03.13-08/22/96-01720

FINAL

REMEDIAL INVESTIGATION REPORT
OPERABLE UNIT NO. 6
(SITE 86)
VOLUME XI
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

CONTRACT TASK ORDER 0303
APPENDICES A-U

AUGUST 22, 1996

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

APPENDIX A
TEST BORING RECORDS

TEST BORING RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
BORING NO.: 86-BB-SB-01
COORDINATES: EAST: 2467475.9761
NORTH: 356576.6237
ELEVATION: SURFACE: 17.20

RIG: Geoprobe 5400	LARGE BORE SAMPLER	SMALL BORE SAMPLER	LINER	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8" ID	--	1-1/8" ID	2/26/95	0.0 - 7.0	Sunny & cool	5.0	0753
LENGTH	4.0'	--	4.0'					
TYPE	Piston	--	Plastic					

REMARKS:

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

DEFINITIONS
PID = Photoionization Detection Meter
ppm = parts per million
PS = Point Source
BG = Background
BOH = Bottom of Hole

Depth (ft)	Sample Type and No.	Sample Recovery (ft & %)	Lab ID Number	PID (ppm) PS/BG	Visual Description	Elev.
1 – 1.0	D-N		00	0.1/0.1	SAND (fine), some silt, trace clay & roots; dark brown; damp — 0.5	16.70
2 – 3.0	S-1	1.7 85%		0.1/0.1	CLAY, some silt, little fine sand; light brown; mottled; damp — 2.4	14.80
3 – 5.0	S-2	1.4 70%	02	0.2/0.1	SAND (fine), some silt, ltl clay; light brown; mottled; moist — 3.0	14.20
6 – 7.0	S-3	1.5 75%		1.6/0.1	fine to med sand; wet GROUNDWATER @ 5.0 FT — 6.7	10.50
7					CLAY, little silt; brown-gray; damp — 7.0	10.20
8 – 10					BOH @ 7.0 FT	

CONTRACTOR: Microseeps
OPERATOR: Art Carion
BAKER REP.: Mark DeJohn
BORING NO.: 86-BB-SB-01

TEST BORING RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-AST-SB01
COORDINATES: EAST: 2467403.5762 NORTH: 356313.1
ELEVATION: SURFACE: 17.80

RIG: Geoprobe 5400								
	LARGE BORE SAMPLER	SMALL BORE SAMPLER	LINER	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8" ID	--	1-1/8" ID	2/25/95	0.0 - 9.0	Sunny & mild	3.5	1636
LENGTH	4.0'	--	4.0'					
TYPE	Piston	--	Plastic					

REMARKS:

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

DEFINITIONS
PID = Photoionization Detection Meter
ppm = parts per million
PS = Point Source
BG = Background
BOH = Bottom of Hole

Depth (ft)	Sample Type and No.	Sample Recovery (ft & %)	Lab ID Number	PID (ppm) PS/BG	Visual Description	Elev.
1	S-1	2.2 73%	00	0.2/0.1	SILT, some fine sand, trace coarse sand & clay; black; damp	
2					2.1	15.70
3 3.0					SAND (fine), some silt, trace coarse sand & clay; gray to black; moist to wet GROUNDWATER @ 3.5 FT 3.8	14.00
4	S-2	1.9 95%	02	0.1/0.1		
5 5.0					CLAY, some fine sand & silt; olive drab; damp; v. slight petroleum odor	
6	S-3	1.7 85%		0.1/0.1		
7 7.0						
8	S-4	0.5 25%		0.1/0.1		
9 9.0					9.0	8.80
10					BOH @ 9.0 FT	

CONTRACTOR: Microseeps BAKER REP.: Mark DeJohn
OPERATOR: Art Carion BORING NO.: 86-AST-SB01 SHEET 1 OF 1

TEST BORING RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
BORING NO.: 86-AST-SB02
COORDINATES: EAST: 2467417.6330 NORTH: 356314.7629
ELEVATION: SURFACE: 17.20

RIG: Geoprobe 5400								
	LARGE BORE SAMPLER	SMALL BORE SAMPLER	LINER	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8" ID	--	1-1/8" ID	2/26/95	0.0 - 13.0	Sunny & cold	11.0	0835
LENGTH	4.0'	--	4.0'					
TYPE	Piston	--	Plastic					

REMARKS:

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

DEFINITIONS
PID = Photoionization Detection Meter
ppm = parts per million
PS = Point Source
BG = Background
BOH = Bottom of Hole

Depth (ft)	Sample Type and No.	Sample Recovery (ft & %)	Lab ID Number	PID (ppm) PS/BG	Visual Description	Elev.
1 - 1.0	D-N		00	0.1/.01	SAND (fine), some silt, trace to little clay, trace roots; dark brown; damp	
2 - 3.0	S-1	1.8 90%		0.0/0.0	trace coarse sand	
4 - 5.0	S-2	1.8 90%	02	0.3/0.1	greensih-brown; slight petroleum odor	
					5.0	12.20
6 - 7.0	S-3	1.5 75%		0.3/0.1	SAND (fine), some silt, little to some clay, no to trace coarse sand, clay amt. decreasing w/ depth; greenish-brown; moist	
8 - 9.0	S-4	1.5 75%		0.0/0.0		
					9.4	7.80
10	S-5	2.0 100%	05	0.0/0.0	SAND (fine), some silt, trace clay; gray; moist Match to Sheet 2	

CONTRACTOR: Microseeps
OPERATOR: Art Carion
BAKER REP.: Mark DeJohn
BORING NO.: 86-AST-SB02

TEST BORING RECORD

PROJECT: RI/FS at OU No. 6 - Site 36 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-AST-SB02

SAMPLE TYPE		DEFINITIONS
S = Split Spoon	A = Auger	PID = Photoionization Detection Meter
T = Shelby Tube	W = Wash	ppm = Parts per million
R = Air Rotary	C = Core	PS = Point Source
D = Direct Push	P = Piston	BG = Bachground
N = No Sample		BOH = Bottom of Hole

Depth (ft)	Sample Type and No.	Sample Recovery (ft & %)	Lab ID Number	PID (ppm) PS/BG	Visual Description	Elev.
11 11.0					Continued from Sheet 1	
12	S-6	2.0 100%		0.0/0.0	wet - GROUNDWATER @ 11.0 FT	
13 13.0					13.0	4.20
14					BOH @ 13.0 FT.	
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

CONTRACTOR: Microseeps BAKER REP.: Mark DeJohn
OPERATOR: Art Carion BORING NO.: 86-AST-SB02 SHEET 2 OF 2

TEST BORING RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
COORDINATES: EAST: 2467431.3900
ELEVATION: SURFACE: 17.20
BORING NO.: 86-AST-SB03
NORTH: 356313.4700

RIG: Geoprobe 5400	LARGE BORE SAMPLER	SMALL BORE SAMPLER	LINER	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8" ID	--	1-1/8" ID	2/26/95	0.0 - 11.0	Sunny & cold	9.0	0949
LENGTH	4.0'	--	4.0'					
TYPE	Piston	--	Plastic					

REMARKS:

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

DEFINITIONS
PID = Photoionization Detection Meter
ppm = parts per million
PS = Point Source
BG = Background
BOH = Bottom of Hole

Depth (ft)	Sample Type and No.	Sample Recovery (ft & %)	Lab ID Number	PID (ppm) PS/BG	Visual Description	Elev.
1 – 1.0	D-N		00	0.0/0.0	SAND (fine), some silt, trace clay & roots; dark brown; damp — 1.0	16.20
2 – 3.0	S-1	1.4 70%		0.1/0.0	CLAY, some silt, little fine sand w/ two layers of concrete & stone; dark brown; damp — 3.0	14.20
4 – 5.0	S-2	1.5 75%		0.0/0.0	SILTY CLAY, little fine sand; gray & brown; damp	
6 – 7.0	S-3	1.7 85%		0.1/0.1	— 7.0	10.20
8 – 9.0	S-4	2.0 100%	04	0.1/0.1	CLAY, trace silt; gray; moist — 8.5	8.70
10	S-5	2.0 100%		0.1/0.1	SAND (fine), some clay, little silt; gray; moist to wet GROUNDWATER @ 9.0 FT — 10.3	6.90
					Match to Sheet 2	

CONTRACTOR: Microseeps
OPERATOR: Art Carion
BAKER REP.: Mark DeJohn
BORING NO.: 86-AST-SB03

TEST BORING RECORD

PROJECT: RI/FS at OU No. 6 - Site 36 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-AST-SB03

SAMPLE TYPE		DEFINITIONS
S = Split Spoon	A = Auger	PID = Photoionization Detection Meter
T = Shelby Tube	W = Wash	ppm = Parts per million
R = Air Rotary	C = Core	PS = Point Source
D = Direct Push	P = Piston	BG = Bachground
N = No Sample		BOH = Bottom of Hole

Depth (ft)		Sample Type and No.	Sample Recovery (ft & %)	Lab ID Number	PID (ppm) PS/BG	Visual Description	Elev.
11	11.0					Continued from Sheet 1 SAND (fine), some silt, trace med. to coarse sand & clay; gray; wet BOH @ 11.0 FT	11.0 6.20
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

CONTRACTOR: Microseeps BAKER REP.: Mark DeJohn
OPERATOR: Art Carion BORING NO.: 86-AST-SB03 SHEET 2 OF 2

TEST BORING RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
BORING NO.: 86-AST-SB04
COORDINATES: EAST: 2467404.9200
NORTH: 356296.8200
ELEVATION: SURFACE: 17.20

RIG: Geoprobe 5400	LARGE BORE SAMPLER	SMALL BORE SAMPLER	LINER	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8" ID	--	1-1/8" ID	2/26/95	0.0 - 7.0	Sunny & mild	6.0	1029
LENGTH	4.0'	--	4.0'					
TYPE	Piston	--	Plastic					

REMARKS:

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

DEFINITIONS
PID = Photoionization Detection Meter
ppm = parts per million
PS = Point Source
BG = Background
BOH = Bottom of Hole

Depth (ft)	Sample Type and No.	Sample Recovery (ft & %)	Lab ID Number	PID (ppm) PS/BG	Visual Description	Elev.
1 - 1.0	D-N		00	0.1/0.1	SAND (fine), some silt, trace clay & roots; dark brown; damp	
2 - 3.0	S-1	1.5 75%		0.1/0.1	clayey layer @ 1.8-2.2 ft	
4 - 5.0	S-2	2.0 100%	02	0.1/0.1	4.2	13.00
6 - 7.0	S-3	0.8 40%		1.6/0.1	SAND (fine), some silt, trace coarse sand; brown; damp; petroleum odor @ 5-7 ft wet - GROUNDWATER @ 6.0 FT 6.8	10.40
8					CLAY, little silt, trace fine sand; olive drab; moist 7.0 BOH @ 7.0 FT	10.20
9						
10						

CONTRACTOR: Microseeps
OPERATOR: Art Carion
BAKER REP.: Mark DeJohn
BORING NO.: 86-AST-SB04

TEST BORING RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-AST-SB05
COORDINATES: EAST: 2467418.8300 NORTH: 356298.0800
ELEVATION: SURFACE: 17.00

RIG: Geoprobe 5400	LARGE BORE SAMPLER	SMALL BORE SAMPLER	LINER	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8" ID	--	1-1/8" ID	2/26/95	0.0 - 9.5	Sunny & mild	--	--
LENGTH	4.0'	--	4.0'					
TYPE	Piston	--	Plastic					

REMARKS: The boring was terminated at 9.5 because of refusal due to th presence of gravel. Groundwater probably would have been encountered within 10 ft, based on the depth to groundwater at nearby holes.

SAMPLE TYPE

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

DEFINITIONS

PID = Photoionization Detection Meter
ppm = parts per million
PS = Point Source
BG = Background
BOH = Bottom of Hole

Depth (ft)	Sample Type and No.	Sample Recovery (ft & %)	Lab ID Number	PID (ppm) PS/BG	Visual Description	Elev.
1 – 1.0	D-N		00	0.1/0.1	SAND (fine), some silt, trace clay; dark brown; damp	
2 – 3.0	S-1	1.6 80%		0.1/0.1	clayey layer @ 1.6-2.4 ft	
3					3.0	14.00
4 – 5.0	S-2	1.3 65%		0.1/0.1	SAND (fine), some silt & clay; brown; damp to moist	
6 – 7.0	S-3	1.1 55%	03	0.2/0.2	moist; v. soft & plastic	
8 – 9.0	S-4	1.6 80%		0.2/0.2		
9	S-5	0.5 / 25%	05	0.2/0.2	Gravel in shoe - probe refusal 9.5	7.50
10					BOH @ 9.5 FT	

CONTRACTOR: Microseeps BAKER REP.: Mark DeJohn
OPERATOR: Art Carion BORING NO.: 86-AST-SB05 SHEET 1 OF 1

TEST BORING RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
BORING NO.: 86-AST-SB06
COORDINATES: EAST: 2467432.4900
NORTH: 356299.2500
ELEVATION: SURFACE: 17.10

RIG: Geoprobe 5400								
	LARGE BORE SAMPLER	SMALL BORE SAMPLER	LINER	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8" ID	--	1-1/8" ID	2/26/95	0.0 - 9.0	Sunny & mild	7.5	1411
LENGTH	4.0'	--	4.0'					
TYPE	Piston	--	Plastic					
REMARKS:								

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

DEFINITIONS
PID = Photoionization Detection Meter
ppm = parts per million
PS = Point Source
BG = Background
BOH = Bottom of Hole

Depth (ft)	Sample Type and No.	Sample Recovery (ft & %)	Lab ID Number	PID (ppm) PS/BG	Visual Description	Elev.
1 – 1.0	D-N		00	0.1/0.1	SAND (fine), some silt, trace clay; dark brown; damp — 1.0	16.10
2 – 3.0	S-1	1.8 90%		0.2/0.1	CLAY, some silt, trace fine sand; dark brown; damp — 2.6	14.50
4 – 5.0	S-2	1.7 85%		0.1/0.1	SILT, little fine sand, little to some clay; black; damp — 4.0	13.10
6 – 7.0	S-3	1.9 95%		0.1/0.1	CLAY, trace silt; brown & gray; mottled; damp	
					CLAY, some silt, little fine sand & rock/coal frag.; black; wet — 6.5 / 7.0	10.60 / 10.10
8 – 9.0	S-4	2.0 100%	04	0.2/0.1	CLAY, little silt; gray; moist — 7.5 SAND (fine), some silt, little clay; gray; wet GROUNDWATER @ 7.5 FT perched water @ 6.5-7.0 ft — 9.0	9.60 8.10
10					BOH @ 9.0 FT	

CONTRACTOR: Microseeps
OPERATOR: Art Carion
BAKER REP.: Mark DeJohn
BORING NO.: 86-AST-SB06

TEST BORING RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-AST-SB07
COORDINATES: EAST: 2467405.8600 NORTH: 356280.7100
ELEVATION: SURFACE: 16.80

RIG: Geoprobe 5400	LARGE BORE SAMPLER	SMALL BORE SAMPLER	LINER	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8" ID	--	1-1/8" ID	2/26/95	0.0 - 11.0	Sunny & mild	10.0	1513
LENGTH	4.0'	--	4.0'					
TYPE	Piston	--	Plastic					
REMARKS:								

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

DEFINITIONS
PID = Photoionization Detection Meter
ppm = parts per million
PS = Point Source
BG = Background
BOH = Bottom of Hole

Depth (ft)	Sample Type and No.	Sample Recovery (ft & %)	Lab ID Number	PID (ppm) PS/BG	Visual Description	Elev.
1 – 1.0	D-N		00	0.2/0.1	SAND (fine), some silt, trace clay & roots; dark brown; damp – 1.0	15.80
2 – 3.0	S-1	1.8 90%		0.1/0.1	SAND (fine), some silt, trace to some clay, gravel layer @ 1.0-1.5 ft; dark brown; damp – 3.0	13.80
4 – 5.0	S-2	1.0 50%		0.0/0.0	SAND (fine), some clay, little silt; olive drab; moist – 5.0	11.80
6 – 7.0	S-3	1.0 50%	03	0.0/0.0	CLAY, some fine sand & silt; olive drab; moist; soft & plastic	
8 – 10	S-4	2.5 63%		0.0/0.0	– 9.7 SAND (fine), some silt; brown; moist to wet Match to Sheet 2	7.10

CONTRACTOR: Microseeps BAKER REP.: Mark DeJohn
OPERATOR: Art Carion BORING NO.: 86-AST-SB07 SHEET 1 OF 2

TEST BORING RECORD

PROJECT: RI/FS at OU No. 6 - Site 36 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-AST-SB07

SAMPLE TYPE		DEFINITIONS
S = Split Spoon	A = Auger	PID = Photoionization Detection Meter
T = Shelby Tube	W = Wash	ppm = Parts per million
R = Air Rotary	C = Core	PS = Point Source
D = Direct Push	P = Piston	BG = Bachground
N = No Sample		BOH = Bottom of Hole

Depth (ft)	Sample Type and No.	Sample Recovery (ft & %)	Lab ID Number	PID (ppm) PS/BG	Visual Description	Elev.
11 11.0					Continued from Sheet 1 GROUNDWATER @ 10.0 FT 11.0	5.80
12					BOH @ 11.0 FT	
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

CONTRACTOR: Microseeps BAKER REP.: Mark DeJohn
OPERATOR: Art Carion BORING NO.: 86-AST-SB07

TEST BORING RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-AST-SB08
COORDINATES: EAST: 2467420.5900 NORTH: 356280.6700
ELEVATION: SURFACE: 16.90

RIG: Geoprobe 5400	LARGE BORE SAMPLER	SMALL BORE SAMPLER	LINER	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8" ID	--	1-1/8" ID	2/26/95	0.0 - 11.0	Sunny & mild	9.0	1616
LENGTH	4.0'	--	4.0'					
TYPE	Piston	--	Plastic					

REMARKS:

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

DEFINITIONS
PID = Photoionization Detection Meter
ppm = parts per million
PS = Point Source
BG = Background
BOH = Bottom of Hole

Depth (ft)	Sample Type and No.	Sample Recovery (ft & %)	Lab ID Number	PID (ppm) PS/BG	Visual Description	Elev.
1 — 1.0	D-N		00	0.1/0.1	SAND (fine), some silt, trace gravel, clay & roots; dark brown; damp	
2 — 3.0	S-1	1.6 80%		0.1/0.1	gravel layer 2.0 ft — 2.2	14.70
3 — 5.0	S-2	1.5 75%		0.1/0.1	SAND (fine), some silt & clay; olive drab; damp w/ wet zone @ 3.0 ft	
6 — 7.0	S-3	1.3 65%		0.1/0.1	moist; v. soft & plastic — 7.9	9.90
8 — 9.0	S-4	0.7 35%	04	0.2/0.1	SILT, some clay, little fine sand; olive drab; damp — 9.0	7.90
10	S-5	1.0 50%		0.1/0.1	SAND (fine), some silt; olive drab; wet GROUNDWATER @ 9.0 FT	

Match to Sheet 2

CONTRACTOR: Microseeps BAKER REP.: Mark DeJohn
OPERATOR: Art Carion BORING NO.: 86-AST-SB08

TEST BORING RECORD

PROJECT: RI/FS at OU No. 6 - Site 36 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-AST-SB08

SAMPLE TYPE		DEFINITIONS
S = Split Spoon	A = Auger	PID = Photoionization Detection Meter
T = Shelby Tube	W = Wash	ppm = Parts per million
R = Air Rotary	C = Core	PS = Point Source
D = Direct Push	P = Piston	BG = Bachground
N = No Sample		BOH = Bottom of Hole

Depth (ft)	Sample Type and No.	Sample Recovery (ft & %)	Lab ID Number	PID (ppm) PS/BG	Visual Description	Elev.
11 11.0					Continued from Sheet 1 GROUNDWATER @ 10.0 FT 11.0	5.90
12					BOH @ 11.0 FT	
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

CONTRACTOR: Microseeps BAKER REP.: Mark DeJohn
OPERATOR: Art Carion BORING NO.: 86-AST-SB08 SHEET 2 OF 2

TEST BORING RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-AST-SB09
COORDINATES: EAST: 2467433.6400 NORTH: 356281.7700
ELEVATION: SURFACE: 16.70

RIG: Geoprobe 5400	LARGE BORE SAMPLER	SMALL BORE SAMPLER	LINER	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8" ID	--	1-1/8" ID	2/26/95	0.0 - 9.0	Sunny & mild	9.0	1709
LENGTH	4.0'	--	4.0'					
TYPE	Piston	--	Plastic					

REMARKS:

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

DEFINITIONS
PID = Photoionization Detection Meter
ppm = parts per million
PS = Point Source
BG = Background
BOH = Bottom of Hole

Depth (ft)	Sample Type and No.	Sample Recovery (ft & %)	Lab ID Number	PID (ppm) PS/BG	Visual Description	Elev.
1 — 1.0	D-N		00	0.1/0.1	SAND (fine), some silt, trace clay & gravel; dark brown; damp	
2 — 3.0	S-1	1.9 95%		0.1/0.1	no gravel	
3					3.0	13.70
4 — 5.0	S-2	1.8 90%		0.1/0.1	CLAY, some silt; gray red & brown w/ iron stained fractures; mottled; damp	
5					5.0	11.70
6 — 7.0	S-3	1.9 95%		0.1/0.1	CLAY, trace silt; gray; moist	
8 — 9.0	S-4	2.0 100%	04	0.1/0.1	SAND (fine), some silt, trace clay; moist to wet	8.10
9					8.6 GROUNDWATER @ 9.0 FT 9.0	7.70
10					BOH @ 9.0 FT	

CONTRACTOR: Microseeps BAKER REP.: Mark DeJohn
OPERATOR: Art Carion BORING NO.: 86-AST-SB09 SHEET 1 OF 1

TEST BORING RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
BORING NO.: 86-AST-SB10
COORDINATES: EAST: 2467441.6000 NORTH: 356308.7700
ELEVATION: SURFACE: 16.90

RIG: Geoprobe 5400								
	LARGE BORE SAMPLER	SMALL BORE SAMPLER	LINER	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8" ID	--	1-1/8" ID	3/15/95	0.0 - 9.0	Sunny & mild	8.5	0954
LENGTH	4.0'	--	4.0'					
TYPE	Piston	--	Plastic					

REMARKS:

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

DEFINITIONS
PID = Photoionization Detection Meter
ppm = parts per million
PS = Point Source
BG = Background
BOH = Bottom of Hole

Depth (ft)	Sample Type and No.	Sample Recovery (ft & %)	Lab ID Number	PID (ppm) PS/BG	Visual Description	Elev.
1 - 1.0	D-N		00	0.4/0.4	SILT, little clay, trace fine sand; dark brown; damp	
2 - 3.0	S-1	2.0 100%		0.4/0.4	concrete fragments above a 0.5 ft thick layer of fine sand	
					3.0	13.90
4 - 5.0	S-2	1.7 85%		0.3/0.3	CLAY, little silt, trace to little fine sand; dark gray; mottled; damp	
					5.0	11.90
6 - 7.0	S-3	2.0 100%		0.3/0.3	CLAY, little silt; dark gray; mottled; damp	
8 - 9.0	S-4	2.0 100%	04	0.3/0.3		
					8.5	8.40
					SAND (fine), some silt, little clay; trace gravel; dark gray; wet 9.0	7.90
10					GROUNDWATER @ 8.5 FT	
					BOH @ 9.0 FT	

CONTRACTOR: Microseeps BAKER REP.: Mark DeJohn
OPERATOR: Art Carion BORING NO.: 86-AST-SB10 SHEET 1 OF 1

TEST BORING RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
BORING NO.: 86-AST-SB11
COORDINATES: EAST: 2467443.6300
NORTH: 356270.3100
ELEVATION: SURFACE: 16.00

RIG: Geoprobe 5400	LARGE BORE SAMPLER	SMALL BORE SAMPLER	LINER	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8" ID	--	1-1/8" ID	3/15/95	0.0 - 9.0	Sunny & mild	8.0	0909
LENGTH	4.0'	--	4.0'					
TYPE	Piston	--	Plastic					
REMARKS:								

SAMPLE TYPE

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

DEFINITIONS

PID = Photoionization Detection Meter
ppm = parts per million
PS = Point Source
BG = Background
BOH = Bottom of Hole

Depth (ft)	Sample Type and No.	Sample Recovery (ft & %)	Lab ID Number	PID (ppm) PS/BG	Visual Description	Elev.
1 – 1.0	D-N		00	0.4/0.4	SILT, little clay, trace fine sand & roots; dark brown; damp	
2 – 3.0	S-1	1.9 95%		0.4/0.4	CLAY, some silt, trace fine sand; gray; mottled; damp (2.5)	13.50
					(3.0)	13.00
4 – 5.0	S-2	1.8 90%		0.4/0.4	CLAY, little silt; gray; mottled; damp	
6 – 7.0	S-3	1.9 95%	03	0.4/0.4	amt. of sand increasing w/ depth	
8 – 9.0	S-4	2.0 100%		0.4/0.4	(8.3)	7.70
					(9.0) SILTY SAND (fine), trace clay; brown; wet	7.00
10					GROUNDWATER @ 8.0 FT	
					BOH @ 9.0 FT	

CONTRACTOR: Microseeps
OPERATOR: Art Carion
BAKER REP.: Mark DeJohn
BORING NO.: 86-AST-SB11

TEST BORING RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
BORING NO.: 86-AST-SB12
COORDINATES: EAST: 2467413.0700 NORTH: 356266.5200
ELEVATION: SURFACE: 16.40

RIG: Geoprobe 5400								
	LARGE BORE SAMPLER	SMALL BORE SAMPLER	LINER	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8" ID	--	1-1/8" ID	3/15/95	0.0 - 9.0	Sunny & mild	8.0	0814
LENGTH	4.0'	--	4.0'					
TYPE	Piston	--	Plastic					

REMARKS:

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

DEFINITIONS
PID = Photoionization Detection Meter
ppm = parts per million
PS = Point Source
BG = Background
BOH = Bottom of Hole

Depth (ft)	Sample Type and No.	Sample Recovery (ft & %)	Lab ID Number	PID (ppm) PS/BG	Visual Description	Elev.
1	D-N		00	0.4/0.4	CLAY, some silt, little to some fine sand, trace coarse sand; brown; damp	
1.0						
2	S-1	2.0 100%		0.4/0.4		
3						
3.0					3.0	13.40
4	S-2	1.7 85%		0.4/0.4	CLAY, little silt, trace fine sand; gray & brown; mottled; damp	
5						
5.0					gray; slight petroleum odor; moist	
6	S-3	1.9 95%	03	0.5/0.5		
7						
7.0						
8	S-4	1.8 90%		0.5/0.5	wet - GROUNDWATER @ 8.0 FT 8.0	8.40
9					SAND (fine), some silt, little to some clay; dark gray; wet; strong petroleum odor 9.0	7.40
9.0						
10					BOH @ 9.0 FT	

CONTRACTOR: Microseeps
OPERATOR: Art Carion
BAKER REP.: Mark DeJohn
BORING NO.: 86-AST-SB12

APPENDIX B
TEST BORING AND WELL CONSTRUCTION RECORDS

Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU NO. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW15IW
COORDINATES: EAST: 2467709.93158 NORTH: 356119.12822
ELEVATION: SURFACE: 16.94 TOP OF PVC CASING: 16.56

RIG: R16	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
SIZE (DIAM.)	1-3/8"				3-9-95	0-57.0	clear, cool (50's)	5.5	
LENGTH	2.0								
TYPE	Std.								
HAMMER WT.	140 lbs.								
FALL	30"								
STICK UP									

REMARKS: Borehole continuously sampled at various intervals to confirm stratigraphy from 0 to 57.0' (bgs). Type II monitoring well set 3-9-95. HNu background = .4 ppm.

SAMPLE TYPE

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

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)
Riser	2.0"	Schedule 40 PVC	-.5'(bgs)	45.0'(bgs)
Screen	2.0"	Schedule 40 0.01 Slot	45.0'(bgs)	55.0'(bgs)

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
1	WN	—	—		—	Asphalt Pavement		
2 2.0						Drill to: 2.0'(bgs)		
3	S-1	1.7/2.0	2 2 2	02	.4	SILTY CLAY w/ trace SAND, fine grained Gray w/ oxidation (yellow/orange) staining, soft to medium stiff, moist	cement grout	
4 4.0		85%	3		.4			
5	S-2	2.0/2.0	2 2		.4			
6 6.0		100%	6 8		.4			
7	S-3	1.2/2.0	3 5		.4	SAND, fine grained w/ trace SILT Gray, loose to medium dense, wet	PVC riser	
8 8.0		60%	4 11		.4			
9	WN	—	—		—			
10 10.0						Match to Sheet 2		

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW15IW SHEET 1 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW15IW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
11	S-4	.9/2.0 45%	7 7 11 12		.4/.4	Continued from Sheet 1 SAND, fine grained w/ trace SILT. Gray, medium dense, wet		
12 12.0								
13	WN						Bentonite Slurry	
14								
15 15.0								
16	S-5	.9/2.0 45%	2 7 8 9		.4/.4	SAND, fine grained w/ trace SILT. Brown to light green, medium dense, wet		
17 17.0								
18	WN						PVC riser	
19								
20 20.0								
21	S-6	1.1/2.0 55%	4 6 7 8		.4/.4	SAND, fine to medium grained w/ trace SILT Gray to dark green, medium dense, wet		
22 22.0								
23	WN							
24								
25 25.0								
26	S-7	2.0/2.0 100%	1 2 1 1		.4/.4	SILTY SAND, fine grained. Dark green, very loose, wet.		
27 27.0								
28	WN							
29								
30 30.0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW15IW SHEET 2 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW15IW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
31	S-8	2.0/2.0 100%	1 2 1 1		.4/.4	Continued from Sheet 2 SILTY SAND, fine grained w/trace CLAY and trace micrite cement Dark green/light gray	Bentonite slurry	
32 32.0								
33	WN							
34								
35 35.0								
36	S-9	.6/2.0 30%	17 50/3"		.4/.4		Bentonite Pellets	
37 37.0								
38	WN					FOSSILIFEROUS LIMESTONE w/little SHELL FRAG/ SHELL MATERIAL. Micrite cement is (matrix only). Light gray to buff and white, medium dense to very dense, wet	PVC riser	
39								
40 40.0								
41	S-10	1.9/2.0 95%	7 8 11 13		.4/.4		Sand pack	
42 42.0								
43	WN							
44								
45 45.0								
46	S-11	1.7/2.0 85%	11 7 8 11		.4/.4			
47 47.0								
48	S-12	1.3/2.0 65%	17 15 50/5"		.4/.4	SAND, fine grained w/trace to little SILT and trace SHELL FRAG. Light green and white, dense, wet	Well Screen	
49 49.0								
50	S-13	65%	17 15		.4/.4			

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW15IW SHEET 3 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW15IW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
S1 51.0	S-13	65%	22 27		.4 .4	Continued from Sheet 3		
S2 S3 53.0	S-14	1.5 / 2.0 75%	7 9 12 15		.4 .4	FOSSILIFEROUS LIMESTONE w/ little SHELL FRAG/ SHELL MATERIAL. Micrite cement is (matrix only), light gray and white, medium dense to dense, wet.	Sand pack	
S4 S5 55.0	S-15	1.5 / 2.0 75%	7 7 12 14		.4 .4		Well screen	
S6 S7 57.0	WN	—	—		—			
8 9 0 1 2 3 4 5 6 7 8 9 0						End of Boring TD: 57.0' (bgs)		

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J.E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW15IW SHEET 4 OF 4

Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU NO. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
COORDINATES: EAST: 2467713.13523 NORTH: 356128.45086
ELEVATION: SURFACE: 16.83 TOP OF PVC CASING: 16.49
BORING NO.: 86-GW15DW

RIG: R16	SPLIT SPOON	CASING	AUGERS	CORE BARREL
SIZE (DIAM.)	1-3/8"	6"		
LENGTH	2.0	67.0'		
TYPE	Std.	Steel		
HAMMER WT.	140 lbs.			
FALL	30"			
STICK UP				

DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
3-6-95	0 - 67.0	overcast, mild (60's)	—	
3-9-95	67.0 - 97.0	broken overcast (80's)		

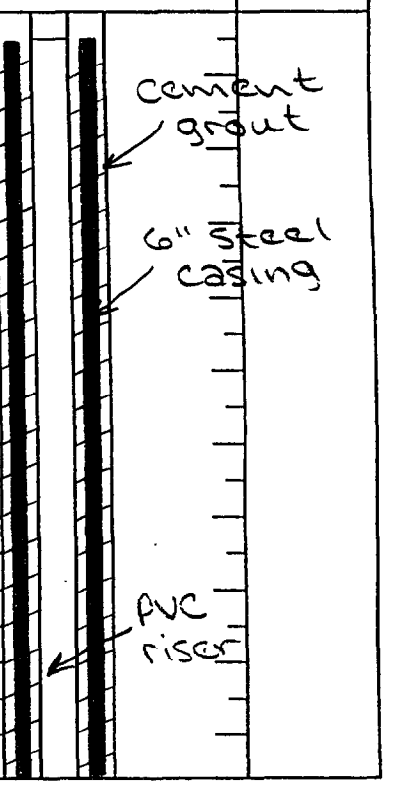
REMARKS: Utilized 5.0' centers to 57.0' (bgs). Borehole continuously sampled at various intervals to confirm stratigraphy. Type III monitoring well set 3-9-95 Hnu background range .3 to .5 ppm.

SAMPLE TYPE

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

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)
Riser	2.0"	Schedule 40 PVC	+1.5' (bgs)	90.0' (bgs)
Screen	2.0"	Schedule 40 0.01 Slot	90.0' (bgs)	95.0' (bgs)

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
1						Asphalt Pavement		
2								
3	N					Drill to 5.0' (bgs)		
4								
5	5.0							
6	S-1	2.0 / 2.0	2 3 4		.5 / .5	CLAY, soft. Gray, damp		
7	7.0	100%	6					
8								
9	N							
10	10.0							



Match to Sheet 2

DRILLING CO.: Hardin-Huber, Inc.
DRILLER: R. Keenan
BAKER REP.: J. E. Zimmerman
BORING NO.: 86-GW15DW SHEET 1 OF 6

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW15DW

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

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
11	S-2	.8/2.0 40%	WOH/12" 4 4		.5/.5	Continued from Sheet 1	cement grout	
12 12.0						SAND, fine grained w/ trace SILT Brown to light gray, loose, wet		
13	N							
14								
15 15.0								
16	S-3	1.7/2.0 85%	4 9 9 7		.5/.5			
17 17.0								
18	N						6" steel casing	
19								
20 20.0								
21	S-4	.6/2.0 30%	5 5 8 11		.4/.4	SAND, fine to medium grained w/ trace to little SILT. Gray to dark green, medium dense, wet		
22 22.0								
23	N						PVC risers	
24								
25 25.0								
26	S-5	1.3/2.0 65%	WOH/6" WOH		.4/.4	SILTY SAND, fine grained. Dark green, medium dense, wet		
27 27.0								
28	N							
29								
30 30.0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW15DW SHEET 2 OF 6

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW15DW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
31	S-6	1.3/2.0 65%	WOH/24"		.4/.4	Continued from Sheet 2 SILTY SAND, fine grained w/trace CLAY and trace micrite cement, dark green to light gray, wet		
32 32.0								
33	N						Cement grout	
34								
35 35.0								
36	S-7	1.6/2.0 80%	17 21 23 23		.4/.4		6" Steel casing	
37 37.0								
38	N							
39								
40 40.0								
41	S-8	1.7/2.0 85%	9 8 13 11		.4/.4	FOSSILIFEROUS LIMESTONE w/little SHELL FRAGT SHELL MATERIAL. Micrite cement is (matrix only). Light gray to buff and white, medium dense, wet	PVC riser	
42 42.0								
43	N							
44								
45 45.0								
46	S-9	1.4/2.0 70%	8 8 15 13		.4/.4		Bentonite slurry	
47 47.0								
48	N							
49								
50 50.0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW15DW SHEET 3 OF 6

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
BORING NO.: 86-GW15DW

SAMPLE TYPE

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

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
51	S-10	1.8/2.0 90%	12 23 5 21		.4 .4	Continued from Sheet 3		
52 (52.0)								
53	N							
54						FOSSILIFEROUS LIMESTONE w/little SHELL FRAG/ SHELL MATERIAL. Micrite cement is (matrix only). Light gray to buff to light green and white, medium dense, wet.	6" Steel Casing	
55 (55.0)								
56	S-11	1.8/2.0 90%	13 15 18 19		.4 .4			
57 (57.0)							PVC riser	
58	N							
59 (59.0)								
60	S-12	1.8/2.0 90%	21 13 11 23		.4 .4			
61 (61.0)								
62	S-13	1.2/2.0 60%	14 14 9 10		.4 .4	SAND, fine grained w/ little to some SILT. Light gray to dark green, medium dense, wet		
63 (63.0)								
64	S-14	1.3/2.0 65%	9 21 50/5"		.4 .4	SILTY SAND, fine grained w/little to some CLAY and trace SHELL MATERIAL. Olive green and white medium dense, moist	Bentonite Slurry	
65 (65.0)								
66	S-15	1.5/2.0 75%	5 7 9 13		.4 .4			
67 (67.0)								
68								
69	WN							
70 (70.0)								

DRILLING CO.: Hardin-Huber, Inc.
BAKER REP.: J. E. Zimmerman
DRILLER: B. Keenan
BORING NO.: 86-GW15DW

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW15DW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
71	S-16	1.2/2.0 60%	8 18 25 25		.3 .3	Continued from Sheet 4		
72 72.0							Bentonite Slurry	
73	WN					SILTY SAND, fine to medium grained w/ trace CLAY and trace SHELL MATERIAL. Green and white, dense, wet		
74								
75 75.0								
76	S-17	1.6/2.0 80%	10 10 17 16		.3 .3			
77 77.0								
78	WN						Bentonite pellets	
79								
80 80.0								
81	S-18	1.1/2.0 55%	11 18 50/4"		.3 .3	SILTY SAND, fine grained w/ trace SHELL MATERIAL Green & white, very dense, wet.		
82 82.0								
83	WN						PVC riser	
84								
85 85.0								
86	S-19	-	8 15 20		-	NO RECOVERY		
87 82.0								
88	WN						Sand pack	
89								
90 90.0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J.E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW15DW SHEET 5 OF 6

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW15DW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
91	S-20	1.5/2.0 75%	11 12 17 26		.3 .3	Continued from Sheet 5 SILTY SAND, fine grained w/trace CLAY and trace SHELL MATERIAL Medium dense, wet	Sand pack	
92 92.0								
93	WN						Well screen	
94								
95 95.0								
96	S-21	1.4/2.0 70%	7 7 9 10		.3 .3	SILTY CLAY w/ little SAND, fine grained Green, soft to medium stiff to medium dense, wet		
97 97.0								
98	WN	—	—		—			
99								
100 100.0								
1						End of Boring TD: 100.0' (bgs)		
2								
3								
4								
5								
6								
7								
8								
9								
0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW15DW SHEET 6 OF 6

Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU NO. 6 - Site 86 - MCAS. New River
CTO NO.: 62470-303 BORING NO.: 86-GW16IW
COORDINATES: EAST: 2467687.76586 NORTH: 356384.44484
ELEVATION: SURFACE: 16.97 TOP OF PVC CASING: 16.71

RIG: R16	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
SIZE (DIAM.)	1-3/8"				3-12-95	0-57.0	clear, cold (30's) calm	—	
LENGTH	2.0								
TYPE	Std.								
HAMMER WT.	140 lbs.								
FALL	30"								
STICK UP									

REMARKS: Utilized 5' centers to 42.0'(bgs). Borehole continuously sampled from 45.0'(bgs) to 55.0'(bgs). Type II monitoring well set 3-12-95. Hnu background is .3 ppm.

SAMPLE TYPE

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

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)
Riser	2.0"	Schedule 40 PVC	.5'(bgs)	45.0'(bgs)
Screen	2.0"	Schedule 40 0.01 Slot	45.0'(bgs)	55.0'(bgs)

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
1						Asphalt Pavement		
2							cement grout	
3	N					Drill to: 5.0'(bgs)		
4								
5	5.0							
6	S-1	1.6/2.0 80%	2 4 3 4		.3 .3	CLAY, soft. Gray, damp.		
7	7.0							
8							PVC riser	
9	N							
10	10.0					Match to Sheet 2		

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J.E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW16IW SHEET 1 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW16IW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
11	S-2	1.2/2.0 60%	5 6 6 8		.3/.3	Continued from Sheet 1 SAND, fine grained w/ trace SILT. Greenish gray, medium dense		
12 12.0								
13	N						Bentonite Slurry	
14								
15 15.0								
16	S-3	-	7 11 12 16		-	No Recovery		
17 17.0								
18	N						PVC riser	
19								
20 20.0								
21	S-4	1.2/2.0 60%	7 7 10 12		.3/.3	SAND, fine grained w/ trace to little SILT Light green, medium dense, wet.		
22 22.0								
23	N							
24								
25 25.0								
26	S-5	2.0/2.0 100%	1 1 1 1		.3/.3	SILTY SAND, fine grained. Dark green, very loose, wet		
27 27.0								
28	N						Bentonite pellets	
29								
30 30.0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW16IW SHEET 2 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW16IW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
31	S-6	2.0/2.0 100%	1 2 2 1		.3 .3	Continued from Sheet 2 SILTY SAND, fine grained w/trace CLAY. Dark green, loose, wet		
32 32.0								
33	N						Bentonite pellets	
34								
35 35.0								
36	S-7	1.2/2.0 60%	7 12 16 20		.3 .3	FOSSILIFEROUS LIMESTONE w/ little SHELL FRAG/ SHELL MATERIAL. Micrite cement is (matrix only). Light gray and white, medium dense, wet		
37 37.0								
38	N						PVC riser	
39								
40 40.0								
41	S-8	1.6/2.0 80%	5 15 9 14		.3 .3			
42 42.0								
43	N						Sand pack	
44								
45 45.0								
46	S-9	1.8/2.0 90%	8 8 11 12		.3 .3	SAND, fine grained w/ trace to little SILT and trace SHELL FRAG. Light green and white, medium dense, wet		
47 47.0								
48	S-10	1.8/2.0 90%	8 12 12 13		.3 .3		Well screen	
49 49.0								
50	S-11	40%	7 8		.3 .3			

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW16IW SHEET 3 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW16IW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
51 51.0	S-12	40%	21 25		.3 .3	Continued from Sheet 3		
52	S-13	1.7/2.0 85%	13 13 15 14		.3 .3	FOSSILIFEROUS LIMESTONE w/little SHELL FRAG SHELL MATERIAL. Micrite cement is (matrix only). Light gray and white, medium dense, wet	well screen	
53 53.0								
54	S-14	1.8/2.0 90%	6 5 14 19		.3 .3		sand pack	
55 55.0								
56	N	—	—		—			
57 57.0						End of Boring. TD: 57.0' (bgs)		
8								
9								
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW16IW SHEET 4 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU NO. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
COORDINATES: EAST: 2467697.01924
ELEVATION: SURFACE: 17.01
BORING NO.: 86-GW16DW
NORTH: 356385.14437
TOP OF PVC CASING: 16.82

RIG: R16	SPLIT SPOON	CASING	AUGERS	CORE BARREL
SIZE (DIAM.)	1-3/8"	6"		
LENGTH	2.0	67.0'		
TYPE	Std.	Steel		
HAMMER WT.	140 lbs.			
FALL	30"			
STICK UP				

DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
3-10-95	0-67.0	clear, cold (30's)		
3-11-95	67.0-95.0	clear, cold (30's)		

REMARKS: Utilized 50' centers to 60.0' (bgs). Borehole continuously sample at various intervals to confirm stratigraphy. Type III monitoring well set 3-11-95. Hnu background range is .2 to .3 ppm. Shelby tube collected 67.0 to 67.5' (bgs)

SAMPLE TYPE

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

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)
Riser	2.0"	Schedule 40 PVC	-.5' (bgs)	87.0' (bgs)
Screen	2.0"	Schedule 40 0.01 Slot	87.0' (bgs)	92.0' (bgs)

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
1						Asphalt Pavement		
2	N						Cement grout	
3						Drill to: 5.0' (bgs)		
4							6" Steel casing	
5	5.0							
6	S-1	1.7/2.0 85%	4 3 3 2		.3/.3	CLAY, soft. Gray, damp		
7	7.0							
8								
9	N						PVC riser	
10	10.0							

Match to Sheet 2

DRILLING CO.: Hardin-Huber, Inc.
DRILLER: R. Keenan
BAKER REP.: J.E. Zimmerman
BORING NO.: 86-GW16DW SHEET 1 OF

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW16DW

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

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
11	S-2	1.5/2.0 75%	WOH/6" 3 3 3		.3 / .3	Continued from Sheet 1 CLAY, soft, gray		
12 12.0								
13	N						Cement grout	
14								
15 15.0								
16	S-3	1.0/2.0 50%	7 9 10 9		.3 / .3	SAND, fine grained w/ trace SILT. Greenish gray to light green, loose to medium dense, wet	6" Steel casing	
17 17.0								
18	N							
19								
20 20.0								
21	S-4	1.1/2.0 55%	7 9 13 15		.3 / .3			
22 22.0								
23	N						PVC riser	
24								
25 25.0								
26	S-5	2.0/2.0 100%	1 1 2 1		.3 / .3	SILTY SAND, fine grained. Dark green, very loose, wet		
27 27.0								
28	N							
29								
30 30.0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW16D SHEET 2 OF 6

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW16DW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
31	S-6	2.0/2.0 100%	1 2 1 1		.3/.3	Continued from Sheet 2 SILTY SAND, fine grained w/ trace CLAY. Dark green, wet		
32 / 32.0								
33	N						Cement grout	
34								
35 / 35.0								
36	S-7	1.7/2.0 85%	7 9 10 15		.3/.3	FOSSILIFEROUS LIMESTONE w/ little SHELL FRAG/ SHELL MATERIAL. Micrite cement is (matrix only). Light gray and white, medium dense, wet.		
37 / 37.0								
38	N						6" Steel Casing	
39								
40 / 40.0								
41	S-8	.9/2.0 45%	7 8 6 9		.3/.3			
42 / 42.0								
43	N						PVC riser	
44								
45 / 45.0								
46	S-9	1.8/2.0 90%	7 7 9 8		.3/.3	SAND, fine grained w/ trace to little SILT, trace SHELL FRAGMENTS. Light green and white medium dense, wet.		
47 / 47.0								
48	N							
49								
50 / 50.0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW16DW SHEET 3 OF 6

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW160W

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description
51	S-10	1.8/2.0 90%	12 14 16 14		.3/.3	Continued from Sheet 3 SAND, fine grained w/ little SILT and little SHELL MATERIAL. Medium dense to dense
52 52.0						
53	N					
54						
55 55.0						
56	S-11	1.9/2.0 95%	15 16 15 17		.3/.3	FOSSILIFEROUS LIMESTONE w/ little SHELL FRAG/ SHELL MATERIAL. Micrite cement is (matrix only). Light gray and white, dense, wet.
57 57.0						
58	N					
59						
60 60.0						
61	S-12	1.7/2.0 85%	13 15 21 25		.3/.3	
62 62.0						
63	S-13	1.7/2.0 85%	11 14 17 21		.3/.3	SAND, fine grained w/ little to some SILT and trace SHELL MATERIAL. Dark green/white, wet
64 64.0						
65	S-14	1.8/2.0 90%	11 14 21 26		.3/.3	SILTY SAND, fine grained w/ little to some CLAY and trace SHELL MAT. Olive green & white, dense, wet to moist
66 66.0						
67 67.0	N					
67.5	T					
68	WN					
69						
70 70.0						

Well Installation Detail: cement grout; 6" steel casing; PVC riser; Bentonite slurry

Elevation (ft. MSL)

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J.E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW160W SHEET 4 OF 6

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW16DW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
71	S-15	2.0/2.0 100%	7 12 15 21		.2/.2	Continued from Sheet 4 SILTY SAND, fine to medium grained w/ trace CLAY and trace SHELL MAT. Green + white, medium dense, wet	Bentonite Slurry	
72								
72.0								
73	WN							
74								
75								
75.0								
76	S-16	1.2/2.0 60%	13 18 21 26		.2/.2	SILTY SAND, fine to medium grained w/ trace SHELL MATERIAL Green + white, dense, wet		
77								
77.0								
78	WN						Bentonite pellets	
79								
80								
80.0								
81	S-17	.9/2.0 45%	13 13 18 22		.2/.2	SAND, fine to medium grained w/ trace SILT. Green, dense, wet		
82								
82.0								
83	WN						PVC riser	
84								
85								
85.0								
86	S-18	1.9/2.0 95%	10 10 12 12		.2/.2	SILTY SAND, fine grained w/ trace to little CLAY and trace SHELL MAT. Green, medium dense, wet	Sand pack	
87								
87.0								
88	WN						well screen	
89								
90								
90.0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW16DW SHEET 5 OF 6

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW16DW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
91	S-19	–	17 50/5"		–	Continued from Sheet 5 NO RECOVERY	well screen	
92	92.0							
93	WN						sand pack	
94								
95	95.0							
96						End of Boring TD: 95.0' (bgs)		
97								
98								
99								
100								
1								
2								
3								
4								
5								
6								
7								
8								
9								
0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW16DW SHEET 6 OF 6

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU NO. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
BORING NO.: 86-GW17IW
COORDINATES: EAST: 2467285.22895 NORTH: 356341.83737
ELEVATION: SURFACE: 17.20 TOP OF PVC CASING: 17.03

RIG: R16	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
SIZE (DIAM.)	1-3/8"				3-12-95	0-57.0	clear, warm (70's) windy	7.0	
LENGTH	2.0								
TYPE	Std.								
HAMMER WT.	140 lbs.								
FALL	30"								
STICK UP									

REMARKS: Borehole continuously sampled at various intervals to confirm stratigraphy from 0 to 55.0' (bgs). Type II monitoring well 3-12-95. How background = .4 ppm.

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

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)
Riser	2.0"	Schedule 40 PVC	+5'(bgs	45.0'(bgs)
Screen	2.0"	Schedule 40 0.01 Slot	45.0'(bgs)	55.0'(bgs)

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
1 1.0								
2 3.0	S-1	1.5/2.0 75%	10 11 11 12	01 & 010	.4/.4	SILTY SAND, fine grained. Gray, medium dense, damp.		
4 5.0	S-2	1.4/2.0 70%	6 4 4 5	02	.4/.4	SILTY SAND, fine grained w/ little to some CLAY. Gray, loose to medium stiff damp.		
6 7.0	S-3	1.5/2.0 75%	4 4 3 4		.4/.4	CLAY, medium stiff. Dark gray, moist to wet.		▼
8 9 10 10.0	N							

Match to Sheet 2

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW17IW SHEET 1 OF 4

Baker
Baker Environmental, Inc

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW17IW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
11	S-4	1.4/2.0 70%	4 7 9 14		.4/.4	Continued from Sheet 1 CLAY, stiff to soft. Gray, wet	cement grout	
12 12.0								
13	N							
14								
15 15.0								
16	S-5	1.0/2.0 50%	5 5 5 10		.4/.4	SAND, fine grained w/trace to little SILT Gray, medium dense, wet		
17 17.0								
18	N						PVC riser	
19								
20 20.0								
21	S-6	1.6/2.0 80%	WOH WOH		.4/.4	SAND, fine grained w/trace SILT. Gray, loose, wet		
22 22.0								
23	N						Bentonite Slurry	
24								
25 25.0								
26	S-7	1.5/2.0 75%	1 1 1 1		.4/.4	SILTY SAND, fine grained w/trace CLAY. Dark green, very loose, wet.		
27 27.0								
28	N							
29								
30								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J.E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW17IW SHEET 2 OF 4

Baker
Baker Environmental, Inc

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW17IW

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

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
31	S-8	1.7/2.0 85%	1/1/1/11		.4/.4	Continued from Sheet 2 SILTY SAND, fine grained w/ trace CLAY Dark green, very loose		
32 32.0								
33	N						Bentonite Slurry	
34								
35 35.0								
36	S-9	1.0/2.0 50%	4/6/6/11		.4/.4	FOSSILIFEROUS LIMESTONE w/ little SHELL FRAG SHELL MATERIAL. Micrite cement is (matrix only). Light gray and white, medium dense, wet.	Bentonite pellets	
37 37.0								
38	N							
39							PVC riser	
40 40.0								
41	S-10	2.0/2.0 100%	6/7/8/11		.4/.4			
42 42.0								
43	N						Sand pack	
44								
45 45.0								
46	S-11	1.8/2.0 90%	11/11/14/21		.4/.4	SAND, fine grained w/ little to some SILT and SHELL MATERIAL. olive green and white, medium dense; wet		
47 47.0								
48	S-12	1.8/2.0 90%	10/10/14/16		.4/.4	FOSSILIFEROUS LIMESTONE w/ little SHELL FRAG SHELL MATERIAL. Micrite cement. Light gray & white, medium dense, wet	Well Screen	
49 49.0								
50	S-13	50%	15/12		.4/.4			

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW17IW SHEET 3 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW17IW

SAMPLE TYPE

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

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
51	S-13	50%	10 13		.4 .4	Continued from Sheet 3		
52	S-14	1.3 2.0	7 9		.4 .4	FOSSILIFEROUS LIMESTONE W/LITTLE SHELL FRAG/ SHELL MATERIAL. Micrite cement is (matrix only). Light gray and white, medium dense, wet.	Sand pack	
53	S-14	65%	12 12					
54	S-15	.4 2.0	6 8		.4 .4		Well Screen	
55	S-15	20%	9 16					
56	N	—	—		—			
57						End of Boring TD: 57.0' (bgs)		
8								
9								
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J.E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW17IW SHEET 4 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU NO. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
COORDINATES: EAST: 2467274.41752 NORTH: 356339.96075
ELEVATION: SURFACE: 17.46 TOP OF PVC CASING: 17.24
BORING NO.: 86-GW17DW

RIG: Rig #16	SPLIT SPOON	CASING	AUGERS	CORE BARREL
SIZE (DIAM.)	1-3/8"	6"		
LENGTH	2.0	67.0'		
TYPE	Std.	Steel		
HAMMER WT.	140 lbs.			
FALL	30"			
STICK UP				

DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
2-25-95	0-67.0	Clear, cold (30's)	—	
2-26-95	67.0-108.0	Clear/partly cloudy (40's)		

REMARKS: Continuously sampled at various intervals to confirm stratigraphy. Type III monitoring well set 2-26-95. 6" steel casing set at 67.0'(bgs). HNu background range .2 to .3 ppm.

SAMPLE TYPE

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

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)
Riser	2.0"	Schedule 40 PVC	-.7'(bgs)	101.0'(bgs)
Screen	2.0"	Schedule 40 0.01 Slot	101.0'(bgs)	106.0'(bgs)

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
0						Asphalt Pavement		
5.0	N					Drill to: 5.0'(bgs)	Cement grout	
6	S-1	1.7/2.0	2 1		.2	CLAY, soft. Gray, damp	6" Steel casing	
7		85%	2 2		.2			
7.0								
9	N						PVC riser	
10.0								

Match to Sheet 2

DRILLING CO.: Hardin-Huber, Inc.
DRILLER: R. Keenan
BAKER REP.: J. E. Zimmerman
BORING NO.: 86-GW17DW SHEET 1 OF 2

Baker
Baker Environmental, Inc

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW17DW

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

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
11	S-2	2.0/2.0 100%	1 1 2 1		.2 / .2	Continued from Sheet 1		
12								
12.0								
13	N					CLAY, soft Gray, damp to wet		
14								
15								
15.0								
16	S-3	1.8/2.0 90%	1 2 3 3		.2 / .2			
17								
17.0								
18	N					SAND, fine grained w/ trace to little SILT. Gray w/ oxidation (faint orange) staining only traceable 20 to 22' (bgs). loose to medium dense, wet.	6" Steel Casing	
19								
20								
20.0								
21	S-4	1.0/2.0 50%	3 4 6 6		.2 / .2			
22								
22.0								
23	N							
24								
25								
25.0								
26	S-5	1.3/2.0 65%	1/12" 1/2"		.2 / .2	SILTY SAND, fine grained w/ trace CLAY. Dark green to gray, very loose, wet	PVC riser	
27								
27.0								
28	N							
29								
30								
30.0								

Cement grout

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW17DW SHEET 2 OF 2

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW17DW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
31	S-6	2.0/2.0 100%	WOH/24"		.2/.2	Continued from Sheet 2		
32 32.0								
33	N					FOSSILIFEROUS LIMESTONE w/ little SHELL FRAG/ SHELL MATERIAL Micrite cement is (matrix only) Light gray to buff & white, medium dense, wet	Cement grout	
34								
35 35.0								
36	S-7	1.5/2.0 75%	8 8 15 16		.2/.2		6" Steel Casing	
37 37.0								
38	N							
39								
40 40.0								
41	S-8	2.0/2.0 100%	7 9 11 11		.2/.2			
42 42.0								
43	N					SAND, fine grained w/ trace to some SILT and trace SHELL MATERIAL w/ micrite cement Light gray to buff to olive green & white, medium dense, wet	PVC riser	
44								
45 45.0								
46	S-9	1.8/2.0 90%	10 10 14 17		.2/.2			
47 47.0								
48	S-10	.5/2.0 25%	50/5"		.2/.2	FOSSILIFEROUS LIMESTONE w/ little SHELL FRAG/ SHELL MATERIAL and little SAND, fine grained w/ trace SILT Light green to light gray/ wht		
49 49.0								
50	S-11	.2/2.0	11 14		.2/.2			

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW17DW SHEET 3 OF 6

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW17DW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
51 51.0	S-11	10%	17 24		.2 .2	Continued from Sheet 3		
52						FOSSILIFEROUS LIMESTONE w/little SHELL FRAG/ SHELL MATERIAL. Micrite cement is (matrix only). Light gray & white, dense to very dense, wet.	cement grout	
53	N							
54								
55 55.0								
56	S-12	.5/2.0	11 19		.2		6" steel casing	
57 57.0		25%	19 23		.2			
58	S-13	.6/2.0	11 50/5"		.2			
59 59.0		30%			.2			
60	S-14	1.3/2.0	12 12		.2	CEMENTED SANDSTONE and SAND, fine grained w/little to some SILT w/ micrite cement Light gray to light green & white medium dense, wet	PVC riser	
61 61.0		65%	13 16		.2			
62	S-15	1.5/2.0	33 35		.2			
63 63.0		75%	37 50/4"		.2			
64	N							
65 65.0								
66	S-16	1.5/2.0	30 32		.2	SILTY SAND, fine grained w/ little to some CLAY/ trace SHELL MATERIAL		
67 67.0		75%	38 50/4"		.2			
68	W-N							
69								
70 70.0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW17DW SHEET 4 OF 6

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
BORING NO.: 86-GW17DW

SAMPLE TYPE

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

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
71	S-17	1.4 / 2.0 70%	11 13 17 19		.3 / .3	Continued from Sheet 4 SILTY SAND, fine to medium grained w/ trace CLAY and trace SHELL MATERIAL.		
72								
72.0								
73	W-N						Bentonite Slurry	
74								
75								
75.0								
76	S-18	2.0 / 2.0 100%	7 19 12 12		.3 / .3	SILTY SAND fine grained w/ trace CLAY and trace SHELL MATERIAL Green & white, dense, wet		
77								
77.0								
78	W-N							
79								
80								
80.0								
81	S-19	2.0 / 2.0 100%	13 15 23 12		.3 / .3		PVC risers	
82								
82.0								
83	W-N					SILTY SAND, fine grained w/ trace SHELL MATERIAL. Green & white, dense to very dense, wet.		
84								
85								
85.0								
86	S-20	.4 / 2.0 20%	33 50/4"		.3 / .3			
87								
87.0								
88	W-N							
89								
90								
90.0								

DRILLING CO.: Hardin-Huber, Inc.
BAKER REP.: J.E. Zimmerman
DRILLER: R. Keenan
BORING NO.: 86-GW17DW
SHEET 5 OF 6

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW17DW

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

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description
91	S-21	2.0 / 2.0	15 17 20 26		.3 / .3	Continued from Sheet 5
92 (92.0)		100%				
93	W-N					SILTY SAND, fine grained w/trace to little CLAY and trace SHELL MATERIAL. Green & white, dense wet.
94						
95 (95.0)						
96	S-22	1.8 / 2.0	12 13 28 24		.2 / .2	
97 (97.0)		90%				
98	W-N					
99						
100 (100.0)						
101	S-23	1.8 / 2.0	8 41 21 20		.2 / .2	SAND, fine grained w/trace to little SILT and SHELL MATERIAL w/ micrite cement. Green to light green & white, dense, wet
102 (102.0)		90%				
103	S-24	1.5 / 2.0	16 18 31 50/3"		.2 / .2	
104 (104.0)		75%				
105	W-N					
106 (106.0)						
107	S-25	2.0 / 2.0	9 11 14 15		.2 / .2	CLAY, very stiff w/trace SILT. Green, damp to moist
108 (108.0)		100%				
109						End of Boring
110						TD: 108.0' (bgs)

Well Installation Detail: Bentonite Slurry; Bentonite pellets; PVC riser; Sand pack; well screen

Elevation (ft. MSL)

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J.E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW17DW SHEET 6 OF 6

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU NO. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
COORDINATES: EAST: 2467391.53923
ELEVATION: SURFACE: 15.19
BORING NO.: 86-GW18DW
NORTH: 356249.87103
TOP OF PVC CASING: 17.89

RIG: Rig #16	SPLIT SPOON	CASING	AUGERS	CORE BARREL
SIZE (DIAM.)	1-3/8"	6"		
LENGTH	2.0	63.0'		
TYPE	Std.	steel		
HAMMER WT.	140 lbs.			
FALL	30"			
STICK UP				

DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
2-22-95	0 - 60.0	clear, cold (30's)	6.50'	
2-23-95	60.0-64.0	clear, cold (40's)		
2-24-95	64.0 - 113.0	partly cloudy, warm (70's)		

REMARKS: Continuous sampling from 1.0' to 103.0' (bgs). Type II monitoring well set 2-24-95. 6" steel casing set at 63.0'(bgs). HNu background range is .2 to .4 ppm.

SAMPLE TYPE

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

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)
Riser	2.0"	Schedule 40 PVC	+2.5'	103.0 (bgs)
Screen	2.0"	Schedule 40 0.01 Slot	103.0 (bgs)	108.0 (bgs)

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
1	1.0 N	-	-	00	.2/.2	SILTY SAND w/ROOTED MAT.		
2	S-1	1.0/2.0	6 4 5		.2 .2	SILTY SAND, fine grained w/trace to little CLAY Dark brown to brown to greenish gray w/oxidation (orange), loose to very loose, damp to moist to wet	Cement grout	
3	3.0	50%	6					
4	S-2	1.6/2.0	2 4	02	.2 .2		6" steel casing	
5	5.0	80%	3 4					
6	S-3	1.7/2.0	2 1		.2 .2			
7	7.0	85%	1 1					
8	S-4	1.1/2.0	7 10		.2 .2	SAND, fine grained w/trace SILT Light gray, medium dense, wet. Match to Sheet 2	PVC riser	
9	9.0	55%	11 14					
10	S-5	1.0/2.0	7 7		.3 .2			
		50%						

DRILLING CO.: Hardin-Huber, Inc.
DRILLER: R. Keenan
BAKER REP.: J. E. Zimmerman
BORING NO.: 86-GW18DW
SHEET 1 OF 2

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW18DW

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

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
11 / 11.0	S-5	50%	10 / 11		.2 / .2	Continued from Sheet 1		
12 / 13 / 13.0	S-6	1.4/2.0 70%	4 4 7 8		.2 / .2	SAND, fine grained w/trace SILT. Light gray, medium dense, wet	cement grout	
14 / 15 / 15.0	S-7	1.2/2.0 60%	2 4 11 10		.2 / .2		6" steel casing	
16 / 17 / 17.0	S-8	1.7/2.0 85%	4 5 8 10		.2 / .2			
18 / 19 / 19.0	S-9	2.0/2.0 100%	1 1 1 1		.2 / .2	SAND, fine to medium grained w/trace SILT. Greenish gray, very loose, wet.		
20 / 21 / 21.0	S-10	1.5/2.0 75%	WOH/12" 1 2		.2 / .2	SILTY SAND, fine grained w/trace CLAY. Dark green, loose to medium dense, wet.	PVC riser	
22 / 23 / 23.0	S-11	2.0/2.0 100%	2 2 3 3		.2 / .2			
24 / 25 / 25.0	S-12	1.8/2.0 90%	2 4 5 3		.2 / .2			
26 / 27 / 27.0	S-13	1.6/2.0 80%	6 29 50/5"		.2 / .2	FOSSILIFEROUS LIMESTONE w/trace SHELL FRAGMENTS. Micrite cement is (matrix only). Light gray and white, dense, wet.		
28 / 29 / 29.0	S-14	2.0/2.0 100%	20 30 20 26		.2 / .2			
30	S-15	1.8/2.0	13 25		.2 / .2			

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW18DW SHEET 2 OF 2

Baker
Baker Environmental, Inc.

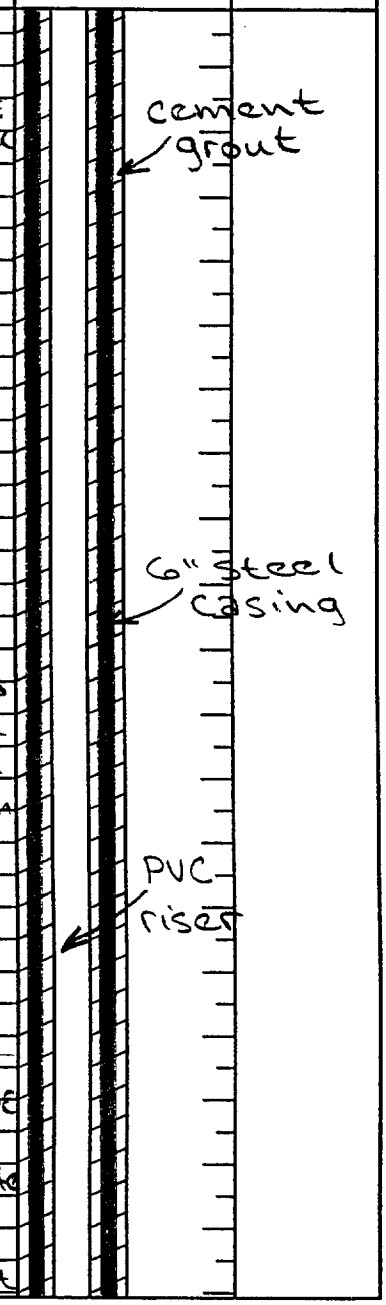
TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW18DW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description
31	S-15	90%	12 25		.2 .2	Continued from Sheet 2
31.0						
32	S-16	1.1/2.0	6 9 14 7		.2 — .2	FOSSILIFEROUS LIMESTONE w/ trace to little SHELL FRAGMENTS. Micrite cement is (matrix only). Light gray and white, medium dense; wet.
33		55%				
33.0						
34	S-17	1.6/2.0	15 12 18 19		.2 .2	
35		80%				
35.0						
36	S-18	1.6/2.0	7 10 14 18		.2 .2	
37		80%				
37.0						
38	S-19	1.8/2.0	7 11 15 16		.2 .2	
39		90%				
39.0						
40	S-20	1.6/2.0	5 7 11 11		.2 .2	SAND, fine grained w/ trace SILT. Light gray to light green and white, medium dense, wet.
41		80%				
41.0						
42	S-21	1.7/2.0	4 7 6 15		.2 .2	
43		85%				
43.0						
44	S-22	1.1/2.0	12 13 17 14		.2 .2	
45		55%				
45.0						
46	S-23	1.3/2.0	9 12 15 13		.2 .2	
47		65%				FOSSILIFEROUS LIMESTONE w/ little SHELL FRAGS/ SHELL MATERIAL. Micrite cement is (matrix only). Light gray and white, med. dense, wet
47.0						
48	S-24	1.5/2.0	7 11 12 16		.2 .2	
49		75%				
49.0						
50	S-25	.8/2.0	7 9		.2 .2	



Well Installation Detail | Elevation (ft. MSL)

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J.E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW18DW SHEET 3 OF 7

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW18DW

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A = Auger, W = Wash, C = Core, P = Piston

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SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
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Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description
51 51.0	S-25	40%	12 14		.2 .2	Continued from Sheet 3
52	S-26	1.2/2.0 60%	14 14 15 10		.2 .2	FOSSILIFEROUS LIMESTONE w/little SHELL MATERIAL. Light gray and white, medium dense, wet
53 53.0						
54	S-27	1.2/2.0 60%	10 12 15 11		.2 .2	
55 55.0						
56	S-28	1.7/2.0 85%	12 16 14 12		.2 .2	
57 57.0						
58	S-29	1.6/2.0 80%	11 13 13 15		.2 .2	SAND, fine grained w/trace SILT and little SHELL MATERIAL Green and white, medium dense, wet
59 59.0						
60 60.0	W-N					
61	S-30	1.7/2.0 85%	7 22 22 31		.3 .3	SILTY SAND, fine grained w/trace to some CLAY and trace SHELL MATERIAL. Green and white, dense to medium dense, wet.
62 62.0						
63	S-31	1.5/2.0 75%	5 7 14 17		.3 .3	
64 64.0						
65 65.0	W-N					
66	S-32	1.0/1.0 50%	7 27 50/3"		.4 .4	SILTY SAND, fine grained w/ trace to some CLAY and trace SHELL MATERIAL. Green and white, dense to very dense, wet
67 67.0						
68	S-33	1.6/2.0 80%	8 8 11 20		.4 .4	
69 69.0						
70	S-34	1.9/2.0	7 8		.4 .4	

Well Installation Detail: Cement grout; 6" Steel Casing; PVC risers; Bentonite Slurry

Elevation (ft. MSL)

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW18DW SHEET 4 OF 7

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW18DW

SAMPLE TYPE
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SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
71 71.0	S-35	95%	10 20		.4 .4	Continued from Sheet 4		
72 73 73.0	S-36	1.9/2.0 95%	8 10 12 18		.4 .4	SILTY SAND, fine to medium grained w/ trace CLAY and trace SHELL MATERIAL. Green and white, medium dense, wet.	Bentonite Slurry	
74 75 75.0	S-37	2.0/2.0 100%	9 12 20 25		.4 .4			
76 77 77.0	S-38	1.7/2.0 85%	8 9 13 18		.3 .3			
78 79 79.0	S-39	1.8/2.0 90%	8 12 18 21		.3 .3	SILTY SAND, fine grained w/ trace CLAY and trace SHELL MATERIAL. Green and white, dense, wet.	PVC riser	
80 81 81.0	S-40	1.1/2.0 55%	19 27 50/3"		.3 .3	SILTY SAND, fine grained w/ trace SHELL MATERIAL. Green and white, v. dense, wet		
82 83 83.0	S-41	—	35 50/3"		—	NO RECOVERY		
84 85 85.0	S-42	1.4/2.0 70%	25 35 16 19		.3 .3	SILTY SAND, fine grained w/ trace to little CLAY and trace SHELL MATERIAL. Green and white, very dense to medium dense, wet		
86 87 87.0	S-43	1.7/2.0 85%	9 9 16 21		.3 .3			
88 89 89.0	S-44	1.2/2.0 60%	7 9 12 15		.3 .3	SILTY SAND, fine grained w/ trace to little CLAY and trace SHELL FRAG! SHELL MATERIAL. Green and white, medium dense wet		
90	S-45	1.7/2.0	5 7		.3 .3			

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW18DW SHEET 5 OF 7

Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW18DW

SAMPLE TYPE
S = Split Spoon, T = Shelby Tube, R = Air Rotary, D = Denison, N = No Sample
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SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
91	S-45	85%	20 / 26		.3 / .3	Continued from Sheet 5		
92	S-46	1.7 / 2.0	9 / 17 / 15 / 21		.3 / .3	SILTY SAND, fine grained w/ trace to little CLAY. Green, medium dense, wet	Bentonite Slurry	
93	93.0	85%						
94	S-47	1.8 / 2.0	5 / 9 / 16 / 25		.3 / .3			
95	95.0	90%						
96	S-48	1.6 / 2.0	5 / 11 / 12 / 15		.2 / .2	SILTY SAND, fine grained w/ trace to little CLAY and trace SHELL MATERIAL. Green and white, medium dense to dense, wet	Bentonite pellets	
97	97.0	80%					PVC riser	
98	S-49	1.8 / 2.0	9 / 17 / 26 / 41		.2 / .2			
99	99.0	90%						
100	S-50	1.9 / 2.0	12 / 10 / 18 / 16		.2 / .2	SAND, fine grained w/ trace to little SILT and trace SHELL MATERIAL. Light green, light gray & white, wet	Sand pack	
101	101.0	95%						
102	S-51	.7 / 2.0	65 / 7"		.2 / .2			
103	103.0	35%						
104						Drill to: 113.0' (695) to confirm Stratigraphy	Well Screen	
105								
106	W-N							
107								
108								
109								
110								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J.E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW18DW SHEET 6 OF 7

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW18DW

SAMPLE TYPE

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A = Auger
W = Wash
C = Core
P = Piston
N = No Sample

DEFINITIONS

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Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
111	W-N					Continued from Sheet 6		
112						Drill to: 113.0' (bgs)	sand pack	
113	113.0							
4						End of Boring		
5						TD: 113.0' (bgs)		
6								
7								
8								
9								
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J.E. Zimmerman
DRILLER: R. keenan BORING NO.: 86-GW18DW SHEET 7 OF 7

Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU NO. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW19DW
COORDINATES: EAST: 2467533.77456 NORTH: 356238.27027
ELEVATION: SURFACE: 15.77 TOP OF PVC CASING: 18.67

RIG: R16	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
SIZE (DIAM.)	1-3/8"	6"			3-14-95	0-63.0	Foggy, cool (40's) calm	6.5	
LENGTH	2.0	630'			3-20-95	63.0-100.0	warm, (70's) light breeze		
TYPE	Std.	Steel							
HAMMER WT.	140 lbs.								
FALL	30"								
STICK UP									

REMARKS: Utilized 5.0' centers to 52.0' (bgs). Borehole continuously sampled at various intervals to confirm stratigraphy. Type III monitoring well set 3-20-95 HNu background range is .2 to .5 ppm.

SAMPLE TYPE

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

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)
Riser	2.0"	Schedule 40 PVC	+2.5'	90.0'(bgs)
Screen	2.0"	Schedule 40 0.01 Slot	90.0'(bgs)	95.0'(bgs)

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
.5		—	—	00	.5/.5	SILTY SAND w/ ROOTED MAT		
1 1.0	WN	—	—	—	—			
2	S-1	1.7/2.0	7 8 7 12		.5 .5	SILTY SAND, fine grained w/trace to little CLAY. Dark brown to brown and gray w/oxidation, medium dense, damp to moist.	Cement grout; 6" steel casing	
3 3.0		85%						
4	S-2	1.3/2.0	4 4 5 12	02	.5 .5			
5 5.0		65%						
6	S-3	1.4/2.0	2 2 2 2		.5 .5	CLAY, Soft. Brown w/oxidation (orange) staining, wet		
7 7.0		70%						
8 9	WN						PVC riser	
10 10.0						Match to Sheet 2		

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW19DW SHEET 1 OF 6

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW19DW

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D = Denison
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W = Wash
C = Core
P = Piston
N = No Sample

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Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
11	S-4	1.1/2.0 55%	7 11 14 21		.5 .5	Continued from Sheet 1	Cement grout	
12 12.0								
13	WN					SAND, fine grained w/ trace SILT. Brownish gray to light green, medium dense to very loose, wet.		
14								
15 15.0							6" steel casing	
16	S-5	1.4/2.0 70%	8 10 7		.5 .5			
17 17.0								
18	WN							
19								
20 20.0								
21	S-6	1.8/2.0 90%	3 2/18"		.5 .5		PVC riser	
22 22.0								
23	WN							
24								
25 25.0								
26	S-7	1.8/2.0 90%	2 1 1 2		.5 .5	SILTY SAND, fine grained w/ trace CLAY. Dark green very loose, wet		
27 27.0								
28	N							
29								
30 30.0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J.E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW19DW SHEET 2 OF 6

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW19DW

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Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
31	S-8	2.0/2.0 100%	12 16 12 8		.5/.5	Continued from Sheet 2	cement grout	
32 32.0								
33	N					FOSSILIFEROUS LIMESTONE w/little SHELL FRAG/ SHELL MATERIAL. Micrite cement is (matrix only). Light gray and white, medium dense, wet.	6" Steel Casing	
34								
35 35.0								
36	S-9	1.5/2.0 75%	12 12 13 17		.5/.5			
37 37.0								
38	N						PVC riser	
39								
40 40.0								
41	S-10	1.8/2.0 90%	7 8 12 11		.5/.5			
42 42.0								
43	N							
44								
45 45.0								
46	S-11	1.5/2.0 75%	17 21 25 33		.5/.5	SAND, fine grained w/trace to little SILT. Olive green, dense, wet.		
47 47.0								
48	N							
49								
50 50.0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW19DW SHEET 3OF6

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW19DW

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Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
51	S-12	1.8/2.0 90%	8 13 15 30		.3/.3	Continued from Sheet 3	cement grout	
52 (52.0)								
53	N					FOSSILIFEROUS LIMESTONE w/little SHELL FRAG/ SHELL MATERIAL. Micrite cement is (matrix only). Light gray and white, medium dense, wet	6" Steel Casing	
54								
55 (55.0)								
56	S-13	1.1/2.0 55%	24 35 24 33		.3/.3			
57 (57.0)								
58	S-14	.6/2.0 30%	15 25 50/3"		.3/.3			
59 (59.0)								
60	S-15	1.5/2.0 75%	11 23 50/4"		.3/.3		PVC risers	
61 (61.0)								
62	S-16	.6/2.0 30%	15 48 50/1"		.3/.3	SILTY SAND, fine grained w/ trace to some CLAY and trace SHELL MATERIAL. Green and white, very dense, wet.		
63 (63.0)								
64	WN							
65 (65.0)								
66	S-17	.8/2.0 40%	4 6 10 17		.3/.3			
67 (67.0)								
68								
69	WN							
70 (70.0)							Bentonite slurry	

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J.E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW19DW SHEET 4 OF 6

Baker
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CTO NO.: 62470-303 BORING NO.: 86-GW19DW

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Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
71	S-18	1.5/2.0 75%	6 9 10 13		.3/.3	Continued from Sheet 4 SILTY SAND, fine to medium grained w/trace CLAY and trace SHELL MAT. wet		
72 (72.0)								
73	WN						Bentonite Slurry	
74								
75 (75.0)								
76	S-19	1.2/2.0 60%	8 8 12 14		.3/.3	SILTY SAND, fine grained w/trace CLAY and trace SHELL MATERIAL Green & white, medium dense, wet.	PVC riser	
77 (77.0)								
78	WN							
79								
80 (80.0)								
81	S-20	.3/2.0 15%	11 22 50/3"		.2/.2	SILTY SAND, fine grained w/trace SHELL MATERIAL. Green & white, very dense, wet	Bentonite pellets	
82 (82.0)								
83	WN							
84								
85 (85.0)								
86	S-21	.8/2.0 40%	21 23 21 25		.2/.2	SILTY SAND, fine grained w/trace to little CLAY and trace SHELL MATERIAL. Green and white, dense, wet.	Sand pack	
87 (87.0)								
88	WN							
89								
90 (90.0)								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J.E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW19DW SHEET 5 OF 6

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW19DW

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Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
91	S-22	1.7/2.0 85%	6 10 15 12		.2 .2	Continued from Sheet 5	sand pack	
92 92.0								
93	WN						well screen	
94								
95 95.0								
96	S-23	1.6/2.0 80%	6 10 15		.2 .2	SILTY CLAY w/ little to some SAND, fine grained. Green, soft to medium dense, wet.		
97 97.0								
98	WN							
99								
100 100.0								
101						End of Boring TD: 100.0' (bgs)		
102								
103								
104								
105								
6								
7								
8								
9								
0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW19DW SHEET 6 OF 6

Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU NO. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
COORDINATES: EAST: 2467472.91100 NORTH: 356250.77632
ELEVATION: SURFACE: 15.62 TOP OF PVC CASING: 17.87
BORING NO.: 86-GW20IW

RIG: R16	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
SIZE (DIAM.)	1-3/8"				4-4-95	0-56.0	clear, mild (temp 60's)	–	
LENGTH	2.0								
TYPE	Std.								
HAMMER WT.	140 lbs.								
FALL	30"								
STICK UP									

REMARKS: Borehole continuously sampled from 40.0'(bgs) to 56.0'(bgs). Borehole drilled out to 56.0'(bgs). Type II monitoring well set 4-4-95. HNu background range .2ppm to .4 ppm.

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

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)
Riser	2.0"	Schedule 40 PVC	+2.5'	45.0'(bgs)
Screen	2.0"	Schedule 40 0.01 Slot	45.0'(bgs)	55.0'(bgs)

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
1								
2							cement grout	
3								
4						Drill to: 40.0' (bgs)		
5								
6	WN						PVC riser	
7								
8								
9								
10						Match to Sheet 2		

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW20IW SHEET 1 OF 4

Baker
Baker Environmental, Inc

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW20IW

SAMPLE TYPE

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

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
11						Continued from Sheet 1	Cement grout	
12								
13								
14								
15								
16								
17								
18							Bentonite Slurry	
19								
20	WN							
21								
22						Drill to: 40.0' (bgs)		
23							PVC riser	
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW20IW SHEET 2 OF 4

Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW20IW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
1–40	WN					Continued from Sheet 2. Drill to: 40.0' (695)	Bentonite Slurry; Bentonite pellets; PVC riser	
40.0								
41	S-1	2.0/2.0 100%			.4/.4	FOSSILIFEROUS LIMESTONE w/little SHELL FRAG/ SHELL MATERIAL. Micrite cement is (matrix only). Light gray to buff & white, medium dense, wet	Sand pack	
42.0								
43	S-2	1.8/2.0 90%			.4/.4	SAND, fine grained w/trace SILT/SHELL. Light gray to light green & white, wet		
44.0								
45	S-3	1.9/2.0 95%			.4/.4	SAND, fine grained w/ trace Silt and little SHELL MATERIAL. Olive green & white, medium dense, wet		
46.0								
47	S-4	.3/2.0 15%			.4/.4	SAND, fine grained w/trace SILT. Olive green, very dense, wet.		
48.0								
49	S-5	1.8/2.0 90%			.4/.4		Well screen	
50.0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW20IW SHEET 3 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW20IW

SAMPLE TYPE

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

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
51	S-6	1.8/2.0 90%	8 8 7 11		.4 / .4	Continued from Sheet 3	Sand pack	
52 S2.0						FOSSILIFEROUS LIMESTONE w/little SHELL FRAG/ SHELL MATERIAL. Micrite cement is (matrix only). Light gray and white, medium dense, wet.		
53	S-7	1.8/2.0 90%	11 13 12 18		.2 / .2		Well screen	
54 S4.0								
55	S-8	1.1/2.0 55%	9 14 16 21		.2 / .2			
56 56.0						End of Boring TD: 56.0' (bgs)		
57								
58								
59								
60								
1								
2								
3								
4								
5								
6								
7								
8								
9								
0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW20IW SHEET 4 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU NO. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
COORDINATES: EAST: 2467579.4477 NORTH: 355885.3617
ELEVATION: SURFACE: 18.57 TOP OF PVC CASING: 18.22
BORING NO.: 86-GW21IW

RIG: R16

	SPLIT SPOON	CASING	AUGERS	CORE BARREL
SIZE (DIAM.)	1-3/8"			
LENGTH	2.0			
TYPE	Std.			
HAMMER WT.	140 lbs.			
FALL	30"			
STICK UP				

DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
5-1-95	0-54.0	cloudy, cool (60's)	—	
5-2-95	54-64.0	overcast, mild (60s)		

REMARKS: Utilized 5.0' centers to 37.0'(bgs). Borehole continuously sampled from 40.0'(bgs) to 64.0'(bgs). Type II monitoring well set 5-2-95. HNu background range is .3 to .4 ppm.

SAMPLE TYPE

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

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)
Riser	2.0"	Schedule 40 PVC	.5'(bgs)	44.0'(bgs)
Screen	2.0"	Schedule 40 0.01 Slot	44.0'(bgs)	54.0'(bgs)

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
1								
2								
3	N					Drill down to 5.0' (bgs)	cement grout	
4								
5	5.0							
6	S-1	2.0/2.0	2 2		.4	CLAY, soft w/little SILT. Dark greenish gray, moist		
7	7.0	100%	1 2		.4		PVC riser	
8								
9	N							
10	10.0							
						Match to Sheet 2		

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW21IW SHEET 1 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW21IW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
11	S-2	1.0/2.0 50%	6 6 7 6		.4/.4	Continued from Sheet 1		
12 12.0								
13	N						Bentonite slurry	
14								
15 15.0								
16	S-3	1.0/2.0 50%	7 9 8 12		.4/.4	SAND, fine grained w/trace SILT Greenish gray, medium dense, wet		
17 17.0								
18	N							
19								
20 20.0								
21	S-4	1.0/2.0 50%	9 10 13 15		.4/.4			
22 22.0								
23	N						PVC Riser	
24								
25 25.0								
26	S-5	1.9/2.0 95%	1/12" 1/12"		.4/.4	SILTY SAND, fine grained w/trace CLAY. Dark green, very loose, wet		
27 27.0								
28	N							
29							Bentonite pellets	
30 30.0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J.E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW21IW SHEET 2 OF 4

Baker
Baker Environmental, Inc

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW21IW

SAMPLE TYPE

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

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
31	S-6		WOH / 24"		.4 / .4	Continued from Sheet 2	Bentonite pellets	
32 32.0								
33	N							
34								
35 35.0								
36	S-7		13 16 16 19		.4 / .4	FOSSILIFEROUS LIMESTONE w/little SHELL FRAG/ SHELL MATERIAL. Micrite cement is (matrix only). Light gray and white, dense to medium dense, wet	PVC riser	
37 37.0								
38	N							
39								
40 40.0								
41	S-8		9 10 13 10		.4 / .4		Sand pack	
42 42.0								
43	S-9		7 8 11 8		.4 / .4			
44 44.0								
45	S-10		18 12 12 16		.4 / .4	SAND, fine grained w/trace to little SILT and trace to little SHELL FRAG/ SHELL MATERIAL. Light gray + white and buff, medium dense to dense, wet	Well Screen	
46 46.0								
47	S-11		8 12 20 14		.4 / .4			
48 48.0								
49	S-12		50 / 5"		.4 / .4			
50 50.0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J.E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW21IW SHEET 3 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW21IW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
51	S-13	1.0/2.0 50%	12 14 17 12		.4/.4	Continued from Sheet 3	Sand pack	
52 (52.0)								
53	S-14	.3	7 10 7 12		.4/.4	FOSSILIFEROUS LIMESTONE w/little SHELL FRAG/ SHELL MATERIAL. Micrite cement, light gray and white, medium dense	Well Screen	
54 (54.0)								
55	S-15	1.6	6 9 9 16		.3/.3	SAND, fine grained w/trace SILT and trace to little SHELL FRAG. Green & white, medium dense, wet		
56 (56.0)								
57	S-16	1.3	6 9 11 15		—		Bentonite pellets	
58 (58.0)								
59	S-17	.6	6 9 12 13		—			
60 (60.0)								
61	S-18	1.8	31 21 18 22		—	SAND, fine grained w/ trace to little SILT and little SHELL FRAG and trace Cemented SAND-STONE. Wet		
62 (62.0)								
63	S-19	1.5	28 21 16 20		—	SAND, fine grained w/trace to little SILT, little SHELL FRAG and trace to little CLAY		
64 (64.0)								
65						End of Boring TD: 64.0' (69S)		
66								
67								
68								
69								
70								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW21IW SHEET 4 OF 4

TEST BORING AND WELL CONSTRUCTION RECORD

Baker Environmental, Inc.

PROJECT: RI/FS at OU NO. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
COORDINATES: EAST: 2467811.3988 NORTH: 355993.5041
ELEVATION: SURFACE: 18.22 TOP OF PVC CASING: 17.78
BORING NO.: 86-GW22IW

RIG: R16					DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
Book III 130 → 134	SPLIT SPOON	CASING	AUGERS	CORE BARREL					
SIZE (DIAM.)	1-3/8"				4-27-95	0-65.0	clear, cool (50's), calm	—	
LENGTH	2.0								
TYPE	Std.								
HAMMER WT.	140 lbs.								
FALL	30"								
STICK UP									

REMARKS: Utilized 5' centers to 40.0' (bgs). Borehole continuously sampled from 40.0' (bgs) to 64.0' (bgs). Type II monitoring well set 4-27-95. HNu BG range .3 to .6 ppm

SAMPLE TYPE

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

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)
Riser	2.0"	Schedule 40 PVC	.5' (bgs)	54.0' (bgs)
Screen	2.0"	Schedule 40 0.01 Slot	54.0' (bgs)	64.0' (bgs)

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
1						Asphalt Pavement		
2						Drill down to 5.0' (bgs)	cement grout	
3	N							
4								
5	5.0							
6	S-1	1.4/2.0 70%	6 8 9 11		.6 .6	SAND, fine grained w/trace SILT. light gray to buff w/oxidation (orange) staining, medium dense, moist	PVC riser	
7	7.0							
8								
9	N							
10	10.0					Match to Sheet 2		

DRILLING CO.: Hardin-Huber, Inc.
DRILLER: R. Keenan
BAKER REP.: J. E. Zimmerman
BORING NO.: 86-GW22IW SHEET 1 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW22IW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
11	S-2	1.8/2.0 90%	2 2 2 2		.6/.6	Continued from Sheet 1	Cement grout	
12								
13	N					SAWD, fine grained w/ trace SILT. Light gray to buff to light green w/ oxidation (orange) staining, loose to medium dense, wet		
14								
15	15.0							
16	S-3	1.0/2.0 50%	4 4 8 10		.6/.6			
17	17.0							
18	N						PVC riser	
19								
20	20.0							
21	S-4	1.1/2.0 55%	7 10 12 11		.6/.6	SAWD, fine to medium grained w/ trace SILT. Light green, medium dense, wet.		
22	22.0							
23	N						Bentonite slurry	
24								
25	25.0							
26	S-5	1.1/2.0 55%	WOH/24"		.6/.6	SAWD, fine grained w/ little to some SILT Dark green, very loose, wet		
27	27.0							
28	N							
29								
30	30.0							

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J.E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW22IW SHEET 2 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: B6-GW22TW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
31	S-6	1.3/2.0 65%	WOH/24"		.6/.6	Continued from Sheet 2 SAND, fine grained w/ little SILT. Dark green, very loose, wet.		
32 32.0								
33	N						Bentonite Slurry	
34								
35 35.0								
36	S-7	1.6/2.0 80%	5 12 12 14		.6/.6			
37 37.0						FOSSILIFEROUS LIMESTONE w/ little SHELL FRAGT SHELL MATERIAL. Micrite cement is (matrix only). Light gray and white, medium dense, wet	PVC risers	
38	N							
39								
40 40.0								
41	S-8	.5/2.0 25%	12 12 16 18		.6/.6			
42 42.0								
43	S-9	1.8/2.0 90%	5 10 10 12		.6/.6			
44 44.0								
45	S-10	1.5/2.0 75%	8 10 13 15		.6/.6	SAND, fine grained w/ trace to little SILT and trace SHELL FRAG/SHELL MATERIAL. Light gray to buff and white, medium	Bentonite pellets	
46 46.0								
47	S-11	1.8/2.0 90%	6 14 15 21		.6/.6			
48 48.0								
49	S-12	1.3/2.0 65%	12 14 21 26		.6/.6		Sand Pack	
50 50.0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: B6-GW22TW SHEET 3 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW22TW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
51	S-13	.9/2.0 45%	8 50/5"		.3 .3	Continued from Sheet 3 dense to dense to very dense, wet	PVC riser	
52 / 52.0								
53	S-14	1.0/2.0 50%	8 10 15 23		.3 .3		Sand pack	
54 / 54.0						FOSSILIFEROUS LIMESTONE w/little SHELL FRAG/ SHELL MATERIAL. Micrite cement is (matrix only). Light gray and white, medium dense to dense, wet.		
55	S-15	1.5/2.0 75%	12 16 18 23		.3 .3			
56 / 56.0								
57	S-16	1.0/2.0 50%	8 12 10 16		.3 .3			
58 / 58.0								
59	S-17	1.0/2.0 50%	11 16 17 22		.3 .3		Well screen	
60 / 60.0								
61	S-18	NR	21 24 28 43		.3 .3	NO RECOVERY		
62 / 62.0								
63	S-19	1.4/2.0 70%	16 12 16 9		.3 .3	FOSSILIFEROUS LIMESTONE w/little SHELL FRAG/ SHELL MATERIAL. Light gray + white		
64 / 64.0						SAND, fine grained w/ trace SILT and trace CLAY w/trace SHELL FRAG. Light gray to green and white, wet		
65 / 65.0	N							
66						End of Boring TD: 65.0' (bgs)		
67								
68								
69								
70								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW22TW SHEET 4 OF 4

Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU NO. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
COORDINATES: EAST: 2467918.1160 NORTH: 356143.5171
ELEVATION: SURFACE: 17.59 TOP OF PVC CASING: 17.36
BORING NO.: 86-GW23IW

RIG: R16					DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
Book III 114 → 119	SPLIT SPOON	CASING	AUGERS	CORE BARREL					
SIZE (DIAM.)	1-3/8"				4-26-95	0 - 65.0	Clear, cool (40's) calm	—	
LENGTH	2.0								
TYPE	Std.								
HAMMER WT.	140 lbs.								
FALL	30"								
STICK UP									

REMARKS: Utilized 5' centers to 40.0' (bgs). Borehole continuously sampled from 40.0' (bgs) to 64.0' (bgs). Type II monitoring well set 4-26-95. HNu background = .6 ppm

SAMPLE TYPE

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

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)
Riser	2.0"	Schedule 40 PVC	.5' (bgs)	54.0' (bgs)
Screen	2.0"	Schedule 40 0.01 Slot	54.0' (bgs)	64.0' (bgs)

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
1						Asphalt Pavement		
2								
3	N					Drill down to 5.0' (bgs)	cement grout	
4								
5	5.0							
6	S-1	1.3/2.0	5 6 10		.6 — .6	SAND, fine grained w/ trace silt. Light gray to buff w/ oxidation (faint yellow (orange) medium dense, moist		
7	7.0	65%	11					
8							PVC riser	
9	N							
10	10.0							
						Match to Sheet 2		

DRILLING CO.: Hardin-Huber, Inc.
DRILLER: R. Keenan
BAKER REP.: J. E. Zimmerman
BORING NO.: 86-GW23IW SHEET 1 OF 4

Baker
Baker Environmental, Inc

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW23IW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
11	S-2	.8/2.0 40%	WOH/18" 6		.6/.6	Continued from Sheet 1 CLAY, very soft. Greenish gray, wet	Cement grout	
12 12.0								
13	N						PVC riser	
14								
15 15.0								
16	S-3	.9/2.0 45%	6 8 13 13		.6/.6	SAND, fine grained w/trace SILT. Light gray to buff w/ oxidation, medium dense, wet.		
17 17.0								
18	N						Bentonite Slurry	
19								
20 20.0								
21	S-4	1.2/2.0 60%	5 6 7 8		.6/.6			
22 22.0								
23	N							
24								
25 25.0								
26	S-5	1.5/2.0 75%	1 1 1 2		.6/.6	SAND, fine to medium grained w/trace to little SILT. Dark greenish gray, medium dense to very loose, wet		
27 27.0								
28	N							
29								
30 30.0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J.E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW23IW SHEET 2 OF 4

Baker
Baker Environmental, Inc

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW23IW

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
31	S-6	2.0/2.0 100%	2 1 1 1		.6 .6	Continued from Sheet 2		
32 32.0								
33	N						Bentonite Slurry	
34								
35 35.0								
36	S-7	2.0/2.0 100%	5 6 7 8		.6 .6			
37 37.0								
38	N					FOSSILIFEROUS LIMESTONE w/ little SHELL FRAG/ SHELL MATERIAL. Micrite cement is matrix only. Light gray & white, medium dense, wet	PVC riser	
39								
40 40.0								
41	S-8	1.4/2.0 70%	10 15 16 21		.6 .6			
42 42.0								
43	S-9	1.8/2.0 90%	13 13 12 15		.6 .6		Bentonite pellets	
44 44.0								
45	S-10	1.8/2.0 90%	6 9 10 13		.6 .6	SAND, fine grained w/ trace to little SILT and trace SHELL FRAG/ SHELL MATERIAL. Light gray to buff and white		
46 46.0								
47	S-11	.8/2.0 40%	6 50/4"		.6 .6	SAND, fine grained w/ trace to little SILT olive green, very dense wet.		
48 48.0								
49	S-12	1.7/2.0 85%	12 12 13 19		.6 .6	SAND, fine grained w/ CEMENTED SANDSTONE w/ trace to little SILT and trace SHELL FRAG	Sand pack	
50 50.0								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: R. Keenan BORING NO.: 86-GW23IW SHEET 3 OF 4

Baker
Baker Environmental, Inc

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW23IW

SAMPLE TYPE

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

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
51	S-13	1.7/2.0 85%	12 12 13 15		.6 .6	Continued from Sheet 3 SAND, fine grained w/ trace to little SILT and trace SHELL FRAG. Medium dense, wet	PVC riser	
52 52.0								
53	S-14	1.8/2.0 90%	21 19 23 30		.6 .6			
54 54.0								
55	S-15	1.8/2.0 90%	7 8 11 9		.6 .6	FOSSILIFEROUS LIMESTONE w/ little SHELL FRAG/ SHELL MATERIAL. Micrite cement is (matrix only). Light gray and white, medium dense, wet.	Sand pack	
56 56.0								
57	S-16	1.9/2.0 95%	7 11 14 20		.6 .6			
58 58.0								
59	S-17	1.0/2.0 50%	8 13 15 15		.6 .6		Well screen	
60 60.0								
61	S-18	1.0/2.0 50%	21 15 15 16		.6 .6			
62 62.0								
63	S-19	2.0/2.0 100%	10 10 15 18		.6 .6			
64 64.0						SAND, fine grained w/ trace SILT and CLAY and trace SHELL FRAG. Light gray/green/white		
65 65.0	N					End of Boring TD: 65.0' (bgs)		
66								
67								
68								
69								
70								

DRILLING CO.: Hardin-Huber, Inc. BAKER REP.: J.E. Zimmerman

DRILLER: R. Keenan BORING NO.: 86-GW23IW SHEET 4 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU NO. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW24
COORDINATES: EAST: 2467343.8058 NORTH: 356091.3902
ELEVATION: SURFACE: 15.46 TOP OF PVC CASING: 15.15

RIG: #103	SPLIT SPOON	CASING	AUGERS	CORE BARREL
SIZE (DIAM.)	1-3/8"			
LENGTH	2.0			
TYPE	Std.			
HAMMER WT.	140 lbs.			
FALL	30"			
STICK UP				

DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
10-11-95	0-35	overcast, cool (60's)		
10-12-95	35-66	overcast, cool (60's)		

REMARKS: Sampling was performed at various intervals. Type II well installed 10-12-95. HNu background is 0.0 ppm.

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

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)
Riser	2.0"	Schedule 40 PVC	-.5'(bgs)	-55'(bgs)
Screen	2.0"	Schedule 40 0.01 Slot	-55'(bgs)	-65'(bgs)

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
1						ASPHALT		
2							Cement grout	
3								
4						Drill to: 8.0'(bgs)		
5								
6								
7							2" PVC riser	
8	8.0							
9	S-1	1.4/2.0	5 5		0.0/0.0	SAND, fine grained w/trace SILT. Light gray, medium dense, wet.		
10	10.0	70%	6 6			Match to Sheet 2		

DRILLING CO.: Parratt Wolff BAKER REP.: J.E. Zimmerman
DRILLER: D. Stratton BORING NO.: 86-GW24 SHEET 1 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW24

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

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
11						Continued from Sheet 1		
12							cement grout	
13								
14								
15								
16 16.0								
17	S-2	1.0/2.0 50%	6 7 8 8		0.0/0.0	SAND, fine grained w/trace SILT. Light gray, medium dense, wet.	2" PVC riser	
18 18.0								
19								
20								
21								
22								
23								
24 24.0								
25	S-3	2.0/2.0 100%	WOH/24"		0.0/0.0	SILTY SAND, fine grained w/trace CLAY. Dark green, very loose, wet.	Bentonite Slurry	
26 26.0								
27								
28								
29								
30								

DRILLING CO.: Parratt Wolff BAKER REP.: J.E. Zimmerman
DRILLER: D. Stratton BORING NO.: 86-GW24 SHEET 2 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW24

SAMPLE TYPE

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

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
31						Continued from Sheet 2		
32 (32.0)						FOSSILIFEROUS LIMESTONE w/ trace to little SHELL FRAGMENTS and micrite cement Light gray and white, medium dense, wet	Bentonite Slurry	
33	S-4	1.8/2.0 90%	7 7 9 12		0.0/0.0			
34 (34.0)							2" PVC riser	
35								
36								
37								
38								
39								
40 (40.0)						SAND, fine grained w/ trace SILT and trace FOSSILIFEROUS LIMESTONE/ CEMENTED SANDSTONE. Buff to light gray to light green & white, medium dense, wet.		
41	S-5	2.0/2.0 100%	5 10 22		0.0/0.0		Bentonite pellets	
42 (42.0)								
43								
44								
45								
46								
47								
48 (48.0)						FOSSILIFEROUS LIMESTONE w/ little SHELL FRAG/ SHELL MATERIAL and micrite cement		
49	S-6	1.8/2.0 90%	12 18 18 16		0.0/0.0			
50 (50.0)								

DRILLING CO.: Parratt Wolff BAKER REP.: J. E. Zimmerman
DRILLER: D. Stratton BORING NO.: 86-GW24 SHEET 3 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW24

SAMPLE TYPE

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

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
51						Continued from Sheet 3	Bentonite pellets	
52						Light gray and white, dense, wet.	2" PVC riser	
53								
54							Sand pack	
55	55.0							
56	S-7	1.8/2.0 90%	18 18 18 18		0.0 0.0	SAND, fine grained w/trace SILT and CEMENTED SAND-STONE w/ little SHELL MATERIAL Light green and white, dense, wet		
57	57.0							
58							Well Screen	
59								
60	60.0							
61	S-8	2.0/2.0 100%	7 8 10 10		0.0 0.0	SILTY SAND, fine grained w/trace to little CLAY and trace SHELL MATERIAL. Green and white, medium dense, wet.		
62	62.0							
63								
64								
65								
66	66.0							
67						END of BORING		
68						TD @: 66.0' (bgs)		
69								
70								

DRILLING CO.: Parratt Wolff BAKER REP.: J.E. Zimmerman
DRILLER: D. Stratton BORING NO.: 86-GW24 SHEET 4 OF 4

Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU NO. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW25
COORDINATES: EAST: 2467344.0379 NORTH: 356095.8062
ELEVATION: SURFACE: 15.46 TOP OF PVC CASING: 15.32

RIG: #103	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
SIZE (DIAM.)	1-3/8"		6 1/4"		10-9-95	0 - 30.5	overcast, cool (60's)		
LENGTH	2.0		5.0'						
TYPE	Std.		HSA						
HAMMER WT.	140 lbs.								
FALL	30"								
STICK UP									

REMARKS: No sampling was performed during drilling activities
Type II well installed 10-9-95.

SAMPLE TYPE

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

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)
Riser	2.0"	Schedule 40 PVC	+.5'(bgs)	-20'(bgs)
Screen	2.0"	Schedule 40 0.01 Slot	-20'(bgs)	-30'(bgs)

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
1						ASPHALT		
2								
3								
4							Cement grout	
5						Auger to: 30.5'(bgs)		
6								
7								
8							2" PVC riser	
9								
10						Match to Sheet 2		

DRILLING CO.: Parratt Wolff BAKER REP.: J.E. Zimmerman
DRILLER: D. Stratton BORING NO.: 86-GW25 SHEET 1 OF 3

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW25

SAMPLE TYPE

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

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
11						Continued from Sheet 1	cement grout	
12								
13								
14							2" PVC riser	
15								
16								
17							Bentonite pellets	
18								
19						Auger to: 30.5'(bgs)	sand pack	
20								
21								
22								
23							well screen	
24								
25								
26								
27								
28								
29								
30								

DRILLING CO.: Parratt Wolff BAKER REP.: J. E. Zimmerman
DRILLER: D. Stratton BORING NO.: 86-GW25 SHEET 2 OF 3

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW25

SAMPLE TYPE

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

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
31						Continued from Sheet 2		
32						END of BORING		
33						TD @ : 30.5' (bgs)	Sand pack	
34								
35								
36								
37								
38								
39								
40								
1								
2								
3								
4								
5								
6								
7								
8								
9								
0								

DRILLING CO.: Parratt Wolff BAKER REP.: J. E. Zimmerman
DRILLER: D. Stratton BORING NO.: 86-GW25 SHEET 3 OF

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU NO. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303
COORDINATES: EAST: 2467401.1605 NORTH: 355994.5900
ELEVATION: SURFACE: 16.12 TOP OF PVC CASING: 15.85
BORING NO.: 86-GW26

RIG: # 103	SPLIT SPOON	CASING	AUGERS	CORE BARREL
SIZE (DIAM.)	1-3/8"			
LENGTH	2.0			
TYPE	Std.			
HAMMER WT.	140 lbs.			
FALL	30"			
STICK UP				

DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
10-10-95	0-66	overcast w/ lt. rain (60's)		

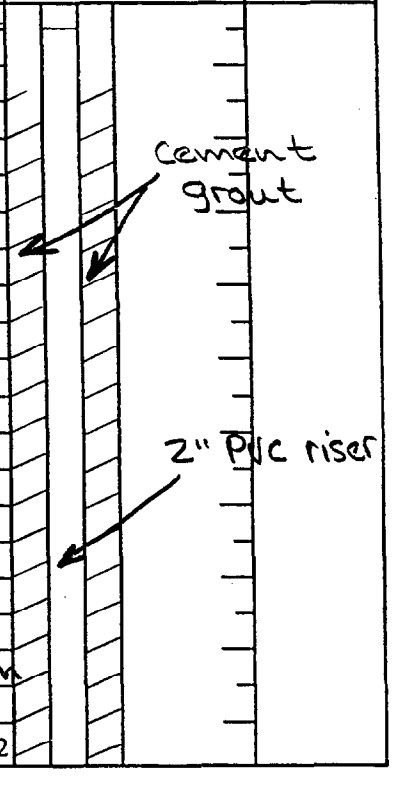
REMARKS: Sampling was performed at various intervals. Type II well installed 10-10-95. HNu background range is 0.0 to .2 ppm.

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

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)
Riser	2.0"	Schedule 40 PVC	-5'(bgs)	-55'(bgs)
Screen	2.0"	Schedule 40 0.01 Slot	-55'(bgs)	-65'(bgs)

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
8.0						ASPHALT		
9	S-1	1.4/2.0 70%	4 4 6 10		.2/.2	SAND, fine grained w/trace SILT. Light gray, medium dense, wet		
10						Match to Sheet 2		

Drill to: 8.0'(bgs)



DRILLING CO.: Parratt Wolff BAKER REP.: J.E. Zimmerman
DRILLER: D. Stratton BORING NO.: 86-GW26 SHEET 1 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW26

SAMPLE TYPE

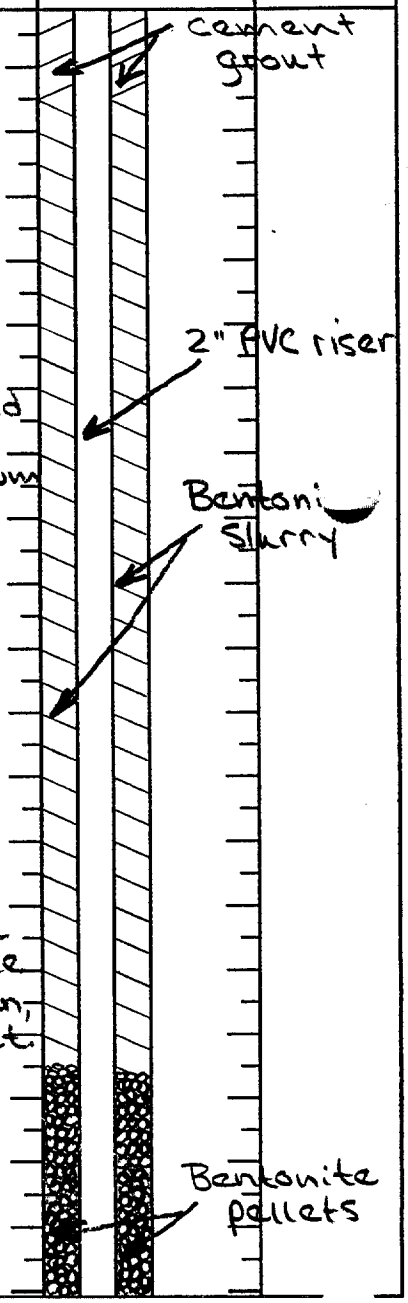
S = Split Spoon
T = Shelby Tube
R = Air Rotary
D = Denison
N = No Sample
A = Auger
W = Wash
C = Core
P = Piston

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description
11						Continued from Sheet 1
12						
13						
14						
15						
16						
16.0						
17	S-2	.8 / 2.0	10		.2	SAND, fine grained w/trace SILT. Light gray, medium dense, wet.
18		40%	11 11 12		.2	
18.0						
19						
20						
21						
22						
23						
24						
24.0						
25	S-3	1.8 / 2.0	WOH / 6"		0.0	SILTY SAND, fine grained w/trace CLAY. Dark green, very loose, wet.
26		90%	WOH / 6"		0.0	
26.0						
27						
28						
29						
30						

Well Installation Detail



Elevation (ft. MSL)

DRILLING CO.: Parratt Wolff BAKER REP.: J.E. Zimmerman
DRILLER: D. Stratton BORING NO.: 86-GW26 SHEET 2 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW26

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 D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
31						Continued from Sheet 2		
32 32.0								
33	S-4	1.6/2.0 80%	6 11 13 13		0.0/0.0	FOSSILIFEROUS LIMESTONE w/trace to little SHELL FRAGMENTS and micrite cement. Light gray and white, medium dense, wet.		
34 34.0								
35								
36								
37							2" PVC riser	
38								
39								
40 40.0								
41	S-5	1.9/2.0 95%	10 12 15 25		0.0/0.0	SAND, fine grained w/trace SILT and trace FOSSILIFEROUS LIMESTONE/ CEMENTED SANDSTONE. Buff to light gray to light green & white, medium dense, wet.	Bentonite pellets	
42 42.0								
43								
44								
45								
46								
47								
48 48.0								
49	S-6	1.9/2.0 95%	10 12 12 39		0.0/0.0	FOSSILIFEROUS LIMESTONE w/ little SHELL FRAG/ SHELL MATERIAL and micrite cement		
50 50.0								

DRILLING CO.: Parratt Wolff BAKER REP.: J.E. Zimmerman
DRILLER: D. Stratton BORING NO.: 86-GW26 SHEET 3 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW26

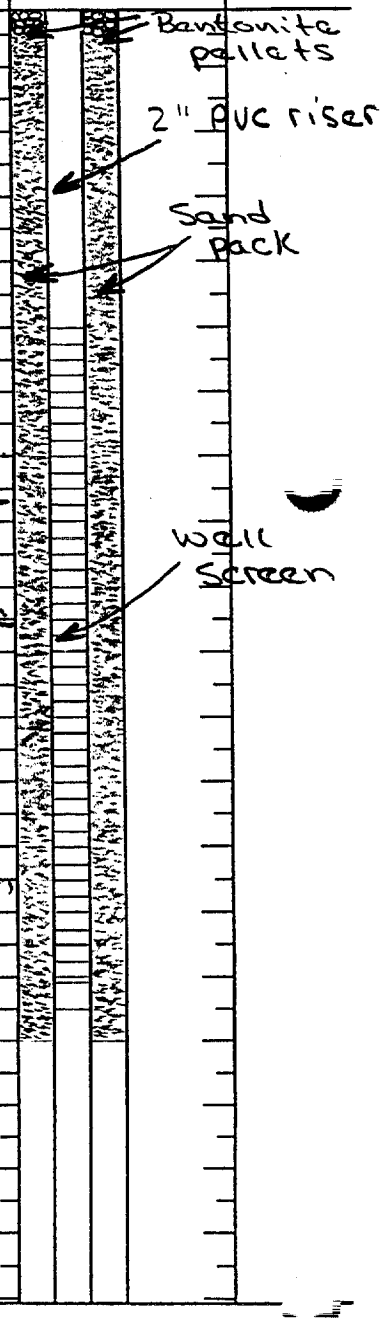
SAMPLE TYPE

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

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
51						Continued from Sheet 3		
52						Light gray and white, medium dense, wet.		
53								
54								
55	55.0							
56		S-7	1.5/2.0 75%	15 15 18 19		–		
57	57.0							
58						SAND, fine grained w/trace SILT and CEMENTED SAND-STONE w/little SHELL MATERIAL Light green+White dense, wet.		
59								
60	60.0							
61		S-8	1.7/2.0 85%	10 25 21 20		–		
62	62.0					SILTY SAND, fine grained w/trace to little CLAY and trace SHELL MATERIAL. Green and white, dense, wet.		
63								
64								
65								
66	66.0							
67						END of BORING		
68						TD @: 66.0' (bgs)		
69								
70								



DRILLING CO.: Parratt Wolff BAKER REP.: J.E. Zimmerman
DRILLER: D. Stratton BORING NO.: 86-GW26 SHEET 4 OF 4

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU NO. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW27
COORDINATES: EAST: 2467405.8645 NORTH: 355994.5000
ELEVATION: SURFACE: 16.21 TOP OF PVC CASING: 15.91

RIG: #103	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT.)	WEATHER	WATER DEPTH (FT.)	TIME
SIZE (DIAM.)	1-3/8"		6 1/4"		10-9-95	0-30.5	overcast cool (60's)		
LENGTH	2.0		5.0'						
TYPE	Std.		HSA						
HAMMER WT.	140 lbs.								
FALL	30"								
STICK UP									

REMARKS: No sampling was performed during drilling activities
Type II well installed 10-9-95

SAMPLE TYPE

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

Well Information	Diam.	Type	Top Depth (ft.)	Bottom Depth (ft.)
Riser	2.0"	Schedule 40 PVC	+.5'(bgs)	-20'(bgs)
Screen	2.0"	Schedule 40 0.01 Slot	-20'(bgs)	-30'(bgs)

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
1						ASPHALT		
2								
3							cement grout	
4								
5						Auger to: 30.5'(bgs)		
6								
7							2" PVC riser	
8								
9								
10								

Match to Sheet 2

DRILLING CO.: Parratt Wolff BAKER REP.: J. E. Zimmerman
DRILLER: D. Stratton BORING NO.: 86-GW27 SHEET 1 OF 3

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW27

SAMPLE TYPE

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

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
11						Continued from Sheet 1	cement grout	
12								
13							2" PVC riser	
14								
15								
16								
17							Bentonite pellets	
18								
19						Auger to: 30.5' (bgs)	sand pack	
20								
21								
22								
23								
24							well screen	
25								
26								
27								
28								
29								
30								

DRILLING CO.: Parratt Wolff BAKER REP.: J.E. Zimmerman
DRILLER: D. Stratton BORING NO.: 86-GW27 SHEET 2 OF 3

Baker
Baker Environmental, Inc.

