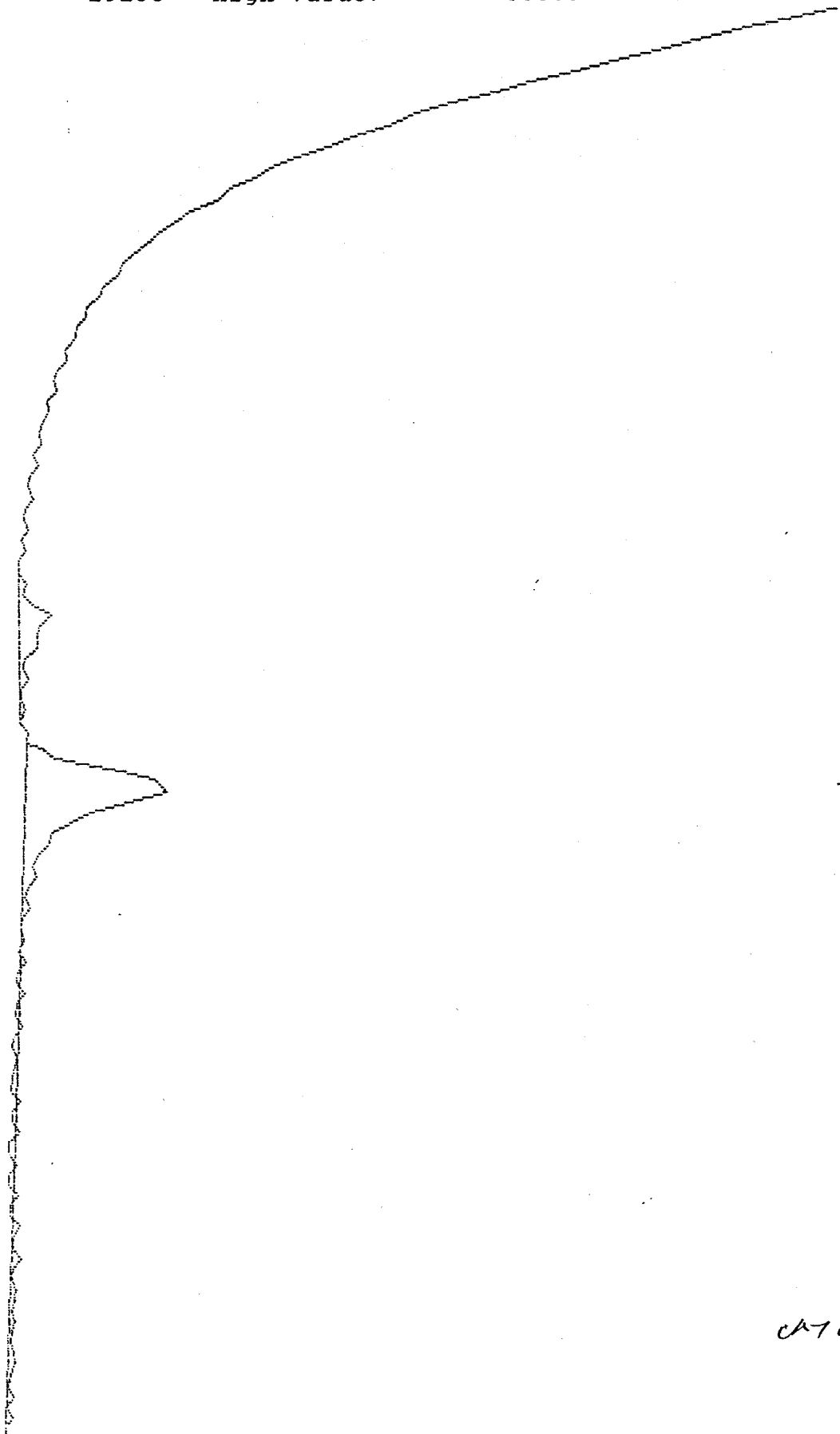
010013

9705G729-017,1.5ML Processed: 05-21-1997 15:17:37, segment 1, cycle 18

RAW DATA SAVED IN FILE F:0521718.PTS

Version 4.0, Nelson Analytical Chromatography Software, 05-21-1997 15:17:58

Start time: 0.00 Stop time: 2.33 Offset: 0
Low Value: 19158 High Value: 33865 Scale factor: 1



1.233

CA-76/04(97)

DATA FILE F:0521718.HDR TAKEN 05-21-1997 15:17:56
 Version 4.0, Nelson Analytical Chromatography Software, 05-21-1997 15:32:50
 NEW TIMED EVENTS FROM M:HAYESEP

***** AREA PERCENT REPORT *****

 * Sample Name: 9705G729-017,1.5ML Operator Initials: JC
 * Date: 05-21-1997 15:17:56 Method:M:HAYESEP DATA FILE: F:0521718.PTS
 * Interface: 0 Cycle#: 18 Channel#: 0 Vial#: N.A.
 * Starting Peak Width: 10 Threshold: 1 Area Threshold: 10

 * Instrument Type: HP5890 INSTR-F Column Type: HAYESEP D(SUPELCO)
 * Solvent Description: helium
 * Operating Conditions: 100D C ISOTHERMAL
 * Detector 0: FID Detector 1:
 * Misc. Information: WESTON 01-8680-063

Starting Delay: 0.00 Run Time: 0.00

Pk No.	Ret Time	Peak Area	Area %	B L	Peak Ht.	Normalized %	Area/Height	Conc ppm	ug/l	
2	1.23	CH4	12389	100.0000	1	2432	100.000	5.1	0.72	< DL

Total Area: 12389 Area Reject: 5000 One sample per 1.000 sec

CLIENT: RECRA ENVIRONMENTAL
SDG: 89763 (9705G729-008)

STANDARD DATA
METHOD 3810 (MODIFIED)

010015

VOLATILE ORGANIC INITIAL CALIBRATION SUMMARY

Lab Name: Southwest Research Institute

Contract: 01-8680-063

Lab Code: SwRI

Case/SDG: Weston/ 89763

Instrument ID: FID

Calibration Date: 05/21/97

PPM	RRF1	RRF2	RRF3	MEAN	%RSD
Methane	227	45.4	2.27	6767	19.1

File names = F: 052172, 052173, 052175

Injection volume: 0.5ml

% RSD \leq 25%

FORM VI

Jc 5/21/97

227 Jc 5/21/97

45-4PPM CH4, 0.5ML Processed: 05-21-1997 10:07:18, segment 2, cycle 2

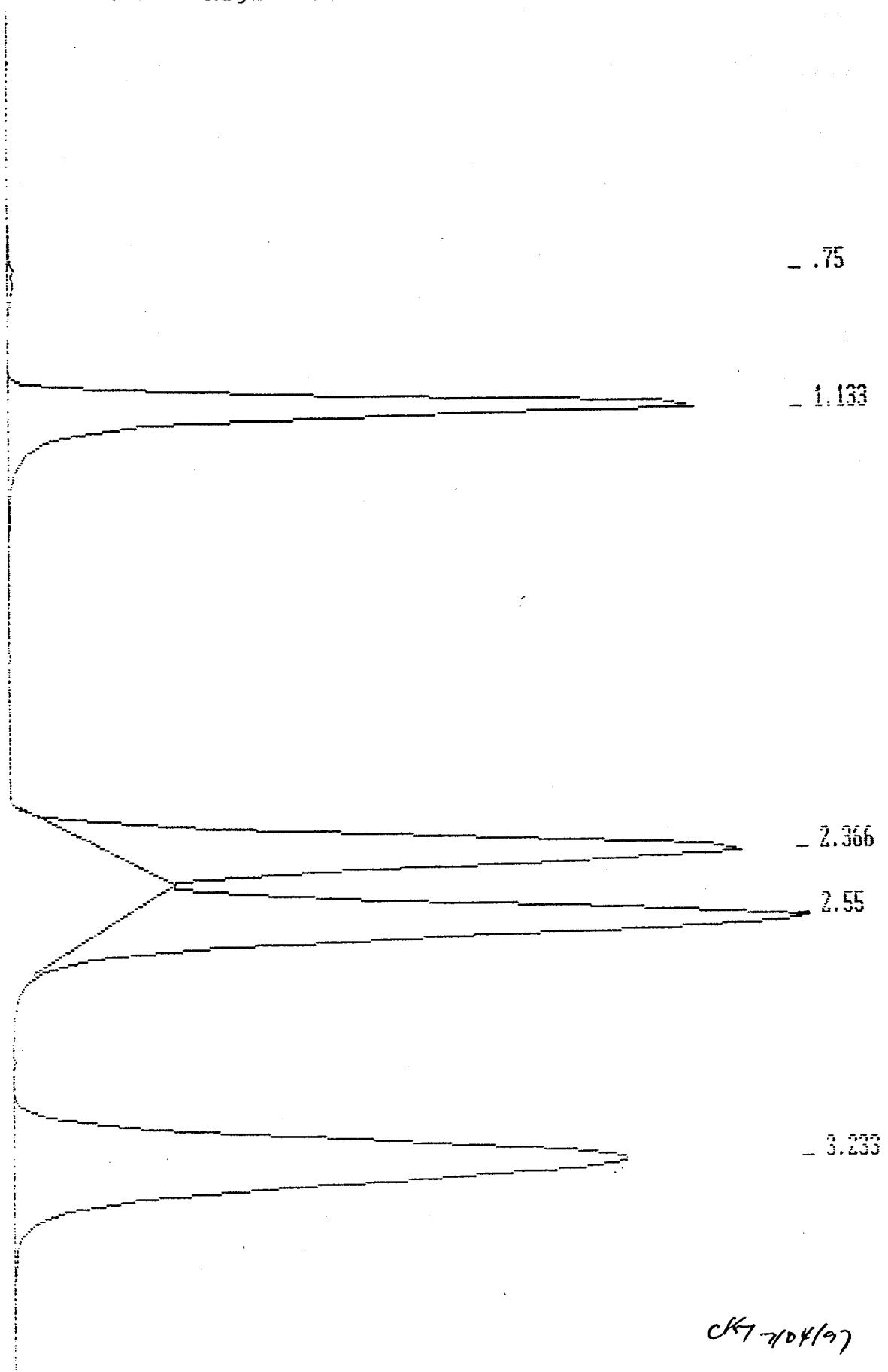
RAW DATA SAVED IN FILE F:052172.PTS

010016

Version 4.0, Nelson Analytical Chromatography Software, 05-21-1997 10:07:38

Start time: 0.00 Stop time: 3.90 Offset: 0

Low Value: 4668 High Value: 401277 Scale factor: 1



CK7-704/97

***** AREA PERCENT REPORT *****

 * Sample Name: ^{sc 5/21/97} 25.4 PPM CH4, 0.5ML Operator Initials: JC
 * Date: 05-21-1997 10:07:37 Method: M:HAYESEP DATA FILE: F:052172.PTS
 * Interface: 0 Cycle#: 2 Channel#: 0 Vial#: N.A.
 * Starting Peak Width: 10 Threshold: 1 Area Threshold: 10

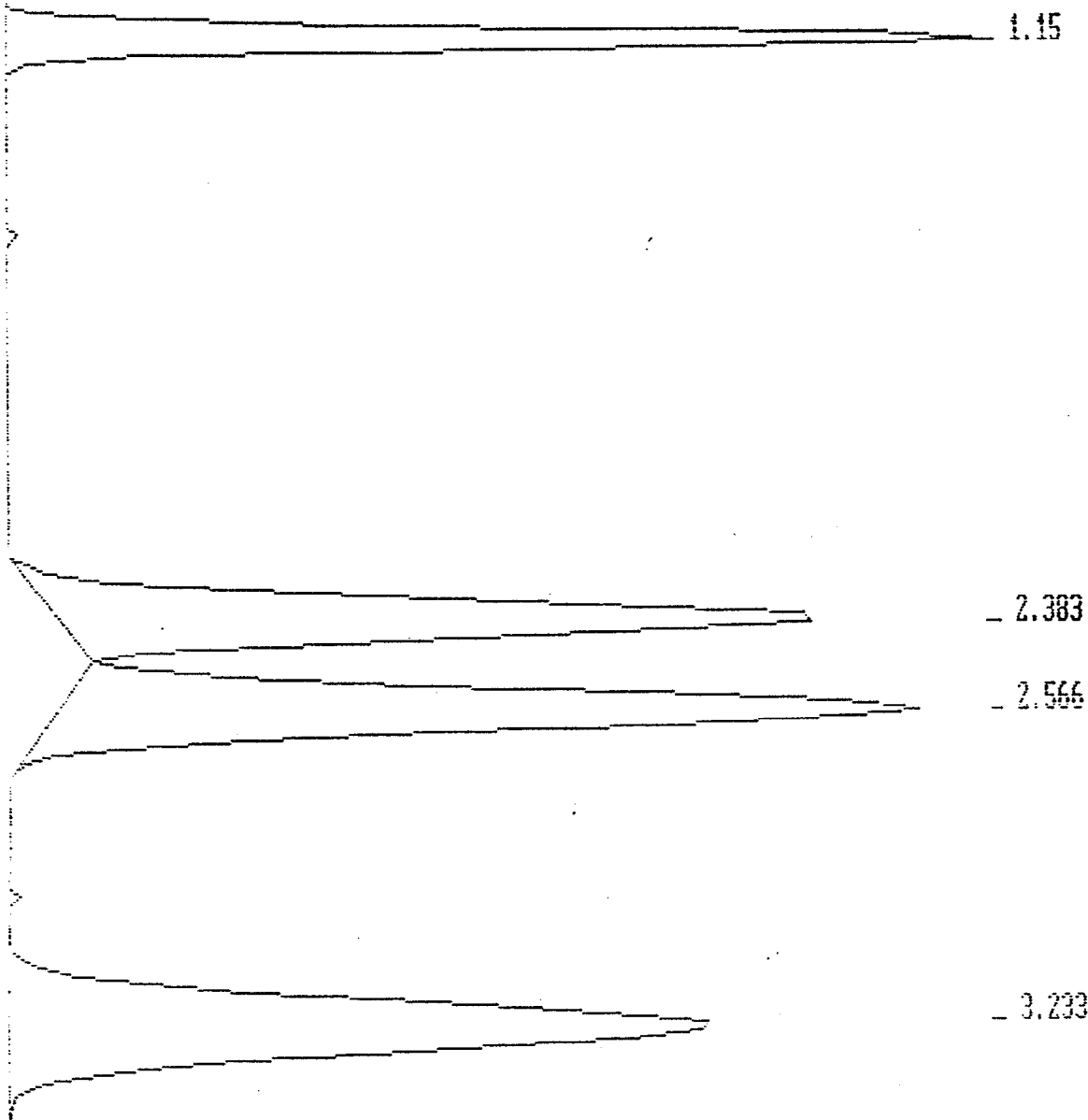
 * Instrument Type: HP5890 INSTR-F Column Type: HAYESEP D(SUPELCO)
 * Solvent Description: helium
 * Operating Conditions: 100D C ISOTHERMAL
 * Detector 0: FID Detector 1:
 * Misc. Information: WESTON 01-8680-063

 Starting Delay: 0.00 Run Time: 0.00

Pk No.	Ret Time	Peak Area	Area %	B L	Peak Ht.	Normalized %	Area/Height
2	0.75	17655	0.2233	1	2607	0.671	6.8
3	1.13 CH4	1446953	18.3049	1	342052	54.976	4.2
4	2.37	1760987	22.2776	1	317412	66.908	5.5
5	2.55	2047180	25.8981	1	339098	77.781	6.0
6	3.23	2631969	33.2961	1	303816	100.000	8.7

Total Area: 7904744 Area Reject: 5000 One sample per 1.000 sec.

45.4PPM CH4, 0.5ML Processed: 05-21-1997 10:20:16, segment 1, cycle 3
RAW DATA SAVED IN FILE F:052173.PTS 010018
Version 4.0, Nelson Analytical Chromatography Software, 05-21-1997 10:20:37
Start time: 0.00 Stop time: 3.68 Offset: 0
Low Value: 3885 High Value: 90413 Scale factor: 1



CH7 7/04/97

***** AREA PERCENT REPORT *****

 * Sample Name: 45.4PPM CH4, 0.5ML Operator Initials: JC
 * Date: 05-21-1997 10:20:35 Method:M:HAYESEP DATA FILE: F:052173.PTS
 * Interface: 0 Cycle#: 3 Channel#: 0 Vial#: N.A.
 * Starting Peak Width: 10 Threshold: 1 Area Threshold: 10

 * Instrument Type: HP5890 INSTR-F Column Type: HAYESEP D(SUPELCO)
 * Solvent Description: helium
 * Operating Conditions: 100D C ISOTHERMAL
 * Detector 0: FID Detector 1:
 * Misc. Information: WESTON 01-8680-063

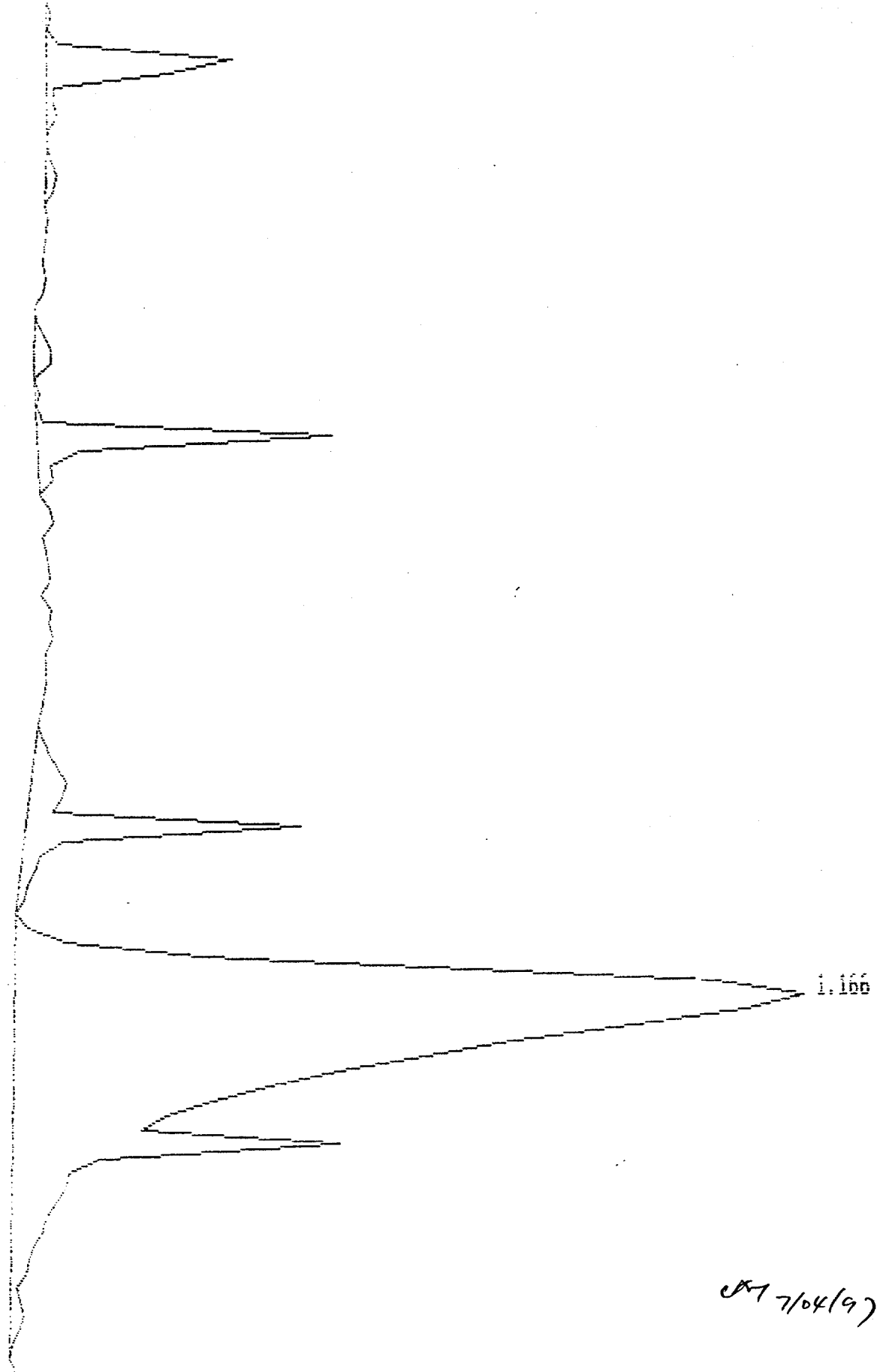
 Starting Delay: 0.00 Run Time: 0.00

Pk No.	Ret Time	Peak Area	Area %	B L	Peak Ht.	Normalized %	Area/Height
4	1.15 CH4	259419	17.2284	1	86409	55.590	3.0
5	2.38	354977	23.5745	1	65159	76.067	5.4
6	2.57	424710	28.2055	1	74820	91.010	5.7
7	3.23	466662	30.9916	1	60686	100.000	7.7

Total Area: 1505768 Area Reject: 5000 One sample per 1.000 sec.

2.27PPM CH4, 0.5ML Processed: 05-21-1997 10:56:48, segment 1, cycle 5
RAW DATA SAVED IN FILE F:052175.PTS
Version 4.0. Nelson Analytical Chromatography Software, 05-21-1997 10:57:08
Start time: 0.00 Stop time: 1.62 Offset: 0
Low Value: 1986 High Value: 4362 Scale factor: 1

010020



05-21-1997

010021

***** AREA PERCENT REPORT *****

 * Sample Name: 2.27PPM CH4, 0.5ML Operator Initials: JC
 * Date: 05-21-1997 10:57:07 Method:M:HAYESEP DATA FILE: F:052175.PTS
 * Interface: 0 Cycle#: 5 Channel#: 0 Vial#: N.A.
 * Starting Peak Width: 10 Threshold: 1 Area Threshold: 10

 * Instrument Type: HP5890 INSTR-F Column Type: HAYESEP D(SUPELCO)
 * Solvent Description: helium
 * Operating Conditions: 100D C ISOTHERMAL
 * Detector 0: FID Detector 1:
 * Misc. Information: WESTON 01-8680-063

Starting Delay: 0.00 Run Time: 0.00

Pk No.	Ret Time	Peak Area	Area %	B L	Peak Ht.	Normalized %	Area/Height
6	1.17 CH4	18642	100.0000	1	2353	100.000	7.9

Total Area: 18642 Area Reject: 5000 One sample per 1.000 sec.

VOLATILE ORGANIC CONTINUING CALIBRATION SUMMARY

Lab Name: Southwest Research Institute

Contract: 01-8680-063

Lab Code: SwRI

Case/SDG: Weston/ 89763

Instrument ID: FID

Initial Calibration Date: 05/21/97

Filename: F:0521717

Calibration Date: 05/21/97

Compound	x RRF	RRF	%D
Methane	6767	5954	12

Note: 0.5ml injected
 $\%D \leq 20\%$

FORM VII

010023

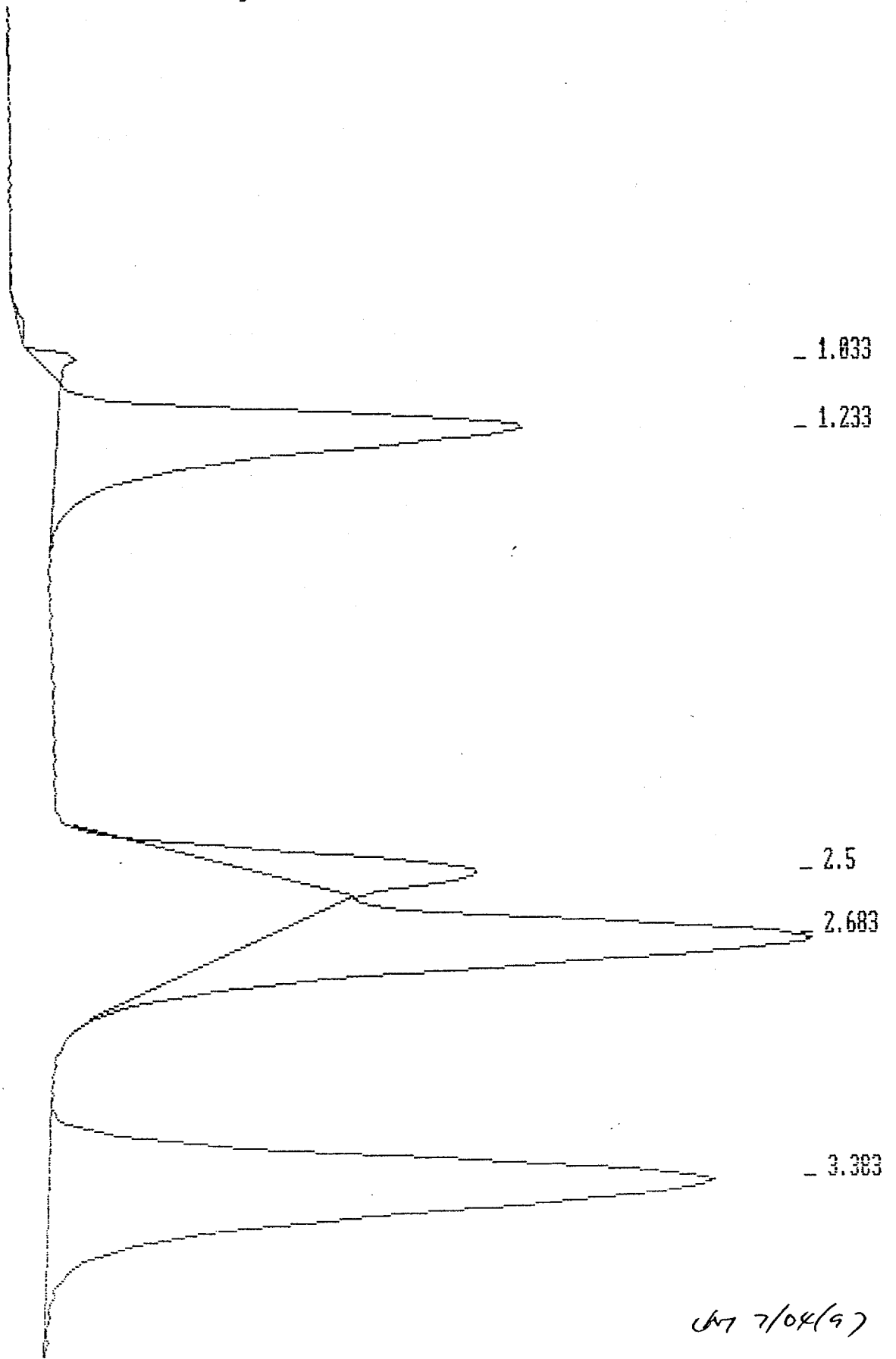
45.4PPM CH4, 0.5ML Processed: 05-21-1997 15:09:43, segment 1, cycle 17

RAW DATA SAVED IN FILE F:0521717.PTS

Version 4.0, Nelson Analytical Chromatography Software, 05-21-1997 15:10:04

Start time: 0.00 Stop time: 4.03 Offset: 0

Low Value: 18124 High Value: 72281 Scale factor: 1



SM 7/04/97

DATA FILE F:\0521717.HDR TAKEN 05-21-1997 15:10:02
 Version 4.0, Nelson Analytical Chromatography Software, 05-21-1997 15:11:01
 NEW TIMED EVENTS FROM M:HAYESEP

***** AREA PERCENT REPORT *****

 * Sample Name: 45.4PPM CH4, 0.5ML Operator Initials: JC
 * Date: 05-21-1997 15:10:02 Method:M:HAYESEP DATA FILE: F:\0521717.PTS
 * Interface: 0 Cycle#: 17 Channel#: 0 Vial#: N.A.
 * Starting Peak Width: 10 Threshold: 1 Area Threshold: 10

 * Instrument Type: HP5890 INSTR-F Column Type: HAYESEP D(SUPELCO)
 * Solvent Description: helium
 * Operating Conditions: 100D C ISOTHERMAL
 * Detector 0: FID Detector 1:
 * Misc. Information: WESTON 01-8680-063

 Starting Delay: 0.00 Run Time: 0.00

Pk No.	Ret Time	Peak Area	Area %	B L	Peak Ht.	Normalized %	Area/Height	Conc ppm/ug/L
4	1.03	8060	0.6690	1	2688	1.575	3.0	29.34
5	1.23 CH4	270309	22.4370	1	31447	52.817	8.6	
6	2.50	95268	7.9077	1	14587	18.615	6.5	
7	2.68	319328	26.5058	1	36992	62.395	8.6	
8	3.38	511783	42.4805	1	44821	100.000	11.4	
Total Area:		1204747	Area Reject:		5000	One sample per		1.000 sec

010025

VOLATILE ORGANIC CONTINUING CALIBRATION SUMMARY

Lab Name: Southwest Research Institute

Contract: 01-8680-063

Lab Code: SwRI

Case/SDG: Weston/ 89763

Instrument ID: FID

Initial Calibration Date: 05/21/97

Filename: F:0521722

Calibration Date: 05/21/97

Compound	x RRF	RRF	%D
Methane	6767	7550	11.6

Note: 0.5ml injected

$\% D \leq 20\%$

FORM VII

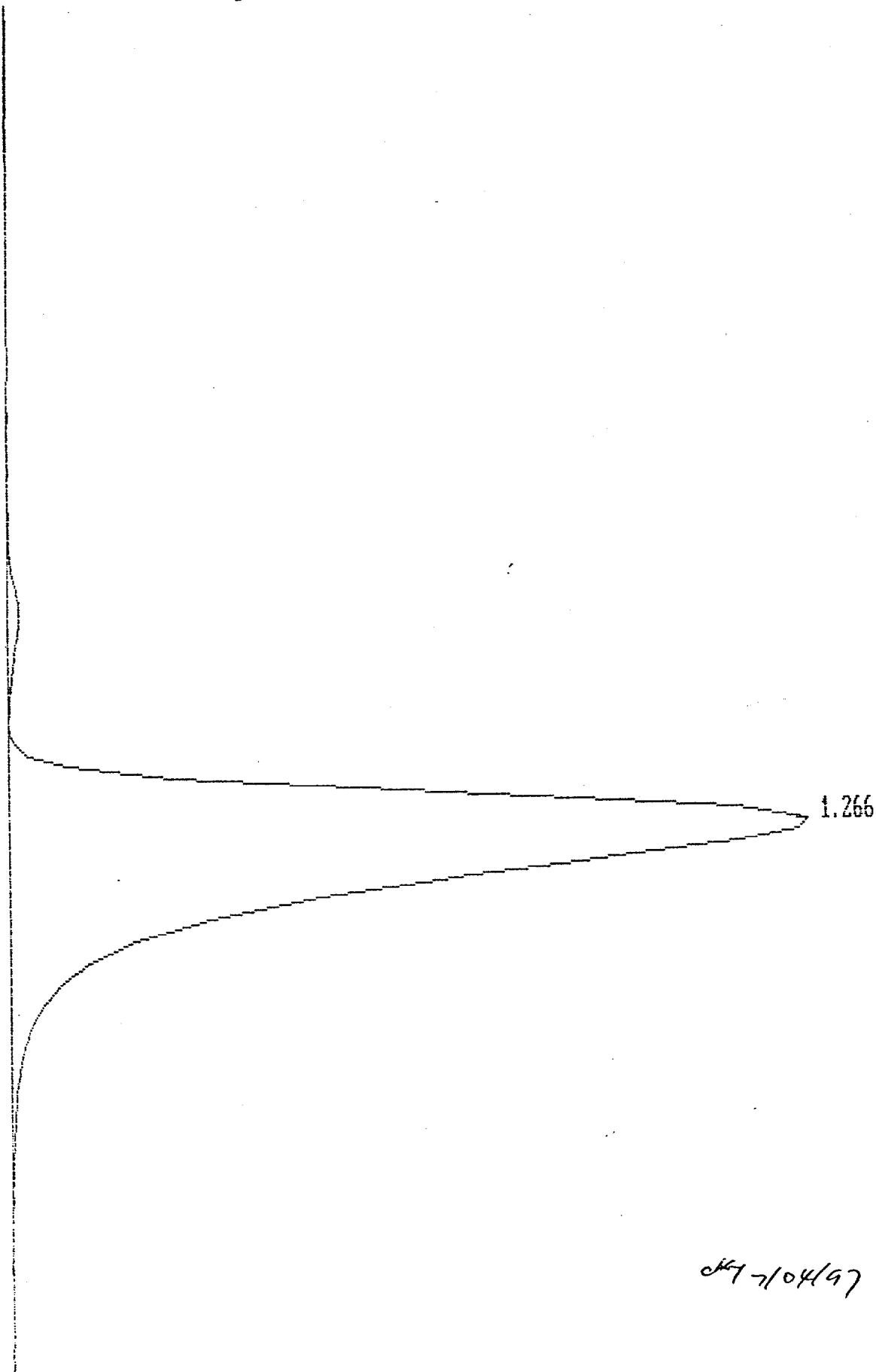
010026

45.4PPM CH4, 0.5ML Processed: 05-21-1997 16:34:57, segment 1, cycle 22

RAW DATA SAVED IN FILE F:0521722.PTS

Version 4.0, Nelson Analytical Chromatography Software, 05-21-1997 16:35:17

Start time: 0.00 Stop time: 2.15 Offset: 0
Low Value: 17161 High Value: 52413 Scale factor: 1



05-21-1997

DATA FILE F:0521722.HDR TAKEN 05-21-1997 16:35:16
Version 4.0, Nelson Analytical Chromatography Software, 05-21-1997 16:35:42
NEW TIMED EVENTS FROM M:HAYESEP

***** AREA PERCENT REPORT *****

* Sample Name: 45.4PPM CH4, 0.5ML Operator Initials: JC
* Date: 05-21-1997 16:35:16 Method:M:HAYESEP DATA FILE: F:0521722.PTS
* Interface: 0 Cycle#: 22 Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 1 Area Threshold: 10

* Instrument Type: HP5890 INSTR-F Column Type: HAYESEP D(SUPELCO)
* Solvent Description: helium
* Operating Conditions: 100D C ISOTHERMAL
* Detector 0: FID Detector 1:
* Misc. Information: WESTON 01-8680-063

Starting Delay: 0.00 Run Time: 0.00

Pk No.	Ret Time	Peak Area	Area %	B L	Peak Ht.	Normalized %	Area/Height
5	1.27	342764	100.0000	1	35188	100.000	9.7

Total Area: 342764 Area Reject: 5000 One sample per 1.000 sec.