TEST BORING AND WELL CONSTRUCTION RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 BORING NO.: 86-GW27

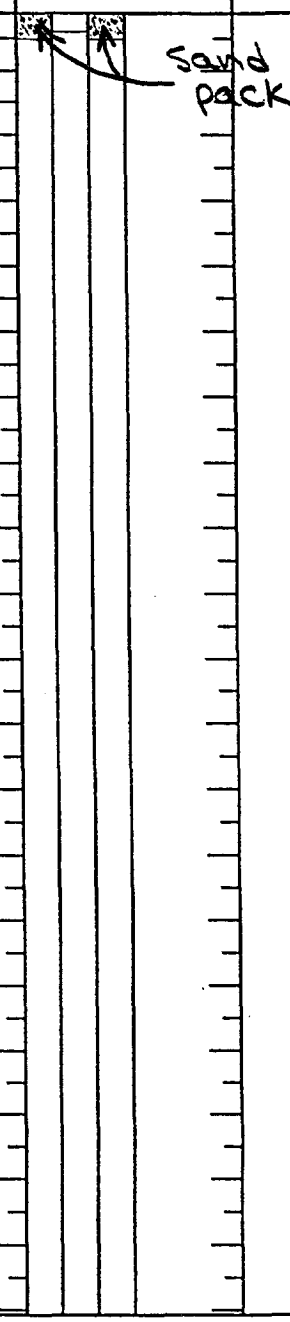
SAMPLE TYPE

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

DEFINITIONS

SPT = Standard Penetration Test (ASTM D-1586)(Blows/0.5')
RQD = Rock Quality Designation (%)
Lab. Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab. Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (ft.)	Samp. Type and No.	Samp. Rec. (ft. & %)	SPT or RQD	Lab ID No.	PID (ppm)	Visual Description	Well Installation Detail	Elevation (ft. MSL)
31						Continued from Sheet 2		
32						END of BORING		
33						TD @ : 30.5' (bgs)		
34								
35								
6								
7								
8								
9								
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
0								



DRILLING CO.: Parratt Wolff BAKER REP.: J. E. Zimmerman
DRILLER: D. Stratton BORING NO.: 86-GW27 SHEET 3 OF 3

APPENDIX C
CHAIN-OF-CUSTODY FORMS

WESTON Analytics Use Only

COC # 303001

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client: Baker Environmental
Est. Final Proj. Sampling Date: 5-1-95
Work Order #:
Project Contact/Phone #: Linnea Johnson/412-269-6000
AD Project Manager: Denise Waltman
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account #

Refrigerator #																			
#/Type Container	Liquid																		
	Solid																		
Volume	Liquid																		
	Solid																		
Preservatives																			

ANALYSES REQUESTED →	ORGANIC						INORG				# Bottles		Turn Around
	VOA	BNA	Pest/PCB	Herb			Metal	CN					
WESTON Analytics Use Only													

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected													
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		36-OF-SB02-00	X	X	S	2/21/95	1710	X	X	X			X					4		Routine
		36-OF-SB02-00D			S	2/21/95	1710											2		Routine
		36-OF-SB02-02			S	2/21/95	1721											2		Routine
		86-GW18DW-00			S	2/22/95	0745											2		Routine
		86-GW18DW-02			S	2/22/95	0804											2		Routine
		36-OF-SB04-00			S	2/22/95	0750											2		Routine
		36-OF-SB04-04			S	2/22/95	0816											2		Routine
		36-FDA-SB03-00			S	2/22/95	0910											2		7-day
		36-FDA-SB03-04			S	2/22/95	0936											2		7-day
		36-OA-SB01-00			S	2/22/95	1025											2		7-day

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

- See last column for sample turn around times
- Airbill # 2124804953

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

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

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

COC# 303005

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Page 1 of 2

Client Baker Environmental
Est. Final Proj. Sampling Date 5-1-95
Work Order #
Project Contact/Phone # L. Johnson / 412-269-6000
AD Project Manager Denise Waltman
QC ______ Del ______ TAT ______

Date Rec'd ______ Date Due ______
Account # ______

Refrigerator #		
#/Type Container	Liquid	
	Solid	
Volume	Liquid	
	Solid	
Preservatives		

ANALYSES REQUESTED →

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	MS	MSD	Matrix	Date Collected 1995	Time Collected	VOA	BNA	Pest/PCB	Herb	TPH	Metal	CN	No. Bottles	Turn Around
	86-FCA-SB04-00	X	X	S	2/25	1350	X	X	X			X		4	Routine
	86-FCA-SB04-02			S	2/25	1342	↓	↓	↓			↓		2	Routine
	86-FCA-SB04-00D			S	2/25	1330	↓	↓	↓			↓		2	Routine
	86-OA-SB03-00			S	2/25	1443	↓	↓	↓			↓		2	Routine
	86-OA-SB03-03			S	2/25	1509	↓	↓	↓			↓		2	Routine
	86-AST-SB01-00			S	2/25	1625	↓	↓	↓			↓		2	Routine
	86-AST-SB01-02			S	2/25	1636	↓	↓	↓			↓		2	Routine
	86-AST-SB02-00			S	2/26	0744	↓	↓	↓		X	↓		3	7-day
	86-AST-SB02-02			S	2/26	0757	↓	↓	↓		X	↓		3	7-day
	86-AST-SB02-0[illegible]			S	2/26	0825	↓	↓	↓		X	↓		3	7-day

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around times
- Airbill # 2124804920

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
7.7.7.	Fed Ex	1530	2/27/95				

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

COC #303005

WEST... Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS/DESIGNERS/CONSULTANTS

Client: Baker Environmental

Est. Final Rpt. Sampling Date: 5-1-95

Work Order #:

Project Contact/Phone #: Johnson/412-276-8000

AD Project Manager: Denise Waltman

QC: Del: TAT:

Date Rec'd: Date Due:

Account #:

Refrigerator #

#/Type Container	Liquid	
	Solid	
Volume	Liquid	
	Solid	
Preservatives		

ANALYSES REQUESTED →

ORGANIC: VOA | BNA | Pest/PCB | Herb | TCLP

INORG: Metal | CN

No. Bottles | Turn Around

MATRIX CODES	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected 1995	Time Collected	VOA	BNA	Pest/PCB	Herb	TCLP	Metal	CN	No. Bottles	Turn Around
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		86-AST-SB03-00			S	5/26	0906	X	X	X			X		2	Routine
		86-AST-SB03-00M			S	5/26	0930	X	X	X			X		2	Routine
		86-AST-SB04-00			S	5/26	1020	X	X	X		X	X		3	7-day
		86-AST-SB04-02			S	5/26	1029	X	X	X		X	X		3	7-day
		86-SLFB-01			W	5/26	1100	X	X	X			X		5	Routine
		303-TB-01			W	5/20	1115	X							2	Routine

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

- See Last column for sample turn around times

*303-TB-05 = weston Prepared trip blank

- Airbill # 712480492 0

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

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

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# _____ Cooler# 1 381-596a

COC# 303006

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS / DESIGNERS / CONSULTANTS

Client: [illegible] Environmental Inc.
Est. Final Proj. Sampling Date: [illegible]
Work Order #:
Project Contact/Phone #: [illegible]
AD Project Manager: [illegible]
QC: [illegible] Del [illegible] TAT

Date Rec'd _____ Date Due _____
Account # _____

Refrigerator #

#/Type Container	Liquid / Solid
Volume	Liquid / Solid
Preservatives	

ANALYSES REQUESTED →

ORGANIC: VOA | BNA | Pest/PCB | Herb | TPH
INORG: Metal | CN
#Bottles
Turn Around

MATRIX CODES	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected 1995	Time Collected	VOA	BNA	Pest/PCB	Herb	TPH	Metal	CN	#Bottles	Turn Around
		86-AGT-[illegible]-00	X	X	S	2/26	1130	X	X	X			X		4	Routine
		86-AST-[illegible]-00D			S	2/26	1132	X	X	X			X		2	Routine
		86-AST-[illegible]-03			S	2/26	1138	X	X	X			X		2	Routine
		86-AGT-[illegible]-05			S	2/26	1134	X	X	X			X		2	Routine
		86-AST-[illegible]			S	2/26	1249	X	X	X		X	X		3	7-day
		86-AST-[illegible]			S	2/26	1411	X	X	X		X	X		3	7-day
		86-AST-[illegible]			S	2/26	1445	X	X	X			X		2	Routine
		86-AST-[illegible]			S	2/26	1503	X	X	X			X		2	Routine
		86-AST-[illegible]			S	2/26	1542	X	X	X			X		2	Routine
		86-AST-[illegible]			S	2/26	1606	X	X	X			X		2	Routine

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

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around times
- Airbill # 2124804920

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

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

Relinquished by	Received by	Date	Time
J.J.J.	FedEx	2/27/95	1530

Relinquished by	Received by	Date	Time

RFW 2[illegible] 11/A-7/91 ____ L372 ____ L373 ____ L3[illegible] ____ L377 ____ L378 Ref# _____ Cooler# 2 381-596a

COC# 303006

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Client Baker Environmental
Est. Final Proj. Sampling Date [illegible]
Work Order #
Project Contact/Phone # L. Johnson / 412-[illegible]
AD Project Manager [illegible]
QC ______ Del ______ TAT ______

Date Rec'd ______ Date Due ______
Account # ______

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solids
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 1995	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	TPH			INORG Metal	CN				No. Bottles		Turn Around
	86-AST-SB08-04D			S	2/26	1606	X	X	X					X					2		Routine
	86-AST-SB09-00			S	2/26	1646	X	X	X		X			X					3		7-day
	86-AST-SB09-04			S	2/26	1709	X	X	X		X			X					3		7-day
	86-BB-SB01-00			S	2/27	0739	X	X	X					X					2		Routine
	86-BB-SB01-02			S	2/27	0748	X	X	X					X					2		Routine
	86-FDA-SB02-00			S	2/27	0851	X	X	X					X					2		Routine
	86-FDA-SB02-04			S	2/27	0920	X	X	X					X					2		Routine
	86-FDA-SB05-00			S	2/27	1021	X	X	X					X					2		7-day
	86-FDA-SB05-01			S	2/27	1026	X	X	X					X					2		7-day
	86-OA-SB08-00			S	2/27	1119	X	X	X					X					2		7-day

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around times
- Airbill # 2124804920

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
77.7.	Fed Ex	2/27/95	1530				

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

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ______ Cooler# 2 381-596a

COC # 303006

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Page 3 of 3

Client: Baker [illegible]
Est. Final Proj. Sampling Date: 5-1-95
Work Order #:
Project Contact/Phone #: L. [illegible] 412 [illegible]
AD Project Manager: [illegible]
QC ____ Del ____ TAT ____

Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected (1995)	Time Collected	VOA	BNA	Pest/PCB	Herb	Metal	CN	No. Bottles	Turn Around
	[illegible]			[illegible]	2/27	1122	X	X	X		X		2	7 day
	[illegible]			W	2/27	1200	X	X	X		X		5	Hold
	303 TB [illegible]			W	2/27	1300	X						2	Routine

(ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN; 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

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around times
- Airbill # 2124804920
* 303-TB-06 = Weston Prepared Trip blank

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
T.T.T.	Fed Ex	2/27/95	1530				

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

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ______ Cooler# 2 381-596a

WESTON Analytics Use Only

COC# 303013

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Page 1 of 2

Client: Baker Environmental

Est. Final Proj. Sampling Date: 5-1-95

Work Order #:

Project Contact/Phone #: [illegible]

AD Project Manager: Denise Wortmann

QC: ____ Del: ____ TAT: ____

Date Rec'd ______ Date Due ______

Account # ______

Refrigerator #

#/Type Container: Liquid / Solid

Volume: Liquid / Solid

Preservatives

ANALYSES REQUESTED →

						ORGANIC							INORG							
Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected 1995	Time Collected	VOA	BNA	Pest/PCB	Herb				Metal	CN				# Bottles		Turn Around
	36-GW11-00			S	3/9	1345	X	X	X					X					2		Routine
	36-GW11-00D			S	3/9	1345	X	X	X					X					2		↓
	36-GW11-04			S	3/9	1408	X	X	X					X					2		↓
	36-GW11-06			S	3/9	1436	X	X	X					X					2		↓
	36-GW15TW-02			S	3/9	1432	X	X	X					X					2		↓
	36-OA-SB01A-00			S	3/9	1520	X	X	X					X					2		↓
	36-OA-SB01A-01			S	3/9	1530	X	X	X					X					2		↓
	36-OA-SB01B-00			S	3/9	1607	X	X	X					X					2		↓
	36-OA-SB01B-00D			S	3/9	1607	X	X	X					X					2		↓
	36-OA-SB01B-01			S	3/9	1611	X	X	X					X					2		↓

↓ 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

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around times
- Airbill # 2124804905

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
777.	FedEx	3/10/95	1530				

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

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ______ Cooler# 1 ______ 381-596a

COC# 303016

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Page 2 of 3

Client Baker Environmental
Est. Final Proj. Sampling Date 5-1-95
Work Order #
Project Contact/Phone # L. Adhos / 412-269-6000
AD Project Manager
QC Del TAT

Date Rec'd ______ Date Due ______
Account # ______

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected 1995	Time Collected	ORGANIC VOA	BNA	Pest/ PCB	Herb	TPH	PCB		INORG Metal	CN	Grain Size	Atterberg Limits		# Bottles		Turn Around
	54-SB05-04			S	3/11	1616	X	X			X	X		X					3		Routine
	54-SB07-00	X	X	S	3/12	0748	X	X			X							TL2	6		↓
	54-SB07-05			S	3/12	0815	X	X			X								3		↓
	54-SB06-00			S	3/12	0847	X	X			X								3		↓
	54-SB06-02			S	3/12	0912	X	X			X								3		↓
	54-SB06-05			S	3/12	0927	X	X			X								3		↓
	43-GW01DW			S	3/12	1005										X	X				↓
	86-GW11TW-01			S	3/12	1659	X	X	X					X					2		↓
	86-GW11TW-01D			S	3/12	1659	X	X	X					X					2		↓
	86-GW11TW-02			S	3/12	1702	X	X	X					X					2		↓

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

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around times
- Air bill # 2124804846

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
7.7.7.	Fed Ex	3/13/95	1530				

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

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ______ Cooler# 1 381-596a

COC# 303019

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Client Baker Environmental

Est. Final Proj. Sampling Date 5-1-95

Work Order #

Project Contact/Phone # L. Johnson/412-269-6000

AD Project Manager Denise Wohlman

QC Del TAT

Date Rec'd Date Due

Account #

Refrigerator #

#/Type Container: Liquid / Solid

Volume: Liquid / Solid

Preservatives

ANALYSES REQUESTED →

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	MS	MSD	Matrix	Date Collected 1995	Time Collected	ORGANIC VOA	ORGANIC BNA	ORGANIC Pest/PCB	ORGANIC Herb	Pest	INORG Metal	INORG CN	# Bottles	Turn Around
	44-WA-SB02-00			S	3/13	1342	X	X	X			X		2	7-day
	44-WA-SB02-03			S	3/13	1408	X	X	X			X		2	7-day
	44-WA-SB03-00			S	3/13	1456	X	X	X			X		2	7-day
	44-WA-SB03-03			S	3/13	1522	X	X	X			X		2	7-day
	44-WA-SB04-00			S	3/13	1607	X	X			X	X		2	Routine
	44-WA-SB04-03			S	3/13	1636	X	X			X	X		2	Routine
	44-WAOA-SB03-00 (1)			S	3/14	0736	X	X	X			X		2	7-day
	44-OA-SB03-01			S	3/14	0739	X	X	X			X		2	7-day
	86-GW19DW-00	X	X	S	3/14	0812	X	X	X			X		4	Routine
	86-GW19DW-02			S	3/14	0820	X	X	X			X		2	Routine

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around times
- Airbill # 2124804861

DATE/REVISIONS:
7.7.7. 1. Sample = 44-OA-SB03-00 date: 3/14
2.
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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
7.7.7.	Fed Ex	3/14	1530				

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

WESTON Analytics Use Only

COC# 303020

Custody Transfer Record/Lab Work Request

WESTON

Client: Baker Environmental
Est. Final Proj. Sampling Date: 5-1-95
Work Order #:
Project Contact/Phone #: L. Johnson / 412-269-6000
AD Project Manager: Renee Wullimann
QC: Del:

Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

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	Matrix QC Chosen (✓) MSD	Matrix	Date Collected 1995	Time Collected	ORGANIC VOA	ORGANIC BNA	ORGANIC Pest/PCB	ORGANIC Herb	TPH		TSS/TDS	INORG Metal	INORG CN	Dissolved Metals			# Bottles		Turn Around
	86-TW02-01			W	3/14	2030	X	X	X				X	X					8		Routine
	86-TW02D-01			W	3/14	2030										X			1		Routine
	86-AST-SB12-00		S	~~W~~	3/15	0754	X	X			X								3		Routine
	86-AST-SB12-03		S	~~W~~	3/15	0809	X	X			X								3		Routine
	86-AST-SB11-00		S	~~W~~	3/15	0839	X	X			X								3		Routine
	86-AST-SB11-03			S	3/15	0858	X	X			X								3		Routine
	86-AST-SB10-00			S	3/15	0931	X	X			X								3		Routine
	86-AST-SB10-04			S	3/15	0954	X	X			X								3		Routine
	86-TW01-01			W	3/15	1100	X	X	X										5		Routine
	86-STFB-01			W	3/15	1130	X												2		Hold

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

- See last column for sample turn around
- Airbill # 2124804850

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
7.7.	Fed Ex	3/15	1530				

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

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ______ Cooler# /______ 381-596a

COC # 303020

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 2

Client [illegible]
Est. Final Proj. Sampling Date 5-11-95
Work Order #
Project Contact/Phone # 412-269-2019
AD Project Manager Denise Wallman
QC ____ Del ____ TAT ____

Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: 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	MS	MSD	Matrix	Date Collected 1995	Time Collected	VOA	BNA	Pest/PCB	Herb				Metal	CN							
	303-FB-02			W	7/15	1115	X													2		Routine
	303-TB-17			W	7/15	1200	X													2		Routine

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for turn around
- Airbill # 2124804850
- ~~FB~~ 303-TB-17 = Weston Trip Blank

DATE/REVISIONS:
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4.
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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
[signature]	FedEx	7/15/95	1530				

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

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ___ Cooler# 1 381-596a

COC# 303021

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Page 1 of 1

Client: Baker
Est. Final Proj. Sampling Date: 5-1-95
Work Order #
Project Contact/Phone #: L. Thomson / 412-269-6000
AD Project Manager: Denise Wallmann
QC ___ Del ___ TAT ___

Date Rec'd ______ Date Due ______
Account # ______

Refrigerator #																	
#/Type Container	Liquid																
	Solid																
Volume	Liquid																
	Solid																
Preservatives																	
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb				INORG: Metal	CN							

WESTON Analytics Use Only

MATRIX CODES: SS - 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 1995	Time Collected	VOA	BNA	Pest/PCB	Herb				Metal	CN						
	86-SLER-03			W	3/15	1130		X	X					X					3		Hold
	303-FB-02			W	3/15	1145		X	X					X					3		Routine

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around times
- Airbill # 2124804850

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
T.T.T.	FedEX	3/15/95	1530				

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

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ______ Cooler# 2 381-596a

WESTON Analytics Use Only

COC# 30302a

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Page 1 of 1

Client: Baker Environmental
Est. Final Proj. Sampling Date: 5-15-95
Work Order #:
Project Contact/Phone #: [illegible]
AD Project Manager: [illegible]
QC: Del: TAT:
Date Rec'd: Date Due:
Account #:

Refrigerator #:
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives:

ANALYSES REQUESTED →

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 1995	Time Collected	ORGANIC: VOA	BNA	Pest/PCB	Herb				INORG: Metal	CN	TSS/TDS			# Bottles		Turn Around
	86-GWER-01			W	3/20	1400	X	X						X					4		Routine
	86-GW16DW-01			W	3/20	1800	X	X						X		X			7		*
	86-GW17DW-01			W	3/21	1230	X	X						X		X			7		*
	303-TB-19			W	3/21	1300	X												2		Routine

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around times
- Airbill # 2124805115
* = VOAs 7-day Turn, all else routine
303-TB-19 = Weston Prepared Trip Blank

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
777	FedEx	3/21/95	1530

Relinquished by	Received by	Date	Time

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

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ______ Cooler# 1 381-596a

COC# 303023

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Page 1 of 1

Client Baker Environmental
Est. Final Proj. Sampling Date 5-1-95
Work Order #
Project Contact/Phone # L. Johnson/412-269-6000
AD Project Manager Denise Wellman
QC ______ Del ______ TAT ______

Date Rec'd ______ Date Due ______
Account # ______

Refrigerator #	
#/Type Container	Liquid / Solid
Volume	Liquid / Solid
Preservatives	
ANALYSES REQUESTED →	ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN; Dissolved Metals; TSS TDS; #Bottles; Turn Around

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	MS	MSD	Matrix	Date Collected 1995	Time Collected	VOA	BNA	Pest/PCB	Herb				Metal	CN	Dissolved Metals	TSS TDS		#Bottles		Turn Around
	86-GW15DW-01			W	2015	3/21	X	X						X			X		7		X*
	86-GW15DWD-01			W	3/21	2015										X			1		Routine
	86-GWER-02			W	3/22	0815	X	X						X					5		Hold
	~~86-GW... ...3/22~~																				
	86-GW16TW-01			W	3/22	1025	X												3		7-day
	86-GW18DW-01			W	3/22	1230	X												3		7-day
	303-TB-20			W	3/22	1400	X												2		Routine

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around times
* = VOAs 7-day Turn, all else routine
- Airbill # 2124805126
303-TB-20 = Weston Prepared Trip Blank

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

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

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
777	Fed Ex	3/22/95	1530				

COC# 303024

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Page 1 of 1

Client Baker Environmental
Est. Final Proj. Sampling Date [illegible]
Work Order #
Project Contact/Phone # [illegible]
AD Project Manager [illegible]
QC Del TAT

Date Rec'd ______ Date Due ______
Account # ______

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected (1995)	Time Collected	VOA (ORGANIC)	BNA	Pest/PCB	Herb				Metal (INORG)	CN	TSS/TDS			#Bottles		Turn Around
	86-GW16IW-01			W	3/22	1025	X ①	X						X		X			4		Routine
	86-GW18DW-01			W	3/22	1230		X						X		X			4		Routine

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

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around times
- Airbill # 2124805126

DATE/REVISIONS:
7.7.7. 1. No VOA included for 86-GW16IW-01
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
7.7.7.	Fed Ex	3/22/95	1530				

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

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ______ Cooler# 2 381-596a

WESTON Analytics Use Only

COC # 303025

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Client: Baker Environmental
Est. Final Proj. Sampling Date: 5/?/95
Work Order #:
Project Contact/Phone #: L. Adamson/412 269-[illegible]
AD Project Manager: Denise Wellman
QC: Del: TAT:

Date Rec'd: Date Due:
Account #:

Refrigerator #:
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives:

ANALYSES REQUESTED →

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 1995	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb				INORG Metal	CN	TSS/TDS	Dissolved Metals		# Bottles		Turn Around
	86-GW15IW-01			W	3/22	1525	X	X						X		X			7		*
	86-GW15IWD-01			W	3/22	1525											X		1		Routine
	86-GW15IW-01D			W	3/22	1525	X	X						X		X			7		*
	86-GW15IWD-01D			W	3/22	1525											X		1		Routine
	86-GW14TW-01			W	3/22	1630	X												3		Routine
	86-GWER-03			W	3/22	1715	X												2		Routine
	86-GW13-01			W	3/23	0830	X												3		Routine
	86-GW11TW-01			W	3/23	1145	X												3		7-day
	86-GW11-01			W	3/23	1150	X												3		Routine
	303-TB-21			W	3/23	1200	X												2		Routine

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around
- Airbill # 2124805141
* = VOAs 7-day Turn, all other factions Routine
303-TB-21 = Weston Prepared Trip Blank

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
7.7.7.	FedEx	3/23/95	1530				

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

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ___ Cooler# 1 381-596a

COC # 303026

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Page 1 of 1

Client Baker Environmental
Est. Final Proj. Sampling Date 3-1-95
Work Order #
Project Contact/Phone # L. Johnson / 412-269-6000
AD Project Manager Dance Wolfman
QC Del TAT

Date Rec'd Date Due
Account #

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

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 (✓) MS	MSD	Matrix	Date Collected 1995	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb				INORG Metal	CN	TSS TDS			# Bottles		Turn Around
	86-GW14IW-01			3/22	W	1630		X						X		X			4		Routine
	86-GWER-03			W	3/22	1715		X						X					3		Routine
	86-GW13-01			3/23	0830	W		X						X		X			4		Routine
	86-GW10IW-01			W	3/23	1145		X						X		X			4		Routine

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around times
- Airbill # 2124805141

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
T.T.T.	FedEx	3/23/95	1530				

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

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ______ Cooler# 2 381-596a

COC# 303027

WES[illegible] Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Page 1 of 1

Client [illegible]
Est. Final Proj. Sampling Date 5-[illegible]-95
Work Order #
Project Contact/Phone # [illegible]
AD Project Manager [illegible]
QC Del TAT
Date Rec'd Date Due
Account #

Refrigerator #

#/Type Container	Liquid																
	Solid																
Volume	Liquid																
	Solid																
Preservatives																	

ANALYSES REQUESTED →

	ORGANIC							INORG							
	VOA	BNA	Pest/PCB	Herb				Metal	CN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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 Teachate; WI - Wipe; X - Other; F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected												
	86-GW11-01			W	3/23	1150		X					X		X			Routine

1995

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

- See last column for sample turn around times
- Airbill # 212480514 1

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

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

Relinquished by	Received by	Date	Time
T.F.T.	FedEx	3/23	1530

Relinquished by	Received by	Date	Time

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# _____ Cooler# 3 381-596a

COC # 303028

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Client: [illegible]
Est. Final Proj. Sampling Date: [illegible]
Work Order #: [illegible]
Project Contact/Phone #: [illegible]
AD Project Manager:
QC: ______ Del ______ TAT ______

Date Rec'd ______ Date Due ______
Account # ______

Refrigerator #																
#/Type Container	Liquid															
	Solid															
Volume	Liquid															
	Solid															
Preservatives																
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb				INORG: Metal	CN	TSS TDS			# Bottles		Turn Around

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

WESTON Analytics Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected 1995	Time Collected	VOA	BNA	Pest/PCB	Herb				Metal	CN	TSS TDS			# Bottles		Turn Around
	[illegible]			W	1/23	1500	X	X						X		X			7		Routine
	[illegible]			W	1/23	1520	X	X	X					X		X			8		Routine
	303-TB-22			W	1/23	1530	X												2		Routine
	86-GW03-01	X	X	W	1/23	1630	X												6		Routine
	[illegible]			W	1/22	1630	X												3		Routine
	[illegible]			W	1/23	1700	X												3		Routine
	[illegible]			W	1/24	0800	X												2		Hold
	[illegible]			W	1/24	0945	X												3		Routine
	[illegible]			W	1/24	1210	X												3		Routine

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: See last column for sample turn around times
Airbill # 2124805130
303-TB-22 = Weston Prepared Trip Blank

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
7.7.7.	FedEx	1/24/95	1530				

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

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ______ Cooler# 1 381-596a

COC # 303029

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS/DESIGNERS/CONSULTANTS

Client

Est. Final Proj. Sampling Date

Work Order #

Project Contact/Phone #

AD Project Manager

QC Del TAT

Date Rec'd Date Due

Account #

Refrigerator #

		ORGANIC						INORG							
#/Type Container	Liquid / Solid	VOA	BNA	Pest/PCB	Herb			Metal	CN	TSS	TDS		#Bottles		Turn Around
Volume	Liquid / Solid														
Preservatives															

ANALYSES REQUESTED →

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 1995	Time Collected	WESTON Analytics Use Only											
	86-GW03-01D			W	3/23	1630		X				X		X			4		Routine
	86-GW03-01	X	X	W	3/23	1630		X				X		X			7		Routine
	86-GW09-01			W	3/23	1700		X				X		X			2		Routine

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

-See last column for sample turn around times

- Airbill #

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

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

Relinquished by	Received by	Date	Time
T.T.	Fed Ex	3/24/95	1530

Relinquished by	Received by	Date	Time

RFW 21-[illegible]01/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# _____ Cooler# 2

381-596a

COC# 303030

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS · DESIGNERS/CONSULTANTS

Page 1 of 1

Client: Baker Environmental
Est. Final Proj. Sampling Date: 5-1-95
Work Order #:
Project Contact/Phone #: L. Johnson/412-269-6000
AD Project Manager: Dennis C. Workman
QC: Del: TAT:

Date Rec'd: Date Due:
Account #:

		VOA	BNA	Pest/PCB	Herb				Metal	CN	Dissolved Metals	TSS TDS		# Bottles		Turn Around
Refrigerator #																
#/Type Container	Liquid															
	Solid															
Volume	Liquid															
	Solid															
Preservatives																
ANALYSES REQUESTED →		ORGANIC							INORG							

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

↓ WESTON Analytics Use Only ↓

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected 1995	Time Collected	VOA	BNA	Pest/PCB	Herb				Metal	CN	Dissolved Metals	TSS TDS		# Bottles		Turn Around
	86-GW01-01			W	3/23	1700		X	X										3		Routine
	86-GWER-01			W	3/24	0800		X						X					3		Routine
	86-GWERD-04			W	3/24	0800										X			1		Routine
	86-GW10TW-01			W	3/24	0945		X						X			X		4		Routine
	86-GW05-01			W	3/24	1210		X	X					X			X		5		Routine

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around time
- Airbill # 2124805130

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
77.7.	FedEx	3/24/95	1530				

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

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ______ Cooler# 3 381-596a

COC# 303031

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Page 1 of 1

Client Baker Environmental
Est. Final Proj. Sampling Date 5-1-95
Work Order #
Project Contact/Phone # L. Johnson / 412-269-6000
AD Project Manager Denise Wallman
QC ______ Del ______ TAT ______

Date Rec'd ______ Date Due ______
Account # ______

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

ORGANIC: VOA, BNA, Pest/PCB, Herb
INORG: 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 (✓) MS	MSD	Matrix	Date Collected 1995	Time Collected	VOA	BNA	Pest/PCB	Herb				Metal	CN	TSS/TDS			# Bottles		Turn Around
	86-GW06IW-01			W	3/24	1110	X	X						X		X			7		Routine
	86-GW08IW-01			W	3/24	1200	X	X						X		X			7		Routine
	303-TB-23			W	3/24	1730	X												2		Routine
	86-GW07I-01			W	3/25	0825	X												3		Routine
	86-GW02IW-01			W	3/25	0900	X												3		Routine
	86-GWER-05			W	3/25	0930	X	X	X					X				5	6		Routine
																			TFT	3/25	

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- see last column for sample turn around times
- Airbill # 2124805071
303-TB-23 = Weston Prepared Trip Blank

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
T.T.T.	Fed Ex	3/25/95	1300				

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

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ______ Cooler# 1 381-596a

COC # 303032

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Client Baker Environmental
Est. Final Proj. Sampling Date 5-1-95
Work Order #
Project Contact/Phone # L. Johnson [illegible]
AD Project Manager Denise Waltman
QC Del TAT
Date Rec'd Date Due
Account #

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN; TSS TDS; Dissolved Metals; # Bottles; Turn Around

↓ 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 (✓) MS	MSD	Matrix	Date Collected 1995	Time Collected	VOA	BNA	Pest/PCB	Herb				Metal	CN	TSS TDS	Dissolved Metals		# Bottles		Turn Around
	86-GW07-01			W	3/25	0825		X	X					X		X			5		Routine
	86-GW02IW-01			W	3/25	0900		X						X		X			4		Routine
	86-GW02IWD-01			W	3/25	0900											X		1		Routine
	86-GWERD-01			W	3/25	0930											X		1		Routine
	303-TB-24			W	3/25	1000	X												2		Routine
	86-GW01-01			W	3/25	1025	X	X	X					X		X			8		Routine
	86-GW01D-01			W	3/25	1025											X		1		Routine

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around time
- Airbill # 2124805071

303-TB-24 = Weston Prepared Trip Blank

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
7.7.7.	Fed Ex	3/25/95	1300				

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

COC#303034

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client Baker Environmental
Est. Final Proj. Sampling Date 5-1-95
Work Order #
Project Contact/Phone # L. Johnson/412-269-6000
AD Project Manager Denise Wollman
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb				INORG Metal	CN	TSS TDS	Dissolved Metals		#Bottles		Turn Around
	36-GW07DW-01			W	3/26	1020		X	X					X		X			5		Routine
	36-GW12DW-01			W	3/26	1115		X						X		X			4		Routine
	36-GW07-01			W	3/26	1250		X	X					X		X			5		Routine

↓ 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

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- see last column for sample turn around time
- Airbill # 2124805104

DATE/REVISIONS:
1. ____
2. ____
3. ____
4. ____
5. ____
6. ____

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
777	Fed Ex	3/27/95	1530				

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

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

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# 2 381-596a

WESTON Analytics Use Only

COC # 303056

Custody Transfer Record/Lab Work Request

WESTON MANAGERS/DESIGNERS/CONSULTANTS

Client: Baker Environmental
Est. Final Proj. Sampling Date: 6-15-95
Work Order #:
Project Contact/Phone: L. Johnson/412 261-6060
AD Project Manager: Denise Wohlman
QC: Del: TAT:

Date Rec'd: Date Due:
Account #:

Refrigerator #

		ORGANIC							INORG							
#/Type Container	Liquid/Solid															
Volume	Liquid/Solid															
Preservatives																
ANALYSES REQUESTED →		VOA	BNA	Pest/PCB	Herb				Metal	CN	TSS	TDS			# Bottles	Turn Around

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											
	303-TB-36			W	6/11	1300	X										2	Routine
	54-TW07-01			W	6/11	1325	X	X									5	*
	54-TW07-02			W	6/11	1546	X	X									5	*
	86-GW20RW01			W	6/11	1345	X	X			X		X					

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around times
- Airbill #
*=VOA gets 7-day Turn, all other fractions get routine turn
303-TB-36 = Weston Prepared Trip Blank

DATE/REVISIONS:
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Relinquished by	Received by	Date	Time
T.T.	FedEx	6/12/95	1300

Relinquished by	Received by	Date	Time

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

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

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# _____ Cooler# 1 381-596a

COC# 303062

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Client Baker Environmental
Est. Final Proj. Sampling Date 5-1-95
Work Order #
Project Contact/Phone # L. Johnson/412-269-6000
AD Project Manager Denise Waltman
QC ____ Del ____ TAT ____

Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

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 1995	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	Flash Point	React CN	React Sulfide	INORG Metal	CN	Full TCLP	RCRA		# Bottles		Turn Around
	303-TB-41			W	4/25	1100	X												2		Routine
	43-TNK			W	4/25	1145	X	X	X		X	X	X	X					10		7-day
	41-RB01			S	4/25	1205										X	X		1		7-day
	44-TNK			W	4/25	1215	X	X	X		X	X	X	X					10		7-day
	86-RB01			S	4/25	1245										X	X		1		7-day

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around time
- Airbill #
303-TB-41 = Weston Trip Blank
Full TCLP = VOA, SVOA, PEST, PCB, HERB, Metal
RCRA (for soil) = Flash & Reactive CN/Sulfide

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
7.7.7.	Fed Ex	5-25-95	1800				

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

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# 1 381-596a

COC # 303063

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Client: Baker Environmental
Est. Final Proj. Sampling Date: 6-[illegible]-95
Work Order #:
Project Contact/Phone #: L. Johnson / 412-[illegible]
AD Project Manager: Denise Wollman
QC: ______ Del: ______ TAT: ______

Date Rec'd ______ Date Due ______
Account # ______

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

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 (✓) MS	MSD	Matrix	Date Collected 1995	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	TPH	INORG Metal	CN	# Bottles	Turn Around
	303-TB-02			W	5/1	1600	X							2	Routine
	H3-WA-SB01A1-00			S	5/1	1705		X			X			2	*
	H3-WA-SB01A2-00			S	5/1	1710		X			X			2	*
	H3-WA-SB01A3-00			S	5/1	1715		X			X			2	*
	H3-WA-SB01A4-00			S	5/1	1720		X			X			2	*
	86-WA-SB01-00			S	5/2	0930	X	X						2	7-day
	86-WA-SB01-02			S	5/2	1115	X	X						2	7-day

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
-See last column for sample turn around times
-Airbill # 2124805244
303-TB-02 = Weston Prepared Blank
* = TPH gets routine turn, SVOA gets 7-day Turn

DATE/REVISIONS:
1.
2.
3.
4.
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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
7.7.7.	Fed Ex	5/2/95	1530

Relinquished by	Received by	Date	Time

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

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ______ Cooler# 1 381-596a

COC# 303064

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Page 1 of 1

Client: Baker Environmental
Est. Final Proj. Sampling Date: 5-15-95
Work Order #:
Project Contact/Phone #: L. Johnson /412-2696000
AD Project Manager: Denise Wollman
QC: Del: TAT:

Date Rec'd: Date Due:
Account #:

Refrigerator #:
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives:

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN; Full TCLP; RCRA

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 (✓) MS	MSD	Matrix	Date Collected 1995	Time Collected	VOA	BNA	Pest/PCB	Herb				Metal	CN	Full TCLP	RCRA				
	303-TB-43			W	5/2	1600	X												2		Routine
	86-WA-SB02-00			S	5/2	1630	X	X											2		7-day
	86-WA-SB02-03			S	5/2	1707	X	X											2		7-day
	86-CP-SB02-00			S	5/2	1738	X	X											2		7-day
	86-CP-SB02-02			S	5/2	1808	X	X											2		7-day
	86-CP-SB01-00			S	5/2	1845	X	X											2		7-day
	86-CP-SB01-02			S	5/2	1900	X	X											2		7-day
	SH-TNK			W	5/3	1326	X	X	X					X		Ø	X		10		7-day

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around
- Air bill #
303-TB-43 = Weston Trip Blank
RCRA = Reactive CN, Reactive Sulfide & Flashpoint

DATE/REVISIONS:
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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
7.7.7.	FedEx	5/3/95	1530				

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

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ______ Cooler# 1 381-596a

COC# 303076

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Client: Baker [illegible]
Est. Final Proj. Sampling Date: [illegible]
Work Order #:
Project Contact/Phone #: L. Johnson [illegible]
AD Project Manager: Denise [illegible]
QC: Del: TAT:

Date Rec'd: Date Due:
Account #:

Refrigerator #
#/Type Container (Liquid / Solid)
Volume (Liquid / Solid)
Preservatives

ANALYSES REQUESTED →

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 (✓) MS	MSD	Matrix	Date Collected 1995	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	RCRA	TCLP		INORG Metal	CN	Dissolved Metals	TSS/TDS		# Bottles		Turn Around
	303-TB-49			W	5/7	0800	X												2		Routine
	36-GS-SB05-00			S	5/7	0848	X	X											2		Routine
	36-GS-SB05-02			S	5/7	0930	X	X											2		7-day
	36-GS-SB06-00			S	5/7	0946	X	X											2		Routine
	36-GS-SB06-02			S	5/7	1025	X	X											2		7-day
	86-RB02			S	5/7	1050					X	X							1		7-day
	86-GW22TW-01			W	5/7	1200	X							X			X		5		*
	86-GW22TW-01D			W	5/7	1205	X							X			X		5		*
	86-GW23TW-01			W	5/7	1140	X							X			X		5		*
	~~86-GW2~~	[illegible]		5/7/95																	

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- see last column for sample turn around
- Airbill # 2124804824
303-TB-49 = Weston Trip Blank
*: VOA gets 7-day, All else Routine

DATE/REVISIONS:
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Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
7.7.7.	FedEx	5/8/95	1530				

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

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

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ___ Cooler# 1 381-596a

COC # 303076

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS/CONSULTANTS

Client: Baker Environmental
Est. Final Proj. Sampling Date: 5-18-95
Work Order #:
Project Contact/Phone #: L. Hansen (412) 269-6000
AD Project Manager: Denise Waltman
QC: Del: TAT:

Date Rec'd: Date Due:
Account #:

Refrigerator #:
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives:

ANALYSES REQUESTED →

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 1995	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb				INORG Metal	CN	Dissolved Metal	TSS/TDS				
	86-GW21IW-01			W	5/7	1445	X							X			X		5		X
	86-GW21IWD-01			W	5/7	1445										X			1		Routine
	36-GW1H-01			W	5/8	1040	X												3		7-day
	36-GW12IW-01			W	5/8	1235	X												3		7-day
	36-GW12-01			W	5/8	1420	X												3		7-day

WESTON Analytics Use Only

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
- See last column for sample turn around
- Airbill # 2124804824

* = VOA gets 7-day, All else Routine

DATE/REVISIONS:
1.
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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
7.7.7	Fed Ex	5/8/95	1530				

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

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ___ Cooler# 1 381-596a

COC # 303077

Custody Transfer Record/Lab Work Request

WESTON Analytics Use Only

Client _____
Est. Final Proj. Sampling Date _____
Work Order # _____
Project Contact/Phone # _____
AD Project Manager _____
QC _____ Del _____ TAT _____
Date Rec'd _____ Date Due _____
Account # _____

Refrigerator #

#/Type Container	Liquid	
	Solid	
Volume	Liquid	
	Solid	
Preservatives		

ANALYSES REQUESTED →

ORGANIC: VOA | BNA | Pest/PCB | Herb | Fish

INORG: Metal | CN

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 (✓) MS	MSD	Matrix	Date Collected 1995	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb	Fish	INORG Metal	CN	WESTON Analytics Use Only	
	86-GWIOTW-01	X	X	W	5/9	1140	X							5	@
	86-GWIOTW-01D			W	5/9	1140	X							7	Routine
	86-TWN1			W	5/9	1215	X				X			H	7-day
	86-TWN1R			W	5/9	1330	X				X			H	7-day

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
@ = VOA gets 7-day, MS/MSD get Routine
- See last column for sample turn times
- Airbill # 2124804813

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

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

Relinquished by	Received by	Date	Time
T.T.	FedEx	5/9/95	1530

Relinquished by	Received by	Date	Time

RFW 21-21-001/A-7/91

____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# _____ Cooler# 1

381-596a

COC # 303078

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: Baker Environmental

Est. Final Proj. Sampling Date: 5-9-95

Work Order #:

Project Contact/Phone: L. Johnson / 412-788-6000

AD Project Manager: Denise Wahmen

QC: Del: TAT:

Date Rec'd: Date Due:

Account #:

Refrigerator #

#/Type Container: Liquid / Solid

Volume: Liquid / Solid

Preservatives

ANALYSES REQUESTED →

ORGANIC: VOA, BNA, Pest/PCB, Herb, React Cyanide, React Sulfide

INORG: Metal, CN, TSS/TDS, # bottles

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 (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	React Cyanide	React Sulfide	Metal	CN	TSS/TDS	# bottles		
	303-FB-01			W	5/9	0715		X	X				X			3		Routine
	304-GW10-TW-01	X	X	W	5/9	1140							X		X	3		Routine
	304-GW10-TW-01D			W	5/9	1140							X		X	2		Routine
	86-TNK			W	5/9	1215		X	X		X	X	X			6		7-day
	86-TNKR			W	5/9	1330		X	X		X	X	X			6		7-day

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

- See last column for sample turn times
- Airbill # 2124804813

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

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

Relinquished by	Received by	Date	Time
T.T.T.	Fed Ex	5/9/95	1530

Relinquished by	Received by	Date	Time

RFW 21-21-001/A-7/91

____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# _____ Cooler# 2

381-596a

WEST Analytics Use Only

COC # 303085

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client BAKER ENVIRONMENTAL, INC
Est. Final Proj. Sampling Date 10/18/95
Work Order # 6270-303
Project Contact/Phone # LINNEA JOHNSON/412-269-6000
AD Project Manager RICH BONELLI
QC _____ Del _____ TAT _____
Date Rec'd _____ Date Due _____
Account # _____

Refrigerator #																			
#/Type Container	Liquid			1Ø															
	Solid																		
Volume	Liquid			40z															
	Solid																		
Preservatives				—															
ANALYSES REQUESTED →		ORGANIC										INORG							
		VOA	BNA	Pest/PCB	Herb							Metal	CN						

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only											
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		36-OA-SBØ1E-ØØ			SOIL	10/9	15:30			1									
		36-OA-SBØ1E-Ø2					15:30			1									
		36-OA-SBØ1F-ØØ					15:55			1									
		36-OA-SBØ1F-Ø2					15:55			1									
		36-OA-SBØ1G-ØØ					16:15			1									
		36-OA-SBØ1G-Ø2					16:15			1									
		36-OA-SBØ1H-ØØ					16:35			1									
		36-OA-SBØ1H-Ø2					16:35			1									
		36-OA-SBØ1I-ØØ					16:50			1									
		36-OA-SBØ1I-Ø2					16:50			1									

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

7 DAY QUICK-TURN ANALYSIS

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

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

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

COC# 303085

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

Client BAKER ENVIRONMENTAL, INC.
Est. Final Proj. Sampling Date 10/18/95
Work Order # 62470-303
Project Contact/Phone # LINNEA JOHNSON/412-269-6000
AD Project Manager RICH BONELLI
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #

#/Type Container	Liquid	6
	Solid	
Volume	Liquid	40 mL
	Solid	
Preservatives		

ANALYSES REQUESTED →

ORGANIC: VOA | BNA | Pest/PCB | Herb
INORG: 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 (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only
	86-GW04IW-02			W	10/10	1600	1
	86-GW02IW-02			W	10/10	1240	1
	303-TB-53			W	10/10	—	1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

7 DAY QUICKTURN ANALYSIS

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

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

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

WES Analytics Use Only

COC # 303086

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Page 1 of 1

Client BAKER ENVIRONMENTAL, INC.
Est. Final Proj. Sampling Date 10/18/95
Work Order # 62470-303
Project Contact/Phone # LINNEA JOHNSON/412-269-6000
AD Project Manager RICH BONNELLI
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #

#/Type Container	Liquid	4
	Solid	
Volume	Liquid	40mL
	Solid	
Preservatives		

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: 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 (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only
✓	86-GW10IW-02			W	10/11/95	1025	1
✓	86-GW15IW-02			W	↓	1530	1
✓	86-GW16IW-02			W	↓	1935	1
✓	86-GW17IW-02			W	10/12/95	1100	1
✓	86-GW20IW-02			W	↓	1420	1
	303-TB-54			W	10/11/95	1115	1
	86-GW06-02			W	10/10/95	2005	1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

QT = QUICK-TURN ANALYSIS (7 DAYS)

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:

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

COC# 303087

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: BAKER ENVIRONMENTAL INC
Est. Final Proj. Sampling Date: 10/18/95
Work Order #: 62470-303
Project Contact/Phone #: WILMA JOHNSON/412 269 ...
AD Project Manager: RICK BONELLI
QC: Del: TAT:
Date Rec'd: Date Due:
Account #:

Refrigerator #
#/Type Container — Liquid: 3; Solid:
Volume — Liquid: 40 mL; Solid:
Preservatives

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN

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	MS	MSD	Matrix	Date Collected	Time Collected
	303-FB-05			W	10/4	1115
✓	86-GW... -02			W	10/...	0825
✓	86-GW... -02			W	10/13	...
✓	86-GW... -02			W	10/13	...

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

QT - QUICK-TURN ANALYSIS (7 DAYS)

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:

RFW 21-001/A-7/91 L372 L373 L377 L377 L378 Ref# Cooler# 381-596a

OCT-13-95 FRI 5:15 PM BAKERENV FAX NO. 9104550416 P. 1

COC# 303088

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Client BAKER ENVIRONMENTAL, INC

Est. Final Proj. Sampling Date 10/16/95

Work Order # 62470-303

Project Contact/Phone # LINNEA JOHNSON/412-269-6000

AD Project Manager RICH BONELLI

QC ______ Del ______ TAT ______

Date Rec'd ______ Date Due ______

Account # ______

Refrigerator #

		VOA	BNA	Pest/PCB	Herb				Metal	CN	IGN	REACT. SULF.	REACT. CY(?)	pH		
#/Type Container	Liquid	14		24							1	1	1	1		
	Solid								2							
Volume	Liquid	40 ML		1 L					~~4 oz~~		250 ML	500 ML	500 ML	1 L		
	Solid								4 oz							
Preservatives																

ANALYSES REQUESTED → ORGANIC (VOA, BNA, Pest/PCB, Herb); INORG (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

WESTON Analytics Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb				Metal	CN	IGN	REACT. SULF.	REACT. CY(?)	pH		
	36-SD08-01			SE	10/14/95	1105								1							
	36-SD09-01			SE	10/14/95	1108								1							
	36-GW10-03			W	10/14/95	1555			1												
	86-GW24-01			W	10/16/95	1150	1														
	86-GW25-01			W	10/15/95	1140	1														
	86-GW27-01			W	10/15/95	1455	1														
	86-GWER06			W	10/15/95	1525	1														
	303-TB-55			W	10/4/95	1115	1														
	86-GW26-01			W	10/6/95	1700	1														
	86-TWK-03			W	10/16	1730	1									1	1	1	1		

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

QT = QUICKTURN ANALYSIS (7 DAYS)

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:

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ______ Cooler# ______ 381-596a

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client BAKER

Est. Final Proj. Sampling Date

Work Order #

Project Contact/Phone #

AD Project Manager

QC ____ Del ____ TAT ____

Date Rec'd ____ Date Due ____

Account #

Refrigerator #		
#/Type Container	Liquid	2
	Solid	
Volume	Liquid	40ML
	Solid	
Preservatives		

ANALYSES REQUESTED →

ORGANIC				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 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
	86-GWER-07			W	10/16/95	1710	1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

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

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

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS / DESIGNERS / CONSULTANTS

Client BAKER
Est. Final Proj. Sampling Date 5/31/96
Work Order #
Project Contact/Phone # R. BONELLI / 412-269-2033
AD Project Manager D. WOLTMAN
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account # ____

Refrigerator #

#/Type Container	Liquid
	Solid
Volume	Liquid
	Solid
Preservatives	

ANALYSES REQUESTED →

ORGANIC: VOA | BNA | Pest/PCB | Herb | PCB
INORG: Metal | CN

TURN AROUND TIME (DAYS)

No. of bottles

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 (✓) MS	MSD	Matrix	Date Collected 1996	Time Collected	VOA	BNA	Pest/PCB	Herb	PCB	Metal	CN	TURN AROUND TIME (DAYS)	No. of bottles
	36-0A-SB01L			S	5/31	1230			X					7	1
	36-0A-SB01M			S	5/31	1232			X					7	1
	36-0A-SB01J			S	5/31	1300					X			7	2
	36-0A-SB01K			S	5/31	1305					X			7	2
	36-0F-SB03A			S	5/31	1330			X					7	1
	36-0F-SB03B			S	5/31	1332			X					7	1
	36-0F-SB03C			S	5/31	1334			X					7	1
	36-0F-SB03D			S	5/31	1336			X					7	1
	36-0F-SB04A			S	5/31	1400		X						7	1
	36-0F-SB04B			S	5/31	1405		X						7	1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
FAXED RESULTS DUE ON 7-DAY TURN
FED-EX AIRBILL # 162660704

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

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

Relinquished by	Received by	Date	Time
J.P.T.	FED-EX	5/31/96	1800

Relinquished by	Received by	Date	Time

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

Client: BAKER
Est. Final Proj. Sampling Date: 5/31/96
Work Order #:
Project Contact/Phone #: R. Borelli/412-269-2033
AD Project Manager: D. WOLFMAN
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account #:

Refrigerator #

#/Type Container	Liquid
	Solid
Volume	Liquid
	Solid
Preservatives	

ANALYSES REQUESTED →

ORGANIC: VOA | BNA | Pest/PCB | Herb
INORG: Metal | CN

TURNAROUND TIME (DAYS): 7

No. of bottles

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											
					1996													
	36-OF-SB04C			S	5/31	1407		X								7		1
	36-OF-SB04D			S	5/31	1410		X								7		1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
FAXED RESULTS DUE ON 7 DAY TURN

FED EX AIRBILL # 162660670 4

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

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

Relinquished by	Received by	Date	Time
A.P.T	FED-EX	5/31/96	1800

Relinquished by	Received by	Date	Time

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

APPENDIX D
FIELD WELL DEVELOPMENT RECORDS

FIELD WELL DEVELOPMENT RECORD

Baker Environmental, Inc

PROJECT: SITE 86

CTO NO.: 303 WELL NO.: 86-GW01

DATE: 2-24-95

GEOLOGIST/ENGINEER: MDSMITH

TIME START: 820

TIME FINISH: 1121

INITIAL WATER LEVEL (FT): 6.92'

TOTAL WELL DEPTH (TD): 17.70'

WELL DIAMETER (INCHES): 2"

CALCULATED WELL VOLUME: 1.76 GAL.

BOREHOLE DIAMETER (INCHES): UNKNOWN

BOREHOLE VOLUME: -

AMOUNT OF WATER ADDED DURING DRILLING: -

DEVELOPMENT METHOD: PUMPING

PUMP TYPE: CENTRIFUGAL

TOTAL TIME (A): 2 hr. 2 min TOTAL PUMPING TIME

AVERAGE FLOW (GPM)(B): 2 GPM

TOTAL ESTIMATED WITHDRAWAL AxB = 247 GAL MEASURED

HNU/OVA READING: Background.

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
820	-	-	-	-	-	VERY TURBID
903	75	5.44	-	240	19	TURBID
917	95	5.38	-	-	19	CLEAR
924	106	5.43	-	-	19	CLEAR
1035	111	-	-	-	-	VERY TURBID
1038	128	-	-	-	-	VERY TURBID
1101	209	5.25	-	195	22	TURBID
1109	227	5.25	-	185	22	SLIGHTLY TURBID
1110	229	5.27	-	240	22	SLIGHTLY TURBID
1116	242	5.30	-	235	22	CLEAR
1121	247	5.31	-	235	22	CLEAR

OBSERVATIONS/NOTES

The well was surged between 1002 and 1023.

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc.

PROJECT: SITE 86

CTO NO.: 303 WELL NO.: 86-GW02IW

DATE: 2-24-95

GEOLOGIST/ENGINEER: MDSMITH

TIME START: 1418

TIME FINISH: 1706

INITIAL WATER LEVEL (FT): 6.56'

TOTAL WELL DEPTH (TD): 32.14'

WELL DIAMETER (INCHES): 2"

CALCULATED WELL VOLUME: 4.17 GAL.

BOREHOLE DIAMETER (INCHES): UNKNOWN

BOREHOLE VOLUME: –

AMOUNT OF WATER ADDED DURING DRILLING: –

DEVELOPMENT METHOD: AIR

PUMP TYPE: COMPRESSOR

TOTAL TIME (A): 2hr 48min TOTAL PUMPING TIME

AVERAGE FLOW (GPM)(B): .46 GPM

TOTAL ESTIMATED WITHDRAWAL AxB= 79 GAL MEASURED

HNU/OVA READING: Background

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1418	0	–	–	–	–	–
1431	9	5.78		410	22	TURBID
1440	–	6.69		445	24	TURBID
1453	22	7.68		475	24	TURBID
1514	30	7.81		475	28	TURBID
1521	35	7.72		500	24	TURBID
1528	38	6.10		490	23	TURBID
1545	43	7.79		490	22	TURBID
1554	45	7.77		500	21	TURBID
1600	48	7.70		500	21	TURBID
1619	62	7.84		500	21	TURBID
1629	65	7.72		500	21	TURBID
1638	68	6.41		500	21.5	TURBID
1650	73	7.73		490	21	SLIGHTLY TURBID
1701	77	7.67		500	19	SLIGHTLY TURBID
1706	79		↓	–	–	–

OBSERVATIONS/NOTES

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: SITE 86

CTO NO.: 303 WELL NO.: 86-GW03

DATE: 2-26-95

GEOLOGIST/ENGINEER: MDSMITH

TIME START: 1431

TIME FINISH: 1435

INITIAL WATER LEVEL (FT): 5.94'

TOTAL WELL DEPTH (TD): 16.61'

WELL DIAMETER (INCHES): 2"

CALCULATED WELL VOLUME: 1.74 GAL

BOREHOLE DIAMETER (INCHES): UNKNOWN

BOREHOLE VOLUME: -

AMOUNT OF WATER ADDED DURING DRILLING: -

DEVELOPMENT METHOD: PUMPING

PUMP TYPE: CENTRIFUGAL

TOTAL TIME (A): 0hr 32min TOTAL PUMPING TIME

AVERAGE FLOW (GPM)(B): 3.0 GPM

TOTAL ESTIMATED WITHDRAWAL AxB = 95 GAL

MEASURED

HNU/OVA READING: Background

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1431	0	-		-	-	VERY TURBID
1435	5	-		-	-	TURBID
1442	16	-		-	-	TURBID
1444	25	4.53		145	18	SLIGHTLY TURBID
1447	33	4.50		150	18	CLEAR
1528	55	4.48		150	17	TURBID
1532	65	4.52		140	17	SLIGHTLY TURBID
1539	92	4.50		140	17	SLIGHTLY TURBID
1541	95	-		-	-	CLEAR

OBSERVATIONS/NOTES

This well was surged from 1447 to 1523.

Baker

Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River

CTO NO.: 62470-303 WELL NO.: 86-GW04IW

DATE: 2-27-95

GEOLOGIST/ENGINEER: M. S. HERBST

TIME START	1448
TIME FINISH	1550
INITIAL WATER LEVEL (FT)	6.20'
TOTAL WELL DEPTH (TD)	32.45'
WELL DIAMETER (INCHES)	2.0"
CALCULATED WELL VOLUME	4.20 gallons
BOREHOLE DIAMETER (INCHES)	-N/A-
BOREHOLE VOLUME	-N/A-
AMOUNT OF WATER ADDED DURING DRILLING	-N/A-
DEVELOPMENT METHOD	AIR LIFT
PUMP TYPE	AIR COMPRESSOR
TOTAL TIME (A)	1 hr. 2 min.
AVERAGE FLOW (GPM)(B)	1.0 gpm
TOTAL ESTIMATED WITHDRAWAL AxB=	63 gallons
HNU/OVA READING	-N/A-

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1452	9.5	7.28	20.0	355	20.0	OPAQUE GRAY/BROWN. FINE DARK GRAY SOLIDS SETTLING.
1459	18.0	7.61	20.0	430	20.0	VERY CLEAR. SLIGHT YELLOW TINT.
1504	25.5	7.68	20.0	450	20.0	SAME
1511	40.0	7.72	20.0	460	20.0	SAME
1520	42.5	7.58	20.5	440	20.5	GREENISH-BROWN OPAQUE.
1527	51.0	7.76	20.0	460	20.0	EXTREMELY CLEAR. (SLIGHT MILKINESS)
1535	55.0	7.77	20.0	465	20.0	CLEAR.
1545	61.3	7.78	20.0	465	20.0	CLEAR.
1550	63.0					

- GOOD PRODUCER.
- REF: p.23 CTO 308 VOL I.

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: SITE 86

CTO NO.: 303 WELL NO.: 86-GW05

DATE: 2-24-95

GEOLOGIST/ENGINEER: MD SMITH

TIME START: 1831

TIME FINISH: 2054

INITIAL WATER LEVEL (FT): 6.82'

TOTAL WELL DEPTH (TD): 16.54'

WELL DIAMETER (INCHES): 2"

CALCULATED WELL VOLUME: 1.58 GAL

BOREHOLE DIAMETER (INCHES): UNKNOWN

BOREHOLE VOLUME: –

AMOUNT OF WATER ADDED DURING DRILLING: –

DEVELOPMENT METHOD: PUMPING

PUMP TYPE: CENTRIFUGAL

TOTAL TIME (A): 2hr. 23min TOTAL PUMPING TIME

AVERAGE FLOW (GPM)(B): 0.6 GPM

TOTAL ESTIMATED WITHDRAWAL AxB = 87GAL

MEASURED

HNU/OVA READING: Background

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1831	13	–		–	–	VERY TURBID
1834	18	–		–	–	VERY TURBID
1837	24	–		–	–	VERY TURBID
1847	55	–		–	–	VERY TURBID
1850	61	5.92		221	17	MILKY
1856	64	5.84		220	17.5	MILKY
1900	68.5	5.90		228	17.5	MILKY
1906	76	5.88		225	18	MILKY
2048	–	6.13		200	17	MILKY
2051	81	6.04		200	17	MILKY
2054	87	6.04	↓	195	17	MILKY

OBSERVATIONS/NOTES

This well was surged for 15 minutes.

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River

CTO NO.: 62470-303 WELL NO.: 86-GW06IW

DATE: 2-25-95

GEOLOGIST/ENGINEER: M.S. HERBST

TIME START	1417
TIME FINISH	1556
INITIAL WATER LEVEL (FT)	7.60'
TOTAL WELL DEPTH (TD)	32.30'
WELL DIAMETER (INCHES)	2.0"
CALCULATED WELL VOLUME	4.03 gallons
BOREHOLE DIAMETER (INCHES)	-N/A-
BOREHOLE VOLUME	-N/A-
AMOUNT OF WATER ADDED DURING DRILLING	-N/A-
DEVELOPMENT METHOD	AIR LIFT
PUMP TYPE	AIR COMPRESSOR
TOTAL TIME (A)	1 hr. 39 min
AVERAGE FLOW (GPM)(B)	0.7 gpm
TOTAL ESTIMATED WITHDRAWAL AxB=	65 gallons
HNU/OVA READING	-N/A-

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1426	8.5	7.47	23.0	270	23.0	SLIGHTLY MILKY BUT TRANSPARENT.
1435	16.0	7.51	22.5	260	22.5	SLIGHTLY MILKY BUT TRANSPARENT.
1445	20.0	7.54	23.0	290	23.0	BECOMING MUCH CLEARER
1452	26.0	7.56	23.0	300	23.0	VERY CLEAR
1459	31.0	7.57	23.0	310	23.0	VERY CLEAR
1511	38.0	7.54	22.0	310	22.0	FAIRLY CLEAR
1524	44.5	7.61	22.0	335	22.0	FAIRLY CLEAR
1539	53.0	7.57	21.0	280	21.0	VERY CLEAR
1549	63.5	7.59	22.0	340	22.0	VERY CLEAR
1556	65.0					

REF: P. 9, CTO BOB VOL I.

FIELD WELL DEVELOPMENT RECORD

Baker
Baker Environmental, Inc

PROJECT: SITE 86

CTO NO.: 303 WELL NO.: 86-GW07

DATE: 2-25-95

GEOLOGIST/ENGINEER: MD SMITH

TIME START: 1251

TIME FINISH: 1501

INITIAL WATER LEVEL (FT): 7.90'

TOTAL WELL DEPTH (TD): 17.66'

WELL DIAMETER (INCHES): 2"

CALCULATED WELL VOLUME: 1.59 GAL

BOREHOLE DIAMETER (INCHES): UNKNOWN

BOREHOLE VOLUME: -

AMOUNT OF WATER ADDED DURING DRILLING: -

DEVELOPMENT METHOD: PUMPING

PUMP TYPE: CENTRIFUGAL

TOTAL TIME (A): 1 hr 53 min TOTAL PUMPING TIME

AVERAGE FLOW (GPM)(B): 1.2 GPM

TOTAL ESTIMATED WITHDRAWAL AxB = 133 GAL MEASURED

HNU/OVA READING: Background

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1251	0	-		-	-	SLIGHTLY TURBID
1258	10	-		-	-	SLIGHTLY TURBID
1303	20	-		-	-	SLIGHTLY TURBID
1307	30	-		-	-	VERY SLIGHTLY TURBID
1310	55	5.06		800	21	VERY SLIGHTLY TURBID
1315	65	5.07		600	20	CLEAR
1352	80	-		-	-	VERY TURBID
1424	-	-		-	-	SLIGHTLY TURBID
1432	100	5.26		750	19.5	CLEAR
1437	103	5.23		800	20	CLEAR, FINE SAND
1449	-	5.08		800	19	VERY SLIGHT TURBIDITY
1455	120	5.12		700	18.5	CLEAR
1458	125	5.08		800	20	CLEAR
1501	133	-	↓	-	-	CLEAR

OBSERVATIONS/NOTES

This well was surged between 1317 and 1342.

Baker

Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River

CTO NO.: 62470-303 WELL NO.: 86-GW08IW

DATE: 2-27-95

GEOLOGIST/ENGINEER: M. S. HERBST

TIME START	1045
TIME FINISH	1222
INITIAL WATER LEVEL (FT)	8.05'
TOTAL WELL DEPTH (TD)	32.62'
WELL DIAMETER (INCHES)	2.0"
CALCULATED WELL VOLUME	3.93 gallons
BOREHOLE DIAMETER (INCHES)	- N/A -
BOREHOLE VOLUME	- N/A -
AMOUNT OF WATER ADDED DURING DRILLING	- N/A -
DEVELOPMENT METHOD	AIR LIFT
PUMP TYPE	AIR COMPRESSOR
TOTAL TIME (A)	1 hr. 37 min.
AVERAGE FLOW (GPM)(B)	0.4 gpm
TOTAL ESTIMATED WITHDRAWAL AxB=	35 gallons
HNU/OVA READING	- N/A -

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1048	2.0	7.79	20.5	700	20.5	BROWN OPAQUE MANY SOLIDS
1057	8.5	7.91	22.5	750	22.5	BROWN OPAQUE (SLIGHTLY LIGHTER) FEWER SOLIDS.
1107	10.5	7.97	24.0	800	24.0	LIGHT YELLOWISH-BROWN. OPAQUE. NO SETTLING SOLIDS.
1122	16.0		24.0	800	24.0	TRANSLUCENT YELLOWISH-BROWN.
1137	18.0	8.00	24.0	800	24.0	SLIGHTLY MILKY. TRANSPARENT.
1143	SEE BELOW					
1150	23.5	7.98	23.5	750	23.5	OPAQUE YELLOWISH-BROWN, SOME SETTLING FINES.
1200	27.5	7.97	23.0	750	23.0	TRANSPARENT YELLOWISH-BROWN. NO SOLIDS.
1218	33.0	7.94	23.0	750	23.0	TRANSPARENT. SLIGHT YELLOWISH TINT.
1222	35.0					

- @1143 INCREASED AIR FLOW, THEN REDUCED IT TO ITS PREVIOUS FLOW RATE.
- REF. p. 19, CTO 308 VOL I.

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: SITE 86

CTO NO.: 303 WELL NO.: 86-GW09

DATE: 2-26-95

GEOLOGIST/ENGINEER: MDSMITH

TIME START: 0854

TIME FINISH: 1020

INITIAL WATER LEVEL (FT): 6.55'

TOTAL WELL DEPTH (TD): 17.06'

WELL DIAMETER (INCHES): 2"

CALCULATED WELL VOLUME: 1.7 GAL

BOREHOLE DIAMETER (INCHES): UNKNOWN

BOREHOLE VOLUME: -

AMOUNT OF WATER ADDED DURING DRILLING: -

DEVELOPMENT METHOD: PUMPING

PUMP TYPE: CENTRIFUGAL

TOTAL TIME (A): 0hr 50 min TOTAL PUMPING TIME

AVERAGE FLOW (GPM)(B): 3.2 GPM

TOTAL ESTIMATED WITHDRAWAL AxB = 160 GAL MEASURED

HNU/OVA READING: Background

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
0854	0	-		-	-	VERY TURBID
900	20	4.81		60	16	TURBID
906	37	4.81		65	17	CLEAR
949	45	-		-	-	VERY TURBID
958	80	-				TURBID
1008	125	4.80		75	17	TURBID
1011	140	4.78		75	18	CLEAR
1014	145	4.78		75	18	CLEAR
1018	155	4.88		75	16.5	CLEAR
1020	160	-		-	-	CLEAR

OBSERVATIONS/NOTES

This well was surged from 911 to 947

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River

CTO NO.: 62470-303 WELL NO.: 86-GW10IW

DATE: 2-26-95

GEOLOGIST/ENGINEER: M. S. HERBST

TIME START	1345
TIME FINISH	1430
INITIAL WATER LEVEL (FT)	6.20'
TOTAL WELL DEPTH (TD)	32.12'
WELL DIAMETER (INCHES)	2.0"
CALCULATED WELL VOLUME	4.15 gallons
BOREHOLE DIAMETER (INCHES)	-N/A-
BOREHOLE VOLUME	-N/A-
AMOUNT OF WATER ADDED DURING DRILLING	-N/A-
DEVELOPMENT METHOD	AIR LIFT
PUMP TYPE	AIR COMPRESSOR
TOTAL TIME (A)	0h. 45min.
AVERAGE FLOW (GPM)(B)	1.3 gpm
TOTAL ESTIMATED WITHDRAWAL AxB=	60 gallons
HNU/OVA READING	-N/A-

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1352	17.0	6.91	21.0	395	21.0	GREENISH-BROWN TINGE, BUT TRANSPARENT.
1400	23.0	7.03	21.0	400	21.0	EXTREMELY CLEAR.
1408	34.0	7.00	20.0	405	20.0	SLIGHTLY CLOUDIER THAN AT 1400.
1412	40.0	7.04	20.0	405	20.0	EXTREMELY CLEAR
1420	51.0	7.07	19.0	410	19.0	CLEAR
1430	60.0					

- REF: pp 14-15 CTO 308 Vol I.

FIELD WELL DEVELOPMENT RECORD

Baker
Baker Environmental, Inc

PROJECT: SITE 86

CTO NO.: 303 WELL NO.: 86-GW11

DATE: 2-25-95

GEOLOGIST/ENGINEER: MD SMITH

TIME START: 0848

TIME FINISH: 1059

INITIAL WATER LEVEL (FT): 6.85'

TOTAL WELL DEPTH (TD): - 17.35'

WELL DIAMETER (INCHES): 2"

CALCULATED WELL VOLUME: 1.71 GAL

BOREHOLE DIAMETER (INCHES): UNKNOWN

BOREHOLE VOLUME: —

AMOUNT OF WATER ADDED DURING DRILLING: —

DEVELOPMENT METHOD: PUMPING

PUMP TYPE: CENTRIFUGAL

TOTAL TIME (A): 1hr 13min TOTAL PUMPING TIME

AVERAGE FLOW (GPM)(B): 1.36PM

TOTAL ESTIMATED WITHDRAWAL AxB = 93GAL MEASURED

HNU/OVA READING: BacKground

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
848	0	-		-	-	TURBID
859	16	-		-	-	SLIGHTLY TURBID
903	20	-		-	-	CLEAR
906	23	-		-	-	CLEAR
916	25	-		900	10.0	CLEAR
923	30	6.68		800	18.0	CLEAR
932	40	6.54		800	17.0	CLEAR
1000	48	-		-	-	VERY TURBID
1005	60	-		-	-	VERY TURBID
1015	68	6.52		1000	17.5	TURBID
1018	69	6.48		1000	18.0	TURBID
1025	72	6.45		1000	18.0	SLIGHTLY TURBID
1033	76	6.62		1000	18.5	SLIGHTLY TURBID
1041	82	6.49		900	19.0	SLIGHTLY TURBID
1050	86	6.44		900	19.0	SLIGHTLY TURBID
1056	92	6.41	↓	900	19.0	CLEAR

OBSERVATIONS/NOTES

Final volume removed was 93 GAL @ 1059.
The well was surged between 932 and 956.

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River

CTO NO.: 62470-303 WELL NO.: 86-GW12IW

DATE: 2-26-95

GEOLOGIST/ENGINEER: M. S. HERBST

TIME START	0950
TIME FINISH	1050
INITIAL WATER LEVEL (FT)	6.95'
TOTAL WELL DEPTH (TD)	32.90'
WELL DIAMETER (INCHES)	2.0"
CALCULATED WELL VOLUME	4.15 gallons
BOREHOLE DIAMETER (INCHES)	-N/A-
BOREHOLE VOLUME	-N/A-
AMOUNT OF WATER ADDED DURING DRILLING	-N/A-
DEVELOPMENT METHOD	AIR LIFT
PUMP TYPE	COMPRESSED AIR
TOTAL TIME (A)	1 hr. 0 min.
AVERAGE FLOW (GPM)(B)	0.8 gpm
TOTAL ESTIMATED WITHDRAWAL AxB=	50 gallons
HNU/OVA READING	-N/A-

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
0958	8.5	6.86	19.0	260	19.0	LT. BROWN. OPAQUE.
1008	17.0	6.99	20.0	270	20.0	VERY CLEAR (TRANSPARENT)
1018	21.0	7.05	20.5	275	20.5	VERY CLEAR.
1028	30.0	7.01	20.0	280	20.0	FAIRLY CLEAR
1035	36.0	7.03	20.0	285	20.0	VERY CLEAR
1045	46.5	7.04	20.0	285	20.0	EXTREMELY CLEAR
1050	50.0					

- WELL HAD A BAD ODOR ... NOT OVERPOWERING, BUT UN-PLEASANT.
- REF: p. 13 CTO 303 VOL I.

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: SITE 86

CTO NO.: 303 WELL NO.: 86-GW13

DATE: 2-25-95

GEOLOGIST/ENGINEER: M D SMITH

TIME START: 1713

TIME FINISH: 1821

INITIAL WATER LEVEL (FT): 5.04'

TOTAL WELL DEPTH (TD): 14.44'

WELL DIAMETER (INCHES): 2"

CALCULATED WELL VOLUME: 1.53 GAL

BOREHOLE DIAMETER (INCHES): UNKNOWN

BOREHOLE VOLUME: -

AMOUNT OF WATER ADDED DURING DRILLING: -

DEVELOPMENT METHOD: PUMPING

PUMP TYPE: CENTRIFUGAL

TOTAL TIME (A): 0 hr 30 min TOTAL PUMPING TIME

AVERAGE FLOW (GPM)(B): 6.5 GPM

TOTAL ESTIMATED WITHDRAWAL AxB = 195 GAL MEASURED

HNU/OVA READING: Background

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1713	0	-		-	-	TURBID
1724	38	5.68		425	14.0	CLEAR
1730	50	5.66		450	15.0	CLEAR
1732	65	-		-	-	CLEAR
1803	65	-		-	-	TURBID
1806	85	-		-	-	SLIGHTLY TURBID
1808	105	-		-	-	SLIGHTLY TURBID
1813	140	5.64		600	13.0	CLEAR
1816	160	5.78		450	15.0	CLEAR
1819	180	5.78		450	15.0	CLEAR
1821	195	5.78		450	15.0	CLEAR

OBSERVATIONS/NOTES

This well was surged from 1735 to 1803.

Baker

Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River

CTO NO.: 62470-303 WELL NO.: 86-GW14IW

DATE: 2-27-95

GEOLOGIST/ENGINEER: M.S. HERBST

TIME START	0900
TIME FINISH	0942
INITIAL WATER LEVEL (FT)	5.44'
TOTAL WELL DEPTH (TD)	29.60'
WELL DIAMETER (INCHES)	2.0"
CALCULATED WELL VOLUME	3.88 gallons
BOREHOLE DIAMETER (INCHES)	-N/A-
BOREHOLE VOLUME	-N/A-
AMOUNT OF WATER ADDED DURING DRILLING	- N/A -
DEVELOPMENT METHOD	AIR LIFT
PUMP TYPE	AIR COMPRESSOR.
TOTAL TIME (A)	Ø hr. 42 min.
AVERAGE FLOW (GPM)(B)	3.6 gpm
TOTAL ESTIMATED WITHDRAWAL AxB=	150.0 gallons
HNU/OVA READING	- N/A-

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
0904	21.0	7.60	18.5	425	18.5	MURKY GREEN OPAQUE
0908	37.0	7.69	19.0	465	19.0	SLIGHTLY MILKY, BUT TRANSPARENT.
0913	51.0	7.70	19.5	480	19.5	VERY CLEAR
0919	70.0	7.67	19.0	450	19.0	MURKY GREENISH-BROWN
0923	83.5	7.71	19.0	460	19.0	SLIGHTLY CLEARER BUT STILL OPAQUE MURKY GREENISH BROWN
0928	99.5	7.70	19.0	470	19.0	TRANSLUCENT SLIGHTLY MILKY GREENISH-BROWN.
0933	110.0	7.70	19.0	470	19.0	SLIGHTLY MILKY BUT TRANSPARENT
0939	133.0	7.68	19.5	475	19.5	VERY CLEAR
0942	150.0					

REF: p. 17 CTO 308 VOL I.

- INCREASED AIR @ 0915, THEN RETURNED TO ORIGINAL FLOW. (HENCE INCREASED TURBIDITY).

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc

PROJECT: Site 86

CTO NO.: 303 WELL NO.: 86-GW15IW

DATE: 3-13-95

GEOLOGIST/ENGINEER: MOSMITH

TIME START: 1439

TIME FINISH: 1533

INITIAL WATER LEVEL (FT): 21.5'

TOTAL WELL DEPTH (TD): 55.5'

WELL DIAMETER (INCHES): 2"

CALCULATED WELL VOLUME: 5.54 GAL

BOREHOLE DIAMETER (INCHES): 8"

BOREHOLE VOLUME: 88.7 GAL From BGS

AMOUNT OF WATER ADDED DURING DRILLING:

DEVELOPMENT METHOD: AIR

PUMP TYPE: COMPRESSOR

TOTAL TIME (A): 54 mm

AVERAGE FLOW (GPM)(B): 4.75 GPM (calculated)

TOTAL ESTIMATED WITHDRAWAL AxB= 257 GAL (measured)

HNU/OVA READING: Background

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1439	0					GRAY-LT BROWN, TURBID
1441	18	7.56	18.5	440	23	SLIGHTLY MILKY
1458	110	7.25	17.1	425	23	SLIGHT TURBIDITY
1502	125	7.50	17.5	425	23	SLIGHT TURBIDITY
1509	155	7.24	16	440	23	TURBID, MILKY
1512	170	7.22	17.3	415	23	SLIGHTLY MILKY
1517	185	7.44	17.5	410	23	VERY SLIGHTLY MILKY
1523	210					
1528	235	7.83	17.5	405	23	VERY SLIGHTLY TURBID
1533	257					CLEAR

OBSERVATIONS/NOTES

Surged at 1502 with air. Flows that were measured varied between 9 - 4.5 GPM.

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc.

PROJECT: SITE 86

CTO NO.: 303 WELL NO.: 86-GW15DW

DATE: 3-13-95

GEOLOGIST/ENGINEER: MDSMITH

TIME START	1634
TIME FINISH	1747
INITIAL WATER LEVEL (FT)	7.41'
TOTAL WELL DEPTH (TD)	95.5'
WELL DIAMETER (INCHES)	2"
CALCULATED WELL VOLUME	14.4 GAL
BOREHOLE DIAMETER (INCHES)	8"
BOREHOLE VOLUME	230 GAL.
AMOUNT OF WATER ADDED DURING DRILLING	—
DEVELOPMENT METHOD	AIR
PUMP TYPE	COMPRESSOR
TOTAL TIME (A)	84 min.
AVERAGE FLOW (GPM)(B)	1.25 GPM
TOTAL ESTIMATED WITHDRAWAL AxB=	105 GAL (MEASURED)
HNU/OVA READING	Background

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1634	28	9.27	18.5	425	23	VERY TURBID, GRAY
1639	40	9.82		410	29	VERY TURBID, GRAY
1644	46	9.53		470	24	TURBID, GRAY
1654	53	9.27	18.5	425	23	CLEARING, GRAY
1700	60	9.16	19.2	425	24	TURBID, GRAY
1706	70					
1708	73	9.05	19.4	420	24	GRAY & TURBID
1714	85	9.05	20.1	425	25	SLIGHTLY TURBID, MILKY
1719	90	9.09	14.2	425	25	SLIGHTLY TURBO, MILKY
1722	95	8.95	19.6	425	25	SLIGHTLY TURBID, MILKY
1727	97					
1739	102	8.92	19.6	410	24	SLIGHTLY TURBID, MILKY
1744	104	8.84	18.2	420/24	24	CLEARING
1747	105					USUALLY CLEAR

OBSERVATIONS/NOTES

Flow was like a mist/rain.

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River

CTO NO.: 62470-303 WELL NO.: 86-GW16IW

DATE: 3-15-95

GEOLOGIST/ENGINEER: M. S. HERBST

TIME START: 0927	
TIME FINISH: 0946	
INITIAL WATER LEVEL (FT): 6.86'	
TOTAL WELL DEPTH (TD): 55.5'	
WELL DIAMETER (INCHES): 2.0"	
CALCULATED WELL VOLUME: 7.78 gal.	
BOREHOLE DIAMETER (INCHES): -N/A-	
BOREHOLE VOLUME: -N/A-	
AMOUNT OF WATER ADDED DURING DRILLING: -N/A-	
DEVELOPMENT METHOD: AIR LIFT	
PUMP TYPE: AIR COMPRESSOR	
TOTAL TIME (A): Øhr. 19 min.	
AVERAGE FLOW (GPM)(B): 5.8 gpm	
TOTAL ESTIMATED WITHDRAWAL AxB=: 110 gallons	
HNU/OVA READING: -N/A-	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
0936	55	7.89	18.0	500	18.0	MILKY TAN OPAQUE
0940	80	7.85	19.0	475	19.0	MILKY TAN TRANSLUCENT
0943	87	7.77	19.0	500	19.0	SLIGHTLY MILKY TRANSLUCENT
0946	110					

REF: pp 62-63 CTO 303 vol I.

NOTE: SLIGHTLY OVER 14 WELL VOLUMES WERE REMOVED DURING THIS DEVELOPMENT.

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River

CTO NO.: 62470-303 WELL NO.: 86-GW16DW

DATE: 3-15-95

GEOLOGIST/ENGINEER: M.S. HERBST

TIME START	0803
TIME FINISH	0854
INITIAL WATER LEVEL (FT)	9.16'
TOTAL WELL DEPTH (TD)	95.0'
WELL DIAMETER (INCHES)	2.0"
CALCULATED WELL VOLUME	13.73 gallons
BOREHOLE DIAMETER (INCHES)	-N/A-
BOREHOLE VOLUME	-N/A-
AMOUNT OF WATER ADDED DURING DRILLING	-N/A-
DEVELOPMENT METHOD	AIR LIFT
PUMP TYPE	AIR COMPRESSOR
TOTAL TIME (A)	0 hr. 51 min
AVERAGE FLOW (GPM)(B)	2.3 gallons/min
TOTAL ESTIMATED WITHDRAWAL AxB=	115.5 gal
HNU/OVA READING	-N/A-

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
0822	53	8.96	18.0	425	18.0	TAN OPAQUE
0829	68	8.79	20.0	425	20.0	MILKY TAN TRANSLUCENT
0836	80	8.60	20.0	400	20.0	SAME
0846	107	8.56	20.0	400	20.0	SAME

REF: pp. 60-61 CTO 303 Vol I.

Baker

Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River

CTO NO.: 62470-303 WELL NO.: 86-GW17IW

DATE: 3-20-95

GEOLOGIST/ENGINEER: M. S. HERBST

TIME START	DEVELOPMENT DATA						
1455	TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
TIME FINISH 1700	1529	17.0	—	—	—	—	MILKY TAN OPAQUE.
INITIAL WATER LEVEL (FT) 5.14'	1535	28.0	8.32	24.0	550	24.0	SAME
TOTAL WELL DEPTH (TD) 55.5'	1603	32.0	8.36	23.5	550	23.5	SAME
WELL DIAMETER (INCHES) 2.0"	1630	40.0	8.33	21.0	500	21.0	STILL MILKY TAN, BUT NOW SOMEWHAT TRANSLUCENT.
CALCULATED WELL VOLUME 8.06 gallons	1655	51.0	8.37	22.0	500	22.0	SAME
BOREHOLE DIAMETER (INCHES) - N/A -							
BOREHOLE VOLUME - N/A -							
AMOUNT OF WATER ADDED DURING DRILLING - N/A -							
DEVELOPMENT METHOD AIR LIFT							
PUMP TYPE AIR COMPRESSOR							
TOTAL TIME (A) 2 hrs. 5 min.							
AVERAGE FLOW (GPM)(B) 0.4 gpm							
TOTAL ESTIMATED WITHDRAWAL AxB= 55 gallons	- POOR PRODUCER. - REF: PP. 66-67 CTO 303 VOL I.						
HNU/OVA READING - N/A -							

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River

CTO NO.: 62470-303 WELL NO.: 86-GW17DW

DATE: 3-12-95

GEOLOGIST/ENGINEER: M. S. HERBST

TIME START	0906
TIME FINISH	0955
INITIAL WATER LEVEL (FT)	4.90'
TOTAL WELL DEPTH (TD)	106.5'
WELL DIAMETER (INCHES)	2.0"
CALCULATED WELL VOLUME	16.25 gallons
BOREHOLE DIAMETER (INCHES)	- N/A -
BOREHOLE VOLUME	- N/A -
AMOUNT OF WATER ADDED DURING DRILLING	- N/A -
DEVELOPMENT METHOD	AIR LIFT
PUMP TYPE	AIR COMPRESSOR
TOTAL TIME (A)	0 hr. 49 min.
AVERAGE FLOW (GPM)(B)	~ 3.0 gpm
TOTAL ESTIMATED WITHDRAWAL AxB=	144 gallons
HNU/OVA READING	- N/A -

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
0943	113.0	8.40	19.0	650	19.0	EXTREMELY CLEAR.
0951	137.0	8.43	19.0	650	19.0	SAME
0954	140.0	845	19.0	650	19.0	SAME

- WELL PRODUCED A LOT OF WATER.
- PROBLEMS WITH EQUIPMENT EARLY ON PREVENTED EARLY READINGS FOR pH AND SPEC. COND.
- REF. PP. 52-53, CTO 308 VOL. I
- READINGS TAKEN AFTER WELL CLEARED UP.

Baker

Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River

CTO NO.: 62470-303 WELL NO.: 86-GW18-DW

DATE: 3-11-95

GEOLOGIST/ENGINEER: M.S. HERBST

TIME START	1643
TIME FINISH	1740
INITIAL WATER LEVEL (FT)	3.52'
TOTAL WELL DEPTH (TD)	108.5'
WELL DIAMETER (INCHES)	2.0"
CALCULATED WELL VOLUME	16.8 gallons
BOREHOLE DIAMETER (INCHES)	-N/A-
BOREHOLE VOLUME	-N/A-
AMOUNT OF WATER ADDED DURING DRILLING	-N/A-
DEVELOPMENT METHOD	AIR LIFT
PUMP TYPE	AIR COMPRESSOR
TOTAL TIME (A)	Ø hr. 57 min.
AVERAGE FLOW (GPM)(B)	2.6 gpm
TOTAL ESTIMATED WITHDRAWAL AxB=	140 gallons
HNU/OVA READING	-N/A-

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1650	40	9.04	19.5	600	19.5	MURKY LIGHT BROWN OPAQUE.
1654	50	8.94	19.5	600	19.5	SLIGHTLY CLEARER THAN ABOVE.
1700	65	8.84	19.0	600	19.0	LIGHT BROWN * TRANSLUCENT.
1707	84	8.71	19.0	600	19.0	TAN TRANSLUCENT. *
1719	115	8.61	18.5	600	18.5	MILKY TAN OPAQUE
1723	125	8.59	19.0	600	19.0	SAME
1726	130	8.58	19.0	600	19.0	CLEAR WITH SLIGHT TAN TINGE
1740	140	—	—	—	—	—

* SULFUR ODOR NOTED DURING THESE READINGS.

- INCREASED, THEN DECREASED AIR @ 1717. (WHICH EXPLAINS THE RISE IN TURBIDITY BETWEEN 1707 + 1719.

- REF: PP. 48-51 CTO 303 VOL I.

Baker

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FIELD WELL DEVELOPMENT RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River

CTO NO.: 62470-303 WELL NO.: 86-GW19 DW

DATE: 3-24-95

GEOLOGIST/ENGINEER: M.S. HERBST

TIME START	1212
TIME FINISH	1314
INITIAL WATER LEVEL (FT)	8.55'
TOTAL WELL DEPTH (TD)	95.5'
WELL DIAMETER (INCHES)	2.0"
CALCULATED WELL VOLUME	13.9 gallons
BOREHOLE DIAMETER (INCHES)	-N/A-
BOREHOLE VOLUME	-N/A-
AMOUNT OF WATER ADDED DURING DRILLING	-N/A-
DEVELOPMENT METHOD	AIR LIFT
PUMP TYPE	AIR COMPRESSOR
TOTAL TIME (A)	1 hr. 2 min.
AVERAGE FLOW (GPM)(B)	1.7 gpm
TOTAL ESTIMATED WITHDRAWAL AxB=	106 gallons
HNU/OVA READING	-N/A-

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1225	30	9.91	20.0	440	20.0	OPAQUE TAN W/ FEW SETTLING PARTICLES.
1231	40	9.41	20.0	445	20.0	SAME
1235	51	9.16	20.0	450	20.0	MAYBE SLIGHTLY CLEARER THAN ABOVE
1253	82	8.72	19.5	475	19.5	TRANSLUCENT MILKY-TAN.
1305	100	8.66	19.5	480	19.5	TRANSLUCENT CLOUDY (LIGHT TAN).
1311	105	8.54	19.5	480	19.5	VERY CLEAR.
1314	106					

REF: pp. 80-81 CTO 302 VOL I.

FIELD WELL DEVELOPMENT RECORD

Baker Environmental, Inc.

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River

CTO NO.: 62470-303 WELL NO.: 86-GW20IW

DATE: 4-6-95

GEOLOGIST/ENGINEER: J.E. Zimmerman

TIME START: 1438

TIME FINISH: 1505

INITIAL WATER LEVEL (FT): 7.26 (TOC)

TOTAL WELL DEPTH (TD): 55.5

WELL DIAMETER (INCHES): 2.0

CALCULATED WELL VOLUME: —

BOREHOLE DIAMETER (INCHES): 6.0

BOREHOLE VOLUME: 70.6 gallons (1)

AMOUNT OF WATER ADDED DURING DRILLING: None

DEVELOPMENT METHOD: Air Lift

PUMP TYPE: Air Compressor

TOTAL TIME (A): 27 min

AVERAGE FLOW (GPM)(B): 7.4 gallons / min

TOTAL ESTIMATED WITHDRAWAL AxB = : 200 gallons

HNU/OVA READING: —

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1440	10.0 gal	-	-	410	18	> 100
1444	40.0 gal	-	-	400	18	> 100
1448	70.0 gal	-	-	390	18	> 100
1452	100.0 gal	-	-	390	18	> 100
1456	130.0 gal	-	-	390	18	85
1500	160.0 gal	-	-	380	18	65
1504	190.0 gal	-	-	380	18	41
1505	200.0 gal	-	-	380	18	40

OBSERVATIONS/NOTES satisfied criteria for specific conductivity, temperature and turbidity only. No pH meter reading. HNU was not available due to weather conditions (raining)

FIELD WELL DEVELOPMENT RECORD

Baker
Baker Environmental, Inc.

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River
CTO NO.: 62470-303 WELL NO.: 86-GW21IW (p.1)
DATE: 5-3-95
GEOLOGIST/ENGINEER: J.E. Zimmerman

TIME START	0810
TIME FINISH	0910
INITIAL WATER LEVEL (FT)	7.80 (TOC)
TOTAL WELL DEPTH (TD)	54.5
WELL DIAMETER (INCHES)	2.0
CALCULATED WELL VOLUME	—
BOREHOLE DIAMETER (INCHES)	6.0
BOREHOLE VOLUME	68.41 gallons (1)
AMOUNT OF WATER ADDED DURING DRILLING	None
DEVELOPMENT METHOD	Air lift
PUMP TYPE	Air Compressor
TOTAL TIME (A)	1 hr
AVERAGE FLOW (GPM)(B)	3.3 gallons/min
TOTAL ESTIMATED WITHDRAWAL AxB=	200 gallons
HNU/OVA READING	HNu (BG) = .3ppm

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
0813	10.0 gal	7.85	19.0	584	18.7	Brown/ v. Silty
0816	20.0 gal	7.86	19.3	583	18.9	Brown/ v. Silty
0819	30.0 gal	7.89	19.7	510	19.2	Brown/ v. Silty
0822	40.0 gal	7.91	19.9	482	19.6	Light Brown/ Silty
0825	50.0 gal	7.90	19.9	460	19.9	Light Brown/ Silty
0828	60.0 gal	7.90	19.9	454	19.9	clearing/ little Si
0831	70.0 gal	7.87	19.9	441	19.9	clearing/ little Silty
0834	80.0 gal	7.88	19.7	429	19.7	clearing/ little Silty
0837	90.0 gal	7.89	19.7	426	19.7	clearing/ little Silty
0840	100.0 gal	7.89	19.7	423	19.7	clearing/ little Silty
0843	110.0 gal	7.90	19.7	421	19.7	clearing/ little Silty
0846	120.0 gal	7.91	19.9	420	19.8	clearing/ little Silty
0849	130.0 gal	7.92	19.7	418	19.7	clearing/ little Silty
0852	140.0 gal	7.93	19.7	412	19.9	clearing/ little Silty
0855	150.0 gal	7.93	19.7	411	19.9	clearing/ little Silty
0858	160.0 gal	7.90	19.9	405	19.9	clearing/ little Silty

OBSERVATIONS/NOTES satisfied criteria for specific conductivity, temperature and pH. HNu (PS) was drummed water. No elevated HNu readings occured.

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc.

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River

CTO NO.: 6247-303 WELL NO.: 86-GW21IW (P.

DATE: 5-3-95

GEOLOGIST/ENGINEER: J. E. Zimmerman

	DEVELOPMENT DATA						
TIME START	TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
TIME FINISH	0901	170.0 gal	7.90	19.9	405	19.9	clear/tr. silt
INITIAL WATER LEVEL (FT)	0904	180.0 gal	7.92	19.9	405	19.9	clear/tr. silt
TOTAL WELL DEPTH (TD)	0907	190.0 gal	7.92	19.9	402	19.9	clear/tr. silt
WELL DIAMETER (INCHES)	0910	200.0 gal	7.92	19.9	399	19.9	clear/tr. silt
CALCULATED WELL VOLUME							
BOREHOLE DIAMETER (INCHES)							
BOREHOLE VOLUME							
AMOUNT OF WATER ADDED DURING DRILLING							
DEVELOPMENT METHOD							
PUMP TYPE							
TOTAL TIME (A)							
AVERAGE FLOW (GPM)(B)							
TOTAL ESTIMATED WITHDRAWAL AxB =							
HNU/OVA READING							

OBSERVATIONS/NOTES

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc.

PROJECT: RI/FS at OU No 6 - Site 86 - MCAS, New River

CTO NO.: 62470 - 303 WELL NO.: 86-GW22IW

DATE: 4-29-95

GEOLOGIST/ENGINEER: J. E. Zimmerman

TIME START: 1548

TIME FINISH: 1650

INITIAL WATER LEVEL (FT): 7.90 (TOC)

TOTAL WELL DEPTH (TD): 64.0

WELL DIAMETER (INCHES): 2.0

CALCULATED WELL VOLUME: —

BOREHOLE DIAMETER (INCHES): 6.0

BOREHOLE VOLUME: 82.18 gallons (1)

AMOUNT OF WATER ADDED DURING DRILLING: None

DEVELOPMENT METHOD: Air Lift

PUMP TYPE: Air Compressor

TOTAL TIME (A): 1 hr. 2 min.

AVERAGE FLOW (GPM)(B): 3.2 gallons/min.

TOTAL ESTIMATED WITHDRAWAL AxB=: 200 gallons

HNU/OVA READING: HNU (BG) = .3 ppm

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1550	5.0 gal	8.82	20.6	490	21.9	Brown / V. Silty
1556	25.0 gal	8.13	20.2	463	21.7	Light Gray / V. Silty
1602	45.0 gal	8.10	20.6	400	21.5	Light Gray / V. Silty
1608	65.0 gal	8.09	20.8	389	21.2	Light Gray / V. Silty
1614	85.0 gal	8.10	20.9	381	20.9	Clearing / little Silty
1620	105.0 gal	8.11	20.9	373	20.8	Clearing / little Si
1626	125.0 gal	8.05	20.9	365	20.9	Clearing / little Silty
1632	145.0 gal	8.05	21.1	357	21.1	Clear / tr. Silt
1638	165.0 gal	8.08	21.6	359	21.1	Clear / tr. Silt
1644	185.0 gal	8.04	21.7	350	21.3	Clear / tr. Silt
1650	200.0 gal	8.03	21.8	348	21.5	Clear / tr. Silt

OBSERVATIONS/NOTES Satisfied criteria for specific conductivity, temperature and pH. HNU (PS) was drummed water. No elevated HNU readings occured.

FIELD WELL DEVELOPMENT RECORD

Baker
Baker Environmental, Inc.

PROJECT: RI/FS at OU No 6 - Site 86-MCAS, New River

CTO NO.: 62470-303 WELL NO.: 86-GW23IW

DATE: 4-29-95

GEOLOGIST/ENGINEER: J. E. Zimmerman

TIME START	1705
TIME FINISH	1810
INITIAL WATER LEVEL (FT)	8.29 (Toc)
TOTAL WELL DEPTH (TD)	64.5
WELL DIAMETER (INCHES)	2.0
CALCULATED WELL VOLUME	—
BOREHOLE DIAMETER (INCHES)	6.0
BOREHOLE VOLUME	82.34 gallons (1)
AMOUNT OF WATER ADDED DURING DRILLING	None
DEVELOPMENT METHOD	Air Lift
PUMP TYPE	Air Compressor
TOTAL TIME (A)	1 hr.
AVERAGE FLOW (GPM)(B)	3.3 gallons/min
TOTAL ESTIMATED WITHDRAWAL AxB=	200 gallons
HNU/OVA READING	HNU (BG) = .3ppm

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1710	5.0 gal	8.06	22.5	699	22.5	Brown/ V. Silty
1716	25.0 gal	8.08	22.4	595	22.2	Brown/ V. Silty
1722	45.0 gal	8.08	22.4	504	21.9	Light Brown/ little Silty
1728	65.0 gal	8.06	22.4	468	21.6	clearing/ tr. Silt
1734	85.0 gal	8.04	22.3	468	21.7	clearing/ tr. Silt
1740	105.0 gal	8.04	22.3	470	21.8	clearing/ tr. Silt
1746	125.0 gal	8.04	22.3	466	21.8	clearing/ tr. Silt
1752	145.0 gal	8.04	22.3	466	21.7	clear/ tr. Silt
1758	165.0 gal	8.04	22.4	468	21.7	clear/ tr. Silt
1804	185.0 gal	8.04	22.4	468	21.7	clear/ tr. Silt
1810	200.0 gal	8.04	22.3	468	21.7	clear/ tr. Silt

OBSERVATIONS/NOTES Satisfied criteria for specific conductivity, temperature and pH. HNU (PS) was drummed water. No elevated HNU readings occured.

FIELD WELL DEVELOPMENT RECORD

Baker

Baker Environmental, Inc.

PROJECT: RI/FS at OU No 6 - Site 86 - MCAS, New River

CTO NO.: 303 WELL NO.: 86-GW24IW

DATE: 10-14-95

GEOLOGIST/ENGINEER: M K DeJohn

TIME START	0823
TIME FINISH	1019
INITIAL WATER LEVEL (FT)	3.89
TOTAL WELL DEPTH (TD)	65.0
WELL DIAMETER (INCHES)	2.0
CALCULATED WELL VOLUME	—
BOREHOLE DIAMETER (INCHES)	6
BOREHOLE VOLUME	90.7 gallons (1)
AMOUNT OF WATER ADDED DURING DRILLING	None
DEVELOPMENT METHOD	Air Surging
PUMP TYPE	Centrifical
TOTAL TIME (A)	1 hr 56 min
AVERAGE FLOW (GPM)(B)	≈ 2.0 gpm
TOTAL ESTIMATED WITHDRAWAL AxB=	140 gallons
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
0840	20.0 gal	7.49	19.5	440	21.0	Brown/ very turbid
0850	40.0 gal	7.43	19.4	405	21.0	Gray/ turbid
0900	45.0 gal	7.43	19.4	390	21.0	Gray/ Moderately turbid
0910	50.0 gal	7.51	19.6	390	21.0	Gray/ Moderately turbid
0920	60.0 gal	7.51	19.4	390	21.5	Gray/ Slightly turbid
0930	70.0 gal	7.61	20.0	390	22.0	Slightly turbid
0940	80.0 gal	7.56	19.6	390	21.5	Slightly turbid
0950	90.0 gal	7.53	19.7	390	21.0	Clear
1000	120.0 gal	7.58	19.8	380	21.0	Clear
1010	130.0 gal	—	—	—	—	Clear
1015	140.0 gal	—	—	—	—	Clear

OBSERVATIONS/NOTES satisfied criteria for well development (pH, specific conductivity, temperature).

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River

CTO NO.: 62470 - 303 WELL NO.: 86-GW25

DATE: 10-12-95

GEOLOGIST/ENGINEER: J. E. Zimmerman

TIME START	DEVELOPMENT DATA						
1552							
TIME FINISH 1745	TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
INITIAL WATER LEVEL (FT) 4.52'	1553	0 gal	6.98		800	26	Gray/ very Silty
TOTAL WELL DEPTH (TD) 30.5'	1600	5 gal	7.02		700	28	Gray/ very Silty
WELL DIAMETER (INCHES) 2.0"	1607	10 gal	7.02		700	28	Gray/ Very Silty
CALCULATED WELL VOLUME —	1614	15 gal	7.10		700	29	Gray/ Very Silty
BOREHOLE DIAMETER (INCHES) 6.0"	1621	20 gal	7.08		700	29	Lt. Gray/ Silty
BOREHOLE VOLUME 37.3 gal (1)	1628	25 gal	7.10		600	29	Clearing/ little Silty
AMOUNT OF WATER ADDED DURING DRILLING 8 gallons	1635	30 gal	7.08		700	30	Clearing/ little Silty
DEVELOPMENT METHOD Air Surging	1642	35 gal	7.05		700	30	Clearing/ little Silty
PUMP TYPE Centrifical	1649	40 gal	7.13		700	30	Clearing/ little Silty
TOTAL TIME (A) 1 hr. 53 min	1656	45 gal	7.06		700	30	Clearing/ little Silty
AVERAGE FLOW (GPM)(B) .7 gal (GPM)	1703	50 gal	7.08		700	30	Clearing/ little Silty
TOTAL ESTIMATED WITHDRAWAL AxB= 80 gallons	1710	55 gal	7.09		700	30	Clearing/ little Silty
HNU/OVA READING HNu (BG) = 0.0ppm	1717	60 gal	7.12		700	30	Clearing/ little Silty
	1724	65 gal	7.09		650	29	Clearing/ little Silty
	1731	70 gal	7.07		600	28	Clear/ tr. Silt

Satisfied criteria for well development (pH, specific conductivity, temperature). During well development no elevated HNu readings occured.

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: RI/FS at OU No.6 - Site 86 - MCAS, New River

CTO NO.: 62470-303 WELL NO.: 86-GW25

DATE: 10-12-95

GEOLOGIST/ENGINEER: J. E. Zimmerman (Page 2)

TIME START	DEVELOPMENT DATA						
TIME FINISH	TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
INITIAL WATER LEVEL (FT)	1738	75 gal	7.07		600	28	Clear/ tr. Silt
TOTAL WELL DEPTH (TD)	1745	80 gal	7.07		600	28	Clear/ tr. Silt
WELL DIAMETER (INCHES)							
CALCULATED WELL VOLUME							
BOREHOLE DIAMETER (INCHES)							
BOREHOLE VOLUME							
AMOUNT OF WATER ADDED DURING DRILLING							
DEVELOPMENT METHOD							
PUMP TYPE							
TOTAL TIME (A)							
AVERAGE FLOW (GPM)(B)							
TOTAL ESTIMATED WITHDRAWAL AxB=							
HNU/OVA READING							

FIELD WELL DEVELOPMENT RECORD

Baker
Baker Environmental, Inc.

PROJECT: RI/FS at OU No 6 - Site 86 - MCAS, New River
CTO NO.: 303 WELL NO.: 86-GW26IW
DATE: 10-13-95
GEOLOGIST/ENGINEER: M K DeJohn

TIME START	1215
TIME FINISH	1420
INITIAL WATER LEVEL (FT)	5.15
TOTAL WELL DEPTH (TD)	65.0
WELL DIAMETER (INCHES)	2.0
CALCULATED WELL VOLUME	–
BOREHOLE DIAMETER (INCHES)	6
BOREHOLE VOLUME	88.8 gallons (1)
AMOUNT OF WATER ADDED DURING DRILLING	None
DEVELOPMENT METHOD	Air Surging
PUMP TYPE	Centrifical
TOTAL TIME (A)	2hrs 5 min
AVERAGE FLOW (GPM)(B)	± 1.0 gpm
TOTAL ESTIMATED WITHDRAWAL AxB =	125 gallons
HNU/OVA READING	

DEVELOPMENT DATA

TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
1225	10.0 gal	7.69	22.0	600	22.0	Brown / Opaque.
1235	20.0 gal	7.69	20.9	500	22.5	Brown / Opaque
1245	30.0 gal	7.63	21.3	500	23.0	Turbid / Clearing
1255	40.0 gal	7.69	21.7	410	23.0	Gray / turbid
1305	50.0 gal	7.65	22.0	390	23.0	Gray / turbid
1315	60.0 gal	7.65	21.7	420	23.0	Gray / Moderately turbid
1325	70.0 gal	7.68	21.6	390	23.0	Gray / Moderately turbid
1335	80.0 gal	7.67	21.5	390	23.0	Gray / Moderately turbid
1345	90.0 gal	7.67	22.0	400	23.0	Slightly turbid
1355	100.0 gal	7.67	22.0	400	23.0	Clear

OBSERVATIONS/NOTES Satisfied criteria for well development (pH, specific conductivity, temperature).

Baker
Baker Environmental, Inc.

FIELD WELL DEVELOPMENT RECORD

PROJECT: RI/FS at OU No. 6 - Site 86 - MCAS, New River

CTO NO.: 62470-303 WELL NO.: 86-GW27

DATE: 10-12-95

GEOLOGIST/ENGINEER: J. E. Zimmerman

	DEVELOPMENT DATA						
TIME START 1444	TIME	CUMULATIVE VOLUME (gallons)	pH	TEMP (°C)	SPEC. COND. (µmhos/cm)	TEMP (°C)	COLOR AND TURBIDITY
TIME FINISH 1543	1445	0 gal	6.83		900	25	Gray/ very Silty
INITIAL WATER LEVEL (FT) 4.52'	1453	5 gal	6.95		900	29	Gray/ very Silty
TOTAL WELL DEPTH (TD) 30.0'	1457	10 gal	7.00		900	25	Gray/ Silty
WELL DIAMETER (INCHES) 2.0"	1505	15 gal	7.13		1000	31	Lt. Gray/ Silty
CALCULATED WELL VOLUME —	1513	20 gal	7.08		900	26	Lt. Gray/ Silty
BOREHOLE DIAMETER (INCHES) 6.0"	1518	25 gal	7.04		800	25	Lt. Gray/ Silty
BOREHOLE VOLUME 37.3 gal (1)	1523	30 gal	7.04		800	25	Lt. Gray/ Silty
AMOUNT OF WATER ADDED DURING DRILLING None	1528	35 gal	7.01		800	25	Clearing/ little Silty
DEVELOPMENT METHOD Air surging	1533	40 gal	6.98		800	25	Clear/ tr. Silt
PUMP TYPE Centrifical	1538	45 gal	7.01		800	25	Clear/ tr. Silt
TOTAL TIME (A) 59 min	1543	50 gal	6.98		800	25	Clear/ tr. Silt
AVERAGE FLOW (GPM)(B) .8 gal (GPM)							
TOTAL ESTIMATED WITHDRAWAL AxB= 50 gallons	Satisfied criteria for well development (pH, Specific conductivity, temperature). During well development no elevated HNu readings occured
HNU/OVA READING HNu (BG) = 0.0ppm	

APPENDIX E
INVESTIGATION DERIVED WASTE SUMMARY AND RECOMMENDATIONS

Baker

Baker Environmental, Inc.
Airport Office Park, Building 3
420 Rouser Road
Coraopolis, Pennsylvania 15108

(412) 269-6000
FAX (412) 269-2002

May 17, 1995

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

Attn: Ms. Linda Saksvig, P.E.
Navy Technical Representative
Code 18231

Re: Contract N62470-D-4814
Navy CLEAN, District III
Contract Task Order (CTO) 0303
Disposal of Investigation Derived Waste
Operable Unit No. 7 (Sites 36, 43, 44, 54, and 86)
MCAS, New River, Jacksonville, North Carolina

Dear Ms. Saksvig:

This correspondence serves to inform you of the status of activities associated with the investigation derived wastes (IDW) generated during the field program conducted under Contract Task Order (CTO) 0303. Approximately 9,275 gallons of liquid (purge and development water, and decontamination fluids) and 70 cubic yards of soil/mud cuttings were generated during the field activities. Upon completion of the field program, liquid and soil/mud samples were collected to determine their waste characteristics (i.e., hazardous or non-hazardous) for disposal purposes. Samples of soil/mud were obtained by compositing three to five grab samples per roll-off box, and liquid samples from each tank/tanker were collected by using a bailer .

Liquid samples were analyzed for full Target Compound List (TCL) organics (i.e., volatiles, semivolatiles, and pesticides, and PCBs), Target Analyte List (TAL) metals, and RCRA hazardous waste characteristics (corrosivity, ignitability, and reactivity). Soil/mud samples were analyzed for full toxicity characteristic leachate procedure (TCLP), including PCBs, and RCRA parameters. A 7-day laboratory turnaround was requested for all samples to accelerate the disposal process, and reduce the cost of IDW storage.

Analytical results indicated that the liquid and soil/mud samples are non-hazardous based on the criteria outlined in 40 CFR 261, RCRA Identification and Listing of Hazardous Waste (based on TCLP and RCRA Waste Characteristic results). Accordingly, the following disposal options are proposed:

- Purge and development water will be emptied onto the ground surface at the site from which it was generated. The tanker at Site 86 will be driven to Site 36 for disposal due to the limited space and highly visible nature of the site.

- Decontamination fluids will be taken off site by a licensed waste hauler (Four Season Environmental Services) and disposed as non-hazardous.

- Roll-off boxes will be emptied on site and the soil/mud graded. The roll-off boxes at Site 86 will be transported to Site 36 for disposal due to the limited space and highly visible nature of the site.

The proposed disposal plan outlined above is consistent with the LANTDIV IDW Management Plan options and with other projects performed at MCB, Camp Lejeune. Moreover, Baker received verbal concurrence on May 13, 1995 for the proposed disposal plan from Ms. Katherine Landman, the acting Navy Technical Representative.

Baker appreciates the opportunity to serve LANTDIV on this important project. If you have any questions, please do not hesitate to contact me at (412) 269-2033 or Mr. Matthew Bartman (Activity Coordinator) at (412) 269-2053.

Sincerely,

BAKER ENVIRONMENTAL, INC.

Richard E. Bonelli
Project Manager

REB/lq

cc: Ms. Lee Ann Rapp, Code 183
Ms. Beth Collier, Code 02115
Mr. Neal Paul, MCB, Camp Lejeune

bcc: APPajak/CF; JWMentz/RPWattras/PROG F; REBonelli/PF; TFTrebilcock; MDBartman(ck); Daily File
S.O. #62470-303
Subfile 8
Initials MDB

Baker

Baker Environmental, Inc.
Airport Office Park, Building 3
420 Rouser Road
Coraopolis, Pennsylvania 15108

(412) 269-6000
FAX (412) 269-2002

May 17, 1995

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

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Navy Technical Representative
Code 18231

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Contract Task Order (CTO) 0303
Disposal of Investigation Derived Waste
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Sincerely,

BAKER ENVIRONMENTAL, INC.