CLIENT: RECRA ENVIRONMENTAL
SDG: 89763 (9705G729-008)

QC RAW DATA
METHOD 3810 (MODIFIED)

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET
HEADSPACE ANALYSIS BY METHOD 3810(MODIFIED)

010028

SAMPLE ID

VBLK01

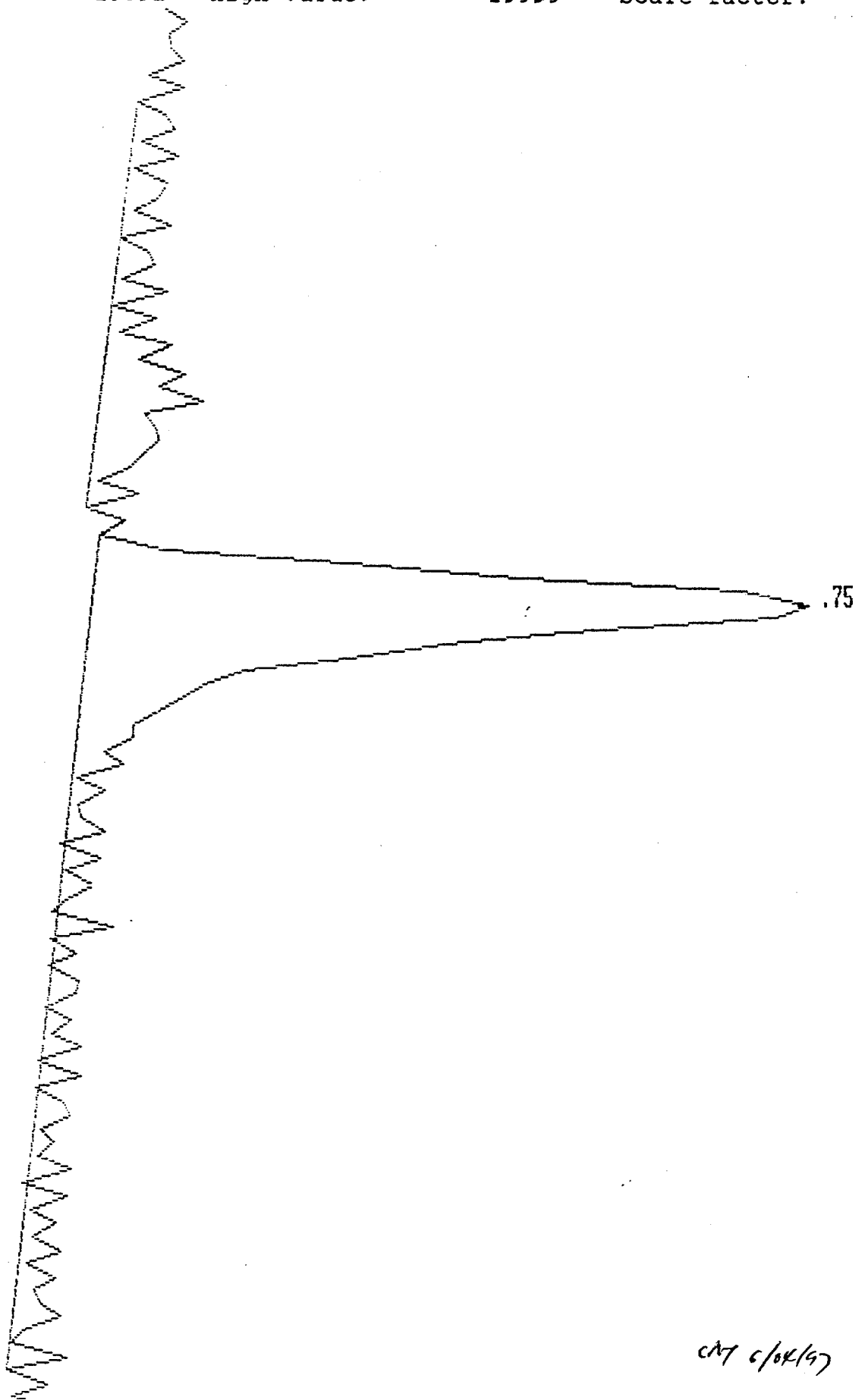
Lab Name: SwRI	Client: WESTON	Project: 01-8680-063
Lab Code: SwRI	Lab System ID: NA	SDG: 89763
Matrix: Water	Date Received: 05/19/97	Lab File ID: F:052176
Level: Medium	Conc/Dil Factor: 1.00	Date Analyzed: 05/21/97
Headspace vol: 22ml	GC Column: HAYE-SEP D	Detection Limit: 0.65
Injection vol: 1.50ml		Concentration: ug/L

Cas No.	Compound	ug/L
74-82-8	Methane	0.65 U

DATA QUALIFIERS

- U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action (this is not necessarily the instrument detection limit). The footnote should be read U compound was analyzed for but not detected. The number is the minimum attainable limit for the sample.
- E Concentration exceeds calibration range

METHOD BLANK,1.5ML Processed: 05-21-1997 13:16:46, segment 1, cycle 6
RAW DATA SAVED IN FILE F:052176.PTS 010029
Version 4.0, Nelson Analytical Chromatography Software, 05-21-1997 13:17:06
Start time: 0.00 Stop time: 1.75 Offset: 0
Low Value: 19301 High Value: 20909 Scale factor: 1



CNT c/ok/97

DATA FILE F:052176.HDR TAKEN 05-21-1997 13:17:05

Version 4.0, Nelson Analytical Chromatography Software, 05-21-1997 13:27:32
NEW TIMED EVENTS FROM M:HAYESEP

***** AREA PERCENT REPORT *****

 * Sample Name: METHOD BLANK,1.5ML Operator Initials: JC
 * Date: 05-21-1997 13:17:05 Method:M:HAYESEP DATA FILE: F:052176.PTS
 * Interface: 0 Cycle#: 6 Channel#: 0 Vial#: N.A.
 * Starting Peak Width: 10 Threshold: 1 Area Threshold: 10

 * Instrument Type: HP5890 INSTR-F Column Type: HAYESEP D(SUPELCO)
 * Solvent Description: helium
 * Operating Conditions: 100D C ISOTHERMAL
 * Detector 0: FID Detector 1:
 * Misc. Information: WESTON 01-8680-063

Starting Delay: 0.00 Run Time: 0.00

Pk No.	Ret Time	Peak Area	Area %	B L	Peak Ht.	Normalized %	Area/Height
2	0.75	10870	100.0000	1	1440	100.000	7.5

Total Area: 10870 Area Reject: 5000 One sample per 1.000 sec.

) Methane ND

Jc 5/21/97

APPENDIX F
INVESTIGATIVE DERIVED WASTE SUMMARY

Baker

bcc: AERobb/CF; JWMentz/RPWattras/PRGM r; MDBartman/PJT F; JPTepsic; Daily F
S.O.# 62470-356-0000-SRN
Subfile# 8
Initials *DES*

Baker Environmental, Inc.
Airport Office Park, Building 3
420 Rouser Road
Coraopolis, Pennsylvania 15108

September 25, 1996

(412) 269-6000
FAX (412) 269-2002

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

Attn: Ms. Katherine Landman
Navy Technical Representative
Code 18232

Re: Contract N62470-89-D-4814
Navy CLEAN, District III
Contract Task Order (CTO) 0356
Operable Unit Nos. 15 and 16
Sites 88, 89, and 93
MCB, Camp Lejeune, North Carolina
IDW Handling and Disposal

Dear Ms. Landman:

This letter describes the activities associated with the management of the investigative-derived waste (IDW) for the recent field activities at Operable Units 15 and 16 (Sites 88, 89, and 93).

Both solid and liquid IDW materials were generated during the investigative activities for the above referenced sites in July and August 1996. The materials were generated during temporary monitoring well installation and groundwater sampling activities. The IDW consisted of approximately 25 cubic yards of soil (total) in two roll-off boxes and approximately 1,350 gallons of purge water (total) in two polyethylene tanks. One roll-off box and a polyethylene tank were located at Camp Gieger next to Building TC-942. The other roll-off box and polyethylene tank were positioned on the north side of Building 25 (MWR Dry Cleaners) located on the main side of the base.

SAMPLE COLLECTION AND ANALYSIS

As part of the management of the waste material, both soil and purge water have been sampled. The paragraphs which follow describe the collection of the samples from the IDW material and the results of the analysis.

Liquid IDW

One grab sample was collected from each of the two polyethylene storage tanks. The samples were analyzed for full Target Compound List (TCL) organics and Target Analyte List (TAL) metals.

Ms. Katherine Landman
September 25, 1996
Page 2

Solid IDW

The soil contained in the roll-off boxes was sampled by collecting approximately five to seven grab samples from random locations through out the length of the roll-off boxes. These samples were analyzed for full Toxicity Characteristic Leaching Procedure (TCLP) organics and metals, TCL Polychlorinated biphenyl (PCBs), and Resource Conservation Recovery Act (RCRA) characteristics for defining a hazardous waste.

SAMPLE RESULTS

Results of the IDW sampling for each of the sites are summarized below. The discussion is separated by site and include both results of liquid and solid IDW material. The original analytical data and a copy of the original chain-of-custody are included in the attachment.

- Site 88 - Liquid IDW

The sample collected from the polyethylene tank at Site 88 was identified as 88-TNK01-01. The analytical results indicate that this IDW sample contained the organic compounds 1,2-dichloroethene at 11 ug/L and tetrachloroethene at 180 ug/L.

- Site 88 - Solid IDW

The composite soil sample collected from the roll-off box at Site 88 was identified as 88-BOX 01-01. The analytical results indicate that the sample is not hazardous based on the characteristics of toxicity, reactivity, ignitability, or corrosivity.

- Sites 89 and 93 - Liquid IDW

One grab sample was collected from the polyethylene tank used to containerize the purge water from Sites 89 and 93. This sample was identified as 89-TNK01-01. The analytical results indicated that this sample did not contain any organic or metal contaminants that were found to be characteristically hazardous.

- Sites 89 and 93 - Solid IDW

A composite soil sample identified as 89-BOX01-01 was collected from the roll-off box at Sites 89 and 93. The analytical results from the sample indicated that the soil is not hazardous based on the characteristics of toxicity, reactivity, ignitability, or corrosivity.

CONCLUSIONS AND RECOMMENDATIONS

- Liquid IDW

The analytical results of the sample collected from the tank at Site 88 indicated that the IDW contained the organic compounds 1,2-dichloroethene and tetrachloroethene. Due to these detections, the liquid wastes from Site 88 were transported to a treatment plant on base. This was accomplished by coordinating disposal efforts with personnel from MCB, Camp Lejeune and OHM Remediation Services. The purge water was transport

Baker

Ms. Katherine Landman
September 25, 1996
Page 3

from Site 88 via a vacuum truck and discharged into a collection sump at the groundwater treatment facility located at Lot 203.

Analytical findings on the purge water from Sites 89 and 93 indicated that contaminants were not present above regulatory levels. Therefore, this purge water was returned to the site near Building TC-942.

- Solid IDW

The analytical results of the solid IDW indicate that the waste is nonhazardous. At other sites investigated at MCB, Camp Lejeune where solid IDW has been determined to be nonhazardous and inert, the contents of the roll-off boxes have been returned to the ground and graded off. This is a viable option for these sites, however, it will be necessary to move the roll-off boxes prior to dumping.

The roll-off box at Operable Unit 15 (Site 88) will be transported to Lot 203 and the contents deposited on the ground where it can be graded off. The roll-off box at Operable Unit 16 (Sites 89 and 93) will be transported to the northern portion of Camp Gieger (Site 35) where the roll-off box will be emptied and the soil graded off.

SUMMARY

The liquid IDW generated during the investigations of Sites 88, 89, and 93 has been disposed as described. Two roll-off boxes remain at MCB, Camp Lejeune with approximately 25 cubic yards of soil (total). A review of the analytical data, of the soil containerized in the roll-off boxes demonstrates the material is not considered a hazardous waste. A copy of the analytical data is provided in the attachment.

Upon receiving your concurrence in the space provided below, Baker will arrange for the disposal of the soil and the subsequent removal of the roll-off boxes.

Ms. Katherine Landman
Navy Technical Representative

Date

Baker appreciates the opportunity to serve LANTDIV on this project. If you have any questions, please do not hesitate to contact me at (412) 269-2053.

Sincerely,

BAKER ENVIRONMENTAL, INC.

Matthew D. Bartman

Matthew D. Bartman
Project Manager

MDB/lq

cc: Mr. Neal Paul, MCB, Camp Lejeune (w/attachments)

ATTACHMENTS

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

88-TNK01-01

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G929

Matrix: (soil/water) WATER Lab Sample ID: 9608G929-004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: ZMC01

Level: (low/med) LOW Date Received: 08/22/96

% Moisture: not dec. _____ Date Analyzed: 08/23/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	10	U
540-59-0	-----1,2-Dichloroethene (total)	11	
67-66-3	-----Chloroform	10	U
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	6	J
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	180	
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

88-TNK01-01

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G929

Matrix: (soil/water) WATER Lab Sample ID: 9608G929-004

Sample wt/vol: 970.0 (g/mL) ML Lab File ID: GCSA01

Level: (low/med) LOW Date Received: 08/22/96

% Moisture: _____ decanted: (Y/N)____ Date Extracted: 08/23/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/09/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 6.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	26	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

88-TNK01-01

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G929

Matrix: (soil/water) WATER Lab Sample ID: 9608G929-004

Sample wt/vol: 970.0 (g/mL) ML Lab File ID: GCSA01

Level: (low/med) LOW Date Received: 08/22/96

% Moisture: _____ decanted: (Y/N) _____ Date Extracted: 08/23/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/09/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 6.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO. COMPOUND Q

51-28-5-----	2,4-Dinitrophenol	26	U
100-02-7-----	4-Nitrophenol	26	U
132-64-9-----	Dibenzofuran	10	U
121-14-2-----	2,4-Dinitrotoluene	10	U
84-66-2-----	Diethylphthalate	10	U
7005-72-3-----	4-Chlorophenyl-phenylether	10	U
86-73-7-----	Fluorene	10	U
100-01-6-----	4-Nitroaniline	26	U
534-52-1-----	4,6-Dinitro-2-methylphenol	26	U
86-30-6-----	n-Nitrosodiphenylamine (1)	10	U
101-55-3-----	4-Bromophenyl-phenylether	10	U
118-74-1-----	Hexachlorobenzene	10	U
87-86-5-----	Pentachlorophenol	26	U
85-01-8-----	Phenanthrene	10	U
120-12-7-----	Anthracene	10	U
86-74-8-----	Carbazole	10	U
84-74-2-----	Di-n-butylphthalate	10	U
206-44-0-----	Fluoranthene	10	U
129-00-0-----	Pyrene	10	U
85-68-7-----	Butylbenzylphthalate	10	U
91-94-1-----	3,3'-Dichlorobenzidine	10	U
56-55-3-----	Benzo(a)anthracene	10	U
218-01-9-----	Chrysene	10	U
117-81-7-----	bis(2-Ethylhexyl)phthalate	1	JB
117-84-0-----	Di-n-octylphthalate	10	U
205-99-2-----	Benzo(b)fluoranthene	10	U
207-08-9-----	Benzo(k)fluoranthene	10	U
50-32-8-----	Benzo(a)pyrene	10	U
193-39-5-----	Indeno(1,2,3-cd)pyrene	10	U
53-70-3-----	Dibenzo(a,h)anthracene	10	U
191-24-2-----	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1D
PESTICIDE ANALYSIS DATA SHEET

EPA SAMPLE NO.

88-TNK01-01

Lab Name: Roy F. Weston, Inc. Contract: 00000-000-000-0000-00

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 9608G929-004

Sample wt/vol: 980 (g/mL) ML Lab File ID: 08289615.22

% Moisture: _____ decanted: (Y/N) _ Date Received: 08/22/96

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 08/23/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/29/96

Injection Volume: 1.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 6.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</u>	Q
319-84-6	alpha-BHC	0.051	U
319-85-7	beta-BHC	0.051	U
319-86-8	delta-BHC	0.051	U
58-89-9	gamma-BHC (Lindane)	0.051	U
76-44-8	Heptachlor	0.051	U
309-00-2	Aldrin	0.051	U
1024-57-3	Heptachlor epoxide	0.051	U
959-98-8	Endosulfan I	0.051	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.51	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.051	U
5103-74-2	gamma-Chlordane	0.051	U
8001-35-2	Toxaphene	5.1	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

G92904

Lab Name: WESTON_EMI _____ Contract: _____

Lab Code: WESEMI Case No.: _____ SAS No.: _____ SDG No.: G92904

Matrix (soil/water): WATER Lab Sample ID: 9608G929-004

Level (low/med): LOW _____ Date Received: 08/22/96

% Solids: _____ 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4860	—	N	P
7440-36-0	Antimony	14.4	U		P
7440-38-2	Arsenic	1.4	U		F
7440-39-3	Barium	27.9	B		P
7440-41-7	Beryllium	0.70	U		P
7440-43-9	Cadmium	2.6	U		P
7440-70-2	Calcium	35900			P
7440-47-3	Chromium	6.5 10.0	U		P
7440-48-4	Cobalt	3.6	U		P
7440-50-8	Copper	2.9	B		P
7439-89-6	Iron	1560		N	P
7439-92-1	Lead	2.3	B		F
7439-95-4	Magnesium	2940	B		P
7439-96-5	Manganese	37.8			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	8.7	U		P
7440-09-7	Potassium	2650	B		P
7782-49-2	Selenium	1.8	U		F
7440-22-4	Silver	3.1	U		P
7440-23-5	Sodium	9700			P
7440-28-0	Thallium	1.5	U		F
7440-62-2	Vanadium	7.2	B		P
7440-66-6	Zinc	2.3	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLOUDY Texture: _____

Color After: COLORLESS Clarity After: CLOUDY Artifacts: _____

Comments:

88-TNK01-01

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

88-BOX01-01

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G929

Matrix: (soil/water) WATER Lab Sample ID: 9608G929-003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: ZMC02

Level: (low/med) LOW Date Received: 08/22/96

% Moisture: not dec. _____ Date Analyzed: 08/29/96

Column: (pack/cap) CAP Dilution Factor: 20.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
75-01-4-----	Vinyl Chloride	200	U
75-35-4-----	1,1-Dichloroethene	100	U
78-93-3-----	2-Butanone	200	U
67-66-3-----	Chloroform	100	U
56-23-5-----	Carbon Tetrachloride	100	U
71-43-2-----	Benzene	100	U
107-06-2-----	1,2-Dichloroethane	100	U
79-01-6-----	Trichloroethene	100	U
127-18-4-----	Tetrachloroethene	100	U
108-90-7-----	Chlorobenzene	100	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

88-BOX01-01

Lab Name: WESTON/ENV. METRICS, INC. Contract:
 Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G929
 Matrix: (soil/water) WATER Lab Sample ID: 9608G929-002
 Sample wt/vol: 100.0 (g/mL) ML Lab File ID: DBRG17
 Level: (low/med) LOW Date Received: 08/22/96
 % Moisture: not dec. _____ dec. _____ Date Extracted: 08/30/96
 Final Volume: 1000 Date Analyzed: 09/12/96
 GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
110-86-1-----	Pyridine	500	U
106-46-7-----	1,4-Dichlorobenzene	50	U
95-48-7-----	o-Cresol	60	U
65794-96-9-----	meta & para-Cresol	30	U
67-72-1-----	Hexachloroethane	70	U
98-95-3-----	Nitrobenzene	40	U
87-68-3-----	Hexachlorobutadiene	80	U
88-06-2-----	2,4,6-Trichlorophenol	30	U
95-95-4-----	2,4,5-Trichlorophenol	40	U
121-14-2-----	2,4-Dinitrotoluene	20	U
118-74-1-----	Hexachlorobenzene	30	U
87-86-5-----	Pentachlorophenol	60	U

ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

88-BOX01-01

Lab Name: Roy F. Weston, Inc. Work Order: 00000-000-000-0

Client: Baker-Lejeune #356

Matrix: WATER

Lab Sample ID: 9608G929-002

Sample wt/vol: 100 (g/mL) ML

Lab File ID: 09129606.43

Level: (low/med) LOW

Date Received: 08/22/96

% Moisture: not dec. dec.

Date Extracted: 09/03/96

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 09/14/96

GPC Cleanup: (Y/N) N pH: 6.0

Dilution Factor: 10

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

58-89-9-----	gamma-BHC (Lindane)	0.50	U
76-44-8-----	Heptachlor	0.60	U
1024-57-3-----	Heptachlor epoxide	0.80	U
12789-03-6-----	Chlordane	1.0	U
72-20-8-----	Endrin	3.0	U
72-43-5-----	Methoxychlor	7.0	U
8001-35-2-----	Toxaphene	50	U

FORM 1 GC-1

12/88 Rev.

ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

88-BOX01-01

Lab Name: Roy F. Weston, Inc. Work Order: 00000-000-000-0

Client: Baker-Lejeune #356

Matrix: SOIL

Lab Sample ID: 9608G929-001

Sample wt/vol: 30.9 (g/mL) G

Lab File ID: 08299607.48

Level: (low/med) LOW

Date Received: 08/22/96

% Moisture: not dec. 18 dec.

Date Extracted: 08/28/96

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 08/30/96

GPC Cleanup: (Y/N) N pH: 6.0

Dilution Factor: 0.50

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

12674-11-2-----	Aroclor-1016	47	U
11104-28-2-----	Aroclor-1221	47	U
11141-16-5-----	Aroclor-1232	47	U
53469-21-9-----	Aroclor-1242	47	U
12672-29-6-----	Aroclor-1248	47	U
11097-69-1-----	Aroclor-1254	95	U
11096-82-5-----	Aroclor-1260	95	U

FORM 1 GC-1

12/88 Rev.

ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

88-BOX01-01

Lab Name: Roy F. Weston, Inc. Work Order: 00000-000-000-0

Client: Baker-Lejeune #356

Matrix: WATER

Lab Sample ID: 9608G929-002

Sample wt/vol: 100 (g/mL) ML

Lab File ID: 09069631.38

Level: (low/med) LOW

Date Received: 08/22/96

% Moisture: not dec. dec.

Date Extracted: 09/03/96

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 09/07/96

GPC Cleanup: (Y/N) N pH: 6.0

Dilution Factor: 10

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

94-75-7-----	2,4-D	100	U
93-72-1-----	2,4,5-TP (Silvex)	10	U

FORM 1 GC-1

12/88 Rev.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

89-TNK01-01

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G841

Matrix: (soil/water) WATER Lab Sample ID: 9608G841-004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: ZMA01

Level: (low/med) LOW Date Received: 08/17/96

% Moisture: not dec. _____ Date Analyzed: 08/23/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	10	U
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	10	U
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	14	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

89-TNK01-01

Lab Name: WESTON/ENV. METRICS, INC. Contract:
 Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G841
 Matrix: (soil/water) WATER Lab Sample ID: 9608G841-004
 Sample wt/vol: 1010 (g/mL) ML Lab File ID: DBPM05
 Level: (low/med) LOW Date Received: 08/17/96
 % Moisture: decanted: (Y/N) Date Extracted: 08/20/96
 Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/21/96
 Injection Volume: 2.0(uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

89-TNK01-01

Lab Name: WESTON/ENV. METRICS, INC. Contract:

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G841

Matrix: (soil/water) WATER Lab Sample ID: 9608G841-004

Sample wt/vol: 1010 (g/mL) ML Lab File ID: DBPM05

Level: (low/med) LOW Date Received: 08/17/96

% Moisture: _____ decanted: (Y/N) _____ Date Extracted: 08/20/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/21/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	n-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

ID
PESTICIDE ANALYSIS DATA SHEET

EPA SAMPLE NO

89-TNK01-01

Lab Name: Roy F. Weston, Inc. Contract: 00000-000-000-0000-00

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 9608G841-004

Sample wt/vol: 1010 (g/mL) ML Lab File ID: 08239615.17

% Moisture: _____ decanted: (Y/N) _ Date Received: 08/17/96

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 08/20/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/25/96

Injection Volume: 1.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 6.0 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L Q

319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.099	U
72-55-9	4,4'-DDE	0.099	U
72-20-8	Endrin	0.099	U
33213-65-9	Endosulfan II	0.099	U
72-54-8	4,4'-DDD	0.099	U
1031-07-8	Endosulfan sulfate	0.099	U
50-29-3	4,4'-DDT	0.099	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.099	U
7421-93-4	Endrin aldehyde	0.099	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	0.99	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	0.99	U
53469-21-9	Aroclor-1242	0.99	U
12672-29-6	Aroclor-1248	0.99	U
11097-69-1	Aroclor-1254	0.99	U
11096-82-5	Aroclor-1260	0.99	U

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

G84104

Lab Name: WESTON_EMI _____ Contract: _____

Lab Code: WESEMI Case No.: _____ SAS No.: _____ SDG No.: G84104

Matrix (soil/water): WATER Lab Sample ID: 9608G841-004

Level (low/med): LOW _____ Date Received: 08/17/96

% Solids: _____ 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	407	—	—	P
7440-36-0	Antimony	14.4	U	—	P
7440-38-2	Arsenic	1.4	U	—	F
7440-39-3	Barium	38.5	B	—	P
7440-41-7	Beryllium	0.70	U	—	P
7440-43-9	Cadmium	2.6	U	—	P
7440-70-2	Calcium	50600	—	—	P
7440-47-3	Chromium	3.3	U	—	P
7440-48-4	Cobalt	3.6	U	—	P
7440-50-8	Copper	2.0	U	—	P
7439-89-6	Iron	173	—	—	P
7439-92-1	Lead	1.9	B	—	F
7439-95-4	Magnesium	3690	B	—	P
7439-96-5	Manganese	29.9	—	—	P
7439-97-6	Mercury	0.10	U	—	CV
7440-02-0	Nickel	8.7	U	—	P
7440-09-7	Potassium	5290	—	—	P
7782-49-2	Selenium	1.8	U	—	F
7440-22-4	Silver	3.1	U	—	P
7440-23-5	Sodium	25900	—	—	P
7440-28-0	Thallium	1.5	U	—	F
7440-62-2	Vanadium	2.5	U	—	P
7440-66-6	Zinc	8.9	B	—	P
	Cyanide		—	—	NR

Color Before: COLORLESS Clarity Before: CLEAR _____ Texture: _____

Color After: COLORLESS Clarity After: CLEAR _____ Artifacts: _____

Comments:

89-TNK01-01 _____

(1A)
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

89-BOX01-01

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G841

Matrix: (soil/water) WATER Lab Sample ID: 9608G841-003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: ZMA05

Level: (low/med) LOW Date Received: 08/17/96

% Moisture: not dec. _____ Date Analyzed: 08/27/96

Column: (pack/cap) CAP Dilution Factor: 20.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
75-01-4-----	Vinyl Chloride	200	U
75-35-4-----	1,1-Dichloroethene	100	U
78-93-3-----	2-Butanone	200	U
67-66-3-----	Chloroform	100	U
56-23-5-----	Carbon Tetrachloride	100	U
71-43-2-----	Benzene	100	U
107-06-2-----	1,2-Dichloroethane	100	U
79-01-6-----	Trichloroethene	100	U
127-18-4-----	Tetrachloroethene	100	U
108-90-7-----	Chlorobenzene	100	U

(1B)
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

89-BOX01-01

Lab Name: WESTON/ENV. METRICS, INC. Contract:
 Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G841
 Matrix: (soil/water) WATER Lab Sample ID: 9608G841-002
 Sample wt/vol: 100.0 (g/mL) ML Lab File ID: DBPM12
 Level: (low/med) LOW Date Received: 08/17/96
 % Moisture: not dec. _____ dec. _____ Date Extracted: 08/20/96
 Final Volume: 1000 Date Analyzed: 08/21/96
 GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
110-86-1-----	Pyridine	500	U
106-46-7-----	1,4-Dichlorobenzene	50	U
95-48-7-----	o-Cresol	60	U
65794-96-9-----	meta & para-Cresol	30	U
67-72-1-----	Hexachloroethane	70	U
98-95-3-----	Nitrobenzene	40	U
87-68-3-----	Hexachlorobutadiene	80	U
88-06-2-----	2,4,6-Trichlorophenol	30	U
95-95-4-----	2,4,5-Trichlorophenol	40	U
121-14-2-----	2,4-Dinitrotoluene	20	U
118-74-1-----	Hexachlorobenzene	30	U
87-86-5-----	Pentachlorophenol	60	U

ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

89-BOX01-01

Lab Name: Roy F. Weston, Inc. Work Order: 00000-000-000-0

Client: Baker-Lejeune #356

Matrix: WATER

Lab Sample ID: 9608G841-002

Sample wt/vol: 100 (g/mL) ML

Lab File ID: 09019629.89

Level: (low/med) LOW

Date Received: 08/17/96

% Moisture: not dec. dec.

Date Extracted: 08/22/96

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 09/04/96

GPC Cleanup: (Y/N) N pH: 6.0

Dilution Factor: 10

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

58-89-9-----	gamma-BHC (Lindane)	0.50	U
76-44-8-----	Heptachlor	0.60	U
1024-57-3-----	Heptachlor epoxide	0.80	U
12789-03-6-----	Chlordane	1.0	U
72-20-8-----	Endrin	3.0	U
72-43-5-----	Methoxychlor	7.0	U
8001-35-2-----	Toxaphene	50	U

FORM 1 GC-1

12/88 Rev.

ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

89-BOX01-01

Lab Name: Roy F. Weston, Inc. Work Order: 00000-000-000-0

Client: Baker-Lejeune #356

Matrix: SOIL

Lab Sample ID: 9608G841-001

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: 08269607.81

Level: (low/med) LOW

Date Received: 08/17/96

% Moisture: not dec. 12 dec.

Date Extracted: 08/22/96

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 08/28/96

GPC Cleanup: (Y/N) N pH: 6.0

Dilution Factor: 0.50

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

12674-11-2-----	Aroclor-1016	45	U
11104-28-2-----	Aroclor-1221	45	U
11141-16-5-----	Aroclor-1232	45	U
53469-21-9-----	Aroclor-1242	45	U
12672-29-6-----	Aroclor-1248	45	U
11097-69-1-----	Aroclor-1254	90	U
11096-82-5-----	Aroclor-1260	90	U

FORM 1 GC-1

12/88 Rev.

16
ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

89-BOX01-01

Lab Name: Roy F. Weston, Inc. Work Order: 00000-000-000-0

Client: Baker-Lejeune #356

Matrix: WATER

Lab Sample ID: 96086841-002

Sample wt/vol: 100 (g/mL) ML

Lab File ID: 09029631.67

Level: (low/med) LOW

Date Received: 08/17/96

% Moisture: not dec. dec.

Date Extracted: 08/21/96

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 09/05/96

GPC Cleanup: (Y/N) N pH: 6.0

Dilution Factor: 10

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

94-75-7-----	2,4-D	100	U
93-72-1-----	2,4,5-TP (Stlvex)	10	U

FORM 1 GC-1

12/88 Rev.

Baker

bcc: PASHucet/CF; JWMentz/PRGM F; MDBartman/PJT F; JPTepsic; Daily File
S.O.# 62470-356
Subfile #8
Initials *MDP*

Baker Environmental, Inc.
Airport Office Park, Building 3
420 Rouser Road
Coraopolis, Pennsylvania 15108

(412) 269-6000
FAX (412) 269-2002

June 19, 1997

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

Attn: Ms. Katherine Landman
Navy Technical Representative
Code 18232

Re: Contract N62470-89-D-4814
Navy CLEAN, District III
Contract Task Order (CTO) 0356
Operable Unit No. 15 (Site 88)
Phase II Site Investigation
IDW Handling and Disposal
MCB Camp Lejeune, North Carolina

Dear Ms. Landman:

This letter report describes sample collection activities, results, and recommendations for the disposal of solid and liquid investigative derived waste (IDW) for Site 88, Marine Corps Base, Camp Lejeune, North Carolina. The IDW consists of approximately 60 cubic yards of soil contained in three roll-off-boxes and 5,000 gallons of groundwater stored in a tanker at Site 88. The material was generated during the Phase II Site Investigation in April and May of this year.

Sample Collection and Analysis

One solid sample was collected from each of the roll-off-boxes and were identified as IR88-ROB1, IR88-ROB2, and IR88-ROB3. The samples were analyzed for Resource Conservation Recovery Act (RCRA) hazardous waste characteristics and Toxicity Characteristics Leaching Procedure (TCLP) list contaminants. In addition, all of the samples were analyzed for polychlorinated biphenyls (PCBs).

One liquid sample was collected from the tanker and given the sample identification IR88-TNK01. This sample was analyzed by appropriate methods to determine hazardous characteristics. The analyses included the following parameters:

- Target Compound List (TCL) Organics
 - Volatile Organic Contaminants (VOCs)
 - Semivolatile Organic Contaminants (SVOCs)
- Target Analyte List (TAL) Metals
- Total Suspended Solids (TSS)
- Total Dissolved Solids (TDS).

Solid IDW Results

None of the samples collected from the roll-off-boxes were found to be reactive to sulfide or cyanide and the flash points were greater than 200 degrees Fahrenheit, demonstrating that the samples were not ignitable. The samples are not considered corrosive since the pH was within the limits of not less than 2 or not greater than 12 standard



A Total Quality Corporation

Ms. Katherine Landman

June 19, 1997

Page 2

units. In addition, there were no detections of VOCs, SVOCs, pesticides, herbicides, or PCBs. Several inorganics were detected, however, all of the detections were below the established regulatory limits for TCLP. The results of the analyses are included in the attachment.

Liquid IDW Results

Volatile organic compounds, including 1,2-dichloroethene (DCE), trichloroethene (TCE), and tetrachloroethene (PCE), were detected in sample IR88-TNK01 at concentrations of 11 ug/L, 20 ug/L and 180 ug/L, respectively. These values exceed North Carolina Water Quality Standards (NCWQS) and federal maximum contaminant levels (MCLs). These specific compounds and concentrations are consistent with detections identified during previous sampling episodes and are indicative of the groundwater conditions at Site 88. There were no detections of SVOCs, pesticides, or PCBs in the sample. Several inorganics were detected in the liquid IDW sample, however only iron, detected at a concentration of 1,420 ug/L, exceeded the NCWQS of 300 ug/L. Total dissolved solids (TDS) were detected at 16 mg/L while total suspended solids (TSS) were measured at 64 mg/L in the sample. The results of the analyses are attached.

Recommendations

The analytical testing of the solid IDW at Site 88, which included both RCRA hazardous waste characteristics and TCLP characteristics, demonstrated that the material was non-hazardous. Therefore, the material was transported from Site 88 to Lot 203 at MCB Camp Lejeune for disposal. The material was then placed in an area of Lot 203 which contains other non-hazardous soils.

The liquid IDW generated during the Phase II Site Investigation contains VOCs. The detected VOCs are consistent with previous sampling results at Site 88. It is recommended that the groundwater contained in the tanker be transported from Site 88 to the Groundwater Treatment Facility located at Lot 203. The liquids will be pumped into the facility for proper treatment and subsequent disposal. Upon LANTDIV's approval of these recommendations, Baker will coordinate all activities with personnel at MCB Camp Lejeune and OHM personnel.

Your concurrence with these recommendation can be indicated by signing the space provided below.

Ms. Katherine Landman, Navy Technical Representative

Date

Baker appreciates the opportunity to serve LANTDIV on this project. If you have any questions concerning the IDW disposal recommendations, please do not hesitate to contact me at (412) 269-2053.

Sincerely,

Baker Environmental, Inc.



Matthew D. Bartman
Project Manager

MDB/lq
Attachment

cc: Ms. Lee Anne Rapp, P.E., Code 18312
Ms. Beth Collier, Code 02115
Mr. Neal Paul, Camp Lejeune

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IR88-ROB1

Lab Name: _____ Contract: _____
 Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: 05G720
 Matrix: (soil/water) WATER Lab Sample ID: 9705G720-003
 Sample wt/vol: 5.000 (g/mL) ML Lab File ID: BNQ04
 Level: (low/med) LOW Date Received: 05/16/97
 % Moisture: not dec. _____ Date Analyzed: 05/22/97
 Column: (pack/cap) CAP Dilution Factor: 20.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
75-01-4-----	Vinyl Chloride	200	U
75-35-4-----	1,1-Dichloroethene	100	U
78-93-3-----	2-Butanone	200	U
67-66-3-----	Chloroform	100	U
56-23-5-----	Carbon Tetrachloride	100	U
71-43-2-----	Benzene	100	U
107-06-2-----	1,2-Dichloroethane	100	U
79-01-6-----	Trichloroethene	100	U
127-18-4-----	Tetrachloroethene	100	U
108-90-7-----	Chlorobenzene	100	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IR88-ROB2

Lab Name: _____ Contract: _____
 Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: 05G720
 Matrix: (soil/water) WATER Lab Sample ID: 9705G720-006
 Sample wt/vol: 5.000 (g/mL) ML Lab File ID: BNQ01
 Level: (low/med) LOW Date Received: 05/16/97
 % Moisture: not dec. _____ Date Analyzed: 05/21/97
 Column: (pack/cap) CAP Dilution Factor: 20.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
75-01-4	Vinyl Chloride	200	U
75-35-4	1,1-Dichloroethene	100	U
78-93-3	2-Butanone	200	U
67-66-3	Chloroform	100	U
56-23-5	Carbon Tetrachloride	100	U
71-43-2	Benzene	100	U
107-06-2	1,2-Dichloroethane	100	U
79-01-6	Trichloroethene	100	U
127-18-4	Tetrachloroethene	100	U
108-90-7	Chlorobenzene	100	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IR88-ROB3

Lab Name: _____ Contract: _____
 Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: 05G720
 Matrix: (soil/water) WATER Lab Sample ID: 9705G720-009
 Sample wt/vol: 5.000 (g/mL) ML Lab File ID: BNQ03
 Level: (low/med) LOW Date Received: 05/16/97
 % Moisture: not dec. _____ Date Analyzed: 05/21/97
 Column: (pack/cap) CAP Dilution Factor: 20.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
75-01-4-----	Vinyl Chloride	200	U
75-35-4-----	1,1-Dichloroethene	100	U
78-93-3-----	2-Butanone	200	U
67-66-3-----	Chloroform	100	U
56-23-5-----	Carbon Tetrachloride	100	U
71-43-2-----	Benzene	100	U
107-06-2-----	1,2-Dichloroethane	100	U
79-01-6-----	Trichloroethene	100	U
127-18-4-----	Tetrachloroethene	100	U
108-90-7-----	Chlorobenzene	100	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IR88-ROB1

Lab Name: _____ Contract: _____
 Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: 05G720
 Matrix: (soil/water) WATER Lab Sample ID: 9705G720-002
 Sample wt/vol: 100.0 (g/mL) ML Lab File ID: GEAR04
 Level: (low/med) LOW Date Received: 05/16/97
 % Moisture: not dec. _____ dec. _____ Date Extracted: 05/19/97
 Final Volume: 1000 Date Analyzed: 05/21/97
 GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NO. COMPOUND Q

110-86-1-----	Pyridine	500	U
106-46-7-----	1,4-Dichlorobenzene	50	U
95-48-7-----	o-Cresol	60	U
65794-96-9-----	meta & para-Cresol	30	U
67-72-1-----	Hexachloroethane	70	U
98-95-3-----	Nitrobenzene	40	U
87-68-3-----	Hexachlorobutadiene	80	U
88-06-2-----	2,4,6-Trichlorophenol	30	U
95-95-4-----	2,4,5-Trichlorophenol	40	U
121-14-2-----	2,4-Dinitrotoluene	20	U
118-74-1-----	Hexachlorobenzene	30	U
87-86-5-----	Pentachlorophenol	60	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IR88-ROB2

Lab Name: _____ Contract: _____
 Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: 05G720
 Matrix: (soil/water) WATER Lab Sample ID: 9705G720-005
 Sample wt/vol: 100.0 (g/mL) ML Lab File ID: GEAR06
 Level: (low/med) LOW Date Received: 05/16/97
 % Moisture: not dec. _____ dec. _____ Date Extracted: 05/19/97
 Final Volume: 1000 Date Analyzed: 05/21/97
 GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
110-86-1-----	Pyridine	500	U
106-46-7-----	1,4-Dichlorobenzene	50	U
95-48-7-----	o-Cresol	60	U
65794-96-9-----	meta & para-Cresol	30	U
67-72-1-----	Hexachloroethane	70	U
98-95-3-----	Nitrobenzene	40	U
87-68-3-----	Hexachlorobutadiene	80	U
88-06-2-----	2,4,6-Trichlorophenol	30	U
95-95-4-----	2,4,5-Trichlorophenol	40	U
121-14-2-----	2,4-Dinitrotoluene	20	U
118-74-1-----	Hexachlorobenzene	30	U
87-86-5-----	Pentachlorophenol	60	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IR88-ROB3

Lab Name: _____ Contract: _____
 Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: 05G720
 Matrix: (soil/water) WATER Lab Sample ID: 9705G720-008
 Sample wt/vol: 100.0 (g/mL) ML Lab File ID: GEAR07
 Level: (low/med) LOW Date Received: 05/16/97
 % Moisture: not dec. _____ dec. _____ Date Extracted: 05/19/97
 Final Volume: 1000 Date Analyzed: 05/21/97
 GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
110-86-1-----	Pyridine	500	U
106-46-7-----	1,4-Dichlorobenzene	50	U
95-48-7-----	o-Cresol	60	U
65794-96-9-----	meta & para-Cresol	30	U
67-72-1-----	Hexachloroethane	70	U
98-95-3-----	Nitrobenzene	40	U
87-68-3-----	Hexachlorobutadiene	80	U
88-06-2-----	2,4,6-Trichlorophenol	30	U
95-95-4-----	2,4,5-Trichlorophenol	40	U
121-14-2-----	2,4-Dinitrotoluene	20	U
118-74-1-----	Hexachlorobenzene	30	U
87-86-5-----	Pentachlorophenol	60	U

1D
ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

IR88-ROB1

Lab Name: Roy F. Weston, Inc. Work Order: 00000-000-000-0

Client: Baker-Lejeune #356

Matrix: WATER

Lab Sample ID: 9705G720-002

Sample wt/vol: 100 (g/mL) ML

Lab File ID: 05199723.33

Level: (low/med) LOW

Date Received: 05/16/97

% Moisture: not dec. dec.

Date Extracted: 05/19/97

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 05/20/97

GPC Cleanup: (Y/N) N pH: 6.0

Dilution Factor: 10

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

58-89-9-----	gamma-BHC (Lindane)	0.50	U
76-44-8-----	Heptachlor	0.60	U
1024-57-3-----	Heptachlor epoxide	0.80	U
12789-03-6-----	Chlordane	1.0	U
72-20-8-----	Endrin	3.0	U
72-43-5-----	Methoxychlor	7.0	U
8001-35-2-----	Toxaphene	50	U

FORM 1 GC-1

12/88 Rev.

1D
ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

IR88-ROB2

Lab Name: Roy F. Weston, Inc. Work Order: 00000-000-000-0

Client: Baker-Lejeune #356

Matrix: WATER

Lab Sample ID: 9705G720-005

Sample wt/vol: 100 (g/mL) ML

Lab File ID: 05199723.36

Level: (low/med) LOW

Date Received: 05/16/97

% Moisture: not dec. dec.

Date Extracted: 05/19/97

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 05/20/97

GPC Cleanup: (Y/N) N pH: 6.0

Dilution Factor: 10

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

58-89-9-----	gamma-BHC (Lindane)	0.50	U
76-44-8-----	Heptachlor	0.60	U
1024-57-3-----	Heptachlor epoxide	0.80	U
12789-03-6-----	Chlordane	1.0	U
72-20-8-----	Endrin	3.0	U
72-43-5-----	Methoxychlor	7.0	U
8001-35-2-----	Toxaphene	50	U

FORM 1 GC-1

12/88 Rev.

1D
ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

IR88-ROB3

Lab Name: Roy F. Weston, Inc. Work Order: 00000-000-000-0

Client: Baker-Lejeune #356

Matrix: WATER

Lab Sample ID: 9705G720-008

Sample wt/vol: 100 (g/mL) ML

Lab File ID: 05199723.37

Level: (low/med) LOW

Date Received: 05/16/97

% Moisture: not dec. dec.

Date Extracted: 05/19/97

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 05/20/97

GPC Cleanup: (Y/N) N pH: 6.0

Dilution Factor: 10

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

58-89-9-----	gamma-BHC (Lindane)	0.50	U
76-44-8-----	Heptachlor	0.60	U
1024-57-3-----	Heptachlor epoxide	0.80	U
12789-03-6-----	Chlordane	1.0	U
72-20-8-----	Endrin	3.0	U
72-43-5-----	Methoxychlor	7.0	U
8001-35-2-----	Toxaphene	50	U

FORM 1 GC-1

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1D
ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

IR88-ROB1

Lab Name: Roy F. Weston, Inc. Work Order: 00000-000-000-0

Client: Baker-Lejeune #356

Matrix: SOIL

Lab Sample ID: 9705G720-001

Sample wt/vol: 30.4 (g/mL) G

Lab File ID: 05179707.56

Level: (low/med) LOW

Date Received: 05/16/97

% Moisture: not dec. 35 dec.

Date Extracted: 05/19/97

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 05/20/97

GPC Cleanup: (Y/N) N pH: 7.0

Dilution Factor: 0.50

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

12674-11-2-----	Aroclor-1016	60	U
11104-28-2-----	Aroclor-1221	60	U
11141-16-5-----	Aroclor-1232	60	U
53469-21-9-----	Aroclor-1242	60	U
12672-29-6-----	Aroclor-1248	60	U
11097-69-1-----	Aroclor-1254	120	U
11096-82-5-----	Aroclor-1260	120	U

FORM 1 GC-1

12/88 Rev.

1D
ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

IR88-ROB2

Lab Name: Roy F. Weston, Inc. Work Order: 00000-000-000-0

Client: Baker-Lejeune #356

Matrix: SOIL Lab Sample ID: 9705G720-004

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 05179707.59

Level: (low/med) LOW Date Received: 05/16/97

% Moisture: not dec. 18 dec. Date Extracted: 05/19/97

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 05/20/97

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 0.50

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

12674-11-2-----	Aroclor-1016	48	U
11104-28-2-----	Aroclor-1221	48	U
11141-16-5-----	Aroclor-1232	48	U
53469-21-9-----	Aroclor-1242	48	U
12672-29-6-----	Aroclor-1248	48	U
11097-69-1-----	Aroclor-1254	96	U
11096-82-5-----	Aroclor-1260	96	U

FORM 1 GC-1

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1D
ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

IR88-ROB3

Lab Name: Roy F. Weston, Inc. Work Order: 00000-000-000-0

Client: Baker-Lejeune #356

Matrix: SOIL

Lab Sample ID: 9705G720-007

Sample wt/vol: 30.6 (g/mL) G

Lab File ID: 05179707.60

Level: (low/med) LOW

Date Received: 05/16/97

% Moisture: not dec. 14 dec.

Date Extracted: 05/19/97

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 05/20/97

GPC Cleanup: (Y/N) N pH: 6.0

Dilution Factor: 0.50

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

12674-11-2-----	Aroclor-1016	46	U
11104-28-2-----	Aroclor-1221	46	U
11141-16-5-----	Aroclor-1232	46	U
53469-21-9-----	Aroclor-1242	46	U
12672-29-6-----	Aroclor-1248	46	U
11097-69-1-----	Aroclor-1254	92	U
11096-82-5-----	Aroclor-1260	92	U

FORM 1 GC-1

12/88 Rev.

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

G72008

Name: WESTON_EMI Contract: _____

Code: WESEMI Case No.: _____ SAS No.: _____ SDG No.: G72002

Matrix (soil/water): WATER Lab Sample ID: 9705G720-008

Level (low/med): LOW Date Received: 05/16/97

Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	2.7	U		P
7440-39-3	Barium	219	B		P
7440-43-9	Cadmium	0.55	B		P
7440-47-3	Chromium	3.5	B		P
7439-92-1	Lead	9.3	B		P
7439-97-6	Mercury	5.0	U		CV
7782-49-2	Selenium	6.9	B		P
7440-22-4	Silver	0.50	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
IR88-ROB3

1D
ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

IR88-ROB1

Lab Name: Roy F. Weston, Inc. Work Order: 00000-000-000-0

Client: Baker-Lejeune #356

Matrix: WATER

Lab Sample ID: 9705G720-002

Sample wt/vol: 100 (g/mL) ML

Lab File ID: 05219732.14

Level: (low/med) LOW

Date Received: 05/16/97

% Moisture: not dec. dec.

Date Extracted: 05/19/97

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 05/21/97

GPC Cleanup: (Y/N) N pH: 6.0

Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</u>
---------	----------	---

94-75-7-----	2,4-D	100	U
93-72-1-----	2,4,5-TP (Stlvex)	10	U

1D
ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

IR88-ROB2

Lab Name: Roy F. Weston, Inc. Work Order: 00000-000-000-0

Client: Baker-Lejeune #356

Matrix: WATER

Lab Sample ID: 9705G720-005

Sample wt/vol: 100 (g/mL) ML

Lab File ID: 05219732.16

Level: (low/med) LOW

Date Received: 05/16/97

% Moisture: not dec. dec.

Date Extracted: 05/19/97

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 05/21/97

GPC Cleanup: (Y/N) N pH: 6.0

Dilution Factor: 10

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

94-75-7-----	2,4-D	100	U
93-72-1-----	2,4,5-TP (Silvex)	10	U

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1D
ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

IR88-ROB3

Lab Name: Roy F. Weston, Inc. Work Order: 00000-000-000-0

Client: Baker-Lejeune #356

Matrix: WATER

Lab Sample ID: 9705G720-008

Sample wt/vol: 100 (g/mL) ML

Lab File ID: 05219732.17

Level: (low/med) LOW

Date Received: 05/16/97

% Moisture: not dec. dec.

Date Extracted: 05/19/97

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 05/21/97

GPC Cleanup: (Y/N) N pH: 6.0

Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</u>	
94-75-7-----	2,4-D	100	U
93-72-1-----	2,4,5-TP (Silvex)	10	U

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Thursday June 12th, 1997

RE: IR88-ROB1
Project # 00000-000-000-0000
Lab ID: 9705G720-001
Sample Date: 05/15/97
Date Received: 05/16/97

Attn: Ms. Karen Wood

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
Cyanide, Reactive	0.27	u mg/kg	0.27
Corrosivity by pH	10.0	pH@20.7	0.20
Flash Point, Closed C	>200	DEG F	
Sulfide Reactive	36.2	u mg/kg	36.2

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Date: Thursday June 12th, 1997

RE: IR88-ROB2
Project # 00000-000-000-0000
Lab ID: 9705G720-004
Sample Date: 05/15/97
Date Received: 05/16/97

Attn: Ms. Karen Wood

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
Cyanide, Reactive	0.26	u mg/kg	0.26
Corrosivity by pH	5.2	pH@19.8	0.20
Flash Point, Closed C	>200	DEG F	
Sulfide Reactive	25.5	u mg/kg	25.5

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Attn: Ms. Karen Wood

Date: Thursday June 12th, 1997

RE: IR88-ROB3
Project # 00000-000-000-0000
Lab ID: 9705G720-007
Sample Date: 05/15/97
Date Received: 05/16/97

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
Cyanide, Reactive	0.25	u mg/kg	0.25
Corrosivity by pH	6.2	pH@17.2	0.20
Flash Point, Closed C	>200	DEG F	
Sulfide Reactive	26.3	u mg/kg	26.3

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IR88-TNK01

Lab Name: RECRA LABNET-CHICAGO

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 05G765

Matrix: (soil/water) WATER

Lab Sample ID: 9705G765-007

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: B0D07

Level: (low/med) LOW

Date Received: 05/20/97

% Moisture: not dec. _____

Date Analyzed: 05/25/97

GC Column: CAP ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	61	
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	10	U
540-59-0	-----1,2-Dichloroethene (total)	11	
67-66-3	-----Chloroform	10	U
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	20	
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	180	
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

IR88-TNK01

Lab Name: RECRA LABNET-CHICAGO Contract: _____
 Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: 05G765
 Matrix: (soil/water) WATER Lab Sample ID: 9705G765-007
 Sample wt/vol: 5.000 (g/mL) ML Lab File ID: B0D07
 Level: (low/med) LOW Date Received: 05/20/97
 % Moisture: not dec. _____ Date Analyzed: 05/25/97
 GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0
 Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
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23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IR88-TNK01RE

Lab Name: RECRA LABNET - CHICAGO Contract:
 Lab Code: Case No.: SAS No.: SDG No.: 05G765
 Matrix: (soil/water) WATER Lab Sample ID: 9705G765-007
 Sample wt/vol: 1000 (g/mL) ML Lab File ID: DBCY03
 Level: (low/med) LOW Date Received: 05/20/97
 % Moisture: _____ decanted: (Y/N)____ Date Extracted:05/30/97
 Concentrated Extract Volume: 1000(uL) Date Analyzed: 06/01/97
 Injection Volume: 2.0(uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) N pH: 8.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4 Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IR88-TNK01RE

Lab Name: RECRA LABNET - CHICAGO Contract: _____
 Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: 05G765
 Matrix: (soil/water) WATER Lab Sample ID: 9705G765-007
 Sample wt/vol: 1000 (g/ml.) ML Lab File ID: DBCY03
 Level: (low/med) LOW Date Received: 05/20/97
 % Moisture: _____ decanted: (Y/N) _____ Date Extracted: 05/30/97
 Concentrated Extract Volume: 1000(uL) Date Analyzed: 06/01/97
 Injection Volume: 2.0(uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) N pH: 8.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO. COMPOUND Q

51-28-5	2,4-Dinitrophenol	25 U
100-02-7	4-Nitrophenol	25 U
132-64-9	Dibenzofuran	10 U
121-14-2	2,4-Dinitrotoluene	10 U
84-66-2	Diethylphthalate	10 U
7005-72-3	4-Chlorophenyl-phenylether	10 U
86-73-7	Fluorene	10 U
100-01-6	4-Nitroaniline	25 U
534-52-1	4,6-Dinitro-2-methylphenol	25 U
86-30-6	n-Nitrosodiphenylamine (1)	10 U
101-55-3	4-Bromophenyl-phenylether	10 U
118-74-1	Hexachlorobenzene	10 U
87-86-5	Pentachlorophenol	25 U
85-01-8	Phenanthrene	10 U
120-12-7	Anthracene	10 U
86-74-8	Carbazole	10 U
84-74-2	Di-n-butylphthalate	10 U
206-44-0	Fluoranthene	10 U
129-00-0	Pyrene	10 U
85-68-7	Butylbenzylphthalate	10 U
91-94-1	3,3'-Dichlorobenzidine	10 U
56 55-3	Benzo(a)anthracene	10 U
218-01-9	Chrysene	10 U
117-81-7	bis(2-Ethylhexyl)phthalate	10 U
117-84-0	Di-n-octylphthalate	10 U
205-99-2	Benzo(b)fluoranthene	10 U
207-08-9	Benzo(k)fluoranthene	10 U
50-32-8	Benzo(a)pyrene	10 U
193-39-5	Indeno(1,2,3-cd)pyrene	10 U
53-70-3	Dibenzo(a,h)anthracene	10 U
191-24-2	Benzo(g,h,i)perylene	10 U

(1) - Cannot be separated from Diphenylamine

IF
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

IR88-TNK01RE

Lab Name: RECRA LABNET - CHICAGO

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: 05G765

Matrix: (soil/water) WATER

Lab Sample ID: 9705G765-007

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: DBCY03

Level: (low/med) LOW

Date Received: 05/20/97

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 05/30/97

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 06/01/97

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 8.0

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 95-16-9	BENZOTHIAZOLE	11.97	4	NJ
2.	UNKNOWN	14.18	32	J
3.	UNKNOWN	17.60	3	J
4.	UNKNOWN	23.24	2	J
5.	UNKNOWN	24.85	2	J
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
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1D
PESTICIDE ANALYSIS DATA SHEET

EPA SAMPLE NO.

IR88-TNK01

Lab Name: Recra LabNet Contract: 00000-000-000-0000-00
 Lab Code: RECRA Case No.: _____ SAS No.: _____ SDG No.: _____
 Matrix: (soil/water) WATER Lab Sample ID: 97056765-007
 Sample wt/vol: 1000 (g/mL) ML Lab File ID: 05229715.56
 % Moisture: _____ decanted: (Y/N) _____ Date Received: 05/20/97
 Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/22/97
 Concentrated Extract Volume: 10000(uL) Date Analyzed: 05/28/97
 Injection Volume: 1.0(uL) Dilution Factor: 1.00
 GPC Cleanup: (Y/N) N pH: 8.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</u>	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-70-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

G76507

Lab Name: RECRA LABNET CHICAGO Contract: _____

Lab Code: RECRA Case No.: _____ SAS No.: _____ SDG No.: G76501

Matrix (soil/water): WATER Lab Sample ID: 9705G765-007

Level (low/med): LOW Date Received: 05/20/97

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3360			P
7440-36-0	Antimony	1.9	U		P
7440-38-2	Arsenic	6.9	B		P
7440-39-3	Barium	33.4	B		P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	0.40	U		P
7440-70-2	Calcium	23300			P
7440-47-3	Chromium	10.3			P
7440-48-4	Cobalt	1.8	B		P
7440-50-8	Copper	0.80	U		P
7439-89-6	Iron	1420			P
7439 92-1	Lead	1.4	U		P
7439-95-4	Magnesium	1390	B		P
7439-96-5	Manganese	14.1	B		P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	5.0	B		P
7440-09-7	Potassium	12000			P
7782-49-2	Selenium	2.5	B		P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	30200			P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	23.0	B		P
7440-66-6	Zinc	14.0	B		P
	Cyanide				NR

Color Before: YELLOW Clarity Before: CLOUDY Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
IR88-TNK01

To: Baker-Lejeune #356
Airport Office Park, Bldg. 3
420 Rouser Road
Coraopolis, PA 15108

Attn: Ms. Karen Wood

Date: Wednesday June 18th, 1997

RE: IR88-TNK01

Project # 00000-000-000-0000

Lab ID: 9705G765-007

Sample Date: 05/19/97

Date Received: 05/20/97

Inorganic Data Report

Parameters	Result	Units	Reporting Limit
Total Dissolved Solid	16	mg/L	10
Total Suspended Solid	66	mg/L	4

APPENDIX G
AQUIFER CHARACTERIZATION DATA

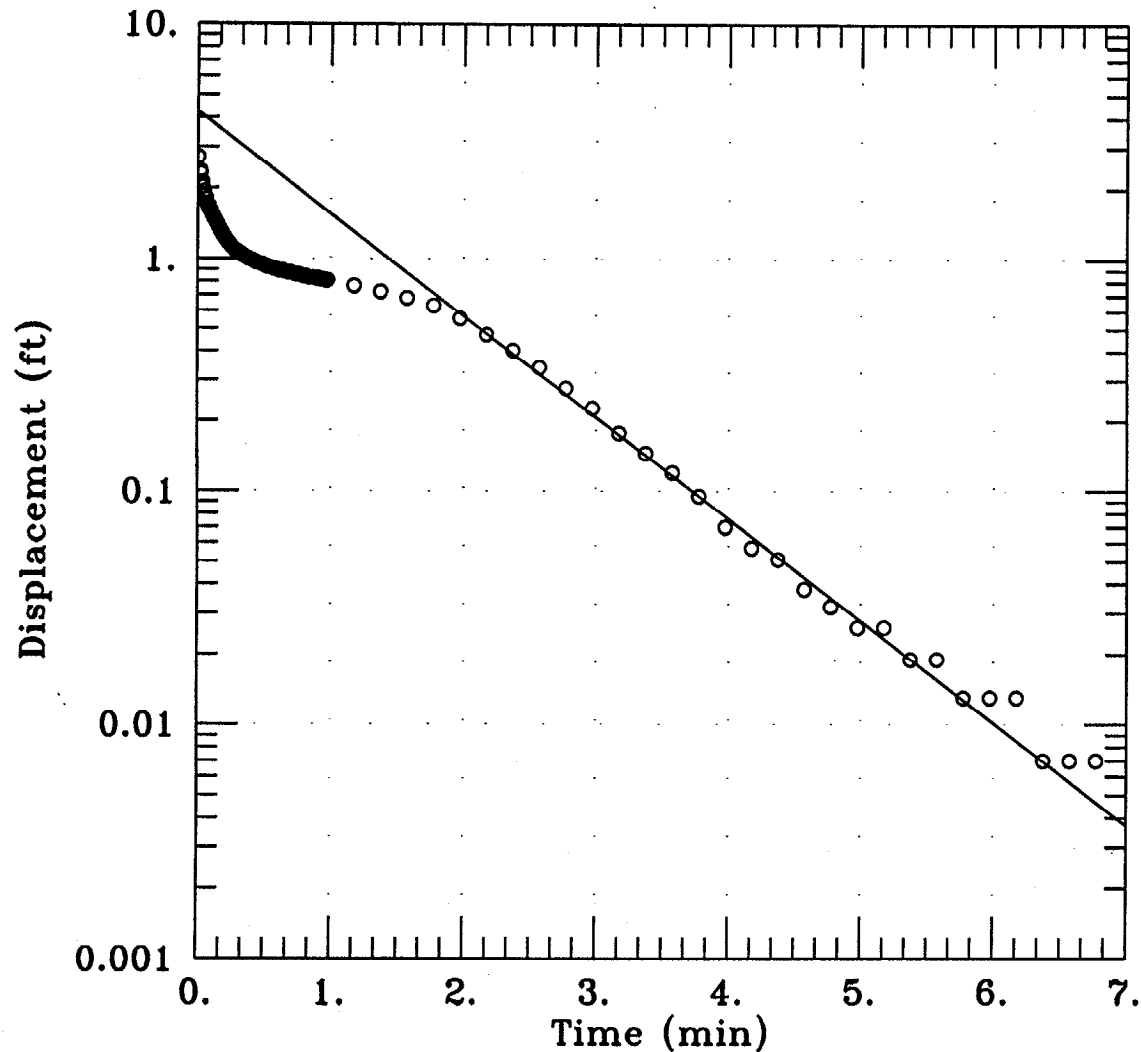
Client: LANTDIV

Company: Baker Environmental, Inc.