Richard E. Bonelli
Project Manager

REB/lq

cc: Ms. Lee Ann Rapp, Code 183
Ms. Beth Collier, Code 02115
Mr. Neal Paul, MCB, Camp Lejeune

WASTE CHARACTERISTIC SUMMARY

SITE 86, ABOVE GROUND STORAGE TANK AREA
WASTE CHARACTERIZATION SUMMARY
REMEDIAL INVESTIGATION, CTO - 303
MCB CAMP LEJEUNE, NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-RB01 TCLP	86-RB02 TCLP	86-TNKR	86-TWK-03
DATE SAMPLED	04/25/95	05/07/95	05/09/95	10/16/95
UNITS	UG/L	UG/L	UG/L	UG/L
VOLATILES				
VINYL CHLORIDE	200 U	200 U	10 U	10 U
1,1-DICHLOROETHENE	200 U	200 U	10 U	10 U
CHLOROFORM	200 U	200 U	10 U	10 U
1,2-DICHLOROETHANE	200 U	200 U	10 U	10 U
CARBON TETRACHLORIDE	200 U	200 U	10 U	10 U
2-BUTANONE	200 U	200 U	10 U	10 U
TRICHLOROETHENE	200 U	200 U	2 J	5 J
BENZENE	200 U	200 U	10 U	10 U
TETRACHLOROETHENE	200 U	200 U	10 U	10 U
CHLOROBENZENE	200 U	200 U	10 U	10 U
CHLOROMETHANE	NA	NA	10 U	10 U
BROMOMETHANE	NA	NA	10 U	10 U
CHLOROETHANE	NA	NA	10 U	10 U
METHYLENE CHLORIDE	NA	NA	10 U	10 U
ACETONE	NA	NA	10 U	10 UJ
CARBON DISULFIDE	NA	NA	10 U	10 U
1,1-DICHLOROETHANE	NA	NA	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	NA	NA	10 U	10 U
1,1,1-TRICHLOROETHANE	NA	NA	10 U	10 U
BROMODICHLOROMETHANE	NA	NA	10 U	10 U
1,2-DICHLOROPROPANE	NA	NA	10 U	10 U
CIS-1,3-DICHLOROPROPENE	NA	NA	10 U	10 U
DIBROMOCHLOROMETHANE	NA	NA	10 U	10 U
1,1,2-TRICHLOROETHANE	NA	NA	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	NA	NA	10 U	10 U
BROMOFORM	NA	NA	10 U	10 U
4-METHYL-2-PENTANONE	NA	NA	10 U	10 U
2-HEXANONE	NA	NA	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	NA	NA	10 U	10 U
TOLUENE	NA	NA	10 U	10 U
ETHYLBENZENE	NA	NA	10 U	10 U
STYRENE	NA	NA	10 U	10 U
XYLENE (TOTAL)	NA	NA	10 U	10 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
WASTE CHARACTERIZATION SUMMARY
REMEDIAL INVESTIGATION, CTO - 303
MCB CAMP LEJEUNE, NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-RB01 TCLP	86-RB02 TCLP	86-TNKR	86-TWK-03
DATE SAMPLED	04/25/95	05/07/95	05/09/95	10/16/95
UNITS	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES				
1,4-DICHLOROBENZENE	50 U	50 U	11 U	NA
O-CRESOL	30 U	30 U	NA	NA
META & PARA-CRESOL	30 U	30 U	NA	NA
HEXACHLOROETHANE	70 U	70 U	11 U	NA
NITROBENZENE	30 U	30 U	11 U	NA
HEXACHLOROBUTADIENE	80 U	80 U	11 U	NA
2,4,6-TRICHLOROPHENOL	30 U	30 U	11 U	NA
2,4,5-TRICHLOROPHENOL	40 U	40 U	27 U	NA
2,4-DINITROTOLUENE	20 U	20 U	11 U	NA
HEXACHLOROBENZENE	20 U	20 U	11 U	NA
PENTACHLOROPHENOL	60 U	60 U	27 U	NA
PYRIDINE	500 U	500 U		NA
PHENOL	NA	NA	11 U	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	11 U	NA
2-CHLOROPHENOL	NA	NA	11 U	NA
1,3-DICHLOROBENZENE	NA	NA	11 U	NA
1,2-DICHLOROBENZENE	NA	NA	11 U	NA
2-METHYLPHENOL	NA	NA	11 U	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	11 U	NA
4-METHYLPHENOL	NA	NA	11 U	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	11 U	NA
ISOPHORONE	NA	NA	11 U	NA
2-NITROPHENOL	NA	NA	11 U	NA
2,4-DIMETHYLPHENOL	NA	NA	11 U	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	11 U	NA
2,4-DICHLOROPHENOL	NA	NA	11 U	NA
1,2,4-TRICHLOROBENZENE	NA	NA	11 U	NA
NAPHTHALENE	NA	NA	11 U	NA
4-CHLOROANILINE	NA	NA	11 U	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	11 U	NA
2-METHYLNAPHTHALENE	NA	NA	11 U	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	11 U	NA
2-CHLORONAPHTHALENE	NA	NA	11 U	NA
2-NITROANILINE	NA	NA	27 U	NA
DIMETHYLPHTHALATE	NA	NA	11 U	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
WASTE CHARACTERIZATION SUMMARY
REMEDIAL INVESTIGATION, CTO - 303
MCB CAMP LEJEUNE, NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-RB01 TCLP	86-RB02 TCLP	86-TNKR	86-TWK-03
DATE SAMPLED	04/25/95	05/07/95	05/09/95	10/16/95
UNITS	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES cont.				
ACENAPHTHYLENE	NA	NA	11 U	NA
2,6-DINITROTOLUENE	NA	NA	11 U	NA
3-NITROANILINE	NA	NA	27 U	NA
ACENAPHTHENE	NA	NA	11 U	NA
2,4-DINITROPHENOL	NA	NA	27 U	NA
4-NITROPHENOL	NA	NA	27 U	NA
DIBENZOFURAN	NA	NA	11 U	NA
DIETHYLPHTHALATE	NA	NA	11 U	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	11 U	NA
FLUORENE	NA	NA	11 U	NA
4-NITROANILINE	NA	NA	27 U	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	27 U	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	11 U	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	11 U	NA
PHENANTHRENE	NA	NA	11 U	NA
ANTHRACENE	NA	NA	11 U	NA
CARBAZOLE	NA	NA	11 U	NA
DI-N-BUTYLPHTHALATE	NA	NA	11 U	NA
FLUORANTHENE	NA	NA	11 U	NA
PYRENE	NA	NA	11 U	NA
BUTYLBENZYLPHTHALATE	NA	NA	11 U	NA
3,3'-DICHLOROBENZIDINE	NA	NA	11 U	NA
BENZO(A)ANTHRACENE	NA	NA	11 U	NA
CHRYSENE	NA	NA	11 U	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	11 U	NA
DI-N-OCTYL PHTHALATE	NA	NA	11 U	NA
BENZO(B)FLUORANTHENE	NA	NA	11 U	NA
BENZO(K)FLUORANTHENE	NA	NA	11 U	NA
BENZO(A)PYRENE	NA	NA	11 U	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	11 U	NA
DIBENZO(A,H)ANTHRACENE	NA	NA	11 U	NA
BENZO(G,H,I)PERYLENE	NA	NA	11 U	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
WASTE CHARACTERIZATION SUMMARY
REMEDIAL INVESTIGATION, CTO - 303
MCB CAMP LEJEUNE, NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-RB01 TCLP	86-RB02 TCLP	86-TNKR	86-TWK-03
DATE SAMPLED	04/25/95	05/07/95	05/09/95	10/16/95
UNITS	UG/L	UG/L	UG/L	UG/L
PESTICIDE/PCBS				
GAMMA-BHC (LINDANE)	0.5 U	0.5 U	0.052 UJ	NA
HEPTACHLOR	0.6 U	0.6 U	0.052 UJ	NA
HEPTACHLOR EPOXIDE	0.8 U	0.8 U	0.052 UJ	NA
CHLORDANE	1 U	1 U	NA	NA
ENDRIN	3 U	3 U	0.1 UJ	NA
METHOXYCHLOR	7 U	7 U	0.52 UJ	NA
TOXAPHENE	50 U	50 U	5.2 UJ	NA
AROCLOR-1016	50 U	50 U	1 UJ	NA
AROCLOR-1221	50 U	50 U	2.1 UJ	NA
AROCLOR-1232	50 U	50 U	1 UJ	NA
AROCLOR-1242	50 U	50 U	1 UJ	NA
AROCLOR-1248	50 U	50 U	1 UJ	NA
AROCLOR-1254	100 U	100 U	1 UJ	NA
AROCLOR-1260	100 U	100 U	1 UJ	NA
ALPHA-BHC	NA	NA	0.052 UJ	NA
BETA-BHC	NA	NA	0.052 UJ	NA
DELTA-BHC	NA	NA	0.052 UJ	NA
ALDRIN	NA	NA	0.052 UJ	NA
ENDOSULFAN I	NA	NA	0.052 UJ	NA
DIELDRIN	NA	NA	0.1 UJ	NA
4,4'-DDE	NA	NA	0.1 UJ	NA
ENDOSULFAN II	NA	NA	0.1 UJ	NA
4,4'-DDD	NA	NA	0.1 UJ	NA
ENDOSULFAN SULFATE	NA	NA	0.1 UJ	NA
4,4'-DDT	NA	NA	0.1 UJ	NA
ENDRIN KETONE	NA	NA	0.1 UJ	NA
ENDRIN ALDEHYDE	NA	NA	0.1 UJ	NA
ALPHA-CHLORDANE	NA	NA	0.052 UJ	NA
GAMMA-CHLORDANE	NA	NA	0.052 UJ	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
WASTE CHARACTERIZATION SUMMARY
REMEDIAL INVESTIGATION, CTO - 303
MCB CAMP LEJEUNE, NORTH CAROLINA
INORGANIC ANALYTES

LOCATION	86-RB01 TCLP	86-RB02 TCLP	86-TNKR
DATE SAMPLED	04/25/95	05/07/95	05/09/95
UNITS	UG/L	UG/L	UG/L
SILVER, TCLP LEACHATE	50 U	50 U	NA
ARSENIC, TCLP LEACHATE	100 U	100 U	NA
BARIUM, TCLP LEACHATE	500 U	500 U	NA
CADMIUM, TCLP LEACHATE	50 U	50 U	NA
CHROMIUM, TCLP LEACHATE	50 U	50 U	NA
MERCURY, TCLP LEACHATE	10 U	10 U	NA
LEAD, TCLP LEACHATE	50 U	50 U	NA
SELENIUM, TCLP LEACHATE	100 U	100 U	NA
SILVER, TOTAL	NA	NA	2.8 U
ALUMINUM, TOTAL	NA	NA	789
ARSENIC, TOTAL	NA	NA	2
BARIUM, TOTAL	NA	NA	4.7 U
BERYLLIUM, TOTAL	NA	NA	0.8 U
CALCIUM, TOTAL	NA	NA	14700
CADMIUM, TOTAL	NA	NA	2.6 U
COBALT, TOTAL	NA	NA	3.4 U
CHROMIUM, TOTAL	NA	NA	22
COPPER, TOTAL	NA	NA	2.8
IRON, TOTAL	NA	NA	81.6
MERCURY, TOTAL	NA	NA	0.2 U
POTASSIUM, TOTAL	NA	NA	10500
MAGNESIUM, TOTAL	NA	NA	174
MANGANESE, TOTAL	NA	NA	2.3 U
SODIUM, TOTAL	NA	NA	80900
NICKEL, TOTAL	NA	NA	10.9 U
LEAD, TOTAL	NA	NA	0.8 U
ANTIMONY, TOTAL	NA	NA	20.8 U
SELENIUM, TOTAL	NA	NA	3.1
THALLIUM, TOTAL	NA	NA	0.7 U
VANADIUM, TOTAL	NA	NA	74.1
ZINC, TOTAL	NA	NA	6 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
RCRA - SUMMARY
REMEDIAL INVESTIGATION, CTO - 303
MCB CAMP LEJEUNE, NORTH CAROLINA

LOCATION	86-RB01	86-RB02
DATE SAMPLED	04/25/95	05/07/95
WET CHEMISTRY		
% SOLIDS	43.4	68.2
CYANIDE, REACTIVE (mg/kg)	0.57 U	0.32 U
CORROSIVITY BY PH (pH)	12	11.3
FLASH POINT, CLOSED CUP (deg F)	0	0
VOL THRU FILTER (ml/10)	1	0
SULFIDE REACTIVE (mg/kg)	51.9 U	30.3 U

LOCATION	86-TNKR	86-TWK-03
DATE SAMPLED	05/09/95	10/16/95
WET CHEMISTRY		
CYANIDE, REACTIVE (ug/L)	10 U	10 U
CORROSIVITY BY PH (pH)	NA	NA
FLASH POINT, CLOSED CUP (deg F)	200 >	NA
VOL THRU FILTER (ml/10)	NA	NA
SULFIDE REACTIVE (mg/L)	1 U	2.5 U

LOCATION	86-RB01 TCLP	86-RB02 TCLP
DATE SAMPLED	04/25/95	05/07/95
UNITS	UG/L	UG/L
HERBICIDES		
2,4-D	100 U	100 U
2,4,5-TP	20 U	20 U

APPENDIX F
SAMPLING SUMMARY

OU [illegible]ITE 86
SOIL
CTO-0303

		Analysis Requested					Analysis Received									
DATE SHIPPED	SAMPLE ID	TCL VOA	TCL SVOA	TCL PEST/PCB	TAL METALS	TPH	TCL VOA	TCL SVOA	TCL PEST/PCB	TAL METALS	TPH	DATE EXPECTED	DATE REC'D	TURNAROUND TIME	SDG NO.	COMMENTS
2/22/95	**COC#303001**															
2/22/95	86-GW18DW-00	X	X	X	X		X	X	X	X		3/30/95	4/1/95	39	401	R
2/22/95	86-GW18DW-02	X	X	X	X		X	X	X	X		3/30/95	4/1/95	39	401	R
2/27/95	**COC#303005**															
2/27/95	86-AST-SB01-00	X	X	X	X		X	X	X	X		4/4/95	4/12/95	45	457	R
2/27/95	86-AST-SB01-02	X	X	X	X		X	X	X	X		4/4/95	4/12/95	45	457	R
2/27/95	86-AST-SB02-00	X	X	X	X	X	X	X	X	X	X	3/7/95	3/14/95	17	479	QT; METALS 3/8; VOC 3/9; TPH 3/9; SVOC 3/12; PEST3/14
2/27/95	86-AST-SB02-02	X	X	X	X	X	X	X	X	X	X	3/7/95	3/14/95	17	479	QT; METALS 3/8; VOC 3/9; TPH 3/9; SVOC 3/12; PEST3/14
2/27/95	86-AST-SB02-05	X	X	X	X	X	X	X	X	X	X	3/7/95	3/14/95	17	479	QT; METALS 3/8; VOC 3/9; TPH 3/9; SVOC 3/12; PEST3/14
2/27/95	86-AST-SB03-00	X	X	X	X		X	X	X	X		4/4/95	4/12/95	45	457	R
2/27/95	86-AST-SB03-04	X	X	X	X		X	X	X	X		4/4/95	4/12/95	45	457	R
2/27/95	86-AST-SB04-00	X	X	X	X	X	X	X	X	X	X	3/7/95	3/14/95	17	479	QT; METALS 3/8; VOC 3/9; TPH 3/9; SVOC 3/12; PEST3/14
2/27/95	86-AST-SB04-02	X	X	X	X	X	X	X	X	X	X	3/7/95	3/14/95	17	479	QT; METALS 3/8; VOC 3/9; TPH 3/9; SVOC 3/12; PEST3/14
2/27/95	86-SIER-01	X	X	X	X		X	X	X	X		4/4/95	3/30/95	33	481	R; RINSATE
2/27/95	301-TB-03	X					X					4/4/95	3/30/95	33	481	R; TRIP BLANK
2/27/95	**COC#303006**															
2/27/95	86-AST-SB05-00	X	X	X	X		X	X	X	X		4/4/95	4/5/95	38	480	R; MS/MSD
2/27/95	86-AST-SB05-00D	X	X	X	X		X	X	X	X		4/4/95	4/5/95	38	480	R
2/27/95	86-AST-SB05-03	X	X	X	X		X	X	X	X		4/4/95	4/5/95	38	480	R
2/27/95	86-AST-SB05-05	X	X	X	X		X	X	X	X	X	3/7/95	3/14/95	17	479	QT; METALS 3/8; VOC 3/9; TPH 3/9; SVOC 3/12; PEST3/14
2/27/95	86-AST-SB06-00	X	X	X	X	X	X	X	X	X	X	3/7/95	3/14/95	17	479	QT; METALS 3/8; VOC 3/9; TPH 3/9; SVOC 3/12; PEST3/14
2/27/95	86-AST-SB06-04	X	X	X	X	X	X	X	X	X	X	4/4/95	3/25/95	28	479	R
2/27/95	86-AST-SB07-00	X	X	X	X		X	X	X	X		4/4/95	4/5/95	38	480	R
2/27/95	86-AST-SB07-03	X	X	X	X		X	X	X	X		4/4/95	4/5/95	38	480	R
2/27/95	86-AST-SB08-00	X	X	X	X		X	X	X	X		4/4/95	4/5/95	38	480	R
2/27/95	86-AST-SB08-04	X	X	X	X		X	X	X	X		4/4/95	4/5/95	38	480	R
2/27/95	86-AST-SB09-00	X	X	X	X	X	X	X	X	X	X	3/7/95	3/14/95	17	479	QT; METALS 3/8; VOC 3/9; TPH 3/9; SVOC 3/12; PEST3/14
2/27/95	86-AST-SB09-04	X	X	X	X	X	X	X	X	X	X	3/7/95	3/14/95	17	479	QT; METALS 3/8; VOC 3/9; TPH 3/9; SVOC 3/12; PEST3/14
2/27/95	86-BB-SB01-00	X	X	X	X		X	X	X	X		4/4/95	4/12/95	45	457	R
2/27/95	86-BB-SB01-02	X	X	X	X		X	X	X	X		4/4/95	4/12/95	45	457	R
2/27/95	86-SIER-02	X	X	X	X											HOLD; RINSATE
2/27/95	301-TB-06	X					X					4/4/95	3/30/95	33	481	R; TRIP BLANK
3/10/95	**COC#303013**															
3/10/95	86-GW15IW-02	X	X	X	X		X	X	X	X		4/15/95	4/15/95	35	659	R
3/13/95	**COC#303016**															
3/13/95	86-GW17IW-01	X	X	X	X		X	X	X	X		4/18/95	4/20/95	37	728	R
3/13/95	86-GW17IW-01D	X	X	X	X		X	X	X	X		4/18/95	4/20/95	37	728	R
3/13/95	86-GW17IW-02	X	X	X	X		X	X	X	X		4/18/95	4/20/95	37	728	R
3/14/95	**COC#303019**															
3/14/95	86-GW19DW-00	X	X	X	X		X	X	X	X		4/19/95	4/26/95	42	752	R; MS/MSD
3/14/95	86-GW19DW-02	X	X	X	X		X	X	X	X		4/19/95	4/26/95	42	752	R

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		Analysis Requested					Analysis Received								
DATE SHIPPED	SAMPLE ID	TCL VOA	TCL SVOA	TCL PEST/PCB	TAL METALS	TPH	TCL VOA	TCL SVOA	TCL PEST/PCB	TAL METALS	TPH	DATE EXPECTED	DATE REC'D	TURNAROUND TIME	SDG NO.	COMMENTS
3/15/95	**COC#303020**															
3/15/95	86-AST-SB12-00	X	X			X	X	X			X	4/20/95	4/20/95	35	753	R
3/15/95	86-AST-SB12-03	X	X			X	X	X			X	4/20/95	4/20/95	35	753	R
3/15/95	86-AST-SB11-00	X	X			X	X	X			X	4/20/95	4/20/95	35	753	R
3/15/95	86-AST-SB11-03	X	X			X	X	X			X	4/20/95	4/20/95	35	753	R
3/15/95	86-AST-SB10-00	X	X			X	X	X			X	4/20/95	4/20/95	35	753	R
3/15/95	86-AST-SB10-04	X	X			X	X	X			X	4/20/95	4/20/95	35	753	R
3/15/95	86-AST-SIER-03	X														HOLD; RINSATE
3/15/95	303-FD-02	X					X					4/20/95	4/20/95	35	726	R; FIELD BLANK
3/15/95	303-TB-04	X					X					4/20/95	3/30/95	15	481	R; TRIP BLANK
3/15/95	**COC#303021**															
3/15/95	86-SIER-03		X	X	X											HOLD; RINSATE
3/15/95	303-FB-02		X	X	X			X	X	X		4/20/95	4/20/95	35	726	R; FIELD BLANK
5/2/95	**COC#303063**															
5/2/95	86-WA-SB01-00	X	X				X	X				5/10/95	5/23/95	21	636	QT
5/2/95	86-WA-SB01-02	X	X				X	X				5/10/95	5/23/95	21	636	QT
5/3/95	**COC#303064**															
5/3/95	303-TB-03	X										6/8/95	6/16/95	43	638	R; TRIP BLANK
5/3/95	86-WA-SB02-00	X	X				X	X				5/11/95	5/23/95	20	636	QT
5/3/95	86-WA-SB02-03	X	X				X	X				5/11/95	5/23/95	20	636	QT
5/3/95	86-CP-SB02-00	X	X				X	X				5/11/95	5/23/95	20	636	QT
5/3/95	86-CP-SB02-02	X	X				X	X				5/11/95	5/23/95	20	636	QT
5/3/95	86-CP-SB01-00	X	X				X	X				5/11/95	5/23/95	20	636	QT
5/3/95	86-CP-SB01-02	X	X				X	X				5/11/95	5/23/95	20	636	QT
COUNT		55	52	37	37	15	50	47	33	33	16					

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		Analysis Requested							Analysis Received											
DATE SHIPPED	SAMPLE ID	TCL VOA	TCL SVOA	TCL PEST/PCB	TAL METALS	DISSOLVED METALS	TSS	TDS	TCL VOA	TCL SVOA	TCL PEST/PCB	TAL METALS	DISSOLVED METALS	TSS	TDS	DATE EXPECTED	DATE REC'D	TURNAROUND TIME	SDG NO.	COMMENTS
3/21/95	**COC#303022**																			
3/21/95	86-GWER-01	X	X		X				X	X		X				4/26/95	4/26/95	35	861	R
3/21/95	86-GW16DW-01	X	X		X		X	X	X							3/29/95	3/29/95	8	860	QT VOC ONLY; REC'D 3/29
3/21/95	86-GW17DW-01	X	X		X		X	X	X							3/29/95	3/29/95	8	860	QT VOC ONLY; REC'D 3/29
3/21/95	303-TB-19	X							X							4/26/95	4/26/95	35	861	R
3/22/95	**COC#303023**																			
3/22/95	86-GW15DW-01	X	X		X		X	X	X	X		X		X	X	3/30/95	3/30/95	8	882	QT VOC ONLY; REC'D 3/30
3/22/95	86-GW15DWD-01					X							X			4/27/95	4/26/95	34	861	R
3/22/95	86-GWER-02	X	X		X														861	HOLD; RINSATE
3/22/95	86-GW16IW-01	X							X							3/30/95	3/30/95	8	882	QT
3/22/95	86-GW18DW-01	X							X							3/30/95	3/30/95	8	882	QT
3/22/95	303-TB-20	X							X							4/27/95	4/26/95	34	861	R; TRIP BLANK
3/22/95	**COC#303024**																			
3/22/95	86-GW16IW-01		X		X		X	X		X		X		X	X	4/27/95	4/26/95	34	861	R
3/22/95	86-GW18DW-01		X		X		X	X		X		X		X	X	4/27/95	4/26/95	34	861	R
3/23/95	**COC#303025**																			
3/23/95	86-GW15IW-01	X	X		X		X	X	X	X		X		X	X	3/31/95	3/30/95	7	913	QT VOC ONLY
3/23/95	86-GW15IWD-01					X							X			4/28/95	4/26/95	33	861	R
3/23/95	86-GW15IW-01D	X	X		X		X	X	X	X		X		X	X	3/31/95	3/30/95	7	913	QT VOC ONLY
3/23/95	86-GW15IWD-01D					X							X			4/28/95	4/26/95	33	861	R
3/23/95	86-GW14IW-01	X							X							4/28/95	4/26/95	33	861	R
3/23/95	86-GWER-03	X							X							4/28/95	4/26/95	33	861	R; RINSATE
3/23/95	86-GW13-01	X							X							4/28/95	4/26/95	33	861	R
3/23/95	86-GW17IW-01	X							X							3/31/95	3/30/95	7	913	QT
3/23/95	86-GW11-01	X							X							4/28/95	4/26/95	33	861	R
3/23/95	303-TB-21	X							X							4/28/95	4/26/95	33	861	R; TRIP BLANK
3/23/95	**COC#303026**																			
3/23/95	86-GW14IW-01		X		X		X	X		X		X		X	X	4/28/95	4/26/95	33	861	R
3/23/95	86-GWER-03		X		X					X		X				4/28/95	4/26/95	33	861	R; RINSATE
3/23/95	86-GW13-01		X		X		X	X		X		X		X	X	4/28/95	4/26/95	33	861	R
3/23/95	86-GW17IW-01		X		X		X	X		X		X		X	X	4/28/95	4/26/95	33	861	R
3/23/95	**COC#303027**																			
3/23/95	86-GW11-01		X		X		X	X		X		X		X	X	4/28/95	4/26/95	33	861	R
3/24/95	**COC#303028**																			
3/24/95	86-GW12IW-01	X	X		X		X	X	X	X		X		X	X	5/1/95	5/1/95	37	943	R
3/24/95	86-GW04IW-01	X	X	X	X		X	X	X	X	X	X		X	X	5/1/95	5/1/95	37	943	QT VOC ONLY; REC'D 4/5
3/24/95	303-TB-22	X							X							5/1/95	5/1/95	37	943	R; TRIP BLANK
3/24/95	86-GW03-01	X							X							5/1/95	5/1/95	37	943	MS/MSD; LIMITED VOL; QT VOC ONLY; REC'D4/5
3/24/95	86-GW03-01D	X							X							5/1/95	5/1/95	37	943	R
3/24/95	86-GW09-01	X							X							5/1/95	5/1/95	37	943	LIMITED VOL; QT VOC ONLY; REC'D 4/5
3/24/95	86-GWER-04	X							X							5/1/95	5/1/95	37	943	HOLD; RINSATE; LIMITED VOL

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DATE SHIPPED	SAMPLE ID	TCL VOA	TCL SVOA	TCL PEST/PCB	TAL METALS	DISSOLVED METALS	TSS	TDS	TCL VOA	TCL SVOA	TCL PEST/PCB	TAL METALS	DISSOLVED METALS	TSS	TDS	DATE EXPECTED	DATE REC'D	TURNAROUND TIME	SDG NO.	COMMENTS
3/24/95	86-GW10IW-01	X							X							5/1/95	5/1/95	37	943	QT VOC ONLY; REC'D 4/5
3/24/95	86-GW05-01	X							X							5/1/95	5/1/95	37	943	R
3/24/95	**COC#303029**																			
3/24/95	86-GW03-01D		X		X		X	X		X		X		X	X	4/29/95	5/1/95	37	943	R
3/24/95	86-GW02-01		X		X		X	X		X		X		X	X	4/29/95	5/1/95	37	943	R; MS/MSD LIMITED VOL
3/24/95	86-GW09-01				X		X	X				X		X	X	4/29/95	5/1/95	37	943	R
3/24/95	**COC#303030**																			
3/24/95	86-GW09-01		X	X						X	X					4/29/95	5/1/95	37	943	R; LIMITED VOL
3/24/95	86-GWER-04		X		X															HOLD; RINSATE
3/24/95	86-GWERD-04					X														HOLD; RINSATE
3/24/95	86-GW10IW-01		X		X		X	X		X		X		X	X	4/29/95	5/1/95	37	943	R
3/24/95	86-GW05-01		X	X	X		X	X		X	X	X		X	X	4/29/95	5/1/95	37	943	R
3/25/95	**COC#303031**																			
3/25/95	86-GW06IW-01	X	X		X		X	X	X	X		X		X	X	5/1/95	5/1/95	36	943	R
3/25/95	86-GW08IW-01	X	X		X		X	X	X	X		X		X	X	5/1/95	5/1/95	36	943	R
3/25/95	303-TB-23	X							X							5/1/95	5/1/95	36	943	R; TRIP BLANK
3/25/95	86-GW07-01	X							X							5/1/95	5/1/95	36	943	R
3/25/95	86-GW02IW-01	X							X							5/1/95	5/1/95	36	943	R
3/25/95	86-GWER-03	X	X	X	X				X	X	X	X				5/1/95	5/1/95	36	943	R; RINSATE
3/25/95	**COC#303032**																			
3/25/95	86-GW07-01		X	X	X		X	X		X	X	X		X	X	5/1/95	5/1/95	36	943	R
3/25/95	86-GW02IW-01		X		X		X	X		X		X		X	X	5/1/95	5/1/95	36	943	R
3/25/95	86-GW02IWD-01					X							X			5/1/95	5/1/95	36	943	R
3/25/95	86-GWERD-05					X							X			5/1/95	5/1/95	36	943	R; RINSATE
3/25/95	303-TB-24	X							X							5/1/95	5/1/95	36	943	R; TRIP BLANK
3/25/95	86-GW01-01	X	X	X	X		X	X	X	X	X	X		X	X	5/1/95	5/1/95	36	943	R
3/25/95	86-GW01D-01					X							X			5/1/95	5/1/95	36	943	R
3/27/95	**COC#303033**																			
3/27/95	86-GW19DW-01	X							X							5/2/95	5/1/95	34	983	R
3/27/95	**COC#303034**																			
3/27/95	86-GW19DW-01		X		X		X	X		X		X		X	X	5/2/95	5/1/95	34	983	R; LIMITED VOL
4/12/95	**COC#303056**																			
4/12/95	86-GW20IW-01	X	X		X		X	X	X	X		X		X	X	5/18/95	5/12/95	30	274	QT VOC ONLY; REC'D 4/19 SDG 287
5/8/95	**COC#303076**																			
5/8/95	86-GW22IW-01	X			X		X	X	X			X		X	X	6/13/95	6/15/95	37	735	QT VOC ONLY; 764 REC'D 5/19
5/8/95	86-GW22IW-01D	X			X		X	X	X			X		X	X	6/13/95	6/15/95	37	735	QT VOC ONLY; 764 REC'D 5/19
5/8/95	86-GW23IW-01	X			X		X	X	X			X		X	X	6/13/95	6/15/95	37	735	QT VOC ONLY; 764 REC'D 5/19
5/8/95	86-GW21IW-01	X			X		X	X	X			X		X	X	6/13/95	6/15/95	37	735	QT VOC ONLY; 764 REC'D 5/19
5/8/95	86-GW21IWD-01					X							X			6/13/95	6/15/95	37	735	R
10/10/95	**COC#303084**																			
10/10/95	86-GW04IW-02	X							X							10/18/95	11/1/95	21	617	7-DAY TURN

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		Analysis Requested							Analysis Received											
DATE SHIPPED	SAMPLE ID	TCL VOA	TCL SVOA	TCL PEST/PCB	TAL METALS	DISSOLVED METALS	TSS	TDS	TCL VOA	TCL SVOA	TCL PEST/PCB	TAL METALS	DISSOLVED METALS	TSS	TDS	DATE EXPECTED	DATE REC'D	TURNAROUND TIME	SDG NO.	COMMENTS
10/10/95	86-GW02IW-02	X							X							10/18/95	11/1/95	21	617	7-DAY TURN
10/10/95	303-TB-53	X							X							10/18/95	11/1/95	21	617	7-DAY TURN
10/12/95	**COC#303086**																			
10/12/95	86-GW10IW-02	X							X							10/20/95	10/31/95	19	656	7-DAY TURN
10/12/95	86-GW15IW-02	X							X							10/20/95	10/31/95	19	656	7-DAY TURN
10/12/95	86-GW16IW-02	X							X							10/20/95	10/31/95	19	656	7-DAY TURN
10/12/95	86-GW17IW-02	X							X							10/20/95	10/31/95	19	656	7-DAY TURN
10/12/95	86-GW20IW-02	X							X							10/20/95	10/31/95	19	656	7-DAY TURN
10/12/95	86-GW06-02	X							X							10/20/95	10/31/95	19	656	7-DAY TURN
10/12/95	303-TB-54	X							X							10/20/95	10/31/95	19	656	7-DAY TURN
10/14/95	**COC#303087**																			
10/14/95	303-TB-55	X							X							10/22/95	10/31/95	17	656	7-DAY TURN
10/14/95	86-GW21IW-02	X							X							10/22/95	10/31/95	17	656	7-DAY TURN
10/14/95	86-GW22IW-02	X							X							10/22/95	10/31/95	17	656	7-DAY TURN
10/14/95	86-GW23IW-02	X							X							10/22/95	10/31/95	17	656	7-DAY TURN
10/16/95	**COC#303088**																			
10/16/95	86-GW24-01	X							X							10/24/95	11/1/95	15	706	7-DAY TURN
10/16/95	86-GW25-01	X							X							10/24/95	11/1/95	15	706	7-DAY TURN
10/16/95	86-GW27-01	X							X							10/24/95	11/1/95	15	706	7-DAY TURN
10/16/95	86-GWER-06	X							X							10/24/95	11/1/95	15	706	7-DAY TURN
10/16/95	303-TB-55	X							X							10/24/95	11/1/95	15	706	7-DAY TURN
10/16/95	86-GW26-01	X							X							10/24/95	11/1/95	15	706	7-DAY TURN
10/16/95	86-TNK-03	X							X							10/24/95	11/1/95	15	706	7-DAY TURN
10/16/95	86-GWER-07	X							X							10/24/95	11/1/95	15	706	7-DAY TURN
COUNT		41	31	8	35	8	30	30	39	26	6	30	7	27	27					

OU No. 6, SITE 86
IDW
CTO-0303

		Analysis Requested									Analysis Received												
DATE SHIPPED	SAMPLE ID	TCL VOA	TCL SVOA	TCL PEST/PCB	TAL METALS	FLASH POINT	REACTIVE CYANIDE	REACTIVE SULFIDE	FULL TCLP	RCRA	TCL VOA	TCL SVOA	TCL PEST/PCB	TAL METALS	FLASH POINT	REACTIVE CYANIDE	REACTIVE SULFIDE	FULL TCLP	RCRA	DATE EXPECTED	DATE REC'D	TURNAROUND TIME	SDG NO.	
4/25/95	**COC#303062**																							
4/25/95	86-RB01								X	X								X	X	5/3/95	5/10/95	15	501	QT
5/8/95	**COC#303076**																							
5/8/95	86-RB02								X	X								X	X	5/16/95	5/26/95	18	736	QT
5/9/95	**COC#303077**																							
5/9/95	86-TNKR	X				X					X				X					5/17/95	5/19/95	10	764	QT
5/9/95	**COC#303078**																							
5/9/95	86-TNKR		X	X	X		X	X				X	X	X		X	X			5/17/95	5/30/95	21	764	QT
COUNT		1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	2	2					

APPENDIX G
DATA AND FREQUENCY SUMMARIES

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB01-00	86-AST-SB02-00	86-AST-SB03-00	86-AST-SB04-00	86-AST-SB05-00	86-AST-SB06-00
DATE SAMPLED	02/25/95	02/26/95	02/26/95	02/26/95	02/26/95	02/26/95
DEPTH	0-12"	0-12"	0-12"	0-12"	0-12"	0-12"
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
VOLATILES						
CHLOROMETHANE	12 U	11 UJ	11 U	12 U	11 U	11 U
BROMOMETHANE	12 U	11 UJ	11 U	12 U	11 U	11 U
VINYL CHLORIDE	12 U	11 UJ	11 U	12 U	11 U	11 U
CHLOROETHANE	12 U	11 UJ	11 U	12 U	11 U	11 U
METHYLENE CHLORIDE	12 U	11 UJ	11 U	12 U	11 U	11 U
ACETONE	29 UJ	11 UJ	35 UJ	12 U	11 U	28 J
CARBON DISULFIDE	12 U	11 UJ	11 U	12 U	11 U	11 U
1,1-DICHLOROETHENE	12 U	11 UJ	11 U	12 U	11 U	11 U
1,1-DICHLOROETHANE	12 U	11 UJ	11 U	12 U	11 U	11 U
1,2-DICHLOROETHENE (TOTAL)	12 U	11 UJ	11 U	12 U	11 U	11 U
CHLOROFORM	12 U	11 UJ	11 U	12 U	11 U	11 U
1,2-DICHLOROETHANE	12 U	11 UJ	11 U	12 U	11 U	11 U
2-BUTANONE	12 U	11 UJ	11 U	12 U	11 U	11 U
1,1,1-TRICHLOROETHANE	12 U	11 UJ	11 U	12 U	11 U	11 U
CARBON TETRACHLORIDE	12 U	11 UJ	11 U	12 U	11 U	11 U
BROMODICHLOROMETHANE	12 U	11 UJ	11 U	12 U	11 U	11 U
1,2-DICHLOROPROPANE	12 U	11 UJ	11 U	12 U	11 U	11 U
CIS-1,3-DICHLOROPROPENE	12 U	11 UJ	11 U	12 U	11 U	11 U
TRICHLOROETHENE	12 U	11 UJ	11 U	12 U	11 U	11 U
DIBROMOCHLOROMETHANE	12 U	11 UJ	11 U	12 U	11 U	11 U
1,1,2-TRICHLOROETHANE	12 U	11 UJ	11 U	12 U	11 U	11 U
BENZENE	12 U	11 UJ	11 U	12 U	11 U	11 U
TRANS-1,3-DICHLOROPROPENE	12 U	11 UJ	11 U	12 U	11 U	11 U
BROMOFORM	12 U	11 UJ	11 U	12 U	11 U	11 U
4-METHYL-2-PENTANONE	12 U	11 UJ	11 U	12 U	11 U	11 U
2-HEXANONE	12 U	11 UJ	11 U	12 U	11 U	11 U
TETRACHLOROETHENE	12 U	11 UJ	11 U	12 U	11 U	11 U
1,1,2,2-TETRACHLOROETHANE	12 U	11 UJ	11 U	12 U	11 U	11 U
TOLUENE	12 U	11 UJ	11 U	12 U	11 U	11 U
CHLOROBENZENE	12 U	11 UJ	11 U	12 U	11 U	11 U
ETHYLBENZENE	12 U	11 UJ	11 U	12 U	11 U	11 U
STYRENE	12 U	11 UJ	11 U	12 U	11 U	11 U
XYLENE (TOTAL)	12 U	5 J	11 U	12 U	11 U	11 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB01-00	86-AST-SB02-00	86-AST-SB03-00	86-AST-SB04-00	86-AST-SB05-00	86-AST-SB06-00
DATE SAMPLED	02/25/95	02/26/95	02/26/95	02/26/95	02/26/95	02/26/95
DEPTH	0-12"	0-12"	0-12"	0-12"	0-12"	0-12"
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SEMIVOLATILES						
PHENOL	370 U	370 U	370 U	390 U	380 U	360 U
BIS(2-CHLOROETHYL)ETHER	370 U	370 U	370 U	390 U	380 U	360 U
2-CHLOROPHENOL	370 U	370 U	370 U	390 U	380 U	360 U
1,3-DICHLOROBENZENE	370 U	370 U	370 U	390 U	380 U	360 U
1,4-DICHLOROBENZENE	370 U	370 U	370 U	390 U	380 U	360 U
1,2-DICHLOROBENZENE	370 U	370 U	370 U	390 U	380 U	360 U
2-METHYLPHENOL	370 U	370 U	370 U	390 U	380 U	360 U
2,2'-OXYBIS(1-CHLOROPROPANE)	370 U	370 U	370 U	390 U	380 U	360 U
4-METHYLPHENOL	370 U	370 U	370 U	390 U	380 U	360 U
N-NITROSO-DI-N-PROPYLAMINE	370 U	370 U	370 U	390 U	380 U	360 U
HEXACHLOROETHANE	370 U	370 U	370 U	390 U	380 U	360 U
NITROBENZENE	370 U	370 U	370 U	390 U	380 U	360 U
ISOPHORONE	370 U	370 U	370 U	390 U	380 U	360 U
2-NITROPHENOL	370 U	370 U	370 U	390 U	380 U	360 U
2,4-DIMETHYLPHENOL	370 U	370 U	370 U	390 U	380 U	360 U
BIS(2-CHLOROETHOXY)METHANE	370 U	370 U	370 U	390 U	380 U	360 U
2,4-DICHLOROPHENOL	370 U	370 U	370 U	390 U	380 U	360 U
1,2,4-TRICHLOROBENZENE	370 U	370 U	370 U	390 U	380 U	360 U
NAPHTHALENE	370 U	370 U	370 U	390 U	380 U	360 U
4-CHLOROANILINE	370 U	370 U	370 U	390 U	380 U	360 U
HEXACHLOROBUTADIENE	370 U	370 U	370 U	390 U	380 U	360 U
4-CHLORO-3-METHYLPHENOL	370 U	370 U	370 U	390 U	380 U	360 U
2-METHYLNAPHTHALENE	370 U	370 U	370 U	390 U	380 U	360 U
HEXACHLOROCYCLOPENTADIENE	370 UJ	370 U	370 UJ	390 U	380 UJ	360 U
2,4,6-TRICHLOROPHENOL	370 U	370 U	370 U	390 U	380 U	360 U
2,4,5-TRICHLOROPHENOL	940 U	930 U	920 U	980 U	940 U	910 U
2-CHLORONAPHTHALENE	370 U	370 U	370 U	390 U	380 U	360 U
2-NITROANILINE	940 U	930 U	920 U	980 U	940 U	910 U
DIMETHYLPHTHALATE	370 U	370 U	370 U	390 U	380 U	360 U
ACENAPHTHYLENE	370 U	370 U	370 U	390 U	380 U	360 U
2,6-DINITROTOLUENE	370 U	370 U	370 U	390 U	380 U	360 U
3-NITROANILINE	940 U	930 U	920 U	980 U	940 U	910 U
ACENAPHTHENE	370 U	370 U	370 U	50 J	380 U	360 U
2,4-DINITROPHENOL	940 U	930 U	920 U	980 UJ	940 U	910 UJ

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB01-00	86-AST-SB02-00	86-AST-SB03-00	86-AST-SB04-00	86-AST-SB05-00	86-AST-SB06-00
DATE SAMPLED	02/25/95	02/26/95	02/26/95	02/26/95	02/26/95	02/26/95
DEPTH	0-12"	0-12"	0-12"	0-12"	0-12"	0-12"
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SEMIVOLATILES cont.						
4-NITROPHENOL	940 U	930 U	920 U	980 U	940 U	910 U
DIBENZOFURAN	370 U	370 U	370 U	390 U	380 U	360 U
2,4-DINITROTOLUENE	370 U	370 U	370 U	390 U	380 U	360 U
DIETHYLPHTHALATE	370 U	370 U	370 U	390 U	380 U	360 U
4-CHLOROPHENYL-PHENYLETHER	370 U	370 U	370 U	390 U	380 U	360 U
FLUORENE	370 U	370 U	370 U	390 U	380 U	360 U
4-NITROANILINE	940 U	930 U	920 U	980 U	940 U	910 U
4,6-DINITRO-2-METHYLPHENOL	940 UJ	930 U	920 UJ	980 UJ	940 U	910 UJ
N-NITROSODIPHENYLAMINE (1)	370 U	370 U	370 U	390 U	380 U	360 U
4-BROMOPHENYL-PHENYLETHER	370 U	370 U	370 U	390 U	380 U	360 U
HEXACHLOROBENZENE	370 U	370 U	370 U	390 U	380 U	360 U
PENTACHLOROPHENOL	940 U	930 UJ	920 U	980 U	940 U	910 U
PHENANTHRENE	370 U	370 UJ	370 U	290 J	380 U	360 U
ANTHRACENE	370 U	370 UJ	370 U	62 J	380 U	360 U
CARBAZOLE	370 U	370 UJ	370 U	43 J	380 U	360 U
DI-N-BUTYLPHTHALATE	2100 U	1100 U	1300 U	390 U	1100 U	360 U
FLUORANTHENE	370 U	370 UJ	370 U	310 J	380 U	360 U
PYRENE	370 U	110 J	370 U	260 J	380 U	360 U
BUTYLBENZYLPHTHALATE	300 J	370 UJ	380	390 U	380 U	360 U
3,3'-DICHLOROBENZIDINE	370 U	370 UJ	370 U	390 U	380 U	360 U
BENZO(A)ANTHRACENE	370 U	70 J	370 U	150 J	380 U	360 U
CHRYSENE	370 U	370 UJ	370 U	160 J	380 U	360 U
BIS(2-ETHYLHEXYL)PHTHALATE	370 U	370 UJ	370 U	390 U	380 U	360 U
DI-N-OCTYL PHTHALATE	370 UJ	370 UJ	370 UJ	390 U	380 U	360 U
BENZO(B)FLUORANTHENE	370 U	370 UJ	370 U	180 J	380 U	360 U
BENZO(K)FLUORANTHENE	370 U	370 UJ	370 U	75 J	380 U	360 U
BENZO(A)PYRENE	370 U	48 J	370 U	130 J	380 U	360 U
INDENO(1,2,3-CD)PYRENE	370 U	370 UJ	370 U	88 J	380 U	360 U
DIBENZO(A,H)ANTHRACENE	370 U	370 UJ	370 U	390 U	380 U	360 U
BENZO(G,H,I)PERYLENE	370 U	370 UJ	370 U	78 J	380 U	360 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB01-00	86-AST-SB02-00	86-AST-SB03-00	86-AST-SB04-00	86-AST-SB05-00	86-AST-SB06-00
DATE SAMPLED	02/25/95	02/26/95	02/26/95	02/26/95	02/26/95	02/26/95
DEPTH	0-12"	0-12"	0-12"	0-12"	0-12"	0-12"
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
PESTICIDE/PCBS						
ALPHA-BHC	1.9 U	1.8 UJ	1.8 U	2 UJ	1.8 U	1.8 UJ
BETA-BHC	1.9 U	1.8 UJ	1.8 U	2 UJ	1.8 U	1.8 UJ
DELTA-BHC	1.9 U	1.8 UJ	1.8 U	2 UJ	1.8 U	1.8 UJ
GAMMA-BHC (LINDANE)	1.9 U	1.8 UJ	1.8 U	2 UJ	1.8 U	1.8 UJ
HEPTACHLOR	1.9 UJ	1.8 UJ	1.8 UJ	2 UJ	1.8 U	1.8 UJ
ALDRIN	1.9 U	1.8 UJ	1.8 U	2 UJ	1.8 U	1.8 UJ
HEPTACHLOR EPOXIDE	1.9 U	1.8 UJ	1.8 U	2 UJ	1.8 U	1.8 UJ
ENDOSULFAN I	1.9 U	1.8 UJ	1.8 U	2 UJ	1.8 U	1.8 UJ
DIELDRIN	44	35 J	38	8.6 J	32 J	23 J
4,4'-DDE	5.3	6.3 J	9.1	26 J	9.6	6.9 J
ENDRIN	3.8 U	3.7 UJ	3.7 U	3.9 UJ	3.7 U	3.6 UJ
ENDOSULFAN II	3.8 U	3.7 UJ	3.7 U	3.9 UJ	3.7 U	3.6 UJ
4,4'-DDD	3.8 U	8.1 J	3.7 U	8.6 J	3.7 U	3.6 UJ
ENDOSULFAN SULFATE	3.8 U	3.7 UJ	3.7 U	3.9 UJ	3.7 U	3.6 UJ
4,4'-DDT	11	4.4 J	12	20 J	9.2	4.3 J
METHOXYCHLOR	19 UJ	18 UJ	18 UJ	20 UJ	18 UJ	18 UJ
ENDRIN KETONE	3.8 U	3.7 UJ	3.7 U	3.9 UJ	3.7 U	3.6 UJ
ENDRIN ALDEHYDE	3.8 U	3.7 UJ	3.7 U	3.9 UJ	3.7 U	3.6 UJ
ALPHA-CHLORDANE	1.9 U	1.8 UJ	1.8 U	2 UJ	1.8 U	1.8 UJ
GAMMA-CHLORDANE	1.9 U	1.8 UJ	1.8 U	2 UJ	1.8 U	1.8 UJ
TOXAPHENE	190 U	180 UJ	180 U	200 UJ	180 U	180 UJ
AROCLOR-1016	38 U	37 UJ	37 U	39 UJ	37 U	36 UJ
AROCLOR-1221	76 U	74 UJ	73 U	78 UJ	74 U	72 UJ
AROCLOR-1232	38 U	37 UJ	37 U	39 UJ	37 U	36 UJ
AROCLOR-1242	38 U	37 UJ	37 U	39 UJ	37 U	36 UJ
AROCLOR-1248	38 U	37 UJ	37 U	39 UJ	37 U	36 UJ
AROCLOR-1254	38 U	37 UJ	37 U	39 UJ	37 U	36 UJ
AROCLOR-1260	38 U	37 UJ	37 U	39 UJ	37 U	36 UJ

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB07-00	86-AST-SB08-00	86-AST-SB09-00	86-AST-SB10-00	86-AST-SB11-00	86-AST-SB12-00
DATE SAMPLED	02/26/95	02/26/95	02/26/95	03/15/95	03/15/95	03/15/95
DEPTH	0-12"	0-12"	0-12"	0-12"	0-12"	0-12"
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
VOLATILES						
CHLOROMETHANE	11 U	11 U	11 U	11 U	13 U	12 U
BROMOMETHANE	11 U	11 U	11 U	11 U	13 U	12 U
VINYL CHLORIDE	11 U	11 U	11 U	11 U	13 U	12 U
CHLOROETHANE	11 U	11 U	11 U	11 U	13 U	12 U
METHYLENE CHLORIDE	11 U	11 U	11 U	11 U	13 U	12 U
ACETONE	11 U	11 U	11 U	11 UJ	13 UJ	29 UJ
CARBON DISULFIDE	11 U	11 U	11 U	11 U	13 U	12 U
1,1-DICHLOROETHENE	11 U	11 U	11 U	11 U	13 U	12 U
1,1-DICHLOROETHANE	11 U	11 U	11 U	11 U	13 U	12 U
1,2-DICHLOROETHENE (TOTAL)	11 U	11 U	11 U	11 U	13 U	12 U
CHLOROFORM	11 U	11 U	11 U	11 U	13 U	12 U
1,2-DICHLOROETHANE	11 U	11 U	11 U	11 U	13 U	12 U
2-BUTANONE	11 U	11 U	11 U	11 UJ	13 UJ	12 UJ
1,1,1-TRICHLOROETHANE	11 U	11 U	11 U	11 U	13 U	12 U
CARBON TETRACHLORIDE	11 U	11 U	11 U	11 U	13 U	12 U
BROMODICHLOROMETHANE	11 U	11 U	11 U	11 U	13 U	12 U
1,2-DICHLOROPROPANE	11 U	11 U	11 U	11 U	13 U	12 U
CIS-1,3-DICHLOROPROPENE	11 U	11 U	11 U	11 U	13 U	12 U
TRICHLOROETHENE	11 U	11 U	11 U	11 U	13 U	12 U
DIBROMOCHLOROMETHANE	11 U	11 U	11 U	11 U	13 U	12 U
1,1,2-TRICHLOROETHANE	11 U	11 U	11 U	11 U	13 U	12 U
BENZENE	11 U	11 U	11 U	11 U	13 U	12 U
TRANS-1,3-DICHLOROPROPENE	11 U	11 U	11 U	11 U	13 U	12 U
BROMOFORM	11 U	11 U	11 U	11 U	13 U	12 U
4-METHYL-2-PENTANONE	11 U	11 U	11 U	11 UJ	13 UJ	12 UJ
2-HEXANONE	11 U	11 U	11 U	11 UJ	13 UJ	12 UJ
TETRACHLOROETHENE	11 U	11 U	11 U	11 U	13 U	12 U
1,1,2,2-TETRACHLOROETHANE	11 U	11 U	11 U	11 U	13 U	12 U
TOLUENE	11 U	11 U	11 U	11 U	13 U	12 U
CHLOROBENZENE	11 U	11 U	11 U	11 U	13 U	12 U
ETHYLBENZENE	11 U	11 U	11 U	11 U	13 U	12 U
STYRENE	11 U	11 U	11 U	11 U	13 U	12 U
XYLENE (TOTAL)	11 U	11 U	11 U	11 U	13 U	12 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB07-00	86-AST-SB08-00	86-AST-SB09-00	86-AST-SB10-00	86-AST-SB11-00	86-AST-SB12-00
DATE SAMPLED	02/26/95	02/26/95	02/26/95	03/15/95	03/15/95	03/15/95
DEPTH	0-12"	0-12"	0-12"	0-12"	0-12"	0-12"
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SEMIVOLATILES						
PHENOL	370 U	370 U	360 U	370 U	440 U	380 U
BIS(2-CHLOROETHYL)ETHER	370 U	370 U	360 U	370 U	440 U	380 U
2-CHLOROPHENOL	370 U	370 U	360 U	370 U	440 U	380 U
1,3-DICHLOROBENZENE	370 U	370 U	360 U	370 U	440 U	380 U
1,4-DICHLOROBENZENE	370 U	370 U	360 U	370 U	440 U	380 U
1,2-DICHLOROBENZENE	370 U	370 U	360 U	370 U	440 U	380 U
2-METHYLPHENOL	370 U	370 U	360 U	370 U	440 U	380 U
2,2'-OXYBIS(1-CHLOROPROPANE)	370 U	370 U	360 U	370 U	440 U	380 U
4-METHYLPHENOL	370 U	370 U	360 U	370 U	440 U	380 U
N-NITROSO-DI-N-PROPYLAMINE	370 U	370 U	360 U	370 U	440 U	380 U
HEXACHLOROETHANE	370 U	370 U	360 U	370 U	440 U	380 U
NITROBENZENE	370 U	370 U	360 U	370 U	440 U	380 U
ISOPHORONE	370 U	370 U	360 U	370 U	440 U	380 U
2-NITROPHENOL	370 U	370 U	360 U	370 U	440 U	380 U
2,4-DIMETHYLPHENOL	370 U	370 U	360 U	370 U	440 U	380 U
BIS(2-CHLOROETHOXY)METHANE	370 U	370 U	360 U	370 U	440 U	380 U
2,4-DICHLOROPHENOL	370 U	370 U	360 U	370 U	440 U	380 U
1,2,4-TRICHLOROBENZENE	370 U	370 U	360 U	370 U	440 U	380 U
NAPHTHALENE	370 U	370 U	360 U	370 U	85 J	380 U
4-CHLOROANILINE	370 U	370 U	360 U	370 U	440 U	380 U
HEXACHLOROBUTADIENE	370 U	370 U	360 U	370 U	440 U	380 U
4-CHLORO-3-METHYLPHENOL	370 U	370 U	360 U	370 U	440 U	380 U
2-METHYLNAPHTHALENE	370 U	370 U	360 U	370 U	80 J	380 U
HEXACHLOROCYCLOPENTADIENE	370 UJ	370 UJ	360 U	370 U	440 U	380 U
2,4,6-TRICHLOROPHENOL	370 U	370 U	360 U	370 U	440 U	380 U
2,4,5-TRICHLOROPHENOL	920 U	920 U	910 U	920 U	1100 U	960 U
2-CHLORONAPHTHALENE	370 U	370 U	360 U	370 U	440 U	380 U
2-NITROANILINE	920 U	920 U	910 U	920 U	1100 U	960 U
DIMETHYLPHTHALATE	370 U	370 U	360 U	370 U	440 U	380 U
ACENAPHTHYLENE	370 U	370 U	360 U	370 U	440 U	380 U
2,6-DINITROTOLUENE	370 U	370 U	360 U	370 U	440 U	380 U
3-NITROANILINE	920 U	920 U	910 U	920 U	1100 U	960 U
ACENAPHTHENE	370 U	370 U	360 U	370 U	580	380 U
2,4-DINITROPHENOL	920 U	920 U	910 UJ	920 U	1100 U	960 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB07-00	86-AST-SB08-00	86-AST-SB09-00	86-AST-SB10-00	86-AST-SB11-00	86-AST-SB12-00
DATE SAMPLED	02/26/95	02/26/95	02/26/95	03/15/95	03/15/95	03/15/95
DEPTH	0-12"	0-12"	0-12"	0-12"	0-12"	0-12"
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SEMIVOLATILES cont.						
4-NITROPHENOL	920 U	920 U	910 U	920 U	1100 U	960 U
DIBENZOFURAN	370 U	370 U	360 U	370 U	220 J	380 U
2,4-DINITROTOLUENE	370 U	370 U	360 U	370 U	440 U	380 U
DIETHYLPHTHALATE	370 U	370 U	360 U	370 U	440 U	380 U
4-CHLOROPHENYL-PHENYLETHER	370 U	370 U	360 U	370 U	440 U	380 U
FLUORENE	370 U	370 U	360 U	370 U	440	380 U
4-NITROANILINE	920 U	920 U	910 U	920 U	1100 U	960 U
4,6-DINITRO-2-METHYLPHENOL	920 U	920 U	910 UJ	920 U	1100 U	960 U
N-NITROSODIPHENYLAMINE (1)	370 U	370 U	360 U	370 U	440 U	380 U
4-BROMOPHENYL-PHENYLETHER	370 U	370 U	360 U	370 U	440 U	380 U
HEXACHLOROBENZENE	370 U	370 U	360 U	370 U	440 U	380 U
PENTACHLOROPHENOL	920 U	920 U	910 U	920 U	1100 U	960 U
PHENANTHRENE	370 U	370 U	360 U	64 J	2700	380 U
ANTHRACENE	370 U	370 U	360 U	370 U	790	380 U
CARBAZOLE	370 U	370 U	360 U	370 U	480	380 U
DI-N-BUTYLPHTHALATE	370 U	379 U	360 U	1400 U	1800 U	850 U
FLUORANTHENE	39 J	370 U	360 U	130 J	3500	380 U
PYRENE	300 J	370 U	360 U	130 J	3100	380 U
BUTYLBENZYLPHTHALATE	370 U	370 U	360 U	49 J	52 J	380 U
3,3'-DICHLOROBENZIDINE	370 U	370 U	360 U	370 U	440 U	380 U
BENZO(A)ANTHRACENE	100 J	370 U	360 U	72 J	2100	380 U
CHRYSENE	270 J	370 U	360 U	86 J	2100	380 U
BIS(2-ETHYLHEXYL)PHTHALATE	370 U	370 U	360 U	370 U	47 J	380 U
DI-N-OCTYL PHTHALATE	370 U	370 U	360 U	370 U	440 U	380 U
BENZO(B)FLUORANTHENE	370 U	370 U	360 U	110 J	2300	380 U
BENZO(K)FLUORANTHENE	370 U	370 U	360 U	57 J	950	380 U
BENZO(A)PYRENE	320 J	370 U	360 U	94 J	1800	380 U
INDENO(1,2,3-CD)PYRENE	370 U	370 U	360 U	67 J	1100	380 U
DIBENZO(A,H)ANTHRACENE	370 U	370 U	360 U	370 U	290 J	380 U
BENZO(G,H,I)PERYLENE	370 U	370 U	360 U	57 J	440 U	380 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB07-00	86-AST-SB08-00	86-AST-SB09-00	86-AST-SB10-00	86-AST-SB11-00	86-AST-SB12-00
DATE SAMPLED	02/26/95	02/26/95	02/26/95	03/15/95	03/15/95	03/15/95
DEPTH	0-12"	0-12"	0-12"	0-12"	0-12"	0-12"
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
PESTICIDE/PCBS						
ALPHA-BHC	1.9 UJ	1.8 U	1.9 UJ	NA	NA	NA
BETA-BHC	1.9 UJ	1.8 U	1.9 UJ	NA	NA	NA
DELTA-BHC	1.9 UJ	1.8 U	1.9 UJ	NA	NA	NA
GAMMA-BHC (LINDANE)	1.9 UJ	1.8 U	1.9 UJ	NA	NA	NA
HEPTACHLOR	1.9 UJ	1.8 U	1.9 UJ	NA	NA	NA
ALDRIN	1.9 UJ	1.8 U	1.9 UJ	NA	NA	NA
HEPTACHLOR EPOXIDE	1.9 UJ	1.8 U	1.9 UJ	NA	NA	NA
ENDOSULFAN I	1.9 UJ	1.8 U	1.9 UJ	NA	NA	NA
DIELDRIN	26 J	4.8	13 J	NA	NA	NA
4,4'-DDE	11 J	29 J	24 J	NA	NA	NA
ENDRIN	3.7 UJ	3.7 U	3.7 UJ	NA	NA	NA
ENDOSULFAN II	3.7 UJ	3.7 U	3.7 UJ	NA	NA	NA
4,4'-DDD	8.9 J	9.6 J	5.2 J	NA	NA	NA
ENDOSULFAN SULFATE	3.7 UJ	3.7 U	3.7 UJ	NA	NA	NA
4,4'-DDT	17 J	27 J	23 J	NA	NA	NA
METHOXYCHLOR	19 UJ	18 UJ	19 UJ	NA	NA	NA
ENDRIN KETONE	3.7 UJ	3.7 U	3.7 UJ	NA	NA	NA
ENDRIN ALDEHYDE	3.7 UJ	3.7 U	3.7 UJ	NA	NA	NA
ALPHA-CHLORDANE	1.9 UJ	1.8 U	1.9 UJ	NA	NA	NA
GAMMA-CHLORDANE	1.9 UJ	1.8 U	1.9 UJ	NA	NA	NA
TOXAPHENE	190 UJ	180 U	190 UJ	NA	NA	NA
AROCLOR-1016	37 UJ	37 U	37 UJ	NA	NA	NA
AROCLOR-1221	74 UJ	74 U	74 UJ	NA	NA	NA
AROCLOR-1232	37 UJ	37 U	37 UJ	NA	NA	NA
AROCLOR-1242	37 UJ	37 U	37 UJ	NA	NA	NA
AROCLOR-1248	37 UJ	37 U	37 UJ	NA	NA	NA
AROCLOR-1254	37 UJ	37 U	37 UJ	NA	NA	NA
AROCLOR-1260	37 UJ	37 U	37 UJ	NA	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-CP-SB01-00	86-CP-SB02-00	86-GW18DW-00	86-GW19DW-00	86-WA-SB01-00	86-WA-SB02-00
DATE SAMPLED	05/02/95	05/02/95	02/22/95	03/14/95	05/02/95	05/02/95
DEPTH	0-12"	0-12"	0-12"	0-12"	0-12"	0-12"
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
VOLATILES						
CHLOROMETHANE	12 U	11 U	15 U	12 U	11 UJ	11 U
BROMOMETHANE	12 U	11 U	15 U	12 U	11 UJ	11 U
VINYL CHLORIDE	12 U	11 U	15 U	12 U	11 UJ	11 U
CHLOROETHANE	12 U	11 U	15 U	12 U	11 UJ	11 U
METHYLENE CHLORIDE	12 U	11 U	15 U	12 U	11 UJ	11 U
ACETONE	12 U	11 U	15 U	12 U	15 UJ	11 U
CARBON DISULFIDE	12 U	11 U	15 U	12 U	11 UJ	11 U
1,1-DICHLOROETHENE	12 U	11 U	15 U	12 U	11 UJ	11 U
1,1-DICHLOROETHANE	12 U	11 U	15 U	12 U	11 UJ	11 U
1,2-DICHLOROETHENE (TOTAL)	12 U	11 U	15 U	12 U	11 UJ	11 U
CHLOROFORM	12 U	11 U	15 U	12 U	11 UJ	11 U
1,2-DICHLOROETHANE	12 U	11 U	15 U	12 U	11 UJ	11 U
2-BUTANONE	12 U	11 U	15 U	12 U	11 UJ	11 U
1,1,1-TRICHLOROETHANE	12 U	11 U	15 U	12 U	11 UJ	11 U
CARBON TETRACHLORIDE	12 U	11 U	15 U	12 U	11 UJ	11 U
BROMODICHLOROMETHANE	12 U	11 U	15 U	12 U	11 UJ	11 U
1,2-DICHLOROPROPANE	12 U	11 U	15 U	12 U	11 UJ	11 U
CIS-1,3-DICHLOROPROPENE	12 U	11 U	15 U	12 U	11 UJ	11 U
TRICHLOROETHENE	12 U	11 U	15 U	12 U	11 UJ	11 U
DIBROMOCHLOROMETHANE	12 U	11 U	15 U	12 U	11 UJ	11 U
1,1,2-TRICHLOROETHANE	12 U	11 U	15 U	12 U	11 UJ	11 U
BENZENE	12 U	11 U	15 U	12 U	11 UJ	11 U
TRANS-1,3-DICHLOROPROPENE	12 U	11 U	15 U	12 U	11 UJ	11 U
BROMOFORM	12 U	11 U	15 U	12 U	11 UJ	11 U
4-METHYL-2-PENTANONE	12 U	11 U	15 U	12 UJ	11 UJ	11 UJ
2-HEXANONE	12 U	11 U	15 U	12 UJ	11 UJ	11 UJ
TETRACHLOROETHENE	12 U	11 U	15 U	12 UJ	11 UJ	11 UJ
1,1,2,2-TETRACHLOROETHANE	12 U	11 U	15 U	12 UJ	11 UJ	11 UJ
TOLUENE	12 U	11 U	25	12 UJ	11 UJ	11 UJ
CHLOROBENZENE	12 U	11 U	15 U	12 UJ	11 UJ	11 UJ
ETHYLBENZENE	12 U	11 U	15 U	12 UJ	11 UJ	11 UJ
STYRENE	12 U	11 U	15 U	12 UJ	11 UJ	11 UJ
XYLENE (TOTAL)	12 U	11 U	15 U	12 UJ	11 UJ	11 UJ

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-CP-SB01-00	86-CP-SB02-00	86-GW18DW-00	86-GW19DW-00	86-WA-SB01-00	86-WA-SB02-00
DATE SAMPLED	05/02/95	05/02/95	02/22/95	03/14/95	05/02/95	05/02/95
DEPTH	0-12"	0-12"	0-12"	0-12"	0-12"	0-12"
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SEMIVOLATILES						
PHENOL	350 U	350 U	490 U	400 U	350 U	350 U
BIS(2-CHLOROETHYL)ETHER	350 U	350 U	490 U	400 U	350 U	350 U
2-CHLOROPHENOL	350 U	350 U	490 U	400 U	350 U	350 U
1,3-DICHLOROBENZENE	350 U	350 U	490 U	400 U	350 U	350 U
1,4-DICHLOROBENZENE	350 U	350 U	490 U	400 U	350 U	350 U
1,2-DICHLOROBENZENE	350 U	350 U	490 U	400 U	350 U	350 U
2-METHYLPHENOL	350 U	350 U	490 U	400 U	350 U	350 U
2,2'-OXYBIS(1-CHLOROPROPANE)	350 U	350 U	490 U	400 U	350 U	350 U
4-METHYLPHENOL	350 U	350 U	490 U	400 U	350 U	350 U
N-NITROSO-DI-N-PROPYLAMINE	350 U	350 U	490 U	400 U	350 U	350 U
HEXACHLOROETHANE	350 U	350 U	490 U	400 U	350 U	350 U
NITROBENZENE	350 U	350 U	490 U	400 U	350 U	350 U
ISOPHORONE	350 U	350 U	490 U	400 U	350 U	350 U
2-NITROPHENOL	350 U	350 U	490 U	400 U	350 U	350 U
2,4-DIMETHYLPHENOL	350 U	350 U	490 U	400 U	350 U	350 U
BIS(2-CHLOROETHOXY)METHANE	350 U	350 U	490 U	400 U	350 U	350 U
2,4-DICHLOROPHENOL	350 U	350 U	490 U	400 U	350 U	350 U
1,2,4-TRICHLOROBENZENE	350 U	350 U	490 U	400 U	350 U	350 U
NAPHTHALENE	350 U	350 U	490 U	400 U	350 U	350 U
4-CHLOROANILINE	350 U	350 U	490 U	400 U	350 U	350 U
HEXACHLOROBUTADIENE	350 U	350 U	490 U	400 U	350 U	350 U
4-CHLORO-3-METHYLPHENOL	350 U	350 U	490 U	400 U	350 U	350 U
2-METHYLNAPHTHALENE	350 U	350 U	490 U	400 U	350 U	350 U
HEXACHLOROCYCLOPENTADIENE	350 U	350 U	490 U	400 U	350 U	350 U
2,4,6-TRICHLOROPHENOL	350 U	350 U	490 U	400 U	350 U	350 U
2,4,5-TRICHLOROPHENOL	880 U	880 U	1200 U	1000 U	880 U	860 U
2-CHLORONAPHTHALENE	350 U	350 U	490 U	400 U	350 U	350 U
2-NITROANILINE	880 U	880 U	1200 U	1000 U	880 U	860 U
DIMETHYLPHTHALATE	350 U	350 U	490 U	400 U	350 U	350 U
ACENAPHTHYLENE	350 U	350 U	490 U	400 U	350 U	350 U
2,6-DINITROTOLUENE	350 U	350 U	490 U	400 U	350 U	350 U
3-NITROANILINE	880 U	880 U	1200 U	1000 U	880 U	860 U
ACENAPHTHENE	74 J	350 U	490 U	160 J	350 U	350 U
2,4-DINITROPHENOL	880 U	880 U	1200 U	1000 U	880 U	860 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-CP-SB01-00	86-CP-SB02-00	86-GW18DW-00	86-GW19DW-00	86-WA-SB01-00	86-WA-SB02-00
DATE SAMPLED	05/02/95	05/02/95	02/22/95	03/14/95	05/02/95	05/02/95
DEPTH	0-12"	0-12"	0-12"	0-12"	0-12"	0-12"
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SEMIVOLATILES cont.						
4-NITROPHENOL	880 U	880 U	1200 U	1000 U	880 U	860 U
DIBENZOFURAN	350 U	350 U	490 U	400 U	350 U	350 U
2,4-DINITROTOLUENE	350 U	350 U	490 U	400 U	350 U	350 U
DIETHYLPHTHALATE	350 U	350 U	490 U	400 U	350 U	350 U
4-CHLOROPHENYL-PHENYLETHER	350 U	350 U	490 U	400 U	350 U	350 U
FLUORENE	43 J	350 U	490 U	89 J	350 U	350 U
4-NITROANILINE	880 U	880 U	1200 U	1000 U	880 U	860 U
4,6-DINITRO-2-METHYLPHENOL	880 U	880 U	1200 U	1000 U	880 U	860 U
N-NITROSODIPHENYLAMINE (1)	350 U	350 U	490 U	400 U	350 U	350 U
4-BROMOPHENYL-PHENYLETHER	350 U	350 U	490 U	400 U	350 U	350 U
HEXACHLOROBENZENE	350 U	350 U	490 U	400 U	350 U	350 U
PENTACHLOROPHENOL	880 U	880 U	1200 U	1000 U	880 U	860 U
PHENANTHRENE	550	280 J	98 J	970	95 J	350 U
ANTHRACENE	110 J	43 J	490 U	230 J	350 U	350 U
CARBAZOLE	70 J	39 J	490 U	130 J	350 U	350 U
DI-N-BUTYLPHTHALATE	1700 U	1200 U	490 U	400 U	520 U	1000 U
FLUORANTHENE	910	580	180 J	2000	230 J	350 U
PYRENE	990	500	150 J	1400	240 J	350 U
BUTYLBENZYLPHTHALATE	350 U	350 U	490 U	400 U	350 U	350 U
3,3'-DICHLOROBENZIDINE	350 U	350 U	490 U	400 U	350 U	350 U
BENZO(A)ANTHRACENE	560	250 J	86 J	960	110 J	350 U
CHRYSENE	620	320 J	110 J	1000	180 J	350 U
BIS(2-ETHYLHEXYL)PHTHALATE	350 U	350 U	86 J	400 U	350 U	350 U
DI-N-OCTYL PHTHALATE	350 U	350 U	490 UJ	400 U	350 U	350 U
BENZO(B)FLUORANTHENE	730	380	180 J	1200	190 J	350 U
BENZO(K)FLUORANTHENE	310 J	160 J	65 J	510	200 J	350 U
BENZO(A)PYRENE	580	300 J	99 J	980	140 J	350 U
INDENO(1,2,3-CD)PYRENE	400	350 U	77 J	650	110 J	350 U
DIBENZO(A,H)ANTHRACENE	100 J	37 J	490 UJ	150 J	350 U	350 U
BENZO(G,H,I)PERYLENE	400	190 J	72 J	590	110 J	350 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-CP-SB01-00	86-CP-SB02-00	86-GW18DW-00	86-GW19DW-00	86-WA-SB01-00	86-WA-SB02-00
DATE SAMPLED	05/02/95	05/02/95	02/22/95	03/14/95	05/02/95	05/02/95
DEPTH	0-12"	0-12"	0-12"	0-12"	0-12"	0-12"
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
PESTICIDE/PCBS						
ALPHA-BHC	NA	NA	2.4 UJ	2 UJ	NA	NA
BETA-BHC	NA	NA	2.4 UJ	2 UJ	NA	NA
DELTA-BHC	NA	NA	2.4 UJ	2 UJ	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	2.4 UJ	2 UJ	NA	NA
HEPTACHLOR	NA	NA	2.4 UJ	2 UJ	NA	NA
ALDRIN	NA	NA	2 J	2 UJ	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	2.4 UJ	5.2 J	NA	NA
ENDOSULFAN I	NA	NA	2.4 UJ	2 UJ	NA	NA
DIELDRIN	NA	NA	29 J	4 UJ	NA	NA
4,4'-DDE	NA	NA	4.9 J	38 J	NA	NA
ENDRIN	NA	NA	4.9 UJ	4 UJ	NA	NA
ENDOSULFAN II	NA	NA	4.9 UJ	4 UJ	NA	NA
4,4'-DDD	NA	NA	4.9 UJ	4 UJ	NA	NA
ENDOSULFAN SULFATE	NA	NA	4.9 UJ	4 UJ	NA	NA
4,4'-DDT	NA	NA	4.9 UJ	5.6 J	NA	NA
METHOXYCHLOR	NA	NA	24 UJ	20 UJ	NA	NA
ENDRIN KETONE	NA	NA	4.9 UJ	4 UJ	NA	NA
ENDRIN ALDEHYDE	NA	NA	4.9 UJ	4 UJ	NA	NA
ALPHA-CHLORDANE	NA	NA	2.4 UJ	2 UJ	NA	NA
GAMMA-CHLORDANE	NA	NA	2.4 UJ	2 UJ	NA	NA
TOXAPHENE	NA	NA	240 UJ	200 UJ	NA	NA
AROCLOR-1016	NA	NA	49 UJ	40 UJ	NA	NA
AROCLOR-1221	NA	NA	98 UJ	80 UJ	NA	NA
AROCLOR-1232	NA	NA	49 UJ	40 UJ	NA	NA
AROCLOR-1242	NA	NA	49 UJ	40 UJ	NA	NA
AROCLOR-1248	NA	NA	49 UJ	40 UJ	NA	NA
AROCLOR-1254	NA	NA	49 UJ	40 UJ	NA	NA
AROCLOR-1260	NA	NA	49 UJ	40 UJ	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION DATE SAMPLED DEPTH UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
VOLATILES						
CHLOROMETHANE	11 UJ	15 U	ND	ND		0/18
BROMOMETHANE	11 UJ	15 U	ND	ND		0/18
VINYL CHLORIDE	11 UJ	15 U	ND	ND		0/18
CHLOROETHANE	11 UJ	15 U	ND	ND		0/18
METHYLENE CHLORIDE	11 UJ	15 U	ND	ND		0/18
ACETONE	11 UJ	35 UJ	28 J	28 J	86-AST-SB06-00	1/18
CARBON DISULFIDE	11 UJ	15 U	ND	ND		0/18
1,1-DICHLOROETHENE	11 UJ	15 U	ND	ND		0/18
1,1-DICHLOROETHANE	11 UJ	15 U	ND	ND		0/18
1,2-DICHLOROETHENE (TOTAL)	11 UJ	15 U	ND	ND		0/18
CHLOROFORM	11 UJ	15 U	ND	ND		0/18
1,2-DICHLOROETHANE	11 UJ	15 U	ND	ND		0/18
2-BUTANONE	11 UJ	15 U	ND	ND		0/18
1,1,1-TRICHLOROETHANE	11 UJ	15 U	ND	ND		0/18
CARBON TETRACHLORIDE	11 UJ	15 U	ND	ND		0/18
BROMODICHLOROMETHANE	11 UJ	15 U	ND	ND		0/18
1,2-DICHLOROPROPANE	11 UJ	15 U	ND	ND		0/18
CIS-1,3-DICHLOROPROPENE	11 UJ	15 U	ND	ND		0/18
TRICHLOROETHENE	11 UJ	15 U	ND	ND		0/18
DIBROMOCHLOROMETHANE	11 UJ	15 U	ND	ND		0/18
1,1,2-TRICHLOROETHANE	11 UJ	15 U	ND	ND		0/18
BENZENE	11 UJ	15 U	ND	ND		0/18
TRANS-1,3-DICHLOROPROPENE	11 UJ	15 U	ND	ND		0/18
BROMOFORM	11 UJ	15 U	ND	ND		0/18
4-METHYL-2-PENTANONE	11 UJ	15 U	ND	ND		0/18
2-HEXANONE	11 UJ	15 U	ND	ND		0/18
TETRACHLOROETHENE	11 UJ	15 U	ND	ND		0/18
1,1,2,2-TETRACHLOROETHANE	11 UJ	15 U	ND	ND		0/18
TOLUENE	11 UJ	13 U	25	25	86-GW18DW-00	1/18
CHLOROBENZENE	11 UJ	15 U	ND	ND		0/18
ETHYLBENZENE	11 UJ	15 U	ND	ND		0/18
STYRENE	11 UJ	15 U	ND	ND		0/18
XYLENE (TOTAL)	11 U	15 U	5 J	5 J	86-AST-SB02-00	1/18

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION DATE SAMPLED DEPTH UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
SEMIVOLATILES						
PHENOL	350 U	490 U	ND	ND		0/18
BIS(2-CHLOROETHYL)ETHER	350 U	490 U	ND	ND		0/18
2-CHLOROPHENOL	350 U	490 U	ND	ND		0/18
1,3-DICHLOROBENZENE	350 U	490 U	ND	ND		0/18
1,4-DICHLOROBENZENE	350 U	490 U	ND	ND		0/18
1,2-DICHLOROBENZENE	350 U	490 U	ND	ND		0/18
2-METHYLPHENOL	350 U	490 U	ND	ND		0/18
2,2'-OXYBIS(1-CHLOROPROPANE)	350 U	490 U	ND	ND		0/18
4-METHYLPHENOL	350 U	490 U	ND	ND		0/18
N-NITROSO-DI-N-PROPYLAMINE	350 U	490 U	ND	ND		0/18
HEXACHLOROETHANE	350 U	490 U	ND	ND		0/18
NITROBENZENE	350 U	490 U	ND	ND		0/18
ISOPHORONE	350 U	490 U	ND	ND		0/18
2-NITROPHENOL	350 U	490 U	ND	ND		0/18
2,4-DIMETHYLPHENOL	350 U	490 U	ND	ND		0/18
BIS(2-CHLOROETHOXY)METHANE	350 U	490 U	ND	ND		0/18
2,4-DICHLOROPHENOL	350 U	490 U	ND	ND		0/18
1,2,4-TRICHLOROBENZENE	350 U	490 U	ND	ND		0/18
NAPHTHALENE	350 U	490 U	85 J	85 J	86-AST-SB11-00	1/18
4-CHLOROANILINE	350 U	490 U	ND	ND		0/18
HEXACHLOROBUTADIENE	350 U	490 U	ND	ND		0/18
4-CHLORO-3-METHYLPHENOL	350 U	490 U	ND	ND		0/18
2-METHYLNAPHTHALENE	350 U	490 U	80 J	80 J	86-AST-SB11-00	1/18
HEXACHLOROCYCLOPENTADIENE	350 U	490 U	ND	ND		0/18
2,4,6-TRICHLOROPHENOL	350 U	490 U	ND	ND		0/18
2,4,5-TRICHLOROPHENOL	860 U	1200 U	ND	ND		0/18
2-CHLORONAPHTHALENE	350 U	490 U	ND	ND		0/18
2-NITROANILINE	860 U	1200 U	ND	ND		0/18
DIMETHYLPHTHALATE	350 U	490 U	ND	ND		0/18
ACENAPHTHYLENE	350 U	490 U	ND	ND		0/18
2,6-DINITROTOLUENE	350 U	490 U	ND	ND		0/18
3-NITROANILINE	860 U	1200 U	ND	ND		0/18
ACENAPHTHENE	350 U	490 U	50 J	580	86-AST-SB11-00	4/18
2,4-DINITROPHENOL	860 U	1200 U	ND	ND		0/18

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION DATE SAMPLED DEPTH UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
SEMIVOLATILES cont.						
4-NITROPHENOL	860 U	1200 U	ND	ND		0/18
DIBENZOFURAN	350 U	490 U	220 J	220 J	86-AST-SB11-00	1/18
2,4-DINITROTOLUENE	350 U	490 U	ND	ND		0/18
DIETHYLPHTHALATE	350 U	490 U	ND	ND		0/18
4-CHLOROPHENYL-PHENYLETHER	350 U	490 U	ND	ND		0/18
FLUORENE	350 U	490 U	43 J	440	86-AST-SB11-00	3/18
4-NITROANILINE	860 U	1200 U	ND	ND		0/18
4,6-DINITRO-2-METHYLPHENOL	860 U	1200 U	ND	ND		0/18
N-NITROSODIPHENYLAMINE (1)	350 U	490 U	ND	ND		0/18
4-BROMOPHENYL-PHENYLETHER	350 U	490 U	ND	ND		0/18
HEXACHLOROBENZENE	350 U	490 U	ND	ND		0/18
PENTACHLOROPHENOL	860 U	1200 U	ND	ND		0/18
PHENANTHRENE	350 U	380 U	64 J	2700	86-AST-SB11-00	8/18
ANTHRACENE	350 U	490 U	43 J	790	86-AST-SB11-00	5/18
CARBAZOLE	350 U	490 U	39 J	480	86-AST-SB11-00	5/18
DI-N-BUTYLPHTHALATE	360 U	2100 U	ND	ND		0/18
FLUORANTHENE	350 U	380 U	39 J	3500	86-AST-SB11-00	9/18
PYRENE	350 U	380 U	110 J	3100	86-AST-SB11-00	10/18
BUTYLBENZYLPHTHALATE	350 U	490 U	49 J	380	86-AST-SB03-00	4/18
3,3'-DICHLOROBENZIDINE	350 U	490 U	ND	ND		0/18
BENZO(A)ANTHRACENE	350 U	380 U	70 J	2100	86-AST-SB11-00	10/18
CHRYSENE	350 U	380 U	86 J	2100	86-AST-SB11-00	9/18
BIS(2-ETHYLHEXYL)PHTHALATE	350 U	400 U	47 J	86 J	86-GW18DW-00	2/18
DI-N-OCTYL PHTHALATE	350 U	490 UJ	ND	ND		0/18
BENZO(B)FLUORANTHENE	350 U	380 U	110 J	2300	86-AST-SB11-00	8/18
BENZO(K)FLUORANTHENE	350 U	380 U	57 J	950	86-AST-SB11-00	8/18
BENZO(A)PYRENE	350 U	380 U	48 J	1800	86-AST-SB11-00	10/18
INDENO(1,2,3-CD)PYRENE	350 U	380 U	67 J	1100	86-AST-SB11-00	7/18
DIBENZO(A,H)ANTHRACENE	350 U	490 UJ	37 J	290 J	86-AST-SB11-00	4/18
BENZO(G,H,I)PERYLENE	350 U	440 U	57 J	590	86-GW19DW-00	7/18

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION DATE SAMPLED DEPTH UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
PESTICIDE/PCBS						
ALPHA-BHC	1.8 UJ	2.4 UJ	ND	ND		0/11
BETA-BHC	1.8 UJ	2.4 UJ	ND	ND		0/11
DELTA-BHC	1.8 UJ	2.4 UJ	ND	ND		0/11
GAMMA-BHC (LINDANE)	1.8 UJ	2.4 UJ	ND	ND		0/11
HEPTACHLOR	1.8 UJ	2.4 UJ	ND	ND		0/11
ALDRIN	1.8 UJ	2 UJ	2 J	2 J	86-GW18DW-00	1/11
HEPTACHLOR EPOXIDE	1.8 UJ	2.4 UJ	5.2 J	5.2 J	86-GW19DW-00	1/11
ENDOSULFAN I	1.8 UJ	2.4 UJ	ND	ND		0/11
DIELDRIN	4 UJ	4 UJ	4.8	44	86-AST-SB01-00	10/11
4,4'-DDE	NA	NA	4.9 J	38 J	86-GW19DW-00	11/11
ENDRIN	3.6 UJ	4.9 UJ	ND	ND		0/11
ENDOSULFAN II	3.6 UJ	4.9 UJ	ND	ND		0/11
4,4'-DDD	3.6 UJ	4.9 UJ	5.2 J	9.6 J	86-AST-SB08-00	5/11
ENDOSULFAN SULFATE	3.6 UJ	4.9 UJ	ND	ND		0/11
4,4'-DDT	4.9 UJ	4.9 UJ	4.3 J	27 J	86-AST-SB08-00	10/11
METHOXYCHLOR	18 UJ	24 UJ	ND	ND		0/11
ENDRIN KETONE	3.6 UJ	4.9 UJ	ND	ND		0/11
ENDRIN ALDEHYDE	3.6 UJ	4.9 UJ	ND	ND		0/11
ALPHA-CHLORDANE	1.8 UJ	2.4 UJ	ND	ND		0/11
GAMMA-CHLORDANE	1.8 UJ	2.4 UJ	ND	ND		0/11
TOXAPHENE	180 UJ	240 UJ	ND	ND		0/11
AROCLOR-1016	36 UJ	49 UJ	ND	ND		0/11
AROCLOR-1221	72 UJ	98 UJ	ND	ND		0/11
AROCLOR-1232	36 UJ	49 UJ	ND	ND		0/11
AROCLOR-1242	36 UJ	49 UJ	ND	ND		0/11
AROCLOR-1248	36 UJ	49 UJ	ND	ND		0/11
AROCLOR-1254	36 UJ	49 UJ	ND	ND		0/11
AROCLOR-1260	36 UJ	49 UJ	ND	ND		0/11

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
INORGANIC ANALYTES

LOCATION	86-AST-SB01-00	86-AST-SB02-00	86-AST-SB03-00	86-AST-SB04-00	86-AST-SB05-00	86-AST-SB06-00
DATE SAMPLED	02/25/95	02/26/95	02/26/95	02/26/95	02/26/95	02/26/95
DEPTH	0-12"	0-12"	0-12"	0-12"	0-12"	0-12"
UNITS	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
TOTAL METALS						
ALUMINUM, TOTAL	4590	4790	5750	5730	6340	4830
ANTIMONY, TOTAL	4 UJ	2.3 UJ	4.2 UJ	2 UJ	4.6 R	2.1 UJ
ARSENIC, TOTAL	0.69	0.38 U	0.4 U	1.2	0.54	0.53
BARIUM, TOTAL	9.3	9.4	8.5	133	9.5	7.7
BERYLLIUM, TOTAL	0.17 U	0.066 U	0.18 U	0.14 U	0.2 U	0.21 U
CADMIUM, TOTAL	0.54 U	0.62 U	0.57 U	0.53 U	0.63 U	0.57
CALCIUM, TOTAL	19900	1380	1640	8400	2780 J	2800
CHROMIUM, TOTAL	5.6	6.9	6.2	8.9	7.2 J	5.1
COBALT, TOTAL	0.58 U	0.49 U	0.61 U	0.42 U	0.67 U	0.45 U
COPPER, TOTAL	1.8	0.85 U	1.1	3.1	1.5	1.4
IRON, TOTAL	2070	1670	1720	3980	2010	1800
LEAD, TOTAL	38.7	18.7	43.1	14.7 J	14.4	15.9 J
MAGNESIUM, TOTAL	429	157	200	292	250	835
MANGANESE, TOTAL	10.8	5.5	5.8	10.4	14.7 J	7.1
MERCURY, TOTAL	0.08 U	0.11 U	0.11 U	0.12 U	0.09 U	0.079 U
NICKEL, TOTAL	2.1 U	0.9 U	2.2 U	4.3	3.5	1.3
POTASSIUM, TOTAL	249	139	225	226	211	149
SELENIUM, TOTAL	0.35	0.3 U	0.37	0.29 U	0.36 U	0.38
SILVER, TOTAL	0.58 R	0.53 U	0.61 R	0.45 U	0.67 U	0.49 U
SODIUM, TOTAL	51.4 U	15.9 U	23 U	40.6	42.8	13.7 U
THALLIUM, TOTAL	0.19 U	0.34 U	0.23 U	0.33 U	0.22 U	0.27 U
VANADIUM, TOTAL	10.5	7.9	8.3	25.8	12.3	10.4
ZINC, TOTAL	8.3	5.7	5.7	21.9	7.5	18

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
INORGANIC ANALYTES

LOCATION	86-AST-SB07-00	86-AST-SB08-00	86-AST-SB09-00	86-GW18DW-00	86-GW19DW-00
DATE SAMPLED	02/26/95	02/26/95	02/26/95	02/22/95	03/14/95
DEPTH	0-12"	0-12"	0-12"	0-12"	0-12"
UNITS	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
TOTAL METALS					
ALUMINUM, TOTAL	5960	6660	6470	5470	5990
ANTIMONY, TOTAL	4.5 R	4.3 R	1.8 UJ	5.9 UJ	1.8 UJ
ARSENIC, TOTAL	1.1	1.8	1.4	1.1	0.56
BARIUM, TOTAL	43.5	17.3	37.7	13.5	15.8
BERYLLIUM, TOTAL	0.19 U	0.19 U	0.19 U	0.26 U	0.11 U
CADMIUM, TOTAL	0.64	0.84	0.48 U	1.1	0.48
CALCIUM, TOTAL	4280 J	6950 J	4170	3850	4430
CHROMIUM, TOTAL	9 J	10.1 J	9.7	8.7	8.8
COBALT, TOTAL	0.65 U	0.63 U	0.38 U	0.98 U	0.48
COPPER, TOTAL	3.6	8.9	2.1	53.4 J	9.1
IRON, TOTAL	2930	4310	4590	5580	3940
LEAD, TOTAL	21.4	30.7	12.4 J	38.5	33.7
MAGNESIUM, TOTAL	402	681	249	341	363
MANGANESE, TOTAL	11.5 J	11.9 J	8.1	18.5	21.7
MERCURY, TOTAL	0.09 U	0.082 U	0.1 U	0.15 U	0.16
NICKEL, TOTAL	5.2	6.6	3.6	13.4	22.3
POTASSIUM, TOTAL	340	320	202	228	190
SELENIUM, TOTAL	0.37 U	0.37 U	0.29 J	0.69	0.32 U
SILVER, TOTAL	0.65 U	0.63 U	0.41 U	0.85 UJ	0.4 U
SODIUM, TOTAL	32.4 U	41.9	31.2 U	41.1	42.7
THALLIUM, TOTAL	0.23 U	0.23 U	0.32 U	0.19 U	0.23 U
VANADIUM, TOTAL	18.6	32.4	25.9	56.2	92.7
ZINC, TOTAL	20.1	21	5.4	39.9 J	35.8

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
INORGANIC ANALYTES

LOCATION DATE SAMPLED DEPTH UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
TOTAL METALS						
ALUMINUM, TOTAL	NA	NA	4590	6660	86-AST-SB08-00	11/11
ANTIMONY, TOTAL	1.8 UJ	5.9 UJ	ND	ND		0/8
ARSENIC, TOTAL	0.38 U	0.4 U	0.53	1.8	86-AST-SB08-00	9/11
BARIUM, TOTAL	NA	NA	7.7	133	86-AST-SB04-00	11/11
BERYLLIUM, TOTAL	0.066 U	0.26 U	ND	ND		0/11
CADMIUM, TOTAL	0.48 U	0.63 U	0.48	1.1	86-GW18DW-00	5/11
CALCIUM, TOTAL	NA	NA	1380	19900	86-AST-SB01-00	11/11
CHROMIUM, TOTAL	NA	NA	5.1	10.1 J	86-AST-SB08-00	11/11
COBALT, TOTAL	0.38 U	0.98 U	0.48	0.48	86-GW19DW-00	1/11
COPPER, TOTAL	0.85 U	0.85 U	1.1	53.4 J	86-GW18DW-00	10/11
IRON, TOTAL	NA	NA	1670	5580	86-GW18DW-00	11/11
LEAD, TOTAL	NA	NA	12.4 J	43.1	86-AST-SB03-00	11/11
MAGNESIUM, TOTAL	NA	NA	157	835	86-AST-SB06-00	11/11
MANGANESE, TOTAL	NA	NA	5.5	21.7	86-GW19DW-00	11/11
MERCURY, TOTAL	0.079 U	0.15 U	0.16	0.16	86-GW19DW-00	1/11
NICKEL, TOTAL	0.9 U	2.2 U	1.3	22.3	86-GW19DW-00	8/11
POTASSIUM, TOTAL	NA	NA	139	340	86-AST-SB07-00	11/11
SELENIUM, TOTAL	0.29 U	0.37 U	0.29 J	0.69	86-GW18DW-00	5/11
SILVER, TOTAL	0.4 U	0.85 UJ	ND	ND		0/9
SODIUM, TOTAL	13.7 U	51.4 U	40.6	42.8	86-AST-SB05-00	5/11
THALLIUM, TOTAL	0.19 U	0.34 U	ND	ND		0/11
VANADIUM, TOTAL	NA	NA	7.9	92.7	86-GW19DW-00	11/11
ZINC, TOTAL	NA	NA	5.4	39.9 J	86-GW18DW-00	11/11

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB01-02	86-AST-SB02-02	86-AST-SB02-05	86-AST-SB03-04	86-AST-SB04-02	86-AST-SB05-03
DATE SAMPLED	02/25/95	02/26/95	02/26/95	02/26/95	02/26/95	02/26/95
DEPTH	3-5'	3-5'	9-11'	7-9'	3-5'	5-7'
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
VOLATILES						
CHLOROMETHANE	12 U	12 U	12 U	14 U	12 U	13 U
BROMOMETHANE	12 U	12 U	12 U	14 U	12 U	13 U
VINYL CHLORIDE	12 U	12 U	12 U	14 U	12 U	13 U
CHLOROETHANE	12 U	12 U	12 U	14 U	12 U	13 U
METHYLENE CHLORIDE	12 U	12 U	12 U	14 U	12 U	13 U
ACETONE	12 UJ	50 U	53 J	14 UJ	140	69 U
CARBON DISULFIDE	12 U	12 U	12 U	14 U	12 U	13 U
1,1-DICHLOROETHENE	12 U	12 U	12 U	14 U	12 U	13 U
1,1-DICHLOROETHANE	12 U	12 U	12 U	14 U	12 U	13 U
1,2-DICHLOROETHENE (TOTAL)	12 U	12 U	12 U	14 U	12 U	13 U
CHLOROFORM	12 U	12 U	12 U	14 U	12 U	13 U
1,2-DICHLOROETHANE	12 U	12 U	12 U	14 U	12 U	13 U
2-BUTANONE	12 U	12 U	12 U	14 U	12 U	8 J
1,1,1-TRICHLOROETHANE	12 U	12 U	12 U	14 U	12 U	13 U
CARBON TETRACHLORIDE	12 U	12 U	12 U	14 U	12 U	13 U
BROMODICHLOROMETHANE	12 U	12 U	12 U	14 U	12 U	13 U
1,2-DICHLOROPROPANE	12 U	12 U	12 U	14 U	12 U	13 U
CIS-1,3-DICHLOROPROPENE	12 U	12 U	12 U	14 U	12 U	13 U
TRICHLOROETHENE	12 U	12 U	12 U	14 U	12 U	13 U
DIBROMOCHLOROMETHANE	12 U	12 U	12 U	14 U	12 U	13 U
1,1,2-TRICHLOROETHANE	12 U	12 U	12 U	14 U	12 U	13 U
BENZENE	12 U	12 U	12 U	14 U	12 U	13 U
TRANS-1,3-DICHLOROPROPENE	12 U	12 U	12 U	14 U	12 U	13 U
BROMOFORM	12 U	12 U	12 U	14 U	12 U	13 U
4-METHYL-2-PENTANONE	12 U	12 U	12 U	14 U	12 U	13 U
2-HEXANONE	12 U	12 U	12 U	14 U	12 U	13 U
TETRACHLOROETHENE	12 U	12 U	12 U	14 U	12 U	13 U
1,1,2,2-TETRACHLOROETHANE	12 U	12 U	12 U	14 U	12 U	13 U
TOLUENE	12 U	12 U	12 U	14 U	12 U	13 U
CHLOROBENZENE	12 U	12 U	12 U	14 U	12 U	13 U
ETHYLBENZENE	12 U	12 U	12 U	14 U	12 U	13 U
STYRENE	12 U	12 U	12 U	14 U	12 U	13 U
XYLENE (TOTAL)	12 U	12 U	5 J	14 U	12 U	13 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB01-02	86-AST-SB02-02	86-AST-SB02-05	86-AST-SB03-04	86-AST-SB04-02	86-AST-SB05-03
DATE SAMPLED	02/25/95	02/26/95	02/26/95	02/26/95	02/26/95	02/26/95
DEPTH	3-5'	3-5'	9-11'	7-9'	3-5'	5-7'
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SEMIVOLATILES						
PHENOL	400 U	380 U	390 U	470 U	380 U	420 U
BIS(2-CHLOROETHYL)ETHER	400 U	380 U	390 U	470 U	380 U	420 U
2-CHLOROPHENOL	400 U	380 U	390 U	470 U	380 U	420 U
1,3-DICHLOROBENZENE	400 U	380 U	390 U	470 U	380 U	420 U
1,4-DICHLOROBENZENE	400 U	380 U	390 U	470 U	380 U	420 U
1,2-DICHLOROBENZENE	400 U	380 U	390 U	470 U	380 U	420 U
2-METHYLPHENOL	400 U	380 U	390 U	470 U	380 U	420 U
2,2'-OXYBIS(1-CHLOROPROPANE)	400 U	380 U	390 U	470 U	380 U	420 U
4-METHYLPHENOL	400 U	380 U	390 U	470 U	380 U	420 U
N-NITROSO-DI-N-PROPYLAMINE	400 U	380 U	390 U	470 U	380 U	420 U
HEXACHLOROETHANE	400 U	380 U	390 U	470 U	380 U	420 U
NITROBENZENE	400 U	380 U	390 U	470 U	380 U	420 U
ISOPHORONE	400 U	380 U	390 U	470 U	380 U	420 U
2-NITROPHENOL	400 U	380 U	390 U	470 U	380 U	420 U
2,4-DIMETHYLPHENOL	400 U	380 U	390 U	470 U	380 U	420 U
BIS(2-CHLOROETHOXY)METHANE	400 U	380 U	390 U	470 U	380 U	420 U
2,4-DICHLOROPHENOL	400 U	380 U	390 U	470 U	380 U	420 U
1,2,4-TRICHLOROBENZENE	400 U	380 U	390 U	470 U	380 U	420 U
NAPHTHALENE	400 U	380 U	390 U	470 U	380 U	420 U
4-CHLOROANILINE	400 U	380 U	390 U	470 U	380 U	420 U
HEXACHLOROBUTADIENE	400 U	380 U	390 U	470 U	380 U	420 U
4-CHLORO-3-METHYLPHENOL	400 U	380 U	390 U	470 U	380 U	420 U
2-METHYLNAPHTHALENE	400 U	380 U	390 U	470 U	380 U	420 U
HEXACHLOROCYCLOPENTADIENE	400 UJ	380 U	390 U	470 UJ	380 U	420 UJ
2,4,6-TRICHLOROPHENOL	400 U	380 U	390 U	470 U	380 U	420 U
2,4,5-TRICHLOROPHENOL	1000 U	950 U	980 U	1200 U	950 U	1000 U
2-CHLORONAPHTHALENE	400 U	380 U	390 U	470 U	380 U	420 U
2-NITROANILINE	1000 U	950 U	980 U	1200 U	950 U	1000 U
DIMETHYLPHTHALATE	400 U	380 U	390 U	470 U	380 U	420 U
ACENAPHTHYLENE	400 U	380 U	390 U	470 U	380 U	420 U
2,6-DINITROTOLUENE	400 U	380 U	390 U	470 U	380 U	420 U
3-NITROANILINE	1000 U	950 U	980 U	1200 U	950 U	1000 U
ACENAPHTHENE	400 U	380 U	390 U	470 U	380 U	420 U
2,4-DINITROPHENOL	1000 U	950 UJ	980 U	1200 U	950 UJ	1000 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB01-02	86-AST-SB02-02	86-AST-SB02-05	86-AST-SB03-04	86-AST-SB04-02	86-AST-SB05-03
DATE SAMPLED	02/25/95	02/26/95	02/26/95	02/26/95	02/26/95	02/26/95
DEPTH	3-5'	3-5'	9-11'	7-9'	3-5'	5-7'
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SEMIVOLATILES cont.						
4-NITROPHENOL	1000 U	950 U	980 U	1200 U	950 U	1000 U
DIBENZOFURAN	400 U	380 U	390 U	470 U	380 U	420 U
2,4-DINITROTOLUENE	400 U	380 U	390 U	470 U	380 U	420 U
DIETHYLPHTHALATE	400 U	380 U	390 U	470 U	380 U	420 U
4-CHLOROPHENYL-PHENYLETHER	400 U	380 U	390 U	470 U	380 U	420 U
FLUORENE	400 U	380 U	390 U	470 U	380 U	420 U
4-NITROANILINE	1000 U	950 U	980 U	1200 U	950 U	1000 U
4,6-DINITRO-2-METHYLPHENOL	1000 UJ	950 UJ	980 U	1200 UJ	950 UJ	1000 U
N-NITROSODIPHENYLAMINE (1)	400 U	380 U	390 U	470 U	380 U	420 U
4-BROMOPHENYL-PHENYLETHER	400 U	380 U	390 U	470 U	380 U	420 U
HEXACHLOROBENZENE	400 U	380 U	390 U	470 U	380 U	420 U
PENTACHLOROPHENOL	1000 U	950 U	980 U	1200 U	950 U	1000 U
PHENANTHRENE	400 U	380 U	390 U	470 U	380 U	420 U
ANTHRACENE	400 U	380 U	390 U	470 U	380 U	420 U
CARBAZOLE	400 U	380 U	390 U	470 U	380 U	420 U
DI-N-BUTYLPHTHALATE	2800 U	1500 U	430 U	3000 U	380 U	420 U
FLUORANTHENE	400 U	380 U	390 U	470 U	380 U	420 U
PYRENE	400 U	380 U	390 U	470 U	380 U	420 U
BUTYLBENZYLPHTHALATE	140 J	380 U	390 U	73 J	380 U	420 U
3,3'-DICHLOROBENZIDINE	400 U	380 U	390 U	470 U	380 U	420 U
BENZO(A)ANTHRACENE	400 U	380 U	390 U	470 U	380 U	420 U
CHRYSENE	400 U	380 U	390 U	470 U	140 J	420 U
BIS(2-ETHYLHEXYL)PHTHALATE	400 U	380 U	390 U	470 U	45 J	860
DI-N-OCTYL PHTHALATE	400 UJ	380 U	390 U	470 UJ	380 U	420 U
BENZO(B)FLUORANTHENE	400 U	380 U	390 U	470 U	380 U	420 U
BENZO(K)FLUORANTHENE	400 U	380 U	390 U	470 U	380 U	420 U
BENZO(A)PYRENE	400 U	380 U	390 U	470 U	380 U	420 U
INDENO(1,2,3-CD)PYRENE	400 U	380 U	390 U	470 U	380 U	420 U
DIBENZO(A,H)ANTHRACENE	400 U	380 U	390 U	470 U	380 U	420 U
BENZO(G,H,I)PERYLENE	400 U	380 U	390 U	470 U	380 U	420 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB01-02	86-AST-SB02-02	86-AST-SB02-05	86-AST-SB03-04	86-AST-SB04-02	86-AST-SB05-03
DATE SAMPLED	02/25/95	02/26/95	02/26/95	02/26/95	02/26/95	02/26/95
DEPTH	3-5'	3-5'	9-11'	7-9'	3-5'	5-7'
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
PESTICIDE/PCBS						
ALPHA-BHC	2 U	1.9 UJ	1.9 UJ	2.4 U	1.9 UJ	2.1 U
BETA-BHC	2 U	1.9 UJ	1.9 UJ	2.4 U	1.9 UJ	2.1 U
DELTA-BHC	2 U	1.9 UJ	1.9 UJ	2.4 U	1.9 UJ	2.1 U
GAMMA-BHC (LINDANE)	2 U	1.9 UJ	1.9 UJ	2.4 U	1.9 UJ	2.1 U
HEPTACHLOR	2 UJ	1.9 UJ	1.9 UJ	2.4 UJ	1.9 UJ	2.1 U
ALDRIN	2 U	1.9 UJ	1.9 UJ	2.4 U	1.9 UJ	2.1 U
HEPTACHLOR EPOXIDE	2 U	1.9 UJ	1.9 UJ	2.4 U	1.9 UJ	2.1 U
ENDOSULFAN I	2 U	1.9 UJ	1.9 UJ	2.4 U	1.9 UJ	2.1 U
DIELDRIN	4 U	3.8 UJ	3.9 UJ	4.7 U	3.8 UJ	4.3 U
4,4'-DDE	4 U	1.5 J	3.9 UJ	4.7 U	20 J	4.3 U
ENDRIN	4 U	3.8 UJ	3.9 UJ	4.7 U	3.8 UJ	4.3 U
ENDOSULFAN II	4 U	3.8 UJ	3.9 UJ	4.7 U	3.8 UJ	4.3 U
4,4'-DDD	5.5	4.5 J	3.9 UJ	4.7 U	14 J	4.3 U
ENDOSULFAN SULFATE	4 U	3.8 UJ	3.9 UJ	4.7 U	3.8 UJ	4.3 U
4,4'-DDT	4 U	3.8 UJ	3.9 UJ	4.7 U	1.5 J	4.3 U
METHOXYCHLOR	20 UJ	19 UJ	19 UJ	24 UJ	19 UJ	21 UJ
ENDRIN KETONE	4 U	3.8 UJ	3.9 UJ	4.7 U	3.8 UJ	4.3 U
ENDRIN ALDEHYDE	4 U	3.8 UJ	3.9 UJ	4.7 U	3.8 UJ	4.3 U
ALPHA-CHLORDANE	2 U	1.9 UJ	1.9 UJ	2.4 U	1.9 UJ	2.1 U
GAMMA-CHLORDANE	2 U	1.9 UJ	1.9 UJ	2.4 U	1.9 UJ	2.1 U
TOXAPHENE	200 U	190 UJ	190 UJ	240 U	190 UJ	210 U
AROCLOR-1016	40 U	38 UJ	39 UJ	47 U	38 UJ	43 U
AROCLOR-1221	79 U	76 UJ	78 UJ	94 U	75 UJ	85 U
AROCLOR-1232	40 U	38 UJ	39 UJ	47 U	38 UJ	43 U
AROCLOR-1242	40 U	38 UJ	39 UJ	47 U	38 UJ	43 U
AROCLOR-1248	40 U	38 UJ	39 UJ	47 U	38 UJ	43 U
AROCLOR-1254	40 U	38 UJ	39 UJ	47 U	38 UJ	43 U
AROCLOR-1260	40 U	38 UJ	39 UJ	47 U	38 UJ	43 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB05-05	86-AST-SB06-04	86-AST-SB07-03	86-AST-SB08-04	86-AST-SB09-04	86-AST-SB10-04
DATE SAMPLED	02/26/95	02/26/95	02/26/95	02/26/95	02/26/95	03/15/95
DEPTH	9-11'	7-9'	5-7'	7-9'	7-9'	7-9'
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
VOLATILES						
CHLOROMETHANE	12 U	14 U	13 U	12 U	14 U	14 U
BROMOMETHANE	12 U	14 U	13 U	12 U	14 U	14 U
VINYL CHLORIDE	12 U	14 U	13 U	12 U	14 U	14 U
CHLOROETHANE	12 U	14 U	13 U	12 U	14 U	14 U
METHYLENE CHLORIDE	12 U	14 U	13 U	12 U	14 U	14 U
ACETONE	24 U	54	23 U	29 U	42	54 UJ
CARBON DISULFIDE	12 U	14 U	13 U	12 U	14 U	14 U
1,1-DICHLOROETHENE	12 U	14 U	13 U	12 U	14 U	14 U
1,1-DICHLOROETHANE	12 U	14 U	13 U	12 U	14 U	14 U
1,2-DICHLOROETHENE (TOTAL)	12 U	14 U	13 U	12 U	14 U	14 U
CHLOROFORM	12 U	14 U	13 U	12 U	14 U	14 U
1,2-DICHLOROETHANE	12 U	14 U	13 U	12 U	14 U	14 U
2-BUTANONE	12 U	14 U	13 U	12 U	14 U	14 UJ
1,1,1-TRICHLOROETHANE	12 U	14 U	13 U	12 U	14 U	14 U
CARBON TETRACHLORIDE	12 U	14 U	13 U	12 U	14 U	14 U
BROMODICHLOROMETHANE	12 U	14 U	13 U	12 U	14 U	14 U
1,2-DICHLOROPROPANE	12 U	14 U	13 U	12 U	14 U	14 U
CIS-1,3-DICHLOROPROPENE	12 U	14 U	13 U	12 U	14 U	14 U
TRICHLOROETHENE	12 U	14 U	13 U	12 U	14 U	14 U
DIBROMOCHLOROMETHANE	12 U	14 U	13 U	12 U	14 U	14 U
1,1,2-TRICHLOROETHANE	12 U	14 U	13 U	12 U	14 U	14 U
BENZENE	12 U	14 U	13 U	12 U	14 U	14 U
TRANS-1,3-DICHLOROPROPENE	12 U	14 U	13 U	12 U	14 U	14 U
BROMOFORM	12 U	14 U	13 U	12 U	14 U	14 U
4-METHYL-2-PENTANONE	12 U	14 U	13 U	12 U	14 U	14 UJ
2-HEXANONE	12 U	14 U	13 U	12 U	14 U	14 UJ
TETRACHLOROETHENE	12 U	14 U	13 U	12 U	14 U	14 U
1,1,2,2-TETRACHLOROETHANE	12 U	14 U	13 U	12 U	14 U	14 U
TOLUENE	12 U	14 U	13 U	12 U	14 U	14 U
CHLOROBENZENE	12 U	14 U	13 U	12 U	14 U	14 U
ETHYLBENZENE	12 U	14 U	13 U	12 U	14 U	14 U
STYRENE	12 U	14 U	13 U	12 U	14 U	14 U
XYLENE (TOTAL)	12 U	14 U	5 J	12 U	14 U	14 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB05-05	86-AST-SB06-04	86-AST-SB07-03	86-AST-SB08-04	86-AST-SB09-04	86-AST-SB10-04
DATE SAMPLED	02/26/95	02/26/95	02/26/95	02/26/95	02/26/95	03/15/95
DEPTH	9-11'	7-9'	5-7'	7-9'	7-9'	7-9'
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SEMIVOLATILES						
PHENOL	410 U	470 U	430 U	410 U	460 U	450 U
BIS(2-CHLOROETHYL)ETHER	410 U	470 U	430 U	410 U	460 U	450 U
2-CHLOROPHENOL	410 U	470 U	430 U	410 U	460 U	450 U
1,3-DICHLOROBENZENE	410 U	470 U	430 U	410 U	460 U	450 U
1,4-DICHLOROBENZENE	410 U	470 U	430 U	410 U	460 U	450 U
1,2-DICHLOROBENZENE	410 U	470 U	430 U	410 U	460 U	450 U
2-METHYLPHENOL	410 U	470 U	430 U	410 U	460 U	450 U
2,2'-OXYBIS(1-CHLOROPROPANE)	410 U	470 U	430 U	410 U	460 U	450 U
4-METHYLPHENOL	410 U	470 U	430 U	410 U	460 U	450 U
N-NITROSO-DI-N-PROPYLAMINE	410 U	470 U	430 U	410 U	460 U	450 U
HEXACHLOROETHANE	410 U	470 U	430 U	410 U	460 U	450 U
NITROBENZENE	410 U	470 U	430 U	410 U	460 U	450 U
ISOPHORONE	410 U	470 U	430 U	410 U	460 U	450 U
2-NITROPHENOL	410 U	470 U	430 U	410 U	460 U	450 U
2,4-DIMETHYLPHENOL	410 U	470 U	430 U	410 U	460 U	450 U
BIS(2-CHLOROETHOXY)METHANE	410 U	470 U	430 U	410 U	460 U	450 U
2,4-DICHLOROPHENOL	410 U	470 U	430 U	410 U	460 U	450 U
1,2,4-TRICHLOROBENZENE	410 U	470 U	430 U	410 U	460 U	450 U
NAPHTHALENE	410 U	470 U	430 U	410 U	460 U	450 U
4-CHLOROANILINE	410 U	470 U	430 U	410 U	460 U	450 U
HEXACHLOROBUTADIENE	410 U	470 U	430 U	410 U	460 U	450 U
4-CHLORO-3-METHYLPHENOL	410 U	470 U	430 U	410 U	460 U	450 U
2-METHYLNAPHTHALENE	410 U	470 U	430 U	410 U	460 U	450 U
HEXACHLOROCYCLOPENTADIENE	410 UJ	470 U	430 UJ	410 UJ	460 U	450 U
2,4,6-TRICHLOROPHENOL	410 U	470 U	430 U	410 U	460 U	450 U
2,4,5-TRICHLOROPHENOL	1000 U	1200 U	1100 U	1000 U	1200 U	1100 U
2-CHLORONAPHTHALENE	410 U	470 U	430 U	410 U	460 U	450 U
2-NITROANILINE	1000 U	1200 U	1100 U	1000 U	1200 U	1100 U
DIMETHYLPHTHALATE	410 U	470 U	430 U	410 U	460 U	450 U
ACENAPHTHYLENE	410 U	470 U	430 U	410 U	460 U	450 U
2,6-DINITROTOLUENE	410 U	470 U	430 U	410 U	460 U	450 U
3-NITROANILINE	1000 U	1200 U	1100 U	1000 U	1200 U	1100 U
ACENAPHTHENE	410 U	470 U	430 U	410 U	460 U	450 U
2,4-DINITROPHENOL	1000 U	1200 UJ	1100 U	1000 U	1200 UJ	1100 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB05-05	86-AST-SB06-04	86-AST-SB07-03	86-AST-SB08-04	86-AST-SB09-04	86-AST-SB10-04
DATE SAMPLED	02/26/95	02/26/95	02/26/95	02/26/95	02/26/95	03/15/95
DEPTH	9-11'	7-9'	5-7'	7-9'	7-9'	7-9'
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SEMIVOLATILES cont.						
4-NITROPHENOL	1000 U	1200 U	1100 U	1000 U	1200 U	1100 U
DIBENZOFURAN	410 U	470 U	430 U	410 U	460 U	450 U
2,4-DINITROTOLUENE	410 U	470 U	430 U	410 U	460 U	450 U
DIETHYLPHTHALATE	410 U	470 U	430 U	410 U	460 U	450 U
4-CHLOROPHENYL-PHENYLETHER	410 U	470 U	430 U	410 U	460 U	450 U
FLUORENE	410 U	470 U	430 U	410 U	460 U	450 U
4-NITROANILINE	1000 U	1200 U	1100 U	1000 U	1200 U	1100 U
4,6-DINITRO-2-METHYLPHENOL	1000 U	1200 UJ	1100 U	1000 U	1200 UJ	1100 U
N-NITROSODIPHENYLAMINE (1)	410 U	470 U	430 U	410 U	460 U	450 U
4-BROMOPHENYL-PHENYLETHER	410 U	470 U	430 U	410 U	460 U	450 U
HEXACHLOROBENZENE	410 U	470 U	430 U	410 U	460 U	450 U
PENTACHLOROPHENOL	1000 U	1200 U	1100 U	1000 U	1200 U	1100 U
PHENANTHRENE	410 U	470 U	430 U	410 U	460 U	450 U
ANTHRACENE	410 U	470 U	430 U	410 U	460 U	450 U
CARBAZOLE	410 U	470 U	430 U	410 U	460 U	450 U
DI-N-BUTYLPHTHALATE	410 U	470 U	430 U	410 U	460 U	1500 U
FLUORANTHENE	410 U	470 U	430 U	410 U	460 U	450 U
PYRENE	410 U	470 U	430 U	410 U	460 U	450 U
BUTYLBENZYLPHTHALATE	410 U	470 U	430 U	410 U	460 U	120 J
3,3'-DICHLOROBENZIDINE	410 U	470 U	430 U	410 U	460 U	450 U
BENZO(A)ANTHRACENE	410 U	470 U	430 U	410 U	460 U	450 U
CHRYSENE	410 U	470 U	430 U	410 U	460 U	450 U
BIS(2-ETHYLHEXYL)PHTHALATE	970	470 U	430 U	410 U	460 U	450 U
DI-N-OCTYL PHTHALATE	410 U	470 UJ	430 U	410 U	460 UJ	450 U
BENZO(B)FLUORANTHENE	410 U	470 UJ	430 U	410 U	460 UJ	450 U
BENZO(K)FLUORANTHENE	410 U	470 UJ	430 U	410 U	460 UJ	450 U
BENZO(A)PYRENE	410 U	470 UJ	430 U	410 U	460 UJ	450 U
INDENO(1,2,3-CD)PYRENE	410 U	470 UJ	430 U	410 U	460 UJ	450 U
DIBENZO(A,H)ANTHRACENE	410 U	470 UJ	430 U	410 U	460 UJ	450 U
BENZO(G,H,I)PERYLENE	410 U	470 UJ	430 U	410 U	460 UJ	450 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB05-05	86-AST-SB06-04	86-AST-SB07-03	86-AST-SB08-04	86-AST-SB09-04	86-AST-SB10-04
DATE SAMPLED	02/26/95	02/26/95	02/26/95	02/26/95	02/26/95	03/15/95
DEPTH	9-11'	7-9'	5-7'	7-9'	7-9'	7-9'
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
PESTICIDE/PCBS						
ALPHA-BHC	2 U	2.4 UJ	2.1 U	2 U	2.3 UJ	NA
BETA-BHC	2 U	2.4 UJ	2.1 U	2 U	2.3 UJ	NA
DELTA-BHC	2 U	2.4 UJ	2.1 U	2 U	2.3 UJ	NA
GAMMA-BHC (LINDANE)	2 U	2.4 UJ	2.1 U	2 U	2.3 UJ	NA
HEPTACHLOR	2 U	2.4 UJ	2.1 U	2 U	2.3 UJ	NA
ALDRIN	2 U	2.4 UJ	2.1 U	2 U	2.3 UJ	NA
HEPTACHLOR EPOXIDE	2 U	2.4 UJ	2.1 U	2 U	2.3 UJ	NA
ENDOSULFAN I	2 U	2.4 UJ	2.1 U	2 U	2.3 UJ	NA
DIELDRIN	4 U	4.7 UJ	4.3 U	4 U	4.6 UJ	NA
4,4'-DDE	4 U	4.7 UJ	4.3 U	4 U	4.6 UJ	NA
ENDRIN	4 U	4.7 UJ	4.3 U	4 U	4.6 UJ	NA
ENDOSULFAN II	4 U	4.7 UJ	4.3 U	4 U	4.6 UJ	NA
4,4'-DDD	4 U	4.7 UJ	4.3 U	4 U	4.6 UJ	NA
ENDOSULFAN SULFATE	4 U	4.7 UJ	4.3 U	4 U	4.6 UJ	NA
4,4'-DDT	4 U	4.7 UJ	4.3 U	4 U	4.6 UJ	NA
METHOXYCHLOR	20 UJ	24 UJ	21 UJ	20 UJ	23 UJ	NA
ENDRIN KETONE	4 U	4.7 UJ	4.3 U	4 U	4.6 UJ	NA
ENDRIN ALDEHYDE	4 U	4.7 UJ	4.3 U	4 U	4.6 UJ	NA
ALPHA-CHLORDANE	2 U	2.4 UJ	2.1 U	2 U	2.3 UJ	NA
GAMMA-CHLORDANE	2 U	2.4 UJ	2.1 U	2 U	2.3 UJ	NA
TOXAPHENE	200 U	240 UJ	210 U	200 U	230 UJ	NA
AROCLOR-1016	40 U	47 UJ	43 U	40 U	46 UJ	NA
AROCLOR-1221	80 U	94 UJ	85 U	81 U	92 UJ	NA
AROCLOR-1232	40 U	47 UJ	43 U	40 U	46 UJ	NA
AROCLOR-1242	40 U	47 UJ	43 U	40 U	46 UJ	NA
AROCLOR-1248	40 U	47 UJ	43 U	40 U	46 UJ	NA
AROCLOR-1254	40 U	47 UJ	43 U	40 U	46 UJ	NA
AROCLOR-1260	40 U	47 UJ	43 U	40 U	46 UJ	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB11-03	86-AST-SB12-03	86-CP-SB01-02	86-CP-SB02-02	86-GW15IW-02	86-GW17IW-01
DATE SAMPLED	03/15/95	03/15/95	05/02/95	05/02/95	03/09/95	03/12/95
DEPTH	5-7'	5-7'	3-5'	3-5'	3-5'	1-3'
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
VOLATILES						
CHLOROMETHANE	13 U	13 U	12 U	12 U	12 U	11 U
BROMOMETHANE	13 U	13 U	12 U	12 U	12 U	11 U
VINYL CHLORIDE	13 U	13 U	12 U	12 U	12 U	11 U
CHLOROETHANE	13 U	13 U	12 U	12 U	12 U	11 U
METHYLENE CHLORIDE	13 U	13 U	12 U	12 U	12 U	11 U
ACETONE	13 UJ	41 UJ	72	23 U	17 U	250
CARBON DISULFIDE	13 U	13 U	12 U	12 U	12 U	11 U
1,1-DICHLOROETHENE	13 U	13 U	12 U	12 U	12 U	11 U
1,1-DICHLOROETHANE	13 U	13 U	12 U	12 U	12 U	11 U
1,2-DICHLOROETHENE (TOTAL)	13 U	13 U	12 U	12 U	12 U	11 U
CHLOROFORM	13 U	13 U	12 U	12 U	12 U	11 U
1,2-DICHLOROETHANE	13 U	13 U	12 U	12 U	12 U	11 U
2-BUTANONE	13 UJ	13 UJ	12 U	12 U	12 U	11 U
1,1,1-TRICHLOROETHANE	13 U	13 U	12 U	12 U	12 U	11 U
CARBON TETRACHLORIDE	13 U	13 U	12 U	12 U	12 U	11 U
BROMODICHLOROMETHANE	13 U	13 U	12 U	12 U	12 U	11 U
1,2-DICHLOROPROPANE	13 U	13 U	12 U	12 U	12 U	11 U
CIS-1,3-DICHLOROPROPENE	13 U	13 U	12 U	12 U	12 U	11 U
TRICHLOROETHENE	13 U	13 U	12 U	12 U	12 U	11 U
DIBROMOCHLOROMETHANE	13 U	13 U	12 U	12 U	12 U	11 U
1,1,2-TRICHLOROETHANE	13 U	13 U	12 U	12 U	12 U	11 U
BENZENE	13 U	13 U	12 U	12 U	12 U	11 U
TRANS-1,3-DICHLOROPROPENE	13 U	13 U	12 U	12 U	12 U	11 U
BROMOFORM	13 U	13 U	12 U	12 U	12 U	11 U
4-METHYL-2-PENTANONE	13 UJ	13 UJ	12 U	12 U	12 U	11 U
2-HEXANONE	13 UJ	13 UJ	12 U	12 U	12 U	11 U
TETRACHLOROETHENE	13 U	13 U	12 U	12 U	12 U	11 U
1,1,2,2-TETRACHLOROETHANE	13 U	13 U	12 U	12 U	12 U	11 U
TOLUENE	13 U	13 U	12 U	12 U	12 U	11 U
CHLOROBENZENE	13 U	13 U	12 U	12 U	12 U	11 U
ETHYLBENZENE	13 U	13 U	12 U	12 U	12 U	11 U
STYRENE	13 U	13 U	12 U	12 U	12 U	11 U
XYLENE (TOTAL)	13 U	13 U	12 U	12 U	12 U	11 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB11-03	86-AST-SB12-03	86-CP-SB01-02	86-CP-SB02-02	86-GW15IW-02	86-GW17IW-01
DATE SAMPLED	03/15/95	03/15/95	05/02/95	05/02/95	03/09/95	03/12/95
DEPTH	5-7'	5-7'	3-5'	3-5'	3-5'	1-3'
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SEMIVOLATILES						
PHENOL	430 U	430 U	400 U	400 U	410 U	360 U
BIS(2-CHLOROETHYL)ETHER	430 U	430 U	400 U	400 U	410 U	360 U
2-CHLOROPHENOL	430 U	430 U	400 U	400 U	410 U	360 U
1,3-DICHLOROBENZENE	430 U	430 U	400 U	400 U	410 U	360 U
1,4-DICHLOROBENZENE	430 U	430 U	400 U	400 U	410 U	360 U
1,2-DICHLOROBENZENE	430 U	430 U	400 U	400 U	410 U	360 U
2-METHYLPHENOL	430 U	430 U	400 U	400 U	410 U	360 U
2,2'-OXYBIS(1-CHLOROPROPANE)	430 U	430 U	400 U	400 U	410 U	360 U
4-METHYLPHENOL	430 U	430 U	400 U	400 U	410 U	360 U
N-NITROSO-DI-N-PROPYLAMINE	430 U	430 U	400 U	400 U	410 U	360 U
HEXACHLOROETHANE	430 U	430 U	400 U	400 U	410 U	360 U
NITROBENZENE	430 U	430 U	400 U	400 U	410 U	360 U
ISOPHORONE	430 U	430 U	400 U	400 U	410 U	360 U
2-NITROPHENOL	430 U	430 U	400 U	400 U	410 U	360 U
2,4-DIMETHYLPHENOL	430 U	430 U	400 U	400 U	410 U	360 U
BIS(2-CHLOROETHOXY)METHANE	430 U	430 U	400 U	400 U	410 U	360 U
2,4-DICHLOROPHENOL	430 U	430 U	400 U	400 U	410 U	360 U
1,2,4-TRICHLOROBENZENE	430 U	430 U	400 U	400 U	410 U	360 U
NAPHTHALENE	430 U	430 U	400 U	400 U	410 U	360 U
4-CHLOROANILINE	430 U	430 U	400 U	400 U	410 U	360 U
HEXACHLOROBUTADIENE	430 U	430 U	400 U	400 U	410 U	360 U
4-CHLORO-3-METHYLPHENOL	430 U	430 U	400 U	400 U	410 U	360 U
2-METHYLNAPHTHALENE	430 U	430 U	400 U	400 U	410 U	360 U
HEXACHLOROCYCLOPENTADIENE	430 U	430 U	400 U	400 U	410 U	360 U
2,4,6-TRICHLOROPHENOL	430 U	430 U	400 U	400 U	410 U	360 U
2,4,5-TRICHLOROPHENOL	1100 U	1100 U	990 U	1000 U	1000 U	910 U
2-CHLORONAPHTHALENE	430 U	430 U	400 U	400 U	410 U	360 U
2-NITROANILINE	1100 U	1100 U	990 U	1000 U	1000 U	910 U
DIMETHYLPHTHALATE	430 U	430 U	400 U	400 U	410 U	360 U
ACENAPHTHYLENE	430 U	430 U	400 U	400 U	410 U	360 U
2,6-DINITROTOLUENE	430 U	430 U	400 U	400 U	410 U	360 U
3-NITROANILINE	1100 U	1100 U	990 U	1000 U	1000 U	910 U
ACENAPHTHENE	430 U	430 U	400 U	400 U	410 U	360 U
2,4-DINITROPHENOL	1100 U	1100 U	990 U	1000 U	1000 U	910 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB11-03	86-AST-SB12-03	86-CP-SB01-02	86-CP-SB02-02	86-GW15IW-02	86-GW17IW-01
DATE SAMPLED	03/15/95	03/15/95	05/02/95	05/02/95	03/09/95	03/12/95
DEPTH	5-7'	5-7'	3-5'	3-5'	3-5'	1-3'
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SEMIVOLATILES cont.						
4-NITROPHENOL	1100 U	1100 U	990 U	1000 U	1000 U	910 U
DIBENZOFURAN	430 U	430 U	400 U	400 U	410 U	360 U
2,4-DINITROTOLUENE	430 U	430 U	400 U	400 U	410 U	360 U
DIETHYLPHTHALATE	430 U	430 U	400 U	400 U	410 U	360 U
4-CHLOROPHENYL-PHENYLETHER	430 U	430 U	400 U	400 U	410 U	360 U
FLUORENE	430 U	430 U	400 U	400 U	410 U	360 U
4-NITROANILINE	1100 U	1100 U	990 U	1000 U	1000 U	910 U
4,6-DINITRO-2-METHYLPHENOL	1100 U	1100 U	990 U	1000 U	1000 U	910 U
N-NITROSODIPHENYLAMINE (1)	430 U	430 U	400 U	400 U	410 U	360 U
4-BROMOPHENYL-PHENYLETHER	430 U	430 U	400 U	400 U	410 U	360 U
HEXACHLOROBENZENE	430 U	430 U	400 U	400 U	410 U	360 U
PENTACHLOROPHENOL	1100 U	1100 U	990 U	1000 U	1000 U	910 U
PHENANTHRENE	430 U	430 U	400 U	400 U	410 U	360 U
ANTHRACENE	430 U	430 U	400 U	400 U	410 U	360 U
CARBAZOLE	430 U	430 U	400 U	400 U	410 U	360 U
DI-N-BUTYLPHTHALATE	940 U	970 U	2100 U	1900 U	410 U	360 U
FLUORANTHENE	430 U	430 U	400 U	400 U	410 U	360 U
PYRENE	430 U	430 U	400 U	400 U	410 U	360 U
BUTYLBENZYLPHTHALATE	300 J	430 U	400 U	400 U	410 U	360 U
3,3'-DICHLOROBENZIDINE	430 U	430 U	400 U	400 U	410 U	360 U
BENZO(A)ANTHRACENE	430 U	430 U	400 U	400 U	410 U	360 U
CHRYSENE	430 U	430 U	400 U	400 U	410 U	360 U
BIS(2-ETHYLHEXYL)PHTHALATE	430 U	430 U	400 U	400 U	1100 U	360 U
DI-N-OCTYL PHTHALATE	430 U	430 U	400 U	400 U	410 U	360 U
BENZO(B)FLUORANTHENE	430 U	430 U	400 U	400 U	410 U	360 U
BENZO(K)FLUORANTHENE	430 U	430 U	400 U	400 U	410 U	360 U
BENZO(A)PYRENE	430 U	430 U	400 U	400 U	410 U	360 U
INDENO(1,2,3-CD)PYRENE	430 U	430 U	400 U	400 U	410 U	360 U
DIBENZO(A,H)ANTHRACENE	430 U	430 U	400 U	400 U	410 U	360 U
BENZO(G,H,I)PERYLENE	430 U	430 U	400 U	400 U	410 U	360 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB11-03	86-AST-SB12-03	86-CP-SB01-02	86-CP-SB02-02	86-GW15IW-02	86-GW17IW-01
DATE SAMPLED	03/15/95	03/15/95	05/02/95	05/02/95	03/09/95	03/12/95
DEPTH	5-7'	5-7'	3-5'	3-5'	3-5'	1-3'
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
PESTICIDE/PCBS						
ALPHA-BHC	NA	NA	NA	NA	2 U	1.9 UJ
BETA-BHC	NA	NA	NA	NA	2 U	1.9 UJ
DELTA-BHC	NA	NA	NA	NA	2 U	1.9 UJ
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	2 U	1.9 UJ
HEPTACHLOR	NA	NA	NA	NA	2 U	1.9 UJ
ALDRIN	NA	NA	NA	NA	2 U	1.9 UJ
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	2 U	1.9 UJ
ENDOSULFAN I	NA	NA	NA	NA	2 U	1.9 UJ
DIELDRIN	NA	NA	NA	NA	4 U	3.7 UJ
4,4'-DDE	NA	NA	NA	NA	4 U	11 J
ENDRIN	NA	NA	NA	NA	4 U	3.7 UJ
ENDOSULFAN II	NA	NA	NA	NA	4 U	3.7 UJ
4,4'-DDD	NA	NA	NA	NA	4 U	36 J
ENDOSULFAN SULFATE	NA	NA	NA	NA	4 U	3.7 UJ
4,4'-DDT	NA	NA	NA	NA	4 U	3.7 UJ
METHOXYCHLOR	NA	NA	NA	NA	20 U	19 UJ
ENDRIN KETONE	NA	NA	NA	NA	4 U	3.7 UJ
ENDRIN ALDEHYDE	NA	NA	NA	NA	4 U	3.7 UJ
ALPHA-CHLORDANE	NA	NA	NA	NA	2 U	1.9 UJ
GAMMA-CHLORDANE	NA	NA	NA	NA	2 U	1.9 UJ
TOXAPHENE	NA	NA	NA	NA	200 U	190 UJ
AROCLOR-1016	NA	NA	NA	NA	40 U	37 UJ
AROCLOR-1221	NA	NA	NA	NA	79 U	74 UJ
AROCLOR-1232	NA	NA	NA	NA	40 U	37 UJ
AROCLOR-1242	NA	NA	NA	NA	40 U	37 UJ
AROCLOR-1248	NA	NA	NA	NA	40 U	37 UJ
AROCLOR-1254	NA	NA	NA	NA	40 U	37 UJ
AROCLOR-1260	NA	NA	NA	NA	40 U	37 UJ