Location: Site 88 - Camp Lejeune

Project: CTO-356

88-MW02 Rising Head Test



DATA SET:
88MW2R.DAT
06/30/97

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: May 19, 1997

TEST DATA:
H₀ = 2.706 ft
r_c = 0.083 ft
r_w = 0.542 ft
L = 15. ft
b = 100. ft
H = 15.1 ft

PARAMETER ESTIMATES:
K = 9.227 ft/day
y₀ = 4.238 ft

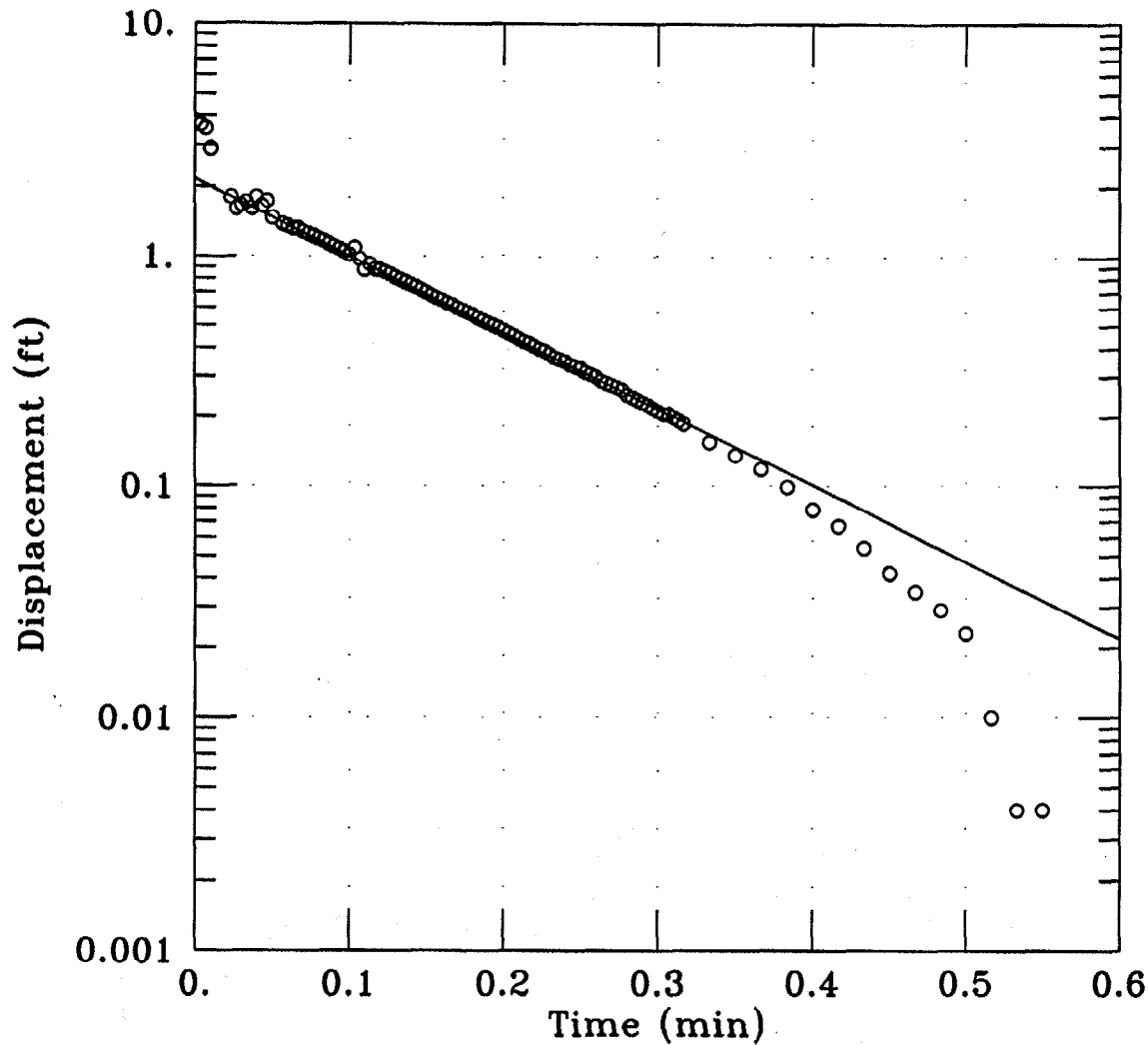
Client: LANTDIV

Company: Baker Environmental, Inc.

Location: Site 88 - MCB Camp Lejeune

Project: CTO-356

88-MW03IW Falling Head Test



DATA SET:
88MW3IWF.DAT
06/27/97

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: May 18, 1997

TEST DATA:
H0 = 3.764 ft
rc = 0.083 ft
rw = 0.542 ft
L = 5. ft
b = 100. ft
H = 34.82 ft

PARAMETER ESTIMATES:
K = 170.3 ft/day
y0 = 2.158 ft

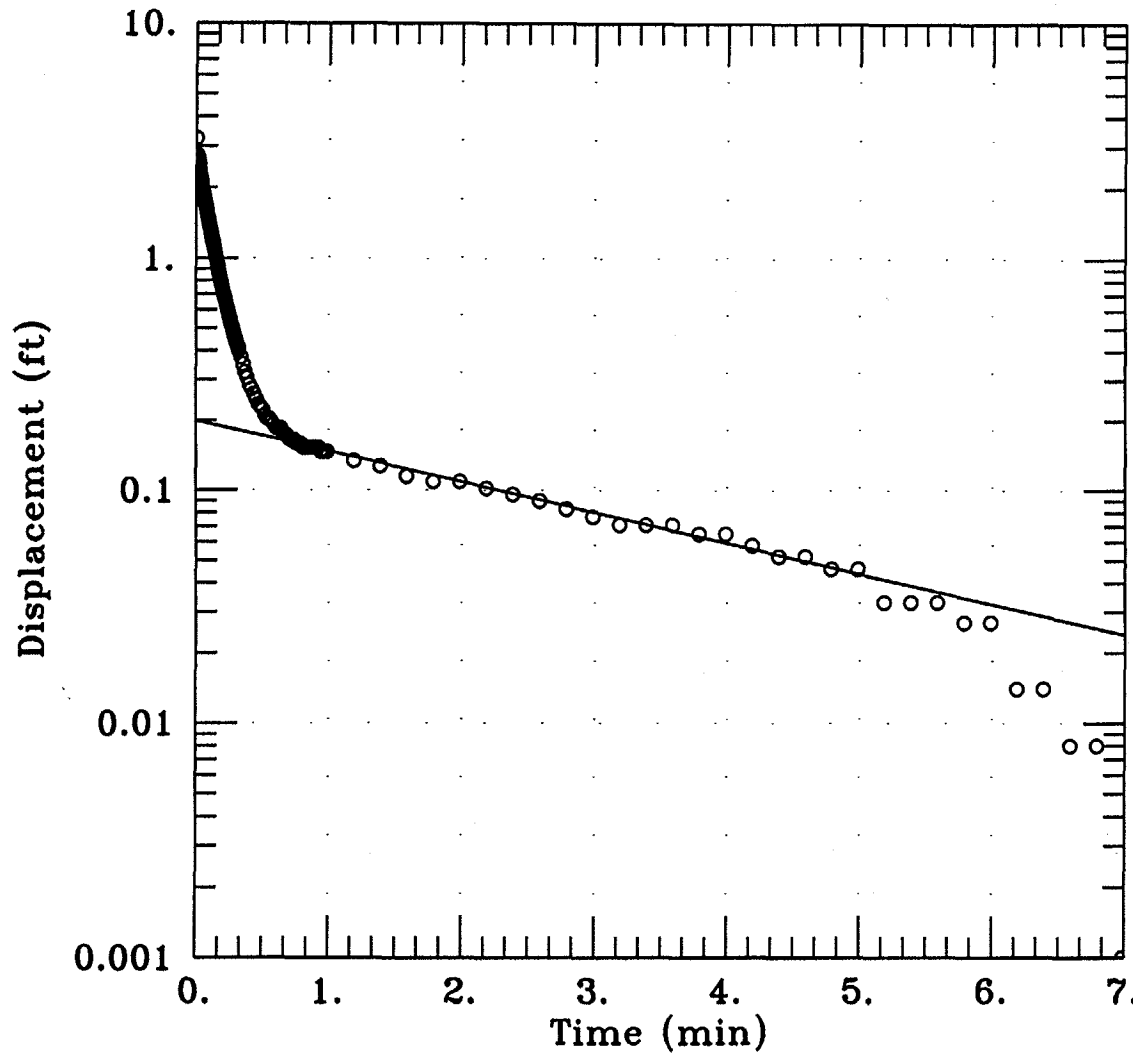
Client: LANTDIV

Company: Baker Environmental, Inc.

Location: Site 88 - MCB Camp Lejeune

Project: CTO-356

88-MW03IW Rising Head Test



DATA SET:
88MW3IWR.DAT
06/30/97

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: May 18, 1997

TEST DATA:
H0 = 3.229 ft
rc = 0.083 ft
rw = 0.542 ft
L = 5. ft
b = 100. ft
H = 34.82 ft

PARAMETER ESTIMATES:
K = 6.75 ft/day
y0 = 0.1998 ft

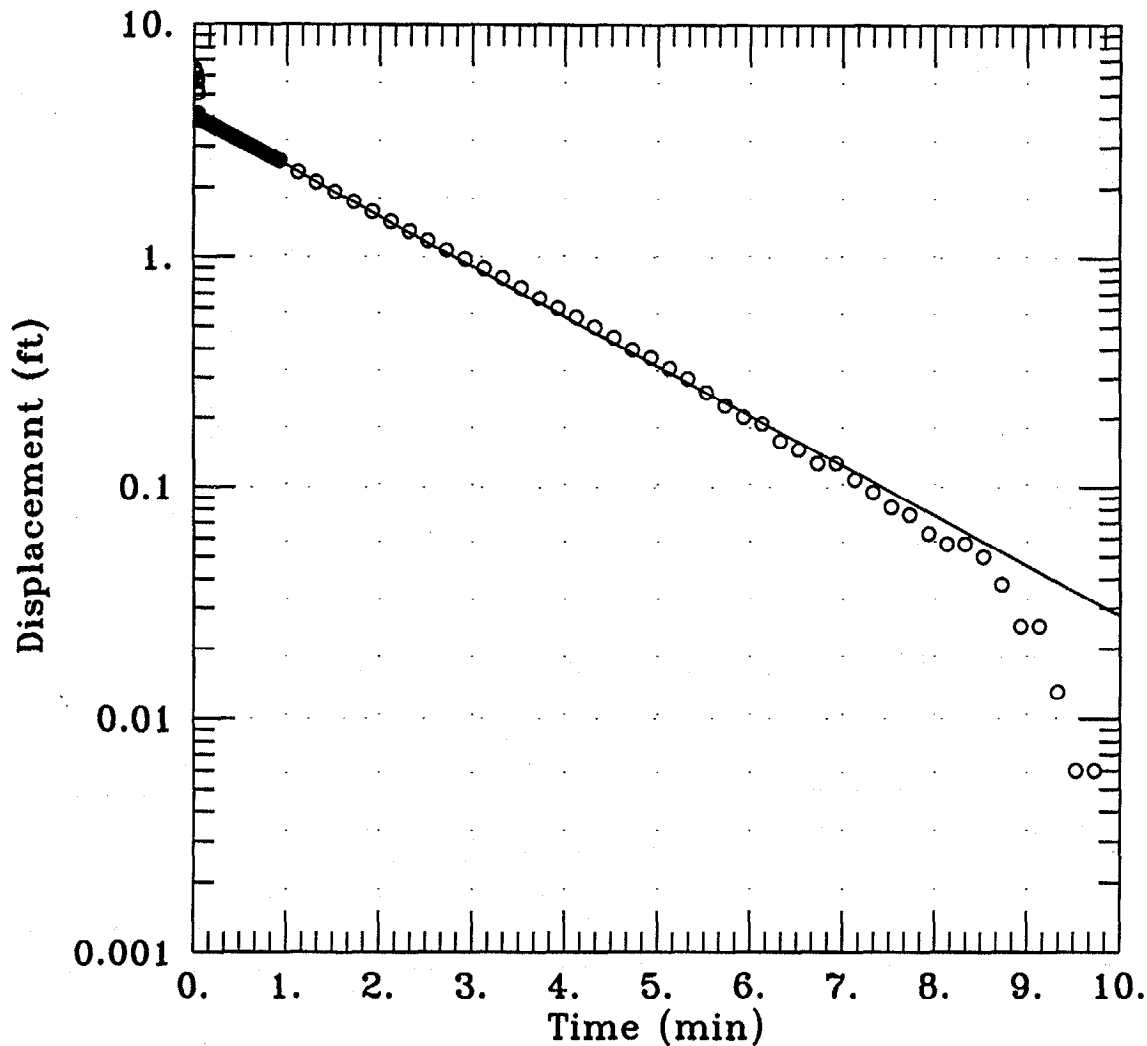
Client: LANTDIV

Company: Baker Environmental, Inc.

Location: Site 88 - Camp Lejeune

Project: CTO-356

88-MW03DW Falling Head Test



DATA SET:
88MW3DWF.DAT
06/30/97

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: May 19, 1997

TEST DATA:
H0 = 6.442 ft
rc = 0.083 ft
rw = 0.328 ft
L = 5. ft
b = 100. ft
H = 69.52 ft

PARAMETER ESTIMATES:
K = 6.226 ft/day
y0 = 4.088 ft

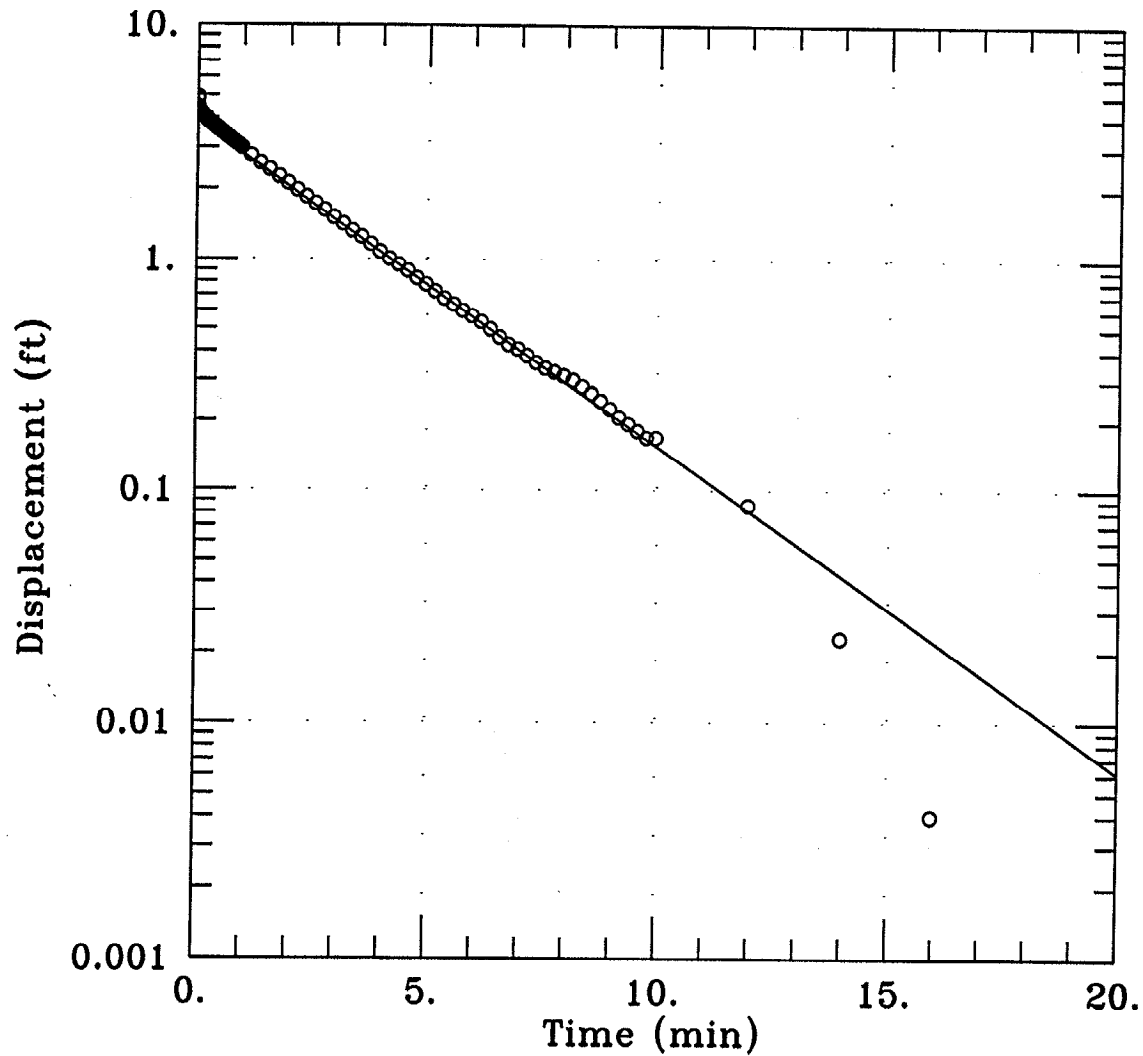
Client: LANTDIV

Company: Baker Environmental, Inc.

Location: Site 88 - MCB Camp Lejeune

Project: CTO-356

88-MW03DW Rising Head Test



DATA SET:
88MW3DWR.DAT
07/15/97

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: May 19, 1997

TEST DATA:
H0 = 4.831 ft
rc = 0.083 ft
rw = 0.328 ft
L = 5. ft
b = 100. ft
H = 69.52 ft

PARAMETER ESTIMATES:
K = 4.021 ft/day
y0 = 3.868 ft

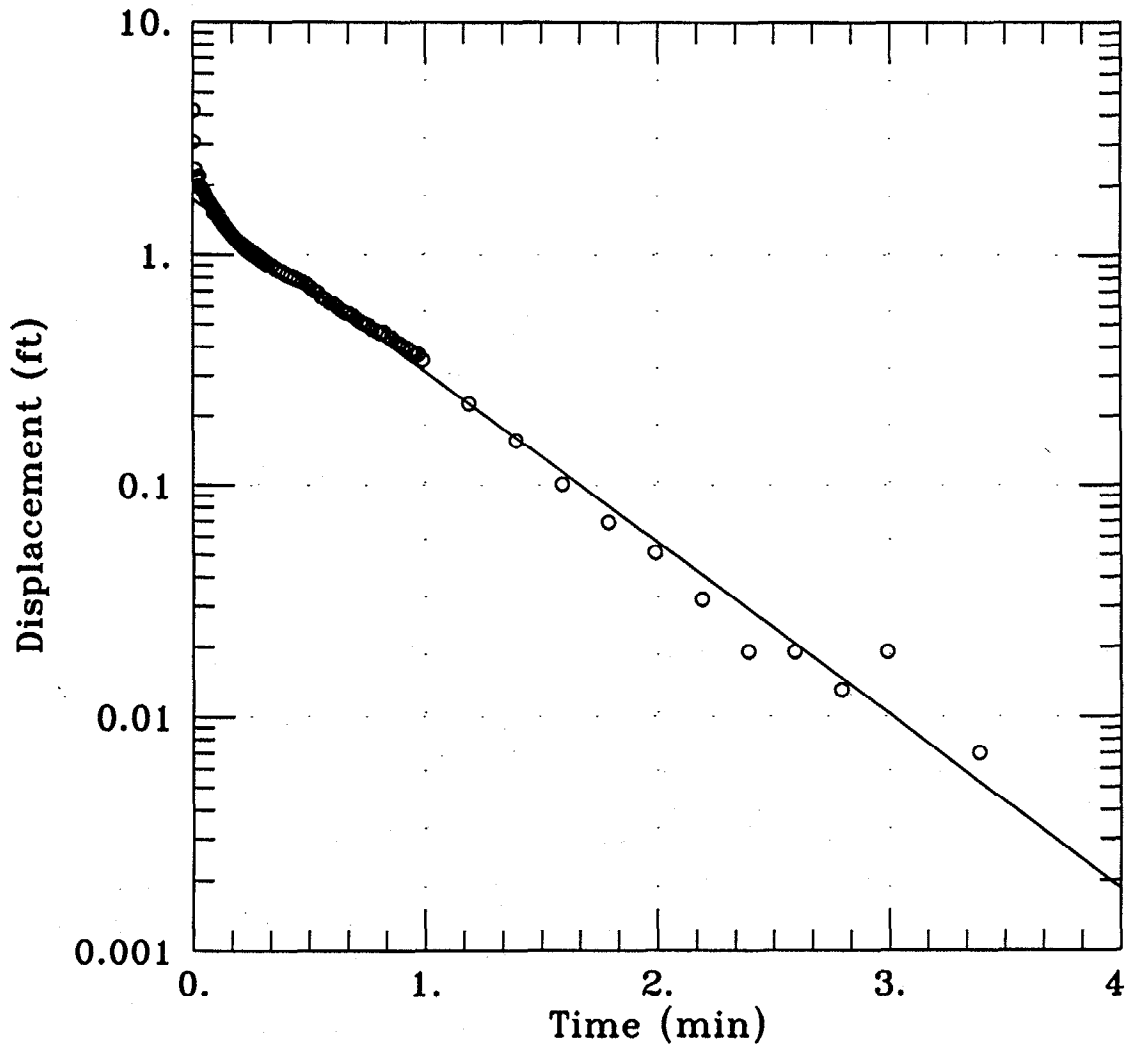
Client: LANTDIV

Company: Baker Environmental, Inc.

Location: Site 88 - MCB Camp Lejeune

Project: CTO-356

88-MW04 Rising Head Test



DATA SET:
88MW4R.DAT
06/30/97

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: May 18, 1997

TEST DATA:
H0 = 4.148 ft
rc = 0.083 ft
rw = 0.542 ft
L = 15. ft
b = 100. ft
H = 15. ft

PARAMETER ESTIMATES:
K = 15.66 ft/day
y0 = 1.728 ft

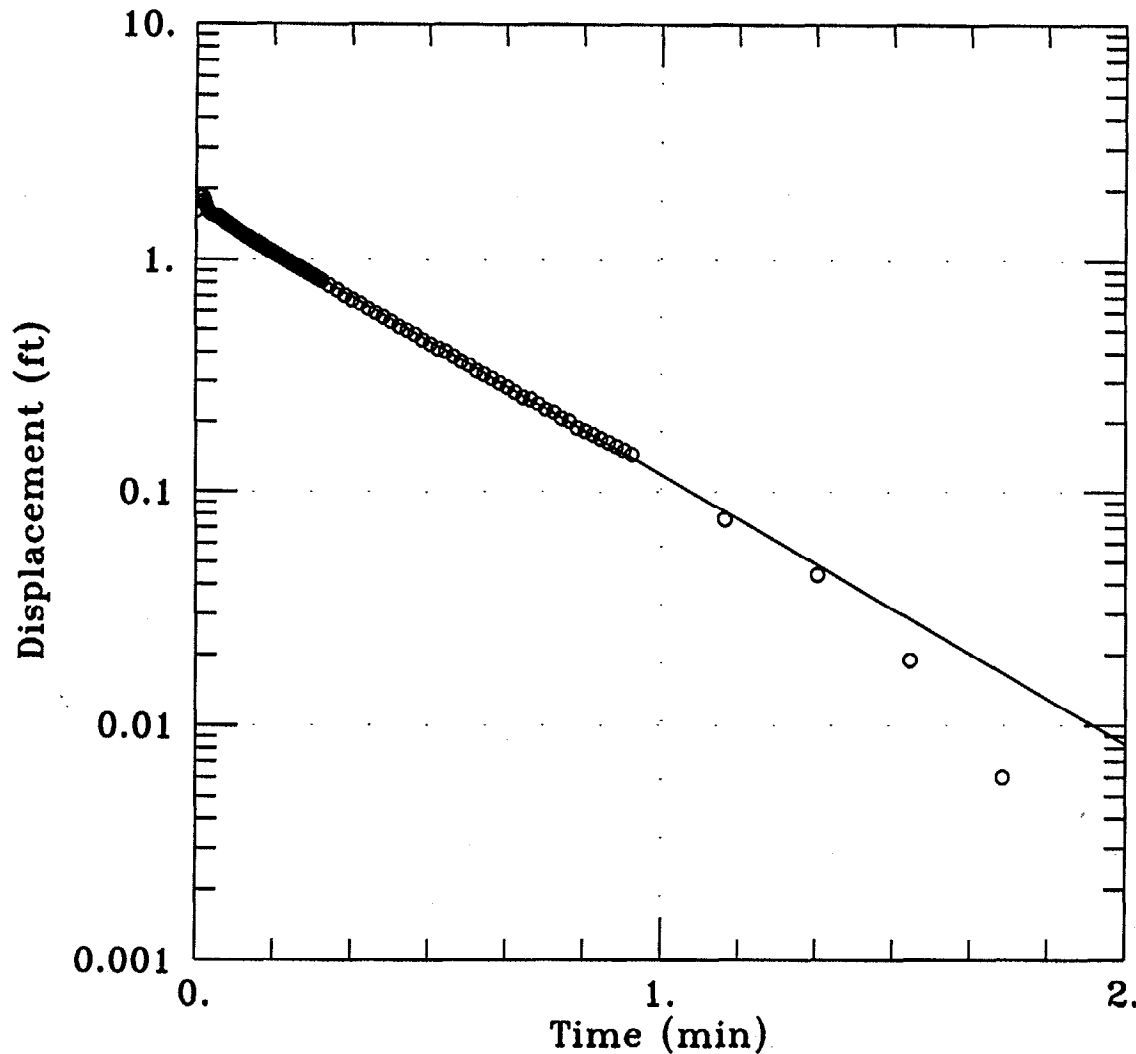
Client: LANTDIV

Company: Baker Environmental, Inc.

Location: Site 88 - Camp Lejeune

Project: CTO-356

88-MW04IW Falling Head Test



DATA SET:
88MW4IWF.DAT
06/30/97

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: May 18, 1997

TEST DATA:
H0 = 1.596 ft
rc = 0.083 ft
rw = 0.542 ft
L = 5. ft
b = 100. ft
H = 35.81 ft

PARAMETER ESTIMATES:
K = 59.41 ft/day
y0 = 1.697 ft

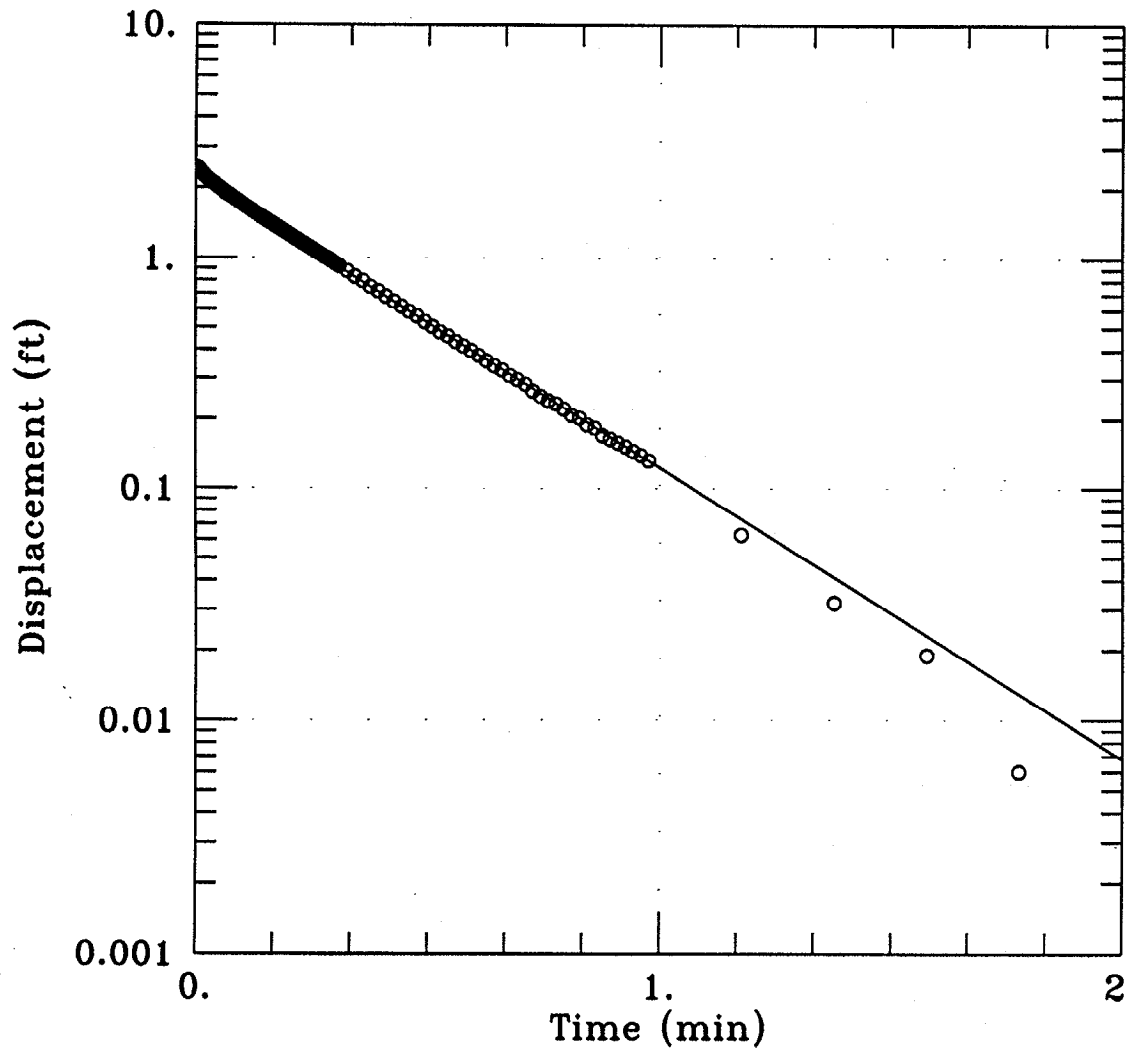
Client: LANTDIV

Company: Baker Environmental, Inc.

Location: Site 88 - Camp Lejeune

Project: CTO-356

88-MW04IW Rising Head Test



DATA SET:
88MW4IWR.DAT
06/30/97

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bower-Rice

PROJECT DATA:
test date: May 18, 1997

TEST DATA:
H0 = 2.422 ft
rc = 0.083 ft
rw = 0.542 ft
L = 5. ft
b = 100. ft
H = 35.81 ft

PARAMETER ESTIMATES:
K = 64.73 ft/day
y0 = 2.236 ft

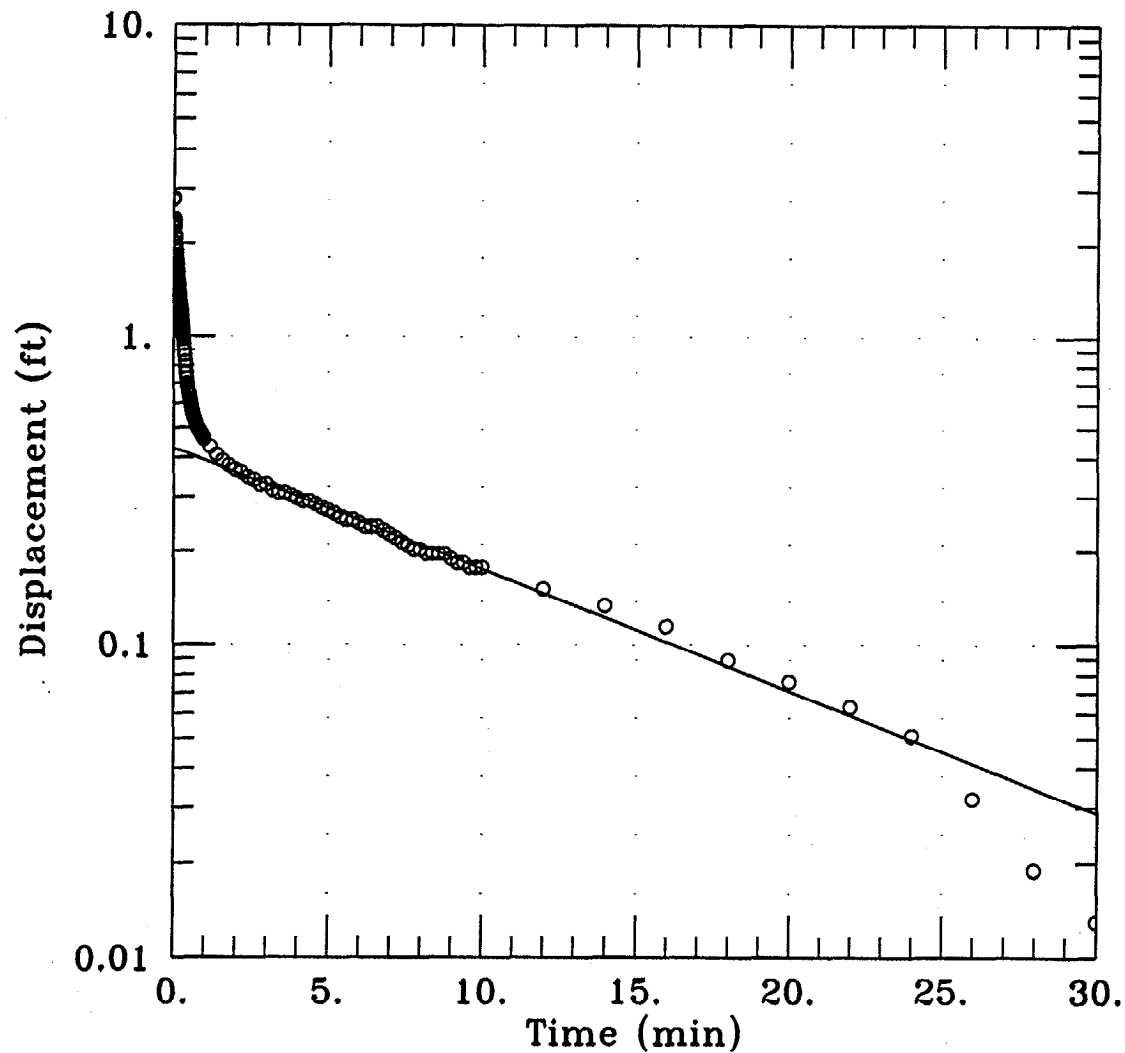
Client: LANTDIV

Company: Baker Environmental, Inc.