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW17IW-02	86-GW18DW-02	86-GW19DW-02	86-WA-SB01-02	86-WA-SB02-03
DATE SAMPLED	03/12/95	02/22/95	03/14/95	05/02/95	05/02/95
DEPTH	3-5'	3-5'	3-5'	3-5'	5-7'
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
VOLATILES					
CHLOROMETHANE	12 U	13 U	11 U	15 U	15 U
BROMOMETHANE	12 U	13 U	11 U	15 U	15 U
VINYL CHLORIDE	12 U	13 U	11 U	15 U	15 U
CHLOROETHANE	12 U	13 U	11 U	15 U	15 U
METHYLENE CHLORIDE	12 U	13 U	11 U	15 U	15 U
ACETONE	82 U	40	11 U	15 U	120
CARBON DISULFIDE	12 U	13 U	11 U	3 J	15 U
1,1-DICHLOROETHENE	12 U	13 U	11 U	15 U	15 U
1,1-DICHLOROETHANE	12 U	13 U	11 U	15 U	15 U
1,2-DICHLOROETHENE (TOTAL)	12 U	13 U	11 U	15 U	15 U
CHLOROFORM	12 U	13 U	11 U	15 U	15 U
1,2-DICHLOROETHANE	12 U	13 U	11 U	15 U	15 U
2-BUTANONE	12 U	13 U	11 U	15 U	15 U
1,1,1-TRICHLOROETHANE	12 U	13 U	11 U	15 U	15 U
CARBON TETRACHLORIDE	12 U	13 U	11 U	15 U	15 U
BROMODICHLOROMETHANE	12 U	13 U	11 U	15 U	15 U
1,2-DICHLOROPROPANE	12 U	13 U	11 U	15 U	15 U
CIS-1,3-DICHLOROPROPENE	12 U	13 U	11 U	15 U	15 U
TRICHLOROETHENE	12 U	13 U	11 U	15 U	15 U
DIBROMOCHLOROMETHANE	12 U	13 U	11 U	15 U	15 U
1,1,2-TRICHLOROETHANE	12 U	13 U	11 U	15 U	15 U
BENZENE	12 U	13 U	11 U	15 U	15 U
TRANS-1,3-DICHLOROPROPENE	12 U	13 U	11 U	15 U	15 U
BROMOFORM	12 U	13 U	11 U	15 U	15 U
4-METHYL-2-PENTANONE	12 U	13 U	11 U	15 U	15 U
2-HEXANONE	12 U	13 U	11 U	15 U	15 U
TETRACHLOROETHENE	12 U	13 U	11 U	15 U	15 U
1,1,2,2-TETRACHLOROETHANE	12 U	13 U	11 U	15 U	15 U
TOLUENE	12 U	250	11 U	15 U	15 U
CHLOROBENZENE	12 U	13 U	11 U	15 U	15 U
ETHYLBENZENE	12 U	13 U	11 U	15 U	15 U
STYRENE	12 U	13 U	11 U	15 U	15 U
XYLENE (TOTAL)	12 U	13 U	11 U	15 U	15 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW17IW-02	86-GW18DW-02	86-GW19DW-02	86-WA-SB01-02	86-WA-SB02-03
DATE SAMPLED	03/12/95	02/22/95	03/14/95	05/02/95	05/02/95
DEPTH	3-5'	3-5'	3-5'	3-5'	5-7'
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SEMIVOLATILES					
PHENOL	400 U	430 U	380 U	480 U	500 U
BIS(2-CHLOROETHYL)ETHER	400 U	430 U	380 U	480 U	500 U
2-CHLOROPHENOL	400 U	430 U	380 U	480 U	500 U
1,3-DICHLOROBENZENE	400 U	430 U	380 U	480 U	500 U
1,4-DICHLOROBENZENE	400 U	430 U	380 U	480 U	500 U
1,2-DICHLOROBENZENE	400 U	430 U	380 U	480 U	500 U
2-METHYLPHENOL	400 U	430 U	380 U	480 U	500 U
2,2'-OXYBIS(1-CHLOROPROPANE)	400 U	430 U	380 U	480 U	500 U
4-METHYLPHENOL	400 U	430 U	380 U	480 U	500 U
N-NITROSO-DI-N-PROPYLAMINE	400 U	430 U	380 U	480 U	500 U
HEXACHLOROETHANE	400 U	430 U	380 U	480 U	500 U
NITROBENZENE	400 U	430 U	380 U	480 U	500 U
ISOPHORONE	400 U	430 U	380 U	480 U	500 U
2-NITROPHENOL	400 U	430 U	380 U	480 U	500 U
2,4-DIMETHYLPHENOL	400 U	430 U	380 U	480 U	500 U
BIS(2-CHLOROETHOXY)METHANE	400 U	430 U	380 U	480 U	500 U
2,4-DICHLOROPHENOL	400 U	430 U	380 U	480 U	500 U
1,2,4-TRICHLOROBENZENE	400 U	430 U	380 U	480 U	500 U
NAPHTHALENE	400 U	430 U	380 U	480 U	500 U
4-CHLOROANILINE	400 U	430 U	380 U	480 U	500 U
HEXACHLOROBUTADIENE	400 U	430 U	380 U	480 U	500 U
4-CHLORO-3-METHYLPHENOL	400 U	430 U	380 U	480 U	500 U
2-METHYLNAPHTHALENE	400 U	430 U	380 U	480 U	500 U
HEXACHLOROCYCLOPENTADIENE	400 U	430 U	380 U	480 U	500 U
2,4,6-TRICHLOROPHENOL	400 U	430 U	380 U	480 U	500 U
2,4,5-TRICHLOROPHENOL	1000 U	1100 U	940 U	1200 U	1200 U
2-CHLORONAPHTHALENE	400 U	430 U	380 U	480 U	500 U
2-NITROANILINE	1000 U	1100 U	940 U	1200 U	1200 U
DIMETHYLPHTHALATE	400 U	430 U	380 U	480 U	500 U
ACENAPHTHYLENE	400 U	430 U	380 U	480 U	500 U
2,6-DINITROTOLUENE	400 U	430 U	380 U	480 U	500 U
3-NITROANILINE	1000 U	1100 U	940 U	1200 U	1200 U
ACENAPHTHENE	400 U	430 U	380 U	480 U	500 U
2,4-DINITROPHENOL	1000 U	1100 U	940 U	1200 U	1200 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW17IW-02	86-GW18DW-02	86-GW19DW-02	86-WA-SB01-02	86-WA-SB02-03
DATE SAMPLED	03/12/95	02/22/95	03/14/95	05/02/95	05/02/95
DEPTH	3-5'	3-5'	3-5'	3-5'	5-7'
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
SEMIVOLATILES cont.					
4-NITROPHENOL	1000 U	1100 U	940 U	1200 U	1200 U
DIBENZOFURAN	400 U	430 U	380 U	480 U	500 U
2,4-DINITROTOLUENE	400 U	430 U	380 U	480 U	500 U
DIETHYLPHTHALATE	400 U	430 U	380 U	480 U	500 U
4-CHLOROPHENYL-PHENYLETHER	400 U	430 U	380 U	480 U	500 U
FLUORENE	400 U	430 U	380 U	480 U	500 U
4-NITROANILINE	1000 U	1100 U	940 U	1200 U	1200 U
4,6-DINITRO-2-METHYLPHENOL	1000 U	1100 U	940 U	1200 U	1200 U
N-NITROSODIPHENYLAMINE (1)	400 U	430 U	380 U	480 U	500 U
4-BROMOPHENYL-PHENYLETHER	400 U	430 U	380 U	480 U	500 U
HEXACHLOROBENZENE	400 U	430 U	380 U	480 U	500 U
PENTACHLOROPHENOL	1000 U	1100 U	940 U	1200 U	1200 U
PHENANTHRENE	400 U	430 U	380 U	480 U	500 U
ANTHRACENE	400 U	430 U	380 U	480 U	500 U
CARBAZOLE	400 U	430 U	380 U	480 U	500 U
DI-N-BUTYLPHTHALATE	400 U	430 U	380 U	480 U	1700 U
FLUORANTHENE	400 U	430 U	62 J	480 U	500 U
PYRENE	400 U	430 U	57 J	480 U	500 U
BUTYLBENZYLPHTHALATE	400 U	430 U	380 U	480 U	500 U
3,3'-DICHLOROBENZIDINE	400 U	430 U	380 U	480 U	500 U
BENZO(A)ANTHRACENE	400 U	430 U	380 U	480 U	500 U
CHRYSENE	400 U	430 U	42 J	480 U	500 U
BIS(2-ETHYLHEXYL)PHTHALATE	400 U	120 J	320 J	480 U	500 U
DI-N-OCTYL PHTHALATE	400 U	430 U	380 U	480 U	500 U
BENZO(B)FLUORANTHENE	400 U	430 U	43 J	480 U	500 U
BENZO(K)FLUORANTHENE	400 U	430 U	380 U	480 U	500 U
BENZO(A)PYRENE	400 U	430 U	380 U	480 U	500 U
INDENO(1,2,3-CD)PYRENE	400 U	430 U	380 U	480 U	500 U
DIBENZO(A,H)ANTHRACENE	400 U	430 U	380 U	480 U	500 U
BENZO(G,H,I)PERYLENE	400 U	430 U	380 U	480 U	500 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW17IW-02	86-GW18DW-02	86-GW19DW-02	86-WA-SB01-02	86-WA-SB02-03
DATE SAMPLED	03/12/95	02/22/95	03/14/95	05/02/95	05/02/95
DEPTH	3-5'	3-5'	3-5'	3-5'	5-7'
UNITS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
PESTICIDE/PCBS					
ALPHA-BHC	2 UJ	2.1 UJ	1.9 UJ	NA	NA
BETA-BHC	2 UJ	2.1 UJ	1.9 UJ	NA	NA
DELTA-BHC	2 UJ	2.1 UJ	1.9 UJ	NA	NA
GAMMA-BHC (LINDANE)	2 UJ	2.1 UJ	1.9 UJ	NA	NA
HEPTACHLOR	2 UJ	2.1 UJ	1.9 UJ	NA	NA
ALDRIN	2 UJ	2.1 UJ	1.9 UJ	NA	NA
HEPTACHLOR EPOXIDE	2 UJ	2.1 UJ	1.9 UJ	NA	NA
ENDOSULFAN I	2 UJ	2.1 UJ	1.9 UJ	NA	NA
DIELDRIN	4 UJ	4.3 UJ	3.8 UJ	NA	NA
4,4'-DDE	4 J	4.3 UJ	3.4 J	NA	NA
ENDRIN	4 UJ	4.3 UJ	3.8 UJ	NA	NA
ENDOSULFAN II	4 UJ	4.3 UJ	3.8 UJ	NA	NA
4,4'-DDD	3.2 J	4.3 UJ	3.8 UJ	NA	NA
ENDOSULFAN SULFATE	4 UJ	4.3 UJ	3.8 UJ	NA	NA
4,4'-DDT	4 UJ	4.3 UJ	3.8 UJ	NA	NA
METHOXYCHLOR	20 UJ	21 UJ	19 UJ	NA	NA
ENDRIN KETONE	4 UJ	4.3 UJ	3.8 UJ	NA	NA
ENDRIN ALDEHYDE	4 UJ	4.3 UJ	3.8 UJ	NA	NA
ALPHA-CHLORDANE	2 UJ	2.1 UJ	1.9 UJ	NA	NA
GAMMA-CHLORDANE	2 UJ	2.1 UJ	1.9 UJ	NA	NA
TOXAPHENE	200 UJ	210 UJ	190 UJ	NA	NA
AROCLOR-1016	40 UJ	43 UJ	38 UJ	NA	NA
AROCLOR-1221	81 UJ	86 UJ	75 UJ	NA	NA
AROCLOR-1232	40 UJ	43 UJ	38 UJ	NA	NA
AROCLOR-1242	40 UJ	43 UJ	38 UJ	NA	NA
AROCLOR-1248	40 UJ	43 UJ	38 UJ	NA	NA
AROCLOR-1254	40 UJ	43 UJ	38 UJ	NA	NA
AROCLOR-1260	40 UJ	43 UJ	38 UJ	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION DATE SAMPLED DEPTH UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
VOLATILES						
CHLOROMETHANE	11 U	15 U	ND	ND		0/23
BROMOMETHANE	11 U	15 U	ND	ND		0/23
VINYL CHLORIDE	11 U	15 U	ND	ND		0/23
CHLOROETHANE	11 U	15 U	ND	ND		0/23
METHYLENE CHLORIDE	11 U	15 U	ND	ND		0/23
ACETONE	11 U	82 U	40	250	86-GW17IW-01	8/23
CARBON DISULFIDE	11 U	15 U	3 J	3 J	86-WA-SB01-02	1/23
1,1-DICHLOROETHENE	11 U	15 U	ND	ND		0/23
1,1-DICHLOROETHANE	11 U	15 U	ND	ND		0/23
1,2-DICHLOROETHENE (TOTAL)	11 U	15 U	ND	ND		0/23
CHLOROFORM	11 U	15 U	ND	ND		0/23
1,2-DICHLOROETHANE	11 U	15 U	ND	ND		0/23
2-BUTANONE	11 U	15 U	8 J	8 J	86-AST-SB05-03	1/23
1,1,1-TRICHLOROETHANE	11 U	15 U	ND	ND		0/23
CARBON TETRACHLORIDE	11 U	15 U	ND	ND		0/23
BROMODICHLOROMETHANE	11 U	15 U	ND	ND		0/23
1,2-DICHLOROPROPANE	11 U	15 U	ND	ND		0/23
CIS-1,3-DICHLOROPROPENE	11 U	15 U	ND	ND		0/23
TRICHLOROETHENE	11 U	15 U	ND	ND		0/23
DIBROMOCHLOROMETHANE	11 U	15 U	ND	ND		0/23
1,1,2-TRICHLOROETHANE	11 U	15 U	ND	ND		0/23
BENZENE	11 U	15 U	ND	ND		0/23
TRANS-1,3-DICHLOROPROPENE	11 U	15 U	ND	ND		0/23
BROMOFORM	11 U	15 U	ND	ND		0/23
4-METHYL-2-PENTANONE	11 U	15 U	ND	ND		0/23
2-HEXANONE	11 U	15 U	ND	ND		0/23
TETRACHLOROETHENE	11 U	15 U	ND	ND		0/23
1,1,2,2-TETRACHLOROETHANE	11 U	15 U	ND	ND		0/23
TOLUENE	11 U	15 U	250	250	86-GW18DW-02	1/23
CHLOROBENZENE	11 U	15 U	ND	ND		0/23
ETHYLBENZENE	11 U	15 U	ND	ND		0/23
STYRENE	11 U	15 U	ND	ND		0/23
XYLENE (TOTAL)	11 U	15 U	5 J	5 J	86-AST-SB07-03	2/23

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION DATE SAMPLED DEPTH UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
SEMIVOLATILES						
PHENOL	360 U	500 U	ND	ND		0/23
BIS(2-CHLOROETHYL)ETHER	360 U	500 U	ND	ND		0/23
2-CHLOROPHENOL	360 U	500 U	ND	ND		0/23
1,3-DICHLOROBENZENE	360 U	500 U	ND	ND		0/23
1,4-DICHLOROBENZENE	360 U	500 U	ND	ND		0/23
1,2-DICHLOROBENZENE	360 U	500 U	ND	ND		0/23
2-METHYLPHENOL	360 U	500 U	ND	ND		0/23
2,2'-OXYBIS(1-CHLOROPROPANE)	360 U	500 U	ND	ND		0/23
4-METHYLPHENOL	360 U	500 U	ND	ND		0/23
N-NITROSO-DI-N-PROPYLAMINE	360 U	500 U	ND	ND		0/23
HEXACHLOROETHANE	360 U	500 U	ND	ND		0/23
NITROBENZENE	360 U	500 U	ND	ND		0/23
ISOPHORONE	360 U	500 U	ND	ND		0/23
2-NITROPHENOL	360 U	500 U	ND	ND		0/23
2,4-DIMETHYLPHENOL	360 U	500 U	ND	ND		0/23
BIS(2-CHLOROETHOXY)METHANE	360 U	500 U	ND	ND		0/23
2,4-DICHLOROPHENOL	360 U	500 U	ND	ND		0/23
1,2,4-TRICHLOROBENZENE	360 U	500 U	ND	ND		0/23
NAPHTHALENE	360 U	500 U	ND	ND		0/23
4-CHLOROANILINE	360 U	500 U	ND	ND		0/23
HEXACHLOROBUTADIENE	360 U	500 U	ND	ND		0/23
4-CHLORO-3-METHYLPHENOL	360 U	500 U	ND	ND		0/23
2-METHYLNAPHTHALENE	360 U	500 U	ND	ND		0/23
HEXACHLOROCYCLOPENTADIENE	360 U	500 U	ND	ND		0/23
2,4,6-TRICHLOROPHENOL	360 U	500 U	ND	ND		0/23
2,4,5-TRICHLOROPHENOL	910 U	1200 U	ND	ND		0/23
2-CHLORONAPHTHALENE	360 U	500 U	ND	ND		0/23
2-NITROANILINE	910 U	1200 U	ND	ND		0/23
DIMETHYLPHTHALATE	360 U	500 U	ND	ND		0/23
ACENAPHTHYLENE	360 U	500 U	ND	ND		0/23
2,6-DINITROTOLUENE	360 U	500 U	ND	ND		0/23
3-NITROANILINE	910 U	1200 U	ND	ND		0/23
ACENAPHTHENE	360 U	500 U	ND	ND		0/23
2,4-DINITROPHENOL	910 U	1200 U	ND	ND		0/23

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION DATE SAMPLED DEPTH UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
SEMIVOLATILES cont.						
4-NITROPHENOL	910 U	1200 U	ND	ND		0/23
DIBENZOFURAN	360 U	500 U	ND	ND		0/23
2,4-DINITROTOLUENE	360 U	500 U	ND	ND		0/23
DIETHYLPHTHALATE	360 U	500 U	ND	ND		0/23
4-CHLOROPHENYL-PHENYLETHER	360 U	500 U	ND	ND		0/23
FLUORENE	360 U	500 U	ND	ND		0/23
4-NITROANILINE	910 U	1200 U	ND	ND		0/23
4,6-DINITRO-2-METHYLPHENOL	910 U	1200 UJ	ND	ND		0/23
N-NITROSODIPHENYLAMINE (1)	360 U	500 U	ND	ND		0/23
4-BROMOPHENYL-PHENYLETHER	360 U	500 U	ND	ND		0/23
HEXACHLOROBENZENE	360 U	500 U	ND	ND		0/23
PENTACHLOROPHENOL	910 U	1200 U	ND	ND		0/23
PHENANTHRENE	360 U	500 U	ND	ND		0/23
ANTHRACENE	360 U	500 U	ND	ND		0/23
CARBAZOLE	360 U	500 U	ND	ND		0/23
DI-N-BUTYLPHTHALATE	360 U	3000 U	ND	ND		0/23
FLUORANTHENE	360 U	500 U	62 J	62 J	86-GW19DW-02	1/23
PYRENE	360 U	500 U	57 J	57 J	86-GW19DW-02	1/23
BUTYLBENZYLPHTHALATE	360 U	500 U	73 J	300 J	86-AST-SB11-03	4/23
3,3'-DICHLOROBENZIDINE	360 U	500 U	ND	ND		0/23
BENZO(A)ANTHRACENE	360 U	500 U	ND	ND		0/23
CHRYSENE	360 U	500 U	42 J	140 J	86-AST-SB04-02	2/23
BIS(2-ETHYLHEXYL)PHTHALATE	360 U	1100 U	45 J	970	86-AST-SB05-05	5/23
DI-N-OCTYL PHTHALATE	360 U	500 U	ND	ND		0/23
BENZO(B)FLUORANTHENE	360 U	500 U	43 J	43 J	86-GW19DW-02	1/23
BENZO(K)FLUORANTHENE	360 U	500 U	ND	ND		0/23
BENZO(A)PYRENE	360 U	500 U	ND	ND		0/23
INDENO(1,2,3-CD)PYRENE	360 U	500 U	ND	ND		0/23
DIBENZO(A,H)ANTHRACENE	360 U	500 U	ND	ND		0/23
BENZO(G,H,I)PERYLENE	360 U	500 U	ND	ND		0/23

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION DATE SAMPLED DEPTH UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
PESTICIDE/PCBS						
ALPHA-BHC	1.9 UJ	2.4 U	ND	ND		0/16
BETA-BHC	1.9 UJ	2.4 U	ND	ND		0/16
DELTA-BHC	1.9 UJ	2.4 U	ND	ND		0/16
GAMMA-BHC (LINDANE)	1.9 UJ	2.4 U	ND	ND		0/16
HEPTACHLOR	1.9 UJ	2.4 UJ	ND	ND		0/16
ALDRIN	1.9 UJ	2.4 U	ND	ND		0/16
HEPTACHLOR EPOXIDE	1.9 UJ	2.4 U	ND	ND		0/16
ENDOSULFAN I	1.9 UJ	2.4 U	ND	ND		0/16
DIELDRIN	3.7 UJ	4.7 U	ND	ND		0/16
4,4'-DDE	3.9 UJ	4.7 U	1.5 J	20 J	86-AST-SB04-02	5/16
ENDRIN	3.7 UJ	4.7 U	ND	ND		0/16
ENDOSULFAN II	3.7 UJ	4.7 U	ND	ND		0/16
4,4'-DDD	3.8 UJ	4.7 U	3.2 J	36 J	86-GW17IW-01	5/16
ENDOSULFAN SULFATE	3.7 UJ	4.7 U	ND	ND		0/16
4,4'-DDT	3.7 UJ	4.7 U	1.5 J	1.5 J	86-AST-SB04-02	1/16
METHOXYCHLOR	19 UJ	24 UJ	ND	ND		0/16
ENDRIN KETONE	3.7 UJ	4.7 U	ND	ND		0/16
ENDRIN ALDEHYDE	3.7 UJ	4.7 U	ND	ND		0/16
ALPHA-CHLORDANE	1.9 UJ	2.4 U	ND	ND		0/16
GAMMA-CHLORDANE	1.9 UJ	2.4 U	ND	ND		0/16
TOXAPHENE	190 UJ	240 U	ND	ND		0/16
AROCLOR-1016	37 UJ	47 U	ND	ND		0/16
AROCLOR-1221	74 UJ	94 U	ND	ND		0/16
AROCLOR-1232	37 UJ	47 U	ND	ND		0/16
AROCLOR-1242	37 UJ	47 U	ND	ND		0/16
AROCLOR-1248	37 UJ	47 U	ND	ND		0/16
AROCLOR-1254	37 UJ	47 U	ND	ND		0/16
AROCLOR-1260	37 UJ	47 U	ND	ND		0/16

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
INORGANIC ANALYTES

LOCATION	86-AST-SB01-02	86-AST-SB02-02	86-AST-SB02-05	86-AST-SB03-04	86-AST-SB04-02	86-AST-SB05-03
DATE SAMPLED	02/25/95	02/26/95	02/26/95	02/26/95	02/26/95	02/26/95
DEPTH	3-5'	3-5'	9-11'	7-9'	3-5'	5-7'
UNITS	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
TOTAL METALS						
ALUMINUM, TOTAL	10900	10800	6860	19400	3950	12500
ANTIMONY, TOTAL	4 UJ	1.8 UJ	1.8 UJ	5.6 UJ	2.1 UJ	4.4 R
ARSENIC, TOTAL	0.93	0.82	1.3	1.1 J	0.59	1.6
BARIUM, TOTAL	22	15.3	19.3	26.2	9.7	14.8
BERYLLIUM, TOTAL	0.17 U	0.079 U	0.15 U	0.24 U	0.23 U	0.19 U
CADMIUM, TOTAL	0.54 U	0.47 U	0.48 U	0.76 U	0.56 U	0.6 U
CALCIUM, TOTAL	1050	672	2110	325	10300	1200 J
CHROMIUM, TOTAL	11.6	10.7	9.7	29.3	5.9	17.3 J
COBALT, TOTAL	0.58 U	0.56	0.38 U	0.81 U	0.45 U	0.64 U
COPPER, TOTAL	1.3	0.81	2.2	4	7.1	0.55
IRON, TOTAL	5620	9250	3210	6700	3430	10900
LEAD, TOTAL	10	13.2	5.7	15.9	10.2	9
MAGNESIUM, TOTAL	443	303	228	796	291	470
MANGANESE, TOTAL	11.2	6.6	5.3	10.3	10.4	8.3 J
MERCURY, TOTAL	0.12 U	0.08 U	0.087 U	0.13 U	0.1 U	0.088 U
NICKEL, TOTAL	2.1 U	1.9	11.2	2.9 U	2.7	3.3
POTASSIUM, TOTAL	426	208	241	1050	131	352
SELENIUM, TOTAL	0.35 U	0.34 U	0.35	0.41	0.3 U	0.41 U
SILVER, TOTAL	0.58 R	0.4 U	0.42 U	0.81 R	0.49 U	0.64 U
SODIUM, TOTAL	90.2	147	128	145	39.5 U	130
THALLIUM, TOTAL	0.25 U	0.38 U	0.34 U	0.29 U	0.34 U	0.25 U
VANADIUM, TOTAL	15.9	19.2	11.1	32.7	17	23.1
ZINC, TOTAL	3	2.5 U	3.2	4.7	7.6	4.1

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
INORGANIC ANALYTES

LOCATION	86-AST-SB05-05	86-AST-SB06-04	86-AST-SB07-03	86-AST-SB08-04	86-AST-SB09-04	86-GW15IW-02
DATE SAMPLED	02/26/95	02/26/95	02/26/95	02/26/95	02/26/95	03/09/95
DEPTH	9-11'	7-9'	5-7'	7-9'	7-9'	3-5'
UNITS	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
TOTAL METALS						
ALUMINUM, TOTAL	11900	24900	13500	10900	9450	12200
ANTIMONY, TOTAL	4.8 R	2.7 UJ	4.6 R	4.4 R	2.8 UJ	4.5 UJ
ARSENIC, TOTAL	1.7 J	0.47 U	2.4	1.8	0.54	0.27 J
BARIUM, TOTAL	16.5	32.8	19.6	14.6	17.6	19.7
BERYLLIUM, TOTAL	0.21 U	0.39 U	0.2 U	0.19 U	0.31 U	0.2 U
CADMIUM, TOTAL	0.65 U	0.72 U	0.62 U	0.59 U	0.75 U	0.61 U
CALCIUM, TOTAL	1480 J	152	2130 J	140 J	51.9	4090
CHROMIUM, TOTAL	14.3 J	34.4	18.2 J	13.1 J	15.8	10.8
COBALT, TOTAL	1.2	1.2	0.67 U	0.63 U	0.7	0.65 U
COPPER, TOTAL	3.5	3.1	1.5	0.99	2.6	0.41 U
IRON, TOTAL	9580	5630	8820	9860	2090	7620
LEAD, TOTAL	8.7	16.6 J	10.9	8.3	11.3	10.3
MAGNESIUM, TOTAL	439	925	545	337	310	403
MANGANESE, TOTAL	8.9 J	12.3	10.2 J	6.5 J	8.5	7.1
MERCURY, TOTAL	0.088 U	0.13 U	0.094 U	0.12 U	0.13 U	0.11 U
NICKEL, TOTAL	28.2	3.7	4.5	5.3	1.9	2.4 U
POTASSIUM, TOTAL	287	1120	507	353	428	288
SELENIUM, TOTAL	0.42 U	0.37 U	0.39 U	0.34 U	0.38 U	0.35 U
SILVER, TOTAL	0.7 U	0.62 U	0.67 U	0.63 U	0.65 U	0.65 U
SODIUM, TOTAL	111	112	71.8	81.3	45.3	48.4 U
THALLIUM, TOTAL	0.25 U	0.42 U	0.24 U	0.21 UJ	0.43 U	0.21 U
VANADIUM, TOTAL	21.7	32.4	27.5	20.7	12.1	17.3
ZINC, TOTAL	5.1	7.9	5.4	2.5	3.5	5.8

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
INORGANIC ANALYTES

LOCATION	86-GW17IW-01	86-GW17IW-02	86-GW18DW-02	86-GW19DW-02
DATE SAMPLED	03/12/95	03/12/95	02/22/95	03/14/95
DEPTH	1-3'	3-5'	3-5'	3-5'
UNITS	MG/KG	MG/KG	MG/KG	MG/KG
TOTAL METALS				
ALUMINUM, TOTAL	2140	10400	12200	2940
ANTIMONY, TOTAL	2.2 UJ	2.2 J	4.2 UJ	2 UJ
ARSENIC, TOTAL	0.32 U	0.81	2.3	0.41 U
BARIUM, TOTAL	3.7	16.9	19.7	5.1
BERYLLIUM, TOTAL	0.06 U	0.05 U	0.18 U	0.05 U
CADMIUM, TOTAL	0.58 U	0.48 U	0.56 U	0.53 U
CALCIUM, TOTAL	1860	2650	466	530
CHROMIUM, TOTAL	2.4	12.6	14.9	8.7
COBALT, TOTAL	0.46 U	0.39	0.6 U	0.42 U
COPPER, TOTAL	0.79 U	2.3	0.94 J	2.1
IRON, TOTAL	938	4780	7860	1950
LEAD, TOTAL	3	7.7	12.3	4.1
MAGNESIUM, TOTAL	62.6	244	318	79.6
MANGANESE, TOTAL	2.1	5.5	3.6	6.4
MERCURY, TOTAL	0.09 U	0.12 U	0.12 U	0.09 U
NICKEL, TOTAL	0.95	1.4	2.2 U	1.4
POTASSIUM, TOTAL	88.1	275	257	48
SELENIUM, TOTAL	0.4 UJ	0.34 UJ	0.59	0.33 U
SILVER, TOTAL	0.5 U	0.42 U	0.6 UJ	0.46 U
SODIUM, TOTAL	29.5	37	44.1	26.5 U
THALLIUM, TOTAL	0.18 U	0.22 U	0.13 U	0.24 U
VANADIUM, TOTAL	3.1	17.5	19	4.7
ZINC, TOTAL	1.3	2.6	2.5	1.7

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
INORGANIC ANALYTES

LOCATION DATE SAMPLED DEPTH UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
TOTAL METALS						
ALUMINUM, TOTAL	NA	NA	2140	24900	86-AST-SB06-04	16/16
ANTIMONY, TOTAL	1.8 UJ	5.6 UJ	2.2 J	2.2 J	86-GW17IW-02	1/12
ARSENIC, TOTAL	0.32 U	0.47 U	0.27 J	2.4	86-AST-SB07-03	13/16
BARIUM, TOTAL	NA	NA	3.7	32.8	86-AST-SB06-04	16/16
BERYLLIUM, TOTAL	0.05 U	0.39 U	ND	ND		0/16
CADMIUM, TOTAL	0.47 U	0.76 U	ND	ND		0/16
CALCIUM, TOTAL	NA	NA	51.9	10300	86-AST-SB04-02	16/16
CHROMIUM, TOTAL	NA	NA	2.4	34.4	86-AST-SB06-04	16/16
COBALT, TOTAL	0.38 U	0.81 U	0.39	1.2	86-AST-SB06-04	5/16
COPPER, TOTAL	0.41 U	0.79 U	0.55	7.1	86-AST-SB04-02	14/16
IRON, TOTAL	NA	NA	938	10900	86-AST-SB05-03	16/16
LEAD, TOTAL	NA	NA	3	16.6 J	86-AST-SB06-04	16/16
MAGNESIUM, TOTAL	NA	NA	62.6	925	86-AST-SB06-04	16/16
MANGANESE, TOTAL	NA	NA	2.1	12.3	86-AST-SB06-04	16/16
MERCURY, TOTAL	0.08 U	0.13 U	ND	ND		0/16
NICKEL, TOTAL	2.1 U	2.9 U	0.95	28.2	86-AST-SB05-05	12/16
POTASSIUM, TOTAL	NA	NA	48	1120	86-AST-SB06-04	16/16
SELENIUM, TOTAL	0.3 U	0.42 U	0.35	0.59	86-GW18DW-02	3/16
SILVER, TOTAL	0.4 U	0.7 U	ND	ND		0/14
SODIUM, TOTAL	26.5 U	48.4 U	29.5	147	86-AST-SB02-02	13/16
THALLIUM, TOTAL	0.13 U	0.43 U	ND	ND		0/16
VANADIUM, TOTAL	NA	NA	3.1	32.7	86-AST-SB03-04	16/16
ZINC, TOTAL	2.5 U	2.5 U	1.3	7.9	86-AST-SB06-04	15/16

GROUNDWATER

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW01-01	86-GW02IW-01	86-GW02IW-02	86-GW03-01	86-GW04IW-01	86-GW04IW-02
DATE SAMPLED	03/25/95	03/25/95	10/10/95	03/23/95	03/23/95	10/10/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
VOLATILES						
CHLOROMETHANE	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
VINYL CHLORIDE	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
METHYLENE CHLORIDE	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
CARBON DISULFIDE	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
1,1-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	19	10
CHLOROFORM	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
2-BUTANONE	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-TRICHLOROETHANE	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
BROMODICHLOROMETHANE	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
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U
TRICHLOROETHENE	10 U	10 U	10 U	10 U	24	12
DIBROMOCHLOROMETHANE	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
BENZENE	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
BROMOFORM	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
2-HEXANONE	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
1,1,2,2-TETRACHLOROETHANE	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
CHLOROBENZENE	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
STYRENE	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

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW01-01	86-GW02IW-01	86-GW02IW-02	86-GW03-01	86-GW04IW-01	86-GW04IW-02
DATE SAMPLED	03/25/95	03/25/95	10/10/95	03/23/95	03/23/95	10/10/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES						
PHENOL	10 U	10 U	NA	10 U	10 U	NA
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	NA	10 U	10 U	NA
2-CHLOROPHENOL	10 U	10 U	NA	10 U	10 U	NA
1,3-DICHLOROBENZENE	10 U	10 U	NA	10 U	10 U	NA
1,4-DICHLOROBENZENE	10 U	10 U	NA	10 U	10 U	NA
1,2-DICHLOROBENZENE	10 U	10 U	NA	10 U	10 U	NA
2-METHYLPHENOL	10 U	10 U	NA	10 U	10 U	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	NA	10 U	10 U	NA
4-METHYLPHENOL	10 U	10 U	NA	10 U	10 U	NA
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	NA	10 U	10 U	NA
HEXACHLOROETHANE	10 U	10 U	NA	10 U	10 U	NA
NITROBENZENE	10 U	10 U	NA	10 U	10 U	NA
ISOPHORONE	10 U	10 U	NA	10 U	10 U	NA
2-NITROPHENOL	10 U	10 U	NA	10 U	10 U	NA
2,4-DIMETHYLPHENOL	10 U	10 U	NA	10 U	10 U	NA
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	NA	10 U	10 U	NA
2,4-DICHLOROPHENOL	10 U	10 U	NA	10 U	10 U	NA
1,2,4-TRICHLOROBENZENE	10 U	10 U	NA	10 U	10 U	NA
NAPHTHALENE	10 U	10 U	NA	10 U	10 U	NA
4-CHLOROANILINE	10 U	10 U	NA	10 U	10 U	NA
HEXACHLOROBUTADIENE	10 U	10 U	NA	10 U	10 U	NA
4-CHLORO-3-METHYLPHENOL	10 U	10 U	NA	10 U	10 U	NA
2-METHYLNAPHTHALENE	10 U	10 U	NA	10 U	10 U	NA
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	NA	10 U	10 U	NA
2,4,6-TRICHLOROPHENOL	10 U	10 U	NA	10 U	10 U	NA
2,4,5-TRICHLOROPHENOL	24 U	24 U	NA	24 U	24 U	NA
2-CHLORONAPHTHALENE	10 U	10 U	NA	10 U	10 U	NA
2-NITROANILINE	24 U	24 U	NA	24 U	24 U	NA
DIMETHYLPHTHALATE	10 U	10 U	NA	10 U	10 U	NA
ACENAPHTHYLENE	10 U	10 U	NA	10 U	10 U	NA
2,6-DINITROTOLUENE	10 U	10 U	NA	10 U	10 U	NA
3-NITROANILINE	24 U	24 U	NA	24 U	24 U	NA
ACENAPHTHENE	10 U	10 U	NA	10 U	10 U	NA
2,4-DINITROPHENOL	24 U	24 U	NA	24 U	24 U	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW01-01	86-GW02IW-01	86-GW02IW-02	86-GW03-01	86-GW04IW-01	86-GW04IW-02
DATE SAMPLED	03/25/95	03/25/95	10/10/95	03/23/95	03/23/95	10/10/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES cont.						
4-NITROPHENOL	24 U	24 U	NA	24 U	24 U	NA
DIBENZOFURAN	10 U	10 U	NA	10 U	10 U	NA
2,4-DINITROTOLUENE	10 U	10 U	NA	10 U	10 U	NA
DIETHYLPHTHALATE	10 U	10 U	NA	10 U	10 U	NA
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	NA	10 U	10 U	NA
FLUORENE	10 U	10 U	NA	10 U	10 U	NA
4-NITROANILINE	24 U	24 U	NA	24 U	24 U	NA
4,6-DINITRO-2-METHYLPHENOL	24 U	24 U	NA	24 U	24 U	NA
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	NA	10 U	10 U	NA
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	NA	10 U	10 U	NA
HEXACHLOROBENZENE	10 U	10 U	NA	10 U	10 U	NA
PENTACHLOROPHENOL	24 U	24 U	NA	24 U	24 U	NA
PHENANTHRENE	10 U	10 U	NA	10 U	10 U	NA
ANTHRACENE	10 U	10 U	NA	10 U	10 U	NA
CARBAZOLE	10 U	10 U	NA	10 U	10 U	NA
DI-N-BUTYLPHTHALATE	10 U	10 U	NA	10 U	10 U	NA
FLUORANTHENE	10 U	10 U	NA	10 U	10 U	NA
PYRENE	10 U	10 U	NA	10 U	10 U	NA
BUTYLBENZYLPHTHALATE	10 U	10 U	NA	10 U	10 U	NA
3,3'-DICHLOROBENZIDINE	10 U	10 U	NA	10 U	10 U	NA
BENZO(A)ANTHRACENE	10 U	10 U	NA	10 U	10 U	NA
CHRYSENE	10 U	10 U	NA	10 U	10 U	NA
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	10 U	NA	10 U	10 U	NA
DI-N-OCTYL PHTHALATE	10 U	10 U	NA	10 U	10 U	NA
BENZO(B)FLUORANTHENE	10 U	10 U	NA	10 U	10 U	NA
BENZO(K)FLUORANTHENE	10 U	10 U	NA	10 U	10 U	NA
BENZO(A)PYRENE	10 U	10 U	NA	10 U	10 U	NA
INDENO(1,2,3-CD)PYRENE	10 U	10 U	NA	10 U	10 U	NA
DIBENZO(A,H)ANTHRACENE	10 U	10 U	NA	10 U	10 U	NA
BENZO(G,H,I)PERYLENE	10 U	10 U	NA	10 U	10 U	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW01-01	86-GW02IW-01	86-GW02IW-02	86-GW03-01	86-GW04IW-01	86-GW04IW-02
DATE SAMPLED	03/25/95	03/25/95	10/10/95	03/23/95	03/23/95	10/10/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
PESTICIDE/PCBS						
ALPHA-BHC	0.049 UJ	NA	NA	NA	0.047 UJ	NA
BETA-BHC	0.049 UJ	NA	NA	NA	0.047 UJ	NA
DELTA-BHC	0.049 UJ	NA	NA	NA	0.047 UJ	NA
GAMMA-BHC (LINDANE)	0.049 UJ	NA	NA	NA	0.047 UJ	NA
HEPTACHLOR	0.049 UJ	NA	NA	NA	0.047 UJ	NA
ALDRIN	0.049 UJ	NA	NA	NA	0.047 UJ	NA
HEPTACHLOR EPOXIDE	0.049 UJ	NA	NA	NA	0.047 UJ	NA
ENDOSULFAN I	0.049 UJ	NA	NA	NA	0.047 UJ	NA
DIELDRIN	0.098 UJ	NA	NA	NA	0.094 UJ	NA
4,4'-DDE	0.098 UJ	NA	NA	NA	0.094 UJ	NA
ENDRIN	0.098 UJ	NA	NA	NA	0.094 UJ	NA
ENDOSULFAN II	0.098 UJ	NA	NA	NA	0.094 UJ	NA
4,4'-DDD	0.098 UJ	NA	NA	NA	0.094 UJ	NA
ENDOSULFAN SULFATE	0.098 UJ	NA	NA	NA	0.094 UJ	NA
4,4'-DDT	0.098 UJ	NA	NA	NA	0.094 UJ	NA
METHOXYCHLOR	0.49 UJ	NA	NA	NA	0.47 UJ	NA
ENDRIN KETONE	0.098 UJ	NA	NA	NA	0.094 UJ	NA
ENDRIN ALDEHYDE	0.098 UJ	NA	NA	NA	0.094 UJ	NA
ALPHA-CHLORDANE	0.049 UJ	NA	NA	NA	0.047 UJ	NA
GAMMA-CHLORDANE	0.049 UJ	NA	NA	NA	0.047 UJ	NA
TOXAPHENE	4.9 UJ	NA	NA	NA	4.7 UJ	NA
AROCLOR-1016	0.98 UJ	NA	NA	NA	0.94 UJ	NA
AROCLOR-1221	2 UJ	NA	NA	NA	1.9 UJ	NA
AROCLOR-1232	0.98 UJ	NA	NA	NA	0.94 UJ	NA
AROCLOR-1242	0.98 UJ	NA	NA	NA	0.94 UJ	NA
AROCLOR-1248	0.98 UJ	NA	NA	NA	0.94 UJ	NA
AROCLOR-1254	0.98 UJ	NA	NA	NA	0.94 UJ	NA
AROCLOR-1260	0.98 UJ	NA	NA	NA	0.94 UJ	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW05-01	86-GW06-02	86-GW06IW-01	86-GW07-01	86-GW08IW-01	86-GW09-01
DATE SAMPLED	03/24/95	10/10/95	03/24/95	03/25/95	03/24/95	03/23/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
VOLATILES						
CHLOROMETHANE	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
VINYL CHLORIDE	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
METHYLENE CHLORIDE	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
CARBON DISULFIDE	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
1,1-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
CHLOROFORM	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
2-BUTANONE	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-TRICHLOROETHANE	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
BROMODICHLOROMETHANE	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
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U
TRICHLOROETHENE	10 U	2 J	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	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
BENZENE	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
BROMOFORM	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
2-HEXANONE	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
1,1,2,2-TETRACHLOROETHANE	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
CHLOROBENZENE	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
STYRENE	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

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW05-01	86-GW06-02	86-GW06IW-01	86-GW07-01	86-GW08IW-01	86-GW09-01
DATE SAMPLED	03/24/95	10/10/95	03/24/95	03/25/95	03/24/95	03/23/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES						
PHENOL	10 U	NA	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	NA	10 U	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	NA	10 U	10 U	10 U	10 U
1,3-DICHLOROBENZENE	10 U	NA	10 U	10 U	10 U	10 U
1,4-DICHLOROBENZENE	10 U	NA	10 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	10 U	NA	10 U	10 U	10 U	10 U
2-METHYLPHENOL	10 U	NA	10 U	10 U	10 U	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	NA	10 U	10 U	10 U	10 U
4-METHYLPHENOL	10 U	NA	10 U	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	NA	10 U	10 U	10 U	10 U
HEXACHLOROETHANE	10 U	NA	10 U	10 U	10 U	10 U
NITROBENZENE	10 U	NA	10 U	10 U	10 U	10 U
ISOPHORONE	10 U	NA	10 U	10 U	10 U	10 U
2-NITROPHENOL	10 U	NA	10 U	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	NA	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	NA	10 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	NA	10 U	10 U	10 U	10 U
1,2,4-TRICHLOROBENZENE	10 U	NA	10 U	10 U	10 U	10 U
NAPHTHALENE	10 U	NA	10 U	10 U	10 U	10 U
4-CHLOROANILINE	10 U	NA	10 U	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	NA	10 U	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	NA	10 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	NA	10 U	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 U	NA	10 U	10 U	10 U	10 U
2,4,6-TRICHLOROPHENOL	10 U	NA	10 U	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	24 U	NA	24 U	25 U	24 U	24 U
2-CHLORONAPHTHALENE	10 U	NA	10 U	10 U	10 U	10 U
2-NITROANILINE	24 U	NA	24 U	25 U	24 U	24 U
DIMETHYLPHTHALATE	10 U	NA	10 U	10 U	10 U	10 U
ACENAPHTHYLENE	10 U	NA	10 U	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	NA	10 U	10 U	10 U	10 U
3-NITROANILINE	24 U	NA	24 U	25 U	24 U	24 U
ACENAPHTHENE	10 U	NA	10 U	10 U	10 U	10 U
2,4-DINITROPHENOL	24 U	NA	24 U	25 U	24 U	24 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW05-01	86-GW06-02	86-GW06IW-01	86-GW07-01	86-GW08IW-01	86-GW09-01
DATE SAMPLED	03/24/95	10/10/95	03/24/95	03/25/95	03/24/95	03/23/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES cont.						
4-NITROPHENOL	24 U	NA	24 U	25 U	24 U	24 U
DIBENZOFURAN	10 U	NA	10 U	1 J	10 U	10 U
2,4-DINITROTOLUENE	10 U	NA	10 U	10 U	10 U	10 U
DIETHYLPHTHALATE	10 U	NA	10 U	10 U	10 U	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U	NA	10 U	10 U	10 U	10 U
FLUORENE	10 U	NA	10 U	2 J	10 U	10 U
4-NITROANILINE	24 U	NA	24 U	25 U	24 U	24 U
4,6-DINITRO-2-METHYLPHENOL	24 U	NA	24 U	25 U	24 U	24 U
N-NITROSODIPHENYLAMINE (1)	10 U	NA	10 U	10 U	10 U	10 U
4-BROMOPHENYL-PHENYLETHER	10 U	NA	10 U	10 U	10 U	10 U
HEXACHLOROBENZENE	10 U	NA	10 U	10 U	10 U	10 U
PENTACHLOROPHENOL	24 U	NA	24 U	25 U	24 U	24 U
PHENANTHRENE	10 U	NA	10 U	10 U	10 U	10 U
ANTHRACENE	10 U	NA	10 U	10 U	10 U	10 U
CARBAZOLE	10 U	NA	10 U	10 U	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	NA	10 U	10 U	10 U	10 U
FLUORANTHENE	10 U	NA	10 U	10 U	10 U	10 U
PYRENE	10 U	NA	10 U	10 U	10 U	10 U
BUTYLBENZYLPHTHALATE	10 U	NA	10 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10 U	NA	10 U	10 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	NA	10 U	10 U	10 U	10 U
CHRYSENE	10 U	NA	10 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	NA	10 U	10 U	10 U	10 U
DI-N-OCTYL PHTHALATE	10 U	NA	10 U	10 U	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	NA	10 U	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	NA	10 U	10 U	10 U	10 U
BENZO(A)PYRENE	10 U	NA	10 U	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	NA	10 U	10 U	10 U	10 U
DIBENZO(A,H)ANTHRACENE	10 U	NA	10 U	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	NA	10 U	10 U	10 U	10 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW05-01	86-GW06-02	86-GW06IW-01	86-GW07-01	86-GW08IW-01	86-GW09-01
DATE SAMPLED	03/24/95	10/10/95	03/24/95	03/25/95	03/24/95	03/23/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
PESTICIDE/PCBS						
ALPHA-BHC	0.049 UJ	NA	NA	0.046 UJ	NA	0.048 U
BETA-BHC	0.049 UJ	NA	NA	0.046 UJ	NA	0.048 U
DELTA-BHC	0.049 UJ	NA	NA	0.046 UJ	NA	0.048 U
GAMMA-BHC (LINDANE)	0.049 UJ	NA	NA	0.046 UJ	NA	0.048 U
HEPTACHLOR	0.049 UJ	NA	NA	0.046 UJ	NA	0.048 U
ALDRIN	0.049 UJ	NA	NA	0.046 UJ	NA	0.048 U
HEPTACHLOR EPOXIDE	0.049 UJ	NA	NA	0.046 UJ	NA	0.048 U
ENDOSULFAN I	0.049 UJ	NA	NA	0.046 UJ	NA	0.048 U
DIELDRIN	0.098 UJ	NA	NA	0.093 UJ	NA	0.096 U
4,4'-DDE	0.098 UJ	NA	NA	0.093 UJ	NA	0.096 U
ENDRIN	0.098 UJ	NA	NA	0.093 UJ	NA	0.096 U
ENDOSULFAN II	0.098 UJ	NA	NA	0.093 UJ	NA	0.096 U
4,4'-DDD	0.098 UJ	NA	NA	0.093 UJ	NA	0.096 U
ENDOSULFAN SULFATE	0.098 UJ	NA	NA	0.093 UJ	NA	0.096 U
4,4'-DDT	0.098 UJ	NA	NA	0.093 UJ	NA	0.096 U
METHOXYCHLOR	0.49 UJ	NA	NA	0.46 UJ	NA	0.48 UJ
ENDRIN KETONE	0.098 UJ	NA	NA	0.093 UJ	NA	0.096 U
ENDRIN ALDEHYDE	0.098 UJ	NA	NA	0.093 UJ	NA	0.096 U
ALPHA-CHLORDANE	0.049 UJ	NA	NA	0.046 UJ	NA	0.048 U
GAMMA-CHLORDANE	0.049 UJ	NA	NA	0.046 UJ	NA	0.048 U
TOXAPHENE	4.9 UJ	NA	NA	4.6 UJ	NA	4.8 U
AROCLOR-1016	0.98 UJ	NA	NA	0.93 UJ	NA	0.96 U
AROCLOR-1221	2 UJ	NA	NA	1.9 UJ	NA	1.9 U
AROCLOR-1232	0.98 UJ	NA	NA	0.93 UJ	NA	0.96 U
AROCLOR-1242	0.98 UJ	NA	NA	0.93 UJ	NA	0.96 U
AROCLOR-1248	0.98 UJ	NA	NA	0.93 UJ	NA	0.96 U
AROCLOR-1254	0.98 UJ	NA	NA	0.93 UJ	NA	0.96 U
AROCLOR-1260	0.98 UJ	NA	NA	0.93 UJ	NA	0.96 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW10IW-01	86-GW10IW-02	86-GW11-01	86-GW12IW-01	86-GW13-01	86-GW14IW-01
DATE SAMPLED	03/24/95	10/11/95	03/23/95	03/23/95	03/23/95	03/22/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
VOLATILES						
CHLOROMETHANE	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
VINYL CHLORIDE	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
METHYLENE CHLORIDE	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
CARBON DISULFIDE	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
1,1-DICHLOROETHANE	14	10	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	23	12	10 U	10 U	10 U	10 U
CHLOROFORM	10 U	2 J	10 U	10 U	10 U	10 U
1,2-DICHLOROETHANE	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
1,1,1-TRICHLOROETHANE	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
BROMODICHLOROMETHANE	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
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U
TRICHLOROETHENE	27	24	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	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
BENZENE	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
BROMOFORM	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
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	10 U
TETRACHLOROETHENE	77	69	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
TOLUENE	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
ETHYLBENZENE	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
XYLENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW10IW-01	86-GW10IW-02	86-GW11-01	86-GW12IW-01	86-GW13-01	86-GW14IW-01
DATE SAMPLED	03/24/95	10/11/95	03/23/95	03/23/95	03/23/95	03/22/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES						
PHENOL	10 U	NA	9 U	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	NA	9 U	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	NA	9 U	10 U	10 U	10 U
1,3-DICHLOROBENZENE	10 U	NA	9 U	10 U	10 U	10 U
1,4-DICHLOROBENZENE	10 U	NA	9 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	10 U	NA	9 U	10 U	10 U	10 U
2-METHYLPHENOL	10 U	NA	9 U	10 U	10 U	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	NA	9 U	10 U	10 U	10 U
4-METHYLPHENOL	10 U	NA	9 U	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	NA	9 U	10 U	10 U	10 U
HEXACHLOROETHANE	10 U	NA	9 U	10 U	10 U	10 U
NITROBENZENE	10 U	NA	9 U	10 U	10 U	10 U
ISOPHORONE	10 U	NA	9 U	10 U	10 U	10 U
2-NITROPHENOL	10 U	NA	9 U	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	NA	9 U	10 U	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	NA	9 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	NA	9 U	10 U	10 U	10 U
1,2,4-TRICHLOROBENZENE	10 U	NA	9 U	10 U	10 U	10 U
NAPHTHALENE	6 J	NA	9 U	10 U	10 U	10 U
4-CHLOROANILINE	10 U	NA	9 U	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	NA	9 U	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	NA	9 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	NA	9 U	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 U	NA	9 U	10 U	10 U	10 U
2,4,6-TRICHLOROPHENOL	10 U	NA	9 U	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	24 U	NA	24 U	24 U	24 U	24 U
2-CHLORONAPHTHALENE	10 U	NA	9 U	10 U	10 U	10 U
2-NITROANILINE	24 U	NA	24 U	24 U	24 U	24 U
DIMETHYLPHTHALATE	10 U	NA	9 U	10 U	10 U	10 U
ACENAPHTHYLENE	10 U	NA	9 U	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	NA	9 U	10 U	10 U	10 U
3-NITROANILINE	24 U	NA	24 U	24 U	24 U	24 U
ACENAPHTHENE	10 U	NA	9 U	10 U	10 U	10 U
2,4-DINITROPHENOL	24 U	NA	24 U	24 U	24 U	24 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW10IW-01	86-GW10IW-02	86-GW11-01	86-GW12IW-01	86-GW13-01	86-GW14IW-01
DATE SAMPLED	03/24/95	10/11/95	03/23/95	03/23/95	03/23/95	03/22/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES cont.						
4-NITROPHENOL	24 U	NA	24 U	24 U	24 U	24 U
DIBENZOFURAN	10 U	NA	9 U	10 U	10 U	10 U
2,4-DINITROTOLUENE	10 U	NA	9 U	10 U	10 U	10 U
DIETHYLPHTHALATE	10 U	NA	9 U	10 U	10 U	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U	NA	9 U	10 U	10 U	10 U
FLUORENE	10 U	NA	9 U	10 U	10 U	10 U
4-NITROANILINE	24 U	NA	24 U	24 U	24 U	24 U
4,6-DINITRO-2-METHYLPHENOL	24 U	NA	24 U	24 U	24 U	24 U
N-NITROSODIPHENYLAMINE (1)	10 U	NA	9 U	10 U	10 U	10 U
4-BROMOPHENYL-PHENYLETHER	10 U	NA	9 U	10 U	10 U	10 U
HEXACHLOROBENZENE	10 U	NA	9 U	10 U	10 U	10 U
PENTACHLOROPHENOL	24 U	NA	24 U	24 U	24 U	24 U
PHENANTHRENE	10 U	NA	9 U	10 U	10 U	10 U
ANTHRACENE	10 U	NA	9 U	10 U	10 U	10 U
CARBAZOLE	10 U	NA	9 U	10 U	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	NA	9 U	10 U	10 U	10 U
FLUORANTHENE	10 U	NA	9 U	10 U	10 U	10 U
PYRENE	10 U	NA	9 U	10 U	10 U	10 U
BUTYLBENZYLPHTHALATE	10 U	NA	9 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10 U	NA	9 U	10 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	NA	9 U	10 U	10 U	10 U
CHRYSENE	10 U	NA	9 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	NA	9 U	10 U	10 U	10 U
DI-N-OCTYL PHTHALATE	10 U	NA	9 U	10 U	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	NA	9 U	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	NA	9 U	10 U	10 U	10 U
BENZO(A)PYRENE	10 U	NA	9 U	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	NA	9 U	10 U	10 U	10 U
DIBENZO(A,H)ANTHRACENE	10 U	NA	9 U	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	NA	9 U	10 U	10 U	10 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW10IW-01	86-GW10IW-02	86-GW11-01	86-GW12IW-01	86-GW13-01	86-GW14IW-01
DATE SAMPLED	03/24/95	10/11/95	03/23/95	03/23/95	03/23/95	03/22/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
PESTICIDE/PCBS						
ALPHA-BHC	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA
4,4'-DDD	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW15DW-01	86-GW15IW-01	86-GW15IW-02	86-GW16DW-01	86-GW16IW-01	86-GW16IW-02
DATE SAMPLED	03/21/95	03/22/95	10/11/95	03/20/95	03/22/95	10/11/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
VOLATILES						
CHLOROMETHANE	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
VINYL CHLORIDE	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
METHYLENE CHLORIDE	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
CARBON DISULFIDE	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
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	73	140	10 U	10 U	12
CHLOROFORM	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
2-BUTANONE	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-TRICHLOROETHANE	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
BROMODICHLOROMETHANE	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
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U
TRICHLOROETHENE	10 U	10 U	2 J	10 U	10 U	15
DIBROMOCHLOROMETHANE	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
BENZENE	10 U	8	7 J	10 U	10 U	2 J
TRANS-1,3-DICHLOROPROPENE	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
4-METHYL-2-PENTANONE	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
TETRACHLOROETHENE	10 U	10 U	10 U	10 U	10 U	1 J
1,1,2,2-TETRACHLOROETHANE	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
CHLOROBENZENE	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
STYRENE	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

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW15DW-01	86-GW15IW-01	86-GW15IW-02	86-GW16DW-01	86-GW16IW-01	86-GW16IW-02
DATE SAMPLED	03/21/95	03/22/95	10/11/95	03/20/95	03/22/95	10/11/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES						
PHENOL	10 U	10 U	NA	10 U	10 U	NA
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	NA	10 U	10 U	NA
2-CHLOROPHENOL	10 U	10 U	NA	10 U	10 U	NA
1,3-DICHLOROBENZENE	10 U	10 U	NA	10 U	10 U	NA
1,4-DICHLOROBENZENE	10 U	10 U	NA	10 U	10 U	NA
1,2-DICHLOROBENZENE	10 U	10 U	NA	10 U	10 U	NA
2-METHYLPHENOL	10 U	10 U	NA	10 U	10 U	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	NA	10 U	10 U	NA
4-METHYLPHENOL	10 U	10 U	NA	10 U	10 U	NA
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	NA	10 U	10 U	NA
HEXACHLOROETHANE	10 U	10 U	NA	10 U	10 U	NA
NITROBENZENE	10 U	10 U	NA	10 U	10 U	NA
ISOPHORONE	10 U	10 U	NA	10 U	10 U	NA
2-NITROPHENOL	10 U	10 U	NA	10 U	10 U	NA
2,4-DIMETHYLPHENOL	10 U	10 U	NA	10 U	10 U	NA
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	NA	10 U	10 U	NA
2,4-DICHLOROPHENOL	10 U	10 U	NA	10 U	10 U	NA
1,2,4-TRICHLOROBENZENE	10 U	10 U	NA	10 U	10 U	NA
NAPHTHALENE	10 U	10 U	NA	10 U	10 U	NA
4-CHLOROANILINE	10 U	10 U	NA	10 U	10 U	NA
HEXACHLOROBUTADIENE	10 U	10 U	NA	10 U	10 U	NA
4-CHLORO-3-METHYLPHENOL	10 U	10 U	NA	10 U	10 U	NA
2-METHYLNAPHTHALENE	10 U	10 U	NA	10 U	10 U	NA
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	NA	10 U	10 U	NA
2,4,6-TRICHLOROPHENOL	10 U	10 U	NA	10 U	10 U	NA
2,4,5-TRICHLOROPHENOL	24 U	24 U	NA	24 U	25 U	NA
2-CHLORONAPHTHALENE	10 U	10 U	NA	10 U	10 U	NA
2-NITROANILINE	24 U	24 U	NA	24 U	25 U	NA
DIMETHYLPHTHALATE	10 U	10 U	NA	10 U	10 U	NA
ACENAPHTHYLENE	10 U	10 U	NA	10 U	10 U	NA
2,6-DINITROTOLUENE	10 U	10 U	NA	10 U	10 U	NA
3-NITROANILINE	24 U	24 U	NA	24 U	25 U	NA
ACENAPHTHENE	10 U	10 U	NA	10 U	10 U	NA
2,4-DINITROPHENOL	24 U	24 U	NA	24 U	25 U	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW15DW-01	86-GW15IW-01	86-GW15IW-02	86-GW16DW-01	86-GW16IW-01	86-GW16IW-02
DATE SAMPLED	03/21/95	03/22/95	10/11/95	03/20/95	03/22/95	10/11/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES cont.						
4-NITROPHENOL	24 U	24 U	NA	24 U	25 U	NA
DIBENZOFURAN	10 U	10 U	NA	10 U	10 U	NA
2,4-DINITROTOLUENE	10 U	10 U	NA	10 U	10 U	NA
DIETHYLPHTHALATE	10 U	10 U	NA	10 U	10 U	NA
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	NA	10 U	10 U	NA
FLUORENE	10 U	10 U	NA	10 U	10 U	NA
4-NITROANILINE	24 U	24 U	NA	24 U	25 U	NA
4,6-DINITRO-2-METHYLPHENOL	24 U	24 U	NA	24 U	25 U	NA
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	NA	10 U	10 U	NA
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	NA	10 U	10 U	NA
HEXACHLOROBENZENE	10 U	10 U	NA	10 U	10 U	NA
PENTACHLOROPHENOL	24 U	24 U	NA	24 U	25 U	NA
PHENANTHRENE	10 U	10 U	NA	10 U	10 U	NA
ANTHRACENE	10 U	10 U	NA	10 U	10 U	NA
CARBAZOLE	10 U	10 U	NA	10 U	10 U	NA
DI-N-BUTYLPHTHALATE	10 U	10 U	NA	10 U	10 U	NA
FLUORANTHENE	10 U	10 U	NA	10 U	10 U	NA
PYRENE	10 U	10 U	NA	10 U	10 U	NA
BUTYLBENZYLPHTHALATE	10 U	10 U	NA	10 U	10 U	NA
3,3'-DICHLOROBENZIDINE	10 U	10 U	NA	10 U	10 U	NA
BENZO(A)ANTHRACENE	10 U	10 U	NA	10 U	10 U	NA
CHRYSENE	10 U	10 U	NA	10 U	10 U	NA
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	10 U	NA	10 U	10 U	NA
DI-N-OCTYL PHTHALATE	10 U	10 U	NA	10 U	10 U	NA
BENZO(B)FLUORANTHENE	10 U	10 U	NA	10 U	10 U	NA
BENZO(K)FLUORANTHENE	10 U	10 U	NA	10 U	10 U	NA
BENZO(A)PYRENE	10 U	10 U	NA	10 U	10 U	NA
INDENO(1,2,3-CD)PYRENE	10 U	10 U	NA	10 U	10 U	NA
DIBENZO(A,H)ANTHRACENE	10 U	10 U	NA	10 U	10 U	NA
BENZO(G,H,I)PERYLENE	10 U	10 U	NA	10 U	10 U	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW15DW-01	86-GW15IW-01	86-GW15IW-02	86-GW16DW-01	86-GW16IW-01	86-GW16IW-02
DATE SAMPLED	03/21/95	03/22/95	10/11/95	03/20/95	03/22/95	10/11/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
PESTICIDE/PCBS						
ALPHA-BHC	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA
4,4'-DDD	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW17DW-01	86-GW17IW-01	86-GW17IW-02	86-GW18DW-01	86-GW19DW-01	86-GW20IW-01
DATE SAMPLED	03/21/95	03/23/95	10/12/95	03/22/95	03/26/95	04/11/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
VOLATILES						
CHLOROMETHANE	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
VINYL CHLORIDE	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
METHYLENE CHLORIDE	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
CARBON DISULFIDE	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
1,1-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	24 J
CHLOROFORM	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
2-BUTANONE	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-TRICHLOROETHANE	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
BROMODICHLOROMETHANE	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
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U
TRICHLOROETHENE	10 U	10 U	10 U	10 U	10 U	190
DIBROMOCHLOROMETHANE	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
BENZENE	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
BROMOFORM	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
2-HEXANONE	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
1,1,2,2-TETRACHLOROETHANE	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
CHLOROBENZENE	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
STYRENE	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

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW17DW-01	86-GW17IW-01	86-GW17IW-02	86-GW18DW-01	86-GW19DW-01	86-GW20IW-01
DATE SAMPLED	03/21/95	03/23/95	10/12/95	03/22/95	03/26/95	04/11/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES						
PHENOL	10 U	10 U	NA	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	NA	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	10 U	NA	10 U	10 U	10 U
1,3-DICHLOROBENZENE	10 U	10 U	NA	10 U	10 U	10 U
1,4-DICHLOROBENZENE	10 U	10 U	NA	10 U	10 U	10 U
1,2-DICHLOROBENZENE	10 U	10 U	NA	10 U	10 U	10 U
2-METHYLPHENOL	10 U	10 U	NA	10 U	10 U	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	NA	10 U	10 U	10 U
4-METHYLPHENOL	10 U	10 U	NA	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	NA	10 U	10 U	10 U
HEXACHLOROETHANE	10 U	10 U	NA	10 U	10 U	10 U
NITROBENZENE	10 U	10 U	NA	10 U	10 U	10 U
ISOPHORONE	10 U	10 U	NA	10 U	10 U	10 U
2-NITROPHENOL	10 U	10 U	NA	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	10 U	NA	10 U	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	NA	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	10 U	NA	10 U	10 U	10 U
1,2,4-TRICHLOROBENZENE	10 U	10 U	NA	10 U	10 U	10 U
NAPHTHALENE	10 U	10 U	NA	10 U	10 U	10 U
4-CHLOROANILINE	10 U	10 U	NA	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	10 U	NA	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	NA	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	10 U	NA	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	NA	10 U	10 U	10 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	NA	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	24 U	24 U	NA	24 U	25 U	24 U
2-CHLORONAPHTHALENE	10 U	10 U	NA	10 U	10 U	10 U
2-NITROANILINE	24 U	24 U	NA	24 U	25 U	24 U
DIMETHYLPHTHALATE	10 U	10 U	NA	10 U	10 U	10 U
ACENAPHTHYLENE	10 U	10 U	NA	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	10 U	NA	10 U	10 U	10 U
3-NITROANILINE	24 U	24 U	NA	24 U	25 U	24 U
ACENAPHTHENE	10 U	10 U	NA	10 U	10 U	10 U
2,4-DINITROPHENOL	24 U	24 U	NA	24 U	25 U	24 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW17DW-01	86-GW17IW-01	86-GW17IW-02	86-GW18DW-01	86-GW19DW-01	86-GW20IW-01
DATE SAMPLED	03/21/95	03/23/95	10/12/95	03/22/95	03/26/95	04/11/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES cont.						
4-NITROPHENOL	24 U	24 U	NA	24 U	25 U	24 U
DIBENZOFURAN	10 U	10 U	NA	10 U	10 U	10 U
2,4-DINITROTOLUENE	10 U	10 U	NA	10 U	10 U	10 U
DIETHYLPHTHALATE	10 U	10 U	NA	10 U	10 U	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	NA	10 U	10 U	10 U
FLUORENE	10 U	10 U	NA	10 U	10 U	10 U
4-NITROANILINE	24 U	24 U	NA	24 U	25 U	24 U
4,6-DINITRO-2-METHYLPHENOL	24 U	24 U	NA	24 U	25 U	24 U
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	NA	10 U	10 U	10 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	NA	10 U	10 U	10 U
HEXACHLOROBENZENE	10 U	10 U	NA	10 U	10 U	10 U
PENTACHLOROPHENOL	24 U	24 U	NA	24 U	25 U	24 U
PHENANTHRENE	10 U	10 U	NA	10 U	10 U	10 U
ANTHRACENE	10 U	10 U	NA	10 U	10 U	10 U
CARBAZOLE	10 U	10 U	NA	10 U	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	23	NA	10 U	10 U	10 U
FLUORANTHENE	10 U	10 U	NA	10 U	10 U	10 U
PYRENE	10 U	10 U	NA	10 U	10 U	10 U
BUTYLBENZYLPHTHALATE	10 U	10 U	NA	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10 U	10 U	NA	10 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	10 U	NA	10 U	10 U	10 U
CHRYSENE	10 U	10 U	NA	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	10 U	NA	10 U	10 U	10 U
DI-N-OCTYL PHTHALATE	10 U	10 U	NA	10 U	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	10 U	NA	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	10 U	NA	10 U	10 U	10 U
BENZO(A)PYRENE	10 U	10 U	NA	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	NA	10 U	10 U	10 U
DIBENZO(A,H)ANTHRACENE	10 U	10 U	NA	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	10 U	NA	10 U	10 U	10 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW17DW-01	86-GW17IW-01	86-GW17IW-02	86-GW18DW-01	86-GW19DW-01	86-GW20IW-01
DATE SAMPLED	03/21/95	03/23/95	10/12/95	03/22/95	03/26/95	04/11/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
PESTICIDE/PCBS						
ALPHA-BHC	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA
4,4'-DDD	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW20IW-02	86-GW21IW-01	86-GW21IW-02	86-GW22IW-01	86-GW22IW-02	86-GW23IW-01
DATE SAMPLED	10/12/95	05/07/95	10/12/95	05/07/95	10/13/95	05/07/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
VOLATILES						
CHLOROMETHANE	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
VINYL CHLORIDE	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
METHYLENE CHLORIDE	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
CARBON DISULFIDE	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
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	39	3 J	4 J	10 UJ	10 U	10 UJ
CHLOROFORM	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
2-BUTANONE	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-TRICHLOROETHANE	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
BROMODICHLOROMETHANE	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
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U	10 U
TRICHLOROETHENE	400 J	10 U	10 U	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	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
BENZENE	10 U	2 J	2 J	10 U	10 U	10 U
TRANS-1,3-DICHLOROPROPENE	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
4-METHYL-2-PENTANONE	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
TETRACHLOROETHENE	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
TOLUENE	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
ETHYLBENZENE	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
XYLENE (TOTAL)	10 U	10 U	10 U	10 U	10 U	10 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW20IW-02	86-GW21IW-01	86-GW21IW-02	86-GW22IW-01	86-GW22IW-02	86-GW23IW-01
DATE SAMPLED	10/12/95	05/07/95	10/12/95	05/07/95	10/13/95	05/07/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES						
PHENOL	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW20IW-02	86-GW21IW-01	86-GW21IW-02	86-GW22IW-01	86-GW22IW-02	86-GW23IW-01
DATE SAMPLED	10/12/95	05/07/95	10/12/95	05/07/95	10/13/95	05/07/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES cont.						
4-NITROPHENOL	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA
DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW20IW-02	86-GW21IW-01	86-GW21IW-02	86-GW22IW-01	86-GW22IW-02	86-GW23IW-01
DATE SAMPLED	10/12/95	05/07/95	10/12/95	05/07/95	10/13/95	05/07/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
PESTICIDE/PCBS						
ALPHA-BHC	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA
4,4'-DDD	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW23IW-02	86-GW24-01	86-GW25-01	86-GW26-01	86-GW27-01
DATE SAMPLED	10/13/95	10/16/95	10/15/95	10/16/95	10/15/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L
VOLATILES					
CHLOROMETHANE	10 U	10 U	10 U	10 U	10 U
BROMOMETHANE	10 U	10 U	10 U	10 U	10 U
VINYL CHLORIDE	10 U	10 U	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	10 U	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U	10 U	10 U	10 U
ACETONE	10 U	10 U	10 U	10 UJ	10 UJ
CARBON DISULFIDE	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U	10 U	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	4 J	10 U	5 J	10 U	14
CHLOROFORM	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U
2-BUTANONE	10 U	10 U	10 U	10 U	10 U
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U	10 U	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U	10 U	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U
TRICHLOROETHENE	10 U	2 J	7 J	3 J	3 J
DIBROMOCHLOROMETHANE	10 U	10 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U	10 U	10 U
BENZENE	10 U	3 J	10 U	10 U	5 J
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	10 U	10 U	10 U
BROMOFORM	10 U	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U
TETRACHLOROETHENE	10 U	10 U	13	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U	10 U	10 U
TOLUENE	10 U	10 U	10 U	10 U	10 U
CHLOROBENZENE	10 U	10 U	10 U	10 U	10 U
ETHYLBENZENE	10 U	10 U	10 U	10 U	10 U
STYRENE	10 U	10 U	10 U	10 U	10 U
XYLENE (TOTAL)	10 U	10 U	10 U	10 U	10 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW23IW-02	86-GW24-01	86-GW25-01	86-GW26-01	86-GW27-01
DATE SAMPLED	10/13/95	10/16/95	10/15/95	10/16/95	10/15/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES					
PHENOL	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW23IW-02	86-GW24-01	86-GW25-01	86-GW26-01	86-GW27-01
DATE SAMPLED	*10/13/95*	*10/16/95*	*10/15/95*	*10/16/95*	*10/15/95*
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES cont.					
4-NITROPHENOL	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA
DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW23IW-02	86-GW24-01	86-GW25-01	86-GW26-01	86-GW27-01
DATE SAMPLED	10/13/95	10/16/95	10/15/95	10/16/95	10/15/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L
PESTICIDE/PCBS					
ALPHA-BHC	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA
4,4'-DDD	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION DATE SAMPLED UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
VOLATILES						
CHLOROMETHANE	10 U	10 U	ND	ND		0/41
BROMOMETHANE	10 U	10 U	ND	ND		0/41
VINYL CHLORIDE	10 U	10 U	ND	ND		0/41
CHLOROETHANE	10 U	10 U	ND	ND		0/41
METHYLENE CHLORIDE	10 U	10 U	ND	ND		0/41
ACETONE	10 U	10 U	ND	ND		0/41
CARBON DISULFIDE	10 U	10 U	ND	ND		0/41
1,1-DICHLOROETHENE	10 U	10 U	ND	ND		0/41
1,1-DICHLOROETHANE	10 U	10 U	10	14	86-GW10IW-01	2/41
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	3 J	140	86-GW15IW-02	14/41
CHLOROFORM	10 U	10 U	2 J	2 J	86-GW10IW-02	1/41
1,2-DICHLOROETHANE	10 U	10 U	ND	ND		0/41
2-BUTANONE	10 U	10 U	ND	ND		0/41
1,1,1-TRICHLOROETHANE	10 U	10 U	ND	ND		0/41
CARBON TETRACHLORIDE	10 U	10 U	ND	ND		0/41
BROMODICHLOROMETHANE	10 U	10 U	ND	ND		0/41
1,2-DICHLOROPROPANE	10 U	10 U	ND	ND		0/41
CIS-1,3-DICHLOROPROPENE	10 U	10 U	ND	ND		0/41
TRICHLOROETHENE	10 U	10 U	2 J	400 J	86-GW20IW-02	13/41
DIBROMOCHLOROMETHANE	10 U	10 U	ND	ND		0/41
1,1,2-TRICHLOROETHANE	10 U	10 U	ND	ND		0/41
BENZENE	10 U	10 U	2 J	8	86-GW15IW-01	7/41
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	ND	ND		0/41
BROMOFORM	10 U	10 U	ND	ND		0/41
4-METHYL-2-PENTANONE	10 U	10 U	ND	ND		0/41
2-HEXANONE	10 U	10 U	ND	ND		0/41
TETRACHLOROETHENE	10 U	10 U	1 J	77	86-GW10IW-01	4/41
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	ND	ND		0/41
TOLUENE	10 U	10 U	ND	ND		0/41
CHLOROBENZENE	10 U	10 U	ND	ND		0/41
ETHYLBENZENE	10 U	10 U	ND	ND		0/41
STYRENE	10 U	10 U	ND	ND		0/41
XYLENE (TOTAL)	10 U	10 U	ND	ND		0/41

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION DATE SAMPLED UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
SEMIVOLATILES						
PHENOL	9 U	10 U	ND	ND		0/23
BIS(2-CHLOROETHYL)ETHER	9 U	10 U	ND	ND		0/23
2-CHLOROPHENOL	9 U	10 U	ND	ND		0/23
1,3-DICHLOROBENZENE	9 U	10 U	ND	ND		0/23
1,4-DICHLOROBENZENE	9 U	10 U	ND	ND		0/23
1,2-DICHLOROBENZENE	9 U	10 U	ND	ND		0/23
2-METHYLPHENOL	9 U	10 U	ND	ND		0/23
2,2'-OXYBIS(1-CHLOROPROPANE)	9 U	10 U	ND	ND		0/23
4-METHYLPHENOL	9 U	10 U	ND	ND		0/23
N-NITROSO-DI-N-PROPYLAMINE	9 U	10 U	ND	ND		0/23
HEXACHLOROETHANE	9 U	10 U	ND	ND		0/23
NITROBENZENE	9 U	10 U	ND	ND		0/23
ISOPHORONE	9 U	10 U	ND	ND		0/23
2-NITROPHENOL	9 U	10 U	ND	ND		0/23
2,4-DIMETHYLPHENOL	9 U	10 U	ND	ND		0/23
BIS(2-CHLOROETHOXY)METHANE	9 U	10 U	ND	ND		0/23
2,4-DICHLOROPHENOL	9 U	10 U	ND	ND		0/23
1,2,4-TRICHLOROBENZENE	9 U	10 U	ND	ND		0/23
NAPHTHALENE	9 U	10 U	6 J	6 J	86-GW10IW-01	1/23
4-CHLOROANILINE	9 U	10 U	ND	ND		0/23
HEXACHLOROBUTADIENE	9 U	10 U	ND	ND		0/23
4-CHLORO-3-METHYLPHENOL	9 U	10 U	ND	ND		0/23
2-METHYLNAPHTHALENE	9 U	10 U	ND	ND		0/23
HEXACHLOROCYCLOPENTADIENE	9 U	10 U	ND	ND		0/23
2,4,6-TRICHLOROPHENOL	9 U	10 U	ND	ND		0/23
2,4,5-TRICHLOROPHENOL	24 U	25 U	ND	ND		0/23
2-CHLORONAPHTHALENE	9 U	10 U	ND	ND		0/23
2-NITROANILINE	24 U	25 U	ND	ND		0/23
DIMETHYLPHTHALATE	9 U	10 U	ND	ND		0/23
ACENAPHTHYLENE	9 U	10 U	ND	ND		0/23
2,6-DINITROTOLUENE	9 U	10 U	ND	ND		0/23
3-NITROANILINE	24 U	25 U	ND	ND		0/23
ACENAPHTHENE	9 U	10 U	ND	ND		0/23
2,4-DINITROPHENOL	24 U	25 U	ND	ND		0/23

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION DATE SAMPLED UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
SEMIVOLATILES cont.						
4-NITROPHENOL	24 U	25 U	ND	ND		0/23
DIBENZOFURAN	9 U	10 U	1 J	1 J	86-GW07-01	1/23
2,4-DINITROTOLUENE	9 U	10 U	ND	ND		0/23
DIETHYLPHTHALATE	9 U	10 U	ND	ND		0/23
4-CHLOROPHENYL-PHENYLETHER	9 U	10 U	ND	ND		0/23
FLUORENE	9 U	10 U	2 J	2 J	86-GW07-01	1/23
4-NITROANILINE	24 U	25 U	ND	ND		0/23
4,6-DINITRO-2-METHYLPHENOL	24 U	25 U	ND	ND		0/23
N-NITROSODIPHENYLAMINE (1)	9 U	10 U	ND	ND		0/23
4-BROMOPHENYL-PHENYLETHER	9 U	10 U	ND	ND		0/23
HEXACHLOROBENZENE	9 U	10 U	ND	ND		0/23
PENTACHLOROPHENOL	24 U	25 U	ND	ND		0/23
PHENANTHRENE	9 U	10 U	ND	ND		0/23
ANTHRACENE	9 U	10 U	ND	ND		0/23
CARBAZOLE	9 U	10 U	ND	ND		0/23
DI-N-BUTYLPHTHALATE	9 U	10 U	23	23	86-GW17IW-01	1/23
FLUORANTHENE	9 U	10 U	ND	ND		0/23
PYRENE	9 U	10 U	ND	ND		0/23
BUTYLBENZYLPHTHALATE	9 U	10 U	ND	ND		0/23
3,3'-DICHLOROBENZIDINE	9 U	10 U	ND	ND		0/23
BENZO(A)ANTHRACENE	9 U	10 U	ND	ND		0/23
CHRYSENE	9 U	10 U	ND	ND		0/23
BIS(2-ETHYLHEXYL)PHTHALATE	9 U	10 U	ND	ND		0/23
DI-N-OCTYL PHTHALATE	9 U	10 U	ND	ND		0/23
BENZO(B)FLUORANTHENE	9 U	10 U	ND	ND		0/23
BENZO(K)FLUORANTHENE	9 U	10 U	ND	ND		0/23
BENZO(A)PYRENE	9 U	10 U	ND	ND		0/23
INDENO(1,2,3-CD)PYRENE	9 U	10 U	ND	ND		0/23
DIBENZO(A,H)ANTHRACENE	9 U	10 U	ND	ND		0/23
BENZO(G,H,I)PERYLENE	9 U	10 U	ND	ND		0/23

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION DATE SAMPLED UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
PESTICIDE/PCBS						
ALPHA-BHC	0.046 UJ	0.049 UJ	ND	ND		0/5
BETA-BHC	0.046 UJ	0.049 UJ	ND	ND		0/5
DELTA-BHC	0.046 UJ	0.049 UJ	ND	ND		0/5
GAMMA-BHC (LINDANE)	0.046 UJ	0.049 UJ	ND	ND		0/5
HEPTACHLOR	0.046 UJ	0.049 UJ	ND	ND		0/5
ALDRIN	0.046 UJ	0.049 UJ	ND	ND		0/5
HEPTACHLOR EPOXIDE	0.046 UJ	0.049 UJ	ND	ND		0/5
ENDOSULFAN I	0.046 UJ	0.049 UJ	ND	ND		0/5
DIELDRIN	0.093 UJ	0.098 UJ	ND	ND		0/5
4,4'-DDE	0.093 UJ	0.098 UJ	ND	ND		0/5
ENDRIN	0.093 UJ	0.098 UJ	ND	ND		0/5
ENDOSULFAN II	0.093 UJ	0.098 UJ	ND	ND		0/5
4,4'-DDD	0.093 UJ	0.098 UJ	ND	ND		0/5
ENDOSULFAN SULFATE	0.093 UJ	0.098 UJ	ND	ND		0/5
4,4'-DDT	0.093 UJ	0.098 UJ	ND	ND		0/5
METHOXYCHLOR	0.46 UJ	0.49 UJ	ND	ND		0/5
ENDRIN KETONE	0.093 UJ	0.098 UJ	ND	ND		0/5
ENDRIN ALDEHYDE	0.093 UJ	0.098 UJ	ND	ND		0/5
ALPHA-CHLORDANE	0.046 UJ	0.049 UJ	ND	ND		0/5
GAMMA-CHLORDANE	0.046 UJ	0.049 UJ	ND	ND		0/5
TOXAPHENE	4.6 UJ	4.9 UJ	ND	ND		0/5
AROCLOR-1016	0.93 UJ	0.98 UJ	ND	ND		0/5
AROCLOR-1221	1.9 UJ	2 UJ	ND	ND		0/5
AROCLOR-1232	0.93 UJ	0.98 UJ	ND	ND		0/5
AROCLOR-1242	0.93 UJ	0.98 UJ	ND	ND		0/5
AROCLOR-1248	0.93 UJ	0.98 UJ	ND	ND		0/5
AROCLOR-1254	0.93 UJ	0.98 UJ	ND	ND		0/5
AROCLOR-1260	0.93 UJ	0.98 UJ	ND	ND		0/5

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
INORGANIC ANALYTES

LOCATION	86-GW01-01	86-GW02IW-01	86-GW03-01	86-GW04IW-01	86-GW05-01	86-GW06IW-01
DATE SAMPLED	03/25/95	03/25/95	03/23/95	03/23/95	03/24/95	03/24/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
TOTAL METALS						
ALUMINUM, TOTAL	101 U	106 U	815	31.6 U	41.3 U	96.5 U
ANTIMONY, TOTAL	20.7 U	20.7 U	20.7 U	20.7 U	20.7 U	20.7 U
ARSENIC, TOTAL	38.8	1.9 U	1.9 U	1.9 UJ	33	1.9 UJ
BARIUM, TOTAL	14.6 U	10.4 U	35.4	5.2 U	16.3 U	5.8 U
BERYLLIUM, TOTAL	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
CADMIUM, TOTAL	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U
CALCIUM, TOTAL	937	80400	8250	80100	1270	25600
CHROMIUM, TOTAL	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U
COBALT, TOTAL	3 U	3 U	3 U	3 U	3 U	3 U
COPPER, TOTAL	1.9 U	1.9 U	7.8 U	1.9 U	1.9 U	1.9 U
IRON, TOTAL	42300	8070	281	5860	30400	4130
LEAD, TOTAL	1 U	1 U	1 U	1 U	1 U	28.3
MAGNESIUM, TOTAL	1080	2360	1580	3270	2600	1860
MANGANESE, TOTAL	3.8	74	14	82.7	6.2	57.5
MERCURY, TOTAL	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
NICKEL, TOTAL	10.8 U	10.8 U	10.8 U	10.8 U	10.8 U	10.8 U
POTASSIUM, TOTAL	685 U	2650	927	2540	717	2360
SELENIUM, TOTAL	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
SILVER, TOTAL	3 U	3 U	3 U	3 U	3 U	3 U
SODIUM, TOTAL	36800	10600	10400	12100	28900	8730
THALLIUM, TOTAL	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
VANADIUM, TOTAL	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
ZINC, TOTAL	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
MCB, CAMP LEJEUNE, NORTH CAROLINA
INORGANIC ANALYTES

LOCATION	86-GW07-01	86-GW08IW-01	86-GW09-01	86-GW10IW-01	86-GW11-01	86-GW12IW-01
DATE SAMPLED	03/25/95	03/24/95	03/23/95	03/24/95	03/23/95	03/23/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
TOTAL METALS						
ALUMINUM, TOTAL	24 U	37.1 U	187	166 U	129 U	85.9 U
ANTIMONY, TOTAL	20.7 U	20.7 U	20.7 U	20.7 U	20.7 U	20.7 U
ARSENIC, TOTAL	17	1.9 U	1.9 U	1.9 UJ	1.3 U	1.9 U
BARIUM, TOTAL	20.6 U	34.7	44.5	4.2 U	27	24.6
BERYLLIUM, TOTAL	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
CADMIUM, TOTAL	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U
CALCIUM, TOTAL	10400	145000	5340	26300	72700	20100
CHROMIUM, TOTAL	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U
COBALT, TOTAL	3 U	3 U	3 U	3 U	3 U	3 U
COPPER, TOTAL	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
IRON, TOTAL	68300	12000	257	9270	12300	8810
LEAD, TOTAL	1 U	1 U	1 U	1 U	1.6 U	1 U
MAGNESIUM, TOTAL	3390	3130	762	6570	17300	3780
MANGANESE, TOTAL	6.8	74.6	7.9	114	282	72.5
MERCURY, TOTAL	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
NICKEL, TOTAL	10.8 U	10.8 U	10.8 U	10.8 U	10.8 U	10.8 U
POTASSIUM, TOTAL	769	2620	989	2310	19100	3080
SELENIUM, TOTAL	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
SILVER, TOTAL	3 U	3 U	3 U	3 U	3 U	3 U
SODIUM, TOTAL	16000	14200	7420	31400	19700	28500
THALLIUM, TOTAL	1.1 UJ	1.1 U	1.1 U	1.1 U	0.7 U	1.1 U
VANADIUM, TOTAL	2.3 U	2.3 U	2.3 U	2.3 U	100	2.3 U
ZINC, TOTAL	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	32.1

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
MCB, CAMP LEJEUNE, NORTH CAROLINA
INORGANIC ANALYTES

LOCATION	86-GW13-01	86-GW14IW-01	86-GW15DW-01	86-GW15IW-01	86-GW16DW-01	86-GW16IW-01
DATE SAMPLED	03/23/95	03/22/95	03/21/95	03/22/95	03/20/95	03/22/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
TOTAL METALS						
ALUMINUM, TOTAL	197 U	26.1 U	136 U	32.6 U	148 U	29.9 U
ANTIMONY, TOTAL	20.7 U	20.7 U	20.7 U	20.7 U	23.6	20.7 U
ARSENIC, TOTAL	1.3 U	1.3 U	5.7	1.3 U	3.7	1.3 U
BARIUM, TOTAL	43.2	14.1 U	9.3 U	15.5 U	9.7 U	17 U
BERYLLIUM, TOTAL	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
CADMIUM, TOTAL	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U
CALCIUM, TOTAL	28200	106000	47900	70300	51800	91900
CHROMIUM, TOTAL	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U
COBALT, TOTAL	3 U	3 U	3 U	3 U	3 U	3 U
COPPER, TOTAL	1.9 U	1.9 U	1.9 U	1.9 U	2.8 U	1.9 U
IRON, TOTAL	1310	6940	78 U	1020	165	773
LEAD, TOTAL	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
MAGNESIUM, TOTAL	2770	1900	3220	2180	2980	3930
MANGANESE, TOTAL	25.4	55.1	9.7 U	107	18	352
MERCURY, TOTAL	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
NICKEL, TOTAL	10.8 U	10.8 U	10.8 U	10.8 U	10.8 U	10.8 U
POTASSIUM, TOTAL	2360	2150	6510	1680	7150	2600
SELENIUM, TOTAL	1.5 U	1.5 U	1.5 U	1.5 U	1.6	1.5 U
SILVER, TOTAL	3 U	3 U	3 U	3 U	3 U	3 U
SODIUM, TOTAL	5340	6640	27900	7100	53000	33900
THALLIUM, TOTAL	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
VANADIUM, TOTAL	2.3 U	2.4 U	6.8 U	2.3 U	11.7 U	3.9 U
ZINC, TOTAL	3.8 U	3.8 U	11.5 J	38.7 J	20.7 J	15.1 J

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
MCB, CAMP LEJEUNE, NORTH CAROLINA
INORGANIC ANALYTES

LOCATION	86-GW17DW-01	86-GW17IW-01	86-GW18DW-01	86-GW19DW-01	86-GW20IW-01	86-GW21IW-01
DATE SAMPLED	03/21/95	03/23/95	03/22/95	03/26/95	04/11/95	05/07/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
TOTAL METALS						
ALUMINUM, TOTAL	30.6 U	197 U	87.1 U	16.8 U	15.7 U	21.2 U
ANTIMONY, TOTAL	20.7 U	20.7 U	20.7 U	10.9 U	12 U	20.8 U
ARSENIC, TOTAL	1.3 U	1.3 U	3	2.5	1.7 U	1.7 U
BARIUM, TOTAL	12.3 U	38.1	3.4 U	8.6	18.8	23.9
BERYLLIUM, TOTAL	0.9 U	0.9 U	0.9 U	0.3 U	0.3 U	0.8 U
CADMIUM, TOTAL	2.8 U	2.8 U	2.8 U	2.9 U	3.9 U	1.9 U
CALCIUM, TOTAL	32700	112000	34100	41800	75700	75600
CHROMIUM, TOTAL	2.9 U	2.9 U	2.9 U	4.7 U	3.8 U	4.1 U
COBALT, TOTAL	3 U	3 U	3 U	2.3 U	1.4 U	3.4 U
COPPER, TOTAL	1.9 U	1.9 U	1.9 U	4 U	1.8 U	1.8 U
IRON, TOTAL	47.3 U	2520	78.6 U	5.1	1300	884
LEAD, TOTAL	1.6 U	1.6 U	1.6 U	1.6 U	0.8 U	0.8 UJ
MAGNESIUM, TOTAL	6130	3930	5440	4130	2760	3310
MANGANESE, TOTAL	3.9 U	416	8.4 U	4.3 U	101	131
MERCURY, TOTAL	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
NICKEL, TOTAL	10.8 U	10.8 U	10.8 U	4.2 U	5.4 U	10.9 U
POTASSIUM, TOTAL	15400	1800	12700	8230	1950	2610 J
SELENIUM, TOTAL	1.5 U	1.5 U	1.5 U	1.5 U	1.8 U	1.8 U
SILVER, TOTAL	3 U	3 U	3 U	2.5 U	1.9 U	2.8 U
SODIUM, TOTAL	98200	15000	90200	49900	10900	25500
THALLIUM, TOTAL	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
VANADIUM, TOTAL	2.4 U	2.7 U	4 U	2.8 U	1.5 U	2 U
ZINC, TOTAL	12.1 J	3.9 J	12.2 J	1.9 U	5.2 U	6 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
MCB, CAMP LEJEUNE, NORTH CAROLINA
INORGANIC ANALYTES

LOCATION	86-GW22IW-01	86-GW23IW-01
DATE SAMPLED	05/07/95	05/07/95
UNITS	UG/L	UG/L
TOTAL METALS		
ALUMINUM, TOTAL	21.2 U	21.2 U
ANTIMONY, TOTAL	20.8 U	20.8 U
ARSENIC, TOTAL	1.7 U	1.7 U
BARIUM, TOTAL	11.4	12.7
BERYLLIUM, TOTAL	0.8 U	0.8 U
CADMIUM, TOTAL	1.9 U	1.9 U
CALCIUM, TOTAL	58200	55300
CHROMIUM, TOTAL	4.1 U	4.1 U
COBALT, TOTAL	3.4 U	3.4 U
COPPER, TOTAL	1.8 U	1.8 U
IRON, TOTAL	511	577
LEAD, TOTAL	0.8 UJ	0.8 UJ
MAGNESIUM, TOTAL	2440	2960
MANGANESE, TOTAL	82.6	88.4
MERCURY, TOTAL	0.2 U	0.2 U
NICKEL, TOTAL	10.9 U	10.9 U
POTASSIUM, TOTAL	2350 J	2070 J
SELENIUM, TOTAL	2 J	1.8 J
SILVER, TOTAL	2.8 U	2.8 U
SODIUM, TOTAL	11800	25900
THALLIUM, TOTAL	0.7 U	0.7 U
VANADIUM, TOTAL	2 U	2 U
ZINC, TOTAL	6 U	6 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
MCB, CAMP LEJEUNE, NORTH CAROLINA
INORGANIC ANALYTES

LOCATION DATE SAMPLED UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
TOTAL METALS						
ALUMINUM, TOTAL	15.7 U	197 U	187	815	86-GW03-01	2/26
ANTIMONY, TOTAL	10.9 U	20.8 U	23.6	23.6	86-GW16DW-01	1/26
ARSENIC, TOTAL	1.3 U	1.9 U	2.5	38.8	86-GW01-01	7/26
BARIUM, TOTAL	3.4 U	20.6 U	8.6	44.5	86-GW09-01	12/26
BERYLLIUM, TOTAL	0.3 U	0.9 U	ND	ND		0/26
CADMIUM, TOTAL	1.9 U	3.9 U	ND	ND		0/26
CALCIUM, TOTAL	NA	NA	937	145000	86-GW08IW-01	26/26
CHROMIUM, TOTAL	2.9 U	4.7 U	ND	ND		0/26
COBALT, TOTAL	1.4 U	3.4 U	ND	ND		0/26
COPPER, TOTAL	1.8 U	7.8 U	ND	ND		0/26
IRON, TOTAL	47.3 U	78.6 U	5.1	68300	86-GW07-01	23/26
LEAD, TOTAL	0.8 U	1.6 U	28.3	28.3	86-GW06IW-01	1/26
MAGNESIUM, TOTAL	NA	NA	762	17300	86-GW11-01	26/26
MANGANESE, TOTAL	3.9 U	9.7 U	3.8	416	86-GW17IW-01	22/26
MERCURY, TOTAL	0.2 U	0.2 U	ND	ND		0/26
NICKEL, TOTAL	4.2 U	10.9 U	ND	ND		0/26
POTASSIUM, TOTAL	685 U	685 U	717	19100	86-GW11-01	25/26
SELENIUM, TOTAL	1.5 U	1.8 U	1.6	2 J	86-GW22IW-01	3/26
SILVER, TOTAL	1.9 U	3 U	ND	ND		0/26
SODIUM, TOTAL	NA	NA	5340	98200	86-GW17DW-01	26/26
THALLIUM, TOTAL	0.7 U	1.1 U	ND	ND		0/26
VANADIUM, TOTAL	1.5 U	11.7 U	100	100	86-GW11-01	1/26
ZINC, TOTAL	1.9 U	6 U	3.9 J	38.7 J	86-GW15IW-01	8/26

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
DISSOLVED INORGANIC ANALYTES

LOCATION	86-GW01D-01	86-GW02IWD-01	86-GW15DWD-01	86-GW15IWD-01	86-GW21IWD-01
DATE SAMPLED	03/25/95	03/25/95	03/21/95	03/22/95	05/07/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L
DISSOLVED METALS					
ALUMINUM, SOLUBLE	24 U	41 U	96.8 U	33.6 U	21.2 U
ANTIMONY, SOLUBLE	20.7 U	20.7 U	20.7 U	20.7 U	20.8 U
ARSENIC, SOLUBLE	39.1	1.9 U	4.7	1.3 U	1.7 U
BARIUM, SOLUBLE	13 U	8.7 U	9.2 U	16.5 U	24
BERYLLIUM, SOLUBLE	0.9 U	0.9 U	0.9 U	0.9 U	0.8 U
CADMIUM, SOLUBLE	2.8 U	2.8 U	2.8 U	2.8 U	1.9 U
CALCIUM, SOLUBLE	928	82000	47200	70300	75100
CHROMIUM, SOLUBLE	2.9 U	2.9 U	2.9 U	5.2 U	4.1 U
COBALT, SOLUBLE	3 U	3 U	3 U	3 U	3.4 U
COPPER, SOLUBLE	1.9 U	1.9 U	3.2 U	1.9 U	1.8 U
IRON, SOLUBLE	41000	8140	54.7 U	995	851
LEAD, SOLUBLE	1 U	1 U	1.6 U	1.6 U	0.82 J
MAGNESIUM, SOLUBLE	1070	2430	3250	2190	3280
MANGANESE, SOLUBLE	4.2	76.6	10.2	106	130
MERCURY, SOLUBLE	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
NICKEL, SOLUBLE	10.8 U	10.8 U	10.8 U	10.8 U	10.9 U
POTASSIUM, SOLUBLE	685 U	2110	7280	2070	2310 J
SELENIUM, SOLUBLE	1.5 U	1.5 U	1.5 U	1.5 U	1.8 U
SILVER, SOLUBLE	3 U	3 U	3 U	3 U	2.8 U
SODIUM, SOLUBLE	36000	10800	28400	7080	25200
THALLIUM, SOLUBLE	1.1 U	1.1 U	0.7 U	0.7 U	0.7 U
VANADIUM, SOLUBLE	2.3 U	2.3 U	7.2 U	3.3 U	2 U
ZINC, SOLUBLE	5 U	3.8 U	15.6 J	19.8 J	6 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
DISSOLVED INORGANIC ANALYTES

LOCATION DATE SAMPLED UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
DISSOLVED METALS						
ALUMINUM, SOLUBLE	21.2 U	96.8 U	ND	ND		0/5
ANTIMONY, SOLUBLE	20.7 U	20.8 U	ND	ND		0/5
ARSENIC, SOLUBLE	1.3 U	1.9 U	4.7	39.1	86-GW01D-01	2/5
BARIUM, SOLUBLE	8.7 U	16.5 U	24	24	86-GW21IWD-01	1/5
BERYLLIUM, SOLUBLE	0.8 U	0.9 U	ND	ND		0/5
CADMIUM, SOLUBLE	1.9 U	2.8 U	ND	ND		0/5
CALCIUM, SOLUBLE	NA	NA	928	82000	86-GW02IWD-01	5/5
CHROMIUM, SOLUBLE	2.9 U	5.2 U	ND	ND		0/5
COBALT, SOLUBLE	3 U	3.4 U	ND	ND		0/5
COPPER, SOLUBLE	1.8 U	3.2 U	ND	ND		0/5
IRON, SOLUBLE	54.7 U	54.7 U	851	41000	86-GW01D-01	4/5
LEAD, SOLUBLE	1 U	1.6 U	0.82 J	0.82 J	86-GW21IWD-01	1/5
MAGNESIUM, SOLUBLE	NA	NA	1070	3280	86-GW21IWD-01	5/5
MANGANESE, SOLUBLE	NA	NA	4.2	130	86-GW21IWD-01	5/5
MERCURY, SOLUBLE	0.2 U	0.2 U	ND	ND		0/5
NICKEL, SOLUBLE	10.8 U	10.9 U	ND	ND		0/5
POTASSIUM, SOLUBLE	685 U	685 U	2070	7280	86-GW15DWD-01	4/5
SELENIUM, SOLUBLE	1.5 U	1.8 U	ND	ND		0/5
SILVER, SOLUBLE	2.8 U	3 U	ND	ND		0/5
SODIUM, SOLUBLE	NA	NA	7080	36000	86-GW01D-01	5/5
THALLIUM, SOLUBLE	0.7 U	1.1 U	ND	ND		0/5
VANADIUM, SOLUBLE	2 U	7.2 U	ND	ND		0/5
ZINC, SOLUBLE	3.8 U	6 U	15.6 J	19.8 J	86-GW15IWD-01	2/5

APPENDIX H
STATISTICAL SUMMARIES

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - STATISTICAL SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
VOLATILES						
ACETONE	8.78	6.08	11.27	2.03	0.50	11.20
TOLUENE	6.78	4.56	8.65	1.82	0.35	7.79
XYLENE (TOTAL)	5.78	0.55	6.00	1.75	0.09	6.00
SEMIVOLATILES						
NAPHTHALENE	181.94	28.96	193.82	5.19	0.20	200.28
2-METHYLNAPHTHALENE	181.67	29.95	193.95	5.18	0.21	201.37
ACENAPHTHENE	193.56	105.69	236.90	5.16	0.48	247.99
DIBENZOFURAN	189.44	17.65	196.68	5.24	0.09	196.49
FLUORENE	188.17	76.05	219.36	5.16	0.45	240.43
PHENANTHRENE	382.61	614.64	634.69	5.44	0.86	571.71
ANTHRACENE	204.44	154.55	267.83	5.15	0.58	278.29
CARBAZOLE	178.17	93.25	216.41	5.04	0.60	253.32
FLUORANTHENE	529.67	870.06	886.50	5.60	1.04	1032.94
PYRENE	480.56	734.86	781.94	5.63	0.89	732.98
BUTYLBENZYLPHTHALATE	189.78	73.34	219.86	5.15	0.49	250.43
BENZO(A)ANTHRACENE	329.33	490.37	530.44	5.30	0.87	506.09
CHRYSENE	361.17	485.30	560.20	5.48	0.78	516.61
BIS(2-ETHYLHEXYL)PHTHALATE	171.00	39.21	187.08	5.10	0.36	207.21
BENZO(B)FLUORANTHENE	395.00	545.06	618.54	5.55	0.79	559.48
BENZO(K)FLUORANTHENE	231.50	204.58	315.40	5.22	0.66	329.27
BENZO(A)PYRENE	331.17	425.85	505.82	5.37	0.85	527.25
INDENO(1,2,3-CD)PYRENE	250.39	250.13	352.97	5.25	0.68	353.43
DIBENZO(A,H)ANTHRACENE	178.72	51.26	199.75	5.12	0.43	228.11
BENZO(G,H,I)PERYLENE	197.61	122.49	247.85	5.14	0.55	266.08
PESTICIDE/PCBS						
ALDRIN	1.03	0.32	1.21	0.00	0.23	1.19
HEPTACHLOR EPOXIDE	1.34	1.28	2.04	0.10	0.52	1.86
DIELDRIN	23.22	14.20	30.97	2.83	0.99	70.91
4,4'-DDE	15.46	11.58	21.79	2.49	0.74	29.39
4,4'-DDD	4.75	3.37	6.59	1.31	0.75	9.14
4,4'-DDT	12.36	8.32	16.90	2.27	0.79	25.29

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - STATISTICAL SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
INORGANIC ANALYTES

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS						
ALUMINUM, TOTAL	5689.09	703.41	6073.39	8.64	0.13	6136.52
ARSENIC, TOTAL	0.85	0.51	1.13	-0.38	0.74	1.68
BARIUM, TOTAL	27.75	36.96	47.94	2.86	0.89	57.36
CADMIUM, TOTAL	0.48	0.28	0.64	-0.86	0.52	0.71
CALCIUM, TOTAL	5507.27	5211.13	8354.32	8.33	0.75	10269.83
CHROMIUM, TOTAL	7.84	1.71	8.77	2.04	0.23	9.08
COBALT, TOTAL	0.31	0.10	0.36	-1.21	0.31	0.38
COPPER, TOTAL	7.86	15.40	16.27	1.10	1.30	37.39
IRON, TOTAL	3145.45	1385.97	3902.66	7.96	0.45	4341.75
LEAD, TOTAL	25.65	11.46	31.92	3.15	0.46	35.72
MAGNESIUM, TOTAL	381.73	206.45	494.52	5.83	0.50	541.26
MANGANESE, TOTAL	11.45	5.14	14.26	2.35	0.44	15.71
MERCURY, TOTAL	0.06	0.03	0.08	-2.90	0.40	0.08
NICKEL, TOTAL	5.71	6.61	9.32	1.17	1.17	23.47
POTASSIUM, TOTAL	225.36	61.61	259.02	5.38	0.27	267.50
SELENIUM, TOTAL	0.28	0.16	0.37	-1.40	0.50	0.41
SODIUM, TOTAL	26.63	15.36	35.02	3.08	0.72	51.08
VANADIUM, TOTAL	27.36	25.98	41.56	2.99	0.81	56.30
ZINC, TOTAL	17.21	12.18	23.86	2.60	0.76	33.60

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - STATISTICAL SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
VOLATILES						
ACETONE	43.89	57.21	64.37	3.18	1.09	86.64
CARBON DISULFIDE	6.17	0.86	6.48	1.81	0.17	6.61
2-BUTANONE	6.43	0.66	6.67	1.86	0.10	6.68
TOLUENE	16.96	50.80	35.15	2.01	0.77	14.63
XYLENE (TOTAL)	6.26	0.69	6.51	1.83	0.11	6.53
SEMIVOLATILES						
FLUORANTHENE	205.09	35.82	217.91	5.30	0.27	230.16
PYRENE	204.87	36.73	218.02	5.29	0.28	231.90
BUTYLBENZYLPHTHALATE	200.13	44.69	216.13	5.27	0.28	224.89
CHRYSENE	202.04	41.64	216.95	5.27	0.35	238.38
BIS(2-ETHYLHEXYL)PHTHALATE	282.39	218.36	360.57	5.45	0.60	371.16
BENZO(B)FLUORANTHENE	204.26	39.32	218.34	5.28	0.34	239.66
PESTICIDE/PCBS						
4,4'-DDE	3.96	4.83	6.07	1.04	0.69	5.33
4,4'-DDD	5.41	8.70	9.22	1.18	0.83	7.73
4,4'-DDT	2.03	0.21	2.13	0.70	0.11	2.14

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - STATISTICAL SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
INORGANIC ANALYTES

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
ANALYTES						
ALUMINUM, TOTAL	10933.75	5709.74	13436.05	9.14	0.65	16587.65
ANTIMONY, TOTAL	1.59	0.65	1.92	0.39	0.41	2.08
ARSENIC, TOTAL	1.05	0.74	1.37	-0.26	0.88	1.99
BARIUM, TOTAL	17.09	7.17	20.24	2.72	0.56	24.07
CALCIUM, TOTAL	1825.43	2514.06	2927.22	6.77	1.37	7224.85
CHROMIUM, TOTAL	14.36	7.99	17.86	2.51	0.61	21.03
COBALT, TOTAL	0.45	0.32	0.59	-0.97	0.56	0.60
COPPER, TOTAL	2.10	1.75	2.87	0.40	0.93	4.22
IRON, TOTAL	6139.88	3162.01	7525.63	8.54	0.71	9974.29
LEAD, TOTAL	9.83	3.73	11.46	2.20	0.46	12.68
MAGNESIUM, TOTAL	387.14	226.51	486.41	5.77	0.70	623.88
MANGANESE, TOTAL	7.70	2.82	8.94	1.96	0.46	9.96
NICKEL, TOTAL	4.45	6.84	7.45	0.94	0.94	7.42
POTASSIUM, TOTAL	378.69	302.01	511.05	5.66	0.80	655.18
SELENIUM, TOTAL	0.23	0.12	0.28	-1.54	0.38	0.28
SODIUM, TOTAL	76.84	47.33	97.58	4.10	0.78	129.99
VANADIUM, TOTAL	18.44	8.36	22.10	2.77	0.64	28.02
ZINC, TOTAL	3.88	2.06	4.79	1.22	0.57	5.38

GROUNDWATER

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - STATISTICAL SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
VOLATILES						
1,1-DICHLOROETHANE	5.34	1.59	5.76	1.65	0.19	5.60
1,2-DICHLOROETHENE (TOTAL)	12.61	23.83	18.88	1.98	0.82	13.65
CHLOROFORM	4.93	0.47	5.05	1.59	0.14	5.14
TRICHLOROETHENE	20.76	67.35	38.47	1.89	1.03	17.43
BENZENE	4.85	1.04	5.13	1.55	0.27	5.28
TETRACHLOROETHENE	8.41	14.90	12.33	1.72	0.66	8.67
SEMIVOLATILES						
NAPHTHALENE	5.02	0.24	5.11	1.61	0.04	5.10
DIBENZOFURAN	4.80	0.84	5.10	1.53	0.34	5.63
FLUORENE	4.85	0.63	5.07	1.57	0.19	5.24
DI-N-BUTYLPHTHALATE	5.76	3.76	7.11	1.67	0.32	6.37

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - STATISTICAL SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
INORGANIC ANALYTES

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
TOTAL METALS						
ALUMINUM, TOTAL	73.13	156.80	125.65	3.49	1.12	118.31
ANTIMONY, TOTAL	10.51	2.95	11.50	2.32	0.24	11.44
ARSENIC, TOTAL	4.59	9.82	7.88	0.42	1.22	6.55
BARIUM, TOTAL	15.47	13.71	20.06	2.33	0.97	26.85
CALCIUM, TOTAL	52226.81	37438.61	64767.48	10.39	1.29	175705.98
IRON, TOTAL	8387.89	15729.64	13656.79	7.21	2.43	299705.63
LEAD, TOTAL	1.68	5.43	3.50	-0.37	0.81	1.41
MAGNESIUM, TOTAL	3683.15	3096.72	4720.45	8.02	0.60	4648.54
MANGANESE, TOTAL	84.06	107.71	120.14	3.50	1.61	397.43
POTASSIUM, TOTAL	4152.48	4747.22	5742.64	7.87	0.95	6709.05
SELENIUM, TOTAL	0.88	0.34	1.00	-0.17	0.28	0.97
SODIUM, TOTAL	26385.77	23801.84	34358.59	9.87	0.79	37922.64
VANADIUM, TOTAL	5.27	19.35	11.75	0.44	0.94	3.94
ZINC, TOTAL	7.06	9.82	10.35	1.32	1.04	11.79

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - STATISTICAL SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
DISSOLVED INORGANIC ANALYTES

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
DISSOLVED METALS						
ARSENIC, SOLUBLE	9.25	16.77	25.24	0.91	1.72	13432.97
BARIUM, SOLUBLE	9.54	8.24	17.39	2.03	0.69	34.41
CALCIUM, SOLUBLE	55105.60	32983.58	86554.10	10.26	1.93	1548303585.59
IRON, SOLUBLE	10202.67	17525.00	26912.04	7.32	2.75	15045346744017.85
LEAD, SOLUBLE	0.68	0.17	0.84	-0.41	0.26	0.94
MAGNESIUM, SOLUBLE	2444.00	908.45	3310.17	7.73	0.46	4949.33
MANGANESE, SOLUBLE	65.40	56.43	119.21	3.53	1.55	66443.48
POTASSIUM, SOLUBLE	2822.50	2615.16	5315.95	7.55	1.10	92778.73
SODIUM, SOLUBLE	21496.00	12185.81	33114.68	9.81	0.70	82527.24
ZINC, SOLUBLE	8.56	8.48	16.65	1.68	1.10	266.35

APPENDIX I
FIELD DUPLICATE SUMMARIES

SOIL

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - DUPLICATE SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB05-00D
DATE SAMPLED	02/26/95
DEPTH	0-12"
UNITS	UG/KG
VOLATILES	
CHLOROMETHANE	11 U
BROMOMETHANE	11 U
VINYL CHLORIDE	11 U
CHLOROETHANE	11 U
METHYLENE CHLORIDE	11 U
ACETONE	11 U
CARBON DISULFIDE	11 U
1,1-DICHLOROETHENE	11 U
1,1-DICHLOROETHANE	11 U
1,2-DICHLOROETHENE (TOTAL)	11 U
CHLOROFORM	11 U
1,2-DICHLOROETHANE	11 U
2-BUTANONE	11 U
1,1,1-TRICHLOROETHANE	11 U
CARBON TETRACHLORIDE	11 U
BROMODICHLOROMETHANE	11 U
1,2-DICHLOROPROPANE	11 U
CIS-1,3-DICHLOROPROPENE	11 U
TRICHLOROETHENE	11 U
DIBROMOCHLOROMETHANE	11 U
1,1,2-TRICHLOROETHANE	11 U
BENZENE	11 U
TRANS-1,3-DICHLOROPROPENE	11 U
BROMOFORM	11 U
4-METHYL-2-PENTANONE	11 U
2-HEXANONE	11 U
TETRACHLOROETHENE	11 U
1,1,2,2-TETRACHLOROETHANE	11 U
TOLUENE	11 U
CHLOROBENZENE	11 U
ETHYLBENZENE	11 U
STYRENE	11 U
XYLENE (TOTAL)	11 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - DUPLICATE SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB05-00D
DATE SAMPLED	02/26/95
DEPTH	0-12"
UNITS	UG/KG
SEMIVOLATILES	
PHENOL	380 U
BIS(2-CHLOROETHYL)ETHER	380 U
2-CHLOROPHENOL	380 U
1,3-DICHLOROBENZENE	380 U
1,4-DICHLOROBENZENE	380 U
1,2-DICHLOROBENZENE	380 U
2-METHYLPHENOL	380 U
2,2'-OXYBIS(1-CHLOROPROPANE)	380 U
4-METHYLPHENOL	380 U
N-NITROSO-DI-N-PROPYLAMINE	380 U
HEXACHLOROETHANE	380 U
NITROBENZENE	380 U
ISOPHORONE	380 U
2-NITROPHENOL	380 U
2,4-DIMETHYLPHENOL	380 U
BIS(2-CHLOROETHOXY)METHANE	380 U
2,4-DICHLOROPHENOL	380 U
1,2,4-TRICHLOROBENZENE	380 U
NAPHTHALENE	380 U
4-CHLOROANILINE	380 U
HEXACHLOROBUTADIENE	380 U
4-CHLORO-3-METHYLPHENOL	380 U
2-METHYLNAPHTHALENE	380 U
HEXACHLOROCYCLOPENTADIENE	380 UJ
2,4,6-TRICHLOROPHENOL	380 U
2,4,5-TRICHLOROPHENOL	940 U
2-CHLORONAPHTHALENE	380 U
2-NITROANILINE	940 U
DIMETHYLPHTHALATE	380 U
ACENAPHTHYLENE	380 U
2,6-DINITROTOLUENE	380 U
3-NITROANILINE	940 U
ACENAPHTHENE	380 U
2,4-DINITROPHENOL	940 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - DUPLICATE SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB05-00D
DATE SAMPLED	02/26/95
DEPTH	0-12"
UNITS	UG/KG
SEMIVOLATILES cont.	
4-NITROPHENOL	940 U
DIBENZOFURAN	380 U
2,4-DINITROTOLUENE	380 U
DIETHYLPHTHALATE	380 U
4-CHLOROPHENYL-PHENYLETHER	380 U
FLUORENE	380 U
4-NITROANILINE	940 U
4,6-DINITRO-2-METHYLPHENOL	940 U
N-NITROSODIPHENYLAMINE (1)	380 U
4-BROMOPHENYL-PHENYLETHER	380 U
HEXACHLOROBENZENE	380 U
PENTACHLOROPHENOL	940 U
PHENANTHRENE	380 U
ANTHRACENE	380 U
CARBAZOLE	380 U
DI-N-BUTYLPHTHALATE	380 U
FLUORANTHENE	380 U
PYRENE	380 U
BUTYLBENZYLPHTHALATE	380 U
3,3'-DICHLOROBENZIDINE	380 U
BENZO(A)ANTHRACENE	380 U
CHRYSENE	380 U
BIS(2-ETHYLHEXYL)PHTHALATE	380 U
DI-N-OCTYL PHTHALATE	380 U
BENZO(B)FLUORANTHENE	380 U
BENZO(K)FLUORANTHENE	380 U
BENZO(A)PYRENE	380 U
INDENO(1,2,3-CD)PYRENE	380 U
DIBENZO(A,H)ANTHRACENE	380 U
BENZO(G,H,I)PERYLENE	380 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - DUPLICATE SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-AST-SB05-00D
DATE SAMPLED	02/26/95
DEPTH	0-12"
UNITS	UG/KG
PESTICIDE/PCBS	
ALPHA-BHC	1.9 U
BETA-BHC	1.9 U
DELTA-BHC	1.9 U
GAMMA-BHC (LINDANE)	1.9 U
HEPTACHLOR	1.9 U
ALDRIN	1.9 U
HEPTACHLOR EPOXIDE	1.9 U
ENDOSULFAN I	1.9 U
DIELDRIN	36 J
4,4'-DDE	23 J
ENDRIN	3.7 U
ENDOSULFAN II	3.7 U
4,4'-DDD	3.7 U
ENDOSULFAN SULFATE	3.7 U
4,4'-DDT	23 J
METHOXYCHLOR	19 UJ
ENDRIN KETONE	3.7 U
ENDRIN ALDEHYDE	3.7 U
ALPHA-CHLORDANE	1.9 U
GAMMA-CHLORDANE	1.9 U
TOXAPHENE	190 U
AROCLOR-1016	37 U
AROCLOR-1221	74 U
AROCLOR-1232	37 U
AROCLOR-1242	37 U
AROCLOR-1248	37 U
AROCLOR-1254	37 U
AROCLOR-1260	37 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SURFACE SOIL - DUPLICATE SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
INORGANIC ANALYTES

LOCATION	6-AST-SB05-00D	
DATE SAMPLED	02/26/95	
DEPTH	0-12"	
UNITS	MG/KG	
TOTAL METALS		
ALUMINUM, TOTAL	5550	
ANTIMONY, TOTAL	4.6	R
ARSENIC, TOTAL	0.64	
BARIUM, TOTAL	9.1	
BERYLLIUM, TOTAL	0.2	U
CADMIUM, TOTAL	0.62	U
CALCIUM, TOTAL	8400	J
CHROMIUM, TOTAL	6.6	J
COBALT, TOTAL	0.67	U
COPPER, TOTAL	1.5	
IRON, TOTAL	1890	
LEAD, TOTAL	123	
MAGNESIUM, TOTAL	281	
MANGANESE, TOTAL	8.2	J
MERCURY, TOTAL	0.11	U
NICKEL, TOTAL	3.4	
POTASSIUM, TOTAL	193	
SELENIUM, TOTAL	0.31	U
SILVER, TOTAL	0.67	U
SODIUM, TOTAL	66	
THALLIUM, TOTAL	0.19	U
VANADIUM, TOTAL	10.7	
ZINC, TOTAL	6	

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - DUPLICATE SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW17IW-01D
DATE SAMPLED	03/12/95
DEPTH	1-3'
UNITS	UG/KG
VOLATILES	
CHLOROMETHANE	11 U
BROMOMETHANE	11 U
VINYL CHLORIDE	11 U
CHLOROETHANE	11 U
METHYLENE CHLORIDE	11 U
ACETONE	580
CARBON DISULFIDE	11 U
1,1-DICHLOROETHENE	11 U
1,1-DICHLOROETHANE	11 U
1,2-DICHLOROETHENE (TOTAL)	11 U
CHLOROFORM	11 U
1,2-DICHLOROETHANE	11 U
2-BUTANONE	11 U
1,1,1-TRICHLOROETHANE	11 U
CARBON TETRACHLORIDE	11 U
BROMODICHLOROMETHANE	11 U
1,2-DICHLOROPROPANE	11 U
CIS-1,3-DICHLOROPROPENE	11 U
TRICHLOROETHENE	11 U
DIBROMOCHLOROMETHANE	11 U
1,1,2-TRICHLOROETHANE	11 U
BENZENE	11 U
TRANS-1,3-DICHLOROPROPENE	11 U
BROMOFORM	11 U
4-METHYL-2-PENTANONE	11 U
2-HEXANONE	11 U
TETRACHLOROETHENE	11 U
1,1,2,2-TETRACHLOROETHANE	11 U
TOLUENE	11 U
CHLOROBENZENE	11 U
ETHYLBENZENE	11 U
STYRENE	11 U
XYLENE (TOTAL)	11 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - DUPLICATE SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW17IW-01D
DATE SAMPLED	03/12/95
DEPTH	1-3'
UNITS	UG/KG

SEMIVOLATILES	
PHENOL	360 U
BIS(2-CHLOROETHYL)ETHER	360 U
2-CHLOROPHENOL	360 U
1,3-DICHLOROBENZENE	360 U
1,4-DICHLOROBENZENE	360 U
1,2-DICHLOROBENZENE	360 U
2-METHYLPHENOL	360 U
2,2'-OXYBIS(1-CHLOROPROPANE)	360 U
4-METHYLPHENOL	360 U
N-NITROSO-DI-N-PROPYLAMINE	360 U
HEXACHLOROETHANE	360 U
NITROBENZENE	360 U
ISOPHORONE	360 U
2-NITROPHENOL	360 U
2,4-DIMETHYLPHENOL	360 U
BIS(2-CHLOROETHOXY)METHANE	360 U
2,4-DICHLOROPHENOL	360 U
1,2,4-TRICHLOROBENZENE	360 U
NAPHTHALENE	360 U
4-CHLOROANILINE	360 U
HEXACHLOROBUTADIENE	360 U
4-CHLORO-3-METHYLPHENOL	360 U
2-METHYLNAPHTHALENE	360 U
HEXACHLOROCYCLOPENTADIENE	360 U
2,4,6-TRICHLOROPHENOL	360 U
2,4,5-TRICHLOROPHENOL	910 U
2-CHLORONAPHTHALENE	360 U
2-NITROANILINE	910 U
DIMETHYLPHTHALATE	360 U
ACENAPHTHYLENE	360 U
2,6-DINITROTOLUENE	360 U
3-NITROANILINE	910 U
ACENAPHTHENE	360 U
2,4-DINITROPHENOL	910 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - DUPLICATE SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW17IW-01D
DATE SAMPLED	03/12/95
DEPTH	1-3'
UNITS	UG/KG
SEMIVOLATILES cont.	
4-NITROPHENOL	910 U
DIBENZOFURAN	360 U
2,4-DINITROTOLUENE	360 U
DIETHYLPHTHALATE	360 U
4-CHLOROPHENYL-PHENYLETHER	360 U
FLUORENE	360 U
4-NITROANILINE	910 U
4,6-DINITRO-2-METHYLPHENOL	910 U
N-NITROSODIPHENYLAMINE (1)	360 U
4-BROMOPHENYL-PHENYLETHER	360 U
HEXACHLOROBENZENE	360 U
PENTACHLOROPHENOL	910 U
PHENANTHRENE	360 U
ANTHRACENE	360 U
CARBAZOLE	360 U
DI-N-BUTYLPHTHALATE	360 U
FLUORANTHENE	360 U
PYRENE	360 U
BUTYLBENZYLPHTHALATE	360 U
3,3'-DICHLOROBENZIDINE	360 U
BENZO(A)ANTHRACENE	360 U
CHRYSENE	360 U
BIS(2-ETHYLHEXYL)PHTHALATE	360 U
DI-N-OCTYL PHTHALATE	360 U
BENZO(B)FLUORANTHENE	360 U
BENZO(K)FLUORANTHENE	360 U
BENZO(A)PYRENE	360 U
INDENO(1,2,3-CD)PYRENE	360 U
DIBENZO(A,H)ANTHRACENE	360 U
BENZO(G,H,I)PERYLENE	360 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - DUPLICATE SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW17IW-01D
DATE SAMPLED	03/12/95
DEPTH	1-3'
UNITS	UG/KG
PESTICIDE/PCBS	
ALPHA-BHC	1.8 UJ
BETA-BHC	1.8 UJ
DELTA-BHC	1.8 UJ
GAMMA-BHC (LINDANE)	1.8 UJ
HEPTACHLOR	1.8 UJ
ALDRIN	1.8 UJ
HEPTACHLOR EPOXIDE	1.8 UJ
ENDOSULFAN I	1.8 UJ
DIELDRIN	3.7 UJ
4,4'-DDE	2.6 J
ENDRIN	3.7 UJ
ENDOSULFAN II	3.7 UJ
4,4'-DDD	4.8 J
ENDOSULFAN SULFATE	3.7 UJ
4,4'-DDT	3.7 UJ
METHOXYCHLOR	18 UJ
ENDRIN KETONE	3.7 UJ
ENDRIN ALDEHYDE	3.7 UJ
ALPHA-CHLORDANE	1.8 UJ
GAMMA-CHLORDANE	1.8 UJ
TOXAPHENE	180 UJ
AROCLOR-1016	37 UJ
AROCLOR-1221	73 UJ
AROCLOR-1232	37 UJ
AROCLOR-1242	37 UJ
AROCLOR-1248	37 UJ
AROCLOR-1254	37 UJ
AROCLOR-1260	37 UJ

SITE 86, ABOVE GROUND STORAGE TANK AREA
SUBSURFACE SOIL - DUPLICATE SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
INORGANIC ANALYTES

LOCATION	86-GW17IW-01D	
DATE SAMPLED	03/12/95	
DEPTH	1-3'	
UNITS	MG/KG	
TOTAL METALS		
ALUMINUM, TOTAL	2190	
ANTIMONY, TOTAL	2.4	UJ
ARSENIC, TOTAL	0.34	U
BARIUM, TOTAL	3.9	
BERYLLIUM, TOTAL	0.07	U
CADMIUM, TOTAL	0.63	U
CALCIUM, TOTAL	5550	
CHROMIUM, TOTAL	2.3	
COBALT, TOTAL	0.5	U
COPPER, TOTAL	0.87	U
IRON, TOTAL	1010	
LEAD, TOTAL	3.6	
MAGNESIUM, TOTAL	130	
MANGANESE, TOTAL	3.3	
MERCURY, TOTAL	0.1	U
NICKEL, TOTAL	0.92	U
POTASSIUM, TOTAL	59.2	
SELENIUM, TOTAL	0.27	UJ
SILVER, TOTAL	0.54	U
SODIUM, TOTAL	14	U
THALLIUM, TOTAL	0.2	U
VANADIUM, TOTAL	3.1	
ZINC, TOTAL	2.1	

GROUNDWATER

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - DUPLICATE SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW03-01D	86-GW15IW-01D	86-GW22IW-01D
DATE SAMPLED	03/23/95	03/22/95	05/07/95
UNITS	UG/L	UG/L	UG/L
VOLATILES			
CHLOROMETHANE	10 U	10 U	10 U
BROMOMETHANE	10 U	10 U	10 U
VINYL CHLORIDE	10 U	10 U	10 U
CHLOROETHANE	10 U	10 U	10 U
METHYLENE CHLORIDE	10 U	10 U	10 U
ACETONE	10 U	10 U	10 U
CARBON DISULFIDE	10 U	10 U	10 U
1,1-DICHLOROETHENE	10 U	10 U	10 U
1,1-DICHLOROETHANE	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	73	10 UJ
CHLOROFORM	10 U	10 U	10 U
1,2-DICHLOROETHANE	10 U	10 U	10 U
2-BUTANONE	10 U	10 U	10 U
1,1,1-TRICHLOROETHANE	10 U	10 U	10 U
CARBON TETRACHLORIDE	10 U	10 U	10 U
BROMODICHLOROMETHANE	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	10 U	10 U
CIS-1,3-DICHLOROPROPENE	10 U	10 U	10 U
TRICHLOROETHENE	10 U	10 U	10 U
DIBROMOCHLOROMETHANE	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	10 U	10 U
BENZENE	10 U	8	10 U
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	10 U
BROMOFORM	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U
TETRACHLOROETHENE	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	10 U
TOLUENE	10 U	10 U	10 U
CHLOROBENZENE	10 U	10 U	10 U
ETHYLBENZENE	10 U	10 U	10 U
STYRENE	10 U	10 U	10 U
XYLENE (TOTAL)	10 U	10 U	10 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - DUPLICATE SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW03-01D	86-GW15IW-01D	86-GW22IW-01D
DATE SAMPLED	03/23/95	03/22/95	05/07/95
UNITS	UG/L	UG/L	UG/L
SEMIVOLATILES			
PHENOL	10 U	10 U	NA
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	NA
2-CHLOROPHENOL	10 U	10 U	NA
1,3-DICHLOROBENZENE	10 U	10 U	NA
1,4-DICHLOROBENZENE	10 U	10 U	NA
1,2-DICHLOROBENZENE	10 U	10 U	NA
2-METHYLPHENOL	10 U	10 U	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	NA
4-METHYLPHENOL	10 U	10 U	NA
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	NA
HEXACHLOROETHANE	10 U	10 U	NA
NITROBENZENE	10 U	10 U	NA
ISOPHORONE	10 U	10 U	NA
2-NITROPHENOL	10 U	10 U	NA
2,4-DIMETHYLPHENOL	10 U	10 U	NA
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	NA
2,4-DICHLOROPHENOL	10 U	10 U	NA
1,2,4-TRICHLOROBENZENE	10 U	10 U	NA
NAPHTHALENE	10 U	10 U	NA
4-CHLOROANILINE	10 U	10 U	NA
HEXACHLOROBUTADIENE	10 U	10 U	NA
4-CHLORO-3-METHYLPHENOL	10 U	10 U	NA
2-METHYLNAPHTHALENE	10 U	10 U	NA
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	NA
2,4,6-TRICHLOROPHENOL	10 U	10 U	NA
2,4,5-TRICHLOROPHENOL	24 U	24 U	NA
2-CHLORONAPHTHALENE	10 U	10 U	NA
2-NITROANILINE	24 U	24 U	NA
DIMETHYLPHTHALATE	10 U	10 U	NA
ACENAPHTHYLENE	10 U	10 U	NA
2,6-DINITROTOLUENE	10 U	10 U	NA
3-NITROANILINE	24 U	24 U	NA
ACENAPHTHENE	10 U	10 U	NA
2,4-DINITROPHENOL	24 U	24 U	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - DUPLICATE SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

LOCATION	86-GW03-01D	86-GW15IW-01D	86-GW22IW-01D
DATE SAMPLED	03/23/95	03/22/95	05/07/95
UNITS	UG/L	UG/L	UG/L
SEMIVOLATILES cont.			
4-NITROPHENOL	24 U	24 U	NA
DIBENZOFURAN	10 U	10 U	NA
2,4-DINITROTOLUENE	10 U	10 U	NA
DIETHYLPHTHALATE	10 U	10 U	NA
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	NA
FLUORENE	10 U	10 U	NA
4-NITROANILINE	24 U	24 U	NA
4,6-DINITRO-2-METHYLPHENOL	24 U	24 U	NA
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	NA
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	NA
HEXACHLOROBENZENE	10 U	10 U	NA
PENTACHLOROPHENOL	24 U	24 U	NA
PHENANTHRENE	10 U	10 U	NA
ANTHRACENE	10 U	10 U	NA
CARBAZOLE	10 U	10 U	NA
DI-N-BUTYLPHTHALATE	10 U	10 U	NA
FLUORANTHENE	10 U	10 U	NA
PYRENE	10 U	10 U	NA
BUTYLBENZYLPHTHALATE	10 U	10 U	NA
3,3'-DICHLOROBENZIDINE	10 U	10 U	NA
BENZO(A)ANTHRACENE	10 U	10 U	NA
CHRYSENE	10 U	10 U	NA
BIS(2-ETHYLHEXYL)PHTHALATE	63	10 U	NA
DI-N-OCTYL PHTHALATE	10 U	10 U	NA
BENZO(B)FLUORANTHENE	10 U	10 U	NA
BENZO(K)FLUORANTHENE	10 U	10 U	NA
BENZO(A)PYRENE	10 U	10 U	NA
INDENO(1,2,3-CD)PYRENE	10 U	10 U	NA
DIBENZO(A,H)ANTHRACENE	10 U	10 U	NA
BENZO(G,H,I)PERYLENE	10 U	10 U	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - DUPLICATE SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
INORGANIC ANALYTES

LOCATION	86-GW03-01D	86-GW15IW-01D	86-GW22IW-01D
DATE SAMPLED	03/23/95	03/22/95	05/07/95
UNITS	UG/L	UG/L	UG/L
TOTAL METALS			
ALUMINUM, TOTAL	801	41.4 U	21.2 U
ANTIMONY, TOTAL	20.7 U	20.7 U	20.8 U
ARSENIC, TOTAL	1.9 U	1.3 U	1.7 U
BARIUM, TOTAL	34.4	17.2	11.5
BERYLLIUM, TOTAL	0.9 U	0.9 U	0.8 U
CADMIUM, TOTAL	2.8 U	2.8 U	1.9 U
CALCIUM, TOTAL	8080	73700	57500
CHROMIUM, TOTAL	2.9 U	2.9 U	4.1 U
COBALT, TOTAL	3 U	3 U	3.4 U
COPPER, TOTAL	7.4 U	1.9 U	1.8 U
IRON, TOTAL	272	1070	521
LEAD, TOTAL	1 U	1.6 U	0.8 UJ
MAGNESIUM, TOTAL	1550	2290	2470
MANGANESE, TOTAL	13.7	111	82.5
MERCURY, TOTAL	0.2 U	0.2 U	0.2 U
NICKEL, TOTAL	10.8 U	10.8 U	10.9 U
POTASSIUM, TOTAL	706	1910	2280 J
SELENIUM, TOTAL	1.5 U	1.5 U	1.8 U
SILVER, TOTAL	3 U	3 U	2.8 U
SODIUM, TOTAL	10300	7450	11700
THALLIUM, TOTAL	1.1 U	0.7 U	0.7 U
VANADIUM, TOTAL	2.3 U	2.9 U	2 U
ZINC, TOTAL	3.8 U	3.8 U	6 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER - DUPLICATE SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
DISSOLVED INORGANIC ANALYTES

LOCATION	86-GW15IWD-01D
DATE SAMPLED	03/22/95
UNITS	UG/L
DISSOLVED METALS	
ALUMINUM, SOLUBLE	24 U
ANTIMONY, SOLUBLE	20.7 U
ARSENIC, SOLUBLE	1.3 U
BARIUM, SOLUBLE	15.6 U
BERYLLIUM, SOLUBLE	0.9 U
CADMIUM, SOLUBLE	2.8 U
CALCIUM, SOLUBLE	70300
CHROMIUM, SOLUBLE	2.9 U
COBALT, SOLUBLE	3 U
COPPER, SOLUBLE	1.9 U
IRON, SOLUBLE	988
LEAD, SOLUBLE	1.6 U
MAGNESIUM, SOLUBLE	2140
MANGANESE, SOLUBLE	106
MERCURY, SOLUBLE	0.2 U
NICKEL, SOLUBLE	10.8 U
POTASSIUM, SOLUBLE	1540
SELENIUM, SOLUBLE	1.5 U
SILVER, SOLUBLE	3 U
SODIUM, SOLUBLE	6990
THALLIUM, SOLUBLE	0.7 U
VANADIUM, SOLUBLE	2.5 U
ZINC, SOLUBLE	3.8 U

APPENDIX J
QA/QC SAMPLING SUMMARIES

SOIL

SITE 86, ABOVE GROUND STORAGE TANK AREA
SOIL QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPONDS

SAMPLE	303-FB-02	303-TB-01	303-TB-05	303-TB-06	303-TB-08	303-TB-12
DATE SAMPLED	03/15/95	02/22/95	02/26/95	02/27/95	02/28/95	03/09/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
VOLATILES						
CHLOROMETHANE	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
VINYL CHLORIDE	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
METHYLENE CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	10 U	10 U	17 J	15 J	23 J	15 U
CARBON DISULFIDE	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
1,1-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
CHLOROFORM	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
2-BUTANONE	10 U	22	18	19	18	29
1,1,1-TRICHLOROETHANE	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
BROMODICHLOROMETHANE	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
CIS-1,3-DICHLOROPROPENE	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
DIBROMOCHLOROMETHANE	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
BENZENE	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
BROMOFORM	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
2-HEXANONE	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
1,1,2,2-TETRACHLOROETHANE	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
CHLOROBENZENE	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
STYRENE	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

SITE 86, ABOVE GROUND STORAGE TANK AREA
SOIL QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPONDS

SAMPLE	303-FB-02	303-TB-01	303-TB-05	303-TB-06	303-TB-08	303-TB-12
DATE SAMPLED	03/15/95	02/22/95	02/26/95	02/27/95	02/28/95	03/09/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES						
PHENOL	10 U	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	10 U	NA	NA	NA	NA	NA
2-CHLOROPHENOL	10 U	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	10 U	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	10 U	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	10 U	NA	NA	NA	NA	NA
2-METHYLPHENOL	10 U	NA	NA	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	NA	NA	NA	NA	NA
4-METHYLPHENOL	10 U	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	10 U	NA	NA	NA	NA	NA
HEXACHLOROETHANE	10 U	NA	NA	NA	NA	NA
NITROBENZENE	10 U	NA	NA	NA	NA	NA
ISOPHORONE	10 U	NA	NA	NA	NA	NA
2-NITROPHENOL	10 U	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	10 U	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	10 U	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	10 U	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	10 U	NA	NA	NA	NA	NA
NAPHTHALENE	10 U	NA	NA	NA	NA	NA
4-CHLOROANILINE	10 U	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	10 U	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	10 U	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	10 U	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	10 U	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	10 U	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	26 U	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	10 U	NA	NA	NA	NA	NA
2-NITROANILINE	26 U	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	10 U	NA	NA	NA	NA	NA
ACENAPHTHYLENE	10 U	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	10 U	NA	NA	NA	NA	NA
3-NITROANILINE	26 U	NA	NA	NA	NA	NA
ACENAPHTHENE	10 U	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	26 U	NA	NA	NA	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
SOIL QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPONDS

SAMPLE	303-FB-02	303-TB-01	303-TB-05	303-TB-06	303-TB-08	303-TB-12
DATE SAMPLED	03/15/95	02/22/95	02/26/95	02/27/95	02/28/95	03/09/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES cont.						
4-NITROPHENOL	26 U	NA	NA	NA	NA	NA
DIBENZOFURAN	10 U	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	10 U	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	10 U	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	10 U	NA	NA	NA	NA	NA
FLUORENE	10 U	NA	NA	NA	NA	NA
4-NITROANILINE	26 U	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	26 U	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	10 U	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	10 U	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	10 U	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	26 U	NA	NA	NA	NA	NA
PHENANTHRENE	10 U	NA	NA	NA	NA	NA
ANTHRACENE	10 U	NA	NA	NA	NA	NA
CARBAZOLE	10 U	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	10 U	NA	NA	NA	NA	NA
FLUORANTHENE	10 U	NA	NA	NA	NA	NA
PYRENE	10 U	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	10 U	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	10 U	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	10 U	NA	NA	NA	NA	NA
CHRYSENE	10 U	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	NA	NA	NA	NA	NA
DI-N-OCTYL PHTHALATE	10 U	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	10 U	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	10 U	NA	NA	NA	NA	NA
BENZO(A)PYRENE	10 U	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	10 U	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	10 U	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	10 U	NA	NA	NA	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
SOIL QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPONDS

SAMPLE	303-FB-02	303-TB-01	303-TB-05	303-TB-06	303-TB-08	303-TB-12
DATE SAMPLED	03/15/95	02/22/95	02/26/95	02/27/95	02/28/95	03/09/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
PESTICIDE/PCBS						
ALPHA-BHC	0.049 UJ	NA	NA	NA	NA	NA
BETA-BHC	0.049 UJ	NA	NA	NA	NA	NA
DELTA-BHC	0.049 UJ	NA	NA	NA	NA	NA
HEPTACHLOR	0.049 UJ	NA	NA	NA	NA	NA
ALDRIN	0.049 UJ	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	0.049 UJ	NA	NA	NA	NA	NA
ENDOSULFAN I	0.049 UJ	NA	NA	NA	NA	NA
DIELDRIN	0.098 UJ	NA	NA	NA	NA	NA
4,4'-DDE	0.098 UJ	NA	NA	NA	NA	NA
ENDRIN	0.098 UJ	NA	NA	NA	NA	NA
4,4'-DDD	0.098 UJ	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	0.098 UJ	NA	NA	NA	NA	NA
4,4'-DDT	0.098 UJ	NA	NA	NA	NA	NA
METHOXYCHLOR	0.49 UJ	NA	NA	NA	NA	NA
ENDRIN KETONE	0.098 UJ	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	0.098 UJ	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	0.049 UJ	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	0.049 UJ	NA	NA	NA	NA	NA
TOXAPHENE	4.9 UJ	NA	NA	NA	NA	NA
AROCLOR-1016	0.98 UJ	NA	NA	NA	NA	NA
AROCLOR-1221	2 UJ	NA	NA	NA	NA	NA
AROCLOR-1232	0.98 UJ	NA	NA	NA	NA	NA
AROCLOR-1242	0.98 UJ	NA	NA	NA	NA	NA
AROCLOR-1248	0.98 UJ	NA	NA	NA	NA	NA
AROCLOR-1254	0.98 UJ	NA	NA	NA	NA	NA
AROCLOR-1260	0.98 UJ	NA	NA	NA	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
SOIL QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPONDS

SAMPLE	303-TB-15	303-TB-17	303-TB-18	303-TB-42	303-TB-43	86-SIER-01
DATE SAMPLED	03/13/95	03/14/95	03/15/95	05/01/95	05/02/95	02/26/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
VOLATILES						
CHLOROMETHANE	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
VINYL CHLORIDE	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
METHYLENE CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	17 U	17 U	18 U	10 U	10 U	10 U
CARBON DISULFIDE	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
1,1-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
CHLOROFORM	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
2-BUTANONE	28 J	29 J	27 J	10 U	10 U	10 U
1,1,1-TRICHLOROETHANE	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
BROMODICHLOROMETHANE	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
CIS-1,3-DICHLOROPROPENE	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
DIBROMOCHLOROMETHANE	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
BENZENE	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
BROMOFORM	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
2-HEXANONE	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
1,1,2,2-TETRACHLOROETHANE	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
CHLOROBENZENE	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
STYRENE	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

SITE 86, ABOVE GROUND STORAGE TANK AREA
SOIL QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPONDS

SAMPLE	303-TB-15	303-TB-17	303-TB-18	303-TB-42	303-TB-43	86-SIER-01
DATE SAMPLED	03/13/95	03/14/95	03/15/95	05/01/95	05/02/95	02/26/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES						
PHENOL	NA	NA	NA	NA	NA	10 U
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	10 U
2-CHLOROPHENOL	NA	NA	NA	NA	NA	10 U
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	10 U
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	10 U
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	10 U
2-METHYLPHENOL	NA	NA	NA	NA	NA	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	10 U
4-METHYLPHENOL	NA	NA	NA	NA	NA	10 U
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	10 U
HEXACHLOROETHANE	NA	NA	NA	NA	NA	10 U
NITROBENZENE	NA	NA	NA	NA	NA	10 U
ISOPHORONE	NA	NA	NA	NA	NA	10 U
2-NITROPHENOL	NA	NA	NA	NA	NA	10 U
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	10 U
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	10 U
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	10 U
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	10 U
NAPHTHALENE	NA	NA	NA	NA	NA	10 U
4-CHLOROANILINE	NA	NA	NA	NA	NA	10 U
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	10 U
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	10 U
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	10 U
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	10 U
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	10 U
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	26 U
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	10 U
2-NITROANILINE	NA	NA	NA	NA	NA	26 U
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	10 U
ACENAPHTHYLENE	NA	NA	NA	NA	NA	10 U
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	10 U
3-NITROANILINE	NA	NA	NA	NA	NA	26 U
ACENAPHTHENE	NA	NA	NA	NA	NA	10 U
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	26 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SOIL QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPONDS

SAMPLE	303-TB-15	303-TB-17	303-TB-18	303-TB-42	303-TB-43	86-SIER-01
DATE SAMPLED	03/13/95	03/14/95	03/15/95	05/01/95	05/02/95	02/26/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES cont.						
4-NITROPHENOL	NA	NA	NA	NA	NA	26 U
DIBENZOFURAN	NA	NA	NA	NA	NA	10 U
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	10 U
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	10 U
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	10 U
FLUORENE	NA	NA	NA	NA	NA	10 U
4-NITROANILINE	NA	NA	NA	NA	NA	26 U
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	26 U
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	10 U
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	10 U
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	10 U
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	26 U
PHENANTHRENE	NA	NA	NA	NA	NA	10 U
ANTHRACENE	NA	NA	NA	NA	NA	10 U
CARBAZOLE	NA	NA	NA	NA	NA	10 U
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	10 U
FLUORANTHENE	NA	NA	NA	NA	NA	10 U
PYRENE	NA	NA	NA	NA	NA	10 U
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	10 U
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	10 U
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	10 U
CHRYSENE	NA	NA	NA	NA	NA	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	10 U
DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	10 U
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	10 U
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	10 U
BENZO(A)PYRENE	NA	NA	NA	NA	NA	10 U
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	10 U
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	10 U
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	10 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SOIL QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPONDS

SAMPLE	303-TB-15	303-TB-17	303-TB-18	303-TB-42	303-TB-43	86-SIER-01
DATE SAMPLED	03/13/95	03/14/95	03/15/95	05/01/95	05/02/95	02/26/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
PESTICIDE/PCBS						
ALPHA-BHC	NA	NA	NA	NA	NA	0.052 U
BETA-BHC	NA	NA	NA	NA	NA	0.052 U
DELTA-BHC	NA	NA	NA	NA	NA	0.052 U
HEPTACHLOR	NA	NA	NA	NA	NA	0.052 U
ALDRIN	NA	NA	NA	NA	NA	0.052 U
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	0.052 U
ENDOSULFAN I	NA	NA	NA	NA	NA	0.052 U
DIELDRIN	NA	NA	NA	NA	NA	0.1 U
4,4'-DDE	NA	NA	NA	NA	NA	0.1 U
ENDRIN	NA	NA	NA	NA	NA	0.1 U
4,4'-DDD	NA	NA	NA	NA	NA	0.1 U
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	0.1 U
4,4'-DDT	NA	NA	NA	NA	NA	0.1 U
METHOXYCHLOR	NA	NA	NA	NA	NA	0.52 U
ENDRIN KETONE	NA	NA	NA	NA	NA	0.1 U
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	0.1 U
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	0.052 U
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	0.052 U
TOXAPHENE	NA	NA	NA	NA	NA	5.2 U
AROCLOR-1016	NA	NA	NA	NA	NA	1 U
AROCLOR-1221	NA	NA	NA	NA	NA	2.1 U
AROCLOR-1232	NA	NA	NA	NA	NA	1 U
AROCLOR-1242	NA	NA	NA	NA	NA	1 U
AROCLOR-1248	NA	NA	NA	NA	NA	1 U
AROCLOR-1254	NA	NA	NA	NA	NA	1 U
AROCLOR-1260	NA	NA	NA	NA	NA	1 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SOIL QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPONDS

SAMPLE DATE SAMPLED UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
VOLATILES						
CHLOROMETHANE	10 U	10 U	ND	ND		0/12
BROMOMETHANE	10 U	10 U	ND	ND		0/12
VINYL CHLORIDE	10 U	10 U	ND	ND		0/12
CHLOROETHANE	10 U	10 U	ND	ND		0/12
METHYLENE CHLORIDE	10 U	10 U	ND	ND		0/12
ACETONE	10 U	18 U	15 J	23 J	303-TB-08	3/12
CARBON DISULFIDE	10 U	10 U	ND	ND		0/12
1,1-DICHLOROETHENE	10 U	10 U	ND	ND		0/12
1,1-DICHLOROETHANE	10 U	10 U	ND	ND		0/12
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	ND	ND		0/12
CHLOROFORM	10 U	10 U	ND	ND		0/12
1,2-DICHLOROETHANE	10 U	10 U	ND	ND		0/12
2-BUTANONE	10 U	10 U	18	29	303-TB-17	8/12
1,1,1-TRICHLOROETHANE	10 U	10 U	ND	ND		0/12
CARBON TETRACHLORIDE	10 U	10 U	ND	ND		0/12
BROMODICHLOROMETHANE	10 U	10 U	ND	ND		0/12
1,2-DICHLOROPROPANE	10 U	10 U	ND	ND		0/12
CIS-1,3-DICHLOROPROPENE	10 U	10 U	ND	ND		0/12
TRICHLOROETHENE	10 U	10 U	ND	ND		0/12
DIBROMOCHLOROMETHANE	10 U	10 U	ND	ND		0/12
1,1,2-TRICHLOROETHANE	10 U	10 U	ND	ND		0/12
BENZENE	10 U	10 U	ND	ND		0/12
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	ND	ND		0/12
BROMOFORM	10 U	10 U	ND	ND		0/12
4-METHYL-2-PENTANONE	10 U	10 U	ND	ND		0/12
2-HEXANONE	10 U	10 U	ND	ND		0/12
TETRACHLOROETHENE	10 U	10 U	ND	ND		0/12
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	ND	ND		0/12
TOLUENE	10 U	10 U	ND	ND		0/12
CHLOROBENZENE	10 U	10 U	ND	ND		0/12
ETHYLBENZENE	10 U	10 U	ND	ND		0/12
STYRENE	10 U	10 U	ND	ND		0/12
XYLENE (TOTAL)	10 U	10 U	ND	ND		0/12

SITE 86, ABOVE GROUND STORAGE TANK AREA
SOIL QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPONDS

SAMPLE DATE SAMPLED UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
SEMIVOLATILES						
PHENOL	10 U	10 U	ND	ND		0/2
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	ND	ND		0/2
2-CHLOROPHENOL	10 U	10 U	ND	ND		0/2
1,3-DICHLOROBENZENE	10 U	10 U	ND	ND		0/2
1,4-DICHLOROBENZENE	10 U	10 U	ND	ND		0/2
1,2-DICHLOROBENZENE	10 U	10 U	ND	ND		0/2
2-METHYLPHENOL	10 U	10 U	ND	ND		0/2
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	ND	ND		0/2
4-METHYLPHENOL	10 U	10 U	ND	ND		0/2
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	ND	ND		0/2
HEXACHLOROETHANE	10 U	10 U	ND	ND		0/2
NITROBENZENE	10 U	10 U	ND	ND		0/2
ISOPHORONE	10 U	10 U	ND	ND		0/2
2-NITROPHENOL	10 U	10 U	ND	ND		0/2
2,4-DIMETHYLPHENOL	10 U	10 U	ND	ND		0/2
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	ND	ND		0/2
2,4-DICHLOROPHENOL	10 U	10 U	ND	ND		0/2
1,2,4-TRICHLOROBENZENE	10 U	10 U	ND	ND		0/2
NAPHTHALENE	10 U	10 U	ND	ND		0/2
4-CHLOROANILINE	10 U	10 U	ND	ND		0/2
HEXACHLOROBUTADIENE	10 U	10 U	ND	ND		0/2
4-CHLORO-3-METHYLPHENOL	10 U	10 U	ND	ND		0/2
2-METHYLNAPHTHALENE	10 U	10 U	ND	ND		0/2
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	ND	ND		0/2
2,4,6-TRICHLOROPHENOL	10 U	10 U	ND	ND		0/2
2,4,5-TRICHLOROPHENOL	26 U	26 U	ND	ND		0/2
2-CHLORONAPHTHALENE	10 U	10 U	ND	ND		0/2
2-NITROANILINE	26 U	26 U	ND	ND		0/2
DIMETHYLPHTHALATE	10 U	10 U	ND	ND		0/2
ACENAPHTHYLENE	10 U	10 U	ND	ND		0/2
2,6-DINITROTOLUENE	10 U	10 U	ND	ND		0/2
3-NITROANILINE	26 U	26 U	ND	ND		0/2
ACENAPHTHENE	10 U	10 U	ND	ND		0/2
2,4-DINITROPHENOL	26 U	26 U	ND	ND		0/2

SITE 86, ABOVE GROUND STORAGE TANK AREA
SOIL QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPONDS

SAMPLE DATE SAMPLED UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
SEMIVOLATILES cont.						
4-NITROPHENOL	26 U	26 U	ND	ND		0/2
DIBENZOFURAN	10 U	10 U	ND	ND		0/2
2,4-DINITROTOLUENE	10 U	10 U	ND	ND		0/2
DIETHYLPHTHALATE	10 U	10 U	ND	ND		0/2
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	ND	ND		0/2
FLUORENE	10 U	10 U	ND	ND		0/2
4-NITROANILINE	26 U	26 U	ND	ND		0/2
4,6-DINITRO-2-METHYLPHENOL	26 U	26 U	ND	ND		0/2
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	ND	ND		0/2
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	ND	ND		0/2
HEXACHLOROBENZENE	10 U	10 U	ND	ND		0/2
PENTACHLOROPHENOL	26 U	26 U	ND	ND		0/2
PHENANTHRENE	10 U	10 U	ND	ND		0/2
ANTHRACENE	10 U	10 U	ND	ND		0/2
CARBAZOLE	10 U	10 U	ND	ND		0/2
DI-N-BUTYLPHTHALATE	10 U	10 U	ND	ND		0/2
FLUORANTHENE	10 U	10 U	ND	ND		0/2
PYRENE	10 U	10 U	ND	ND		0/2
BUTYLBENZYLPHTHALATE	10 U	10 U	ND	ND		0/2
3,3'-DICHLOROBENZIDINE	10 U	10 U	ND	ND		0/2
BENZO(A)ANTHRACENE	10 U	10 U	ND	ND		0/2
CHRYSENE	10 U	10 U	ND	ND		0/2
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	10 U	ND	ND		0/2
DI-N-OCTYL PHTHALATE	10 U	10 U	ND	ND		0/2
BENZO(B)FLUORANTHENE	10 U	10 U	ND	ND		0/2
BENZO(K)FLUORANTHENE	10 U	10 U	ND	ND		0/2
BENZO(A)PYRENE	10 U	10 U	ND	ND		0/2
INDENO(1,2,3-CD)PYRENE	10 U	10 U	ND	ND		0/2
DIBENZO(A,H)ANTHRACENE	10 U	10 U	ND	ND		0/2
BENZO(G,H,I)PERYLENE	10 U	10 U	ND	ND		0/2

SITE 86, ABOVE GROUND STORAGE TANK AREA
SOIL QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPONDS

SAMPLE DATE SAMPLED UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
PESTICIDE/PCBS						
ALPHA-BHC	0.049 UJ	0.052 U	ND	ND		0/2
BETA-BHC	0.049 UJ	0.052 U	ND	ND		0/2
DELTA-BHC	0.049 UJ	0.052 U	ND	ND		0/2
HEPTACHLOR	0.049 UJ	0.052 U	ND	ND		0/2
ALDRIN	0.049 UJ	0.052 U	ND	ND		0/2
HEPTACHLOR EPOXIDE	0.049 UJ	0.052 U	ND	ND		0/2
ENDOSULFAN I	0.049 UJ	0.052 U	ND	ND		0/2
DIELDRIN	0.098 UJ	0.1 U	ND	ND		0/2
4,4'-DDE	0.098 UJ	0.1 U	ND	ND		0/2
ENDRIN	0.098 UJ	0.1 U	ND	ND		0/2
4,4'-DDD	0.098 UJ	0.1 U	ND	ND		0/2
ENDOSULFAN SULFATE	0.098 UJ	0.1 U	ND	ND		0/2
4,4'-DDT	0.098 UJ	0.1 U	ND	ND		0/2
METHOXYCHLOR	0.49 UJ	0.52 U	ND	ND		0/2
ENDRIN KETONE	0.098 UJ	0.1 U	ND	ND		0/2
ENDRIN ALDEHYDE	0.098 UJ	0.1 U	ND	ND		0/2
ALPHA-CHLORDANE	0.049 UJ	0.052 U	ND	ND		0/2
GAMMA-CHLORDANE	0.049 UJ	0.052 U	ND	ND		0/2
TOXAPHENE	4.9 UJ	5.2 U	ND	ND		0/2
AROCLOR-1016	0.98 UJ	1 U	ND	ND		0/2
AROCLOR-1221	2 UJ	2.1 U	ND	ND		0/2
AROCLOR-1232	0.98 UJ	1 U	ND	ND		0/2
AROCLOR-1242	0.98 UJ	1 U	ND	ND		0/2
AROCLOR-1248	0.98 UJ	1 U	ND	ND		0/2
AROCLOR-1254	0.98 UJ	1 U	ND	ND		0/2
AROCLOR-1260	0.98 UJ	1 U	ND	ND		0/2

SITE 86, ABOVE GROUND STORAGE TANK AREA
SOIL QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
INORGANIC ANALYTES

SAMPLE	303-FB-02	86-SIER-01
DATE SAMPLED	03/15/95	02/26/95
UNITS	UG/L	UG/L
TOTAL METALS		
ALUMINUM, TOTAL	27.5 U	16.8 U
ANTIMONY, TOTAL	20.7 U	10.9 U
ARSENIC, TOTAL	1.9 U	1.6 U
BARIUM, TOTAL	1.7 U	0.8 U
BERYLLIUM, TOTAL	0.9 U	0.76 U
CADMIUM, TOTAL	2.8 U	2.9 U
CALCIUM, TOTAL	108 U	40.4 U
CHROMIUM, TOTAL	2.9 U	4.7 U
COBALT, TOTAL	3 U	2.3 U
COPPER, TOTAL	1.9 U	4 U
IRON, TOTAL	48.4 U	3.3 U
LEAD, TOTAL	1 U	1.6 U
MAGNESIUM, TOTAL	18.3 U	34.3 U
MANGANESE, TOTAL	1.8 U	0.9 U
MERCURY, TOTAL	0.2 U	0.2 U
NICKEL, TOTAL	10.8 U	4.2 U
POTASSIUM, TOTAL	685 U	67.9 U
SELENIUM, TOTAL	1.5 U	1.8 U
SILVER, TOTAL	3 U	2.5 U
SODIUM, TOTAL	143 U	20.5 U
THALLIUM, TOTAL	1.1 U	0.7 U
VANADIUM, TOTAL	2.3 U	2.1 U
ZINC, TOTAL	3.8 U	1.9 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
SOIL QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
INORGANIC ANALYTES

SAMPLE DATE SAMPLED UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
TOTAL METALS						
ALUMINUM, TOTAL	16.8 U	27.5 U	ND	ND		0/2
ANTIMONY, TOTAL	10.9 U	20.7 U	ND	ND		0/2
ARSENIC, TOTAL	1.6 U	1.9 U	ND	ND		0/2
BARIUM, TOTAL	0.8 U	1.7 U	ND	ND		0/2
BERYLLIUM, TOTAL	0.76 U	0.9 U	ND	ND		0/2
CADMIUM, TOTAL	2.8 U	2.9 U	ND	ND		0/2
CALCIUM, TOTAL	40.4 U	108 U	ND	ND		0/2
CHROMIUM, TOTAL	2.9 U	4.7 U	ND	ND		0/2
COBALT, TOTAL	2.3 U	3 U	ND	ND		0/2
COPPER, TOTAL	1.9 U	4 U	ND	ND		0/2
IRON, TOTAL	3.3 U	48.4 U	ND	ND		0/2
LEAD, TOTAL	1 U	1.6 U	ND	ND		0/2
MAGNESIUM, TOTAL	18.3 U	34.3 U	ND	ND		0/2
MANGANESE, TOTAL	0.9 U	1.8 U	ND	ND		0/2
MERCURY, TOTAL	0.2 U	0.2 U	ND	ND		0/2
NICKEL, TOTAL	4.2 U	10.8 U	ND	ND		0/2
POTASSIUM, TOTAL	67.9 U	685 U	ND	ND		0/2
SELENIUM, TOTAL	1.5 U	1.8 U	ND	ND		0/2
SILVER, TOTAL	2.5 U	3 U	ND	ND		0/2
SODIUM, TOTAL	20.5 U	143 U	ND	ND		0/2
THALLIUM, TOTAL	0.7 U	1.1 U	ND	ND		0/2
VANADIUM, TOTAL	2.1 U	2.3 U	ND	ND		0/2
ZINC, TOTAL	1.9 U	3.8 U	ND	ND		0/2

GROUNDWATER

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

SAMPLE	303-TB-19	303-TB-20	303-TB-21	303-TB-22	303-TB-23	303-TB-24
DATE SAMPLED	03/21/95	03/21/95	03/22/95	03/23/95	03/24/95	03/25/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
VOLATILES						
CHLOROMETHANE	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
VINYL CHLORIDE	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
METHYLENE CHLORIDE	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
CARBON DISULFIDE	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
1,1-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
CHLOROFORM	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
2-BUTANONE	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-TRICHLOROETHANE	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
BROMODICHLOROMETHANE	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
CIS-1,3-DICHLOROPROPENE	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
DIBROMOCHLOROMETHANE	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
BENZENE	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
BROMOFORM	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
2-HEXANONE	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
1,1,2,2-TETRACHLOROETHANE	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
CHLOROBENZENE	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
STYRENE	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

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

SAMPLE	303-TB-19	303-TB-20	303-TB-21	303-TB-22	303-TB-23	303-TB-24
DATE SAMPLED	03/21/95	03/21/95	03/22/95	03/23/95	03/24/95	03/25/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES						
PHENOL	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

SAMPLE	303-TB-19	303-TB-20	303-TB-21	303-TB-22	303-TB-23	303-TB-24
DATE SAMPLED	03/21/95	03/21/95	03/22/95	03/23/95	03/24/95	03/25/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES cont.						
4-NITROPHENOL	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA
DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

SAMPLE	303-TB-19	303-TB-20	303-TB-21	303-TB-22	303-TB-23	303-TB-24
DATE SAMPLED	03/21/95	03/21/95	03/22/95	03/23/95	03/24/95	03/25/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
PESTICIDE/PCBS						
ALPHA-BHC	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA
4,4'-DDD	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

SAMPLE	303-TB-25	303-TB-36	303-TB-49	36-GWER-01	86-GWER-01	86-GWER-03
DATE SAMPLED	03/25/95	04/11/95	05/07/95	03/25/95	03/20/95	03/22/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
VOLATILES						
CHLOROMETHANE	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
VINYL CHLORIDE	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
METHYLENE CHLORIDE	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
CARBON DISULFIDE	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
1,1-DICHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	10 UJ	10 U	10 U	10 U
CHLOROFORM	10 U	10 U	10 U	5 J	10 U	10 U
1,2-DICHLOROETHANE	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
1,1,1-TRICHLOROETHANE	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
BROMODICHLOROMETHANE	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
CIS-1,3-DICHLOROPROPENE	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
DIBROMOCHLOROMETHANE	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
BENZENE	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
BROMOFORM	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
2-HEXANONE	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
1,1,2,2-TETRACHLOROETHANE	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
CHLOROBENZENE	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
STYRENE	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

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

SAMPLE	303-TB-25	303-TB-36	303-TB-49	36-GWER-01	86-GWER-01	86-GWER-03
DATE SAMPLED	03/25/95	04/11/95	05/07/95	03/25/95	03/20/95	03/22/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES						
PHENOL	NA	NA	NA	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	10 U	10 U	10 U
2-CHLOROPHENOL	NA	NA	NA	10 U	10 U	10 U
1,3-DICHLOROBENZENE	NA	NA	NA	10 U	10 U	10 U
1,4-DICHLOROBENZENE	NA	NA	NA	10 U	10 U	10 U
1,2-DICHLOROBENZENE	NA	NA	NA	10 U	10 U	10 U
2-METHYLPHENOL	NA	NA	NA	10 U	10 U	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	10 U	10 U	10 U
4-METHYLPHENOL	NA	NA	NA	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	10 U	10 U	10 U
HEXACHLOROETHANE	NA	NA	NA	10 U	10 U	10 U
NITROBENZENE	NA	NA	NA	10 U	10 U	10 U
ISOPHORONE	NA	NA	NA	10 U	10 U	10 U
2-NITROPHENOL	NA	NA	NA	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	NA	NA	NA	10 U	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	10 U	10 U	10 U
2,4-DICHLOROPHENOL	NA	NA	NA	10 U	10 U	10 U
1,2,4-TRICHLOROBENZENE	NA	NA	NA	10 U	10 U	10 U
NAPHTHALENE	NA	NA	NA	10 U	10 U	10 U
4-CHLOROANILINE	NA	NA	NA	10 U	10 U	10 U
HEXACHLOROBUTADIENE	NA	NA	NA	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	10 U	10 U	10 U
2-METHYLNAPHTHALENE	NA	NA	NA	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	10 U	10 U	10 U
2,4,6-TRICHLOROPHENOL	NA	NA	NA	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	NA	NA	NA	25 U	24 U	24 U
2-CHLORONAPHTHALENE	NA	NA	NA	10 U	10 U	10 U
2-NITROANILINE	NA	NA	NA	25 U	24 U	24 U
DIMETHYLPHTHALATE	NA	NA	NA	10 U	10 U	10 U
ACENAPHTHYLENE	NA	NA	NA	10 U	10 U	10 U
2,6-DINITROTOLUENE	NA	NA	NA	10 U	10 U	10 U
3-NITROANILINE	NA	NA	NA	25 U	24 U	24 U
ACENAPHTHENE	NA	NA	NA	10 U	10 U	10 U
2,4-DINITROPHENOL	NA	NA	NA	25 U	24 U	24 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

SAMPLE	303-TB-25	303-TB-36	303-TB-49	36-GWER-01	86-GWER-01	86-GWER-03
DATE SAMPLED	03/25/95	04/11/95	05/07/95	03/25/95	03/20/95	03/22/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES cont.						
4-NITROPHENOL	NA	NA	NA	25 U	24 U	24 U
DIBENZOFURAN	NA	NA	NA	10 U	10 U	10 U
2,4-DINITROTOLUENE	NA	NA	NA	10 U	10 U	10 U
DIETHYLPHTHALATE	NA	NA	NA	10 U	10 U	10 U
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	10 U	10 U	10 U
FLUORENE	NA	NA	NA	10 U	10 U	10 U
4-NITROANILINE	NA	NA	NA	25 U	24 U	24 U
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	25 U	24 U	24 U
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	10 U	10 U	10 U
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	10 U	10 U	10 U
HEXACHLOROBENZENE	NA	NA	NA	10 U	10 U	10 U
PENTACHLOROPHENOL	NA	NA	NA	25 U	24 U	24 U
PHENANTHRENE	NA	NA	NA	10 U	10 U	10 U
ANTHRACENE	NA	NA	NA	10 U	10 U	10 U
CARBAZOLE	NA	NA	NA	10 U	10 U	10 U
DI-N-BUTYLPHTHALATE	NA	NA	NA	10 U	10 U	10 U
FLUORANTHENE	NA	NA	NA	10 U	10 U	10 U
PYRENE	NA	NA	NA	10 U	10 U	10 U
BUTYLBENZYLPHTHALATE	NA	NA	NA	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	NA	NA	NA	10 U	10 U	10 U
BENZO(A)ANTHRACENE	NA	NA	NA	10 U	10 U	10 U
CHRYSENE	NA	NA	NA	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	10 U	1 J	10 U
DI-N-OCTYL PHTHALATE	NA	NA	NA	10 U	10 U	10 U
BENZO(B)FLUORANTHENE	NA	NA	NA	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	NA	NA	NA	10 U	10 U	10 U
BENZO(A)PYRENE	NA	NA	NA	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	10 U	10 U	10 U
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	NA	NA	NA	10 U	10 U	10 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

SAMPLE	303-TB-25	303-TB-36	303-TB-49	36-GWER-01	86-GWER-01	86-GWER-03
DATE SAMPLED	03/25/95	04/11/95	05/07/95	03/25/95	03/20/95	03/22/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
PESTICIDE/PCBS						
ALPHA-BHC	NA	NA	NA	0.049 UJ	NA	NA
BETA-BHC	NA	NA	NA	0.049 UJ	NA	NA
DELTA-BHC	NA	NA	NA	0.049 UJ	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	0.049 UJ	NA	NA
HEPTACHLOR	NA	NA	NA	0.049 UJ	NA	NA
ALDRIN	NA	NA	NA	0.049 UJ	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	0.049 UJ	NA	NA
ENDOSULFAN I	NA	NA	NA	0.049 UJ	NA	NA
DIELDRIN	NA	NA	NA	0.098 UJ	NA	NA
4,4'-DDE	NA	NA	NA	0.098 UJ	NA	NA
ENDRIN	NA	NA	NA	0.098 UJ	NA	NA
ENDOSULFAN II	NA	NA	NA	0.098 UJ	NA	NA
4,4'-DDD	NA	NA	NA	0.098 UJ	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	0.098 UJ	NA	NA
4,4'-DDT	NA	NA	NA	0.098 UJ	NA	NA
METHOXYCHLOR	NA	NA	NA	0.49 UJ	NA	NA
ENDRIN KETONE	NA	NA	NA	0.098 UJ	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	0.098 UJ	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	0.049 UJ	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	0.049 UJ	NA	NA
TOXAPHENE	NA	NA	NA	4.9 UJ	NA	NA
AROCLOR-1016	NA	NA	NA	0.98 UJ	NA	NA
AROCLOR-1221	NA	NA	NA	2 UJ	NA	NA
AROCLOR-1232	NA	NA	NA	0.98 UJ	NA	NA
AROCLOR-1242	NA	NA	NA	0.98 UJ	NA	NA
AROCLOR-1248	NA	NA	NA	0.98 UJ	NA	NA
AROCLOR-1254	NA	NA	NA	0.98 UJ	NA	NA
AROCLOR-1260	NA	NA	NA	0.98 UJ	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

SAMPLE	303-TB-53	303-TB-54	303-TB-55	303-TB-53	86-GWER-O6	86-GWER-O7
DATE SAMPLED	10/10/95	10/10/95	10/10/95	10/14/95	10/16/95	10/16/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
VOLATILES						
CHLOROMETHANE	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
VINYL CHLORIDE	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
METHYLENE CHLORIDE	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	10 U	10 U	10 UJ	10 U	10 U	10 U
CARBON DISULFIDE	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
1,1-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
CHLOROFORM	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
2-BUTANONE	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-TRICHLOROETHANE	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
BROMODICHLOROMETHANE	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
CIS-1,3-DICHLOROPROPENE	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
DIBROMOCHLOROMETHANE	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
BENZENE	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
BROMOFORM	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
2-HEXANONE	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
1,1,2,2-TETRACHLOROETHANE	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
CHLOROBENZENE	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
STYRENE	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

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

SAMPLE	303-TB-53	303-TB-54	303-TB-55	303-TB-53	86-GWER-O6	86-GWER-O7
DATE SAMPLED	10/10/95	10/10/95	10/10/95	10/14/95	10/16/95	10/16/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES						
PHENOL	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA
DIMETHYLPHTHALATE	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

SAMPLE	303-TB-53	303-TB-54	303-TB-55	303-TB-53	86-GWER-O6	86-GWER-O7
DATE SAMPLED	10/10/95	10/10/95	10/10/95	10/14/95	10/16/95	10/16/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
SEMIVOLATILES cont.						
4-NITROPHENOL	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE (1)	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL-PHENYLETHER	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA
DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

SAMPLE	303-TB-53	303-TB-54	303-TB-55	303-TB-53	86-GWER-O6	86-GWER-O7
DATE SAMPLED	10/10/95	10/10/95	10/10/95	10/14/95	10/16/95	10/16/95
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
PESTICIDE/PCBS						
ALPHA-BHC	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA
4,4'-DDD	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

SAMPLE DATE SAMPLED UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
VOLATILES						
CHLOROMETHANE	10 U	10 U	ND	ND		0/18
BROMOMETHANE	10 U	10 U	ND	ND		0/18
VINYL CHLORIDE	10 U	10 U	ND	ND		0/18
CHLOROETHANE	10 U	10 U	ND	ND		0/18
METHYLENE CHLORIDE	10 U	10 U	ND	ND		0/18
ACETONE	10 U	10 U	ND	ND		0/18
CARBON DISULFIDE	10 U	10 U	ND	ND		0/18
1,1-DICHLOROETHENE	10 U	10 U	ND	ND		0/18
1,1-DICHLOROETHANE	10 U	10 U	ND	ND		0/18
1,2-DICHLOROETHENE (TOTAL)	10 U	10 U	ND	ND		0/18
CHLOROFORM	10 U	10 U	5 J	5 J	36-GWER-01	1/18
1,2-DICHLOROETHANE	10 U	10 U	ND	ND		0/18
2-BUTANONE	10 U	10 U	ND	ND		0/18
1,1,1-TRICHLOROETHANE	10 U	10 U	ND	ND		0/18
CARBON TETRACHLORIDE	10 U	10 U	ND	ND		0/18
BROMODICHLOROMETHANE	10 U	10 U	ND	ND		0/18
1,2-DICHLOROPROPANE	10 U	10 U	ND	ND		0/18
CIS-1,3-DICHLOROPROPENE	10 U	10 U	ND	ND		0/18
TRICHLOROETHENE	10 U	10 U	ND	ND		0/18
DIBROMOCHLOROMETHANE	10 U	10 U	ND	ND		0/18
1,1,2-TRICHLOROETHANE	10 U	10 U	ND	ND		0/18
BENZENE	10 U	10 U	ND	ND		0/18
TRANS-1,3-DICHLOROPROPENE	10 U	10 U	ND	ND		0/18
BROMOFORM	10 U	10 U	ND	ND		0/18
4-METHYL-2-PENTANONE	10 U	10 U	ND	ND		0/18
2-HEXANONE	10 U	10 U	ND	ND		0/18
TETRACHLOROETHENE	10 U	10 U	ND	ND		0/18
1,1,2,2-TETRACHLOROETHANE	10 U	10 U	ND	ND		0/18
TOLUENE	10 U	10 U	ND	ND		0/18
CHLOROBENZENE	10 U	10 U	ND	ND		0/18
ETHYLBENZENE	10 U	10 U	ND	ND		0/18
STYRENE	10 U	10 U	ND	ND		0/18
XYLENE (TOTAL)	10 U	10 U	ND	ND		0/18

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

SAMPLE DATE SAMPLED UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
SEMIVOLATILES						
PHENOL	10 U	10 U	ND	ND		0/3
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	ND	ND		0/3
2-CHLOROPHENOL	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
1,2-DICHLOROBENZENE	10 U	10 U	ND	ND		0/3
2-METHYLPHENOL	10 U	10 U	ND	ND		0/3
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	ND	ND		0/3
4-METHYLPHENOL	10 U	10 U	ND	ND		0/3
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	ND	ND		0/3
HEXACHLOROETHANE	10 U	10 U	ND	ND		0/3
NITROBENZENE	10 U	10 U	ND	ND		0/3
ISOPHORONE	10 U	10 U	ND	ND		0/3
2-NITROPHENOL	10 U	10 U	ND	ND		0/3
2,4-DIMETHYLPHENOL	10 U	10 U	ND	ND		0/3
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	ND	ND		0/3
2,4-DICHLOROPHENOL	10 U	10 U	ND	ND		0/3
1,2,4-TRICHLOROBENZENE	10 U	10 U	ND	ND		0/3
NAPHTHALENE	10 U	10 U	ND	ND		0/3
4-CHLOROANILINE	10 U	10 U	ND	ND		0/3
HEXACHLOROBUTADIENE	10 U	10 U	ND	ND		0/3
4-CHLORO-3-METHYLPHENOL	10 U	10 U	ND	ND		0/3
2-METHYLNAPHTHALENE	10 U	10 U	ND	ND		0/3
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	ND	ND		0/3
2,4,6-TRICHLOROPHENOL	10 U	10 U	ND	ND		0/3
2,4,5-TRICHLOROPHENOL	24 U	25 U	ND	ND		0/3
2-CHLORONAPHTHALENE	10 U	10 U	ND	ND		0/3
2-NITROANILINE	24 U	25 U	ND	ND		0/3
DIMETHYLPHTHALATE	10 U	10 U	ND	ND		0/3
ACENAPHTHYLENE	10 U	10 U	ND	ND		0/3
2,6-DINITROTOLUENE	10 U	10 U	ND	ND		0/3
3-NITROANILINE	24 U	25 U	ND	ND		0/3
ACENAPHTHENE	10 U	10 U	ND	ND		0/3
2,4-DINITROPHENOL	24 U	25 U	ND	ND		0/3

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

SAMPLE DATE SAMPLED UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
SEMIVOLATILES cont.						
4-NITROPHENOL	24 U	25 U	ND	ND		0/3
DIBENZOFURAN	10 U	10 U	ND	ND		0/3
2,4-DINITROTOLUENE	10 U	10 U	ND	ND		0/3
DIETHYLPHTHALATE	10 U	10 U	ND	ND		0/3
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	ND	ND		0/3
FLUORENE	10 U	10 U	ND	ND		0/3
4-NITROANILINE	24 U	25 U	ND	ND		0/3
4,6-DINITRO-2-METHYLPHENOL	24 U	25 U	ND	ND		0/3
N-NITROSODIPHENYLAMINE (1)	10 U	10 U	ND	ND		0/3
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	ND	ND		0/3
HEXACHLOROBENZENE	10 U	10 U	ND	ND		0/3
PENTACHLOROPHENOL	24 U	25 U	ND	ND		0/3
PHENANTHRENE	10 U	10 U	ND	ND		0/3
ANTHRACENE	10 U	10 U	ND	ND		0/3
CARBAZOLE	10 U	10 U	ND	ND		0/3
DI-N-BUTYLPHTHALATE	10 U	10 U	ND	ND		0/3
FLUORANTHENE	10 U	10 U	ND	ND		0/3
PYRENE	10 U	10 U	ND	ND		0/3
BUTYLBENZYLPHTHALATE	10 U	10 U	ND	ND		0/3
3,3'-DICHLOROBENZIDINE	10 U	10 U	ND	ND		0/3
BENZO(A)ANTHRACENE	10 U	10 U	ND	ND		0/3
CHRYSENE	10 U	10 U	ND	ND		0/3
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	10 U	1 J	1 J	86-GWER-01	1/3
DI-N-OCTYL PHTHALATE	10 U	10 U	ND	ND		0/3
BENZO(B)FLUORANTHENE	10 U	10 U	ND	ND		0/3
BENZO(K)FLUORANTHENE	10 U	10 U	ND	ND		0/3
BENZO(A)PYRENE	10 U	10 U	ND	ND		0/3
INDENO(1,2,3-CD)PYRENE	10 U	10 U	ND	ND		0/3
DIBENZO(A,H)ANTHRACENE	10 U	10 U	ND	ND		0/3
BENZO(G,H,I)PERYLENE	10 U	10 U	ND	ND		0/3

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
ORGANIC COMPOUNDS

SAMPLE DATE SAMPLED UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
PESTICIDE/PCBS						
ALPHA-BHC	0.049 UJ	0.049 UJ	ND	ND		0/1
BETA-BHC	0.049 UJ	0.049 UJ	ND	ND		0/1
DELTA-BHC	0.049 UJ	0.049 UJ	ND	ND		0/1
GAMMA-BHC (LINDANE)	0.049 UJ	0.049 UJ	ND	ND		0/1
HEPTACHLOR	0.049 UJ	0.049 UJ	ND	ND		0/1
ALDRIN	0.049 UJ	0.049 UJ	ND	ND		0/1
HEPTACHLOR EPOXIDE	0.049 UJ	0.049 UJ	ND	ND		0/1
ENDOSULFAN I	0.049 UJ	0.049 UJ	ND	ND		0/1
DIELDRIN	0.098 UJ	0.098 UJ	ND	ND		0/1
4,4'-DDE	0.098 UJ	0.098 UJ	ND	ND		0/1
ENDRIN	0.098 UJ	0.098 UJ	ND	ND		0/1
ENDOSULFAN II	0.098 UJ	0.098 UJ	ND	ND		0/1
4,4'-DDD	0.098 UJ	0.098 UJ	ND	ND		0/1
ENDOSULFAN SULFATE	0.098 UJ	0.098 UJ	ND	ND		0/1
4,4'-DDT	0.098 UJ	0.098 UJ	ND	ND		0/1
METHOXYCHLOR	0.49 UJ	0.49 UJ	ND	ND		0/1
ENDRIN KETONE	0.098 UJ	0.098 UJ	ND	ND		0/1
ENDRIN ALDEHYDE	0.098 UJ	0.098 UJ	ND	ND		0/1
ALPHA-CHLORDANE	0.049 UJ	0.049 UJ	ND	ND		0/1
GAMMA-CHLORDANE	0.049 UJ	0.049 UJ	ND	ND		0/1
TOXAPHENE	4.9 UJ	4.9 UJ	ND	ND		0/1
AROCLOR-1016	0.98 UJ	0.98 UJ	ND	ND		0/1
AROCLOR-1221	2 UJ	2 UJ	ND	ND		0/1
AROCLOR-1232	0.98 UJ	0.98 UJ	ND	ND		0/1
AROCLOR-1242	0.98 UJ	0.98 UJ	ND	ND		0/1
AROCLOR-1248	0.98 UJ	0.98 UJ	ND	ND		0/1
AROCLOR-1254	0.98 UJ	0.98 UJ	ND	ND		0/1
AROCLOR-1260	0.98 UJ	0.98 UJ	ND	ND		0/1

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
INORGANIC ANALYTES

SAMPLE	36-GWER-01	86-GWER-01	86-GWER-03
DATE SAMPLED	03/25/95	03/20/95	03/22/95
UNITS	UG/L	UG/L	UG/L
TOTAL METALS			
ALUMINUM, TOTAL	16.8 U	33.7 U	34.4 U
ANTIMONY, TOTAL	10.9 U	20.7 U	20.7 U
ARSENIC, TOTAL	1.9 U	1.3 U	1.3 U
BARIUM, TOTAL	0.8 U	1.7 U	1.7 U
BERYLLIUM, TOTAL	0.33 U	0.9 U	0.9 U
CADMIUM, TOTAL	2.9 U	2.8 U	2.8 U
CALCIUM, TOTAL	36.1 U	188 U	273 U
CHROMIUM, TOTAL	4.7 U	2.9 U	2.9 U
COBALT, TOTAL	2.3 U	3 U	3 U
COPPER, TOTAL	4 U	1.9 U	1.9 U
IRON, TOTAL	2.5 U	26.7 U	53.8 U
LEAD, TOTAL	1.6 U	1.6 U	1.6 U
MAGNESIUM, TOTAL	34.3 U	29.8 U	32.5 U
MANGANESE, TOTAL	0.9 U	1.8 U	1.8 U
MERCURY, TOTAL	0.2 U	0.2 U	0.2 U
NICKEL, TOTAL	4.2 U	10.8 U	10.8 U
POTASSIUM, TOTAL	67.9 U	685 U	685 U
SELENIUM, TOTAL	1.5 U	1.5 U	1.5 U
SILVER, TOTAL	2.5 U	3 U	3 U
SODIUM, TOTAL	19.1 U	96.2 U	202 U
THALLIUM, TOTAL	0.7 U	0.7 U	0.7 U
VANADIUM, TOTAL	2.1 U	2.3 U	2.3 U
ZINC, TOTAL	1.9 U	6.2 J	6.2 J

SITE 86, ABOVE GROUND STORAGE TANK AREA
GROUNDWATER QA/QC - FREQUENCY OF DETECTION SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
NORTH CAROLINA
INORGANIC ANALYTES

SAMPLE DATE SAMPLED UNITS	MINIMUM NONDETECTED	MAXIMUM NONDETECTED	MINIMUM DETECTED	MAXIMUM DETECTED	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
TOTAL METALS						
ALUMINUM, TOTAL	16.8 U	34.4 U	ND	ND		0/3
ANTIMONY, TOTAL	10.9 U	20.7 U	ND	ND		0/3
ARSENIC, TOTAL	1.3 U	1.9 U	ND	ND		0/3
BARIUM, TOTAL	0.8 U	1.7 U	ND	ND		0/3
BERYLLIUM, TOTAL	0.33 U	0.9 U	ND	ND		0/3
CADMIUM, TOTAL	2.8 U	2.9 U	ND	ND		0/3
CALCIUM, TOTAL	36.1 U	273 U	ND	ND		0/3
CHROMIUM, TOTAL	2.9 U	4.7 U	ND	ND		0/3
COBALT, TOTAL	2.3 U	3 U	ND	ND		0/3
COPPER, TOTAL	1.9 U	4 U	ND	ND		0/3
IRON, TOTAL	2.5 U	53.8 U	ND	ND		0/3
LEAD, TOTAL	1.6 U	1.6 U	ND	ND		0/3
MAGNESIUM, TOTAL	29.8 U	34.3 U	ND	ND		0/3
MANGANESE, TOTAL	0.9 U	1.8 U	ND	ND		0/3
MERCURY, TOTAL	0.2 U	0.2 U	ND	ND		0/3
NICKEL, TOTAL	4.2 U	10.8 U	ND	ND		0/3
POTASSIUM, TOTAL	67.9 U	685 U	ND	ND		0/3
SELENIUM, TOTAL	1.5 U	1.5 U	ND	ND		0/3
SILVER, TOTAL	2.5 U	3 U	ND	ND		0/3
SODIUM, TOTAL	19.1 U	202 U	ND	ND		0/3
THALLIUM, TOTAL	0.7 U	0.7 U	ND	ND		0/3
VANADIUM, TOTAL	2.1 U	2.3 U	ND	ND		0/3
ZINC, TOTAL	1.9 U	1.9 U	6.2 J	6.2 J	86-GWER-03	2/3

APPENDIX K
PERMEABILITY AND TPH ANALYTICAL RESULTS

PERMEABILITY ANALYTICAL RESULTS

SOIL TECH ENGINEERING

7650 MARKET STREET
WILMINGTON, NORTH CAROLINA 28405

OFFICE: 910-686-9114
FAX: 910-686-9666

April 25, 1995

Baker Environmental, Incorporated
Airport Office Park, Building 3
420 Rouser Road
Coraopolis, Pennsylvania 15108

Attention: Mr. Richard Bonelli

Reference: White Road Extension - Lot 1005
Marine Corp. Air Station
Jacksonville, North Carolina
Job No. 684-95

Dear Mr. Bonelli:

Soil Tech Engineering, Inc. has recently conducted laboratory testing on two subsurface soil specimens recently delivered to our laboratory. We understand the samples were obtained from the Whites Road Extension Project on Lot 1005, at the Marine Corp. Air Station, located at Camp Lejeune, North Carolina.

Two undistributed soil samples were picked up from the project site and delivered to our laboratory. Once received, each sample was tested in accordance with the following procedures:

1. ASTM D-422, "Particle Size Analysis of Soils."

2. ASTM D-423 & D-424; "Liquid Limit, Plastic Limit and Plasticity Index of Soils"

3. Coefficient of Permeability - Falling Head Method, "Engineering Properties of Soils and Their Measurements" by Joseph E. Bowles.

Based on our laboratory testing, both samples were found to be a clayey sand which exhibited permeabilities ranging from 4.4 X 10-7 to 1.4 X 10-7 centimeters per second.

Laboratory Analysis
White Road Extension - Lot 1005
Marine Corp. Air Station - Camp Lejune

Location Depth	36-GW16DW 3/11/95 ~~10'-12'~~ 67-69' (6" recovery)	43GW01 DW 36.0'-37.5'
I) Permeability (cm/Sec)	4.4 X 10 -7 cm/sec	1.4 X 10 -7 cm/sec
Wet unit weight (pcf)	129.8 pcf	127.1 pcf
Existing Moisture, %	15.6	28.4
Saturation moisture, %	16.1	27.5

II) Particle Size Analysis

Sieve Size	% Passing	
10	81.0	100.0
40	74.0	99.1
80	25.0	45.1
200	15.6	21.7
Moisture Content	22.7%	28.4%
Soil Description	Green Gray Clayey fine SAND with shell fragments	Gray clayey fine SAND (sc)

III) Attenberg Limits

Plasticity Limit	Non-Plastic	Non-Plastic
Liquid Limit	Non-Plastic	Non-Plastic
Plasticity Index	Non-Plastic	Non-Plastic

7650 MARKET STREET
WILMINGTON, NORTH CAROLINA 28405

OFFICE: 910-686-9114
FAX: 910-686-9666

Attached please find the results of our laboratory testing. If you have any questions after reviewing this letter, please do not hesitate to contact us.

Very truly yours,

SOIL TECH ENGINEERING

Parks A. Downing, Jr.
Manager

John S. Tunstall
John S. Tunstall, P.E.
Staff Engineer

PADjr:JST/bs

684a4-25

Attachments

TPH ANALYTICAL RESULTS

SITE 86, ABOVE GROUND STORAGE TANK AREA
TOTAL PETROLEUM HYDROCARBONS
REMEDIAL INVESTIGATION, CTO-0303
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	86-AST-SB02-00	86-AST-SB02-02	86-AST-SB02-05	86-AST-SB04-00	86-AST-SB04-02
DATE_SAMPLED	02/26/95	02/26/95	02/26/95	02/26/95	02/26/95
DEPTH	0-6"	3-5'	9-11'	0-6"	3-5'
DIESEL FUEL (mg/kg)	9.4 U	7 J	9.8 U	9.7 U	48 U
GASOLINE (ug/kg)	33 U	36 U	36 U	36 U	36 U
SULFIDE REACTIVE (mg/kg)					

SITE 86, ABOVE GROUND STORAGE TANK AREA
TOTAL PETROLEUM HYDROCARBONS
REMEDIAL INVESTIGATION, CTO-0303
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	86-AST-SB06-00	86-AST-SB06-04	86-AST-SB09-00	86-AST-SB09-04	86-AST-SB10-00
DATE_SAMPLED	02/26/95	02/26/95	02/26/95	02/26/95	03/15/95
DEPTH	0-6"	7-9'	0-6"	7-9'	0-6"
DIESEL FUEL (mg/kg)	9 U	12 U	9.4 U	11 U	9.1 U
GASOLINE (ug/kg)	33 U	42 U	33 U	42 U	33 U
SULFIDE REACTIVE (mg/kg)					

SITE 86, ABOVE GROUND STORAGE TANK AREA
TOTAL PETROLEUM HYDROCARBONS
REMEDIAL INVESTIGATION, CTO-0303
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	86-AST-SB10-04	86-AST-SB11-00	86-AST-SB11-03	86-AST-SB12-00	86-AST-SB12-03	86-RB01
DATE_SAMPLED	03/15/95	03/15/95	03/15/95	03/15/95	03/15/95	04/25/95
DEPTH	7-9'	0-6"	5-7'	0-6"	5-7'	1-3'
DIESEL FUEL (mg/kg)	11 U	11 U	11 U	9.7 U	11 U	
GASOLINE (ug/kg)	42 U	39 U	39 U	36 U	39 U	
SULFIDE REACTIVE (mg/kg)						51.9 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
TOTAL PETROLEUM HYDROCARBONS
REMEDIAL INVESTIGATION, CTO-0303
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	86-RB02
DATE_SAMPLED	05/07/95
DEPTH	3-5'
DIESEL FUEL (mg/kg)	
GASOLINE (ug/kg)	
SULFIDE REACTIVE (mg/kg)	30.3 U

APPENDIX L
WET CHEMISTRY ANALYTICAL RESULTS

SITE 86, ABOVE GROUND STORAGE TANK AREA
WET CHEMISTRY ANALYTICAL SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	86-GW01-01	86-GW02IW-01	86-GW03-01	86-GW03-01D	86-GW04IW-01	86-GW05-01
DATE_SAMPLED	03/25/95	03/25/95	03/23/95	03/23/95	03/23/95	03/24/95
DEPTH	N/A	N/A	N/A	N/A	N/A	N/A
UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
TOTAL DISSOLVED SOLIDS	210	310	90	84	270	170
TOTAL SUSPENDED SOLIDS	25	5 U	5 U	5 U	6	5 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
WET CHEMISTRY ANALYTICAL SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	86-GW06IW-01	86-GW07-01	86-GW08IW-01	86-GW09-01	86-GW10IW-01	86-GW11-01
DATE_SAMPLED .	03/24/95	03/25/95	03/24/95	03/23/95	03/24/95	03/23/95
DEPTH	N/A	N/A	N/A	N/A	N/A	N/A
UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
TOTAL DISSOLVED SOLIDS	160	240	500	66	280	400
TOTAL SUSPENDED SOLIDS	5 U	29	22	5 U	5 U	16

SITE 86, ABOVE GROUND STORAGE TANK AREA
WET CHEMISTRY ANALYTICAL SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	86-GW12IW-01	86-GW13-01	86-GW14IW-01	86-GW15DW-01	86-GW15IW-01
DATE_SAMPLED	03/23/95	03/23/95	03/22/95	03/21/95	03/22/95
DEPTH	N/A	N/A	N/A	N/A	N/A
UNITS	MG/L	MG/L	MG/L	MG/L	MG/L
TOTAL DISSOLVED SOLIDS	170	130	350	480	240
TOTAL SUSPENDED SOLIDS	11	5	13	5 U	5 U

SITE 86, ABOVE GROUND STORAGE TANK AREA
WET CHEMISTRY ANALYTICAL SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	86-GW15IW-01D	86-GW16DW-01	86-GW16IW-01	86-GW17DW-01	86-GW17IW-01	86-GW18DW-01
DATE_SAMPLED	03/22/95	03/20/95	03/22/95	03/21/95	03/23/95	03/22/95
DEPTH	N/A	N/A	N/A	N/A	N/A	N/A
UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
TOTAL DISSOLVED SOLIDS	240	340	400	470	350	430
TOTAL SUSPENDED SOLIDS	5 U	5 U	5 U	5 U	25	5 U

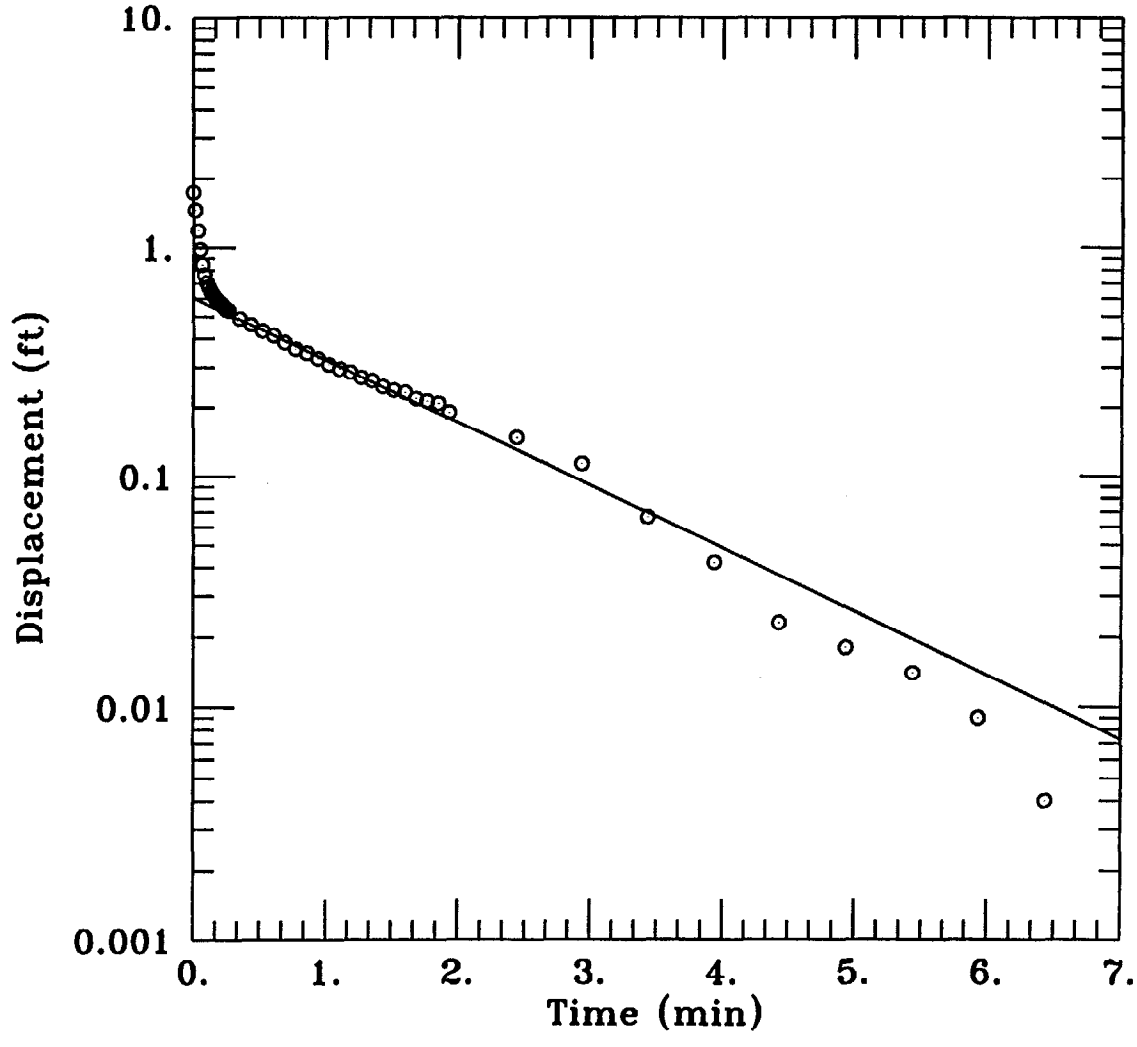
SITE 86, ABOVE GROUND STORAGE TANK AREA
WET CHEMISTRY ANALYTICAL SUMMARY
REMEDIAL INVESTIGATION, CTO-0303
MCB, CAMP LEJEUNE, NORTH CAROLINA

LOCATION	86-GW19DW-01	86-GW20IW-01	86-GW21IW-01	86-GW22IW-01	86-GW22IW-01D	86-GW23IW-01
DATE_SAMPLED	03/26/95	04/11/95	05/07/95	05/07/95	05/07/95	05/07/95
DEPTH	N/A	N/A	N/A	N/A	N/A	N/A
UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
TOTAL DISSOLVED SOLIDS	320	270	310	210	230	270
TOTAL SUSPENDED SOLIDS	5 U	5	5 U	5 U	5 U	5 U

APPENDIX M
AQUIFER TEST RESULTS

Client: **LANTDIV**	Company: **BAKER ENVIRONMENTAL, INC.**
Location: **SITE 86, CAMP LEJEUNE**	Project: **CTO-303**

86-GW01 RISING HEAD TEST



DATA SET:
86GW01R.DAT
05/30/95

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: APRIL 6, 1995

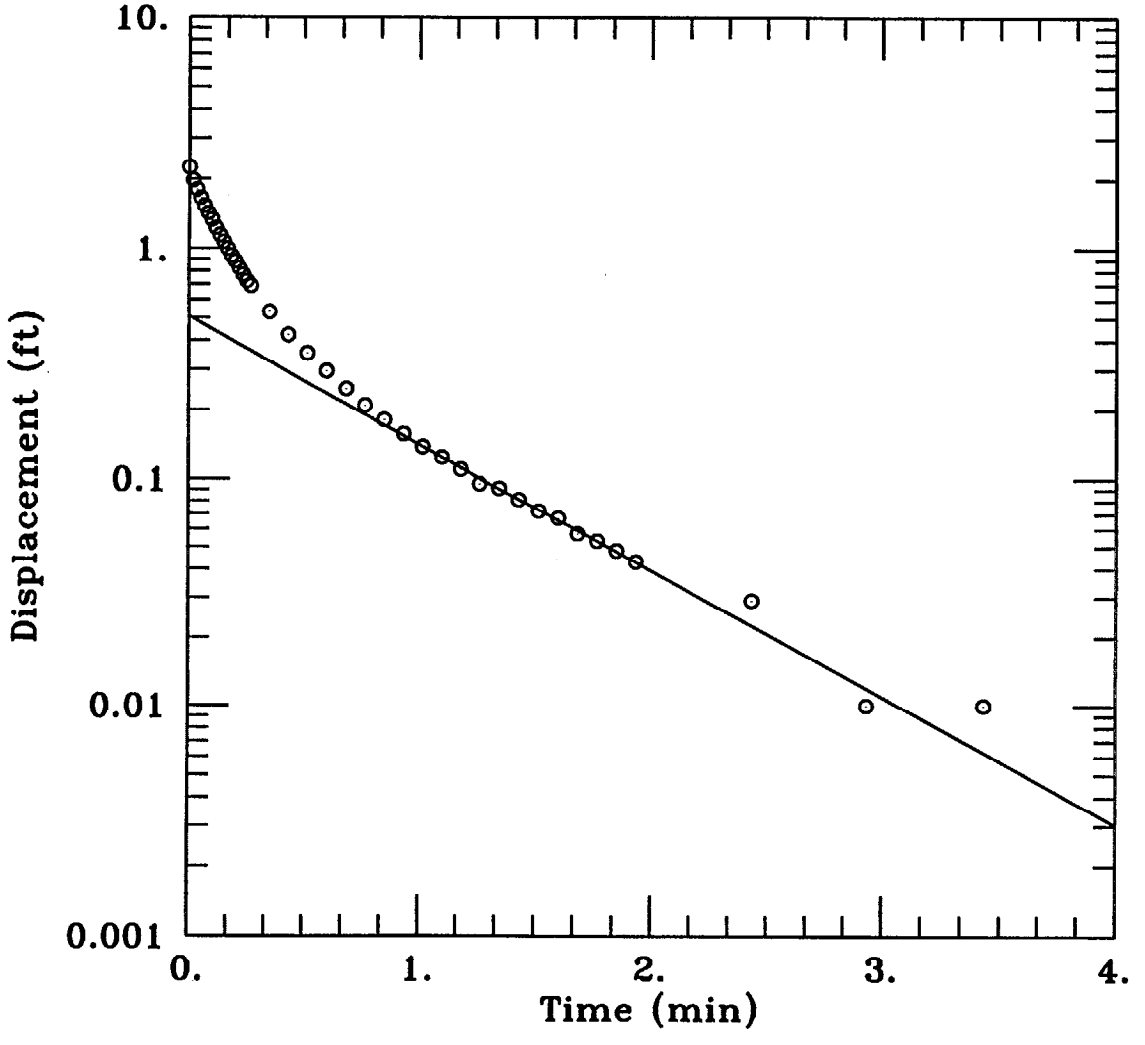
TEST DATA:
H0 = 1.733 ft
rc = 0.0833 ft
rw = 0.35 ft
L = 10. ft
b = 60. ft
H = 8.76 ft

PARAMETER ESTIMATES:
K = 0.6386 ft/day
y0 = 0.6033 ft

AQTESOLV

Client: **LANTDIV**	Company: **BAKER ENVIRONMENTAL, INC.**
Location: **SITE 86, CAMP LEJEUNE**	Project: **CTO-303**

86-GW05 RISING HEAD TEST



DATA SET:
86GW05R.DAT
05/30/95

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: APRIL 6, 1995

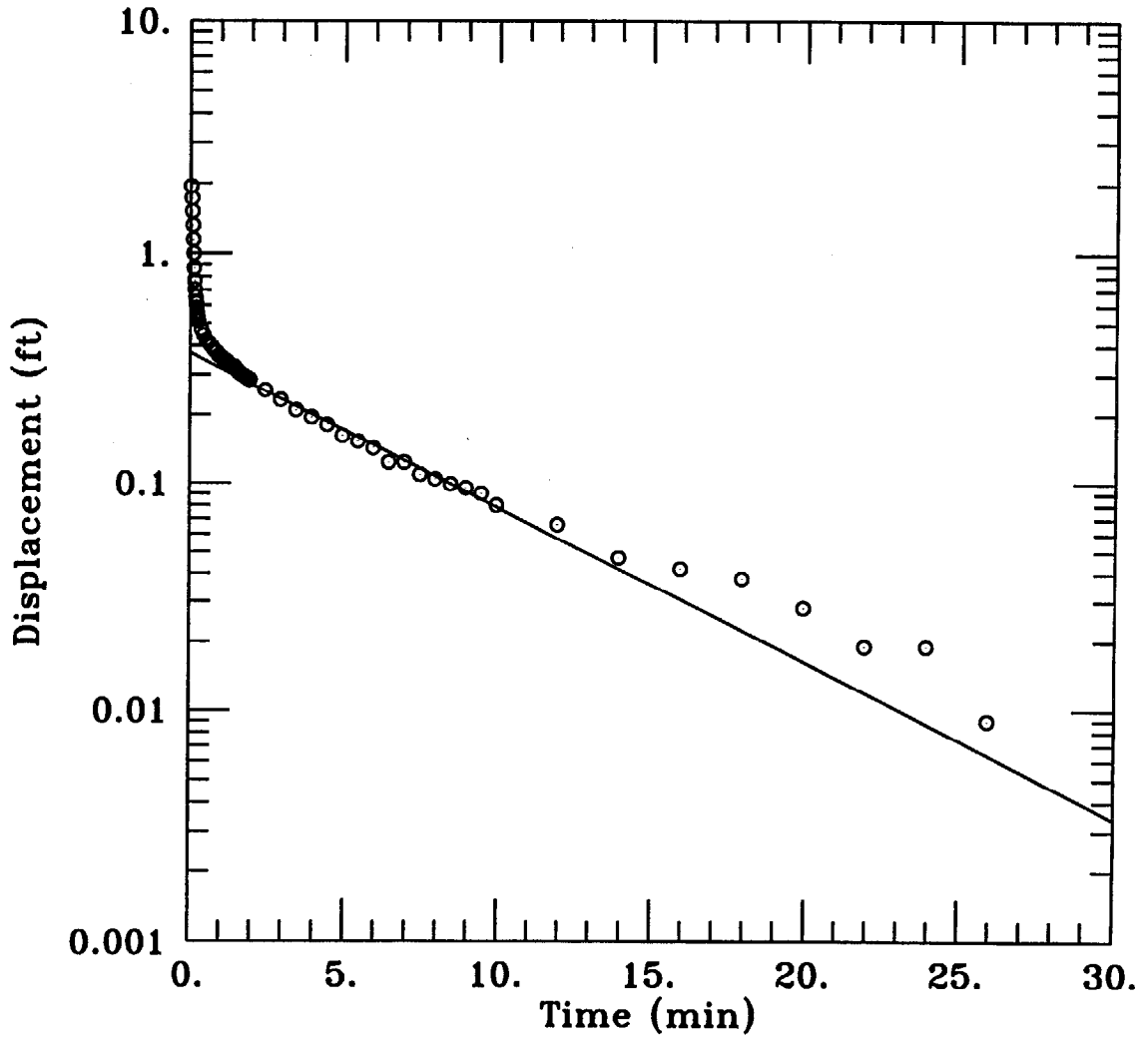
TEST DATA:
H0 = 2.246 ft
rc = 0.0833 ft
rw = 0.35 ft
L = 10. ft
b = 60. ft
H = 8.59 ft

PARAMETER ESTIMATES:
K = 7.736 ft/day
y0 = 0.5078 ft

AQTESOLV

Client: **LANTDIV**	Company: **BAKER ENVIRONMENTAL, INC.**
Location: **SITE 86, CAMP LEJEUNE**	Project: **CTO-303**

86-GW11 RISING HEAD TEST



DATA SET:
86GW11R.DAT
05/30/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: APRIL 6, 1995

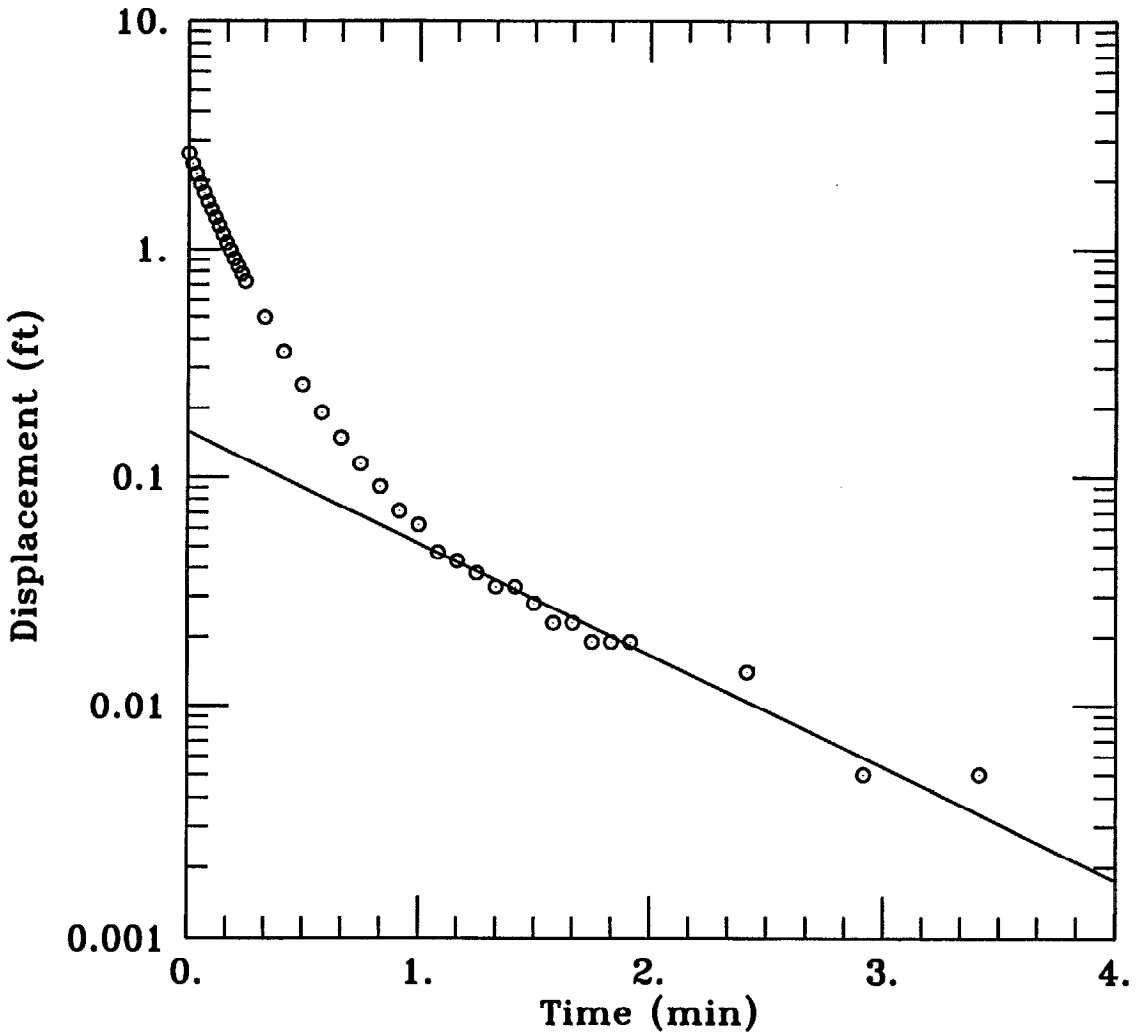
TEST DATA:
H0 = 1.941 ft
rc = 0.0833 ft
rw = 0.35 ft
L = 10. ft
b = 60. ft
H = 8.28 ft

PARAMETER ESTIMATES:
K = 0.1567 ft/day
y0 = 0.3718 ft

AQTESOLV

Client: **LANTDIV**	Company: **BAKER ENVIRONMENTAL, INC.**
Location: **SITE 86, CAMP LEJEUNE**	Project: **CTO-303**

86-GW15IW RISING HEAD TEST



DATA SET:
86GW15IR.DAT
05/30/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: APRIL 7, 1995

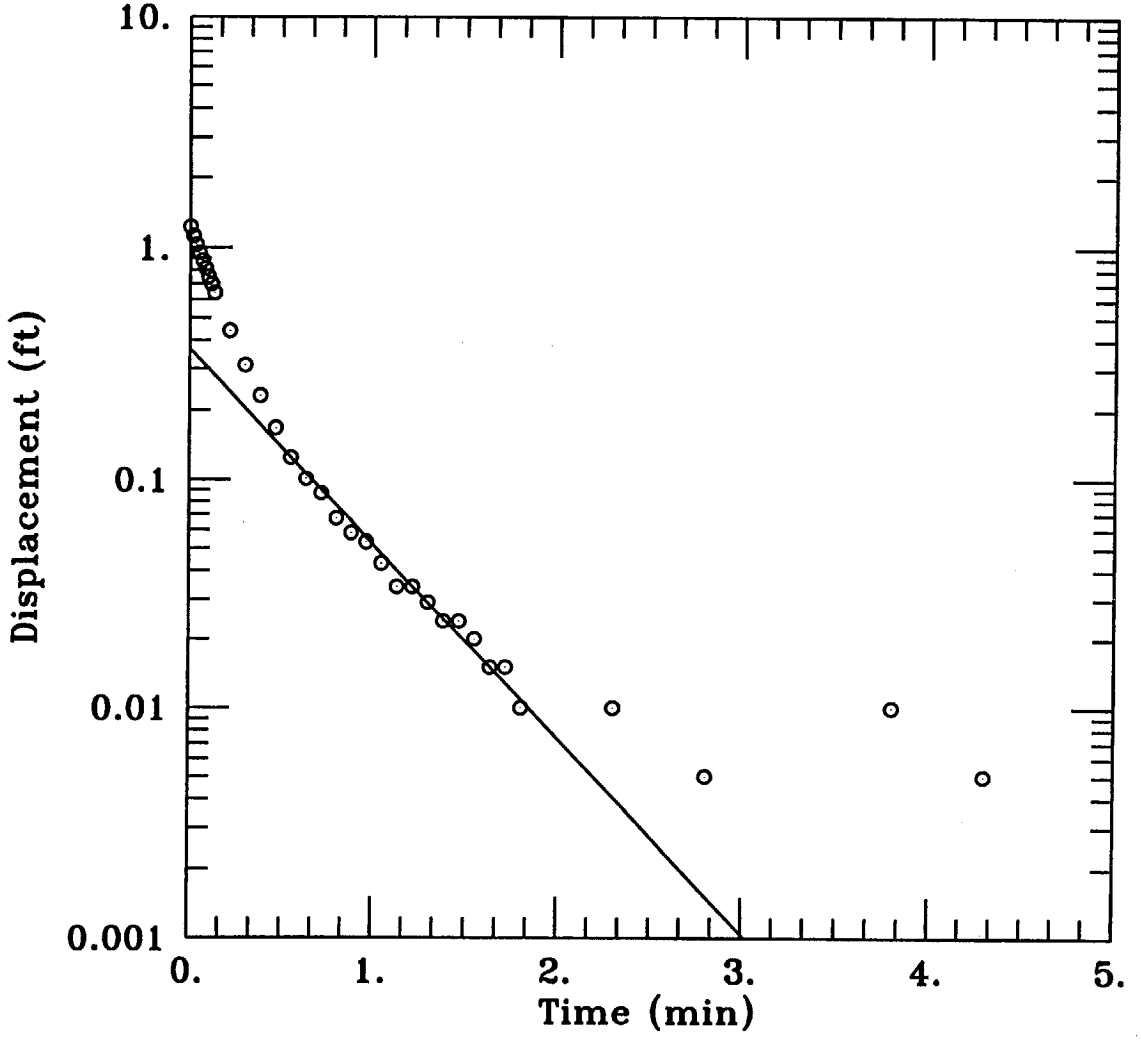
TEST DATA:
H0 = 2.632 ft
rc = 0.0833 ft
rw = 0.25 ft
L = 10. ft
b = 60. ft
H = 48.9 ft

PARAMETER ESTIMATES:
K = 1.758 ft/day
y0 = 0.1582 ft

AQTESOLV

Client: **LANTDIV**	Company: **BAKER ENVIRONMENTAL, INC.**
Location: **SITE 86, CAMP LEJEUNE**	Project: **CTO-303**

86-GW15IW FALLING HEAD TEST



DATA SET:
86GW15IF.DAT
05/30/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: APRIL 7, 1995

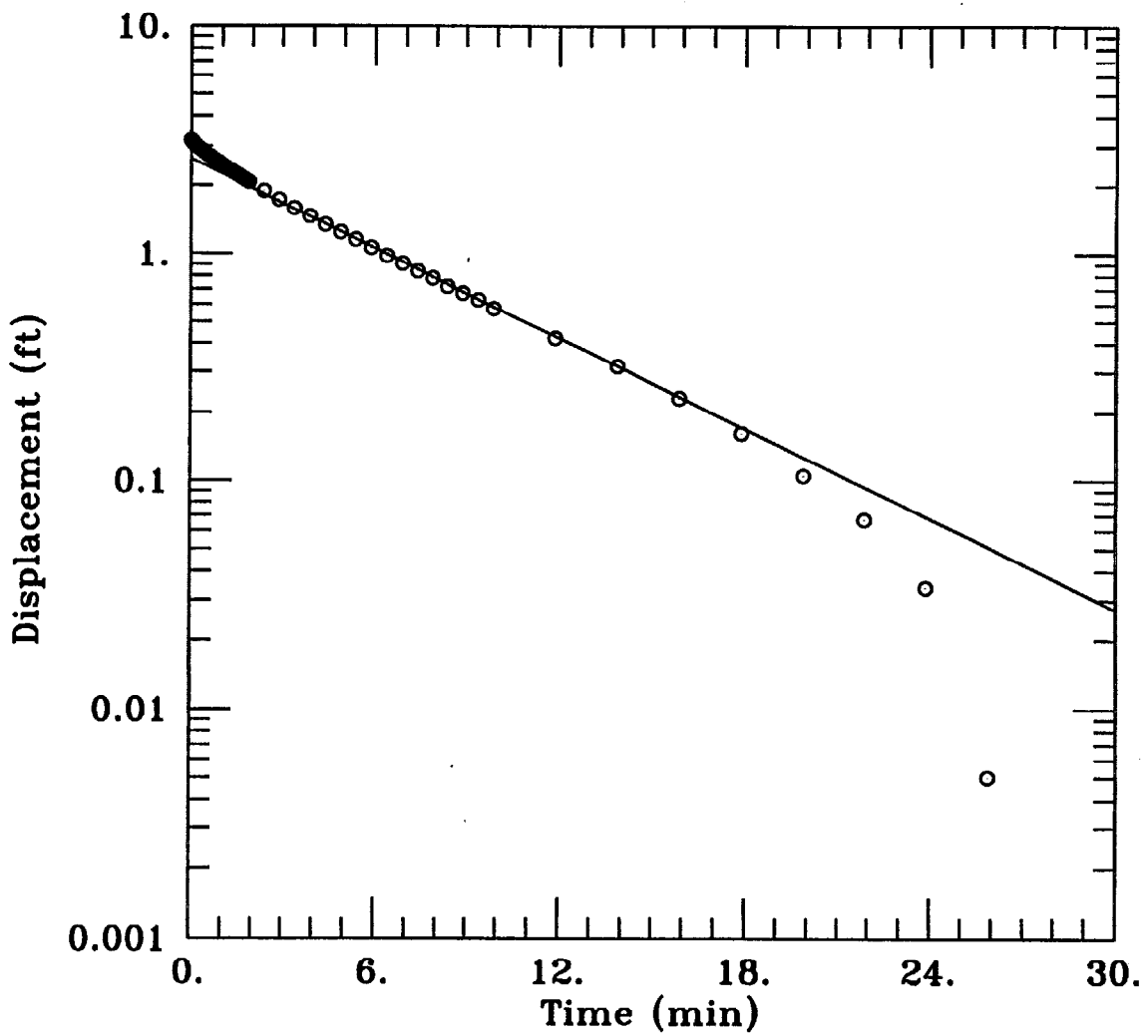
TEST DATA:
H0 = 1.224 ft
rc = 0.0833 ft
rw = 0.25 ft
L = 10. ft
b = 60. ft
H = 48.9 ft

PARAMETER ESTIMATES:
K = 3.055 ft/day
y0 = 0.3669 ft

AQTESOLV

Client: **LANTDIV**	Company: **BAKER ENVIRONMENTAL, INC.**
Location: **SITE 86, CAMP LEJEUNE**	Project: **CTO-303**

86-GW15DW RISING HEAD TEST



DATA SET:
86GW15DR.DAT
05/30/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: APRIL 7, 1995

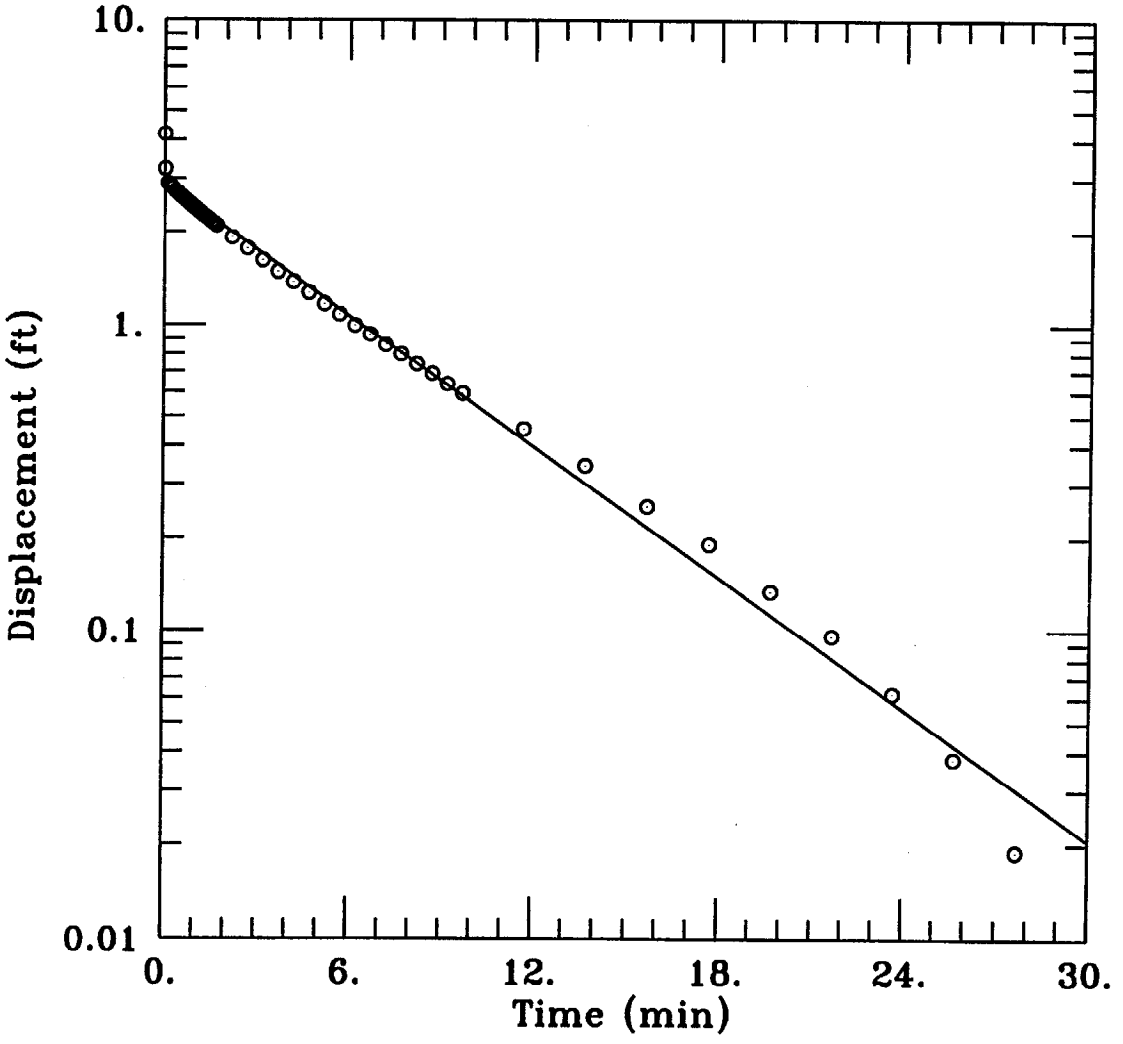
TEST DATA:
H0 = 3.165 ft
rc = 0.0833 ft
rw = 0.25 ft
L = 10. ft
b = 160. ft
H = 88.97 ft

PARAMETER ESTIMATES:
K = 0.2383 ft/day
y0 = 2.625 ft

AQTESOLV

Client: **LANTDIV**	Company: **BAKER ENVIRONMENTAL, INC.**
Location: **SITE 86, CAMP LEJEUNE**	Project: **CTO-303**

86-GW15DW FALLING HEAD TEST



DATA SET:
86GW15DF.DAT
05/30/95

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: APRIL 7, 1995

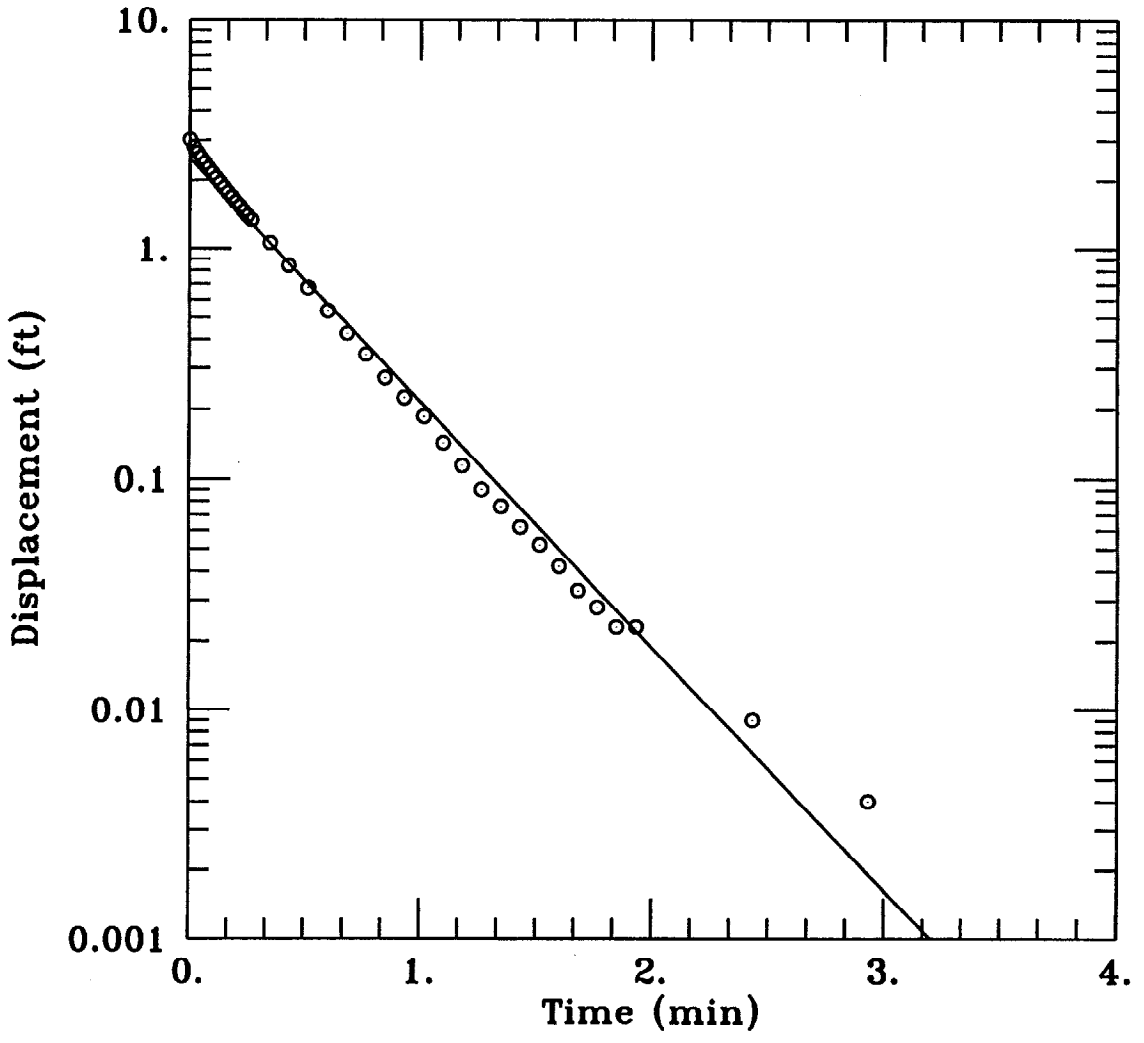
TEST DATA:
H0 = 4.179 ft
rc = 0.0833 ft
rw = 0.25 ft
L = 10. ft
b = 160. ft
H = 88.97 ft

PARAMETER ESTIMATES:
K = 0.2568 ft/day
y0 = 2.852 ft

AQTESOLV

Client: **LANTDIV**	Company: **BAKER ENVIRONMENTAL, INC.**
Location: **SITE 86, CAMP LEJEUNE**	Project: **CTO-303**

86-GW16IW RISING HEAD TEST



DATA SET:
86GW16IR.DAT
05/30/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: APRIL 7, 1995

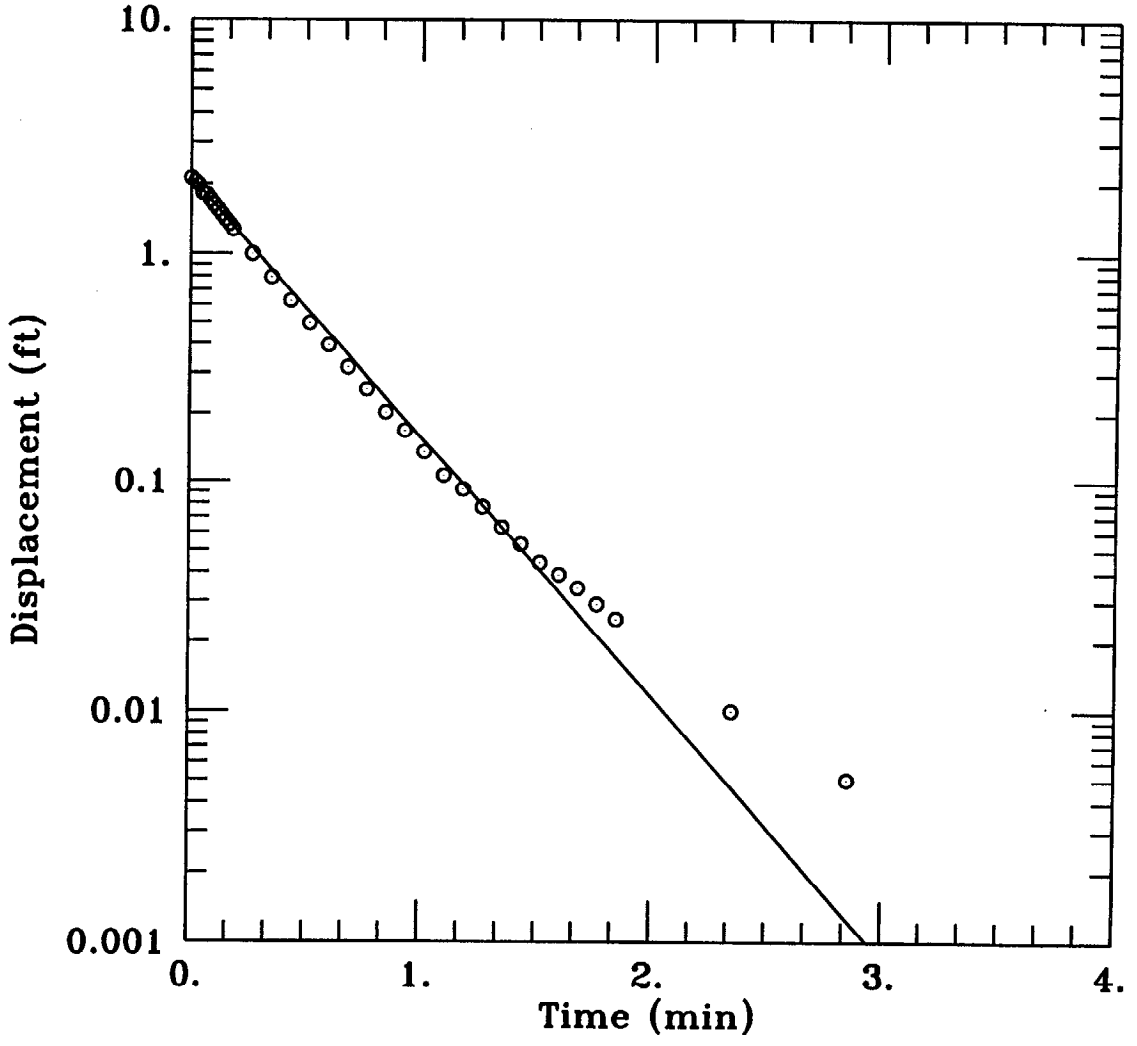
TEST DATA:
H0 = 3.009 ft
rc = 0.0833 ft
rw = 0.25 ft
L = 10. ft
b = 60. ft
H = 48.27 ft

PARAMETER ESTIMATES:
K = 3.8 ft/day
y0 = 2.473 ft

AQTESOLV

Client: **LANTDIV**	Company: **BAKER ENVIRONMENTAL, INC.**
Location: **SITE 86, CAMP LEJEUNE**	Project: **CTO-303**

86-GW16IW FALLING HEAD TEST



DATA SET:
86GW16IF.DAT
05/30/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: APRIL 7, 1995

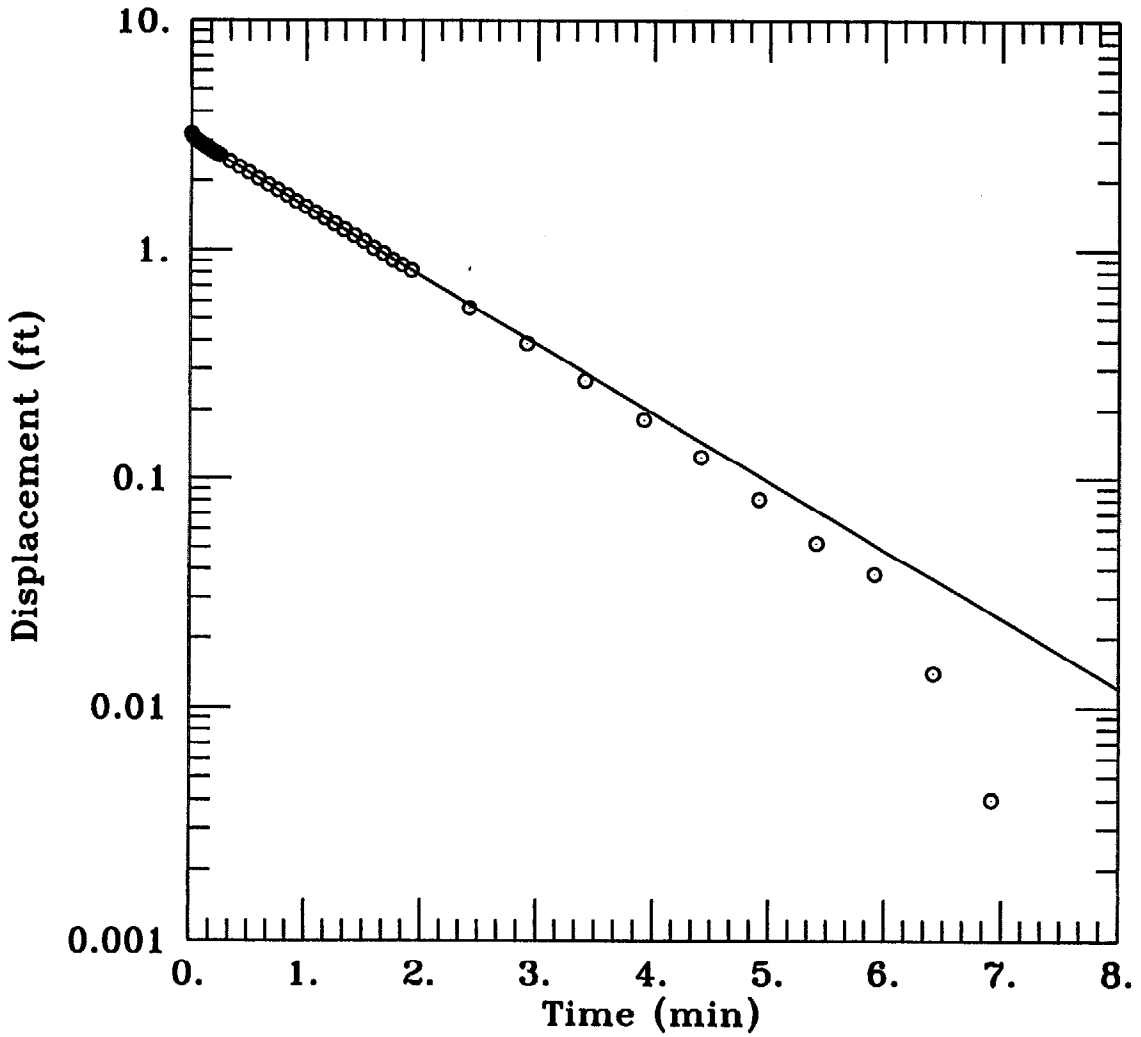
TEST DATA:
H0 = 2.108 ft
rc = 0.0833 ft
rw = 0.25 ft
L = 10. ft
b = 60. ft
H = 48.27 ft

PARAMETER ESTIMATES:
K = 4.05 ft/day
y0 = 2.113 ft

AQTESOLV

Client: **LANTDIV**	Company: **BAKER ENVIRONMENTAL, INC.**
Location: **SITE 86, CAMP LEJEUNE**	Project: **CTO-303**

86-GW17IW RISING HEAD TEST



DATA SET:
86GW17IR.DAT
05/30/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

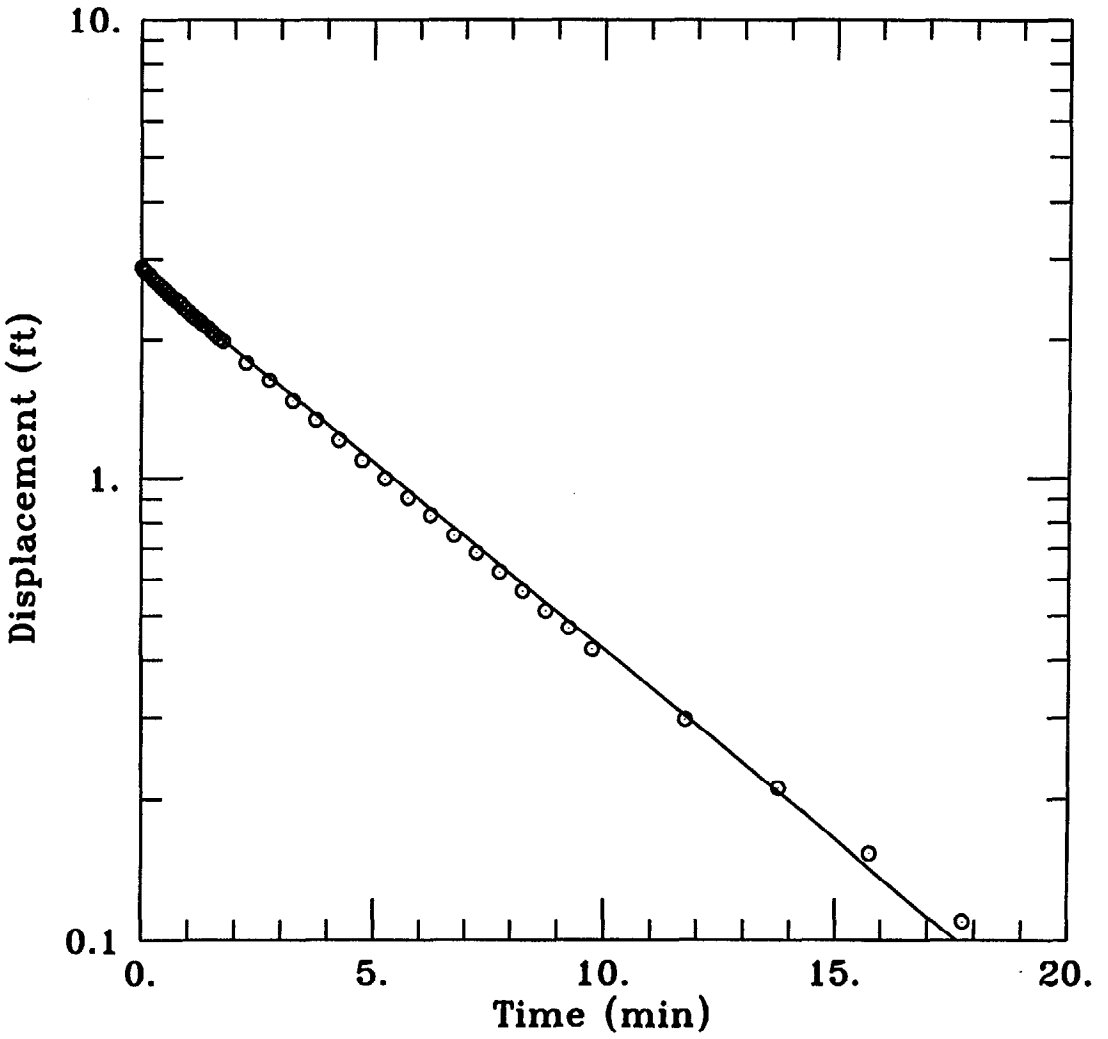
PROJECT DATA:
test date: APRIL 6, 1995

TEST DATA:
H0 = 3.194 ft
rc = 0.0833 ft
rw = 0.25 ft
L = 10. ft
b = 60. ft
H = 49.21 ft

PARAMETER ESTIMATES:
K = 1.082 ft/day
y0 = 3.064 ft

Client: **LANTDIV**	Company: **BAKER ENVIRONMENTAL, INC.**
Location: **SITE 86, CAMP LEJEUNE**	Project: **CTO-303**

86-GW17IW FALLING HEAD TEST



DATA SET:
86GW17IF.DAT
05/30/95

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: APRIL 6, 1995

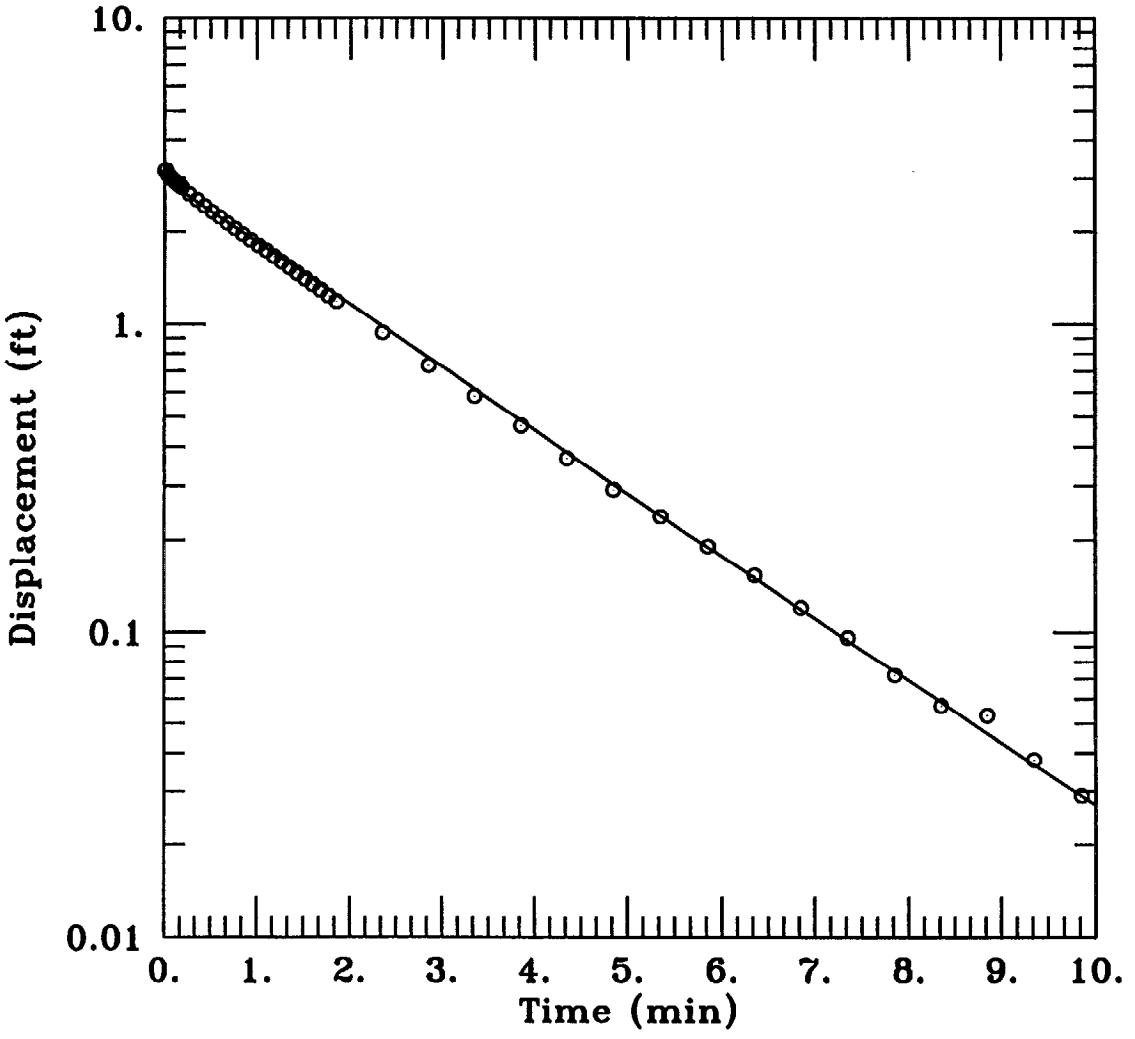
TEST DATA:
H0 = 2.877 ft
rc = 0.0833 ft
rw = 0.25 ft
L = 10. ft
b = 60. ft
H = 49.21 ft

PARAMETER ESTIMATES:
K = 0.2948 ft/day
y0 = 2.771 ft

AQTESOLV

Client: **LANTDIV**	Company: **BAKER ENVIRONMENTAL, INC.**
Location: **SITE 86, CAMP LEJEUNE**	Project: **CTO-303**

86-GW18DW RISING HEAD TEST



DATA SET:
86GW18DR.DAT
05/30/95

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: APRIL 6, 1995

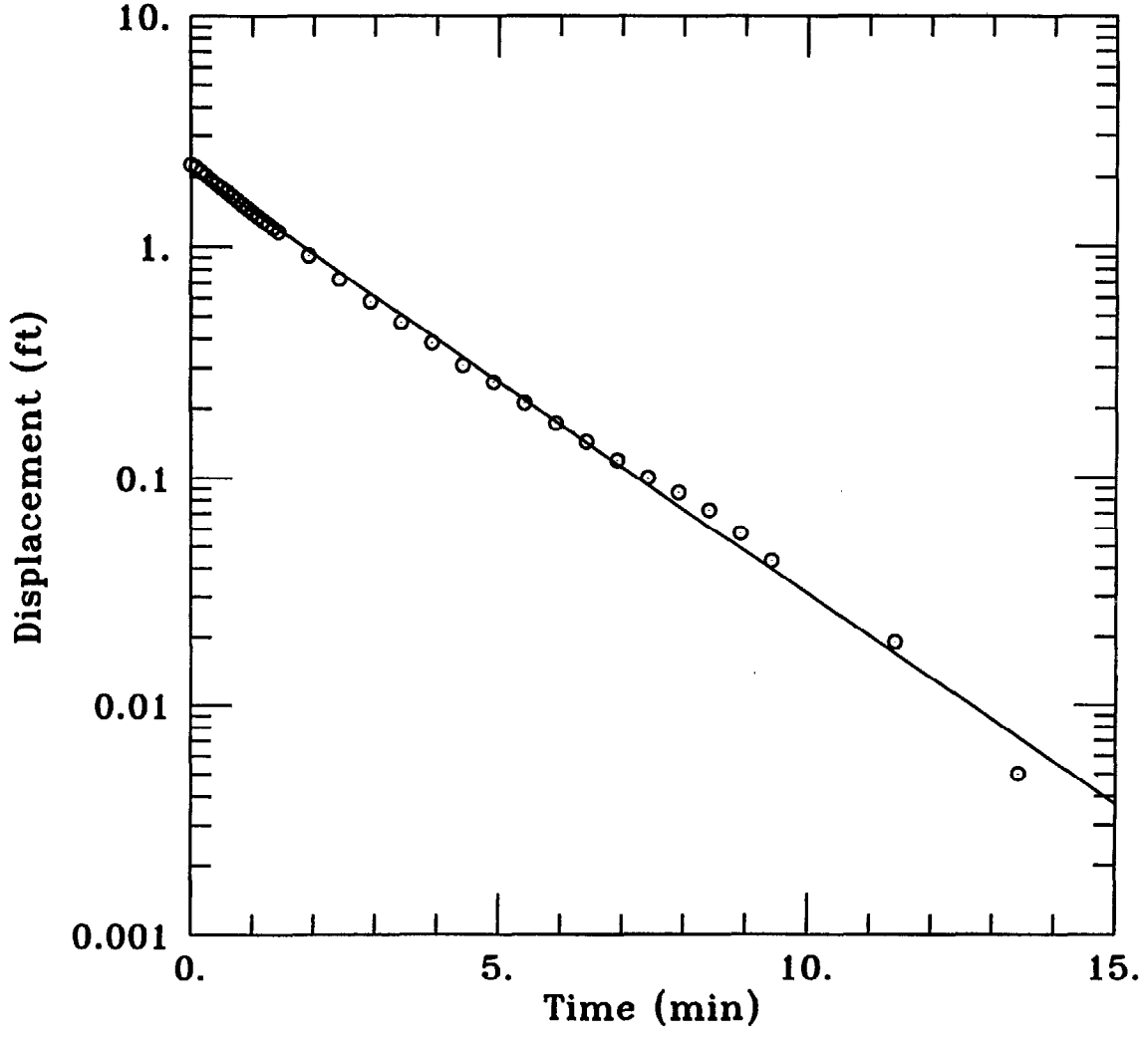
TEST DATA:
H0 = 3.163 ft
rc = 0.083 ft
rw = 0.25 ft
L = 5. ft
b = 160. ft
H = 103.7 ft