Location: Site 88 - MCB Camp Lejeune

Project: CT0-356

88-MW05 Rising Head Test



DATA SET:
88MW5R.DAT
07/15/97

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: May 19, 1997

TEST DATA:
H0 = 2.765 ft
rc = 0.083 ft
rw = 0.542 ft
L = 15. ft
b = 100. ft
H = 15. ft

PARAMETER ESTIMATES:
K = 0.8257 ft/day
y0 = 0.4305 ft

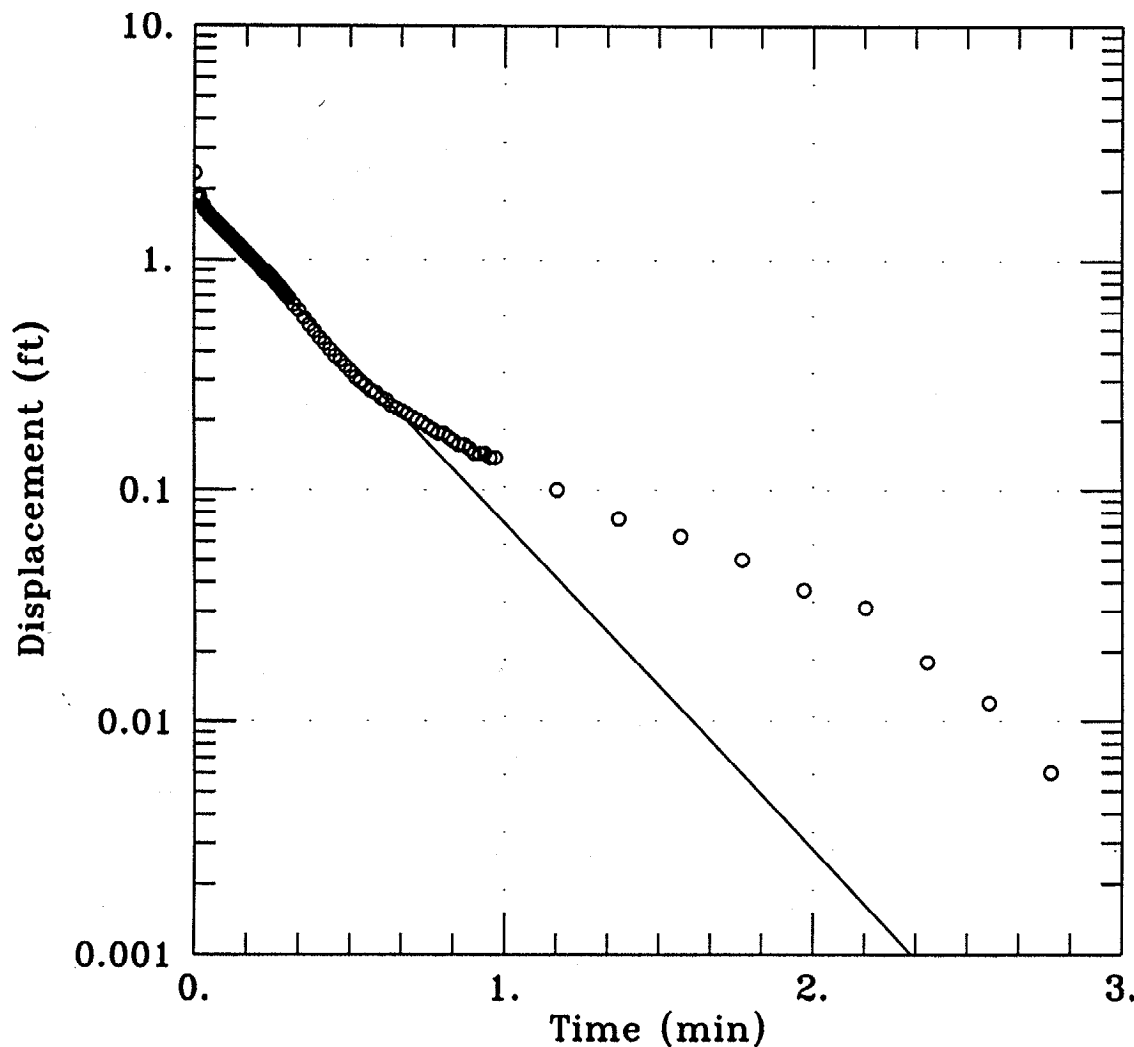
Client: LANTDIV

Company: Baker Environmental, Inc.

Location: Site 88 - MCB Camp Lejeune

Project: CTO-356

88-MW07 Rising Head Test



DATA SET:
88MW7R.DAT
06/30/97

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bower-Rice

PROJECT DATA:
test date: May 19, 1997

TEST DATA:
H0 = 2.327 ft
rc = 0.083 ft
rw = 0.542 ft
L = 15. ft
b = 100. ft
H = 15. ft

PARAMETER ESTIMATES:
K = 29.67 ft/day
y0 = 1.836 ft

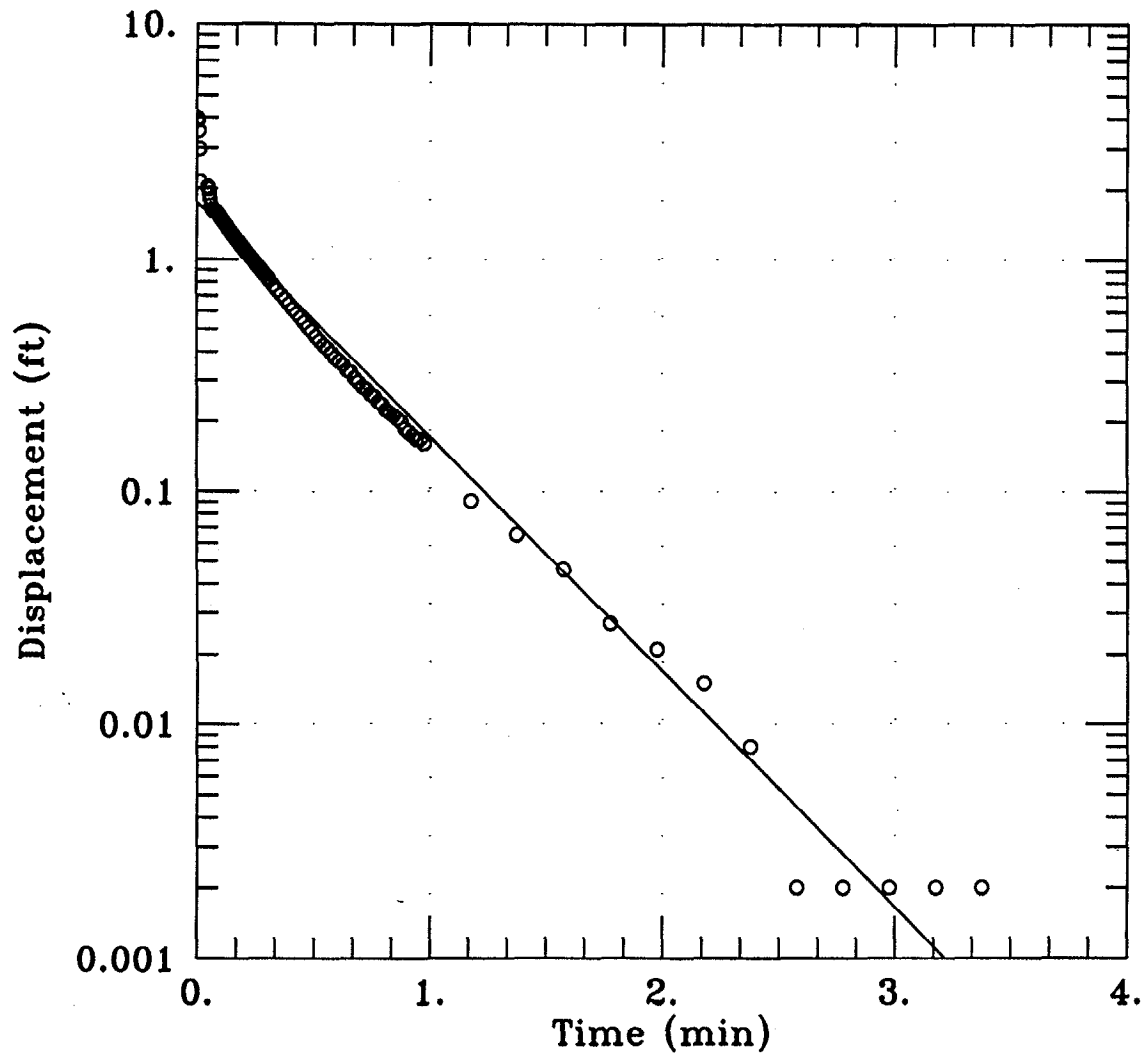
Client: LANTDIV

Company: Baker Environmental, Inc.

Location: Site 88 - MCB Camp Lejeune

Project: CTO-356

88-MW07IW Falling Head Test



DATA SET:
88MW7IWF.DAT
06/30/97

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: May 19, 1997

TEST DATA:
H0 = 3.966 ft
rc = 0.083 ft
rw = 0.542 ft
L = 5. ft
b = 100. ft
H = 36.32 ft

PARAMETER ESTIMATES:
K = 51.9 ft/day
y0 = 1.747 ft

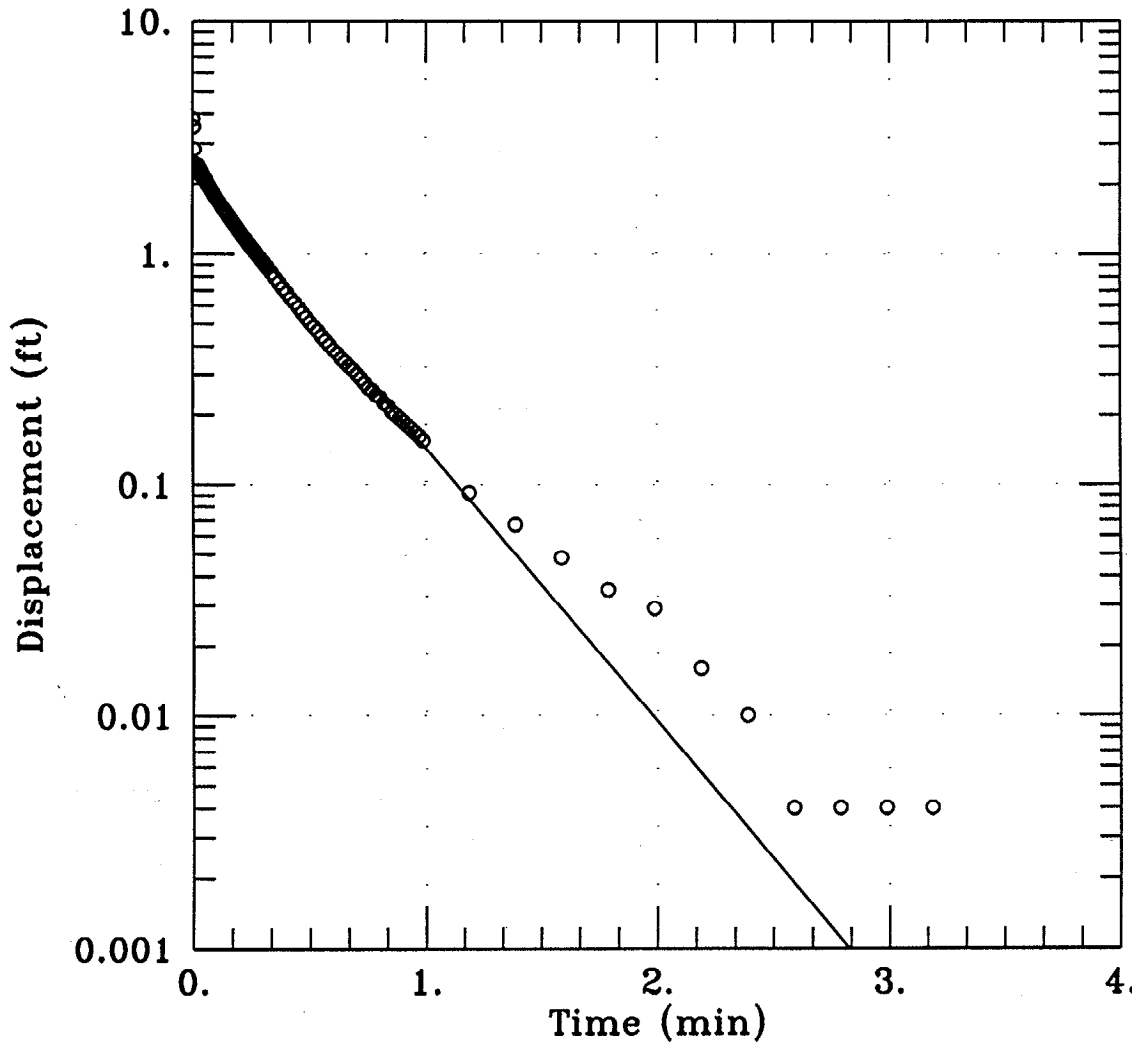
Client: LANTDIV

Company: Baker Environmental, Inc.

Location: Site 88 - MCB Camp Lejeune

Project: CTO-356

88-MW07IW Rising Head Test



DATA SET:
88MW7IWR.DAT
06/30/97

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bower-Rice

PROJECT DATA:
test date: May 19, 1997

TEST DATA:
H0 = 3.805 ft
rc = 0.083 ft
rw = 0.542 ft
L = 5. ft
b = 100. ft
H = 36.32 ft

PARAMETER ESTIMATES:
K = 60.86 ft/day
y0 = 2.176 ft

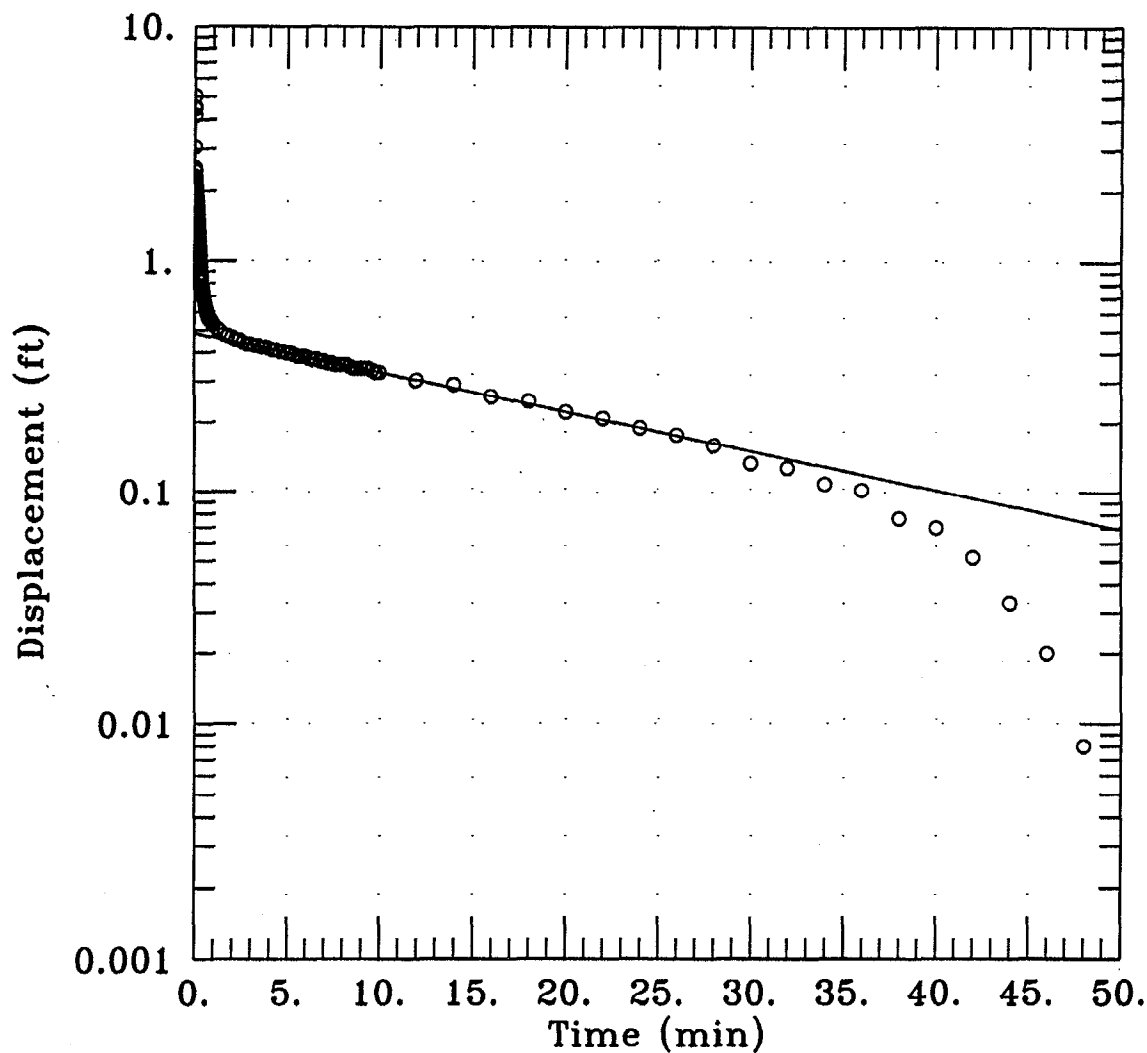
Client: LANTDIV

Company: Baker Environmental, Inc.

Location: Site 88 - MCB Camp Lejeune

Project: CTO-356

88-MW09 Rising Head Test



DATA SET:
88MW9R.DAT
07/15/97

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bower-Rice

PROJECT DATA:
test date: May 19, 1997

TEST DATA:
H0 = 4.467 ft
rc = 0.083 ft
rw = 0.542 ft
L = 15. ft
b = 100. ft
H = 15. ft

PARAMETER ESTIMATES:
K = 0.3579 ft/day
y0 = 0.4853 ft

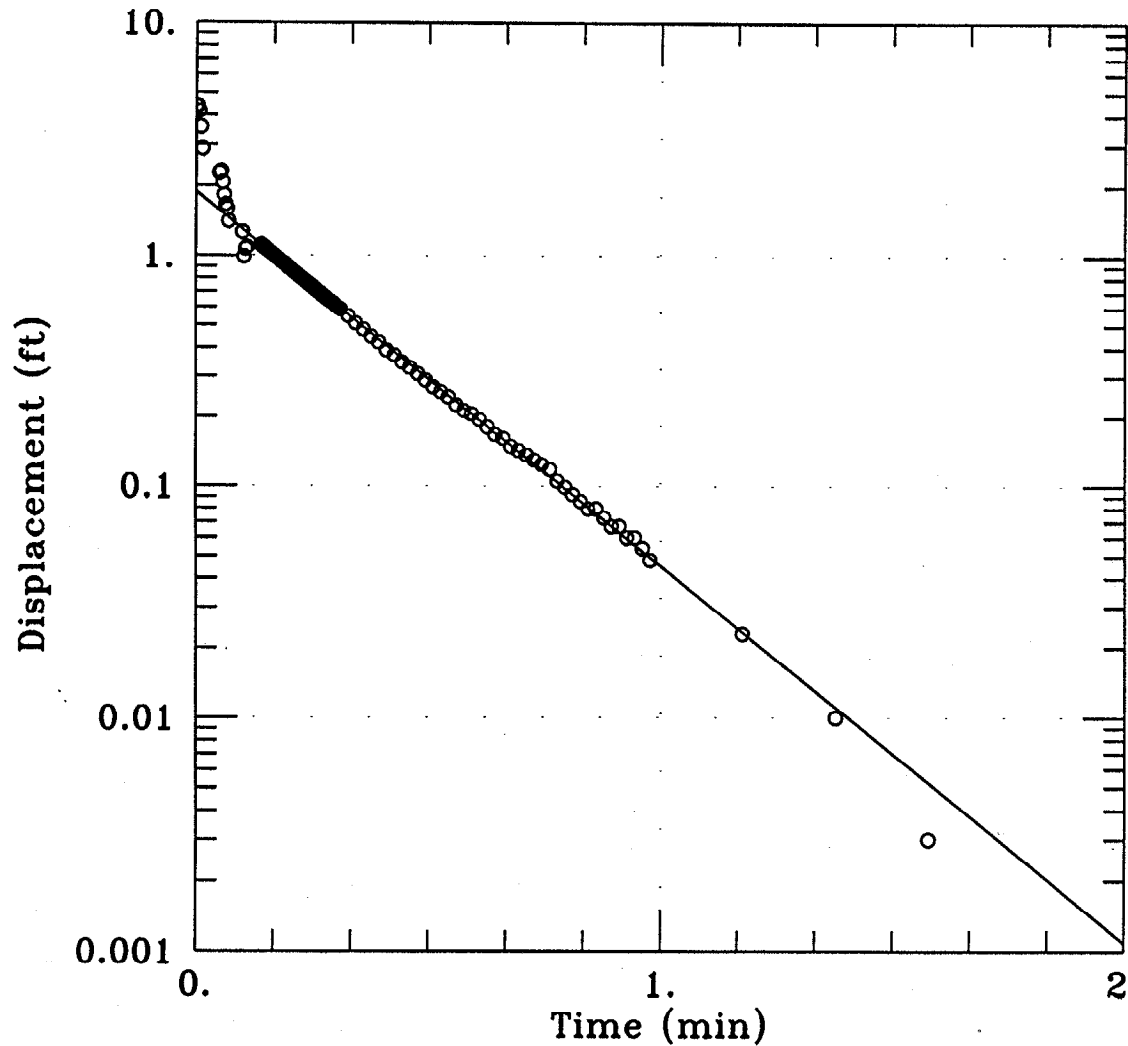
Client: LANTDIV

Company: Baker Environmental, Inc.

Location: Site 88 - MCB Camp Lejeune

Project: CTO-356

88-MW09IW Falling Head Test



DATA SET:
88MW9IWF.DAT
06/30/97

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: May 19, 1997

TEST DATA:
H0 = 4.386 ft
rc = 0.083 ft
rw = 0.542 ft
L = 5. ft
b = 100. ft
H = 38.45 ft

PARAMETER ESTIMATES:
K = 84.02 ft/day
y0 = 1.877 ft

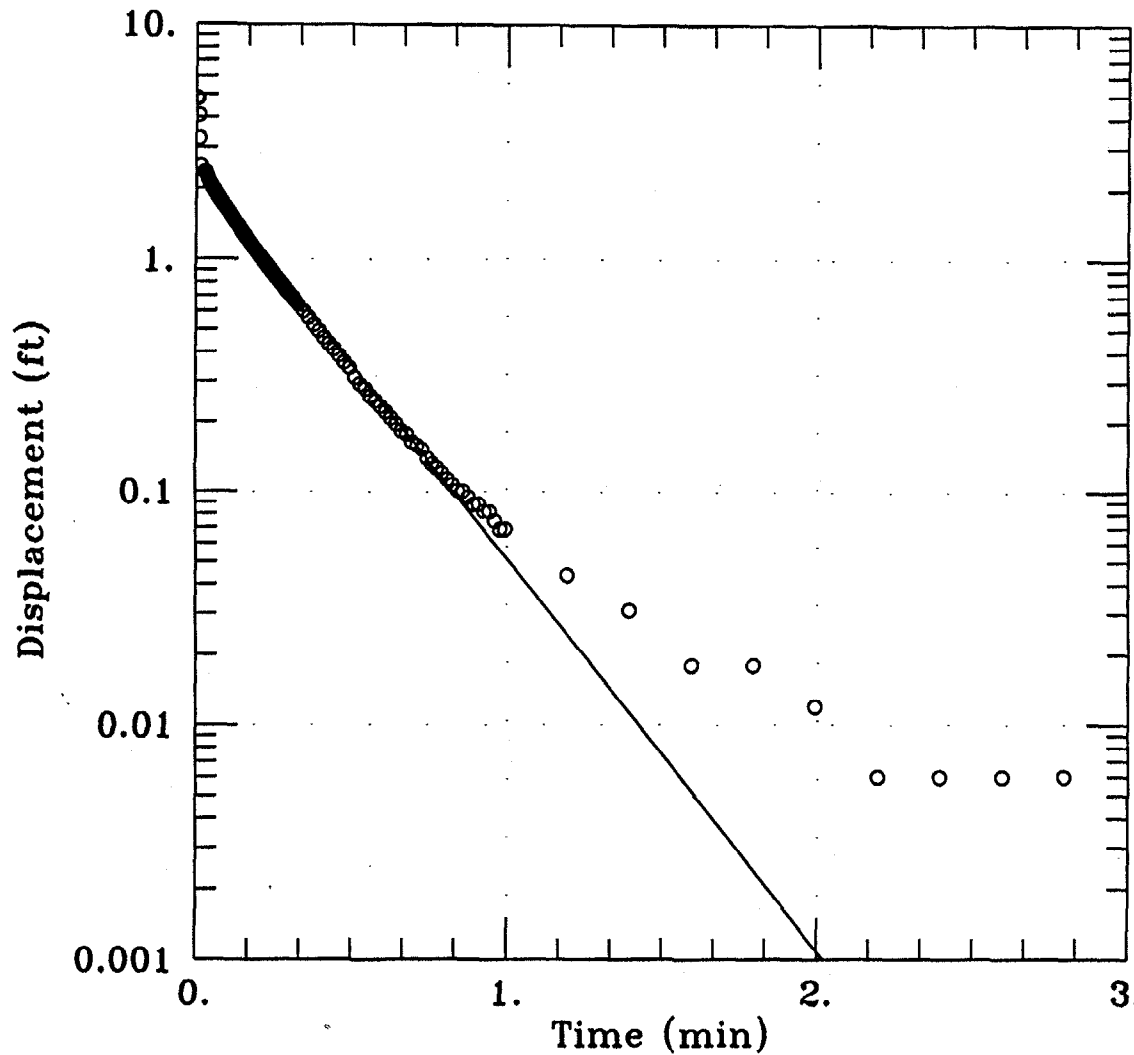
Client: LANTDIV

Company: Baker Environmental, Inc.

Location: Site 88 - MCB Camp Lejeune

Project: CT0-356

88-MW09IW Rising Head Test



DATA SET:
88MW9IWR.DAT
06/30/97

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: May 19, 1997

TEST DATA:
H0 = 4.851 ft
rc = 0.083 ft
rw = 0.542 ft
L = 5. ft
b = 100. ft
H = 38.45 ft

PARAMETER ESTIMATES:
K = 86.87 ft/day
y0 = 2.426 ft

S.O. No. 62470-356

Subject: GROUNDWATER VELOCITY CALCULATIONS

Baker

Sheet No. 1 of 2

Drawing No. _____

Computed by MKD Checked By _____ Date 9/5/97

EQUATION- $V = Ki/n_e$

WHERE K = HYDRAULIC CONDUCTIVITY (FROM SLUG TEST)
i = GRADIENT (FROM POTENTIOMETRIC SURFACE MAPS)
 n_e = EFFECTIVE POROSITY (ASSUME 0.2)

UPPER SURFICIAL AQUIFER

88-MW02

K = 9.2 ft/day
i = 0.03 ft/ft
 $n_e = 0.2$

$$V = \frac{9.2 \text{ ft/day} \times 0.03 \text{ ft/ft}}{0.2}$$

$$V \approx 1.4 \text{ ft/day}$$

88-MW04

K = 15.7 ft/day
i = 0.03 ft/ft
 $n_e = 0.2$

$$V = \frac{15.7 \text{ ft/day} \times 0.03 \text{ ft/ft}}{0.2}$$

$$V \approx 2.4 \text{ ft/day}$$

88-MW05

K = 0.8 ft/day
i = 0.01 ft/ft
 $n_e = 0.2$

$$V = \frac{0.8 \text{ ft/day} \times 0.01 \text{ ft/ft}}{0.2}$$

$$V \approx 0.04 \text{ ft/day}$$

88-MW07

K = 29.7 ft/day
i = 0.02 ft/ft
 $n_e = 0.2$

$$V = \frac{29.7 \text{ ft/day} \times 0.02 \text{ ft/ft}}{0.2}$$

$$V \approx 3.0 \text{ ft/day}$$

88-MW09

K = 0.4 ft/day
i = 0.01 ft/ft
 $n_e = 0.2$

$$V = \frac{0.4 \text{ ft/day} \times 0.01 \text{ ft/ft}}{0.2}$$

$$V \approx 0.02 \text{ ft/day}$$

S.O. No. 62470-356

Subject: CALC. 3 (CONT.)



Sheet No. 2 of 2

Drawing No. _____

Computed by _____ Checked By _____ Date _____

LOWER SURFICIAL AQUIFER

88-MW041W

$$K = 62.1 \text{ ft/day}$$
$$i = 0.003 \text{ ft/ft}$$
$$n_e = 0.2$$

$$V = \frac{62.1 \text{ ft/day} \times 0.003 \text{ ft/ft}}{0.2}$$

$$V \approx 0.9 \text{ ft/day}$$

88-MW071W

$$K = 56.4 \text{ ft/day}$$
$$i = 0.002 \text{ ft/ft}$$
$$n_e = 0.2$$

$$V = \frac{56.4 \text{ ft/day} \times 0.002 \text{ ft/ft}}{0.2}$$

$$V \approx 0.6 \text{ ft/day}$$

88-MW091W

$$K = 85.5 \text{ ft/day}$$
$$i = 0.003 \text{ ft/ft}$$
$$n_e = 0.2$$

$$V = \frac{85.5 \text{ ft/day} \times 0.003 \text{ ft/ft}}{0.2}$$

$$V \approx 1.3 \text{ ft/day}$$

UPPER CASTLE HAYNE AQUIFER

88-MW030W

$$K = 5.1 \text{ ft/day}$$
$$i = 0.0005 \text{ ft/ft}$$
$$n_e = 0.2$$

$$V = \frac{5.1 \text{ ft/day} \times 0.0005 \text{ ft/ft}}{0.2}$$

$$V \approx 0.0005 \text{ ft/day}$$

RETARDATION ESTIMATES
 OPERABLE UNIT NO. 15 (SITE 88)
 FOCUSED REMEDIAL INVESTIGATION, CTO-0356
 MCB, CAMP LEJEUNE, NORTH CAROLINA

Equation: $R = 1 + (P_b/n)(K_d)$

Where: P_b = bulk density (dry)
 n = porosity
 K_d = distribution coefficient
 ($k_{oc} \times FOC$)

Distribution Coefficient Estimates

Solute	$K_{oc}^{(1)}$ (mL/g)	FOC ⁽²⁾ (%)	K_d
cis-1,2-Dichloroethene	5	0.57	0.0285
trans-1,2-Dichloroethene	59	0.57	0.3363
Trichloroethene	126	0.57	0.7182
Tetrachloroethene	363	0.57	2.0691

Retardation Factor Estimates

Solute	$P_b^{(3)}$ (g/mL)	$n^{(4)}$ (%)	K_d	R
cis-1,2-Dichloroethene	1.18	20	0.0285	1.17
trans-1,2-Dichloroethene	1.18	20	0.3363	2.98
Trichloroethene	1.18	20	0.7182	5.24
Tetrachloroethene	1.18	20	2.0691	13.21

- NOTES: (1) K_{oc} values obtained from Table 5-1
 (2) Average of four site measurements
 (3) Bulk density of a silty sand sample taken from the site
 (4) Assumed effective porosity (from Fetter, 1988)

**USEPA SOIL SCREENING GUIDANCE
CALCULATION OF SOIL SCREENING LEVELS**

Equation: $C_{\text{soil}} = C_G K_s + \left[\frac{(n_w + n_a H')}{P_b} \right] df$

Soil Screening Levels (ug/kg)	
Tetrachloroethene	25.9
Trichloroethene	46.6
cis-1,2-Dichloroethene	665.0
Acetone	3,608.3
Chloroform	2.2

Calculation Input Table			
Definition	Units	Value	Source
C_{soil} - Calculated soil concentration for soil	mg/kg	--	Calculated
C_{GW} - Applicable groundwater target concentration	mg/L		NC 2L Standard
Tetrachloroethene		0.0007	
Trichloroethene		0.0028	
cis-1,2-Dichloroethene		0.07	
Acetone		0.7	
Chloroform		0.00019	
df - Dilution Factor	unitless	20	EPA Soil Screening Guidance default fo 0.5 acre source size
K_s - Soil-water partion cofficient	L/kg	$K_s = K_{oc} \times f_{oc}$	--
Tetrachloroethene		1.5105	
Trichloroethene		0.53751	
cis-1,2-Dichloroethene		0.20235	
Acetone		0.0032775	
Chloroform		0.29925	
K_{oc} - Soil organic carbon-water partion coefficient	L/kg		USEPA 1996, Soil Screening Guidance
Tetrachloroethene		265	
Trichloroethene		94.3	
cis-1,2-Dichloroethene		35.5	
Acetone		0.575	
Chloroform		52.5	
f_{oc} - Fraction organic carbon in vadose zone soil	$g_{\text{carbon}}/g_{\text{soil}}$	0.0057	NC Risk Analysis Framework
n_w - Water filled soil porosity (vadose zone soil)	$L_{\text{water}}/L_{\text{soil}}$	0.3	See " K_{oc} " Source
n_a - Air filled soil porosity (vadose zone soil)	$L_{\text{air}}/L_{\text{soil}}$	0.13	See " K_{oc} " Source
H' - Henry's Law Constant	unitless		See " K_{oc} " Source
Tetrachloroethene		0.754	
Trichloroethene		0.374	
cis-1,2-Dichloroethene		0.167	
Acetone		0.002	
Chloroform		0.139	
P_b - Bulk Density	kg/L	1.18	Site 88 Focused RI

RETARDATION ESTIMATES
 OPERABLE UNIT NO. 15 (SITE 88)
 FOCUSED REMEDIAL INVESTIGATION, CTO-0356
 MCB, CAMP LEJEUNE, NORTH CAROLINA

Equation: $R = 1 + (P_b/n)(K_d)$

Where: P_b = bulk density (dry)
 n = porosity
 K_d = distribution coefficient
 ($k_{oc} \times FOC$)

Distribution Coefficient Estimates

Solute	$K_{oc}^{(1)}$ (mL/g)	FOC ⁽²⁾ (%)	K_d
cis-1,2-Dichloroethene	35.5	0.57	0.20235
trans-1,2-Dichloroethene	38	0.57	0.2166
Trichloroethene	94.3	0.57	0.53751
Tetrachloroethene	265	0.57	1.5105

Retardation Factor Estimates

Solute	$P_b^{(3)}$ (g/mL)	$n^{(4)}$ (%)	K_d	R
cis-1,2-Dichloroethene	1.18	20	0.20235	2.19
trans-1,2-Dichloroethene	1.18	20	0.2166	2.28
Trichloroethene	1.18	20	0.53751	4.17
Tetrachloroethene	1.18	20	1.5105	9.91

- NOTES: (1) Koc values from NC Risk Analysis Framework Guidance
 (2) Average of four site measurements
 (3) Bulk density of a silty sand sample taken from the site
 (4) Assumed effective porosity (from Fetter, 1988)

APPENDIX H
DATA FREQUENCY SUMMARIES

SOILS

FREQUENCY OF DETECTION SUMMARY
 SUBSURFACE SOIL - VOLATILE ORGANICS
 PHASE I - MOBILE LABORATORY
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 16 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-TW04IW-03	IR88-TW04IW-11	IR88-TW05-04	IR88-TW06-03	IR88-TW07-03	IR88-TW08-03	IR88-TW09-04
PHASE	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
DATE SAMPLED	8/16/96	8/16/96	8/16/96	8/16/96	8/16/96	8/16/96	8/16/96
DEPTH	5-7'	20-22'	7-9'	5-7'	5-7'	5-7'	7-9'
VOLATILES (ug/kg)							
1,1,1-TRICHLOROETHANE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA
BROMOFORM	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHLOROENZENE	NA	NA	NA	NA	NA	NA	NA
CHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA

FREQUENCY OF DETECTION SUMMARY
 SUBSURFACE SOIL - VOLATILE ORGANICS
 PHASE I - MOBILE LABORATORY
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 16 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-TW04IW-03	IR88-TW04IW-11	IR88-TW05-04	IR88-TW06-03	IR88-TW07-03	IR88-TW08-03	IR88-TW09-04
PHASE	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
DATE SAMPLED	8/16/96	8/16/96	8/16/96	8/16/96	8/16/96	8/16/96	8/16/96
DEPTH	5-7'	20-22'	7-9'	5-7'	5-7'	5-7'	7-9'
VOLATILES (ug/kg) (cont)							
STYRENE	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	14.8	1.5	1.2	0.4	0.1	237.6	22.6
TOLUENE	NA	NA	NA	NA	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	0.2	0.1	0.1	0.1 U	0.1 U	0.8	3.3
VINYL CHLORIDE	100 U	100 U	100 U	100 U	100 U	100 U	100 U
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA

FREQUENCY OF DETECTION SUMMARY
 SUBSURFACE SOIL - VOLATILE ORGANICS
 PHASE I - MOBILE LABORATORY
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 16 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-TW09-06	IR88-TW10-02	IR88-TW11-02	IR88-TW12-05	IR88-TW13-03	IR88-TW13-05	IR88-TW14-03	IR88-TW15-04
PHASE	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
DATE SAMPLED	8/16/96	8/17/96	8/17/96	8/17/96	8/17/96	8/17/96	8/17/96	8/17/96
DEPTH	11-13'	3-5'	3-5'	9-11'	5-7'	9-11'	5-7'	7-9'
VOLATILES (ug/kg)								
1,1,1-TRICHLOROETHANE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
BROMOFORM	NA	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1	0.1
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	21
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA

FREQUENCY OF DETECTION SUMMARY
 SUBSURFACE SOIL - VOLATILE ORGANICS
 PHASE I - MOBILE LABORATORY
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 16 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-TW09-06	IR88-TW10-02	IR88-TW11-02	IR88-TW12-05	IR88-TW13-03	IR88-TW13-05	IR88-TW14-03	IR88-TW15-04
PHASE	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
DATE SAMPLED	8/16/96	8/17/96	8/17/96	8/17/96	8/17/96	8/17/96	8/17/96	8/17/96
DEPTH	11-13'	3-5'	3-5'	9-11'	5-7'	9-11'	5-7'	7-9'
VOLATILES (ug/kg) (cont)								
STYRENE	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	3.1	0.1 U	0.1 U	0.1 U	1.5	0.9	0.3	11.6
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	0.5	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	8.5
VINYL CHLORIDE	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA	NA

FREQUENCY OF DETECTION SUMMARY
 SUBSURFACE SOIL - VOLATILE ORGANICS
 PHASE I - MOBILE LABORATORY
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 16 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-TW16-04	IR88-TW17-04	IR88-TW18-03	IR88-TW19-03	IR88-MW02DW-05	IR88-MW02DW-06	IR88-MW03DW-02
PHASE	PHASE I	PHASE I	PHASE I	PHASE I	PHASE II	PHASE II	PHASE II
DATE SAMPLED	8/18/96	8/18/96	8/19/96	8/20/96	04/20/97	04/20/97	04/30/97
DEPTH	7-9'	7-9'	5-7'	5-7'	9-11'	11-13'	3-5'
VOLATILES (ug/kg)							
1,1,1-TRICHLOROETHANE	0.1 U	0.1 U	0.1 U	0.1 U	13 U	13 U	12 U
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	13 U	13 U	12 U
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	13 U	13 U	12 U
1,1-DICHLOROETHANE	NA	NA	NA	NA	13 U	13 U	12 U
1,1-DICHLOROETHENE	NA	NA	NA	NA	13 U	13 U	12 U
1,2-DICHLOROETHANE	NA	NA	NA	NA	13 U	13 U	12 U
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	13 U	13 U	12 U
1,2-DICHLOROPROPANE	NA	NA	NA	NA	13 U	13 U	12 U
2-BUTANONE	NA	NA	NA	NA	13 U	13 U	12 U
2-HEXANONE	NA	NA	NA	NA	13 U	13 U	12 U
4-METHYL-2-PENTANONE	NA	NA	NA	NA	13 U	13 U	12 U
ACETONE	NA	NA	NA	NA	160 UJ	16 UJ	12 U
BENZENE	NA	NA	NA	NA	13 U	13 U	12 U
BROMODICHLOROMETHANE	NA	NA	NA	NA	13 U	13 U	12 U
BROMOFORM	NA	NA	NA	NA	13 U	13 U	12 U
BROMOMETHANE	NA	NA	NA	NA	13 U	13 U	12 U
CARBON DISULFIDE	NA	NA	NA	NA	13 U	13 U	12 U
CARBON TETRACHLORIDE	0.1 U	0.1 U	0.1 U	0.1 U	13 U	13 U	12 U
CHLOROENZENE	NA	NA	NA	NA	13 U	13 U	12 U
CHLOROETHANE	NA	NA	NA	NA	13 U	13 U	12 U
CIILOROFORM	0.1 U	0.1 U	0.1 U	0.1 U	13 U	13 U	12 U
CHLOROMETHANE	NA	NA	NA	NA	13 U	13 U	12 U
CIS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	13 U	13 U	12 U
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	13 U	13 U	12 U
ETHYLBENZENE	NA	NA	NA	NA	13 U	13 U	12 U
METHYLENE CHLORIDE	NA	NA	NA	NA	13 U	13 U	12 U

FREQUENCY OF DETECTION SUMMARY
 SUBSURFACE SOIL - VOLATILE ORGANICS
 PHASE I - MOBILE LABORATORY
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 16 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-TW16-04	IR88-TW17-04	IR88-TW18-03	IR88-TW19-03	IR88-MW02DW-05	IR88-MW02DW-06	IR88-MW03DW-02
PHASE	PHASE I	PHASE I	PHASE I	PHASE I	PHASE II	PHASE II	PHASE II
DATE SAMPLED	8/18/96	8/18/96	8/19/96	8/20/96	04/20/97	04/20/97	04/30/97
DEPTH	7-9'	7-9'	5-7'	5-7'	9-11'	11-13'	3-5'
VOLATILES (ug/kg) (cont)							
STYRENE	NA	NA	NA	NA	13 U	13 U	12 U
TETRACHLOROETHENE	0.2	0.2	0.1 U	0.1 U	4 J	260	12 U
TOLUENE	NA	NA	NA	NA	13 U	13 U	12 U
TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	13 U	13 U	12 U
TRICHLOROETHENE	0.1 U	0.1 U	0.1 U	0.1 U	13 U	13 U	12 U
VINYL CHLORIDE	100 U	100 U	100 U	100 U	13 U	13 U	12 U
XYLENE (TOTAL)	NA	NA	NA	NA	13 U	13 U	12 U

FREQUENCY OF DETECTION SUMMARY
 SUBSURFACE SOIL - VOLATILE ORGANICS
 PHASE I - MOBILE LABORATORY
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 16 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-MW03DW-04	IR88-MW04DW-06	IR88-MW04DW-07	IR88-MW05DW-05	IR88-MW05DW-06	IR88-MW06IW-06
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	04/30/97	04/18/97	04/18/97	04/22/97	04/22/97	05/04/97
DEPTH	7-9'	11-13'	13-15'	9-11'	11-13'	11-13'
VOLATILES (ug/kg)						
1,1,1-TRICHLOROETHANE	12 U	12 U	13 U	12 U	12 U	11 U
1,1,2,2-TETRACHLOROETHANE	12 U	12 U	13 U	12 U	12 U	11 U
1,1,2-TRICHLOROETHANE	12 U	12 U	13 U	12 U	12 U	11 U
1,1-DICHLOROETHANE	12 U	12 U	13 U	12 U	12 U	11 U
1,1-DICHLOROETHENE	12 U	12 U	13 U	12 U	12 U	11 U
1,2-DICHLOROETHANE	12 U	12 U	13 U	12 U	12 U	11 U
1,2-DICHLOROETHENE (TOTAL)	12 U	12 U	13 U	12 U	12 J	11 U
1,2-DICHLOROPROPANE	12 U	12 U	13 U	12 U	12 U	11 U
2-BUTANONE	12 U	12 U	13 U	12 U	12 U	11 U
2-HEXANONE	12 U	12 U	13 U	12 U	12 U	11 U
4-METHYL-2-PENTANONE	12 U	12 U	13 U	12 U	12 U	11 U
ACETONE	12 U	12	13 U	33 J	97 J	120 J
BENZENE	12 U	12 U	13 U	12 U	12 U	11 U
BROMODICHLOROMETHANE	12 U	12 U	13 U	12 U	12 U	11 U
BROMOFORM	12 U	12 U	13 U	12 U	12 U	11 U
BROMOMETHANE	12 U	12 U	13 U	12 U	12 U	11 U
CARBON DISULFIDE	12 U	12 U	13 U	12 U	7 J	11 U
CARBON TETRACHLORIDE	12 U	12 U	13 U	12 U	12 U	11 U
CHLOROBENZENE	12 U	12 U	13 U	12 U	12 U	11 U
CHLOROETHANE	12 U	12 U	13 U	12 U	12 U	11 U
CHLOROFORM	12 U	12 U	13 U	12 U	12 U	11 U
CHLOROMETHANE	12 U	12 U	13 U	12 U	12 U	11 U
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	12 U	12 U	13 U	12 U	12 U	11 U
DIBROMOCHLOROMETHANE	12 U	12 U	13 U	12 U	12 U	11 U
ETHYLBENZENE	12 U	12 U	13 U	12 U	12 U	11 U
METHYLENE CHLORIDE	12 U	12 U	13 U	12 U	12 U	11 U

FREQUENCY OF DETECTION SUMMARY
 SUBSURFACE SOIL - VOLATILE ORGANICS
 PHASE I - MOBILE LABORATORY
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 16 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-MW03DW-04	IR88-MW04DW-06	IR88-MW04DW-07	IR88-MW05DW-05	IR88-MW05DW-06	IR88-MW06IW-06
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	04/30/97	04/18/97	04/18/97	04/22/97	04/22/97	05/04/97
DEPTH	7-9'	11-13'	13-15'	9-11'	11-13'	11-13'
VOLATILES (ug/kg) (cont)						
STYRENE	12 U	12 U	13 U	12 U	12 U	11 U
TETRACHLOROETHENE	12 U	12 U	13 U	7 J	3500	11 U
TOLUENE	12 U	12 U	13 U	12 U	12 U	11 U
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	12 U	12 U	13 U	12 U	12 U	11 U
TRICHLOROETHENE	12 U	12 U	13 U	12 U	16	11 U
VINYL CHLORIDE	12 U	12 U	13 U	12 U	12 U	11 U
XYLENE (TOTAL)	12 U	12 U	13 U	12 U	12 U	11 U

FREQUENCY OF DETECTION SUMMARY
 SUBSURFACE SOIL - VOLATILE ORGANICS
 PHASE I - MOBILE LABORATORY
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 16 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-MW06IW-07	IR88-SB01-02	IR88-SB02-04	IR88-SB02-05	IR88-SB03-02	IR88-SB04-04	IR88-SB04-05	IR88-SB05-05
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	05/04/97	04/19/97	05/07/97	05/07/97	04/19/97	05/06/97	05/06/97	05/06/97
DEPTH	13-15'	3-5'	7-9'	9-11'	3-5'	7-9'	9-11'	9-11'
VOLATILES (ug/kg)								
1,1,1-TRICHLOROETHANE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
1,1,2,2-TETRACHLOROETHANE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
1,1,2-TRICHLOROETHANE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
1,1-DICHLOROETHANE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
1,1-DICHLOROETHENE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
1,2-DICHLOROETHANE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
1,2-DICHLOROETHENE (TOTAL)	12 U	17 U	12 U	12 U	11 U	12 U	240	11 U
1,2-DICHLOROPROPANE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
2-BUTANONE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
2-HEXANONE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
4-METHYL-2-PENTANONE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
ACETONE	31 J	17 UJ	58 J	12 U	11 U	75 J	68 U	11 U
BENZENE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
BROMODICHLOROMETHANE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
BROMOFORM	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
BROMOMETHANE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
CARBON DISULFIDE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
CARBON TETRACHLORIDE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
CHLOROBENZENE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
CHLOROETHANE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
CHLOROFORM	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
CHLOROMETHANE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
DIBROMOCHLOROMETHANE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
ETHYLBENZENE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
METHYLENE CHLORIDE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U

FREQUENCY OF DETECTION SUMMARY
 SUBSURFACE SOIL - VOLATILE ORGANICS
 PHASE I - MOBILE LABORATORY
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 16 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-MW061W-07	IR88-SB01-02	IR88-SB02-04	IR88-SB02-05	IR88-SB03-02	IR88-SB04-04	IR88-SB04-05	IR88-SB05-05
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	05/04/97	04/19/97	05/07/97	05/07/97	04/19/97	05/06/97	05/06/97	05/06/97
DEPTH	13-15'	3-5'	7-9'	9-11'	3-5'	7-9'	9-11'	9-11'
VOLATILES (ug/kg) (cont)								
STYRENE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
TETRACHLOROETHENE	12 U	200	12 U	12 U	56 J	38	24	11 U
TOLUENE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
TRICHLOROETHENE	12 U	17 U	12 U	12 U	3 J	16	380	11 U
VINYL CHLORIDE	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U
XYLENE (TOTAL)	12 U	17 U	12 U	12 U	11 U	12 U	12 U	11 U

FREQUENCY OF DETECTION SUMMARY
 SUBSURFACE SOIL - VOLATILE ORGANICS
 PHASE I - MOBILE LABORATORY
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 16 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-SB05-06	IR88-SB06-04	IR88-SB06-05
PHASE	PHASE II	PHASE II	PHASE II
DATE SAMPLED	05/06/97	05/06/97	05/06/97
DEPTH	11-13'	7-9'	9-11'
VOLATILES (ug/kg)			
1,1,1-TRICHLOROETHANE	12 U	12 U	12 U
1,1,2,2-TETRACHLOROETHANE	12 U	12 U	12 U
1,1,2-TRICHLOROETHANE	12 U	12 U	12 U
1,1-DICHLOROETHANE	12 U	12 U	12 U
1,1-DICHLOROETHENE	12 U	12 U	12 U
1,2-DICHLOROETHANE	12 U	12 U	12 U
1,2-DICHLOROETHENE (TOTAL)	12 U	12 U	12 U
1,2-DICHLOROPROPANE	12 U	12 U	12 U
2-BUTANONE	12 U	12 U	12 U
2-HEXANONE	12 U	12 U	12 U
4-METHYL-2-PENTANONE	12 U	12 U	12 U
ACETONE	12 U	20 J	29 J
BENZENE	12 U	12 U	12 U
BROMODICHLOROMETHANE	12 U	12 U	12 U
BROMOFORM	12 U	12 U	12 U
BROMOMETHANE	12 U	12 U	12 U
CARBON DISULFIDE	12 U	12 U	12 U
CARBON TETRACHLORIDE	12 U	12 U	12 U
CHLOROBENZENE	12 U	12 U	12 U
CHLOROETHANE	12 U	12 U	12 U
CHLOROFORM	12 U	12 U	12 U
CHLOROMETHANE	12 U	12 U	12 U
CIS-1,2-DICHLOROETHENE	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	12 U	12 U	12 U
DIBROMOCHLOROMETHANE	12 U	12 U	12 U
ETHYLBENZENE	12 U	12 U	12 U
METHYLENE CHLORIDE	12 U	12 U	12 U

FREQUENCY OF DETECTION SUMMARY
 SUBSURFACE SOIL - VOLATILE ORGANICS
 PHASE I - MOBILE LABORATORY
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 16 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-SB05-06	IR88-SB06-04	IR88-SB06-05
PHASE	PHASE II	PHASE II	PHASE II
DATE SAMPLED	05/06/97	05/06/97	05/06/97
DEPTH	11-13'	7-9'	9-11'
VOLATILES (ug/kg) (cont)			
STYRENE	12 U	12 U	12 U
TETRACHLOROETHENE	12 U	12 U	12 U
TOLUENE	12 U	12 U	12 U
TRANS-1,2-DICHLOROETHENE	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	12 U	12 U	12 U
TRICHLOROETHENE	12 U	12 U	12 U
VINYL CHLORIDE	12 U	12 U	12 U
XYLENE (TOTAL)	12 U	12 U	12 U

FREQUENCY OF DETECTION SUMMARY
SUBSURFACE SOIL - VOLATILE ORGANICS
PHASE I - MOBILE LABORATORY
PHASE II - FIXED BASE LABORATORY
FOCUSED REMEDIAL INVESTIGATION CTO-0356
OPERABLE UNIT NO. 16 (SITE 88)
MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID PHASE DATE SAMPLED DEPTH	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmetic Mean Positive Detects	Median Positive Detects
VOLATILES (ug/kg)								
1,1,1-TRICHLOROETHANE	0.1 U	17 U	ND	ND		0/39	--	--
1,1,2,2-TETRACHLOROETHANE	11 U	17 U	ND	ND		0/20	--	--
1,1,2-TRICHLOROETHANE	11 U	17 U	ND	ND		0/20	--	--
1,1-DICHLOROETHANE	11 U	17 U	ND	ND		0/20	--	--
1,1-DICHLOROETHENE	11 U	17 U	ND	ND		0/20	--	--
1,2-DICHLOROETHANE	11 U	17 U	ND	ND		0/20	--	--
1,2-DICHLOROETHENE (TOTAL)	11 U	17 U	12 J	240	IR88-SB04-05	2/20	126	126
1,2-DICHLOROPROPANE	11 U	17 U	ND	ND		0/20	--	--
2-BUTANONE	11 U	17 U	ND	ND		0/20	--	--
2-HEXANONE	11 U	17 U	ND	ND		0/20	--	--
4-METHYL-2-PENTANONE	11 U	17 U	ND	ND		0/20	--	--
ACETONE	11 U	160 UJ	12	120 J	IR88-MW061W-06	9/20	52.78	33
BENZENE	11 U	17 U	ND	ND		0/20	--	--
BROMODICHLOROMETHANE	11 U	17 U	ND	ND		0/20	--	--
BROMOFORM	11 U	17 U	ND	ND		0/20	--	--
BROMOMETHANE	11 U	17 U	ND	ND		0/20	--	--
CARBON DISULFIDE	11 U	17 U	7 J	7 J	IR88-MW05DW-06	1/20	7	7
CARBON TETRACHLORIDE	0.1 U	17 U	ND	ND		0/39	--	--
CHLOROENZENE	11 U	17 U	ND	ND		0/20	--	--
CHLOROETHANE	11 U	17 U	ND	ND		0/20	--	--
CHLOROFORM	0.1 U	17 U	0.1	0.1	IR88-TW15-04,IR88-TW14-03	2/39	0.1	0.1
CHLOROMETHANE	11 U	17 U	ND	ND		0/20	--	--
CIS-1,2-DICHLOROETHENE	1 U	1 U	21	21	IR88-TW15-04	1/19	21	21
CIS-1,3-DICHLOROPROPENE	11 U	17 U	ND	ND		0/20	--	--
DIBROMOCHLOROMETHANE	11 U	17 U	ND	ND		0/20	--	--
ETHYLBENZENE	11 U	17 U	ND	ND		0/20	--	--
METHYLENE CHLORIDE	11 U	17 U	ND	ND		0/20	--	--

FREQUENCY OF DETECTION SUMMARY
 SUBSURFACE SOIL - VOLATILE ORGANICS
 PHASE I - MOBILE LABORATORY
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 16 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	Minimum	Maximum	Minimum	Maximum	Location of	Frequency	Arithmetic Mean	Median
PHASE	Non-Detect	Non-Detect	Detected	Detected	Maximum Detect	of Detection	Positive Detects	Positive Detects
DATE SAMPLED								
DEPTH								
VOLATILES (ug/kg) (cont)								
STYRENE	11 U	17 U	ND	ND		0/20	--	--
TETRACHLOROETHENE	0.1 U	13 U	0.1	3500	IR88-MW05DW-06	22/39	199.32	5.5
TOLUENE	11 U	17 U	ND	ND		0/20	--	--
TRANS-1,2-DICHLOROETHENE	1 U	1 U	ND	ND		0/19	--	--
TRANS-1,3-DICHLOROPROPENE	11 U	17 U	ND	ND		0/20	--	--
TRICHLOROETHENE	0.1 U	17 U	0.1	380	IR88-SB04-05	11/39	38.95	3
VINYL CHLORIDE	11 U	100 U	ND	ND		0/39	--	--
XYLENE (TOTAL)	11 U	17 U	ND	ND		0/20	--	--

GROUNDWATER

**FREQUENCY OF DETECTION SUMMARY - PHASE I AND II,
MOBILE LABORATORY**

FREQUENCY OF DETECTION SUMMARY
GROUNDWATER - VOLATILE ORGANICS
PHASE I AND II MOBILE LABORATORY
FOCUSED REMEDIAL INVESTIGATION CTO-0356
OPERABLE UNIT NO. 15 (SITE 88)
MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-TW01-01	IR88-TW02-01	IR88-TW03-01	IR88-TW04-01	IR88-TW04IW-01	IR88-TW05-01	IR88-TW05IW-01
PHASE	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
DATE SAMPLED	8/1/96	8/1/96	8/1/96	8/1/96	8/16/96	8/16/96	8/18/96
VOLATILES (ug/l)							
1,1,1-TRICHLOROETHANE	0.1 U	0.1 U	0.2	0.2	0.1 U	0.1 U	0.1 U
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	0.1	0.1	1.4	5	6.7	11.9	5.4
CIS-1,2-DICHLOROETHENE	4	445	1184	63	21	3	89
ETHYL BENZENE	NA	NA	NA	NA	NA	NA	NA
FLUOROTRICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA
M&P-XYLENE	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA
O-XYLENE	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	157.2	649.1	14090	32839.4	21	1381.7	1142.7
TOLUENE	NA	NA	NA	NA	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	1 U	9	6	1	1 U	1 U	1
TRICHLOROETHENE	17.7	81.5	838.1	229.9	5.5	20.8	71.2
VINYL CHLORIDE	50 U	50 U	50 U	50 U	50 U	50 U	50 U

FREQUENCY OF DETECTION SUMMARY
 GROUNDWATER - VOLATILE ORGANICS
 PHASE I AND II MOBILE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-TW06-01	IR88-TW07-01	IR88-TW08-01	IR88-TW08IW-01	IR88-TW09-01	IR88-TW10-01	IR88-TW11-01
PHASE	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
DATE SAMPLED	8/17/96	8/17/96	8/17/96	8/18/96	8/17/96	8/17/96	8/17/96
VOLATILES (ug/l)							
1,1,1-TRICHLOROETHANE	0.1 U	0.1 U	0.5	0.1 U	0.1 U	0.1 U	0.1 U
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	1.8	0.5	0.7	8.3	0.5	0.1 U	0.1 U
CIS-1,2-DICHLOROETHENE	1 U	1 U	271	883	14	1 U	1 U
ETHYL BENZENE	NA	NA	NA	NA	NA	NA	NA
FLUOROTRICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA
M&P-XYLENE	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA
O-XYLENE	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	0.1 U	0.2	53703.8	1314.4	969.2	0.1	1.3
TOLUENE	NA	NA	NA	NA	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	1 U	1 U	2	11	1 U	1 U	1 U
TRICHLOROETHENE	0.1 U	0.1 U	341.2	822.7	70.8	0.2	0.2
VINYL CHLORIDE	50 U	50 U	50 U	50 U	50 U	50 U	50 U

FREQUENCY OF DETECTION SUMMARY
 GROUNDWATER - VOLATILE ORGANICS
 PHASE I AND II MOBILE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-TW12-01	IR88-TW13-01	IR88-TW14-01	IR88-TW15-01	IR88-TW16-01	IR88-TW17-01	IR88-TW18-01
PHASE	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
DATE SAMPLED	8/17/96	8/17/96	8/18/96	8/18/96	8/18/96	8/20/96	8/20/96
VOLATILES (ug/l)							
1,1,1-TRICHLOROETHANE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CIS-1,2-DICHLOROETHENE	1 U	1 U	1 U	3725	1 U	1 U	1 U
ETHYL BENZENE	NA	NA	NA	NA	NA	NA	NA
FLUOROTRICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA
M&P-XYLENE	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA
O-XYLENE	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	1.5	44.3	0.1	4931.8	0.2	0.2	0.1 U
TOLUENE	NA	NA	NA	NA	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	38	1 U	1 U	1 U
TRICHLOROETHENE	0.1 U	0.6	0.1 U	3030.9	0.1 U	0.1 U	0.1 U
VINYL CHLORIDE	50 U	50 U	50 U	50 U	50 U	50 U	50 U

FREQUENCY OF DETECTION SUMMARY
GROUNDWATER - VOLATILE ORGANICS
PHASE I AND II MOBILE LABORATORY
FOCUSED REMEDIAL INVESTIGATION CTO-0356
OPERABLE UNIT NO. 15 (SITE 88)
MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-TW19-01	IR88-TW19IW-01	IR88-TW20-01	IR88-TW20IW-01	IR88-TW21-01	IR88-TW21IW-01	IR88-TW22-01
PHASE	PHASE I	PHASE I	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	8/20/96	8/20/96	04/21/97	04/21/97	04/21/97	04/21/97	04/21/97
VOLATILES (ug/l)							
1,1,1-TRICHLOROETHANE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,1,2,2-TETRACHLOROETHANE	NA	NA	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	NA	NA	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	NA	NA	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHENE	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,2-DICHLOROBENZENE	NA	NA	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROETHANE	NA	NA	1 U	1 U	1 U	1 U	1 U
1,3-DICHLOROBENZENE	NA	NA	2 U	2 U	2 U	2 U	2 U
1,4-DICHLOROBENZENE	NA	NA	2 U	2 U	2 U	2 U	2 U
BENZENE	NA	NA	2 U	2 U	2 U	2 U	2 U
CARBON TETRACHLORIDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHLOROBENZENE	NA	NA	2 U	2 U	2 U	2 U	2 U
CHLOROFORM	0.1 U	3.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CIS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	126
ETHYL BENZENE	NA	NA	2 U	2 U	2 U	2 U	2 U
FLUOROTRICHLOROMETHANE	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
M&P-XYLENE	NA	NA	2 U	2 U	2 U	2 U	2 U
METHYLENE CHLORIDE	NA	NA	1 U	1 U	1 U	1 U	1 U
O-XYLENE	NA	NA	2 U	2 U	2 U	2 U	2 U
TETRACHLOROETHENE	0.1 U	0.1 U	0.1 U	0.3	0.1 U	0.1 U	54881.7
TOLUENE	NA	NA	2 U	2 U	2 U	2 U	2 U
TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	2
TRICHLOROETHENE	0.1 U	0.1 U	0.1 U	7.1	0.1 U	0.1 U	124.9
VINYL CHLORIDE	50 U	50 U	50 U	50 U	50 U	50 U	50 U

FREQUENCY OF DETECTION SUMMARY
 GROUNDWATER - VOLATILE ORGANICS
 PHASE I AND II MOBILE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-TW22IW-01	IR88-TW23-01	IR88-TW23IW-01	IR88-TW24-01	IR88-TW24IW-01	IR88-TW25-01	IR88-TW25IW-01
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	04/21/97	04/21/97	04/21/97	04/21/97	04/20/97	04/21/97	04/21/97
VOLATILES (ug/l)							
1,1,1-TRICHLOROETHANE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHENE	0.3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,2-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,4-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U
BENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CARBON TETRACHLORIDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROFORM	5.6	0.1 U	1.4	0.1 U	0.1 U	0.1 U	0.1 U
CIS-1,2-DICHLOROETHENE	81	1 U	1 U	1 U	1 U	1 U	1 U
ETHYL BENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U
FLUOROTRICHLOROMETHANE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
M&P-XYLENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U
METHYLENE CHLORIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
O-XYLENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TETRACHLOROETHENE	26592	0.1 U	15.8	0.1 U	0.1 U	0.1 U	0.3
TOLUENE	7	2 U	2 U	2 U	2 U	2 U	2 U
TRANS-1,2-DICHLOROETHENE	2	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROETHENE	13	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
VINYL CHLORIDE	50 U	50 U	50 U	50 U	50 U	50 U	50 U

FREQUENCY OF DETECTION SUMMARY
 GROUNDWATER - VOLATILE ORGANICS
 PHASE I AND II MOBILE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-TW26-01	IR88-TW26IW-01	IR88-TW27-01	IR88-TW27IW-01	IR88-TW28-01	IR88-TW28IW-01
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	04/21/97	04/21/97	04/30/97	04/30/97	04/30/97	04/30/97
VOLATILES (ug/l)						
1,1,1-TRICHLOROETHANE	0.1 U	0.1 U	0.1 U	0.1 U	0.3	0.1 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1.9
1,2-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U
1,3-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U
1,4-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U
BENZENE	2 U	2 U	2 U	2 U	2 U	2 U
CARBON TETRACHLORIDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROFORM	0.1 U	0.1 U	0.1 U	12.2	3.1	13.8
CIS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1
ETHYL BENZENE	2 U	2 U	2 U	2 U	2 U	2 U
FLUOROTRICHLOROMETHANE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
M&P-XYLENE	2 U	2 U	2 U	2 U	2 U	2 U
METHYLENE CHLORIDE	1 U	1 U	1 U	1 U	1 U	1 U
O-XYLENE	2 U	2 U	2 U	2 U	2 U	2 U
TETRACHLOROETHENE	0.1 U	0.1 U	0.1 U	0.4	0.1 U	0.3
TOLUENE	2 U	2 U	2 U	2 U	2 U	2 U
TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROETHENE	0.1 U	0.1 U	0.1 U	0.1 U	0.7	4.1
VINYL CHLORIDE	50 U	50 U	50 U	50 U	50 U	50 U