PARAMETER ESTIMATES:
K = 4.182 ft/day
y0 = 2.961 ft

AQTESOLV

Client: **LANTDIV**	Company: **BAKER ENVIRONMENTAL, INC.**
Location: **SITE 86, CAMP LEJEUNE**	Project: **CTO-303**

86-GW18DW FALLING HEAD TEST



DATA SET:
86GW18DF.DAT
05/30/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: APRIL 6, 1995

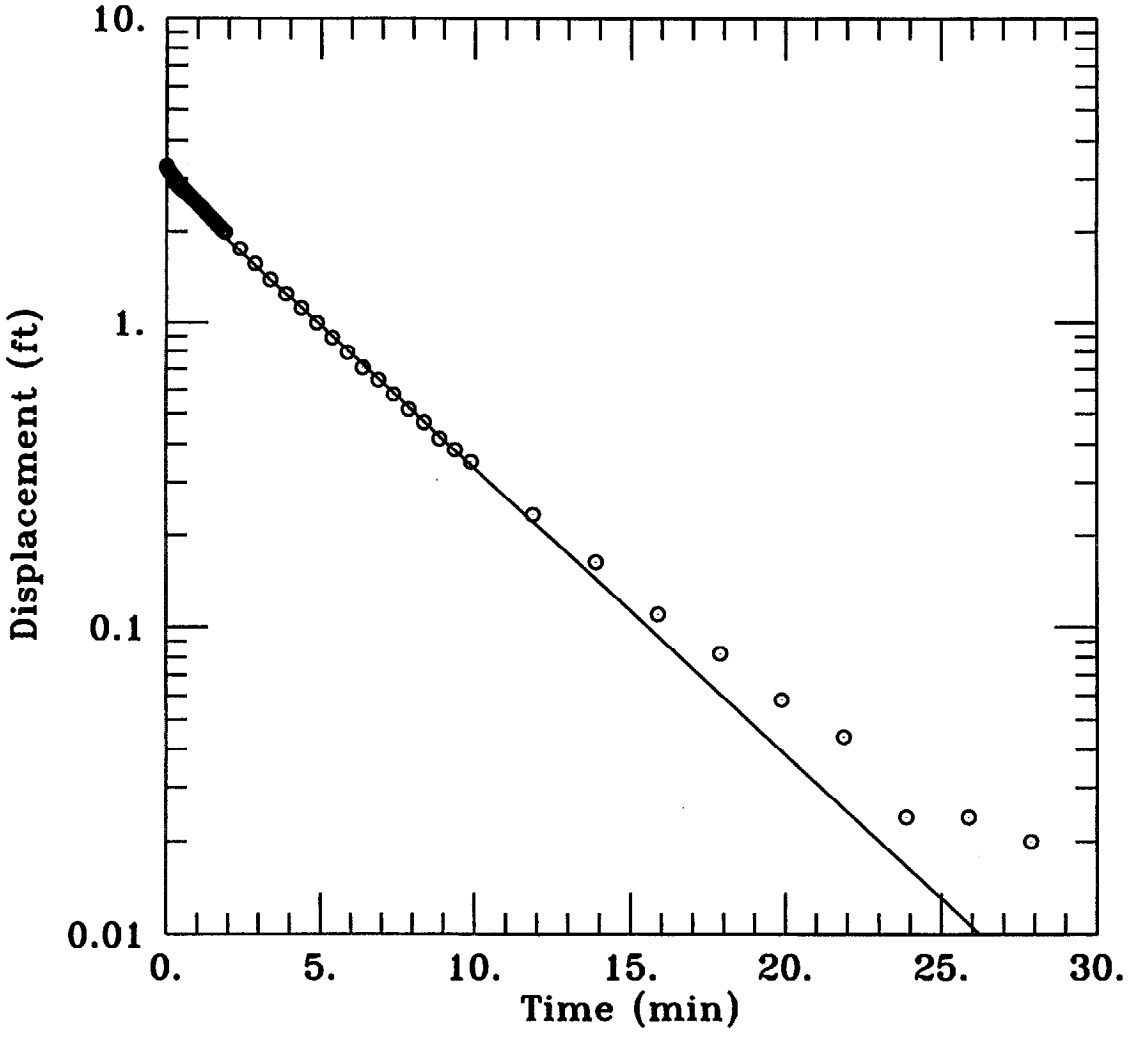
TEST DATA:
H0 = 2.257 ft
rc = 0.0833 ft
rw = 0.25 ft
L = 5. ft
b = 160. ft
H = 103.7 ft

PARAMETER ESTIMATES:
K = 3.787 ft/day
y0 = 2.162 ft

AQTESOLV

Client: **LANTDIV**	Company: **BAKER ENVIRONMENTAL, INC.**
Location: **SITE 86, CAMP LEJEUNE**	Project: **CTO-303**

86-GW19DW RISING HEAD TEST



DATA SET:
86GW19DR.DAT
05/30/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: APRIL 7, 1995

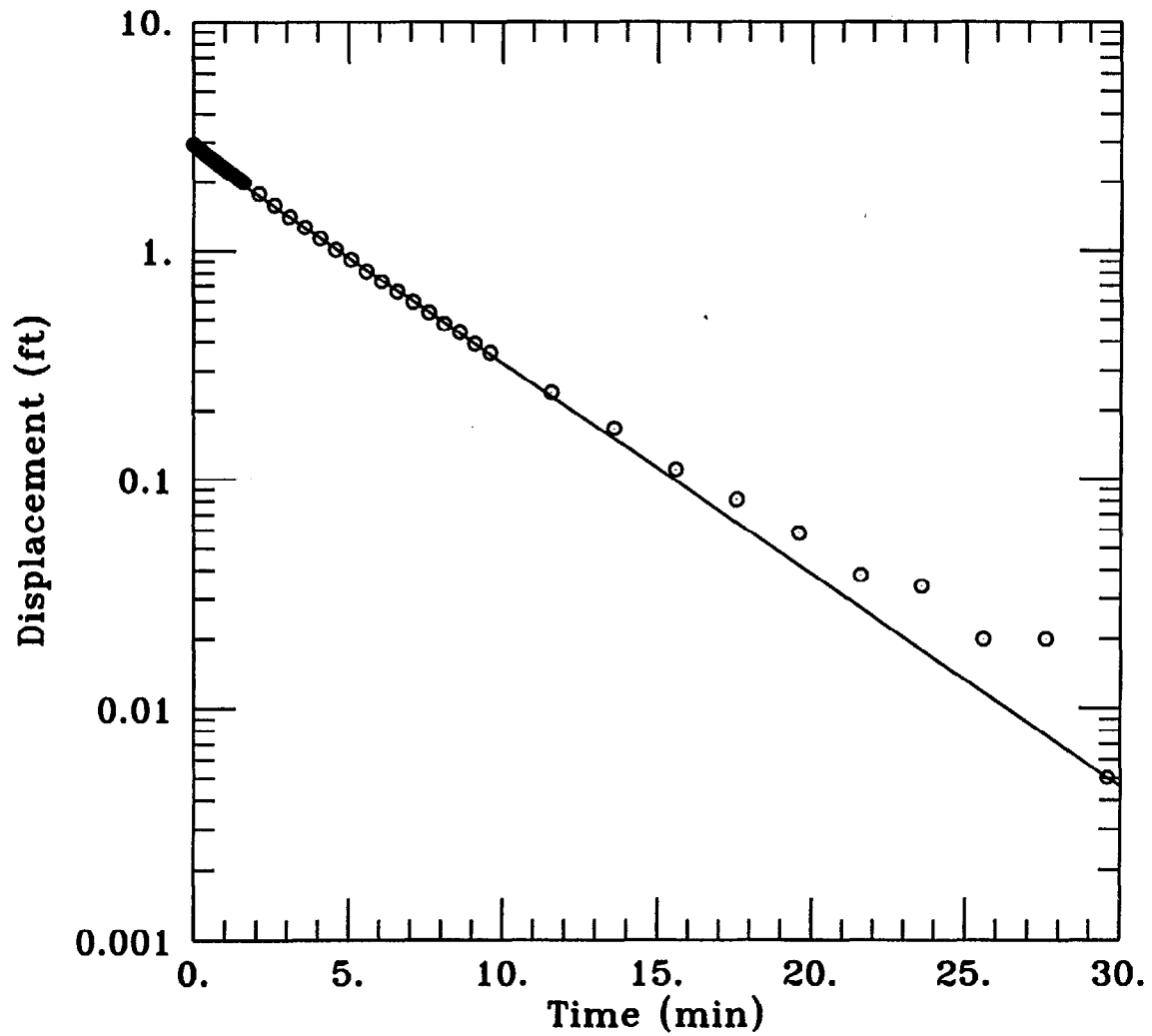
TEST DATA:
H0 = 3.29 ft
rc = 0.0833 ft
rw = 0.25 ft
L = 5. ft
b = 160. ft
H = 89.5 ft

PARAMETER ESTIMATES:
K = 1.882 ft/day
y0 = 2.874 ft

AQTESOLV

Client: **LANTDIV**	Company: **BAKER ENVIRONMENTAL, INC.**
Location: **SITE 86, CAMP LEJEUNE**	Project: **CTO-303**

86-GW19DW FALLING HEAD TEST



DATA SET:
86GW19DF.DAT
05/30/95

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: APRIL 7, 1995

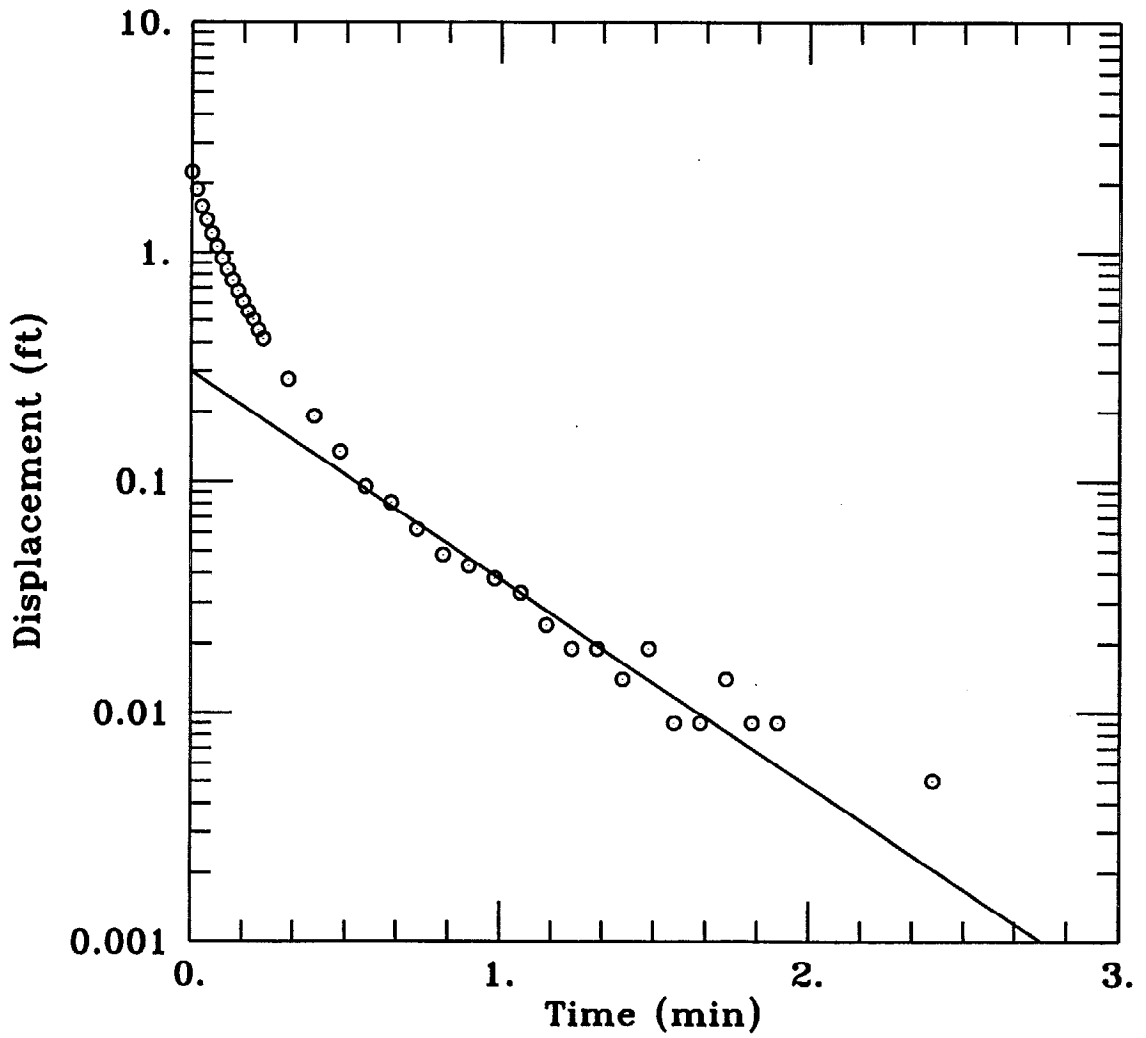
TEST DATA:
H0 = 2.934 ft
rc = 0.0833 ft
rw = 0.25 ft
L = 5. ft
b = 160. ft
H = 89.5 ft

PARAMETER ESTIMATES:
K = 1.855 ft/day
y0 = 2.693 ft

AQTESOLV

Client: **LANTDIV**	Company: **BAKER ENVIRONMENTAL, INC.**
Location: **SITE 86, CAMP LEJEUNE**	Project: **CTO-303**

86-GW20IW RISING HEAD TEST



DATA SET:
86GW20IR.DAT
05/30/95

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: APRIL 9, 1995

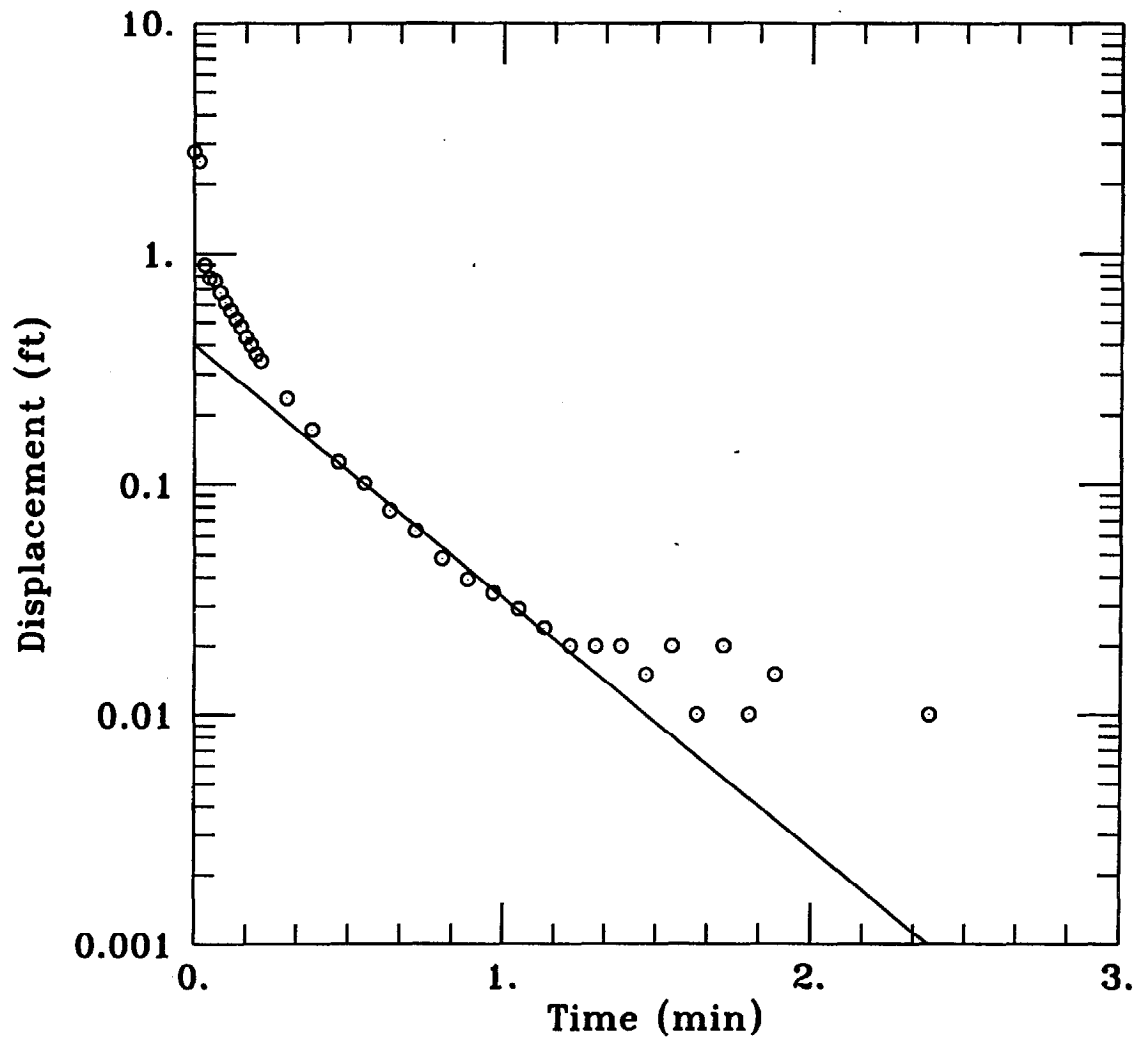
TEST DATA:
H0 = 2.23 ft
rc = 0.0833 ft
rw = 0.25 ft
L = 10. ft
b = 60. ft
H = 50.45 ft

PARAMETER ESTIMATES:
K = 11.11 ft/day
y0 = 0.3003 ft

AQTESOLV

Client: **LANTDIV**	Company: **BAKER ENVIRONMENTAL, INC.**
Location: **SITE 86, CAMP LEJEUNE**	Project: **CTO-303**

86-GW20IW FALLING HEAD TEST



DATA SET:
86GW20IF.DAT
05/30/95

AQUIFER MODEL:
Unconfined
SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: APRIL 9, 1995

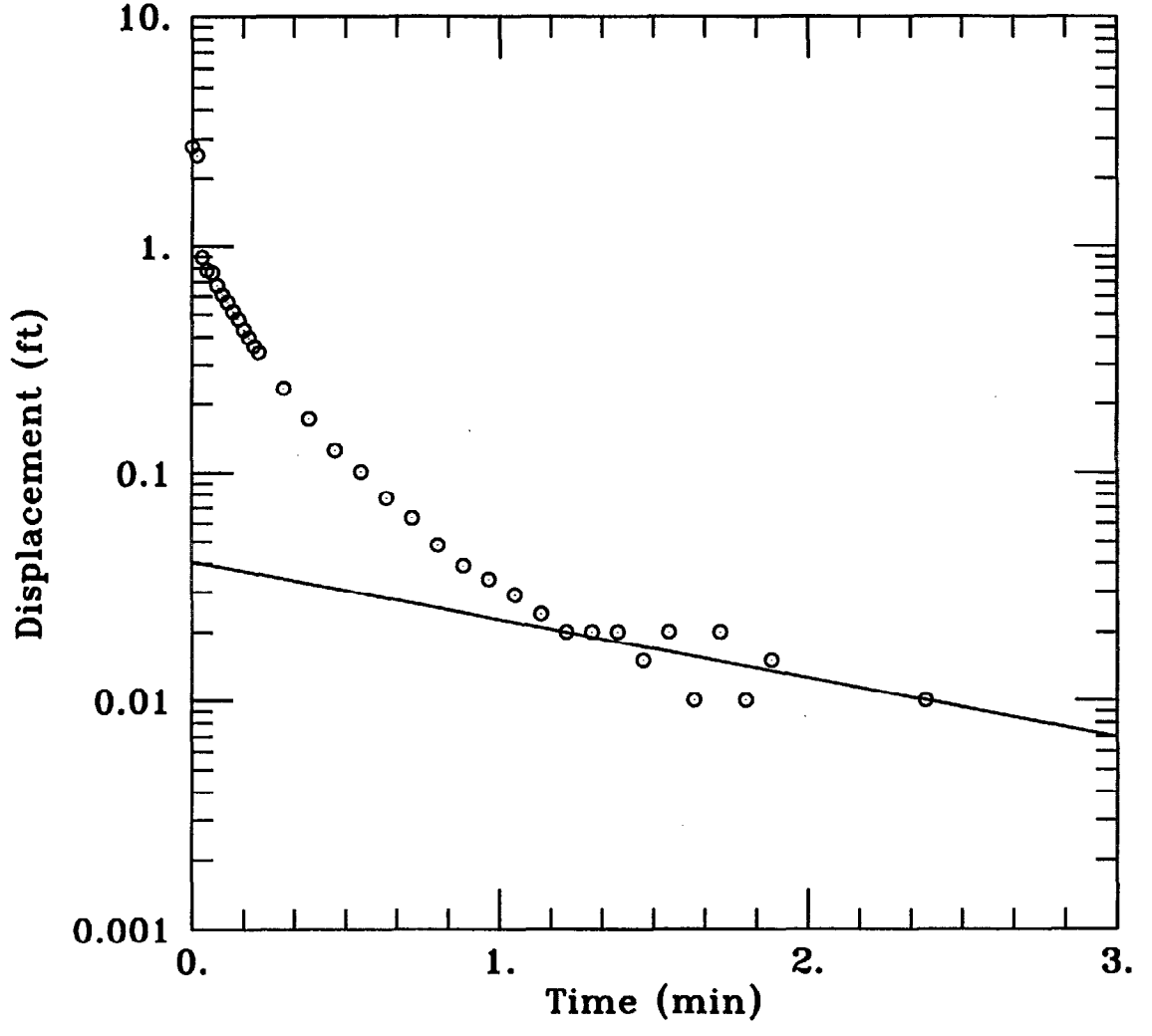
TEST DATA:
H0 = 2.758 ft
rc = 0.0833 ft
rw = 0.25 ft
L = 10. ft
b = 60. ft
H = 50.45 ft

PARAMETER ESTIMATES:
K = 13.49 ft/day
y0 = 0.3998 ft

AQTESOLV

Client: **LANTDIV**	Company: **BAKER ENVIRONMENTAL, INC.**
Location: **SITE 86, CAMP LEJEUNE**	Project: **CTO-303**

86-GW20IW FALLING HEAD TEST



DATA SET:
86GW20IF.DAT
05/30/95

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

PROJECT DATA:
test date: APRIL 9, 1995

TEST DATA:
H0 = 2.758 ft
rc = 0.0833 ft
rw = 0.25 ft
L = 10. ft
b = 60. ft
H = 50.45 ft

PARAMETER ESTIMATES:
K = 3.16 ft/day
y0 = 0.04084 ft

AQTESOLV

APPENDIX N
AQUIFER PROPERTY CALCULATIONS

S.O. No. 62470-303

Subject: GROUNDWATER FLOW GRADIENTS

SITE 86

Sheet No. 1 of 1

Drawing No.

Computed by MKD Checked By Date JAN 10, 1996

Baker

EQUATION $i = \Delta E / D$ WHERE: ΔE = CHANGE IN GROUNDWATER ELEVATION

D = DISTANCE OVER WHICH ΔE OCCURS

SHALLOW WELLS

$\Delta E = 0.4$ ft $i = 0.4$ ft / 80 ft

D = 80 ft $\simeq 0.005$ ft/ft

INTERMEDIATE WELLS

$\Delta E = 1.0$ ft $i = 1.0$ ft / 288 ft

D = 288 ft $\simeq 0.003$ ft/ft

DEEP WELLS

$\Delta E = 0.3$ ft $i = 0.3$ ft / 118 ft

D = 118 ft $\simeq 0.003$ ft/ft

S.O. No. 62470-303

Subject: GROUNDWATER FLOW VELOCITY CALCULATIONS
SITE 86

Sheet No. 1 of ____

Drawing No. —

Computed by MKD Checked By JEZ 1/2/96 Date DEC. 27, 1995

Baker

EQUATION: $V = Ki/n_e$

WHERE: V = VELOCITY
K = HYDRAULIC CONDUCTIVITY
i = GRADIENT
n_e = EFFECTIVE POROSITY

86-GW01
K = 0.6 ft/day
i = 0.005 ft/ft
n_e = ASSUME 30%

$V = (0.6 \text{ ft/day}) \times (0.005 \text{ ft/ft}) / 0.30$ ok
≈ 0.01 ft/day

86-GW05
K = 7.7 ft/day
i = 0.005 ft/ft
n_e = ASSUME 30%

$V = (7.7 \text{ ft/day}) \times (0.005 \text{ ft/ft}) / 0.30$ ok
≈ 0.13 ft/day

86-GW11
K = 0.2 ft/day
i = 0.005 ft/ft
n_e = ASSUME 30%

$V = (0.2 \text{ ft/day}) \times (0.005 \text{ ft/ft}) / 0.30$ ok
≈ 0.003 ft/day

86-GW15IW
K = 1.8 ft/day
i = 0.003 ft/ft
n_e = ASSUME 30%

$V = (1.8 \text{ ft/day}) \times (0.003 \text{ ft/ft}) / 0.30$ ok
≈ 0.02 ft/day

86-GW16IW
K = 3.8
i = 0.003 ft/ft
n_e = ASSUME 30%

$V = (3.8 \text{ ft/day}) \times (0.003 \text{ ft/ft}) / 0.30$ ok
≈ 0.04 ft/day

86-GW17IW
K = 1.1 ft/day
i = 0.003 ft/ft
n_e = ASSUME 30%

$V = (1.1 \text{ ft/day}) \times (0.003 \text{ ft/ft}) / 0.30$
≈ 0.01 ft/day ok

S.O. No. 62470-303

Subject: SITE 86 (CONTINUED)

Sheet No. 2 of 2

Drawing No.

Computed by Checked By Date

Baker

86-GW20IW
K = 11.1 ft/day
i = 0.003 ft/ft
n_e = ASSUME 30%

V = (11.1 ft/day) × (0.003 ft/ft) / 0.30 OK
≈ 0.11 ft/day

86-GW15DW
K = 0.2 ft/day
i = 0.003 ft/ft
n_e = ASSUME 30%

V = (0.2 ft/day) × (0.003 ft/ft) / 0.30 OK
≈ 0.002 ft/ft

86-GW18DW
K = 4.2 ft/day
i = 0.003 ft/ft
n_e = ASSUME 30%

V = (4.2 ft/day) × (0.003 ft/ft) / 0.30 OK
≈ 0.04 ft/ft

86-GW19DW
K = 1.9 ft/day
i = 0.003 ft/ft
n_e = ASSUME 30%

V = (1.9 ft/day) × (0.003 ft/ft) / 0.30 OK
≈ 0.02 ft/day

S.O. No. 62470-303

Subject: VERTICAL GROUNDWATER FLOW GRADIENT FOR SITE 86

Sheet No. ____ of ____

Drawing No. ____

Computed by MKD Checked By ____ Date JAN 5, 1996

Baker

GRADIENT $i_v = \Delta SWE / D$ WHERE ΔSWE = DIFFERENT IN STATIC WATER ELEVATION BETWEEN WELLS

D = DISTANCE BETWEEN MIDPOINTS OF WELL SCREENS

86-GW01/02
$\Delta SWE = 0.47$ ft
D = 15 ft
$i_v = 0.47/15$
≈ 0.03 ft/ft

86-GW03/04
$\Delta SWE = 0.02$ ft
D = 16 ft
$i_v = 0.02/16$
≈ 0.001 ft/ft

86-GW05/06
$\Delta SWE = 0.19$ ft
D = 15 ft
$i_v = 0.19/15$
≈ 0.01 ft/ft

86-GW07/08
$\Delta SWE = 0.10$ ft
D = 15 ft
$i_v = 0.10/15$
≈ 0.007 ft/ft

86-GW09/10
$\Delta SWE = 0.49$
D = 15
$i_v = 0.49/15$
≈ 0.03 ft/ft

86-GW11/12
$\Delta SWE = 0.68$ ft
D = 15 ft
$i_v = 0.68/15$
≈ 0.05 ft/ft

86-GW13/14
$\Delta SWE = 0.03$ ft
D = 15 ft
$i_v = 0.03/15$
≈ 0.002 ft/ft

RETARDATION ESTIMATES
SITE 86
REMEDIAL INVESTIGATION CTO-0303

Equation: $R = 1 + (Pb/n) \times (Kd)$ Where: Pb = Bulk density (Dry)
n = porosity
Kd = Distribution coefficient (Koc x TOC Fraction)

Distribution Coefficient Estimates

Solute	Koc(1) (mL/g)	TOC(2) (%)	Kd
Benzene	83	0.0043	0.3569
Trichloroethene	126	0.0043	0.5418
Tetrachloroethene	364	0.0043	1.5652
1,2-Dichloroethene (total)	54	0.0043	0.2322
1,1-Dichloroethane	30	0.0043	0.129
Naphthalene	1,072	0.0043	4.6096

Retardation Factor Estimates

Solute	Pb(3) (g/mL)	n(4) (%)	Kd	R
Benzene	1.8	0.3	0.3569	3.14
Trichloroethene	1.8	0.3	0.5418	4.25
Tetrachloroethene	1.8	0.3	1.5652	10.39
1,2-Dichloroethene (total)	1.8	0.3	0.2322	2.39
1,1-Dichloroethane (total)	1.8	0.3	0.129	1.77
Naphthalene	1.8	0.3	4.6096	28.66

NOTES: (1) Koc values taken from Table 5-1
(2) TOC data average of 4,263 (0.43%), from:

9-AST-SB19	3,600	mg/Kg
78-B903-SB03-02	5,200	mg/Kg
65-SB06	3,290	mg/Kg
35-MW21S-02	4,960	mg/Kg

(3) Bulk Density from laboratory measurement of a sample from 86-GW16DW (10-12 ft bgs)
(4) A porosity of 30%, based on a silty fine sand - taken from Fetter, 1988.

APPENDIX O
BASE BACKGROUND ANALYTICAL RESULTS AND EVALUATION REPORT

This appendix provides background concentration values for inorganic elements in the following media: surface and subsurface soils, groundwater, surface water, and sediment. These background samples were collected in areas not known to have been impacted by site operations and have been collected during Baker Remedial Investigations since 1993. The following information regarding base background samples is provided in the back of each media section:

- minimum concentration per inorganic analyte
- maximum concentration per inorganic analyte
- average concentration per inorganic analyte
- twice the average concentration per inorganic analyte (soils only).

The minimum and maximum concentrations are used for comparison bases only. Whereas twice the average concentration is used to compare the inorganic analytical results from on-site soil samples to what is considered to be naturally occurring by USEPA Region IV.

BASE BACKGROUND
SURFACE SOILS
TAL INORGANICS
MCB CAMP LEJEUNE, NORTH CAROLINA

	6-201N-SB11-00	6-201N-SB12-00	6-201C-SB38-00	6-201C-SB39-00	78-BB-SB-00	41-BB-SB01-00	41-BB-SB02-00
Aluminum	1120	45.25	748	245	1490	528	1430
Antimony	4.7	4.8	1.4	1.3	0.33	2.07	0.865
Arsenic	0.28	0.29	0.91	0.28	0.22	0.356	0.317
Barium	2	2.05	16.5	3.5	8.6	1.525	4.06
Beryllium	0.095	0.1	0.03	0.03	0.11	0.1	0.09
Cadmium	0.285	0.295	0.58	0.175	0.55	0.392	0.349
Calcium	178	108	10700	402	941	18.3	54.6
Chromium	0.475	0.49	1.6	0.33	2.2	1.02	0.91
Cobalt	0.85	0.9	0.195	0.185	1.8	1.965	1.75
Copper	0.55	0.6	3.1	0.75	2	2	87.2
Iron	525	160	684	238	1020	83	970
Lead	2	3	62.9	25.1	20.4	2.59	10.9
Magnesium	11.65	10.1	200	26	118	8.85	39.1
Manganese	3.1	1	16	4.5	11.1	0.87	10.2
Mercury	0.01	0.01	0.05	0.06	0.05	0.0305	0.078
Nickel	1.6	1.65	0.8	0.75	2.2	3.55	3.15
Potassium	36.55	37.5	54.5	30.6	102	91.5	81.5
Selenium	0.47	0.485	0.5	0.465	0.31	0.311	0.277
Silver	0.95	1	0.195	0.185	0.33	0.1965	0.175
Sodium	19.65	15.85	14	4.7	67.5	44.1	39.3
Thallium	0.19	0.195	0.205	0.185	0.11	0.565	0.505
Vanadium	1.05	0.8	2.8	1.6	5.3	2.505	2.23
Zinc	0.55	0.8	23.1	4.6	28.3	2.66	6.11
Cyanide					0.265	1.23	1.09

Concentrations are in millograms per kilogram (mg/kg).
Qualifiers have been removed per Baker's standards.
Qualifiers R, U, and UJ have been given one-half the detection value.
Qualifiers J, NJ, and B have been removed with no detection value change.

BASE BACKGROUND
SURFACE SOILS
TAL INORGANICS
MCB CAMP LEJEUNE, NORTH CAROLINA

	41-BB-SB03-00	41-BB-SB04-00	69-BB-SB01-00	69-BB-SB02-00	69-BB-SB03-00	69-BB-SB04-00	74-BB-SB01-00
Aluminum	2100	5370	1310	4150	9570	5360	3110
Antimony	0.87	0.94	0.85	0.95	0.95	0.95	0.905
Arsenic	0.3205	0.345	0.31	0.345	0.79	0.35	0.3325
Barium	4.53	13.4	5.6	15.4	19.6	20.8	11.1
Beryllium	0.09	0.095	0.14	0.155	0.155	0.155	0.148
Cadmium	0.3525	0.38	0.26	0.285	0.29	0.29	0.2695
Calcium	79.2	46.3	28.2	43.6	282	53	181
Chromium	2.64	3.24	0.75	4	12.5	5.8	0.84
Cobalt	1.77	1.905	2.1	2.3	2.35	2.35	2.225
Copper	1.8	1.94	1.75	1.9	1.95	1.95	4.56
Iron	1120	2160	425	1430	9640	3890	1740
Lead	9.98	6.61	2.8	6	5.3	5.6	5.19
Magnesium	74	144	37.3	91.8	610	247	70
Manganese	11.6	11.8	15.1	12.7	12.3	8.3	9.44
Mercury	0.057	0.08	0.015	0.06	0.045	0.025	0.04
Nickel	3.2	3.45	2.9	1.6	1.65	1.65	1.56
Potassium	190	177	32.25	35.5	361	106	87.5
Selenium	0.2795	0.301	0.27	0.295	0.3	0.3	0.29
Silver	0.177	0.1905	0.045	0.045	4.3	0.39	0.046
Sodium	39.65	42.75	20	22	22.4	22.3	70.4
Thallium	0.51	0.55	0.495	0.55	0.55	0.55	0.53
Vanadium	2.255	2.43	1.8	1.95	13.5	5.6	5.21
Zinc	5.97	7.15	3.1	5.2	10.8	7.9	1.27
Cyanide	1.1	1.19	2.2	2.4	2.4	2.4	1.15

Concentrations are in millograms per kilogram (mg/kg).
Qualifiers have been removed per Baker's standards.
Qualifiers R, U, and UJ have been given one-half the detection value.
Qualifiers J, NJ, and B have been removed with no detection value change.

BASE BACKGROUND
SURFACE SOILS
TAL INORGANICS
MCB CAMP LEJEUNE, NORTH CAROLINA

	74-BB-SB02-00	74-BB-SB03-00	74-BB-SB04-00	1-BB-SB38-00	1-BB-SB39-00	1-GW13-00	28-BB-SB37-00	28-BB-SB38-00
Aluminum	1730	1000	2100	3920	4930	1600	2840	379
Antimony	0.925	0.855	0.96	3.6	3.15	8.0	3.55	2.9
Arsenic	0.339	0.314	0.352	0.315	0.28	0.29	0.31	0.255
Barium	1.6	3.12	16	9.6	9.3	2.8	5.1	1.8
Beryllium	0.151	0.14	0.1565	0.105	0.10	0.095	0.105	0.085
Cadmium	0.275	0.2545	0.285	0.315	0.28	0.285	0.31	0.255
Calcium	46.9	43.9	377	538	353	248	114	13.10
Chromium	2.7	0.795	1.98	3.5	4.7	4.1	2.0	0.60
Cobalt	2.27	2.1	2.355	0.42	0.375	0.38	0.415	0.34
Copper	3.92	1.755	1.965	1.6	0.6	1.9	0.6	0.50
Iron	401	787	1640	2270	1470	1000	1210	444
Lead	3.79	1.14	142	5.9	4.5	4.2	2.8	1.7
Magnesium	37.5	16.1	52.5	152	183	47.2	68.8	12.9
Manganese	3.13	7.37	4.61	10.6	4.2	5.9	2.7	3.3
Mercury	0.048	0.0305	0.05	0.03	0.025	0.03	0.025	0.025
Nickel	1.59	1.475	1.65	0.8	0.65	0.65	0.750	0.6
Potassium	89	82.5	92.5	149	153	20.650	29.75	8.35
Selenium	0.296	0.274	0.307	0.42	0.375	0.38	0.415	0.34
Silver	0.047	0.0435	0.0485	0.5	0.465	0.475	0.5	0.425
Sodium	71.8	87.6	122	11.0	17.2	7.25	28.5	18.2
Thallium	0.54	0.4985	0.56	0.42	0.38	0.38	0.415	0.34
Vanadium	1.94	1.8	4.69	7.9	6.1	3.5	3.6	2.1
Zinc	1.15	1.97	2.87	7.2	4.0	1.4	0.9	0.71
Cyanide	1.17	1.08	1.21					

Concentrations are in millograms per kilogram (mg/kg).
Qualifiers have been removed per Baker's standards.
Qualifiers R, U, and UJ have been given one-half the detection value.

Qualifiers J, NJ, and B have been removed with no detection value change.

BASE BACKGROUND
SURFACE SOILS
TAL INORGANICS
MCB CAMP LEJEUNE, NORTH CAROLINA

	28-GW09DW-00	30-BB-SB12-00	30-BB-SB13-00	30-BB-SB14-00	30-BB-SB15-00	30-BB-SB16-00	30-GW03-00	35-SS01-00
Aluminum	5460	54.6	24.9	49.2	37.5	196	17.7	2220.0
Antimony	3.35	3.2	3.2	3.3	3.5	3.650	3.9	2.45
Arsenic	1.8	0.28	0.29	0.29	0.31	0.325	0.34	0.065
Barium	11.6	1.8	0.7	0.7	0.7	3.100	0.8	15.6
Beryllium	0.10	0.095	0.10	0.10	0.10	0.110	0.12	0.11
Cadmium	0.295	0.28	0.29	0.29	0.31	0.325	0.34	0.04
Calcium	368	11.45	4.3	9.9	9.0	172	5.2	605.0
Chromium	6.0	1.6	0.7	1.9	0.7	0.75	0.8	1.9
Cobalt	0.91	0.375	0.38	0.38	0.41	0.43	0.45	0.60
Copper	2.9	0.55	0.6	0.6	0.6	0.65	0.7	3.9
Iron	2250	276	102	218	69.7	167	80.4	1250.0
Lead	11.6	3.3	0.47	2.4	0.73	4.4	0.86	3.60
Magnesium	157	6.5	2.6	2.6	2.8	37.1	3.1	71.6
Manganese	4.1	11.9	4.4	9.5	1.3	2.5	2.3	5.5
Mercury	0.025	0.06	0.02	0.03	0.05	0.03	0.03	0.065
Nickel	1.9	0.65	0.7	0.7	1.7	0.9	0.8	1.3
Potassium	158	8.25	11.1	3.8	1.0	29.6	1.2	129.5
Selenium	0.94	0.375	0.38	0.38	0.41	0.43	0.45	0.075
Silver	0.49	0.47	0.47	0.48	0.5	0.6	0.6	0.16
Sodium	15.0	14.8	26.0	4.9	5.2	18.2	5.8	126.00
Thallium	0.395	0.375	0.38	0.38	0.41	0.43	0.45	0.06
Vanadium	8.3	1.7	0.75	1.7	0.31	0.76	0.34	3.60
Zinc	6.6	0.35	0.30	0.48	1.7	2.0	1.2	7.4
Cyanide								

Concentrations are in millograms per kilogram (mg/kg).
Qualifiers have been removed per Baker's standards.
Qualifiers R, U, and UJ have been given one-half the detection value.
Qualifiers J, NJ, and B have been removed with no detection value change.

BASE BACKGROUND
SURFACE SOILS
TAL INORGANICS
MCB CAMP LEJEUNE, NORTH CAROLINA

	BB-SB02-00	BB-SB03-00	16-BB-SB01-00	16-BB-SB02-00	16-BB-SB03-00	80-BB-SB01-00	80-BB-SB02-00	80-BB-SB03-00
Aluminum	3630.0	1950.0	1710.0	3630	1950	2240.0	7770.0	2850.0
Antimony	5.00	5.55	5.05	5	5.55	1.35	1.40	1.40
Arsenic	1.000	1.100	1.000	1	1.1	0.250	3.200	0.265
Barium	7.4	7.0	4.1	7.4	7	9.9	13.0	11.6
Beryllium	0.10	0.11	0.23	0.1	0.11	0.020	0.10	0.06
Cadmium	0.50	0.55	1.00	0.5	0.55	0.165	0.175	0.175
Calcium	113.0	227.0	96.8	113	227	505	997.0	239.0
Chromium	3.3	2.5	1.0	3.3	2.5	1.200	10.0	2.0
Cobalt	1.00	1.10	1.00	1	1.1	0.205	1.30	0.45
Copper	1.0	1.1	1.0	1	1.1	1.3	2.2	0.92
Iron	2150.0	1610.0	1260.0	2150	1610	604.0	5550.0	1450.0
Lead	5.20	10.20	7.40	5.2	10.2	7.5	8.90	8.30
Magnesium	99.1	69.4	42.9	99.1	69.4	94.8	289.0	94.2
Manganese	7.4	5.5	6.9	7.4	5.5	66.0	30.7	12.8
Mercury	0.055	0.055	0.055	0.055	0.055	0.050	0.050	0.060
Nickel	2.0	2.25	2.00	2	2.25	1.4	2.70	1.40
Potassium	1.0	111.5	101.0	100	111.5	163.0	416.0	90.9
Selenium	0.500	0.550	0.500	0.5	0.55	0.285	0.300	0.300
Silver	0.50	0.55	0.50	0.5	0.55	0.220	0.23	0.23
Sodium	25.20	26.20	35.90	25.2	26.2	24.1	77.10	72.70
Thallium	1.00	1.10	1.00	1	1.1	0.435	0.46	0.465
Vanadium	5.40	3.10	4.50	5.4	3.1	2.3	14.70	4.30
Zinc	8.7	22.1	9.2	4.35	22.1	6.1	12.9	3.5
Cyanide								

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Qualifiers J, NJ, and B have been removed with no detection value change.

BASE BACKGROUND
SURFACE SOILS
TAL INORGANICS
MCB CAMP LEJEUNE, NORTH CAROLINA

	7-BB-SB01-00	7-BB-SB02-00	7-BB-SB03-00	36-BB-SB01-00	36-BB-SB02-00	36-BB-SB03-00	43-BB-SB01-00	43-BB-SB02-00
Aluminum	7180.0	3770.0	5800.0	6950	2300	2380	3520	2510
Antimony	6.05	5.50	5.60	1.15	1.2	1.75	2.35	2.3
Arsenic	1.200	1.100	3.900	0.42	0.205	0.17	0.51	0.55
Barium	12.0	10.2	9.7	13.2	12.4	14	6.3	10.8
Beryllium	0.26	0.11	0.11	0.03	0.035	0.075	0.105	0.1
Cadmium	0.600	0.550	0.550	0.31	0.3	0.235	0.335	0.31
Calcium	397.0	69.5	615.0	462	897	1690	1180	908
Chromium	8.4	3.8	10.6	7.9	2.7	3.1	2.8	2.8
Cobalt	1.20	1.10	1.10	0.245	0.255	0.255	0.345	0.335
Copper	1.20	1.10	2.30	2.8	2.8	4.9	0.7	11.2
Iron	3050.0	2170.0	7510.0	6670	1750	1560	1050	2050
Lead	7.10	6.40	8.70	10.3	17.5	39.6	6.6	13.6
Magnesium	104.0	50.5	79.5	185	105	86	68.9	56.4
Manganese	3.25	3.1	1.8	6.9	14.3	21.4	3	5
Mercury	0.060	0.060	0.060	0.045	0.05	0.045	0.13	0.12
Nickel	2.40	2.20	2.25	0.45	1.6	0.9	1.25	1.2
Potassium	121.0	110.0	111.5	138	60.2	58	78.5	76
Selenium	0.600	0.550	1.300	0.12	0.16	0.135	0.195	0.17
Silver	0.60	0.55	0.55	0.265	0.275	0.255	0.345	0.335
Sodium	15.80	15.25	17.30	13.1	14.1	14.05	14.45	9.9
Thallium	1.200	1.100	1.100	0.055	0.075	0.1	0.12	0.105
Vanadium	9.70	5.40	18.20	15.4	8.3	6.4	1.6	3.7
Zinc	5.3	2.9	3.8	6	12.7	20.8	2.6	16.7
Cyanide								

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BASE BACKGROUND
SURFACE SOILS
TAL INORGANICS
MCB CAMP LEJEUNE, NORTH CAROLINA

	43-BB-SB03-00	44-BB-SB01-00	54-BB-SB01-00	54-BB-SB02-00	86-BB-SB01-00	MIN	MAX	AVG	2Xaverage
Aluminum	2730	4950	8990	4950	6590	17.7	9570	2970.297	5940.594
Antimony	2.2	1.2	1.25	1.3	1.95	0.33	8	2.672	5.344
Arsenic	0.67	1.3	1.1	1.2	0.45	0.065	3.9	0.652	1.305
Barium	13	14.9	18.7	13.3	13.9	0.65	20.8	8.680	17.360
Beryllium	0.095	0.08	0.0345	0.0375	0.085	0.02	0.26	0.103	0.205
Cadmium	0.3	0.325	0.335	0.34	0.265	0.04	1	0.344	0.688
Calcium	1610	668	1020	3590	3960	4.25	10700	698.394	1396.788
Chromium	2.9	5.9	9.2	6.8	6.5	0.33	12.5	3.346	6.693
Cobalt	0.32	0.43	0.375	0.41	0.285	0.185	2.355	0.961	1.923
Copper	0.75	2.5	2.1	4.2	2.2	0.5	87.2	3.600	7.200
Iron	1110	3220	4700	2780	4030	69.7	9640	1877.531	3755.063
Lead	13.8	19.6	3.95	12.3	21.5	0.47	142	11.875	23.749
Magnesium	60.5	189	371	259	233	2.55	610	102.875	205.751
Manganese	6.5	6.7	14.8	19.9	11.5	0.87	66	9.248	18.497
Mercury	0.05	0.06	0.041	0.04	0.04	0.01	0.13	0.047	0.094
Nickel	1.15	1.7	1.3	1.6	7.2	0.45	7.2	1.717	3.434
Potassium	73.5	220	223	175	160	1	416	99.805	199.610
Selenium	0.185	0.34	0.145	0.13	0.43	0.075	1.3	0.373	0.746
Silver	0.32	0.28	0.285	0.295	0.285	0.0435	4.3	0.438	0.875
Sodium	12.7	12.75	8.3	9.55	18.3	4.7	126	29.649	59.298
Thallium	0.11	0.065	0.065	0.06	0.13	0.055	1.2	0.450	0.899
Vanadium	4	11.8	13.4	9.1	48.6	0.305	48.6	5.814	11.628
Zinc	4.5	7.4	7.2	9.1	18.4	0.3	28.3	6.940	13.880
Cyanide						0.265	2.4	1.453	2.905

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BASE BACKGROUND
SUBSURFACE SOIL
TAL INORGANICS
MCB CAMP LEJEUNE, NORTH CAROLINA

	6-201N-SB11-07	6-201N-SB12-02	6-201C-SB38-01	6-201C-SB39-04	78-BB-SB-01	2-GW09-01	1-BB-SB38-05	1-BB-SB39-04	1-BB-SB39-06	1-GW13-04
Aluminum	672	857	3620	2970	10200	8520	4580	6180	5980	4160
Antimony	4.7	4.85	1.4	1.25	0.355	1.6	4.2	3.25	2.95	6.9
Arsenic	0.31	0.315	0.033	0.305	0.24	0.47	1.1	0.29	0.26	0.285
Barium	2	2.05	7.6	6.5	10.9	6.6	7.5	11.800	8.600	7.500
Beryllium	0.095	0.1	0.03	0.025	0.12	0.23	0.125	0.095	0.085	0.095
Cadmium	0.285	0.295	0.57	0.17	0.6	1.2	0.370	0.290	0.260	0.285
Calcium	5.35	5.4	4410	12.1	81.3	10.6	35.600	12.250	19.700	52.400
Chromium	1.6	1.85	6	2.2	5.7	8.7	10.5	5.5	5.3	7.1
Cobalt	0.65	0.9	0.235	0.175	0.95	1.9	0.495	0.385	0.350	0.380
Copper	0.475	0.6	1.7	0.65	0.95	0.47	6.6	0.6	0.5	2.1
Iron	257	126	456	833	822	2840	4940	1510	1210	567
Lead	1.2	1.6	11.5	2.7	6.1	4.3	5.1	3.8	3.1	3.3
Magnesium	13.1	12.7	133	86.8	188	260	222	189	217	131
Manganese	0.475	0.395	7.5	2.6	2.4	5.2	4.1	4.9	5.4	2.0
Mercury	0.01	0.01	0.04	0.015	0.045	0.11	0.025	0.025	0.020	0.050
Nickel	1.6	1.7	0.8	0.7	2.4	4.7	0.850	2.300	0.600	0.650
Potassium	48.9	40.8	84.7	187	123	184	409	191	268	98
Selenium	0.5	0.5	0.55	0.5	0.29	0.115	0.495	0.385	0.350	0.380
Silver	0.95	1	0.195	0.175	0.355	0.7	0.600	0.480	0.435	0.475
Sodium	12.7	12.15	13.25	7.25	44.9	31.5	12.850	21.6	9.2	9.6
Thallium	0.205	0.21	0.22	0.2	0.12	0.23	0.495	0.385	0.350	0.380
Vanadium	0.75	1	3	4.7	7.4	13.4	12.200	6.500	6.100	3.500
Zinc	0.475	0.395	11.6	0.9	2.1	1.4	4.700	2.900	2.400	1.000

BASE BACKGROUND
SUBSURFACE SOIL
TAL INORGANICS
MCB CAMP LEJEUNE, NORTH CAROLINA

	1-GW13-08	28-BB-SB37-03	28-BB-SB38-04	28-GW09DW-01	30-BB-SB12-03	30-BB-SB13-01	30-BB-SB14-01	30-BB-SB15-01	30-BB-SB16-02	30-GW03-01
Aluminum	6600	5170	2830	5730	2970	17.1	25.7	42.6	777	16.9
Antimony	3.2	3.55	3.55	3.75	3.9	3.1	3.6	3.6	3.4	3.9
Arsenic	0.280	0.315	0.315	1.500	0.34	0.28	0.32	0.32	0.30	0.34
Barium	8.400	9.700	5.000	11.700	0.8	0.7	0.8	0.8	3.5	0.8
Beryllium	0.095	0.105	0.105	0.110	0.12	0.09	0.11	0.11	0.10	0.12
Cadmium	0.280	0.315	0.315	0.330	0.34	0.28	0.32	0.32	0.30	0.34
Calcium	92.600	23.450	6.850	441.000	7.0	6.9	4.8	6.3	116	6.6
Chromium	8.3	7.3	3.4	4.7	3.9	0.7	0.8	0.8	0.7	0.8
Cobalt	0.375	0.42	0.42	0.93	0.45	0.37	0.42	0.43	0.40	0.46
Copper	1.6	0.65	0.65	0.65	0.7	0.6	0.7	0.7	0.6	0.7
Iron	959	2090	749	2780	908	95.9	155	63.3	514	74.5
Lead	4.0	4.1	2.3	7.4	0.7	0.47	1.9	0.91	3.2	0.59
Magnesium	262	153	66	157	24.7	7.5	2.9	2.9	30.2	3.1
Manganese	4.5	3.2	1.5	5.3	1.7	4.3	6.7	1.1	3.7	1.7
Mercury	0.025	0.025	0.025	0.025	0.03	0.03	0.08	0.25	0.03	0.68
Nickel	0.650	0.750	0.750	1	0.8	0.7	0.8	2.2	1.7	0.8
Potassium	308	122	91.3	136	13.2	6.3	1.1	21.3	21.9	1.2
Selenium	0.375	0.420	0.420	0.440	0.45	0.37	0.42	0.43	0.40	0.46
Silver	0.470	0.500	0.550	0.550	0.6	0.46	0.6	0.6	0.50	0.6
Sodium	10.9	33.8	28.6	20.3	12.5	11.1	19.3	5.4	14.4	5.8
Thallium	0.375	0.420	0.420	0.440	0.45	0.37	0.42	0.43	0.40	0.46
Vanadium	10.100	6.4	2.8	8.5	6.2	0.73	1.0	0.84	1.6	0.34
Zinc	2.700	1.9	1.0	4.2	0.35	0.32	0.39	1.2	1.7	1.3

BASE BACKGROUND
SUBSURFACE SOIL
TAL INORGANICS
MCB CAMP LEJEUNE, NORTH CAROLINA

	35-GWDS01-03	BB-SB02-07	BB-SB03-05	80-BB-SB01-06	80-SS-SB01-03	80-BB-SB2-03	80-BB-SB02-06	80-BB-SB03-03	80-BB-SB03-06	7-BB-SB01-05
Aluminum	2910	888	2330	11000	2520	5950	9600	9500	1060	1400
Antimony	2.750	5.000	5.600	6.200	1.300	1.350	1.650	3.500	1.300	5.150
Arsenic	0.12	1.00	1.10	15.40	0.245	1.60	4.70	1.80	0.24	1.05
Barium	5.5	1.6	3.8	22.3	4.5	9.9	13.5	10.9	4.3	16.1
Beryllium	0.06	0.10	0.11	0.31	0.01	0.04	0.20	0.09	0.01	0.105
Cadmium	0.30	0.50	0.55	0.205	0.16	0.165	0.205	0.16	0.155	0.50
Calcium	456.0	74.2	290.0	257.0	105.0	323.0	210.0	142.0	34.2	38.95
Chromium	2.2	2.4	4.2	66.4	2.1	10.0	22.0	12.0	2.9	5.0
Cobalt	0.65	1	1.1	7	0.42	0.71	1.40	0.75	0.20	1.05
Copper	0.550	1	1.1	9.5	0.670	1.6	4.4	2.2	0.630	1.05
Iron	442	1220	1870	90500	795	2920	12800	3350	557	571
Lead	8.1	2.4	3.8	21.4	2.9	5	11.7	7.8	5.4	3
Magnesium	63.5	35.7	115.0	852.0	76.0	282.0	455.0	357.0	50.7	30.6
Manganese	5.6	2.7	2.4	14.9	1.8	19.9	7.4	6.2	5.4	1.95
Mercury	0.03	0.055	0.06	0.07	0.045	0.055	0.07	0.045	0.045	0.055
Nickel	1.050	2	2.250	0.600	0.455	1.4	0.6	2.2	0.450	2.050
Potassium	145	100.5	228	1250	161	297	1020	458	130	103
Selenium	0.085	0.500	0.550	2.400	0.275	0.285	0.355	0.275	0.275	0.50
Silver	0.39	0.50	0.55	0.275	0.21	0.22	0.275	0.21	0.21	0.50
Sodium	141.0	20.6	28.2	124.0	63.4	25.5	47.1	73.2	18.3	16.85
Thallium	0.06	1.00	1.10	2.70	0.425	0.44	0.55	0.42	0.42	1.05
Vanadium	3.0	3.9	4.9	69.4	2.3	10.8	18.4	13.5	2.4	2.3
Zinc	2.6	8.7	4.9	26.6	2.0	3.5	8.1	4.8	1.7	3.1

BASE BACKGROUND
SUBSURFACE SOIL
TAL INORGANICS
MCB CAMP LEJEUNE, NORTH CAROLINA

	7-BB-SB02-05	7-BB-SB03-09	16-BB-SB01-07	16-BB-SB02-07	16-BB-SB03-05	36-BB-SB01-02	36-BB-SB02-02	36-BB-SB03-03	43-BB-SB01-02	43-BB-SB02-01
Aluminum	1700	581	1940	888	2330	4480	8700	3810	4320	959
Antimony	5.150	5.750	5.8	5	5.6	1.15	1.2	1.9	2.3	1.75
Arsenic	1.05	1.15	1.15	1	1.1	0.155	0.69	0.185	0.44	0.115
Barium	22.6	10.8	3.7	0.8	3.8	13.9	13.7	5.5	8.9	2.2
Beryllium	0.105	0.115	0.115	0.1	0.11	0.032	0.035	0.08	0.1	0.075
Cadmium	0.50	0.550	0.6	0.5	0.55	0.31	0.315	0.255	0.31	0.235
Calcium	41.55	32.15	135	74.2	290	116	225	48.2	76.9	77.6
Chromium	6.2	3.9	4.7	2.4	4.2	4.2	13.5	3.7	5.5	1.2
Cobalt	1.05	1.15	1.15	1	1.1	0.245	0.25	0.275	0.335	0.255
Copper	1.05	1.15	1.15	1	1.1	0.43	0.98	0.175	0.21	0.16
Iron	709	1620	1150	1220	1870	2690	4080	976	2370	414
Lead	1.8	1.1	2.9	2.4	3.8	5.4	6.6	4	6.1	1.6
Magnesium	44.1	12.25	104	35.7	115	78.6	292	110	121	17.9
Manganese	2.65	2.1	5	2.7	2.4	2.5	6.7	3.6	3	1.3
Mercury	0.050	0.060	0.06	0.055	0.06	0.06	0.06	0.045	0.045	0.05
Nickel	2.050	2.300	2.3	2	2.25	1	9.1	1	1.2	0.9
Potassium	102.5	114.5	116	100.5	228	91.3	222	62.5	76	57.5
Selenium	0.50	0.55	0.6	0.5	0.55	0.12	0.175	0.145	0.185	0.155
Silver	0.50	0.55	0.6	0.5	0.55	0.27	0.27	0.275	0.335	0.255
Sodium	13.6	15.65	29.8	10.3	28.2	11.3	25.6	6.1	36.65	4.2
Thallium	1.05	1.15	1.15	1	1.1	0.055	0.085	0.105	0.11	0.095
Vanadium	3.1	2.5	4	3.9	4.9	8.2	17	2.05	5.9	0.9
Zinc	2.1	3.15	15	4.35	2.45	0.82	2.6	0.89	2.3	0.76

BASE BACKGROUND
SUBSURFACE SOIL
TAL INORGANICS
MCB CAMP LEJEUNE, NORTH CAROLINA

	43-BB-SB03-02	44-BB-SB01-03	54-BB-SB01-04	54-BB-SB02-04	86-BB-SB01-02	MIN	MAX	AVG	2Xaverage
Aluminum	2260	10300	1100	1040	2460	16.900	11000.000	3687.651	7375.302
Antimony	2.25	1.15	1.25	1.25	2	0.355	6.900	3.205	6.409
Arsenic	0.31	1.2	0.16	0.195	0.22	0.033	15.400	0.984	1.968
Barium	9.1	12.5	1.15	1.05	4.4	0.650	22.600	7.102	14.204
Beryllium	0.1	0.065	0.06	0.0345	0.09	0.010	0.310	0.095	0.191
Cadmium	0.305	0.305	0.325	0.335	0.275	0.155	1.200	0.356	0.712
Calcium	295	20.9	24.6	14.7	50.8	4.750	4410.000	195.754	391.509
Chromium	2	11	1.15	1	3.1	0.650	66.400	6.281	12.562
Cobalt	0.33	0.495	0.26	0.305	0.29	0.175	7.000	0.752	1.504
Copper	0.265	0.86	0.45	0.46	0.185	0.160	9.500	1.208	2.416
Iron	507	4720	392	319	3160	63.300	90500.000	3626.038	7252.076
Lead	2.8	4.15	0.8	1.75	2.4	0.465	21.400	4.164	8.327
Magnesium	49.3	302	16.4	17.35	71.3	2.850	852.000	130.359	260.718
Manganese	2.5	3.9	0.5	0.6	1.8	0.395	19.900	3.959	7.919
Mercury	0.055	0.0425	0.11	0.05	0.055	0.010	0.680	0.065	0.130
Nickel	1.2	0.92	9.2	7.7	1.05	0.450	9.200	1.857	3.714
Potassium	75	207	29.9	14.45	66.5	1.050	1250.000	173.618	347.236
Selenium	0.17	0.155	0.145	0.17	0.175	0.085	2.400	0.401	0.801
Silver	0.33	0.26	0.28	0.29	0.29	0.175	1.000	0.433	0.866
Sodium	8.75	86.4	4.4	2.2	6.8	2.200	141.000	26.338	52.676
Thallium	0.105	0.07	0.065	0.08	0.13	0.055	2.700	0.477	0.955
Vanadium	1.7	17.1	0.85	0.8	1.85	0.340	69.400	6.727	13.454
Zinc	1.6	2.5	0.92	1.3	0.37	0.320	26.600	3.331	6.662

GROUNDWATER

DRAFT

EVALUATION OF METALS IN GROUNDWATER

MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA

CONTRACT TASK ORDER 0177

JUNE 3, 1994

Prepared for:

DEPARTMENT OF THE NAVY
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1.0 INTRODUCTION

Numerous groundwater investigations have been conducted at Marine Corps Base (MCB), Camp Lejeune under the Department of the Navy (DON) Installation Restoration Program (IRP). These studies have identified elevated levels of total metals in shallow groundwater at almost every site. The degree of contamination, based on dissolved metals analysis of groundwater samples, is limited. It is believed that the presence of elevated metals are not always related to past disposal activities for several reasons, which is the basis of this study.

Currently, Records of Decision (ROD) are being prepared for Operable Units No. 1 (Sites 21, 24, and 78) and No. 5 (Site 2). Both RODs are proposing to not remediate shallow groundwater which contains elevated levels of total metals above State groundwater standards (i.e., North Carolina Water Quality Standards) and/or Federal drinking water standards (i.e., Maximum Contaminant Levels). Specifically, remediation of shallow groundwater due to elevated total metals is not cost effective, or practical, due to the following: (1) the shallow aquifer is not used for potable supply; (2) the source of metals in groundwater cannot be correlated with soil data or previous disposal practices; (3) the extent of shallow groundwater contamination (based on total metals analysis) is widespread and in many cases undefinable, since there are no apparent contaminant plumes or patterns associated with the metals; and (4) deep groundwater, which is the source of potable water, is not significantly contaminated with metals above the standards.

2.0 STUDY OBJECTIVES

The DON/Marine Corps initiated a study on inorganics in groundwater throughout MCB Camp Lejeune to assess whether total metals in groundwater are related to disposal practices or to other factors. The overall goal of this study is to provide information that would be used in consideration of not remediating shallow groundwater at Operable Units No. 1 and No. 5, and possibly other operable units where total metals are elevated without cause. The following study objectives were identified:

(1) Determine whether the elevated total metals detected in the shallow aquifer are related to past disposal practices, well construction factors, sampling techniques, or suspended particulates in the samples;

(2) Determine whether total metals in shallow groundwater are elevated throughout the region or MCB Camp Lejeune;

(3) Determine whether there is a correlation between elevated total metals in groundwater and metals in soil; and

(4) Determine whether the concentrations of total metals (i.e., low versus high) is related to shallow and deep aquifer characteristics.

3.0 SCOPE OF WORK

Groundwater and soil data from a total of 21 sites were compiled as part of the overall study. Three of the 21 sites are located outside the boundary of the base. These sites include the ABC Cleaners Superfund Site, located along Route 24 in Jacksonville, and two sites located along Highway 17 (Off-site Properties No. 1 and No. 2). The two sites along Route 17 were investigated by the DON/Marine Corps as part of a real estate survey. The other 18 sites are located throughout various portions of MCB Camp Lejeune (see Figure 1).

Information from studies conducted by Baker and other consultants were obtained to evaluate metal concentrations in groundwater. The study focused on 14 metals of potential concern to human health and the environment. Some of the information was collected under the IR Program whereas other information was obtained during other investigations (e.g., ABC Cleaners RI/FS). The following data tables were then prepared to determine why total metals are generally elevated in shallow groundwater.

Table 1 - Total Metal Concentrations in Shallow Groundwater by Site

Table 2 - Summary of Repeat Sampling of Shallow Wells (Sites 2 and 78)

Table 3 - Dissolved Metal Concentrations in Shallow Groundwater by Site

Table 4 - Summary of Total Metal Concentrations in Upgradient Wells

Table 5 - Comparison of Subsurface Metal Concentrations in Uncontaminated and Contaminated Wells

Table 6 - Total Metal Concentrations in Deep Groundwater by Site

Table 7 - Summary of Field Parameters in Shallow Monitoring Wells, Deep Monitoring Wells, and Supply Wells

The tables are presented at the end of this report.

4.0 DATA ANALYSIS

The following discussion represents an analysis of the information contained in each of the previously mentioned tables.

Table 1 (Total Metal Concentrations in Shallow Groundwater)

All of the sites had at least one (and in most cases several) metal which exceeded either State water quality standards or Federal drinking water standards. The most frequently detected metals included chromium, lead, and manganese, which were detected at almost every site above drinking water standards. Other frequently detected metals which exceeded drinking water standards included arsenic, beryllium, cadmium, and nickel.

An analysis of the data from Table 1 indicates that elevated total metals are present in shallow groundwater at every site, including the three sites which are located off base. The two sites which did not exhibit significant contamination include the ABC Cleaners site (only chromium exceeded the standards) and Site 48 (only manganese exceeded the standards).

Total metals detected in shallow groundwater at Site 2 exceeded State and/or Federal standards in seven of the 11 shallow monitoring wells. Manganese was the most frequently detected metal (7/11). Lead (3/11), chromium (2/11), and cadmium (1/11) were also detected above the standards,, but less frequently (see Figure 2).

With the exception of Wells 78GW03 and 78GW19, total metals were detected at Site 78 (Hadnot Point Industrial Area) above Federal MCLs or NCWQS in every shallow well (see Figure 3). The extent of elevated total metals in groundwater is widespread, encompassing approximately one square mile (or approximately 660 acres) in total area. The distribution and concentration of total metals in shallow groundwater makes it virtually impossible to identify or illustrate contaminant plumes (see Figure 3).

An analysis of the total metals results indicates the following pattern. Samples exhibiting elevated levels of lead, chromium, or other contaminants of concern, also exhibited elevated levels of other metals such as aluminum, antimony, iron, and zinc. Samples which did not exhibit elevated levels of lead, chromium, or manganese also did not exhibit elevated levels of other metals. This pattern indicates that the elevated total metals are not limited to one or

two contaminants, which would be the case if a lead or chromium plume in the groundwater truly existed. In other words, if a site is impacted by a particular metal due to disposal activities (say chromium for example), then other metals such as aluminum, lead, or zinc should not be consistently elevated as in the case of samples collected from the shallow aquifer at MCB Camp Lejeune. This point is depicted in the data summary tables provided in Appendix A for Sites 2 and 78. These tables were taken from the Remedial Investigation Reports for Operable Units No. 1 and No. 5. As an example, note that sample numbers 78-MW08, 78-MW10, 78-MW11, and 78-MW12 all had elevated levels of total metals when compared to samples 78-MW09-2 and 78-MW09-3. It is clear that most of the metal concentrations in a particular sample follow a consistent pattern throughout.

Table 2 (Comparison of Repeat Sampling of Shallow Wells

Five wells from Sites 2 and 78 were randomly chosen to evaluate total metals concentrations between sampling rounds. The comparison was limited to only chromium, lead, and manganese since these contaminants were frequently detected throughout MCB Camp Lejeune. In several cases, metal concentrations were significantly different between the sampling rounds. If the shallow aquifer was impacted due to former disposal activities, a contaminant plume would be present and concentrations would not significantly deviate. The deviation in metal concentrations may indicate that sampling results are biased due to suspended particulates in the samples.

Table 3 (Dissolved Metal Concentration in Shallow Groundwater by Site)

The data base for Table 3 was limited to 12 sites since many of the previous investigations (i.e., prior to Navy CLEAN) did not analyze for dissolved metals. Nevertheless, an analysis of the 12 sites revealed that elevated levels of dissolved metals in groundwater is limited. Manganese was the most frequently detected metal above drinking water standards (10 of 12 sites exhibited elevated levels). Lead was detected at only one site (Site 21) above drinking water standards. Chromium was also detected at only one site (Site 78) above drinking water standards. No other metal was detected above the standards.

Literature searches have indicated that manganese is a naturally occurring metal in North Carolina. Therefore, the presence of manganese may not be attributable to site-related activities (Greenhorne & O'Mara, 1992).

An analysis of the data from Table 3 clearly shows a significant reduction in metal concentrations when compared to Table 1 (total metals in shallow groundwater). One possible reason for this reduction is that suspended solids or particles are not being introduced into the analysis of the sample due to filtering. A second possibility is that the metals are not significantly present in a dissolved state in shallow groundwater due to the species of metals under site conditions. It should be noted that calcium and sodium did not exhibit such a pattern since the salts of these metals are more soluble in water. For example, the concentrations of total calcium and total sodium versus dissolved calcium and dissolved sodium are similar and are not affected by the removal of the particulates during filtering. The fact that these salts do not exhibit the pattern that the other metals show supports the possibility that total metal concentrations are influenced by particulates in the sample.

Table 4 (Total Metals in Upgradient Shallow Wells)

The data base for Table 4 consists of groundwater results from 14 upgradient shallow monitoring wells (i.e., one well per site). These wells were installed to determine baseline groundwater quality to which on-site groundwater conditions could be compared. In some cases, the upgradient wells were located in areas where other base activities may have influenced groundwater quality.

The analysis of this data shows that manganese was the most frequently detected metal above Federal or State standards in upgradient shallow wells. Manganese was detected in 7 of the 14 upgradient wells above drinking water standards. Chromium and lead were also frequently detected above drinking water standards in upgradient (background) wells. These contaminants were detected in 6 of the 14 upgradient wells. At Site 2, samples collected from an upgradient well (2GW9) exhibited elevated levels of chromium (83µ/l), lead (27.2µ/l) and manganese (747µ/l). At Site 78, samples collected from upgradient wells 96W4 and 78GW26 did not exhibit elevated levels of total metals. The concentration range for metals detected above NC WQS and/of Federal MCLs in upgradient wells is provided below:

- beryllium (ND-46.5 µ/l)
- cadmium (ND-10 µ/l)
- chromium (ND-198 µ/l)
- lead (ND-78.8 µ/l)
- manganese (ND-747 µ/l)
- mercury (ND-1.6J µ/l)

Based on the above range representing upgradient wells, none of the on-site wells at Site 2 exhibited total metals above the maximum background concentrations. However, at Site 78, lead and chromium were detected above the maximum background in several on-site wells.

An analysis of the data from Table 4 indicates that shallow groundwater upgradient of some sites contains total metals above drinking water standards. A comparison of Table 4 data against Table 1 data indicates that shallow groundwater samples from upgradient wells are less contaminated than samples collected from on-site monitoring wells. However, it should be noted that the data base for Table 4 consists of only 14 wells whereas the data base for Table 1 consists of over 130 wells. Therefore, to assume that upgradient groundwater quality is better than on-site groundwater quality may not be justified due to the different data bases.

Table 5 (Comparison of Subsurface Metal Concentrations in Uncontaminated and Contaminated Wells)

The purpose of this table is to determine whether metal concentrations in soils correlate with the elevated levels of metals in shallow groundwater.

To evaluate this, metals in subsurface soils, representing an area of groundwater contamination, were compared to metals in subsurface soil in areas which did not exhibit groundwater contamination. If the elevated total metals in shallow groundwater are present due to former disposal activities, subsurface metals in soil representing an area of groundwater contamination would be expected to be elevated or higher than metals in subsurface soil representing a non-contaminated area. This evaluation assumes that the well exhibiting elevated total metals is within a source area and that the soil sample is representative of soil impacted by metal contamination.

As shown on Table 5, there is no clear pattern or correlation which indicates that elevated total metals are due to soil contamination. Note that in many cases, the concentration of metals which represent "non-contaminated" areas are greater than the metals which represent "contaminated" areas. Also note that the metals in subsurface soil are within or close to background subsurface metal concentrations. Therefore, this supports the possibility that in many cases at MCB Camp Lejeune, the elevated total metals in shallow groundwater cannot be attributable to a source or to past disposal practices.

Table 6 (Total Metals in Deep Monitoring Wells)

Table 6 presents total metal concentrations in deep groundwater for each site. The data base is limited to only 8 sites. Metal concentrations in supply wells were also included for comparison purposes.

As shown on Table 6, total metals in deep groundwater are below drinking water standards with a few exceptions. Arsenic and cadmium were detected above the standards in one deep monitoring well at Site 78 (see Figure 4). Manganese was detected in deep groundwater at three sites and a few of the supply wells. Lead was detected in one supply well at 16 µ/l, which is slightly above the drinking water standard of 15 µ/l.

Elevated total metals are not widespread in deep groundwater for two possible reasons. First, most metals are not very mobile in the environment. Second, deep groundwater samples may not have significant amounts of suspended particulates due to different geologic conditions. Soils in the deeper aquifer are more compacted and consist primarily of calcareous sands, clays, and limestone fragments. Soils in the shallow aquifer are loosely compacted and consist primarily of fine-grained sands, silts, and clays. This classification may support the possibility that suspended solids are collected during sampling, thereby influencing the analysis for total metals.

Table 7 (Summary of Field Parameters in Shallow, Deep, and Supply Wells)

Table 7 provides a range of pH and specific conductivity values representative of shallow and deep groundwater. In general, lower pH values were noted more often in shallow wells than in deep wells (including the supply wells). This condition may influence the leachability and speciation of metals in groundwater.

Deep groundwater usually exhibited higher specific conductivity values. High specific conductivity values are representative of high dissolved conditions. The fact that deep groundwater generally exhibited higher specific conductivity values indicates that most of the metals, if present, are in a dissolved state. The high specific conductivity values could also indicate less suspended particulates due to the geologic conditions of the deep aquifer. The lower specific conductivity values observed in shallow wells indicates that the metals in the shallow aquifer are not in a dissolved state. This also supports the possibility that suspended particulates in the shallow aquifer are influencing the analysis of total metals.

5.0 ANALYSIS OF THE STUDY OBJECTIVES

Each of the objectives identified for this study are analyzed below based on the information collected.

Objective No. 1 (Determine whether the elevated total metals in the shallow aquifer are related to past disposal practices, well construction factors, sampling techniques, or suspended particulates in the samples)

Based on the analysis of information provided in Tables 1 through 7 and Appendix A, it appears that suspended particulates in groundwater samples could influence the concentration of total metals in groundwater. Well construction factors and sampling techniques are probably not a significant factor since the data base is representative of data obtained by Baker, ESE (Site 28 and 30), Roy F. Weston (ABC Cleaners), and Halliburton NUS (Site 7). No particular pattern was noted between sites which Baker obtained the samples versus sites in which other consultants obtained the data. Sampling methods were also considered. For Sites 63 and 65 for example, samples were collected with a bailer. At Sites 2 and 78, samples were collected with a low flow pump. All four sites exhibited elevated levels of total metals in groundwater samples. In addition, due to the fact that deep groundwater quality is not significantly impacted with metals indicates that well construction or sampling techniques are probably not factors related to elevated total metals in groundwater.

With respect to past disposal practices, Table 5 clearly shows that soil concentrations do not correlate with elevated total metals in groundwater. Based on this analysis, and on many of the sites previously investigated, the source of total metals in groundwater cannot be attributable to soil contamination or disposal practices in many cases. This is based on both the history of the site as well as the analytical soil results. In some cases, total metals were detected at elevated levels even when the site history did not correlate with the contaminants found. For example, Sites 2 and 21 have a history of pesticide storage and handling, and there are no known disposal areas (i.e., buried debris) within the site boundary. Nevertheless, both of these sites exhibited several metals above drinking water standards that would not be expected to be present at high concentrations based on the historical use of the site. These metals included lead, chromium, beryllium, cadmium, and manganese.

Objective No. 2 (Determine whether total metals in shallow groundwater are elevated throughout the region or MCB Camp Lejeune)

Based on groundwater data obtained from both upgradient wells and off base wells, total metals were detected above drinking water standards in shallow groundwater in areas that would not be influenced by former disposal activities at the sites. Given that some of the upgradient wells are contaminated, it is apparent that total metals in shallow groundwater are elevated in certain areas of the base outside of the influence of site-related disposal activities. However, it is unknown whether the shallow aquifer upgradient of the sites is contaminated due to other base-related activities or whether the levels in groundwater samples are also elevated due to the influence of suspended fines in the samples.

Objective No. 3 (Determine whether there is a correlation between elevated total metals in groundwater and metals in soil)

An evaluation of the data presented in Table 5 shows that metals in soil samples collected in areas of groundwater contamination are not elevated when compared to metals in soil samples collected in areas that did not exhibit groundwater contamination. This supports the possibility that in many cases, elevated levels of total metals in shallow groundwater are not related to the disposal history at the site. As previously mentioned, sites which did not exhibit soil contamination (when compared to background soil levels) or did not have a history of disposal indicative of metals contamination still exhibited elevated levels of total metals in groundwater. Since there is no apparent correlation between metals in soil and total metals in groundwater, then the possibility exists that the elevated total metals in groundwater are biased high due to suspended particulates.

Objective No. 4 (Determine whether the concentrations of total metals in groundwater is related to shallow and deep aquifer characteristics)

There is some evidence that the geologic conditions of the shallow and deep aquifers influence the amount of total metals detected in groundwater samples. The fact that the deep aquifer generally exhibited higher specific conductivity values indicates that there is more dissolved constituents in the deep aquifer when compared to the shallow aquifer. This was evident when comparing Table 1 (total metals in shallow groundwater) to Table 6 (total metals in deep groundwater). Table 6 did not indicate significant levels of total metals in deep groundwater throughout MCB Camp Lejeune.

The geologic conditions of the shallow aquifer would tend to result in samples that may contain suspended particulates. The suspended particulates could influence the total metals concentrations in the samples.

6.0 CONCLUSIONS

1. Elevated levels of total metals in the shallow aquifer are probably influenced to some degree by the geologic conditions of the site.

2. There is no correlation between metal levels in soil and total metals in groundwater. Therefore, elevated total metals in groundwater cannot be attributable to soil contamination of past disposal practices.

3. Elevated levels of total metals in the shallow aquifer may be biased high due to suspended particulates in the samples.

4. Dissolved metals in groundwater were generally below Federal MCLs and NC WQS and therefore, do not present a significant problem at MCB Camp Lejeune.

5. Total and dissolved metal concentrations in the Castle Hayne aquifer were generally below drinking water standards and therefore, do not present a significant problem at MCB Camp Lejeune.

6. The presence of manganese in shallow and deep groundwater may be due to naturally occurring geologic conditions.

7.0 RECOMMENDATIONS

1. Remediation of total metals in the shallow aquifer at Operable Units 1 and 5 is not recommended based on the following:

   - Elevated metals in groundwater at both operable units does not appear to be related to soil contamination or past disposal practices;
   - The distribution of total metals in groundwater is not characteristic of a plume that would be present due to a source of contamination;
   - Remediation of total metals would not be practical from an engineering or cost standpoint; and
   - Currently, there is no human or environmental exposure to shallow groundwater.

2. Additional background wells should be installed at all sites in order to provide a baseline for comparing on-site groundwater quality.

Tables

TABLE 1
TOTAL METALS BY SITE
SHALLOW MONITORING WELLS
MCB, CAMP LEJEUNE, NORTH CAROLINA

Site Number / Units	NCWQS ug/L	FEDERAL MCL ug/L	Site 1 ug/L	Site 2 ug/L	Site 6 ug/L	Site 7 ug/L	Site 9 ug/L	Site 21 ug/L	Site 24 ug/L	Site 28 ug/L	Site 30 ug/L	Site 41 ug/L	Site 43 ug/L	Site 44 ug/L
Arsenic	50	50	7.2 - 57.4	2.2 - 23.6	ND - 23.3	ND - 43.4J	ND	ND - 101	ND - 116J	5.4 - 13J	6.4 - 12J	2.4 - 36.3	ND - 23.4	ND - 570
Barium	2000	2000	335 - 833	46 - 1420	ND - 1020	427 - 641	ND - 1060	ND - 647	ND - 1120	78.8 - 576	60.1 - 396	55.2 - 999	220 - 745	315 - 3180
Beryllium	NE	4	2.7 J - 43.4	1 - 3	ND - 7.5	ND - 10.3J	ND	ND - 8	ND - 19	ND - 1.2J	ND - 2.4	0.80 - 42.8	1.5 - 4.2	1.4 - 36.6
Cadmium	5	5	ND - 12.9	7	ND	ND	ND	ND	ND - 12	3.3J - 17.3J	ND - 10.7J	3.2 - 110	ND - 6.9	ND - 32
Calcium	NA	NA	8850 - 726000	5710 - 450000	5430 - 64900	5050 - 51300	16100 - 90700	6130J - 63000J	ND - 151000	20200 - 160000	1730 - 11900	8750 - 828000	10300 - 91900	2430 - 191000
Chromium	50	100	172 - 627	11 - 117	ND - 201	47.8 - 220	ND - 214	ND - 348J	19 - 316	9.0J - 140	42.8 - 106J	10.5 - 244	161 - 249	126 - 895
Copper	1000	1300	44.6 - 117	3 - 23	ND - 175	17.7 - 36.4	ND - 39.7	ND - 84	ND - 52	18.8J - 75.4	15.8 - 42.5	16.3 - 1030	64.2 - 104	28.6 - 313
Lead	15	15	40.8J - 176J	2.7 - 44.8	ND - 200	23 - 37.3	ND - 127	ND - 2000J	5.1 - 89	20.3J - 234J	7.7J - 115J	4.8 - 9340	16.5 - 28.8	15.8 - 508
Manganese	50	50 (1)	125 - 1720	21 - 190	ND - 362	56.9 - 220	ND - 91.3	59 - 276J	29 - 318	82.2 - 304	78.5 - 578	56.6 - 2110	72.6 - 297	88 - 1730
Mercury	1.1	2	ND - 1.2J	ND	ND - .46	0.2 - 0.36	ND - 1.4	ND - 2.4J	ND - 3.2	ND - 1.4J	0.88J - 0.9J	0.13 - 0.92	ND - 0.24	ND - 1.1
Nickel	100	100	28.5 - 426	ND	ND - 41.9	ND	ND	ND - 123	ND - 140	ND - 59.8	17.1J - 52.6J	28.8 - 137	20.5 - 143	21.9 - 486
Sodium	NA	NA	9090 - 19000	ND - 103000	1110 - 68700	7040 - 156000	1390 - 4170	7950 - 15700	5230 - 19200	9480 - 74700	5320 - 8100	2080 - 40200	9160 - 22100	4060 - 12600
Vanadium	NE	NE	214 - 640	9 - 184	ND - 330	37.8 - 423	ND - 175	ND - 419	ND - 408	6.1 - 164	57 - 101	20.4 - 244	122 - 233	184 - 759
Zinc	2100	5000 (1)	ND - 1110	6 - 146	ND - 1620	83.6 - 133	ND - 118	27J - 487J	20 - 650	ND	79.2 - 104	25.7 - 5180	19 J - 661J	87.3 - 2800J

Site Number / Units	Site 48 ug/L	Site 63 ug/L	Site 65 ug/L	Site 69 ug/L	Site 78 ug/L	Site 82 ug/L	ABC Cleaners ug/L	Offsite Property #1 ug/L	Offsite Property #2 ug/L
Arsenic	ND	ND - 23.4	ND - 308	2.9 - 29.6	ND - 405J	ND - 67.8	ND - 12	10.3 - 160	ND
Barium	18 - 51.3	56.1 - 5410	105 - 638	46.5 - 850	ND - 1250	ND - 540	35 - 220	ND - 468	ND
Beryllium	ND	ND - 3.1	ND	1.3 - 10.6	ND - 19	ND	NA	ND - 8.5	ND
Cadmium	2.2 - 3.3	ND	ND	2.4 - 11.4	ND - 21	ND	NA	ND	ND
Calcium	30600 - 115000	2830 - 24300	33300 - 181000	2010 - 38700	ND - 642000	6580 - 60800	790 - 16000	ND - 22800	ND - 5200
Chromium	5.8 - 17.5	4.4 - 134	50.1 - 364	15.1 - 159	ND - 838J	ND - 174	ND - 57	52.8 - 636	ND - 94
Copper	3.1 - 13.5	10.7 - 126	28.2 - 127	16.2 - 70.8	ND - 699	ND - 29.3	ND - 89	ND - 140	ND
Lead	ND	4.3 J - 369	19.1 - 132	7.8 - 188	ND - 360J	ND - 89	ND - 10	12.3 - 345	6.3 - 62.3
Manganese	38.1 - 585	50.3 - 1020	56.2 - 474	13.0 - 912	26 - 714	26.9 - 283	4 - 44	56 - 973	ND - 60.1
Mercury	0.04 - 0.09	ND - 0.20	ND - 0.29	0.10 - 0.94	ND - 1.5	ND - 0.66	NA	ND	ND
Nickel	ND	19.8 - 54.2	19.4 - 84.3	13.6 - 99.8	ND - 234	ND - 34.6	ND - 77	40.2 - 380	ND
Sodium	5750 - 8760	3150 - 7100	3850 - 11700	4790 - 41300	ND - 42500	5670 - 36500	5800 - 33000	ND - 9390	ND - 7630
Vanadium	3.4 - 12.8	7.9 - 163	59.8 - 433	17.3 - 210	ND - 1700	ND - 256	ND - 45	70 - 739	ND - 64.7
Zinc	ND - 30.3	58.5J - 1110J	148J - 406J	36.2 - 12100	6J - 967J	ND - 204	14 - 220	ND - 736	ND - 40.8

NOTES:
J - Value is estimated.
JB - Value is estimated below the CRDL, but greater than the IDL.
NE - Not established.
NA - Not analyzed.
ND - Not detected.
NCWQS - North Carolina Water Quality Standard
MCL - Maximum Contaminant Level
(1) - Secondary MCL

TABLE 2
COMPARISON OF REPEAT SAMPLING OF SHALLOW WELLS
MCB, CAMP LEJEUNE, NORTH CAROLINA

Well	2GW01		2GW03		2GW06		2GW08		2GW09	
Date	5/1993	3/1994	5/1993	3/1994	5/1993	3/1994	5/1993	3/1994	5/1993	3/1994
Chromium	18	ND	11	ND	15	ND	ND	ND	25	83
Lead	15.5 J	ND	3.5 J	ND	6.7 J	ND	ND	3.4	27.2 J	23.6
Manganese	55	47	21	ND	79	140	53	415	290	747

Well	78GW05		78GW08		78GW15		78GW16		78GW19	
Date	1/1991	4/1994	1/1991	4/1994	1/1991	4/1994	1/1991	4/1994	1/1991	4/1994
Chromium	ND	17 J	91.8	491 J	21.4	215 J	209	353 J	13.8	ND
Lead	13.6	13.1 J	54.1	131 J	16.6	53	100	224	31.7	8.3
Manganese	162	161 J	46.5	213 J	18.3	115	98.3	150	79	26

NOTES:
J - Value is estimated..
ND - Not detected.

TABLE 3
DISSOLVED METALS BY SITE
SHALLOW MONITORING WELLS
MCB, CAMP LEJEUNE, NORTH CAROLINA

Site Number / Units	NCWQS ug/L	FEDERAL MCL ug/L	Site 1 ug/L	Site 2 ug/L	Site 6 ug/L	Site 7 ug/L	Site 9 ug/L	Site 21 ug/L	Site 24 ug/L	Site 28 ug/L	Site 30 ug/L	Site 41 ug/L	Site 43 ug/L	Site 44 ug/L
Arsenic	50	50	NA	2.2 - 7.1	ND	NA	ND	ND - 10.6	ND - 16.3	NA	NA	2.2 - 4.7	NA	NA
Barium	2000	2000	NA	25 - 149	ND	NA	ND	ND	ND	NA	NA	12.4 - 451	NA	NA
Beryllium	NE	4	NA	1	ND	NA	ND	ND	ND	NA	NA	0.80 - 3.2	NA	NA
Cadmium	5	5	NA	ND	ND	NA	ND	ND - 5	ND	NA	NA	3.2 - 4.2	NA	NA
Calcium	NA	NA	NA	5800 - 441000	6230 - 57400	NA	15800 - 82400	35900	ND - 113000	NA	NA	4710 - 138000	NA	NA
Chromium	50	100	NA	10	ND	NA	ND	ND	ND	NA	NA	8.3 - 9.6	NA	NA
Copper	1000	1300	NA	2 - 9	ND	NA	ND	ND	ND	NA	NA	16.3 - 23.9	NA	NA
Lead	15	15	NA	2.1	ND	NA	ND	ND - 94	ND	NA	NA	1.0	NA	NA
Manganese	50	50 (1)	NA	17 - 129	ND - 92.7	NA	ND	40 - 134	ND - 320	NA	NA	7.1 - 521	NA	NA
Mercury	1.1	2	NA	ND	ND	NA	ND	ND	ND - 0.5	NA	NA	0.13 - 0.20	NA	NA
Nickel	100	100	NA	ND	ND	NA	ND	ND	ND - 57	NA	NA	28.8 - 31.2	NA	NA
Sodium	NA	NA	NA	ND - 103000	1420 - 70500	NA	1280 - 3860	16200	ND - 183000	NA	NA	2500 - 34200	NA	NA
Vanadium	NE	NE	NA	43	ND	NA	ND	ND	ND	NA	NA	20.4	NA	NA
Zinc	2100	5000 (1)	NA	8 - 35	ND - 350	NA	ND	6B - 50	ND - 437	NA	NA	10.6 - 125	NA	NA

Site Number / Units	Site 48 ug/L	Site 63 ug/L	Site 65 ug/L	Site 69 ug/L	Site 78 ug/L	Site 82 ug/L	ABC Cleaners ug/L	Offsite Property #1 ug/L	Offsite Property #2 ug/L
Arsenic	ND	NA	NA	2.9	ND - 21.6	ND	NA	ND - 18.8	ND
Barium	16.8 - 27.6	NA	NA	13.7 - 35.8	ND	ND	NA	ND	ND
Beryllium	ND	NA	NA	1.3	ND	ND	NA	ND	ND
Cadmium	ND - 3.1	NA	NA	2.4	ND	ND	NA	ND	ND
Calcium	72600 - 80700	NA	NA	764 - 10600	ND - 296000	15200 - 58500	NA	ND - 7710	ND
Chromium	ND	NA	NA	7.2	ND - 59	ND	NA	ND - 30.0	ND
Copper	2.6 - 7.6	NA	NA	16.2	ND - 121	ND	NA	ND - 10.7	ND
Lead	ND	NA	NA	1	ND - 17.2	ND	NA	ND - 15.8	ND
Manganese	39.7 - 539	NA	NA	8.5 - 139	ND - 152	21 - 127	NA	ND - 63.8	ND - 21.3
Mercury	0.05 - 0.09	NA	NA	0.1	ND - 0.6	ND	NA	ND	ND
Nickel	ND	NA	NA	13.6	ND	ND	NA	ND	ND
Sodium	6430 - 8920	NA	NA	5170 - 41100	ND - 42200	5980 - 36000	NA	ND - 9540	ND - 6750
Vanadium	ND	NA	NA	16.6	ND	ND	NA	ND	ND
Zinc	ND	NA	NA	7.0 - 7670	ND - 58	ND - 119	NA	ND - 468	ND - 222

NOTES:
J - Value is estimated.
JB - Value is estimated below the CRDL, but greater than the IDL.
NE - Not established.
NA - Not analyzed.
ND - Not detected.
NCWQS - North Carolina Water Quality Standard
MCL - Maximum Contaminant Level
(1) - Secondary MCL

TABLE 4
SUMMARY OF TOTAL METALS IN UPGRADIENT WELLS
SHALLOW MONITORING WELLS
MCB, CAMP LEJEUNE, NORTH CAROLINA

Well Number	NCWQS	FEDERAL MCL	Upgradient of Site 1	Upgradient of Site 2	Upgradient of Site 6	Upgradient of Site 7	Upgradient of Site 9	Upgradient of Sites 21 and 78	Upgradient of Site 24	Upgradient of Site 28	Upgradient of Site 30	Upgradient of Site 41	Upgradient of Site 43	Upgradient of Site 44
			1GW06	2GW09	6BP6S	7GW03	9GW4S	78GW26	24GW07	28GW04		41GW05		
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		ug/L		
Arsenic	50	50	17.8 J	12.9	ND	ND	ND	ND	3.7 J	7.4 J	No Upgradient Well Sites	13.1	No Upgradient Well Sites	No Upgradient Well Sites
Barium	2000	2000	548	328	257	428	71.3	ND	ND	576		55.7		
Beryllium	NE	4	3.2 J	3	ND	ND	ND	ND	ND	9.3 J		1.6		
Cadmium	5	5	ND	ND	ND	ND	ND	not reported	ND	3.3 J		10		
Chromium	50	100	193	75	198	124	ND	13	37	122		54.4		
Copper	1000	1300	64.8	25	35.6	36.4	ND	ND	ND	20.7 J		27		
Lead	15	15	78.8 J	27.2	64.4	30.3 J	ND	9	11.4	22.4 J		23.7		
Manganese	50	50 (1)	202	747	84.5	56.9 J	ND	ND	39	206		203		
Mercury	1.1	2	1.6 J	ND	ND	0.36	ND	ND	ND	ND		0.16		
Nickel	100	100	51.6	ND	ND	ND	ND	ND	ND	59.8		38		
Vanadium	NE	NE	214	86	209	152	ND	149	64	85.3		38.1		
Zinc	2100	5000 (1)	ND	103	56.6	86.4 J	ND	68.1	41	ND		173		

Well Number	Upgradient of Site 48	Upgradient of Site 63	Upgradient of Site 65	Upgradient of Site 69	Upgradient of Site 78	Upgradient of Site 82	Upgradient of ABC Cleaners	Upgradient of Offsite Property #1	Upgradient of Offsite Property #2
	48GW1			69GW07	9GW04	6MW3S	MW-S01		
Units	ug/L			ug/L	ug/L	ug/L	ug/L		
Arsenic	ND	No Upgradient Well Sites	No Upgradient Well Sites	2.9	ND	ND	ND	No Upgradient Well Sites	No Upgradient Well Sites
Barium	29.4 J			46.5	ND	ND	35		
Beryllium	ND			1.3	ND	ND	NA		
Cadmium	2.5 J			2.4	ND	ND	NA		
Chromium	ND			15.8	ND	ND	ND		
Copper	ND			16.2	ND	ND	ND		
Lead	ND			7.8	ND	ND	3		
Manganese	70.6			13	ND	ND	10		
Mercury	ND			0.1	ND	ND	NA		
Nickel	ND			13.6	ND	ND	ND		
Vanadium	3.4 J			17.3	ND	ND	9		
Zinc	ND			36.2	ND	ND	23		

NOTES:
J - Value is estimated.
JB - Value is estimated below the CRDL, but greater than the IDL.
NE - Not established.
NA - Not analyzed.
ND - Not detected.
NCWQS - North Carolina Water Quality Standard
MCL - Maximum Contaminant Level
(1) - Secondary MCL

TABLE 5
COMPARISON OF INORGANIC SUBSURFACE SOIL CONCENTRATIONS IN "CLEAN" AND "CONTAMINATED" WELLS
MCB, CAMP LEJEUNE, NORTH CAROLINA

	Camp Lejeune Background Subsurface Soil Data	Site 1		Site 2		Site 6		Site 7		Site 9		Site 21	
		"Clean"	"Contaminated"	"Clean"	"Contaminated"	"Clean"	"Contaminated"	"Clean"	"Contaminated"	"Clean"	"Contaminated"	"Clean"	"Contaminated"
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Well Number		--	--	2GW07	2GW09	6GW18	6GW15	7GW03	7GW02	9GW5	9GW1	21GW03	21GW02
Soil Sample Number		--	--	2-GW07-01	2 - GW09-02	6-GW18-0303	6-GW15-03	GW03-002	GW02-7595	9-GW5-03	9-SB35-03	21-GW03	21-GW02
Arsenic	0.03 - 0.47	NA	NA	1.7 J	ND	ND	ND	1.5	ND	ND	ND	ND	0.55 J
Barium	2 - 11	NA	NA	12.5 J	ND	ND	ND	6.6	71	ND	ND	ND	4.4 J
Beryllium	0.03 - 0.23	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	0.17 - 1.2	NA	NA	ND	ND	ND	ND	1.3	4.5	ND	ND	ND	ND
Chromium	2 - 9	NA	NA	10.9 J	4.6	ND	130	5.2	63	ND	260	15.2	3.4 J
Copper	0.47 - 2	NA	NA	0.97 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead	1 - 12	NA	NA	8 J	4.3	3.3 J	121	2.5	34.4	1.6	1240	7.1	6.9 J
Manganese	0.40 - 8	NA	NA	4.3 J	4.1	ND	1.8 B	3	110	ND	3.7 J	9.3	3.2 J
Mercury	0.01 - 0.11	NA	NA	0.3 J	ND	ND	ND	10.13	0.48	ND	ND	ND	ND
Nickel	0.70 - 5.0	NA	NA	ND	ND	ND	ND	3.4	11.8	ND	ND	ND	ND
Vanadium	0.75 - 13	NA	NA	13.8 J	ND	ND	2.9 B	5.5	4.5	ND	ND	15.5	4.4 J
Zinc	0.40 - 12	NA	NA	ND	ND	ND	ND	1.3	ND	ND	6.1 J	5.7	3 J

NOTES:
Shaded area indicates inorganic which exceeded a MCL and/or NCWQS in groundwater sample.
J - Value is estimated.
JB - Value is estimated below the CRDL, but greater than the IDL.
NA - No available wells to compare OR compound was not analyzed.
ND - Not detected.
NCWQS - North Carolina Water Quality Standard
MCL - Maximum Contaminant Level
(1) - Secondary MCL

TABLE 5
COMPARISON OF INORGANIC SUBSURFACE SOIL CONCENTRATIONS IN "CLEAN" AND "CONTAMINATED" WELLS
MCB, CAMP LEJEUNE, NORTH CAROLINA

	Site 24		Site 28		Site 30		Site 41		Site 43		Site 44	
	"Clean"	"Contaminated"	"Clean"	"Contaminated"	"Clean"	"Contaminated"	"Clean"	"Contaminated"	"Clean"	"Contaminated"	"Clean"	"Contaminated"
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Well Number	24GW10	24GW02	--	--	--	--	41GW04	41-GW11	43GW01	43GW02	44GW02	44GW01
Soil Sample Number	24-GW10	24-BDA-SB09	--	--	--	--	41-GW04-DW	41-GW11-01	43-GW01-00	43-GW02-00	44-GW02-035	--
Arsenic	ND	ND	NA	NA	NA	NA	0.51	1.6	ND	ND	ND	1.7
Barium	ND	ND	NA	NA	NA	NA	9.4	22.6	ND	ND	ND	12.9
Beryllium	ND	ND	NA	NA	NA	NA	0.18	0.18	ND	ND	ND	ND
Cadmium	ND	ND	NA	NA	NA	NA	0.73	0.73	8.3	ND	ND	ND
Chromium	11.2	9 J	NA	NA	NA	NA	3.6	11.2	13	6.7	3.6 J	10 J
Copper	ND	ND	NA	NA	NA	NA	3.7	22.5	3.4	ND	6.2 J	25.4 J
Lead	4.6 J	6.2 J	NA	NA	NA	NA	4.8	110	9.8	6.1	5.5	10.7
Manganese	4.7	8.4 J	NA	NA	NA	NA	3.7	75.9	3.12	12.4	3.5	20.4
Mercury	ND	ND	NA	NA	NA	NA	0.06	0.31	ND	ND	ND	ND
Nickel	ND	ND	NA	NA	NA	NA	6.6	6.6	7.6	4.1	3.1	3.4
Vanadium	18.4	10	NA	NA	NA	NA	6.8	9.3	7.2	5.8	5	14.7
Zinc	ND	7.8	NA	NA	NA	NA	7.7	130	20.1	3	3.2	34.9

NOTES:
Shaded area indicates inorganic which exceeded a MCL and/or NCWQS in groundwater sample.
J - Value is estimated.
JB - Value is estimated below the CRDL, but greater than the IDL.
NA - No available wells to compare OR compound was not analyzed.
ND - Not detected.
NCWQS - North Carolina Water Quality Standard
MCL - Maximum Contaminant Level
(1) - Secondary MCL

TABLE 5
COMPARISON OF INORGANIC SUBSURFACE SOIL CONCENTRATIONS IN "CLEAN" AND "CONTAMINATED" WELLS
MCB, CAMP LEJEUNE, NORTH CAROLINA

	Site 48		Site 63		Site 65		Site 69		Site 78		Site 82	
	"Clean"	"Contaminated"	"Clean"	"Contaminated"	"Clean"	"Contaminated"	"Clean"	"Contaminated"	"Clean"	"Contaminated"	"Clean"	"Contaminated"
Units	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*
Well Number	48-GW01	48-GW03	63MW03	63MW02	65MW03	65MW02	69-GW11	69-GW03	78GW34	78GW24-1	6-GW28	82MW3
Soil Sample Number	48-GW1A-01	48-C3-03	63-MW03-04	63-MW02-06	65-MW03-11	65-MW02-06	69-GW11-04	69-CSA-SB23-00	78-GW34	78-B903-SB03	6-GW28-09	6-GW27D-06
Arsenic	1.3	0.77 J	ND	ND	ND	13	0.68	0.63	ND	ND	0.31	15.9
Barium	21.1	15	ND	ND	3.4	6.8	5.6	3	ND	ND	ND	ND
Beryllium	0.2	0.19	ND	ND	ND	ND	0.3	0.28	ND	ND	ND	ND
Cadmium	1.4	1.8 J	ND	ND	NA	NA	0.56	0.52	ND	ND	ND	ND
Chromium	18.2	18.6	7.7	59	5.9	37	6.8	107	18.5	97	2.6	71
Copper	3.5	3.8	ND	ND	1.5	3.1	3.8	3.5	3.4 B	ND	ND	ND
Lead	32.3	14.3	4.2	2.6	17	3.2	4.3	11	4.5 J	2.6 J	2.7	43
Manganese	411	7	4.9	18	3.5	6.9	4	12	22	ND	ND	ND
Mercury	ND	ND	ND	ND	NA	NA	0.06	0.05	ND	ND	ND	ND
Nickel	2.2	1.9 J	ND	ND	ND	ND	3.2	3	ND	ND	ND	ND
Vanadium	28.3	20.8 J	ND	ND	4.4	3	4.4	3.6	18.7	19.2	ND	ND
Zinc	ND	ND	ND	ND	2.7	5	3.2	10	7.9	ND	ND	ND

NOTES:
Shaded area indicates inorganic which exceeded a MCL and/or NCWQS in groundwater sample.
J - Value is estimated.
JB - Value is estimated below the CRDL, but greater than the IDL.
NA - No available wells to compare OR compound was not analyzed.
ND - Not detected.
NCWQS - North Carolina Water Quality Standard
MCL - Maximum Contaminant Level
(1) - Secondary MCL

TABLE 5
COMPARISON OF INORGANIC SUBSURFACE SOIL CONCENTRATIONS IN "CLEAN" AND "CONTAMINATED" WELLS
MCB, CAMP LEJEUNE, NORTH CAROLINA

	ADC Cleaners		Offsite Property #1		Offsite Property #2	
	"Clean"	"Contaminated"	"Clean"	"Contaminated"	"Clean"	"Contaminated"
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Well Number	--	--	--	--	--	--
Soil Sample Number	--	--	--	--	--	--
Arsenic	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	NA

NOTES:
Shaded area indicates inorganic which exceeded a MCL and/or NCWQS in groundwater sample.
J - Value is estimated.
JB - Value is estimated below the CRDL, but greater than the IDL.
NA - No available wells to compare OR compound was not analyzed.
ND - Not detected.
NCWQS - North Carolina Water Quality Standard
MCL - Maximum Contaminant Level
(1) - Secondary MCL

TABLE 6
TOTAL METALS BY SITE
DEEP MONITORING WELLS
MCB, CAMP LEJEUNE, NORTH CAROLINA

	Site 1	Site 2	Site 6	Site 7	Site 9	Site 21	Site 24	Site 28	Site 30	Site 41	Site 43	Site 44	Site 48	Site 63	Site 65	Site 69	Site 78	Site 82	ABC Cleaners	Base Supply Wells (1)
Arsenic	No Deep Wells	ND	ND	No Deep Wells	ND	No Deep Wells	No Deep Wells	No Deep Wells	No Deep Wells	2.2 - 9.6	No Deep Wells	No Deep Wells	No Deep Wells	No Deep Wells	No Deep Wells	2.2 - 3.5	2 - 118 J	ND	ND - 14	ND
Barium		1420	ND		ND					22.6 - 186						42.3 - 58.0	ND - 547	ND	4 - 36	ND
Beryllium		ND	ND		ND					3.2						0.80 - 0.89	ND	ND	NA	NA
Cadmium		ND	ND		ND					4.2 - 4.7						3.2	ND - 21	ND	NA	ND
Chromium		16	ND		ND					9.6 - 40.5						8.3 - 20.7	ND - 10	ND	ND - 32	ND
Copper		ND	ND		ND					23.9						16.3	ND	ND	ND - 41	ND - 130
Lead		ND	ND		ND					1.0 - 11.1						3.1 - 6.8	ND	ND	ND - 10	ND - 16
Manganese		ND	ND - 33.5		ND					16.9 - 101						53.7 - 114	ND - 591	ND - 21.6	ND - 45	10 - 120
Mercury		ND	ND		ND					0.15 - 0.17						0.16 - 0.17	ND - 0.3	ND	NA	ND
Nickel		ND	ND		ND					31.2						28.8	ND	ND	ND - 14	NA
Vanadium		ND	ND		ND					20.4 - 49.8						20.4	ND - 24 J	ND	ND - 15	NA
Zinc		ND	ND		ND					17.8 - 83.8						31.1 - 48.7	ND - 181 J	ND	58 - 390	ND - 120

NOTES:
J - Value is estimated..
NA - Not analyzed.
ND - Not detected.
(1) - Range is based on 67 supply wells located throughout MCB, Camp Lejeune, NC.

TABLE 7
SUMMARY OF FIELD PARAMETERS IN SHALLOW, DEEP, AND SUPPLY WELLS MCB, CAMP LEJEUNE, NORTH CAROLINA

	Shallow Wells		Deep Wells		Supply Wells	
	Range (1)	Average Maximum	Range (2)	Average Maximum	Range (3)	Average Maximum
pH (standard units)	4.5 - 7.28	6.08	7.52 - 11.34	8.88	6.91 - 7.45	7.32
Specific Conductivity (micromhos/cm)	40 - 580	267	149 - 525	350	212 - 511	353

(1) - Based on data from 11 sites.
(2) - Based on data from 6 sites.
(3) - Based on data from 9 supply wells.

Appendix A
Data Summary Tables for Sites 2 and 78

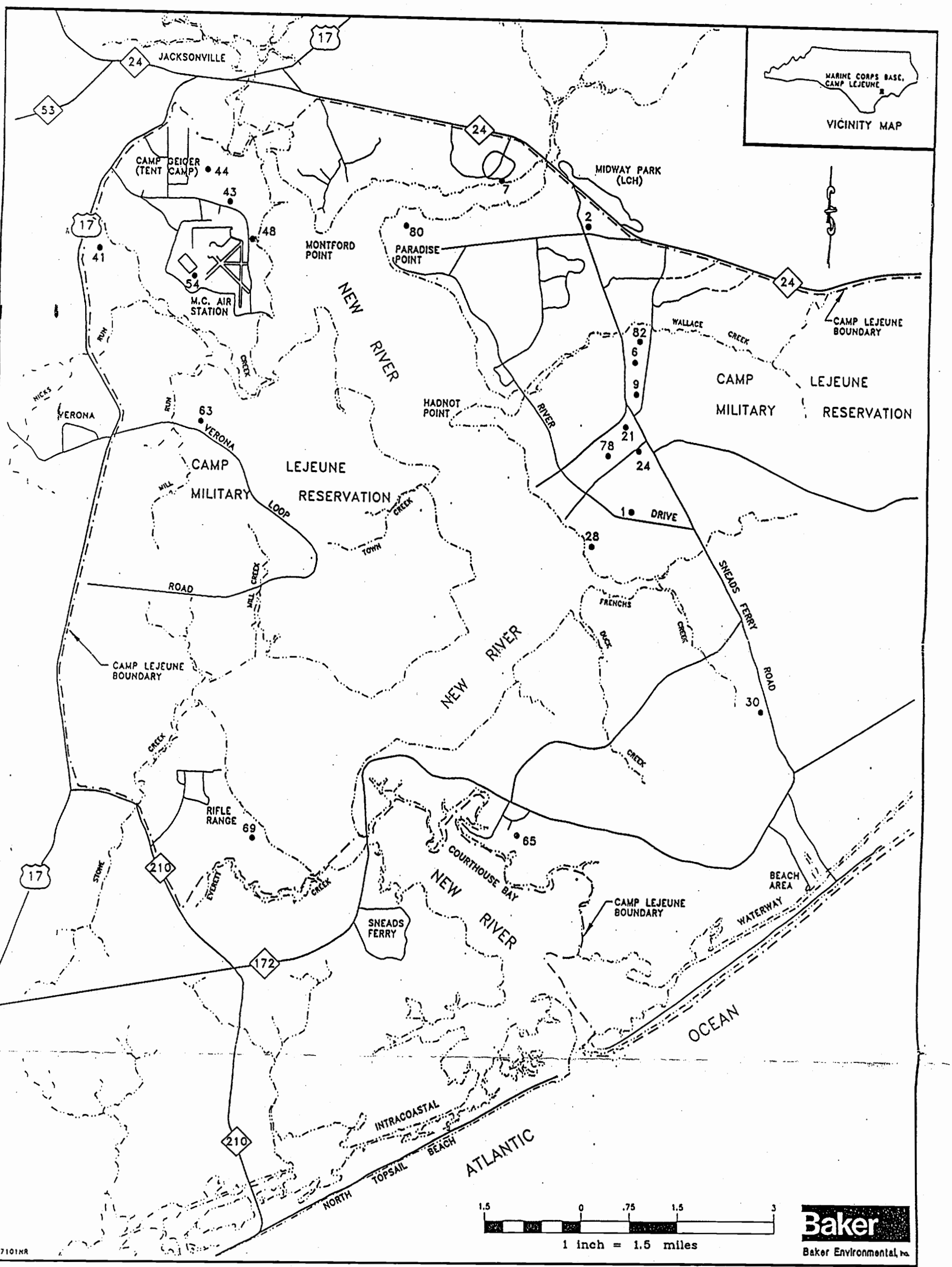
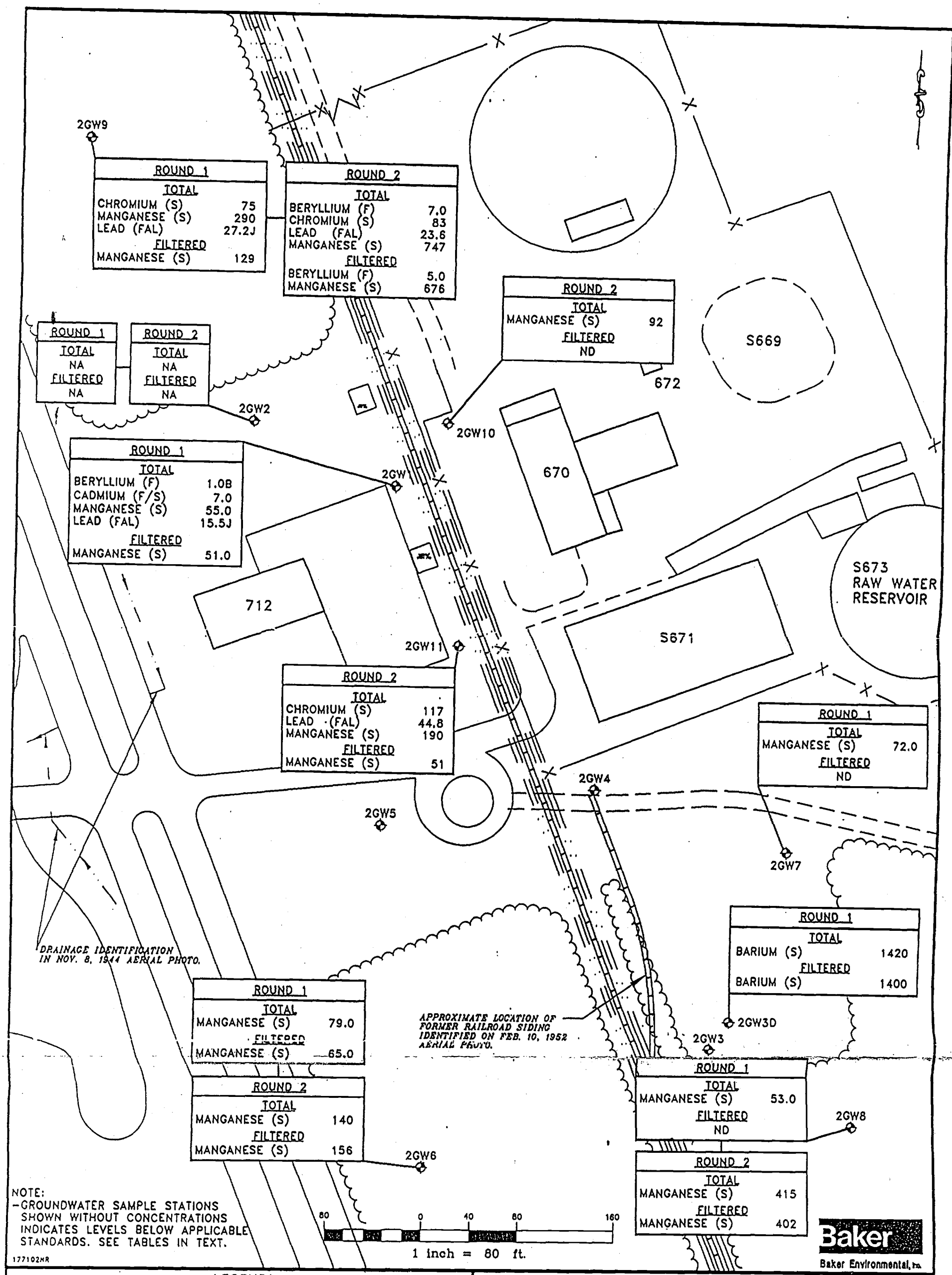


FIGURE 1
SITE LOCATION MAP
INORGANIC GROUNDWATER STUDY

MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

01720WB1Z

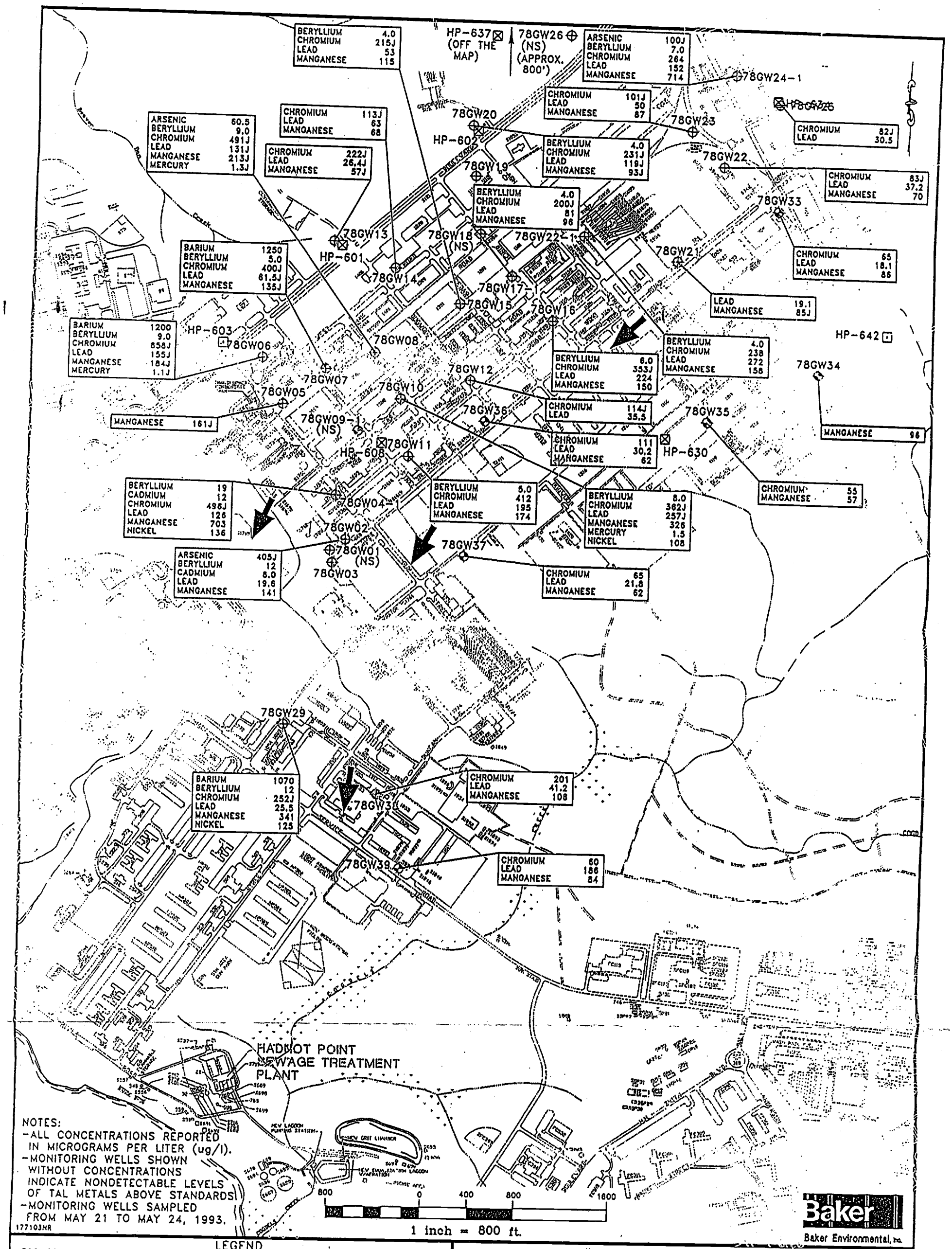


LEGEND

2GW1 ⊕	GROUNDWATER WELL
(F)	EXCEEDS FEDERAL STANDARD
(S)	EXCEEDS STATE STANDARD
(FAL)	FEDERAL ACTION LEVEL
ND	NOT DETECTED ABOVE APPLICABLE STANDARDS
NA	NOT ANALYZED
J	ESTIMATED CONCENTRATIONS

CONCENTRATIONS EXPRESSED IN ug/l(ppb)
SOURCE: LANTDIV, FEB. 1992

FIGURE 2
POSITIVE DETECTIONS ABOVE APPLICABLE FEDERAL AND STATE STANDARDS FOR TOTAL AND FILTERED INORGANIC ANALYTES IN GROUNDWATER
SITE 2
REMEDIAL INVESTIGATION CTO-0174
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA



NOTES:
- ALL CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER (ug/l).
- MONITORING WELLS SHOWN WITHOUT CONCENTRATIONS INDICATE NONDETECTABLE LEVELS OF TAL METALS ABOVE STANDARDS
- MONITORING WELLS SAMPLED FROM MAY 21 TO MAY 24, 1993.