FREQUENCY OF DETECTION SUMMARY
GROUNDWATER - VOLATILE ORGANICS
PHASE I AND II MOBILE LABORATORY
FOCUSED REMEDIAL INVESTIGATION CTO-0356
OPERABLE UNIT NO. 15 (SITE 88)
MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID PHASE DATE SAMPLED	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmetic Mean Positive Detects	Median Positive Detects
VOLATILES (ug/l)								
1,1,1-TRICHLOROETHANE	0.1 U	0.1 U	0.2	0.5	IR88-TW08-01	4/41	0.3	0.25
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	ND	ND		0/18	--	--
1,1,2-TRICHLOROETHANE	1 U	1 U	ND	ND		0/18	--	--
1,1-DICHLOROETHANE	1 U	1 U	ND	ND		0/18	--	--
1,1-DICHLOROETHENE	0.1 U	0.1 U	0.3	1.9	IR88-TW281W-01	2/18	1.1	1.1
1,2-DICHLOROBENZENE	2 U	2 U	ND	ND		0/18	--	--
1,2-DICHLOROETHANE	1 U	1 U	ND	ND		0/18	--	--
1,3-DICHLOROBENZENE	2 U	2 U	ND	ND		0/18	--	--
1,4-DICHLOROBENZENE	2 U	2 U	ND	ND		0/18	--	--
BENZENE	2 U	2 U	ND	ND		0/18	--	--
CARBON TETRACHLORIDE	0.1 U	0.1 U	ND	ND		0/41	--	--
CHLOROBENZENE	2 U	2 U	ND	ND		0/18	--	--
CHLOROFORM	0.1 U	0.1 U	0.1	13.8	IR88-TW281W-01	18/41	4.53	3.1
CIS-1,2-DICHLOROETHENE	1 U	1 U	1	3725	IR88-TW15-01	14/41	493.57	85
ETHYL BENZENE	2 U	2 U	ND	ND		0/18	--	--
FLUOROTRICHLOROMETHANE	0.1 U	0.1 U	ND	ND		0/18	--	--
M&P-XYLENE	2 U	2 U	ND	ND		0/18	--	--
METHYLENE CHLORIDE	1 U	1 U	ND	ND		0/18	--	--
O-XYLENE	2 U	2 U	ND	ND		0/18	--	--
TETRACHLOROETHENE	0.1 U	0.1 U	0.1	54881.7	IR88-TW22-01	26/41	7413.04	32.65
TOLUENE	2 U	2 U	7	7	IR88-TW221W-01	1/18	7	7
TRANS-1,2-DICHLOROETHENE	1 U	1 U	1	38	IR88-TW15-01	9/41	8	2
TRICHLOROETHENE	0.1 U	0.1 U	0.2	3030.9	IR88-TW15-01	19/41	299.01	20.8
VINYL CHLORIDE	50 U	50 U	ND	ND		0/41	--	--

**FREQUENCY OF DETECTION SUMMARY - PHASE I AND II,
MOBILE AND FIXED-BASE LABORATORY**

FREQUENCY OF DETECTION SUMMARY
GROUNDWATER - VOLATILE ORGANICS
PHASE I AND II MOBILE LABORATORY AND
PHASE II - FIXED BASE LABORATORY
FOCUSED REMEDIAL INVESTIGATION CTO-0356
OPERABLE UNIT NO. 15 (SITE 88)
MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-TW01-01	IR88-TW02-01	IR88-TW03-01	IR88-TW04-01	IR88-TW04IW-01	IR88-TW05-01	IR88-TW05IW-01
PHASE	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
DATE SAMPLED	8/1/96	8/1/96	8/1/96	8/1/96	8/16/96	8/16/96	8/18/96
VOLATILES (ug/l)							
1,1,1-TRICHLOROETHANE	0.1 U	0.1 U	0.2	0.2	0.1 U	0.1 U	0.1 U
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA
BROMOFORM	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
CHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	0.1	0.1	1.4	5	6.7	11.9	5.4
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	4	445	1184	63	21	3	89
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA

FREQUENCY OF DETECTION SUMMARY
 GROUNDWATER - VOLATILE ORGANICS
 PHASE I AND II MOBILE LABORATORY AND
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-TW06-01	IR88-TW07-01	IR88-TW08-01	IR88-TW081W-01	IR88-TW09-01	IR88-TW10-01	IR88-TW11-01
PHASE	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
DATE SAMPLED	8/17/96	8/17/96	8/17/96	8/18/96	8/17/96	8/17/96	8/17/96
VOLATILES (ug/l)							
1,1,1-TRICHLOROETHANE	0.1 U	0.1 U	0.5	0.1 U	0.1 U	0.1 U	0.1 U
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA
BROMOFORM	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
CHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	1.8	0.5	0.7	8.3	0.5	0.1 U	0.1 U
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	1 U	1 U	271	883	14	1 U	1 U
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA

FREQUENCY OF DETECTION SUMMARY
 GROUNDWATER - VOLATILE ORGANICS
 PHASE I AND II MOBILE LABORATORY AND
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-TW12-01	IR88-TW13-01	IR88-TW14-01	IR88-TW15-01	IR88-TW16-01	IR88-TW17-01	IR88-TW18-01
PHASE	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I	PHASE I
DATE SAMPLED	8/17/96	8/17/96	8/18/96	8/18/96	8/18/96	8/20/96	8/20/96
VOLATILES (ug/l)							
1,1,1-TRICHLOROETHANE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA
BROMOFORM	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
CHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	1 U	1 U	1 U	3725	1 U	1 U	1 U
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA

FREQUENCY OF DETECTION SUMMARY
 GROUNDWATER - VOLATILE ORGANICS
 PHASE I AND II MOBILE LABORATORY AND
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-TW19-01	IR88-TW19IW-01	IR88-TW20-01	IR88-TW20IW-01	IR88-TW21-01	IR88-TW21IW-01	IR88-TW22-01
PHASE	PHASE I	PHASE I	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	8/20/96	8/20/96	04/21/97	04/21/97	04/21/97	04/21/97	04/21/97
VOLATILES (ug/l)							
1,1,1-TRICHLOROETHANE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,1,2,2-TETRACHLOROETHANE	NA	NA	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	NA	NA	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	NA	NA	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHENE	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,2-DICHLOROBENZENE	NA	NA	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROETHANE	NA	NA	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	2 U	2 U	2 U	2 U	2 U
1,4-DICHLOROBENZENE	NA	NA	2 U	2 U	2 U	2 U	2 U
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	2 U	2 U	2 U	2 U	2 U
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA
BROMOFORM	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHLOROBENZENE	NA	NA	2 U	2 U	2 U	2 U	2 U
CHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	0.1 U	3.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	126
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA

FREQUENCY OF DETECTION SUMMARY
 GROUNDWATER - VOLATILE ORGANICS
 PHASE I AND II MOBILE LABORATORY AND
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-TW22IW-01	IR88-TW23-01	IR88-TW23IW-01	IR88-TW24-01	IR88-TW24IW-01	IR88-TW25-01
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	04/21/97	04/21/97	04/21/97	04/21/97	04/20/97	04/21/97
VOLATILES (ug/l)						
1,1,1-TRICHLOROETHANE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHENE	0.3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,2-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U
1,4-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U
2-BUTANONE	NA	NA	NA	NA	NA	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA
BENZENE	2 U	2 U	2 U	2 U	2 U	2 U
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA
BROMOFORM	NA	NA	NA	NA	NA	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROETHANE	NA	NA	NA	NA	NA	NA
CHLOROFORM	5.6	0.1 U	1.4	0.1 U	0.1 U	0.1 U
CHLOROMETHANE	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	81	1 U	1 U	1 U	1 U	1 U
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA

FREQUENCY OF DETECTION SUMMARY
GROUNDWATER - VOLATILE ORGANICS
PHASE I AND II MOBILE LABORATORY AND
PHASE II - FIXED BASE LABORATORY
FOCUSED REMEDIAL INVESTIGATION CTO-0356
OPERABLE UNIT NO. 15 (SITE 88)
MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-TW25IW-01	IR88-TW26-01	IR88-TW26IW-01	IR88-TW27-01	IR88-TW27IW-01	IR88-TW28-01
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	04/21/97	04/21/97	04/21/97	04/30/97	04/30/97	04/30/97
VOLATILES (ug/l)						
1,1,1-TRICHLOROETHANE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.3
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHENE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,2-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U
1,4-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U
2-BUTANONE	NA	NA	NA	NA	NA	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA
BENZENE	2 U	2 U	2 U	2 U	2 U	2 U
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA
BROMOFORM	NA	NA	NA	NA	NA	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROETHANE	NA	NA	NA	NA	NA	NA
CHLOROFORM	0.1 U	0.1 U	0.1 U	0.1 U	12.2	3.1
CHLOROMETILANE	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA

FREQUENCY OF DETECTION SUMMARY
GROUNDWATER - VOLATILE ORGANICS
PHASE I AND II MOBILE LABORATORY AND
PHASE II - FIXED BASE LABORATORY
FOCUSED REMEDIAL INVESTIGATION CTO-0356
OPERABLE UNIT NO. 15 (SITE 88)
MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-TW28IW-01	IR88-MW01-01	IR88-MW02-01	IR88-MW02DW-01	IR88-MW02IW-01	IR88-MW03-01
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	04/30/97	05/15/97	05/15/97	05/15/97	05/15/97	05/14/97
VOLATILES (ug/l)						
1,1,1-TRICHLOROETHANE	0.1 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	1 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHANE	1 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHENE	1.9	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	2 U	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	1 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	NA	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROPROPANE	NA	10 U	10 U	10 U	10 U	10 U
1,3-DICHLOROBENZENE	2 U	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	2 U	NA	NA	NA	NA	NA
2-BUTANONE	NA	10 U	10 U	10 U	10 U	10 U
2-HEXANONE	NA	10 U	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	NA	10 U	10 U	10 U	10 U	10 U
ACETONE	NA	10 U	10 U	10 U	10 U	10 U
BENZENE	2 U	10 U	10 U	10 U	10 U	10 U
BROMODICHLOROMETHANE	NA	10 U	10 U	10 U	10 U	10 U
BROMOFORM	NA	10 U	10 U	10 U	10 U	10 U
BROMOMETHANE	NA	10 U	10 U	10 U	10 U	10 U
CARBON DISULFIDE	NA	10 U	10 U	10 UJ	10 U	10 UJ
CARBON TETRACHLORIDE	0.1 U	10 U	10 U	10 U	10 U	10 U
CHLOROBENZENE	2 U	10 U	10 U	10 U	10 U	10 U
CHLOROETHANE	NA	10 U	10 U	10 U	10 U	10 U
CHLOROFORM	13.8	10 U	8 J	10 U	10 U	10 U
CHLOROMETHANE	NA	10 U	10 U	10 U	10 U	10 U
CIS-1,2-DICHLOROETHENE	1	NA	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	NA	10 U	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	NA	10 U	10 U	10 U	10 U	10 U

FREQUENCY OF DETECTION SUMMARY
 GROUNDWATER - VOLATILE ORGANICS
 PHASE I AND II MOBILE LABORATORY AND
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-MW03DW-01	IR88-MW03IW-01	IR88-MW04-01	IR88-MW04DW-01	IR88-MW04IW-01	IR88-MW05-01
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	05/14/97	05/14/97	05/14/97	05/14/97	05/14/97	05/13/97
VOLATILES (ug/l)						
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U	10 U	10 U	10 U	10 U
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA
2-BUTANONE	10 U	10 U	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	10 U	10 U	10 U	10 U	10 U	10 U
BENZENE	10 U	10 U	10 U	10 U	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U
BROMOFORM	10 U	10 U	10 U	10 U	10 U	10 U
BROMOMETHANE	10 U	10 U	10 U	10 U	10 U	10 U
CARBON DISULFIDE	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U
CARBON TETRACHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROFORM	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U

FREQUENCY OF DETECTION SUMMARY
 GROUNDWATER - VOLATILE ORGANICS
 PHASE I AND II MOBILE LABORATORY AND
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-MW05DW-01	IR88-MW05IW-01	IR88-MW06-01	IR88-MW06IW-01	IR88-MW07-01	IR88-MW07IW-01
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	05/13/97	05/13/97	05/15/97	05/15/97	05/18/97	05/18/97
VOLATILES (ug/l)						
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHENE	10 U	5 J	10 U	10 U	10 U	7 J
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U	10 U	10 U	10 U	10 U
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA
2-BUTANONE	10 U	10 U	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	10 U	10 U	10 U	10 U	10 U	10 U
BENZENE	10 U	10 U	10 U	10 U	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U
BROMOFORM	10 U	10 U	10 U	10 U	10 U	10 U
BROMOMETHANE	10 U	10 U	10 U	10 U	10 U	10 U
CARBON DISULFIDE	10 U	10 U	10 U	10 U	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROFORM	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U

FREQUENCY OF DETECTION SUMMARY
 GROUNDWATER - VOLATILE ORGANICS
 PHASE I AND II MOBILE LABORATORY AND
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-MW08-01	IR88-MW08IW-01	IR88-MW09-01	IR88-MW09IW-01
PHASE	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	05/16/97	05/16/97	05/16/97	05/16/97
VOLATILES (ug/l)				
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	NA	NA	NA	NA
1,2-DICHLOROETHANE	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U	10 U	10 U
1,3-DICHLOROBENZENE	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA
2-BUTANONE	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U
ACETONE	10 U	10 U	10 U	10 U
BENZENE	10 U	10 U	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U	10 U	10 U
BROMOFORM	10 U	10 U	10 U	10 U
BROMOMETHANE	10 U	10 U	10 U	10 U
CARBON DISULFIDE	10 U	10 U	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U	10 U	10 U
CHLOROBENZENE	10 U	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	10 U	10 U
CHLOROFORM	10 U	10 U	10 U	10 U
CHLOROMETHANE	10 U	10 U	10 U	10 U
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U	10 U	10 U

FREQUENCY OF DETECTION SUMMARY
GROUNDWATER - VOLATILE ORGANICS
PHASE I AND II MOBILE LABORATORY AND
PHASE II - FIXED BASE LABORATORY
FOCUSED REMEDIAL INVESTIGATION CTO-0356
OPERABLE UNIT NO. 15 (SITE 88)
MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID PHASE DATE SAMPLED	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection	Arithmetic Mean Positive Detects	Median Positive Detects
VOLATILES (ug/l)								
1,1,1-TRICHLOROETHANE	0.1 U	10 U	0.2	0.5	IR88-TW08-01	4/62	0.3	0.25
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	ND	ND		0/39	--	--
1,1,2-TRICHLOROETHANE	1 U	10 U	ND	ND		0/39	--	--
1,1-DICHLOROETHANE	1 U	10 U	ND	ND		0/39	--	--
1,1-DICHLOROETHENE	0.1 U	10 U	0.3	7 J	IR88-MW07IW-01	4/39	3.55	3.45
1,2-DICHLOROBENZENE	2 U	2 U	ND	ND		0/18	--	--
1,2-DICHLOROETHANE	1 U	10 U	ND	ND		0/39	--	--
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	ND	ND		0/21	--	--
1,2-DICHLOROPROPANE	10 U	10 U	ND	ND		0/21	--	--
1,3-DICHLOROBENZENE	2 U	2 U	ND	ND		0/18	--	--
1,4-DICHLOROBENZENE	2 U	2 U	ND	ND		0/18	--	--
2-BUTANONE	10 U	10 U	ND	ND		0/21	--	--
2-HEXANONE	10 U	10 U	ND	ND		0/21	--	--
4-METHYL-2-PENTANONE	10 U	10 U	ND	ND		0/21	--	--
ACETONE	10 U	10 U	ND	ND		0/21	--	--
BENZENE	2 U	10 U	ND	ND		0/39	--	--
BROMODICHLOROMETHANE	10 U	10 U	ND	ND		0/21	--	--
BROMOFORM	10 U	10 U	ND	ND		0/21	--	--
BROMOMETHANE	10 U	10 U	ND	ND		0/21	--	--
CARBON DISULFIDE	10 U	10 U	ND	ND		0/21	--	--
CARBON TETRACHLORIDE	0.1 U	10 U	ND	ND		0/62	--	--
CHLOROETHANE	10 U	10 U	ND	ND		0/21	--	--
CHLOROFORM	0.1 U	10 U	0.1	13.8	IR88-TW28IW-01	19/62	4.72	3.1
CHLOROMETHANE	10 U	10 U	ND	ND		0/21	--	--
CIS-1,2-DICHLOROETHENE	1 U	1 U	1	3725	IR88-TW15-01	14/41	493.57	85
CIS-1,3-DICHLOROPROPENE	10 U	10 U	ND	ND		0/21	--	--
DIBROMOCHLOROMETHANE	10 U	10 U	ND	ND		0/21	--	--

APPENDIX I
FIELD DUPLICATE SUMMARIES

FIELD DUPLICATE SUMMARY
 SUBSURFACE SOIL - VOLATILE ORGANICS
 PHASE I I - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 16 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-MW06IW-06D	IR88-SB02-04D
PHASE	PHASE II	PHASE II
DATE SAMPLED	05/04/97	05/07/97
DEPTH	11-13'	7-9'
VOLATILES (ug/kg)		
1,1,1-TRICHLOROETHANE	12 U	12 U
1,1,2,2-TETRACHLOROETHANE	12 U	12 U
1,1,2-TRICHLOROETHANE	12 U	12 U
1,1-DICHLOROETHANE	12 U	12 U
1,1-DICHLOROETHENE	12 U	12 U
1,2-DICHLOROETHANE	12 U	12 U
1,2-DICHLOROETHENE (TOTAL)	12 U	12 U
1,2-DICHLOROPROPANE	12 U	12 U
2-BUTANONE	12 U	12 U
2-HEXANONE	12 U	12 U
4-METHYL-2-PENTANONE	12 U	12 U
ACETONE	46 J	53
BENZENE	12 U	12 U
BROMODICHLOROMETHANE	12 U	12 U
BROMOFORM	12 U	12 U
BROMOMETHANE	12 U	12 U
CARBON DISULFIDE	12 U	12 U
CARBON TETRACHLORIDE	12 U	12 U
CHLOROBENZENE	12 U	12 U
CHLOROETHANE	12 U	12 U
CHLOROFORM	12 U	12 U
CHLOROMETHANE	12 U	12 U
CIS-1,3-DICHLOROPROPENE	12 U	12 U
DIBROMOCHLOROMETHANE	12 U	12 U
ETHYLBENZENE	12 U	12 U
METHYLENE CHLORIDE	12 U	12 U
STYRENE	12 U	12 U
TETRACHLOROETHENE	12 U	12 U
TOLUENE	12 U	12 U

FIELD DUPLICATE SUMMARY
SUBSURFACE SOIL - VOLATILE ORGANICS
PHASE I I - FIXED BASE LABORATORY
FOCUSED REMEDIAL INVESTIGATION CTO-0356
OPERABLE UNIT NO. 16 (SITE 88)
MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-MW061W-06D	IR88-SB02-04D
PHASE	PHASE II	PHASE II
DATE SAMPLED	05/04/97	05/07/97
DEPTH	11-13'	7-9'
VOLATILES (ug/kg) (cont)		
TRANS-1,3-DICHLOROPROPENE	12 U	12 U
TRICHLOROETHENE	12 U	12 U
VINYL CHLORIDE	12 U	12 U
XYLENE (TOTAL)	12 U	12 U

FIELD DUPLICATE SUMMARY
GROUNDWATER - VOLATILE ORGANICS
PHASE II - FIXED BASE LABORATORY
FOCUSED REMEDIAL INVESTIGATION CTO-0356
OPERABLE UNIT NO. 15 (SITE 88)
MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-MW02IW-01D	IR88-MW06IW-01D	IR88-MW09-01D
PHASE	PHASE II	PHASE II	PHASE II
DATE SAMPLED	05/15/97	05/15/97	05/16/97
VOLATILES (ug/l)			
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U	10 U
2-BUTANONE	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U
ACETONE	10 U	10 U	10 U
BENZENE	10 U	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U	10 U
BROMOFORM	10 U	10 U	10 U
BROMOMETHANE	10 U	10 U	10 U
CARBON DISULFIDE	10 U	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U	10 U
CHLORO BENZENE	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	10 U
CHLOROFORM	10 U	10 U	10 U
CHLOROMETHANE	10 U	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U	10 U
ETHYL BENZENE	10 U	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U	10 U
STYRENE	10 U	10 U	10 U
TETRACHLOROETHENE	3200	10 U	10 U

FIELD DUPLICATE SUMMARY
GROUNDWATER - VOLATILE ORGANICS
PHASE II - FIXED BASE LABORATORY
FOCUSED REMEDIAL INVESTIGATION CTO-0356
OPERABLE UNIT NO. 15 (SITE 88)
MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-MW02IW-01D	IR88-MW06IW-01D	IR88-MW09-01D
PHASE	PHASE II	PHASE II	PHASE II
DATE SAMPLED	05/15/97	05/15/97	05/16/97
VOLATILES (ug/l) (cont)			
TOLUENE	10 U	10 U	10 U
TRANS-1,2-DICHLOROETHENE	12 J	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	10 U
TRICHLOROETHENE	120 J	10 U	10 U
VINYL CHLORIDE	10 U	10 U	10 U
XYLENE (TOTAL)	10 U	10 U	10 U

APPENDIX J
QUALITY ASSURANCE/QUALITY CONTROL SUMMARIES

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
GROUNDWATER - TCL ORGANICS
PHASE II - FIXED BASE LABORATORY
FOCUSED REMEDIAL INVESTIGATION CTO-0356
OPERABLE UNIT NO. 15 (SITE 88)
MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-FB01	IR88-FB02	IR88-FB03	IR88-RBGW17	IR88-RBGW18	TB10	TB11	TB12	TB13
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	04/23/97	05/07/97	05/07/97	05/16/97	05/16/97	05/13/97	05/14/97	05/15/97	05/18/97
SEMIVOLATILES (ug/l)									
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	25 U	25 U	25 U	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	25 U	25 U	25 U	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
2-NITROANILINE	25 U	25 U	25 U	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
3-NITROANILINE	25 UJ	25 U	25 U	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	25 U	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	10 UJ	10 U	10 U	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
4-NITROANILINE	25 U	25 U	25 U	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	25 U	25 U	25 U	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
ANTHRACENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
BENZ FLUORANTHENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
GROUNDWATER - TCL ORGANICS
PHASE II - FIXED BASE LABORATORY
FOCUSED REMEDIAL INVESTIGATION CTO-0356
OPERABLE UNIT NO. 15 (SITE 88)
MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-FB01	IR88-FB02	IR88-FB03	IR88-RBGW17	IR88-RBGW18	TB10	TB11	TB12	TB13
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	04/23/97	05/07/97	05/07/97	05/16/97	05/16/97	05/13/97	05/14/97	05/15/97	05/18/97
SEMIVOLATILES (ug/l) (cont)									
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	4 J	18 U	34 U	NA	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
CARBAZOLE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
CHRYSENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
DI-N-OCTYLPHTHALATE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
FLUORANTHENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
FLUORENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
ISOPHORONE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
NAPHTHALENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
NITROBENZENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	25 U	25 U	25 U	NA	NA	NA	NA	NA	NA
PHENANTHRENE	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
PHENOL	10 U	10 U	10 U	NA	NA	NA	NA	NA	NA
PYRENE	10 U	1 J	10 U	NA	NA	NA	NA	NA	NA

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
GROUNDWATER - TCL ORGANICS
PHASE II - FIXED BASE LABORATORY
FOCUSED REMEDIAL INVESTIGATION CTO-0356
OPERABLE UNIT NO. 15 (SITE 88)
MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-FB01	IR88-FB02	IR88-FB03	IR88-RBGW17	IR88-RBGW18	TB10	TB11	TB12	TB13
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	04/23/97	05/07/97	05/07/97	05/16/97	05/16/97	05/13/97	05/14/97	05/15/97	05/18/97
PESTICIDES/PCBS (ug/l)									
4,4'-DDD	0.1 UJ	0.1 U	0.1 UJ	NA	NA	NA	NA	NA	NA
4,4'-DDE	0.1 UJ	0.1 U	0.1 UJ	NA	NA	NA	NA	NA	NA
4,4'-DDT	0.1 UJ	0.1 U	0.1 UJ	NA	NA	NA	NA	NA	NA
ALDRIN	0.05 UJ	0.05 U	0.05 UJ	NA	NA	NA	NA	NA	NA
ALPHA-BHC	0.05 UJ	0.05 U	0.05 UJ	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	0.05 UJ	0.05 U	0.05 UJ	NA	NA	NA	NA	NA	NA
BETA-BHC	0.05 UJ	0.05 U	0.05 UJ	NA	NA	NA	NA	NA	NA
DELTA-BHC	0.05 UJ	0.05 U	0.05 UJ	NA	NA	NA	NA	NA	NA
DIELDRIN	0.1 UJ	0.1 U	0.1 UJ	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	0.05 UJ	0.05 U	0.05 UJ	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	0.1 UJ	0.1 U	0.1 UJ	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	0.1 UJ	0.1 U	0.1 UJ	NA	NA	NA	NA	NA	NA
ENDRIN	0.1 UJ	0.1 U	0.1 UJ	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	0.1 UJ	0.1 U	0.1 UJ	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	0.1 UJ	0.1 U	0.1 UJ	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	0.05 UJ	0.05 U	0.05 UJ	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	0.05 UJ	0.05 U	0.05 UJ	NA	NA	NA	NA	NA	NA
HEPTACHLOR	0.05 UJ	0.05 U	0.05 UJ	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	0.05 UJ	0.05 U	0.05 UJ	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	0.5 UJ	0.5 UJ	0.5 UJ	NA	NA	NA	NA	NA	NA
TOXAPHENE	5 UJ	5 U	5 UJ	NA	NA	NA	NA	NA	NA
AROCLOR-1016	1 UJ	1 U	1 UJ	NA	NA	NA	NA	NA	NA
AROCLOR-1221	2 UJ	2 U	2 UJ	NA	NA	NA	NA	NA	NA
AROCLOR-1232	1 UJ	1 U	1 UJ	NA	NA	NA	NA	NA	NA
AROCLOR-1242	1 UJ	1 U	1 UJ	NA	NA	NA	NA	NA	NA
AROCLOR-1248	1 UJ	1 U	1 UJ	NA	NA	NA	NA	NA	NA
AROCLOR-1254	1 UJ	1 U	1 UJ	NA	NA	NA	NA	NA	NA
AROCLOR-1260	1 UJ	1 U	1 UJ	NA	NA	NA	NA	NA	NA

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
GROUNDWATER - TCL ORGANICS
PHASE II - FIXED BASE LABORATORY
FOCUSED REMEDIAL INVESTIGATION CTO-0356
OPERABLE UNIT NO. 15 (SITE 88)
MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID PHASE DATE SAMPLED	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection
VOLATILES (ug/l)						
1,1,1-TRICHLOROETHANE	10 U	10 U	ND	ND		0/9
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	ND	ND		0/9
1,1,2-TRICHLOROETHANE	10 U	10 U	ND	ND		0/9
1,1-DICHLOROETHANE	10 U	10 U	ND	ND		0/9
1,1-DICHLOROETHENE	10 U	10 U	ND	ND		0/9
1,2-DICHLOROETHANE	10 U	10 U	ND	ND		0/9
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	ND	ND		0/9
1,2-DICHLOROPROPANE	10 U	10 U	ND	ND		0/9
2-BUTANONE	10 U	10 U	ND	ND		0/9
2-HEXANONE	10 U	10 U	ND	ND		0/9
4-METHYL-2-PENTANONE	10 U	10 U	ND	ND		0/9
ACETONE	10 U	10 U	ND	ND		0/9
BENZENE	10 U	10 U	ND	ND		0/9
BROMODICHLOROMETHANE	10 U	10 U	7 J	7 J	IR88-FB01	1/9
BROMOFORM	10 U	10 U	ND	ND		0/9
BROMOMETHANE	10 U	10 U	ND	ND		0/9
CARBON DISULFIDE	10 U	10 U	ND	ND		0/9
CARBON TETRACHLORIDE	10 U	10 U	ND	ND		0/9
CHLOROENZENE	10 U	10 U	ND	ND		0/9
CHLOROETHANE	10 U	10 U	ND	ND		0/9
CHLOROFORM	10 U	10 U	21	21	IR88-FB01	1/9
CHLOROMETHANE	10 U	10 U	ND	ND		0/9
CIS-1,3-DICHLOROPROPENE	10 U	10 U	ND	ND		0/9
DIBROMOCHLOROMETHANE	10 U	10 U	ND	ND		0/9
ETHYLBENZENE	10 U	10 U	ND	ND		0/9
METHYLENE CHLORIDE	10 U	10 U	ND	ND		0/9
STYRENE	10 U	10 U	ND	ND		0/9
TETRACHLOROETHENE	10 U	10 U	31 J	31 J	IR88-FB01	1/9
TOLUENE	10 U	10 U	ND	ND		0/9
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	ND	ND		0/9
TRICHLOROETHENE	10 U	10 U	ND	ND		0/9
VINYL CHLORIDE	10 U	10 U	ND	ND		0/9
XYLENE (TOTAL)	10 U	10 U	ND	ND		0/9

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
GROUNDWATER - TCL ORGANICS
PHASE II - FIXED BASE LABORATORY
FOCUSED REMEDIAL INVESTIGATION CTO-0356
OPERABLE UNIT NO. 15 (SITE 88)
MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID PHASE DATE SAMPLED	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection
SEMIVOLATILES (ug/l)						
1,2,4-TRICHLOROBENZENE	10 U	10 U	ND	ND		0/3
1,2-DICHLOROBENZENE	10 U	10 U	ND	ND		0/3
1,3-DICHLOROBENZENE	10 U	10 U	ND	ND		0/3
1,4-DICHLOROBENZENE	10 U	10 U	ND	ND		0/3
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	ND	ND		0/3
2,4,5-TRICHLOROPHENOL	25 U	25 U	ND	ND		0/3
2,4,6-TRICHLOROPHENOL	10 U	10 U	ND	ND		0/3
2,4-DICHLOROPHENOL	10 U	10 U	ND	ND		0/3
2,4-DIMETHYLPHENOL	10 U	10 U	ND	ND		0/3
2,4-DINITROPHENOL	25 U	25 U	ND	ND		0/3
2,4-DINITROTOLUENE	10 U	10 U	ND	ND		0/3
2,6-DINITROTOLUENE	10 U	10 U	ND	ND		0/3
2-CHLORONAPHTHALENE	10 U	10 U	ND	ND		0/3
2-CHLOROPHENOL	10 U	10 U	ND	ND		0/3
2-METHYLNAPHTHALENE	10 U	10 U	ND	ND		0/3
2-METHYLPHENOL	10 U	10 U	ND	ND		0/3
2-NITROANILINE	25 U	25 U	ND	ND		0/3
2-NITROPHENOL	10 U	10 U	ND	ND		0/3
3,3'-DICHLOROBENZIDINE	10 U	10 U	ND	ND		0/3
3-NITROANILINE	25 U	25 U	ND	ND		0/3
4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	ND	ND		0/3
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	ND	ND		0/3
4-CHLORO-3-METHYLPHENOL	10 U	10 U	ND	ND		0/3
4-CHLOROANILINE	10 U	10 U	ND	ND		0/3
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	ND	ND		0/3
4-METHYLPHENOL	10 U	10 U	ND	ND		0/3
4-NITROANILINE	25 U	25 U	ND	ND		0/3
4-NITROPHENOL	25 U	25 U	ND	ND		0/3
ACENAPHTHENE	10 U	10 U	ND	ND		0/3
ACENAPHTHYLENE	10 U	10 U	ND	ND		0/3
ANTHRACENE	10 U	10 U	ND	ND		0/3
BENZO(A)ANTHRACENE	10 U	10 U	ND	ND		0/3
BENZO(A)PYRENE	10 U	10 U	ND	ND		0/3
BENZ FLUORANTHENE	10 U	10 U	ND	ND		0/3

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
GROUNDWATER - TCL ORGANICS
PHASE II - FIXED BASE LABORATORY
FOCUSED REMEDIAL INVESTIGATION CTO-0356
OPERABLE UNIT NO. 15 (SITE 88)
MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID PHASE DATE SAMPLED	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection
SEMIVOLATILES (ug/l) (cont)						
BENZO(G,H,I)PERYLENE	10 U	10 U	ND	ND		0/3
BENZO(K)FLUORANTHENE	10 U	10 U	ND	ND		0/3
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	ND	ND		0/3
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	ND	ND		0/3
BIS(2-ETHYLHEXYL)PHTHALATE	18 U	34 U	4 J	4 J	IR88-FB01	1/3
BUTYLBENZYLPHTHALATE	10 U	10 U	ND	ND		0/3
CARBAZOLE	10 U	10 U	ND	ND		0/3
CHRYSENE	10 U	10 U	ND	ND		0/3
DIBENZO(A,H)ANTHRACENE	10 U	10 U	ND	ND		0/3
DIBENZOFURAN	10 U	10 U	ND	ND		0/3
DIETHYLPHTHALATE	10 U	10 U	ND	ND		0/3
DIMETHYLPHTHALATE	10 U	10 U	ND	ND		0/3
DI-N-BUTYLPHTHALATE	10 U	10 U	ND	ND		0/3
DI-N-OCTYLPHTHALATE	10 U	10 U	ND	ND		0/3
FLUORANTHENE	10 U	10 U	ND	ND		0/3
FLUORENE	10 U	10 U	ND	ND		0/3
HEXACHLOROBENZENE	10 U	10 U	ND	ND		0/3
HEXACHLOROBUTADIENE	10 U	10 U	ND	ND		0/3
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	ND	ND		0/3
HEXACHLOROETHANE	10 U	10 U	ND	ND		0/3
INDENO(1,2,3-CD)PYRENE	10 U	10 U	ND	ND		0/3
ISOPHORONE	10 U	10 U	ND	ND		0/3
NAPHTHALENE	10 U	10 U	ND	ND		0/3
NITROBENZENE	10 U	10 U	ND	ND		0/3
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	ND	ND		0/3
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	ND	ND		0/3
PENTACHLOROPHENOL	25 U	25 U	ND	ND		0/3
PHENANTHRENE	10 U	10 U	ND	ND		0/3
PHENOL	10 U	10 U	ND	ND		0/3
PYRENE	10 U	10 U	1 J	1 J	IR88-FB02	1/3

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
 GROUNDWATER - TCL ORGANICS
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID PHASE DATE SAMPLED	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection
PESTICIDES/PCBS (ug/l)						
4,4'-DDD	0.1 UJ	0.1 UJ	ND	ND		0/3
4,4'-DDE	0.1 UJ	0.1 UJ	ND	ND		0/3
4,4'-DDT	0.1 UJ	0.1 UJ	ND	ND		0/3
ALDRIN	0.05 UJ	0.05 UJ	ND	ND		0/3
ALPHA-BHC	0.05 UJ	0.05 UJ	ND	ND		0/3
ALPHA-CHLORDANE	0.05 UJ	0.05 UJ	ND	ND		0/3
BETA-BHC	0.05 UJ	0.05 UJ	ND	ND		0/3
DELTA-BHC	0.05 UJ	0.05 UJ	ND	ND		0/3
DIELDRIN	0.1 UJ	0.1 UJ	ND	ND		0/3
ENDOSULFAN I	0.05 UJ	0.05 UJ	ND	ND		0/3
ENDOSULFAN II	0.1 UJ	0.1 UJ	ND	ND		0/3
ENDOSULFAN SULFATE	0.1 UJ	0.1 UJ	ND	ND		0/3
ENDRIN	0.1 UJ	0.1 UJ	ND	ND		0/3
ENDRIN ALDEHYDE	0.1 UJ	0.1 UJ	ND	ND		0/3
ENDRIN KETONE	0.1 UJ	0.1 UJ	ND	ND		0/3
GAMMA-BHC (LINDANE)	0.05 UJ	0.05 UJ	ND	ND		0/3
GAMMA-CHLORDANE	0.05 UJ	0.05 UJ	ND	ND		0/3
HEPTACHLOR	0.05 UJ	0.05 UJ	ND	ND		0/3
HEPTACHLOR EPOXIDE	0.05 UJ	0.05 UJ	ND	ND		0/3
METHOXYCHLOR	0.5 UJ	0.5 UJ	ND	ND		0/3
TOXAPHENE	5 UJ	5 UJ	ND	ND		0/3
AROCLOR-1016	1 UJ	1 UJ	ND	ND		0/3
AROCLOR-1221	2 UJ	2 UJ	ND	ND		0/3
AROCLOR-1232	1 UJ	1 UJ	ND	ND		0/3
AROCLOR-1242	1 UJ	1 UJ	ND	ND		0/3
AROCLOR-1248	1 UJ	1 UJ	ND	ND		0/3
AROCLOR-1254	1 UJ	1 UJ	ND	ND		0/3
AROCLOR-1260	1 UJ	1 UJ	ND	ND		0/3

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
GROUNDWATER - TAL METALS
PHASE II - FIXED BASE LABORATORY
FOCUSED REMEDIAL INVESTIGATION CTO-0356
OPERABLE UNIT NO. 15 (SITE 88)
MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-FB01	IR88-FB02	IR88-FB03
PHASE	PHASE II	PHASE II	PHASE II
DATE SAMPLED	04/23/97	05/07/97	05/07/97
TOTAL METALS (ug/l)			
ALUMINUM, TOTAL	4150	48.6 U	59.7 U
ANTIMONY, TOTAL	1.6 U	1.6 U	1.6 U
ARSENIC, TOTAL	3.1	1.8 UJ	1.8 UJ
BARIUM, TOTAL	40.5	0.1 U	0.1 U
BERYLLIUM, TOTAL	0.17	0.1 U	0.1 U
CADMIUM, TOTAL	0.2 U	0.2 U	0.2 U
CALCIUM, TOTAL	91500	16.3 U	28.5 U
CHROMIUM, TOTAL	24.2	0.43 J	0.3 UJ
COBALT, TOTAL	0.98 J	0.3 U	0.3 U
COPPER, TOTAL	7.7 J	0.7 UJ	0.7 UJ
IRON, TOTAL	4020	6.4 U	6.4 U
LEAD, TOTAL	2	1.3 U	4.2 U
MAGNESIUM, TOTAL	4190	6.9 U	12.8
MANGANESE, TOTAL	74.3	0.4 U	0.4 U
MERCURY, TOTAL	0.2	0.1 U	0.1 U
NICKEL, TOTAL	9.9	0.7 U	0.7 U
POTASSIUM, TOTAL	3520	106 U	121 U
SELENIUM, TOTAL	1.9 UJ	2.2 U	2.2 U
SILVER, TOTAL	0.2 UJ	0.2 U	0.23
SODIUM, TOTAL	7810	131 UJ	131 UJ
THALLIUM, TOTAL	1.9 U	1.9 U	1.9 U
VANADIUM, TOTAL	5.9	0.5 U	0.53
ZINC, TOTAL	9.8	0.2 UJ	0.2 UJ

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
GROUNDWATER - TAL METALS
PHASE II - FIXED BASE LABORATORY
FOCUSED REMEDIAL INVESTIGATION CTO-0356
OPERABLE UNIT NO. 15 (SITE 88)
MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID PHASE DATE SAMPLED	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection
TOTAL METALS (ug/l)						
ALUMINUM, TOTAL	48.6 U	59.7 U	4150	4150	IR88-FB01	1/3
ANTIMONY, TOTAL	1.6 U	1.6 U	ND	ND		0/3
ARSENIC, TOTAL	1.8 UJ	1.8 UJ	3.1	3.1	IR88-FB01	1/3
BARIUM, TOTAL	0.1 U	0.1 U	40.5	40.5	IR88-FB01	1/3
BERYLLIUM, TOTAL	0.1 U	0.1 U	0.17	0.17	IR88-FB01	1/3
CADMIUM, TOTAL	0.2 U	0.2 U	ND	ND		0/3
CALCIUM, TOTAL	16.3 U	28.5 U	91500	91500	IR88-FB01	1/3
CHROMIUM, TOTAL	0.3 UJ	0.3 UJ	0.43 J	24.2	IR88-FB01	2/3
COBALT, TOTAL	0.3 U	0.3 U	0.98 J	0.98 J	IR88-FB01	1/3
COPPER, TOTAL	0.7 UJ	0.7 UJ	7.7 J	7.7 J	IR88-FB01	1/3
IRON, TOTAL	6.4 U	6.4 U	4020	4020	IR88-FB01	1/3
LEAD, TOTAL	1.3 U	4.2 U	2	2	IR88-FB01	1/3
MAGNESIUM, TOTAL	6.9 U	6.9 U	12.8	4190	IR88-FB01	2/3
MANGANESE, TOTAL	0.4 U	0.4 U	74.3	74.3	IR88-FB01	1/3
MERCURY, TOTAL	0.1 U	0.1 U	0.2	0.2	IR88-FB01	1/3
NICKEL, TOTAL	0.7 U	0.7 U	9.9	9.9	IR88-FB01	1/3
POTASSIUM, TOTAL	106 U	121 U	3520	3520	IR88-FB01	1/3
SELENIUM, TOTAL	1.9 UJ	2.2 U	ND	ND		0/3
SILVER, TOTAL	0.2 U	0.2 U	0.23	0.23	IR88-FB03	1/3
SODIUM, TOTAL	131 UJ	131 UJ	7810	7810	IR88-FB01	1/3
THALLIUM, TOTAL	1.9 U	1.9 U	ND	ND		0/3
VANADIUM, TOTAL	0.5 U	0.5 U	0.53	5.9	IR88-FB01	2/3
ZINC, TOTAL	0.2 UJ	0.2 UJ	9.8	9.8	IR88-FB01	1/3

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
 SUBSURFACE SOIL - TCL ORGANICS
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-FB01	IR88-FB02	IR88-FB03	IR88-RBSB-05	IR88-RBSB-06	IR88-RBSB07	IR88-RBSB11
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	04/23/97	05/07/97	05/07/97	04/21/97	04/22/97	04/30/97	05/04/97
VOLATILES (ug/l)							
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-BUTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMODICHLOROMETHANE	7 J	10 U	10 U	10 U	10 U	10 U	10 U
BROMOFORM	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMOMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBON DISULFIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROFORM	21	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ETHYLBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
STYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TETRACHLOROETHENE	31 J	10 U	10 U	10 U	10 U	10 U	10 U
TOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
VINYL CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
XYLENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
 SUBSURFACE SOIL - TCL ORGANICS
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-FB01	IR88-FB02	IR88-FB03	IR88-RBSB-05	IR88-RBSB-06	IR88-RBSB07	IR88-RBSB11
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	04/23/97	05/07/97	05/07/97	04/21/97	04/22/97	04/30/97	05/04/97
SEMIVOLATILES (ug/l)							
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	NA	NA
1,2-DICHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	NA	NA
1,3-DICHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	NA	NA
1,4-DICHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	10 U	10 U	NA	NA
2,4,5-TRICHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	NA	NA
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	NA	NA
2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	NA	NA
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	10 U	10 U	NA	NA
2,4-DINITROPHENOL	25 U	25 U	25 U	25 U	25 U	NA	NA
2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	NA	NA
2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	NA	NA
2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	10 U	NA	NA
2-CHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	NA	NA
2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 U	10 U	NA	NA
2-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	NA	NA
2-NITROANILINE	25 U	25 U	25 U	25 U	25 U	NA	NA
2-NITROPHENOL	10 U	10 U	10 U	10 U	10 U	NA	NA
3,3'-DICHLOROBENZIDINE	10 U	10 U	10 U	10 U	10 U	NA	NA
3-NITROANILINE	25 UJ	25 U	25 U	25 U	25 UJ	NA	NA
4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	25 U	25 U	25 U	NA	NA
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	NA	NA
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	NA	NA
4-CHLOROANILINE	10 UJ	10 U	10 U	10 U	10 UJ	NA	NA
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	NA	NA
4-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	NA	NA
4-NITROANILINE	25 U	25 U	25 U	25 U	25 U	NA	NA
4-NITROPHENOL	25 U	25 U	25 U	25 U	25 U	NA	NA
ACENAPHTHENE	10 U	10 U	10 U	10 U	10 U	NA	NA
ACENAPHTHYLENE	10 U	10 U	10 U	10 U	10 U	NA	NA
ANTHRACENE	10 U	10 U	10 U	10 U	10 U	NA	NA
BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	NA	NA
BENZO(A)PYRENE	10 U	10 U	10 U	10 U	10 U	NA	NA

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
 SUBSURFACE SOIL - TCL ORGANICS
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-FB01	IR88-FB02	IR88-FB03	IR88-RBSB-05	IR88-RBSB-06	IR88-RBSB07	IR88-RBSB11
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	04/23/97	05/07/97	05/07/97	04/21/97	04/22/97	04/30/97	05/04/97
SEMIVOLATILES (ug/l) (cont)							
BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	NA	NA
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 U	10 U	NA	NA
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	NA	NA
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	10 U	NA	NA
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U	10 U	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	4 J	18 U	34 U	4 J	1 J	NA	NA
BUTYLBENZYLPHthalATE	10 U	10 U	10 U	10 U	10 U	NA	NA
CARBAZOLE	10 U	10 U	10 U	10 U	10 U	NA	NA
CHRYSENE	10 U	10 U	10 U	10 U	10 U	NA	NA
DIBENZO(A,H)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	NA	NA
DIBENZOFURAN	10 U	10 U	10 U	10 U	10 U	NA	NA
DIETHYLPHthalATE	10 U	10 U	10 U	10 U	10 U	NA	NA
DIMETHYLPHthalATE	10 U	10 U	10 U	10 U	10 U	NA	NA
DI-N-BUTYLPHthalATE	10 U	10 U	10 U	10 U	10 U	NA	NA
DI-N-OCTYLPHthalATE	10 U	10 U	10 U	10 U	10 U	NA	NA
FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	NA	NA
FLUORENE	10 U	10 U	10 U	10 U	10 U	NA	NA
HEXACHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	NA	NA
HEXACHLOROBUTADIENE	10 U	10 U	10 U	10 U	10 U	NA	NA
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	10 U	10 U	10 U	NA	NA
HEXACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	NA	NA
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 U	10 U	NA	NA
ISOPHORONE	10 U	10 U	10 U	10 U	10 U	NA	NA
NAPHTHALENE	10 U	10 U	10 U	10 U	10 U	NA	NA
NITROBENZENE	10 U	10 U	10 U	10 U	10 U	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U	10 U	NA	NA
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	10 U	10 U	10 U	NA	NA
PENTACHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	NA	NA
PHENANTHRENE	10 U	10 U	10 U	10 U	10 U	NA	NA
PHENOL	10 U	10 U	10 U	10 U	10 U	NA	NA
PYRENE	10 U	1 J	10 U	10 U	10 U	NA	NA

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
 SUBSURFACE SOIL - TCL ORGANICS
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-FB01	IR88-FB02	IR88-FB03	IR88-RBSB-05	IR88-RBSB-06	IR88-RBSB07	IR88-RBSB11
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	04/23/97	05/07/97	05/07/97	04/21/97	04/22/97	04/30/97	05/04/97
PESTICIDES/PCBS (ug/l)							
4,4'-DDD	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 U	NA	NA
4,4'-DDE	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 U	NA	NA
4,4'-DDT	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 UJ	NA	NA
ALDRIN	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	NA	NA
ALPHA-BHC	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	NA	NA
ALPHA-CHLORDANE	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	NA	NA
BETA-BHC	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	NA	NA
DELTA-BHC	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	NA	NA
DIELDRIN	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 U	NA	NA
ENDOSULFAN I	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	NA	NA
ENDOSULFAN II	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 U	NA	NA
ENDOSULFAN SULFATE	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 U	NA	NA
ENDRIN	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 U	NA	NA
ENDRIN ALDEHYDE	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 U	NA	NA
ENDRIN KETONE	0.1 UJ	0.1 U	0.1 UJ	0.1 UJ	0.1 U	NA	NA
GAMMA-BHC (LINDANE)	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	NA	NA
GAMMA-CHLORDANE	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	NA	NA
HEPTACHLOR	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	NA	NA
HEPTACHLOR EPOXIDE	0.05 UJ	0.05 U	0.05 UJ	0.05 UJ	0.05 U	NA	NA
METHOXYCHLOR	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	NA	NA
TOXAPHENE	5 UJ	5 U	5 UJ	5 UJ	5 U	NA	NA
AROCLOR-1016	1 UJ	1 U	1 UJ	1 UJ	1 U	NA	NA
AROCLOR-1221	2 UJ	2 U	2 UJ	2 UJ	2 U	NA	NA
AROCLOR-1232	1 UJ	1 U	1 UJ	1 UJ	1 U	NA	NA
AROCLOR-1242	1 UJ	1 U	1 UJ	1 UJ	1 U	NA	NA
AROCLOR-1248	1 UJ	1 U	1 UJ	1 UJ	1 U	NA	NA
AROCLOR-1254	1 UJ	1 U	1 UJ	1 UJ	1 U	NA	NA
AROCLOR-1260	1 UJ	1 U	1 UJ	1 UJ	1 U	NA	NA

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
 SUBSURFACE SOIL - TCL ORGANICS
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-RBSB12	TB-01	TB-02	TB04	TB06	TB07	TB08
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	05/06/97	04/15/97	04/19/97	04/29/97	05/02/97	05/02/97	05/06/97
VOLATILES (ug/l)							
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-BUTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMOFORM	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BROMOMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBON DISULFIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROFORM	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ETHYLBENZENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
STYRENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TETRACHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TOLUENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
VINYL CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
XYLENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U	10 U

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
 SUBSURFACE SOIL - TCL ORGANICS
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-RBSB12	TB-01	TB-02	TB04	TB06	TB07	TB08
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	05/06/97	04/15/97	04/19/97	04/29/97	05/02/97	05/02/97	05/06/97
SEMIVOLATILES (ug/l)							
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
 SUBSURFACE SOIL - TCL ORGANICS
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-RBSB12	TB-01	TB-02	TB04	TB06	TB07	TB08
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	05/06/97	04/15/97	04/19/97	04/29/97	05/02/97	05/02/97	05/06/97
SEMIVOLATILES (ug/l) (cont)							
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
 SUBSURFACE SOIL - TCL ORGANICS
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-RBSB12	TB-01	TB-02	TB04	TB06	TB07	TB08
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	05/06/97	04/15/97	04/19/97	04/29/97	05/02/97	05/02/97	05/06/97
PESTICIDES/PCBS (ug/l)							
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
 SUBSURFACE SOIL - TCL ORGANICS
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID PHASE DATE SAMPLED	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection
VOLATILES (ug/l)						
1,1,1-TRICHLOROETHANE	10 U	10 U	ND	ND		0/14
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	ND	ND		0/14
1,1,2-TRICHLOROETHANE	10 U	10 U	ND	ND		0/14
1,1-DICHLOROETHANE	10 U	10 U	ND	ND		0/14
1,1-DICHLOROETHENE	10 U	10 U	ND	ND		0/14
1,2-DICHLOROETHANE	10 U	10 U	ND	ND		0/14
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	ND	ND		0/14
1,2-DICHLOROPROPANE	10 U	10 U	ND	ND		0/14
2-BUTANONE	10 U	10 U	ND	ND		0/14
2-HEXANONE	10 U	10 U	ND	ND		0/14
4-METHYL-2-PENTANONE	10 U	10 U	ND	ND		0/14
ACETONE	10 U	10 U	ND	ND		0/14
BENZENE	10 U	10 U	ND	ND		0/14
BROMODICHLOROMETHANE	10 U	10 U	7 J	7 J	IR88-FB01	1/14
BROMOFORM	10 U	10 U	ND	ND		0/14
BROMOMETHANE	10 U	10 U	ND	ND		0/14
CARBON DISULFIDE	10 U	10 U	ND	ND		0/14
CARBON TETRACHLORIDE	10 U	10 U	ND	ND		0/14
CHLOROBENZENE	10 U	10 U	ND	ND		0/14
CHLOROETHANE	10 U	10 U	ND	ND		0/14
CHLOROFORM	10 U	10 U	21	21	IR88-FB01	1/14
CHLOROMETHANE	10 U	10 U	ND	ND		0/14
CIS-1,3-DICHLOROPROPENE	10 U	10 U	ND	ND		0/14
DIBROMOCHLOROMETHANE	10 U	10 U	ND	ND		0/14
ETHYLBENZENE	10 U	10 U	ND	ND		0/14
METHYLENE CHLORIDE	10 U	10 U	ND	ND		0/14
STYRENE	10 U	10 U	ND	ND		0/14
TETRACHLOROETHENE	10 U	10 U	31 J	31 J	IR88-FB01	1/14
TOLUENE	10 U	10 U	ND	ND		0/14
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	ND	ND		0/14
TRICHLOROETHENE	10 U	10 U	ND	ND		0/14
VINYL CHLORIDE	10 U	10 U	ND	ND		0/14
XYLENE (TOTAL)	10 U	10 U	ND	ND		0/14

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
 SUBSURFACE SOIL - TCL ORGANICS
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID PHASE DATE SAMPLED	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection
SEMIVOLATILES (ug/l)						
1,2,4-TRICHLOROBENZENE	10 U	10 U	ND	ND		0/5
1,2-DICHLOROBENZENE	10 U	10 U	ND	ND		0/5
1,3-DICHLOROBENZENE	10 U	10 U	ND	ND		0/5
1,4-DICHLOROBENZENE	10 U	10 U	ND	ND		0/5
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	ND	ND		0/5
2,4,5-TRICHLOROPHENOL	25 U	25 U	ND	ND		0/5
2,4,6-TRICHLOROPHENOL	10 U	10 U	ND	ND		0/5
2,4-DICHLOROPHENOL	10 U	10 U	ND	ND		0/5
2,4-DIMETHYLPHENOL	10 U	10 U	ND	ND		0/5
2,4-DINITROPHENOL	25 U	25 U	ND	ND		0/5
2,4-DINITROTOLUENE	10 U	10 U	ND	ND		0/5
2,6-DINITROTOLUENE	10 U	10 U	ND	ND		0/5
2-CHLORONAPHTHALENE	10 U	10 U	ND	ND		0/5
2-CHLOROPHENOL	10 U	10 U	ND	ND		0/5
2-METHYLNAPHTHALENE	10 U	10 U	ND	ND		0/5
2-METHYLPHENOL	10 U	10 U	ND	ND		0/5
2-NITROANILINE	25 U	25 U	ND	ND		0/5
2-NITROPHENOL	10 U	10 U	ND	ND		0/5
3,3'-DICHLOROBENZIDINE	10 U	10 U	ND	ND		0/5
3-NITROANILINE	25 UJ	25 UJ	ND	ND		0/5
4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	ND	ND		0/5
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	ND	ND		0/5
4-CHLORO-3-METHYLPHENOL	10 U	10 U	ND	ND		0/5
4-CHLOROANILINE	10 UJ	10 UJ	ND	ND		0/5
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	ND	ND		0/5
4-METHYLPHENOL	10 U	10 U	ND	ND		0/5
4-NITROANILINE	25 U	25 U	ND	ND		0/5
4-NITROPHENOL	25 U	25 U	ND	ND		0/5
ACENAPHTHENE	10 U	10 U	ND	ND		0/5
ACENAPHTHYLENE	10 U	10 U	ND	ND		0/5
ANTHRACENE	10 U	10 U	ND	ND		0/5
BENZO(A)ANTHRACENE	10 U	10 U	ND	ND		0/5
BENZO(A)PYRENE	10 U	10 U	ND	ND		0/5

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
 SUBSURFACE SOIL - TCL ORGANICS
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID PHASE DATE SAMPLED	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection
SEMIVOLATILES (ug/l) (cont)						
BENZO(B)FLUORANTHENE	10 U	10 U	ND	ND		0/5
BENZO(G,H,I)PERYLENE	10 U	10 U	ND	ND		0/5
BENZO(K)FLUORANTHENE	10 U	10 U	ND	ND		0/5
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	ND	ND		0/5
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	ND	ND		0/5
BIS(2-ETHYLHEXYL)PHTHALATE	18 U	34 U	1 J	4 J	IR88-FB01,IR88-RBSB-05	3/5
BUTYLBENZYLPHthalATE	10 U	10 U	ND	ND		0/5
CARBAZOLE	10 U	10 U	ND	ND		0/5
CHRYSENE	10 U	10 U	ND	ND		0/5
DIBENZO(A,H)ANTHRACENE	10 U	10 U	ND	ND		0/5
DIBENZOFURAN	10 U	10 U	ND	ND		0/5
DIETHYLPHthalATE	10 U	10 U	ND	ND		0/5
DIMETHYLPHthalATE	10 U	10 U	ND	ND		0/5
DI-N-BUTYLPHthalATE	10 U	10 U	ND	ND		0/5
DI-N-OCTYLPHthalATE	10 U	10 U	ND	ND		0/5
FLUORANTHENE	10 U	10 U	ND	ND		0/5
FLUORENE	10 U	10 U	ND	ND		0/5
HEXACHLOROBENZENE	10 U	10 U	ND	ND		0/5
HEXACHLOROBUTADIENE	10 U	10 U	ND	ND		0/5
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	ND	ND		0/5
HEXACHLOROETHANE	10 U	10 U	ND	ND		0/5
INDENO(1,2,3-CD)PYRENE	10 U	10 U	ND	ND		0/5
ISOPHORONE	10 U	10 U	ND	ND		0/5
NAPHTHALENE	10 U	10 U	ND	ND		0/5
NITROBENZENE	10 U	10 U	ND	ND		0/5
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	ND	ND		0/5
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	ND	ND		0/5
PENTACHLOROPHENOL	25 U	25 U	ND	ND		0/5
PHENANTHRENE	10 U	10 U	ND	ND		0/5
PHENOL	10 U	10 U	ND	ND		0/5
PYRENE	10 U	10 U	1 J	1 J	IR88-FB02	1/5

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
 SUBSURFACE SOIL - TCL ORGANICS
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID PHASE DATE SAMPLED	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection
PESTICIDES/PCBS (ug/l)						
4,4'-DDD	0.1 U	0.1 U	ND	ND		0/5
4,4'-DDE	0.1 U	0.1 U	ND	ND		0/5
4,4'-DDT	0.1 UJ	0.1 UJ	ND	ND		0/5
ALDRIN	0.05 U	0.05 U	ND	ND		0/5
ALPHA-BHC	0.05 U	0.05 U	ND	ND		0/5
ALPHA-CHLORDANE	0.05 U	0.05 U	ND	ND		0/5
BETA-BHC	0.05 U	0.05 U	ND	ND		0/5
DELTA-BHC	0.05 U	0.05 U	ND	ND		0/5
DIELDRIN	0.1 U	0.1 U	ND	ND		0/5
ENDOSULFAN I	0.05 U	0.05 U	ND	ND		0/5
ENDOSULFAN II	0.1 U	0.1 U	ND	ND		0/5
ENDOSULFAN SULFATE	0.1 U	0.1 U	ND	ND		0/5
ENDRIN	0.1 U	0.1 U	ND	ND		0/5
ENDRIN ALDEHYDE	0.1 U	0.1 U	ND	ND		0/5
ENDRIN KETONE	0.1 U	0.1 U	ND	ND		0/5
GAMMA-BHC (LINDANE)	0.05 U	0.05 U	ND	ND		0/5
GAMMA-CHLORDANE	0.05 U	0.05 U	ND	ND		0/5
HEPTACHLOR	0.05 U	0.05 U	ND	ND		0/5
HEPTACHLOR EPOXIDE	0.05 U	0.05 U	ND	ND		0/5
METHOXYCHLOR	0.5 U	0.5 U	ND	ND		0/5
TOXAPHENE	5 U	5 U	ND	ND		0/5
AROCLOR-1016	1 U	1 U	ND	ND		0/5
AROCLOR-1221	2 U	2 U	ND	ND		0/5
AROCLOR-1232	1 U	1 U	ND	ND		0/5
AROCLOR-1242	1 U	1 U	ND	ND		0/5
AROCLOR-1248	1 U	1 U	ND	ND		0/5
AROCLOR-1254	1 U	1 U	ND	ND		0/5
AROCLOR-1260	1 U	1 U	ND	ND		0/5

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
 SUBSURFACE SOIL - TAL METALS
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID	IR88-FB01	IR88-FB02	IR88-FB03	IR88-RBSB-05	IR88-RBSB-06
PHASE	PHASE II	PHASE II	PHASE II	PHASE II	PHASE II
DATE SAMPLED	04/23/97	05/07/97	05/07/97	04/21/97	04/22/97
TOTAL METALS (ug/l)					
ALUMINUM, TOTAL	4150	48.6 U	59.7 U	29.4 U	11.8 U
ANTIMONY, TOTAL	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
ARSENIC, TOTAL	3.1	1.8 UJ	1.8 UJ	1.9	1.8 U
BARIUM, TOTAL	40.5	0.1 U	0.1 U	0.1 U	0.1 U
BERYLLIUM, TOTAL	0.17	0.1 U	0.1 U	0.1 U	0.1 U
CADMIUM, TOTAL	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CALCIUM, TOTAL	91500	16.3 U	28.5 U	47.2 U	48.7 U
CHROMIUM, TOTAL	24.2	0.43 J	0.3 UJ	0.3 U	4.2
COBALT, TOTAL	0.98 J	0.3 U	0.3 U	0.3 UJ	0.3 UJ
COPPER, TOTAL	7.7 J	0.7 UJ	0.7 UJ	0.7 UJ	0.7 UJ
IRON, TOTAL	4020	6.4 U	6.4 U	6.4 UJ	10.5 J
LEAD, TOTAL	2	1.3 U	4.2 U	1.3 U	1.3 U
MAGNESIUM, TOTAL	4190	6.9 U	12.8	6.9 UJ	6.9 UJ
MANGANESE, TOTAL	74.3	0.4 U	0.4 U	0.4 UJ	0.4 UJ
MERCURY, TOTAL	0.2	0.1 U	0.1 U	0.1 U	0.1 U
NICKEL, TOTAL	9.9	0.7 U	0.7 U	0.7 U	1.7
POTASSIUM, TOTAL	3520	106 U	121 U	104 U	106 U
SELENIUM, TOTAL	1.9 UJ	2.2 U	2.2 U	1.9 UJ	1.9 UJ
SILVER, TOTAL	0.2 UJ	0.2 U	0.23	0.2 UJ	0.2 UJ
SODIUM, TOTAL	7810	131 UJ	131 UJ	131 UJ	131 UJ
THALLIUM, TOTAL	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
VANADIUM, TOTAL	5.9	0.5 U	0.53	0.5 U	0.5 U
ZINC, TOTAL	9.8	0.2 UJ	0.2 UJ	4.4 J	0.2 UJ

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY
 SUBSURFACE SOIL - TAL METALS
 PHASE II - FIXED BASE LABORATORY
 FOCUSED REMEDIAL INVESTIGATION CTO-0356
 OPERABLE UNIT NO. 15 (SITE 88)
 MCB CAMP LEJEUNE, NORTH CAROLINA

SAMPLE ID PHASE DATE SAMPLED	Minimum Non-Detect	Maximum Non-Detect	Minimum Detected	Maximum Detected	Location of Maximum Detect	Frequency of Detection
TOTAL METALS (ug/l)						
ALUMINUM, TOTAL	11.8 U	59.7 U	4150	4150	IR88-FB01	1/5
ANTIMONY, TOTAL	1.6 U	1.6 U	ND	ND		0/5
ARSENIC, TOTAL	1.8 U	1.8 U	1.9	3.1	IR88-FB01	2/5
BARIUM, TOTAL	0.1 U	0.1 U	40.5	40.5	IR88-FB01	1/5
BERYLLIUM, TOTAL	0.1 U	0.1 U	0.17	0.17	IR88-FB01	1/5
CADMIUM, TOTAL	0.2 U	0.2 U	ND	ND		0/5
CALCIUM, TOTAL	16.3 U	48.7 U	91500	91500	IR88-FB01	1/5
CHROMIUM, TOTAL	0.3 U	0.3 U	0.43 J	24.2	IR88-FB01	3/5
COBALT, TOTAL	0.3 UJ	0.3 UJ	0.98 J	0.98 J	IR88-FB01	1/5
COPPER, TOTAL	0.7 UJ	0.7 UJ	7.7 J	7.7 J	IR88-FB01	1/5
IRON, TOTAL	6.4 UJ	6.4 UJ	10.5 J	4020	IR88-FB01	2/5
LEAD, TOTAL	1.3 U	4.2 U	2	2	IR88-FB01	1/5
MAGNESIUM, TOTAL	6.9 UJ	6.9 UJ	12.8	4190	IR88-FB01	2/5
MANGANESE, TOTAL	0.4 UJ	0.4 UJ	74.3	74.3	IR88-FB01	1/5
MERCURY, TOTAL	0.1 U	0.1 U	0.2	0.2	IR88-FB01	1/5
NICKEL, TOTAL	0.7 U	0.7 U	1.7	9.9	IR88-FB01	2/5
POTASSIUM, TOTAL	104 U	121 U	3520	3520	IR88-FB01	1/5
SELENIUM, TOTAL	1.9 UJ	2.2 U	ND	ND		0/5
SILVER, TOTAL	0.2 UJ	0.2 UJ	0.23	0.23	IR88-FB03	1/5
SODIUM, TOTAL	131 UJ	131 UJ	7810	7810	IR88-FB01	1/5
THALLIUM, TOTAL	1.9 U	1.9 U	ND	ND		0/5
VANADIUM, TOTAL	0.5 U	0.5 U	0.53	5.9	IR88-FB01	2/5
ZINC, TOTAL	0.2 UJ	0.2 UJ	4.4 J	9.8	IR88-FB01	2/5