177103NR

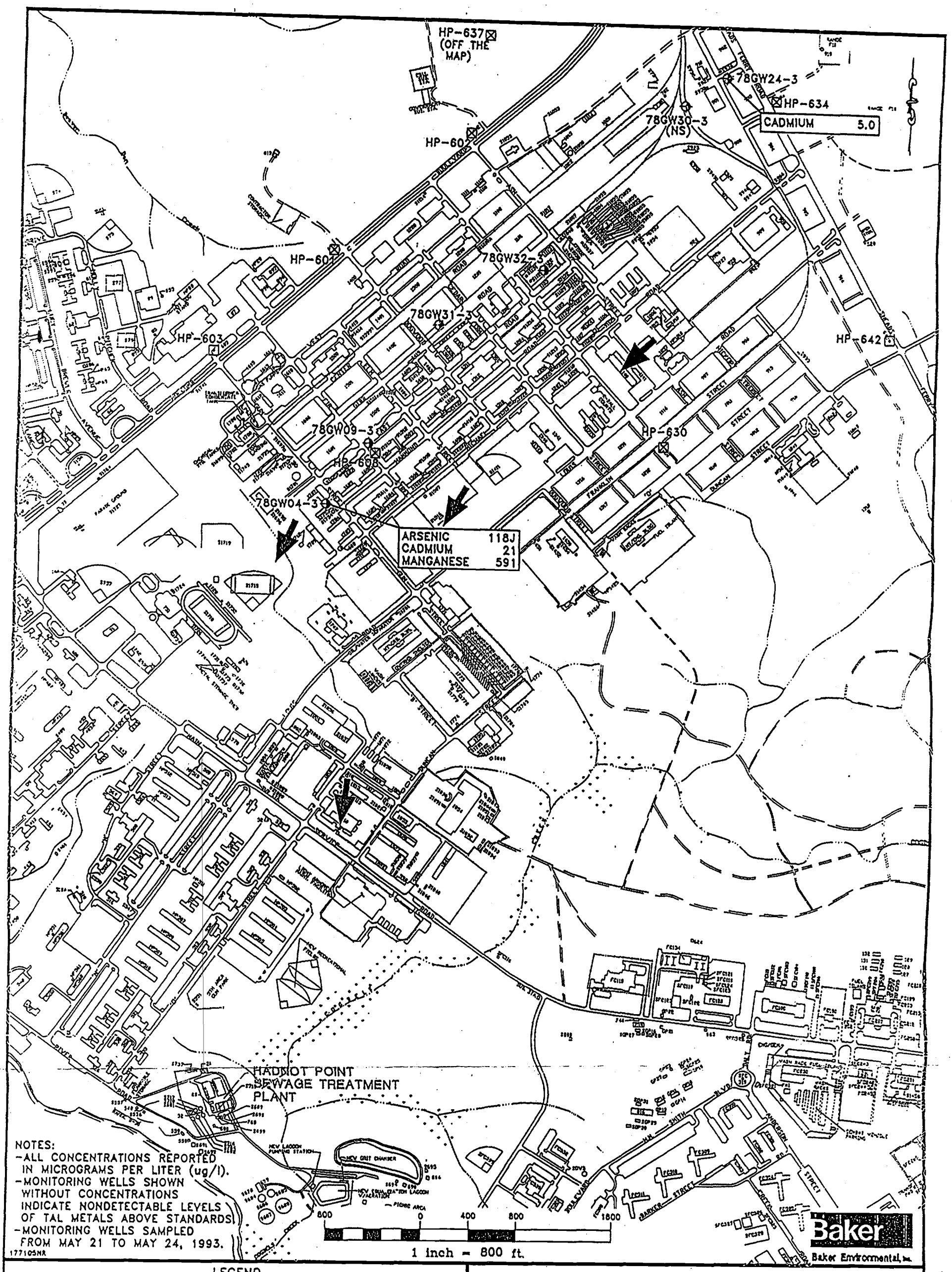
Baker Environmental, Inc.

LEGEND

- 78GW02 — EXISTING SHALLOW MONITORING WELL INSTALLED BY ESE, 1984-1991
- 78GW33 — SHALLOW MONITORING WELL INSTALLED BY BAKER ENVIRONMENTAL, INC., 1993
- → APPROXIMATE DIRECTION OF GROUNDWATER FLOW
- (NS) NOT SAMPLED FOR TAL METALS
- HP-603 — WATER SUPPLY WELL (ACTIVE)-NOT SAMPLED
- HP-601 — WATER SUPPLY WELL (INACTIVE)-NOT SAMPLED

SOURCE: LANTDIV, FEBRUARY 1992

FIGURE 3
POSITIVE DETECTIONS OF TAL METALS ABOVE FEDERAL MCLs AND/OR NCWQS IN SHALLOW WELLS
SITE 78
REMEDIAL INVESTIGATION CTO-0177
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA



LEGEND

78GW04-3 ⊖	EXISTING DEEP MONITORING WELL INSTALLED BY ESE, 1991
→	APPROXIMATE DIRECTION OF GROUNDWATER FLOW
(NS)	NOT SAMPLED FOR TAL METALS
HP-603 ⊡	WATER SUPPLY WELL (ACTIVE)-NOT SAMPLED
HP-601 ⊠	WATER SUPPLY WELL (INACTIVE)-NOT SAMPLED

SOURCE: LANTDIV, FEBRUARY 1992

FIGURE 4
POSITIVE DETECTIONS OF TAL METALS ABOVE FEDERAL MCLs AND/OR NCWQS IN DEEP WELLS
SITE 78
REMEDIAL INVESTIGATION CTO-0177
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

OPERABLE UNIT NO. 1 - SITES 21, 24, 78
SHALLOW, INTERMEDIATE AND DEEP MONITORING WELL'S
GROUNDWATER DATA AND FREQUENCY SUMMARY
REMEDIAL INVESTIGATION CTO - 19177
MCB CAMP LEJEUNE, NORTH CAROLINA
TAL METALS AND CYANIDE

	MINIMUM NONDETECTED UG/L	MAXIMUM NONDETECTED UG/L	MINIMUM DETECTED UG/L	MAXIMUM DETECTED UG/L	LOCATION OF MAXIMUM DETECTED	FREQUENCY OF DETECTION
ALUMINUM	NA	NA	68 J	542000 J	78-GW06-01	59 / 59
ANTIMONY	3 U	20 U	3.3 B	169 J	78-GW02-01	7 / 33
ARSENIC	2 U	10 U	2.3 J	405 J	78-GW02-01	44 / 48
BARIUM	NA	NA	17 B	1250	78-GW07-01	59 / 59
BERYLLIUM	1 U	4 U	1 B	19	24-GW02-01	52 / 59
CADMIUM	5 U	25 U	5	21	78-GW04-3-01	9 / 59
CALCIUM	NA	NA	2420 B	642000	78-GW04-1-01	59 / 59
CHROMIUM	10 U	50 U	10	858 J	78-GW06-01	46 / 59
COBALT	8 U	8 U	8 B	170	78-GW22-2-01	25 / 59
COPPER	2 U	2 U	3 B	699	78-GW39-01	58 / 59
IRON	NA	NA	32 B	523000	78-GW04-3-01	59 / 59
LEAD	1.8 U	4.9 U	2.9 B	2000 J	21-GW0B-01	50 / 59
MAGNESIUM	NA	NA	88 B	37100	24-GW03-01	59 / 59
MANGANESE	2 U	2 U	2 B	714	78-GW24-1-01	57 / 59
MERCURY	0.2 U	0.2 U	0.23 J	3.2	24-GW06-01	24 / 52
NICKEL	20 U	20 U	20 B	234	78-GW22-2-01	31 / 59
POTASSIUM	NA	NA	982 B	67300	78-GW32-3-01	59 / 59
SELENIUM	1 U	5 U	1.1 J	99.5 J	78-GW32-2-01	41 / 54
SILVER	3 U	15 U	5 J	5 J	78-GW09-3-01	1 / 59
SODIUM	NA	NA	2450 B	42500	78-GW32-3-01	59 / 59
THALLIUM	1 U	1 U	1 B	7.3 J	78-GW32-2-01	16 / 59
VANADIUM	4 U	4 U	4 J	1700	78-GW08-01	55 / 59
ZINC	6 U	6 U	6 J	967 J	78-GW22-2-01	57 / 59
CYANIDE	10 U	10 U	ND	ND	ND	0 / 54

OPERABLE UNIT NO. 1 - SITES 21, 24, 78
SHALLOW, INTERMEDIATE AND DEEP MONITORING WELLS
GROUNDWATER DATA AND FREQUENCY SUMMARY
REMEDIAL INVESTIGATION CTO - 19177
MCB CAMP LEJEUNE, NORTH CAROLINA
TAL METALS AND CYANIDE

SAMPLE NO.	21-GW0C-01	24-GW01-01	24-GW02-01	24-GW03-01	24-GW04-01	24-GW06-01
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ALUMINUM	209000 J	262000	93700	50200	58900	19800
ANTIMONY	7 U	3 U	3 UJ	3 U	4.6 B	3.5 B
ARSENIC	101	10 UJ	2.3 J	4.7 J	116 J	10.1 J
BARIUM	467	380	1120	480	290	159 B
BERYLLIUM	8	3 B	19	5	2 B	9
CADMIUM	10 U	5 U	12	5 U	5 U	5
CALCIUM	35200 J	4120 B	2420 B	124000	65600	151000
CHROMIUM	291 J	296	316	110	153	78
COBALT	60	8 U	41 B	66	8 U	35 B
COPPER	84	49	52	22 B	31	15 B
IRON	106000 J	58600	395000	16300	70500	69500
LEAD	92.5 J	89	17.9	21.6	23.6	7.4
MAGNESIUM	16300	12200	7240	37100	7690	4320 B
MANGANESE	273 J	117	518	393	66	431
MERCURY	0.23 J	0.23	2.6	0.2 U	0.2 U	3.2
NICKEL	123	38 B	140	85	20 U	93
POTASSIUM	11800	12000	7550	15400	6130	3370 B
SELENIUM	4.3 B	1.3 J	1.1 J	16.2 J	4.3 J	1 UJ
SILVER	3 U	3 UJ	15 UJ	3 UJ	3 UJ	3 UJ
SODIUM	15200	6030	11600	19200	5230	7280
THALLIUM	1 U	1 U	1 U	2.4 B	1 U	1 B
VANADIUM	419	304	408	92	202	83
ZINC	487 J	118	461	650	80	489
CYANIDE	10 U					

OPERABLE UNIT NO. 1 - SITES 21, 24, 78
SHALLOW, INTERMEDIATE AND DEEP MONITORING WELLS
GROUNDWATER DATA AND FREQUENCY SUMMARY
REMEDIAL INVESTIGATION CTO - 19177
MCB CAMP LEJEUNE, NORTH CAROLINA
TAL METALS AND CYANIDE

	SAMPLE NO.	78-GW04-1-01	78-GW04-2-01	78-GW04-3-01	78-GW05-01	78-GW06-01	78-GW07-01
	UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ALUMINUM		297000 J	286	115 B	23000 J	542000 J	207000 J
ANTIMONY		7 R	7 R	7 R	7 U	7 U	7 U
ARSENIC		18.6 J	2 R	118 J	5.2 J	26 B	16.2
BARIUM		728	519	547	54 B	1200	1250
BERYLLIUM		19	1 B	1 B	2 B	9	5
CADMIUM		12	5 U	21	5 U	5 U	5 U
CALCIUM		642000	170000	105000	90200 J	7180 J	18700 J
CHROMIUM		496 J	10 U	50 U	17 J	858 J	400 J
COBALT		28 B	8 U	8 U	8 U	11 B	20 B
COPPER		87	4 B	7 B	8 B	127	53
IRON		267000 J	32 B	523000	14900 J	142000 J	96700 J
LEAD		126	2 U	2 U	13.1 J	155 J	61.5 J
MAGNESIUM		25500	88 B	3210 B	12700	24000	20000
MANGANESE		703	51	591	161 J	184 J	135 J
MERCURY		0.75	0.2 U	0.3	0.2 R	1.1 J	0.44 J
NICKEL		136	20 B	20 U	20 U	86	54
POTASSIUM		18800	21800	11300	4770 B	25600	13200
SELENIUM		9 J	1 R	1 R	6.4	5.5 B	9.1
SILVER		6 UJ	3 U	15 U	3 U	3 U	3 U
SODIUM		8870	11500	9290	23900	5090	9260
THALLIUM		1.2 J	1 U	1 U	1 UJ	1.1 B	1 UJ
VANADIUM		591	4 UJ	24 J	28 B	811	406
ZINC		373 J	7 J	79 J	32 J	223 J	158 J
CYANIDE		10 U	10 U	10 U	10 U	10 U	10 U

OPERABLE UNIT NO. 1 - SITES 21, 24, 78
SHALLOW, INTERMEDIATE AND DEEP MONITORING WELLS
GROUNDWATER DATA AND FREQUENCY SUMMARY
REMEDIAL INVESTIGATION CTO - 19177
MCB CAMP LEJEUNE, NORTH CAROLINA
TAL METALS AND CYANIDE

	SAMPLE NO.	78-GW13-01	78-GW14-01	78-GW15-01	78-GW16-01	78-GW17-1-01	78-GW17-2-01
	UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ALUMINUM		61800 J	103000 J	205000 J	341000 J	168000 J	541 J
ANTIMONY		7 U	7 R	7 R	7 R	7 R	7 R
ARSENIC		38.3	18.4 J	4 R	19 J	11.6 J	2 R
BARIUM		236	321	469	511	261	57 B
BERYLLIUM		3 B	1 B	4 B	6	4 B	1 B
CADMIUM		5 U	10 U	5 U	5 U	10 U	5 U
CALCIUM		4040 J	5300	29100	62700	86900	144000
CHROMIUM		222 J	113 J	215 J	353 J	200 J	10 UJ
COBALT		20 B	8 U	9 B	13 B	9 B	8 U
COPPER		18 B	33	49	80	40	5 B
IRON		61800 J	49600 J	43300 J	80900 J	48700 J	2120 J
LEAD		26.4 J	63	53	224	81	5.9
MAGNESIUM		11800	10600	13400	10800	9940	2570 B
MANGANESE		57 J	68	115	150	96	33
MERCURY		0.3 J	0.38	0.2 U	0.38	0.2 U	0.2 U
NICKEL		40	34 B	29 B	61	30 B	20 U
POTASSIUM		8210	6460	12000	14000	11600	1630 B
SELENIUM		4.7 B	12.4 J	2.1 J	14.5 J	5 UJ	1 UJ
SILVER		3 U	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ
SODIUM		15000	15400	6410	4120 B	3180 B	9480
THALLIUM		1 U	1 UJ	1 J	1.4 J	1 J	1 UJ
VANADIUM		158	122	248	371	289	4 U
ZINC		96 J	51 J	116 J	157 J	98 J	6 UJ
CYANIDE		10 U	10 U	10 U	10 U	10 U	10 U

OPERABLE UNIT NO. 1 - SITES 21, 24, 78
SHALLOW, INTERMEDIATE AND DEEP MONITORING WELLS
GROUNDWATER DATA AND FREQUENCY SUMMARY
REMEDIAL INVESTIGATION CTO - 19177
MCB CAMP LEJEUNE, NORTH CAROLINA
TAL METALS AND CYANIDE

SAMPLE NO.	78-GW23-01	78-GW24-1-01	78-GW24-2-01	78-GW24-3-01	78-GW25-01	78-GW29-01
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
ALUMINUM	111000 J	160000	1340	304	101000 J	78800 J
ANTIMONY	7 R	7 R	7 R	7 R	7 R	7 R
ARSENIC	7.6 J	100 J	2 R	2 R	11.4 J	19 J
BARIUM	230	396	34 B	17 B	119 B	1070
BERYLLIUM	2 B	7	1 B	1 U	2 B	12
CADMIUM	5 U	5 U	5	5	5 U	5 U
CALCIUM	10800	34400	107000	73400	37800	41600
CHROMIUM	101 J	264	10	10 U	82 J	252 J
COBALT	8 B	39 B	8 U	8 U	8 U	17 B
COPPER	25	71	6 B	5 B	26	34
IRON	30800 J	159000	2320	2370	26300 J	125000 J
LEAD	50	152	3.3	2.9 B	30.5	25.5
MAGNESIUM	7110	11600	1740 B	1500 B	4500 B	21900
MANGANESE	87	714	21	41	33	341
MERCURY	0.3	0.75	0.2 U	0.2 U	0.2 U	0.2 U
NICKEL	42	91	20 U	20 U	20 U	125
POTASSIUM	5450	9090	1050 B	982 B	4950 B	11600
SELENIUM	4.4 J	17.6 J	1 R	1 R	1.6 J	2.5 J
SILVER	3 UJ	3 U	3 U	3 U	3 UJ	3 UJ
SODIUM	7450	10800	8350	7050	16400	21200
THALLIUM	1.7 J	1.5 B	1 U	1 U	1.3 J	1 UJ
VANADIUM	108	436	4 J	4 UJ	144	183
ZINC	67 J	291 J	11 J	16 J	34 J	330 J
CYANIDE	10 U	10 U	10 U	10 U	10 U	10 U

OPERABLE UNIT NO. 1 - SITES 21, 24, 78
SHALLOW, INTERMEDIATE AND DEEP MONITORING WELLS
GROUNDWATER DATA AND FREQUENCY SUMMARY
REMEDIAL INVESTIGATION CTO - 19177
MCB CAMP LEJEUNE, NORTH CAROLINA
TAL METALS AND CYANIDE

SAMPLE NO.	78-GW35-01	78-GW36-01	78-GW37-01	78-GW38-01	78-GW39-01
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L
ALUMINUM	47100	120000	73500	102000	60000
ANTIMONY	3 U	20 U	3 U	20 U	20 U
ARSENIC	2 UJ	3.1 J	4 J	33.6 J	4 UJ
BARIUM	261	152 B	123 B	420	256
BERYLLIUM	1 B	2 U	2 B	4 U	1 U
CADMIUM	5 U	5 U	5 U	25 U	5 U
CALCIUM	7480	35400	10100	62200	16800
CHROMIUM	55	111	65	201	60
COBALT	8 U	8 U	8 U	8 U	10 B
COPPER	15 B	29	22 B	110	699
IRON	11800	21200	18800	67500	28800
LEAD	13.2	30.2	21.8	41.2	186
MAGNESIUM	5680	5740	4600 B	17500	14300
MANGANESE	57	62	62	106	84
MERCURY	0.2 U	0.3	0.2 U	0.2 U	0.52
NICKEL	20 U	24 B	20 U	32 B	32 B
POTASSIUM	6150	5820	5990	8180	3840 B
SELENIUM	3.5 J	1.7 J	1.1 J	1.3 J	4.3 J
SILVER	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ
SODIUM	10300	2450 B	7270	10300	19500
THALLIUM	1 U	1 U	1 U	1 U	1 U
VANADIUM	59	98	106	235	67
ZINC	30	57	58	134	138
CYANIDE	10 U	10 U	10 U	10 U	10 U

OPERABL .IIT NO. 5 - SITE 2
SHALLOW AND DEEP MONITORING WELLS
GROUNDWATER STATISTICAL SUMMARY
REMEDIAL INVESTIGATION CTO - 19174
MCB CAMP LEJEUNE, NORTH CAROLINA
TAL METALS AND CYANIDE

SAMPLE NO.	2-GW01-01	2-GW02-01	2-GW03-01	2-GW03DW-01	2-GW04-01	2-GW05-01
UNITS	UG/L		UG/L	UG/L	UG/L	UG/L
ALUMINUM	36000		5200	269	16800	4050
ANTIMONY	10 U		10 U	3.5 U	10 U	10 U
ARSENIC	21.2		2.5 B	1 UJ	23.6	2.2 B
BARIUM	52 B		46 B	1420	95 B	100 B
BERYLLIUM	1 B		0.5 U	0.5 U	2 B	0.5 U
CADMIUM	7		2.5 U	2.5 U	2.5 U	2.5 U
CALCIUM	23700		8460	450000	11100	21000
CHROMIUM	18		11	16	5 U	5 U
COBALT	10 B		4 U	4 U	4 U	4 U
COPPER	10 B		4 B	8 B	5 B	3 B
IRON	10300		7190	127	28100	12700
LEAD	15.5 J		3.5 J	1.1 UJ	2.7 J	0.5 UJ
MAGNESIUM	5660		1600 B	75 B	1920 B	4800 B
MANGANESE	55		21	2 U	21	46
MERCURY	0.1 U		0.1 U	0.1 U	0.1 U	0.1 U
NICKEL	10 U		10 U	10 U	10 U	10 U
POTASSIUM	2560 B		1030 B	187000	1210 B	2130 B
SELENIUM	4.2 B		0.5 U	0.5 U	0.5 U	0.5 U
SILVER	1.5 U		1.5 U	1.5 U	1.5 U	1.5 U
SODIUM	4040 B		5490	103000	5560	10100
THALLIUM	0.5 U		0.5 U	0.5 U UJ	0.5 U	0.5 U
VANADIUM	72		10 B	2 U	89	9 B
ZINC	146		13 B	9 B	16 B	6 B
CYANIDE	5 U		5 U	5 U	5 U	5 U

OPERABLE UNIT NO. 5 - SITE 2
SHALLOW AND DEEP MONITORING WELLS
GROUNDWATER STATISTICAL SUMMARY
REMEDIAL INVESTIGATION CTO - 19174
MCB CAMP LEJEUNE, NORTH CAROLINA
DISSOLVED METALS

SAMPLE NO.	2-GW01D-01	2-GW02D-01	2-GW03D-01	2-GW03DWD-01	2-GW04D-01	2-GW05D-01
UNITS	UG/L		UG/L	UG/L	UG/L	UG/L
ALUMINUM	1930		66 B	89 B	60 B	1990
ANTIMONY	10 U		10 U	3.5 UJ	10 U	10 U
ARSENIC	2.2 B		1 U	1 UJ	6.1 B	1 U
BARIUM	42 B		25 B	1400	64 B	98 B
BERYLLIUM	1 B		0.5 U	0.5 U	0.5 U	1 B
CADMIUM	2.5 U		2.5 U	2.5 U	2.5 U	2.5 U
CALCIUM	24400		7100	441000	11300	21800
CHROMIUM	5 U		5 U	11	5 U	5 U
COBALT	4 U		4 U	4 U	4 U	4 U
COPPER	4 B		2 B	6 B	9 B	4 B
IRON	2560		2170	10 U	2720	7400
LEAD	2.1 J		0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
MAGNESIUM	5220		1030 B	26 B	1840 B	4900 B
MANGANESE	51		4.5 U	1 U	17	46
MERCURY	0.1 U		0.1 U	0.1 U	0.1 U	0.1 U
NICKEL	10 U		10 U	10 U	10 U	10 U
POTASSIUM	2140 B		589 B	188000	1130 B	2170 B
SELENIUM	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U
SILVER	1.5 U		1.5 U	1.5 U	1.5 U	1.5 U
SODIUM	3590 B		5400	103000	5710	9970
THALLIUM	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U
VANADIUM	2 U		2 U	2 U	2 U	2 U
ZINC	28		3 U	3 U	8 B	9 B
CYANIDE						

SURFACE WATER

BASE BACKGROUND
SURFACE WATER
MCB, CAMP LEJEUNE, NORTH CAROLINA
TAL INORGANICS

Sample ID:	6-BH01-SW-06B	6-BH01-SW-06M	6-BH02-SW-06M	6-WC01-SW-06B	6-WC01-SW-06M	6-WC02-SW-06B	6-WC03-SW-06B
ALUMINUM	1210	1230	868	1350	1220	633	747
ANTIMONY	17.2 UJ	14 U	14 U	14 U	14 U	16.2 UJ	49 U
ARSENIC	3 U	3 U	3 UJ	3 UJ	3 UJ	2 U	2 U
BARIUM	13.4 JB	14 JB	25.1 JB	16 JB	16.2 JB	19.3 B	21 U
BERYLLIUM	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	1 U
CADMIUM	1.9 UJ	2.6 UJ	1.9 U	1.9 U	1.9 U	1.9 U	3 U
CALCIUM	612 B	600 B	16100	3640 B	3670 B	9990	9360
CHROMIUM	3.6 U	3.6 U	7 U	3.6 UJ	3.6 UJ	3.6 U	5 U
COBALT	2 U	2 U	3 UJ	2 U	2 U	2 U	6 U
COPPER	3.2 UJ	3 UJ	7 UJ	1.9 U	1.9 U	1.9 U	4 U
CYANIDE	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U
IRON	958	818	921	1050	941	844	849
LEAD	1 U	1 U	3 U	2.3 JB	1.9 JB	1.2 B	5
MAGNESIUM	588 B	612 B	1010 B	632 B	639 B	1110 B	916 B
MANGANESE	6.5 B	6.2 B	14 JB	9 UJ	8.9 UJ	8.8 B	9.8 JB
MERCURY	0.04 U	0.05 U	0.04 U	0.04 U	0.04 U	0.07 U	0.2 U
NICKEL	7.9 UJ	7.9 UJ	7.9 U	7.9 UJ	7.9 UJ	7.9 U	17 U
POTASSIUM	117 UJ	146 UJ	685 B	376 B	341 B	604 B	610 B
SELENIUM	5 U	5 U	5 U	5 UJ	5 UJ	5 U	5 U
SILVER	2 UJ	2 UJ	4 UJ	2 UJ	2 UJ	3.8 UJ	10 U
SODIUM	4680 B	4850 B	5250	3930 B	3980 B	7790	6240
THALLIUM	2 UJ	2 UJ	2 UJ	2 U	2 UJ	2 UJ	2 UJ
VANADIUM	1.8 UJ	1.8 UJ	2 JB	3.3 JB	1.9 JB	2.1 JB	5 U
ZINC	4.5 U	4.9 U	13.1 U	8.7 U	7.6 U	7.5 U	7.4 U

Concentrations presented in micrograms per liter (UG/L)

BASE BACKGROUND
SURFACE WATER
MCB, CAMP LEJEUNE, NORTH CAROLINA
TAL INORGANICS

Sample ID:	6-WC03-SW-06M	6-WC03-SW-312M	41-TC-SW06	41-UN-SW01	41-NE-SW05	2-OC-SW01	69-UT1-SW-06
ALUMINUM	633	676	390.0	447.0 J	178.0	556	1110
ANTIMONY	49 U	49 U	7.60 U	7.60 U	7.60 U	7 U	49 U
ARSENIC	2 U	2 U	2.90 U	2.20 U	2.90 U	2 U	3 U
BARIUM	21 U	21 U	23.6	23.3	27.2	18 B	23 B
BERYLLIUM	1 U	1 U	0.760 U	0.760 U	0.760 U	1 U	1 U
CADMIUM	3 U	3 U	3.19 U	3.19 U	3.19 U	5 U	3 JB
CALCIUM	8890	9430	18900.0	41600.0	40300.0	22900	1380 B
CHROMIUM	5 U	5 U	8.31 U	8.31 U	8.31 U	10 U	5 U
COBALT	6 U	6 U	16.0 U	16.0 U	16.0 U	8 U	8 JB
COPPER	4 U	129	16.3 U	16.3 U	16.3 U	4 B	7 JB
CYANIDE	10 U	10 U	NZ	NZ	NZ	NZ	10 U
IRON	756	830	1460.0	1300.0 J	469.0	413	1000
LEAD	5	10.4	1.40	1.85	1.17	2 U	2 B
MAGNESIUM	883 B	936 B	1620.0	1770.0	2410.0	1960 B	846 B
MANGANESE	8.2 JB	9.2 JB	25.7	17.5	40.0	24	9 JB
MERCURY	0.2 U	0.52	0.171 U	0.182 UJ	0.160 U	0.2 U	0.2 U
NICKEL	17 U	1380	17.4 U	28.8 U	17.4 U	20 U	17 U
POTASSIUM	603 B	640 B	2210	1860	1620	809 B	385 B
SELENIUM	5 U	5 U	1.60 UJ	1.60 UJ	1.60 UJ	1 U	5 U
SILVER	10 U	10 U	1.60 U	1.60 U	1.60 U	3 UJ	10 U
SODIUM	6100	6500	15000	22100	12300	6190	4790 JB
THALLIUM	2 UJ	2 UJ	3.00 U	3.00 U	3.00 U	1 U	2 UJ
VANADIUM	5 U	5 U	20.4 U	20.4 U	20.4 U	4 U	10 JB
ZINC	10.4 U	111	21.4	24.9	33.2	23 UJ	18 B

Concentrations presented in micrograms per liter (UG/L)

BASE BACKGROUND
SURFACE WATER
MCB, CAMP LEJEUNE, NORTH CAROLINA
TAL INORGANICS

	Minumum (ug/L)	Maximum (ug/L)	Average (ug/L)
ALUMINUM	178	1350	803.4
ANTIMONY	ND	ND	NA
ARSENIC	ND	ND	NA
BARIUM	13.4	27.2	17.9
BERYLLIUM	ND	ND	NA
CADMIUM	3	3	1.5
CALCIUM	600	41600	13383.7
CHROMIUM	ND	ND	NA
COBALT	8	8	3.7
COPPER	4	129	12.7
CYANIDE	ND	ND	NA
IRON	413	1460	900.6
LEAD	1.17	10.4	2.6
MAGNESIUM	588	2410	1138.0
MANGANESE	6.2	40	13.4
MERCURY	0.52	0.52	0.1
NICKEL	1380	1380	105.1
POTASSIUM	341	2210	776.8
SELENIUM	ND	ND	NA
SILVER	ND	ND	NA
SODIUM	3930	22100	7835.7
THALLIUM	ND	ND	NA
VANADIUM	1.9	10	4.4
ZINC	18	111	18.0

Qualifiers have been removed per Baker's standards.
Qualifiers U and UJ have been given one-half the detection value.
Qualifiers J, NJ, and B have been removed with no detection value change.

APPENDIX P
SHOWER MODEL

APPENDIX P
SHOWER INHALATION MODEL

INHALATION OF CONTAMINANTS VOLATILIZED FROM SHOWER WATER

In the model developed by Foster and Chrostowski (1986), inhalation exposures to volatile organic chemicals (VOCs) while showering are modeled by estimating the rate of chemical releases into the air (generation rate), the buildup of VOCs in the shower room air while the shower is on, and the decay of VOCs in the shower room air after the shower is turned off, and the quantity of airborne VOCs inhaled while the shower is both on and off.

Estimation of the rate of VOC release into the air is based upon Liss and Slater's (1974) adaptation of the two-film gas-liquid mass transfer theory. The two-film boundary theory provides the basis for estimating the overall mass transfer coefficient (K_L) for each VOC of interest, according to the following equation:

$$K_L = (1/k_1 + RT/Hk_g)^{-1} \quad (1)$$

where,

K_L = overall mass transfer coefficient (centimeter per hour [cm/hr]),

H = Henry's law constant (atm-m^3/mol-K),

RT = 2.4×10^{-2} atm-m^3/mole (gas constant of 8.2×10^{-5} atm-m^3/mole-K times absolute temperature of 293 K),

kg = gas-film mass transfer coefficient (cm/hr), and

k_l = liquid-film mass transfer coefficient (cm/hr).

Equation 1 describes the mass transfer rate of a compound at an air-water interface where diffusion may be limited by both liquid- and gas-phase resistances.

Typical values of k_l (20 cm/hr) and k_g (3,000 cm/hr), which have been measured for CO_2 and H_2O, respectively, may be used to estimate VOC-specific values for these parameters (Liss and Slater, 1974):

$$k_g(VOC) = k_g(H_2O(18/MW_{VOC})^{0.5} \quad (2)$$

$$k_1(VOC) = k_1(CO_2(44/MW_{VOC})^{0.5} \quad (3)$$

where,

MW = molecular weight (g/mol).

The mass transfer coefficient, K_L, is adjusted to the shower water temperature, T_s, according to a semi-empirical equation developed to estimate the effect of temperature on oxygen mass-transfer rate (O'Connor and Dobbins, 1956):

$$K_{aL}=K_L(T_{l\mu s}/T_{s\mu l})^{-0.5} \quad (4)$$

where,

K_aL	=	adjusted overall mass transfer coefficient (cm/hr),
T_l	=	calibration water temperature of K_L (K),
T_s	=	shower water temperature (K),
μl	=	water viscosity at T_l (cp), and
μs	=	water viscosity at T_s (cp).

The concentration leaving the shower droplet, C_{wd}, is obtained from an integrated rate equation based on a mass-balance approach:

$$C_{wd}=C_{w0}(1-\exp[-K_{aL}t_s/60d]) \quad (5)$$

where,

C_{wd}	=	concentration leaving shower droplet after time t_s ($\mu g/\ell$),
C_{w0}	=	shower water concentration ($\mu g/\ell$),
$_d$	=	shower droplet diameter (mm), and
t_s	=	shower droplet drop time (sec).

The term $K_{aL}/60d$ combines both the rate transfer and the available interfacial area across which volatilization can occur. The value 1/60d equals the specific interfacial area, 6/d, for a special shower droplet of diameter "d" multiplied by conversion factors (hr/3,600 sec and 10 mm/cm).

The VOC generation rate in the shower room, S, can then be calculated by the equation:

$$S=C_{wd}(Fr)/SV \quad (6)$$

where,

s	=	indoor VOC generation rate ($\mu g/m^3$-min),
FR	=	shower water flow rate (liter/min), and
SV	=	shower room air volume (m^3).

A simple one-box indoor air pollution model was used to estimate VOC air concentrations in the shower room. This model can be expressed as a differential equation describing the rate of change of the indoor pollutant concentration with time:

$$dC_a/dt = RC_a + S \quad (7)$$

where,

C_a	=	indoor VOC air concentration (μg/m^3, and
R	=	air exchange rate (min^{-1}).

When Equation 7 is integrated, the time-dependent indoor concentration can be estimated as follows:

$$C_a(t) = (S/R)\,(1-\exp[-Rt]) \quad for\ t = D_s$$

and

$$C_a(t) = (S/R)\,(\exp[RDs]-1)\exp(-Rt]) \quad t > D_s$$

where,

$C_a(t)$	=	indoor air VOC concentration at time t (μg/m^2),
D_s	=	shower duration (min), and
t	=	time (min).

The inhalation exposure per shower can then be calculated according to the equation:

$$E_{inh} = [VR/(BW)\,(10^6)]\int_0^{D_t} C_a(t)\,dt$$

where,

E_{inh}	=	inhalation exposure per shower (mg/kg/shower),
VR	=	ventilation rate (liter/min),
BW	=	body weight (kg), and
D_t	=	total duration in shower room (min.)

This equation can be solved as:

$$E_{inh} = (VR)\,(S)/[(BW)\,(R)\,(10^6)]\ [D_s - 1/R + \exp(-RD_s)/R]$$

for the duration of the shower, and as

$$E_{inh} = (VR)\,(S)/[(BW)\,(R)\,(10^6)]\ x\ ([D_s + \frac{\exp(-RD_t)}{R}] - \frac{[\exp[R(D_s-D_t]}{R})$$

for both the duration of the shower and the duration in the room after the shower is turned off.

Assuming that an individual showers daily, E_{inh} is then equivalent to the chronic daily intake.

Table P-1 lists the input parameters to the shower model.

Molecular weights and Henry's Law constants for the contaminants of potential concern are provided in Section 6.0 of this report in Table 6-1 and Appendix S, the CDI calculation spreadsheets.

LIST OF REFERENCES

Foster, S. A. and P. C. Chrostowski, 1986. Integrated Household Exposure Model for Use of Tap Water Contaminated with Volatile Organic Chemicals, presented at the 79th Annual Meeting of the Air Pollution Control Association, Minneapolis, Minnesota, June 22-17, 1986.

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O'Connor, D. J. and W. Dobbins, 1956. The Mechanics of Reaeration in Natural Streams, J. Sanit, Eng. Div., ASCE 82:SA6, In Schroeder, E. D. Water and Wastewater Treatment, Chapter 4: Gas Transfer. McGraw-Hill, 1977.

TABLE P-1

PARAMETERS USED IN THE CALCULATION OF SHOWER DOSE

PARAMETER	UNITS	VALUE
Calibration water temperature, T_1	K	293
Shower water temperature, T_s	K	318
Water viscosity at T_1, μ_1	Centipoise	1.002
Water viscosity at T_s, μ_s	Centipoise	0.596
Shower water droplet diameter, d	mm	1.0
Shower droplet drop time, t_s	sec	2
Shower water flow rate, FR	liter/min	10
Shower room air volume, SV	m^3	6
Air exchange rate, R	min^{-1}	0.0083
Shower duration, D_s	min	12
Total duration in shower room, D_t	min	15
Ventilation rate, VR (adult)	liter/min	10
Ventilation rate, VR (child)	liter/min	13.3
Body weight, BW (Adult)	kg	70
Body weight, BW (Child)	kg	15

APPENDIX P

CALCULATION OF PERMEABILITY CONSTANTS

Chemical-specific permeability constants (PCs or k_p) were calculated using the following equation. (Reference: USEPA, 1992)

$$\textbf{Log kp} = \textbf{-2.72} + \textbf{0.71 log } k_{ow} \textbf{ - 0.0061 MW}$$

Where,

k_p = permeability constant (cm/hr)
k_{ow} = octanol/water coefficient (unitless)
MW = molecular weight (g/mole)

Parameter	Log k_{ow}	MW	k_p
acenapthene	4	154	0.01
2-methylnaphthalene	3.86	142.2	1.5×10^{-3}

APPENDIX Q
LEAD UBK MODEL

APPENDIX Q
LEAD UBK MODEL

Lead exposure at the project site was evaluated using USEPA's lead UBK model. This model incorporates exposure from six different media (air, soil, drinking water, diet, indoor dust, and paint) to estimate blood lead levels in infants and young children. The lead UBK model addresses the lowest age groups because children are exceptionally sensitive to the adverse effects of lead. Factors contributing to this sensitivity include: 1) an apparent intrinsic sensitivity of developing organ systems, 2) behavioral traits that result in increased contact with dust and soil, 3) certain physiological factors that result in greater deposition of lead in the respiratory tract and higher absorption rate from the gastrointestinal tract in children, and 4) sufficient transplacental transfer of lead to result in a fetal burden (USEPA, 1990). In contrast to typical exposure estimation techniques, the UBK model predicts blood lead levels in younger children.

The UBK model is flexible in that the user can apply site-specific exposure parameters to estimate blood lead levels. In evaluating exposure at the project site, it was assumed that infants and younger children are exposed to lead in soil, drinking water, diet, air, and indoor dust. The following is a discussion of lead exposure via these five pathways and a description of the exposure parameters used for each pathway.

Soil and Indoor Dust

Soil concentrations of lead at the site were entered into the UBK model to establish the soil and indoor dust contribution to blood lead levels. The UBK model assumes that infants and younger children ingestion both soil and indoor dust that is contaminated with lead. For the site, the maximum concentration of lead in soil were modeled. These values are presented in Appendix G. The following section discusses the exposure parameters used in estimating the blood lead levels from soil and indoor dust exposure.

The UBK model estimates the indoor lead dust concentration as a percentage of the outdoor soil lead concentration. A conversion factor of 0.28 is used in the model for establishing the indoor lead dust concentration from an outdoor soil source. This value is derived from a study by Davis et al. (1990) where they identified a 0.28 dust/soil ration for aluminum and silicon. Because site-specific data are not available for the site, the default factor of 0.28 was utilized. The model also distributes the infant and young child's exposure between the soil and indoor dust. This soil/dust ingestion weighting factor is dependent on the amount of time spent indoors and outdoors. It is expected that the amount of time spent indoors is greater than the amount of time spent outdoors for infants and younger children (USEPA, 1990). As a result, the USEPA has selected a default value of 45 (i.e., 45% of lead intake from soil and dust is derived from ingestion of soil, 55% from ingestion of indoor dust).

Soil ingestion rates for the various age groups are required in the prediction of blood lead levels. The default values in Version 0.4 UBK model are 100 mg/day for each of the age groups. These values are unrealistic in that they assume a relatively high ingestion rate for the lower age groups (e.g., 0-1 and 1-2 yr.). As a result, the ingestion rate of 100 mg/day, especially in the lower age groups (0-2 years), is not representative for the site. USEPA's Exposure Factors Handbook (USEPA, 1989) presents values for soil ingestion for the various age groups. In particular, soil ingestion values that represent an intermediate tendency to ingest soil are presented. These values are more representative of the exposure at the site and were used in calculating the blood lead levels. Table Q-1 presents the values for each of the age groups.

Drinking Water

Typically, the UBK model assumes that infants and younger children will be exposed to lead via consumption of drinking water at their place of residence. it was assumed that the younger children and infants will be exposed via direct ingestion of the groundwater at their place of residence. An ingestion rate of 1 L/day, which is consistent with the groundwater pathway, was used in estimating the blood lead contribution of surface water. Both the RME and average groundwater concentrations were used in estimating an overall blood lead level.

Diet

In creating the UBK model, the USEPA assumed a dietary contribution of lead based on Food and Drug Administration Market Basket Surveys and analysis of food lead content (USEPA, 1990). As a result , the default exposure parameters do not vary based on medium-specific concentrations (i.e., air, soil, water) at the site. The rationale is that foods are harvested from geographically diverse regions of the country and, for the most part, are not produced locally. Consequently, the lead concentrations in the food are not related to the lead levels in the local media. The default values supplied in the UBK model were used in estimating the blood lead contributions from dietary intake.

Air

Generation of wind blown dust is expected to occur to some extent at the project site. The modelled air concentrations were used as input parameters for the UBK model. These values were used in estimating the blood lead contribution of the air pathway at the project site. The indoor air concentration was calculated as a portion of the outdoor lead level. A default conversion factor of 0.3 was applied to the outdoor concentration to derive an indoor air lead level. Default values also were used for the amount of time spent indoors versus outdoors and the daily breathing volumes for each of the age groups.

TABLE Q-1

UBK SOIL INGESTION RATES

AGE (Years)	SOIL INGESTION RATES (mg/day)	
	Default UBK Values	Site Specific Values*
0-1	100	0
1-2	100	50
2-3	100	200
3-4	100	200
4-5	100	50
5-6	100	10
6-7	100	10

* Intermediate tendence ingestion rate values from the Exposure Factors Handbook (USEPA, 1989).

REFERENCES
APPENDIX R

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USEPA, 1990. U.S. Environmental Protection Agency. Technical Support Document on Lead. ECAO-CIN-757. Office of Health and Environmental Assessment. Cincinnati, Ohio: September, 1990.

USEPA, 1989. U.S. Environmental Protection Agency. Exposure Factors Handbook. EPA/600/8-89-043. Office of Health and Environmental Assessment. Washington, D.C.: July, 1989.

APPENDIX R
SITE CONCEPTUAL MODEL

PRELIMINARY HUMAN HEALTH RISK ASSESSMENT CONCEPTUAL EVALUATION MODEL

OPERABLE UNIT NO. 6
SITES 36, 43, 44, 86, AND 54

MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

CONTRACT TASK ORDER 0303

AUGUST 3, 1995

Prepared for:

DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES
ENGINEERING COMMAND
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INTRODUCTION

As part of the review of available site information for use in a risk assessment (RA) and feasibility study (FS), a conceptual evaluation model has been formulated for the sites. Originally developed to assist in planning site activities for the remedial investigation (RI), the conceptual site model also can be used to identify the key elements in a risk assessment, such as: potential exposure pathways, exposure points and data needs.

As part of the RA, a conceptual evaluation model has been developed for Operable Unit (OU) No. 6, which includes sites 36, 43, 44, 54 and 86. The conceptual models briefly describe each site and present potential sources of contamination, constituents present at the site, potentially contaminated media, constituent migration routes, potential receptors and exposure pathways. Ecological receptors are addressed in the conceptual evaluation model for ecological risk assessment. The model was developed in accordance with the guidance provided in USEPA Data Quality Objectives for Remedial Response Activities Development Process (USEPA, 1987).

APPROACH

For the baseline human health risk assessment, both current and future land use exposure scenarios will be assumed for each site. A reasonable maximum exposure (RME) case scenario (i.e., worst case or upper bound risk estimate) will be utilized in the assessments. Consequently, the exposure scenarios presented will include RME assumptions for the input parameters in the exposure dose equations. Table 1 is a summary of these values.

The baseline risk assessment for each site will be conducted in concordance with the United States Environmental Protection Agency (USEPA) documents: Risk Assessment Guidance for Superfund: Human Health Evaluation Manual, Part A (USEPA, 1989) and Region IV Supplemental Risk Guidance (USEPA, 1992). The documents to be used in the assessment include, but are not limited to the following references: Risk Assessment Guidance for Superfund: Development of Risk-based Preliminary Remediation Goals, Part B (USEPA, 1991); "Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors" (USEPA, 1991); Exposure Factors Handbook (USEPA, 1989); Dermal Exposure Assessment: Principles and Applications, Interim Report (USEPA, 1992); and Superfund Exposure Assessment Manual (USEPA, 1988).

Toxicity values will be obtained from USEPA's Integrated Risk Information System (IRIS, 1995), the Health Effects Assessment Summary Tables (HEAST, 1994), and provisional or recommended USEPA toxicity values (i.e., values provided by the USEPA Environmental Criteria and Assessment Office [ECAO]), in accordance with Region IV and North Carolina Department of Environmental Health and Natural Resources (NCDEHNR) recommendations.

A mathematical model will be used to estimate exposure point concentrations. To estimate exposure from the inhalation of volatile contaminants in groundwater while showering, the "Integrated Household Exposure Model for Use of Tap Water Contaminated with Volatile Organic Chemicals" developed by S.A. Foster and P.C. Chrostowski will be applied. To evaluate the health effects of lead, the USEPA lead uptake/biokinetic model will be used.

The acceptable cancer risk range, as stipulated by the USEPA, is $1x10^{-4}$ to $1x10^{-6}$. Cancer risks that fall above the upper end of this risk range will be considered unacceptable as protective of human health. The total noncarcinogenic acceptable risk level is a hazard index (HI) less than or equal to

1.0. This value depicts a level at or below which adverse systemic effects are not expected to occur in the exposed population.

SITE 36 - CAMP GEIGER AREA DUMP

The Camp Geiger Area Dump (Site 36) is located approximately 1,000 feet east of Camp Geiger and 500 feet west of the New River, adjacent to the Camp Geiger Sewage Treatment Plant (STP). Camp Geiger is situated in the northwestern portion of MCB Camp Lejeune, approximately 3 miles southwest of Jacksonville, North Carolina.

During an initial assessment of potential sites at MCB Camp Lejeune, Site 36 was estimated to be approximately 1.5 acres in size. Based upon a review of aerial photographs and observations recorded during the RI scoping site visit, however, the size of the site was adjusted to include nearly 20 acres. The site is comprised primarily of open fields and wooded areas with dense understory. A gravel road bisects the site and provides access to Jack's Point Recreation Area, located approximately one-quarter mile east of the study area. The site is bordered to the north by Brinson Creek, to the east by woods, to the south by an unnamed tributary to the New River, and to the west by an improved (i.e., coarse gravel) road. Further to the west of the improved road lies an abandoned railroad right-of-way, once part of the Seaboard Coastline Railroad.

Background

From the late 1940s to the late 1950s, Site 36 was used for the disposal of municipal wastes and mixed industrial wastes, including garbage, waste oils, solvents, and hydraulic fluids from the air station. Disposal records indicate that all waste solvents and oils were burned at this site. Previous investigations have indicated that most of this material was initially burned and then buried. However, unburned material was also reportedly buried.

According to interviews conducted by Water and Air Research, Inc. (WAR) during the Initial Assessment Study (IAS), less than five percent of all waste hydrocarbon material generated at the air station was disposed of at Site 36. The remaining waste oil was reportedly used for dust control on roads or went directly into storm drains (WAR, 1983).

During a site visit conducted in March, 1994, scattered debris (i.e., trees, glass, and metal), buried wire, and general litter was noted on-site. In addition, a few partially buried containers and 55-gallon drums and several mounds of construction debris were located in a swampy area southwest of the former dump. Fifty-five gallon drums containing unidentifiable material and 5-gallon pails labeled with "alkaline material" and "lubrication oil" were found south of the area where the unnamed tributary crosses the main access road.

A site investigation was performed by Water and Air Research, Inc. (WAR) in 1984. Additional investigations were conducted in 1986 and 1987 by Environmental Science and Engineering, Inc. (ESE). Levels of cadmium, chromium, lead, and phenols were detected in the groundwater (i.e., at both downgradient and upgradient wells) during the 1984 investigation. These levels exceeded federal and state groundwater criteria. Trans-1,2-dichloroethene (i.e., 2 µg/L), was detected at a low concentration, in the upgradient well only. The surface water and sediment from Brinson Creek and the unnamed tributary were also sampled. Trace levels of trans-1,2-dichloroethane, lead, and total phenols were detected in surface water and sediment. Chromium, lead, oil and grease, and phenols were detected in sediment.

The most recent sampling event included investigations of the following environmental media: background surface and subsurface soil, on-site surface and subsurface soil, shallow and deep groundwater, and surface water and sediment from Brinson Creek and the unnamed tributary. In addition, aquatic organisms were collected from Brinson Creek. A preliminary review of the unvalidated laboratory data indicates the presence of organic solvent constituents in the groundwater (i.e., trichloroethane [TCE], 1,2-dichloroethene [1,2-DCE], and 1,1,2,2-tetrachloroethene [1,1,2,2-PCE]) and soil, pesticides and PCBs in the surface soil, and metals, namely lead, in the soil and sediment.

Current and Future Exposure Scenarios

At present, the site is used for military training exercises and recreation (i.e., fishing, swimming, jogging, etc.) for off-site visitors from nearby residences. Dirt roads are located throughout the site, which may contribute to fugitive dust generation from vehicular traffic. The majority of the site is heavily wooded and vegetated.

Current receptors include on-site military personnel, off-site trespassers from nearby residences (i.e., child and adult receptors), construction workers, and fishermen. For military receptors and trespassers, potential exposure pathways are surface soil incidental ingestion, dermal contact and inhalation of fugitive dust, and surface water and sediment incidental ingestion and dermal contact from the surrounding surface water. Fishermen will be similarly evaluated for surface water and sediment exposure via incidental ingestion and dermal contact. These receptors will also be assessed for exposure to contaminants in fish tissue via ingestion. Presently, a pipeline is being installed on the eastern portion of Site 36, so current subsurface soil exposure will be evaluated for construction workers. Workers are exposed to subsurface soil when it is excavated during groundbreaking for construction activities.

At present, groundwater at the site is not used for potable purposes. Consequently, current exposure to groundwater will not be evaluated.

In the future case, it is expected that the site will remain a military restricted area. As stated previously, groundwater is not currently used for potable purposes. It is assumed that this will continue into the future. As a result, groundwater exposure will not be assessed for future military personnel. Although it is unlikely that a future residence will be implemented at this site, in accordance with conservative guidance, it is assumed that a private well will be installed on-site in the future case. Consequently, groundwater exposure to a future residential child and adult receptor will be assessed. The potential groundwater exposure pathways are ingestion, dermal contact and inhalation while showering.

Figure 1 presents a flowchart of the potential exposure pathways and receptors at this site.

SITE 43 - AGAN STREET DUMP

The Agan Street Dump (Site 43) is comprised of approximately 11 acres and is located within the operations area of Marine Corps Air Station (MCAS) New River, 2 miles west of the main entrance (see Figure 1-1). There is vehicle access to the site via Agan Street, from Curtis Road. Site 43 is located at the northern terminus of Agan Street, adjacent to an abandoned sewage disposal facility. The site is bordered to the north by Edwards Creek, to the east and south by Strawhorn Creek, and

to the west by Agan Street and the former sewage disposal facility. Strawhorn Creek discharges into Edwards Creek at Site 43. Edwards Creek then discharges into the New River approximately 2,000 feet north of the study area, near Site 36.

Much of the study area is heavily vegetated with dense understory and trees greater than three inches in diameter. Marsh areas prone to flooding line both Strawhorn and Edwards Creeks. An improved gravel loop road provides access to the main portion of the study area, other unimproved paths extend outward from this road. Presently, Site 43 is unrestricted.

Background

Reportedly, municipal waste, fiberglass and sewage treatment plant sludge were dumped on the ground surface at Site 43; however, it is not known exactly how long Site 43 was officially used as a dump (Halliburton/NUS, 1991). It has also been reported that other solid wastes may have been disposed at this site. The particular types and quantities of these wastes, however, are not known.

Baker Environmental, Inc. (Baker) conducted an SI at Site 43 in 1991. Soil samples contained polynuclear aromatic hydrocarbons (PAHs) and inorganic concentrations exceeding twice the base-specific background levels. Groundwater samples did not contain PAHs; however, they did contain carbon disulfide. Inorganics were also detected in groundwater and surface water at concentrations exceeding state and federal criteria. Sediment contained PAHs at locations downgradient from soil sample locations exhibiting PAH contamination at the confluence of Edwards Creek and at Strawhorn Creek. The presence of PAHs in sediment samples confirms the presence of PAHs in soil, as sediment contamination may be caused by surface runoff. Pesticides were also detected in sediment samples; however, there were no pesticides present in soil samples. Recent investigations indicate the presence of PAHs in soil (Baker, 1995).

Current and Future Exposure Scenarios

Site 43 no longer serves as a waste dump. Presently, Site 43 has no official use.

Receptors exposed to surface soil include: future residents (i.e., children and adults), current military personnel, and current trespassers (i.e., children and adults) from adjacent, off-site residences. Surface soil exposure pathways for these receptors include incidental ingestion, dermal contact, and inhalation of fugitive dust.

Future construction workers are the only receptors exposed to subsurface soil. Exposure to subsurface soil exposure may occur during ground excavation for on-site construction activities. Exposure pathways include: incidental ingestion of subsurface soil, dermal contact with subsurface soil and inhalation of fugitive dust.

Presently, groundwater at Site 43 is not used for potable supplies. For this reason, current groundwater exposure is not evaluated. In a future scenario, it is possible that residential developments may be constructed at Site 43. Consequently, future groundwater exposure will be assessed for residential children and adults. Groundwater exposure pathways include: ingestion, dermal contact with groundwater and inhalation of volatilized organics while showering.

Groundwater exposure will not be evaluated for future military personnel, for the same reasons it is not evaluated for these receptors at Site 36.

Receptors exposed to surface water and sediment are current on-site trespassers and future residents. Exposure pathways for these receptors are incidental ingestion of surface water/sediment and dermal contact with surface water/sediment.

Figure 2 presents a flowchart of the potential exposure pathways and receptors at Site 43.

SITE 44 - JONES STREET DUMP

The Jones Street Dump (Site 44) encompasses approximately 5 acres and is situated within the operations area of MCAS New River. There is vehicle access to the site via Baxter Street, from Curtis Road. Site 44 is located at the northern terminus of Baxter Street, behind base housing units along Jones Street. The site is partially surrounded by a six-foot chain-link fence, and a portion of the site lies to the east of the fenced compound. The site is bordered to the north and west by Edwards Creek, to the south by base housing units along Jones Street, and to the east by woods and an unnamed tributary to Edwards Creek. Edwards Creek flows east from the study area toward Site 43, which is located about 2,000 feet to the east of Site 44.

A majority of the site is comprised of a gently dipping open field that slopes toward Edwards Creek. The field is covered with high grass, weeds, and small pine trees that are less than two inches in diameter. Surrounding the open field is a mature wooded area with dense understory.

Background

The Jones Street Dump reportedly operated in the 1950's. Site 44 served as a dump for municipal waste and various debris. It has also been reported that some potentially hazardous materials may have been disposed at this site. The particular types and quantities of these wastes, however, are not known.

WAR conducted an IAS at Site 44 in 1983. This study produced evidence that construction debris and small quantities of potentially hazardous waste were disposed at the dump.

Baker conducted an SI at Site 44 in 1991. Soil samples contained low levels of PAHs and specific pesticides (i.e., 4,4'-DDE and 4,4'-DDD). Inorganics were detected in soil samples at concentrations exceeding twice the base-specific background levels. Groundwater contained inorganics at concentrations exceeding state and federal criteria. Low concentrations of PAHs were detected in one well, and toluene and ethylbenzene were detected in another well at concentrations below state and federal standards. Surface water samples contained inorganics at low levels. Sediment samples contained trace levels of pesticides and semivolatiles, as well as slightly elevated concentrations of copper, lead and zinc.

Current and Future Exposure Scenarios

Site 44 no longer serves as a dump. Presently, Site 44 has no official use.

Receptors exposed to surface soil include: future residents, (i.e., children and adults) current military personnel and on-site trespassers (i.e., children and adults) from adjacent, off-site residences. Soil exposure pathways for these receptors include: incidental ingestion of surface soil, dermal contact with surface soil and inhalation of fugitive dust.

Future construction workers are the only receptors exposed to subsurface soil. Exposure to subsurface soil exposure may occur during ground excavation for on-site construction activities. Exposure pathways include: incidental ingestion of subsurface soil, dermal contact with subsurface soil and inhalation of fugitive dust.

Presently, Site 44 groundwater is not tapped for potable supplies. For this reason, current groundwater exposure is not evaluated. In a future scenario, it is possible that residential developments may be constructed at Site 44. Consequently, future groundwater exposure will be assessed for residential children and adults. Groundwater exposure pathways include: ingestion of groundwater, dermal contact with groundwater and inhalation of volatilized organics while showering.

Groundwater exposure will not be evaluated for future military personnel, for the same reasons it is not evaluated for these receptors at Site 36.

Receptors exposed to surface water and sediment are current on-site trespassers and future residents. Exposure pathways for these receptors are incidental ingestion of surface water/sediment and dermal contact with surface water/sediment.

Figure 3 presents a flowchart of the potential exposure pathways and receptors at this site.

SITE 54 - CRASH CREW FIRE TRAINING BURN PIT

The Crash Crew Fire Training Burn Pit (Site 54) is located near the southwest end of runway 5-23, within the operations area of MCAS New River. The burn pit is approximately 50 feet in diameter and is situated at the center of this 1.5 acre site. An 8,000-gallon underground storage tank (UST) lies to the northwest of the burn pit. Fire training exercises are conducted within the burn pit using JP-type fuel, which is stored in the nearby UST. An oil and water separator, located approximately 100 feet to the southeast of the burn pit, is used for temporary storage and collection of the spent fuel.

An improved gravel surface surrounds the burn pit, the remaining portion of the site is comprised of maintained lawn area. The ground surface slopes away from the central portion of the study area toward the south, southwest, and southeast. Two drainage ditches lead away from the burn pit area toward the south, on either side of an improved road. During periods of heavy precipitation, the ditches serve as channels for surface water runoff.

Background

Site 54 has served as a fire training burn pit since the mid-1950s. Waste fuels, oils, and solvents were used to simulate fire conditions that would result from aircraft crashes. Fire training at Site 54 was originally conducted on the ground surface, within a bermed area. In 1975 a lined burn pit was constructed (WAR, 1983). The same burn pit remains in operation today, however, only JP-type fuels are currently used during training exercises.

The site media (i.e, soil, groundwater, surface water, and sediment) were previously investigated by WAR in 1983, and by ESE in 1986 and 1987. POL contamination was noted in the soil at depth. The 1984 groundwater results indicated levels of chromium, oil and grease, and phenols. In later

studies, these same chemicals were detected in the groundwater; no VOCs were detected. Total phenols were found in surface water. Chromium, lead, oil and grease, and total phenols were detected in sediment.

During a recent site visit conducted in March, 1994, fuel odor and residue on standing water were observed in the pit. A stressed vegetated area, which may have been used as a burn area, was identified southwest of the burn pit. Broken glass and metal debris were scattered on the ground along Perimeter Road. A small spill area was also noted in this area.

The most recent sampling event investigated these same site media. A preliminary assessment of the unvalidated laboratory results indicates PAHs in the soil and VOCs, including benzene, toluene, ethylbenzene, xylenes (BTEX), and 1,2-DCE, in the groundwater.

Current and Future Scenarios

Site 54 is currently used for emergency fire response training. Current receptors include on-site military personnel and trespassers (i.e., child and adult receptors). Exposure pathways for these receptors include surface soil incidental ingestion, dermal contact, and inhalation of fugitive dust.

At present, groundwater is not utilized for potable purposes. As a result, current groundwater exposure will not be assessed. Exposure to subsurface soil in the current scenario is unlikely for the receptor population. Consequently, subsurface soil is not considered to be a viable medium for exposure.

In the future case, it is unlikely that a residential scenario will be implemented at the site. It is assumed that the present activities will continue into the foreseeable future. However, to be conservative, groundwater exposure to a residential child and adult receptor will be assessed. Surface soil exposure, as calculated in the current scenario for the child and adult trespassers, is expected to remain the same in the future case.

Groundwater exposure for future on-site military personnel will not be assessed, for the same reasons it is not evaluated for the other sites. However, a construction worker will be evaluated in the future case. It is assumed that subsurface soil exposure may occur as a result of excavation for potential construction activities at the site. In addition, subsurface soil exposure will be assessed for future residents (i.e., child and adult receptor). The exposure pathways for these receptors are incidental ingestion, dermal contact, and inhalation.

Figure 4 presents a flowchart of the potential exposure pathways and receptors at this site.

SITE 86 - ABOVEGROUND STORAGE TANK AREA

Site 86 is located on the southwest corner of the Foster and Campbell Street intersection, within the operations area of MCAS New River. The site is comprised of a lawn area surrounded by buildings, asphalt roads, and parking lots. Concrete pylons, upon which electric and steam overhead utilities are mounted, line the northern, western, and southern boundaries of the site. Campbell Street borders the site to the north and Foster Street lies adjacent to the east. Immediately to the south of the study area is Building AS-502, the MCAS fire station. The entrance road to the fire station borders the study area to the west.

The ground surface at Site 86 gently slopes to the south, toward a drainage ditch and culvert. Storm water drains that are located along Campbell Street receive runoff from only the northernmost portion of the study area. Stormwater from Site 86 eventually discharges into the New River, which lies approximately three quarters of a mile to the east.

Background

Site 86 served as a storage area for petroleum products from 1954 to 1988. In 1954, three 25,000-gallon above ground storage tanks (ASTs) were installed within an earthen berm. Additionally, a small pump house was constructed to transfer fuel oil to and from the ASTs. The three tanks were reportedly used for No.6 fuel oil storage until 1979. From 1979 to 1988 the tanks were then used for temporary storage of waste oil (O'Brien & Gere, 1992). The three tanks were emptied in 1988 and are believed to have been removed in 1992. Today, the former location of the tanks is grass-covered and only a very slight depression remains.

A preliminary site investigation was conducted in 1990 by Dewberry and Davis. Several VOCs were found in the subsurface soil, including chloroform, methylene chloride, 1,1,1-trichloroethane (TCA), and 1,1,2-trichlorofluoroethane. These detections were attributed to localized surface spills. In 1992, O'Brien and Gere conducted a site assessment, investigating soil and groundwater at this site. Soil samples were analyzed for TPH and TCLP compounds. Most of the samples showed detections that did not exceed regulatory criteria for these parameters.

In the groundwater, several organic compounds were found: benzene, toluene, 1,1-dichloroethane (1,1-DCA), 1,2-dichloroethene (1,2-DCE), TCE, tetrachloroethene (PCE), chloroethane, and TCA. The detections of benzene, TCE, and PCE exceeded North Carolina groundwater criteria in a few samples. Toluene and TCA were detected below the state groundwater criteria. There are no criteria available for chloroethane, 1,1-DCA, and 1,2-DCE.

Baker conducted the latest investigation at this site in 1995, addressing soil and groundwater. A preliminary assessment of the unvalidated data indicated the presence of VOCs (i.e., TCE, 1,2-dichloroethane [1,2-DCA], 1,2-DCE, benzene, and PCE) in soil and groundwater.

Current and Future Scenarios

Site 86 currently has no official uses. Current receptors include on-site military personnel and trespassers (i.e., child and adult receptors). Exposure pathways for these receptors include surface soil incidental ingestion, dermal contact, and inhalation of fugitive dust.

At present, groundwater is not utilized for potable purposes. As a result, current groundwater exposure will not be assessed. Exposure to subsurface soil in the current scenario is unlikely for the receptor population. Consequently, subsurface soil exposure is not considered to be viable.

In the future case, it is unlikely that a residential scenario will be implemented at the site. It is assumed that the present activities will continue into the foreseeable future. However, to be conservative, groundwater exposure to a residential child and adult receptor will be assessed. Surface soil exposure, as calculated in the current scenario for the child and adult trespassers, is expected to remain the same in the future case.

Like the previous sites, groundwater exposure for future on-site military personnel will not be assessed. However, a construction worker will be evaluated in the future case. It is assumed that subsurface soil exposure may occur as a result of excavation for potential construction activities at the site. In addition, subsurface soil exposure will be assessed for future residents (i.e., child and adult receptor). The exposure pathways for these receptors are incidental ingestion, dermal contact, and inhalation.

Figure 5 presents a flowchart of the potential exposure pathways and receptors at this site.

TABLES

TABLE 1

SUMMARY OF PRELIMINARY EXPOSURE DOSE INPUT PARAMETERS FOR SITES 36, 43, 44, 54, AND 86

Input Parameter	Units	Receptor					
		Trespasser Child	Trespasser Adult	Military Personnel	Construction Worker	Residential Child	Residential Adult
Soil (mg/kg)							
Ingestion Rate, IR	mg/d	100	50	100	480	200	100
Fraction Ingested, FI	unitless	1	1	1	1	1	1
Exposure Frequency, EF	d/y	43	130	250	90	350	350
Exposure Duration, ED	y	6	30	4	1	6	30
Surface Area, SA	cm^2	2,000	5,000	4,300	4,300	2,300	5,800
Absorption Factor, AF	mg/cm^3	1	1	1	1	1	1
Averaging Time, Noncarc., ATnc	d	2,190	10,950	1,460	365	2,190	10,950
Averaging Time, Carc., ATcarc	d	25,550	25,550	25,550	25,550	25,550	25,550
Body Weight, BW	kg	15	70	70	70	15	70
Conversion Factor, CF	kg/mg	$1x10^{-6}$	$1x10^{-6}$	$1x10^{-6}$	$1x10^{-6}$	$1x10^{-6}$	$1x10^{-6}$
Absorbance Factor, ABS	unitless	Organics = 0.01; Inorganics = 0.001					
Groundwater (mg/L)							
Ingestion Rate, IR	L/d	NA	NA	NA	NA	1	2
Exposure Frequency, EF	d/y	NA	NA	NA	NA	350	350
Exposure Duration, ED	y	NA	NA	NA	NA	6	30
Exposure Time, ET	h/d	NA	NA	NA	NA	0.25	0.25
Surface Area, SA	cm^2	NA	NA	NA	NA	10,000	23,000
Averaging Time, Noncarc., ATnc	d	NA	NA	NA	NA	2,190	10,950
Averaging Time, Carc., ATcarc	d	NA	NA	NA	NA	25,550	25,550
Conversion Factor, CF	L/cm^3	NA	NA	NA	NA	0.001	0.001
Body Weight, BW	kg	NA	NA	NA	NA	15	70
Sediment (mg/kg)							
Ingestion Rate, IR	mg/d	200	100	NA	NA	200	100
Fraction Ingested, FI	unitless	1	1	NA	NA	1	1

TABLE 1 (Continued)

SUMMARY OF PRELIMINARY EXPOSURE DOSE INPUT PARAMETERS
FOR SITES 36, 43, 44, 54, AND 86

Input Parameter	Units	Receptor					
		Trespasser Child	Trespasser Adult	Military Personnel	Construction Worker	Residential Child	Residential Adult
Exposure Frequency, EF	d/y	45	45	NA	NA	45	45
Exposure Duration, ED	y	6	30	NA	NA	6	30
Surface Area, SA	cm^2	2,000	5,000	NA	NA	2,300	5,800
Absorption Factor, AF	mg/cm^3	1	1	NA	NA	1	1
Averaging Time, Noncarc., ATnc	d	2,190	10,950	NA	NA	2,190	10,950
Averaging Time, Carc., ATcarc	d	25,550	25,550	NA	NA	25,550	25,550
Body Weight, BW	kg	15	70	NA	NA	15	70
Conversion Factor, CF	kg/mg	$1x10^{-6}$	$1x10^{-6}$	NA	NA	$1x10^{-6}$	$1x10^{-6}$
Absorbance Factor, ABS	unitless	Organics = 0.01; Inorganics = 0.001					
Surface Water (mg/L)							
Ingestion Rate, IR	L/d	0.005	0.005	NA	NA	0.005	0.005
Exposure Time, ET	h/d	2.6	2.6	NA	NA	2.6	2.6
Exposure Frequency, EF	d/y	45	45	NA	NA	45	45
Exposure Duration, ED	y	6	30	NA	NA	6	30
Surface Area, SA	cm^2	2,000	5,000	NA	NA	2,300	5,800
Averaging Time, Noncarc., ATnc	d	2,190	10,950	NA	NA	2,190	10,950
Averaging Time, Carc., ATcarc	d	25,550	25,550	NA	NA	25,550	25,550
Conversion Factor, CF	L/cm^3	0.001	0.001	NA	NA	0.001	0.001
Air (mg/m^3)							
Outdoor Air							
Inhalation Rate, IR	m^3/d	10	20	30	20	10	20
Exposure Frequency, EF	d/y	43	130	250	90	350	350
Exposure Duration, ED	y	6	30	4	1	6	30
Averaging Time, Noncarc., ATnc	d	2,190	10,950	1,460	365	2,190	10,950
Averaging Time, Carc,. ATcarc	d	25,550	25,550	25,550	25,550	25,550	25,550

TABLE 1 (Continued)

SUMMARY OF PRELIMINARY EXPOSURE DOSE INPUT PARAMETERS FOR SITES 36, 43, 44, 54, AND 86

Input Parameter	Units	Receptor					
		Trespasser Child	Trespasser Adult	Military Personnel	Construction Worker	Residential Child	Residential Adult
Body Weight, BW	kg	15	70	70	70	15	70
Shower Air							
Inhalation Rate, IR	m^3/h	NA	NA	NA	NA	0.6	0.6
Exposure Time, ET	h/d	NA	NA	NA	NA	0.25	0.25
Exposure Frequency, EF	d/y	NA	NA	NA	NA	350	350
Exposure Duration, ED	y	NA	NA	NA	NA	6	30
Averaging Time, Noncarc., ATnc	d	NA	NA	NA	NA	2,190	10,950
Averaging Time, Carc., ATcarc	d	NA	NA	NA	NA	25,550	25,550
Body Weight, BW	kg	NA	NA	NA	NA	15	70
Fish (mg/kg)							
Ingestion rate, IR	kg/d	NA	NA	NA	NA	NA	0.284
Fraction Ingested, FI	unitless	NA	NA	NA	NA	NA	1
Exposure Frequency, EF	meals/yr	NA	NA	NA	NA	NA	48
Exposure Duration, ED	y	NA	NA	NA	NA	NA	30
Averaging Time, Noncarc., ATnc	d	NA	NA	NA	NA	NA	10,950
Averaging Time, Carc, ATcarc	d	NA	NA	NA	NA	NA	25,550
Body Weight, BW	kg	NA	NA	NA	NA	NA	70

References:

USEPA Risk Assessment For Superfund Volume I. Human Health Manual (Part A) Interim Final, December, 1989.

USEPA Exposure Factors Handbook, July, 1989.

USEPA Risk Assessment For Superfund Volume I. Human Health Evaluation Manual Supplemental Guidance. "Standard Default Exposure Factors" Interim Final. March 25, 1991.

USEPA Dermal Exposure Assessment: Principles and Applications. Interim Report. January, 1992.

USEPA Region IV Guidance for Soil Absorbance. (USEPA, 1992)

TABLE 1 (Continued)

SUMMARY OF PRELIMINARY EXPOSURE DOSE INPUT PARAMETERS FOR SITES 36, 43, 44, 54, AND 86

Notes:
The exposure frequency for the trespasser receptors is based on the typical exposure pattern (i.e., more time spent outdoors in the warmer months vs. the cooler months) for people who actively garden or play outdoors. It is an upper-bound estimate (USEPA, 1992).

The skin surface area for the trespasser receptors is based on approximately 25 percent of the total surface body area for a child and adult receptor. These values are upper-bound estimates.

FIGURES

FIGURE 1

FLOWCHART OF POTENTIAL EXPOSURE PATHWAYS AND RECEPTORS
SITE 36: CAMP GEIGER AREA DUMP

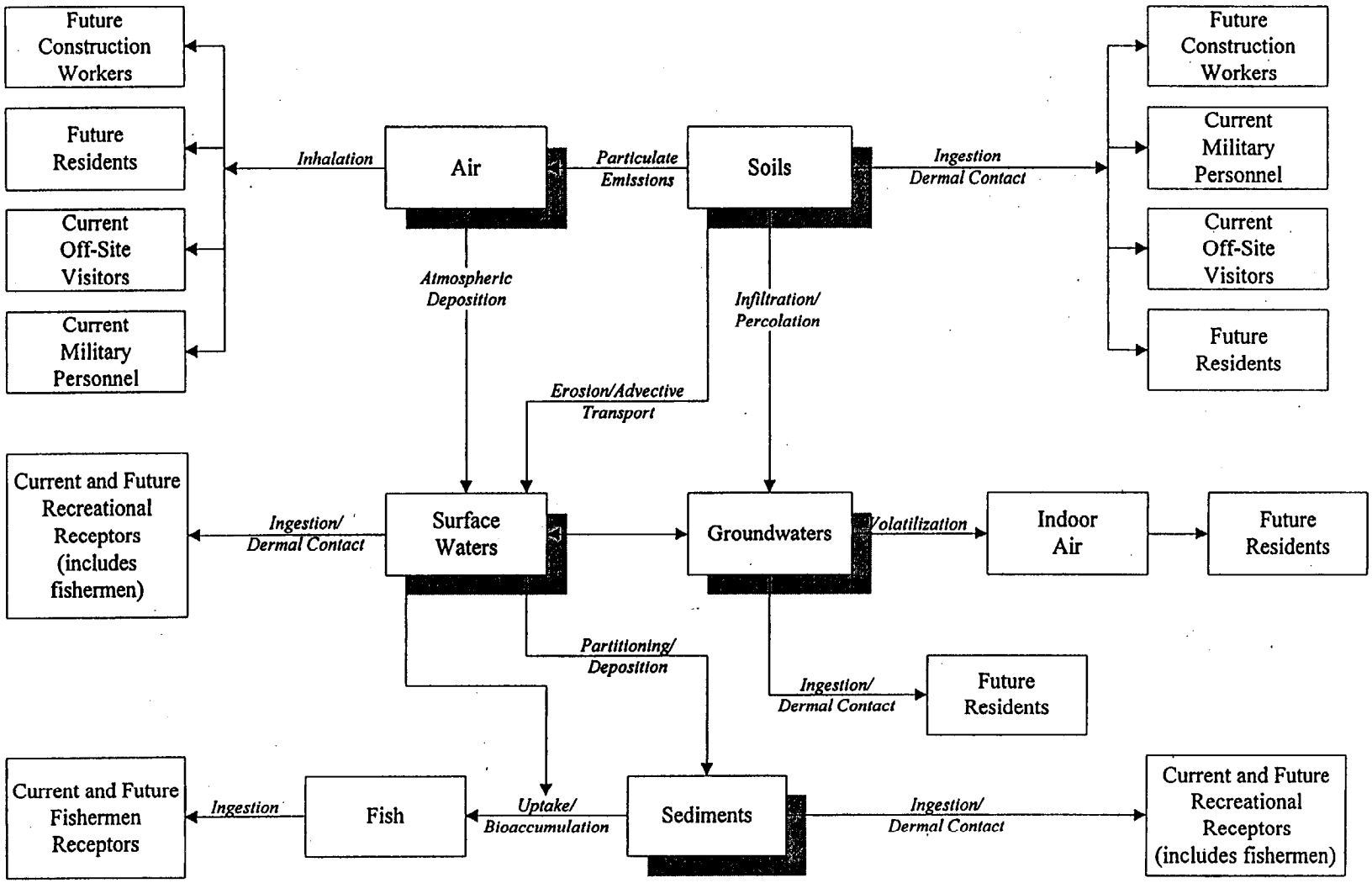


FIGURE 2

FLOWCHART OF POTENTIAL EXPOSURE PATHWAYS AND RECEPTORS
SITE 43: AGAN STREET DUMP

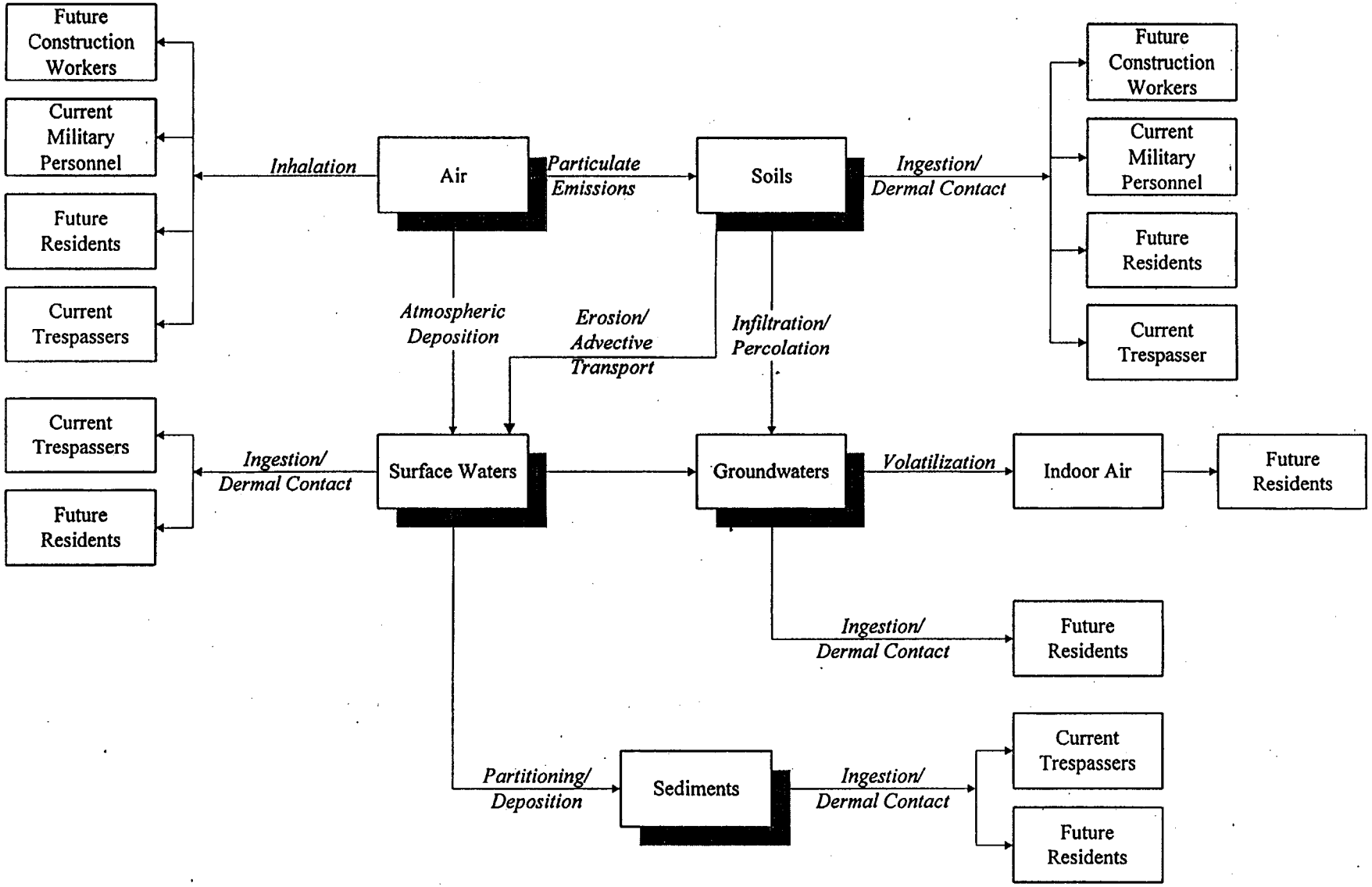


FIGURE 3

FLOWCHART OF POTENTIAL EXPOSURE PATHWAYS AND RECEPTORS
SITE 44: JONES STREET DUMP

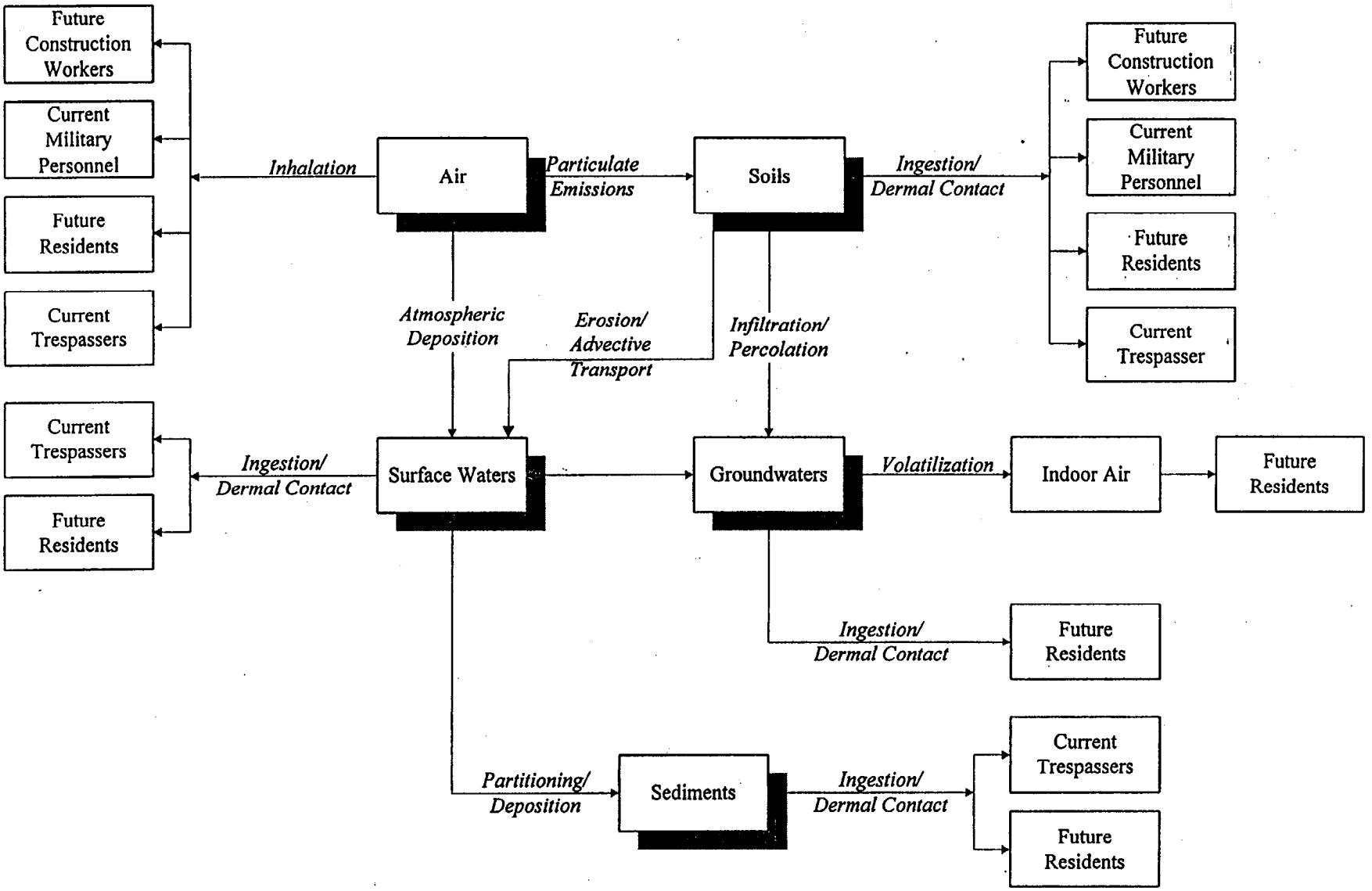


FIGURE 4

FLOWCHART OF POTENTIAL EXPOSURE PATHWAYS AND RECEPTORS
SITE 54: CRASH CREW FIRE TRAINING BURN PIT

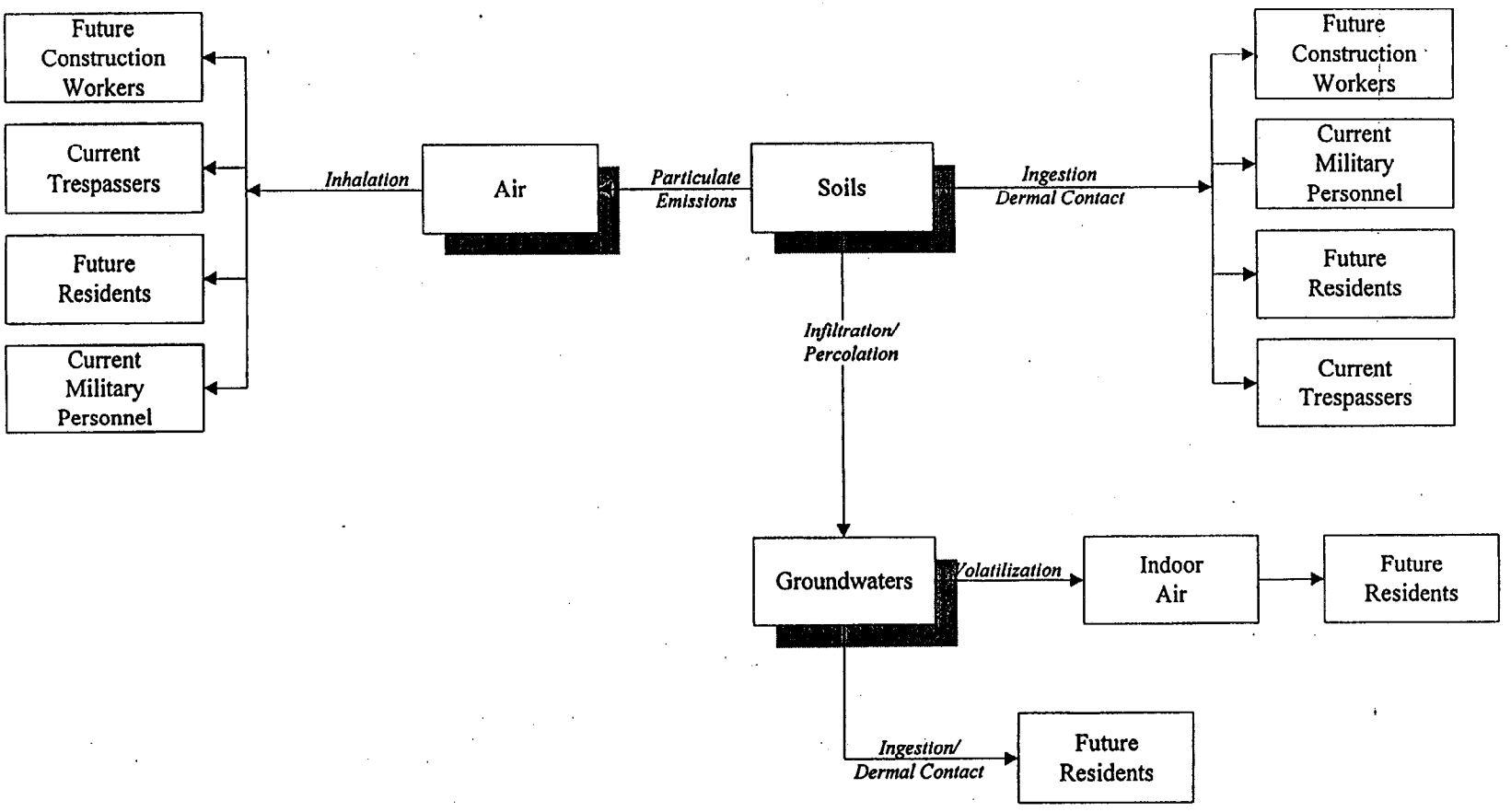
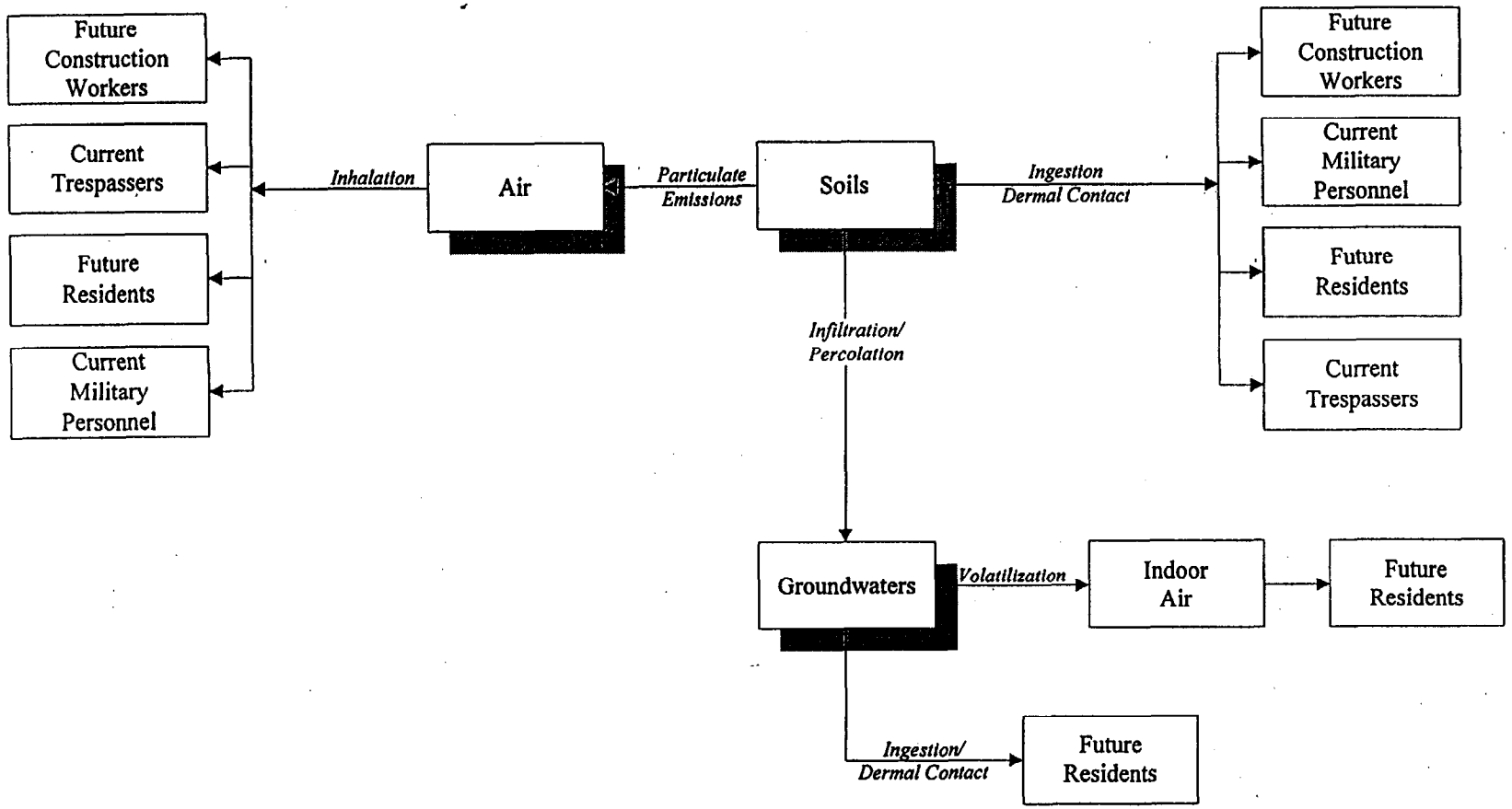


FIGURE 5

FLOWCHART OF POTENTIAL EXPOSURE PATHWAYS AND RECEPTORS
SITE 86: ABOVEGROUND STORAGE TANK AREA



APPENDIX S
CDI CALCULATIONS

SAMPLE CALCULATIONS

Computed by: RSP Checked by: KTW Date: 1/96

EXAMPLE SOIL* INGESTION CALCULATIONS
OPERABLE UNIT NO. 6
CONTRACT TASK ORDER 0303

Purpose: Estimate intake/risk from ingestion of soil

$$Intake\ (mg/kg{\cdot}day) = \frac{C \times CF \times EF \times ED \times IR}{BW \times AT}$$

Where:	C	=	Contaminant concentration in soil (mg/kg)
	CF	=	Conversion factor (kg/mg)
	EF	=	Exposure frequency (days/year)
	ED	=	Exposure duration (years)
	IR	=	Ingestion rate (mg/day)
	BW	=	Body weight (kg)
	AT_c	=	Averaging time carcinogen (days)
	AT_{nc}	=	Averaging time noncarcinogen (days)

Risks:

Carcinogens = Intake (mg/kg·day) x CSF $(mg/kg{\cdot}day)^{-1}$
Noncarcinogens = Intake (mg/kg·day)/RfD (mg/kg·day)

Example Carcinogen: Arsenic

$$Intake\ (mg/kg{\cdot}day) = \frac{0.506\ mg/kg \times 100\ mg/day \times 350\ days/yr \times 30\ yrs \times 1.0E{-}6\ kg/mg}{70\ kg \times 25{,}550\ days}$$

$$= 3.0E\text{-}07$$

Risk = 3.0E-07 mg/kg·day x 1.5 $mg/kg{\cdot}day^{-1}$ = 2.2E-07

Example Noncarcinogen: Iron

$$Intake\ (mg/kg{\cdot}day) = \frac{4{,}342\ mg/kg \times 100\ mg/day \times 350\ days/yr \times 30\ yrs \times 1.0E{-}6\ kg/mg}{70\ kg \times 10{,}950\ days}$$

$$= 7.7E\text{-}05$$

$$Risk = \frac{7.7E{-}05\ mg/kg{\cdot}day}{7E{-}03\ mg/kg{\cdot}day} = 1.1E{-}02$$

* This example calculation also is applicable for sediment ingestion.
Re: Site 86 Future Residential Adult - Surface Soil

Computed by: RSP Checked by: KTW Date: 1/96

EXAMPLE DERMAL CONTACT WITH SOIL* CALCULATIONS
OPERABLE UNIT NO. 6
CONTRACT TASK ORDER 0303

Purpose: Estimate intake/risk from dermal contact with soil

$$Intake\ (mg/kg{\cdot}day) = \frac{C \times CF \times SA \times AF \times ABS \times EF \times ED}{BW \times AT}$$

Where:	C	=	Contaminant concentration in soil (mg/kg)
	CF	=	Conversion factor (kg/mg)
	SA	=	Surface available for contact (cm^2/event)
	AF	=	Soil to skin adherence factor (mg/cm^2)
	ABS	=	Fraction absorbed (percent) - 0.01 organics, 0.001 inorganics
	EF	=	Exposure frequency (days/year)
	ED	=	Exposure duration (years)
	BW	=	Body weight (kg)
	AT_c	=	Averaging time carcinogen (days)
	AT_{nc}	=	Averaging time noncarcinogen (days)

Risks:

Carcinogens = Intake (mg/kg·day) x dermally - adjusted CSF $(mg/kg{\cdot}day)^{-1}$
Noncarcinogens = Intake (mg/kg·day)/ dermally - adjusted RfD (mg/kg·day)

Example Carcinogen: Benzo(a)anthracene

$$Intake\ (mg/kg{\cdot}day) = \frac{0.506\ mg/kg \times 1.0E{-}06\ kg/mg \times 5{,}800\ cm^2/event \times 0.001 \times 1\ mg/cm^2 \times 350\ days/yr \times 30\ yrs}{70\ kg \times 25{,}550\ days}$$

$$= 1.7E\text{-}07$$

Risk = 1.7E-07 mg/kg·day x 1.5 $mg/kg{\cdot}day^{-1}$ = 2.5E-07

Example Noncarcinogen: Iron

$$Intake\ (mg/kg{\cdot}day) = \frac{4{,}342\ mg/kg \times 1.0E{-}06\ kg/mg \times 5{,}800\ cm^2/event \times 1\ mg/cm^2 \times 0.001 \times 350\ days/yr \times 30\ yrs}{70\ kg \times 10{,}950\ days}$$

$$= 3.4E\text{-}04$$

$$Risk = \frac{3.4E{-}04\ mg/kg{\cdot}day}{6.0E{-}02\ mg/kg{\cdot}day} = 5.7E{-}03$$

* This example calculation also is applicable for sediment dermal contact.
Re: Site 86 Future Residential Adult - Surface Soil

Computed by: RSP Checked by: KTW Date: 1/96

EXAMPLE INHALATION OF PARTICULATES CALCULATIONS
OPERABLE UNIT NO. 6
CONTRACT TASK ORDER 0303

Purpose: Estimate intake/risk from the inhalation of soil particulates

$$Intake\ (mg/kg{\cdot}day) = \frac{C \times IR \times EF \times ED \times 1/PEF}{BW \times AT}$$

Where:	C	=	Contaminant concentration in soil (mg/kg)
	IR	=	Inhalation rate (m^3/day)
	EF	=	Exposure frequency (days/year)
	ED	=	Exposure duration (years)
	PEF	=	Particulate Emission Factor (m^3/kg)
	BW	=	Body weight (kg)
	AT_c	=	Averaging time carcinogen (days)
	AT_{nc}	=	Averaging time noncarcinogen (days)

Risks:

Carcinogens = Intake (mg/kg·day) x CSF $(mg/kg{\cdot}day)^{-1}$
Noncarcinogens = Intake (mg/kg·day)/RfD (mg/kg·day)

Example Carcinogen: Arsenic

$$Intake\ (mg/kg{\cdot}day) = \frac{1.7\ mg/kg \times 20\ m^3/day \times 350\ days/yr \times 30\ yrs \times 1/1.32E{+}09\ m^3/kg}{70\ kg \times 25{,}550\ days}$$

$$= 1.5E\text{-}10$$

Risk = 1.5E-10 mg/kg·day x 15.1 $mg/kg{\cdot}day^{-1}$ = 2.3E-09

Example Noncarcinogen: Not applicable..

Computed by: RSP Checked by: KTW Date: 1/96

EXAMPLE GROUNDWATER INGESTION CALCULATIONS
OPERABLE UNIT NO. 6
CONTRACT TASK ORDER 0303

Purpose: Estimate intake/risk from ingestion of groundwater

$$Intake\ (mg/kg{\cdot}day) = \frac{C \times IR \times EF \times ED}{BW \times AT}$$

Where:

C	=	Contaminant concentration in groundwater (mg/L)
IR	=	Daily intake ingestion rate (L/day)
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (years)
BW	=	Body weight (kg)
AT_c	=	Averaging time carcinogen (days)
AT_{nc}	=	Averaging time noncarcinogen (days)

Risks:

Carcinogens = Intake (mg/kg·day) x CSF $(mg/kg{\cdot}day)^{-1}$
Noncarcinogens = Intake (mg/kg·day)/RfD (mg/kg·day)

Example Carcinogen: Arsenic

$$Intake\ (mg/kg{\cdot}day) = \frac{0.007\ mg/L \times 1\ L/day \times 350\ days/yr \times 6\ yrs}{15\ kg \times 25{,}550\ days}$$

$= 3.6E\text{-}05$

Risk = 3.6E-05 mg/kg·day x 1.5 $mg/kg{\cdot}day^{-1}$ = 5.4E-05

Example Noncarcinogen: Iron

$$Intake\ (mg/kg{\cdot}day) = \frac{68.3\ mg/L \times 1\ L/day \times 350\ days/yr \times 6\ yrs}{15\ kg \times 10{,}950\ days}$$

$= 4.4$

$$Risk = \frac{4.4\ mg/kg{\cdot}day}{0.3\ mg/kg{\cdot}day} = 15.0$$

Computed by: RSP Checked by: KTW Date: 1/96

EXAMPLE DERMAL CONTACT WITH GROUNDWATER CALCULATIONS
OPERABLE UNIT NO. 6
CONTRACT TASK ORDER 0303

Purpose: Estimate intake/risk from dermal contact with groundwater

$$Intake\ (mg/kg{\cdot}day) = \frac{C \times CF \times SA \times PC \times ET \times EF \times ED}{BW \times AT}$$

Where:	C	=	Contaminant concentration in groundwater (mg/L)
	CF	=	Conversion factor (1 L/1,000 cm^3)
	SA	=	Exposed skin surface available for contact (cm^2)
	PC	=	Chemical-specific dermal permeability constant (cm/hr)
	ET	=	Exposure time (hr/day)
	EF	=	Exposure frequency (days/year)
	ED	=	Exposure duration (years)
	BW	=	Body weight (kg)
	AT_c	=	Averaging time carcinogen (days)
	AT_{nc}	=	Averaging time noncarcinogen (days)

Risks:

Carcinogens = Intake (mg/kg·day) x CSF $(mg/kg{\cdot}day)^{-1}$
Noncarcinogens = Intake (mg/kg·day)/RfD (mg/kg·day)

Example Carcinogen: Arsenic

$$Intake\ (mg/kgday) = \frac{0.007\ mg/L \times 1.0E{-}03\ L/cm^3 \times 10{,}000\ cm^2/event \times 1.0E{-}03\ cm/hr \times 0.25\ hr/day \times 350\ days/yr \times 30\ yrs}{15\ kg \times 25{,}550\ days}$$

$$= 9.0E{-}08$$

Risk = 9.0E-08 mg/kg·day x 7.5 $mg/kg{\cdot}day^{-1}$ = 6.7E-07

Example Noncarcinogen: Iron

$$Intake\ (mg/kg{\cdot}day) = \frac{68.3\ mg/L \times 1.0E{-}03\ L/cm^3 \times 10{,}000\ cm^2/event \times 1.0E{-}03\ cm/hr \times 0.25\ hr/day \times 350\ days/yr \times 6\ yrs}{15\ kg \times 2{,}190\ days}$$

$$= 1.1E{-}02$$

$$Risk = \frac{1.1E{-}02\ mg/kg{\cdot}day}{6E{-}02\ mg/kg{\cdot}day} = 1.8E{-}01$$

Re: Site 86 Future Residential Child

Computed by: RSP Checked by: KTW Date: 1/96

EXAMPLE INHALATION OF GROUNDWATER VOLATILES CALCULATIONS
OPERABLE UNIT NO. 6
CONTRACT TASK ORDER 0303

Purpose: Estimate intake/risk from the inhalation of groundwater volatiles

$$Intake\ (mg/kg{\cdot}day) = \frac{C \times EF \times ED}{AT}$$

Where:

C	=	Contaminant concentration in shower air (mg/kg/shower) - Foster Model (Appendix P)
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (years)
AT_c	=	Averaging time carcinogen (days)
AT_{nc}	=	Averaging time noncarcinogen (days)

Risks:

Carcinogens = Intake (mg/kg·day) x CSF $(mg/kg{\cdot}day)^{-1}$
Noncarcinogens = Intake (mg/kg·day)/RfD (mg/kg·day)

Example Carcinogen: Benzene

$$Intake\ (mg/kg{\cdot}day) = \frac{3.1E{-}04\ mg/kg/shower \times 350\ days/yr \times 6\ yrs}{25{,}550\ days}$$

$$= 2.6E\text{-}05$$

Risk = 2.6E-05 mg/kg·day x 2.9E-02 $mg/kg{\cdot}day^{-1}$ = 7.5E-07

Example Noncarcinogen: Benzene

$$Intake\ (mg/kg{\cdot}day) = \frac{3.1E{-}04\ mg/kg/shower \times 350\ days/yr \times 6\ yrs}{2{,}190\ days}$$

$$= 3E\text{-}04$$

Risk = 3E-04 mg/kg·day ÷ 1.7E-03 $mg/kg{\cdot}day^{-1}$ = 1.8E-01

CURRENT MILITARY RECEPTOR

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT MILITARY PERSONNEL

Intake from ingestion of soil is calculated as follows:

Intake (mg/kg-day) = C * CF * EF * ED * IR/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = adult exposure frequency (days/yr)	250
ED = adult exposure duration (yr)	4
IR = adult soil ingestion rate (mg/day)	100
BW = adult body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	4
DY = days per year (days/year)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration Carcinogen (mg/kg)	Exposure Frequency (days/yr) Adult	Exposure Duration (yr) Adult	Conversio Factor (kg/mg)	Ingestion Rate (mg/day) Adult	Body Weight (kg) Adult	Average Carc Tim (days)	Carc Dose (mg/kg/day) Adult	Slope Factor (mg/kg/day)-1	Carcinogenic Risk Adult	Percent Carcinogenic Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day) Adult	Reference Dose (mg/kg/day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Benzo(a)anthracene	0.506	250	4	1E-06	100	70	25550	2.8E-08	7.3E-01	2.1E-08	4%	1460	5.0E-07	0.0E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.559	250	4	1E-06	100	70	25550	3.1E-08	7.3E-01	2.3E-08	4%	1460	5.5E-07	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.527	250	4	1E-06	100	70	25550	2.9E-08	7.3E+00	2.2E-07	39%	1460	5.2E-07	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.353	250	4	1E-06	100	70	25550	2.0E-08	7.3E-01	1.4E-08	3%	1460	3.5E-07	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.228	250	4	1E-06	100	70	25550	1.3E-08	7.3E+00	9.3E-08	17%	1460	2.2E-07	0.0E+00	0.0E+00	0%
Dieldrin	0.044	250	4	1E-06	100	70	25550	2.5E-09	1.6E+01	3.9E-08	7%	1460	4.3E-08	5.0E-05	8.6E-04	3%
Arsenic	1.678	250	4	1E-06	100	70	25550	9.4E-08	1.5E+00	1.4E-07	26%	1460	1.6E-06	3.0E-04	5.5E-03	19%
Iron	4341.750	250	4	1E-06	100	70	25550	2.4E-04	0.0E+00	0.0E+00	0%	1460	4.2E-03	3.0E-01	1.4E-02	50%
Vanadium	56.301	250	4	1E-06	100	70	25550	3.1E-06	0.0E+00	0.0E+00	0%	1460	5.5E-05	7.0E-03	7.9E-03	28%
TOTAL										5.5E-07					2.8E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT MILITARY PERSONNEL

Dermal contact with soil is calculated as follows:

Intake (mg/kg-day) = C * CF * SA * AF * Abs * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	
CF = conversion factor (kg/mg)	1E-06
SA = adult exposed skin surface area (cm2)	4300
AF = soil to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless)	Specific
EF = adult exposure frequency (events/yr)	250
ED = adult exposure duration (years)	4
BW = adult body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	4
DY = day per year (day/yr)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration Carcinogen (mg/kg)	Conversion Factor (kg/mg)	Surface Area (cm2) Adult	Adherence Factor (mg/cm2)	Fraction Absorbed (%)	Exposure Frequency (events/yr) Adult	Exposure Duration (yrs) Adult	Body Weight (kg) Adult	Average Carc Time (days)	Carc Dose (mg/kg/day) Adult	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk Adult	Percent Carcinogenic Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Benzo(a)anthracene	0.506	1E-06	4300	1	0.01	250	4	70	25550	1.2E-08	1.46E+00	1.8E-08	5%	1460	2.1E-07	0.00E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.559	1E-06	4300	1	0.01	250	4	70	25550	1.3E-08	1.46E+00	2.0E-08	5%	1460	2.4E-07	0.00E+00	0.0E+00	0%
Benzo(a)pyrene	0.527	1E-06	4300	1	0.01	250	4	70	25550	1.3E-08	1.46E+01	1.9E-07	49%	1460	2.2E-07	0.00E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.353	1E-06	4300	1	0.01	250	4	70	25550	8.5E-09	1.46E+00	1.2E-08	3%	1460	1.5E-07	0.00E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.228	1E-06	4300	1	0.01	250	4	70	25550	5.5E-09	1.46E+01	8.0E-08	21%	1460	9.6E-08	0.00E+00	0.0E+00	0%
Dieldrin	0.044	1E-06	4300	1	0.01	250	4	70	25550	1.1E-09	3.20E+01	3.4E-08	9%	1460	1.9E-08	2.50E-05	7.4E-04	11%
Arsenic	1.678	1E-06	4300	1	0.001	250	4	70	25550	4.0E-09	7.50E+00	3.0E-08	8%	1460	7.1E-08	6.00E-05	1.2E-03	18%
Iron	4341.750	1E-06	4300	1	0.001	250	4	70	25550	1.0E-05	0.00E+00	0.0E+00	0%	1460	1.8E-04	6.00E-02	3.0E-03	46%
Vanadium	56.301	1E-06	4300	1	0.001	250	4	70	25550	1.4E-07	0.00E+00	0.0E+00	0%	1460	2.4E-06	1.40E-03	1.7E-03	25%
TOTAL												3.8E-07					6.7E-03	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT MILITARY PERSONNEL

Intake from the inhalation of particulates is calculated as follows:

Intake (mg/kg-day) = (C * EF * ED * IR * 1/PEF)/(BW * ATc or ATnc * DY)

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	Calculated
CSF = carcinogenic slope factor	Specific
RfD = reference dose for noncarcinogen	Specific
IR = inhalation rate (m3)	30
EF = adult exposure frequency (days)	250
ED = adult exposure duration (years)	4
BW = adult body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	4
DY = day per year (day/yr)	365
PEF = particulate emission factor (m3/kg)	1.32E+09

COPC	Concentration Carcinogen (mg/kg)	Particulate Emission Factor (m3/kg)	Exposure Frequency (events/yr)	Inhalation Rate (m3/day)	Exposure Duration (yrs)	Body Weight (kg)	Average Carc Tim (days)	Carc Dose (mg/kg/day)	Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Contribution to Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Benzo(a)anthracene	0.506	1.3E+09	250	30	4	70	25550	6.4E-12	6.10E-01	3.9E-12	1%	1460	1.1E-10	0.00E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.559	1.3E+09	250	30	4	70	25550	7.1E-12	6.10E-01	4.3E-12	1%	1460	1.2E-10	0.00E+00	0.0E+00	0%
Benzo(a)pyrene	0.527	1.3E+09	250	30	4	70	25550	6.7E-12	6.10E+00	4.1E-11	10%	1460	1.2E-10	0.00E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.353	1.3E+09	250	30	4	70	25550	4.5E-12	6.10E-01	2.7E-12	1%	1460	7.9E-11	0.00E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.228	1.3E+09	250	30	4	70	25550	2.9E-12	6.10E+00	1.8E-11	4%	1460	5.1E-11	0.00E+00	0.0E+00	0%
Dieldrin	0.044	1.3E+09	250	30	4	70	25550	5.6E-13	1.61E+01	9.0E-12	2%	1460	9.8E-12	0.00E+00	0.0E+00	0%
Arsenic	1.678	1.3E+09	250	30	4	70	25550	2.1E-11	1.51E+01	3.2E-10	80%	1460	3.7E-10	0.00E+00	0.0E+00	0%
Iron	4341.750	1.3E+09	250	30	4	70	25550	5.5E-08	0.00E+00	0.0E+00	0%	1460	9.7E-07	0.00E+00	0.0E+00	0%
Vanadium	56.301	1.3E+09	250	30	4	70	25550	7.2E-10	0.00E+00	0.0E+00	0%	1460	1.3E-08	0.00E+00	0.0E+00	0%
TOTAL										4.0E-10					0.0E+00	

CURRENT CHILD TRESPASSER

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
CHILD TRESPASSER

Intake from ingestion of soil is calculated as follows:

Intake (mg/kg-day) = C * CF * EF * ED * IR/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = child exposure frequency (days/yr)	130
ED = child exposure duration (yr)	6
IR = child soil ingestion rate (mg/day)	100
BW = child body weight (kg)	15
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	6
DY = days per year (days/year)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration (mg/kg)	Exposure Frequency (days/yr) Child	Exposure Duration (yr) Child	Conversion Factor (kg/mg)	Ingestion Rate (mg/day) Child	Body Weight (kg) Child	Average Carc Tim (days)	Carc Dose (mg/kg/day) Child	Slope Factor (mg/kg/day)-1	Carcinogenic Risk Child	Percent Carcinogenic Risk Child	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day) Child	Reference Dose (mg/kg/day)	Noncarcinogenic Risk Child	Percent Noncarcinogeni Risk Child
Benzo(a)anthracene	0.506	130	6	1E-06	100	15	25550	1.0E-07	7.30E-01	7.5E-08	4%	2190	1.2E-06	0.00E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.559	130	6	1E-06	100	15	25550	1.1E-07	7.30E-01	8.3E-08	4%	2190	1.3E-06	0.00E+00	0.0E+00	0%
Benzo(a)pyrene	0.527	130	6	1E-06	100	15	25550	1.1E-07	7.30E+00	7.8E-07	39%	2190	1.3E-06	0.00E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.353	130	6	1E-06	100	15	25550	7.2E-08	7.30E-01	5.3E-08	3%	2190	8.4E-07	0.00E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.228	130	6	1E-06	100	15	25550	4.6E-08	7.30E+00	3.4E-07	17%	2190	5.4E-07	0.00E+00	0.0E+00	0%
Dieldrin	0.044	130	6	1E-06	100	15	25550	9.0E-09	1.60E+01	1.4E-07	7%	2190	1.0E-07	5.00E-05	2.1E-03	3%
Arsenic	1.678	130	6	1E-06	100	15	25550	3.4E-07	1.50E+00	5.1E-07	26%	2190	4.0E-06	3.00E-04	1.3E-02	19%
Iron	4341.750	130	6	1E-06	100	15	25550	8.8E-04	0.00E+00	0.0E+00	0%	2190	1.0E-02	3.00E-01	3.4E-02	50%
Vanadium	56.301	130	6	1E-06	100	15	25550	1.1E-05	0.00E+00	0.0E+00	0%	2190	1.3E-04	7.00E-03	1.9E-02	28%
TOTAL										2.0E-06					6.9E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
CHILD TRESPASSER

Dermal contact with soil is calculated as follows:

Intake (mg/kg-day) = C * CF * SA * AF * Abs * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	
CF = conversion factor (kg/mg)	1E-06
SA = child exposed skin surface area (cm2)	2000
AF = soil to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless)	Specific
EF = child exposure frequency (events/yr)	130
ED = child exposure duration (years)	6
BW = child body weight (kg)	15
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	6
DY = day per year (day/yr)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration (mg/kg)	Conversion Factor (kg/mg)	Surface Area (cm2) Child	Adherence Factor (mg/cm2)	Fraction Absorbed (%)	Exposure Frequency (events/yr) Child	Exposure Duration (yrs) Child	Body Weight (kg) Child	Average Carc Time (days)	Carc Dose (mg/kg/day) Child	Dermal Adjust Slope Factor (mg/kg-day)-1	Carcinogenic Risk Child	Percent Carcinogenic Risk Child	Average Noncarc Tim (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child
Benzo(a)anthracene	0.506	1E-06	2000	1	0.01	130	6	15	25550	2.1E-08	1.5E+00	3.0E-08	5%	2190	2.4E-07	0.0E+00	0.0E+00
Benzo(b)fluoranthene	0.559	1E-06	2000	1	0.01	130	6	15	25550	2.3E-08	1.5E+00	3.3E-08	5%	2190	2.7E-07	0.0E+00	0.0E+00
Benzo(a)pyrene	0.527	1E-06	2000	1	0.01	130	6	15	25550	2.1E-08	1.5E+01	3.1E-07	49%	2190	2.5E-07	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.353	1E-06	2000	1	0.01	130	6	15	25550	1.4E-08	1.5E+00	2.1E-08	3%	2190	1.7E-07	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.228	1E-06	2000	1	0.01	130	6	15	25550	9.3E-09	1.5E+01	1.4E-07	21%	2190	1.1E-07	0.0E+00	0.0E+00
Dieldrin	0.044	1E-06	2000	1	0.01	130	6	15	25550	1.8E-09	3.2E+01	5.7E-08	9%	2190	2.1E-08	2.5E-05	8.4E-04
Arsenic	1.678	1E-06	2000	1	0.001	130	6	15	25550	6.8E-09	7.5E+00	5.1E-08	8%	2190	8.0E-08	6.0E-05	1.3E-03
Iron	4341.750	1E-06	2000	1	0.001	130	6	15	25550	1.8E-05	0.0E+00	0.0E+00	0%	2190	2.1E-04	6.0E-02	3.4E-03
Vanadium	56.301	1E-06	2000	1	0.001	130	6	15	25550	2.3E-07	0.0E+00	0.0E+00	0%	2190	2.7E-06	1.4E-03	1.9E-03
TOTAL												6.4E-07					7.5E-03

SURFACE SOIL PAR _ATE INHALATION EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
CURRENT RESIDENTIAL CHILD

Intake from the inhalation of particulates is calculated as follows:

Intake (mg/kg-day) = (C * EF * ED * IR * 1/PEF)/(BW * ATc or ATnc * DY)

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	Calculated
CSF = carcinogenic slope factor	Specific
RfD = reference dose for noncarcinogen	Specific
IR = inhalation rate (m3)	15
EF = child exposure frequency (days)	350
ED = child exposure duration (years)	6
BW = child body weight (kg)	15
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	6
DY = day per year (day/yr)	365
PEF = particulate emission factor (m3/kg)	1.32E+09

COPC	Concentration (mg/kg)	Particulate Emission Factor (m3/kg)	Exposure Frequency (events/yr)	Inhalation Rate (m3/day)	Exposure Duration (yrs)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Slope Factor (mg/kg-day)	Carcinogenic Risk	Percent Conrtribution to Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Benzo(a)anthracene	0.506	1.3E+09	350	15	6	15	25550	3.2E-11	6.1E-01	1.9E-11	1%	2190	3.7E-10	0.0E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.559	1.3E+09	350	15	6	15	25550	3.5E-11	6.1E-01	2.1E-11	1%	2190	4.1E-10	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.527	1.3E+09	350	15	6	15	25550	3.3E-11	6.1E+00	2.0E-10	10%	2190	3.8E-10	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.353	1.3E+09	350	15	6	15	25550	2.2E-11	6.1E-01	1.3E-11	1%	2190	2.6E-10	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracen	0.228	1.3E+09	350	15	6	15	25550	1.4E-11	6.1E+00	8.7E-11	4%	2190	1.7E-10	0.0E+00	0.0E+00	0%
Dieldrin	0.044	1.3E+09	350	15	6	15	25550	2.7E-12	1.6E+01	4.4E-11	2%	2190	3.2E-11	0.0E+00	0.0E+00	0%
Arsenic	1.678	1.3E+09	350	15	6	15	25550	1.0E-10	1.5E+01	1.6E-09	80%	2190	1.2E-09	0.0E+00	0.0E+00	0%
Iron	4341.750	1.3E+09	350	15	6	15	25550	2.7E-07	0.0E+00	0.0E+00	0%	2190	3.2E-06	0.0E+00	0.0E+00	0%
Vanadium	56.301	1.3E+09	350	15	6	15	25550	3.5E-09	0.0E+00	0.0E+00	0%	2190	4.1E-08	0.0E+00	0.0E+00	0%
TOTAL										2.0E-09					0.0E+00	

FUTURE CHILD RESIDENT

SUBSURFACE SOIL INGESTION EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL CHILD

Intake from ingestion of soil is calculated as follows:

Intake (mg/kg-day) = C * CF * EF * ED * IR/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = child exposure frequency (days/yr)	350
ED = child exposure duration (yr)	6
IR = child soil ingestion rate (mg/day)	200
BW = child body weight (kg)	15
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	6
DY = days per year (days/year)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration (mg/kg)	Exposure Frequency (days/yr) Child	Exposure Duration (yr) Child	Conversion Factor (kg/mg)	Ingestion Rate (mg/day) Child	Body Weight (kg) Child	Average Carc Time (days)	Carc Dose (mg/kg/day) Child	Slope Factor (mg/kg/day)-1	Carcinogenic Risk Child	Percent Carcinogenic Risk Child	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day) Child	Reference Dose (mg/kg/day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Aluminum	16587.65	350	6	1E-06	200	15	25550	1.8E-02	0.00E+00	0.0E+00	0%	2190	2.1E-01	1.00E+00	2.1E-01	29%
Arsenic	1.99	350	6	1E-06	200	15	25550	2.2E-06	1.50E+00	3.3E-06	100%	2190	2.5E-05	3.00E-04	8.5E-02	12%
Iron	9974.29	350	6	1E-06	200	15	25550	1.1E-02	0.00E+00	0.0E+00	0%	2190	1.3E-01	3.00E-01	4.3E-01	59%
TOTAL										3.3E-06					7.2E-01	

SUBSURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL CHILD

Dermal contact with soil is calculated as follows:

Intake (mg/kg-day) = C * CF * SA * AF * Abs * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	
CF = conversion factor (kg/mg)	1E-06
SA = child exposed skin surface area (cm2)	2300
AF = soil to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless)	Specific
EF = child exposure frequency (events/yr)	350
ED = child exposure duration (years)	6
BW = child body weight (kg)	15
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	6
DY = day per year (day/yr)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration (mg/kg)	Conversion Factor (kg/mg)	Surface Area (cm2) Child	Adherence Factor (mg/cm2)	Fraction Absorbed (%)	Exposur Frequen (events/ Child	Exposure Duration (yrs) Child	Body Weight (kg) Child	Average Carc Time (days)	Carc Dose (mg/kg/day) Child	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk Child	Percent Carcinogenic Risk Child	Average Noncarc Tim (days)	Noncarc Dose (mg/kg/day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Aluminum	16587.65	1E-06	2300	1	0.001	350	6	15	25550	2.1E-04	0.0E+00	0.0E+00	0%	2190	2.4E-03	2.0E-01	1.2E-02	29%
Arsenic	1.99	1E-06	2300	1	0.001	350	6	15	25550	2.5E-08	7.5E+00	1.9E-07	100%	2190	2.9E-07	6.0E-05	4.9E-03	12%
Iron	9974.29	1E-06	2300	1	0.001	350	6	15	25550	1.3E-04	0.0E+00	0.0E+00	0%	2190	1.5E-03	6.0E-02	2.4E-02	59%
TOTAL												1.9E-07					4.2E-02	

SUBSURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL CHILD

Intake from the inhalation of particulates is calculated as follows:

Intake (mg/kg-day) = (C * EF * ED * IR * 1/PEF)/(BW * ATc or ATnc * DY)

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	Calculated
CSF = carcinogenic slope factor	Specific
RfD = reference dose for noncarcinogen	Specific
IR = inhalation rate (m3)	15
EF = child exposure frequency (days)	350
ED = child exposure duration (years)	6
BW = child body weight (kg)	15
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	6
DY = day per year (day/yr)	365
PEF = particulate emission factor (m3/kg)	1.32E+09

COPC	Concentration (mg/kg)	Particulate Emission Factor (m3/kg)	Exposure Frequency (events/yr)	Inhalation Rate (m3/day)	Exposure Duration (yrs)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Conrtribution to Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Aluminum	16587.65	1.3E+09	350	15	6	15	25550	1.0E-06	0.0E+00	0.0E+00	0%	2190	1.2E-05	0.0E+00	0.0E+00	0%
Arsenic	1.99	1.3E+09	350	15	6	15	25550	1.2E-10	1.5E+01	1.9E-09	100%	2190	1.4E-09	0.0E+00	0.0E+00	0%
Iron	9974.29	1.3E+09	350	15	6	15	25550	6.2E-07	0.0E+00	0.0E+00	0%	2190	7.2E-06	0.0E+00	0.0E+00	0%
TOTAL										1.9E-09					0.0E+00	

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL CHILD

Intake from drinking water is calculated as follows:

Intake (mg/kg-day) = C * IRw * EF * ED/BW * AT or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in water (mg/l)	
IRw = child daily water ingestion rate (L/Day)	1
EF = child exposure frequency (days/yr)	350
ED = child exposure duration (yr)	6
BW = child body weight (kg)	15
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	6
DY = days per year (day/year)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

SHALLOW AND DEEP GROUNDWATER

COPC	Concentration Carcinogen (mg/l)	Ingestion Rate (L/day) Child	Exposure Frequency (day/year) Child	Exposure Duration (year) Child	Body Weight (kg) Child	Average Carc Time (days)	Carc Dose (mg/kg-day) Child	Slope Factor (mg/kg-day)-1	Carcinogenic Risk Child	Percent Carcinogenic Risk Child	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day) Child	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
1,2-Dichloroethene (total)	0.014	1	350	6	15	25550	7.5E-05	0.0E+00	0.0E+00	0%	2190	8.7E-04	9.0E-03	9.7E-02	1%
Trichloroethene	0.017	1	350	6	15	25550	9.6E-05	1.1E-02	1.1E-06	2%	2190	1.1E-03	6.0E-03	1.9E-01	1%
Benzene	0.005	1	350	6	15	25550	2.9E-05	2.9E-02	8.4E-07	1%	2190	3.4E-04	0.0E+00	0.0E+00	0%
Tetrachloroethene	0.009	1	350	6	15	25550	4.8E-05	5.2E-02	2.5E-06	4%	2190	5.5E-04	1.0E-02	5.5E-02	0%
Antimony	0.011	1	350	6	15	25550	6.3E-05	0.0E+00	0.0E+00	0%	2190	7.3E-04	4.0E-04	1.8E+00	10%
Arsenic	0.007	1	350	6	15	25550	3.6E-05	1.5E+00	5.4E-05	93%	2190	4.2E-04	3.0E-04	1.4E+00	8%
Iron	68.300	1	350	6	15	25550	3.7E-01	0.0E+00	0.0E+00	0%	2190	4.4E+00	3.0E-01	1.5E+01	80%
Lead	0.001	1	350	6	15	25550	7.7E-06	0.0E+00	0.0E+00	0%	2190	9.0E-05	0.0E+00	0.0E+00	0%
Vanadium	0.004	1	350	6	15	25550	2.2E-05	0.0E+00	0.0E+00	0%	2190	2.5E-04	7.0E-03	3.6E-02	0%
TOTAL									5.8E-05					1.8E+01	

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL CHILD

Dermal Contact from groundwater is calcuated as follows:

Intake (mg/kg-day) = CW * SA * PC * ET * EF * ED * CF/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
CW = contaminant concentration in water (mg/l)	
SA = child skin surface available for contact (cm2)	10000
PC = contaminant specific dermal permability (cm/hr)	Specific
ET = child exposure time (hours/day)	0.25
EF = child exposure frequency (days/yr)	350
ED = child exposure duration (years)	6
CF = volumetric conversion factor for water (1liter/1000 cm3)	0.001
BW = child body weight (kg)	15
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	6
DY = days per year (days)	365

Note: Inputs are site and scenario specific

SHALLOW AND DEEP GROUNDWATER

COPC	Concentration Carcinogen (mg/l)	Surface Area (cm2) Child	Dermal Permeability (cm/hr)	Exposure Time (hours/day) Child	Exposure Frequency (days/yr) Child	Exposure Duration (years) Child	Volumetric Conversion (L/m3)	Body Weight (kg) Child	Averaging Carc Time (days)	Carc Dose (mg/kg-day) Child	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk Child	Percent Carcinogenic Risk Child	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day) Child	Dermal. Adjust. Reference Dose (mg/kg-day)	Noncarc Risk Child	Percent Noncarcinogenic Risk Child
1,2-Dichloroethene (total)	0.014	10000	1.00E-02	0.25	350	6	0.001	15	25550	1.9E-06	0.0E+00	0.0E+00	0%	2190	2.2E-05	7.2E-03	3.0E-03	1%
Trichloroethene	0.017	10000	1.60E-02	0.25	350	6	0.001	15	25550	3.8E-06	1.4E-02	5.3E-08	5%	2190	4.5E-05	4.8E-03	9.3E-03	4%
Benzene	0.005	10000	2.10E-02	0.25	350	6	0.001	15	25550	1.5E-06	3.6E-02	5.5E-08	5%	2190	1.8E-05	0.0E+00	0.0E+00	0%
Tetrachloroethene	0.009	10000	4.50E-02	0.25	350	6	0.001	15	25550	5.3E-06	6.5E-02	3.5E-07	31%	2190	6.2E-05	8.0E-03	7.8E-03	3%
Antimony	0.011	10000	1.00E-03	0.25	350	6	0.001	15	25550	1.0E-07	0.0E+00	0.0E+00	0%	2190	1.8E-06	8.0E-05	2.3E-02	9%
Arsenic	0.007	10000	1.00E-03	0.25	350	6	0.001	15	25550	9.0E-08	7.5E+00	6.7E-07	60%	2190	1.0E-06	6.0E-05	1.7E-02	7%
Iron	68.300	10000	1.00E-03	0.25	350	6	0.001	15	25550	9.4E-04	0.0E+00	0.0E+00	0%	2190	1.1E-02	6.0E-02	1.8E-01	75%
Lead	0.001	10000	4.00E-06	0.25	350	6	0.001	15	25550	7.7E-11	0.0E+00	0.0E+00	0%	2190	9.0E-10	0.0E+00	0.0E+00	0%
Vanadium	0.004	10000	1.00E-03	0.25	350	6	0.001	15	25550	5.4E-08	0.0E+00	0.0E+00	0%	2190	6.3E-07	1.4E-03	4.5E-04	0%
TOTAL												1.1E-06					2.4E-01	

GROUNDWATER INHALATION - RME CASE
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL CHILD

CHILD CHEMICAL	C rme mg/kg/shwr	ED y	EF shwr/y	AT d	ATC d	CDI mg/kg/d	CDIC mg/kg/d	RFDinh mg/kg/d	PFinh (mg/kg/d)^-1	HI	CR	% CONTRIB NC RISK	% CONTRIB CARC RISK
1,2-Dichloroethene (total)	9.06E-04	6	350	2190	25550	8.7E-04	7.4E-05	0.0E+00	0.0E+00	---	0.0E+00	0%	0%
Trichloroethene	1.04E-03	6	350	2190	25550	9.9E-04	8.5E-05	0.0E+00	6.0E-03	---	5.1E-07	0%	38%
Benzene	3.14E-04	6	350	2190	25550	3.0E-04	2.6E-05	1.7E-03	2.9E-02	1.8E-01	7.5E-07	100%	56%
Tetrachloroethene	4.78E-04	6	350	2190	25550	4.6E-04	3.9E-05	0.0E+00	2.0E-03	---	8.0E-08	0%	6%
										1.8E-01	1.3E-06		

CURRENT ADULT TRESPASSER

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
ADULT TRESPASSER

Intake from ingestion of soil is calculated as follows:

Intake (mg/kg-day) = C * CF * EF * ED * IR/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = adult exposure frequency (days/yr)	43
ED = adult exposure duration (yr)	30
IR = adult soil ingestion rate (mg/day)	50
BW = adult body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	30
DY = days per year (days/year)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration (mg/kg)	Exposure Frequency (days/yr) Adult	Exposure Duration (yr) Adult	Conversion Factor (kg/mg)	Ingestion Rate (mg/day) Adult	Body Weight (kg) Adult	Average Carc Time (days)	Carc Dose (mg/kg/day) Adult	Slope Factor (mg/kg/day)-1	Carcinogenic Risk Adult	Percent Carcinogenic Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day) Adult	Reference Dose (mg/kg/day)	Noncarcinogeni Risk Adult	Percent Noncarcinogenic Risk Adult
Benzo(a)anthracene	0.506	43	30	1E-06	50	70	25550	1.8E-08	7.3E-01	1.3E-08	4%	10950	4.3E-08	0.0E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.559	43	30	1E-06	50	70	25550	2.0E-08	7.3E-01	1.5E-08	4%	10950	4.7E-08	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.527	43	30	1E-06	50	70	25550	1.9E-08	7.3E+00	1.4E-07	39%	10950	4.4E-08	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.353	43	30	1E-06	50	70	25550	1.3E-08	7.3E-01	9.3E-09	3%	10950	3.0E-08	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.228	43	30	1E-06	50	70	25550	8.2E-09	7.3E+00	6.0E-08	17%	10950	1.9E-08	0.0E+00	0.0E+00	0%
Dieldrin	0.044	43	30	1E-06	50	70	25550	1.6E-09	1.6E+01	2.5E-08	7%	10950	3.7E-09	5.0E-05	7.4E-05	3%
Arsenic	1.678	43	30	1E-06	50	70	25550	6.1E-08	1.5E+00	9.1E-08	26%	10950	1.4E-07	3.0E-04	4.7E-04	19%
Iron	4341.750	43	30	1E-06	50	70	25550	1.6E-04	0.0E+00	0.0E+00	0%	10950	3.7E-04	3.0E-01	1.2E-03	50%
Vanadium	56.301	43	30	1E-06	50	70	25550	2.0E-06	0.0E+00	0.0E+00	0%	10950	4.7E-06	7.0E-03	6.8E-04	28%
TOTAL										3.5E-07					2.4E-03	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
ADULT TRESPASSER

Dermal contact with soil is calculated as follows:

Intake (mg/kg-day) = C * CF * SA * AF * Abs * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	
CF = conversion factor (kg/mg)	1E-06
SA = adult exposed skin surface area (cm2)	5000
AF = soil to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless)	Specific
EF = adult exposure frequency (events/yr)	43
ED = adult exposure duration (years)	30
BW = adult body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	30
DY = day per year (day/yr)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration (mg/kg)	Conversion Factor (kg/mg)	Surface Area (cm2) Adult	Adherence Factor (mg/cm2)	Fraction Absorbed (%)	Exposure Frequency (events/yr) Adult	Exposure Duration (yrs) Adult	Body Weight (kg) Adult	Average Carc Time (days)	Carc Dose (mg/kg/day) Adult	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk Adult	Percent Carcinogenic Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult
Benzo(a)anthracene	0.506	1E-06	5000	1	0.01	43	30	70	25550	1.8E-08	1.5E+00	2.7E-08	5%	10950	4.3E-08	0.0E+00	0.0E+00
Benzo(b)fluoranthene	0.559	1E-06	5000	1	0.01	43	30	70	25550	2.0E-08	1.5E+00	2.9E-08	5%	10950	4.7E-08	0.0E+00	0.0E+00
Benzo(a)pyrene	0.527	1E-06	5000	1	0.01	43	30	70	25550	1.9E-08	1.5E+01	2.8E-07	49%	10950	4.4E-08	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	0.353	1E-06	5000	1	0.01	43	30	70	25550	1.3E-08	1.5E+00	1.9E-08	3%	10950	3.0E-08	0.0E+00	0.0E+00
Dibenzo(a,h)anthracene	0.228	1E-06	5000	1	0.01	43	30	70	25550	8.2E-09	1.5E+01	1.2E-07	21%	10950	1.9E-08	0.0E+00	0.0E+00
Dieldrin	0.044	1E-06	5000	1	0.01	43	30	70	25550	1.6E-09	3.2E+01	5.1E-08	9%	10950	3.7E-09	2.5E-05	1.5E-04
Arsenic	1.678	1E-06	5000	1	0.001	43	30	70	25550	6.1E-09	7.5E+00	4.5E-08	8%	10950	1.4E-08	6.0E-05	2.4E-04
Iron	4341.750	1E-06	5000	1	0.001	43	30	70	25550	1.6E-05	0.0E+00	0.0E+00	0%	10950	3.7E-05	6.0E-02	6.1E-04
Vanadium	56.301	1E-06	5000	1	0.001	43	30	70	25550	2.0E-07	0.0E+00	0.0E+00	0%	10950	4.7E-07	1.4E-03	3.4E-04
TOTAL												5.7E-07					1.3E-03

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
ADULT TRESPASSER

Intake from the inhalation of particulates is calculated as follows:

Intake (mg/kg-day) = (C * EF * ED * IR * 1/PEF)/(BW * ATc or ATnc * DY)

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	Specific
CSF = carcinogenic slope factor	Specific
RfD = reference dose for noncarcinogen	Specific
IR = inhalation rate (m3)	20
EF = adult exposure frequency (days)	43
ED = adult exposure duration (years)	30
BW = adult body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	30
DY = day per year (day/yr)	365
PEF = particulate emission factor (m3/kg)	1.32E+09

COPC	Concentration Carcinogen (mg/kg)	Particulate Emission Factor (m3/kg)	Exposure Frequency (events/yr)	Inhalation Rate (m3/day)	Exposure Duration (yrs)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Contribution to Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Benzo(a)anthracene	0.506	1.3E+09	43	20	30	70	25550	5.5E-12	6.1E-01	3.4E-12	1%	10950	1.3E-11	0.0E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.559	1.3E+09	43	20	30	70	25550	6.1E-12	6.1E-01	3.7E-12	1%	10950	1.4E-11	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.527	1.3E+09	43	20	30	70	25550	5.8E-12	6.1E+00	3.5E-11	10%	10950	1.3E-11	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.353	1.3E+09	43	20	30	70	25550	3.9E-12	6.1E-01	2.4E-12	1%	10950	9.0E-12	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.228	1.3E+09	43	20	30	70	25550	2.5E-12	6.1E+00	1.5E-11	4%	10950	5.8E-12	0.0E+00	0.0E+00	0%
Dieldrin	0.044	1.3E+09	43	20	30	70	25550	4.8E-13	1.6E+01	7.7E-12	2%	10950	1.1E-12	0.0E+00	0.0E+00	0%
Arsenic	1.678	1.3E+09	43	20	30	70	25550	1.8E-11	1.5E+01	2.8E-10	80%	10950	4.3E-11	0.0E+00	0.0E+00	0%
Iron	4341.750	1.3E+09	43	20	30	70	25550	4.7E-08	0.0E+00	0.0E+00	0%	10950	1.1E-07	0.0E+00	0.0E+00	0%
Vanadium	56.301	1.3E+09	43	20	30	70	25550	6.2E-10	0.0E+00	0.0E+00	0%	10950	1.4E-09	0.0E+00	0.0E+00	0%
TOTAL										3.4E-10					0.0E+00	

FUTURE ADULT RESIDENT

SUBSURFACE SOIL INGESTION EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

Intake from ingestion of soil is calculated as follows:

Intake (mg/kg-day) = C * CF * EF * ED * IR/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = adult exposure frequency (days/yr)	350
ED = adult exposure duration (yr)	30
IR = adult soil ingestion rate (mg/day)	100
BW = adult body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	30
DY = days per year (days/year)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration (mg/kg)	Exposure Frequency (days/yr) Adult	Exposure Duration (yr) Adult	Conversion Factor (kg/mg)	Ingestion Rate (mg/day) Adult	Body Weight (kg) Adult	Average Carc Tim (days)	Carc Dose (mg/kg/day) Adult	Slope Factor (mg/kg/day)-	Carcinogenic Risk Adult	Percent Carcinogenic Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day) Adult	Reference Dose (mg/kg/day)	Noncarcinogenic Risk Adult	Percent Noncarcinogeni Risk Adult
Aluminum	16587.65	350	30	1E-06	100	70	25550	9.7E-03	0.0E+00	0.0E+00	0%	10950	2.3E-02	1.0E+00	2.3E-02	29%
Arsenic	1.99	350	30	1E-06	100	70	25550	1.2E-06	1.5E+00	1.8E-06	100%	10950	2.7E-06	3.0E-04	9.1E-03	12%
Iron	9974.29	350	30	1E-06	100	70	25550	5.9E-03	0.0E+00	0.0E+00	0%	10950	1.4E-02	3.0E-01	4.6E-02	59%
TOTAL										1.8E-06					7.7E-02	

SUBSURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

Dermal contact with soil is calculated as follows:

Intake (mg/kg-day) = C * CF * SA * AF * Abs * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	
CF = conversion factor (kg/mg)	1E-06
SA = adult exposed skin surface area (cm2)	5800
AF = soil to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless)	Specific
EF = adult exposure frequency (events/yr)	350
ED = adult exposure duration (years)	30
BW = adult body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	30
DY = day per year (day/yr)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration (mg/kg)	Conversion Factor (kg/mg)	Surface Area (cm2) Adult	Adherence Factor (mg/cm2)	Fraction Absorbed (%)	Exposure Frequency (events/yr) Adult	Exposure Duration (yrs) Adult	Body Weight (kg) Adult	Average Carc Time (days)	Carc Dose (mg/kg/day) Adult	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk Adult	Percent Carcinogenic Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Aluminum	16587.65	1E-06	5800	1	0.001	350	30	70	25550	5.6E-04	0.0E+00	0.0E+00	0%	10950	1.3E-03	2.0E-01	6.6E-03	29%
Arsenic	1.99	1E-06	5800	1	0.001	350	30	70	25550	6.8E-08	7.5E+00	5.1E-07	100%	10950	1.6E-07	6.0E-05	2.6E-03	12%
Iron	9974.29	1E-06	5800	1	0.001	350	30	70	25550	3.4E-04	0.0E+00	0.0E+00	0%	10950	7.9E-04	6.0E-02	1.3E-02	59%
TOTAL												5.1E-07					2.2E-02	

SUBSURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

Intake from the inhalation of particulates is calculated as follows:

Intake (mg/kg-day) = (C * EF * ED * IR * 1/PEF)/(BW * ATc or ATnc * DY)

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	Calculated
CSF = carcinogenic slope factor	Specific
RfD = reference dose for noncarcinogen	Specific
IR = inhalation rate (m3)	20
EF = adult exposure frequency (days)	350
ED = adult exposure duration (years)	30
BW = adult body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	30
DY = day per year (day/yr)	365
PEF = particulate emission factor (m3/kg)	1.32E+09

COPC	Concentration (mg/kg)	Particulate Emission Factor (m3/kg)	Exposure Frequency (events/yr)	Inhalation Rate (m3/day)	Exposure Duration (yrs)	Body Weight (kg)	Average Carc Tim (days)	Carc Dose (mg/kg/day)	Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Conrtribution to Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenl Risk
Aluminum	16587.65	1.3E+09	350	20	30	70	25550	1.5E-06	0.0E+00	0.0E+00	0%	10950	3.4E-06	0.0E+00	0.0E+00	0%
Arsenic	1.99	1.3E+09	350	20	30	70	25550	1.8E-10	1.5E+01	2.7E-09	100%	10950	4.1E-10	0.0E+00	0.0E+00	0%
Iron	9974.29	1.3E+09	350	20	30	70	25550	8.9E-07	0.0E+00	0.0E+00	0%	10950	2.1E-06	0.0E+00	0.0E+00	0%
TOTAL										2.7E-09					0.0E+00	

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

Intake from drinking water is calculated as follows:

Intake (mg/kg-day) = C * IRw * EF * ED/BW * AT or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in water (mg/l)	
IRw = adult daily water ingestion rate (L/D	2
EF = adult exposure frequency (days/yr)	350
ED = adult exposure duration (yr)	30
BW = adult body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen	30
DY = days per year (day/year)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

Shallow and Deep Groundwater

COPC	Concentration (mg/l)	Ingestion Rate (L/day) Adult	Exposure Frequency (day/year) Adult	Exposure Duration (year) Adult	Body Weight (kg) Adult	Average Carc Tim (days)	Carc Dose (mg/kg-day) Adult	Slope Factor (mg/kg-day)-1	Carcinogenic Risk Adult	Percent Carcinogenic Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day) Adult	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcionogenic Risk Adult
1,2-Dichloroethene (total)	0.014	2	350	30	70	25550	1.6E-04	0.0E+00	0.0E+00	0%	10950	3.7E-04	9.0E-03	4.2E-02	1%
Trichloroethene	0.017	2	350	30	70	25550	2.0E-04	1.1E-02	2.3E-06	2%	10950	4.8E-04	6.0E-03	8.0E-02	1%
Benzene	0.005	2	350	30	70	25550	6.2E-05	2.9E-02	1.8E-06	1%	10950	1.4E-04	0.0E+00	0.0E+00	0%
Tetrachloroethene	0.009	2	350	30	70	25550	1.0E-04	5.2E-02	5.3E-06	4%	10950	2.4E-04	1.0E-02	2.4E-02	0%
Antimony	0.011	2	350	30	70	25550	1.3E-04	0.0E+00	0.0E+00	0%	10950	3.1E-04	4.0E-04	7.8E-01	10%
Arsenic	0.007	2	350	30	70	25550	7.7E-05	1.5E+00	1.2E-04	93%	10950	1.8E-04	3.0E-04	6.0E-01	8%
Iron	68.300	2	350	30	70	25550	8.0E-01	0.0E+00	0.0E+00	0%	10950	1.9E+00	3.0E-01	6.2E+00	80%
Lead	0.001	2	350	30	70	25550	1.7E-05	0.0E+00	0.0E+00	0%	10950	3.9E-05	0.0E+00	0.0E+00	0%
Vanadium	0.004	2	350	30	70	25550	4.6E-05	0.0E+00	0.0E+00	0%	10950	1.1E-04	7.0E-03	1.5E-02	0%
TOTAL									1.2E-04					7.8E+00	

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

Dermal Contact from groundwater is calculated as follows:

Intake (mg/kg-day) = CW * SA * PC * ET * EF * ED * CF/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
CW = contaminant concentration in water (mg/l)	
SA = adult skin surface available for contact (cm2)	23000
PC = contaminant specific dermal permability (cm/hr)	Specific
ET = adult exposure time (hours/day)	0.25
EF = adult exposure frequency (days/yr)	350
ED = adult exposure duration (years)	30
CF = volumetric conversion factor for water (1liter/1000 cm3)	0.001
BW = adult body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	30
DY = days per year (days)	365

SHALLOW AND DEEP GROUNDWATER

COPC	Concentration Carcinogen (mg/l)	Surface Area (cm2) Adult	Dermal Permeability (cm/hr)	Exposure Time (hours/day) Adult	Exposure Frequency (days/yr) Adult	Exposure Duration (years) Adult	Volumetric Conversion (L/m3)	Body Weight (kg) Adult	Averaging Carc Time (years)	Carc Dose (mg/kg-day) Adult	Derm. Adj. Slope Factor (mg/kg-day)-1	Carcinogenic Risk Adult	Percent Carcinogenic Risk Adult	Average Noncarc Time (years)	Noncarc Dose (mg/kg-day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarc Risk Adult	Percent Noncarcinogenic Risk Adult
1,2-Dichloroethene (total)	0.014	23000	1.00E-02	0.25	350	30	0.001	70	25550	4.6E-06	0.0E+00	0.0E+00	0%	10950	1.1E-05	7.2E-03	1.5E-03	1%
Trichloroethene	0.017	23000	1.60E-02	0.25	350	30	0.001	70	25550	9.4E-06	1.4E-02	1.3E-07	5%	10950	2.2E-05	4.8E-03	4.6E-03	4%
Benzene	0.005	23000	2.10E-02	0.25	350	30	0.001	70	25550	3.7E-06	3.6E-02	1.4E-07	5%	10950	8.7E-06	0.0E+00	0.0E+00	0%
Tetrachloroethene	0.009	23000	4.50E-02	0.25	350	30	0.001	70	25550	1.3E-05	6.5E-02	8.6E-07	31%	10950	3.1E-05	8.0E-03	3.8E-03	3%
Antimony	0.011	23000	1.00E-03	0.25	350	30	0.001	70	25550	3.9E-07	0.0E+00	0.0E+00	0%	10950	9.0E-07	8.0E-05	1.1E-02	9%
Arsenic	0.007	23000	1.00E-03	0.25	350	30	0.001	70	25550	2.2E-07	7.5E+00	1.7E-06	60%	10950	5.2E-07	6.0E-05	8.6E-03	7%
Iron	68.300	23000	1.00E-03	0.25	350	30	0.001	70	25550	2.3E-03	0.0E+00	0.0E+00	0%	10950	5.4E-03	6.0E-02	9.0E-02	75%
Lead	0.001	23000	4.00E-06	0.25	350	30	0.001	70	25550	1.9E-10	0.0E+00	0.0E+00	0%	10950	4.4E-10	0.0E+00	0.0E+00	0%
Vanadium	0.004	23000	1.00E-03	0.25	350	30	0.001	70	25550	1.3E-07	0.0E+00	0.0E+00	0%	10950	3.1E-07	1.4E-03	2.2E-04	0%
TOTAL												2.8E-06					1.2E-01	

GROUNDWATER INHALATION EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULT

ADULT CHEMICAL	C rme mg/kg/shwr	ED y	EF shwr/y	AT d	ATC d	CDI mg/kg/d	CDIC mg/kg/d	RFD mg/kg/d	PF (mg/kg/d)^-1	HI	CR	% CONTRIB NC RISK	% CONTRIB CARC RISK
1,2-Dichloroethene (total)	1.5E-04	30	350	10950	25550	1.4E-04	6.1E-05	0.0E+00	0.0E+00	—	0.0E+00	0%	0%
Trichloroethene	1.7E-04	30	350	10950	25550	1.6E-04	7.0E-05	0.0E+00	6.0E-03	—	4.2E-07	0%	38%
Benzene	5.2E-05	30	350	10950	25550	5.0E-05	2.1E-05	1.7E-03	2.9E-02	2.9E-02	6.2E-07	100%	56%
Tetrachloroethene	7.9E-05	30	350	10950	25550	7.6E-05	3.2E-05	0.0E+00	2.0E-03	—	6.6E-08	0%	6%
										2.9E-02	1.1E-06		

FUTURE CONSTRUCTION WORKER

SURFACE SOIL INGESTION EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE CONSTRUCTION WORKER

Intake from ingestion of soil is calculated as follows:

Intake (mg/kg-day) = C * CF * EF * ED * IR/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:		INPUTS
C = contaminant concentration in soil (mg/kg)		
CF = conversion for kg to mg		1E-06
EF = adult exposure frequency (days/yr)		90
ED = adult exposure duration (yr)		1
IR = adult soil ingestion rate (mg/day)		480
BW = adult body weight (kg)		70
ATc = averaging time for carcinogen (yr)		70
ATnc = averaging time for noncarcinogen (yr)		1
DY = days per year (days/year)		365
CSF = cancer slope factor (mg/kg-day)-1	specific	
RfD = reference dose (mg/kg-day)	specific	

COPC	Concentration (mg/kg)	Exposure Frequency (days/yr) Adult	Exposure Duration (yr) Adult	Conversion Factor (kg/mg)	Ingestion Rate (mg/day) Adult	Body Weight (kg) Adult	Average Carc Time (days)	Carc Dose (mg/kg/day) Adult	Slope Factor (mg/kg/day)-1	Carcinogenic Risk Adult	Percent Carcinogenic Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day) Adult	Reference Dose (mg/kg/day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Benzo(a)anthracene	0.506	90	1	1E-06	480	70	25550	1.2E-06	7.3E-01	8.9E-07	4%	365	8.6E-07	0.0E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.559	90	1	1E-06	480	70	25550	1.4E-06	7.3E-01	9.9E-07	4%	365	9.5E-07	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.527	90	1	1E-06	480	70	25550	1.3E-06	7.3E+00	9.3E-06	39%	365	8.9E-07	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.353	90	1	1E-06	480	70	25550	8.5E-07	7.3E-01	6.2E-07	3%	365	6.0E-07	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.228	90	1	1E-06	480	70	25550	5.5E-07	7.3E+00	4.0E-06	17%	365	3.9E-07	0.0E+00	0.0E+00	0%
Dieldrin	0.044	90	1	1E-06	480	70	25550	1.1E-07	1.6E+01	1.7E-06	7%	365	7.4E-08	5.0E-05	1.5E-03	3%
Arsenic	1.678	90	1	1E-06	480	70	25550	4.1E-06	1.5E+00	6.1E-06	26%	365	2.8E-06	3.0E-04	9.5E-03	19%
Iron	4341.750	90	1	1E-06	480	70	25550	1.0E-04	0.0E+00	0.0E+00	0%	365	7.3E-03	3.0E-01	2.4E-02	50%
Vanadium	58.301	90	1	1E-06	480	70	25550	1.4E-06	0.0E+00	0.0E+00	0%	365	9.5E-05	7.0E-03	1.4E-02	28%
TOTAL										2.4E-07					4.9E-02	

SURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE CONSTRUCTION WORKER

Dermal contact with soil is calculated as follows:

Intake (mg/kg-day) = C * CF * SA * AF * Abs * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	
CF = conversion factor (kg/mg)	1E-06
SA = adult exposed skin surface area (cm2)	4300
AF = soil to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless)	Specific
EF = adult exposure frequency (events/yr)	90
ED = adult exposure duration (years)	1
BW = adult body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	1
DY = day per year (day/yr)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration (mg/kg)	Conversion Factor (kg/mg)	Surface Area (cm2) Adult	Adherence Factor (mg/cm2)	Fraction Absorbed (%)	Exposure Frequency (events/yr) Adult	Exposure Duration (yrs) Adult	Body Weight (kg) Adult	Average Carc Time (days)	Carc Dose (mg/kg/day) Adult	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk Adult	Percent Carcinogenic Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day) Adult	Dermally Adjusted Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Benzo(a)anthracene	0.51	1E-06	4300	1	0.01	90	1	70	25550	1.1E-09	1.5E+00	1.6E-09	5%	365	7.7E-08	0.0E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.559	1E-06	4300	1	0.01	90	1	70	25550	1.2E-09	1.5E+00	1.8E-09	5%	365	8.5E-08	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.527	1E-06	4300	1	0.01	90	1	70	25550	1.1E-09	1.5E+01	1.7E-08	49%	365	8.0E-08	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.353	1E-06	4300	1	0.01	90	1	70	25550	7.6E-10	1.5E+00	1.1E-09	3%	365	5.4E-08	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.228	1E-06	4300	1	0.01	90	1	70	25550	4.9E-10	1.5E+01	7.2E-09	21%	365	3.5E-08	0.0E+00	0.0E+00	0%
Dieldrin	0.044	1E-06	4300	1	0.01	90	1	70	25550	9.5E-11	3.2E+01	3.0E-09	9%	365	6.7E-09	2.5E-05	2.7E-04	11%
Arsenic	1.678	1E-06	4300	1	0.001	90	1	70	25550	3.6E-10	7.5E+00	2.7E-09	8%	365	2.5E-08	6.0E-05	4.2E-04	18%
Iron	4341.750	1E-06	4300	1	0.001	90	1	70	25550	9.4E-07	0.0E+00	0.0E+00	0%	365	6.8E-05	6.0E-02	1.1E-03	46%
Vanadium	58.301	1E-06	4300	1	0.001	90	1	70	25550	1.2E-08	0.0E+00	0.0E+00	0%	365	8.5E-07	1.4E-03	6.1E-04	25%
TOTAL												3.4E-08					2.4E-03	

SURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE CONSTRUCTION WORKER

Intake from the inhalation of particulates is calculated as follows:

Intake (mg/kg-day) = (C * EF * ED * IR * 1/PEF)/(BW * ATc or ATnc * DY)

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	Specific
CSF = carcinogenic slope factor	Specific
RfD = reference dose for noncarcinogen	Specific
IR = inhalation rate (m3)	20
EF = adult exposure frequency (days)	90
ED = adult exposure duration (years)	1
BW = adult body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	1
DY = day per year (day/yr)	365
PEF = particulate emission factor (m3/kg)	1.32E+09

COPC	Concentration (mg/kg)	Particulate Emission Factor (m3/kg)	Exposure Frequency (events/yr)	Inhalation Rate (m3/day)	Exposure Duration (yrs)	Body Weight (kg)	Average Carc Time (days)	Carc Dose (mg/kg/day)	Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Contribution to Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Benzo(a)anthracene	0.506	1.32E+09	90	20	1	70	25550	3.9E-13	6.1E-01	2.4E-13	1%	365	2.7E-11	0.0E+00	0.0E+00	0%
Benzo(b)fluoranthene	0.559	1.32E+09	90	20	1	70	25550	4.3E-13	6.1E-01	2.6E-13	1%	365	3.0E-11	0.0E+00	0.0E+00	0%
Benzo(a)pyrene	0.527	1.32E+09	90	20	1	70	25550	4.0E-13	6.1E+00	2.5E-12	10%	365	2.8E-11	0.0E+00	0.0E+00	0%
Indeno(1,2,3-cd)pyrene	0.353	1.32E+09	90	20	1	70	25550	2.7E-13	6.1E-01	1.6E-13	1%	365	1.9E-11	0.0E+00	0.0E+00	0%
Dibenzo(a,h)anthracene	0.228	1.32E+09	90	20	1	70	25550	1.7E-13	6.1E+00	1.1E-12	4%	365	1.2E-11	0.0E+00	0.0E+00	0%
Dieldrin	0.044	1.32E+09	90	20	1	70	25550	3.4E-14	1.6E+01	5.4E-13	2%	365	2.3E-12	0.0E+00	0.0E+00	0%
Arsenic	1.678	1.32E+09	90	20	1	70	25550	1.3E-12	1.5E+01	1.9E-11	80%	365	8.0E-11	0.0E+00	0.0E+00	0%
Iron	4341.750	1.32E+09	90	20	1	70	25550	3.3E-09	0.0E+00	0.0E+00	0%	365	2.3E-07	0.0E+00	0.0E+00	0%
Vanadium	56.301	1.32E+09	90	20	1	70	25550	4.3E-11	0.0E+00	0.0E+00	0%	365	3.0E-09	0.0E+00	0.0E+00	0%
TOTAL										2.4E-11					0.0E+00	

SUBSURFACE SOIL INGESTION EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE CONSTRUCTION WORKER

Intake from ingestion of soil is calculated as follows:

Intake (mg/kg-day) = C * CF * EF * ED * IR/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	
CF = conversion for kg to mg	1E-06
EF = adult exposure frequency (days/yr)	90
ED = adult exposure duration (yr)	1
IR = adult soil ingestion rate (mg/day)	480
BW = adult body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	1
DY = days per year (days/year)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration Carcinogen (mg/kg)	Exposure Frequency (days/yr) Adult	Exposure Duration (yr) Adult	Conversion Factor (kg/mg)	Ingestion Rate (mg/day) Adult	Body Weight (kg) Adult	Average Carc Tim (days)	Carc Dose (mg/kg/day) Adult	Slope Factor (mg/kg/day)-1	Carcinogenic Risk Adult	Percent Carcinogenic Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day) Adult	Reference Dose (mg/kg/day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Aluminum	16587.646	90	1	1E-06	480	70	25550	4.0E-04	0.0E+00	0.0E+00	0%	365	2.8E-02	1.0E+00	2.8E-02	29%
Arsenic	1.989	90	1	1E-06	480	70	25550	4.8E-08	1.5E+00	7.2E-08	100%	365	3.4E-06	3.0E-04	1.1E-02	12%
Iron	9974.290	90	1	1E-06	480	70	25550	2.4E-04	0.0E+00	0.0E+00	0%	365	1.7E-02	3.0E-01	5.6E-02	59%
TOTAL										7.2E-08					9.5E-02	

SUBSURFACE SOIL DERMAL CONTACT EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE CONSTRUCTION WORKER

Dermal contact with soil is calculated as follows:

Intake (mg/kg-day) = C * CF * SA * AF * Abs * EF * ED/BW * ATc or ATnc * DY

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	
CF = conversion factor (kg/mg)	1E-06
SA = adult exposed skin surface area (cm2)	4300
AF = soil to skin adherence factor (mg/cm2)	1
Abs = fraction absorbed (unitless)	Specific
EF = adult exposure frequency (events/yr)	90
ED = adult exposure duration (years)	1
BW = adult body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	1
DY = day per year (day/yr)	365
CSF = cancer slope factor (mg/kg-day)-1	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration Carcinogen (mg/kg)	Conversion Factor (kg/mg)	Surface Area (cm2) Adult	Adherence Factor (mg/cm2)	Fraction Absorbed (%)	Exposure Frequency (events/yr) Adult	Exposure Duration (yrs) Adult	Body Weight (kg) Adult	Average Carc Time (days)	Carc Dose (mg/kg/day) Adult	Dermal Adjust. Slope Factor (mg/kg-day)-1	Carcinogenic Risk Adult	Percent Carcinogenic Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day) Adult	Dermally-Adjusted Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Aluminum	16587.646	1E-06	4300	1	0.001	90	1	70	25550	3.6E-06	0.0E+00	0.0E+00	0%	365	2.5E-04	2.0E-01	1.3E-03	29%
Arsenic	1.989	1E-06	4300	1	0.001	90	1	70	25550	4.3E-10	7.5E+00	3.2E-09	100%	365	3.0E-08	6.0E-05	5.0E-04	12%
Iron	9974.290	1E-06	4300	1	0.001	90	1	70	25550	2.2E-06	0.0E+00	0.0E+00	0%	365	1.5E-04	6.0E-02	2.5E-03	59%
TOTAL												3.2E-09					4.3E-03	

SUBSURFACE SOIL PARTICULATE INHALATION EXPOSURE ASSESSMENT
OPERABLE UNIT NO. 6 (SITE 86)
REMEDIAL INVESTIGATION CTO-0303
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE CONSTRUCTION WORKER

Intake from the inhalation of particulates is calculated as follows:

Intake (mg/kg-day) = (C * EF * ED * IR * 1/PEF)/(BW * ATc or ATnc * DY)

Risk = Intake * CSF or /RfD

Where:	INPUTS
C = contaminant concentration in soil (mg/kg)	Specific
CSF = carcinogenic slope factor	Specific
RfD = reference dose for noncarcinogen	Specific
IR = inhalation rate (m3)	20
EF = adult exposure frequency (days)	90
ED = adult exposure duration (years)	1
BW = adult body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	1
DY = day per year (day/yr)	365
PEF = particulate emission factor (m3/kg)	1.32E+09

COPC	Concentration Carcinogen (mg/kg)	Particulate Emission Factor (m3/kg)	Exposure Frequency (events/yr)	Inhalation Rate (m3/day)	Exposure Duration (yrs)	Body Weight (kg)	Average Carc Tim (days)	Carc Dose (mg/kg/day)	Slope Factor (mg/kg-day)-1	Carcinogenic Risk	Percent Contribution to Risk	Average Noncarc Time (days)	Noncarc Dose (mg/kg/day)	Reference Dose (mg/kg-day)	Noncarcinogenic Risk	Percent Noncarcinogenic Risk
Aluminum	16587.646	1.32E+09	90	20	1	70	25550	1.3E-08	0.0E+00	0.0E+00	0%	365	8.9E-07	0.0E+00	0.0E+00	0%
Arsenic	1.989	1.32E+09	90	20	1	70	25550	1.5E-12	1.5E+01	2.3E-11	100%	365	1.1E-10	0.0E+00	0.0E+00	0%
Iron	9974.290	1.32E+09	90	20	1	70	25550	7.6E-09	0.0E+00	0.0E+00	0%	365	5.3E-07	0.0E+00	0.0E+00	0%
TOTAL										2.3E-11					0.0E+00	

SHOWER MODEL CALCULATIONS

site 86 groundwater
11-Jan-96

CAS No.	TARGET COMPOUND LIST CONSTITUENT	OVERALL MASS TRANSFER COEFFICIENT (KL) (cm/hr)	HENRY'S LAW CONSTANT (H) (atm-m3/mol-K)	GAS CONSTANT (R) (at,-m3/ mol-K)	ABSOLUTE TEMP. (T1) (K)	GAS CONST. ' ABS. TEMP (RT)	GAS-FILM MASS TRANSF. COEFFICIENT (kg) (cm/hr)	LIQUID-FILM MASS TRANS COEFFICIEN (kl) (cm/hr)	CARBON DIOXIDE TRANS. COEFF. (kl-CO2) (cm/hr)	WATER TRANS. COEFF. (kg-H2O) (cm/hr)	MOLECULAR WEIGHT (gram/mole)	RECIPROCAL OF (kl)	(RT)/ ((H)'(kg))	OVERALL M TRANSF. C TEMP. CO (KaL) (cm/hr)	WATER VISCOSITY (AT Ts) (Us) (cp)	WATER VISCOSITY (AT T1) (U1) (cp)	SHOWER WATER TEMP. (Ts) (K)	((T1)'(Us) ((Ts)'(U1)	CONCENTRATIO LEAVING SHWR DROPLET Cwd (ug/l)	SHOWER WATER CONCENTRATI Cwo (ug/l)	SHOWER DROPLET DIAMETER d (mm)
adult																					
540-59-0	1,1-Dichloroethene	1.26E+01	4.31E-03	8.20E-05	293.0	2.40E-02	1.28E+03	1.33E+01	20.0	3000.0	99.00	7.50E-02	4.36E-03	1.70E+01	0.596	1.002	318.0	5.48E-01	2.42E+00	5.60E+00	1.00
79-01-6	1,2-Dichloroethene (total)	1.30E+01	7.58E-03	8.20E-05	293.0	2.40E-02	1.29E+03	1.35E+01	20.0	3000.0	97.00	7.42E-02	2.45E-03	1.76E+01	0.596	1.002	318.0	5.48E-01	6.06E+00	1.37E+01	1.00
71-43-2	Chloroform	1.12E+01	2.87E-03	8.20E-05	293.0	2.40E-02	1.16E+03	1.21E+01	20.0	3000.0	119.40	8.24E-02	7.19E-03	1.51E+01	0.596	1.002	318.0	5.48E-01	7.90E-01	2.00E+00	1.00
127-18-4	Trichloroethene	1.13E+01	9.10E-03	8.20E-05	293.0	2.40E-02	1.11E+03	1.16E+01	20.0	3000.0	131.40	8.64E-02	2.38E-03	1.52E+01	0.596	1.002	318.0	5.48E-01	6.93E+00	1.74E+01	1.00
127-18-4	Benzene	1.13E+01	9.10E-03	8.20E-05	293.0	2.40E-02	1.11E+03	1.16E+01	20.0	3000.0	131.40	8.64E-02	2.38E-03	1.52E+01	0.596	1.002	318.0	5.48E-01	2.10E+00	5.28E+00	1.00
127-18-4	Tetrachloroethene	1.02E+01	2.90E-02	8.20E-05	293.0	2.40E-02	9.88E+02	1.03E+01	20.0	3000.0	165.80	9.71E-02	8.38E-04	1.38E+01	0.596	1.002	318.0	5.48E-01	3.20E+00	8.67E+00	1.00
child																					
540-59-0	1,1-Dichloroethane	1.26E+01	4.31E-03	8.20E-05	293.0	2.40E-02	1.28E+03	1.33E+01	20.0	3000.0	99.00	7.50E-02	4.36E-03	1.70E+01	0.596	1.002	318.0	5.48E-01	2.42E+00	5.60E+00	1.00
79-01-6	1,2-Dichloroethene (total)	1.30E+01	7.58E-03	8.20E-05	293.0	2.40E-02	1.29E+03	1.35E+01	20.0	3000.0	97.00	7.42E-02	2.45E-03	1.76E+01	0.596	1.002	318.0	5.48E-01	6.06E+00	1.37E+01	1.00
71-43-2	Chloroform	1.12E+01	2.87E-03	8.20E-05	293.0	2.40E-02	1.16E+03	1.21E+01	20.0	3000.0	119.40	8.24E-02	7.19E-03	1.51E+01	0.596	1.002	318.0	5.48E-01	7.90E-01	2.00E+00	1.00
127-18-4	Trichloroethene	1.13E+01	9.10E-03	8.20E-05	293.0	2.40E-02	1.11E+03	1.16E+01	20.0	3000.0	131.40	8.64E-02	2.38E-03	1.52E+01	0.596	1.002	318.0	5.48E-01	6.93E+00	1.74E+01	1.00
127-18-4	Benzene	1.13E+01	9.10E-03	8.20E-05	293.0	2.40E-02	1.11E+03	1.16E+01	20.0	3000.0	131.40	8.64E-02	2.38E-03	1.52E+01	0.596	1.002	318.0	5.48E-01	2.10E+00	5.28E+00	1.00
127-18-4	Tetrachloroethene	1.02E+01	2.90E-02	8.20E-05	293.0	2.40E-02	9.88E+02	1.03E+01	20.0	3000.0	165.80	9.71E-02	8.38E-04	1.38E+01	0.596	1.002	318.0	5.48E-01	3.20E+00	8.67E+00	1.00

site 86 groundwater
11-Jan-96

CAS No	TARGET COMPOUND LIST CONSTITUENT	SHOWER DROPLET DROP TIME ts (sec)	KaL*ts	60*d	-[KaL*ts] /[60*d]	exp [-KaL*ts/ 60*d]	INDOOR VOC GENERATION RATE (S) (ug/m3-min)	SHOWER WATER FLOW RATE (FR) (liter/min)	SHOWER ROOM AIR VOLUME (SV) (m3)	INDOOR AIR VOC CONC. AT TIME t Ca(t) (ug/m3)	AIR EXCHANGE RATE R (min-1)	SHOWER DURATION Ds (min)	TOTAL TIME DURATION t (min)	exp(R(Ds)	exp(-R(t))	INHALATION EXPOSURE PER SHOWER Einh (mg/kg/shwr)	VENTILATION RATE VR (liter/min)	BODY WEIGHT BW (kg)	exp(-R(Dt))	DURATION IN THE SHOWER ROOM Dt (min)	Ds + exp(-RDt)/R	exp(R(Ds Dt)] /R	(Ds Dt)	(VR * S)/ (BW)(R)(K)
adult																								
540-59-0	1,1-Dichloroethene	2.00	3.40E+01	6.00E+01	-5.67E-01	5.6701E-01	4.04E+00	10	6	1.75E+02	0.0083	12	15	4.06E-01	8.83E-01	5.98E-05	10	70	8.83E-01	15	1.184E+02	1.175E+02	-3	6.96E-05
79-01-6	1,2-Dichloroethene (total)	2.00	3.52E+01	6.00E+01	-5.87E-01	5.5593E-01	1.01E+01	10	6	4.37E+02	0.0083	12	15	4.06E-01	8.83E-01	1.49E-04	10	70	8.83E-01	15	1.184E+02	1.175E+02	-3	1.74E-04
71-43-2	Chloroform	2.00	3.02E+01	6.00E+01	-5.03E-01	6.0484E-01	1.32E+00	10	6	5.69E+01	0.0083	12	15	4.06E-01	8.83E-01	1.95E-05	10	70	8.83E-01	15	1.184E+02	1.175E+02	-3	2.27E-05
127-18-4	Trichloroethene	2.00	3.04E+01	6.00E+01	-5.07E-01	6.0221E-01	1.16E+01	10	6	5.00E+02	0.0083	12	15	4.06E-01	8.83E-01	1.71E-04	10	70	8.83E-01	15	1.184E+02	1.175E+02	-3	1.99E-04
127-18-4	Benzene	2.00	3.04E+01	6.00E+01	-5.07E-01	6.0221E-01	3.50E+00	10	6	1.51E+02	0.0083	12	15	4.06E-01	8.83E-01	5.18E-05	10	70	8.83E-01	15	1.184E+02	1.175E+02	-3	6.03E-05
127-18-4	Tetrachloroethene	2.00	2.76E+01	6.00E+01	-4.60E-01	6.3132E-01	5.33E+00	10	6	2.30E+02	0.0083	12	15	4.06E-01	8.83E-01	7.88E-05	10	70	8.83E-01	15	1.184E+02	1.175E+02	-3	9.17E-05
child																								
540-59-0	1,1-Dichloroethene	2.00	3.40E+01	6.00E+01	-5.67E-01	5.6701E-01	4.04E+00	10	6	1.75E+02	0.0083	12	15	4.06E-01	8.83E-01	3.63E-04	13	15	8.83E-01	15	1.184E+02	1.175E+02	-3	4.22E-04
79-01-6	1,2-Dichloroethene (total)	2.00	3.52E+01	6.00E+01	-5.87E-01	5.5593E-01	1.01E+01	10	6	4.37E+02	0.0083	12	15	4.06E-01	8.83E-01	9.06E-04	13	15	8.83E-01	15	1.184E+02	1.175E+02	-3	1.05E-03
71-43-2	Chloroform	2.00	3.02E+01	6.00E+01	-5.03E-01	6.0484E-01	1.32E+00	10	6	5.69E+01	0.0083	12	15	4.06E-01	8.83E-01	1.18E-04	13	15	8.83E-01	15	1.184E+02	1.175E+02	-3	1.38E-04
127-18-4	Trichloroethene	2.00	3.04E+01	6.00E+01	-5.07E-01	6.0221E-01	1.16E+01	10	6	5.00E+02	0.0083	12	15	4.06E-01	8.83E-01	1.04E-03	13	15	8.83E-01	15	1.184E+02	1.175E+02	-3	1.21E-03
127-18-4	Benzene	2.00	3.04E+01	6.00E+01	-5.07E-01	6.0221E-01	3.50E+00	10	6	1.51E+02	0.0083	12	15	4.06E-01	8.83E-01	3.14E-04	13	15	8.83E-01	15	1.184E+02	1.175E+02	-3	3.66E-04
127-18-4	Tetrachloroethene	2.00	2.76E+01	6.00E+01	-4.60E-01	6.3132E-01	5.33E+00	10	6	2.30E+02	0.0083	12	15	4.06E-01	8.83E-01	4.78E-04	13	15	8.83E-01	15	1.184E+02	1.175E+02	-3	5.56E-04

PC VALUES

11-Jan-96

FILE: PCVAL.WQ1

PARAMETER	[CM/HR] linked here	
1,1-Dichloroethane	0.0126	
1,1-Dichloroethene	0.0015	
1,2,4-Trichlorobenzene	0.1000	
1,2-Dichloroethane	0.0053	
1,2-Dichloroethene (total)	0.0100	
1,2-Dichloropropane	0.0225	
1,3-Dichlorobenzene	0.0573	
1,4-Dichlorobenzene	0.0804	
2,4-Dimethylphenol	0.0150	
2,4-Dinitrotoluene	0.1000	
2-Butanone	0.0060	
2-Chlorophenol	0.0300	
2-Methylnaphthalene	0.1422918415	
2-Methylphenol	0.0160	
2-methylnaphthalene	0.1422918415	
4,4'-DDD	0.28	
4,4'-DDE	0.24	
4,4'-DDT	0.43	
4-Methylphenol	0.0180	
Acenaphthene	0.1515653756	
Acenaphthene	1.50E-03	
Acenaphthylene	1.50E-03	
Acetone	0.0015	
Aldrin	0.0016	
Aluminum	0.0010	
Anthracene	0.0015	
Antimony	0.0010	
Arsenic	0.0010	
Barium	0.0010	
Benzene	0.0210	
Benzo(a)anthracene	0.0079	
Benzo(a)pyrene	0.9000	
Benzo(b)fluoranthene	0.6200	
Benzo(g,h,i)perylene	0.0015	
Benzo(k)fluoranthene	0.6200	
Benzoic acid	0.7120	
Beryllium	0.0010	
Bis(2-chloroethyl)ether	0.0021	
Bis(2-ethylhexyl)phthalate	3.30E-02	
Boron	0.0010	
Cadmium (soil)	0.0010	cadmium chloride
Cadmium (water)	0.0010	cadmium chloride
Carbon disulfide	0.5300	
Chlorobenzene	0.0404	
Chloroform	0.0089	
Chromium	0.0010	
Chrysene	0.6200	
Cis-1,2-Dichloroethene	0.0100	
Cobalt	0.0010	
Copper	0.0010	
Cyanide	0.0010	

PC VALUES

11-Jan-96

FILE: PCVAL.WQ1

PARAMETER	[CM/HR] linked here	
Di-n-butylphthalate	2.3E-06	
Dibenz(a,h)anthracene	2.7	
Dibenzofuran	1.5E-03	
Diethyl phthalate	1.1E-05	
Dimethyl phthalate	3.3E-05	
Endosulfan sulfate	1.5E-03	
Endrin	0.0160	
Ethylbenzene	1.2000	
Fluoranthene	0.2970	
Fluorene	1.5E-03	
Heptachlor	0.0094	
Indeno(1,2,3-cd)pyrene	1.9000	
Iron	0.0010	
Isobutyl Alcohol	0.0015	
Kepone	0.0010	
Lead	4.0E-06	lead acetate
Magnesium	0.0010	
Manganese (soil)	0.0010	
Manganese (water)	0.0010	
Mercury	0.0010	
Molybdenum	0.0010	
Methylene Chloride	0.0051	
N-nitroso-di-n-propylamine	0.0028	
N-nitrosodiphenylamine	0.0005	
Naphthalene	0.0690	
Nickel	0.0001	nickel chloride
Pentachlorophenol	0.4900	
Phenanthrene	0.2700	
Phenol	0.0081	
Pyrene	0.0015	
Selenium	0.0010	
Silicon	0.0010	
Strontium	0.0010	
Styrene	0.6500	
Tetrachloroethene	0.0450	
1,1,2,2-Tetrachloroethane	0.009	
Thallium	0.001	
Tin	0.0010	
Toluene	1.0000	
Total Xylenes	0.0800	
Trichloroethene	0.0160	
Trichlorotrifluoroethane	0.0015	
Vanadium	0.0010	
Vinyl Chloride	0.0073	
Zinc	0.0006	zinc chloride
Acenapthene	0.1515653756	
beta-BHC	0.0015	
delta-BHC	0.0015	
gamma-BHC (Lindane)	0.0140	
p-Chloro-m-cresol	0.0500	
p-Cresol	0.0100	

Calculations

log Kp = -2.72 + 0.71 log Kw - 0.0061 MW

	Kp	log Kw	MW (g/mole)
acenapthene	0.1516	4	154
2-methylnaphthalene	0.1423	3.86	142.2

APPENDIX T
FIELD DATA SHEETS

ECOLOGICAL EVALUATION
FIELD DATA SHEET - TERRESTRIAL

Project Name: OU No. 6, MCB Camp Lejeune

Location: Site 86, Jacksonville, NC

Date: 3/21/95

Sampling Location: Open Area Around Site

Data Collected By: LES, CMC

Habitat Type: Open Industrial Area

Vegetation: mowed lawn with small herbaceous plants

Trees:

Dominant Species:

1. _____
2. _____
3. none present
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Secondary Species:

1. _____
2. several scattered
3. ~~very proud~~
4. ornamentals -
5. loblolly pine - Pinus taeda
6. Water Oak - Quercus nigra
7. Crape Myrtle -
8. _____
9. _____
10. _____

Saplings/Shrubs:

Dominant Species:

1. _____ 6. _____
2. _____ 7. _____
3. none present 8. _____
4. _____ 9. _____
5. _____ 10. _____

Secondary Species:

1. _____ 6. _____
2. _____ 7. _____
3. none present 8. _____
4. _____ 9. _____
5. _____ 10. _____

Woody Vines:

Dominant Species:

1. _____ 6. _____
2. _____ 7. _____
3. none present 8. _____
4. _____ 9. _____
5. _____ 10. _____

Secondary Species:

1. _____ 6. _____
2. _____ 7. _____
3. none present 8. _____
4. _____ 9. _____
5. _____ 10. _____

Herbs:

Dominant Species:

1.
2. grass dom in most
3. areas, large patches
4. of white clover - Trifolium repens
5.
6.
7.
8.
9.
10.

Secondary Species:

1. Dandelion - Taraxacum officinale
2. Mouse ear Chickweed - Cerastium vulgatum
3. Thyme-leaved Speedwell - Veronica serpyllifolia
4. Queen Anne's Lace - Daucus carota
5. Black medic - medicago lupulina
6. Creeping Buttercup - Ranunculus repens
7. Narrow leaved Plantain - Plantago lanceolata
8. Wild Onion - Allium vineale
9. Curly Dock - Rumex crispus
10. Thistle - Cirsium sp.

Quaker Ladies - Houstonia caerulea
Yellow Wood Sorrel - Oxalis europaea
Cow ~~[illegible]~~ Vetch - Vicia cracca
Fleabane - Erigeron sp.
Pennsylvania Bitter Cress - Cardamine pensylvanica
Wild Pansy - Viola kitaibeliana
Carolina Cranesbill - Geranium carolinianum
Moneywort - Lysimachia nummularia

Birds:

Time:

Weather Conditions:

Species	Sex	Feeding	Nesting	Approx. No.
1. English sparrow - Passer domesticus				nesting
2. Fish Crow - Corvus ossifragus				
3.				
4.				
5.				
6.				
7.				
8.				
9.				

10. _____

Mammals: _____

Time: _____

Weather Conditions:

Species	Observed	Sign	Adult/Juvenile	Sex
1.				
2.				
3.				
4.	none present			
5.				
6.				
7.				
8.				
9.				
10.				

Reptiles and Amphibians: _____

Time: _____

Weather Conditions:

Species	Observed	Sign	Adult/Juvenile	Sex
1.				
2.				
3.	none present			
4.				
5.				
6.				

7. _____

8. _____

9. _____

10. _____

Miscellaneous Notes:

APPENDIX U
TERRESTRIAL REFERENCE VALUES AND CDI CALCULATIONS

EQUATIO. ..ED TO CALCULATE EXPOSURE FOR THE WHITETAILED DEER
SITE 86, ABOVEGROUNG STORAGE TANK AREA
REMEDIAL INVESTIGATION, CTO-303
MCAS, NEW RIVER, NORTH CAROLINA

Food Source Ingestion of: Iv=vegetation If=fish Im=mammals Iw=worms Ifr=fruit	Feeding Rate (I in kg/d)	Incidental Soil Ingestion (Is in kg/d)	Rate of Drinking Water Ingestion (Iw in l/d)	Rate of Worm Ingestion (Iwo in kg/d)	Rate of Fruit Ingestion (Ifr in kg/d)	Rate of Mammal Ingestion (Im in kg/d)	Rate of Vegetation Ingestion (Iv in kg/d)	Body Weight (BW) (kg)	Home Range Size (acres)	Contaminate Area (acres)	H Ratio	Equation Used to Calculate Total Exposure E=total exposure Cw=constituent conc. in water Cs=constituent conc. in soil Cwo=constituent conc. in worms Cfr=constituent conc. in fruit H=ratio of home range area to site area
Vegetation(Iv) 100 percent	1.600	0.019	1.10E+00	NA	NA	NA	1.600	45.400	454.000	1.3	0.003	$E=\frac{(Cw)(Iw) + [(Cs)(Bv)(Iv) + (Cs)(Is)][H]}{BW}$

Contaminant of Concern	Soil to Plant Transfer Coefficient (Bv)	Constituent Concentration in Water (mg/l) (Cw)	Constituent Concentration in Soil (mg/kg) (Cs)	Constituent Concentration in Worms (mg/kg) (Cwo)	Constituent Concentration in Fruit (mg/kg) (Cfr)	Constituent Concentration in Mammals (mg/kg) (Cm)	Total Exposure (mg/kg/d)	TRV	RATIO
Acetone	53.299	ND	1.12E-02	NA	NA	NA	6.21E-05	1.98E+00	3.14E-05
Toluene	1.065	ND	7.79E-03	NA	NA	NA	8.72E-07	4.41E+00	1.98E-07
Xylenes (total)	0.548	ND	5.00E-03	NA	NA	NA	2.91E-07	3.54E+01	8.22E-09
Acenaphthene	0.246	ND	2.48E-01	NA	NA	NA	6.65E-06	3.46E+00	1.92E-06
Anthracene	0.097	ND	2.78E-01	NA	NA	NA	3.14E-06	8.71E+00	3.61E-07
Benzo(a)anthracene	0.020	ND	5.06E-01	NA	NA	NA	1.64E-06	8.71E-02	1.89E-05
Benzo(a)pyrene	0.013	ND	5.27E-01	NA	NA	NA	1.36E-06	8.71E-02	1.56E-05
Benzo(b)fluoranthene	0.006	ND	5.59E-01	NA	NA	NA	1.02E-06	8.71E-02	1.17E-05
Benzo(g,h,i)perylene	0.007	ND	2.66E-01	NA	NA	NA	5.08E-07	8.71E-02	5.83E-06
Benzo(k)fluoranthene	0.012	ND	3.29E-01	NA	NA	NA	7.91E-07	8.71E-02	9.08E-06
Bis(2-ethylhexyl)phthalate	0.044	ND	8.60E-02	NA	NA	NA	4.94E-07	4.89E-02	1.01E-05
Butylbenzylphthalate	0.057	ND	2.50E-01	NA	NA	NA	1.79E-06	3.14E+00	5.69E-07
Carbazole	0.550	ND	2.53E-01	NA	NA	NA	1.48E-05	8.71E-02	1.70E-04
Chrysene	0.020	ND	5.17E-01	NA	NA	NA	1.68E-06	8.71E-02	1.93E-05
Dibenz(a,h)anthracene	0.007	ND	2.28E-01	NA	NA	NA	4.35E-07	8.71E-02	5.00E-06
Dibenzofuran	0.550	ND	1.96E-01	NA	NA	NA	1.15E-05	8.71E-02	1.32E-04
Fluoranthene	0.044	ND	1.03E+00	NA	NA	NA	6.00E-06	1.09E+00	5.51E-06
Fluorene	0.145	ND	2.40E-01	NA	NA	NA	3.91E-06	2.47E+00	1.58E-06
Indeno(1,2,3-cd)pyrene	0.007	ND	3.53E-01	NA	NA	NA	6.71E-07	8.71E-02	7.70E-06
2-Methylnaphthalene	0.322	ND	8.00E-02	NA	NA	NA	2.77E-06	8.10E+00	3.42E-07
Naphthalene	0.322	ND	8.50E-02	NA	NA	NA	2.94E-06	8.10E+00	3.64E-07
Phenanthrene	0.097	ND	5.72E-01	NA	NA	NA	6.46E-06	8.10E+00	7.97E-07
Pyrene	0.033	ND	7.33E-01	NA	NA	NA	3.43E-06	6.53E-01	5.26E-06
Aldrin	0.714	ND	1.19E-03	NA	NA	NA	8.97E-08	6.51E-01	1.38E-07
4,4'-DDE	0.020	ND	2.94E-02	NA	NA	NA	9.54E-08	1.58E-01	6.04E-07
4,4'-DDD	0.013	ND	9.14E-03	NA	NA	NA	2.35E-08	1.58E-01	1.49E-07
4,4'-DDT	0.008	ND	2.53E-02	NA	NA	NA	5.08E-08	1.58E-01	3.21E-07
Dieldrin	0.032	ND	4.40E-02	NA	NA	NA	1.98E-07	6.51E-01	3.05E-07
Heptachlor epoxide	0.127	ND	1.86E-03	NA	NA	NA	2.67E-08	7.55E-05	3.54E-04
Aluminum	0.004	ND	6.14E+03	NA	NA	NA	9.93E-03	6.51E+00	1.53E-03
Arsenic	0.040	ND	1.68E+00	NA	NA	NA	9.00E-06	3.25E-01	2.77E-05
Barium	0.150	ND	5.74E+01	NA	NA	NA	9.64E-04	1.30E-01	7.41E-03
Cadmium	0.550	ND	7.12E-01	NA	NA	NA	4.16E-05	3.25E-03	1.28E-02
Chromium	0.008	ND	9.08E+00	NA	NA	NA	1.80E-05	6.51E+00	2.77E-06
Copper	0.400	ND	3.74E+01	NA	NA	NA	1.60E-03	6.51E-01	2.46E-03
Iron	0.004	ND	4.34E+03	NA	NA	NA	7.03E-03	6.51E+00	1.08E-03
Lead	0.045	ND	3.57E+01	NA	NA	NA	2.10E-04	1.95E-01	1.08E-03
Manganese	0.250	ND	1.57E+01	NA	NA	NA	4.27E-04	1.30E+00	3.29E-04
Mercury	0.900	ND	7.90E-02	NA	NA	NA	7.49E-06	1.30E-02	5.76E-04
Nickel	0.060	ND	2.23E+01	NA	NA	NA	1.66E-04	3.25E-01	5.10E-04
Vanadium	0.006	ND	5.63E+01	NA	NA	NA	9.99E-05	3.25E-01	3.07E-04
Zinc	1.500	ND	3.36E+01	NA	NA	NA	5.28E-03	3.25E+00	1.62E-03
								SU	3.05E-02

ND - Not Detected
NA - Not Applicable

EQUATIONS USED TO CALCULATE EXPOSURE FOR THE EASTERN COTTONTAIL RABBIT
SITE 86, ABOVEGROUNG STORAGE TANK AREA
REMEDIAL INVESTIGATION, CTO-303
MCAS, NEW RIVER, NORTH CAROLINA

Food Source ingestion of: Iv=vegetation If=fish Im=mammals Iw=worms Ifr=fruit	Feeding Rate (I in kg/d)	Incidental Soil Ingestion (Is in kg/d)	Rate of Drinking Water Ingestion (Iw in l/d)	Rate of Worm Ingestion (Iwo in kg/d)	Rate of Fruit Ingestion (Ifr in kg/d)	Rate of Mammal Ingestion (Im in kg/d)	Rate of Vegetation Ingestion (Iv in kg/d)	Body Weight (BW) (kg)	Home Range Size (acres)	Contaminated Area (acres)	H Ratio	Equation Used to Calculate Total Exposure E=total exposure Cw=constituent conc. in water Cs=constituent conc. in soil Cwo=constituent conc. in worms Cfr=constituent conc. in fruit H=ratio of home range area to site area
Vegetation (Iv) 100 percent	0.237	0.006	1.19E-01	NA	NA	NA	0.237	1.229	9.297	1.3	0.144	$E=\frac{(Cw)(Iw)+[(Cs)(Bv)(Iv)+(Cs)(Is)][H]}{BW}$

Contaminant of Concern	Soil to Plant Transfer Coefficient (Bv)	Constituent Concentration in Water (mg/l) (Cw)	Constituent Concentration in Soil (mg/kg) (Cs)	Constituent Concentration in Worms (mg/kg) (Cwo)	Constituent Concentration in Fruit (mg/kg) (Cfr)	Constituent Concentration in Mammals (mg/kg) (Cm)	Total Exposure (mg/kg/d)	TRV	RATIO
Acetone	53.299	ND	1.12E-02	NA	NA	NA	1.66E-02	6.58E+00	2.52E-03
Toluene	1.065	ND	7.79E-03	NA	NA	NA	2.36E-04	1.47E+01	1.61E-05
Xylenes (total)	0.548	ND	5.00E-03	NA	NA	NA	7.95E-05	1.18E+02	6.75E-07
Acenaphthene	0.246	ND	2.48E-01	NA	NA	NA	1.86E-03	1.15E+01	1.62E-04
Anthracene	0.097	ND	2.78E-01	NA	NA	NA	9.37E-04	2.90E+01	3.23E-05
Benzo(a)anthracene	0.020	ND	5.06E-01	NA	NA	NA	6.14E-04	2.90E-01	2.12E-03
Benzo(a)pyrene	0.013	ND	5.27E-01	NA	NA	NA	5.45E-04	2.90E-01	1.88E-03
Benzo(b)fluoranthene	0.006	ND	5.59E-01	NA	NA	NA	4.66E-04	2.90E-01	1.60E-03
Benzo(g,h,i)perylene	0.007	ND	2.66E-01	NA	NA	NA	2.28E-04	2.90E-01	7.85E-04
Benzo(k)fluoranthene	0.012	ND	3.29E-01	NA	NA	NA	3.25E-04	2.90E-01	1.12E-03
Bis(2-ethylhexyl)phthalate	0.044	ND	8.60E-02	NA	NA	NA	1.62E-04	1.63E-01	9.94E-04
Butylbenzylphthalate	0.057	ND	2.50E-01	NA	NA	NA	5.64E-04	1.05E+01	5.39E-05
Carbazole	0.550	ND	2.53E-01	NA	NA	NA	4.04E-03	2.90E-01	1.39E-02
Chrysene	0.020	ND	5.17E-01	NA	NA	NA	6.27E-04	2.90E-01	2.16E-03
Dibenz(a,h)anthracene	0.007	ND	2.28E-01	NA	NA	NA	1.95E-04	2.90E-01	6.73E-04
Dibenzofuran	0.550	ND	1.96E-01	NA	NA	NA	3.14E-03	2.90E-01	1.08E-02
Fluoranthene	0.044	ND	1.03E+00	NA	NA	NA	1.96E-03	3.63E+00	5.41E-04
Fluorene	0.145	ND	2.40E-01	NA	NA	NA	1.13E-03	8.23E+00	1.37E-04
Indeno(1,2,3-cd)pyrene	0.007	ND	3.53E-01	NA	NA	NA	3.02E-04	2.90E-01	1.04E-03
2-Methylnaphthalene	0.322	ND	8.00E-02	NA	NA	NA	7.69E-04	2.70E+01	2.85E-05
Naphthalene	0.322	ND	8.50E-02	NA	NA	NA	8.17E-04	2.70E+01	3.03E-05
Phenanthrene	0.097	ND	5.72E-01	NA	NA	NA	1.92E-03	2.70E+01	7.13E-05
Pyrene	0.033	ND	7.33E-01	NA	NA	NA	1.17E-03	2.18E+00	5.38E-04
Aldrin	0.714	ND	1.19E-03	NA	NA	NA	2.44E-05	1.65E-02	1.48E-03
4,4'-DDE	0.020	ND	2.94E-02	NA	NA	NA	3.57E-05	5.26E-01	6.78E-05
4,4'-DDD	0.013	ND	9.14E-03	NA	NA	NA	9.44E-06	5.26E-01	1.79E-05
4,4'-DDT	0.008	ND	2.53E-02	NA	NA	NA	2.23E-05	5.26E-01	4.24E-05
Dieldrin	0.032	ND	4.40E-02	NA	NA	NA	6.82E-05	3.29E-03	2.07E-02
Heptachlor epoxide	0.127	ND	1.86E-03	NA	NA	NA	7.79E-06	2.51E-04	3.10E-02
Aluminum	0.004	ND	6.14E+03	NA	NA	NA	4.78E+00	1.16E+01	4.12E-01
Arsenic	0.040	ND	1.66E+00	NA	NA	NA	2.99E-03	2.90E+00	1.03E-03
Barium	0.150	ND	5.74E+01	NA	NA	NA	2.78E-01	1.16E+00	2.39E-01
Cadmium	0.550	ND	7.12E-01	NA	NA	NA	1.14E-02	2.90E-02	3.92E-01
Chromium	0.008	ND	9.08E+00	NA	NA	NA	7.95E-03	5.80E+01	1.37E-04
Copper	0.400	ND	3.74E+01	NA	NA	NA	4.41E-01	1.16E+01	3.80E-02
Iron	0.004	ND	4.34E+03	NA	NA	NA	3.38E+00	2.90E+01	1.16E-01
Lead	0.045	ND	3.57E+01	NA	NA	NA	6.85E-02	1.74E+00	3.94E-02
Manganese	0.250	ND	1.57E+01	NA	NA	NA	1.20E-01	2.32E+01	5.16E-03
Mercury	0.900	ND	7.90E-02	NA	NA	NA	2.03E-03	1.20E-01	1.69E-02
Nickel	0.060	ND	2.23E+01	NA	NA	NA	5.21E-02	2.90E+00	1.80E-02
Vanadium	0.006	ND	5.63E+01	NA	NA	NA	4.62E-02	5.80E-02	7.96E-01
Zinc	1.500	ND	3.36E+01	NA	NA	NA	1.42E+00	2.90E+01	4.91E-02
								SUM	2.22E+00

ND - Not Detected
NA - Not Applicable

EQUATIONS U... O CALCULATE EXPOSURE FOR THE BOBWHITE QUAIL
SITE 86, ABOVEGROUNG STORAGE TANK AREA
REMEDIAL INVESTIGATION, CTO-303
MCAS, NEW RIVER, NORTH CAROLINA

Food Source Ingestion of: Iv=vegetation If=fish Im=mammals Iw=worms Ifr=fruit	Feeding Rate (I in kg/d)	Incidental Soil Ingestion (Is in kg/d)	Rate of Drinking Water Ingestion (Iw in l/d)	Rate of Worm Ingestion (Iwo in kg/d)	Rate of Fruit Ingestion (Ifr in kg/d)	Rate of Mammal Ingestion (Im in kg/d)	Rate of Vegetation Ingestion (Iv in kg/d)	Body Weight (BW) (kg)	Home Range Size (acres)	Contaminated Area (acres)	H Ratio	Equation Used to Calculate Total Exposure E=total exposure Cw=constituent conc. in water Cs=constituent conc. in soil Cwo=constituent conc. in worms Cfr=constituent conc. in fruit H=ratio of home range area to site area
Vegetation (Iv) 100%	0.013	0.001	1.91E-02	NA	NA	NA	1.35E-02	0.174	26.242	1.3	0.051	$\frac{E=(Cw)(Iw)+[(Cs)(Bv)(Iv)+(Cs)(Is)][H]}{BW}$

Contaminant of Concern	Soil to Plant Transfer Coefficient (Bv)	Constituent Concentration in Water (mg/l) (Cw)	Constituent Concentration in Soil (mg/kg) (Cs)	Constituent Concentration in Worms (mg/kg) (Cwo)	Constituent Concentration in Fruit (mg/kg) (Cfr)	Constituent Concentration in Mammals (mg/kg) (Cm)	Total Exposure (mg/kg/d)	TRV	RATIO
Acetone	53.299	ND	1.12E-02	NA	NA	NA	2.37E-03	2.72E+01	8.72E-05
Toluene	1.065	ND	7.79E-03	NA	NA	NA	3.55E-05	6.06E+01	5.85E-07
Xylenes (total)	0.548	ND	5.00E-03	NA	NA	NA	1.25E-05	4.87E+02	2.57E-08
Acenaphthene	0.246	ND	2.48E-01	NA	NA	NA	3.23E-04	4.76E+01	6.79E-06
Anthracene	0.097	ND	2.78E-01	NA	NA	NA	1.98E-04	1.20E+02	1.65E-06
Benzo(a)anthracene	0.020	ND	5.08E-01	NA	NA	NA	2.04E-04	1.20E+00	1.70E-04
Benzo(a)pyrene	0.013	ND	5.27E-01	NA	NA	NA	1.99E-04	1.20E+00	1.66E-04
Benzo(b)fluoranthene	0.006	ND	5.59E-01	NA	NA	NA	1.95E-04	1.20E+00	1.63E-04
Benzo(g,h,i)perylene	0.007	ND	2.66E-01	NA	NA	NA	9.38E-05	1.20E+00	7.82E-05
Benzo(k)fluoranthene	0.012	ND	3.29E-01	NA	NA	NA	1.22E-04	1.20E+00	1.02E-04
Bis(2-ethylhexyl)phthalate	0.044	ND	8.60E-02	NA	NA	NA	4.29E-05	2.30E+00	1.86E-05
Butylbenzylphthalate	0.057	ND	2.50E-01	NA	NA	NA	1.38E-04	4.32E+01	3.20E-06
Carbazole	0.550	ND	2.53E-01	NA	NA	NA	6.36E-04	1.20E+00	5.30E-04
Chrysene	0.020	ND	5.17E-01	NA	NA	NA	2.08E-04	1.20E+00	1.74E-04
Dibenz(a,h)anthracene	0.007	ND	2.28E-01	NA	NA	NA	8.04E-05	1.20E+00	6.70E-05
Dibenzofuran	0.550	ND	1.96E-01	NA	NA	NA	4.93E-04	1.20E+00	4.11E-04
Fluoranthene	0.044	ND	1.03E+00	NA	NA	NA	5.18E-04	1.50E+01	3.45E-05
Fluorene	0.145	ND	2.40E-01	NA	NA	NA	2.16E-04	3.40E+01	6.36E-06
Indeno(1,2,3-cd)pyrene	0.007	ND	3.53E-01	NA	NA	NA	1.24E-04	1.20E+00	1.04E-04
2-Methylnaphthalene	0.322	ND	8.00E-02	NA	NA	NA	1.28E-04	1.12E+02	1.15E-06
Naphthalene	0.322	ND	8.50E-02	NA	NA	NA	1.36E-04	1.12E+02	1.22E-06
Phenanthrene	0.097	ND	5.72E-01	NA	NA	NA	4.06E-04	1.12E+02	3.64E-06
Pyrene	0.033	ND	7.33E-01	NA	NA	NA	3.36E-04	8.99E+00	3.74E-05
Aldrin	0.714	ND	1.19E-03	NA	NA	NA	3.76E-06	6.80E-02	5.53E-05
4,4'-DDE	0.020	ND	2.94E-02	NA	NA	NA	1.19E-05	8.80E-02	1.35E-04
4,4'-DDD	0.013	ND	9.14E-03	NA	NA	NA	3.45E-06	8.80E-02	3.92E-05
4,4'-DDT	0.008	ND	2.53E-02	NA	NA	NA	9.01E-06	8.80E-02	1.02E-04
Dieldrin	0.032	ND	4.40E-02	NA	NA	NA	1.99E-05	1.16E-01	1.72E-04
Heptachlor epoxide	0.127	ND	1.86E-03	NA	NA	NA	1.54E-06	1.04E-03	1.48E-03
Aluminum	0.004	ND	6.14E+03	NA	NA	NA	2.10E+00	3.06E+01	6.85E-02
Arsenic	0.040	ND	1.68E+00	NA	NA	NA	8.13E-04	1.98E+01	4.11E-05
Barium	0.150	ND	5.74E+01	NA	NA	NA	5.28E-02	3.06E+00	1.73E-02
Cadmium	0.550	ND	7.12E-01	NA	NA	NA	1.79E-03	5.59E+00	3.20E-04
Chromium	0.008	ND	9.08E+00	NA	NA	NA	3.22E-03	1.53E+02	2.11E-05
Copper	0.400	ND	3.74E+01	NA	NA	NA	7.16E-02	4.59E+01	1.56E-03
Iron	0.004	ND	4.34E+03	NA	NA	NA	1.48E+00	1.53E+02	9.69E-03
Lead	0.045	ND	3.57E+01	NA	NA	NA	1.60E-02	7.52E+00	2.39E-03
Manganese	0.250	ND	1.57E+01	NA	NA	NA	2.07E-02	3.06E+02	6.77E-05
Mercury	0.900	ND	7.90E-02	NA	NA	NA	3.08E-04	3.06E-01	1.01E-03
Nickel	0.060	ND	2.23E+01	NA	NA	NA	1.26E-02	4.59E+01	2.74E-04
Vanadium	0.008	ND	5.63E+01	NA	NA	NA	1.96E-02	4.39E+01	4.46E-04
Zinc	1.500	ND	3.36E+01	NA	NA	NA	2.11E-01	1.53E+02	1.38E-03
								SUM	1.07E-01

ND - Not Detected
NA - Not Applicable

EQUATIONS USED TO CALCULATE EXPOSURE FOR THE RED FOX
SITE 86, ABOVEGROUNG STORAGE TANK AREA
REMEDIAL INVESTIGATION, CTO-0303
MCAS, NEW RIVER, NORTH CAROLINA

Food Source Ingestion of: Iv=vegetation If=fish Im=mammals Iw=worms Ifr=fruit	Feeding Rate (I in kg/d)	Incidental Soil Ingestion (Is in kg/d)	Rate of Drinking Water Ingestion (Iw in l/d)	Rate of Worm Ingestion (Iwo in kg/d)	Rate of Fruit Ingestion (Ifr in kg/d)	Rate of Mammal Ingestion (Im in kg/d)	Rate of Vegetation Ingestion (Iv in kg/d)	Body Weight (BW) (kg)	Home Range Size (acres)	Contaminated Area (acres)	H Ratio	Equation Used to Calculate Total Exposure E=total exposure Cw=constituent conc. in water Cs=constituent conc. in soil Cwo=constituent conc. in worms Cfr=constituent conc. in fruit H=ratio of home range area to site area
Small Mammals Im=80%	0.601	0.017	0.385	NA	NA	0.481	0.1202	4.535	1245.4	1.3	0.001	$E=\frac{(Cw)(Iw)+[(cm)(Im)+(Cs)(By)(Iv)+(Cs)(Is)][H]}{BW}$
Vegetation Iv=20%	0.112 Small Mammal	0.00269 Small Mammal	0.0652 Small Mammal	NA	NA	NA	0.112 Small Mammal	0.3725 Small Mammal				$Cm=\frac{[(Cw)(Iw)+((Cs)(Bv)(Iv)+(Cs)(Is))(H)][Bb]}{BW}$
								Small Mammal	0.032	1	All AOCs	

Contaminant of Concern	Soil to Plant Transfer Coefficient (Bv)	Constituent Concentration in Water (mg/l) (Cw)	Constituent Concentration in Soil (mg/kg) (Cs)	Constituent Concentration in Worms (mg/kg) (Cwo)	Ingestion-to-tissue Biotransfer Factor (Bb)	Constituent Concentration in Mammals (mg/kg) (Cm)	Total Exposure (mg/kg/d)	TRV	RATIO
Acetone	53.299	ND	1.12E-02	NA	1.45E-08	2.59E-09	1.71E-05	4.26E+00	4.01E-06
Toluene	1.065	ND	7.79E-03	NA	1.26E-05	3.21E-08	2.69E-07	9.49E+00	2.82E-08
Xylenes (total)	0.548	ND	5.00E-03	NA	3.98E-05	3.42E-08	9.80E-08	7.62E+01	1.29E-09
Acenaphthene	0.246	ND	2.48E-01	NA	1.58E-04	3.20E-06	2.73E-06	7.45E+00	3.67E-07
Anthracene	0.097	ND	2.78E-01	NA	7.94E-04	8.05E-06	1.88E-06	1.88E+01	1.00E-07
Benzo(a)anthracene	0.020	ND	5.06E-01	NA	1.26E-02	9.37E-05	2.31E-06	1.88E-01	1.23E-05
Benzo(a)pyrene	0.013	ND	5.27E-01	NA	2.51E-02	1.48E-04	2.32E-06	1.88E-01	1.24E-05
Benzo(b)fluoranthene	0.006	ND	5.59E-01	NA	1.00E-01	5.04E-04	2.39E-06	1.88E-01	1.27E-05
Benzo(g,h,i)perylene	0.007	ND	2.68E-01	NA	7.94E-02	1.96E-04	1.14E-06	1.88E-01	6.05E-06
Benzo(k)fluoranthene	0.012	ND	3.29E-01	NA	3.16E-02	1.11E-04	1.44E-06	1.88E-01	7.65E-06
Bis(2-ethylhexyl)phthalate	0.044	ND	8.60E-02	NA	3.16E-03	5.53E-06	4.51E-07	1.05E-01	4.28E-06
Butylbenzylphthalate	0.057	ND	2.50E-01	NA	2.00E-03	1.22E-05	1.41E-06	6.77E+00	2.08E-07
Carbazole	0.550	ND	2.53E-01	NA	2.51E-02	1.10E-03	5.11E-06	1.88E-01	2.72E-05
Chrysene	0.020	ND	5.17E-01	NA	1.26E-02	9.54E-05	2.36E-06	1.88E-01	1.26E-05
Dibenz(a,h)anthracene	0.007	ND	2.28E-01	NA	7.94E-02	1.68E-04	9.74E-07	1.88E-01	5.19E-06
Dibenzofuran	0.550	ND	1.96E-01	NA	2.51E-02	8.52E-04	3.96E-06	1.88E-01	2.11E-05
Fluoranthene	0.044	ND	1.03E+00	NA	3.09E-03	6.55E-05	5.43E-06	2.35E+00	2.32E-06
Fluorene	0.145	ND	2.40E-01	NA	3.98E-04	4.85E-06	1.95E-06	5.32E+00	3.67E-07
Indeno(1,2,3-cd)pyrene	0.007	ND	3.53E-01	NA	6.13E-02	2.65E-04	1.51E-06	1.88E-01	8.04E-06
2-Methylnaphthalene	0.322	ND	8.00E-02	NA	1.00E-04	8.31E-07	1.05E-06	1.75E+01	6.03E-08
Naphthalene	0.322	ND	8.50E-02	NA	1.00E-04	8.83E-07	1.12E-06	1.75E+01	6.41E-08
Phenanthrene	0.097	ND	5.72E-01	NA	7.94E-04	1.65E-05	3.87E-06	1.75E+01	2.21E-07
Pyrene	0.033	ND	7.33E-01	NA	5.01E-03	6.35E-05	3.63E-06	1.41E+00	2.58E-06
Aldrin	0.714	ND	1.19E-03	NA	2.51E-05	6.63E-09	2.89E-08	3.25E-02	8.90E-07
4,4'-DDE	0.020	ND	2.94E-02	NA	1.26E-02	4.86E-06	1.34E-07	3.41E-01	3.94E-07
4,4'-DDD	0.013	ND	9.14E-03	NA	2.51E-02	2.57E-06	4.02E-08	3.41E-01	1.18E-07
4,4'-DDT	0.008	ND	2.53E-02	NA	6.31E-02	1.52E-05	1.08E-07	3.41E-01	3.18E-07
Dieldrin	0.032	ND	4.40E-02	NA	5.50E-03	4.05E-06	2.16E-07	6.51E-03	3.32E-05
Heptachlor epoxide	0.127	ND	1.86E-03	NA	5.01E-04	4.22E-08	1.41E-08	1.63E-04	8.69E-05
Aluminum	0.004	ND	6.14E+03	NA	1.50E-03	7.75E-02	2.52E-02	1.95E+01	1.29E-03
Arsenic	0.040	ND	1.88E+00	NA	2.00E-03	8.48E-05	8.62E-06	2.37E-02	3.64E-04
Barium	0.150	ND	5.74E+01	NA	1.50E-04	4.50E-04	4.74E-04	1.07E-01	4.45E-03
Cadmium	0.550	ND	7.12E-01	NA	5.40E-04	6.64E-05	1.40E-05	9.76E-02	1.44E-04
Chromium	0.008	ND	9.08E+00	NA	5.50E-03	4.73E-04	3.82E-05	1.03E+00	3.72E-05
Copper	0.400	ND	3.74E+01	NA	1.00E-02	4.77E-02	5.81E-04	7.80E+00	7.45E-05
Iron	0.004	ND	4.34E+03	NA	2.00E-02	7.32E-01	1.79E-02	1.88E+01	9.53E-04
Lead	0.045	ND	3.57E+01	NA	3.00E-04	2.22E-04	1.88E-04	3.41E+00	5.53E-05
Manganese	0.250	ND	1.57E+01	NA	4.00E-04	5.18E-04	1.75E-04	3.75E+00	4.68E-05
Mercury	0.900	ND	7.90E-02	NA	2.50E-01	5.49E-03	2.97E-06	1.36E-01	2.18E-05
Nickel	0.080	ND	2.23E+01	NA	6.00E-03	3.38E-03	1.28E-04	3.25E+01	3.92E-06
Vanadium	0.008	ND	5.83E+01	NA	2.50E-03	1.25E-03	2.34E-04	2.77E-01	8.45E-04
Zinc	1.500	ND	3.36E+01	NA	1.00E-01	1.54E+00	1.75E-03	1.30E+00	1.34E-03
								SUM	9.89E-03

ND - Not Detected
NA - Not Applicable

DERIVATION OF TERRESTRIAL REFERENCE VALUES
SITE 86, ABOVEGROUND STORAGE TANK AREA
REMEDIAL INVESTIGATION, CTO-0303
MCAS, NEW RIVER, NORTH CAROLINA

The following section discusses the procedures used to develop the terrestrial reference values (TRVs) used in the terrestrial portion of the ERA.

Most of the whitetailed deer, bobwhite quail, and cottontail rabbit TRVs for inorganic chemicals were derived from mineral tolerance values (MTLs) contained in the Mineral Tolerance of Domestic Animals (NAS, 1980). This book defines an MTL as "that dietary level that, when fed for a limited period, will not impair animal performance and should not produce unsafe residues in human food derived from the animal." (NAS, 1980) The values in this book were reported as mg mineral/kg feed. Therefore, these values were first converted to mg mineral/kg body weight-day using the following equation (Opresko et.al., 1993):

TRV = MTL * CR
where:
TRV = Terrestrial Reference Value (mg mineral/kg body weight-day)
MTL = Mineral Tolerance Value (mg mineral/kg food)
CR = consumption rate (kg food/kg body weight-day)

For the whitetailed deer TRVs derived from the cattle MTLs, a consumption rate of 0.05 kg food/kg body weight-day was used for the cow (O'Dell, 1971). Because the cattle MTL was developed primarily with cow studies that were conducted for less than 6 months, the new TRV was multiplied by 0.1 to account for subchronic to chronic uncertainty. The TRV for a cow then was adjusted to a TRV for a deer to account for differences in the body size using the following equation (Opresko et.al., 1993):

TRV (deer) = [TRV (cow)]*[bw (cow)/bw (deer)]^1/3
Where:
TRV (deer) = Deer Terrestrial Reference Value (mg mineral/kg body weight-day)
TRV (cow) = Cow Terrestrial Reference Value (mg mineral/kg body weight-day)
bw (cow) = body weight of a cow (100 kg)
bw (deer) = body weight of a deer (45.4 kg)

DERIVATION OF TERRESTRIAL REFERENCE VALUES
SITE 86, ABOVEGROUND STORAGE TANK AREA
REMEDIAL INVESTIGATION, CTO-0303
MCAS, NEW RIVER, NORTH CAROLINA

For the bobwhite quail TRVs derived from the poultry MTLs, a consumption rate of 0.41 kg food/kg body weight was calculated based on an average poultry weighing 0.5 kg, and the following allometric model (Nagy, 1987):

CR (birds) = 0.648 (bw)^0.651

Where:

CR (birds) = consumption rate for birds (kg food/kg body weight-day)

bw = body weight for an average bird (0.5 kg)

The TRV for poultry then was adjusted to a TRV for a bobwhite quail to account for differences in the body size using the same equation that was used to adjust the cow to the deer. The body weight used for the bobwhite quail was 0.174 kg.

For the cottontail rabbit TRVs derived from the rabbit MTLs, a consumption rate of 0.081 was calculated using the following equation:

CR (rabbit) = FR/bw

Where:

CR (rabbit) = consumption rate for rabbits (kg food/kg body weight-day)

FR = feeding rate of a cottontail rabbit (0.237 kg/day)

bw = body weight of a cottontail rabbit (1.229 kg)

The TRV (rabbit) was not adjusted for body size since a rabbit was used in the TRV calculation.

The following procedures were used for deriving TRV for the whitetailed deer, bobwhite quail, and cottontail rabbit when MTLs were not available, and for species that did not have MTLs. Their TRVs were determined using No Observed Adverse Effects Levels (NOAELs) or Lowest Observed Effects Levels (LOAELs). When available, the NOAEL or LOAEL from the Integrated Risk Information System (IRIS) was used in the TRV development. However, if a toxicity value was not available from IRIS, then one was obtained from various literature sources including Agency for Toxic Substances Registry Toxicological Profiles, Toxicological Benchmarks for Wildlife (Opresko *et.al.*, 1994) and published articles. Chemicals that only had diet concentration (as opposed to NOAELS) were converted to TRVs using the above equation and the appropriate consumption rates and body weights. The attached table contains the respective body weights used in the TRV adjustments.

As is presented in the attached table, toxicity data from many species were used to develop the TRVs. The attached table presents which animal was used to develop a particular TRV in parentheses. When possible, the chronic reproductive or developmental NOAEL value was used in the development of the TRV. However, in some instances, only a subchronic NOAEL or a chronic or sub-chronic LOAEL for some

chemicals were found in the literature. If a LOAEL was used, the number was divided by 10 as an uncertainty factor. If a subchronic value was used it also was divided by 10 as an uncertainty factor. Finally, toxicity values were not found for all the chemicals. Where possible, the toxicity or a similar chemical was used for these chemicals (i.e., using endrin for endrin aldehyde). The attached table identifies, in parentheses, which chemicals were used as surrogates.

TOXICITY DATA USED TO CALCULATE TERRESTRIAL REFERENCE VALUES
SITE 86 - ABOVEGROUND STORAGE TANK AREA
REMEDIAL INVESTIGATION, CTO-0303
MCAS, NEW RIVER, NORTH CAROLINA

Chemical	Substitute Chemical Used	Cattle (mg/kg/day)	Poultry (mg/kg/day)	Rabbit (mg/kg/day)	Dog (mg/kg/day)	Rat (mg/kg/day)	Mouse (mg/kg/day)	Guinea Pig (mg/kg/day)	Mink (mg/kg/day)
Aluminum		5 (1)	10 (1)	11.61 (1)	15 (1)	NA	1.93 (60)	NA	NA
Antimony		NA	NA	4.06 (1)	NA	0.035 (12)	NA	NA	NA
Arsenic		0.25 (1)	5.135 (61) Mallard	2.90 (1)	NA	NA	0.1261 (13)	NA	NA
Barium		0.1 (1)	1 (1)	1.16 (1)	NA	0.25 (4)	NA	NA	NA
Beryllium		NA	NA	NA	NA	0.54 (4)	NA	NA	NA
Cadmium		0.0025 (1)	1.45 (63) Mallard	0.03 (1)	0.075 (14)	0.004 (15)	NA	NA	NA
Chromium		5 (1)	50 (1)	58.03 (1)	NA	2.41 (5)	NA	NA	NA
Cobalt		0.05 (1)	0.5 (1)	0.58 (1)	NA	NA	NA	NA	NA
Copper		0.5 (1)	15 (1)	11.61 (1)	NA	NA	NA	NA	12.9 (17)
Iron		5 (1)	50 (1)	29.02 (1)	NA	NA	NA	NA	NA
Lead		0.15 (1)	3.85 (65) A. kestral	1.74 (1)	NA	8 (6)	NA	NA	NA
Manganese		1 (24)	100 (1)	23.21 (1)	NA	8.8 (66)	NA	NA	NA
Mercury		0.01 (1)	0.1 (1)	0.12 (1)	NA	0.32 (18)	NA	NA	NA
Molydenum		NA	NA	NA	NA	0.02 (82)	NA	NA	NA
Nickel		0.25 (1)	15 (1)	2.90 (1)	25 (2)	5 (2)	NA	NA	NA
Selenium		0.01 (1)	0.5 (67) Mallard	0.12 (1)	NA	0.04 (19)	NA	NA	NA
Silver		NA	5 (1)	NA	NA	NA	0.181 (20)	NA	NA
Thallium		NA	NA	NA	NA	0.023 (54)	NA	NA	NA
Vanadium		0.25 (1)	11.38 (68) Mallard	0.06 (1)	NA	0.65 (58)	NA	NA	NA
Zinc		2.5 (1)	50 (1)	29.02 (1)	1 (3)	160 (69)	NA	NA	NA
Cyanide		NA	4.5 (21)	NA	0.375 (22)	10.8 (23)	NA	NA	NA
Acenaphthene		NA	NA	NA	NA	17.5 (56)	NA	NA	NA
Acenaphthylene		NA	NA	NA	NA	17.5 Acen.	NA	NA	NA
Anthracene		NA	NA	NA	NA	NA	100 (33)	NA	NA
Benzo(a)anthracene	(Benzo(a)pyrene	NA	NA	NA	NA	NA	1	NA	NA
Benzo(b)fluoranthene	(Benzo(a)pyrene	NA	NA	NA	NA	NA	1	NA	NA
Benzo(k)fluoranthene	(Benzo(a)pyrene	NA	NA	NA	NA	NA	1	NA	NA
Benzo(ghi)perylene	(Benzo(a)pyrene	NA	NA	NA	NA	NA	1	NA	NA
Benzo(g,h,i)perylene	(Benzo(a)pyrene	NA	NA	NA	NA	NA	1	NA	NA
Benzo(a)pyrene		NA	NA	NA	NA	NA	1 (7)	NA	NA
beta-BHC		NA	NA	NA	NA	5 (51)	NA	NA	NA
gamma-BHC	(beta-BHC)	NA	NA	NA	NA	5 (51)	NA	NA	NA
Bis(2-ethylhexyl)phthalate		NA	1.11 (16) Ringed Dove	NA	NA	NA	NA	0.1833 (11)	NA
Butylbenzylphthalate		NA	NA	NA	NA	15.9 (52)	NA	NA	NA
Carbazole	(Benzo(a)pyrene	NA	NA	NA	NA	NA	1	NA	NA
Chrysene	(Benzo(a)pyrene	NA	NA	NA	NA	NA	1	NA	NA
Dibenzofuran	(Benzo(a)pyrene	NA	NA	NA	NA	NA	1	NA	NA
Dibenzo(a,h)anthracene	(Benzo(a)pyrene	NA	NA	NA	NA	NA	1	NA	NA
Dibenz(a,h)anthracene	(Benzo(a)pyrene	NA	NA	NA	NA	NA	1	NA	NA
Diethylphthalate		NA	NA	NA	NA	NA	4583 (53)	NA	NA
2,4-Dimethylphenol		NA	NA	NA	NA	NA	5 (85)	NA	NA
Di-n-butylphthalate		NA	0.11 (16) Ringed Dove	NA	NA	125 (63)	NA	NA	NA
Di-n-octylphthalate		NA	NA	NA	NA	17.5 (79)	NA	NA	NA
2,6-Dinitrotoluene		NA	NA	NA	0.4 (84)	NA	NA	NA	NA
Fluoranthene		NA	NA	NA	NA	NA	12.5 (8)	NA	NA
Fluorene		NA	NA	NA	NA	12.5 (56)	NA	NA	NA
Indeno(1,2,3-cd)pyrene	(Benzo(a)pyrene	NA	NA	NA	NA	NA	1	NA	NA
2-Methylnaphthalene	(Naphthalene)	NA	NA	NA	NA	41	NA	NA	NA
Naphthalene		NA	NA	NA	NA	41 (9)	NA	NA	NA
Nitrobenzene		NA	NA	NA	NA	0.25 (80)	NA	NA	NA
n-Nitrosodiphenylamine		NA	NA	NA	NA	50 (81)	NA	NA	NA
Phenanthrene	(Naphthalene)	NA	NA	NA	NA	41	NA	NA	NA
Phenol		NA	NA	NA	NA	6 (57)	NA	NA	NA
Pyrene		NA	NA	NA	NA	NA	7.5 (10)	NA	NA

TOXICITY DATA USED TO CALCULATE TERRESTRIAL REFERENCE VALUES
SITE 86 - ABOVEGROUND STORAGE TANK AREA
REMEDIAL INVESTIGATION, CTO-0303
MCAS, NEW RIVER, NORTH CAROLINA

Chemical	Substitute Chemical Used	Cattle (mg/kg/day)	Poultry (mg/kg/day)	Rabbit (mg/kg/day)	Dog (mg/kg/day)	Rat (mg/kg/day)	Mouse (mg/kg/day)	Guinea Pig (mg/kg/day)	Mink (mg/kg/day)
Aldrin		0.5 (24)	NA	NA	0.025 (77)	0.025 (77)	NA	NA	NA
Alpha-chlordane	(Chlordane)	1 (24)	2.14 (70) Blackbird	NA	0.075 (48)	0.055 (49)	NA	NA	NA
Gamma-chlordane	(Chlordane)	1 (24)	2.14 (70) Blackbird	NA	0.075 (48)	0.055 (49)	NA	NA	NA
Dieldrin		0.5 (24)	0.03 (71) Mallard	NA	0.005 (25)	0.005 (25)	NA	NA	NA
4,4'-DDD	(DDT)	NA	0.088 (DDT)	NA	NA	0.8 DDT	NA	NA	NA
4,4'-DDE		NA	0.088 (24) Quail	NA	NA	0.8 (47)	NA	NA	NA
4,4'-DDT		NA	0.088 (24) Quail	NA	NA	0.8 (47)	NA	NA	NA
Endosulfan		NA	10 (72) Partridge	NA	0.57 (26)	0.6 (26)	NA	NA	NA
Endosulfan I		NA	10 (72) Partridge	NA	0.57 (26)	0.6 (26)	NA	NA	NA
Endosulfan II	(Endosulfan)	NA	10 (72) Partridge	NA	0.57 (26)	0.6 (26)	NA	NA	NA
Endosulfan sulfate	(Endosulfan)	NA	10 (72) Partridge	NA	0.57 (26)	0.6 (26)	NA	NA	NA
Endrin		NA	0.3 (73) Mallard	NA	0.025 (27)	0.25 (28)	NA	NA	NA
Endrin aldehyde	(Endrin)	NA	0.3 (73) Mallard	NA	0.025 (27)	0.25 (28)	NA	NA	NA
Endrin ketone	(Endrin)	NA	0.3 (73) Mallard	NA	0.025 (27)	0.25 (28)	NA	NA	NA
Heptachlor		NA	NA	NA	NA	0.15 (45)	NA	NA	0.057 (29)
Heptachlor Epoxide		NA	NA	NA	0.000125 (24)	NA	NA	NA	NA
Aroclor-1221		NA	NA	NA	NA	3.5 (30)	NA	NA	NA
Aroclor-1232	(Aroclor-1242)	NA	0.41 (78) Owl	NA	NA	0.15 (31)	NA	NA	NA
Aroclor-1260		NA	NA	NA	NA	0.005 (32)	NA	NA	NA
Aroclor-1254		NA	0.18 (76) Pheasant	1 (75)	NA	NA	NA	NA	0.1 (50)
Aroclor-1248		NA	NA	0.28 (77)	NA	NA	0.13 (62)	NA	NA
Methylene chloride		NA	NA	NA	NA	5.85 (34)	NA	NA	NA
Carbon disulfide		NA	NA	1.1 (35)	NA	NA	NA	NA	NA
1,1-Dichloroethene		NA	NA	NA	NA	28 (59)	NA	NA	NA
1,2-Dichloroethene (total)		NA	NA	NA	NA	5 (44)	NA	NA	NA
Chloroform		NA	NA	NA	30 (36)	38 (37)	NA	NA	NA
2-Butanone		NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane		NA	NA	NA	NA	NA	1000 (38)	NA	NA
Trichloroethene		NA	NA	NA	NA	100 (39)	NA	NA	NA
1,1,2-Trichloroethane		NA	NA	NA	NA	NA	0.39 (40)	NA	NA
Benzene		NA	NA	NA	NA	0.1 (41)	NA	NA	NA
1,1,2,2-Tetrachloroethane		NA	NA	NA	NA	76 (85)	NA	NA	NA
Tetrachloroethene		NA	NA	NA	NA	1.4 (42)	NA	NA	NA
Toluene		NA	NA	NA	NA	22.3 (38)	NA	NA	NA
Ethylbenzene		NA	NA	NA	NA	9.71 (41)	NA	NA	NA
Xylenes		NA	NA	NA	NA	179 (43)	NA	NA	NA
Xylenes (total)		NA	NA	NA	NA	179 (43)	NA	NA	NA
Vinyl chloride		NA	NA	NA	NA	0.17 (83)	NA	NA	NA
Acetone		NA	NA	NA	NA	10 (46)	NA	NA	NA

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BODY WEIGHTS FOR TERRESTRIAL REFERENCE VALUE CALCULATION
SITE 86 - ABOVEGROUND STORAGE TANK AREA
REMEDIAL INVESTIGATION, CTO-0303
MCAS, NEW RIVER, NORTH CAROLINA

Body Weight (kg)		
Cattle	100	(IT Corp, 1992)
Whitetailed Deer	45.4	(Dee, 1991)
Bobwhite Quail	0.0174	(USEPA, 1993b)
Eastern Cottontail	1.2285	(USEPA, 1993b)
Lab Rat	0.35	(USEPA, 1988)
Lab Dog	10	(USEPA, 1988)
Poultry	0.5	(IT Corp, 1992)
Red Fox	4.535	(Storm et.al., 1976)
Racoon	5.12	(USEPA, 1993b)
Lab Mouse	0.03	(USEPA, 1988)
Guinea pig	0.86	(USEPA, 1988)
Mink	1	(USEPA, 1993b)
Mallard Duck	1	(Heinze et.al., 1989)
Short-tailed Shrew	0.017	(Schlesinger and Potter, 1974)
Americal Kestral	0.13	(Pattee, 1984)
Blackbird	0.064	(Stickel, 1983)
Pheasant	1	(USEPA, 1993b)
Ringed Dove	0.155	(Terres, 1980)
Screech Owl	0.181	(Dunning, 1984)
Partridge	0.4	(Abiola, 1992)

REGION IV TERRESTRIAL REFERENCE VALUE CALCULATION
SITE 86 - ABOVEGROUND STORAGE TANK AREA
REMEDIAL INVESTIGATION, CTO-0303
MCAS, NEW RIVER, NORTH CAROLINA

Chemical	Whitetailed Deer (mg/kg/day)	Bobwhite Quail (mg/kg/day)	Eastern Cottontail (mg/kg/day)	Red Fox (mg/kg/day)	Racoon (mg/kg/day)
Aluminum	6.51E+00 (ct)	3.06E+01 (bi)	1.16E+01 (rb)	1.95E+01 (dg)	3.48E-01 (mo)
Antimony	6.91E-03 (rt)	9.52E-02 (rt)	4.06E+00 (rb)	1.49E-02 (rt)	1.43E-02 (rt)
Arsenic	3.25E-01 (ct)	1.98E+01 (bi)	2.90E+00 (rb)	2.37E-02 (mo)	2.27E-02 (mo)
Barium	1.30E-01 (ct)	3.06E+00 (bi)	1.16E+00 (rb)	1.07E-01 (rt)	1.02E-01 (rt)
Beryllium	1.07E-01 (rt)	1.47E+00 (rt)	3.55E-01 (rt)	2.30E-01 (rt)	2.21E-01 (rt)
Cadmium	3.25E-03 (ct)	5.59E+00 (bi)	2.90E-02 (rb)	9.76E-02 (dg)	1.64E-03 (rt)
Chromium	6.51E+00 (ct)	1.53E+02 (bi)	5.80E+01 (rb)	1.03E+00 (rt)	9.86E-01 (rt)
Cobalt	6.51E-02 (ct)	1.53E+00 (bi)	5.80E-01 (rb)	3.75E-01 (rb)	3.61E-01 (rb)
Copper	6.51E-01 (ct)	4.59E+01 (bi)	1.16E+01 (rb)	7.80E+00 (mk)	7.49E+00 (mk)
Iron	6.51E+00 (ct)	1.53E+02 (bi)	2.90E+01 (rb)	1.88E+01 (rb)	1.80E+01 (rb)
Lead	1.95E-01 (ct)	7.52E+00 (bi)	1.74E+00 (rb)	3.41E+00 (rt)	3.27E+00 (rt)
Manganese	1.30E+00 (ct)	3.06E+02 (bi)	2.32E+01 (rb)	3.75E+00 (rt)	3.60E+00 (rt)
Mercury	1.30E-02 (ct)	3.06E-01 (bi)	1.20E-01 (rb)	1.36E-01 (rt)	1.31E-01 (rt)
Molybdenum	3.95E-03 (rt)	5.44E-02 (rt)	1.32E-02 (rt)	8.52E-03 (rt)	8.18E-03 (rt)
Nickel	3.25E-01 (ct)	4.59E+01 (bi)	2.90E+00 (rb)	3.25E+01 (dg)	2.05E+00 (rt)
Selenium	1.30E-02 (ct)	1.93E+00 (bi)	1.20E-01 (rb)	1.70E-02 (rt)	1.64E-02 (rt)
Silver	1.58E-02 (mo)	1.53E+01 (bi)	5.25E-02 (mo)	3.40E-02 (mo)	3.26E-02 (mo)
Thallium	4.54E-03 (rt)	6.26E-02 (rt)	1.51E-02 (rt)	9.79E-03 (rt)	9.40E-03 (rt)
Vanadium	3.25E-01 (ct)	4.39E+01 (bi)	5.80E-02 (rb)	2.77E-01 (rt)	2.66E-01 (rt)
Zinc	3.25E+00 (ct)	1.53E+02 (bi)	2.90E+01 (rb)	1.30E+00 (dg)	6.54E+01 (rt)
Cyanide	2.13E+00 (rt)	1.38E+01 (bi)	7.11E+00 (rt)	4.88E-01 (dg)	4.42E+00 (rt)
Acenaphthene	3.46E+00 (rt)	4.76E+01 (rt)	1.15E+01 (rt)	7.45E+00 (rt)	7.16E+00 (rt)
Acenaphthylene	3.46E+00 (rt)	4.76E+01 (rt)	1.15E+01 (rt)	7.45E+00 (rt)	7.16E+00 (rt)
Anthracene	8.71E+00 (mo)	1.20E+02 (mo)	2.90E+01 (mo)	1.88E+01 (mo)	1.80E+01 (mo)
Benzo(a)anthracene	8.71E-02 (mo)	1.20E+00 (mo)	2.90E-01 (mo)	1.88E-01 (mo)	1.80E-01 (mo)
Benzo(b)fluoranthene	8.71E-02 (mo)	1.20E+00 (mo)	2.90E-01 (mo)	1.88E-01 (mo)	1.80E-01 (mo)
Benzo(k)fluoranthene	8.71E-02 (mo)	1.20E+00 (mo)	2.90E-01 (mo)	1.88E-01 (mo)	1.80E-01 (mo)
Benzo(ghi)perylene	8.71E-02 (mo)	1.20E+00 (mo)	2.90E-01 (mo)	1.88E-01 (mo)	1.80E-01 (mo)
Benzo(g,h,i)perylene	8.71E-02 (mo)	1.20E+00 (mo)	2.90E-01 (mo)	1.88E-01 (mo)	1.80E-01 (mo)
Benzo(a)pyrene	8.71E-02 (mo)	1.20E+00 (mo)	2.90E-01 (mo)	1.88E-01 (mo)	1.80E-01 (mo)
beta-BHC	9.88E-01 (rt)	1.36E+01 (rt)	3.29E+00 (rt)	2.13E+00 (rt)	2.04E+00 (rt)
gamma-BHC	9.88E-01 (rt)	1.36E+01 (rt)	3.29E+00 (rt)	2.13E+00 (rt)	2.04E+00 (rt)
Bis(2-ethylhexyl)phthalate	4.89E-02 (gp)	2.30E+00 (bi)	1.63E-01 (gp)	1.05E-01 (gp)	1.01E-01 (gp)
Bis(2-chloroethyl)ether	NA	NA	NA	NA	NA
Butylbenzylphthalate	3.14E+00 (rt)	4.32E+01 (rt)	1.05E+01 (rt)	6.77E+00 (rt)	6.50E+00 (rt)
Carbazole	8.71E-02 (mo)	1.20E+00 (mo)	2.90E-01 (mo)	1.88E-01 (mo)	1.80E-01 (mo)
Chrysene	8.71E-02 (mo)	1.20E+00 (mo)	2.90E-01 (mo)	1.88E-01 (mo)	1.80E-01 (mo)
Dibenzofuran	8.71E-02 (mo)	1.20E+00 (mo)	2.90E-01 (mo)	1.88E-01 (mo)	1.80E-01 (mo)
Dibenzo(a,h)anthracene	8.71E-02 (mo)	1.20E+00 (mo)	2.90E-01 (mo)	1.88E-01 (mo)	1.80E-01 (mo)
Dibenz(a,h)anthracene	8.71E-02 (mo)	1.20E+00 (mo)	2.90E-01 (mo)	1.88E-01 (mo)	1.80E-01 (mo)
Diethylphthalate	3.99E+02 (mo)	5.50E+03 (mo)	1.33E+03 (mo)	8.60E+02 (mo)	8.26E+02 (mo)
2,4-Dimethylphenol	4.36E-01 (mo)	6.00E+00 (mo)	1.45E+00 (mo)	9.39E-01 (mo)	9.01E-01 (mo)
Di-n-butylphthalate	2.47E+01 (rt)	2.28E-01 (bi)	8.23E+01 (rt)	5.32E+01 (rt)	5.11E+01 (rt)
Di-n-octylphthalate	3.46E+00 (rt)	4.76E+01 (bi)	1.15E+01 (rt)	7.45E+00 (rt)	7.16E+00 (rt)
2,6-Dinitrotoluene	2.42E-01 (dg)	3.33E+00 (dg)	8.05E-01 (dg)	5.20E-01 (dg)	5.00E-01 (dg)
Fluoranthene	1.09E+00 (mo)	1.50E+01 (mo)	3.63E+00 (mo)	2.35E+00 (mo)	2.25E+00 (mo)
Fluorene	2.47E+00 (rt)	3.40E+01 (rt)	8.23E+00 (rt)	5.32E+00 (rt)	5.11E+00 (rt)
Indeno(1,2,3-cd)pyrene	8.71E-02 (mo)	1.20E+00 (mo)	2.90E-01 (mo)	1.88E-01 (mo)	1.80E-01 (mo)
2-Methylnaphthalene	8.10E+00 (rt)	1.12E+02 (rt)	2.70E+01 (rt)	1.75E+01 (rt)	1.68E+01 (rt)
Naphthalene	8.10E+00 (rt)	1.12E+02 (rt)	2.70E+01 (rt)	1.75E+01 (rt)	1.68E+01 (rt)
Nitrobenzene	4.94E-02 (rt)	6.80E-01 (rt)	1.65E-01 (rt)	1.06E-01 (rt)	1.02E-01 (rt)
N-Nitrosodiphenylamine	9.88E+00 (rt)	1.36E+02 (rt)	3.29E+01 (rt)	2.13E+01 (rt)	2.04E+01 (rt)
Phenanthrene	8.10E+00 (rt)	1.12E+02 (rt)	2.70E+01 (rt)	1.75E+01 (rt)	1.68E+01 (rt)
Phenol	1.19E+00 (rt)	1.63E+01 (rt)	3.95E+00 (rt)	2.55E+00 (rt)	2.45E+00 (rt)
Pyrene	6.53E-01 (mo)	8.99E+00 (mo)	2.18E+00 (mo)	1.41E+00 (mo)	1.35E+00 (mo)

REGION IV TERRESTRIAL REFERENCE VALUE CALCULATION
SITE 86 - ABOVEGROUND STORAGE TANK AREA
REMEDIAL INVESTIGATION, CTO-0303
MCAS, NEW RIVER, NORTH CAROLINA

Chemical	Whitetailed Deer (mg/kg/day)	Bobwhite Quail (mg/kg/day)	Eastern Cottontail (mg/kg/day)	Red Fox (mg/kg/day)	Racoon (mg/kg/day)
Aldrin	6.51E-01 (ct)	6.80E-02 (rt)	1.65E-02 (rt)	3.25E-02 (dg)	1.02E-02 (rt)
Alpha-chlordane	1.30E+00 (ct)	3.30E+00 (bi)	3.62E-02 (rt)	9.76E-02 (dg)	2.25E-02 (rt)
Gamma-chlordane	1.30E+00 (ct)	3.30E+00 (bi)	3.62E-02 (rt)	9.76E-02 (dg)	2.25E-02 (rt)
Dieldrin	6.51E-01 (ct)	1.16E-01 (bi)	3.29E-03 (rt)	6.51E-03 (dg)	2.04E-03 (rt)
4,4'-DDD	1.58E-01 (rt)	8.80E-02 (bi)	5.26E-01 (rt)	3.41E-01 (rt)	3.27E-01 (rt)
4,4'-DDE	1.58E-01 (rt)	8.80E-02 (bi)	5.26E-01 (rt)	3.41E-01 (rt)	3.27E-01 (rt)
4,4'-DDT	1.58E-01 (rt)	8.80E-02 (bi)	5.26E-01 (rt)	3.41E-01 (rt)	3.27E-01 (rt)
Endosulfan	1.19E-01 (rt)	2.84E+01 (bi)	3.95E-01 (rt)	7.42E-01 (dg)	2.45E-01 (rt)
Endosulfan I	1.19E-01 (rt)	2.84E+01 (bi)	3.95E-01 (rt)	7.42E-01 (dg)	2.45E-01 (rt)
Endosulfan II	1.19E-01 (rt)	2.84E+01 (bi)	3.95E-01 (rt)	7.42E-01 (dg)	2.45E-01 (rt)
Endosulfan sulfate	1.19E-01 (rt)	2.84E+01 (bi)	3.95E-01 (rt)	7.42E-01 (dg)	2.45E-01 (rt)
Endrin	4.94E-02 (rt)	1.16E+00 (bi)	1.65E-01 (rt)	3.25E-02 (dg)	1.02E-01 (rt)
Endrin aldehyde	4.94E-02 (rt)	1.16E+00 (bi)	1.65E-01 (rt)	3.25E-02 (dg)	1.02E-01 (rt)
Endrin ketone	4.94E-02 (rt)	1.16E+00 (bi)	1.65E-01 (rt)	3.25E-02 (dg)	1.02E-01 (rt)
Heptachlor	2.96E-02 (rt)	4.08E-01 (rt)	9.87E-02 (rt)	6.39E-02 (rt)	6.13E-02 (rt)
Heptachlor epoxide	7.55E-05 (dg)	1.04E-03 (dg)	2.51E-04 (dg)	1.63E-04 (dg)	1.56E-04 (dg)
Aroclor-1221	6.91E-01 (rt)	9.52E+00 (rt)	2.30E+00 (rt)	1.49E+00 (rt)	1.43E+00 (rt)
Aroclor-1232	2.96E-02 (rt)	8.95E-01 (bi)	9.87E-02 (rt)	6.39E-02 (rt)	6.13E-02 (rt)
Aroclor-1260	9.88E-04 (rt)	1.36E-02 (rt)	3.29E-03 (rt)	2.13E-03 (rt)	2.04E-03 (rt)
Aroclor-1254	2.80E-02 (mk)	6.95E-01 (bi)	1.00E+00 (rb)	6.47E-01 (rb)	6.21E-01 (rb)
Aroclor-1248	1.13E-02 (mo)	1.56E-01 (mo)	2.80E-01 (rb)	1.81E-01 (rb)	2.34E-02 (mo)
Methylene chloride	1.16E+00 (rt)	1.59E+01 (rt)	3.85E+00 (rt)	2.49E+00 (rt)	2.39E+00 (rt)
Carbon disulfide	3.30E-01 (rb)	4.55E+00 (rb)	1.10E+00 (rb)	7.12E-01 (rb)	6.84E-01 (rb)
1,1-Dichloroethene	5.53E+00 (rt)	7.61E+01 (rt)	1.84E+01 (rt)	1.19E+01 (rt)	1.14E+01 (rt)
1,2-Dichloroethene (total)	9.88E-01 (rt)	1.36E+01 (rt)	3.29E+00 (rt)	2.13E+00 (rt)	2.04E+00 (rt)
Chloroform	7.51E+00 (rt)	1.03E+02 (rt)	2.50E+01 (rt)	3.90E+01 (dg)	1.55E+01 (rt)
2-Butanone	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	8.71E+01 (rt)	1.20E+03 (rt)	2.90E+02 (rt)	1.88E+02 (rt)	1.80E+02 (rt)
Trichloroethene	1.98E+01 (rt)	2.72E+02 (rt)	6.58E+01 (rt)	4.26E+01 (rt)	4.09E+01 (rt)
1,1,2-Trichloroethane	3.40E-02 (mo)	4.68E-01 (mo)	1.13E-01 (mo)	7.32E-02 (mo)	7.03E-02 (mo)
Benzene	1.98E-02 (rt)	2.72E-01 (rt)	6.58E-02 (rt)	4.26E-02 (rt)	4.09E-02 (rt)
1,1,2,2-Tetrachloroethane	1.50E+01 (rt)	2.07E+02 (rt)	5.00E+01 (rt)	3.24E+01 (rt)	3.11E+01 (rt)
Tetrachloroethene	2.77E-01 (rt)	3.81E+00 (rt)	9.21E-01 (rt)	5.96E-01 (rt)	5.72E-01 (rt)
Toluene	4.41E+00 (rt)	6.06E+01 (rt)	1.47E+01 (rt)	9.49E+00 (rt)	9.12E+00 (rt)
Ethylbenzene	1.92E+00 (rt)	2.64E+01 (rt)	6.39E+00 (rt)	4.13E+00 (rt)	3.97E+00 (rt)
Xylenes	3.54E+01 (rt)	4.87E+02 (rt)	1.18E+02 (rt)	7.62E+01 (rt)	7.32E+01 (rt)
Xylenes (total)	3.54E+01 (rt)	4.87E+02 (rt)	1.18E+02 (rt)	7.62E+01 (rt)	7.32E+01 (rt)
Vinyl chloride	3.36E-02 (rt)	4.62E-01 (rt)	1.12E-01 (rt)	7.24E-02 (rt)	6.95E-02 (rt)
Acetone	1.98E+00 (rt)	2.72E+01 (rt)	6.58E+00 (rt)	4.26E+00 (rt)	4.09E+00 (rt)
2-Hexanone	NA	NA	NA	NA	NA

Note: The following abbreviations indicate which species was used to develop the TRV

(ct) = cattle
(rt) = rat
(bi) = bird
(gp) = guinea pig
(rb) = rabbit
(dg) = dog
(mo) = mouse
(mk) = mink

NA - No Data Available

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NOTE: Some of the references in this list are not specifically referenced in the proceeding table. This reference list also includes other toxicity values not used in the development of the terrestrial reference values.